IXYS
A Littelfuse Technology

Power Semiconductor
2020 - 2021 Product Catalog



A guide to selecting the right power semiconductor for your applications

About Littelfuse

Littelfuse products are vital components in applications that use electrical energy, from consumer electronics to vehicles and industrial facilities. Our history of innovation and technical expertise enable us to provide objective, comprehensive, and personalized customer solutions.

In 2018, Littelfuse acquired IXYS Corporation and created the IXYS: A Littelfuse Technology brand, which represents the company's comprehensive portfolio of advanced power semiconductor technologies, including silicon carbide and wide band gap solutions in discrete and module packages. These power semiconductor products make up one of the broadest portfolios used by power electronics design engineers today, consisting of rectifiers, fast diodes, MOSFETs, IGBTs, SSRs, and thyristors at various ratings in discrete outlines and in integrated power modules with the necessary driver IC devices.

IXYS: A Littelfuse Technology provides a core platform for serving a wide range of applications to improve power conversion efficiency, generate clean energy, power data and communications networks, control motors, facilitate automation, improve medical equipment, and electrify transportation from bikes to cars to buses to trains to ships. Littelfuse power semiconductors are relied upon in the most strenuous environments on the planet.

From a technology standpoint, the integration of IXYS and Littelfuse portfolios creates a rare broad base supplier of high quality power semiconductors. Not only has Littelfuse taken steps, such as its IXYS acquisition, to reinforce its footprint in the power semiconductor industry, it has also invested heavily in the development and commercialization of emerging technologies such as silicon carbide. In 2015, Littelfuse invested in and later acquired Monolith Semiconductor Inc., a Texas-based start-up company developing silicon carbide power devices for broad application usage. This technology adds another key option for power electronics designers to optimize their designs for energy efficiency, power density, and reduced system level costs.

Littelfuse boasts a proud track record of customer satisfaction, manufacturing excellence, and stable growth; much of which can be traced to deep roots as a world leader in circuit protection. Having the determination to integrate such important capabilities in power semiconductor technology demonstrates why Littelfuse is, and will continue to be, an industry innovator and high service supplier for its power electronics customers.

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Certified Management Systems

IXYS Milpitas USA	**ISO 9001:2015**	Quality Management System
IXYS Beverly USA	**ISO 9001:2015**	Quality Management System
IXYS Lampertheim Germany	**IATF 16949:2016 (includes ISO 9001:2015)**	Quality Management System IATF 16949:2016
	DIN EN ISO 14001:2015	Environmental Management System
	OHSAS 18001:2007	Occupational Safety Assessment System
	DIN EN ISO 50001:2011	Energy Management System
IXYS Chippenham UK	**ISO 9001:2015**	Quality Management System
	EN ISO 14001:2015	Environmental Management System

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Symbols and Terms

a	Acceleration
BV_{CES}	Collector emitter breakdown voltage
BV_{DSS}	Drain source breakdown voltage
C_{ies}, C_{iss}	Input capacitance
C_{oes}, C_{oss}	Output capacitance
C_{res}, C_{rss}	Reverse transfer (Miller) capacitance
d	Duty cycle
d_A	Strike distance through air
di/dt, $-di/dt$	Rate of change of current
$(di/dt)_{cr}$	Critical rate of rise of current
di_F/dt, $-di_F/dt$	Rate of change of forward current
d_S	Creep distance on surface
dv/dt	Rate of rise of voltage
$(dv/dt)_{cr}$	Critical rate of rise of voltage
E_{AR}	Repetitive avalanche energy
E_{AS}	Non-repetitive avalanche energy
E_{off}	Turn-off energy per pulse
E_{on}	Turn-on energy per pulse
$E_{rec(off)}$	Reverse recovery losses at turn-off
$F_{(mounting)}$	Required force to mount hole-less discretes on heat sink
g_{fs}	Forward transconductance
I_{AR}	Repetitive avalanche current
I_{AVM}	Maximum average forward current
I_{BO}	Breakover current
$I_{C(on)}$	Short circuit current
I_C	Collector current
I_{C25}	Continuous DC collector current at $T_C = 25°C$
I_{C90}	Continuous DC collector current at $T_C = 90°C$
I_{CES}	Collector emitter leakage current
I_{CM}	Maximum pulsed collector current
I_D	Drain current
I_{DD}	Module supply current, operating mode
I_{DD0}	Module supply current, standby mode
$I_{D(cont)}$	Continuous drain current
I_{D25}	Continuous drain current at $T_C = 25°C$
I_{DAV}	Average DC output current
$I_{D(AV)M}$	Maximum average DC output current
I_{DM}	Maximum pulsed drain current
I_{DRM}	Maximum repetitive off-state current
$I_{D(RMS)}$	RMS output current
I_{DSS}	Drain source leakage current
I_F, I_T	Forward current

I_{FM}	Maximum forward current
I_{FAV}	Average forward current
$I_{F(AV)M}$, $I_{T(AV)M}$	Maximum average forward current
I_{FLT}	Sink current of fault terminal
I_{FRM}	Maximum repetitive forward current
$I_{F(RMS)}$, $I_{T(RMS)}$	RMS forward current
I_{FSM}, I_{TSM}	Maximum surge forward current
I_G, I_{GT}	Trigger gate current
I_{GD}	Non-trigger gate current
I_{GES}	Gate emitter leakage current
I_H	Holding current
$I_{IN(H)}$	Signal input current (high level)
$I_{IN(L)}$	Signal input current (low level)
I_{ISOL}	RMS current for isolation test
I_L	Latching current
I_R	Reverse current
I_{RM}	Maximum reverse recovery current
I_{RMS}	RMS current
I_{RRM}	Maximum repetitive reverse current
I_S	Continuous source current
I_{SM}	Maximum pulsed source current
I^2t	I^2t value for fusing
I_{TSM}	Maximum surge on-state current
K_f	Characteristic factor
K_p	Coeff. for energy per pulse Ep (material constant)
K_T	Temperature coefficient of VBO
L	Series stray inductance
M_d	Mounting torque
P_C	Collector power dissipation
P_D	Power dissipation
P_{GAV}	Average gate power dissipation
$P_{G(AV)M}$	Maximum average gate power dissipation
P_{GM}	Maximum gate power dissipation
P_{RSM}	Maximum surge reverse power dissipation
P_T, P_{tot}	Total power dissipation
Q_g	Total gate charge
Q_{gc}	Gate collector (Miller) charge
Q_{gd}	Gate drain (Miller) charge
Q_{ge}	Gate emitter charge
Q_{gs}	Gate source charge
Q_r	Reverse recovery charge
Q_{RM}	Reverse recovery charge (intrinsic diode)
Q_S	Recovered charge to IRM

Symbols and Terms

RBSOA	Reverse Bias Safe Operating Area
$R_{DS(on)}$	Static drain source on resistance
R_{FI}	Radio frequency interference (= EMI)
R_G	Gate resistance
R_{GE}	Gate emitter resistance
r_T	Slope resistance (for power loss calculation only)
R_{thCK}, R_{thCH}	Thermal resistance case to heatsink
R_{thJA}	Thermal resistance junction to ambient
R_{thJC}	Thermal resistance junction to case
R_{thJK}, R_{thJH}	Thermal resistance junction to heatsink
R_{thJS}	Thermal resistance junction to heatsink
R_{thJW}	Thermal resistance junction to water
R_{thKA}	Thermal resistance heatsink to ambient
SCSOA	Short Circuit Safe Operating Area
T_{amb}, T_A	Ambient (cooling medium) temperature
T_C, T_{case}	Case temperature
$t_{d(off)}$	Turn-off delay time
$t_{d(on)}$	Turn-on delay time
t_{fi}	Current fall time (inductive load)
t_{fr}	Forward recovery time
t_{FLT}	Overcurrent or short circuit trip delay time
t_{gd}	Gate controlled delay time
T_J, T_{VJ}	Virtual junction temperature
T_{JM}, T_{VJM}	Maximum virtual junction temperature
T_K, T_H, T_S	Heatsink temperature
T_L	Lead temperature
$T_{S(max)}$	Maximum allowable heatsink temperature
T_{stg}	Storage temperature
t_P	Pulse time
t_q	Turn-off time
t_r	Current rise time
t_{rr}	Reverse recovery time
t_{rv}	Rise time of collector emitter voltage
t_{SC}	Short circuit duration
V_{BO}	Breakover voltage
V_{CE}	Collector emitter voltage
$V_{CE(sat)}$	Collector emitter saturation voltage
$V_{CE(sat)FLT}$	Collector emitter saturation voltage to indicate fault
V_{CEK}	Collector emitter clamp voltage on chip level
V_{CES}	Collector emitter voltage
V_{CGR}	Collector gate voltage
V_{DD}	Module supply voltage
$V_{DD\ FLT}$	Module supply voltage without fault
V_{DGR}	Drain gate voltage
V_{DRM}	Maximum repetitive forward blocking voltage
V_{DS}	Drain source voltage
V_{DSM}	Max. non-repetitive forward blocking voltage
V_{DSS}	Drain source breakdown voltage
Version	Various construction designs of products
V_F	Forward voltage
V_{FLT}	Voltage at fault terminal
V_{FR}	Forward recovery voltage
V_{GD}	Gate non-trigger voltage
V_{GE}	Gate emitter voltage
$V_{GE(th)}$	Gate emitter threshold voltage
V_{GEM}	Maximum transient collector gate voltage
V_{GES}	Maximum DC gate voltage
V_{GS}	Gate source voltage
$V_{GS(th)}$	Gate threshold voltage
V_{GSM}	Maximum transient gate source voltage
V_{GT}	Gate trigger voltage
V_H	Holding voltage
V_{IN}	Input control voltage
$V_{IN(H)}$	Input voltage threshold for IGBT turn-on
$V_{IN(L)}$	Input voltage threshold for IGBT turn-off
V_{ISOL}	Isolation voltage
V_R	Reverse voltage
V_{RES}	Input voltage threshold for Reset = active
V_{RGM}	Maximum reverse gate voltage
V_{RRM}	Maximum repetitive reverse voltage
V_{RSM}	Maximum non-repetitive reverse voltage
V_{SD}	Forward voltage drop
V_T	Forward voltage
V_{T0}	Threshold voltage (for power loss calculation)
Z_{thJC}	Transient thermal impedance junction to case
Z_{thJK}, Z_{thJH}	Transient thermal impedance junction to heatsink

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Life support applications
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Nomenclature

Capsule devices - excluding IGBT's

W 0646 W C 15 0

Device type

W	Rectifier diode
M	Fast/soft recovery diode
F	Extra fast diode
E	HP Sonic-FRD™
N	Phase control thyristor
R	Distributed gate thyristor
P	Fast turn-off thyristor
K	Medium voltage thyristor
A	Asymmetric thyristor
S	Symmetrical gate turn-off thyristor
H	Fast symmetrical gate turn-off thyristor
G	Asymmetric gate turn-off thyristor
Y	Pulse Thyristor

0646
*

Device nominal current rating

For devices exceeding 9999 Amperes, digit 5 of the part number changes to C (x100)

Electrode diameter

W	19mm
Y	25mm
K	29mm
J	32mm
L	34mm
Q	38mm
D	44mm ('B' thickness only), 110mm
N	47mm
M	50mm
P	57mm
V	63mm
H	66mm/68mm
Z	73mm
T	75mm
E	85mm
F	99mm
G	125mm

t_q Code			
0	No code		
A	10	M	70
B	12	N	100
C	15	P	120
D	20	R	140
E	25	S	160
F	30	T	200
G	35	V	250
H	40	W	300
J	50	X	400
K	60	Y	500
L	65	Z	1000

Housing type *(electrode diameter in brackets)*

A	26mm reverse build
B	8mm (D)
C	Standard outline - 14mm (W, Y), 16mm (K), 26mm (L, Q, M, T, E), 26.5mm (N), 33mm (V), 36mm (F, G), 37mm (Z)
D	21mm (N), 24mm (V, Z), 26mm (F, G)
E	35mm inverse build (T, M, Q, E)
F	19.5mm (L), 26mm (K, N, V), 35mm (6.5kV Sonic diode)
G	35mm (L, N)
H	14mm (N), 26mm (Y)
J	19.5mm (N), 25.8mm (V), 26mm (T)
K	Wespack 14.5mm (J, Q, M, H)
L	Wespack 26mm (Q, M)
M	Wespack 33mm (H)
N	14mm (W, Y), 26mm (L)
R	Wespack 14mm (Q), 26mm (N)

V_{RRM} % of V_{DRM} for GTO's (S and H types only)	
0	100%
D	80%
Y	100 V

15 ***Voltage grade - V_{RRM}, VDRM/100***

Special code

0	t_q code (thyristors), V_{RRM} % of V_{DRM} for Gate turn-off thyristors - See relevant tables
P	PIN diode (Product groups: W, M, F, E)
R	Rotating package (N, K, W)
A	Avalanche rated diode (W)

Nomenclature

PRESS-PACK IGBT CAPSULE DEVICES

T 0240 N B 45 E

Device type

T Press-pack IGBT

0240 ***Device pulse current rating***

Electrode diameter

Q	38mm
N	47mm
V	63mm
H	66mm
T	75mm
E	85mm
A	96mm
D	110mm
G	125mm
B	132mm

Die series

B
D
F

45 ***Voltage grade - V_{RRM}/100***

Build description for multiple square die

A	Reverse conducting
E	Asymmetric
G	Reverse Conductiing (IGBT to diode ratio of 2:1)

STUD DEVICES

W 0508 S A 04 0

Device type

W	Rectifier diode
M	Fast/Soft recovery diode

N	***Phase control thyristor***
P	Fast turn-off thyristor
S	***Symmetrical Gate turn-off thyristor***

0508 Device nominal current rating

Device polarity

S	Stud Anode
R	Stud Cathode

Package

A	***3/4" stud glass/metal***
C	3/4" stud ceramic
E	3/4" HV ceramic stud with lug
F	3/4" HV ceramic stud

H	***1/2" ceramic stud***
J	1/2" ceramic stud with flag
L	M12 stud ceramic with lug

M	***3/8" stud ceramic***
R	M20 stud ceramic with lug & gate leads

04 Voltage grade - V_{RRM}, V_{DRM}/100

0 t_q code - See table for relevant code

All IXYS UK stud devices are available with or without leads, sleeving and nuts and washers

Please add one of the following three-letter codes, based on what options are required, to the end of the part number when ordering

000 – Leaded stud, no sleeving, no nuts and washers supplied

S0L - Leaded stud, with standard* sleeving, nuts and washers supplied loose

00L - Leaded stud, no sleeving, nuts and washers supplied loose

NLL - Non-leaded stud, nuts and washers supplied loose (Applies also to devices with flag/tag terminal)

S0F - Leaded stud, with standard* sleeving, nuts and washers fitted

00F - Leaded stud, no sleeving, nuts and washers fitted

NLF - Non-leaded stud, nuts and washers fitted (Applies also to devices with flag/tag terminal)

S00 - Leaded stud, with standard* sleeving, no nuts and washers supplied

NLS - Non-leaded stud, no nuts and washers fitted (Applies also to devices with flag/tag terminal)

* - Standard sleeving means the following
Red for all thyristor studs
Blue for 'S' polarity diode studs
Red for 'R' polarity diode studs

New Nomenclature

- **Valid only for products from IXYS / Littelfuse Lampertheim**
- **Usage for new technologies, chips, packages and/or groups**
- **Newer data sheets contain description of part number**

Index	0	1	2	3	Value 1	4	5	Value 2	6 (a-c)	6 d	7	8		9
Example 1	**M**	**I**	**X**	**G**	**120**	**W**		**1200**	**DPF**	**T**	**E**	**H**	**-**	**PC**
Example 2		**I**	**X**	**A**	**40**	**P**	**G**	**1200**	**DHG**		**L**	**B**	**-**	**TUB**
Example 3		**C**	**M**	**A**	**20**	**E**		**1600**			**P**	**Z**	**-**	**TRL**

Index	
0	M = Module; no letter for discretes
1	Kind of main chip C = SCR, D = Diode, I = IGBT, M = MosFET
2	Chip technology
3	Chip generation resp. precisely defined technology
Value 1	Current rating
4	Basic circuit
5	Precisely defined circuit
Value 2	Voltage rating
6 (a-c)	as Index 1-3; usage e.g. for special chips like SiC
6 d	Specials (e.g.: thermistor)
7	Basic package
8	Precisely defined package
Hyphen	-
9	Extras: e.g. delivery formats, auxiliaries

Examples for Indices

Index 1 & 2	Description	detailled
CL	High Efficiency Thyristor	up to 1200V
CM	Thyristor	up to 1800V
CN	High Voltage Thyristor	≥ 2000V
DF	FRED	Gold
DH	Sonic Fast Recovery Diode	Helium
DL	Low Voltage Standard Rectifier	up to 1200V
DM	Standard Rectifier	up to 1800V
DN	High Voltage Standard Rectifier	≥ 2000V
DP	HiPerFRED™	Platinum
DS	Schottky Diode	2nd generation
IG	IGBT	PT (Punch Through)
IT	IGBT	Trench
IX	IGBT	XPT
MK	Superjunction MOSFET	Powered by Infineon CoolMOS™ bare die
MT	MOSFET	Trench

Examples for Indices

Index 4	Description	detailled	Index 4 & 5
A	Common anode/ emitter/ source	, Thyristor/Diode	AD
B	1~ Rectifier Bridge	, half-controlled (high side)	BH
C	Common cathode/ collector/ drain	, Thyristor/Diode	CD
E	Single Part	+ multiple cathode pins	EM
H	H~ Bridge	+ 1~ Rectifier Bridge	HD
I	Single Part	, Copack	IF
M	AC-Controlling	/ Triac	MT
P	Phase leg	, high-side Thyristor / low-side Diode	PD
Q	Buck Chopper	with series connected dice	QS
R	Boost/Brake Chopper	+ free wheeling diode + Vcesat-Diode	RG
S	Brake Chopper (Rating IGBT >> Rating Diode)	+ free wheeling diode	SF
U	3~ Rectifier Bridge	+ Brake unit	UB
W	6-Pack	+ 3~ Rectifier Bridge & Brake Unit	WB
X	Parallel legs	, anti-parallel	XA
Y	Half 3~ Bridge	, Common anode	YA

Index 7 & 8 Discretes	Description	Index 7 & 8 Discretes	Description
FA	i4-Pac (3sym)	NB	SOT-227UI (minibloc)
FB	i4-Pac (3HV)	PA	TO-220AC (2)
FC	i4-Pac (5)	PB	TO-220AB (3)
FD	i4-Pac (5HC)	PC	TO-263AB (D2Pak) (2)
FE	i4-Pac (2HV)	PJ	ISOPLUS220AB (3)
HA	TO-247AD (2)	PM	TO-220ACFP (2)
HB	TO-247AD (3)	PN	TO-220ABFP (3)
HF	PLUS247 (3)	PZ	TO-263AB (D2Pak) (2HV)
HI	ISOPLUS247 (2)	QB	TO-3P (3)
HJ	ISOPLUS247 (3)	TC	TO-268AA (D3Pak) (2)
HR	ISO247 (3)	TZ	TO-268AA (D3Pak) (2HV)
IB	TO-262 (I2Pak) (3)	UC	TO-252AA (DPak)
LB	SMPD-B	UZ	TO-252AA (DPak) (2HV)
NA	SOT-227B (minibloc)		

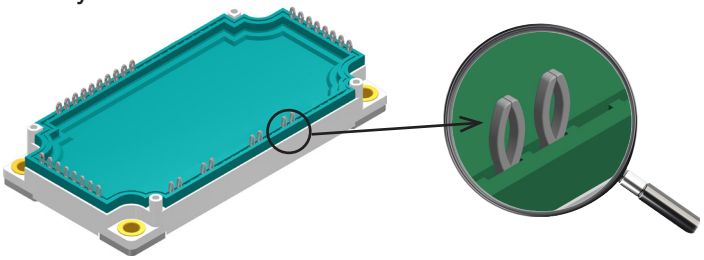
Index 7 & 8 Modules	Description	Index 7 & 8 Modules	Description
CA	ComPack	TA	TO-240AA-1B
CB	ComPack	TB	TO-240AA-1B
CC	ComPack	TG	TO-240AA-1B
ED	E2-Pack	VA	V1-A-Pack
EH	E3-Pack	VC	V1-B-Pack
KA	Y1-CU	VH	V2-Pack
KB	Y1-CU	YA	Y4-M6
KC	Y1-CU	YB	Y4-M6
SF	Simbus F	YD	Y4-M6

Index 6 d	Specials	Index 9	Packaging
P	PressFit-Pin	NI	No Metal Inserts
PT	PressFit-Pin + Thermistor	PC	Phase Change Material
PST	PressFit-Pin + Shunt + Thermistor	TRL	Tape & Reel Left
S	Shunt	TRR	Tape & Reel Right
T	Thermistor	TUB	Tube

Pressfit Pin PACKAGES

Pressfit Pin for E2, E3 and SimBus F Module Packages

IXYS presents a new Press-Fit-Pin for E2 and E3 module packages. Modules equipped with those pins can be connected to the PCB without a further solder process. For the pressing process either hand tools or pressing machines can be used. Benefits for the assembly are:



- simplified process
- reduced mounting time
- no risk of bad solder contacts
- reduced aging of pin contact
- no thermal stress for the PCB assembly
- press out possible for maintenance

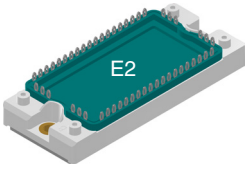
The pin concept is based on the proven „Bizon“-Pin concept.
Pressing process is a plastic deformation of pin and via of the board ending in a cold welding.
Pin features are:

- Pin concept based on successfully proven „Bizon“-Pin concept
- Pin qualification according to IEC 60352-5
- High conductive Cu alloy with Ni / gal. Tin surface
- Very low contact resistance
- Low press-in force per pin and PCB hole diameter independent press-out force
- Press-Fit-Pin usable for PCB‘s designed for competitor devices

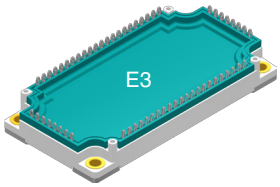
Started with the following modules types:

Pin configuration see Data Sheets

Board and Via Requirements E2 and E3			
	min.	**typical**	**max.**
Drill hole diameter		2.35 mm	
Final hole diameter	2.14 mm	2.20 mm	2.29 mm
Cu thickness inside the hole	>25 µm		
Sn thickness inside the hole			<15 µm
Cu thickness for PCB tracks	35 µm	70 µm 105 µm	
PCB thickness	1.60 mm	2.00 mm	
Metallization PCB	chem. Tin		
Board and Via Requirements SimBus F			
	min.	**typical**	**max.**
Drill hole diameter		1.16 mm	
Final hole diameter	1.00 mm	1.05 mm	1.10 mm
Cu thickness inside the hole	>25 µm		
Sn thickness inside the hole			<15 µm
Cu thickness for PCB tracks	35 µm	70 µm 105 µm	
PCB thickness	1.60 mm	2.00 mm	
Metallization PCB	chem. Tin		



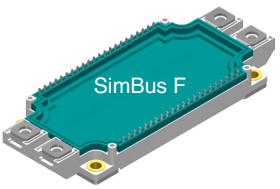
MCMA 240UI1600PED
MDMA 210UB1600PTED
MDMA 280UB1600PTED
MDMA 360UB1600PTED



MIXG 120W1200PTEH
MIXG 180W1200PTEH
MIXG 240W1200PTEH

MDMA 450U1600PTEH
MDMA 660U1600PTEH
MDMA 900U1600PTEH
MDNA 660U2200PTEH

MUBW 50-17T8-PFPC
MUBW 75-17T8-PFPC

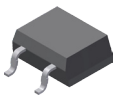


MDMA 600P1600PTSF
MDNA 600P2200PTSF
MCNA 360PD2200PTSF
MCMA 400PD1600PTSF
MCNA 500PD2200PTSF
MCMA 550PD1600PTSF

MCNA 360P2200PTSF
MCMA 400P1600PTSF
MCNA 500P2200PTSF
MCMA 550P1600PTSF

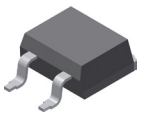
High Voltage TO-252 (D-Pak) package

✓ **improved pin spacing** (no middle pin)
✓ **creepage distance pins to copper of backside:** 2.5 mm for new packages

Type ➢ New	Technology	Config.	V_{RRM} V	I_{FAV} / I_D A	@ T_C °C	Package style Outline drawings on pages O-36...O-59
Diode						X004a **TO-252AA**  Creepage (min): pin/pin: 3.6 mm pin/Cu back-side: 2.5 mm
DMA 10IM1200UZ	Standard diode	Single	1200	10	150	
DMA 10IM1600UZ			1600			
DMA 10P1200UZ		Phase Leg	2x 1200	10	150	
DMA 10P1600UZ			2x 1600			
Sonic Diode						
➢ **DHG 10IM1800UZ**	Fast Recovery Diode	Single	1800	10	100	
MOSFET						
➢ **IXTY 1R4N120PHV**	Standard MOSFET	Single	1200	1.4	25	

High Voltage TO-263 (D^2-Pak) package

✓ **improved pin spacing** (no middle pin)
✓ **creepage distance pins to copper of backside:** 4.7 mm for new TO-263ABHV package

Type ➢ New	Technology	Config.	V_{RRM} V	I_{FAV} / I_D A	@ T_C °C	Package style Outline drawings on pages O-36...O-59
Diode						X011c **TO-263ABHV** 
DMA 10IM1600PZ	Standard diode	Single	1600	10	150	
DMA 30IM1600PZ			1600	30	140	
DNA 30E2200PZ			2200	30	140	
DNA 30EM2200PZ			2200	30	140	
DMA 10P1600PZ		Phase Leg	2x 1600	10	150	
DMA 10P1800PZ			2x 1800	10	150	
DAA 10EM1800PZ	Avalanche diode	Single	1800	10	150	
DAA 10P1800PZ		Phase Leg	2x 1800	10	150	
FRED / HiPerFRED						
DSEI 12-12AZ	FRED	Single	1200	11	100	
DSEP 12-12AZ	HiPerFRED			12	135	
DSEP 12-12BZ				15	130	
SiC Diodes						
➢ **LSIC2SD065D06A**	Schottky Barrier Diode	Single	650	6	152	
➢ **LSIC2SD065D08A**				8	150	
➢ **LSIC2SD065D10A**				10	147	
➢ **LSIC2SD065D16A**				16	140	
➢ **LSIC2SD065D20A**				20	135	
LSIC2SD120D10			1200	10	151	
LSIC2SD120D15				15	150	
LSIC2SD120D20				20	150	

High Voltage TO-263 (D^2-Pak) package

✓ **improved pin spacing** (no middle pin)
✓ **creepage distance pins to copper of backside:** 4.7 mm for new TO-263ABHV package

Type 1) two gate polarities for trigger 2) Anode gated	Technology	Config.	V_{RRM} V	I_{FAV}/I_D A	@ T_C °C	Package style Outline drawings on pages O-36...O-59
Thyristor						
CLA 5E1200PZ	High Efficiency SCR	Single	1200	5	135	
1) **CLA 15E1200NPZ**				15	120	
1) **CLA 30E1200NPZ**				30	115	
2) **CLB 30I1200PZ**				30	115	
1) **CLA 40E1200NPZ**				40	125	
2) **CLB 40I1200PZ**				40	125	
CMA 20E1600PZ	Standard Thyristor	Single	1600	20	115	
CMA 30E1600PZ				30	115	
CME 30E1600PZ	Fast Thyristor	Single	1600	30	80	
Triac						
CLA 30MT1200NPZ	High Efficiency	Triac	1200	15	120	
CLA 40MT1200NPZ				20	115	
Triode (Reverse Conducting Thyristor)						
CLA 20EF1200PZ	High Efficiency	Single	1200	20	115	

Type ✧ under development ➢ New	Technology	Config.	V_{CES} V	I_{C25} A	V_{CEsat} typ. V
IGBT & BiMOS					
✧ **IXA 4IF1200PZ**	XPT™ IGBT	Copack	1200	9	1.8
IXA 20I1200PZ		Single		38	1.8
IXYA 20N120C3HV	Fast XPT™ IGBT	Single	1200	40	3.4
IXYA 20N120A4HV	GenX4™ XPT™ IGBT	Single	1200	80	1.7
➢ **IXYA 20N120B4HV**				76	1.8
➢ **IXYA 20N120C4HV**				68	2.1
IXYA 30N120A4HV				106	1.6
IXYA 8N250CHV	High Voltage XPT ™IGBT	Single	2500	29	3.4
IXYA 12N250CHV				28	3.7
IXGA 20N250HV	High Voltage NPT IGBT	Single	2500	30	3.1
IXBA 16N170AHV	High Voltage BiMOS	Single	1700	16	6.0
IXBA 10N300HV			3000	34	2.8
IXBA 14N300HV				38	2.7

Type	Technology	Config.	V_{DSS} V	I_{D25} A	R_{DSon} max. W
MOSFET					
IXFA 8N85XHV	X-Class HiPerFET™	Single	850	8	0.85
IXFA 14N85XHV				14	0.55
IXFA 20N85XHV				20	0.33
IXTA 08N100D2HV	Depletion Mode MOSFET	Single	1000	0.8	21.0
IXTA 3N100D2HV				3.0	6.0
IXTA 05N100HV	High Voltage MOSFET	Single	1000	0.75	17.0
IXTA 3N120HV		Single	1200	3.0	4.5
IXTA 3N150HV		Single	1500	2.0	7.3
IXTA 4N150HV				4.0	6.0
IXTA 1N200P3HV		Single	2000	1.0	40.0
IXTA 02N250HV		Single	2500	0.2	450

X011c **TO-263ABHV**



Creepage (min):

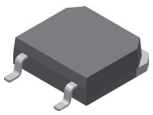
pin/pin: 4.2 mm
pin/Cu back-side: 4.7 mm

For more details see outline drawings

High Voltage TO-268 (D^3-Pak) package

✓ **improved pin spacing** (no middle pin)
✓ **creepage distance pins to copper of backside:** 5.8 mm for new packages

Type ➢ New	Technology	Config.	V_{CES} / V_{DSS} V	I_{C25} / I_{D25} A	V_{CEsat} typ. V	R_{DSon} max. (m)Ω	Package style Outline drawings on pages O-36...O-59
IGBT							
IXYT 30N65C3H1HV	GenX3™ XPT™ IGBT	Single	650	60	2.7	-	
IXYT 20N120C3D1HV			1200	36	3.4	-	
➢ **IXYT 40N120A4HV**	GenX4™ XPT™ IGBT	Single	1200	150	1.8	-	
➢ **IXYT 55N120A4HV**				175	1.5	-	
➢ **IXYT 85N120A4HV**				300	1.5	-	
IXYT 12N250CV1HV	High Voltage XPT™ IGBT	Single	2500	28	3.7	-	
IXYT 25N250CHV				95	4.0	-	
IXYT 30N450HV			4500	60	3.9	-	
IXGT 25N250HV	High Voltage NPT IGBT	Single	2500	60	2.9	-	
IXBT 16N170AHV	High Voltage BIMOS	Single	1700	16	6.0	-	
IXBT 22N300HV			3000	60	2.7	-	
IXBT 32N300HV				80	2.8	-	
IXBT 42N300HV				104	3.0	-	
IXBT 16N360HV			3600	48	2.5	-	
IXBT 20N360HV				70	3.4	-	
MOSFET							
IXTT 140N075L2HV	Linear MOSFET	Single	75	140	-	(11)	X019a **TO-268AAHV**
➢ **IXTT 44N25L2HV**			250	44		(75)	
IXTT 440N04T4HV	TrenchT4™ MOSFET	Single	40	440	-	(1.25)	
➢ **IXFT 26N100XHV**	X-class HiPerFET™	Single	1000	26	-	(320)	
➢ **IXFT 32N100XHV**				32	-	(220)	
IXTT 34N65X2HV	X2-class MOSFET	Single	650	34	-	(96)	
IXFT 60N65X2HV	X2-class HiPerFET™	Single	650	60	-	(52)	
IXFT 80N65X2HV				80	-	(38)	
IXFT 30N85XHV			850	30	-	(230)	
IXFT 40N85XHV				40	-	(145)	
IXFT 50N85XHV				50	-	(105)	
IXFT 140N20X3HV	X3-class HiPerFET™	Single	200	140	-	(96)	
IXFT 180N20X3HV				180	-	(75)	
IXFT 220N20X3HV				220	-	(62)	
IXFT 120N25X3HV			250	120	-	(120)	
IXFT 150N25X3HV				150	-	(90)	
IXFT 170N25X3HV				170	-	(74)	
IXFT 100N30X3HV			300	100	-	(135)	
IXFT 120N30X3HV				120	-	(110)	
IXFT 150N30X3HV				150	-	(83)	
➢ **IXTT 240N15X4HV**	X4-class MOSFET	Single	150	240	-	(4.4)	
IXTT 4N150HV	High Voltage MOSFET	Single	1500	4	-	6	
IXTT 12N150HV				12	-	2	
IXTT 3N200P3HV			2000	3	-	8	
IXTT 1N250HV			2500	1.5	-	40	
IXTT 1N300P3HV			3000	1	-	50	
IXTT 2N300P3HV				2	-	21	
IXTT 02N450HV			4500	0.2	-	625	
IXTT 1N450HV				1	-	80	
➢ **MCB 60I1200TZ**	SiC Power MOSFET	Single	1200	90	-	(34)	



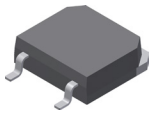
Creepage (min):

pin/pin: 9.4 mm
pin/Cu back-side: 5.8 mm

For more details see outline drawings

High Voltage TO-268 (D^3-Pak) package

✓ **improved pin spacing** (no middle pin)
✓ **creepage distance pins to copper of backside:** 5.8 mm for new packages

Type ➢ New	Technology	Config.	V_{RRM} V	I_{DAV} / I_{TAV} A	@ T_C °C	Package style Outline drawings on pages O-36...O-59
Rectifier						X019a **TO-268AAHV**
➢ **DSEI 120-12AZ**	FRED	Single	1200	109	60	
DSEP 60-12AZ	HiPerFRED	Single	1200	60	115	
DSEP 90-12AZ	HiPerFRED	Single	1200	90	105	
DSP 45-12AZ	Standard diode	Phase leg	2x 1200	45	130	
DSP 45-16AZ			2x 1600	45	130	
➢ **DLA 100IM1200TZ**			1200	100	105	Creepage (min):
CLA 60MT1200NTZ	High Efficiency	Triac	1200	30	120	pin/pin: 9.4 mm pin/Cu back-side: 5.8 mm
CMA 50E1600TZ	Standard Thyristor	Single	1600	50	110	
➢ **CLA 100E1200TZ**			1200	100	105	For more details see outline drawings
CNE 60E2200TZ	High Voltage Thyristor		2200	60	80	

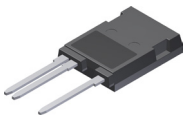
High Voltage TO-247HV and PLUS247HV packages

✓ improved pin spacing for high potential
✓ creepage distance pins to copper of backside: > 5.7 mm
✓ creepage distance between high voltage pins (collector/emitter or drain/source): > 7.0 mm

Type	Technology	V_{CES} / V_{DSS} V	I_{C25} / I_{D25} (I_{C110}) A	V_{CEsat} typ. V	w /Diode	$R_{DS(on)}$ max. Ω	Fig. No.	Package style Outline drawings on pages O-36...O-59
IXYH 8N250CHV	XPT™ IGBT	2500	(8)	4.0		-	X014c	
IXYH 8N250CV1HV			(8)	4.0	•	-		
IXYH 12N250CHV			(12)	4.5		-		
IXYH 12N250CV1HV			(12)	4.5	•	-		
IXYH 16N250CV1HV			(16)	4.0	•	-		X014c **TO-247HV**
IXYH 25N250CHV			(25)	4.0		-		
IXYX 25N250CV1HV			(25)	4.0	•	-	X015c	
IXYX 40N250CHV			(40)	4.0		-		
IXYH 30N450HV		4500	(30)	3.9		-	X014c	
IXYX 40N450HV			35	3.9		-	X015c	
IXBH 10N300HV	BiMOSFET	3000	34	2.8		-	X014c	
IXBH 14N300HV			38	2.7		-		
IXBH 22N300HV			60	2.7		-		
IXBX 28N300HV			62	2.7		-	X015c	
IXBH 32N300HV			(32)	2.8		-	X014c	
IXBH 42N300HV			(42)	2.5		-		X015c **PLUS247HV**
IXBH 16N360HV		3600	48	2.5		-	X014c	
IXBH 20N360HV			70	3.4		-		
IXBX 50N360HV			125	2.9		-	X015c	
IXTH 02N450HV	MOSFET	4500	0.2	-		625	X014c	
IXTH 1N450HV			1.0	-		80		
IXTX 1R4N450HV			1.4	-		40	X015c	

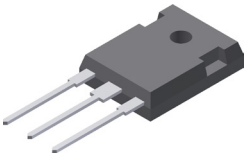
High Voltage TO-247HV and PLUS247HV packages

- ✓ improved pin spacing for high potential
- ✓ creepage distance pins to copper of backside: > 5.7 mm
- ✓ creepage distance between high voltage pins (collector/emitter or drain/source): > 7.0 mm

Type	Technology	V_{CES} / V_{DSS} V	I_{C25} / I_{D25} (I_{C110}) A	V_{CEsat} typ. V	w/ Diode	$R_{DS(on)}$ max. Ω	Fig. No.	Package style Outline drawings on pages O-36...O-59
IXTH 1N200P3HV	Polar 3 MOSFET	2000	1.0	-		40	X014c	X014c **TO-247HV** 
IXTH 3N200P3HV			3	-		8		
IXTX 6N200P3HV			6	-		4	X015c	
IXTH 06N220P3HV		2200	0.6	-		80	X014c	
IXTH 1R8N220P3HV			1.8	-		21.5		
IXTH 05N250P3HV		2500	0.5	-		110	X014c	
IXTH 04N300P3HV		3000	0.4	-		190	X014c	X015c **PLUS247HV** 
IXTH 1N300P3HV			1.0	-		50		
IXTH 2N300P3HV			2	-		21		
IXTX 4N300P3HV			4	-		12.5	X015c	

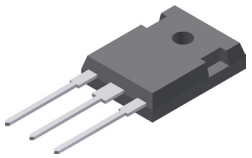
ISO247 package

- ✓ **3000V isolation**
- ✓ **Excellent thermal performance**
- ✓ **100% mechanical fit to TO-247**

Type ➢ New	Technology	Configuration	V_{RRM} V	I_{DAV} / I_{TAV} A	@ T_C °C	Package style Outline drawings on pages O-36...O-59
Diode						
DSA 90C200HR	Schottky Diode	Common Cathode	200	2x 45	145	
DPF 30P600HR	HiPerFRED	Phase Leg	2x 600	30	130	
DMA 10P1200HR	Standard		2x 1200	10	145	
DMA 10P1600HR			2x 1600	10	145	
DMA 30P1600HR			2x 1600	30	105	
DMA 50P1200HR			2x 1200	50	105	
➢ **DCG 10P1200HR**	SiC Schottky Diode		2x 1200	10	80	X016c **ISO247™** 
➢ **DCG 17P1200HR**				17	80	
➢ **DCG 20C1200HR**		Common Cathode	1200	2x 10	80	
➢ **DCG 35C1200HR**				2x 17	80	
Thyristor						
CLA 40E1200HR	High Efficiency	Single	1200	40	95	
CMA 40E1600HR	Standard		1600	40	90	
Triac						
CLA 40MT1200NHR	High Efficiency	Triac	1200	20	110	
CLA 60MT1200NHR				30	100	
CLA 80MT1200NHR				40	100	
CMA 60MT1600NHR	Standard		1600	30	90	
CMA 80MT1600NHR				40	95	

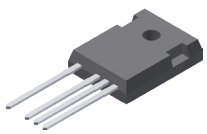
ISO247 package

- ✓ **3000V isolation**
- ✓ **Excellent thermal performance**
- ✓ **100% mechanical fit to TO-247**

Type ➢ New ✧ under development	Technology	Config.	V_{CES} / V_{DSS} V	I_{C25} / I_{D25} A	V_{CEsat} typ. V	R_{DSon} max. Ω	Package style Outline drawings on pages O-36...O-59
IGBT							
✧ **IXA 20IF1200HR**	XPT™ IGBT	Copack	1200	33	1.8	-	
✧ **IXA 30IF1200HR**				48	1.8	-	
✧ **IXA 40IF1200HR**				63	1.8	-	
➢ **ITF 48IF1200HR**	Fast Trench IGBT	Copack	1200	72	2.4	-	X016c **ISO247™**
MOSFET							
IXFJ 26N50P3	Polar3™ HiperFET™	Single	500	14	-	0.265	
IXFJ 80N25X3	X3-Class HiPerFET™	Single	250	44	-	0.018	
IXFJ 20N85X			850	9.5	-	0.36	
IXTJ 3N150	High Voltage MOSFET	Single	1500	2.3	-	8.00	
IXTJ 4N150				2.5	-	6.00	
IXTJ 6N150				3.0	-	3.85	

TO-247-4L package

- ✓ **seperate driver source pin for otimized gate control**
- ✓ **reduced gate loop**
- ✓ **optimized for fast switching SiC MOSFETs**

Part Type ✧ Under Development	V_{DSS} V	I_D T_C = 25°C A	I_D T_C = 100°C A	$R_{DS(on)}$ T_J = 25°C mΩ (typ)	C_{iss} typ pF	Q_g typ nC	R_{thJC} K/W	Package style Outline drawings on pages O-60...O-64
SiC MOSFETs								
✧ LSiC1MO120G0025	1200	100	70	25	4465	250	0.30	L014d **TO-247-4L**
✧ LSiC1MO120G0040		65	50	40	2825	160	0.42	
✧ LSiC1MO120G0080		39	25	80	1825	95	0.70	
✧ LSiC1MO120G0120		27	18	120	1125	80	0.90	
✧ LSiC1MO120G0160		22	14	160	870	57	1.00	

ISOPLUS-SMPD™ **ISOPLUS-DIL™**

ISOPLUS i4-PAC™ **ISOPLUS264™**

ISO247™ **ISOPLUS247™** **ISOPLUS220™**

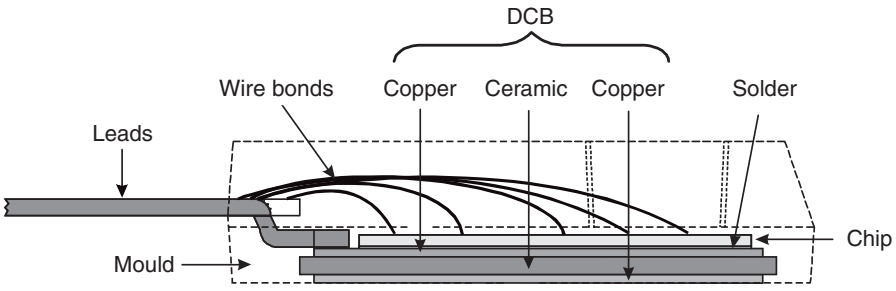
Isolated Discrete Packages

ISOPLUS247™ is the DCB isolated version of the PLUS247™ package (TO-247 without a mounting hole). The design of this patented package is revolutiory: the silicon chip is soft soldered onto a Direct Copper Bond (DCB) substrate instead of the usual copper lead frame. The DCB ceramic, the same substrate material as used in the high power modules, not only provides high isolation capability (2500 V_{RMS}) but also unbeatable low thermal resistance compared to conventiol, exterlly mounted isolation materials.

Advantages:

- Isolation capability from leads to backside 2500 V_{RMS} – no exterl isolation foil needed
- Thermal resistance from Junction to Case only slightly higher as for non-isolated version
- Increased power- and temperature cycling capability
- DCB can be patterned like printed circuit boards – allowing special functions to be realized

Package cross section



While the junction-to-case thermal resistance is higher than an equivalent. non-isolated device, what really matters is the total thermal resistance from junction-to-heatsink (R_{thJH}). Comparing a device in ISOPLUS247™ to its companion in the non-isolated package with an exterl isolation foil, one can see that the overall R_{th} is now lower for the part in the already isolated package (see example).

Due to the matched thermal expansion coefficients of silicon and DCB ceramic, mechanical stress to the die and solder caused by power and temperature cycling is reduced so that reliability is improved. Mounting is done with clips, which not only saves time but also guarantees constant pressure force over the whole lifetime of the assembly.

Parts in the **ISOPLUS247™** housing can be identified by the letter "**R**" in the IXYS part number. Potentially all devices now encapsulated in TO-247. TO-264 and PLUS247™ housings can be molded in the ISOPLUS247™. There are already more than 100 different ISOPLUS247™ types available.

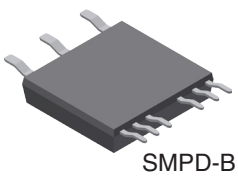
Another interesting feature is the capability to pattern the DCB substrate like a printed circuit board. Now additiol special functions can be realized, e.g. the **series connection of single** diode chips within one package.

ISOPLUS220™. **ISOPLUS247™** and **ISOPLUS264™** are the DCB substitutes for the corresponding standard packages.

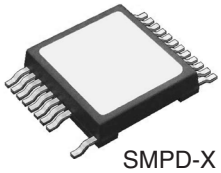
A larger version of this packaging technology is med **ISOPLUS i4-PAC™**. It has up to five termil pins, making it possible to build up full diode bridges, phase-leg transistor configurations, buck and boost converters and much more within one isolated discrete package.

ISOPLUS-DIL™ 37.5 mm long and 25 mm wide provides the largest mounting area within the ISOLPLUS™ family. It is available in 2 pin out version: „GWM" configuration with plar power pins for 300 A RMS on one side and 12 control pins on the oposite side and the „GMM" configuration with 12 pins on either side. The package is intented for high current low voltage (< 200 V) applications either as single switch or 6-pack. With highest power density and high reliability ISOPLUS-DIL™ is recommended for the use in automotive designs.

ISOPLUS-SMPD™ is the latest member of IXYS ISOPLUS™ family and provides an increased creepage distance between pins to DCB (>4 mm) and pin to pin (up to 7 mm).



SMPD-B



SMPD-X

Example: ISOPLUS247™ compared to conventiol isolated device

Type	Package	Isolation	R_{thJC} K/W	R_{thCK} K/W	Total K/W	Factor
IXF**R** 180N10	ISOPLUS247™	internal DCB	0.3	0.15	0.45	1
IXF**X** 180N10	PLUS247™	**external foil**	0.22	**1.02**	1.24	**2.8**

DCB isolated SMPD package for simplified mounting and high circuit flexibility

Reducing assembly costs is a continual demand of the semiconductor user. One of the various approaches is the usage of SMD packages which is successfully introduced by utilization of Power Semiconductors packaged in TO-263 (D^2Pak) or TO-268 (D^3Pak). If heat sinking is required designers have to look for solutions providing isolation and creepage distance.

ISOPLUS-SMPD™ package is the IXYS answer to the challenge to make designer's life easier as it provides an SMD device featuring:

- 2.5 kV isolation to heatsink (UL rating)
- low thermal impedance for good cooling by only 0.38 mm thick ceramic
- more than 4 mm creepage distance from pin to mounting surface
- up to 7 mm creepage from pin to pin (depending on package type)
- high integration such as phase leg or 3~ input rectifier in one package
- automatic mounting by pick & place possible (packaged in Tape & Reel)

This ebles the engineer to make flat designs with a concept of distributed power dissipation. The latter allows utilization of heatsinks with a thinner base reducing weight and cost.

The new ISOPLUS-SMPD™ package is small and light weight with two rows of pins. resembling an IC. It allows the assembly to the board in standard SMD pick & place equipment. together with other standard SMD components. ISOPLUS-SMPD™ devices are available in Tape & Reel or in a Blister Tray option.
The complete board including the power components can run through a standard SMD soldering process.

Two types are available, ISOPLUS-SMPD™-B (Fig. 1) is optimized for implementing more complex configurations like phase-legs, buck and boost chopper as well as single – or 3-phase input rectifier bridges, which can ideally be used as building blocks for inverters. ISOPLUS- SMPD™-X (Fig. 2) with a larger number of pins on either side allows the integration of large dies for very high current capability up to 600 A per unit.

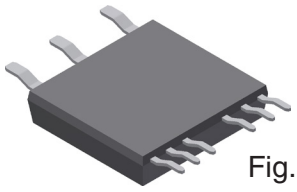


Fig. 1 SMPD-B

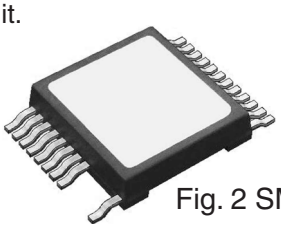


Fig. 2 SMPD-X

Both designs benefit from the ISOPLUS™ construction with low mechanical stress for the die because of a good match in the thermal expansion coefficient of die and DCB resulting in long term reliability.

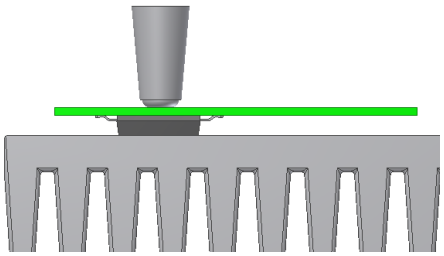


Fig. 3 Mounting example

As normal these devices require a layer of thermal interface material (heat transfer paste) to be applied to the backside of the power devices (or to the heat sink surface altertively). Then the devices can be mounted together with the PCB to a heat sink.
These power devices need to be pressed down to the heat sink to ensure low thermal resistances. Pressure can be applied in different ways, for example using a mounting clip or a post, applying pressure via the PCB directly to the power device (see Fig. 3 and Fig. 4).

The high package flexibility allows to offer

- high current single Trench MOSFET
- high current single IGBT
- buck and boost converters
- phase-legs with desaturation diodes for switch control
- 1~ or 3~ input rectifiers
- multiple boost stages
- cascade configurations

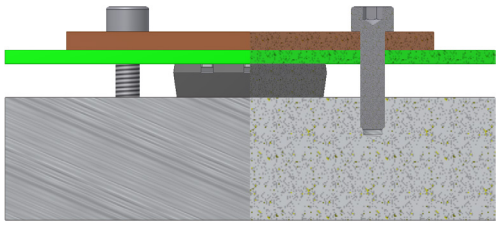
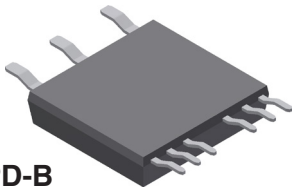


Fig. 4 Mounting example

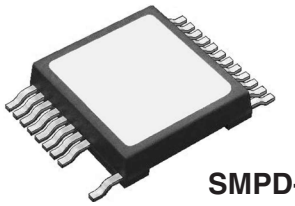
Customer specific designs are feasable.

IGBT Modules – SMPD Converter Building Blocks

ISOPLUS™ Technology

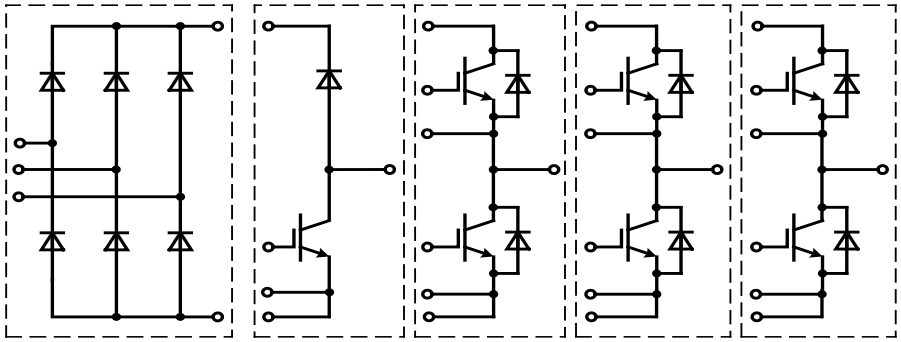


SMPD-B

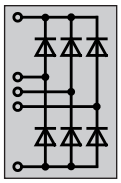


SMPD-X

- 2500 V UL rated electrical isolation
- low thermal resistance
- increased power & temperature cycling
- saves space
- replaces multiple discretes
- reduces parasitic inductance & capacitance
- reduces EMI
- heat spreading



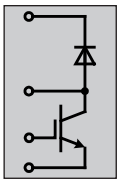
Rectifier



Line Rectifier
DMA 90U1800LB

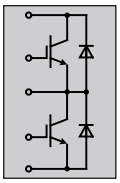
Sonic-FRD
DHG 60U1200LB

Brake & Boost



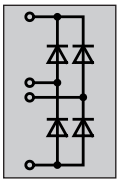
XPT-IGBT
IXA 20RG1200DHGLB
IXA 30RG1200DHGLB
IXA 40RG1200DHGLB

Inverter



XPT-IGBT
IXA 20PG1200DHGLB
IXA 30PG1200DHGLB
IXA 40PG1200DHGLB

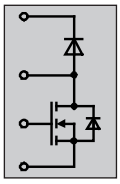
ITF 40PF1200DHGTLB



Line Rectifier
DLA 100B1200LB
DLA 100B800LB

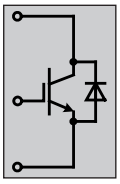
Fast Rectifier

DPG 60B600LB	HiPerFRED
DCG 20B650LB	SiC
DHG 40B1200LB	Sonic
DCG 20B1200LB	SiC



CoolMOS™ Boost

MKE 38RK600DFELB	& FRED Diode
MKG 40RK600LB	& Sonic Diode
MKH 17RP650DCGLB	Dual Boost & SiC

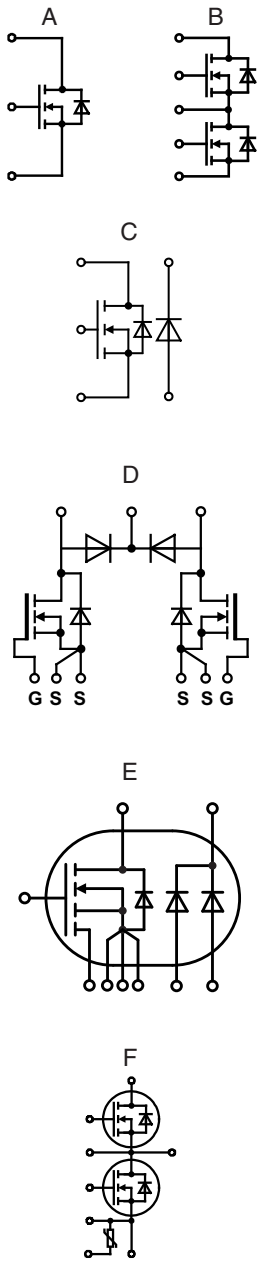


XPT-IGBT
MMIX 1X100N60B3H1
MMIX 1X200N60B3H1
MMIX 1Y82N120C3H1
MMIX 1Y100N120C3H1

IXG 70IF1200LB

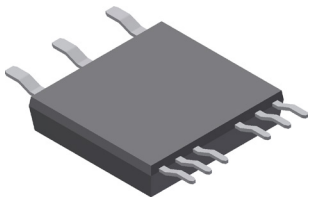
MOSFETs

Type ✧ under development ➢ New	Circuit diagram / Technology	V_{DS} V	I_{D25} A	$R_{DS(on)}$ max. mΩ	Q_G nC	Fig. No.	Circuit Diagram
SINGLE							
MMIX 1T600N04T2	A Trench2	40	600	1.3	590	X031a	
MMIX 1T550N055T2	A Trench2	55	550	1.3	595		
MMIX 1F520N075T2	A Trench2 HiPerFET™	75	500	1.6	545		
MMIX 1F420N10T	A Trench HiPerFET™	100	334	2.6	670		
MMIX 1F360N15T2	A Trench2 HiPerFET™	150	235	4.4	715		
MMIX 1F230N20T	A Trench HiPerFET™	200	156	8.3	358		
MMIX 1F180N25T	A Trench HiPerFET™	250	132	13	364		
MMIX 1F160N30T	A Trench HiPerFET™	300	102	20	376		
MMIX 1F210N30P3	A Polar3 HiPerFET™		108	16	268		
MMIX 1F132N50P3	A Polar3 HiPerFET™	500	63	43	267		
MMIX 1F44N100Q3	A Q3 HiPerFET™	1000	30	245	264		
MMIX 1F40N110P	A Polar HiPerFET™	1100	24	290	310		
BUCK / BOOST							
MKE 38RK600DFELB	C MOSFET① CP & FRED	600	50	45	150	X030a	
➢ **MXB 40RK600DFELB**	C X2 Class & FRED		68	38	140		
✧ **MKH 17RP650DCGLB**	D Dual MOSFET① CFD & SiC	650	2x 22	110	118		
PHASE-LEG							
MMIX 2F150N20T	B Trench™ HiPerFET™	200	84	16.5	177	X031a	
MMIX 2F94N30T	B Trench™ HiPerFET™	300	52	40	190		
MMIX 2F60N50P3	B Trench™ HiPerFET™	500	30	110	96		
MKE 38P600LB	B MOSFET ① CP	600	50	40	150	X030a	
➢ **MXB 40P650LB**	B X2 Class	650	68	38	140		
➢ **MCB 20P1200LB**	B SiC	1200	22	98 (80 typ.)	62		
➢ **MCB 30P1200LB**	B SiC		37	52 (40 typ.)	115		
➢ **MCB 40P1200LB**	B SiC		58	34 (25 typ.)	161		
✧ **MCB 60P1200TLB**	F SiC & NTC		77	34 (25 typ.)	161		
✧ **MCB 35P1700TLB**	F SiC & NTC	1700	35	70 (45 typ.)	188		
SINGLE with Current and Temperature Sense							
MMIX 1T132N50P3	E Polar3™	500	63	43	267	X031a	



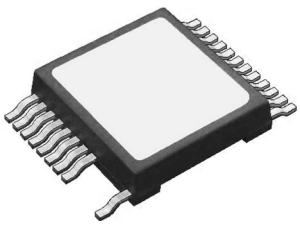
① Powered by Infineon CoolMOS™ superjunction bare die

SMPD-B X030a



Outline drawings on pages O-36...O-59

SMPD-X X031a

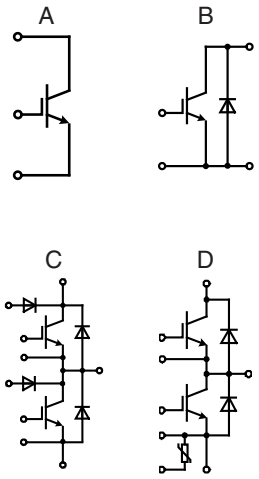


See data sheet for pin arrangement

IGBTs

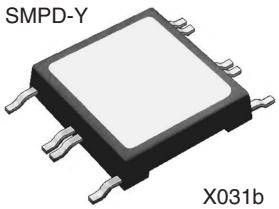
Type ➢ New ✧ under development	Circuit Diagram No. / Technology		V_{CES} V	I_{C25} T_C = 25°C A	$V_{CE(sat)}$ typ. T_C = 25°C V	E_{off} typ. T_J = 150°C (125°C) mJ	Fig. No.
SINGLE and COPACK							
MMIX 1X200N60B3	A	XPT	600	223	1.40	3.45	X031a
MMIX 1X100N60B3H1	B	XPT & Sonic		145	1.50	2.80	
MMIX 1X200N60B3H1	B	XPT & Sonic		175	1.40	3.45	
MMIX 1X340N65B4	A	XPT™ IGBT GenX4™		450	1.40	2.54	X031a
MMIX 1Y82N120C3H1	B	XPT fast & Sonic	1200	78	2.90	(3.70)	
MMIX 1Y100N120C3H1	B	XPT fast & Sonic		92	2.90	3.55	
✧ **ITG 100IF1200LB**	B	Trench & Sonic2		150	1.65	9.2	X030a
MMIX 1G120N120A3V1	B	GenX3 IGBT & Sonic		110	1.85	58	X031a
MMIX 1G75N250	A	IGBT for cap discharge	2500	110	2.50	-	
➢ **MMIX 1B15N300C**	B	BiMOSFET™	3000	37	4.70	-	
➢ **MMIX 1B20N300C**	B	BiMOSFET™		50	4.50	-	
DUAL							
✧ **ITG 100X1200LB**	2x A	2 x Trench	1200	2x 85	1.65	4.5	X030a
✧ **ITG 100XF1200LB**	2x B	2 x Trench & Sonic2		2x 85	1.65	4.5	
BOOST							
IXA 20RG1200DHGLB	E	XPT & Sonic	1200	32	1.80	1.7	X030a
IXA 30RG1200DHGLB	E	XPT & Sonic		43	1.90	3.0	
IXA 40RG1200DHGLB	E	XPT & Sonic		63	1.85	4.1	
PHASE-LEG							
IXA 20PG1200DHGLB	C	XPT & Sonic	1200	32	1.80	1.7	X030a
IXA 30PG1200DHGLB	C	XPT & Sonic		43	1.90	3.0	
IXA 40PG1200DHGLB	C	XPT & Sonic		63	1.85	4.1	
➢ **ITF 40PF1200DHGTLB**	D	Trench IGBT & Sonic & NTC		56	2.05	2.6	
✧ **ITF 40PG1200DHGLB**	C	Trench IGBT & Sonic		56	2.05	2.6	
FULL-BRIDGE							
MMIX 4G20N250	F	IGBT for cap discharge	2500	23	3.1 max	-	X031b

Circuit Diagram



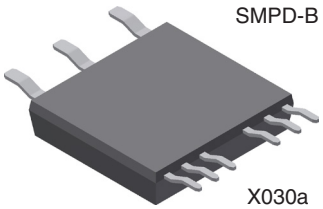
Outline drawings on pages O-36...O-59

SMPD-Y



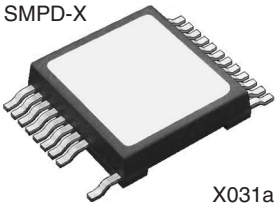
X031b

SMPD-B



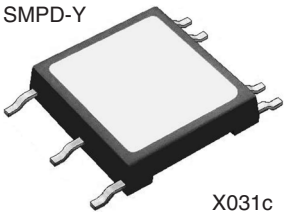
X030a

SMPD-X



X031a

SMPD-Y



X031c

Diodes

Type ➢ New ✧ under development	Circuit diagram / Diode type	V_{RRM} V	$I_{D(AV)M}$ A	@ T_C °C	Fig. No.
DUAL					
DSA 120X150LB	A Schottky	150	2x 60	150	X030a
DSA 120X200LB	A Schottky	200	2x 60	150	
✧ **DSA 240X200LB**	A Schottky		2x 120		
✧ **DCG 40X1200LB**	A SiC	1200	2x 14.5	80	
1~ BRIDGE					
DPG 60B600LB	B HiPerFRED	600	60	110	X030a
➢ **DCG 20B650LB**	B SiC	650	21	80	
DLA 100B800LB [1]	B Rectifier	800	124	80	
➢ **DMA 120B800LB**	B Rectifier		130	90	
DLA 100B1200LB	B Rectifier	1200	124	80	
➢ **DHG 40B1200LB**	B Sonic		34	80	
✧ **DCG 20B1200LB**	B SiC		18	80	
3~ BRIDGE					
DHG 60U1200LB	C Sonic	1200	62	80	X030a
DMA 90U1800LB	C Rectifier	1800	99	80	

[1] AECQ qualified

Thyristors, Triacs

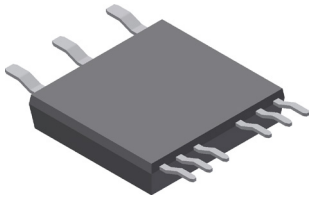
Type ✧ under development	Circuit diagram / Bipolar type		V_{RRM} V	I_{TAV} A	@ T_C °C	Fig. No.
DUAL						
✧ **CLA 60MU1200LB**	2x D	Triac	1200	2x 30	100	X030a
PHASE-LEG						
✧ **CMA 50P1600LB**	E	Thyristor	2x 1600	50	90	X030a

MOS-Gated Thyristors

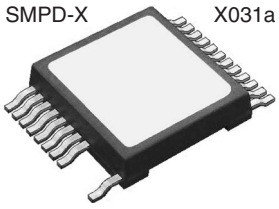
Type	V_{DM} V	I_{TSM} 1µs T_C = 25°C kA	I_{TSM} 10µs T_C = 25°C kA	r_T typ. mΩ	V_T max. V	$Q_{g(on)}$ typ. nC	t_{ri} typ. T_C = 25°C ns	$V_{GK(th)}$ max. V	Circuit Diagram	Fig. No.
MMJX 1H40N150	1500	15.5	6.4	1.2	6	99	100	5	F	X032
MMIX 1H60N150V1	1500	32.0	11.8	1.2	6	180	100	5	G	X031a

Outline drawings on pages O-36...O-59

SMPD-B X030a

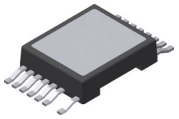


SMPD-X X031a



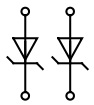
See data sheet for pin arrangement

MiniSMPD X032

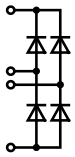


Circuit Diagram

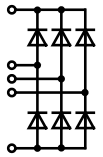
A



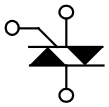
B



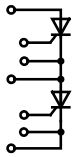
C



D



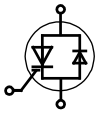
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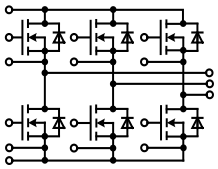
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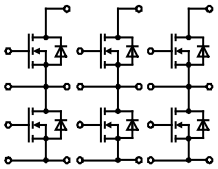
G



ISOPLUS-DIL™



MTI..W...GC



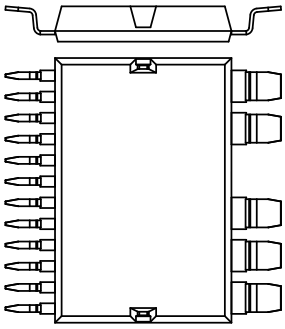
MTI...WX...GD / GMM

Six-Pack Trench MOSFET

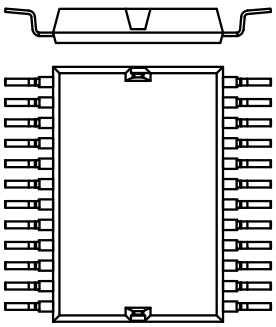
Type ✧ under development ➢ New	V_{DS} max. V	I_{D25} T_C = 25°C A	I_{D90} T_C = 90°C A	$R_{DS(on)}$ typ. T_C = 25°C mΩ	C_{iss} typ nF	Q_g typ nC	R_{thJC} K/W	Fig. No.
Six-Pack								
➢ **MTC 120W55GC**	55	160	120	2.2	7.0	110	1.00	X026c
MTI 85W100GC	100	110	83	3.2	6.3	90	1.45	
3x Phase Leg								
➢ **MTC 120WX55GD**	55	160	120	2.2	7.0	110	1.00	X026d
✧ **MTC 120WX75GD**	75	160	120	2.2	10.5	178	0.80	
MTI 200WX75GD		265	200	1.1	10.8	155	0.85	
✧ **MTI 85WX100GD**	100	110	83	3.2	6.3	90	1.45	
MTI 145WX100GD		190	145	1.7	11.0	155	0.85	
GMM 3x60-015X2	150	50	38	19.0	5.8	97	1.00	

Customized configurations possible

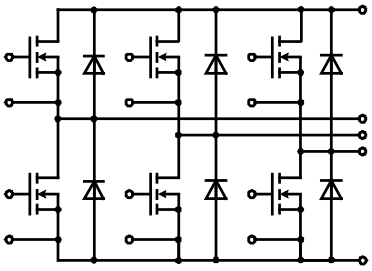
Outline drawings on pages O-36...O-59

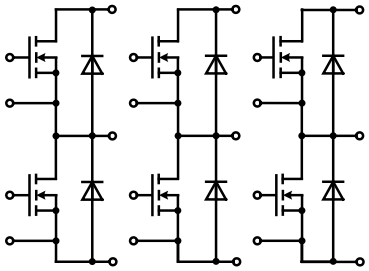


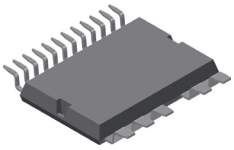
MTI...W..GC
SURFACE MOUNT DEVICE



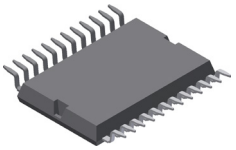
MTI...WX...GD; MTC...X...TGD; GMM...
SURFACE MOUNT DEVICE







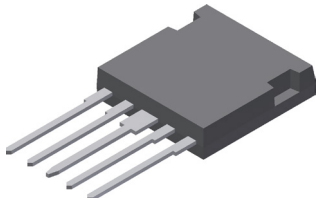
X026c **ISOPLUS-DIL™**



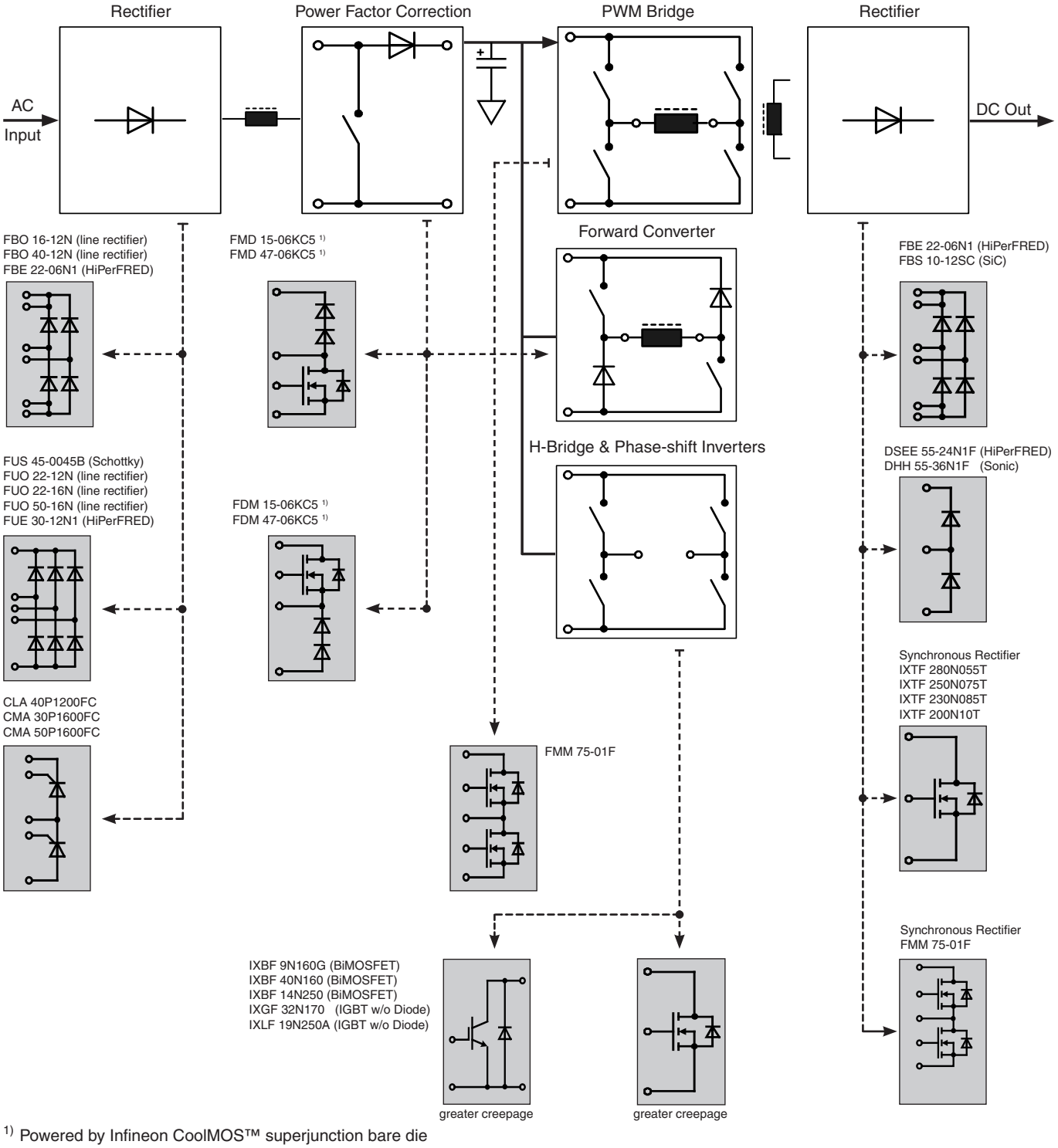
X026d **ISOPLUS-DIL™**

ISOPLUS™ i4-PAC™

3, 4 and 5 leaded packages for various circuit topologies



DCB base plate
- 2500 V electrical isolation
- low thermal resistance
- increased power & temperature cycling
- saves space
- replaces multiple discretes
- reduces parasitic inductance and capacitance
- reduces EMI
- less weight



1) Powered by Infineon CoolMOS™ superjunction bare die

See application note „Combining the features of modules and discretes in a new Power Semiconductor packages“ for general description of the packaging technologies.

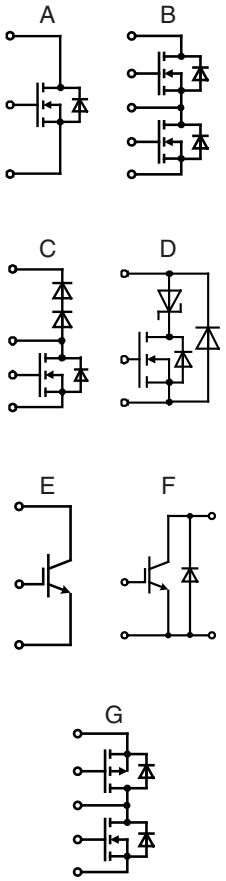
See alphanumeric index for the page number of the particular product.

MOSFETs

Type ○ Not for new design	Configu-ration	Circuit diagram / Technology	V_{DSS} V	I_{D25} T_C = 25°C A	$I_{D90/110}$ T_C = 90°C (110°C) A	$R_{DS(on)}$ T_C = 25°C typ. mΩ (Ω)	Fig. No.
IXTF 200N10T	Single	A Trench MOSFET	100	90	na	7	X024d
IXKF 40N60SCD1		D MOSFET① & serial Schottky & HiPerFRED free wheeling Diode	600	38	25	60	X024a
IXTF 6N200P3		A Polar3™ High Voltage MOSFET	2000	4	(2.3)	≤ (4.2)	X024c
IXTF 2N300P3		A Polar3™ High Voltage MOSFET	3000	1.6	(0.9)	≤ (21)	
IXTF 1N250		A High Voltage MOSFET	2500	1	na	≤ (40)	
IXTF 1R4N450		A High Voltage MOSFET	4500	1.4	na	≤ (40)	
IXTF 02N450		A High Voltage MOSFET		0.2	na	≤ (625)	
IXTF 1N450		A High Voltage MOSFET		0.9	na	≤ (80)	
FMD 15-06KC5	Boost	C MOSFET① & HiPerDynFRED	600	15	11	150	X024a
○ **FMD 40-06KC**		C MOSFET① & HiPerDynFRED		38	25	60	
○ **FMM 75-01F**	Phase leg	B HiPerFET	100	75	50	18	
FMP 76-010T *		G Trench™ P & N-Channel	±100	-54 / 62	na	24 / 11	
FMP 36-015P *		G Polar™ P & N-Channel	±150	-22 / 36	na	110 / 40	
FMP 26-02P *		G Polar™ P & N-Channel	±200	-17 / 26	na	170 / 60	
FMM 60-02TF		B Trench HiPerFET	200	33	na	32	
FMM 50-025TF		B Trench HiPerFET	250	30	na	≤ 60	
FMM 22-05PF		B PolarHV™ HiPerFET	500	13	na	≤ 270	
FMM 22-06PF		B PolarHV™ HiPerFET	600	12	na	≤ 350	

* high side switch: p-channel; low side switch: n-channel

Circuit Diagram Package

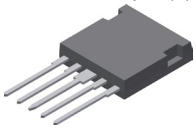


IGBTs / BiMOSFETs

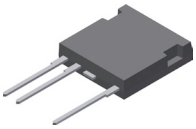
Type	Configu-ration	Circuit diagram / Technology	V_{CES} V	I_{C25} T_C = 25°C A	$I_{C90/110}$ T_C = 90°C (110°C) A	$V_{CE(sat)}$ typ. T_C = 25°C V	Fig. No.
IXYF 30N170CV1	Single	F High voltage XPT™ IGBT	1700	36	(20)	3.5	X024c
IXGF 32N170		E High voltage IGBT		44	(19)	≤ 2.7	
IXGF 20N250		E High voltage IGBT	2500	23	14	≤ 3.1	
IXGF 25N250		E High voltage IGBT		30	(15)	≤ 2.9	
IXLF 19N250A		E High voltage IGBT		32	19	3.2	
IXYF 16N250CV1		F High voltage XPT™ IGBT		26	(14)	3.3	
IXBF 14N300		F BiMOSFET		28	14	2.2	
IXBF 22N300		F BiMOSFET		38	22	2.2	
IXBF 32N300		F BiMOSFET		40	22	2.8	
IXBF 28N300		F BiMOSFET		50	28	2.3	
IXBF 42N300		F BiMOSFET		60	(24)	2.5	
IXBF 55N300		F BiMOSFET		86	(34)	2.7	
IXBF 16N360		F BiMOSFET	3600	26	16	2.5	
IXBF 20N360		F BiMOSFET		45	(18)	2.9	
IXBF 50N360		F BiMOSFET		70	(28)	2.4	
IXYF 30N450		E High voltage XPT™ IGBT	4500	23	(17)	3.2	
IXYF 40N450		E High voltage XPT™ IGBT		60	(32)	3.2	

Outline drawings on pages O-36...O-59

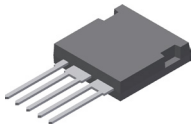
X024a ISOPLUS _i4pac(5)



X024c ISOPLUS _i4pac(3asym)



X024d ISOPLUS _i4pac(5HC)

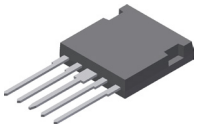


Bipolar

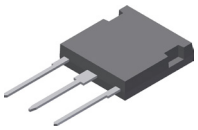
○ Not for new design	Type	Configuration	Circuit diagram / Diode type	Voltage V	$I_{D(AV)M}$ T_C = 90°C A	Fig. No.	Circuit Diagram
	CS 20-22moF1	Single	N Thyristor	2200	18	X024c	H, I
	DNA 30E2200FE	High voltage	O Rectifier		30	X024e	
	CS 20-25mo1F		N Thyristor	2500	18	X024c	
	CLA 40P1200FC	Phase leg	M Thyristor	2x 1200	40	X024a	
	DSEE 55-24N1F		H HiPerFRED		55	X024b	
	CMA 30P1600FC		M Thyristor	2x 1600	30	X024a	J, K
	CMA 50P1600FC		M Thyristor		50		
	DHH 55-36N1F		H Sonic-FRD	2x 1800	50	X024b	
	FBE 22-06N1	1-Phase bridge	J HiPerFRED	600	20	X024a	
	FBS 10-12SC		I Si-Carbide	1200	10		L, M
	FBO 16-12N		J Rectifier		22		
	FBO 40-12N		J Rectifier		40		
○	**FUS 45-0045B**	3-Phase bridge	L Schottky	45	45		
	FUO 22-12N		K Rectifier	1200	27		N, O
	FUE 30-12N1		K HiPerFRED		30		
	FUO 22-16N		K Rectifier	1600	27		
	FUO 50-16N		K Rectifier		50		

Outline drawings on pages O-36...O-59

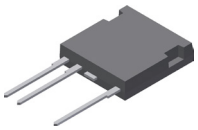
X024a
ISOPLUS_i4pac(5)



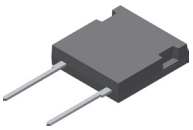
X024b
ISOPLUS_i4pac(3sym)

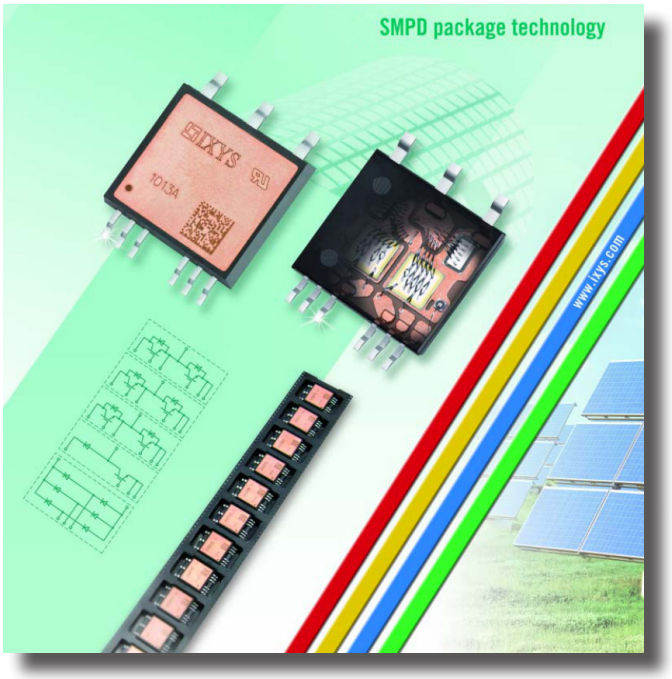


X024c
ISOPLUS_4pac(3asym)



X024e
ISOPLUS_i4pac(2sym)





Insulated Gate Bipolar Transistors (IGBT)

The Insulated Gate Bipolar Transistor (IGBT) is a three termil device combining high efficiency with fast switching capabilities. IXYS offers various IGBT technologies optimized for the many topologies, circuits and requirements in today's varied power semiconductor applications. As a guide to the multiple technologies of IGBT on offer from IXYS please refer to the following characteristics.

$V_{CE(sat)}$ – a measure of on-state losses, i.e. power dissipation when the device is passing forward current. The higher the $V_{CE(sat)}$ the higher the losses in the forward direction.

Switching Speed – an IGBT with fast switching speed will have higher efficiency during the transition from on to the off state and vice versa. Low switching speed versions are often combined with low $V_{CE(sat)}$ for low frequency applications. Higher speed IGBT tend to have higher $V_{CE(sat)}$.

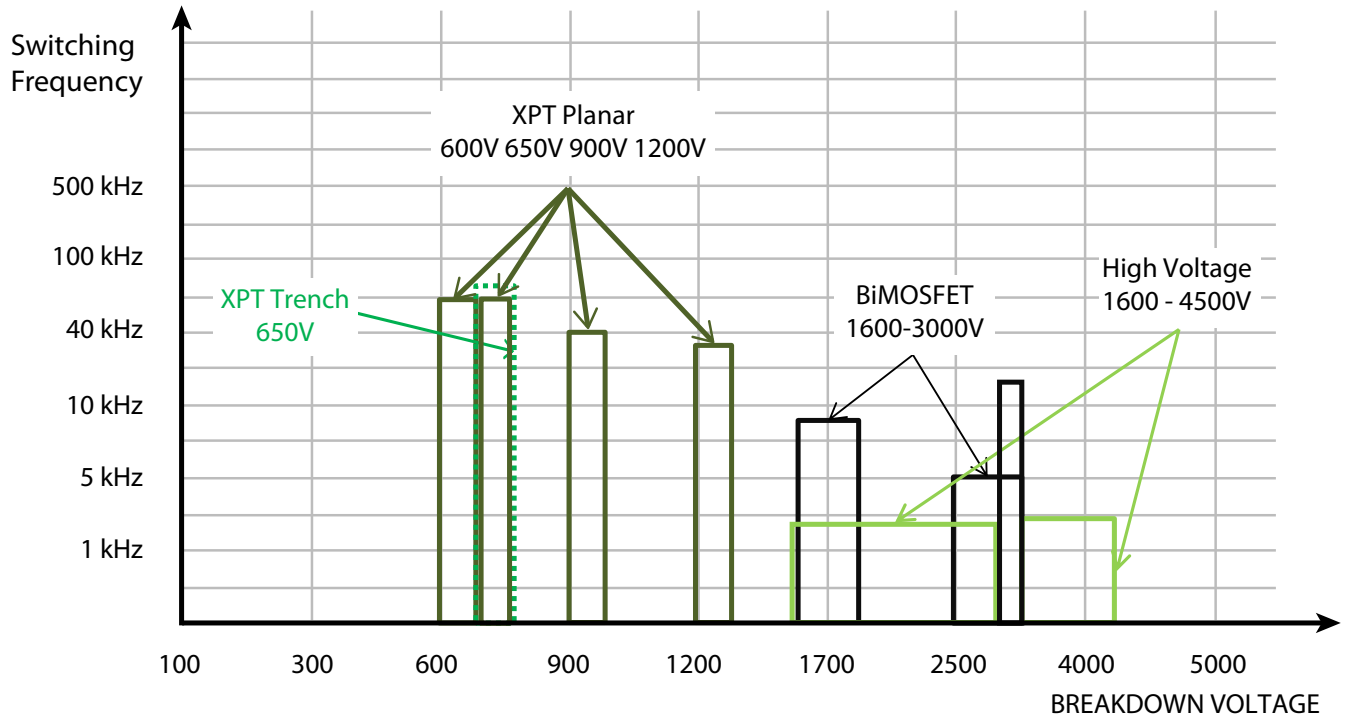
Temperature Coefficient – this determines the device $V_{CE(sat)}$ trend against temperature. A device is said to have a positive temperature coefficient if the $V_{CE(sat)}$ rises when the junction temperature increases. Likewise a negative temperature coefficient is when the devices $V_{CE(sat)}$ reduces when the junction temperature increases. A positive temperature coefficient is required when operating IGBT in parallel. A negative temperature coefficient device cannot be operated in parallel but may have lower losses at higher temperatures.

Safe Operating Area (SOA) – the ability for an IGBT to sustain voltage and current in shorter time scales without failure. Forward bias (FBSOA) is SOA when turning the IGBT into the on-state. Reverse Bias (RBSOA) is SOA when turning to the off-state. Short circuit SOA (SCSOA) is an indication of ability to withstand surge currents in operation.

Avalanche Rated – the ruggedness of the IGBT in the avalanche region. An avalanche rated devices is far more rugged than altertive devices during operation and is an indication of reliability.

IGBT technology

IGBT Characteristic	Non-Punch Through (NPT)	XPT Planar	XPT GenX3		XPT Trench		BiMOSFET (RC IGBT)			High voltage IGBT		
Discrete Part No. Prefix	**IXD..**	**IXA..**	**IXY..**		**IXX..**		**IXB..**			**IXG..**		
Discrete Part No. Suffix	NONE	NONE	B3	C3	B4	C4	NONE	A (1700V)	C	NONE	A	C
$V_{CE(SAT)}$	MEDIUM	MEDIUM	MED.	HIGH	LOW	MED.	LOW	MED.	HIGH	LOW	MED.	HIGH
Switching Speed	MEDIUM	MEDIUM	MED.	HIGH	MED.	HIGH	LOW	MED.	MED.	LOW	MED.	MED.
Temperature Coefficient	POSITIVE	POSITIVE	POSITIVE		POSITIVE		POSITIVE			POSITIVE		
Safe Operating Area	SCSOA RBSOA FBSOA	SCSOA RBSOA FBSOA	SCSOA RBSOA FBSOA		SCSOA RBSOA		SCSOA RBSOA			SCSOA RBSOA FBSOA		
Avalanche Rated	YES	YES	YES		NO		NO			YES		
Voltage Range	600-1700V	600-1200V	650 / 650 / 900 /1200V		650V		1600-3000V			1600-4500V		



IGBT product families

Xtreme Light Punch Through (XPT™) Planar IGBTs
are an extremely rugged technology platform of IGBTs, which are ideal for critical applications that require low conduction and low switching losses with a 10 µs short circuit withstand capability. Either discrete or co-packaged with ultrafast soft recovery Sonic diodes. IXYS XPT IGBTs have lower saturation voltage $V_{CE(sat)}$ and low total switching energy (E_{on} + E_{off}). A large portfolio of module packed Planar XPTs are available for applications such as UPS, Motor Drive and solar inverters.

Xtreme Light Punch Through (X2PT™) Planar IGBTs
are the second generation of XPT IGBTs. Features are 10 µs short circuit capability, 175°C max junction temperature, further reduced $V_{CE(sat)}$ and lower turn-off losses (E_{off}) resulting in a competitive performance to latest trench devices at reduced R_{th}. Thus they are idealy suited for Motor Drive inverters.

Xtreme Light Punch Through (XPT™) Trench IGBTs
are the latest development from IXYS starting at 650 V. This range features not only a low $V_{CE(sat)}$ but extremely low switching losses making the platform attractive for fast switching applications whilest retaining good SOA rating and a positive temperature coefficient. Either discrete or co-packaged with ultrafast soft recovery Sonic diodes. IXYS XPT IGBTs have industry leading efficiency at medium to high switching frequency.

1600 V & 1700 V Low Sat IGBTs
These rugged High Voltage NPT devices are designed for capacitor discharge applications. featuring a low saturation voltage, high power density & high peak current capability. These High Voltage NPT IGBTs eble the elimition of more costly, lower performance solutions such as thyristors or series connected MOSFETs or IGBTs typically used at voltages above 1200 V. Offered as co-packs, they provide a more complete solution for power conversion applications.

1600 V & 1700 V High Speed IGBTs
This family of 1600/1700 V IGBTs are rugged NPT devices targeted for high voltage applications, requiring 10 µs short circuit withstand capability. They are particularly suitable for high voltage switching applications. IXYS offers its fast switching “A” version 1700 V NPT IGBTs in co-pack and phase-leg configurations for PWM applications with switching frequencies upwards of 50 kHz.

Very High Voltage (2500 V - 4000 V) IGBTs
IXYS’ offers a unique portfolio of discrete 2500 V, 3000 V and 4000 V VHV IGBTs with collector current ratings spanning from 2 A to 75 A (T_C = 110˚C). The voltage and current ratings of these devices, coupled with simplified MOS gate-control, allow the system designer to greatly reduce the complexity of many high voltage switching designs. These IGBTs eble the use of a single device in systems whose circuits previously used multiple, cascaded, lower-voltage switches.

B-series (BiMOSFET) IGBTs
IXYS BiMOSFETs are devices which have combined strengths of MOSFETs and IGBTs. BIMOSFETs feature a monolithic intrinsic diode which can reduce die count in many applications.

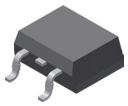
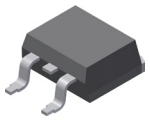
Ignition IGBTs and Relevant Peripheral Components

Littelfuse offers a broad portfolio of high performance Ignition IGBTs for gasoline-powered passenger vehicles and motorcycles. In addition, Littelfuse has extensive experience with protection devices which ensures we can cover your needs for reliable automotive quality grade designs.

Littelfuse Ignition IGBTs manage and control the current across the coil for a precise spark generation. They contain an integrated clamp structure and gate ESD protection in the silicon. Ignition IGBTs provide an exceptionally low saturation voltage while conducting the current.

More than 28 million new cars are powered by Littelfuse Ignition IGBTs every year around the world. Also, Littelfuse Ignition IGBTs are the preferred solution for high performance premium motorcycles.

Ignition IGBTs

Part Number	BV_{CES} @ I_C V	I_{Cmax} A	$V_{CE(sat)}$ V	E_{AS} mJ	Fig. No.	Package style Outline drawings on pages O-60...O-64
NGD8205ANT4G	350	20	1.30	250	L004	
NGD18N40ACLBT4G	400	18	1.80	400		L004 **TO-252AA**
NGD8201ANT4G	400	20	1.30	250		
NGD8201BNT4G	400	20	1.50	435		
NGD15N41ACLT4G	410	15	1.90	250		
NGD8209NT4G	410	12	1.80	274		
NGD18N45CLBT4G	450	18	2.07	360		
NGB8207ABNT4G	365	20	1.75	500	L011b	
NGB8206ANTF4G	350	20	1.30	250		
NGB8207BNT4G	365	20	1.50	500		L011b **TO-263AB**
NGB8204ANT4G	400	18	1.80	400		
NGB8202ANT4G	400	20	1.30	250		
NGB18N40ACLBT4G	400	18	1.80	400		
NGB15N41ACLT4G	410	15	1.90	250		
NGB8245NT4G	450	20	1.10	158		

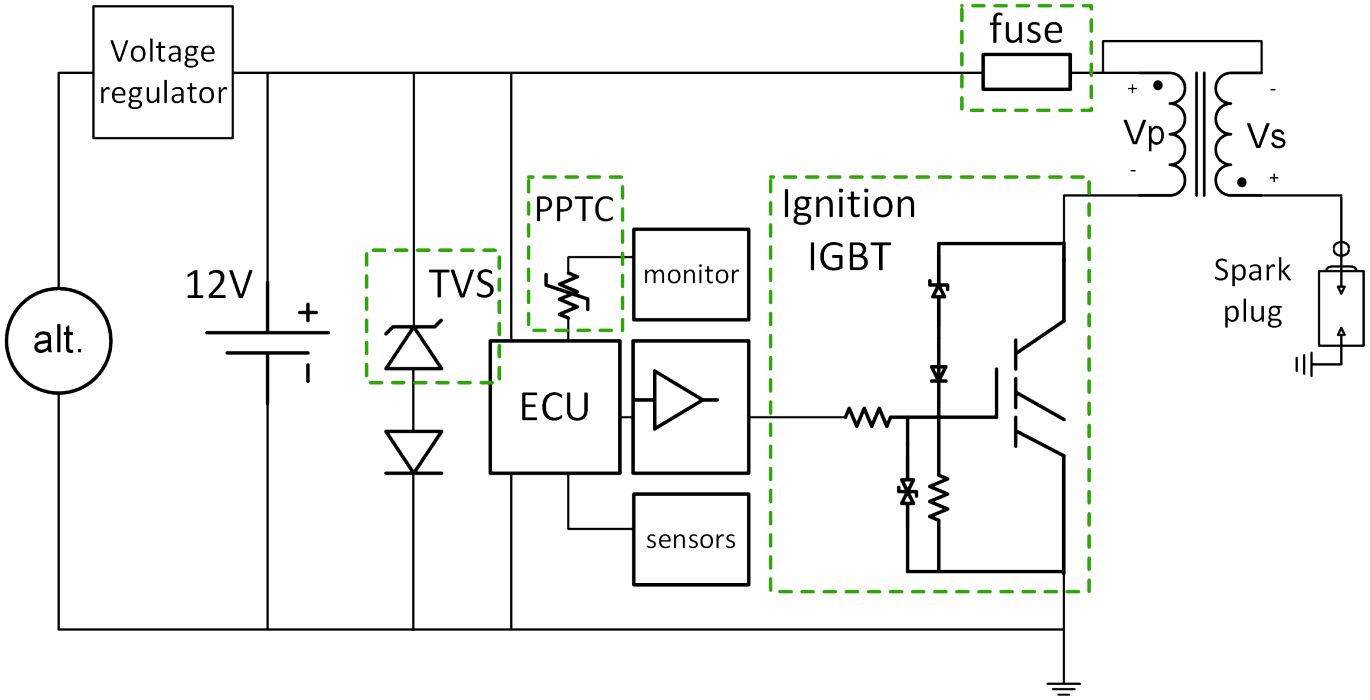
TVS Diodes for Ignition Applications

Part Number	V_R Range min. V	V_R Range max. V	P_{PP} 10x1000µs V	P_{PP} 10x15ms mJ	Fig. No.	Package style Outline drawings on pages O-60...O-64
TPSMB	5.8	468	600	2200 load dump	L003a	L003a/b DO-214AA/AB
TPSMB-VR	6.5	150	600			
TPSMC	10.2	77.8	1500		L003b	
TPSMD	10.0	85	3000			
SLD8S	12.0	57	7000		L007	L007 SMTO-263
						

Resettable PTCs for Ignition Applications

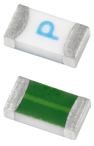
Part Number	Current @ 0°C HOLD A	Current @ 0°C TRIP A	Current @ 25°C HOLD A	Current @ 25°C TRIP A	Current @ 60°C HOLD A	Current @ 60°C TRIP A	Time to Trip max. s	Resistance @ 25°C min. Ω	Resistance @ 25°C max. Ω	Tripped State Power Dissipation max. W	Fig. No.	Package style Outline drawings on pages O-60...O-64
nanoASMDC016F-2	0.18	0.7	0.16	0.45	0.012	0.028	0.3	1.1	5	0.5	L008	L008 1206
												

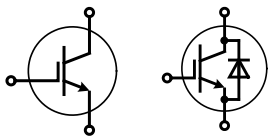
Ignition IGBTs and Relevant Peripheral Components



Fuses for Ignition Applications

Part Number 440A Series	Current A	Voltage max. V	Resistance Ω	Melting I^2t A^2s	Voltage Drop at Rated Current V	Dissipation at Rated Current W	Fig. No.	Package style Outline drawings on pages O-60...O-64
0440 005.WRA	5	32	12	4.761	0.0654	0.327	L008	L008 1206
0440 007.WRA	7		7.53	8.464	0.0696	0.487		
0440 008.WRA	8		6.34	12.95	0.0655	0.524		





IXX... IXY... IXX...D1/H1 IXY...D1/H1

600 V XPT™ Planar IGBTs

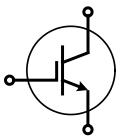
XPT = Xtreme light Punch Through, short-circuit rated IGBTs

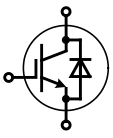
Part Number	V_{CES} V	I_{C25} T_C = 25°C A	I_{C110} T_C = 110°C A	$V_{CE(sat)}$ T_C = 25°C V	t_{fi} typ. T_J = 150°C ns	E_{off} typ. T_J = 150°C mJ	R_{thJC} K/W		I_{F110} Diode T_C = 110°C A	R_{thJC} Diode max. K/W	P_C W	Fig. No.	Package style Outline drawings on pages O-36...O-59
B3 Class (5-30 kHz switching)													
IXXQ 30N60B3M	600	33	19	1.85	180	0.70	1.660				90	X017c	X005a TO-220AB
IXXH 30N60B3		60	30	1.85	180	0.70	0.550				270	X014a	
IXXH 30N60B3D1		60	30	1.85	180	0.70	0.550	•	30	0.90	270	X014a	
IXXA 50N60B3		120	50	1.80	190	1.20	0.250				600	X011b	
IXXH 50N60B3		120	50	1.80	190	1.20	0.250				600	X014a	
IXXH 50N60B3D1		120	50	1.80	190	1.20	0.250	•	30	0.90	600	X014a	
IXXP 50N60B3		120	50	1.80	190	1.20	0.250				600	X005a	
IXXR 100N60B3H1		145	68	1.80	200	2.80	0.310	•	-	0.62	400	X016a	X011b TO-263AB
IXXH 75N60B3		160	75	1.85	170	2.20	0.200				750	X014a	
IXXH 75N60B3D1		160	75	1.85	170	2.20	0.200	•	30	0.90	750	X014a	
IXXN 100N60B3H1		170	100 (90°C)	1.80	200	2.80	0.250	•	50	0.42	500	X027a	
IXXK 100N60B3H1		200	100 (100°C)	1.80	200	2.80	0.180	•	65	0.30	695	X020a	
IXXN 200N60B3H1		200	98	1.70	215	3.45	0.160	•	30	0.70	780	X027a	
IXXX 100N60B3H1		200	100 (100°C)	1.80	200	2.80	0.180	•	65	0.30	695	X015a	X014a TO-247AD
IXXH 100N60B3		220	100	1.80	200	2.80	0.180				830	X014a	
IXXN 200N60B3		280	160	1.70	215	3.45	0.160				940	X027a	
IXXK 200N60B3		380	200	1.70	215	3.45	0.092				1630	X020a	
IXXX 200N60B3		380	200	1.70	215	3.45	0.092				1630	X015a	
IXXK 300N60B3		550	300	1.60	200	3.70	0.065				2300	X020a	
IXXX 300N60B3		550	300	1.60	200	3.70	0.065				2300	X015a	
C3 Class (20-60 kHz switching)													X015a PLUS247
IXXH 30N60C3	600	60	30	2.20	32	0.40	0.550				270	X014a	
IXXH 30N60C3D1		60	30	2.20	78	0.40	0.550	•	30	0.90	270	X014a	
IXXH 50N60C3		100	50	2.30	90	0.48	0.250				600	X014a	
IXXH 50N60C3D1		100	50	2.30	90	0.48	0.250	•	30	0.90	600	X014a	
IXXH 75N60C3		150	75	2.30	80	1.07	0.200				750	X014a	
IXXH 75N60C3D1		150	75	2.30	80	1.07	0.200	•	30	0.90	750	X014a	
IXXK 100N60C3H1		170	100 (90°C)	2.20	115	1.40	0.180	•	65	0.30	695	X020a	
IXXX 100N60C3H1		170	100 (90°C)	2.20	115	1.40	0.180	•	65	0.30	695	X015a	X016a ISOPLUS247™
IXXH 100N60C3		190	100	2.20	115	1.40	0.180				830	X014a	
IXXN 200N60C3H1		200	98	2.10	90	2.10	0.160	•	30	0.70	780	X027a	
IXXK 200N60C3		340	200	2.10	90	2.10	0.092				1630	X020a	
IXXX 200N60C3		340	200	2.10	90	2.10	0.092				1630	X015a	
IXXK 300N60C3		510	300	2.00	90	2.35	0.065				2300	X020a	
IXXX 300N60C3		510	300	2.00	90	2.35	0.065				2300	X015a	

X027a **SOT-227B miniBLOC**

X020a **TO-264**

X017c **TO-3PFP**

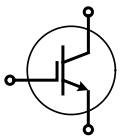

IXX...
IXY...

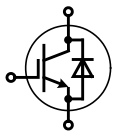

IXX...D1/H1
IXY...D1/H1

650V XPT™ Planar IGBTs

XPT = Xtreme light Punch Through, short-circuit rated IGBTs

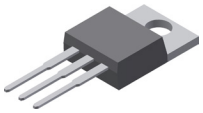
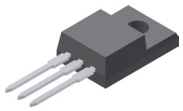
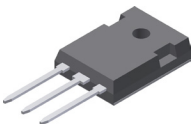
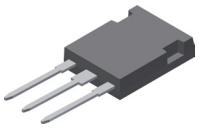
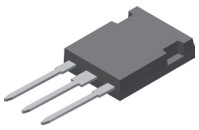
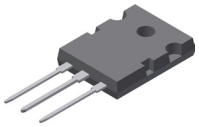
Part Number ➢ New	V_{CES} V	I_{C25} T_C = 25°C A	I_{C110} T_C = 110°C A	$V_{CE(sat)}$ T_C = 25°C V	t_{fi} typ. T_J = 150°C ns	E_{off} typ. T_J = 150°C mJ	R_{thJC} K/W	Diode	I_{F110} Diode T_C = 110°C A	R_{thJC} max. Diode K/W	P_C W	Fig. No.	Package style Outline drawings on pages O-36...O-59
A3 Class (up to 5kHz switching)													X005a TO-220AB
IXYN 100N65A3	650	170	100	1.80	160	2.40	0.25				600	X027a	
➢ **IXYH 100N65A3**		240	100	1.80	225	3.70	0.18				470	X014a	
➢ **IXYN 300N65A3**		470	300	1.60	175	7.30	0.10				1500	X027a	
➢ **IXYK 300N65A3**		600	300	1.60	175	7.30	0.065				2300	X020a	
➢ **IXYX 300N65A3**		600	300	1.60	175	7.30	0.065				2300	X015a	
B3 Class (10-30 kHz switching)													X011b TO-263AB
IXYP 10N65B3D1	650	32	19	1.95	116	0.36	0.94	•	9	2.30	160	X005a	
IXYA 20N65B3		58	20	2.10	147	0.76	0.65				230	X011b	
IXYH 20N65B3		58	20	2.10	147	0.76	0.65				230	X014a	
IXYP 20N65B3		58	20	2.10	147	0.76	0.65				230	X005a	
IXYP 20N65B3D1		58	20	2.10	147	0.76	0.65	•	23	1.85	230	X005a	
IXYQ 30N65B3D1		70	30	2.10	93	1.00	0.55	•	50	0.60	270	X017a	X011c TO-263ABHV
IXYH 30N65B3D1		70	30	2.10	93	1.00	0.55	•	50	0.60	270	X014a	
IXYH 40N65B3		86	40	2.00	174	1.15	0.50				300	X014a	
IXYQ 40N65B3D1		86	40	2.00	174	1.15	0.50	•	50	0.60	300	X017a	
IXYH 40N65B3D1		86	40	2.00	174	1.15	0.50	•	50	0.60	300	X014a	
IXYN 100N65B3D1		185	100	1.85	160	2.16	0.25	•	67	0.40	600	X027a	X014a TO-247AD
IXYH 100N65B3		225	100	1.85	160	2.16	0.18				830	X014a	
IXYK 100N65B3D1		225	100	1.85	160	2.16	0.18	•	67	0.36	830	X020a	
IXYX 100N65B3D1		225	100	1.85	160	2.16	0.18	•	67	0.36	830	X015a	
IXYN 120N65B3D1		250	120	1.90	196	2.20	0.18	•	86	0.38	830	X027a	
IXYH 120N65B3		340	120	1.90	196	2.20	0.11					X014a	
IXYK 200N65B3		410	200	1.70	230	5.60	0.096					X020a	
IXYX 200N65B3		410	200	1.70	230	5.60	0.096					X015a	
C3 Class (20-60 kHz switching)													X015a PLUS247
IXYP 10N65C3	650	30	10	2.50	38	0.15	0.94				160	X005a	
IXYP 10N65C3D1		30	10	2.50	38	0.15	0.94	•	23	1.85	160	X005a	
IXYA 15N65C3D1		38	15	2.50	42	0.24	0.75	•	23	1.85	200	X011b	
IXYP 15N65C3		38	15	2.50	42	0.24	0.75				200	X005a	
IXYP 15N65C3D1		38	15	2.50	42	0.24	0.75	•	23	1.85	200	X005a	
IXYA 20N65C3		50	20	2.50	36	0.40	0.65				230	X011b	X017a TO-3P
IXYA 20N65C3D1		50	20	2.50	36	0.40	0.65	•	18	1.85	200	X011b	
IXYH 20N65C3		50	20	2.50	36	0.40	0.65				230	X014a	
IXYP 20N65C3D1		50	20	2.50	36	0.40	0.65	•	18	1.85	200	X005a	
IXYH 30N65C3H1		60	30	2.70	30	0.41	0.55	•	29	0.80	270	X014a	
IXYH 30N65C3		60	30	2.70	30	0.41	0.55				270	X014a	
IXYT 30N65C3H1HV		60	30	2.70	30	0.41	0.55	•	29	0.80	270	X019a	X019a TO-268AAHV
IXYP 30N65C3		60	30	2.70	30	0.41	0.55				270	X005a	
IXYQ 40N65C3D1		80	40	2.35	30	0.53	0.50	•	50	0.60	300	X017a	
IXYH 40N65C3		80	40	2.35	30	0.53	0.50				300	X014a	
IXYH 40N65C3H1		80	40	2.35	80	0.46	0.50	•	40	0.60	300	X014a	
IXYH 40N65C3D1		80	40	2.35	30	0.53	0.50	•	50	0.60	300	X014a	
IXYH 50N65C3H1		130	50	2.10	42	0.56	0.25	•	40	0.60	600	X014a	X020a TO-264
IXYP 50N65C3		132	50	2.10	32	0.70	0.25				600	X005a	
IXYH 50N65C3D1		132	50	2.10	32	0.70	0.25	•	50	0.60	600	X014a	
IXYH 50N65C3		132	50	2.10	32	0.70	0.25				600	X014a	
IXYA 50N65C3		132	50	2.10	32	0.70	0.25				600	X011b	
IXYN 75N65C3D1		150	75	2.30	64	1.30	0.25	•	60	0.52	600	X027a	
IXYN 100N65C3H1		160	90	2.30	66	1.15	0.25	•	50	0.42	600	X027a	X027a SOT-227B miniBLOC
IXYH 75N65C3H1		170	75	2.30	58	1.30	0.20	•	62	0.45	750	X014a	
IXYH 75N65C3		175	75	2.30	64	1.30	0.20				750	X014a	
IXYH 75N65C3D1		175	75	2.30	64	1.30	0.20	•	62	0.45	750	X014a	
IXYN 120N65C3D1		190	100	2.80	60	0.70	0.18	•	72	0.38	830	X027a	
IXYX 100N65C3D1		200	100	2.30	66	1.15	0.18	•	67	0.36	830	X015a	
IXYH 100N65C3		200	100	2.30	66	1.15	0.18				830	X014a	
IXYK 100N65C3D1		200	100	2.30	66	1.15	0.18	•	67	0.36	830	X020a	
IXYH 120N65C3		260	120	2.80	60	0.70	0.11					X014a	


IXX...
IXY...


IXX...D1/H1
IXY...D1/H1

650 V XPT™ Trench IGBTs

XPT = Xtreme light Punch Through, short-circuit rated IGBTs

Part Number ➢ New	V_{CES} V	I_{C25} T_C = 25°C A	I_{C110} T_C = 110°C A	$V_{CE(sat)}$ T_C = 25°C V	t_{fi} typ. T_J = 150°C ns	E_{off} typ. T_J = 150°C mJ	R_{thJC} K/W	Diode	I_{F110} Diode T_C = 110°C A	R_{thJC} max. Diode K/W	P_C W	Fig. No.	Package style Outline drawings on pages O-36...O-59
A4 Class (5-20 kHz switching)													X005a **TO-220AB**
IXXN 200N65A4	650	440	200	1.80	190	8	0.12				1250	X027a	
B4 Class (10-30 kHz switching)													
IXXP 12N65B4	650	38	12	1.95	110	0.38	0.940				160	X005a	
IXXP 12N65B4D1		38	12	1.95	110	0.38	0.940	•	11	2.30	160	X005a	
IXXH 30N65B4		70	30	2.00	60	1.07	0.650				230	X014a	X007a **TO-220ABFP**
IXXH 30N65B4D1		70	30	2.00	60	1.07	0.650	•	40	0.75	230	X014a	
IXXH 40N65B4		115	40	2.00	116	1.30	0.330				455	X014a	
IXXH 40N65B4D1		115	40	2.00	116	1.30	0.330	•	50	0.60	455	X014a	
IXXH 60N65B4		120	60	2.20	88	1.80	0.330				536	X014a	
IXXH 60N65B4H1		120	60	2.20	88	1.80	0.330	•	47	0.60	536	X014a	X014a **TO-247AD**
IXXH 40N65B4H1		123	40	2.00	73	1.40	0.330	•	40	0.60	455	X014a	
IXXR 110N65B4H1		150	70	2.20	105	1.40	0.330	•	48	0.70	455	X016a	
IXXH 80N65B4		160	80	2.10	94	2.70	0.240				625	X014a	
IXXH 80N65B4H1		160	80	2.10	102	3.10	0.240	•	62	0.45	625	X014a	
IXXH 80N65B4D1		180	80	2.10	94	2.70	0.240	•	65	0.47	625	X014a	
IXXN 110N65B4H1		230	110	2.10	110	2.16	0.200	•	70	0.42	750	X027a	X015a **PLUS247**
IXXH 110N65B4		250	110	2.10	110	2.16	0.170				880	X014a	
IXXK 110N65B4H1		250	110	2.10	110	2.16	0.170	•	78	0.38	880	X020a	
IXXX 110N65B4H1		250	110	2.10	110	2.16	0.170	•	78	0.38	880	X015a	
IXXK 160N65B4		310	160	1.80	160	2.36	0.160				940	X020a	
IXXX 160N65B4		310	160	1.80	160	2.36	0.160				940	X015a	X016a **ISOPLUS247™**
IXXH 140N65B4		340	140	1.90	100	3.90	0.125				1200	X014a	
IXXX 140N65B4H1		350	140	1.90	100	3.90	0.125	•	72	0.24	1200	X015a	
IXXK 200N65B4		480	200	1.70	120	5.00	0.092				1630	X020a	
IXXX 200N65B4		480	200	1.70	120	2.54	0.092				1630	X015a	
IXXN 340N65B4		520	340 (90°C)	1.70	110	2.54	0.100				1500	X027a	X020a **TO-264**
C4 Class (20-60 kHz switching)													
IXXH 30N65C4D1	650	62	30	2.5	34	0.44	0.65	•	30	0.75	230	X014a	
IXXH 40N65C4D1		110	40	2.3	36	0.64	0.33	•	55	0.6	455	X014a	
IXXH 60N65C4		125	60	2.4	54	1.5	0.33				536	X014a	X027a **SOT-227B miniBLOC**
IXXN 110N65C4H1		210	110	2.35	40	0.9	0.2	•	70	0.42	750	X027a	
IXXH 110N65C4		235	110	2.35	40	0.9	0.17				880	X014a	
IXXK 160N65C4		290	160	2.1	57	1.3	0.16				940	X020a	
IXXX 160N65C4		290	160	2.1	57	1.3	0.16				940	X015a	
IXXH 140N65C4		320	160	2.3	63	2.5	0.125				1200	X014a	

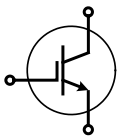
1200 V XPT™ Trench IGBTs XPT = Xtreme light Punch Through,

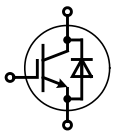
Part Number ➢ New	V_{CES} V	I_{C25} T_C = 25°C A	I_{C110} T_C = 110°C A	$V_{CE(sat)}$ T_C = 25°C V	t_{fi} typ. T_J = 125°C ns	E_{off} typ. T_J = 125°C mJ	R_{thJC} K/W	P_C W	Fig. No.	Package style Outline drawings on pages O-36...O-59
A4 Class (up to 5kHz switching)										
IXYA 20N120A4HV	1200	80	20	1.9	286	4.85	0.40	375	X011c	X005a TO-220AB
IXYP 20N120A4		80	20	1.9	286	4.85	0.40	375	X005a	
IXYA 30N120A4HV		106	30	1.9	270	5.60	0.30	500	X011c	
IXYH 30N120A4		106	30	1.9	270	5.60	0.30	500	X014a	
IXYP 30N120A4		106	30	1.9	270	5.60	0.30	500	X005a	
➢ **IXYH 40N120A4**		150	40	1.8	365	8.30	0.22	680	X014a	
➢ **IXYT 40N120A4HV**		150	40	1.8	365	8.3	0.22	680	X019a	
➢ **IXYT 55N120A4HV**		175	55	1.8	270	8.8	0.23	650	X019a	X011c TO-263ABHV
➢ **IXYH 55N120A4**		175	55	1.8	270	8.8	0.23	650	X014a	
➢ **IXYT 85N120A4HV**		300	85	1.8	280	13.7	0.13	1150	X019a	
➢ **IXYH 85N120A4**		300	85	1.8	280	13.7	0.13	1150	X014a	
➢ **IXYK 140N120A4**		480	140	1.7	320	20	0.10	1500	X020a	
➢ **IXYN 140N120A4**		480	140	1.7	320	20	0.14	1070	X027a	
➢ **IXYX 140N120A4**		480	140	1.7	320	20	0.10	1500	X015a	X014a TO-247AD
B4 Class (5-30 kHz switching)										
➢ **IXYA 20N120B4HV**	1200	76	20	2.1	170	2.70	0.40	375	X011c	
➢ **IXYP 20N120B4**		76	20	2.1	170	2.70	0.40	375	X005a	
➢ **IXYH 30N120B4**		100	30	2.1	190	4.00	0.30	500	X014a	
➢ **IXYH 40N120B4**		136	40	2.1	190	4.40	0.22	680	X014a	
C4 Class (20-50 kHz switching)										X015a PLUS247
➢ **IXYA 20N120C4HV**	1200	68	20	2.5	86	1.60	0.40	375	X011c	
➢ **IXYP 20N120C4**		68	20	2.5	86	1.60	0.40	375	X005a	
➢ **IXYH 30N120C4**		94	30	2.4	100	2.70	0.30	500	X014a	
➢ **IXYH 40N120C4**		120	40	2.5	80	2.65	0.22	680	X014a	

X027a **SOT-227B miniBLOC**

X020a **TO-264**

X019a **TO-268AAHV**


IXX...
IXY...


IXX...D1/H1
IXY...D1/H1

900/1200 V XPT™ Planar IGBTs

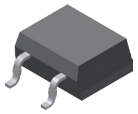
Part Number	V_{CES} V	I_{C25} T_C = 25°C A	I_{C110} T_C = 110°C (90°C) A	$V_{CE(sat)}$ T_C = 25°C V	t_{fi} typ. T_J = 125°C (150°C) ns	E_{off} typ. T_J = 125°C (150°C) mJ	R_{thJC} K/W	Diode	I_{F110} Diode T_C = 110°C A	R_{thJC} max. Diode K/W	P_C W	Fig. No.
C3 Class (20-50 kHz switching)												
IXYA 8N90C3D1	900	20	8	2.5	163	0.22	1.20	•	12	2.5	125	X011b
IXYP 8N90C3		20	8	2.5	163	0.22	1.20				125	X005a
IXYP 8N90C3D1		20	8	2.5	163	0.22	1.20	•	12	2.5	125	X005a
IXYY 8N90C3		20	8	2.5	163	0.22	1.20				125	X004
IXYH 24N90C3		44	24	2.7	130	0.55	0.62				240	X014a
IXYH 24N90C3D1		44	-24	2.7	130	0.55	0.62	•	15	1.6	200	X014a
IXYH 40N90C3D1		90	40	2.5	150	1.2	0.25	•	25	0.9	500	X014a
IXYH 40N90C3		105	40	2.5	150	1.2	0.25				600	X014a
IXYN 80N90C3H1		115	-70	2.7	-98	-2.5	0.25	•	42	0.42	500	X027a
IXYH 60N90C3		140	60	2.7	-165	-2.15	0.20				750	X014a
IXYH 80N90C3		165	80	2.7	-98	-2.5	0.18				830	X014a
IXYT 80N90C3		165	80	2.7	-98	-2.5	0.18				830	X019
IXYK 140N90C3		310	140	2.7	-125	-5	0.092				1630	X020a
IXYX 140N90C3		310	140	2.7	-125	-5	0.092				1630	X015a
B3 Class (5-30 kHz switching)												
IXYH 40N120B3D1	1200	86	40	2.9	206	2.05	0.26	•	25	0.9	480	X014a
IXYH 40N120B3		96	40	2.9	206	2.05	0.26				577	X014a
IXYN 100N120B3H1		165	76	2.6	° 260	10.1 °	0.18	•	42	0.42	690	X027a
IXYK 100N120B3		225	100	2.6	° 260	10.1 °	0.13				1150	X020a
IXYX 100N120B3		225	100	2.6	° 260	10.1 °	0.13				1150	X015a
IXYK 120N120B3		320	120	2.2	° 406	27.9 °	0.10				1500	X020a
IXYX 120N120B3		320	120	2.2	° 407	27.9 °	0.10				1500	X015a
C3 Class (20-50 kHz switching)												
IXYH 20N120C3D1	1200	36	17	3.4	° 105	0.7 °	0.54	•	23	0.90	230	X014a
IXYT 20N120C3D1HV		36	17	3.4	° 105	0.7 °	0.54	•	23	0.90	230	X019a
IXYA 20N120C3HV		40	20	3.4	° 105	0.7 °	0.54				278	X011c
IXYH 20N120C3		40	20	3.4	° 105	0.7 °	0.54				278	X014a
IXYP 20N120C3		40	20	3.4	° 105	0.7 °	0.54				278	X005a
IXYR 50N120C3D1		56	* 32	4.0	° 60	1.4 °	0.43	•	25	0.90	290	X016a
IXYH 30N120C3D1		66	30	4.0	88	0.9	0.30	•	25	0.90	416	X014a
IXYH 30N120C3		75	30	3.3	° 140	1.6 °	0.30				500	X014a
IXYP 30N120C3		75	30	3.3	° 140	1.6 °	0.30				500	X005a
IXYH 40N120C3D1		80	* 40	3.5	° 143	2.1 °	0.26	•	25	0.90	480	X014a
IXYH 40N120C3		90	40	3.5	° 143	2.1 °	0.26				577	X014a
IXYH 50N120C3D1		90	**50	4.0	° 60	1.4 °	0.20	•	25	0.90	625	X014a
IXYH 50N120C3		100	50	3.5	60	1.4	0.20				750	X014a
IXYR 100N120C3		104	58	3.5	125	3.55	0.31				484	X016a
IXYN 82N120C3H1		105	46	3.2	95	3.7	0.25	•	42	0.42	500	X027a
IXYN 82N120C3		120	66	3.2	95	3.7	0.25				600	X027a
IXYN 100N120C3H1		134	62	3.5	125	3.55	0.18	•	42	0.42	690	X027a
IXYN 100N120C3		152	86	3.5	125	3.55	0.18				830	X027a
IXYB 82N120C3H1		164	82	3.2	95	3.7	0.12	•	42	0.35	1040	X021a
IXYK 100N120C3		188	100	3.5	125	3.55	0.13					X020a
IXYX 100N120C3		188	100	3.5	125	3.55	0.13					X015a
IXYH 82N120C3		200	82	3.2	95	3.7	0.12					X014a
IXYK 120N120C3		240	120	3.2	° 120	7.2 °	0.10				1500	X020a
IXYX 120N120C3		240	120	3.2	° 120	7.2 °	0.10				1500	X015a
IXYN 120N120C3		240	120	3.2	° 120	7.2 °	0.125				1200	X027a

* T_C = 90°C ** T_C = 100°C ° T_J = 150°C

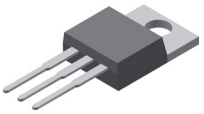
Package style

Outline drawings on pages O-36...O-59

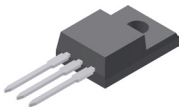
X004 **TO-252AA**



X005a **TO-220AB**



X007a **TO-220ABFP**



X011b **TO-263AB**



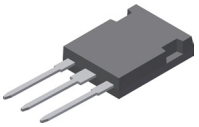
X011c **TO-263ABHV**



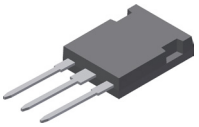
X014a **TO-247AD**



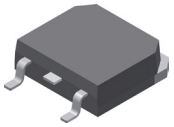
X015a **PLUS247**



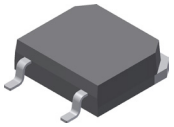
X016a **ISOPLUS247™**



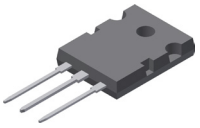
X019 **TO-268AA**

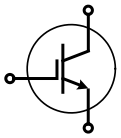


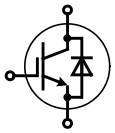
X019a **TO-268AAHV**



X020a **TO-264**



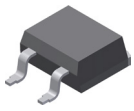

IXY ...


IXY...D1/H1

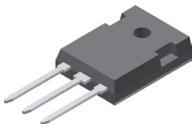
XPT™ Planar IGBT XPT = Xtreme light Punch Through

Part Number ➢ New	V_{CES} V	I_{C25} T_C = 25°C A	I_{C110} T_C = 110°C A	$V_{CE(sat)}$ T_C = 25°C V	t_{fi} typ. T_J = 150°C ns	E_{off} typ. T_J = 150°C mJ	R_{thJC} K/W	Diode	I_{F110} Diode T_C = 110°C A	R_{thJC} max. Diode K/W	P_C W	Fig. No.
1700V XPT™ Planar IGBTs												
IXYH 10N170C	1700	36	10	4.1	94	0.90	0.53				280	X014a
IXYH 10N170CV1		36	10	4.1	94	0.90	0.53	•	22	0.70	280	X014a
IXYF 30N170CV1		36	20	4.0	134	3.50	0.65	•	20	0.86	230	X024c
IXYH 16N170C		40	16	3.8	140	1.95	0.48				310	X014a
IXYH 16N170CV1		40	16	3.8	140	1.95	0.48	•	22	0.70	310	X014a
IXYH 24N170C		58	24	4.0	140	2.66	0.30				500	X014a
IXYH 24N170CV1		58	24	4.0	140	2.66	0.30	•	28	0.55	500	X014a
IXYN 30N170CV1		80	30	4.0	134	3.50	0.22	•	33	0.43	680	X027a
IXYL 50N170CV1		90	46	3.7	160	8.20	0.26	•	26	0.83	580	X022e
IXYH 30N170C		100	30	4.0	134	3.50	0.16				937	X014a
IXYK 30N170CV1		100	30	4.0	134	3.50	0.16	•	38	0.36	937	X020a
IXYX 30N170CV1		100	30	4.0	134	3.50	0.16	•	38	0.36	937	X015a
IXYN 50N170CV1		120	50	3.7	160	8.20	0.17	•	42	0.42	880	X027a
IXYX 50N170C		178	50	3.7	160	8.20	0.10				1500	X015a
2500V XPT™ Planar IGBTs												
IXYF 16N250CV1	2500	26	14	4.0	236	4.40	0.83	•	9	1.50	180	X024c
IXYA 12N250CHV		28	12	4.5	138	1.95	0.48				310	X011c
IXYH 12N250CHV		28	12	4.5	138	1.95	0.48				310	X014c
IXYH 12N250CV1HV		28	12	4.5	138	1.95	0.48	•	14	0.80	310	X014c
IXYT 12N250CV1HV		28	12	4.5	138	1.95	0.48	•	14	0.80	310	X019a
IXYA 8N250CHV		29	8	4.0	128	1.20	0.53				280	X011c
IXYH 8N250CHV		29	8	4.0	128	1.20	0.53				280	X014c
IXYH 8N250CV1HV		29	8	4.0	128	1.20	0.53	•	14	0.80	280	X014c
IXYH 16N250CV1HV		38	16	4.0	236	4.40	0.30	•	14	0.80	500	X014c
IXYL 40N250CV1		80	40	4.0	250	11.50	0.26	•	23	0.83	577	X022e
IXYH 25N250CHV		95	25	4.0	350	10.50	0.16				937	X014c
IXYT 25N250CHV		95	25	4.0	350	10.50	0.16				937	X019a
IXYX 25N250CV1		95	25	4.0	350	10.50	0.16	•	30	0.32	937	X015a
IXYX 25N250CV1HV		95	25	4.0	350	10.50	0.16	•	30	0.32	937	X015c
IXYX 40N250CHV		154	40	4.0	250	11.50	0.10				1500	X015c

X011c **TO-263ABHV**



X014a **TO-247AD**

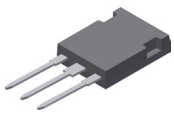


X014c **TO-247HV**

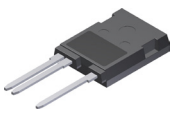


Outline drawings on pages O-36...O-59

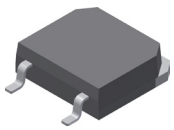
X015a **PLUS247**



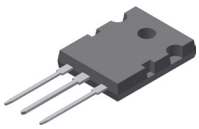
X015c **PLUS247 HV**



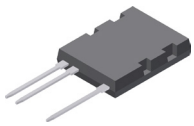
X019a **TO-268AAHV**



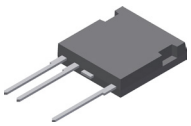
X020a **TO-264**



X022e **ISOPLUS264™**



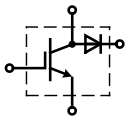
X024c **ISOPLUS i4-PAC™**

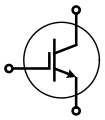


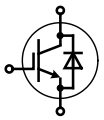
X027a **SOT-227B miniBLOC**



Discrete XPT™ / X2PT™ / NPT IGBT


IXA...R...


IXA...I... IXD...


IXA...IF... IXD...D1

XPT™ IGBT

XPT = Xtreme light Punch Through

Type ➢ New ○ Not for new design ✧ under development	V_{CES} V	I_{C25} IGBT T_C = 25°C A	I_{C100} IGBT T_C = 100°C A	V_{CEsat} typ IGBT T_J = 25°C V	E_{off} IGBT T_J = 125°C mJ	R_{thJC} IGBT K/W	Diode	I_{F100} Diode T_C = 100°C A	Fig. No.	Package style Outline drawings on pages O-36...O-59
1200 V XPT™ IGBT										X004 TO-252AA
IXA 4IF1200UC	1200	9	5	1.8	0.25	2.70	•	6	X004	
✧ **IXA 4IF1200PZ**		9	5	1.8	0.25	2.70	•	6	X011c	
IXA 4IF1200TC		9	5	1.8	0.25	2.70	•	6	X019	
IXA 12IF1200HB		20	13	1.8	1.10	1.50	•	14	X014a	
IXA 12IF1200PB		20	13	1.8	1.10	1.50	•	14	X005a	X005a TO-220AB
○ **IXA 12IF1200TC**		20	13	1.8	1.10	1.50	•	14	X019	
IXA 17IF1200HJ		28	18	1.8	1.70	1.26	•	19	X016a	
✧ **IXA 20IF1200HR**		33	19	1.8	1.70	0.95	•	22	X016c	
○ **IXA 20IF1200HB**		38	22	1.8	1.70	0.76	•	24	X014a	
IXA 20I1200PB		38	22	1.8	1.70	0.76		-	X005a	X011c TO-263ABHV
IXA 20I1200PZ		38	22	1.8	1.70	0.76		-	X011c	
IXA 27IF1200HJ		43	24	1.8	3.00	0.84	•	25	X016a	
✧ **IXA 30IF1200HR**		48	27	1.8	3.00	0.70	•	30	X016c	
IXA 33IF1200HB		58	34	1.8	3.00	0.50	•	33	X014a	X014a TO-247AD
IXA 37IF1200HJ		58	33	1.8	4.10	0.64	•	25	X016a	
✧ **IXA 40IF1200HR**		63	36	1.8	4.10	0.64	•	30	X016c	
IXA 45IF1200HB		78	45	1.8	4.10	0.38	•	33	X014a	
IXA 55I1200HJ		84	54	1.8	5.50	0.43		-	X016a	
IXA 60IF1200NA		88	56	1.8	5.50	0.43	•	51	X027a	X016a ISOPLUS247™
IXA 70I1200NA		100	65	1.8	5.50	0.35		-	X027a	
IXA 70R1200NA [1]		100	65	1.8	5.50	0.35	•	55	X027a	
1200 V Fast Trench IGBT										
➢ **ITF 48IF1200HR**	1200	72	56 (80°C)	2.05	2.4 (150°C)	0.38	•	(80°C) 50	X016c	X016c ISO247™
1200 V X2PT™ IGBT										
➢ **IXG 70IF1200NA**	1200	130	86	1.8	5.3 (150°C)	0.38	•	71	X027a	

[1] boost configuration

NPT IGBT

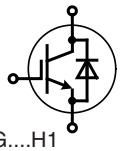
NPT = Non Punch Through

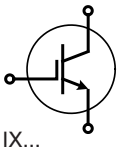
1200 V NPT IGBT									
○ **IXDH 20N120**	1200	38	25 (90°C)	2.4	2.4	0.63		-	X014a
○ **IXDH 20N120D1**		38	25 (90°C)	2.4	2.4	0.63	•	(90°C) 19	X014a
○ **IXDH 30N120D1**		60	38 (90°C)	2.4	3.4	0.42	•	(90°C) 35	X014a
○ **IXDR 30N120D1**		50	30 (90°C)	2.4	3.4	0.60	•	(90°C) 27	X016a
○ **IXDN 55N120D1**		100	62 (90°C)	2.3	6.2	0.28	•	(90°C) 60	X027a
○ **IXDN 75N120**		150	95 (90°C)	2.2	10.5	0.19		-	X027a

X019 TO-268AA

X027a SOT-227B miniBLOC

G-Series PT IGBTs


IXG....H1


IX...

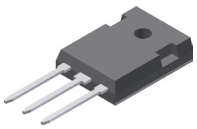
600 V, 1000 V and 1200 V IGBTs

Part Number	V_{CES} V	I_{C25} T_C = 25°C A	I_{C110} T_C = 110°C A	$V_{CE(sat)}$ max. T_J = 25°C V	t_{fi} typ. T_J = 25°C ns	E_{off} typ. T_J = 125°C mJ	R_{thJC} max. K/W	Diode	I_{F110} Diode T_C = 110°C A	R_{thJC} max. Diode K/W	PC W	Fig. No.	Package style Outline drawings on pages O-36...O-59
A3 Class (up to 5kHz switching)													X005a TO-220AB
IXGH 36N60A3D4	600	75	36	1.40	325	5.30	0.56	•	-	2.50	220	X014a	
IXGH 48N60A3D1		75	48	1.35	224	5.60	0.42	•	-	0.90	300	X014a	
IXGH 72N60A3		75	72	1.35	250	6.50	0.23	-	-	-	540	X014a	
IXGK 72N60A3H1		75	72	1.35	250	6.50	0.23	•	-	0.30	540	X020a	
IXGR 72N60A3H1		75	72	1.35	250	6.50	0.62	•	-	0.80	200	X016a	
IXGT 72N60A3		75	72	1.35	250	6.50	0.23	-	-	-	540	X019	
IXGX 72N60A3H1		75	72	1.35	250	6.50	0.23	•	-	0.30	540	X015a	
IXGH 56N60A3		150	56	1.35	315	6.75	0.38	-	-	-	330	X014a	
IXGN 72N60A3		160	68	1.35	250	6.50	0.35	-	-	-	360	X027a	
IXGN 120N60A3		200	120	1.35	260	10.40	0.21	-	-	-	595	X027a	
IXGN 120N60A3D1		200	120	1.35	260	10.40	0.21	•	-	0.85	595	X027a	
IXGX 120N60A3		200	120	1.35	260	10.40	0.16	-	-	-	780	X015a	
IXGK 320N60A3		320	210	1.25	740	na	0.13	-	-	-	1000	X020a	
IXGN 320N60A3		320	170	1.25	740	na	0.17	-	-	-	735	X027a	
IXGX 320N60A3		320	210	1.25	740	na	0.13	-	-	-	1000	X015a	
IXGN 400N60A3		400	190	1.25	270	na	0.15	-	-	-	830	X027a	
IXGA 36N60A3		na	36	1.40	325	5.30	0.56	-	-	-	220	X011b	
IXGA 48N60A3		na	48	1.35	224	5.60	0.42	-	-	-	300	X011b	
IXGH 36N60A3		na	36	1.40	325	5.30	0.56	-	-	-	220	X014a	
IXGH 48N60A3		na	48	1.35	2.24	5.60	0.42	-	-	-	300	X014a	
IXGH 64N60A3		na	64	1.35	222	6.00	0.27	-	-	-	460	X014a	
IXGP 36N60A3		na	36	1.40	325	5.30	0.56	-	-	-	220	X005a	
IXGP 48N60A3		na	48	1.35	224	5.60	0.42	-	-	-	300	X005a	
IXGH 32N100A3	1000	75	32	2.20	540	13.00	0.42	-	-	-	300	X014a	
IXGT 32N100A3		75	32	2.20	540	13.00	0.42	-	-	-	300	X019	
IXGA 12N120A3	1200	22	na	3.00	1035	na	1.25	-	-	-	100	X011b	
IXGH 12N120A3		22	na	3.00	1035	na	1.25	-	-	-	100	X014a	
IXGP 12N120A3		22	na	3.00	1035	na	1.25	-	-	-	100	X005a	
IXGA 20N120A3		40	20	2.50	715	10.10	0.69	-	-	-	180	X011b	
IXGH 20N120A3		40	20	2.50	715	10.10	0.69	-	-	-	180	X014a	
IXGP 20N120A3		40	20	2.50	715	10.10	0.69	-	-	-	180	X005a	
IXGR 55N120A3H1		70	30	2.35	282	29.00	0.62	•	-	0.42	200	X016a	
IXGH 32N120A3		75	na	2.35	1240	na	0.42	-	-	-	300	X014a	
IXGT 32N120A3		75	32	2.35	1240	na	0.42	-	-	-	300	X019	
IXGK 55N120A3H1		125	55	2.30	282	29.00	0.27	•	-	0.42	460	X020a	
IXGX 55N120A3H1		125	55	2.30	282	29.00	0.27	•	-	0.42	460	X015a	
IXGK 120N120A3		240	120	2.20	325	58.00	0.15	-	-	-	830	X020a	
IXGX 120N120A3		240	120	2.20	325	58.00	0.15	-	-	-	830	X015a	
IXGK 82N120A3		260	82	2.05	780	22.50	0.10	-	-	-	1250	X020a	
IXGX 82N120A3		260	82	2.05	780	22.50	0.10	-	-	-	1250	X015a	

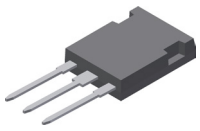
X011b **TO-263AB**



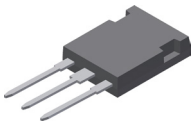
X014a **TO-247AD**



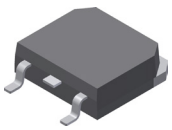
X015a **PLUS247**



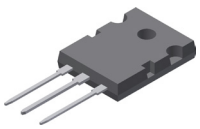
X016a **ISOPLUS247™**



X019 **TO-268AA**



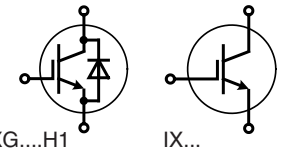
X020a **TO-264**



X027a **SOT-227B miniBLOC**



High Voltage NPT IGBTs



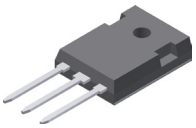
1700 V Low On-State Voltage NPT IGBTs

➢ New Part Type	V_{CES} V	I_C T_C = 25°C A	I_C T_C = 90°C (110°C) A	$V_{CE(sat)}$ T_C = 25°C V	E_{off} typ T_J = 125°C mJ	R_{thJC} K/W	Diode	Fig. No.
IXGH 6N170	1700	12	6	4.0	2.0	1.65		X014a
IXGT 6N170		12	(6)	4.0	2.0	1.65		X019
IXGH 10N170		20	10	4.0		1.10		X014a
IXGT 10N170		20	10	4.0		1.10		X019
IXGH 16N170		32	16	3.5	11.2	0.65		X014a
IXGT 16N170		32	16	3.5	11.2	0.65		X019
IXGF 32N170		44	-19	3.5	13.5	0.62		X024c
IXGH 24N170		50	24	3.3	12.0	0.50		X014a
IXGT 24N170		50	24	3.3	12.0	0.50		X019
IXGH 32N170		75	32	3.3	14.0	0.35		X014a
IXGT 32N170		75	32	3.3	14.0	0.35		X019
IXGN 100N170		160	95	3.0		0.17		X027a
IXGX 100N170		170	100	3.0		0.15		X015a
IXGK 100N170		170	100	3.0		0.15		X020a
IXGN 200N170		280	160	2.6	44.0	0.10		X027a

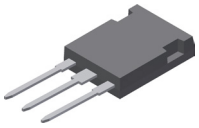
Package style

Outline drawings on pages O-36...O-59

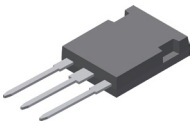
X014a **TO-247AD**



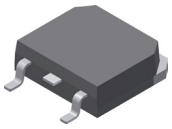
X015a **PLUS247**



X016a **ISOPLUS247™**



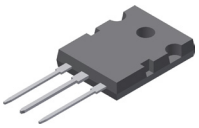
X019 **TO-268AA**



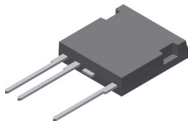
1700 V NPT IGBTs

Part Type	V_{CES} V	I_C T_C = 25°C A	I_C T_C = 90°C (110°C) A	$V_{CE(sat)}$ T_C = 25°C V	t_{fi} typ T_J = 25°C ns	E_{off} typ T_J = 125°C mJ	R_{thJC} K/W	Fig. No.
IXGR 6N170A	1700	5.5	(2.5)	7	32	0.25	2.50	X016a
IXGH 6N170A		6	(3)	7	32	0.26	1.65	X014a
IXGT 6N170A		6	(3)	7	32	0.26	1.65	X019
IXGH 10N170A		10	(5)	6	35	0.60	0.89	X014a
IXGT 10N170A		10	5	6	35	0.60	0.89	X019
IXGH 16N170A		16	11	5	70	2.00	0.65	X014a
IXGT 16N170A		16	11	5	70	2.00	0.65	X019
IXGH 24N170A		24	16	6	40	1.47	0.50	X014a
IXGT 24N170A		24	16	6	40	1.47	0.50	X019
IXGH 32N170A		32	21	5	50	2.40	0.35	X014a
IXGT 32N170A		32	21	5	50	2.40	0.35	X019

X020a **TO-264**



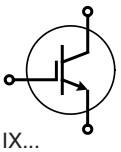
X024c **ISOPLUS i4-PAC™**



X027a **SOT-227B miniBLOC**



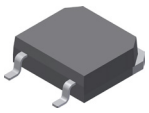
Very High Voltage NPT IGBTs



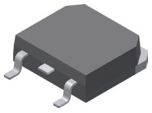
2.5 kV - 4.5 kV NPT IGBT

➢ New Part Type	V_{CES} V	I_{C25} T_C = 25°C A	I_{C110} T_C = [90°C] 110°C (100°C) A	$V_{CE(sat)}$ max. T_C = 25°C V	t_{fi} typ T_J = 25°C ns	E_{off} typ T_J = 125°C mJ	R_{thJC} IGBT K/W	P_C W	Fig. No.	Package style (Outline drawings on pages O-36...O-59)
IXGF 20N250	2500	23	[14]	3.1	930	na	1.25	100	X024c	X011c TO-263ABHV
IXGA 20N250HV		30	12	3.1	930	na	0.83	150	X011c	
IXGF 25N250		30	15	2.9	200	na	1.10	114	X024c	
IXLF 19N250A		32	[19]	3.9	250	30	0.50	250	X024c	
IXGH 25N250		60	25	2.9	200	na	0.50	250	X014a	
IXGT 25N250		60	25	2.9	200	na	0.50	250	X019	X014a TO-247AD
IXGT 25N250HV		60	25	2.9	200	na	0.50	250	X019a	
IXGL 75N250		110	[65]	2.9	455	na	0.29	430	X022e	
IXGK 75N250		170	75	2.7	455	na	0.16	780	X020a	
IXGX 75N250		170	75	2.7	455	na	0.16	780	X015a	
➢ IXG 65I3300KN	3300	85	(48)	2.8	900	52	0.34	368	X022e	
IXEL 40N400	4000	90	40	3.5	425	205	0.26	380	X022e	X014c TO-247HV
IXG 50I4500KN	4500	74	(42)	3.2	1350	73	0.34	368	X022e	
IXYF 30N450		23	17	3.9	1220	na	0.54	230	X024c	
IXYT 30N450HV		60	30	3.9	1220	na	0.29	430	X019a	
IXYF 40N450		60	32	3.9	1120	na	0.43	290	X024c	
IXYH 30N450HV		60	30	3.9	1220	na	0.29	430	X014c	
IXYL 60N450		90	38	3.3	1360	na	0.30	417	X022e	X015a PLUS247
IXYX 40N450HV		95	40	3.9	1120	na	0.19	660	X015c	

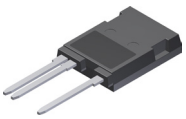
X019a **TO-268AAHV**



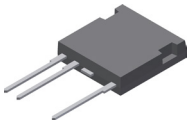
X019 **TO-268AA**



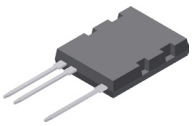
X015c **PLUS247HV**



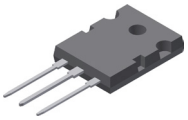
X024c **ISOPLUS i4-PAC™**



X022e **ISOPLUS264™**

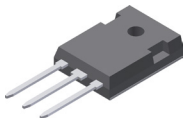
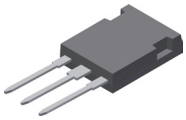
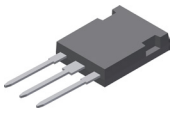


X020a **TO-264**

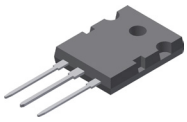


BiMOSFETs (Monolithic Bipolar MOS Transistors)

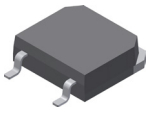
Reverse Conducting IGBTs (BiMOSFET™) 1.6 kV - 2.5 kV

Type	V_{CES} V	I_{C25} T_C = 25°C A	I_{C90} T_C = 90°C (110°C) A	$V_{CE(sat)}$ typ (max) T_C = 25°C (110°C) V	Q_G typ nC	t_f (t_{fi}) typ T_C = 125°C ns	R_{thJC} max. K/W	Fig. No.	Package style (Outline drawings on pages O-36...O-59)
IXBH 6N170	1700	12	6.0	2.84	17	600	1.65	X014a	
IXBT 6N170		12	6.0	2.84	17	600	1.65	X019	X011c **TO-263ABHV**
IXBA 16N170AHV		16	10	(6.00)	65	-150	0.83	X011c	
IXBH 16N170A		16	10	(6.00)	65	-150	0.83	X014a	
IXBT 16N170A		16	10	(6.00)	65	-150	0.83	X019	
IXBT 16N170AHV		16	10	(6.00)	65	-150	0.83	X019a	
IXBH 10N170		20	10	3.40	30	-150	0.89	X014a	
IXBT 10N170		20	10	3.40	30	-150	0.89	X019	
IXBN 42N170A		38	21	5.20	188	-82	0.40	X027a	X014a **TO-247AD**
IXBH 16N170		40	16	(3.30)	72	705	0.50	X014a	
IXBT 16N170		40	16	(3.30)	72	705	0.50	X019	
IXBH 42N170A		42	21	5.20	188	-82	0.35	X014a	
IXBT 42N170A		42	21	5.20	188	-82	0.35	X019	
IXBR 42N170		57	32	(2.90)	188	740	0.62	X016a	
IXBH 24N170		60	(24)	(2.50)	140	960	0.50	X014a	X015a **PLUS247**
IXBT 24N170		60	(24)	(2.50)	140	960	0.50	X019	
IXBH 42N170		80	42	(2.80)	188	740	0.35	X014a	
IXBT 42N170		80	42	(2.80)	188	740	0.35	X019	
IXBX 75N170A		110	65	4.95	358	-175	0.12	X015a	
IXBN 75N170		145	75	2.60	350	580	0.20	X027a	
IXBK 75N170		200	(75)	2.60	350	580	0.12	X020a	
IXBX 75N170		200	(75)	2.60	350	580	0.12	X015a	X016a **ISOPLUS247™**
IXCH 36N250	2500	73	(36)	2.60	177	900	0.21	X014a	
IXCK 36N250		73	(36)	2.60	177	900	0.21	X020a	
IXBL 64N250		116	(46)	2.50	400	175	0.25	X022e	
IXBK 64N250		156	(64)	2.50	400	175	0.17	X020a	
IXBX 64N250		156	(64)	2.50	400	175	0.17	X015a	

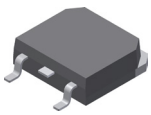
X020a **TO-264**



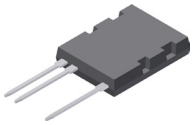
X019a **TO-268AAHV**



X019 **TO-268AA**



X022e **ISOPLUS264™**



X027a **SOT-227B miniBLOC**

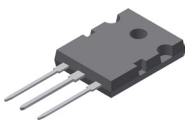


BiMOSFETs (Monolithic Bipolar MOS Transistors)

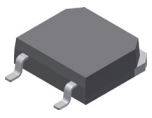
Reverse Conducting IGBTs (BiMOSFET™) 3 kV - 3.6 kV

➢ New Type	V_{CES} V	I_{C25} T_C = 25°C A	I_{C90} T_C = 90°C (110°C) A	$V_{CE(sat)}$ typ T_C = 25°C V	Q_G typ nC	t_f (t_{fi}) typ T_C = 125°C ns	R_{thJC} max. K/W	Fig. No.	Package style (Outline drawings on pages O-36...O-59)
IXBF 14N300	3000	28	14	2.2	62	1730	1.04	X024c	
IXBH 10N300		30	(10)	2.8	45	1030	0.69	X014a	X011c **TO-263ABHV**
IXBA 10N300HV		34	(10)	2.2	46	2010	0.69	X011c	
IXBH 10N300HV		34	(10)	2.2	46	2010	0.69	X014c	
IXBF 22N300		38	22	2.2	110	1650	0.83	X024c	
IXBA 14N300HV		38	(14)	2.2	62	1730	0.62	X011c	
IXBH 14N300HV		38	(14)	2.2	62	1730	0.62	X014c	
IXBF 32N300		40	22	2.8	142	630	0.78	X024c	
IXBF 28N300		50	28	2.3	110	3280	0.58	X024c	X014a **TO-247AD**
IXBF 42N300		60	(24)	2.5	200	490	0.52	X024c	
IXBT 22N300HV		60	(22)	2.2	110	1650	0.43	X019a	
IXBH 22N300HV		60	(22)	2.2	110	1650	0.43	X014c	
IXBX 28N300HV		62	(28)	2.3	110	3280	0.36	X015c	
IXBH 32N300		80	(32)	2.8	142	630	0.31	X014a	
IXBH 32N300HV		80	(32)	2.8	142	630	0.31	X014c	
IXBT 32N300HV		80	(32)	2.8	142	630	0.31	X019a	
IXBF 55N300		86	(34)	2.7	335	260	0.35	X024c	
IXBH 42N300HV		104	(42)	2.5	200	490	0.25	X014c	X014c **TO-247HV**
IXBT 42N300HV		104	(42)	2.5	200	490	0.25	X019a	
IXBK 55N300		130	(55)	2.7	335	260	0.20	X020a	
IXBX 55N300		130	(55)	2.7	335	260	0.20	X015a	
IXBF 16N360	3600	26	16	2.5	65	115	1.00	X024c	
IXBF 20N360		45	(18)	2.9	110	1100	0.54	X024c	
IXBH 16N360HV		48	(16)	2.5	65	115	0.46	X014c	
IXBT 16N360HV		48	(16)	2.5	65	115	0.46	X019a	X015a **PLUS247**
IXBH 20N360HV		70	(20)	2.9	110	1100	0.29	X014c	
IXBT 20N360HV		70	(20)	2.9	110	1100	0.29	X019a	
IXBF 50N360		70	(28)	2.4	210	1670	0.43	X024c	
IXBL 60N360		92	(36)	2.8	450	1025	0.30	X022e	
IXBX 50N360HV		125	(50)	2.4	210	1670	0.19	X015c	

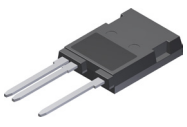
X020a **TO-264**



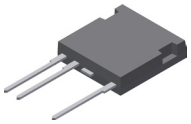
X019a **TO-268AAHV**



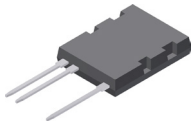
X015c **PLUS247HV**



X024c **ISOPLUS i4-PAC™**

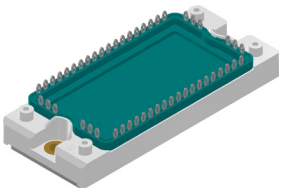


X022e **ISOPLUS264™**



IGBT Modules – CBI Configuration

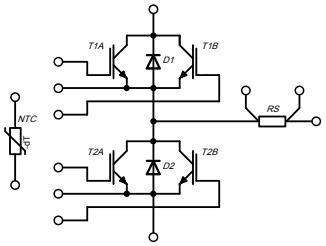
Phase Leg IGBT Module



X112a E2-Pack PFP

Outline drawings on pages O-36...O-59

See data sheet for pin arrangement



Type ➢ New	V_{CES} V	I_{C80} IGBT T_C = 80°C A	$V_{CE(sat)\ typ}$ IGBT T_J = 25°C V	E_{on} IGBT T_J = 150°C mJ	E_{off} IGBT T_J = 150°C mJ	R_{thJC} IGBT K/W	I_{F80} Diode T_C = 80°C A	R_{thJC} Diode K/W
1200 V X2PT™ IGBT with shunt								
➢ **MIXG 360PF1200PSTED** [1]	1200	420 [3]	1.7	32	32	0.08	340	0.13
➢ **MIXG 360PF1200PSTED-PC** [1] [2]		420 [3]	1.7	32	32	0.08	340	0.13

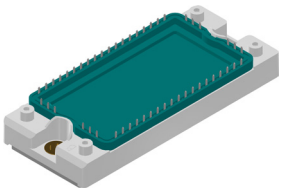
[1] Press fit pin version [2] phase change material (PCM)

[3] Rating correlates to parallel operation of T1A@T1B (resp. T2A@T2B)

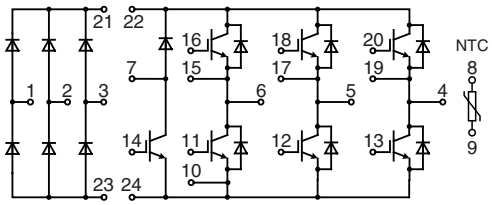
CBI 2 IGBT Modules

Outline drawings on pages O-36...O-59

See data sheet for pin arrangement



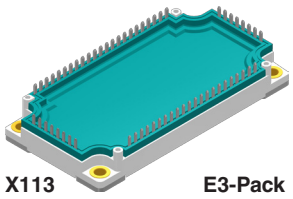
X112 E2-Pack



Type ○ Not for new design	Rectifier 3~ V_{RRM} V	I_{DAVM} T_C = 80°C A	R_{thJC} typ. K/W	Inverter 3~ V_{CES} V	I_C T_C = 25°C A	I_C T_C = 80°C A	$V_{CE(sat)}$ typ. V	R_{thJC} typ. K/W	Brake chopper V_{CES} V	I_C T_C = 80°C A	R_{thJC} typ. K/W	Layout
1200 V NPT IGBT												
○ **MUBW 15-12A7**	1600	24	1.3	600	35	25	2.0	0.70	600	15	1.2	A
○ **MUBW 25-12A7**		24	1.3		50	35	2.2	0.55		15	1.2	A
○ **MUBW 35-12A7**		29	1.1		50	35	2.5	0.55		25	0.7	A
1200 V XPT IGBT												
MIXA 10WB1200TED	1600	105	1.1	1200	17	12	1.8	2.00	1200	12	2.0	A
MIXA 20WB1200TED		105	1.1		28	20	1.8	1.26		12	2.0	A
MIXA 30WB1200TED		105	1.1		43	30	1.8	0.84		12	2.0	A
MIXA 40WB1200TED		105	1.1		50	40	1.8	0.64		20	1.26	A

IGBT Modules – CBI Configuration

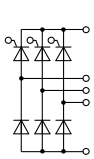
CBI 3
IGBT Modules



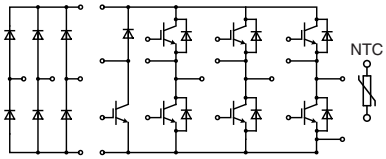
X113 E3-Pack

Outline drawings on pages O-36...O-59

See data sheet for pin arrangement



MIXA...WH...



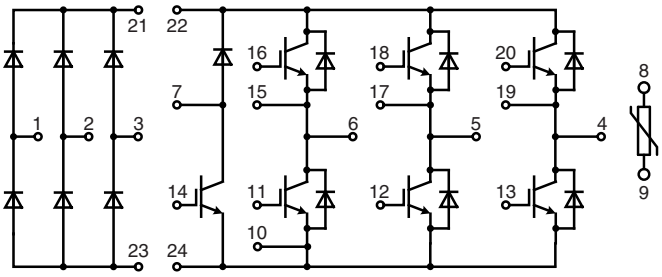
MIXA...WB.... MUBW...

Type	Rectifier 3~			Inverter 3~					Brake chopper			Layout
➢ New	V_{RRM}	I_{DAVM}	R_{thJC}	V_{CES}	I_C	I_C	$V_{CE(sat)}$	R_{thJC}	V_{CES}	I_C	R_{thJC}	
○ Not for new design		T_H = 80°C	typ.		T_C = 25°C	T_C = 80°C	typ.	typ.		T_C = 80°C	typ.	
✧ under development	V	A	K/W	V	A	A	V	K/W	V	A	K/W	
1200 V NPT IGBT												
○ **MUBW 50-12A8**	1600	46	0.94	1200	85	60	2.2	0.35	1200	35	0.55	A
1200 V Trench IGBT												
○ **MUBW 75-12T8**	1600	50	0.94	1200	105	75	1.7	0.35	1200	35	0.55	A
1200 V XPT™ IGBT												
MIXA 60WB1200TEH	1600	190	0.65	1200	85	60	1.8	0.43	1200	40	0.64	A
MIXA 60WH1200TEH [1]		135	0.65		85	60	1.8	0.43		40	0.64	C
MIXA 80WB1200TEH		265	0.50		120	84	1.8	0.32		40	0.64	A
✧ **MIXA 81WB1200TEH**		290	0.45		120	84	1.8	0.32		60	0.43	B
1700 V Trench IGBT												
MUBW 50-17T8	2200	130	1.10	1700	74	53	2.0	0.49	1700	34	0.62	A
➢ **MUBW 50-17T8-PFPC** [2]		130	1.10		74	53	2.0	0.49		34	0.62	A
MUBW 75-17T8		155	0.95		113	80	2.0	0.28		34	0.62	A
➢ **MUBW 75-17T8-PFPC** [2]		155	0.95		113	80	2.0	0.28		34	0.62	A

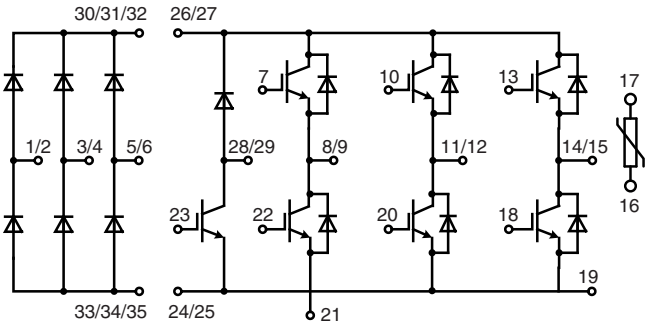
[1] Input rectifier half-controlled; [2] with press fit pins and pre applied phase change material

Options: press fit pin version and phase change material; please contact IXYS sales office for availability.

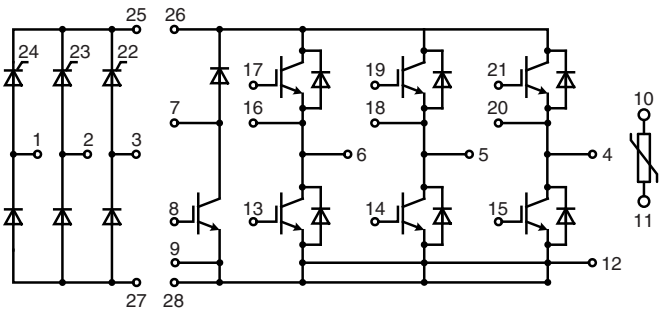
Layout A



Layout B

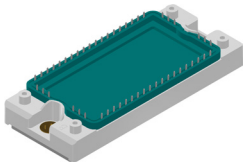


Layout C



IGBT Modules – Six-Pack configuration

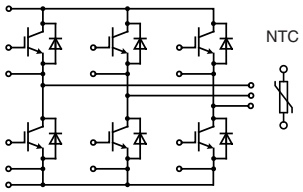
Six-Pack IGBT Modules



X112 E2-Pack

Outline drawings on pages O-36...O-59

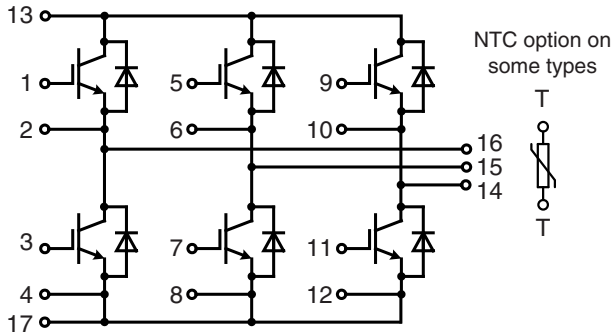
See data sheet for pin arrangement



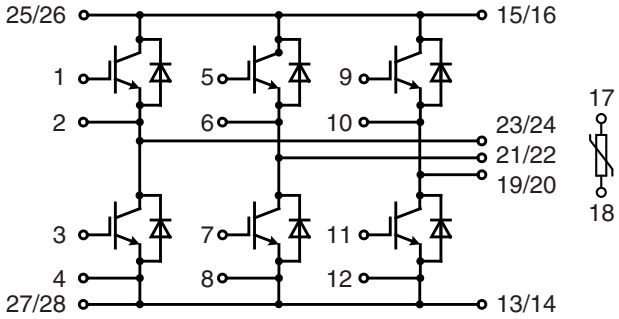
Type ✧ under development ○ Not for new design ➢ New	V_{CES} V	I_{C25} IGBT T_C = 25°C A	I_{C80} IGBT T_C = 80°C A	$V_{CE(sat)\ typ}$ IGBT T_J = 25°C V	E_{off} IGBT T_J = 125°C mJ	R_{thJC} IGBT K/W	I_{F25} Diode T_C = 25°C A	I_{F80} Diode T_C = 80°C A	NTC	Layout
1200 V NPT IGBT										
○ **MWI 15-12A7**	1200	30	20	1.0	1.8	0.88	25	17		A
○ **MWI 25-12A7**		50	35	2.2	2.8	0.55	50	33		A
1200 V XPT™ IGBT										
MIXA 30W1200TED [1]	1200	43	30	1.8	3.0	0.84	44	29	•	B
MIXA 40W1200TED [1]		60	40	1.8	4.1	0.64	44	29	•	B
➢ **MIXA 41W1200ED** [1]		60	40	1.8	4.1	0.64	44	29		A
MIXA 60W1200TED [1]		85	60	1.8	5.5	0.43	88	59	•	B
MIXA 80W1200TED [1]		120	84	1.8	8.3	0.32	135	90	•	B
1200 V X2PT™ IGBT										
➢ **MIXG 70W1200TED** [1]	1200	105	79	1.7	5.3 (150°C)	0.42	88	59	•	B
1200 V Trench IGBT										
○ **MWI 50-12T7T**	1200	75	50	1.7	6.5	0.49	110	70	•	B
○ **MWI 75-12T7T**		105	75	1.7	9.5	0.35	150	100	•	B

[1] Options: press fit pin version and phase change material; please contact IXYS sales office for availability

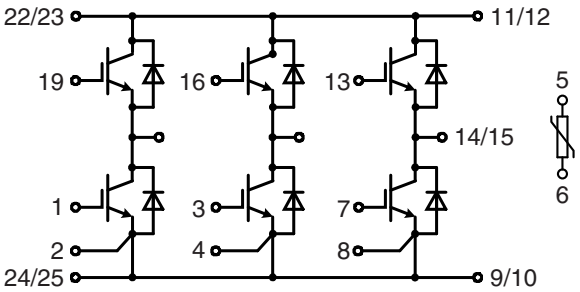
Layout A



Layout B



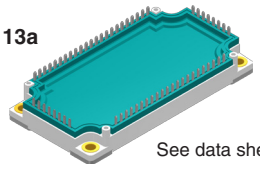
Layout C



IGBT Modules – Six-Pack configuration

Six-Pack IGBT Modules

X113/X113a



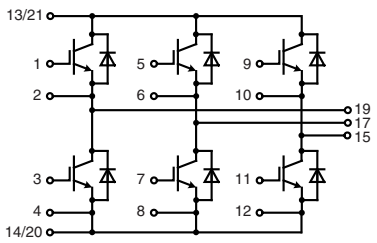
E3-Pack/PFP

See data sheet for pin arrangement

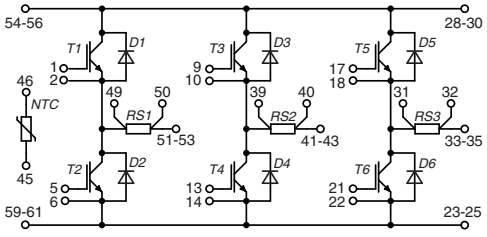
Package style
Outline drawings
on pages O-36...O-59

Type ✧ under development ○ Not for new design ➢ New	V_{CES} V	I_{C25} IGBT T_C = 25°C A	I_{C80} IGBT T_C = 80°C A	$V_{CE(sat)\ typ}$ IGBT T_J = 25°C V	E_{off} IGBT T_J = 125°C mJ	R_{thJC} IGBT K/W	I_{F25} Diode T_C = 25°C A	I_{F80} Diode T_C = 80°C A	NTC	Layout
1200 V NPT IGBT										
○ **MWI 100-12A8**		160	110	2.2	14.6	0.19	200	130		A
1200 V SPT+ IGBT										
○ **MIEB 100W1200DPFTEH**	1200	183	128	1.8	9.7	0.20	135	90	•	B
○ **MIEB 101W1200EH**		183	128	1.8	9.7	0.20	135	90		A
1200 V XPT™ IGBT										
MIXA 80W1200TEH [1]	1200	120	84	1.8	8.3	0.32	135	90	•	B
MIXA 100W1200TEH [1]		155	108	1.8	11.0	0.25	135	90	•	B
MIXA 150W1200TEH [1]		220	150	1.8	16.0	0.18	190	130	•	B
1200 V X2PT™										
MIXG 120W1200DPFTEH [1]	1200	185	140	1.7	8.2 (150°C)	0.30	199	127	•	B
MIXG 120W1200TEH [1]		185	140	1.7	8.2 (150°C)	0.30	180	135	•	B
➢ **MIXG 120W1200PTEH** [2]		185	140	1.7	8.2 (150°C)	0.30	180	135	•	B
✧ **MIXG 120W1200PTEH-PC** [2] [3]		185	140	1.7	8.2 (150°C)	0.30	180	135	•	B
MIXG 180W1200TEH [1]		260	195	1.7	14.7 (150°C)	0.18	230	170	•	B
➢ **MIXG 180W1200PTEH** [2]		260	195	1.7	14.7 (150°C)	0.18	230	170	•	B
➢ **MIXG 180W1200PTEH-PC** [2] [3]		260	195	1.7	14.7 (150°C)	0.18	230	170	•	B
MIXG 240W1200TEH [1]		312	233	1.7	20.5 (150°C)	0.16	200	144	•	B
✧ **MIXG 240W1200PTEH** [2]		312	233	1.7	20.5 (150°C)	0.16	200	144	•	B
✧ **MIXG 240W1200PTEH-PC** [2] [3]		312	233	1.7	20.5 (150°C)	0.16	200	144	•	B
1200 V X2PT™ with Shunt Resistor										
✧ **MIXG 120W1200STEH** [1]	1200	185	140	1.7	8.2 (150°C)	0.24	180	135	•	C
✧ **MIXG 180W1200STEH** [1]		260	195	1.7	14.7 (150°C)	0.18	230	170	•	C
✧ **MIXG 240W1200ZTEH** [1]		312	233	1.7	20.5 (150°C)	0.16	189	136	•	C
➢ **MIXG 240W1200PZTEH** [2]		312	233	1.7	20.5 (150°C)	0.16	189	136	•	C
MIXG 240W1200PZTEH-PC [2] [3]		312	233	1.7	20.5 (150°C)	0.16	189	136	•	C

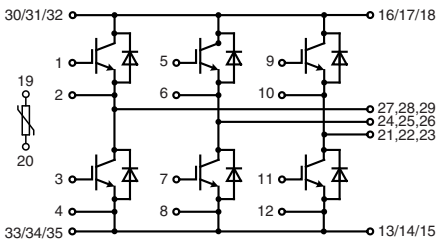
[1] Options: press fit pin version and / or phase change material; please contact IXYS sales office for availability
[2] press fit pin version [3] phase change material (PCM)



Layout A



Layout C

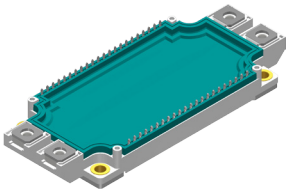


Layout B

IGBT XPT™ Modules in SimBus F package

- space savings
- reduced protection circuits
- package designed for wave soldering
- press fit pin version available

See data sheet for pin arrangement



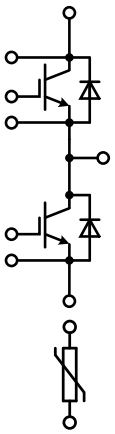
X143 **Simbus F**

Package style
Outline drawings
on pages O-36...O-59

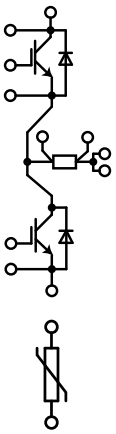
Type ➢ New ✧ under development	V_{CES} V	I_{C80} IGBT T_C = 80°C A	$V_{CE(sat)\ typ}$ IGBT T_J = 25°C V	E_{on} IGBT T_J = 125°C mJ	E_{off} IGBT T_J = 125°C mJ	R_{thJC} IGBT K/W	I_{F80} Diode T_C = 80°C A	R_{thJC} Diode K/W
XPT™ / X2PT™ IGBT Phase-Leg								
MIXA 225PF1200TSF	1200	250	1.80	20	27	0.115	185	0.145
MIXA 300PF1200TSF		325	1.80	20	42	0.085	185	0.145
MIXA 450PF1200TSF		450	1.80	22	68	0.060	265	0.095
MIXG 300PF1700TSF	1700	315	2.10	60	69	0.078	205	0.180
MIXG 450PF1700TSF		435	2.10	110	108	0.061	330	0.110
XPT™ / X2PT™ IGBT Brake / Boost								
➢ **MIXA 225RF1200TSF**	1200	250	1.80	20	27	0.115	185	0.145
✧ **MIXG 450RF1700TSF**	1700	435	2.10	110	108	0.061	330	0.110

Options: press fit pin version and phase change material; please contact IXYS sales office for availability

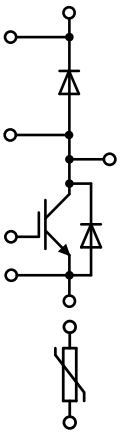
...PF...
phase-leg



...PF...
phase-leg & shunt



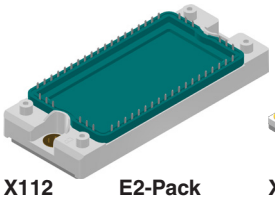
...RF...
brake / boost



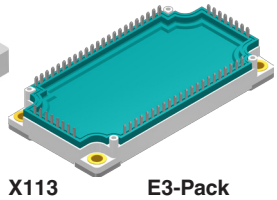
IGBT Full Bridge and Brake / Buck Modules

Outline drawings on pages O-36...O-59

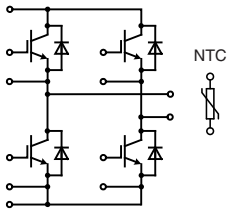
See data sheet for pin arrangement



X112 E2-Pack



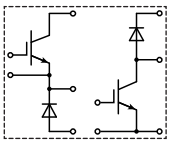
X113 E3-Pack



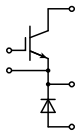
Full Bridge IGBT Modules

○ Not for new design	Type	Technology	V_{CES} V	I_{C25} IGBT T_C = 25°C A	I_{C80} IGBT T_C = 80°C A	$V_{CE(sat)\ typ}$ IGBT T_J = 25°C V	E_{off} IGBT T_J = 125°C mJ	I_{F80} Diode T_C = 80°C A	NTC	Fig. No.
○	**MKI 50-12F7**	Fast NPT	1200	65	45	3.2	2.5	70		X112
	MKI 100-12F8			65	45	3.2	2.5	70		X113
○	**MIXA 61H1200ED**	XPT	1200	85	60	1.8	5.5	59		X112
○	**MIXA 81H1200EH**			120	84	1.8	8.3	90		X113

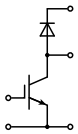
Brake / Buck / Boost Chopper IGBT Modules



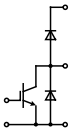
MIXA...HU...



MIXA...Q...



MIXA...R...



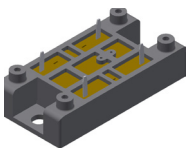
...RF...

➢ New	Type	V_{CES} V	I_{C25} IGBT T_C = 25°C A	I_{C80} IGBT T_C = 80°C A	$V_{CE(sat)}$ typ IGBT T_J = 25°C V	E_{off} IGBT T_J = 125°C mJ	R_{thJC} IGBT K/W	I_{F25} Diode T_C = 25°C A	I_{F80} Diode T_C = 80°C A	Fig. No.
	X2PT™ IGBT Brake									
✧	**MIXG 240RF1200TED** [1]	1200	335	250	1.7	23 (150°C)	0.12	265	195	X112
➢	**MIXG 240RF1200PTED** [2]		335	250	1.7	23 (150°C)	0.12	265	195	X112a
➢	**MIXG 240RF1200PTED-PC** [2] [3]		335	250	1.7	23 (150°C)	0.12	265	195	
➢	**MIXG 360RF1200TED** [1]		532	400	1.7	30 (150°C)	0.08	390	285	X112
	MIXG 360RF1200PTED-PC [2] [3]		532	400	1.7	30 (150°C)	0.08	390	285	X112a
	Trench IGBT Brake									
➢	**MITA 300RF1700PTED** [2]	1700	450	310	1.7	34	0.09	390	285	X112a
➢	**MITA 300RF1700PTED-PC** [2] [3]		450	310	1.7	34	0.09	390	285	
	XPT™ IGBT Brake / Boost Chopper									
	MIXA 80R1200VA	1200	120	84	1.9	8.3	0.32	135	90	X103
	MIXA 150R1200VA		220	150	1.8	16	0.18	190	130	
	XPT™ IGBT Buck Chopper									
	MIXA 150Q1200VA	1200	220	150	1.8	16	0.18	190	130	X103
	XPT™ IGBT Buck / Boost switched reluctance Chopper									
	MIXA 60HU1200VA	1200	85	60	1.8	5.5	0.43	88	59	X103

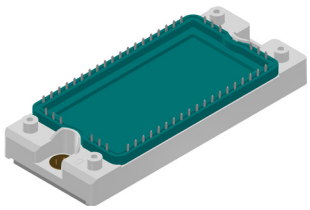
[1] Options: press fit pin version and / or phase change material; please contact IXYS sales office for availability

[2] press fit pin version [3] phase change material (PCM)

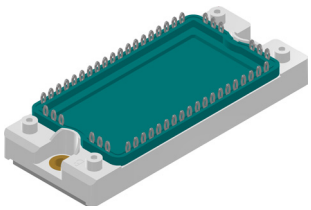
See data sheet for pin arrangements



X103 V1-Pack



X112 E2-Pack



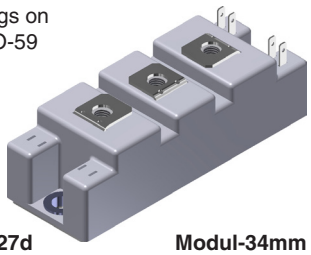
X112a E2-Pack PFP

Outline drawings on pages O-36...O-59

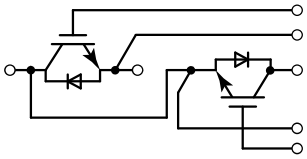
IGBT Half Bridge Modules

34 mm Package

Outline drawings on pages O-36...O-59



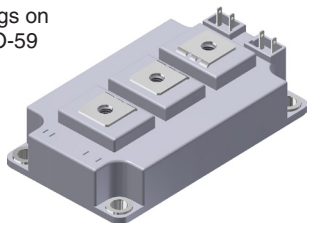
X127d Modul-34mm



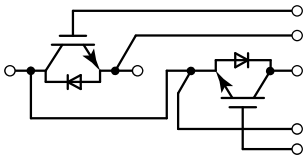
Type ➢ New	V_{CES} V	I_{C25} IGBT T_C = 25°C A	I_C IGBT A	@ T_C°C	$V_{CE(sat)\ typ}$ IGBT T_J = 25°C V	E_{off} IGBT T_J = 125°C mJ	$V_{F\ typ}$ Diode T_J = 25°C V	R_{thJC} Diode K/W	Fig. No.
➢ **MG0675S-BN4MM**	600	100	75	70	1.45	2.40	1.55	0.90	X127d
➢ **MG06100S-BN4MM**		125	100	70	1.45	3.35	1.55	0.75	
➢ **MG06150S-BN4MM**		225	150	60	1.45	5.30	1.55	0.50	
➢ **MG06200S-BN4MM**		300	200	60	1.45	6.90	1.55	0.45	
➢ **MG12100S-BN2MM**	1200	140	100	80	1.70	10.00	1.65	0.50	
➢ **MG12150S-BN2MM**		200	150	80	1.70	14.50	1.65	0.36	
➢ **MG1750S-BN4MM**	1700	75	50	80	2.00	15.50	1.80	0.55	
➢ **MG1775S-BN4MM**		125	75	80	2.00	23.50	1.80	0.45	
➢ **MG17100S-BN4MM**		150	100	80	2.00	32.50	1.80	0.36	

62 mm Package

Outline drawings on pages O-36...O-59



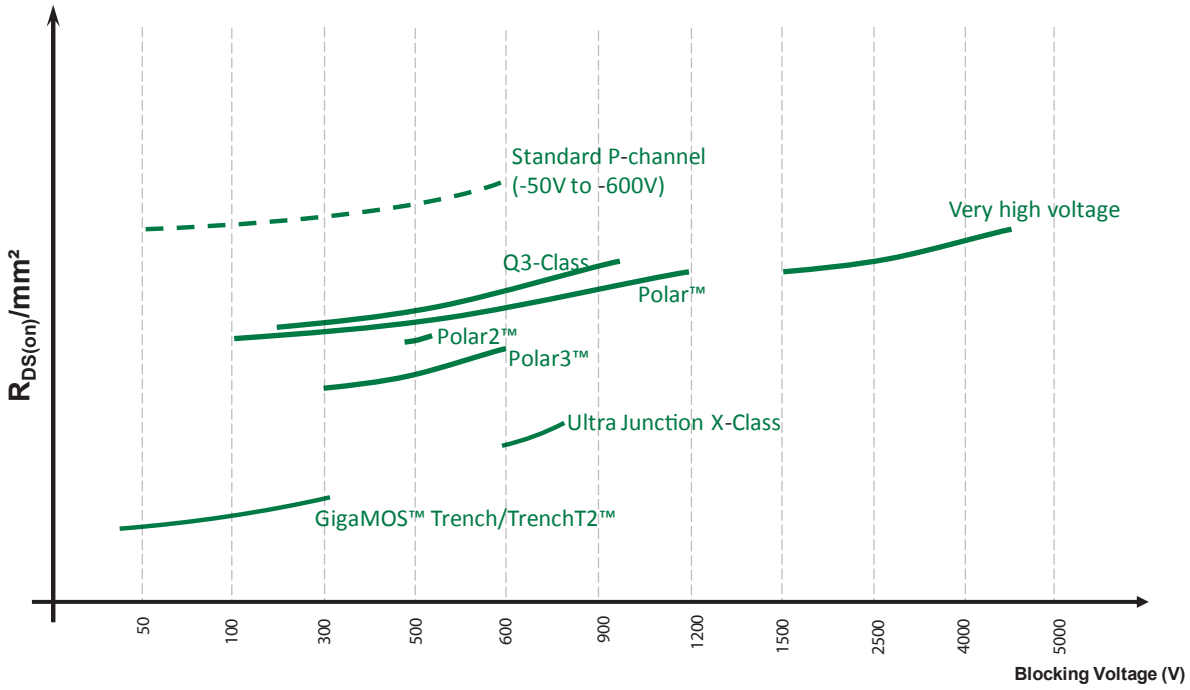
X128e Modul-62mm



➢ **MG06300D-BN4MM**	600	400	300	70	1.45	12	1.55	0.32	X128e
➢ **MG06400D-BN4MM**		500	400	70	1.45	15	1.55	0.22	
➢ **MG12200D-BN2MM**	1200	290	200	80	1.70	25	1.65	0.20	
➢ **MG12300D-BN2MM**		480	300	80	1.70	37	1.65	0.15	
➢ **MG12400D-BN2MM**		580	400	80	1.70	50	1.65	0.12	
➢ **MG17100D-BN4MM**	1700	150	100	80	2.00	31	1.80	0.26	
➢ **MG17150D-BN4MM**		250	150	80	2.00	47	1.80	0.21	
➢ **MG17200D-BN4MM**		300	200	80	2.00	63	1.80	0.16	
➢ **MG17300D-BN4MM**		400	300	80	2.00	94	1.80	0.13	

Power MOSFETs and MOSFET Modules

The Metal Oxide Semiconductor Field Effect Transistor (MOSFET) is a transistor that is used for high frequency switching control of power electronic systems. IXYS offer various MOSFET technology based on the customer requirement for voltage, switching frequency. A table giving a diagrammatic representation of our basic MOSFET offerings is given below.



Trench and Trench2 Power MOSFETs

IXYS Trench Power MOSFETs are ideally suited for low-voltage, high-current applications. These MOSFETs feature an exceptionally low $R_{DS(on)}$, thus guaranteeing low power dissipation. Trench HiPerFET™ versions feature all of the advantages presented by IXYS' Trench Standard Power MOSFETs with an added benefit of a fast intrinsic rectifier which provides low reverse recovery charge (Q_{rr}) and excellent commutating dV/dt ratings for enhanced power switching capabilities and device ruggedness.

Polar™ Power MOSFETs

Polar™ MOSFETs (IXT..) feature a proprietary cell design and process that has resulted in a MOSFET with a 30% reduction in $R_{DS(on)}$ per unit area along with a decrease in gate charge. IXYS has also reduced the wafer thickness, which substantially reduces the thermal resistance. The combination of lower $R_{DS(on)}$, lower gate charge Q_g and higher power dissipation capability has resulted in a new class of MOSFETs, which will increase the cost effectiveness in switch mode power supply (SMPS) applications.
IXYS' Polar™ HiPerFETs™ (IXF..) combine the strengths of the Polar Standard product family with a faster body diode, whose reverse recovery time (trr) is reduced to make them suitable for phase-shift bridges. motor control and uninterruptible power supply applications (UPS). This family of HiPerFETs™ provide lowest $R_{DS(on)}$, low R_{thJC}, low Q_g, and enhanced DV/DT capability.

PolarP2™ Power MOSFETs

PolarP2™ devices are an optimized range of the standard Polar platform for 500V device rating.

PolarP3™ HiPerFET™ Power MOSFETs

The PolarP3™ HiPerFET™ product family is the latest addition to IXYS' benchmark high-performance Polar-Series product line for our product portfolio between 500V and 600V. Its high Figure of Merit (FOM) being the multiplication of Q_g and in $R_{DS(on)}$ provide an excellent alternative to weaker super junction technologies. All IXYS Polar MOSFETs are tested 100% for avalanche energy providing the industries standard for reliability and ruggedness.

X-Class Power MOSFETs

These devices are developed using a charge compensation principle and proprietary process technology, resulting in Power MOSFETs with significantly reduced resistance $R_{DS(on)}$ and gate charge Q_g. They also exhibit a superior dv/dt performance. Designed for such applications as switched-mode and resonant-mode power supplies, DC-DC converters, PFC circuits, AC and DC motor drives, and robotic and servo control, these MOSFETs enable higher efficiency, along with high power density and cooler system performance. The X2-Class Power MOSFETs, devices with fast body diodes and avalanche ratings, are also available.

Q3-Class HiPerFET™ MOSFETs

Q3-Class HiPerFET™ MOSFETs (Identified by the suffix letter Q3) is the direct result of a revolutionary new chip design, which decreases the MOSFETs total gate charge (Q_g) and the Miller capacitance (C_{rss}), while maintaining the ruggedness and fast switching intrinsic diode of the company's current HiPerFET™ product line. The result is a MOSFET with dramatically improved switching efficiencies and thus enabling higher frequency operation and smaller power supplies.

Extended FBSOA Linear Power MOSFETs

IXYS' Extended FBSOA Linear Power MOSFETs are a class of rugged Power MOSFETs tailored specifically for applications that require Power MOSFETs to operate in their current saturation region. These new devices feature low static drain to source on-resistances and provide unparalleled performance and reliability in controlled current output applications. Typical applications that stand to benefit from this new class of extended FBSOA power MOSFETs include circuit breakers, current sources, programmable loads, power controllers, power regulators, motor control, power amplifiers and soft start applications. In the linear mode, a power MOSFET is subjected to high thermo-electrical stress caused by the simultaneous occurrence of high drain voltage and current resulting in high power dissipation. IXYS has optimized the internal structure of these MOSFETs achieving an extended "forward bias safe operating area" (FBSOA) capability to overcome the limitations posed by conventional power MOSFETs operating in current saturation region. These extended FBSOA Power MOSFETs are not intended for high speed switching applications.

Depletion-Mode MOSFET

Depletion-Mode Power MOSFETs operate in a 'normally-on' mode, not requiring energy or gate voltage for turn on. Unlike the regular enhancement type MOSFETs these Depletion-Mode MOSFETs require a negative gate bias to turn off. Consequently they remain on at or above zero gate bias voltage but otherwise have similar MOSFET characteristics. The "normally-on" operational mode of these devices combined with an enhanced linear operating capability allows for an ideal device selection in current sources, current regulators, solid-state relays, level shifting, active loads, start-up circuits and active power filters. Since these devices require no energy or gate voltage for turn-on, high energy efficiency can be achieved through device implementation in zero power "normally on" load switch applications. With the high degree of current regulation, these devices can also act as active inductors with high dynamic impedance in power filter applications to limit voltage and current noise and spikes. Furthermore these devices can provide active circuit protection to limit the surge of current during short-circuit or overload conditions.

PolarP™ P-Channel Power MOSFETs

IXYS' Polar technology platform employed in our PolarP™ P-Channel MOSFETs utilizes a proprietary cell design that improves overall device efficiency and performance. This technology platform reduces on-state resistance by as much as 30% and gate charge by 40% compared to legacy counterparts. With such low onstate resistances, these devices offer low conduction and switching losses while a low input capacitance. The combination of low $R_{DS(on)}$ and gate charge allow for improved energy efficiency. These P-Channel MOSFETs are dynamic dV/dt and avalanche rated making them extremely rugged in demanding operating environments and can easily be paralleled due to an on-state resistance with a positive temperature coefficient. They are ideal for 'high side' switching where a simple drive circuit referenced to ground can be used, circumventing additional 'high side' driver circuitry commonly involved when using an N-Channel MOSFET. This will help designers to reduce component count and improve reliability. Furthermore it allows for the design of a complementary power output stage. with a corresponding IXYS N-Channel MOSFET. for a power half bridge stage with a simple drive circuit.

TrenchP™ P-Channel Power MOSFETs

This family of P-Channel devices benefit from technological advances derived from IXYS' robust Trench cell design commonly implemented in their wide portfolio of industry recognized power devices. They feature an ultra low $R_{DS(on)}$. minimizing conduction losses and promoting improved operating and thermal efficiencies. These TrenchP™ P-Channel MOSFETs are suitable for 'high side' switching where a simple drive circuit referenced to ground can be employed, circumventing additional 'high side' driver circuitry commonly involved when using an N-Channel MOSFET. This enables designers to reduce component count, thereby improving drive circuit simplicity and cost structure. Furthermore it allows for the design of a complementary power output stage, with a corresponding IXYS N-Channel MOSFET, for a power half bridge stage with a simple drive circuit. Common applications that will greatly benefit from these devices include high side switching, high current regulators, DC Choppers, CMOS high power amplifiers, push-pull amplifiers and power solid state relays.

Very High Voltage Power MOSFETs

IXYS' VHV N-Channel Power MOSFETs are specifically designed to address demanding, fast-switching applications requiring blocking capabilities of 2.5kV to 4.5kV. These VHV Power MOSFETs are also ideally suited for parallel operation due to the positive temperature coefficient of their on-state resistance. Parallel operation with these devices provides a more cost-effective solution than employing series-connected, lower-voltage MOSFETs. The reduction or replacement of multiple series-connected devices and the associated gate drive circuitry commonly involved, simplifies design, improves reliability and reduces over-all system cost. These VHV MOSFETs represent an optimal solution in applications such as laser and x-ray generation systems, high-voltage power supplies, pulse circuits, high voltage automated test equipment and capacitor discharge circuits. 4.5kV device offerings feature high isolation capability with superior thermal performance.

Trench Power MOSFETs

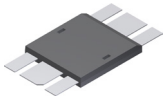
Part Type	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_J = 25°C Ω	C_{iss} typ. ns	Q_g typ. ns	t_{rr} typ. ns	R_{thJC} K/W	P_D W	Fig. No.	Package style Outline drawings on pages O-36...O-59
IXTP 44N10T	100	44	0.0300	1567	27.4	60	1.15	130	X005a	
IXTY 44N10T		44	0.0300	1567	27.4	60	1.15	130	X004	X004 **TO-252AA**
IXTP 60N10T		60	0.0180	2650	49	59	0.85	176	X005a	
IXTA 60N10T		60	0.0180	2650	49	59	0.85	176	X011b	
IXTQ 60N10T		60	0.0180	2650	49	59	0.85	176	X017a	
IXTP 80N10T		80	0.0140	3040	60	100	0.65	230	X005a	
IXTF 200N10T		90	0.0070	9400	152	76	0.96	156	X024d	X005a **TO-220AB**
IXTL 2x180N10T		100	0.0074	6900	151	60	1.00	150	X022c	
IXTP 130N10T		130	0.0091	5080	104	67	0.42	360	X005a	
IXTH 130N10T		130	0.0091	5080	104	67	0.42	360	X014a	
IXTA 130N10T		130	0.0091	5080	104	67	0.42	360	X011b	
IXTQ 130N10T		130	0.0091	5080	104	67	0.42	360	X017a	X011b **TO-263AB**
IXTP 180N10T		180	0.0064	6900	151	72	0.31	480	X005a	
IXTH 180N10T		180	0.0064	6900	151	100	0.31	480	X014a	
IXTA 180N10T		180	0.0064	6900	151	72	0.31	480	X011b	
IXTQ 180N10T		180	0.0064	6900	151	100	0.31	480	X017a	X014a **TO-247AD**
IXTN 200N10T		200	0.0055	9400	152	76	0.30	550	X027a	
IXTH 200N10T		200	0.0055	9400	152	76	0.27	550	X014a	
IXTQ 200N10T		200	0.0055	9400	152	76	0.27	550	X017a	
IXTP 48N20T	200	48	0.0500	3090	60	130	0.50	250	X005a	
IXTA 48N20T		48	0.0500	3090	60	130	0.50	250	X011b	
IXTQ 48N20T		48	0.0500	3090	60	130	0.50	250	X017a	X017a **TO-3P**
IXTP 60N20T		60	0.0400	4530	73	118	0.30	500	X005a	
IXTA 60N20T		60	0.0400	4530	73	118	0.30	500	X011b	
IXTQ 60N20T		60	0.0400	4530	73	118	0.30	500	X017a	
IXTP 86N20T		86	0.0290	4500	90	140	0.31	480	X005a	
IXTA 86N20T		86	0.0290	4500	90	140	0.31	480	X011b	X022c **ISOPLUS264™**
IXTQ 86N20T		86	0.0290	4500	90	140	0.31	480	X017a	
IXTH 130N20T		130	0.0160	8800	150	150	0.18	830	X014a	
IXTP 50N25T	250	50	0.0600	4000	78	166	0.31	400	X005a	
IXTH 50N25T		50	0.0600	4000	78	166	0.31	400	X014a	
IXTA 50N25T		50	0.0600	4000	78	166	0.31	400	X011b	X024d **ISOPLUS i4-PAC™**
IXTQ 50N25T		50	0.0600	4000	78	166	0.31	400	X017a	
IXTP 76N25T		76	0.0390	4920	92	148	0.27	460	X005a	
IXTH 76N25T		76	0.0390	4920	92	148	0.27	460	X014a	
IXTA 76N25T		76	0.0390	4920	92	148	0.27	460	X011b	
IXTQ 76N25T		76	0.0390	4920	92	148	0.27	460	X017a	X027a **SOT-227B miniBLOC**
IXTH 86N25T		86	0.0370	5330	105	156	0.23	540	X014a	
IXTQ 86N25T		86	0.0370	5330	105	156	0.23	540	X017a	
IXTH 96N25T		96	0.0290	6100	114	158	0.20	625	X014a	
IXTQ 96N25T		96	0.0290	6100	114	158	0.20	625	X017a	
IXTH 110N25T		110	0.0240	9400	157	170	0.18	694	X014a	

Trench HiPerFET™ MOSFETs with Fast Intrinsic Diode

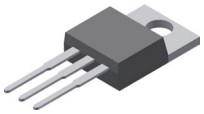
Part Type	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_C = 25°C Ω	C_{iss} typ. pF	Q_g typ. nC	t_{rr} max. (typ.) ns	R_{thJC} K/W	P_D W	Fig. No.
IXFA 130N10T	100	130	0.0091	5080	104	67	0.42	360	X011b
IXFP 130N10T		130	0.0091	5080	104	67	0.42	360	X005a
IXFH 230N10T		230	0.0047	15300	250	-82	0.23	650	X014a
IXFX 360N10T		360	0.0029	33000	525	130	0.12	1250	X015a
IXFN 360N10T		360	0.0026	33000	525	130	0.18	830	X027a
IXFK 360N10T		360	0.0029	33000	525	130	0.12	1250	X020a
IXFX 420N10T		420	0.0026	47000	670	140	0.09	1670	X015a
IXFN 420N10T		420	0.0023	47000	670	140	0.14	1070	X027a
IXFK 420N10T		420	0.0026	47000	670	140	0.09	1670	X020a
IXFA 102N15T	150	102	0.0180	5220	87	120	0.33	455	X011b
IXFH 102N15T		102	0.0180	5220	87	120	0.33	455	X014a
IXFP 102N15T		102	0.0180	5220	87	120	0.33	455	X005a
IXFH 160N15T		160	0.0096	8800	160	90	0.18	830	X014a
IXFH 150N20T	200	150	0.0150	11700	177	-100	0.14	890	X014a
IXFT 150N20T		150	0.0150	11700	177	-100	0.14	890	X019
IXFR 230N20T		156	0.0080	28000	378	200	0.25	600	X016a
IXFX 170N20T		170	0.0110	19600	265	200	0.13	1150	X015a
IXFK 170N20T		170	0.0110	19600	265	200	0.13	1150	X020a
IXFN 230N20T		220	0.0075	28000	378	200	0.138	1090	X027a
IXFX 230N20T		230	0.0075	28000	378	200	0.09	1670	X015a
IXFK 230N20T		230	0.0075	28000	378	200	0.90	1670	X020a
IXFZ 140N25T	250	100	0.0170	19000	255	200	0.28	445	D5
IXFH 110N25T		110	0.0240	9400	157	170	0.18	694	X014a
IXFH 120N25T		120	0.0230	11300	180	-108	0.14	890	X014a
IXFT 120N25T		120	0.0230	11300	180	-108	0.14	890	X019
IXFN 140N25T		120	0.0170	19000	255	200	0.18	690	X027a
IXFX 140N25T		140	0.0170	19000	255	200	0.13	960	X015a
IXFK 140N25T		140	0.0170	19000	255	200	0.13	960	X020a
IXFN 180N25T		168	0.0129	23800	364	200	0.138	900	X027a
IXFX 180N25T		180	0.0129	23800	364	200	0.09	1390	X015a
IXFK 180N25T		180	0.0129	23800	364	200	0.09	1390	X020a
IXFH 46N30T	300	46	0.0800	4770	86	150	0.27	460	X014a
IXFT 46N30T		46	0.0800	4770	86	150	0.27	460	X019
IXFH 86N30T		86	0.0430	11300	180	150	0.15	830	X014a
IXFT 86N30T		86	0.0430	11300	180	150	0.15	830	X019
IXFH 94N30T		94	0.0360	11400	190	-155	0.14	890	X014a
IXFT 94N30T		94	0.0360	11400	190	-155	0.14	890	X019
IXFX 120N30T		120	0.0240	20000	265	200	0.13	960	X015a
IXFK 120N30T		120	0.0240	20000	265	200	0.13	960	X020a
IXFN 160N30T		130	0.0190	28000	335	200	0.138	900	X027a
IXFX 160N30T		160	0.0190	28000	335	200	0.09	1390	X015a
IXFK 160N30T		160	0.0190	28000	335	200	0.09	1390	X020a

Package style
Outline drawings on pages O-36...O-59

D5 **DE 475**



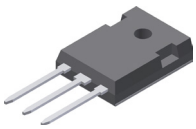
X005a **TO-220AB**



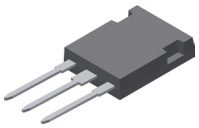
X011b **TO-263AB**



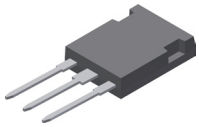
X014a **TO-247AD**



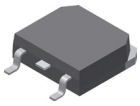
X015a **PLUS247**



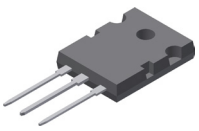
X016a **ISOPLUS247™**



X019 **TO-268AA**



X020a **TO-264**



X027a **SOT-227B miniBLOC**



TrenchT2™ Power MOSFETs

Part Type	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_C = 25°C Ω	C_{iss} typ. pF	Q_g typ. nC	t_{rr} typ. ns	R_{thJC} K/W	P_D W	Fig. No.	Package style Outline drawings on pages O-36...O-59
IXTP 100N04T2	40	100	0.0070	2690	25.5	34	1.00	150	X005a	D5 **DE 475**
IXTA 100N04T2		100	0.0070	2690	25.5	34	1.00	150	X011b	
IXTP 120N04T2		120	0.0061	3240	58	35	0.75	200	X005a	
IXTA 120N04T2		120	0.0061	3240	58	35	0.75	200	X011b	
IXTP 160N04T2		160	0.0050	4640	79	40	0.60	250	X005a	
IXTA 160N04T2		160	0.0050	4640	79	40	0.60	250	X011b	X004 **TO-252AA**
IXTP 220N04T2		220	0.0035	6820	112	45	0.42	360	X005a	
IXTA 220N04T2		220	0.0035	6820	112	45	0.42	360	X011b	
IXTP 300N04T2		300	0.0025	10700	145	53	0.31	480	X005a	
IXTH 300N04T2		300	0.0025	10700	145	53	0.31	480	X014a	
IXTA 300N04T2		300	0.0025	10700	145	53	0.31	480	X011b	
IXTH 420N04T2		420	0.0020	19700	315	74	0.16	935	X014a	X005a **TO-220AB**
IXTH 500N04T2		500	0.0016	25000	405	84	0.15	1000	X014a	
IXTT 500N04T2		500	0.0016	25000	405	84	0.15	1000	X019	
IXTX 600N04T2		600	0.0015	40000	590	100	0.12	1250	X015a	
IXTN 600N04T2		600	0.00105	40000	590	100	0.16	940	X027a	
IXTK 600N04T2		600	0.0015	40000	590	100	0.12	1250	X020a	
IXTA 90N055T2	55	90	0.0084	2770	42	37	1.00	150	X011b	X011b **TO-263AB**
IXTP 90N055T2		90	0.0084	2770	42	37	1.00	150	X005a	
IXTY 90N055T2		90	0.0084	2770	42	37	1.00	150	X004	
IXTP 110N055T2		110	0.0066	3060	57	38	0.82	180	X005a	
IXTA 110N055T2		110	0.0066	3060	57	38	0.82	180	X011b	
IXTP 140N055T2		140	0.0054	4760	82	40	0.60	250	X005a	
IXTA 140N055T2		140	0.0054	4760	82	40	0.60	250	X011b	X014a **TO-247AD**
IXTP 200N055T2		200	0.0042	6970	109	49	0.42	360	X005a	
IXTA 200N055T2		200	0.0042	6970	109	49	0.42	360	X011b	
IXTP 260N055T2		260	0.0033	10800	140	60	0.31	480	X005a	
IXTH 260N055T2		260	0.0033	10800	140	60	0.31	480	X014a	
IXTA 260N055T2		260	0.0033	10800	140	60	0.31	480	X011b	X015a **PLUS247**
IXTH 360N055T2		360	0.0024	20000	330	78	0.16	935	X014a	
IXTT 360N055T2		360	0.0024	20000	330	78	0.16	935	X019	
IXTH 440N055T2		440	0.0018	25000	405	76	0.15	1000	X014a	
IXTT 440N055T2		440	0.0018	25000	405	76	0.15	1000	X019	
IXTX 550N055T2		550	0.0016	40000	595	100	0.12	1250	X015a	
IXTN 550N055T2		550	0.0013	40000	595	100	0.16	940	X027a	
IXTK 550N055T2		550	0.0016	40000	595	100	0.12	1250	X020a	X019 **TO-268AA**
IXTZ 550N055T2		550	0.0010	40000	595	100	0.25	600	D5	
IXTP 130N065T2	65	130	0.0066	4800	79	41	0.60	250	X005a	
IXTA 130N065T2		130	0.0066	4800	79	41	0.60	250	X011b	
IXTP 70N075T2	75	70	0.0120	2580	46	48	1.00	150	X005a	X020a **TO-264**
IXTA 70N075T2		70	0.0120	2580	46	48	1.00	150	X011b	
IXTP 90N075T2		90	0.0100	3290	54	50	0.82	180	X005a	
IXTA 90N075T2		90	0.0100	3290	54	50	0.82	180	X011b	
IXTP 120N075T2		120	0.0077	4740	78	50	0.60	250	X005a	
IXTA 120N075T2		120	0.0077	4740	78	50	0.60	250	X011b	X027a **SOT-227B miniBLOC**
IXTP 170N075T2		170	0.0054	6860	109	63	0.42	360	X005a	
IXTA 170N075T2		170	0.0054	6860	109	63	0.42	360	X011b	
IXTP 230N075T2		230	0.0042	10.5	178	66	0.31	480	X005a	
IXTA 230N075T2		230	0.0042	10.5	178	66	0.31	480	X011b	
IXTP 80N12T2	120	80	0.0170	4740	80	90	0.46	325	X005a	
IXTA 80N12T2		80	0.0170	4740	80	90	0.46	325	X011b	

TrenchT2™ Power MOSFETs

TrenchT2™ MOSFETs in SMPD Package

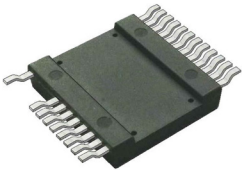
Part Type	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_C = 25°C Ω	C_{iss} typ. pF	Q_g typ. nC	t_{rr} typ. ns	R_{thJC} K/W	P_D W	Fig. No.
MMIX 1T600N04T2	40	600	0.0013	40000	590	100	0.18	830	X031a
MMIX 1T550N055T2	55	550	0.0013	40000	595	100	0.18	830	
MMIX 1F520N075T2	75	500	0.0016	41000	545	150	0.18	830	

TrenchT2™ HiPerFET™ Power MOSFETs

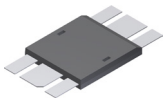
IXFP 230N075T2	75	230	0.0042	10500	178	59	0.31	480	X005a
IXFH 230N075T2		230	0.0042	10500	178	59	0.31	480	X014a
IXFA 230N075T2		230	0.0042	10500	178	59	0.31	480	X011b
IXFH 340N075T2		340	0.0032	19000	300	75	0.16	935	X014a
IXFT 340N075T2		340	0.0032	19000	300	75	0.16	935	X019
IXFH 400N075T2		400	0.0023	24000	420	77	0.15	1000	X014a
IXFT 400N075T2		400	0.0023	24000	420	77	0.15	1000	X019
IXFZ 520N075T2		420	0.0016	41000	545	n/a	0.25	600	D5
IXFN 520N075T2		480	0.0019	41000	545	n/a	0.16	940	X027a
IXFX 520N075T2		520	0.0022	41000	545	n/a	0.12	1250	X015a
IXFK 520N075T2		520	0.0022	41000	545	n/a	0.12	1250	X020a
IXFP 130N10T2	100	130	0.0091	6600	130	n/a	0.42	360	X005a
IXFA 130N10T2		130	0.0091	6600	130	n/a	0.42	360	X011b
IXFP 180N10T2		180	0.0060	10500	185	66	0.31	480	X005a
IXFA 180N10T2		180	0.0060	10500	185	66	0.31	480	X011b
IXFH 320N10T2		320	0.0035	25000	430	98	0.15	1000	X014a
IXFT 320N10T2		320	0.0035	26000	430	98	0.15	1000	X019
IXFP 76N15T2	150	76	0.0200	5800	97	69	0.43	350	X007a
IXFA 76N15T2		76	0.0200	5800	97	69	0.43	350	X011b
IXFP 110N15T2		110	0.0130	8600	150	85	0.31	480	X005a
IXFH 110N15T2		110	0.0130	8600	150	85	0.31	480	X014a
IXFA 110N15T2		110	0.0130	8600	150	85	0.31	480	X011b
IXFH 160N15T2		160	0.0090	15000	253	n/a	0.17	880	X014a
IXFX 240N15T2		240	0.0052	32000	460	n/a	0.12	1250	X015a
IXFN 240N15T2		240	0.0052	32000	460	n/a	0.18	830	X027a
IXFK 240N15T2		240	0.0052	32000	460	n/a	0.12	1250	X020a
IXFN 360N15T2		310	0.0040	47500	715	n/a	0.14	1070	X027a
IXFX 360N15T2		360	0.0040	47500	715	n/a	0.09	1670	X015a
IXFK 360N15T2		360	0.0040	47500	715	n/a	0.09	1670	X020a
IXFX 220N17T2	170	220	0.0063	31000	500	n/a	0.12	1250	X015a
IXFK 220N17T2		220	0.0063	31000	500	n/a	0.12	1250	X020a
IXFN 320N17T2		260	0.0052	45000	640	n/a	0.14	1070	X027a
IXFX 320N17T2		320	0.0052	45000	640	n/a	0.09	1670	X015a
IXFK 320N17T2		320	0.0052	45000	640	n/a	0.09	1670	X020a
IXFH 150N17T2	175	150	0.0120	14600	233	n/a	0.17	880	X014a
IXFT 150N17T2		150	0.0120	14600	233	n/a	0.17	880	X019

Package style
Outline drawings on pages O-36...O-59

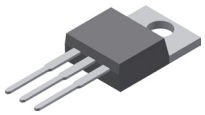
X031a **SMPD-X**



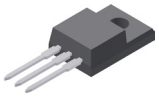
D5 **DE 475**



X005a **TO-220AB**



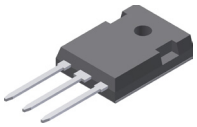
X007a **TO-220FPAB**



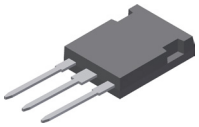
X011b **TO-263AB**



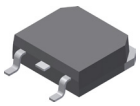
X014a **TO-247AD**



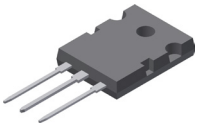
X015a **PLUS247**



X019 **TO-268AA**



X020a **TO-264**



X027a **SOT-227B miniBLOC**



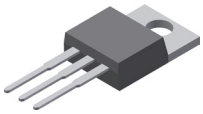
TrenchT3/T4™ HiPerFET™ Power MOSFETs

TrenchT3™ HiPerFET™ Power MOSFETs

Part Type	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_C = 25°C Ω	C_{iss} typ. pF	Q_g typ. nC	t_{rr} typ. ns	R_{thJC} K/W	P_D W	Fig. No.
IXFA 220N06T3	60	220	0.0040	8500	136	38	0.340	440	X011b
IXFH 220N06T3		220	0.0040	8500	136	38	0.340	440	X014a
IXFP 220N06T3		220	0.0040	8500	136	38	0.340	440	X005a
IXFA 270N06T3		270	0.0031	12600	200	47	0.310	480	X011b
IXFH 270N06T3		270	0.0031	12600	200	47	0.310	480	X014a
IXFP 270N06T3		270	0.0031	12600	200	47	0.310	480	X005a

Package style Outline drawings on pages O-36...O-59

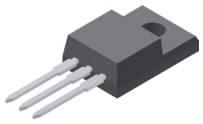
X005a **TO-220AB**



TrenchT4™ Power MOSFETs

Part Type ➢ New	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_C = 25°C Ω	C_{iss} typ. pF	Q_g typ. nC	t_{rr} typ. ns	R_{thJC} K/W	P_D W	Fig. No.
IXTA 380N036T4-7	36	380	0.0010	13400	260	54	0.310	480	X012c
IXTA 230N04T4	40	230	0.0029	7400	140	32	0.440	340	X011b
IXTP 230N04T4		230	0.0029	7400	140	32	0.440	340	X005a
➢ **IXTP 230N04T4M**		230	0.0029	7400	140	32	3.750	40	X007a
IXTP 270N04T4		270	0.0024	9140	182	48	0.400	375	X005a
IXTA 270N04T4-7		270	0.0022	9140	182	48	0.400	375	X012c
IXTH 270N04T4		270	0.0024	9140	182	48	0.400	375	X014a
IXTA 270N04T4		270	0.0022	9140	182	48	0.400	375	X011b
IXTA 340N04T4		340	0.0017	13000	256	43	0.310	480	X011b
IXTA 340N04T4-7		340	0.0017	13000	256	43	0.310	480	X012c
IXTH 340N04T4		340	0.0019	13000	256	43	0.310	480	X014a
IXTP 340N04T4		340	0.0019	13000	256	43	0.310	480	X005a
IXTT 440N04T4HV		440	0.00125	26000	480	72	0.160	940	X019a
IXTN 660N04T4		660	0.00085	44000	860	60	0.144	1040	X027a

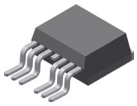
X007a **TO-220FPAB**



X011b **TO-263AB**



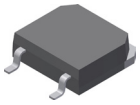
X012c **TO-263AB**



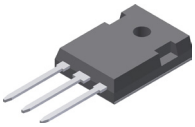
X027a **SOT-227B miniBLOC**



X019a **TO-268HV**



X014a **TO-247AD**

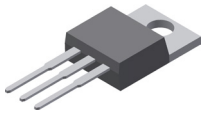


Polar™ Standard MOSFETs

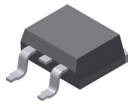
Part Type	V_{DSS} V	$I_{D(cont)}$ Chip T_J = 25°C A	$R_{DS(on)}$ T_J = 25°C Ω	C_{iss} typ pF	Q_g typ nC	t_{rr} typ ns	R_{thJC} K/W	P_D W	Fig. No.
IXTP 75N10P	100	75	0.025	2250	74	120	0.42	360	X005a
IXTA 75N10P		75	0.025	2250	74	120	0.42	360	X011b
IXTQ 75N10P		75	0.025	2250	74	120	0.42	360	X017a
IXTT 110N10P		110	0.015	3550	110	130	0.31	480	X019
IXTQ 110N10P		110	0.015	3550	110	130	0.31	480	X017a
IXTR 200N10P		120	0.008	7600	235	100	0.50	300	X016a
IXTT 140N10P		140	0.011	4700	155	120	0.25	600	X019
IXTQ 140N10P		140	0.011	4700	155	120	0.25	600	X017a
IXTK 170N10P		170	0.009	6000	198	120	0.21	715	X020a
IXTT 170N10P		170	0.009	6000	198	120	0.21	715	X019
IXTQ 170N10P		170	0.009	6000	198	120	0.21	715	X017a
IXTK 200N10P		200	0.0075	7600	240	100	0.18	800	X020a
IXTP 62N15P	150	62	0.040	2250	70	150	0.42	350	X005a
IXTA 62N15P		62	0.040	2250	70	150	0.42	350	X011b
IXTQ 62N15P		62	0.040	2250	70	150	0.42	350	X017a
IXTT 96N15P		96	0.024	3500	110	150	0.31	480	X019
IXTQ 96N15P		96	0.024	3500	110	150	0.31	480	X017a
IXTT 120N15P		120	0.016	4900	150	150	0.25	600	X019
IXTQ 120N15P		120	0.016	4900	150	150	0.25	600	X017a
IXTK 150N15P		150	0.013	5800	190	150	0.21	714	X020a
IXTQ 150N15P		150	0.013	5800	190	150	0.21	714	X017a
IXTK 180N15P		180	0.010	7000	240	150	0.18	800	X020a
IXTP 50N20P	200	50	0.060	2720	70	150	0.42	360	X005a
IXTA 50N20P		50	0.060	2720	70	150	0.42	360	X011b
IXTQ 50N20P		50	0.060	2720	70	150	0.42	360	X017a
IXTT 74N20P		74	0.034	3300	107	160	0.31	480	X019
IXTQ 74N20P		74	0.034	3300	107	160	0.31	480	X017a
IXTH 96N20P		96	0.024	4800	145	160	0.25	600	X014a
IXTT 96N20P		96	0.024	4800	145	160	0.25	600	X019
IXTQ 96N20P		96	0.024	4800	145	160	0.25	600	X017a
IXTK 120N20P		120	0.022	6000	152	180	0.21	714	X020a
IXTQ 120N20P		120	0.022	6000	152	180	0.21	714	X017a
IXTK 140N20P		140	0.018	7500	240	180	0.18	800	X020a
IXTP 42N25P	250	42	0.084	2300	70	200	0.42	300	X005a
IXTA 42N25P		42	0.084	2300	70	200	0.42	300	X011b
IXTQ 42N25P		42	0.084	2300	70	200	0.42	300	X017a
IXTT 64N25P		64	0.049	3450	105	200	0.31	400	X019
IXTQ 64N25P		64	0.049	3450	105	200	0.31	400	X017a
IXTK 82N25P		82	0.035	4800	142	200	0.25	500	X020a
IXTT 82N25P		82	0.035	4800	142	200	0.25	500	X019
IXTQ 82N25P		82	0.035	4800	142	200	0.25	500	X017a
IXTK 100N25P		100	0.027	6300	185	200	0.21	600	X020a
IXTT 100N25P		100	0.027	6300	185	200	0.21	600	X019
IXTQ 100N25P		100	0.027	6300	185	200	0.21	600	X017a
IXTK 120N25P		120	0.024	8700	185	200	0.18	700	X020a
IXTP 36N30P	300	36	0.110	2250	70	250	0.42	300	X005a
IXTA 36N30P		36	0.110	2250	70	250	0.42	300	X011b
IXTQ 36N30P		36	0.110	2250	70	250	0.42	300	X017a
IXTT 52N30P		52	0.066	3490	110	250	0.31	400	X019
IXTQ 52N30P		52	0.066	3490	110	250	0.31	400	X017a
IXTT 69N30P		69	0.049	4960	156	330	0.25	500	X019
IXTQ 69N30P		69	0.049	4960	156	330	0.25	500	X017a
IXTH 88N30P		88	0.040	6300	180	250	0.21	600	X014a
IXTK 88N30P		88	0.040	6300	180	250	0.21	600	X020a
IXTT 88N30P		88	0.040	6300	180	250	0.21	600	X019
IXTQ 88N30P		88	0.040	6300	180	250	0.21	600	X017a
IXTK 102N30P		102	0.033	7500	224	250	0.18	700	X020a
IXTK 140N30P		140	0.240	14800	185	250	0.12	1040	X020a

Package style
Outline drawings on pages O-36...O-59

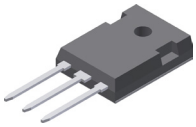
X005a **TO-220AB**



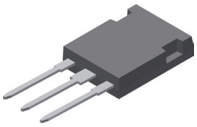
X011b **TO-263AB**



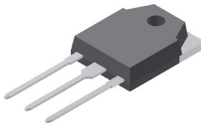
X014a **TO-247AD**



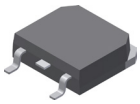
X016a **ISOPLUS247™**



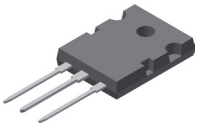
X017a **TO-3P**



X019 **TO-268AA**



X020a **TO-264**



Polar™ Standard MOSFETs

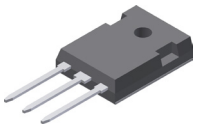
Part Type ➢ New	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_J = 25°C Ω	C_{iss} typ pF	Q_g typ nC	t_{rr} typ ns	R_{thJC} K/W	P_D W	Fig. No.	Package style Outline drawings on pages O-36...O-59
IXTP 12N50P	500	12	0.50	1830	29	300	0.62	200	X005a	
IXTA 12N50P		12	0.50	1830	29	300	0.62	200	X011b	
IXTP 16N50P		16	0.40	2480	43	400	0.42	300	X005a	X004 **TO-252AA**
IXTA 16N50P		16	0.40	2480	43	400	0.42	300	X011b	
IXTQ 16N50P		16	0.40	2480	43	400	0.42	300	X017a	
IXTH 22N50P		22	0.27	2880	50	400	0.35	350	X014a	
IXTQ 22N50P		22	0.27	2880	50	400	0.35	350	X017a	
IXTT 26N50P		26	0.23	3600	65	300	0.31	400	X019	
IXTQ 26N50P		26	0.23	3600	65	300	0.31	400	X017a	
IXTH 30N50P		30	0.20	4150	70	400	0.27	460	X014a	
IXTT 30N50P		30	0.20	4150	70	400	0.27	460	X019	
IXTQ 30N50P		30	0.20	4150	70	400	0.27	460	X017a	X004a **TO-252AA**
IXTH 36N50P		36	0.17	4700	82	400	0.23	540	X014a	
IXTT 36N50P		36	0.17	4700	82	400	0.23	540	X019	
IXTQ 36N50P		36	0.17	4700	82	400	0.23	540	X017a	
IXTQ 44N50P		44	0.14	5440	98	400	0.19	650	X017a	
IXTP 10N60P	600	10	0.74	1720	32	500	0.62	200	X005a	
IXTA 10N60P		10	0.74	1720	32	500	0.62	200	X011b	
IXTP 14N60P		14	0.55	2500	36	500	0.42	300	X005a	
IXTA 14N60P		14	0.55	2500	36	500	0.42	300	X011b	
IXTQ 14N60P		14	0.55	2500	36	500	0.42	300	X017a	X005a **TO-220AB**
IXTQ 18N60P		18	0.42	2500	49	500	0.35	360	X017a	
IXTQ 22N60P		22	0.35	3600	62	500	0.31	400	X017a	
IXTH 26N60P		26	0.27	4150	72	500	0.27	460	X014a	
IXTT 26N60P		26	0.27	4150	72	500	0.27	460	X019	
IXTQ 26N60P		26	0.27	4150	72	500	0.27	460	X017a	
IXTH 30N60P		30	0.24	5050	82	500	0.23	540	X014a	
IXTT 30N60P		30	0.24	5050	82	500	0.23	540	X019	
IXTQ 30N60P		30	0.24	5050	82	500	0.23	540	X017a	X011b **TO-263AB**
IXTP 05N100P	1000	0.5	30	196	8.1	750	2.50	50	X005a	
IXTA 05N100P		0.5	30	196	8.1	750	2.50	50	X011b	
IXTP 08N100P		0.8	20	240	11.3	750	3.00	42	X005a	
IXTY 08N100P		0.8	20	240	11.3	750	3.00	42	X004	
IXTA 08N100P		0.8	20	240	11.3	750	3.00	42	X011b	
IXTP 1N100P		1.0	15	331	15.5	750	2.50	50	X005a	
IXTY 1N100P		1.0	15	331	15.5	750	2.50	50	X004	
IXTA 1N100P		1.0	15	331	15.5	750	2.50	50	X011b	
IXTP 1R4N100P		1.4	11	450	17.8	750	2.00	63	X005a	X014a **TO-247AD**
IXTY 1R4N100P		1.4	11	450	17.8	750	2.00	63	X004	
IXTA 1R4N100P		1.4	11	666	17.8	750	2.00	63	X011b	
IXTP 2N100P		2.0	7.5	655	24.3	800	1.45	86	X005a	
IXTY 2N100P		2.0	7.5	655	24.3	800	1.45	86	X004	
IXTA 2N100P		2.0	7.5	655	24.3	800	1.45	86	X011b	
IXTP 3N100P		3.0	4.8	1100	39	820	1.00	125	X005a	
IXTH 3N100P		3.0	4.8	1100	39	820	1.00	125	X014a	
IXTA 3N100P		3.0	4.8	1100	39	820	1.00	125	X011b	
IXTP 02N120P	1200	0.2	75	104	4.7	1600	3.80	33	X005a	X017a **TO-3P**
IXTY 02N120P		0.2	75	104	4.7	1600	3.80	33	X004	
IXTP 06N120P		0.6	34	236	13.3	900	3.00	42	X005a	
IXTA 06N120P		0.6	34	236	13.3	900	3.00	42	X011b	
IXTP 08N120P		0.8	25	333	14	900	2.50	50	X005a	
IXTA 08N120P		0.8	25	333	14	900	2.50	50	X011b	
IXTP 1N120P		1.0	20	445	17.6	900	2.00	63	X005a	
IXTA 1N120P		1.0	20	445	17.6	900	2.00	63	X011b	
IXTP 1R4N120P		1.4	13	666	24.8	900	1.45	86	X005a	X019 **TO-268AA**
➢ **IXTY 1R4N120P**		1.4	13	666	24.8	900	1.45	86	X004	
➢ **IXTY 1R4N120PHV**		1.4	13	666	24.8	900	1.45	86	X004a	
IXTA 1R4N120P		1.4	13	725	24.8	900	1.45	86	X011b	
IXTP 2R4N120P		2.4	7.5	1207	37	920	1.00	125	X005a	
IXTH 2R4N120P		2.4	7.5	1207	37	920	1.00	125	X014a	
IXTA 2R4N120P		2.4	7.5	1207	37	920	1.00	125	X011b	

Polar™ HiPerFET™ MOSFETs with Fast Intrinsic Diode

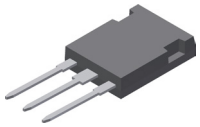
Part Type	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_J = 25°C Ω	C_{iss} typ pF	Q_g typ nC	t_{rr} typ ns	R_{thJC} K/W	P_D W	Fig. No.
IXFH 110N10P	100	110	0.0150	3550	110	150	0.31	480	X014a
IXFR 200N10P		120	0.0090	7600	235	150	0.50	300	X016a
IXFH 140N10P		140	0.0110	4700	155	150	0.25	600	X014a
IXFT 140N10P		140	0.0110	4700	155	150	0.25	600	X019
IXFH 170N10P		170	0.0090	6000	198	150	0.21	715	X014a
IXFK 170N10P		170	0.0090	6000	198	150	0.21	715	X020a
IXFX 200N10P		200	0.0075	7600	235	150	0.18	830	X015a
IXFN 200N10P		200	0.0075	7600	235	150	0.22	680	X027a
IXFK 200N10P		200	0.0075	7600	235	150	0.18	830	X020a
IXFX 250N10P		250	0.0065	16000	205	200	0.12	1250	X015a
IXFK 250N10P		250	0.0065	16000	205	200	0.12	1250	X020a
IXFN 300N10P		295	0.0055	23	279	200	0.14	1070	X027a
IXFB 300N10P		300	0.0055	23	279	200	0.10	1500	X021a
IXFH 96N15P	150	96	0.0240	3500	110	200	0.31	480	X014a
IXFR 180N15P		100	0.0130	7000	240	200	0.50	300	X016a
IXFH 120N15P		120	0.0160	4900	150	200	0.25	600	X014a
IXFT 120N15P		120	0.0160	4900	150	200	0.25	600	X019
IXFN 180N15P		150	0.0110	7000	240	200	0.22	680	X027a
IXFH 150N15P		150	0.0130	5800	190	200	0.21	714	X014a
IXFK 150N15P		150	0.0130	5800	190	200	0.21	714	X020a
IXFX 180N15P		180	0.0110	7000	240	200	0.18	830	X015a
IXFK 180N15P		180	0.0110	7000	240	200	0.18	830	X020a
IXFX 220N15P		220	0.0090	15.4	162	200	0.12	1250	X015a
IXFK 220N15P		220	0.0090	15.4	162	200	0.12	1250	X020a
IXFH 74N20P	200	74	0.0340	3300	107	200	0.31	480	X014a
IXFR 140N20P		90	0.0220	7500	240	200	0.50	300	X016a
IXFH 96N20P		96	0.0240	4800	145	200	0.25	600	X014a
IXFT 96N20P		96	0.0240	4800	145	200	0.25	600	X019
IXFN 140N20P		115	0.0180	7500	240	200	0.22	680	X027a
IXFH 120N20P		120	0.0220	6000	152	200	0.21	714	X014a
IXFK 120N20P		120	0.0220	6000	152	200	0.21	714	X020a
IXFK 140N20P		140	0.0180	7500	240	200	0.18	830	X020a
IXFX 170N20P		170	0.0140	11.4	185	200	0.12	1250	X015a
IXFK 170N20P		170	0.0140	11.4	185	200	0.12	1250	X020a
IXFN 210N20P		188	0.0105	18.6	255	200	0.14	1070	X027a
IXFB 210N20P		210	0.0105	18.6	255	200	0.10	1500	X021a
IXFH 100N25P	250	100	0.0270	6300	185	200	0.21	600	X014a
IXFX 120N25P		120	0.0240	8700	185	200	0.18	700	X015a
IXFK 120N25P		120	0.0240	8700	185	200	0.18	700	X020a
IXFH 52N30P	300	52	0.0660	3490	110	200	0.31	400	X014a
IXFR 102N30P		60	0.0360	7500	224	200	0.50	250	X016a
IXFH 69N30P		69	0.0490	4960	156	200	0.25	500	X014a
IXFT 69N30P		69	0.0490	4960	156	200	0.25	500	X019
IXFR 140N30P		70	0.0260	14800	185	200	0.35	360	X016a
IXFN 102N30P		86	0.0330	7500	224	200	0.22	570	X027a
IXFH 88N30P		88	0.0400	6300	180	200	0.21	600	X014a
IXFK 88N30P		88	0.0400	6300	180	200	0.21	600	X020a
IXFT 88N30P		88	0.0400	6300	180	200	0.21	600	X019
IXFK 102N30P		102	0.0330	7500	224	200	0.18	700	X020a
IXFN 140N30P		110	0.0240	14800	185	200	0.18	700	X027a
IXFN 170N30P		138	0.0018	20	258	200	0.14	890	X027a
IXFX 140N30P		140	0.0240	14800	185	200	0.12	1040	X015a
IXFK 140N30P		140	0.0240	14800	185	200	0.12	1040	X020a
IXFB 170N30P		170	0.0180	20	258	200	0.10	1250	X021a

Package style
Outline drawings on pages O-36...O-59

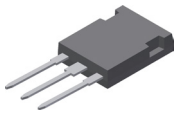
X014a **TO-247AD**



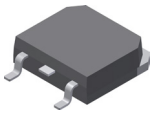
X015a **PLUS247**



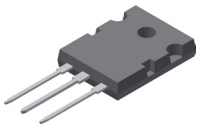
X016a **ISOPLUS247™**



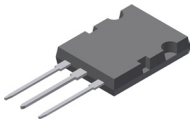
X019 **TO-268AA**



X020a **TO-264**



X021a **PLUS264**



X027a **SOT-227B miniBLOC**

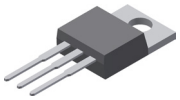


Polar™ HiPerFET™ MOSFETs with Fast Intrinsic Diode

Part Type	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_J = 25°C Ω	C_{iss} typ pF	Q_g typ nC	t_{rr} typ ns	R_{thJC} K/W	P_D W	Fig. No.
IXFP 12N50P	500	12	0.500	1830	29	200	0.62	200	X005a
IXFA 12N50P		12	0.500	1830	29	200	0.62	200	X011b
IXFP 16N50P		16	0.400	2480	43	200	0.42	300	X005a
IXFH 16N50P		16	0.400	2480	43	200	0.42	300	X014a
IXFA 16N50P		16	0.400	2480	43	200	0.42	300	X011b
IXFR 36N50P		19	0.190	5500	93	200	0.75	156	X016a
IXFH 22N50P		22	0.270	2880	50	200	0.35	350	X014a
IXFR 44N50P		24	0.150	5440	98	200	0.60	208	X016a
IXFH 26N50P		26	0.230	3600	60	200	0.31	400	X014a
IXFH 30N50P		30	0.200	4150	70	200	0.27	460	X014a
IXFT 30N50P		30	0.200	4150	70	200	0.27	460	X019
IXFH 36N50P		36	0.170	5500	93	200	0.23	540	X014a
IXFT 36N50P		36	0.170	5500	93	200	0.23	540	X019
IXFR 64N50P		37	0.095	9700	150	200	0.42	300	X016a
IXFH 44N50P		44	0.140	5440	98	200	0.19	650	X014a
IXFK 44N50P		44	0.140	5440	98	200	0.19	650	X020a
IXFT 44N50P		44	0.140	5440	98	200	0.19	650	X019
IXFR 80N50P		45	0.072	12700	197	200	0.35	360	X016a
IXFN 64N50P		50	0.085	9700	150	200	0.20	625	X027a
IXFX 64N50P		64	0.085	9700	150	200	0.15	830	X015a
IXFK 64N50P		64	0.085	9700	150	200	0.15	830	X020a
IXFN 80N50P		66	0.065	12700	195	200	0.18	700	X027a
IXFL 100N50P		68	0.052	20000	240	200	0.20	625	X022a
IXFX 80N50P		80	0.065	12700	197	200	0.12	1040	X015a
IXFK 80N50P		80	0.065	12700	197	200	0.12	1040	X020a
IXFN 100N50P		90	0.049	20000	240	200	0.12	1040	X027a
IXFB 100N50P		100	0.049	20000	240	200	0.10	1250	X021a
IXFP 10N60P	600	10	0.740	1720	32	200	0.62	200	X005a
IXFA 10N60P		10	0.740	1720	32	200	0.62	200	X011b
IXFP 14N60P		14	0.550	2500	36	200	0.42	300	X005a
IXFH 14N60P		14	0.550	2500	36	200	0.42	300	X014a
IXFA 14N60P		14	0.550	2500	36	200	0.42	300	X011b
IXFR 30N60P		15	0.250	3820	85	200	0.75	166	X016a
IXFH 18N60P		18	0.400	2500	50	200	0.35	360	X014a
IXFR 36N60P		20	0.200	5800	102	200	0.60	208	X016a
IXFH 22N60P		22	0.350	3600	58	200	0.31	400	X014a
IXFH 26N60P		26	0.270	4150	72	200	0.27	460	X014a
IXFT 26N60P		26	0.270	4150	72	200	0.27	460	X019
IXFH 30N60P		30	0.240	4000	82	200	0.25	500	X014a
IXFT 30N60P		30	0.240	4000	82	200	0.25	500	X019
IXFR 48N60P		32	0.150	8860	150	200	0.42	300	X016a
IXFR 64N60P		36	0.105	12000	200	200	0.35	360	X016a
IXFH 36N60P		36	0.190	5800	102	200	0.19	650	X014a
IXFK 36N60P		36	0.190	5800	102	200	0.19	650	X020a
IXFT 36N60P		36	0.190	5800	102	200	0.19	650	X019
IXFN 48N60P		40	0.140	8860	150	200	0.20	625	X027a
IXFX 48N60P		48	0.135	8860	150	200	0.15	830	X015a
IXFK 48N60P		48	0.135	8860	150	200	0.15	830	X020a
IXFN 64N60P		50	0.096	12000	200	200	0.18	700	X027a
IXFL 82N60P		55	0.078	23000	240	200	0.20	625	X022a
IXFX 64N60P		64	0.096	12000	200	200	0.12	1040	X015a
IXFK 64N60P		64	0.096	12000	200	200	0.12	1040	X020a
IXFN 82N60P		72	0.075	23000	240	200	0.12	1040	X027a
IXFB 82N60P		82	0.075	23000	240	200	0.10	1250	X021a

Package style
Outline drawings on pages O-36...O-59

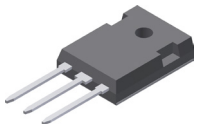
X005a **TO-220AB**



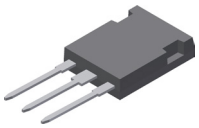
X011b **TO-263AB**



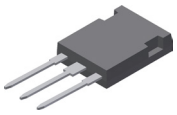
X014a **TO-247AD**



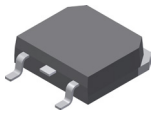
X015a **PLUS247**



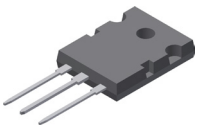
X016a **ISOPLUS247™**



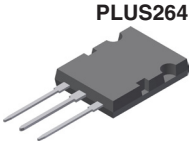
X019 **TO-268AA**



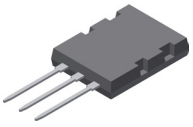
X020a **TO-264**



X021a **PLUS264**



X022a **ISOPLUS264™**



X027a **SOT-227B miniBLOC**

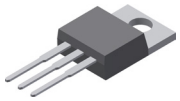


Polar™ HiPerFET™ MOSFETs with Fast Intrinsic Diode

Part Type	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_J = 25°C Ω	C_{iss} typ pF	Q_g typ nC	t_{rr} typ ns	R_{thJC} K/W	P_D W	Fig. No.
IXFP 7N80P	800	7	1.440	1800	32	250	0.62	200	X005a
IXFA 7N80P		7	1.440	1800	32	250	0.62	200	X011b
IXFR 20N80P		10	0.570	4685	86	250	0.80	160	X016a
IXFP 10N80P		10	1.100	2050	40	250	0.42	300	X005a
IXFH 10N80P		10	1.100	2050	40	250	0.42	300	X014a
IXFA 10N80P		10	1.100	2050	40	250	0.42	300	X011b
IXFQ 10N80P		10	1.100	2050	40	250	0.42	300	X017a
IXFH 12N80P		12	0.850	2800	51	250	0.35	360	X014a
IXFR 24N80P		13	0.420	7200	105	250	0.60	208	X016a
IXFH 14N80P		14	0.720	3900	61	250	0.31	400	X014a
IXFT 14N80P		14	0.720	3900	61	250	0.31	400	X019
IXFQ 14N80P		14	0.720	3900	61	250	0.31	400	X017a
IXFH 16N80P		16	0.600	4000	70	250	0.27	460	X014a
IXFT 16N80P		16	0.600	4000	70	250	0.27	460	X019
IXFR 32N80P		20	0.290	8800	150	250	0.42	300	X016a
IXFH 20N80P		20	0.520	4685	86	250	0.25	500	X014a
IXFT 20N80P		20	0.520	4685	86	250	0.25	500	X019
IXFH 24N80P		24	0.400	5800	100	250	0.19	650	X014a
IXFK 24N80P		24	0.400	7200	105	250	0.19	650	X020a
IXFT 24N80P		24	0.400	5800	100	250	0.19	650	X019
IXFR 44N80P		26	0.190	12000	200	250	0.35	360	X016a
IXFN 32N80P		29	0.270	8820	150	250	0.20	625	X027a
IXFX 32N80P		32	0.270	8800	150	250	0.15	830	X015a
IXFK 32N80P		32	0.270	8800	150	250	0.15	830	X020a
IXFN 44N80P		39	0.190	18000	200	250	0.18	694	X027a
IXFL 60N80P		40	0.150	18000	250	250	0.20	625	X022a
IXFX 44N80P		44	0.190	12000	198	250	0.12	1200	X015a
IXFK 44N80P		44	0.190	12000	198	250	0.12	1200	X020a
IXFN 60N80P		53	0.140	18000	250	250	0.12	1040	X027a
IXFB 60N80P		60	0.140	18000	250	250	0.10	1250	X021a
IXFR 18N90P	900	10.5	0.660	5230	97	300	0.62	200	X016a
IXFH 12N90P		12	0.900	3080	56	300	0.33	380	X014a
IXFR 24N90P		13	0.460	7200	130	300	0.54	230	X016a
IXFH 18N90P		18	0.600	5230	97	300	0.23	540	X014a
IXFT 18N90P		18	0.600	5230	97	300	0.23	540	X019
IXFR 40N90P		21	0.230	14000	230	300	0.42	300	X016a
IXFH 24N90P		24	0.420	7200	130	300	0.19	660	X014a
IXFT 24N90P		24	0.420	7200	130	300	0.19	660	X019
IXFK 32N90P		32	0.300	10600	215	300	0.13	960	X020a
IXFX 32N90P		32	0.300	10600	215	300	0.13	960	X015a
IXFN 40N90P		33	0.210	14000	230	300	0.18	695	X027a
IXFX 40N90P		40	0.210	14000	230	300	0.13	960	X015a
IXFK 40N90P		40	0.210	14000	230	300	0.13	960	X020a
IXFN 52N90P		43	0.160	19000	308	300	0.14	890	X027a
IXFB 52N90P		52	0.160	19000	308	300	0.10	1250	X021a
IXFN 56N90P		56	0.145	23000	375	300	0.125	1000	X027a

Package style
Outline drawings on pages O-36...O-59

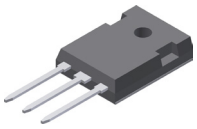
X005a **TO-220AB**



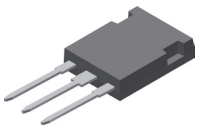
X011b **TO-263AB**



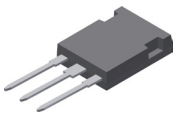
X014a **TO-247AD**



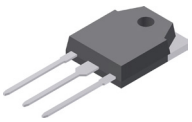
X015a **PLUS247**



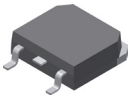
X016a **ISOPLUS247™**



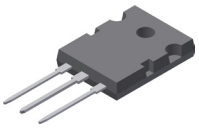
X017a **TO-3P**



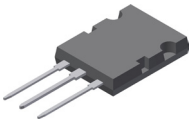
X019 **TO-268AA**



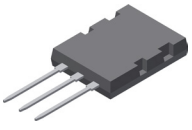
X020a **TO-264**



X021a **PLUS264**



X022a **ISOPLUS264™**



X027a **SOT-227B miniBLOC**

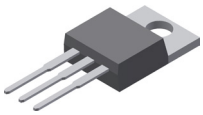


Polar™ HiPerFET™ MOSFETs with Fast Intrinsic Diode

Part Type	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_J = 25°C Ω	C_{iss} typ pF	Q_g typ nC	t_{rr} typ ns	R_{thJC} K/W	P_D W	Fig. No.
IXFP 4N100P	1000	4	3.30	1456	26	300	0.83	150	X005a
IXFA 4N100P		4	3.30	1456	26	300	0.83	150	X011b
IXFP 5N100P		5	2.80	1830	33.4	200	0.50	250	X005a
IXFH 5N100P		5	2.80	1830	33.4	200	0.50	250	X014a
IXFA 5N100P		5	2.80	1830	33.4	200	0.50	250	X011b
IXFA 7N100P		7	1.90	2590	47	300	0.42	300	X011b
IXFH 7N100P		7	1.90	2590	47	300	0.42	300	X014a
IXFP 7N100P		7	1.90	2590	47	300	0.42	300	X005a
IXFH 10N100P		10	1.40	3030	56	300	0.33	380	X014a
IXFR 20N100P		11	0.64	7300	126	300	0.54	230	X016a
IXFH 12N100P		12	1.05	4080	80	300	0.27	463	X014a
IXFR 26N100P		15	0.43	11900	197	300	0.43	290	X016a
IXFH 15N100P		15	0.76	5140	97	300	0.23	543	X014a
IXFR 32N100P		18	0.34	14200	225	300	0.39	320	X016a
IXFH 20N100P		20	0.57	7300	126	300	0.19	660	X014a
IXFT 20N100P		20	0.57	7300	126	300	0.19	660	X019
IXFL 44N100P		22	0.24	19000	305	300	0.35	357	X022e
IXFN 26N100P		23	0.39	11900	197	300	0.21	595	X027a
IXFX 26N100P		26	0.39	11900	197	300	0.16	780	X015a
IXFK 26N100P		26	0.39	11900	197	300	0.16	780	X020a
IXFN 32N100P		27	0.32	14200	225	300	0.18	690	X027a
IXFL 38N100P		29	0.23	24000	350	300	0.24	520	X022e
IXFX 32N100P		32	0.32	14200	225	300	0.13	960	X015a
IXFK 32N100P		32	0.32	14200	225	300	0.13	960	X020a
IXFN 44N100P		37	0.22	19000	305	300	0.14	890	X027a
IXFN 38N100P		38	0.21	24000	350	300	0.125	1000	X027a
IXFB 44N100P		44	0.22	19000	305	300	0.10	1250	X021a
IXFL 40N110P	1100	21	0.28	19000	310	300	0.35	357	X022e
IXFL 36N110P		26	0.26	23000	350	300	0.24	520	X022e
IXFN 40N110P		34	0.26	19000	310	300	0.14	890	X027a
IXFB 40N110P		40	0.26	19000	310	300	0.10	1250	X021a
IXFP 6N120P	1200	6	2.40	2830	92	300	0.50	250	X005a
IXFH 6N120P		6	2.40	2830	92	300	0.50	250	X014a
IXFA 6N120P		6	2.40	2830	92	300	0.50	250	X011b
IXFR 16N120P		9	1.04	6900	120	300	0.54	230	X016a
IXFH 12N120P		12	1.35	5400	103	300	0.23	543	X014a
IXFR 20N120P		13	0.63	12900	193	300	0.43	290	X016a
IXFR 26N120P		15	0.50	14000	225	300	0.39	320	X016a
IXFH 16N120P		16	0.95	6900	120	300	0.19	660	X014a
IXFT 16N120P		16	0.95	6900	120	300	0.19	660	X019
IXFL 30N120P		18	0.38	19000	310	300	0.35	357	X022e
IXFX 20N120P		20	0.57	11100	193	300	0.16	780	X015a
IXFN 20N120P		20	0.57	11100	193	300	0.21	595	X027a
IXFK 20N120P		20	0.57	11100	193	300	0.16	780	X020a
IXFN 26N120P		23	0.46	14000	225	300	0.18	695	X027a
IXFL 32N120P		24	0.34	21000	360	300	0.24	520	X022e
IXFX 26N120P		26	0.46	14000	225	300	0.13	960	X015a
IXFK 26N120P		26	0.46	14000	225	300	0.13	960	X020a
IXFB 30N120P		30	0.35	22500	310	300	0.10	1250	X021a
IXFN 30N120P		30	0.35	19000	310	300	0.14	890	X027a
IXFN 32N120P		32	0.31	21000	360	300	0.125	1000	X027a

Package style
Outline drawings on pages O-36...O-59

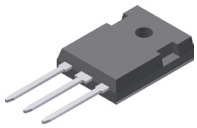
X005a **TO-220AB**



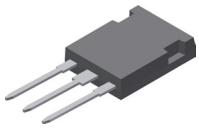
X011b **TO-263AB**



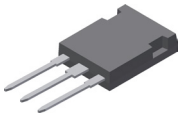
X014a **TO-247AD**



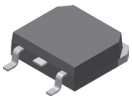
X015a **PLUS247**



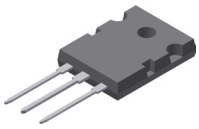
X016a **ISOPLUS247™**



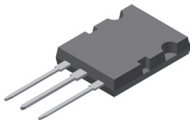
X019 **TO-268AA**



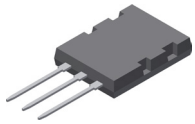
X020a **TO-264**



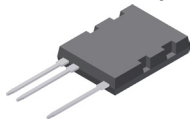
X021a **PLUS264**



X022a **ISOPLUS264™**



X022e **ISOPLUS264/i5-pac**



X027a **SOT-227B miniBLOC**



PolarP2™ Power MOSFETs

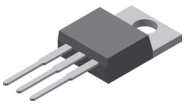
Part Type	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_J = 25°C Ω	C_{iss} typ. pF	Q_g typ. nC	t_{rr} typ. ns	R_{thJC} K/W	P_D W	Fig. No.
PolarP2™ Standard Power MOSFETs									
IXTH 450P2	500	16	0.330	2530	43	400	0.42	300	X014a
IXTP 450P2		16	0.330	2530	43	400	0.42	300	X005a
IXTQ 450P2		16	0.330	2530	43	400	0.42	300	X017a
IXTA 460P2		24	0.270	2890	48	400	0.26	480	X011b
IXTH 460P2		24	0.270	2890	48	400	0.26	480	X014a
IXTP 460P2		24	0.270	2890	48	400	0.26	480	X005a
IXTQ 460P2		24	0.270	2890	48	400	0.26	480	X017a
IXTQ 470P2		42	0.145	5400	88	400	0.15	830	X017a
IXTQ 480P2		52	0.120	6800	108	400	0.13	960	X017a
PolarP2™ HiPerFET™ MOSFETs with Fast Intrinsic Diode									
IXFQ 24N50P2	500	24	0.270	2890	48	200	0.26	480	X017a
IXFH 42N50P2		42	0.145	5300	92	250	0.15	830	X014a
IXFT 42N50P2		42	0.145	5300	92	250	0.15	830	X019
IXFH 52N50P2		52	0.120	6800	113	250	0.13	960	X014a
IXFT 52N50P2		52	0.120	6800	113	250	0.13	960	X019
IXFN 94N50P2		68	0.055	13700	220	250	0.16	780	X027a
IXFK 94N50P2		94	0.055	14200	228	250	0.10	1300	X020a
IXFX 94N50P2		94	0.055	14200	228	250	0.10	1300	X015a
IXFB 120N50P2		120	0.043	19000	300	300	0.07	1890	X021a

PolarP3™ HiPerFET™ Power MOSFETs

Part Type	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_J = 25°C Ω	C_{iss} typ. pF	Q_g typ. nC	t_{rr} max. (typ.) ns	R_{thJC} K/W	P_D W	Fig. No.
IXFP 36N30P3	300	36	0.1100	2040	30	-125	0.36	347	X005a
IXFA 36N30P3		36	0.1100	2040	30	-125	0.36	347	X011b
IXFH 94N30P3		94	0.0360	5510	102	250	0.12	1040	X014a
IXFQ 94N30P3		94	0.0360	5510	102	250	0.12	1040	X017a
IXFT 94N30P3		94	0.0360	5510	102	250	0.12	1040	X019
IXFL 210N30P3		108	0.0160	16200	268	250	0.24	520	X022a
IXFK 120N30P3		120	0.0270	8630	150	250	0.11	1130	X020a
IXFX 120N30P3		120	0.0270	8630	150	250	0.11	1130	X015a
IXFK 150N30P3		150	0.0190	12100	197	250	0.10	1300	X020a
IXFX 150N30P3		150	0.0190	12100	197	250	0.10	1300	X015a
IXFN 210N30P3		192	0.0145	16200	268	250	0.08	1500	X027a
IXFB 210N30P3		210	0.0145	16200	268	250	0.07	1890	X021a
IXFJ 26N50P3	500	14	0.2650	2220	42	250	0.69	180	X016c
IXFA 16N50P3		16	0.3600	1515	29	250	0.38	330	X011b
IXFH 16N50P3		16	0.3600	1515	29	250	0.38	330	X014a
IXFP 16N50P3		16	0.3600	1515	29	250	0.38	330	X005a
IXFA 20N50P3		20	0.3000	1800	36	250	0.36	380	X011b
IXFH 20N50P3		20	0.3000	1800	36	250	0.36	380	X014a
IXFP 20N50P3		20	0.3000	1800	36	250	0.36	380	X005a

Package style
Outline drawings on pages O-36...O-59

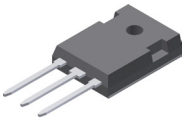
X005a **TO-220AB**



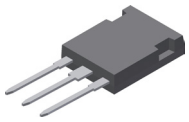
X011b **TO-263AB**



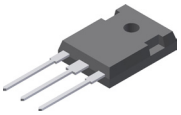
X014a **TO-247AD**



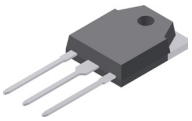
X015a **PLUS247**



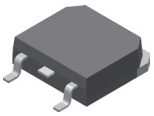
X016c **ISO247™**



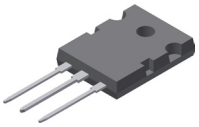
X017a **TO-3P**



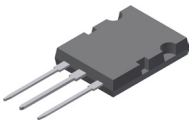
X019 **TO-268AA**



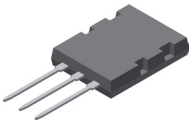
X020a **TO-264**



X021a **PLUS264**



X022a **ISOPLUS264™**



X027a **SOT-227B miniBLOC**

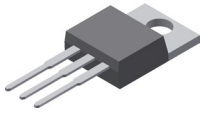


PolarP3™ HiPerFET™ Power MOSFETs

Part Type	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_J = 25°C Ω	C_{iss} typ. pF	Q_g typ. nC	t_{rr} typ. ns	R_{thJC} K/W	P_D W	Fig. No.
IXFQ 20N50P3	500	20	0.300	1800	36	250	0.360	380	X017a
IXFA 26N50P3		26	0.230	2220	42	250	0.250	500	X011b
IXFH 26N50P3		26	0.230	2220	42	250	0.250	500	X014a
IXFP 26N50P3		26	0.230	2220	42	250	0.250	500	X005a
IXFQ 26N50P3		26	0.230	2220	42	250	0.250	500	X017a
IXFH 34N50P3		34	0.170	3260	60	250	0.180	695	X014a
IXFQ 34N50P3		34	0.170	3260	60	250	0.180	695	X017a
IXFH 60N50P3		60	0.100	6250	96	250	0.120	1040	X014a
IXFQ 60N50P3		60	0.100	6250	96	250	0.120	1040	X017a
IXFT 60N50P3		60	0.100	6250	96	250	0.120	1040	X019
IXFL 132N50P3		63	0.043	18600	250	250	0.240	520	X022a
IXFK 78N50P3		78	0.068	9900	147	250	0.110	1130	X020a
IXFX 78N50P3		78	0.068	9900	147	250	0.110	1130	X015a
IXFK 98N50P3		98	0.050	13100	197	250	0.096	1300	X020a
IXFX 98N50P3		98	0.050	13100	197	250	0.096	1300	X015a
IXFN 132N50P3		112	0.039	18600	250	250	0.083	1500	X027a
IXFB 132N50P3		132	0.039	18600	250	250	0.066	1890	X021a
IXFA 14N60P3	600	14	0.540	1480	25	250	0.380	327	X011b
IXFH 14N60P3		14	0.540	1480	25	250	0.380	327	X014a
IXFP 14N60P3		14	0.540	1480	25	250	0.380	327	X005a
IXFA 16N60P3		16	0.440	1830	36	250	0.360	347	X011b
IXFH 16N60P3		16	0.440	1830	36	250	0.360	347	X014a
IXFP 16N60P3		16	0.440	1830	36	250	0.360	347	X005a
IXFA 22N60P3		22	0.360	2600	38	250	0.250	500	X011b
IXFH 22N60P3		22	0.360	2600	38	250	0.250	500	X014a
IXFP 22N60P3		22	0.360	2600	38	250	0.250	500	X005a
IXFQ 22N60P3		22	0.360	2600	38	250	0.250	500	X017a
IXFH 28N60P3		28	0.260	3560	50	250	0.180	695	X014a
IXFQ 28N60P3		28	0.260	3560	50	250	0.180	695	X017a
IXFH 42N60P3		42	0.185	5150	78	250	0.150	830	X014a
IXFR 80N60P3		48	0.076	13100	190	250	0.230	540	X016a
IXFH 50N60P3		50	0.145	6300	94	250	0.120	1040	X014a
IXFQ 50N60P3		50	0.145	6300	94	250	0.120	1040	X017a
IXFT 50N60P3		50	0.145	6300	94	250	0.120	1040	X019
IXFK 64N60P3		64	0.095	9900	145	250	0.110	1130	X020a
IXFX 64N60P3		64	0.095	9900	145	250	0.110	1130	X015a
IXFN 80N60P3		66	0.077	13100	190	250	0.130	960	X027a
IXFK 80N60P3		80	0.070	13100	190	250	0.096	1300	X020a
IXFX 80N60P3		80	0.070	13100	190	250	0.096	1300	X015a
IXFN 110N60P3		90	0.056	18000	245	250	0.083	1500	X027a
IXFB 110N60P3		110	0.056	18000	245	250	0.066	1890	X021a

Package style
Outline drawings on pages O-36...O-59

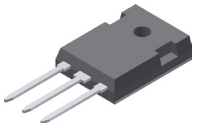
X005a **TO-220AB**



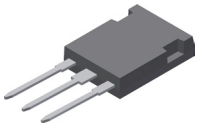
X011b **TO-263AB**



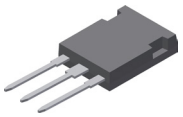
X014a **TO-247AD**



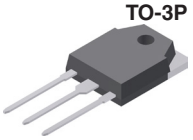
X015a **PLUS247**



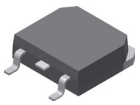
X016a **ISOPLUS247™**



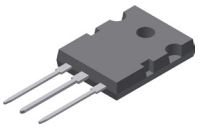
X017a **TO-3P**



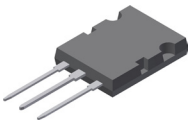
X019 **TO-268AA**



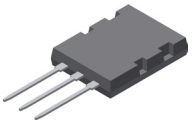
X020a **TO-264**



X021a **PLUS264**



X022a **ISOPLUS264™**



X027a **SOT-227B** miniBLOC

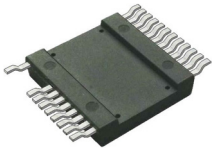


PolarP3™ Power MOSFET

with Current & Temperature Sensing in SMPD Package

Part Type	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_J = 25°C Ω	C_{iss} typ. pF	Q_g typ. nC	t_{rr} typ. ns	R_{thJC} K/W	P_D W	Fig. No.
MMIX 1T132N50P3	500	63	0.043	18600	267	600	0.24	520	X031a

X031a **SMPD-X**



Ultra Junction Power MOSFETs

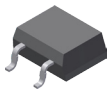
Part Type ➢ New	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_J = 25°C Ω	C_{iss} typ. pF	Q_g typ. nC	t_{rr} typ. ns	R_{thJC} K/W	P_D W	Fig. No.	Package style Outline drawings on pages O-36...O-59
135 V Ultra Junction X4-Class Power MOSFETs										X004 TO-252AA
➢ **IXTP 170N13X4**	135	170	0.0063	5460	105	86	0.31	480	X005a	
150 V Ultra Junction X4-Class Power MOSFETs										X005a TO-220AB
➢ **IXTA 100N15X4**	150	100	0.0115	3970	74	90	0.40	375	X011b	
➢ **IXTP 100N15X4**		100	0.0115	3970	74	90	0.40	375	X005a	
➢ **IXTH 130N15X4**		130	0.0085	4770	87	93	0.31	400	X014a	
➢ **IXTP 130N15X4**		130	0.0085	4770	87	93	0.31	400	X005a	
➢ **IXTA 130N15X4**		130	0.0080	4770	87	93	0.31	400	X011b	X007a TO-220FPAB
➢ **IXTA 130N15X4-7**		130	0.0080	4770	87	93	0.31	400	X012c	
➢ **IXTH 150N15X4**		150	0.0072	5500	105	100	0.31	480	X014a	
➢ **IXTP 150N15X4**		150	0.0072	5500	105	100	0.31	480	X005a	
➢ **IXTA 150N15X4**		150	0.0069	5500	105	100	0.31	480	X011b	X011b TO-263AB
➢ **IXTA 150N15X4-7**		150	0.0069	5500	105	100	0.31	480	X012c	
➢ **IXTH 240N15X4**		240	0.0044	8900	195	130	0.16	940	X014a	
➢ **IXTT 240N15X4HV**		240	0.0044	8900	195	130	0.16	940	X019a	X012c TO-263AB
➢ **IXTK 400N15X4**		400	0.0031	14500	430	175	0.10	1500	X020a	
➢ **IXTN 400N15X4**		400	0.0031	14500	430	175	0.14	1070	X027a	
➢ **IXTX 400N15X4**		400	0.0031	14500	430	175	0.10	1500	X015a	
200 V X3-Class HiPerFET™ Power MOSFETs with Fast Body Diodes										X014a TO-247AD
IXFA 36N20X3	200	36	0.0450	1425	21	75	0.73	170	X011b	
IXFP 36N20X3		36	0.0450	1425	21	75	0.73	170	X005a	
IXFP 36N20X3M		36	0.0450	1425	21	75	3.50	36	X007a	
IXFY 36N20X3		36	0.0450	1425	21	75	0.73	170	X004	X015a PLUS247
IXFA 50N20X3		50	0.0300	2100	33	70	0.52	240	X011b	
IXFP 50N20X3		50	0.0300	2100	33	70	0.52	240	X005a	
IXFP 50N20X3M		50	0.0300	2100	33	70	3.70	34	X007a	
IXFA 72N20X3		72	0.0200	3780	55	95	0.39	320	X011b	
IXFP 72N20X3		72	0.0200	3780	55	95	0.39	320	X005a	X017a TO-3P
IXFP 72N20X3M		72	0.0200	3780	55	95	3.50	36	X007a	
IXFQ 72N20X3		72	0.0200	3780	55	95	0.39	320	X017a	
IXFA 90N20X3		90	0.0128	5420	78	95	0.32	390	X011b	
IXFH 90N20X3		90	0.0128	5420	78	95	0.32	390	X014a	
IXFP 90N20X3		90	0.0128	5420	78	95	0.32	390	X005a	X019a TO-268AAHV
IXFP 90N20X3M		90	0.0128	5420	78	95	3.50	36	X007a	
IXFQ 90N20X3		90	0.0128	5420	78	95	0.32	390	X017a	
IXFH 140N20X3		140	0.0096	7660	127	105	0.26	480	X014a	
IXFQ 140N20X3		140	0.0096	7660	127	105	0.26	480	X017a	X020a TO-264
IXFT 140N20X3HV		140	0.0096	7660	127	105	0.26	480	X019a	
IXFN 220N20X3		160	0.0062	13600	204	128	0.32	390	X027a	
IXFH 180N20X3		180	0.0075	10300	154	120	0.17	735	X014a	
IXFT 180N20X3HV		180	0.0075	10300	154	120	0.17	735	X019a	X027a SOT-227B miniBLOC
IXFH 220N20X3		220	0.0062	13600	204	128	0.14	890	X014a	
IXFK 220N20X3		220	0.0062	13600	204	128	0.14	890	X020a	
IXFT 220N20X3HV		220	0.0062	13600	204	128	0.14	890	X019a	
IXFK 300N20X3		300	0.0040	23800	375	172	0.10	1250	X020a	
IXFN 300N20X3		300	0.0035	23800	375	172	0.18	695	X027a	
IXFX 300N20X3		300	0.0040	23800	375	172	0.10	1250	X015a	

Ultra Junction Power MOSFETs

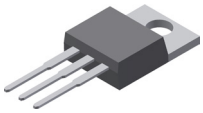
➢ New / Part Type	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_J = 25°C Ω	C_{iss} typ. pF	Q_g typ. nC	t_{rr} typ. ns	R_{thJC} K/W	P_D W	Fig. No.
250 V X3-Class HiPerFET™ Power MOSFETs with Fast Body Diodes									
IXFA 30N25X3	250	30	0.0600	1450	21	82	0.73	170	X011b
IXFP 30N25X3		30	0.0600	1450	21	82	0.73	170	X005a
IXFP 30N25X3M		30	0.0600	1450	21	82	3.50	36	X007a
IXFY 30N25X3		30	0.0600	1450	21	82	0.73	170	X004
IXFA 44N25X3		44	0.0400	2200	33	87	0.52	240	X011b
IXFJ 80N25X3		44	0.0180	5430	83	120	1.20	104	X016c
IXFP 44N25X3		44	0.0400	2200	33	87	0.52	240	X005a
IXFP 44N25X3M		44	0.0400	2220	33	87	3.70	34	X007a
IXFA 60N25X3		60	0.0230	3610	50	95	0.39	320	X011b
IXFP 60N25X3		60	0.0230	3610	50	95	0.39	320	X005a
IXFP 60N25X3M		60	0.0230	3610	50	95	3.50	36	X007a
IXFQ 60N25X3		60	0.0230	3610	50	95	0.39	320	X017a
IXFA 80N25X3		80	0.0160	5430	83	120	0.32	390	X011b
IXFH 80N25X3		80	0.0160	5430	83	120	0.32	390	X014a
IXFP 80N25X3		80	0.0160	5430	83	120	0.32	390	X005a
IXFQ 80N25X3		80	0.0160	5430	83	120	0.32	390	X017a
IXFH 120N25X3		120	0.0120	7870	122	140	0.26	480	X014a
IXFQ 120N25X3		120	0.0120	7870	122	140	0.26	480	X017a
IXFT 120N25X3HV		120	0.0120	7870	122	140	0.26	480	X019a
IXFH 150N25X3		150	0.0090	10400	154	140	0.17	735	X014a
IXFT 150N25X3HV		150	0.0090	10400	154	140	0.17	735	X019a
IXFH 170N25X3		170	0.0074	13500	190	140	0.14	890	X014a
IXFK 170N25X3		170	0.0074	13500	190	140	0.14	890	X020a
IXFN 170N25X3		170	0.0074	13500	190	135	0.32	390	X027a
IXFT 170N25X3HV		170	0.0074	13500	190	140	0.14	890	X019a
IXFK 240N25X3		240	0.0050	23800	345	177	0.10	1250	X020a
IXFN 240N25X3		240	0.0045	23800	345	165	0.18	695	X027a
IXFX 240N25X3		240	0.0050	23800	345	177	0.10	1250	X015a

Package style
Outline drawings on pages O-36...O-59

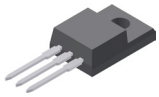
X004 **TO-252AA**



X005a **TO-220AB**



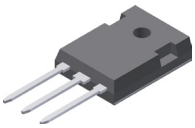
X007a **TO-220FPAB**



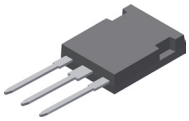
X011b **TO-263AB**



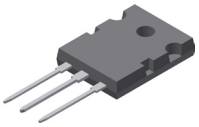
X014a **TO-247AD**



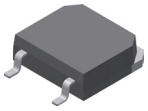
X015a **PLUS247**



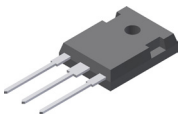
X020a **TO-264**



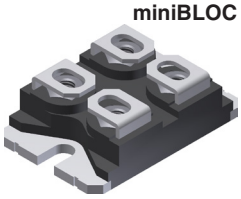
X019a **TO-268AAHV**



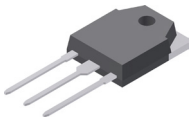
X016c **ISO247™**



X027a **SOT-227B miniBLOC**



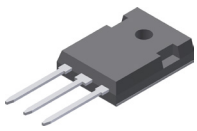
X017a **TO-3P**



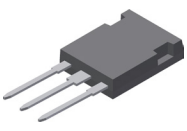
Ultra Junction Power MOSFETs

➢ New / Part Type	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_J = 25°C Ω	C_{iss} typ. pF	Q_g typ. nC	t_{rr} typ. ns	R_{thJC} K/W	P_D W	Fig. No.	Package style (Outline drawings on pages O-36...O-59)
300 V X3-Class HiPerFET™ Power MOSFETs with Fast Body Diodes										
IXFA 26N30X3	300	26	0.0660	1465	22	105	0.73	170	X011b	X004 **TO-252AA**
IXFP 26N30X3		26	0.0660	1465	22	105	0.73	170	X005a	
IXFY 26N30X3		26	0.0660	1465	22	105	0.73	170	X004	
IXFA 38N30X3		38	0.0500	2240	35	90	0.52	240	X011b	
IXFP 38N30X3		38	0.0500	2240	35	90	0.52	240	X005a	
IXFP 38N30X3M		38	0.0500	2440	35	90	3.70	34	X007a	
IXFA 56N30X3		56	0.0270	3750	56	115	0.39	320	X011b	X005a **TO-220AB**
IXFH 56N30X3		56	0.0270	3750	56	115	0.39	320	X014a	
IXFP 56N30X3		56	0.0270	3750	56	115	0.39	320	X005a	
IXFP 56N30X3M		56	0.0270	3750	56	115	3.50	36	X007a	
IXFA 72N30X3		72	0.0190	5400	82	100	0.32	390	X011b	
IXFH 72N30X3		72	0.0190	5400	82	100	0.32	390	X014a	
IXFP 72N30X3		72	0.0190	5400	82	100	0.32	390	X005a	
IXFP 72N30X3M		72	0.0190	5400	82	100	3.50	36	X007a	
IXFQ 72N30X3		72	0.0190	5400	82	100	0.32	390	X017a	X007a **TO-220FPAB**
IXFH 100N30X3		100	0.0135	7660	122	130	0.26	48	X014a	
IXFT 100N30X3HV		100	0.0135	7660	122	130	0.26	480	X019a	
IXFH 120N30X3		120	0.0110	10500	170	145	0.17	735	X014a	
IXFT 120N30X3HV		120	0.0110	10500	170	145	0.17	735	X019a	
IXFH 150N30X3		150	0.0083	13100	254	167	0.14	890	X014a	
IXFK 150N30X3		150	0.0083	13100	254	167	0.14	890	X020a	X011b **TO-263AB**
IXFT 150N30X3HV		150	0.0083	13100	254	167	0.14	890	X019a	
IXFK 210N30X3		210	0.0055	24200	375	190	0.10	1250	X020a	
IXFN 210N30X3		210	0.0046	24200	375	190	0.18	695	X027a	
IXFX 210N30X3		210	0.0055	24200	375	190	0.10	1250	X015a	

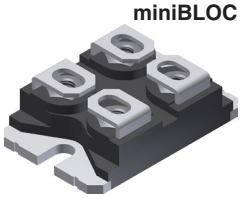
X014a **TO-247AD**



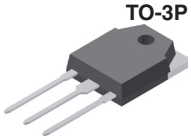
X015a **PLUS247**



X027a **SOT-227B miniBLOC**



X017a **TO-3P**



X019a **TO-268AAHV**



Ultra Junction Power MOSFETs

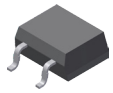
Part Type ➢ New	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_J = 25°C Ω	C_{iss} typ. pF	Q_g typ. nC	t_{rr} typ. ns	R_{thJC} K/W	P_D W	Fig. No.	Package style Outline drawings on pages O-36...O-59
650 V X2-Class Power MOSFETs										X004 TO-252AA
IXTP 2N65X2	650	2	2.300	180	4.3	137	2.27	55	X005a	
IXTY 2N65X2		2	2.300	180	4.3	137	2.27	55	X004	
IXTA 4N65X2		4	0.850	455	8.3	160	1.56	80	X011b	X005a TO-220AB
IXTP 4N65X2		4	0.850	455	8.3	160	1.56	80	X005a	
IXTY 4N65X2		4	0.850	455	8.3	160	1.56	80	X004	
IXTA 8N65X2		8	0.500	800	12	200	0.83	150	X011b	
IXTP 8N65X2		8	0.500	800	12	200	0.83	150	X005a	X007a TO-220FPAB
IXTP 8N65X2M		8	0.550	800	12	200	3.90	32	X007a	
IXTY 8N65X2		8	0.500	800	12	200	0.83	150	X004	
IXTA 12N65X2		12	0.300	1100	17.7	270	0.69	180	X011b	
IXTH 12N65X2		12	0.300	1100	17.7	270	0.69	180	X014a	X011b TO-263AB
IXTP 12N65X2		12	0.300	1100	17.7	270	0.69	180	X005a	
IXTP 12N65X2M		12	0.300	1100	17.7	270	3.10	40	X007a	
IXTA 20N65X2		20	0.185	1450	27	350	0.43	290	X011b	
IXTH 20N65X2		20	0.185	1450	27	350	0.43	290	X014a	X014a TO-247AD
IXTP 20N65X2		20	0.185	1450	27	350	0.43	290	X005a	
IXTP 20N65X2M		20	0.185	1450	27	350	3.50	36	X007a	
IXTA 24N65X2		24	0.145	2060	36	390	0.32	390	X011b	
IXTH 24N65X2		24	0.145	2060	36	390	0.32	390	X014a	X015a PLUS247
IXTP 24N65X2		24	0.145	2060	36	390	0.32	390	X005a	
IXTP 24N65X2M		24	0.145	2060	36	390	3.37	37	X007a	
IXTA 30N65X2		30	0.120	2260	44	355	0.27	460	X011b	
IXTP 30N65X2		30	0.120	2260	44	355	0.27	460	X014a	X016a ISOPLUS247™
IXTH 30N65X2		30	0.120	2260	44	355	0.27	460	X014a	
IXTA 34N65X2		34	0.096	3000	54	390	0.23	540	X011b	
IXTA 34N65X2		34	0.096	3000	54	390	0.23	540	X011b	X019a TO-268AAHV
IXTH 34N65X2		34	0.096	3000	54	390	0.23	540	X014a	
IXTP 34N65X2		34	0.096	3000	54	390	0.23	540	X005a	
IXTT 34N65X2HV		34	0.096	3000	54	390	0.23	540	X019a	
IXTH 48N65X2		48	0.065	4300	76	400	0.19	660	X014a	X020a TO-264
IXTR 102N65X2		54	0.033	10900	152	450	0.38	330	X016a	
IXTH 62N65X2		62	0.050	5800	100	445	0.16	780	X014a	
IXTN 102N65X2		76	0.030	10900	152	450	0.21	595	X027a	
IXTH 80N65X2		80	0.038	7800	137	465	0.14	890	X014a	X027a SOT-227B miniBLOC
IXTK 102N65X2		102	0.030	10900	152	450	0.12	1040	X020a	
IXTX 102N65X2		102	0.030	10900	152	450	0.12	1040	X015a	
IXTK 120N65X2		120	0.023	13600	230	505	0.10	1250	X020a	
IXTX 120N65X2		120	0.023	13600	230	505	0.10	1250	X015a	

Ultra Junction Power MOSFETs

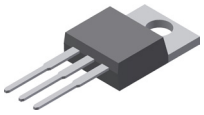
Part Type	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_J = 25°C Ω	C_{iss} typ. pF	Q_g typ. nC	t_{rr} typ. ns	R_{thJC} K/W	P_D W	Fig. No.
650 V X2-Class HiPerFET™ Power MOSFETs with Fast Body Diodes									
IXFA 8N65X2	650	8	0.450	790	11	105	0.83	150	X011b
IXFP 8N65X2		8	0.450	790	11	105	0.83	150	X005a
IXFY 8N65X2		8	0.450	790	11	105	0.83	150	X004
IXFA 12N65X2		12	0.310	1134	18.5	155	0.69	180	X011b
IXFH 12N65X2		12	0.310	1134	18.5	155	0.69	180	X014a
IXFP 12N65X2		12	0.310	1134	18.5	155	0.69	180	X005a
IXFP 12N65X2M		5.6	0.310	1134	18.5	155	3.10	40	X007a
IXFA 18N65X2		18	0.200	1520	29	135	0.43	290	X011b
IXFH 18N65X2		18	0.200	1520	29	135	0.43	290	X014a
IXFP 18N65X2		18	0.200	1520	29	135	0.43	290	X005a
IXFP 18N65X2M		18	0.200	1520	29	135	3.50	36	X007a
IXFA 22N65X2		22	0.145	2190	37	145	0.32	390	X011b
IXFH 22N65X2		22	0.145	2190	37	145	0.32	390	X014a
IXFP 22N65X2		22	0.145	2190	37	145	0.32	390	X005a
IXFP 22N65X2M		22	0.145	2190	37	145	3.37	37	X007a
IXFA 34N65X2		34	0.100	3230	56	164	0.23	540	X011b
IXFH 34N65X2		34	0.100	3230	56	164	0.23	540	X014a
IXFP 34N65X2		34	0.100	3230	56	164	0.23	540	X005a
IXFP 34N65X2M		34	0.100	3230	56	164	3.10	40	X007a
IXFH 46N65X2		46	0.069	4570	98	180	0.19	660	X014a
IXFH 60N65X2		60	0.052	6300	108	180	0.16	780	X014a
IXFH 60N65X2-4		60	0.052	6300	108	180	0.16	780	X014d
IXFT 60N65X2HV		60	0.052	6300	108	180	0.16	780	X019a
IXFN 100N65X2		78	0.030	10800	183	200	0.21	595	X027a
IXFH 80N65X2		80	0.038	8300	140	200	0.14	890	X014a
IXFH 80N65X2-4		80	0.038	8300	140	200	0.14	890	X014d
IXFK 80N65X2		80	0.038	8300	140	200	0.14	890	X020a
IXFT 80N65X2HV		80	0.038	8300	140	200	0.14	890	X019a
IXFK 100N65X2		100	0.030	10800	183	200	0.12	1040	X020a
IXFX 100N65X2		100	0.030	10800	183	200	0.12	1040	X015a
IXFN 120N65X2		108	0.024	14000	240	220	0.14	890	X027a
IXFK 120N65X2		120	0.024	14000	240	220	0.10	1250	X020a
IXFX 120N65X2		120	0.024	14000	240	220	0.10	1250	X015a
IXFN 150N65X2		145	0.017	21000	355	260	0.12	1040	X027a
IXFB 150N65X2		150	0.017	21000	355	260	0.08	1560	X021a
IXFN 170N65X2		170	0.013	27000	434	270	0.107	1170	X027a
IXFN 170N65X2		170	0.013	27000	434	270	0.107	1170	X027a

Package style
Outline drawings on pages O-36...O-59

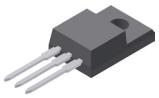
X004 **TO-252AA**



X005a **TO-220AB**



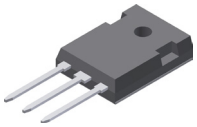
X007a **TO-220FPAB**



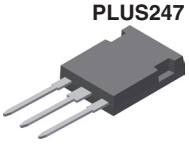
X011b **TO-263AB**



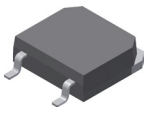
X014a **TO-247AD**



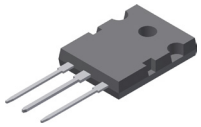
X015a **PLUS247**



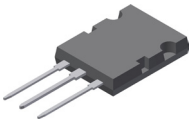
X019a **TO-268AAHV**



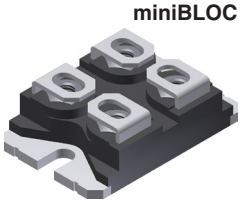
X020a **TO-264**



X021a **PLUS264**



X027a **SOT-227B miniBLOC**

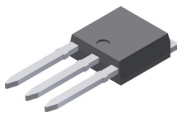


Ultra Junction Power MOSFETs

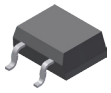
Part Type ➢ New	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_J = 25°C Ω	C_{iss} typ. pF	Q_g typ. nC	t_{rr} typ. ns	R_{thJC} K/W	P_D W	Fig. No.
700 V X2-Class Power MOSFETs									
IXTA 4N70X2	700	4	0.850	386	11.8	186	1.56	80	X011b
IXTP 4N70X2		4	0.850	386	11.8	186	1.56	80	X005a
IXTP 4N70X2M		4	0.850	386	11.8	186	4.16	30	X007a
IXTU 4N70X2		4	0.850	386	11.8	186	1.56	80	X003
IXTY 4N70X2		4	0.850	386	11.8	186	1.56	80	X004
IXTA 8N70X2		8	0.500	800	12	200	0.83	150	X011b
IXTP 8N70X2		8	0.500	800	12	200	0.83	150	X005a
IXTP 8N70X2M		8	0.550	800	12	200	3.90	32	X007a
IXTU 8N70X2		8	0.500	800	12	200	0.83	150	X003
IXTY 8N70X2		8	0.500	800	12	200	0.83	150	X004
IXTA 12N70X2		12	0.300	960	19	270	0.69	180	X011b
IXTH 12N70X2		12	0.300	960	19	270	0.69	180	X014a
IXTP 12N70X2		12	0.300	960	19	270	0.69	180	X005a
IXTP 12N70X2M		12	0.300	960	19	270	3.10	40	X007a
850 V X-Class HiPerFET™ Power MOSFETs with Fast Body Diodes									
IXFA 4N85X	850	3.5	2.500	247	7	170	0.830	150	X011b
IXFP 4N85X		3.5	2.500	247	7	170	0.830	150	X005a
IXFP 4N85XM		3.5	2.500	247	7	170	3.570	35	X007a
IXFY 4N85X		3.5	2.500	247	7	170	0.830	150	X004
IXFA 8N85XHV		8	0.850	654	17	125	0.630	200	X011c
IXFP 8N85X		8	0.850	654	17	125	0.630	200	X005a
IXFP 8N85XM		8	0.850	654	17	125	3.780	33	X007a
IXFQ 8N85X		8	0.850	654	17	125	0.630	200	X017a
IXFJ 20N85X		9.5	0.360	1660	63	190	1.130	110	X016c
IXFA 14N85XHV		14	0.550	1043	30	116	0.270	460	X011c
IXFH 14N85X		14	0.550	1043	30	116	0.270	460	X014a
IXFP 14N85X		14	0.550	1043	30	116	0.270	460	X005a
➢ **IXFP 14N85XM**		14	0.550	1043	30	116	3.300	38	X007a
IXFA 20N85XHV		20	0.330	1660	63	190	0.230	540	X011c
IXFH 20N85X		20	0.330	1660	63	190	0.230	540	X014a
IXFP 20N85X		20	0.330	1660	63	190	0.230	540	X005a
IXFH 30N85X		30	0.230	2460	68	160	0.180	695	X014a
IXFT 30N85XHV		30	0.230	2460	68	160	0.180	695	X019a
IXFH 40N85X		40	0.145	3700	98	200	0.145	860	X014a
IXFT 40N85XHV		40	0.145	3700	98	200	0.145	860	X019a
IXFH 50N85X		50	0.105	4480	152	218	0.140	890	X014a
IXFK 50N85X		50	0.105	4480	152	218	0.140	890	X020a
IXFT 50N85XHV		50	0.105	4480	152	218	0.140	890	X019a
IXFN 66N85X		65	0.065	8900	230	250	0.150	830	X027a
IXFK 66N85X		66	0.065	8900	230	250	0.100	1250	X020a
IXFX 66N85X		66	0.065	8900	230	250	0.100	1250	X015a
IXFB 90N85X		90	0.041	13300	340	250	0.070	1785	X021a
IXFN 90N85X		90	0.041	13300	340	250	0.104	1200	X027a
IXFN 110N85X		110	0.033	17000	425	205	0.107	1170	X027a

Package style
Outline drawings on pages O-36...O-59

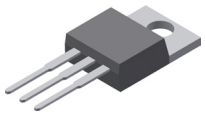
X003 **TO-251AA**



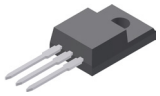
X004 **TO-252AA**



X005a **TO-220AB**



X007a **TO-220FPAB**



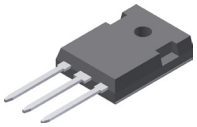
X011b **TO-263AB**



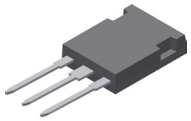
X011c **TO-263ABHV**



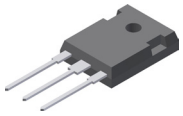
X014a **TO-247AD**



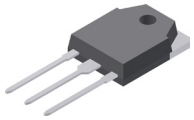
X015a **PLUS247**



X016c **ISO247™**



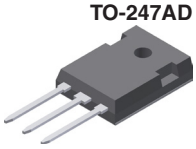
X017a **TO-3P**



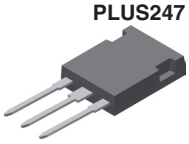
Ultra Junction Power MOSFETs

➢ New Part Type	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_J = 25°C Ω	C_{iss} typ. pF	Q_g typ. nC	t_{rr} typ. ns	R_{thJC} K/W	P_D W	Fig. No.	Package style Outline drawings on pages O-36...O-59
1000 V X-Class HiPerFET™ Power MOSFETs with Fast Body Diodes										
➢ **IXFH 26N100X**	1000	26	0.320	3290	113	220	0.145	860	X014a	TO-247AD
➢ **IXFT 26N100XHV**		26	0.320	3290	113	220	0.145	860	X019a	
➢ **IXFH 32N100X**		32	0.220	4075	130	200	0.140	890	X014a	
➢ **IXFK 32N100X**		32	0.220	4075	130	200	0.140	890	X020a	
➢ **IXFT 32N100XHV**		32	0.220	4075	130	200	0.140	890	X019a	
➢ **IXFN 52N100X**		44	0.125	6725	245	260	0.150	830	X027a	
➢ **IXFK 52N100X**		52	0.125	6725	245	260	0.100	1250	X020a	
➢ **IXFX 52N100X**		52	0.125	6725	245	260	0.100	1250	X015a	
➢ **IXFN 70N100X**		65	0.089	9150	350	310	0.104	1200	X027a	PLUS247
➢ **IXFB 70N100X**		70	0.089	9160	350	310	0.070	1785	X021a	
➢ **IXFN 74N100X**		74	0.066	17000	425	290	0.107	1170	X027a	

X014a **TO-247AD**



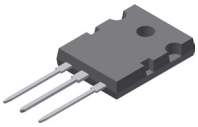
X015a **PLUS247**



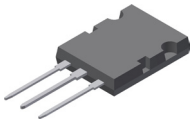
X019a **TO-268AAHV**



X020a **TO-264**



X021a **PLUS264**



X027a **SOT-227B miniBLOC**

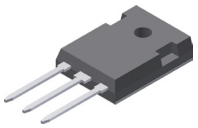


Q3-Class HiPerFET™ Power MOSFETs

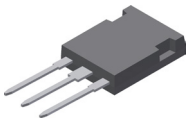
Part Type	V_{DSS}	$I_{D(cont)}$ Chip T_C = 25°C	$R_{DS(on)}$ T_J = 25°C	C_{iss} typ.	Q_g typ.	t_{rr} max. (typ.)	R_{thJC}	P_D	Fig. No.
	V	A	Ω	pF	nC	ns	K/W	W	
IXFH 70N20Q3	200	70	0.040	3150	67	250	0.18	690	X014a
IXFT 70N20Q3		70	0.040	3150	67	250	0.18	690	X019
IXFH 50N30Q3	300	50	0.080	3160	65	250	0.18	690	X014a
IXFT 50N30Q3		50	0.080	3160	65	250	0.18	690	X019
IXFT 70N30Q3		70	0.054	4735	98	250	0.15	830	X019
IXFH 70N30Q3		70	0.054	4735	98	250	0.15	830	X014a
IXFR 44N50Q3	500	25	0.154	4800	93	250	0.41	300	X016a
IXFT 30N50Q3		30	0.200	3200	62	250	0.18	690	X019
IXFH 30N50Q3		30	0.200	3200	62	250	0.18	690	X014a
IXFH 44N50Q3		44	0.140	4800	93	250	0.15	830	X014a
IXFT 44N50Q3		44	0.140	4800	93	250	0.15	830	X019
IXFR 64N50Q3		45	0.094	6950	145	250	0.25	500	X016a
IXFR 80N50Q3		50	0.072	10000	200	250	0.22	570	X016a
IXFN 80N50Q3		63	0.065	10000	200	250	0.16	780	X027a
IXFK 64N50Q3		64	0.085	6950	145	250	0.13	1000	X020a
IXFX 64N50Q3		64	0.085	6950	145	250	0.13	1000	X015a
IXFX 80N50Q3		80	0.065	10000	200	250	0.10	1250	X015a
IXFK 80N50Q3		80	0.065	10000	200	250	0.10	1250	X020a
IXFN 100N50Q3		82	0.049	13800	255	250	0.13	960	X027a
IXFB 100N50Q3		100	0.049	13800	255	250	0.08	1560	X021a
IXFR 48N60Q3	600	32	0.154	7020	140	300	0.25	500	X016a
IXFR 64N60Q3		42	0.104	9930	190	300	0.22	568	X016a
IXFK 48N60Q3		48	0.140	7020	140	300	0.13	1000	X020a
IXFX 48N60Q3		48	0.140	7020	140	300	0.13	1000	X015a
IXFK 64N60Q3		64	0.095	9930	190	300	0.10	1250	X020a
IXFX 64N60Q3		64	0.095	9930	190	300	0.10	1250	X015a
IXFN 82N60Q3		66	0.075	13500	275	300	0.13	960	X027a
IXFB 82N60Q3		82	0.075	13500	275	300	0.08	1560	X021a
IXFR 32N80Q3	800	24	0.300	6940	140	300	0.25	500	X016a
IXFK 32N80Q3		32	0.270	6940	140	300	0.125	1000	X020a
IXFX 32N80Q3		32	0.270	6940	140	300	0.125	1000	X015a
IXFN 44N80Q3		37	0.190	10950	185	300	0.16	780	X027a
IXFX 44N80Q3		44	0.190	10950	185	300	0.10	1250	X015a
IXFK 44N80Q3		44	0.190	10950	185	300	0.10	1250	X020a
IXFN 62N80Q3		49	0.140	13600	270	300	0.13	960	X027a
IXFB 62N80Q3		62	0.140	13600	270	300	0.08	1560	X021a
IXFR 15N100Q3	1000	10	1.200	3250	64	250	0.31	400	X016a
IXFT 15N100Q3		15	1.050	3250	64	250	0.18	690	X019
IXFH 15N100Q3		15	1.050	3250	64	250	0.18	690	X014a
IXFH 18N100Q3		18	0.660	4890	90	300	0.15	830	X014a
IXFT 18N100Q3		18	0.660	4890	90	300	0.15	830	X019
IXFR 24N100Q3		18	0.490	7200	140	300	0.25	500	X016a
IXFR 32N100Q3		23	0.350	10900	195	300	0.22	570	X016a
IXFK 24N100Q3		24	0.440	7200	140	300	0.125	1000	X020a
IXFX 24N100Q3		24	0.440	7200	140	300	0.125	1000	X015a
IXFN 32N100Q3		28	0.320	10900	195	300	0.16	780	X027a
IXFK 32N100Q3		32	0.320	10900	195	250	0.10	1250	X020a
IXFX 32N100Q3		32	0.320	10900	195	250	0.10	1250	X015a
IXFN 44N100Q3		38	0.220	13600	264	300	0.13	960	X027a
IXFB 44N100Q3		44	0.220	13600	264	300	0.08	1560	X021a
IXFN 40N110Q3	1100	35	0.260	14000	300	-434	0.13	960	X027a
IXFB 40N110Q3		40	0.260	14000	300	-434	0.08	1560	X021a

Package style
Outline drawings
on pages O-36...O-59

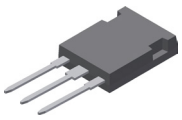
X014a **TO-247AD**



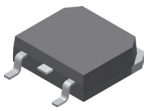
X015a **PLUS247**



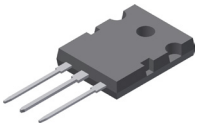
X016a **ISOPLUS247™**



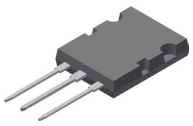
X019 **TO-268AA**



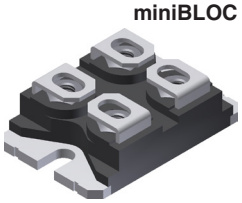
X020a **TO-264**



X021a **PLUS264**



X027a **SOT-227B miniBLOC**



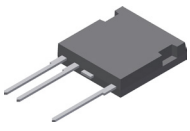
Very High Voltage Power MOSFETs (2 - 4.7 kV)

Part Type	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_J = 25°C Ω	C_{iss} typ. pF	Q_g typ. nC	t_{rr} typ. ns	R_{thJC} K/W	P_D W	Fig. No.	Package style Outline drawings on pages O-36...O-59
IXTH 1N200P3	2000	1	40	646	23.5	2300	1.00	125	X014a	
IXTH 1N200P3HV		1	40	646	23.5	2300	1.00	125	X014c	X011c **TO-263ABHV**
IXTA 1N200P3HV		1	40	646	23.5	2300	1.00	125	X011c	
IXTH 3N200P3HV		3	8	1860	70	420	0.24	520	X014c	
IXTT 3N200P3HV		3	8	1860	70	420	0.24	520	X019a	
IXTF 6N200P3		4	4.2	3700	143	520	0.58	215	X024c	
IXTX 6N200P3HV		6	4	3700	143	520	0.13	960	X015c	
IXTH 06N220P3HV	2200	0.6	80	290	10.4	1100	1.20	104	X014c	X014a **TO-247AD**
IXTH 1R8N220P3HV		1.8	21.5	965	31	1300	0.64	194	X014c	
IXTA 02N250HV	2500	0.2	450	116	7.4	1500	1.50	83	X011c	
IXTH 02N250		0.2	450	116	7.4	1500	1.50	83	X014a	
IXTH 05N250P3HV		0.5	110	303	10.5	1200	1.20	104	X014c	
IXTF 1N250		1	40	1660	41	2500	1.13	110	X024c	
IXTH 1R4N250P3		1.4	28	960	33	1800	0.64	195	X014a	X014c **TO-247HV**
IXTH 1N250		1.5	40	1660	41	2500	0.50	250	X014a	
IXTT 1N250HV		1.5	40	1660	41	2500	0.50	250	X019a	
IXTN 5N250		5	8.8	8560	200	1200	0.18	700	X027a	
IXTK 5N250		5	8.8	8560	200	1200	0.13	960	X020a	
IXTX 5N250		5	8.8	8560	200	1200	0.13	960	X015a	
IXTH 04N300P3HV	3000	0.4	190	283	13	1100	1.20	104	X014c	
IXTT 1N300P3HV		1	50	895	30.6	1800	0.64	195	X019a	X015a **PLUS247**
IXTH 1N300P3HV		1	50	895	30.6	1800	0.64	195	X014c	
IXTF 2N300P3		1.6	21	1890	73	400	0.77	160	X024c	
IXTH 2N300P3HV		2	21	1890	73	400	0.24	520	X014c	
IXTT 2N300P3HV		2	21	1890	73	400	0.24	520	X019a	
IXTX 4N300P3HV		4	12.5	3680	139	420	0.13	960	X015c	
IXTH 02N450HV	4500	0.2	625	246	10.6	1600	1.10	113	X014c	X015c **PLUS247HV**
IXTF 02N450		0.2	625	246	10.6	1600	1.60	78	X024c	
IXTT 02N450HV		0.2	625	246	10.6	1600	1.10	113	X019a	
IXTF 1N450		0.9	80	1700	46	1750	0.77	165	X024c	
IXTT 1N450HV		1	80	1700	46	1750	0.24	520	X019a	
IXTH 1N450HV		1	80	1700	46	1750	0.24	520	X014c	
IXTF 1R4N450		1.4	40	3300	88	660	0.65	190	X024c	
IXTX 1R4N450HV		1.4	40	3300	88	660	0.13	960	X015c	X019a **TO-268AAHV**
IXTL 2N450		2	20	6860	180	1750	0.56	220	X022e	
IXTL 2N470	4700	2	20	6860	180	1750	0.56	220	X022e	

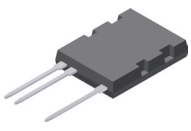
X027a **SOT-227B miniBLOC**



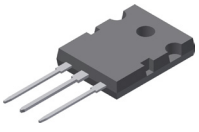
X024c **ISOPLUS i4-PAC™**



X022e **ISOPLUS264/i5-Pak**



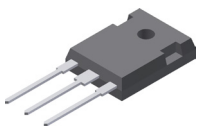
X020a **TO-264**



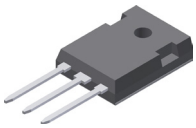
Legacy (Standard) Power MOSFETs

Part Type	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_J = 25°C Ω	C_{iss} typ. pF	Q_g typ. nC	t_{rr} typ. ns	R_{thJC} K/W	P_D W	Fig. No.	Package style Outline drawings on pages O-36...O-59
IXTA 05N100HV	1000	0.75	17	260	7.8	710	3.10	40	X011c	
IXTP 3N120	1200	3.00	4.5	1050	39	700	0.62	200	X005a	X005a TO-220AB
IXTH 3N120		3.00	4.5	1050	39	700	0.80	100	X014a	
IXTA 3N120		3.00	4.5	1050	39	700	0.62	200	X011b	
IXTA 3N120HV		3.00	4.5	1050	39	700	0.62	200	X011c	
IXTH 6N120		6.00	2.4	1950	56	850	0.42	300	X014a	
IXTT 6N120		6.00	2.4	1950	56	850	0.42	300	X019	
IXTA 3N150HV	1500	3.00	7.3	1375	38.6	900	0.50	110	X011c	
IXTH 3N150		3.00	7.3	1375	38.6	900	0.50	250	X014a	X011b TO-263AB
IXTJ 3N150		2.50	8	1375	38.6	900	1.13	250	X016c	
IXTA 4N150HV		4.00	6	1576	44.5	900	0.45	280	X011c	
IXTH 4N150		4.00	6	1576	44.5	900	0.45	280	X014a	
IXTJ 4N150		2.50	6	1576	44.5	900	1.13	110	X016c	
IXTT 4N150HV		4.00	6	1576	44.5	900	0.45	280	X019a	
IXTH 6N150		6.00	3.5	2230	67	1500	0.23	540	X014a	
IXTJ 6N150		3.00	3.85	2230	67	1500	1.00	125	X016c	X011c TO-263ABHV
IXTT 6N150		6.00	3.5	2230	67	1500	0.23	540	X014a	
IXTT 12N150HV		12.00	2	3720	106	1200	0.14	890	X019a	

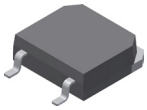
X016c **ISO247™**



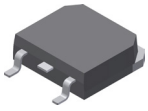
X014a **TO-247AD**



X019a **TO-268AAHV**



X019 **TO-268AA**

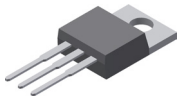


Linear L2™ Power MOSFETs with Extended FBSOAs

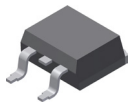
Part Type ➢ New	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_J = 25°C Ω	C_{iss} typ. pF	Q_g typ. nC	t_{rr} typ. ns	R_{thJC} K/W	P_D W	Fig. No.
IXTP 80N075L2	75	80	0.024	3600	103	160	0.35	357	X005a
IXTA 80N075L2		80	0.024	3600	103	160	0.35	357	X011b
IXTH 80N075L2		80	0.024	3600	103	160	0.35	357	X014a
IXTH 140N075L2		140	0.011	9300	275	200	0.23	540	X014a
IXTT 140N075L2HV		140	0.011	9300	275	200	0.23	540	X019a
IXTN 240N075L2		225	0.007	19000	546	206	0.17	735	X027a
IXTK 240N075L2		240	0.007	19000	546	206	0.13	960	X020a
IXTX 240N075L2		240	0.007	19000	546	206	0.13	960	X015a
IXTA 64N10L2	100	64	0.032	3620	100	180	0.35	357	X011b
IXTH 64N10L2		64	0.032	3620	100	180	0.35	357	X014a
IXTP 64N10L2		64	0.032	3620	100	180	0.35	357	X005a
IXTH 75N10L2		75	0.021	8100	215	180	0.31	400	X014a
IXTT 75N10L2		75	0.021	8100	215	180	0.31	400	X019
IXTH 110N10L2		110	0.018	10500	260	230	0.21	600	X014a
IXTT 110N10L2		110	0.018	10500	260	230	0.21	600	X019
IXTN 200N10L2		178	0.011	23000	540	245	0.15	830	X027a
IXTX 200N10L2		200	0.011	23000	540	245	0.12	1040	X015a
IXTK 200N10L2		200	0.011	23000	540	245	0.12	1040	X020a
IXTH 60N20L2	200	60	0.045	10500	255	330	0.23	540	X014a
IXTT 60N20L2		60	0.045	10500	255	330	0.23	540	X019
IXTQ 60N20L2		60	0.045	10500	255	330	0.23	540	X017a
IXTN 110N20L2		100	0.024	23000	500	420	0.17	735	X027a
IXTX 110N20L2		110	0.024	23000	500	420	0.13	960	X015a
IXTK 110N20L2		110	0.024	23000	500	420	0.13	960	X020a
➢ **IXTA 30N25L2**	250	30	0.140	3200	130	315	0.35	355	X011b
➢ **IXTH 30N25L2**		30	0.140	3200	130	315	0.35	355	X014a
➢ **IXTP 30N25L2**		30	0.140	3200	130	315	0.35	355	X005a
➢ **IXTH 44N25L2**		44	0.075	5740	256	366	0.31	400	X014a
➢ **IXTT 44N25L2HV**		44	0.075	5740	256	366	0.31	400	X019a
IXTH 58N25L2		58	0.064	9200	330	400	0.23	540	X014a
IXTX 90N25L2		90	0.033	23000	640	266	0.13	960	X015a
IXTN 90N25L2		90	0.033	23000	640	266	0.17	735	X027a
IXTK 90N25L2		90	0.033	23000	640	266	0.13	960	X020a
IXTH 38N30L2	300	38	0.100	7200	260	420	0.31	400	X014a
IXTT 38N30L2		38	0.100	7200	260	420	0.31	400	X019
IXTH 50N30L2		50	0.072	9300	330	430	0.23	540	X014a
IXTK 80N30L2		80	0.038	19100	660	485	0.13	960	X020a
IXTN 80N30L2		80	0.038	19100	660	485	0.17	735	X027a
IXTX 80N30L2		80	0.038	19100	660	485	0.13	960	X015a
IXTA 15N50L2	500	15	0.480	4080	123	570	0.42	300	X011b
IXTP 15N50L2		15	0.480	4080	123	570	0.42	300	X005a
IXTH 15N50L2		15	0.480	4080	123	570	0.42	300	X014a
IXTH 30N50L2		30	0.200	8100	240	500	0.31	400	X014a
IXTT 30N50L2		30	0.200	8100	240	500	0.31	400	X019
IXTQ 30N50L2		30	0.200	8100	240	500	0.31	400	X017a
IXTH 40N50L2		40	0.170	10400	320	500	0.23	540	X014a
IXTT 40N50L2		40	0.170	10400	320	500	0.23	540	X019
IXTQ 40N50L2		40	0.170	10400	320	500	0.23	540	X017a
IXTN 60N50L2		53	0.100	24000	610	980	0.17	735	X027a
IXTX 60N50L2		60	0.100	24000	610	980	0.13	960	X015a
IXTK 60N50L2		60	0.100	24000	610	980	0.13	960	X020a
IXTH 30N60L2	600	30	0.240	10700	335	710	0.23	540	X014a
IXTT 30N60L2		30	0.240	10700	335	710	0.23	540	X019
IXTQ 30N60L2		30	0.240	10700	335	710	0.23	540	X017a

Package style
Outline drawings on pages O-36...O-59

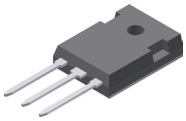
X005a **TO-220AB**



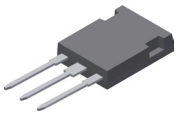
X011b **TO-263AB**



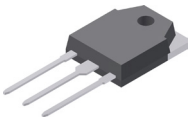
X014a **TO-247AD**



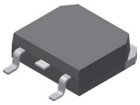
X015a **PLUS247**



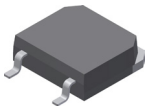
X017a **TO-3P**



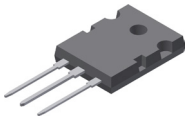
X019 **TO-268AA**



X019a **TO-268AAHV**



X020a **TO-264**



X027a **SOT-227B miniBLOC**



Depletion-Mode MOSFETs

„Normally On“ devices

Part Type	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_J = 25°C Ω	$V_{GS(off)}$ max. V	C_{iss} typ. pF	C_{rss} typ. pF	Q_g typ. nC	P_D W	Fig. No.	Package style Outline drawings on pages O-36...O-59
IXTH 16N10D2	100	16.00	0.064	-4	5700	940	225	695	X014a	
IXTT 16N10D2		16.00	0.064	-4	5700	940	225	695	X019	X004 **TO-252AA**
IXTH 16N20D2	200	16.00	0.073	-4	5500	607	208	695	X014a	
IXTT 16N20D2		16.00	0.073	-4	5500	607	208	695	X019	
IXTP 08N50D2	500	0.80	4.6	-4	312	11	12.7	60	X005a	
IXTY 08N50D2		0.80	4.6	-4	312	11	12.7	60	X004	
IXTA 08N50D2		0.80	4.6	-4	312	11	12.7	60	X011b	
IXTP 1R6N50D2		1.60	2.3	-4	645	16.5	23.7	100	X005a	
IXTY 1R6N50D2		1.60	2.3	-4	645	16.5	23.7	100	X004	
IXTA 1R6N50D2		1.60	2.3	-4	645	16.5	23.7	100	X011b	X005a **TO-220AB**
IXTP 3N50D2		3.00	1.5	-4	1070	24	40	125	X005a	
IXTA 3N50D2		3.00	1.5	-4	1070	24	40	125	X011b	
IXTP 6N50D2		6.00	0.5	-4	2800	64	96	300	X005a	
IXTH 6N50D2		6.00	0.5	-4	2800	64	96	300	X014a	
IXTA 6N50D2		6.00	0.5	-4	2800	64	96	300	X011b	
IXTH 16N50D2		16.00	0.24	-4	5250	130	199	695	X014a	
IXTT 16N50D2		16.00	0.24	-4	5250	130	199	695	X019	
IXTP 08N100D2	1000	0.80	21	-4	325	6.5	14.6	60	X005a	
IXTY 08N100D2		0.80	21	-4	325	6.5	14.6	60	X004	X011b **TO-263AB**
IXTA 08N100D2		0.80	21	-4	325	6.5	14.6	60	X011b	
IXTA 08N100D2HV		0.80	21	-4	325	6.5	14.6	60	X011c	
IXTP 1R6N100D2		1.60	10	-4.5	645	11	27	100	X005a	
IXTY 1R6N100D2		1.60	10	-4.5	645	11	27	100	X004	
IXTA 1R6N100D2		1.60	10	-4.5	645	11	27	100	X011b	
IXTP 3N100D2		3.00	5.5	-4.5	1020	17	37.5	125	X005a	
IXTA 3N100D2		3.00	5.5	-4.5	1020	17	37.5	125	X011b	
IXTA 3N100D2HV		3.00	6	-4.5	1020	17	37.5	125	X011c	
IXTP 6N100D2		6.00	2.2	-4.5	2650	41	95	300	X005a	X011c **TO-263ABHV**
IXTH 6N100D2		6.00	2.2	-4.5	2650	41	95	300	X014a	
IXTA 6N100D2		6	2.2	-4.5	2650	41	95	300	X011b	
IXTT 10N100D2		10	1.5	-4.5	5320	70	200	695	X019	
IXTH 10N100D2		10	1.5	-4.5	5320	70	200	695	X014a	
IXTT 2N170D2	1700	2	6.5	-4	3650	80	110	568	X019	
IXTH 2N170D2		2	6.5	-4	3650	80	110	568	X014a	

X019 **TO-268AA**

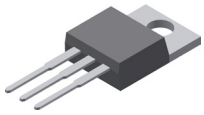
X014a **TO-247AD**

P-Channel PolarP™ Power MOSFETs

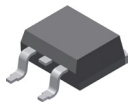
Part Type	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_J = 25°C Ω	C_{iss} typ. pF	Q_g typ. nC	t_{rr} typ. ns	R_{thJC} K/W	P_D W	Fig. No.
IXTX 32P60P	-600	-32	0.350	11100	196	480	0.14	890	X015a
IXTN 32P60P		-32	0.350	11100	196	480	0.14	890	X027a
IXTK 32P60P		-32	0.350	11100	196	480	0.14	890	X020a
IXTR 32P60P		-18	0.385	11100	196	480	0.40	310	X016a
IXTH 16P60P		-16	0.720	5120	92	440	0.27	460	X014a
IXTT 16P60P		-16	0.720	5120	92	440	0.27	460	X019
IXTR 16P60P		-10	0.790	5120	92	440	0.66	190	X016a
IXTX 40P50P	-500	-40	0.230	11.5	205	477	0.14	890	X015a
IXTN 40P50P		-40	0.230	11500	205	477	0.14	890	X027a
IXTK 40P50P		-40	0.230	11500	205	477	0.14	890	X020a
IXTR 40P50P		-22	0.260	11500	205	477	0.40	312	X016a
IXTH 20P50P		-20	0.450	5120	103	406	0.27	460	X014a
IXTT 20P50P		-20	0.450	5120	103	406	0.27	460	X019
IXTR 20P50P		-13	0.490	5120	103	406	0.66	190	X016a
IXTP 10P50P		-10	1.000	2670	50	414	0.50	300	X005a
IXTH 10P50P		-10	1.000	2670	50	414	0.50	300	X014a
IXTA 10P50P		-10	1.000	2670	50	414	0.50	300	X011b
IXTQ 10P50P		-10	1.000	2670	50	414	0.50	300	X017a
IXTX 90P20P	-200	-90	0.044	12000	205	315	0.14	890	X015a
IXTN 90P20P		-90	0.044	12000	205	315	0.14	890	X027a
IXTK 90P20P		-90	0.044	12000	205	315	0.14	890	X020a
IXTR 90P20P		-53	0.048	12000	205	315	0.40	312	X016a
IXTH 48P20P		-48	0.085	5400	103	260	0.27	462	X014a
IXTT 48P20P		-48	0.085	5400	103	260	0.27	462	X019
IXTR 48P20P		-30	0.093	5400	103	260	0.66	190	X016a
IXTP 26P20P		-26	0.170	2740	56	240	0.42	300	X005a
IXTH 26P20P		-26	0.170	2740	56	240	0.42	300	X014a
IXTA 26P20P		-26	0.170	2740	56	240	0.42	300	X011b
IXTQ 26P20P		-26	0.170	2740	56	240	0.42	300	X017a
IXTP 36P15P	-150	-36	0.110	3100	55	228	0.42	300	X005a
IXTH 36P15P		-36	0.110	3100	55	228	0.42	300	X014a
IXTA 36P15P		-36	0.110	3100	55	228	0.42	300	X011b
IXTQ 36P15P		-36	0.110	3100	55	228	0.42	300	X017a
IXTR 36P15P		-22	0.120	2950	55	150	1.00	150	X016a
IXTX 170P10P	-100	-170	0.012	12600	240	176	0.14	890	X015a
IXTN 170P10P		-170	0.012	12600	240	176	0.14	890	X027a
IXTK 170P10P		-170	0.012	12600	240	176	0.14	890	X020a
IXTR 170P10P		-108	0.013	12600	240	176	0.40	312	X016a
IXTH 90P10P		-90	0.025	5800	120	144	0.27	462	X014a
IXTT 90P10P		-90	0.025	5800	120	144	0.27	462	X019
IXTR 90P10P		-57	0.027	5800	120	144	0.66	190	X016a
IXTP 52P10P		-52	0.050	2845	60	120	0.42	300	X005a
IXTH 52P10P		-52	0.050	2845	60	120	0.42	300	X014a
IXTA 52P10P		-52	0.050	2845	60	120	0.42	300	X011b
IXTQ 52P10P		-52	0.050	2845	60	120	0.42	300	X017a

Package style
Outline drawings on pages O-36...O-59

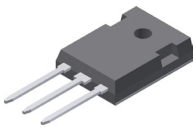
X005a **TO-220AB**



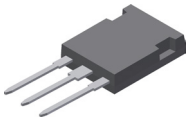
X011b **TO-263AB**



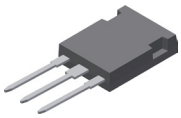
X014a **TO-247AD**



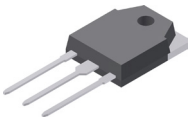
X015a **PLUS247**



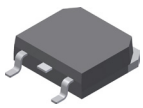
X016a **ISOPLUS247™**



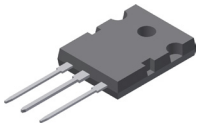
X017a **TO-3P**



X019 **TO-268AA**



X020a **TO-264**



X027a **SOT-227B miniBLOC**



P-Channel TrenchP™ Power MOSFETs

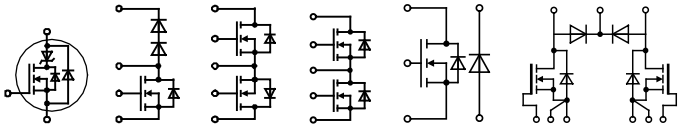
Part Type	V_{DSS} V	$I_{D(cont)}$ Chip T_C = 25°C A	$R_{DS(on)}$ T_J = 25°C Ω	C_{iss} typ. pF	Q_g typ. nC	t_{rr} typ. (max) ns	R_{thJC} K/W	P_D W	Fig. No.	Package style Outline drawings on pages O-36...O-59
IXTK 120P20T	-200	-120	0.030	73000	740	-300	0.12	1040	X020a	X004 **TO-252AA**
IXTX 120P20T		-120	0.030	73000	740	-301	0.12	1040	X015a	
IXTN 120P20T		-106	0.030	73000	740	-302	0.15	830	X027a	
IXTR 120P20T		-90	0.032	73000	740	-303	0.21	595	X016a	
IXTH 68P20T		-68	0.055	33400	380	245	0.22	568	X014a	
IXTT 68P20T		-68	0.055	33400	380	245	0.22	568	X019	X005a **TO-220AB**
IXTR 68P20T		-44	0.064	33400	380	245	0.46	270	X016a	
IXTA 32P20T		-32	0.130	14500	185	190	0.42	300	X011b	
IXTP 32P20T		-32	0.130	14500	185	190	0.42	300	X005a	
IXTH 32P20T		-32	0.130	14500	185	190	0.42	300	X014a	
IXTQ 32P20T		-32	0.130	14500	185	190	0.42	300	X017a	
IXTP 44P15T	-150	-44	0.065	13400	175	140	0.42	298	X005a	X011b **TO-263AB**
IXTH 44P15T		-44	0.065	13400	175	140	0.42	298	X014a	
IXTA 44P15T		-44	0.065	13400	175	140	0.42	298	X011b	
IXTQ 44P15T		-44	0.065	13400	175	140	0.42	298	X017a	
IXTP 15P15T		-15	0.240	3650	48	116	0.83	150	X005a	
IXTY 15P15T		-15	0.240	3650	48	116	0.83	150	X004	X014a **TO-247AD**
IXTA 15P15T		-15	0.240	3650	48	116	0.83	150	X011b	
IXTP 10P15T		-10	0.350	2210	36	120	1.50	83	X005a	
IXTY 10P15T		-10	0.350	2210	36	120	1.50	83	X004	
IXTA 10P15T		-10	0.350	2210	36	120	1.50	83	X011b	
IXTK 210P10T	-100	-210	0.008	69500	740	-200	0.12	1040	X020a	X015a **PLUS247**
IXTN 210P10T		-210	0.008	69500	740	-201	0.15	830	X027a	
IXTX 210P10T		-210	0.008	69500	740	-202	0.12	1040	X015a	
IXTR 210P10T		-195	0.008	69500	740	-203	0.32	390	X016a	
IXTH 140P10T		-140	0.012	31400	400	130	0.22	568	X014a	
IXTT 140P10T		-140	0.012	31400	400	130	0.22	568	X019	
IXTR 140P10T		-90	0.013	31400	400	130	0.46	270	X016a	X016a **ISOPLUS247™**
IXTP 76P10T		-76	0.025	13700	197	70	0.42	298	X005a	
IXTH 76P10T		-76	0.025	13700	197	70	0.42	298	X014a	
IXTA 76P10T		-76	0.025	13700	197	70	0.42	298	X011b	
IXTP 26P10T		-26	0.090	3820	52	70	0.83	150	X005a	
IXTY 26P10T		-26	0.090	3820	52	70	0.83	150	X004	X017a **TO-3P**
IXTA 26P10T		-26	0.090	3820	52	70	0.83	150	X011b	
IXTP 18P10T		-18	0.120	2100	39	62	1.50	83	X005a	
IXTY 18P10T		-18	0.120	2100	39	62	1.50	83	X004	
IXTA 18P10T		-18	0.120	2100	39	62	1.50	83	X011b	
IXTP 96P085T	-85	-96	0.013	13100	180	55	0.42	298	X005a	X019 **TO-268AA**
IXTH 96P085T		-96	0.013	13100	180	55	0.42	298	X014a	
IXTA 96P085T		-96	0.013	13100	180	55	0.42	298	X011b	
IXTP 24P085T		-24	0.065	2090	41	40	1.50	83	X005a	
IXTA 24P085T		-24	0.065	2090	41	40	1.50	83	X011b	
IXTP 120P065T	-65	-120	0.010	13200	185	53	0.42	298	X005a	X020a **TO-264**
IXTH 120P065T		-120	0.010	13200	185	53	0.42	298	X014a	
IXTA 120P065T		-120	0.010	13200	185	53	0.42	298	X011b	
IXTP 28P065T		-28	0.045	2030	46	31	1.50	83	X005a	
IXTA 28P065T		-28	0.045	2030	46	31	1.50	83	X011b	
IXTP 140P05T	-50	-140	0.009	13500	200	53	0.42	298	X005a	
IXTH 140P05T		-140	0.009	13500	200	53	0.42	298	X014a	X027a **SOT-227B miniBLOC**
IXTA 140P05T		-140	0.009	13500	200	53	0.42	298	X011b	
IXTP 48P05T		-48	0.030	3660	53	30	0.83	150	X005a	
IXTY 48P05T		-48	0.030	3660	53	30	0.83	150	X004	
IXTA 48P05T		-48	0.030	3660	53	30	0.83	150	X011b	
IXTP 32P05T		-32	0.039	1975	46	26	1.50	83	X005a	
IXTY 32P05T		-32	0.039	1975	46	26	1.50	83	X004	
IXTA 32P05T		-32	0.039	1975	46	26	1.50	83	X011b	

Superjunction Power MOSFET

Powered by Infineon CoolMOS™ superjunction bare die

K Series

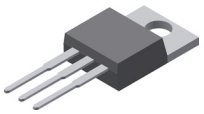
Part Type ○ Not for new design	V_{DSS} V	I_{D25} T_C = 25°C A	$R_{DS(on)\ max.}$ T_J = 25°C Ω	Q_g typ. c	R_{thJC} K/W	V_{ISOL} RMS V	Fig. No.
C3 Series							
○ **IXKC 20N60C**	600	14	0.190	80	1.00	2500	X010a
IXKR 40N60C		38	0.070	250	0.45	2500	X016a
○ **IXKN 40N60C**		40	0.070	250	0.43	2500	X027a
○ **IXKN 75N60C**		75	0.036	500	0.22	2500	X027a
IXKR 25N80C	800	25	0.150	170	0.50	2500	X016a
C5 Series							
○ **IXKH 35N60C5**	600	35	0.100	60	0.35	-	X014a
○ **IXKR 47N60C5**		47	0.045	150	0.45	2500	X016a
○ **IXKH 70N60C5**		70	0.045	150	0.20	-	X014a
IXKT 70N60C5		66	0.045	150	0.23	-	X019



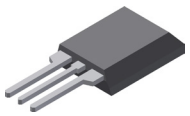
Part Type ✧ Under Development ○ Not for new design ➢ New	V_{DSS} V	I_{D25} T_C = 25°C A	$R_{DS(on)}$ max. T_J = 25°C Ω	Q_g typ. nC	R_{thJC} K/W	Config.	Fig. No.
Configurations in i4-PAC™							
IXKF 40N60SCD1	600	38	0.070	250	0.45	single	X024c
FMD 15-06KC5		15	0.165	40	1.10	boost	X024a
○ **FMD 40-06KC**		38	0.070	250	0.45		
Configuration in ISOPLUS264™ Package							
○ **LKK 47-06C5**	600	2 x 47	0.045	150	0.45	dual	X022c
Configurations in SMPD Package							
MKE 38RK600DFELB	600	50	0.045	150	0.40	buck/boost	X030a
MKE 38P600LB	600	50	0.040	150	0.40	phase leg	
✧ **MKH 17RP650DCGLB**	650	22	0.110	118	0.90	dual boost	
X2 Class MOSFETs in SMPD Package							
➢ **MXB 40RK600DFELB**	600	53	0.052	108	0.32	buck/boost	X030a
➢ **MXB 40P650LB**	650	53	0.052	108	0.32	phase leg	

Package style
Outline drawings
on pages O-36...O-59

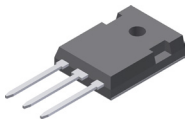
X005a **TO-220AB**



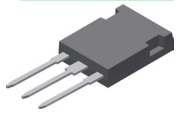
X010a **ISOPLUS220™**



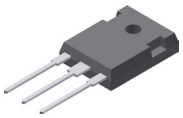
X014a **TO-247AD**



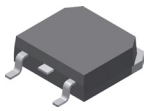
X016a **ISOPLUS247™**



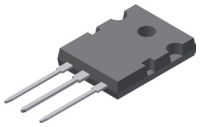
X016c **ISO247™**



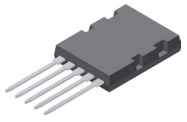
X019 **TO-268AA**



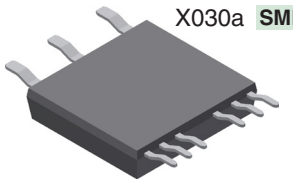
X020a **TO-264**



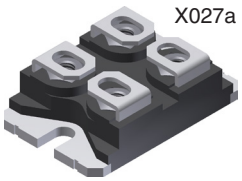
X022c **ISOPLUS264**



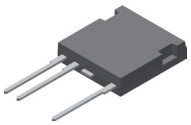
X030a **SMPD -B**



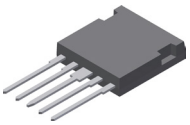
X027a **SOT-227B miniBLOC**



X024c **ISOPLUS i4-PAC™**



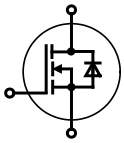
X024a **ISOPLUS i4-PAC™**



SiliconCarbide Power MOSFETs and Diodes

Littelfuse SiC MOSFETs offer a rewarding alternative to traditional Si based power transistor devices. The MOSFET device structure enables lower per-cycle switching losses and improved light load efficiency when compared to similarly rated IGBTs. Inherent material properties allow the SiC MOSFET to outclass its Si MOSFET counterparts in terms of blocking voltage, specific on resistance, and junction capacitances.

Littelfuse SiC Schottky Diodes have negligible reverse recovery current, high surge capability, and a maximum operating junction temperature of 175°C. These diodes are ideal for applications where improvements in efficiency, reliability, and thermal management are desired.



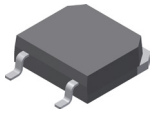
SiC MOSFETs

Part Type ✧ Under Development	V_{DSS} V	I_D T_C = 25°C A	I_D T_C = 100°C A	$R_{DS(on)}$ typ. T_J = 25°C mΩ	C_{iss} typ pF	Q_g typ nC	R_{thJC} K/W	Fig. No.	Package style Outline drawings on pages O-60...O-64
✧ **LSIC1MO120E0025**	1200	90	60	25	4465	250	0.30	L014a	
✧ **LSIC1MO120E0040**		65	50	40	2825	160	0.42		
LSIC1MO120E0080		39	25	80	1825	95	0.70		
LSIC1MO120E0120		27	18	120	1125	80	0.90		L012b **TO-263 (7)**
LSIC1MO120E0160		22	14	160	870	57	1.00		
✧ **LSIC1MO120G0025**		90	60	25	4465	250	0.30	L014d	
✧ **LSIC1MO120G0040**		65	50	40	2825	160	0.42		
✧ **LSIC1MO120G0080**		39	25	80	1825	95	0.70		
✧ **LSIC1MO120G0120**		27	18	120	1125	80	0.90		
✧ **LSIC1MO120G0160**		22	14	160	870	57	1.00		
✧ **LSIC1MO120T0080**		39	25	80	1825	95	0.70	L012b	
✧ **LSIC1MO120T0120**		27	18	120	1125	80	0.90		L014d **TO-247-4L**
✧ **LSIC1MO120T0160**		22	14	160	870	57	1.00		
✧ **LSCI1MO120N0025**		90	60	25	4465	250	0.42	L027a	
LSIC1MO170E1000	1700	5	3.5	750	200	15	2.30	L014a	
➢ **LSIC1MO170T0750**		5	3.5	750	200	15	2.30	L012b	
✧ **LSIC1MO170H0750**		5	3.5	750	200	15	2.30	L019a	

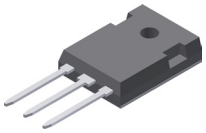
L027a **SOT-227B miniBLOC**



L019a **TO-268AA (HV)**



L014a **TO-247 AD**

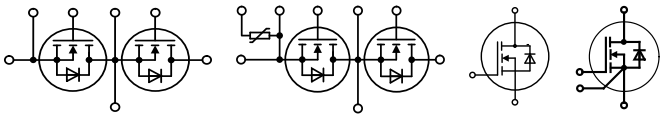


SiliconCarbide Power MOSFETs and Diodes

SiC Diodes

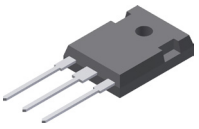
Type ✧ Under Development ➢ New	V_{RRM} V	I_F @ T_C DC A	 °C	I_F DC @ 25°C A	V_F V	Q_C nC	R_{thJC} K/W	Fig. No.	Package style Outline drawings on pages O-38, O-60 ... O-64
➢ **LSIC2SD065A06A**	650	6	152	18.5	1.5	20	2.00	L005b	
➢ **LSIC2SD065A08A**		8	150	23.0	1.5	29	1.70		
➢ **LSIC2SD065A10A**		10	147	27.0	1.5	30	1.50		L004a **TO-252**
➢ **LSIC2SD065A16A**		16	140	38.0	1.5	48	1.20		
➢ **LSIC2SD065A20A**		20	135	45.0	1.5	63	1.10		
➢ **LSIC2SD065C06A**		6	152	18.5	1.5	20	2.00	L004a	
➢ **LSIC2SD065C08A**		8	150	23.0	1.5	29	1.70		
➢ **LSIC2SD065C10A**		10	147	27.0	1.5	30	1.50		
➢ **LSIC2SD065C16A**		16	140	38.0	1.5	48	1.20		
➢ **LSIC2SD065C20A**		20	135	45.0	1.5	63	1.10		
➢ **LSIC2SD065D06A**		6	152	18.5	1.5	20	2.00	X011c	
➢ **LSIC2SD065D08A**		8	150	23.0	1.5	29	1.70		L005b **TO-220 AC**
➢ **LSIC2SD065D10A**		10	147	27.0	1.5	30	1.50		
➢ **LSIC2SD065D16A**		16	140	38.0	1.5	48	1.20		
➢ **LSIC2SD065D20A**		20	135	45.0	1.5	63	1.10		
➢ **LSIC2SD065E12CCA**		6/12*	152	18.5/37*	1.5	20	2.0/1.00*	L014a	
➢ **LSIC2SD065E16CCA**		8/16*	150	23/46*	1.5	29	1.7/0.85*		
➢ **LSIC2SD065E20CCA**		10/20*	147	27/54*	1.5	30	1.5/0.75*		
➢ **LSIC2SD065E32CCA**		16/32*	140	38/76*	1.5	48	1.2/0.60*		
➢ **LSIC2SD065E40CCA**		20/40*	135	45/90*	1.5	63	1.1/0.55*		
✧ **LSIC2SB065B10A**		10	147	27.0	1.5	30	TBD	L014b	X011c **TO-263ABHV**
✧ **LSIC2SD065B16A**		16	140	38.0	1.5	48	TBD		
✧ **LSIC2SB065B20A**		20	135	45.0	1.5	63	TBD		
✧ **LSIC2SB065B32A**		32	150	70.0	1.5	TBD	TBD		
✧ **LSIC2SB065B40A**		40	150	85.0	1.5	TBD	TBD		
✧ **LSIC2SD065N40PA**		20/40*	135	45/90*	1.5	63	TBD	L027a	
✧ **LSIC2SD065N80PA**		40/80*	150	80/160*	1.5	TBD	TBD		
✧ **LSIC2SD065N128PA**		64/128*	150	110/220*	1.5	TBD	TBD		
LSIC2SD120A05	1200	5	158	17.5	1.5	30	1.50	L005b	L014a **TO-247 AD**
LSIC2SD120A08		8	154	24.5	1.5	47	1.20		
LSIC2SD120A10		10	151	28.0	1.5	57	1.10		
LSIC2SD120A15		15	150	44.0	1.5	92	0.70		
LSIC2SD120A20		20	150	54.5	1.5	115	0.60		
LSIC2SD120C05		5	159	18.1	1.5	30	1.50	L004a	
LSIC2SD120C08		8	154	24.5	1.5	47	1.20		
LSIC2SD120C10		10	156	33.0	1.5	57	0.85		
LSIC2SD120D10		10	151	28.0	1.5	57	1.10	X011c	
LSIC2SD120D15		15	150	44.0	1.5	92	0.70		L014b **TO-247AD**
LSIC2SD120D20		20	150	54.5	1.5	115	0.60		
✧ **LSIC2SB120B10A**		10	151	28.0	1.5	57	TBD	L014b	
✧ **LSIC2SB120B20A**		20	135	45.0	1.5	115	TBD		
✧ **LSIC2SB120B30A**		30	150	54.0	1.5	129	TBD		
✧ **LSIC2SB120B40A**		40	150	65.0	1.5	145	TBD		
➢ **LSIC2SD120N40PA**		20/40*	150	45/90*	1.5	230	0.80/1.60*	L027a	
➢ **LSIC2SD120N80PA**		40/80*	150	80/160*	1.5	290	0.60/1.20*		L027a **SOT-227B miniBLOC**
➢ **LSIC2SD120N120PA**		60/120*	121	110/220*	1.5	360	0.40/0.80*		
LSIC2SD120E10CC		5/10*	158	17.5/35.0*	1.5	30	0.75/1.50*	L014a	
LSIC2SD120E15CC		8/16*	154	24.5/49.0*	1.5	47	0.60/1.20*		
LSIC2SD120E20CC		10/20*	151	28.0/56.0*	1.5	57	0.55/1.10*		
LSIC2SD120E30CC		15/30*	152	43.8/87.6*	1.5	92	0.35/0.70*		
LSIC2SD120E40CC		20/40*	150	54.5/109*	1.5	115	0.30/0.60*		
✧ **LSIC2SB170B10A**	1700	10	150	30.0	1.5	57	TBD	L014b	
✧ **LSIC2SB170B25A**		25	150	61.0	1.5	122	TBD		
✧ **LSIC2SB170B50A**		50	150	143.0	1.5	392	0.20		* per Leg/Component

SiliconCarbide Power MOSFETs

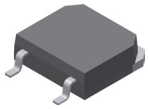


Part Type ✧ under development ➢ New	V_{DSS} V	I_{D25} T_C = 25°C A	I_{D80} T_C = 80°C A	$R_{DS(on)}$ T_C = 25°C mΩ (typ)	C_{iss} typ pF	Q_g typ nC	R_{thJC} K/W	Fig. No.
➢ **IXFN 130N90SK** [1]	900	136	109	10	4500	68	0.42	X027a
➢ **IXFN 27N120SK** [1]	1200	27	21.5	80	950	62	1.10	
IXFN 50N120SiC		47	35	40	1900	100	0.55	
IXFN 50N120SK [1]		48	38	40	1895	115	0.60	
IXFN 70N120SK [1]		68	55	25	2790	160	0.45	X027a
MCB 60I1200TZ		90	70	25	2790	160	0.27	X019a
➢ **IXFN 90N170SK** [1]	1700	90	67	23	7340	376	0.22	X027a
Phase Leg								
➢ **MCB 20P1200LB**	1200	22	17.5	80	950	62	1.60	X030a
➢ **MCB 30P1200LB**		37	29.5	40	1895	115	1.00	
➢ **MCB 40P1200LB**		58	43	25	2790	160	0.60	
✧ **MCB 60P1200TLB** *		77	62	25	2790	161	0.35	
✧ **MCB 35P1700TLB** *	1700	47	35	45	3670	188	0.40	

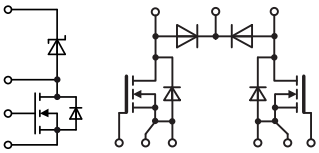
X016c **ISO247™**



X019a **TO-268AAHV**



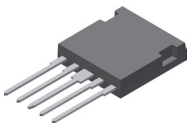
[1] Kelvin source gate connection; * NTC included



Boost Circuits

Type ✧ under development ➢ New	Circuit and Technology	V_{DSS} max V	I_{D80} T_C = 80°C A	$R_{DS(on)}$ typ Ω	I_{F80} Boost Diode A	Fig. No.
➢ **MXB 12R650DCGFC**	X2 Class Boost + SiC Diode	650	12	0.15 (max)	11,5	X024a
✧ **MKH 17RP650DCGLB**	Dual Boost Superjunction [1] + SiC		2 x 16	0.11 (max)	2 x 16	X030a

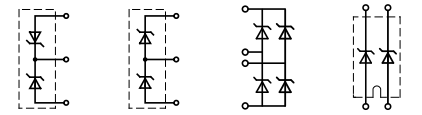
X024a **ISOPLUS i4-PAC™**



[1] Powered by Infineon CoolMOS™ superjunction bare die C6

SiliconCarbide Schottky Diodes

No reverse recovery



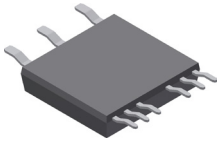
DCG...C... DCG...P..... DCG..B/FBS DCG..X....

Type ✧ Under development ➢ New	V_{RRM} V	I_{F80} per diode A	I_{FAV} d = 0.5 A	@ T_C °C	V_F typ., T_{VJ} = 175°C V	@ I_F A	R_{thJC} K/W	Fig. No.
Dual								
➢ **DCG 160X650NA**	650	105	2x 80	80	1.35	50	0.47	X027a
✧ **DCG 40X1200LB**	1200	19.5	2x 14.5	80	2.20	20	1.90	X030a
DCG 45X1200NA		30	2x 22	80	2.20	20	1.10	X027a
DCG 85X1200NA		59	2x 43	80	2.20	40	0.57	
DCG 100X1200NA		66	2x 49	80	2.25	50	0.51	
DCG 130X1200NA		88	2x 64	80	2.30	60	0.39	
Common Cathode								
➢ **DCG 20C1200HR**	1200	13	2x 10	80	2.20	10	3.00	X016c
➢ **DCG 35C1200HR**		23	2x 17	80	2.20	20	1.80	
Phase Leg								
➢ **DCG 10P1200HR**	2x 1200	13	10	80	2.20	10	3.00	X016c
➢ **DCG 17P1200HR**		23	17	80	2.20	20	1.80	
Full Bridge								
➢ **DCG 20B650LB**	650	16	10.5	80	2.0	10	2.10	X030a
FBS 10-12SC	1200	6.0	4.5	80	2.6	5	7.00	X024a
✧ **DCG 20B1200LB**		12.5	9.2	80	2.0	20	3.30	X030a

X027a **SOT-227B miniBLOC**



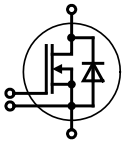
X030a **SMPD-B**



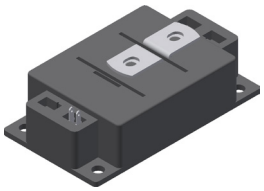
HiPerFET™ and Polar MOSFET Technology

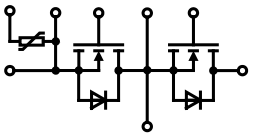
- low R_{DSon}
- fast body diode
- rugged

Suffix „F“ = HiPerFET™ Technology with Fast Intrinsic Diode



Part Type ○ Not for new design	V_{DSS} V	I_{D25} T_C = 25°C A	I_{D80} T_C = 80°C A	R_{DSon} typ. T_J = 25°C mΩ	t_r ns	t_f ns	R_{thJC} K/W	Fig. No.	Package style Outline drawings on pages O-36...O-59
Single Switch Module									X130d Y3
○ **VMO 1200-01F**		1245	930	1.35	200	500	0.039	X130d	



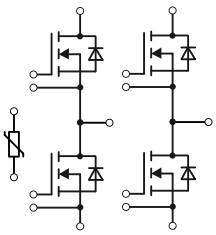


Part Type ✧ under development	V_{DSS} V	I_{D25} T_C = 25°C A	I_{D80} T_C = 80°C A	R_{DSon} typ. T_J = 25°C mΩ	t_r ns	t_f ns	R_{thJC} K/W	Fig. No.
MOSFET Modules – Phase Leg Configuration								
VMM 90-09F	900	85	65	65	180	140	0.08	X130e
✧ **MMPA 60P1000TLA**	1000	108	80	58			0.06	

X130e Y3

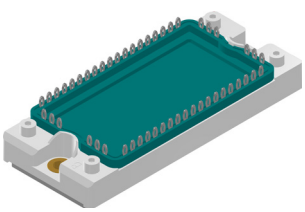


X2-Class HiPerFET™ Full Bridge MOSFET Module



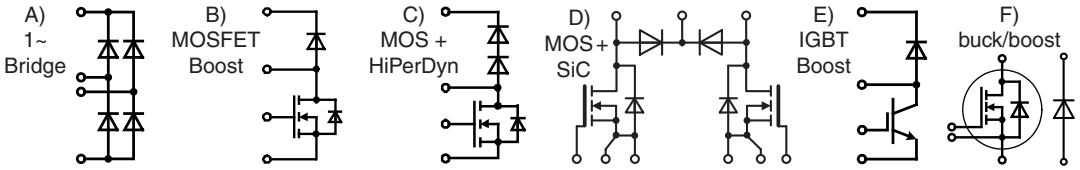
Part Type ✧ under development	V_{DSS} V	I_{D25} T_C = 25°C A	I_{D80} T_C = 80°C A	R_{DSon} max. T_J = 25°C mΩ	t_r ns	t_f ns	R_{thJC} K/W	Fig. No.
✧ **MMXB 95HX650PTED**	650	130	96	20			0.17	X112a

X112a E2-Pack PFP



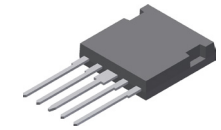
Rectifier Bridges for Power Factor Correction

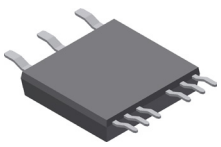
Power Stage for Boost Converters (Power Factor Correction)



1-phase PFC

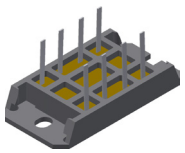
Type ✧ under development ○ Not for new design ➢ New	Circuit and Technology		V_{DSS} max V	I_D T_C = 25°C A	$R_{DS(on)}$ max Ω	V_{RRM} Boost Diode V	V_{RRM} Rectifier V	Fig. No.	Package style Outline drawings on pages O-36...O-59
MOSFET									
FMD 15-06KC5	C	Superjunction CP [1]	600	15	0.165		-	X024a	X024a **ISOPLUS i4-PAC**
○ **FMD 40-06KC**	C	Superjunction C3 [1]		38	0.070		-		
➢ **MXB 12R650DCGFC**	B	X2 Class + SiC	650	16	0.150	650	-		
MKE 38RK600DFELB	F	Superjunction CP [1]		50	0.045	600		X030a	
✧ **MXB 40RK600DFELB**	F	X2 Class	650	68	0.038		-		
✧ **MKH 17RP650DCGLB**	D	Superjunction C6 [1] + SiC		22	0.110		-		
○ **VUM 24-05N**	A+B	HiPerFET™	500	35	0.120	600	800	X105b	X030a **SMPD-B**
○ **VUM 33-05N**				47	0.120		1200		
VUM 33-06PH	A+B	Polar	600	50	0.120	600	1600		





Type ➢ New	Circuit and Technology		V_{RRM} V	I_{DAV} A	@ T_C °C	Fig. No.
Rectifier						
FBO 16-12N [2]	A	Standard	1200	22	90	X024a
FBO 40-12N [2]				40	90	
DLA 100B800LB [3] [4]	A	low V_F	800	124	135	X030a
➢ **DMA 120B800LB**				130	90	
DLA 100B1200LB [3]	A	low V_F	1200	124	135	

X105b **V1-B-Pack**

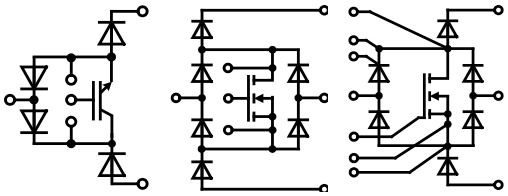


[1] Powered by Infineon CoolMOS™ superjunction bare die
[2] Recommended in combination with FMD and FID
[3] Recommended in combination with MKE, MKG and MXB
[4] AEC-Q-101

3-phase PFC

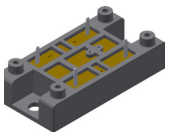
"Vienna Rectifier" circuit

- wide input voltage range
- sinusoidal mains input currents in phase with mains
- boost converter operation:
  - input: 3~ AC mains without neutral conductor
  - output: stabilized DC link with center point
- one module used per phase



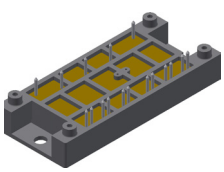
VUI 30 VUM 25 VUM 85

X103 **V1-A-Pack**



Type ① contact factory	PN / kW 3 ~ 400V. T_C = 80°C	Configuration	Fig. No.
VUM 25-05E ①	10	Vienna rectifier current	X103
VUM 85-05A ①	30	Vienna rectifier current	X104
VUI 30-12N1 ①	15	IGBT stage for buck @ boost PWM converter	X103

X104 **V2-Pack**



Diodes for High Switching Frequencies

Fast Recovery Epitaxial Diodes (HiPerFRED, FRED) and FRD (SONIC)

Power switches (IGBT, MOSFET, BJT, GTO) for applications in electronics are only as good as their associated free-wheeling diodes. At increasing switching frequencies, the proper functioning and efficiency of the power switch, aside from conduction losses, is determined by the turn-off behavior of the diode (characterized by Q_{rr}, I_{RM} and t_{rr} - Fig. 1). With optimized ultra-fast switching diodes, the development engineer has various possibilities: either higher pulse rate or higher current load or smaller heatsink or more conservative operation due to „cooler“ chips.

The reverse current characteristic following the peak reverse current I_{RM} is another very important property. The slope of the decaying reverse current di_{rr}/dt results from design parameters (technology and diffusion of the diode chips). In a circuit this current slope, in conjunction with parasitic inductances (e.g. connecting leads), causes over-voltage spikes and high frequency interference voltages. The higher the d_{irr}/dt („hard recovery“ or „snap-off“ behavior) the higher is the resulting additional stress for both the diode and the paralleled switch. A slow decay of the reverse current („soft recovery“ behavior), is the most desirable characteristic, and this is designed into all diodes. The wide range of available blocking voltages makes it possible to apply these diodes as output rectifiers in switch-mode power supplies (SMPS) as well as protective and free-wheeling diodes for power switches in inverters.

Diodes for General Purpose Applications

Rectifier Diodes

Diodes of the DS-series (anode on stud) and of the DSI-series (cathode on stud) are mainly used for rectifying 50 or 60 Hz mains currents. Discrete diodes in plastic and metal housings and also different diode bridges are available for standard line voltages (from 110 V to 690 V AC).

Avalanche Diodes

Avalanche diodes or surge-voltage-proof rectifier diodes of the series DSA (anode on stud) and DSAI (cathode on stud) differ from standard diodes of the series DS and DSI in the following manner: the operation in avalanche breakdown above the normal reverse blocking voltage (V_{RRM}) can be tolerated as long as the power is within the specified maximum permissible non-repetitive reverse surge dissipation P_{RSM} at the specified pulse width. In order to have technologically good control of the avalanche breakdown, it is important to ensure homogeneous doping of the middle zone of the silicon chip and suitable junction termination and passivation at the edges where PN-junctions are exposed to the surface (high field strength at the edge). Because of this ruggedness against periodically occurring short-term voltage surges in the blocking direction, the user frequently can do without protective overvoltage net-works. In addition, if avalanche diodes are put in series for high voltage applications, the sharp avalanche breakdown of the blocking characteristic ensures static and dynamic voltage distribution uniformly across each device. Thus, in general, none of the series diodes will be overstressed by reverse voltages which are substantially above the avalanche voltage. All high voltage rectifier modules manufactured in quantity are assembled with avalanche diodes.

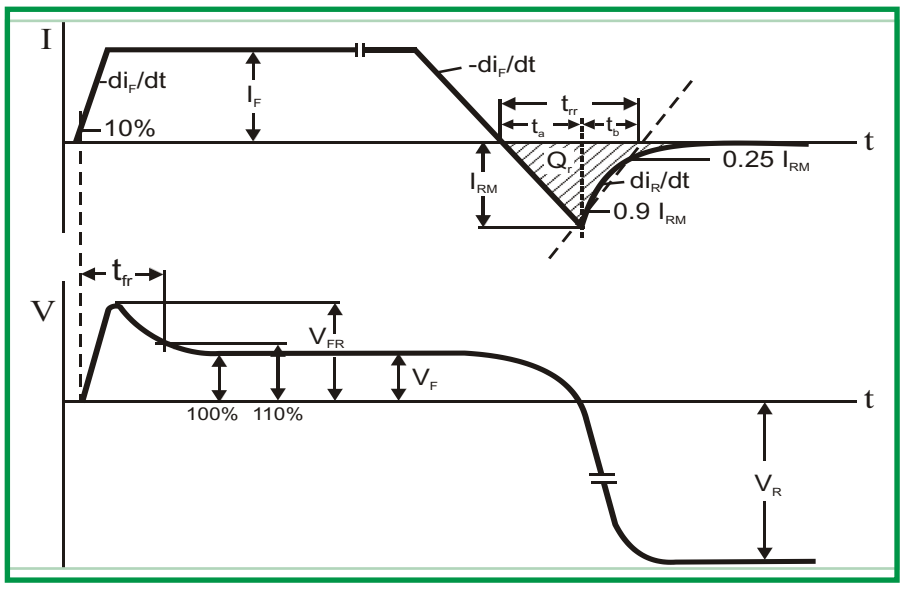
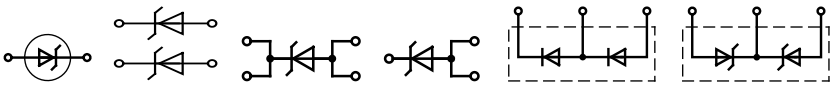


Fig. 1: Current and voltage during turn-on and turn-off switching of fast diodes

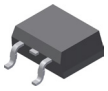
Schottky Gen² Diodes

I_{FAV} = 10 - 300 A

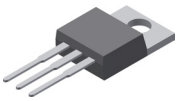


Type ➢ New	V_{RRM} V	I_{FAV} d = 0.5 A	@ T_C °C	V_F T_{VJ} = 125°C V	@ I_F A	T_{VJM} °C	R_{thJC} K/W	Fig. No.	Package style Outline drawings on pages O-36...O-59
DSB 20I15PA	15	20	130	0.39	20	150	1.75	X005b	
DSB 40C15PB		2x 20	130	0.39	20	150	1.75	X005a	
DSB 15IM30UC	30	15	125	0.44	15	150	2.00	X004	
DSB 30C30PB		2x 15	130	0.44	15	150	1.75	X005a	
DSB 60C30PB		2x 30	130	0.49	30	150	0.85	X005a	
DSB 60C30HB		2x 30	125	0.47	30	150	0.95	X014a	
DSB 10I45PM	45	10	115	0.52	10	150	4.50	X007b	
DSA 20C45PB		2x 10	155	0.62	10	175	2.40	X005a	
DSA 15I45PA		15	155	0.63	15	175	1.75	X005b	
DSA 15IM45UC		15	150	0.63	15	175	2.00	X004	
DSA 15IM45IB		15	155	0.63	15	175	1.75	X008a	
DSB 15IM45IB		15	125	0.55	15	150	1.75	X008a	
DSA 30C45PB		2x 15	155	0.63	15	175	1.75	X005a	
DSA 30C45PC		2x 15	155	0.63	15	175	1.75	X011b	
DSB 30C45PB		2x 15	125	0.55	15	150	1.75	X005a	
DSA 30C45HB		2x 15	155	0.62	15	175	1.75	X014a	
DSB 30C45HB		2x 15	125	0.54	15	150	1.75	X014a	
DSA 60C45PB		2x 30	150	0.67	30	175	0.85	X005a	
DSB 60C45PB		2x 30	125	0.60	30	150	0.85	X005a	
DSA 60C45HB		2x 30	150	0.66	30	175	0.95	X014a	
DSB 60C45HB		2x 30	125	0.58	30	150	0.95	X014a	
DSA 80C45HB		2x 40	150	0.69	40	175	0.70	X014a	
DSB 80C45HB		2x 40	120	0.59	40	150	0.70	X014a	
DSA 300I45NA		300	95	0.70	300	150	0.20	X027a	
➢ **DSA 20C60PB**	60	2x 10	155	0.70	10	175	2.40	X005a	
DSA 20C60PN		2x 10	140	0.70	10	175	4.50	X007a	
DSB 20C60PN		2x 10	110	0.62	10	150	4.50	X007a	
DSA 30C60PB		2x 15	150	0.72	15	175	1.75	X005a	
DSB 30C60PB		2x 15	125	0.64	15	150	1.75	X005a	
DSA 60C60PB		2x 30	150	0.77	30	175	0.85	X005a	
DSB 60C60PB		2x 30	125	0.69	30	150	0.85	X005a	
DSA 60C60HB		2x 30	150	0.75	30	175	0.95	X014a	
DSB 60C60HB		2x 30	125	0.67	30	150	0.95	X014a	
DSA 10I100PM	100	10	135	0.71	10	175	4.50	X007b	
DSA 10IM100UC		10	150	0.71	10	175	3.00	X004	
DSA 20C100PB		2x 10	155	0.71	10	175	2.40	X005a	
DSA 20C100PN		2x 10	135	0.71	10	175	4.50	X007a	
DSA 30C100PB		2x 15	150	0.73	15	175	1.75	X005a	
DSA 30C100PN		2x 15	120	0.73	15	175	4.25	X007a	
DSA 30C100HB		2x 15	150	0.72	15	175	1.75	X014a	
DSA 30C100QB		2x 15	150	0.72	15	175	1.75	X017a	
DSA 50C100HB		2x 25	155	0.72	25	175	0.95	X014a	
DSA 50C100QB		2x 25	155	0.72	25	175	0.95	X017a	
DSA 30I100PA		30	150	0.78	30	175	0.85	X005b	
DSA 60C100PB		2x 30	150	0.78	30	175	0.85	X005a	
DSA 70C100HB		2x 35	150	0.74	35	175	0.70	X014a	
DSA 80C100PB		2x 40	150	0.80	40	175	0.60	X005a	
DSA 300I100NA		300	90	0.79	300	150	0.20	X027a	

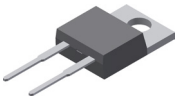
X004 **TO-252AA**



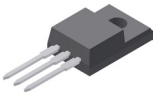
X005a **TO-220AB**



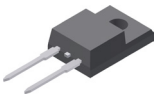
X005b **TO-220AC**



X007a **TO-220ABFP**



X007b **TO-220ACFP**



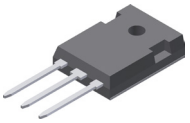
X008a **TO-262AA (I²-PAK)**



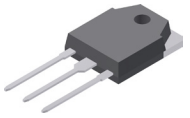
X011b **TO-263AB**



X014a **TO-247AD**



X017a **TO-3P**



X027a **SOT-227B miniBLOC**



Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

Schottky Gen² Diodes

I_{FAV} = 5 - 300 A

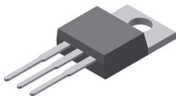


Type	V_{RRM}	I_{FAV}	@ T_C	V_F	@ I_F	T_{VJM}	R_{thJC}	Fig. No.	Package style Outline drawings on pages O-36...O-59
		d = 0.5		T_{VJ} = 125°C					
	V	A	°C	V	A	°C	K/W		
DSA 10C150PB	150	2x 5	155	0.71	5	175	4.80	X005a	
DSA 10C150UC		2x 5	155	0.71	5	175	4.80	X004	
DSA 20C150PB		2x 10	155	0.73	10	175	2.40	X005a	
DSA 20C150PN		2x 10	135	0.73	10	175	4.50	X007a	
DSA 15IM150UC		15	155	0.75	15	175	2.00	X004	
DSA 30C150PB		2x 15	150	0.75	15	175	1.75	X005a	
DSA 30C150PC		2x 15	150	0.75	15	175	1.75	X011b	
DSA 30C150HB		2x 15	150	0.74	15	175	1.75	X014a	
DSA 50C150HB		2x 25	155	0.74	25	175	0.95	X014a	
DSA 30I150PA		30	150	0.80	30	175	0.85	X005b	
DSA 60C150PB		2x 30	150	0.80	30	175	0.85	X005a	
DSA 70C150HB		2x 35	150	0.77	35	175	0.70	X014a	
DSA 120C150QB		2x 60	150	0.80	60	175	0.40	X017a	
DSA 120X150LB		2x 60	150	0.80	60	175	0.80	X030a	
DSA 240X150NA		2x 120	95	0.85	120	150	0.40	X027a	
DSA 20C200PB	200	2x 10	155	0.75	10	175	2.40	X005a	
DSA 15IM200UC		15	145	0.78	15	175	2.00	X004	
DSA 30C200IB		2x 15	150	0.78	15	175	1.75	X008a	
DSA 30C200PB		2x 15	150	0.78	15	175	1.75	X005a	
DSA 30C200PC		2x 15	150	0.78	15	175	1.75	X011b	
DSA 70C200HB		2x 35	150	0.79	35	175	0.70	X014a	
DSA 90C200HB		2x 45	145	0.86	45	175	0.55	X014a	
DSA 90C200HR		2x 45	140	0.79	45	175	0.70	X016c	
DSA 120X200LB		2x 60	150	0.87	60	175	0.80	X030a	
DSA 240X200LB		2x 120	150	0.87	120	175	0.40	X030a	
DSA 240X200NA		2x 120	90	0.87	120	150	0.40	X027a	
DSA 300I200NA		300	80	0.88	300	150	0.20	X027a	

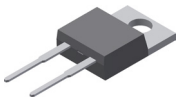
X004 **TO-252AA**



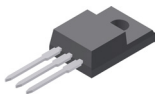
X005a **TO-220AB**



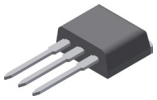
X005b **TO-220AC**



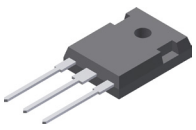
X007a **TO-220ABFP**



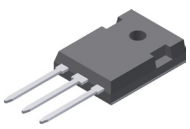
X008a **TO-262AA (I²-PAK)**



X016c **ISO247™**



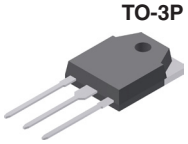
X014a **TO-247AD**



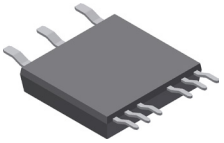
X011b **TO-263AB**



X017a **TO-3P**



X030a **SMPD-B**



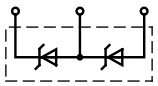
X027a **SOT-227B miniBLOC**

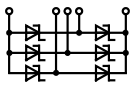


Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

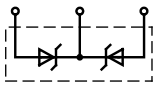
Schottky Diodes

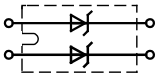
I_{FAV} = 6 - 2x 200 A

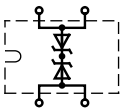

DSSS...


FUS...


DSS...


DSSK...


DSS 2x...


DSS 2x...

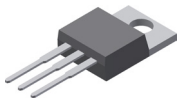
Type	V_{RRM}	I_{FAV} d = 0.5	@ T_C	V_F T_{VJ} = 125°C	@ I_F	T_{VJM}	R_{thJC}	Fig. No.
	V	A	°C	V	A	°C	K/W	
DSS 40-0008D	8	40	130	0.28	40	150	0.80	X014a
DSSK 80-0008D		2x 40	130	0.28	40	150	0.80	X014a
① **DSS 2x200-0008D**		2x 200	90	0.28	100	150	0.40	X027b
DSS 20-0015B	15	20	135	0.33	20	150	1.40	X005b
DSSK 40-0015B		2x 20	135	0.32	20	150	1.40	X014a
DSSK 70-0015B		2x 35	130	0.35	35	150	1.10	X014a
DSS 6-0025BS	25	6	140	0,30	6	150	3.00	X004
DSS 25-0025B		25	125	0.45	25	150	1.40	X005b
DSSK 18-0025BS		2x 10	140	0.37	10	150	1.70	X011b
DSSK 38-0025B		2x 20	130	0.40	20	150	1.40	X005a
DSSK 38-0025BS		2x 20	130	0.40	20	150	1.40	X011b
DSSK 48-0025B		2x 25	130	0.35	20	150	1.20	X005a
DSSK 50-0025B		2x 25	125	0.43	25	150	1.40	X014a
DSSK 80-0025B		2x 40	130	0.39	40	150	0.80	X014a
DSSK 48-003B	30	2x 25	130	0.35	20	150	1.20	X005a
DSSK 48-003BS		2x 25	130	0.35	20	150	1.20	X011b
DSSK 70-003B		2x 35	125	0.39	35	150	1.10	X014a
DSSK 80-003B		2x 40	130	0.39	40	150	0.80	X014a
DSS 6-0045AS	45	6	165	0.50	6	175	3.00	X004
DSS 10-0045B		10	135	0.46	10	150	1.70	X005b
DSS 16-0045A		16	160	0.56	16	175	1.40	X005b
DSS 16-0045AS		16	160	0.56	16	175	1.40	X011b
DSS 25-0045A		25	155	0.56	25	175	1.10	X005b
DSS 60-0045B		60	105	0.57	60	150	0.80	X014b
DSSK 20-0045B		2x 10	135	0.46	10	150	1.70	X005a
DSSK 28-0045BS		2x 15	135	0.43	15	150	1.40	X011b
DSSK 60-0045A		2x 30	150	0.58	30	175	1.10	X014a
DSSK 60-0045B		2x 30	125	0.45	30	150	1.10	X014a
DSSK 80-0045B		2x 40	125	0.46	40	150	0.80	X014a
DSS 2x61-0045A		2x 60	110	0.65	60	150	0.80	X027a
DSS 2x81-0045B		2x 80	85	0.63	80	150	0.80	X027a
DSS 2x121-0045B		2x 120	100	0.59	120	150	0.40	X027a
① **DSS 2x160-0045A**		2x 160	90	0.72	160	150	0.40	X027b
FUS 45-0045B		45	90	0.54	15	150	3.10	X024a
DSS 10-006A	60	10	160	0.65	10	175	1.70	X005b
DSSK 28-006BS		2x 15	135	0.52	15	150	1.40	X011b
DSSK 40-006B		2x 20	135	0.46	20	150	1.10	X014a
DSSK 80-006B		2x 40	120	0.51	40	150	0.80	X014a
DSSK 80-006BR		2x 40	120	0.51	40	150	0.80	X016a
DSSK 40-008B	80	2x 20	130	0.52	20	150	1.10	X014a
DSSS 35-008AR	2x 80	35	150	0.68	35	175	0.80	X016a
DSSK 70-008A		2x 35	150	0.64	35	175	0.80	X014a
DSSK 70-008AR		2x 35	150	0.64	35	175	0.80	X016a
DSS 2x111-008A		2x 110	105	0.72	100	150	0.40	X027a
DSS 10-01A	100	10	160	0.66	10	175	1.70	X005b
DSS 10-01AS		10	160	0.66	10	175	1.70	X011b
DSS 16-01A		16	155	0.65	16	175	1.40	X005b
DSS 16-01AS		16	155	0.65	16	175	1.40	X011b
DSS 20-01AC		20	140	0.80	20	175	1.70	X010b
DSSS 30-01AR	2x 100	30	155	0.63	30	175	0.80	X016a
DSSK 16-01A		2x 8	165	0.63	8	175	1.70	X005a
DSSK 16-01AS		2x 8	165	0.63	8	175	1.70	X011b
DSSK 28-01AS		2x 15	160	0.64	15	175	1.40	X011b
DSSK 30-01A		2x 15	160	0.63	15	175	1.40	X014a
DSSK 50-01A		2x 25	155	0.64	25	175	1.10	X014a
DSS 2x41-01A		2x 40	110	0.70	40	150	1.10	X027a
DSS 2x61-01A		2x 60	105	0.74	60	150	0.80	X027a
① **DSS 2x160-01A**		2x 160	80	0.81	160	150	0.40	X027b

Package style
Outline drawings
on pages O-36...O-59

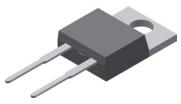
X004 **TO-252AA**



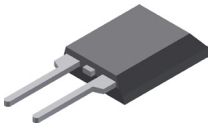
X005a **TO-220AB**



X005b **TO-220AC**



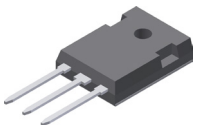
X010b **ISOPLUS220™**



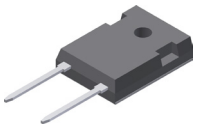
X011b **TO-263AB**



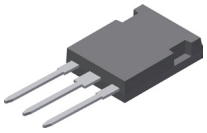
X014a **TO-247AD**



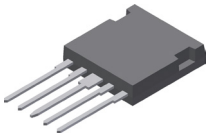
X014b **TO-247AD**



X016a **ISOPLUS247™**



X024a **ISOPLUS i4-PAC™**



X027a/b **SOT-227B/UI miniBLOC**

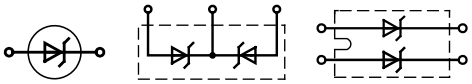


① Non isolated base plate

Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

Schottky Diodes

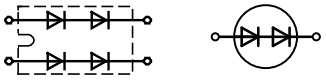
I_{FAV} = 6 - 2x 100 A


DSS... DSSK... DSS 2x...

Type	V_{RRM}	I_{FAV} d = 0.5	@ T_C	V_F T_{VJ} = 125°C	@ I_F	T_{VJM}	R_{thJC}	Fig. No.
	V	A	°C	V	A	°C	K/W	
DSS 6-015AS	150	6	160	0.62	6	175	3.0	X004
DSSK 20-015A		2x 10	165	0.61	10	175	1.4	X005a
DSSK 50-015A		2x 25	150	0.68	25	175	1.1	X014a
DSSK 60-015A		2x 30	155	0.66	30	175	0.8	X014a
DSSK 60-015AR		2x 30	155	0.66	30	175	0.8	X016a
DSS 2x101-015A		2x 100	110	0.77	100	150	0.4	X027a
DSSK 10-018A	180	2x 5	165	0.60	5	175	1.7	X005a
DSSK 30-018A		2x 15	150	0.74	15	175	1.7	X014a
DSSK 60-02A	200	2x 30	155	0.70	30	175	0.8	X014a
DSSK 60-02AR		2x 30	155	0.70	30	175	0.8	X016a
DSS 2x101-02A		2x 100	105	0.84	100	150	0.4	X027a

HiPerDyn™FRED

Series connected diodes for high switching frequencies; packages isolated (2500 V_{RMS})


DSEP 2x...-....C

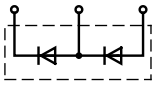
DPH...IS...
DSEP/DSS...-...C

Type	V_{RRM}	I_{FAV} d = 0.5	@ T_C	V_F I_F = I_{FAV}	@ T_{VJ}	t_{rr} typ. T_{VJ} = 25°C	I_{RM} typ.	@ -di/dt	T_{VJM}	R_{thJC}	Fig. No.
	V	A	°C	V	°C	ns	A	A/µs	°C	K/W	
DSS 17-06CR *	600	17	95	2.71	125	45	2.0	100	175	1.40	X016b
DPH 30IS600HI		30	140	1.89	150	35	3.0	200	175	0.55	
DSEP 15-12CR	1200	15	135	2.67	150	15	10.0	600	175	1.00	X016b
DSEP 30-12CR		30	120	3.18	150	15	5.5	600	175	0.60	
DSEP 2x25-12C	1200	2x 25	90	2.95	150	15	5.5	600	150	0.60	X027a
DPJ 50XS1800NA	1800	2x 25	90	4.33	150	15	4.0	600	150	0.40	

* series connected Schottky Diodes

Dual Ultrafast Diodes

Series connected diodes for high switching frequencies with middle connection; packages isolated (2500 V_{RMS})

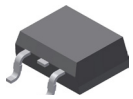

DHH/DSEE
DPF/G... P...

Type	V_{RRM}	I_{FAV} d = 0.5	@ T_C	V_F I_F = I_{FAV}	@ T_{VJ}	t_{rr} typ. T_{VJ} = 25°C	I_{RM} typ.	@ -di/dt	T_{VJM}	R_{thJC}	Fig. No.
	V	A	°C	V	°C	ns	A	A/µs	°C	K/W	
DPG 30P300PJ	2x 300	30	135	0.99	150	35	3	200	175	1.05	X010a
DPG 10P400PJ	2x 400	10	145	1.03	150	45	4	200	175	2.50	X010a
DPG 30P400PJ		30	135	1.05	30	45	4	200	175	1.05	X010a
DSEE 15-12CC	2x 600	15	100	1.50	125	35	4	100	175	1.60	X010a
DSEE 29-12CC		30	90	1.75	125	30	4	100	175	0.90	X010a
DPF 30P600HR		30	130	1.27	150	35	17	600	175	0.90	X016c
① **DSEE 30-12A**		30	90	1.78	125	30	4	100	175	0.90	X014a
DSEE 55-24N1F	2x 1200	60	110	1.56	150	75	35	600	175	0.60	X024b
DHH 55-36N1F	2x 1800	60	50	2.06	125	230	60	800	150	0.60	X024b

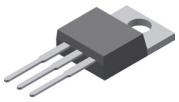
① Non isolated base plate

Package style
Outline drawings
on pages O-36...O-59

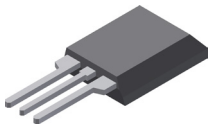
X004 **TO-252AA**



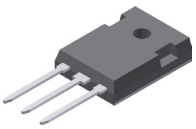
X005a **TO-220AB**



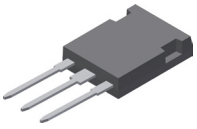
X010a **ISOPLUS220™**



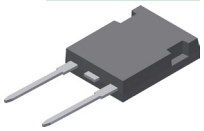
X014a **TO-247AD**



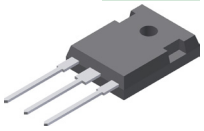
X016a **ISOPLUS247™**



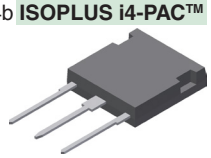
X016b **ISOPLUS247™**



X016c **ISO247™**



X024b **ISOPLUS i4-PAC™**



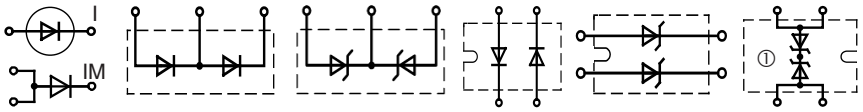
X027a **SOT-227B miniBLOC**



Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

HiPerFRED2™ Diodes

I_{FAV} = 10 - 2x 120 A



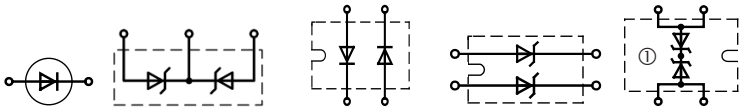
DPF/G/H...I*... DPG...P... DPF/G...C... DPF...XA... DPF...X... DPF...C...

Type	V_{RRM}	I_{FAV}	@ T_C	I_{FSM}	V_F	@ I_F	t_{rr}	I_{RM}	-di/dt	T_{VJM}	R_{thJC}	Fig. No.	Package style
		d = 0.5		10 ms 45°C	T_{VJ} = 150°C		T_{VJ} = 25°C	typ.					Outline drawings on pages O-36...O-59
	V	A	°C	A	V	A	ns	A	A/µs	°C	K/W		
DPG 10I200PA	200	10	145	140	0.98	10	35	3	200	175	2.30	X005b	X004 TO-252AA
DPG 10I200PM		10	125	140	0.98	10	35	3	200	175	4.40	X007b	
DPG 20C200PB		2x 10	145	140	0.98	10	35	3	200	175	2.30	X005a	
DPG 20C200PN		2x 10	125	140	0.98	10	35	3	200	175	4.40	X007a	
DPG 15I200PA		15	140	240	1.01	15	35	3	200	175	1.70	X005b	X005a TO-220AB
DPG 30C200PB		2x 15	140	240	1.01	15	35	3	200	175	1.70	X005a	
DPG 30C200PC		2x 15	140	240	1.01	15	35	3	130	175	1.70	X011b	
DPG 30C200HB		2x 15	140	240	1.00	15	35	3	200	175	1.70	X014a	
DPF 60C200HB		2x 30	130	400	0.98	30	35	4	200	175	0.95	X014a	X005b TO-220AC
DPF 60C200HJ		2x 30	130	560	0.88	30	35	4	200	175	1.05	X016a	
DPG 60C200HB		2x 30	135	360	1.06	30	35	3	200	175	0.95	X014a	
DPG 60C200QB		2x 30	135	360	1.06	30	35	3	200	175	0.95	X017a	
DPF 80C200HB		2x 40	140	560	0.95	40	35	4	200	175	0.70	X014a	X007a TO-220ABFP
DPF 60I200HA		60	135	650	0.98	60	35	4	200	175	0.55	X014b	
DPF 240X200NA		2x 120	120	1800	0.90	120	35	4	200	175	0.45	X027a	
DPG 10I300PA	300	10	145	140	0.98	10	35	3	200	175	2.30	X005b	X007b TO-220ACFP
DPG 10IM300UC		10	150	140	0.98	10	35	3	200	175	2.30	X004	
DPG 20C300PB		2x 10	145	140	0.98	10	35	3	200	175	2.30	X005a	
DPG 20C300PN		2x 10	125	140	0.98	10	35	3	200	175	4.40	X007a	
DPG 15I300PA		15	140	240	1.01	15	35	3	200	175	1.70	X005b	X010a ISOPLUS220™
DPG 30C300PB		2x 15	140	240	1.01	15	35	3	200	175	1.70	X005a	
DPG 30C300PC		2x 15	140	240	1.01	15	35	3	200	175	1.70	X011b	
DPG 30C300HB		2x 15	140	240	1.00	15	35	3	200	175	1.70	X014a	
DPF 30I300PA		30	145	390	0.98	30	55	6	200	175	0.85	X005b	X011b TO-263AB
DPG 30I300HA		30	135	360	1.06	30	35	3	200	175	0.95	X014b	
DPG 30I300PA		30	140	360	1.08	30	35	3	200	175	0.85	X005b	
DPG 30IM300PC		30	140	360	1.08	30	35	3	200	175	0.85	X011b	
DPG 30P300PJ	2x 300	30	135	450	0.99	30	35	3	200	175	1.05	X010a	X014a TO-247AD
DPF 60C300HB		2x 30	140	400	0.97	30	55	6	200	175	0.95	X014a	
DPG 60C300HB		2x 30	135	360	1.06	30	35	3	200	175	0.95	X014a	
DPG 60C300HJ		2x 30	135	450	0.96	30	35	3	200	175	1.05	X016a	
DPG 60C300PC		2x 30	140	360	1.08	30	35	3	200	175	0.85	X011b	
DPG 60C300QB		2x 30	135	360	1.06	30	35	3	200	175	0.95	X017a	X014b TO-247AD
DPG 80C300HB		2x 40	135	450	1.07	40	35	3	200	175	0.70	X014a	
DPG 60I300HA		60	125	450	1.10	60	35	3.5	200	175	0.55	X014b	
DPG 60IM300PC		60	135	450	1.14	60	35	3.5	200	175	0.45	X011b	
DPG 120C300QB		2x 60	125	450	1.10	60	35	3.5	200	175	0.55	X017a	X016a ISOPLUS247™
DPG 10I400PA	400	10	145	150	1.03	10	45	4	200	175	2.30	X005b	
DPG 10I400PM		10	120	150	1.03	10	45	4	200	175	4.40	X007b	
DPG 10P400PJ	2x 400	10	145	130	1.03	10	45	4	200	175	2.50	X010a	
DPG 20C400PB		2x 10	145	150	1.03	10	45	4	200	175	2.30	X005a	
DPG 20C400PC		2x 10	145	150	1.03	10	45	4	200	175	2.30	X011b	X016b ISOPLUS247™
DPG 20C400PN		2x 10	120	150	1.03	10	45	4	200	175	4.40	X007a	
DPG 15I400PM		15	90	190	1.14	15	45	4	200	175	4.20	X007b	
DPG 30C400PB		2x 15	140	190	1.14	15	45	4	200	175	1.70	X005a	
DPG 30C400HB		2x 15	140	190	1.13	15	45	4	200	175	1.70	X014a	X017a TO-3P
DPG 30I400HA		30	135	360	1.13	30	45	4	200	175	0.95	X014b	
DPG 30IM400PC		30	145	300	1.16	30	45	4	200	175	0.85	X011b	
DPG 30P400PJ	2x 400	10	135	400	1.05	30	45	4	200	175	1.05	X010a	
DPG 60C400HB		2x 30	135	360	1.13	30	45	4	200	175	0.95	X014a	
DPG 60C400QB		2x 30	135	360	1.13	30	45	4	200	175	0.95	X017a	X027a SOT-227B miniBLOC
DPG 80C400HB		2x 40	135	400	1.14	40	45	4	200	175	0.70	X014a	
DPG 60I400HA		60	120	450	1.22	60	45	4	200	175	0.55	X014b	
DPF 60IM400HB		60	130	600	1.09	60	60	6	200	175	0.55	X014a	
DPG 60IM400QB		60	120	450	1.22	60	45	4	200	175	0.55	X017a	
DPF 240X400NA		2x 120	120	1100	0.95	120	60	6	200	175	0.45	X027a	
DPH 30IS600HI	600	30	140	450	1.89	30	35	3	200	175	0.55	X016b	

Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

HiPerFRED™ Diodes

I_{FAV} = 8 - 2x 120 A



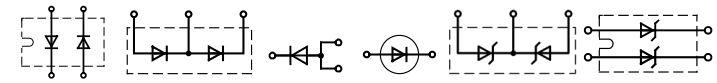
Type	V_{RRM}	I_{FAV}	T_C	I_{FSM}	V_F	@ I_F	t_{rr}	I_{RM}	-di/dt	T_{VJM}	R_{thJC}	Fig. No.	Package style
		d = 0.5		10 ms 45°C	T_{VJ} = 150°C		T_{VJ} = 25°C	typ. T_{VJ} = 100°C	typ.				Outline drawings on pages O-36...O-59
	V	A	°C	A	V	A	ns	A	A/µs	°C	K/W		
DSEP 40-03AS	300	40	125	340	1.18	40	35	3.5	200	175	0.85	X011b	X004 **TO-252AA**
DSEP 6-06AS	600	6	150	40	1.34	6	20	3.5	100	175	2.80	X004	
DSEP 6-06BS		6	140	40	1.77	6	15	2.0	100	175	2.80	X004	
DSEP 8-06A		10	145	50	1.42	10	35	3.5	100	175	2.50	X005b	
DSEP 8-06B		10	130	50	1.85	10	30	2.0	100	175	2.50	X005b	X005a **TO-220AB**
DSEP 15-06A		15	140	110	1.35	15	35	4.0	100	175	1.60	X005b	
DSEP 15-06AS		15	140	110	1.35	15	35	4.0	100	175	1.60	X011b	
DSEP 15-06B		15	130	110	1.59	15	25	2.0	100	175	1.60	X005b	
DSEP 15-06BS		15	130	110	1.59	15	25	2.0	100	175	1.60	X011b	
DSEP 29-06A		30	135	250	1.26	30	35	5.5	100	175	0.90	X005b	X005b **TO-220AC**
DSEP 29-06AS		30	135	250	1.26	30	35	5.5	100	175	0.90	X011b	
DSEP 29-06B		30	120	250	1.63	30	30	3.0	100	175	0.90	X005b	
DPG 30I600PM		15	95	250	1.63	30	25	4.5	200	175	3.50	X007b	
DSEP 30-06A		30	135	250	1.25	30	35	5.5	100	175	0.90	X014b	X010a **ISOPLUS220™**
DSEP 30-06B		30	120	250	1.61	30	30	3.0	100	175	0.90	X014b	
DSEP 30-06BR		30	100	250	1.61	30	30	3.0	100	175	1.10	X016b	
DSEP 60-06A		60	110	600	1.39	60	35	5.5	100	175	0.65	X014b	
DSEP 60-06AT		60	110	600	1.39	60	35	5.5	100	175	0.65	X019	X011b **TO-263AB**
DSEP 75-06AR		75	115	1000	1.38	75	35	6.5	200	175	0.50	X016a	
DSEP 8-12A	1200	10	130	40	1.96	10	40	4.0	100	175	2.50	X005b	
DSEP 12-12A		15	130	90	1.87	15	40	4.5	100	175	1.60	X005b	
DSEP 12-12AZ		15	130	90	1.87	15	40	4.5	100	175	1.60	X011c	
DSEP 12-12B		15	130	90	2.06	15	35	3.0	100	175	1.60	X005b	X011c **TO-263ABHV**
DSEP 12-12BZ		15	130	90	2.06	15	35	3.0	100	175	1.60	X011c	
DSEP 29-12A		30	120	200	1.81	30	40	8.5	100	175	0.90	X005b	
DSEP 29-12B		30	100	200	2.31	30	35	5.0	100	175	0.90	X005b	
DSEP 30-12A		30	115	200	1.79	30	40	8.5	100	175	0.90	X014b	X014a **TO-247AD**
DSEP 30-12B		30	100	200	2.30	30	35	5.0	100	175	0.90	X014b	
DSEP 30-12AR		30	100	200	1.79	30	40	8.5	100	175	1.10	X016b	
DSEP 60-12A		60	85	500	1.81	60	40	8.5	100	175	0.65	X014b	
DSEP 60-12B		60	110	500	2.20	60	35	-	100	175	0.45	X014b	X014b **TO-247AD**
DSEP 60-12AR		60	60	500	1.81	60	40	8.5	100	175	0.80	X016b	
DSEP 60-12AZ		60	115	500	1.81	60	40	8.5	100	175	0.45	X019a	
DSEP 90-12AZ		90	105	800	1.79	90	40	8.5	100	175	0.35	X019a	
DSEC 16-06A	600	2x 10	145	50	1.42	10	35	3.5	100	175	2.50	X005a	
DSEC 16-06AC		2x 8	85	50	1.20	10	35	3.5	100	175	3.00	X010a	X016a **ISOPLUS247™**
DSEC 29-06AC		2x 15	140	110	1.34	15	35	4.0	100	175	1.60	X010a	
DSEC 30-06A		2x 15	140	110	1.34	15	35	4.0	100	175	1.60	X014a	
DSEC 30-06B		2x 15	130	110	1.58	15	25	2.0	100	175	1.60	X014a	
DSEC 59-06BC		2x 30	105	200	1.56	30	30	4.0	100	175	1.10	X010a	
DSEC 60-06A		2x 30	135	250	1.25	30	35	5.5	100	175	0.90	X014a	
DSEC 60-06B		2x 30	120	250	1.61	30	30	3.0	100	175	0.90	X014a	X019 **TO-268AA**
DSEC 16-12A	1200	2x 10	130	40	1.96	10	40	4.0	100	175	2.50	X005a	
DSEC 16-12AS		2x 10	130	40	1.96	10	40	4.0	100	175	2.50	X011b	
DSEC 30-12A		2x 15	115	90	1.86	15	40	4.5	100	175	1.60	X014a	
DSEC 60-12A		2x 30	115	200	1.79	30	40	8.5	100	175	0.90	X014a	X019a **TO-268AAHV**
DSEC 120-12AK		2x 60	85	500	1.81	60	40	7.0	100	175	0.65	X020a	
DSEP 2x31-03A	300	2x 30	110	300	0.90	30	30	4.5	100	150	1.15	X027a	
DSEP 2x61-03A		2x 60	75	600	1.26	60	30	4.0	100	150	0.85	X027a	
DSEP 2x91-03A		2x 90	70	1000	1.10	90	30	4.5	100	150	0.60	X027a	X020a **TO-264**
DSEP 2x31-06A	600	2x 30	95	250	1.23	30	35	5.5	100	150	1.15	X027a	
DSEP 2x31-06B		2x 30	75	250	1.59	30	30	3.0	100	150	1.15	X027a	
DSEP 2x61-06A		2x 60	65	600	1.48	60	35	5.5	100	150	0.85	X027a	
DSEP 2x91-06A		2x 90	55	1000	1.39	90	35	8.0	100	150	0.60	X027a	X027a/b **SOT-227B/UI miniBLOC**
DSEP 2x31-12A	1200	2x 30	70	200	1.77	30	40	8.5	100	150	1.15	X027a	
DSEP 2x60-12A		2x 60	80	800	1.52	60	40	8.0	100	150	0.60	X027a	
DSEP 2x61-12A		2x 60	80	800	1.52	60	40	8.0	100	150	0.60	X027a	
DSEP 2x61-12B		2x 60	80	800	2.00	60	35	-	100	150	0.60	X027a	
DSEP 2x101-04A	400	2x 100	45	1000	1.22	125	30	5.5	100	150	0.60	X027a	
① **DSEC 240-04A**		2x 120	75	2000	1.00	120	30	5.5	100	150	0.45	X027b	
① **DSEC 240-06A**	600	2x 120	75	2000	1.26	120	35	8.0	100	150	0.40	X027b	

① Non isolated base plate

Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

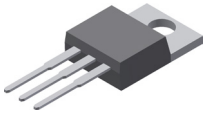
SONIC-FRD™ Diodes

I_{FAV} = 5 - 2x 60 A
- ultrasoft and fast recovery
- very low temperature dependence

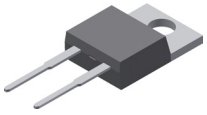


Type	V_{RRM}	I_{FAV}	@ T_C	I_{FSM}	V_F	@ I_F	t_{rr}	I_{RM}	-di/dt	T_{VJM}	R_{thJC}	Fig. No.	Package style
		d = 0.5		10 ms 45°C	T_{VJ} = 125°C		typ. T_{VJ} = 25°C						Outline drawings on pages O-36...O-59
➢ New	V	A	°C	A	V	A	ns	A	A/µs	°C	K/W		
DHG 5I600PA	600	5	105	40	2.17	5	35	2	100	150	3.15	X005b	
DHG 5I600PM		5	85	40	2.17	5		2	100		4.20	X007b	
DHG 10C600PB		2x 5	105	40	2.17	5		2	100		3.15	X005a	
DHG 10I600PA		10	95	80	2.18	10		4	200		1.80	X005b	
DHG 10I600PM		10	25	80	2.18	10		4	200		4.00	X007b	
DHG 20C600PB		2x 10	95	80	2.18	10		4	200		1.80	X005a	
DHG 20C600QB		2x 10	95	80	2.17	10		4	200		1.80	X017a	
DHG 20I600PA		20	100	150	2.21	20		8	400		0.80	X005b	
DHG 20I600HA		20	95	150	2.19	20		8	400		0.90	X014b	
DHG 40C600HB		2x 20	95	150	2.19	20		8	400		0.90	X014a	
DHG 30I600PA		30	95	200	2.24	30		12	600		0.60	X005b	
DHG 30IM600PC		30	95	200	2.22	30		12	600		0.60	X011b	
DHG 30I600HA		30	85	200	2.21	30		12	600		0.70	X014b	
DHG 60C600HB		2x 30	85	200	2.21	30		12	600		0.70	X014a	
DHG 60I600HA		60	95	430	2.10	60		24	1200		0.30	X014b	
DHG 50X650NA	650	2x 25	70	200	2.03	25	35	12	600	150	1.20	X027a	
DHG 100X650NA		2x 50	80	430	2.00	50		20	1200		0.60	X027a	
DHG 10I1200PA	1200	10	95	65	2.13	10	75	8	350	150	1.80	X005b	
DHG 10I1200PM		10	30	65	2.13	10		8	350		4.00	X007b	
DHG 20C1200PB		2x 10	95	65	2.13	10		8	350		1.80	X005a	
DHG 20I1200PA		20	105	135	2.16	20		19	750		0.80	X005b	
DHG 20I1200HA		20	95	135	2.14	20		19	750		0.90	X014b	
DHG 40C1200HB		2x 20	95	135	2.14	20		19	750		0.90	X014a	
DHG 50X1200NA		2x 25	70	180	2.00	25		25	1000		1.20	X027a	
DHG 30I1200HA		30	90	180	2.16	30		25	1000		0.70	X014b	
DHG 100X1200NA		2x 50	65	430	2.05	50		50	2500		0.60	X027a	
DHG 60I1200HA		60	95	430	2.22	60		50	2500		0.30	X014b	
DHG 10I1800PA	1800	10	85	65	2.30	10	300	8	200	150	2.15	X005b	
➢ **DHG 10IM1800UZ**		10	100	60	2.33	10		13	250		1.50	X004a	
DH 20-18A		20	95	150	2.35	20		22	400		0.90	X014b	
DH 40-18A		40	100	400	2.08	40		50	750		0.45	X014b	
DH 60-14A	1400	60	100	700	2.03	60	230	60	800	150	0.30	X014b	
DH 60-16A	1600											X014b	
DH 60-18A	1800											X014b	
DHH 55-36N1F	2x 1800	60	50	700	2.03	60	230	60	800	150	0.60	X024b	
DH 2x60-18A	1800	2x 60	55	700	2.02	60	230	60	800	150	0.60	X027a	
DH 2x61-18A		2x 60	55	700	2.02	60		60	800		0.60	X027a	
DHG 55I3300FE	3300	50	80	600	3.40	60	1650	55	500	150	0.45	X024e	
DHG 40I4500KO	4500	43	80	600	3.50	50	1450	80	800	150	0.50	X022f	

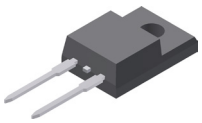
X005a **TO-220AB**



X005b **TO-220AC**



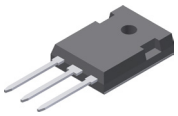
X007b **TO-220ACFP**



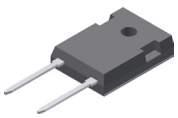
X011b **TO-263AB**



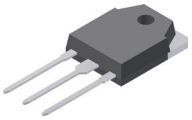
X014a **TO-247AD**



X014b **TO-247AD**



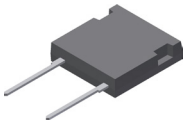
X017a **TO-3P**



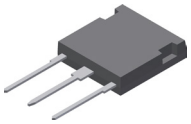
X027a **SOT-227B miniBLOC**



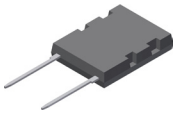
X024e **ISOPLUS i4-PAC™**



X024b **ISOPLUS i4-PAC™**



X022f **ISOPLUS264**



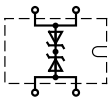
Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

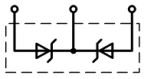
FRED Diodes

Fast Recovery Epitaxial Diodes

I_{FAV} = 8 - 126 A

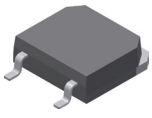

DSEI.../DFE...


DSEK...

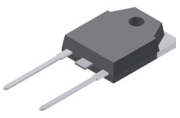

DSEK...

Type	V_{RRM} V	I_{FAV} d = 0.5 A	@ T_C °C	I_{FRMS} A	I_{FSM} 10 ms 45°C A	V_F T_{VJ} = 150°C V	@ I_F A	t_{rr} typ. T_{VJ} = 25°C ns	I_{RM} typ. T_{VJ} = 100°C A	-di/dt A/µs	R_{thJC} K/W	Fig. No.	Package style Outline drawings on pages O-36...O-59
DSEI 8-06A	600	8	115	16	100	1.30	8	35	2.5	64	2.50	X005b	X005b TO-220AC
DSEI 8-06AS	600	8	115	16	100	1.30	8	35	2.5	64	2.50	X011b	
DFE 10I600PM	600	10	100	16	100	1.30	10	35	2.5	64	4.20	X007b	
DSEI 12-06A	600	14	100	25	100	1.50	16	35	4.0	100	2.00	X005b	
DSEI 12-06AS	600	14	100	25	100	1.50	16	35	4.0	100	2.00	X011b	
DSEI 12-10A	1000	12	100	25	75	2.10	12	50	6.5	100	1.60	X005b	
DSEI 12-12A	1200	11	100	25	75	2.20	12	50	6.5	100	1.60	X005b	X007b TO-220ACFP
DSEI 12-12AZ	1200	11	100	25	75	2.20	12	50	6.5	100	1.60	X011c	
DSEI 20-12A	1200	17	85	70	130	1.87	12	40	7.0	100	1.60	X005b	
DSEI 25-06A	600	25	110	35	240	1.55	25	35	9.0	200	1.20	X005b	
DSEI 19-06AS	600	20	65	25	100	1.50	16	35	4.0	100	2.00	X011b	
DSEI 25-06AS	600	25	110	35	240	1.55	25	35	9.0	200	1.20	X011b	X011b TO-263AB
DSEI 36-06AS	600	37	85	70	300	1.40	37	35	10.0	240	1.00	X011b	
DFE 25I600HA	600	25	110	70	240	1.52	25	35	9.0	200	1.20	X014b	
DSEI 30-06A	600	37	85	70	300	1.40	37	35	10.0	240	1.00	X014b	
DSEI 30-10A	1000	30	85	70	200	2.00	36	35	16.0	240	0.90	X014b	
DSEI 30-10AR	1000	30	85	70	200	2.00	36	35	16.0	240	0.90	X016b	X011c TO-263ABHV
DSEI 30-12A	1200	26	85	70	200	2.20	30	40	16.0	240	0.90	X014b	
DSEK 60-02A	200	2x 34	115	50	325	0.85	30	35	4.0	100	1.00	X014a	
DSEK 60-02AR	200	2x 34	115	50	325	0.85	30	35	4.0	100	1.00	X016a	
DSEK 60-06A	600	2x 30	85	50	300	1.40	37	35	10.0	240	1.00	X014a	
DSEK 60-12A	1200	2x 26	85	50	200	2.20	30	40	16.0	240	0.90	X014a	X014a TO-247AD
DSEI 60-02A	200	69	85	98	600	0.88	60	35	8.0	200	0.75	X014b	
DSEI 60-06A	600	60	70	100	550	1.50	70	35	19.0	480	0.75	X014b	
DSEI 60-10A	1000	60	60	100	500	1.80	60	35	32.0	480	0.66	X014b	
DSEI 60-12A	1200	52	60	100	500	2.00	60	40	32.0	480	0.66	X014b	
DSEI 120-06A	600	126	70	100	600	1.12	70	35	17.0	200	0.35	X014b	X014b TO-247AD
DSEI 120-12A	1200	109	60	100	600	1.55	70	40	25.0	200	0.35	X014b	
DSEI 120-12AZ	1200	109	60	100	600	1.55	70	40	25.0	200	0.35	X019a	

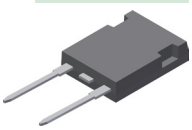
X019a **TO-268AAHV**



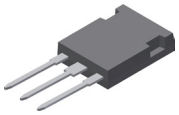
X017b **TO-3P**



X016b **ISOPLUS247™**



X016a **ISOPLUS247™**

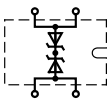


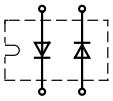
Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

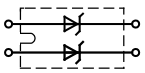
FRED Diodes

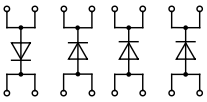
Fast Recovery Epitaxial Diodes

I_{FAV} = 2x 28 A - 2x 165 A


DSEK...


DSEI 2x...0-...

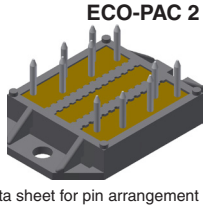

DSEI 2x...1-...


2x...0-... 2x...1-...

Type ➢ New	V_{RRM} V	I_{FAV} d = 0.5 A	@ T_C °C	I_{FRMS} A	I_{FSM} 10 ms 45°C A	V_F T_{VJ} = 150°C V	@ I_F A	t_{rr} typ. T_{VJ} = 25°C ns	I_{RM} typ. T_{VJ} = 100°C A	-di/dt A/µs	R_{thJC} K/W	Fig. No.	Package style Outline drawings on pages O-36...O-59
① **DSEK 300-06A**	600	2x 150	105	270	2000	1.20	150	77	50	600	0.20	X027d	
DSEI 2x30-04C	400	2x 30	85	70	300	1.40	30	35	10	240	1.25	X027a	
DSEI 2x30-06C	600	2x 30	85	70	300	1.40	30	35	10	240	1.25	X027a	
DSEI 2x30-10B	1000	2x 30	50	70	200	2.00	30	35	16	240	1.25	X027a	
DSEI 2x30-12B	1200	2x 28	50	70	200	2.20	30	40	16	240	1.25	X027a	X027a **SOT-227B miniBLOC**
DSEI 2x31-04C	400	2x 30	85	70	300	1.40	30	35	10	240	1.25	X027a	
DSEI 2x31-06C	600	2x 30	85	70	300	1.40	30	35	10	240	1.25	X027a	
DSEI 2x31-10B	1000	2x 30	50	70	200	2.00	30	35	16	240	1.25	X027a	
DSEI 2x31-12B	1200	2x 28	50	70	200	2.20	30	40	16	240	1.25	X027a	
DSEI 2x61-02A	200	2x 71	85	100	950	0.88	60	35	8	200	0.80	X027a	
DSEI 2x60-04C	400	2x 60	70	100	550	1.50	60	35	19	480	0.70	X027a	
DSEI 2x61-04C	400	2x 60	70	100	550	1.50	60	35	19	480	0.70	X027a	
DSEI 2x61-06C	600	2x 60	70	100	550	1.50	60	35	19	480	0.70	X027a	
DSEI 2x61-10B	1000	2x 60	50	100	500	1.80	60	35	32	480	0.70	X027a	
DSEI 2x61-12B	1200	2x 52	50	100	450	2.15	60	40	32	480	0.70	X027a	
DSEI 2x61-06P	600	2x 60	70	100	550	1.50	60	35	19	480	0.70	X101	
DSEI 2x61-12P	1200	2x 52	50	100	450	2.15	60	40	32	540	0.70	X101	
DSEI 2x121-02A	200	2x 123	70	150	1200	0.95	120	35	12	200	0.50	X027a	
DSEI 2x101-06A	600	2x 96	70	150	1200	1.17	100	35	19	200	0.50	X027a	
DFE 240X600NA	600	2x 120	80	150	1200	1.20	120	35	27	600	0.40	X027a	X027d **SOT-227UI miniBLOC**
➢ **DFE 250X600NA**	600	2x 125	80	150	1300	1.16	125	35	27	600	0.40	X027a	
DSEI 2x101-12A	1200	2x 91	50	130	900	1.61	100	40	24	200	0.50	X027a	
DSEI 2x101-06P	600	2x 96	70	150	1200	1.17	100	40	19	200	0.50	X102	
DSEI 2x101-12P	1200	2x 91	50	130	900	1.61	100	40	24	200	0.50	X102	
DSEI 2x161-02P	200	2x 165	70	270	1200	1.05	200	35	20	200	0.29	X102	
DSEI 2x161-06P	600	2x 147	70	270	1200	1.40	200	35	45	200	0.29	X102	
DSEI 2x161-12P	1200	2x 128	70	270	1200	1.75	200	40	48	200	0.29	X102	

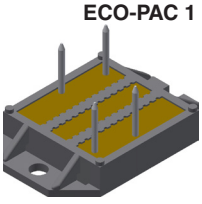
① non isolated base plate

X102 **ECO-PAC 2**



See data sheet for pin arrangement

X101 **ECO-PAC 1**



See data sheet for pin arrangement

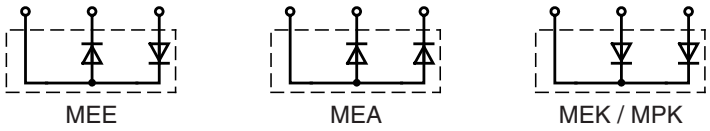
FRED & HiPerFRED™ Modules

I_{FAV} = 75 - 582 A

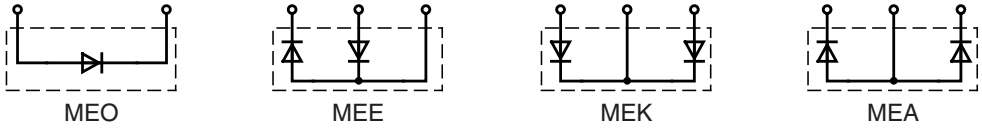
Type	V_{RRM}	I_{FAV}	@ T_C	I_{FRMS}	I_{FSM}	V_F	@ I_F	t_{rr} typ.	I_{RM}	-di/dt	R_{thJC}	P_{tot}	Fig. No.	Package style Outline drawings on pages O-36...O-59
	V	d = 0.5 A	°C	A	10 ms 45°C A	T_{VJ} =125°C V	A	T_{VJ} = 25°C ns	T_{VJ} = 100°C A	A/µs	K/W	W		
FRED														
MEO 550-02DA	200	582	75	822	4800	1.08	520	150	15	200	0.071	1750	X126d	X125e **TO-240**
MEO 500-06DA	600	514		726		1.41		250	132	800				
MEO 450-12DA	1200	453		640		1.76		450	165	800				
MEK 75-12DA	1200	2x 75		107	1200	1.85	100	250	33	200	0.450	280	X125e	
MEA 75-12DA	1200	2x 75												
MEE 75-12DA	2x 1200	75												
MEK 95-06DA	600	2x 95		142	1200	1.36	100	250	21	200	0.450	280		
MEA 95-06DA	600	2x 95												
MEE 95-06DA	2x 600	95												
MEK 250-12DA	1200	2x 260		367	2400	1.54	260	450	83	400	0.143	875	X126c	X126c **Y4**
MEA 250-12DA	1200	2x 260												
MEE 250-12DA	2x 1200	260												
MEK 300-06DA	600	2x 304		430	2400	1.19	260	250	66	400	0.143	875		
MEA 300-06DA	600	2x 304												
MEE 300-06DA	2x 600	304												
MEK 350-02DA	200	2x 356		503	2400	0.92	260	150	15	200	0.143	875		
HiPerFRED™														X126d **Y4**
MEK 150-04DA	400	2x 150	100	200	1200	1.40*	300	300	11	100	0.350	360	X125e	
MEK 600-04DA	400	2x 575	80	800	3000	1.10	400	220	80	900	0.110	1100	X126c	
MPK 95-06DA	600	2x 95	110	200	1200	1.40	100	35	5.5	100	0.575	215	X125e	

* T_{VJM} = 150°C

Diode connections for Fig. X125 (TO-240)

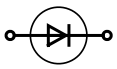


Diode connections for Fig. X126 (Y4: 34 mm package)



SemiFast Diodes

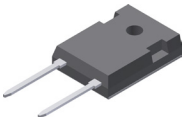
I_{FAV} = 60 A



DSDI...

Type	V_{RRM}	I_{FAV}	@ T_C	I_{FRMS}	I_{FSM}	V_F	@ I_F	t_{rr} typ.	I_{RM}	-di/dt	R_{thJC}	Fig. No.
	V	d = 0.5 A	°C	A	10 ms 45°C A	T_{VJ} = 125°C V	A	T_{VJ} = 25°C ns	T_{VJ} = 100°C A	A/µs	K/W	
DSDI 60-14A	1400	63	60	100	500	4.1	70	300	60	500	0.4	X014b
DSDI 60-16A	1600											
DSDI 60-18A	1800											

X014b **TO-247AD**



Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

Rectifier Diodes

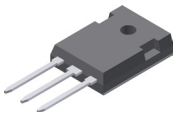
I_{FAV} = 2 - 30 A,
Standard & Avalanche Rectifier



DAA...EM... | DLA...IM... DMA...IM... | DS/DSA/DSI DMA...I... DLA...I... | DSP DMA...P... DLA...P...

Type	V_{RRM} V	I_{FAV} A	@ T_C °C	P_{RSM} kW	I_{FRMS} A	I_{FSM} 10 ms 45°C A	V_{F0} V	r_F mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thCH} K/W	Fig. No.	Package style Outline drawings on pages O-36...O-59
DSA 1-12D	1200	2.3	T_{amb} 45	1.6	7	110	0.80	67.0	150	R_{thJA} 80		X201	
DSA 1-16D	1600											X201	X004 **TO-252AA**
DSA 1-18D	1800											X201	
DLA 5P800UC	2x 800	5	140	-	20	40	0.74	44.0	175	5.50	0.50	X004	
DSP 8-08S	2x 800	8	160	-	25	100	0.79	33.0	175	1.50	0.25	X011b	
DSP 8-12S	2x 1200											X011b	
DSP 8-08A	2x 800											X005a	
DSP 8-12A	2x 1200											X005a	
DSP 8-08AS	2x 800											X011a	X004a **TO-252AA**
DSP 8-12AS	2x 1200											X011a	
DLA 10IM800UC	800	10	100	-	20	80	0.80	22.0	175	3.15	0.50	X004	
DLA 20IM800PC		20	100	-	35	200	0.80	19.0	175	1.80	0.25	X011b	
DMA 10IM1200UZ	1200	10	150	-	20	120	0.82	37.0	175	1.50	0.50	X004a	
DMA 10IM1600UZ	1600											X004a	
DMA 10P1200UZ	1200	10	140	-	20	100	0.90	37.0	175	2.00	0.50	X004a	
DMA 10P1600UZ	1600											X004a	X005a **TO-220AB**
DMA 10I1600PA	1600	10	150	-	20	120	0.82	37.0	175	1.50	0.50	X005b	
DMA 10IM1600PZ	1600										0.25	X011c	
DMA 10P1600PZ	2x 1600											X011c	
DMA 10P1800PZ	2x 1800											X011c	
DAA 10EM1800PZ	1800	10	150	1.6	25	150	0.81	32.0	175	1.50	0.25	X011c	
DAA 10P1800PZ	2x 1800	10	150	1.6	25	150	0.82	37.0	175	1.50	0.25	X011c	
DMA 10P1200HR	2x 1200	10	145	-	25	120	0.81	34.0	175	2.00	0.25	X016c	X005b **TO-220AC**
DMA 10P1600HR	2x 1600											X016c	
DSP 25-12A	2x 1200	25	135	-	70	300	0.81	13.8	175	0.90	0.25	X014a	
DSP 25-16A	2x 1600											X014a	
DSP 25-12AT	2x 1200										0.15	X019	
DSP 25-16AT	2x 1600											X019	
DSP 25-16AR	2x 1600	25	110	-	70	300	0.81	13.8	175	1.50	0.25	X016a	
DSI 30-08A	800	30	130	-	35	300	0.82	14.9	175	0.90	0.50	X005b	X011a **TO-263AA**
DSI 30-12A	1200											X005b	
DSI 30-16A	1600											X005b	
DSI 30-08AS	800										0.25	X011b	
DSI 30-12AS	1200											X011b	
DSI 30-16AS	1600											X011b	

X014a **TO-247AD**



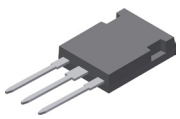
X011c **TO-263ABHV**



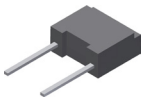
X011b **TO-263AB**



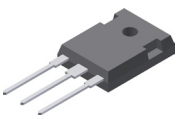
X016a **ISOPLUS247™**



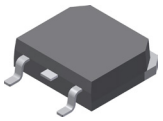
X201 FP-case



X016c **ISO247™**



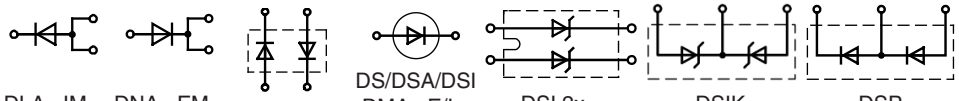
X019 **TO-268AA**



Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

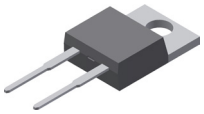
Rectifier Diodes

I_{FAV} = 30 - 2x 100 A,
Standard & Avalanche Rectifier



Type ➢ New	V_{RRM} V	I_{FAV} A	@ T_C °C	P_{RSM} kW	I_{FRMS} A	I_{FSM} 10 ms 45°C A	V_{F0} V	r_F mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thCH} K/W	Fig. No.	Package style Outline drawings on pages O-36...O-59
DMA 30IM1600PZ	1600	30	140	-	35	300	0.82	14.1	175	0.70	0.25	X011c	
DMA 30E1800HA	1800	30	140	-	70	370	0.88	12.1	175	0.70	0.25	X014b	
DMA 30P1200HB	2x 1200	30	130	-	70	370	0.81	12.7	175	0.80	0.25	X014a	
DMA 30P1600HB	2x 1600											X014a	
DMA 30P1600HR	2x 1600	30	105	-	50	300	0.82	13.5	175	1.30	0.25	X016c	
DNA 30ER2200IY	2200	30	140	-	35	370	0.88	12.9	175	0.70	0.50	X008b	
DNA 30E2200PA												X005b	
DNA 30E2200PZ											0.25	X011c	
DNA 30EM2200PZ												X011c	
DNA 30E2200FE	2200	30	100	-	70	370	0.88	12.2	175	1.35	0.20	X024e	
DLA 40IM800PC	800	40	130	-	35	300	0.81	8.0	175	0.80	0.25	X011b	
DSI 45-08A	800	45	130	-	70	480	0.81	9.1	175	0.55	0.25	X014b	
DSI 45-12A	1200											X014b	
DSI 45-16A	1600											X014b	
DSP 45-12A	2x 1200	45	130	-	70	480	0.81	9.1	175	0.55	0.25	X014a	
DSP 45-12AZ											0.15	X019a	
DSP 45-16A	2x 1600										0.25	X014a	
DSP 45-16AZ											0.15	X019a	
DSP 45-18A	2x 1800										0.25	X014a	
DSI 45-16AR	1600	45	100	-	70	480	0.81	9.1	175	0.90	0.25	X016b	
DSIK 45-16AR	1600	2x 45										X016a	
DSP 45-16AR	2x 1600	45										X016a	
DMA 50I800HA	800	50	130	-	70	500	0.81	8.6	175	0.45	0.25	X014b	
DMA 50I1200HA	1200											X014b	
DMA 50I1600HA	1600											X014b	
DMA 50P1200HR	2x 1200	50	105	-	70	500	0.82	9.0	175	0.70	0.25	X016c	
DMA 50P1200HB	2x 1200	50	130	-	70	500	0.81	8.6	175	0.45	0.25	X014a	
DMA 50P1600HB	2x 1600											X014a	
DLA 60I1200HA	1200	60	150	-	70	850	0.77	4.2	175	0.30	0.25	X014b	
DMA 80IM1600HB	1600	80	125	-	70	1300	0.82	4.8	175	0.35	0.25	X014a	
➢ **DLA 100IM1200TZ**	1200	100	105	-	70	1300	0.85	4.6	175	0.35	0.15	X019a	
DSI 2x55-12A	1200	2x 60	95	-	120	800	0.83	6.2	150	0.60	0.10	X027a	
DSI 2x55-16A	1600											X027a	
DNA 120E2200KO	2200	120	125	-	70	2000	0.75	3.8	175	0.25	0.15	X022f	
DMA 150E1600NA	1600	150	90	-	150	3000	0.83	2.0	150	0.25	0.10	X027a	
DMA 200X1600NA	1600	2x100	100	-	150	1500	0.80	4.0	150	0.30	0.10	X027a	
DMA 200XA1600NA												X027a	
DAA 200X1800NA	1800			20								X027a	
DAA 200XA1800NA												X027a	

X005b **TO-220AC**



X008b **TO-262AA (I^2-PAK)**



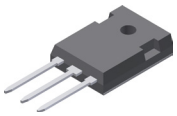
X011b **TO-263AB**



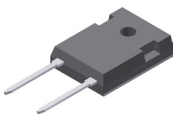
X011c **TO-263ABHV**



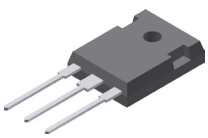
X014a **TO-247AD**



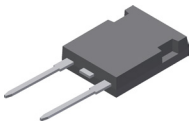
X014b **TO-247AD**



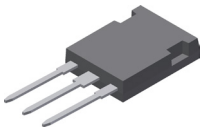
X016c **ISO247™**



X016b **ISOPLUS247™**



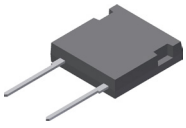
X016a **ISOPLUS247™**



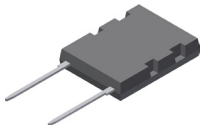
X027a **SOT-227B miniBLOC**



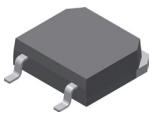
X024e **ISOPLUS i4-PAC™**



X022f **ISOPLUS264™**



X019a **TO-268AAHV**



Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

Rectifier Diodes

I_{FAV} = 3 - 110 A, Standard Diodes (DS..), Avalanche Diodes (DSA..)


DSI/DSAI..

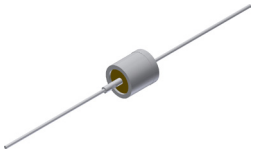

DS/DSA..

Type ○ Not for new design	V_{RRM} V	I_{FAV} A	@ T_C °C	P_{RSM} kW	I_{FRMS} A	I_{FSM} 10 ms 45°C A	V_{F0} V	r_F mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thCH} K/W	Symbol	Fig. No.
○ **DS 2-12A**	1200	3.6	T_{amb} 45	-	7	120	0.85	43.0	180	R_{thJA} 30			X200
○ **DSA 2-12A**	1200			2.5									
○ **DSA 2-16A**	1600												
○ **DSA 2-18A**	1800												
○ **DSA 9-12F**	1200	11	100	4.5	18	250	0.85	15.0	180	2.00	1.00		X204
○ **DSA 9-16F**	1600												
○ **DSA 9-18F**	1800												
○ **DS 17-12A**	1200	25	125	-	40	370	0.85	8.0	180	1.50	0.60		X205
○ **DSA 17-12A**	1200	25	125	7	40	370	0.85	8.0	180	1.50	0.60		
○ **DSA 17-16A**	1600												
○ **DSA 17-18A**	1800												
○ **DSI 17-12A**	1200	25	125	-	40	370	0.85	8.0	180	1.50	0.60		X205
○ **DSAI 17-12A**	1200	25	100	7	40	370	0.85	8.0	180	1.50	0.60		
○ **DSAI 17-16A**	1600												
○ **DSAI 17-18A**	1800												
○ **DS 35-12A**	1200	49	100	-	80	650	0.85	4.5	180	1.05	0.20		X206a
○ **DSA 35-12A**	1200	49	100	11	80	650	0.85	4.5	180	1.05	0.20		
○ **DSA 35-16A**	1600												
○ **DSA 35-18A**	1800												
○ **DSI 35-12A**	1200	49	100	-	80	650	0.85	4.5	180	1.05	0.20		X206a
○ **DSAI 35-12A**	1200	49	100	11	80	650	0.85	4.5	180	1.05	0.20		
○ **DSAI 35-16A**	1600												
○ **DSAI 35-18A**	1800												
○ **DS 75-12B**	1200	110	100	-	160	1400	0.75	2.0	180	0.50	0.40		X207
○ **DSA 75-12B**	1200	110	100	20	160	1400	0.75	2.0	180	0.50	0.40		
○ **DSA 75-16B**	1600												
○ **DSA 75-18B**	1800												
○ **DSI 75-12B**	1200	110	100	-	160	1400	0.75	2.0	180	0.50	0.40		
○ **DSAI 75-12B**	1200	110	100	20	160	1400	0.75	2.0	180	0.50	0.40		
○ **DSAI 75-16B**	1600												
○ **DSAI 75-18B**	1800												

Package style

Outline drawings on pages O-36...O-59

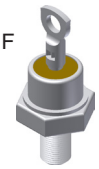
X200 **Metal-can**



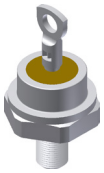
X204 **DO-203AA (DO-4)** M5



X205 **DO-203AA (DO-4)** 10-32 UNF



X206a **DO-203AB (DO-5)**



X207 **DO-203AB (DO-5)**



Phase out
Not for new design

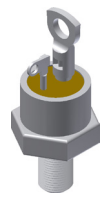
Phase Control Thyristors

I_{TAV} = 25 - 63 A

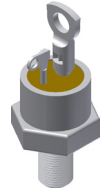


Type	V_{RRM} V_{DRM} V	I_{TAV} T_C = 85°C A	$I_{T(RMS)}$ A	I_{TSM} 45°C 10 ms A	$(dv/dt)_{cr}$ V/µs	V_{T0} V	r_T mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thCH} K/W	Fig. No.
○ **CS 23-08io2**	800	25	50	450	1000	1.00	10.0	125	1.00	0.60	X209
○ **CS 23-12io2**	1200										
○ **CS 23-16io2**	1600										
○ **CS 35-08io4**	800	63	120	1200	1000	0.85	3.5	125	0.40	0.20	X210
○ **CS 35-12io4**	1200										
○ **CS 35-14io4**	1400										

X209 **TO-208AC (TO-48)**



X210 **TO-208AC (TO-65)**



Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

Phase Control Thyristors

Thyristors are very rugged devices. Compared to all other controlled semiconductor components, they feature the highest current capacity per chip area especially at high voltage. They are mainly used as control devices in 50 and 60 Hz AC mains equipment.
Principal applications are static converter circuits for speed control of DC-drives, or switching and control functions for temperature, lighting, soft-start, etc. in single-phase and three-phase AC switch configurations. Phase control thyristors are designed for optimal forward conduction and reverse blocking characteristics, due to only moderate requirements for turn-on and turn-off parameters.

Phase Control Thyristors

I_{TAV} = 5 - 30 A



CLB...



CS.../CL/MA...E/I...

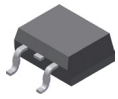
Type	V_{RRM} V_{DRM} V	I_{TAV} A	@ T_C °C	$I_{T(RMS)}$ A	I_{TSM} 45°C 10 ms A	$(dv/dt)_{cr}$ V/µs	V_{T0} V	r_T mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thCH} K/W	Fig. No.
CLA 5E1200UC	1200	5	135	8	70	500	0.89	85.0	150	1.50	0.50	X004
CLA 5E1200PZ											0.25	X011c
CLA 15E1200NPB	1200	15	120	33	170	500	0.89	30.0	150	0.95	0.50	X005a
CLA 15E1200NPZ											0.25	X011c
CLA 16E800PN	800	10	90	16	180	500	0.81	24.0	150	4.00	0.50	X007a
CLA 16E1200PN	1200											X007a
CS 19-08ho1	800	20	110	31	160	500	0.86	22.0	150	0.70	0.50	X005a
CS 19-12ho1	1200											X005a
CS 19-08ho1S	800											X011b
CS 19-12ho1S	1200											X011b
CMA 20E1600PB	1600	20	115	31	180	500	0.92	28.0	150	0.70	0.50	X005a
CMA 20E1600PZ											0.25	X011c
CS 20-12io1	1200	20	130	31	260	1000	0.87	17.3	150	0.60	0.25	X014a
CS 20-14io1	1400											X014a
CS 20-16io1	1600											X014a
CS 20-22moF1	2200	18	85	28	200	2500	0.97	17.0	125	0.92	0.15	X024c
CS 20-25mo1F	2500											X024c
CS 20-25moT1	2500	18	85	28	200	2500	0.97	17.0	125	0.80	0.15	X019
CS 22-08io1M	800	16	90	25	300	500	0.86	13.2	150	2.50	0.50	X007a
CS 22-12io1M	1200											X007a
CLA 30E1200PB	1200	30	115	47	300	500	0.86	13.2	150	0.50	0.50	X005a
CLA 30E1200PC											0.25	X011b
CLA 30E1200NPZ												X011c
➢ **CLA 100E1200TZ**												X019a
★ **CLB 30I1200PZ**												X011c
CLA 30E1200HB	1200	30	120	47	300	500	0.86	12.5	150	0.50	0.25	X014a
★ **CLB 30I1200HB**												X014a
CMA 30E1600PB	1600	30	115	47	260	500	0.92	18.0	150	0.75	0.50	X005a
CMA 30E1600PZ	1600	30	115	47	260	500	0.92	18.0	150	0.75	0.25	X011c
CMA 30E1600PN	1600	30	40	47	260	500	0.92	18.0	150	2.50	0.50	X007a
CS 30-12io1	1200	30	120	47	400	1000	0.87	14.2	150	0.50	0.25	X014a
CS 30-14io1	1400											X014a
CS 30-16io1	1600											X014a
CMA 30P1600FC	2x 1600	30	90	47	400	1000	0.87	14.2	150	1.00	0.25	X024a
CLA 40E1200NPZ	1200	40	125	63	520	500	0.85	9.9	150	0.40	0.25	X011c
CLA 40E1200NHB	1200	40	120	63	520	500	0.85	9.2	150	0.50	0.25	X014a
CLA 40E1200HR	1200	40	95	63	650	1000	0.85	7.9	150	0.80	0.25	X016c
★ **CLB 40I1200PZ**	1200	40	125	63	520	500	0.85	9.9	150	0.40	0.25	X011c
CLA 40P1200FC	2x 1200	40	95	63	650	1000	0.86	7.9	150	0.80	0.20	X024a
CMA 40E1600HR	1600	40	90	63	550	1000	0.81	9.8	150	0.80	0.25	X016c

★ Anode gated

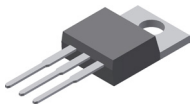
Package style

Outline drawings on pages O-36...O-59

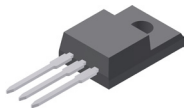
X004 **TO-252AA**



X005a **TO-220AB**



X007a **TO-220ABFP**



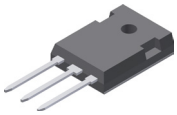
X011b **TO-263AB**



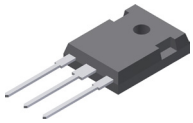
X011c **TO-263ABHV**



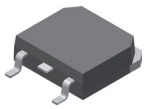
X014a **TO-247AD**



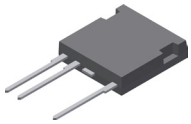
X016c **ISO247™**



X019 **TO-268AA**



X024c **ISOPLUS i4-PAC™**



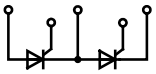
Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

Phase Control Thyristors

I_{TAV} = 30 - 100 A

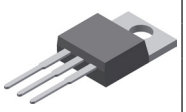

CLB...


CS.../CL/MA...E/I...


CLA/CMA...P...

Type ➢ New	V_{RRM} V_{DRM} V	I_{TAV} A	@ T_C °C	$I_{T(RMS)}$ A	I_{TSM} 45°C 10 ms A	$(dv/dt)_{cr}$ V/µs	V_{T0} V	r_T mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thCH} K/W	Fig. No.
CS 45-08io1	800	45	110	71	520	1000	0.88	11.0	150	0.40	0.25	X014a
CS 45-12io1	1200											X014a
CS 45-16io1	1600											X014a
CS 45-16io1R	1600	45	80	71	520	1000	0.88	11.0	150	0.80	0.25	X016a
CLA 50E1200HB	1200	50	125	79	650	1000	0.88	7.7	150	0.25	0.25	X014a
CLA 50E1200TC											0.15	X019
CMA 50E1600HB	1600	50	110	79	550	1000	0.83	9.6	150	0.40	0.25	X014a
CMA 50E1600QB												X017a
CMA 50E1600TZ											0.15	X019a
CMA 50P1600FC	2x 1600		90	79	720	1000	0.88	6.7	150	0.70	0.20	X024a
CS 60-12io1	1200	60	110	75	1400	1000	0.82	5.3	140	0.32	0.15	X015a
CS 60-14io1	1400											X015a
CS 60-16io1	1600											X015a
➢ **CS 60-16io1R**	1600	60	90	75	1400	1000	0.82	5.3	140	0.45	0.15	X016a
CLA 80E1200HF	1200	80	115	126	900	1000	0.88	6.3	150	0.20	0.25	X015a
CMA 80E1600HB	1600	80	115	126	720	1000	0.90	6.4				X014a
CLA 100E1200HB	1200	100	105	160	1100	1000	0.82	5.2	150	0.20	0.15	X014a
CLA 100E1200KB												X020a
➢ **CLA 100E1200TZ**												X019a

X005a **TO-220AB**



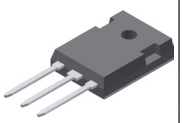
X011b **TO-263AB**



X011c **TO-263ABHV**



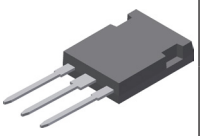
X014a **TO-247AD**



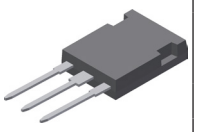
Fast Phase Control Thyristors

CLE 20E1200PC	1200	20	115	31	160	500	0.92	24	150	0.70	0.25	X011b
CME 30E1600PZ	1600	30	105	47	280	500	0.96	25	150	0.50	0.25	X011c
CLF 20E1200PB	1200	20	110	31	150	500	0.96	26	150	0.70	0.50	X005a
CLE 30E1200PB	1200	30	115	47	270	500	0.92	14	150	0.50	0.50	X005a
CLE 40E1200HB	1200	40	130	63	600	1000	0.97	9	150	0.25	0.25	X014a
CNE 60E2200TZ	2200	60	80	94	720	1000	1.90	12.6	150	0.30	0.15	X019a
CLE 90UH1200TLB	1200	90	90	-	350	500	0.92	13	150	0.90	0.40	X030a

X015a **PLUS247**



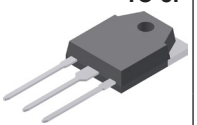
X016a **ISOPLUS247™**



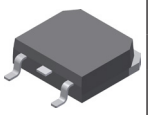
Triode - Reverse Conducting Thyristor

Type	V_{RRM} V	V_{vRMS} V	I_{TAV} A	@ T_C °C	I_{TSM} 10 ms 45°C A	V_{T0} V	r_T mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thCH} K/W	Fig. No.
CLA 20EF1200PB	1200	400	20	115	120	0.90	25	150	0.65	0.50	X005a
CLA 20EF1200PZ											X011c

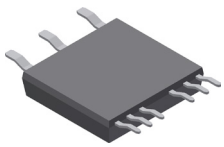
X017a **TO-3P**



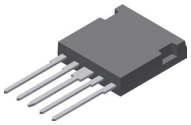
X019 **TO-268AA**



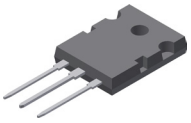
X030a **SMPD-B**



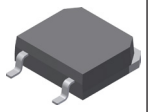
X024a **ISOPLUS i4-PAC™**



X020a **TO-264**



X019a **TO-268AAHV**



Thyristors, SCRs

(SCR = Silicon Controlled Rectifier)

Littelfuse SCR products are half-wave, Silicon-Controlled Rectifiers that represent the state of the art in design and performance. Because of its unidirectional switching capability, the SCR is used in circuits where high surge currents or latching action is required. It may also be used for half-wave-type circuits where gate-controlled rectification action is required. Applications include crowbars in power supplies, camera flash units, smoke alarms, motor controls, battery chargers, and engine ignition.

Type ➢ New	V_{DRM} V_{RRM} V	I_{TAV} A	$I_{T(RMS)}$ A	@ T_C °C	I_{TSM} 20 ms A	I_{GT} QI-QII-QIII (-QIV) A	T_J °C	Fig. No.	Package style Outline drawings on pages O-60...O-64
S8X5ECSRP	800	0.3	0.5	85	20	0.1	125	L006a	L001 **SOT-223**
S6X8BBSRP	600	0.51	0.8	80	10	0.2	125	L015	
S8X8TSRP	800	0.51	0.8	60	8	0.2	125	L001	
S601ERP	600	0.64	1	90	25	10	125	L006a	
S602ECSRP	600	0.95	1.5	65	14	0.1	125	L006a	
S602TSRP	600	0.95	1.5	95	12.5	0.2	125	L001	
S802ECSRP	800	0.95	1.5	65	20	0.1	125	L006a	L002 **TO-218AC**
S6002TSRP	600	1.2	2	95	22.5	0.2	125	L001	
SJ6004DS2RP	600	2.5	4	130	25	0.2	150	L004	
S6004DS2RP	600	2.5	4	95	25	0.2	125	L004	
SJ6008DS2RP	600	5.1	8	120	83	0.2	150	L004	
SJ6008DRP	600	5.1	8	125	83	15	150	L004	
S8008DRP	800	5.1	8	110	83	15	125	L004	L002a **TO-218X**
SJ6012DRP	600	7.6	12	125	100	20	150	L004	
SJ6012NRP	600	7.6	12	135	100	20	150	L011b	
S8015LTP	800	9.5	15	90	188	30	125	L005c	
➢ **SV6016R2TP**	600	10	16	135	188	10	150	L005a	
➢ **SV6020R2TP**	600	12.8	20	130	225	10	150	L005a	L004 **TO-252AA**
SJ6025L2TP	600	16	25	100	300	10	150	L005c	
SJ6025R2TP	600	16	25	125	300	10	150	L005a	
➢ **SV6025L2TP**	600	16	25	100	300	10	150	L005c	
➢ **SV6025R2TP**	600	16	25	125	300	10	150	L005a	
S8025LTP	800	16	25	75	300	35	125	L005c	L005a **TO-220AB**
S8025RTP	800	16	25	100	300	35	125	L005a	
SK025NRP	1000	16	25	100	300	35	125	L011b	
SJ6040N2RP	600	25	40	120	430	15	150	L011b	
SJ6040LTP	600	25	40	55	430	40	150	L005c	
SJ6040RTP	600	25	40	120	430	40	150	L005a	
S8040RTP	800	25	40	100	430	40	125	L005a	L005c **TO-220AB** (ISO)
S8055RTP	800	35	55	90	550	40	125	L005a	
S8065JTP	800	41	65	75	800	50	125	L002a	
SK065KTP	1000	41	65	75	800	50	125	L002	

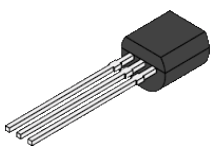
L015 **SOT-23**



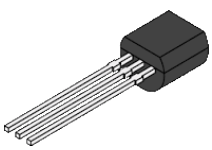
L011b **TO-263AB**



L006b **TO-92 (GAK)**



L006a **TO-92**



Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

One of the essential advantages of power semiconductor modules compared to discrete designs is the electrical isolation between the baseplate of the module and the parts subject to voltage (3.6 - 4.8 kV_{RMS} tested). This makes possible the mount-down of any number of the same or different modules on a common heatsink. It is feasible to use standard housings with appropriate accessories for designing compact power converter operating from AC mains up to 690 V.

Plastic Housing with DCB Substrate

IXYS has succeeded in simplifying the conventional multilayer module con-struction by the DCB (Direct Copper Bonding) technique.

Other features are:

- top-side electrical terminals with captured nuts;
- series-connected diode/diode, thyristor/ diode and thyristor/thyristor modules;
- easy assembly.

All thyristor modules with DCB ceramic base contacts are available in volume with two standardized twin plugs (2.8 mm x 0.8 mm) for gate and auxiliary cathode control terminals (version 1). Modules in TO-240 housing of the version 8 are delivered with gate plugs only (without auxiliary cathode terminal; mounting srews available on request). The module housing is designed for adequate clearance and creepage distance resulting in recognition by Underwriters Laboratories, Inc., USA for all types.

New Generation Silicon Chips

All chips are designed by applying separation diffusion processes such that the zones responsible for the surface field strength are located at the upper chip side. This results in the capability of soldering the entire chip area onto the DCB ceramic substrate without a molybdenum strain buffer, which in turn leads to good stability of the chips as well as to large area heat dissipation if a load is applied. All zones at the edges which are decisive for the blocking stability are coated with passivation glasses the coefficient of expansion of which match that of silicon. Silicon chips increasingly use planar technology with guard rings and channel stoppers to reduce electrical surface fields. This chip design supercedes the design of thyristor chips which were fabricated with passivation moats so that modules of the new series designed with the updated state-of-the-art utilize planar passivated chips processed by separation diffusion techniques. The contact areas of the chips possess physical vapor deposited metal layers. For the user the improved properties are:

- Excellent long-term stability of blocking currents and blocking voltages,
- increased life time of the internal soldered connections,
- high power cycling capability ($\geq$ 50 000).

The thyristor/diode chips have been optimized with regard to their turn-off parameters: decreasing the carrier lifetime results in reduced stored charges QS, which in turn significantly reduces requirements for RC-snubbers for over-voltage protection. Cost reduction and improved efficiency are the benefits of these characteristics. By re-developing the silicon chips, improvements of the firing characteristics were achieved by specifying a higher „gate current not to fire“ IGD resulting in substantially less suscepibility to misfiring. This leads to greater safety of operation and higher reliability of the equipment.

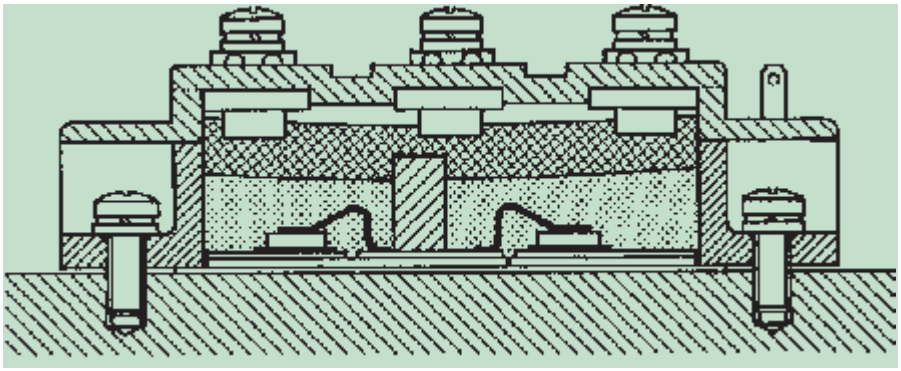
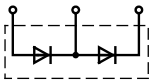


Fig. 1: Principal cross section of an IXYS module with DCB technology

Diode Modules, Dual

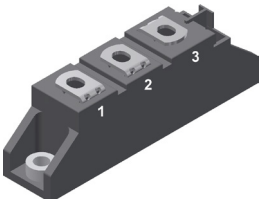
I_{FAV} = 25 - 99 A



MDD...
MDM/NA...P...

Type	V_{RRM} V	I_{FAV} A	T_C °C	I_{FSM} 45°C 10 ms A	V_{F0} V	r_F mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thCH} K/W	Fig. No.	Package style Outline drawings on pages O-36...O-59
MDMA 25P1200TG	1200	25	100	320	0.85	11.10	150	1.10	0.20	X125e	
MDMA 25P1600TG	1600										
MDMA 25P1800TG	1800										
MDNA 25P2200TG	2200										
MDD 26-08N1B	800	36	100	650	0.80	6.10	150	1.00	0.20		
MDD 26-12N1B	1200										
MDD 26-14N1B	1400										
MDD 26-16N1B	1600										
MDD 26-18N1B	1800										
MDMA 35P1200TG	1200	35	100	500	0.83	7.30	150	0.90	0.20		
MDMA 35P1600TG	1600										
MDMA 35P1800TG	1800										
MDNA 35P2200TG	2200										
MDD 44-08N1B	800	59	100	1150	0.80	4.30	150	0.59	0.20		
MDD 44-12N1B	1200										
MDD 44-14N1B	1400										
MDD 44-16N1B	1600										
MDD 44-18N1B	1800										
MDMA 50P1200TG	1200	50	100	850	0.85	5.70	150	0.65	0.20		
MDMA 50P1600TG	1600										
MDMA 50P1800TG	1800										
MDNA 50P2200TG	2200										
MDD 56-08N1B	800	71	100	1400	0.80	3.00	150	0.51	0.20		
MDD 56-12N1B	1200										
MDD 56-14N1B	1400										
MDD 56-16N1B	1600										
MDD 56-18N1B	1800										
MDMA 65P1200TG	1200	65	100	1100	0.81	4.30	150	0.50	0.20		
MDMA 65P1600TG	1600										
MDMA 65P1800TG	1800										
MDNA 65P2200TG	2200										
MDD 72-08N1B	800	99	100	1700	0.80	2.30	150	0.35	0.20		
MDD 72-12N1B	1200										
MDD 72-14N1B	1400										
MDD 72-16N1B	1600										
MDD 72-18N1B	1800										
MDMA 85P1200TG	1200	85	100	1500	0.79	3.50	150	0.35	0.20		
MDMA 85P1600TG	1600										
MDMA 85P1800TG	1800										
MDNA 85P2200TG	2200										

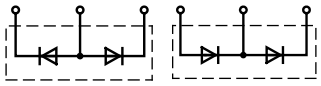
X125e **TO-240AA**



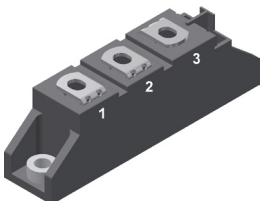
Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

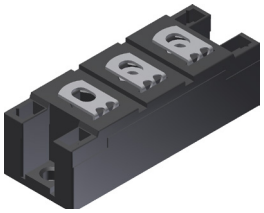
Diode Modules, Dual

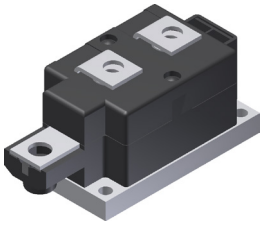
I_{FAV} = 110 - 240 A

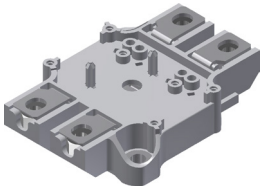


Type ➢ New	V_{RRM} V	I_{FAV} A	T_C °C	I_{FSM} 45°C 10 ms A	V_{F0} V	r_F mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thCH} K/W	Fig. No.	Package style Outline drawings on pages O-36...O-59
MDD 95-08N1B	800	120	100	2800	0.75	1.95	150	0.26	0.20	X125e	
MDD 95-12N1B	1200										
MDD 95-14N1B	1400										X125e **TO-240AA**
MDD 95-16N1B	1600										
MDD 95-18N1B	1800										
MDD 95-20N1B	2000										
MDD 95-22N1B	2200										
MDA 95-22N1B	2200										
MDMA 110P1200TG	1200	110	100	2000	0.82	2.80	150	0.30	0.20		
MDMA 110P1600TG	1600										
MDMA 110P1800TG	1800										X126c **Y4**
MDNA 110P2200TG	2200										
MDMA 140P1200TG	1200	140	100	2800	0.78	2.20	150	0.23	0.20		
MDMA 140P1600TG	1600										
MDMA 140P1800TG	1800										
MDNA 140P2200TG	2200										
MDD 142-08N1	800	165	100	4700	0.80	1.30	150	0.21	0.10	X126c	
MDD 142-12N1	1200										
MDD 142-14N1	1400										
MDD 142-16N1	1600										X131c **Y1**
MDD 142-18N1	1800										
➢ **MDMA 180P1600YD**	1600	180	100	4400	0.77	1.40	150	0.20	0.11		
➢ **MDNA 180P2200YD**	2200										
MDD 172-08N1	800	190	100	6600	0.80	0.80	150	0.21	0.10		
MDD 172-12N1	1200										
MDD 172-14N1	1400										
MDD 172-16N1	1600										
MDD 172-18N1	1800										
MDMA 210P1600YD	1600	210	100	6600	0.67	1.20	150	0.17	0.09		X141c **SimBus A**
➢ **MDNA 210P2200YD**	2200										
MDD 200-14N1	1400	224	100	10500	0.80	0.60	150	0.13	0.10		
MDD 200-16N1	1600										
MDD 200-18N1	1800										
MDD 200-22N1	2200										
MDD 175-28N1	2800	240	100	8500	0.74	1.27	150	0.14	0.04	X131c	
MDD 175-34N1	3400										
MDMA 200P1600SA	1600	200	110	6000	0.76	1.40	150	0.15	0.08	X141c	





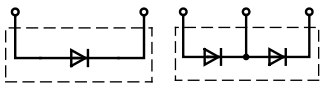




Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

Diode Modules, Single and Dual

I_{FAV} = 270 - 700 A



Type ➢ New	V_{RRM} V	I_{FAV} A	T_C °C	I_{FSM} 45°C 10 ms A	V_{F0} V	r_F mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thCH} K/W	Fig. No.	Package style Outline drawings on pages O-36...O-59
MDD 255-12N1	1200	270	100	9500	0.80	0.60	150	0.140	0.04	X131c	X126c **Y4**
MDD 255-14N1	1400										
MDD 255-16N1	1600										
MDD 255-18N1	1800										
MDD 255-20N1	2000										
MDD 255-22N1	2200										
MDMA 280P1600YD	1600	280	100	10500	0.74	1.00	150	0.130	0.06	X126c	
➢ **MDNA 280P2200YD**	2200										
➢ **MDMA 300P1600PTSF**	1600	300	100	8000	0.78	1.30	150	0.100	0.05	X143a	X129c **Y2**
MDNA 300P2200PTSF	2200										
MDD 310-12N1	1200	305	100	11500	0.75	0.63	150	0.129	0.04	X129c	
MDD 310-14N1	1400										
MDD 310-16N1	1600										
MDD 310-18N1	1800										
MDD 310-20N1	2000										X131c **Y1**
MDD 310-22N1	2200										
MDD 312-12N1	1200	310	100	10500	0.80	0.60	150	0.120	0.04	X131c	
MDD 312-14N1	1400										
MDD 312-16N1	1600										
MDD 312-18N1	1800										
MDD 312-20N1	2000										X132b **Y1**
MDD 312-22N1	2200										
MDMA 380P1600KC	1600	380	100	11000	0.75	0.53	150	0.110	0.04		
MDMA 380P1800KC	1800										
MDNA 380P2200KC	2200										
MDMA 425P1600PTSF	1600	425	100	10000	0.77	1.01	150	0.070	0.04	X143a	
MDNA 425P2200PTSF	2200										
MDO 500-12N1	1200	560	85	15000	0.80	0.38	140	0.072	0.02	X132b	X142c **ComPack**
MDO 500-14N1	1400										
MDO 500-16N1	1600										
MDO 500-18N1	1800										
MDO 500-20N1	2000										
MDO 500-22N1	2200										
MDO 600-16N1	1600	608	85	15000	0.76	0.32	140	0.072	0.02		
MDMA 600P1600PTSF	1600	600	100	15000	0.78	0.67	150	0.050	0.03	X143a	
MDNA 600P2200PTSF	2200										X143a **SimBus F PFP**
MDMA 700P1600CC	1600	700	100	20000	0.78	0.35	150	0.055	0.02	X142c	
MDMA 700P1800CC	1800										
MDNA 700P2200CC	2200										

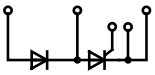
For more single and dual diode modules with higher current, please see pages 177 - 179

See data sheet for pin arrangement

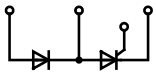
Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

Thyristor / Diode Modules

I_{TAV} = 25 - 80 A

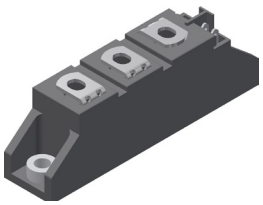


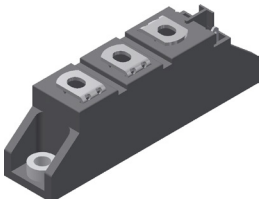
MCD...io1
MCM/NA..PD..



MCD...io8/...io6
CLA/CMA..PD..

Type	V_{RRM} V_{DRM} V	I_{TAV} A	T_C °C	$I_{T(RMS)}$ A	I_{TSM} 45°C 10 ms A	V_{T0} V	r_T mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thCH} K/W	Fig. No.	Package style Outline drawings on pages O-36...O-59
MCMA 25PD1200TB	1200	25	82	40	400	0.87	13.0	140	1.20	0.20	X125b	
MCMA 25PD1600TB	1600											
MCD 26-08io1B	800	27	85	50	520	0.85	11.0	125	0.88	0.20		
MCD 26-12io1B	1200											X125b **TO-240AA**
MCD 26-14io1B	1400											
MCD 26-16io1B	1600											
MCD 26-08io8B	800	27	85	50	520	0.85	11.0	125	0.88	0.20	X125d	
MCD 26-12io8B	1200											
MCD 26-14io8B	1400											
MCD 26-16io8B	1600											
MCMA 35PD1200TB	1200	35	85	55	520	0.87	9.8	140	0.90	0.20	X125b	
MCMA 35PD1600TB	1600											
MCD 40-12io6	1200	40	85	63	500	0.87	10.5	150	0.70	0.10	X027a	
MCD 40-16io6	1600											
MCD 44-08io1B	800	49	85	77	1150	0.85	5.3	125	0.53	0.20	X125b	
MCD 44-12io1B	1200											
MCD 44-14io1B	1400											
MCD 44-16io1B	1200											
MCD 44-18io1B	1600											X125d **TO-240**
MCD 44-08io8B	800	49	85	77	1150	0.85	5.3	125	0.53	0.20	X125d	
MCD 44-12io8B	1200											
MCD 44-14io8B	1400											
MCD 44-16io8B	1600											
MCD 44-18io8B	1800											
MCNA 40PD2200TB	2200	40	85	63	500	0.84	11.4	140	0.70	0.20	X125b	
MCMA 50PD1200TB	1200	50	85	79	800	0.89	5.3	140	0.70	0.20		
MCMA 50PD1600TB	1600											
CLA 60PD1200NA	1200	60	100	94	1100	0.79	4.8	150	0.55	0.10	X027a	
MCD 56-08io1B	800	60	85	100	1500	0.85	3.7	125	0.45	0.20	X125b	
MCD 56-12io1B	1200											
MCD 56-14io1B	1400											
MCD 56-16io1B	1600											
MCD 56-18io1B	1800											X027a **SOT-227B miniBLOC**
MCD 56-08io8B	800	60	85	100	1500	0.85	3.7	125	0.45	0.20	X125d	
MCD 56-12io8B	1200											
MCD 56-14io8B	1400											
MCD 56-16io8B	1600											
MCD 56-18io8B	1800											
MCNA 55PD2200TB	2200	55	85	86	800	0.90	9.0	150	0.50	0.20	X125b	
MCMA 65PD1200TB	1200	65	85	105	1150	0.85	4.8	140	0.50	0.20		
MCMA 65PD1600TB	1600											
MCMA 65PD1800TB	1800											
CMA 80PD1600NA	1600	80	80	126	1070	0.86	5.5	150	0.45	0.10	X027a	



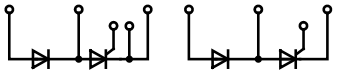




Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

Thyristor / Diode Modules

I_{TAV} = 75 - 165 A



MCD...io1
MCM/NA..PD..

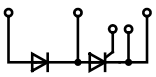
MCD...io8
CLA..PD..

Type	V_{RRM} V_{DRM} V	I_{TAV} A	T_C °C	$I_{T(RMS)}$ A	I_{TSM} 45°C 10 ms A	V_{T0} V	r_T mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thCH} K/W	Fig. No.	Package style Outline drawings on pages O-36...O-59
MCD 72-08io1B	800	85	85	180	1700	0.85	3.2	125	0.30	0.20	X125b	
MCD 72-12io1B	1200											X125b **TO-240AA**
MCD 72-14io1B	1400											
MCD 72-16io1B	1600											
MCD 72-18io1B	1800											
MCD 72-08io8B	800	85	85	180	1700	0.85	3.2	125	0.30	0.20	X125d	
MCD 72-12io8B	1200											
MCD 72-14io8B	1400											
MCD 72-16io8B	1600											
MCD 72-18io8B	1800											
MCNA 75PD2200TB	2200	75	85	118	1050	0.90	6.5	140	0.38	0.20	X125b	X125d **TO-240**
MCMA 85PD1200TB	1200	85	85	135	1500	0.85	3.9	140	0.38	0.20		
MCMA 85PD1600TB	1600											
MCMA 85PD1800TB	1800											
CLA 100PD1200NA	1200	100	85	150	1500	0.83	3.7	150	0.35	0.10	X027a	
MCD 94-20io1B	2000	104	85	180	1700	0.85	3.2	125	0.22	0.20	X125b	
MCD 94-22io1B	2200											
MCD 95-08io1B	800	116	85	180	2250	0.85	2.4	125	0.22	0.20		
MCD 95-12io1B	1200											
MCD 95-14io1B	1400											X125y **TO-240**
MCD 95-16io1B	1600											
MCD 95-18io1B	1800											
MCD 95-16io1	1600										X125y	
MCD 95-08io8B	800	116	85	180	2250	0.85	2.4	125	0.22	0.20	X125d	
MCD 95-12io8B	1200											
MCD 95-14io8B	1400											
MCD 95-16io8B	1600											
MCD 95-18io8B	1800											
MCNA 95PD2200TB	2200	95	85	149	1400	0.90	5.0	140	0.30	0.20	X125b	X126b **Y4**
MCMA 110PD1200TB	1200	110	85	170	1900	0.85	3.3	140	0.30	0.20		
MCMA 110PD1600TB	1600											
MCMA 110PD1800TB	1800											
MCNA 120PD2200TB	2200	120	85	190	1700	0.90	3.7	140	0.22	0.20		
MCNA 120PD2200TB-NI											X125y	
MCMA 140PD1200TB	1200	140	85	200	2400	0.85	2.8	140	0.22	0.20	X125b	
MCMA 140PD1600TB	1600											
MCMA 140PD1800TB	1800											X027a **SOT-227B miniBLOC**
MCMA 140PD1600TB-NI	1600										X125y	
MCD 132-08io1	800	130	85	300	4750	0.80	1.5	125	0.23	0.10	X126b	
MCD 132-12io1	1200											
MCD 132-14io1	1400											
MCD 132-16io1	1600											
MCD 132-18io1	1800											

Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

Thyristor / Diode Modules

I_{TAV} = 180 - 700 A



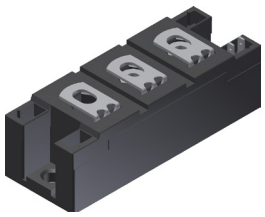
MCD...io1
MCM/NA..PD..

Type ➢ New	V_{RRM} V_{DRM} V	I_{TAV} A	T_C °C	$I_{T(RMS)}$ A	I_{TSM} 45°C 10 ms A	V_{T0} V	r_T mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thCH} K/W	Fig. No.
MCNA 150PD2200YB	2200	150	85	235	4300	0.86	2.10	140	0.210	0.11	X126b
MCD 161-20io1	2000	165	85	300	6000	0.80	1.60	125	0.155	0.07	
MCD 161-22io1	2200										
MCD 162-08io1	800	181	85	300	6000	0.88	1.15	125	0.155	0.07	
MCD 162-12io1	1200										
MCD 162-14io1	1400										
MCD 162-16io1	1600										
MCD 162-18io1	1800										
MCNA 180PD2200YB	2200	180	85	280	5400	0.85	1.80	140	0.170	0.09	
MCMA 200PD1600SA	1600	200	85	314	6000	0.81	1.60	140	0.150	0.08	X141b
MCD 200-14io1	1400	216	85	340	8000	0.80	1.40	125	0.130	0.05	X126b
MCD 200-16io1	1600										
MCD 200-18io1	1800										
MCNA 220PD2200YB	2200	220	85	345	7200	0.84	1.50	140	0.130	0.07	
MCD 224-20io1	2000	240	85	400	8000	0.80	0.76	130	0.139	0.04	X131b
MCD 224-22io1	2200										
MCD 225-12io1	1200	221	85	400	8000	0.80	0.76	130	0.157	0.04	
MCD 225-14io1	1400										
MCD 225-16io1	1600										
MCD 225-18io1	1800										
➢ **MCNA 250PD2200PTSF**	2200	250	85	400	5900	0.76	2.20	150	0.100	0.05	X143a
MCD 255-12io1	1200	250	85	450	9000	0.80	0.68	130	0.140	0.04	X131b
MCD 255-14io1	1400										
MCD 255-16io1	1600										
MCD 255-18io1	1800										
MCMA 260PD1600YB	1600	260	85	408	8300	0.81	1.23	140	0.130	0.08	X126b
MCMA 260PD1800YB	1800										
MCMA 265PD1600KB	1600	260	85	408	8500	0.80	0.75	140	0.160	0.04	X131b
MCMA 265PD1800KB	1800										
➢ **MCMA 280PD1600PTSF**	1600	280	85	440	7000	0.83	1.57	150	0.100	0.05	X143a
MCD 310-08io1	800	320	85	500	9200	0.80	0.82	140	0.112	0.04	X129b
MCD 310-12io1	1200										
MCD 310-14io1	1400										
MCD 310-16io1	1600										
MCD 310-18io1	1800										
MCD 310-20io1	2000	320	85	500	8000	0.80	0.82	140	0.112	0.04	
MCD 310-22io1	2200										
MCD 312-12io1	1200	320	85	520	9200	0.80	0.68	140	0.120	0.04	X131b
MCD 312-14io1	1400										
MCD 312-16io1	1600										
MCD 312-18io1	1800										
➢ **MCNA 360PD2200PTSF**	2200	360	85	570	8400	0.74	1.57	150	0.070	0.04	X143a
MCMA 400PD1600PTSF	1600	400	85	630	10000	0.82	1.14	150	0.070	0.04	
➢ **MCNA 500PD2200PTSF**	2200	500	85	790	11000	0.75	1.11	150	0.050	0.03	
MCMA 550PD1600PTSF	1600	550	85	864	13000	0.82	0.80	150	0.050	0.03	
MCNA 650PD2200CB	2200	650	85	1020	16000	0.75	0.63	140	0.045	0.02	X142b
MCMA 700PD1600CB	1600	700	85	1100	19000	0.82	0.40	140	0.050	0.02	
MCMA 700PD1800CB	1800										

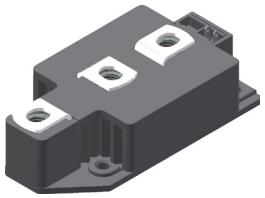
Package style

Outline drawings on pages O-36...O-59

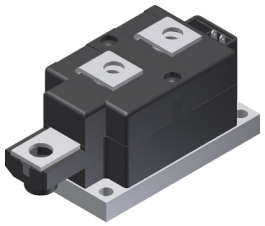
X126b **Y4**



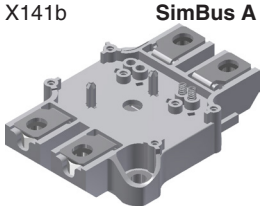
X129b **Y2**



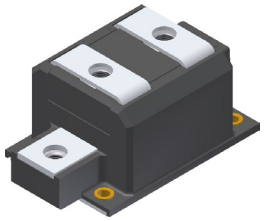
X131b **Y1**



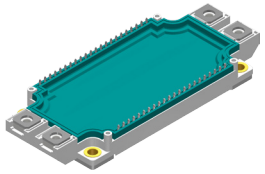
X141b **SimBus A**



X142b **ComPack**



X143a **SimBus F PFP**



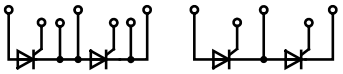
See data sheet for pin arrangement

For more thyristor / diode modules with higher current, please see pages 175, 176 and 179

Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

Thyristor Modules, Dual

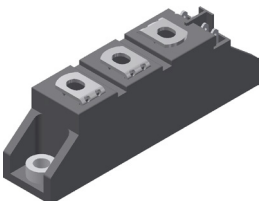
I_{TAV} = 18 - 60 A

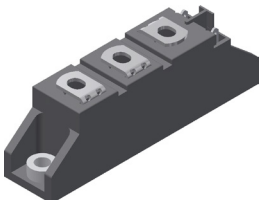


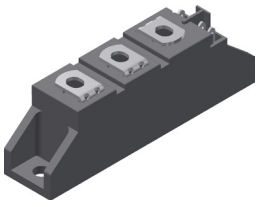
MCC...io1B
MCM/NA..P..

MCC...io8B

Type	V_{RRM} V_{DRM} V	I_{TAV} A	T_C °C	$I_{T(RMS)}$ A	I_{TSM} 45°C 10 ms A	V_{T0} V	r_T mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thCH} K/W	Fig. No.	Package style Outline drawings on pages O-36...O-59
MCC 19-08io1B	800	18	85	40	400	0.85	18.0	125	1.30	0.2	X125a	
MCC 19-12io1B	1200											
MCC 19-14io1B	1400											
MCC 19-16io1B	1600											
MCC 19-08io8B	800	18	85	40	400	0.85	18.0	125	1.30	0.2	X125c	X125a **TO-240AA**
MCC 19-12io8B	1200											
MCC 19-14io8B	1400											
MCC 19-16io8B	1600											
MCC 21-08io8B	800	21	85	33	320	0.85	15.0	125	1.10	0.2		
MCC 21-12io8B	1200											
MCC 21-14io8B	1400											
MCC 21-16io8B	1600											
MCMA 25P1200TA	1200	25	85	40	400	0.87	13.0	140	1.20	0.2	X125a	
MCMA 25P1600TA	1600											
MCC 26-08io1B	800	27	85	50	520	0.85	11.0	125	0.88	0.2		
MCC 26-12io1B	1200											
MCC 26-14io1B	1400											
MCC 26-16io1B	1600											
MCC 26-14io1	1400										X125z	
MCC 26-08io8B	800	27	85	50	520	0.85	11.0	125	0.88	0.2	X125c	
MCC 26-12io8B	1200											
MCC 26-14io8B	1400											X125c **TO-240**
MCC 26-16io8B	1600											
MCMA 35P1200TA	1200	35	85	55	520	0.87	9.8	140	0.90	0.2	X125a	
MCMA 35P1600TA	1600											
MCC 44-08io1B	800	49	85	77	1150	0.85	5.3	125	0.53	0.2		
MCC 44-12io1B	1200											
MCC 44-14io1B	1400											
MCC 44-16io1B	1600											
MCC 44-18io1B	1800											
MCC 44-08io8B	800	49	85	77	1150	0.85	5.3	125	0.53	0.2	X125c	
MCC 44-12io8B	1200											
MCC 44-14io8B	1400											
MCC 44-16io8B	1600											
MCC 44-18io8B	1800											
MCNA 40P2200TA	2200	40	85	63	500	0.84	11.4	140	0.70	0.2	X125a	
MCMA 50P1200TA	1200	50	85	79	800	0.89	5.3	140	0.70	0.2		
MCMA 50P1600TA	1600											
MCC 56-08io1B	800	60	85	100	1500	0.85	3.7	125	0.45	0.2		
MCC 56-12io1B	1200											X125z **TO-240**
MCC 56-14io1B	1400											
MCC 56-16io1B	1600											
MCC 56-18io1B	1800											
MCC 56-14io1	1400										X125z	
MCC 56-08io8B	800	60	85	100	1500	0.85	3.7	125	0.45	0.2	X125c	
MCC 56-12io8B	1200											
MCC 56-14io8B	1400											
MCC 56-16io8B	1600											
MCC 56-18io8B	1800											



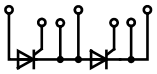




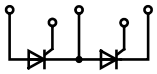
Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

Thyristor Modules, Dual

I_{TAV} = 55 - 140 A

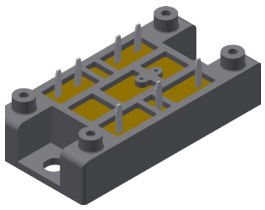
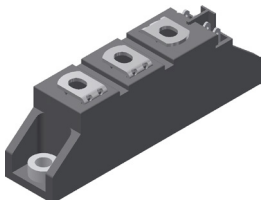
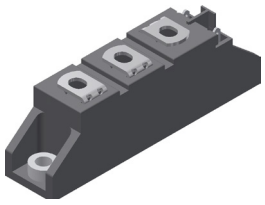
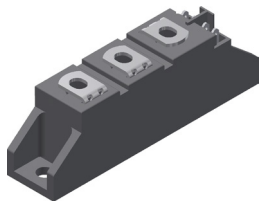
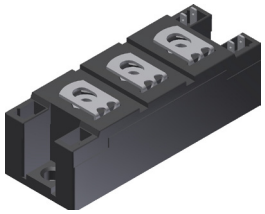


MCC...io1B



MCC...io8B

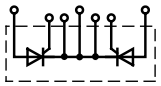
MCM/NA..P..

Type	V_{RRM} V_{DRM} V	I_{TAV} A	T_C °C	$I_{T(RMS)}$ A	I_{TSM} 45°C 10 ms A	V_{T0} V	r_T mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thCH} K/W	Fig. No.	Package style Outline drawings on pages O-36...O-59
MCNA 55P2200TA	2200	55	85	86	800	0.90	9.0	140	0.50	0.2	X125a	
MCMA 65P1200TA	1200	65	85	105	1150	0.85	4.8	140	0.50	0.2		
MCMA 65P1600TA	1600											X103 **V1-A-Pack**
MCMA 65P1800TA	1800											
MCC 72-08io1B	800	85	85	180	1700	0.85	3.2	125	0.30	0.2		
MCC 72-12io1B	1200											
MCC 72-14io1B	1400											
MCC 72-16io1B	1600											
MCC 72-18io1B	1800											
MCC 72-08io8B	800	85	85	180	1700	0.85	3.2	125	0.30	0.2	X125c	
MCC 72-12io8B	1200											
MCC 72-14io8B	1400											X125a **TO-240AA**
MCC 72-16io8B	1600											
MCC 72-18io8B	1800											
MCNA 75P2200TA	2200	75	85	118	1050	0.90	6.5	140	0.38	0.2	X125a	
MCMA 85P1200TA	1200	85	85	135	1500	0.85	3.9	140	0.38	0.2		
MCMA 85P1600TA	1600											
MCMA 85P1800TA	1800											
MCC 94-20io1B	2000	104	85	180	1700	0.85	3.2	125	0.22	0.2		
MCC 94-22io1B	2200											
MCC 94-24io1B	2400											
MCC 95-08io1B	800	116	85	180	2250	0.83	2.4	125	0.22	0.2		X125c **TO-240**
MCC 95-12io1B	1200											
MCC 95-14io1B	1400											
MCC 95-16io1B	1600											
MCC 95-18io1B	1800											
MCC 95-14io1	1400										X125z	
MCC 95-16io1	1600											
MCC 95-08io8B	800	116	85	180	2250	0.85	2.4	125	0.22	0.2	X125c	
MCC 95-12io8B	1200											
MCC 95-14io8B	1400											
MCC 95-16io8B	1600											X125z **TO-240**
MCC 95-18io8B	1800											
MCNA 95P2200TA	2200	95	85	149	1400	0.90	5.0	140	0.30	0.2	X125a	
MCMA 110P1200TA	1200	110	85	170	1900	0.85	3.3	140	0.30	0.2		
MCMA 110P1600TA	1600											
MCMA 110P1800TA	1800											
MCMA 110P1600VA	1600										X103	
MCNA 120P2200TA	2200	120	85	190	1700	0.90	3.7	140	0.22	0.2	X125a	
MCMA 140P1200TA	1200	140	85	220	2400	0.85	2.8	140	0.22	0.2		
MCMA 140P1400TA	1400											X126a **Y4**
MCMA 140P1600TA	1600											
MCMA 140P1800TA	1800											
MCC 132-08io1	800	130	85	300	4750	0.80	1.5	125	0.23	0.1	X126a	
MCC 132-12io1	1200											
MCC 132-14io1	1400											
MCC 132-16io1	1600											
MCC 132-18io1	1800											

Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

Thyristor Modules, Dual

I_{TAV} = 150 - 700 A

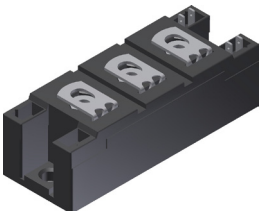

MCK...


MCC...io1B
MCM/NA..P..

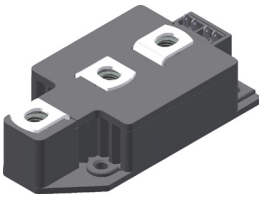
Type ➢ New	V_{RRM} V_{DRM} V	I_{TAV} A	T_C °C	$I_{T(RMS)}$ A	I_{TSM} 45°C 10 ms A	V_{T0} V	r_T mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thCH} K/W	Fig. No.
MCNA 150P2200YA	2200	150	85	235	4300	0.86	2.10	140	0.210	0.11	X126a
➢ **MCMA 160P1600YA**	1600	160	85	250	4750	0.82	1.63	140	0.210	0.11	X126a
➢ **MCMA 160P1800YA-MI**	1800										X126z
MCC 161-20io1	2000	165	85	300	6000	0.80	1.60	125	0.155	0.07	X126a
MCC 161-22io1	2200										
MCC 162-08io1	800	181	85	300	6000	0.88	1.15	125	0.155	0.07	X126a
MCC 162-12io1	1200										
MCC 162-14io1	1400										
MCC 162-16io1	1600										
MCC 162-18io1	1800										
MCNA 180P2200YA	2200	180	85	280	5400	0.85	1.80	140	0.170	0.09	X126a
MCMA 200P1600SA	1600	200	90	314	6000	0.81	1.60	140	0.150	0.08	X141a
➢ **MCMA 200P1600YA**	1600	200	85	315	6000	0.83	1.43	140	0.170	0.09	X126a
➢ **MCMA 200P1800YA-MI**	1800										X126z
MCC 200-14io1	1400	216	85	340	8000	0.80	1.40	125	0.130	0.05	X126a
MCC 200-16io1	1600										
MCC 200-18io1	1800										
MCK 200-18io1	1800	216	85	340	8000	0.80	1.40	125	0.130	0.05	X126a
MCNA 220P2200YA	2200	220	85	345	7200	0.84	1.50	140	0.130	0.07	X126a
MCC 224-20io1	2000	240	85	400	8000	0.80	0.76	130	0.139	0.04	X131a
MCC 224-22io1	2200										
MCC 224-24io1	2400										
MCC 225-12io1	1200	221	85	400	8000	0.80	0.76	130	0.157	0.04	X131a
MCC 225-14io1	1400										
MCC 225-16io1	1600										
MCC 225-18io1	1800										
➢ **MCNA 250P2200PTSF**	2200	250	85	400	5900	0.76	2.20	150	0.100	0.05	X143a
MCC 255-12io1	1200	250	85	450	9000	0.80	0.68	130	0.140	0.04	X131a
MCC 255-14io1	1400										
MCC 255-16io1	1600										
MCC 255-18io1	1800										
MCMA 260P1600YA	1600	260	85	408	8300	0.81	1.23	140	0.130	0.08	X126a
MCMA 260P1800YA	1800										
MCMA 265P1600KA	1600	260	85	408	8500	0.80	0.75	140	0.160	0.04	X131a
MCMA 265P1800KA	1800										
➢ **MCMA 280P1600PTSF**	1600	280	85	440	7000	0.83	1.57	150	0.100	0.05	X143a
MCC 310-08io1	800	320	85	500	9200	0.80	0.82	140	0.112	0.04	X129a
MCC 310-12io1	1200										
MCC 310-14io1	1400										
MCC 310-16io1	1600										
MCC 310-18io1	1800										
MCC 312-12io1	1200	320	85	520	9200	0.80	0.68	140	0.120	0.04	X131a
MCC 312-14io1	1400										
MCC 312-16io1	1600										
MCC 312-18io1	1800										
➢ **MCNA 360P2200PTSF**	2200	360	85	570	8400	0.74	1.57	150	0.070	0.04	X143a
➢ **MCMA 400P1600PTSF**	1600	400	85	630	10000	0.82	1.14	150	0.070	0.04	
➢ **MCNA 500P2200PTSF**	2200	500	85	790	11000	0.75	1.11	150	0.050	0.03	
➢ **MCMA 550P1600PTSF**	1600	550	85	860	13000	0.82	0.80	150	0.050	0.03	
MCNA 650P2200CA	2200	650	85	1020	16000	0.75	0.63	140	0.045	0.02	X142a
MCMA 700P1600CA	1600	700	85	1100	19000	0.82	0.40	140	0.050	0.02	
MCMA 700P1800CA	1800										
MCMA 700P1600NCA	1600	700	85	1100	19000	0.82	0.40	140	0.050	0.02	
MCMA 700P1800NCA	1800										

Package style
Outline drawings on pages O-36...O-59

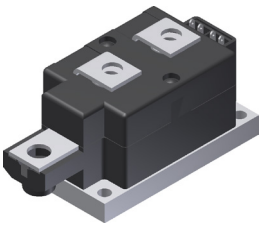
X126a **Y4**



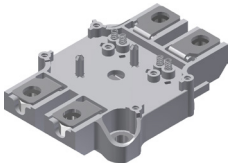
X129a **Y2**



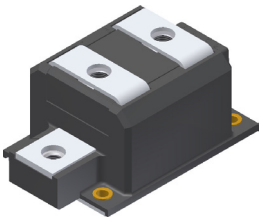
X131a **Y1**



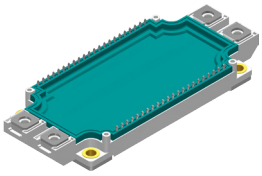
X141a **SimBus A**



X142a **ComPack**



X143a **SimBus F PFP**



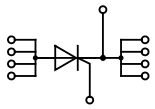
See data sheet for pin arrangement

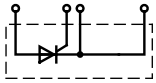
For more dual thyristor modules with higher current, please see pages 173 and 179

Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

Thyristor Modules, Single

I_{TAV} = 32 - 600 A


VCO...


MCO

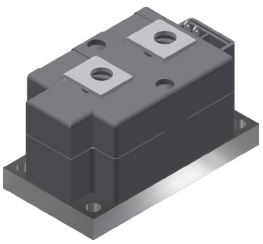
Type	V_{RRM} V_{DRM} V	I_{TAV} A	T_C °C	$I_{T(RMS)}$ A	I_{TSM} 45°C 10 ms A	V_{T0} V	r_T mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thCH} K/W	Fig. No.	Package style Outline drawings on pages O-36...O-59
MCO 25-12io1	1200	32	80	50	370	0.86	13.90	150	1.100	0.30	X027a	
MCO 25-16io1	1600											
MCO 50-12io1	1200	57	80	90	740	0.88	6.00	150	0.720	0.20		
MCO 50-16io1	1600											
MCO 75-12io1	1200	80	80	125	1070	0.85	5.50	150	0.450	0.10		
MCO 75-16io1	1600											
MCO 100-12io1	1200	101	80	160	1400	0.85	4.50	150	0.350	0.10		
MCO 100-16io1	1600											
MCO 150-12io1	1200	158	80	250	2000	0.84	3.50	150	0.200	0.10		
MCO 150-16io1	1600											
MCO 450-20io1	2000	464	85	750	15000	0.77	0.42	130	0.072	0.02	X132a	
MCO 450-22io1	2200											
MCO 500-12io1	1200	560	85	880	17000	0.80	0.38	140	0.072	0.02		
MCO 500-14io1	1400											
MCO 500-16io1	1600											
MCO 500-18io1	1800											
MCO 600-16io1	1600	600	85	940	15000	0.81	0.40	140	0.065	0.02		
MCO 600-18io1	1800											
MCO 600-20io1	2000											
MCO 600-22io1	2200											
VCO 132-12io7	1200	130	85	200	3600	0.80	1.65	150	0.250	0.10	X102	
VCO 132-16io7	1600											
VCO 180-12io7	1200	180	90	280	4500	0.75	1.23	150	0.170	0.06		
VCO 180-16io7	1600											

For more single thyristor modules with higher current, please see page 174

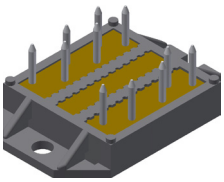
X027a **SOT-227B miniBLOC**



X132a **Y1**

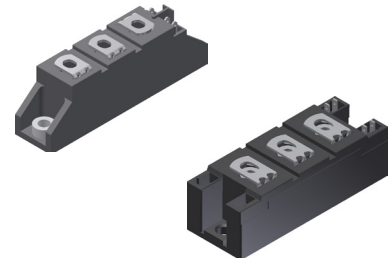


X102 **ECO-PAC 2**



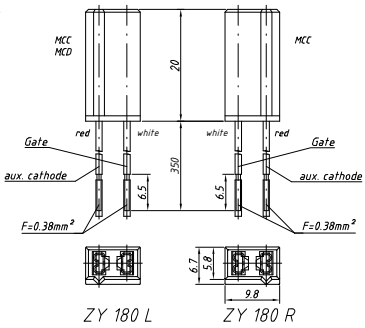
See data sheet for pin arrangement

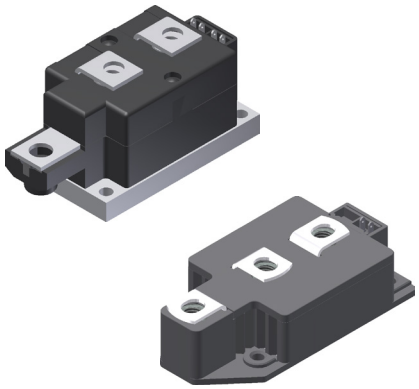
Optional Accessories for Thyristor / Diode Modules



For module types MCC/MCD/MCO/MCMA/MCNA 132, 161 up to 700 (for MCD/MCO only L-type):
Keyed Gate Cathode twin plugs
with wire length = 350 / 480 mm
gate = white, cathode = red

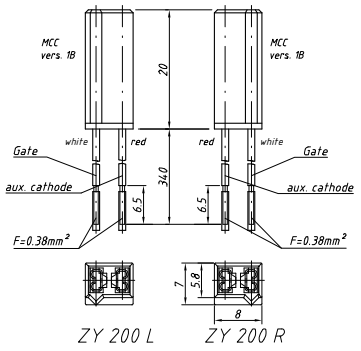
Type **ZY 180 L** (L = Left for pin pair 4/5)
Type **ZY 180 R** (R = Right for pin pair 6/7)



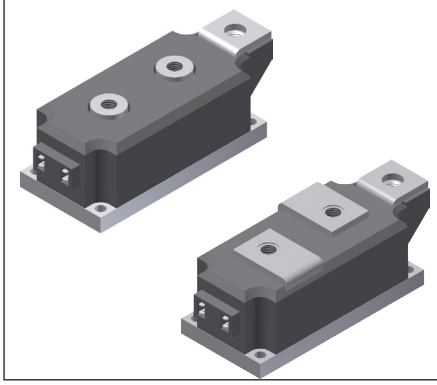


For module-type TO-240 package MCC/MCD/ MCMA/MCNA 19 up to120 and 140 (version 1):
Keyed Gate Cathode twin plugs with wire length = 340 / 460 mm;
gate = white, cathode = red

Type **ZY 200 L** (L = Left for pin pair 4/5)
Type **ZY 200 R** (R = Right for pin pair 6/7)



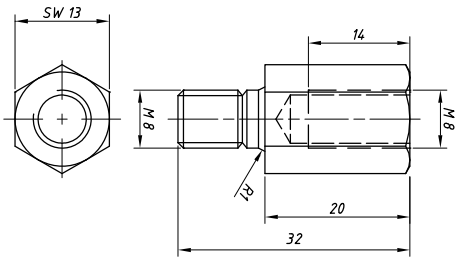
For ZY 180 and ZY 200: UL 758 Style 3751



For module types MCC/MCD/MDD 310
Threaded spacer for higher Anode / Cathode construction:

Type **ZY 250** (material brass)

Not for new design



Design Information

For Thyristors, Diodes, Thyristor / Diode Modules and Rectifier Bridges

Surge current

The 60 Hz value of I_{TSM} is 10% higher than the 50 Hz value
The I_{TSM} value at T_{VJM} is 10% to 15% lower than the 45°C value

Limiting I^2t

50 Hz: I^2t [A^2s] = I_{TSM} [A] • I_{TSM} [A] • 0.005 [s]; use rated I_{TSM} value (10 ms)
60 Hz: I^2t [A^2s] = I_{TSM} [A] • I_{TSM} [A] • 0.0042 [s]; use 60-Hz-value of I_{TSM}

Forward current

The average current ratings in tables are mostly specified for temperature conditions of: T_A = 45°C, T_C = 85°C or T_C = 100°C.
For other temperature conditions the current ratings can be calculated using the following formulas applicable up to 400 Hz.

$$I_{TAV} = \frac{-V_{T0} + \sqrt{V_{T0}^2 + 4 \bullet k^2 \bullet r_T \bullet P}}{2 \bullet k^2 \bullet r_T} \quad \text{where} \quad P = \frac{T_{VJM} - T_C}{R_{thJC}} \quad \text{or} \quad P = \frac{T_{VJM} - T_A}{R_{thJA}}$$

I_{TAV} [A], P [W]; V_{T0} [V]; r_T [Ω], T_{VJM} [°C], T_C [°C], T_A [°C], R_{thJC} [K/W], R_{thJA} [K/W]

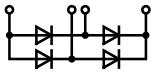
k^2 = 1 for DC current
k^2 = 2.5 for sinusoidal half wave current
k^2 = 3 for 120° rectangular current
k^2 = 6 for 60° rectangular current

The average forward current is limited by the RMS current value $I_{T(RMS)}$.
When the **calculated** value I_{TAV} is higher than $I_{T(RMS)}$ / k, replace it by $I_{TAV} = I_{T(RMS)}$ / k.

Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

Rectifier Bridges with Fast Diodes

1-phase, B2U



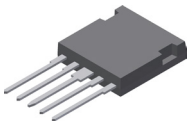
Type ✧ under development	V_{RRM} V	I_{dAV} A	@ T_C °C	I_{FSM} 45°C 10 ms A	V_{F0} V	r_F mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thCH} K/W	Fig. No.
VBE 17-06NO7	600	27	85	50	1.18	22.0	150	2.50	0.30	X101
VBE 17-12NO7	1200	19	85	40	1.32	30.0	150	2.50	0.30	
VBE 26-06NO7	600	44	85	110	1.13	13.0	150	1.60	0.30	
VBE 26-12NO7	1200	32	85	90	1.32	30.0	150	1.60	0.30	
VBE 55-06NO7	600	68	100	250	0.98	8.0	150	0.90	0.30	
VBE 55-12NO7	1200	59	85	200	1.31	15.0	150	0.90	0.30	
VBE 60-06A	600	60	100	250	0.98	8.2	150	1.15	0.10	X027a
VBE 60-12A	1200	60	70	200	1.31	14.0	150	1.15	0.10	
DHG 40B1200LB	1200	34	80	150	1.35	42.0	175	1.50	0.50	X030a
DPG 60B600LB	600	60	100	250	0.85	17.0	175	1.10	0.40	
FBE 22-06N1	600	22	115	50	1.04	24.0	175	3.00	0.20	X024a
VBE 100-06NO7	600	100	85	600	1.09	4.3	150	0.80	0.20	X102
VBE 100-12NO7	1200	100	70	500	1.07	8.2	150	0.80	0.20	
DCG 20B650LB *	650	21	80	250	0.74	118.0	175	2.10	0.70	X030a
✧ **DCG 20B1200LB ***	1200	18	80	60	0.68	133.0	175	3.30	0.85	
FBS 10-12SC *	1200	9	80	100	-	-	175	7.00	3.50	X024a

* SiC-Diodes

Package style

Outline drawings on pages O-36...O-59

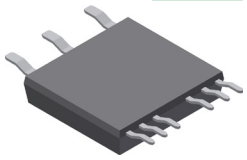
X024a **ISOPLUS i4-PAC™**



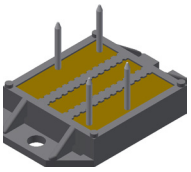
X027a **SOT-227B miniBLOC**



X030a **SMPD-B**

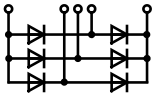


X101 **ECO-PAC 1**



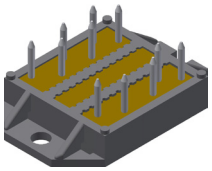
See data sheet for pin arrangement

3-phase, B6U



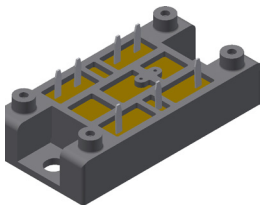
FUS 45-0045B	45	45	130	150	0.30	14.8	150	3.00	0.20	X024a
DHG 60U1200LB	1200	60	80	200	1.35	2.9	150	1.20	0.40	X030a
VUE 50-12NO1	1200	50	85	200	1.65	18.2	150	1.20	0.30	X103
VUE 22-06NO7	600	34	85	50	1.18	22.0	150	2.50	0.30	X101
VUE 22-12NO7	1200	24	85	40	1.39	55.0	150	2.50	0.30	
VUE 35-06NO7	600	56	85	110	1.13	13.0	150	1.60	0.30	
VUE 35-12NO7	1200	40	85	90	1.32	30.0	150	1.60	0.30	
VUE 75-06NO7	600	86	100	250	0.98	8.0	150	0.90	0.30	
VUE 75-12NO7	1200	74	85	200	1.31	15.0	150	0.90	0.30	
FUE 30-12N1	1200	30	120	90	0.97	48.0	175	2.30	0.20	X024a
VUE 130-06NO7	600	130	85	600	1.09	4.3	150	0.80	0.20	X102
VUE 130-12NO7	1200	130	70	500	1.07	8.2	150	0.80	0.20	

X102 **ECO-PAC 2**



See data sheet for pin arrangement

X103 **V1-A-Pack**



See data sheet for pin arrangement

Rectifier Bridges incorporating Fast Diodes

Power switching semiconductors are used in inverter systems with DC-Link. Due to high switching frequencies, harmonics and line distortion may be generated. It is important that the new designs reduce these influences and fulfill the EMI filtering requirements according to EMI/EMC VDE 0871 and other.

The noise level can be reduced by up to **10dB** when the input rectifier is equipped with semi-fast diodes and is therefore optimised for turn off; resulting in a lower peak recovery current compared to non-optimised and normal rectifier diodes.

The noise level can be further reduced approximetely by another **5dB** when using rectifier bridges equipped with Fast Recovery Epitaxial Diodes (FRED) like module types VBE (single phase bridge) or VUE (three phase bridge). However these are more expensive but may be necessary in some applications to fulfill the VDE or other standards.

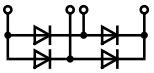
This behaviour has a direct influence on the design of the EMI filter networks with its capacitors and inductors of which the size and costs can be reduced.

More detailed information is available in the IXYS application note D98005E „Input Rectifiers with Semi-fast Diodes for DC Link“ on www.ixys.com.

Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

1~ Rectifier Bridges

1~ Rectifier Bridges with Avalanche Diodes, B2U

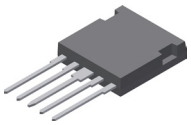


Type	V_{RRM} V	V_{vRMS} V	I_{dAV} A	@ T_C °C	I_{FSM} 45°C 10 ms A	V_{F0} V	r_F mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thJH} K/W	P_{RSM} kW	Fig. No.
VBO 25-12AO2	1200	400	38	85	370	0.85	8.0	150	2.80	3.20	3.4	X115
VBO 25-16AO2	1600	500										
1~ Rectifier Bridges with Standard Diodes, B2U												
FBO 16-12N	1200	400	20	130	150	0.81	32.0	175	3.00	3.20	-	X024a
VBO 21-08NO7	800	250	20	115	120	0.84	28.8	150	2.50	2.90	-	X101
VBO 21-12NO7	1200	400										
VBO 22-08NO8	800	250	14	85	380	0.77	14.2	150	8.00	9.00	-	X116b
VBO 22-12NO8	1200	400										
VBO 22-16NO8	1600	500										
VBO 22-18NO8	1800	575										
GBO 25-12NO1	1200	400	25	105	370	0.74	16.3	175	4.30	4.80	-	X025a
GBO 25-16NO1	1600	500										
VBO 25-08NO2	800	250	38	85	370	0.85	8.0	150	2.80	3.20	-	X115
VBO 25-12NO2	1200	400										
VBO 25-16NO2	1600	500										
VBO 30-08NO7	800	250	25	85	400	0.80	12.9	150	4.70	4.80	-	X119b
VBO 30-12NO7	1200	400										
VBO 30-16NO7	1600	500										
VBO 30-18NO7	1800	575										
VBO 36-08NO8	800	250	18	85	550	0.76	9.1	150	7.00	8.00	-	X116b
VBO 36-12NO8	1200	400										
VBO 36-16NO8	1600	500										
VBO 36-18NO8	1800	575										
FBO 40-12N	1200	400	40	130	300	0.79	14.0	175	1.50	1.70	-	X024a
VBO 40-08NO6	800	250	40	115	320	0.81	12.1	150	1.30	1.40	-	X027a
VBO 40-12NO6	1200	400										
VBO 40-16NO6	1600	500										
VBO 50-08NO7	800	250	45	85	750	0.76	6.9	150	2.70	3.10	-	X120b
VBO 50-12NO7	1200	400										
VBO 50-16NO7	1600	500										
VBO 50-18NO7	1800	575										
VBO 52-08NO7	800	250	60	115	550	0.78	8.1	150	1.10	1.50	-	X122b
VBO 52-12NO7	1200	400										
VBO 52-16NO7	1600	500										
VBO 52-18NO7	1800	575										
VBO 54-08NO7	800	250	55	105	300	0.82	12.2	150	1.10	1.50	-	X101
VBO 54-12NO7	1200	400										
VBO 54-16NO7	1600	500										
VBO 68-08NO7	800	250	70	105	550	0.81	7.8	150	0.90	1.30	-	X101
VBO 68-12NO7	1200	400										
VBO 68-16NO7	1600	500										
VBO 72-08NO7	800	250	70	110	750	0.78	6.0	150	0.90	1.30	-	X122b
VBO 72-12NO7	1200	400										
VBO 72-16NO7	1600	500										
VBO 72-18NO7	1800	575										

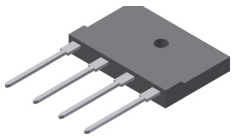
Package style

Outline drawings on pages O-36...O-59

X024a **ISOPLUS i4-PAC™**



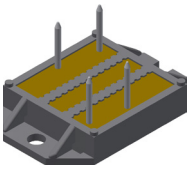
X025a **GBFP**



X027a **SOT-227B miniBLOC**

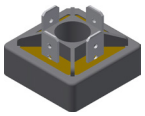


X101 **ECO-PAC 1**

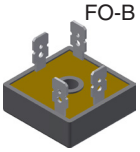


See data sheet for pin arrangement

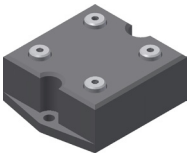
X115 FO-A



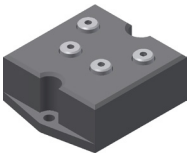
X116b FO-B



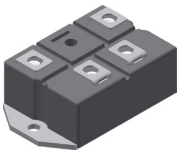
X119b **PWS-A**



X120b **PWS-B**



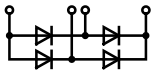
X122b **PWS-D**



Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

1~ Rectifier Bridges

1~ Rectifier Bridges with Standard Diodes, B2U

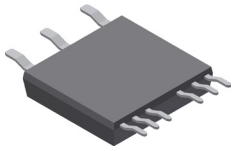


Type	V_{RRM} V	V_{vRMS} V	I_{dAV} A	@ T_C °C	I_{FSM} 45°C 10 ms A	V_{F0} V	r_F mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thJH} K/W	Fig. No.
VBO 78-08NO7	800	250	80	115	750	0.81	5.9	150	0.70	1.00	X102
VBO 78-12NO7	1200	400									
VBO 78-16NO7	1600	500									
VBO 88-08NO7	800	250	90	115	1000	0.80	4.6	150	0.60	0.90	
VBO 88-12NO7	1200	400									
VBO 88-16NO7	1600	500									
DLA 100B800LB	800	400	124	80	400	0.75	4.2	175	1.00	1.45	X030a
DLA 100B1200LB	1200										
DMA 120B800LB	800	250	130	90	500	0.88	6.4	175	0.80	1.30	
VBO 105-08NO7	800	250	100	100	1500	0.78	4.8	150	0.80	1.10	X121b
VBO 105-12NO7	1200	400									
VBO 105-16NO7	1600	500									
VBO 125-08NO7	800	250	125	105	1800	0.76	3.6	150	0.60	0.90	
VBO 125-12NO7	1200	400									
VBO 125-16NO7	1600	500									
VBO 130-08NO7	800	250	130	110	1800	0.77	3.4	150	0.50	0.70	X123e
VBO 130-12NO7	1200	400									
VBO 130-16NO7	1600	500									
VBO 130-18NO7	1800	575									
VBO 160-08NO7	800	250	160	110	2800	0.74	2.4	150	0.40	0.55	
VBO 160-12NO7	1200	400									
VBO 160-16NO7	1600	500									
VBO 160-18NO7	1800	575									

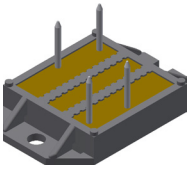
Package style

Outline drawings on pages O-36...O-59

X030a **SMPD-B**

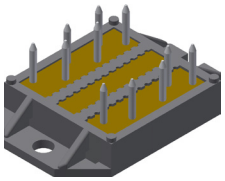


X101 **ECO-PAC 1**



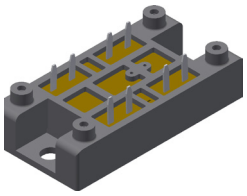
See data sheet for pin arrangement

X102 **ECO-PAC 2**

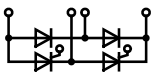


See data sheet for pin arrangement

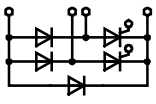
X103 **V1-A-Pack**



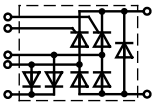
See data sheet for pin arrangement



VGO



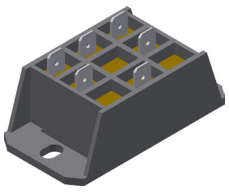
VHF



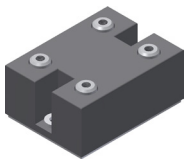
VHFD

Type	V_{RRM} V	V_{vRMS} V	I_{dAV} A	@ T_H °C	I_{TSM} 10 ms, 45°C A	V_{T0} V	r_T mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thJH} K/W	Fig. No.
1~ Half Controlled Rectifier Bridges with free wheeling diode, B2HKF											
VHF 15-08io5	800	250	15	85	190	1.00	40.0	125	2.40	3.00	X117a
VHF 15-12io5	1200	400									
VHF 15-16io5	1600	500									
VHF 25-08io7	800	250	32	T_C = 85°C	200	0.85	27.0	125	1.30	1.80	X101
VHF 25-12io7	1200	400									
VHF 28-08io5	800	250	28	85	300	0.90	15.0	125	1.40	2.00	X117a
VHF 28-12io5	1200	400									
VHF 28-16io5	1600	500									
VHF 36-08io5	800	250	36	85	320	0.85	13.0	125	1.15	1.55	
VHF 36-12io5	1200	400									
VHF 36-16io5	1600	500									
VHFD 37-08io1	800	250	36	85	320	0.85	13.0	125	1.20	1.55	X103
VHFD 37-12io1	1200	400									
VHFD 37-16io1	1600	500									
1~ Half Controlled Rectifier Bridge, B2HZ											
VGO 36-16io7	1600	500	36	85	320	0.85	13.0	125	1.40	2.00	X101

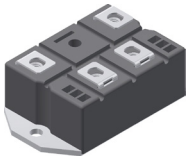
X117a **FO-F-A**



X121b **PWS-C**



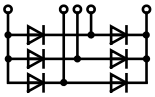
X123e **PWS-E**



Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

3~ Rectifier Bridges

3~ Rectifier Bridges with Standard Diodes, B6U

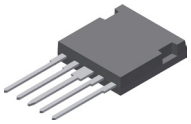


Type	V_{RRM} V	V_{vRMS} V	I_{dAV} A	@ T_C °C	I_{FSM} 45°C 10 ms A	V_{F0} V	r_F mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thJH} K/W	Fig. No.
FUO 22-12N	1200	400	30	120	150	0.81	31.0	175	3.00	3.20	X024a
FUO 22-16N	1600	500									
VUO 25-08NO8	800	250	20	85	380	0.77	14.2	150	8.00	9.00	X116a
VUO 25-12NO8	1200	400									
VUO 25-14NO8	1400	440									
VUO 25-16NO8	1600	500									
VUO 25-18NO8	1800	575									
VUO 28-08NO7	800	250	30	105	120	0.84	28.8	150	2.50	2.90	X101
VUO 28-12NO7	1200	400									
VUO 36-08NO8	800	250	27	85	550	0.76	9.1	150	7.00	8.00	X116a
VUO 36-12NO8	1200	400									
VUO 36-14NO8	1400	440									
VUO 36-16NO8	1600	500									
VUO 36-18NO8	1800	575									
VUO 34-08NO1	800	250	45	110	300	0.81	14.9	150	1.70	2.10	X103
VUO 34-12NO1	1200	400									
VUO 34-14NO1	1400	440									
VUO 34-16NO1	1600	500									
VUO 34-18NO1	1800	575									
VUO 30-08NO3	800	250	45	110	300	0.80	12.9	150	2.00	2.40	X117b
VUO 30-12NO3	1200	400									
VUO 30-14NO3	1400	440									
VUO 30-16NO3	1600	500									
VUO 30-18NO3	1800	575									
VUO 35-12NO7	1200	400	35	85	400	0.80	12.9	150	4.20	4.80	X119a
VUO 35-16NO7	1600	500									
VUO 35-18NO7	1800	575									
GUO 40-08NO1	800	250	40	90	370	0.74	16.3	175	4.30	4.80	X025b
GUO 40-12NO1	1200	400									
GUO 40-16NO1	1600	500									
DMA 40U1800GU	1800	575									
DNA 40U2200GU	2200	690									
FUO 50-16N	1600	500	50	120	270	0.78	17.0	175	2.10	2.30	X024a
VUO 52-08NO1	800	250	60	110	350	0.83	11.5	150	1.30	1.60	X103
VUO 52-12NO1	1200	400									
VUO 52-14NO1	1400	440									
VUO 52-16NO1	1600	500									
VUO 52-18NO1	1800	500									
VUO 52-20NO1	2000	575									
VUO 52-22NO1	2200	690									
VUO 50-08NO3	800	250	60	110	500	0.78	8.5	150	1.50	1.90	X117b
VUO 50-12NO3	1200	400									
VUO 50-14NO3	1400	440									
VUO 50-16NO3	1600	500									
VUO 50-18NO3	1800	575									
VUO 55-12NO7	1200	400	60	85	750	0.76	6.9	150	2.70	3.10	X120a
VUO 55-16NO7	1600	500									
VUO 55-18NO7	1800	575									

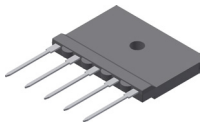
Package style

Outline drawings on pages O-36...O-59

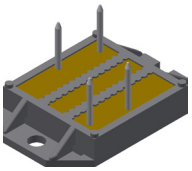
X024a **ISOPLUS i4-PAC™**



X025b **GUFP**

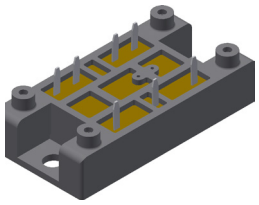


X101 **ECO-PAC 1**



See data sheet for pin arrangement

X103 **V1-A-Pack**

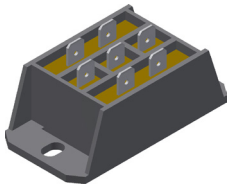


See data sheet for pin arrangement

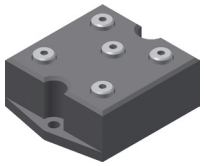
X116a **FO-B**



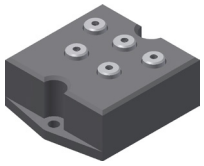
X117b **FO-F-B**



X119a **PWS-A**



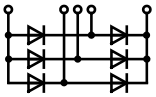
X120a **PWS-B**



Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

3~ Rectifier Bridges

3~ Rectifier Bridges with Standard Diodes, B6U



Type ○ Not for new design	V_{RRM} V	V_{vRMS} V	I_{dAV} A	@ T_C °C	I_{FSM} 45°C 10 ms A	V_{F0} V	r_F mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thJH} K/W	Fig. No.	Package style Outline drawings on pages O-36...O-59
VUO 60-12NO3	800	250	75	110	700	0.77	6.5	150	1.20	1.60	X117b	X030a SMPD-B
VUO 60-14NO3	1400	440										
VUO 60-16NO3	1600	500										
VUO 60-18NO3	1800	575										
VUO 62-08NO7	800	250	60	120	550	0.78	8.1	150	1.10	1.50	X122a	X101 ECO-PAC 1
VUO 62-12NO7	1200	400										
VUO 62-14NO7	1400	440										
VUO 62-16NO7	1600	500										
VUO 62-18NO7	1800	575										See data sheet for pin arrangement
VUO 64-16NO7	1600	500	60	120	550	0.78	8.1	150	1.10	1.50	X122c	X102 ECO-PAC 2
VUO 68-08NO7	800	250	70	105	300	0.82	12.2	150	1.10	1.50	X101	
VUO 68-12NO7	1200	400										
VUO 68-16NO7	1600	500										See data sheet for pin arrangement
○ **VUO 70-16NO7**	1600	500	70	100	550	0.80	8.0	150	1.45	1.90	X118d	X103 V1-A-Pack
VUO 80-08NO1	800	250	80	110	600	0.81	7.8	150	1.10	1.40	X103	
VUO 80-12NO1	1200	400										
VUO 80-14NO1	1400	440										
VUO 80-16NO1	1600	500										X117b FO-F-B
VUO 80-18NO1	1800	575										
VUO 82-08NO7	800	250	90	115	750	0.78	6.0	150	0.90	1.30	X122a	
VUO 82-12NO7	1200	400										
VUO 82-14NO7	1400	440										
VUO 82-16NO7	1600	500										X118d FO-T-A
VUO 82-18NO7	1800	575										
VUO 84-16NO7	1600	500	90	115	750	0.78	6.0	150	0.90	1.30	X122c	
VUO 86-08NO7	600	125	90	105	550	0.81	7.8	150	0.90	1.30	X101	X121a PWS-C
VUO 86-12NO7	1200	400										
VUO 86-16NO7	1600	500										
DMA 90U1800LB	1800	575	90	110	350	0.81	12.7	175	1.10	1.50	X030a	
DNA 90U2200LB	2200	690										X122a PWS-D
VUO 98-08NO7	800	250	105	115	750	0.81	5.9	150	0.70	1.00	X102	
VUO 98-12NO7	1200	400										
VUO 98-16NO7	1600	500										
VUO 105-12NO7	1200	400	120	105	1500	0.78	4.8	150	0.80	1.10	X121a	
VUO 105-16NO7	1600	500										X122c PWS-D Flat
VUO 105-18NO7	1800	575										
VUO 110-08NO7	800	250	125	110	1200	0.79	4.5	150	0.70	1.00	X123c	
VUO 110-12NO7	1200	400										
VUO 110-16NO7	1600	500										X123c PWS-E
VUO 110-18NO7	1800	575										
➢ **MDMA 120U1600VA**	1600	500	120	110	850	0.79	5.9	150	0.65	0.85	X103	
➢ **MDMA 150U1600VA**	1600	500	150	110	1100	0.83	4.7	150	0.50	0.70		

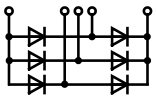
Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

3~ Rectifier Bridges

3~ Rectifier Bridges with Standard Diodes, B6U


DM/NA...YA...


DM/NA...YC...

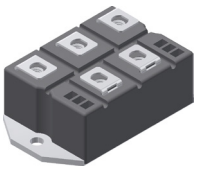

VUO.. DM/NA..U.. MDM/NA..U..

Type ➢ New	V_{RRM} V	V_{vRMS} V	I_{dAV} A	@ T_C °C	I_{FSM} 45°C 10 ms A	V_{F0} V	r_F mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thJH} K/W	Fig. No.	Package style Outline drawings on pages O-36...O-59
VUO 121-16NO1	1600	500	120	105	700	0.80	7.6	150	0.65	0.75	X112	
VUO 122-08NO7	800	250	125	115	1000	0.80	4.6	150	0.60	0.90	X102	X027a **SOT-227B miniBLOC**
VUO 122-12NO7	1200	400										
VUO 122-16NO7	1600	500										
VUO 125-12NO7	1200	400	150	110	1800	0.76	3.6	150	0.60	0.90	X121a	
VUO 125-16NO7	1600	500										
VUO 125-18NO7	1800											
DNA 90YA2200NA	2200	690	90	85	370	0.86	11.4	150	1.20	1.30	X027a	X102 **ECO-PAC 2**
DNA 90YC2200NA												
DMA 150YA1600NA	1600	500	150	95	700	0.82	6.3	150	0.60	0.70		
DMA 150YC1600NA												
DMA 200YA1600NA			200	100	1000	0.86	4.4	150	0.45	0.55		See data sheet for pin arrangement
DMA 200YC1600NA												
DMA 240YA1600NA			240	100	1300	0.86	4.0	150	0.35	0.45		
DMA 240YC1600NA												X104 **V2-Pack**
VUO 160-08NO7	800	250	175	110	1800	0.77	3.4	150	0.50	0.70	X123c	
VUO 160-12NO7	1200	400										
VUO 160-16NO7	1600	500										
VUO 160-18NO7	1800	575										See data sheet for pin arrangement
VUO 162-16NO7	1600	500	175	110	1800	0.77	3.4	150	0.50	0.70	X123h	
VUO 190-08NO7	800	250	240	110	2800	0.74	2.4	150	0.40	0.55	X123c	X112 **E2-Pack**
VUO 190-12NO7	1200	400										
VUO 190-16NO7	1600	500										
VUO 190-18NO7	1800	575										
VUO 192-16NO7	1600	500	240	110	2800	0.74	2.4	150	0.40	0.55	X123h	
MDNA 240U2200ED	2200	690	240	90	1500	0.79	5.1	150	0.35	0.45	X112	
MDMA 450U1600PTEH	1600	450	500	85	2400	0.82	2.7	150	0.20	0.10	X113a	X113a **E3-Pack PFP**
MDMA 660U1600PTEH	1600	500	660	85	5000	0.77	1.8	150	0.15	0.075		
MDNA 660U2200PTEH	2200	690										
MDMA 900U1600PTEH	1600	500	900	85	8000	0.76	1.4	150	0.10	0.05		

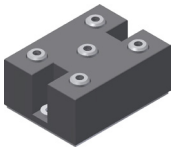
X123h **PWS-E Flat**



X123c **PWS-E**



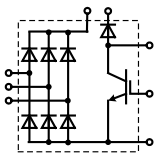
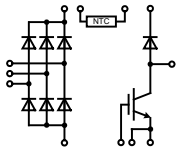
X121a **PWS-C**



Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

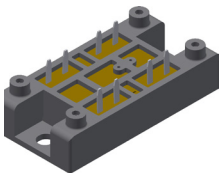
3~ Rectifier Bridges

3~ Rectifier Bridges
with IGBT and Fast Diode for Brake Unit

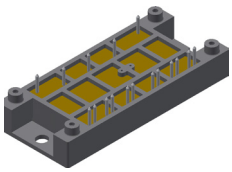
Type ➢ New	Rectifier V_{RRM} V	 I_{dAV} A	 @ T_C °C	IGBT V_{CES} V	 I_{C80} A	Fast Diode V_{RRM} V	 $I_{F(AV)}$ A	 t_{rr} ns	Fig. No.
VUB 72-12NOXT	1200	75	110	1200	40	1200	21	130	X103
VUB 72-16NOXT	1600								
VUI 72-16NOXT	1600	75	110	1200	40	-	-	-	
VUB 116-16NOXT	1600	120	105	1200	84	1200	32	150	X112
VUB 120-16NOX	1600	180	90	1200	140	1200	32	300	X104
VUB 120-16NOXT									
VUB 135-22NO1	2200	150	105	1700	80	1700	33	900	X112
VUB 145-16NOXT	1600	150	105	1200	140	1200	32	300	
VUB 160-16NOX	1600	180	90	1200	175	1200	32	150	X104
VUB 160-16NOXT									
MDMA 210UB1600PTED	1600	210	85	1200	84	1200	59	350	X112a
MDNA 210UB2200PTED	2200	210	85	1700	100	1700	54	550	
➢ **MDNA 210UB2200TED**									X112
MDMA 240UB1600ED	1600	240	85	1200	140	1200	59	350	X112
MDMA 280UB1600PTED	1600	280	85	1200	140	1200	59	350	X112a
MDNA 280UB2200PTED	2200	280	85	1700	100	1700	54	550	
MDMA 360UB1600PTED	1600	360	85	1200	175	1200	90	350	
MDNA 360UB2200PTED	2200	360	85	1700	145	1700	83	550	
MDMA 450UB1600PTED	1600	450	85	1200	175	1200	90	350	
➢ **MDMA 450UB1600PTEH**	1600	450	85	1200	175	1200	90	350	X113a

X103 **V1-A-Pack**



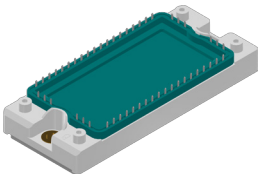
See data sheet for pin arrangement

X104 **V2-Pack**



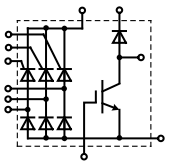
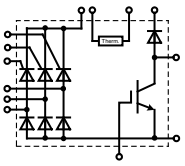
See data sheet for pin arrangement

X112 **E2-Pack**



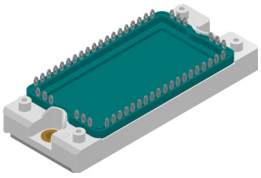
3~ Half Controlled Rectifier Bridges

with IGBT and Fast Diode for Brake Unit

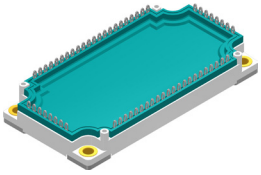



Type ➢ New	Rectifier V_{RRM} V	 I_{dAV} A	 @ T_C °C	IGBT V_{CES} V	 I_{C80} A	Fast Diode V_{RRM} V	 $I_{F(AV)}$ A	 t_{rr} ns	Fig. No.
VVZB 120-16ioX	1600	180	85	1200	140	1200	32	300	X104
MCNA 120UI2200TED	2200	117	80	1700	80	1700	50	550	X112
➢ **MCNA 120UI2200PED**	2200	120	80	1700	80	1700	50	550	X112a
VVZB 135-16ioXT	1600	150	85	1200	84	1200	32	150	X112
VVZB 170-16ioXT	1600	180	85	1200	140	1200	32	300	X112
MCMA 240UI1600ED	1600	240	80	1200	140	1200	59	350	X112
MCMA 240UI1600PED									X112a
MCMA 245UI1600ED	1600	240	80	1200	175	1200	90	350	X112

X112a **E2-Pack PFP**



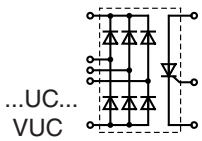
X113a **E3-Pack PFP**

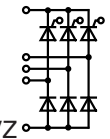


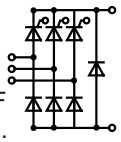
See data sheet for pin arrangement

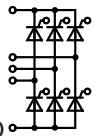
Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

3~ Rectifier Bridges









Type ➢ New	V_{RRM} V	V_{vRMS} V	I_{dAVM} A	@ T_H °C	$I_{FSM/TSM}$ 10 ms, 45°C A	V_{T0} V	r_T mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thJH} K/W	Fig. No.	Package style Outline drawings on pages O-36...O-59
3~ Rectifier Bridges with Standard or Fast Diodes (t_{rr} = 1.5 ms) & Integrated Softstart Thyristor												X030a SMPD-B
VUC 36-12go2	1200	400	34	85	Dio. 300	1.20	16	125	1.40	2.00	X105a	
					Thy. 400	0.85	10	125	0.90	1.10		
VUC 36-16go2	1600	500	34	85	Dio. 300	1.20	16	125	1.40	2.00		
					Thy. 400	0.85	10	125	0.90	1.10		
MDMA 60UC1600VC	1600	500	60	110	Dio. 350	0.83	11.5	150	1.30	1.60	X105c	
					Thy. 800	0.89	5.3	140	0.70	0.90		
➢ **MDMA 360UC1600TED**	1600	500	360	85	Dio. 1900	0.82	3.4	150	0.25	0.35	X112	X101 ECO-PAC 1
					Thy. 2400	0.84	3.1		0.17	0.25		See data sheet for pin arrangement

Type ○ Not for new design	V_{RRM} V	V_{vRMS} V	I_{dAVM} A	@ T_H °C	$I_{FSM/TSM}$ 10 ms, 45°C A	V_{T0} V	r_T mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thJH} K/W	Fig. No.	
3~ Half Controlled Rectifier Bridges, B6HK												
VVZ 39-08ho7	800	250	39	85	200	0.85	27.0	125	1.30	1.80	X101	
VVZ 39-12ho7	1200	400										X105a V1-B-Pack
VVZ 40-12io1	1200	400	34	100	320	0.85	15.0	125	1.00	1.60	X105a	
VVZ 40-16io1	1600	500										
CLE 90UH1200TLB	1200	400	90	90	350	0.92	13.0	150	0.90	1.30	X030a	
VVZ 110-12io7	1200	400	110	85	1150	0.85	6.0	125	0.65	0.80	X123b	
VVZ 175-12io7	1200	400	167	85	1500	0.85	3.5	125	0.46	0.55		
VVZ 175-16io7	1600	500										
MCMA 450UH1600TEH	1600	500	450	90	2400	0.84	3.1	150	0.17	0.25	X113	
3~ Half Controlled Rectifier Bridges with free wheeling diode, B6HKF												X105c V1-B-Pack
MCMA 120UJ1800ED	1800	575	117	80	500	0.89	13.6	150	0.65	0.75	X112	
○ **VVZF 70-16io7**	1600	500	70	85	550	0.85	11.0	125	0.90	1.10	X118c	
3~ Full Controlled Rectifier Bridges, B6C												
VTO 39-08ho7	800	250	39	85	200	0.85	27.0	125	1.30	1.80	X101	
VTO 39-12ho7	1200	400										

X123b **PWS-E**

X118c **FO-T-A**

X113 **E3-Pack**

See data sheet for pin arrangement

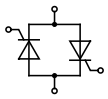
X112 **E2-Pack**

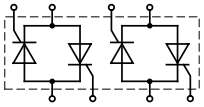
See data sheet for pin arrangement

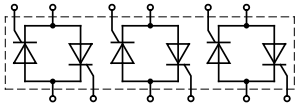
Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

AC Controller 1~ / 2~ / 3~

I_{RMS} = 35 - 230 A


MMO/CLA..MB..


VW 2x..

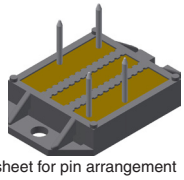

VWO

	Type ➢ New	V_{RRM} V	V_{VRMS} V	I_{RMS} A	@ T_C °C	I_{TSM} 10 ms 45°C A	V_{T0} V	r_T mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thJH} K/W	Fig. No.
1~	**MMO 62-12io6**	1200	400	66	95	400	0.87	13.6	150	0.90	1.10	X027a
	MMO 62-16io6	1600	500									
	MMO 74-12io6	1200	400	88	95	600	0.87	10.5	150	0.70	0.80	
	MMO 74-16io6	1600	500									
	MMO 90-12io6	1200	400	110	95	800	0.88	6.0	150	0.60	0.70	
	MMO 90-14io6	1400	440									
	MMO 90-16io6	1600	500									
	CLA 110MB1200NA	1200	400	110	110	1100	0.78	4.9	150	0.55	0.65	
	MMO 110-12io7	1200	400	112	85	1000	0.85	5.6	150	0.80	0.92	X101
	MMO 110-14io7	1400	440									
	MMO 140-12io7	1200	400	130	85	1150	0.85	5.2	150	0.70	0.82	
	MMO 140-16io7	1600	500									
	MMO 175-12io7	1200	400	175	85	1500	0.85	3.7	150	0.50	0.62	
	MMO 175-16io7	1600	500									
	MMO 230-12io7	1200	400	230	85	2250	0.80	2.4	125	0.26	0.46	X102
	MMO 230-16io7	1600	500									
2~	**VW 2x60-12io1**	1200	400	2x 60	85	520	0.85	11.0	125	0.92	1.22	X103
	VW 2x60-14io1	1400	440									
	VW 2x60-16io1	1600	500									
3~	**VWO 35-08ho7**	800	250	3x 35	85	200	0.85	27.0	125	1.30	1.80	X101
	VWO 35-12ho7	1200	400									

X027a **SOT-227B miniBLOC**

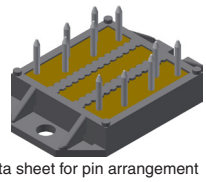


X101 **ECO-PAC 1**



See data sheet for pin arrangement

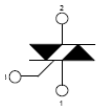
X102 **ECO-PAC 2**



See data sheet for pin arrangement

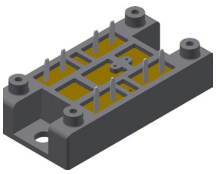
TRIAC 1~

I_{RMS} = 30 - 650 A

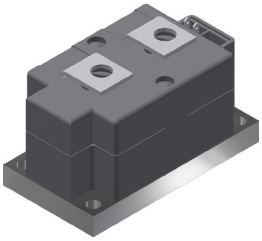

...MT...

CLA 30MT1200NPB	1200	400	33	120	170	0.89	30.5	150	0.95	1.45	X005a
CLA 30MT1200NPZ										1.20	X011c
CLA 40MT1200NPB	1200	400	44	110	180	0.89	27.9	150	0.80	1.30	X005a
CLA 40MT1200NPZ										1.05	X011c
➢ **CLA 40MT1200NHB**											X014a
CLA 40MT1200NHR				95					1.30	1.55	X016c
CLA 60MT1200NHB	1200	400	66	120	380	0.86	12.5	150	0.55	0.80	X014a
CLA 60MT1200NTZ										0.70	X019a
CLA 60MT1200NHR				100					0.90	1.15	X016c
CMA 60MT1600NHB	1600	500	66	115	260	0.90	16.6	150	0.55	0.80	X014a
CMA 60MT1600NHR				90					0.90	1.15	X016c
CLA 80MT1200NHB	1200	400	88	120	480	0.85	9.2	150	0.40	0.65	X014a
CLA 80MT1200NHR				100					0.65	0.90	X016c
CMA 80MT1600NHB	1600	400	88	115	400	0.90	12.0	150	0.40	0.65	X014a
CMA 80MT1600NHR		500		95					0.65	0.90	X016c
MCMA 650MT1400NKD	1400	440	650	85	9600	0.81	0.68	140	0.12	0.04	X132a
MCMA 650MT1800NKD	1800	575									X132a

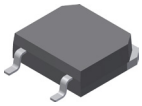
X103 **V1-A-Pack**



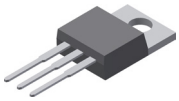
X132a **Y1-2-Cu**



X019a **TO-268AAHV**



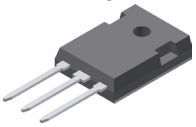
X005a **TO-220AB**



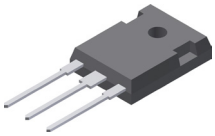
X011c **TO-263ABHV**



X014a **TO-247AD**



X016c **ISO247™**



Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

TRIACs

Triacs are useful in full-wave AC applications to control AC power either through full-cycle switching or phase control of current to the load element. These Triacs are rated to block voltage in the OFF condition from 400 V minimum with selected products capable of 1000 V operation. Typical applications include motor speed controls, heater controls, and incandescent light controls.

Type ➢ New	V_{DRM} V	$I_{T(RMS)}$ A	@ T_C °C	I_{TSM} 20 ms A	I_{GT} QI-QII-QIII (-QIV) A	T_J °C	Fig. No.
LX807MTRP	600	0.8	90	8	5-5-5-7	125	L001
LX807MBRP	600	0.8	60	8	5-5-5-7	125	L016
L0103NERP	800	1	50	10	3-3-3-5	125	L006
L0107NTRP	800	1	90	10	5-5-5-7	125	L001
L0109NERP	800	1	50	10	10-10-10-10	125	L006
LJ6004D8RP	600	4	135	40	10-10-10-20	150	L004
QJ6004D4RP	600	4	135	40	25-25-25-50	150	L004
Q8004D4RP	800	4	110	46	25-25-25-50	125	L004
QJ6006DH4RP	600	6	130	60	35-35-35	150	L004
Q8006RH4TP	800	6	100	80	35-35-35	125	L005a
QJ6008DH4RP	600	8	120	70	35-35-35	150	L004
Q8008LH4TP	800	8	90	83	35-35-35	125	L005c
Q6012LH1LEDTP	600	12	90	110	40461	125	L005c
QJ8012LH5TP	800	12	120	110	50-50-50	150	L005c
Q8015LTP	800	15	80	167	50-50-50-100	125	L005c
QJ6016NH2RP	600	16	130	167	40461	150	L011b
QJ6016RH3TP	600	16	130	167	20-20-20	150	L005a
QJ6016LH4TP	600	16	115	167	35-35-35	150	L005c
QJ6016NH6RP	600	16	130	167	80-80-80	150	L011b
QJ8016NH4RP	800	16	132	167	35-35-35	150	L011b
QJ8016LH6TP	800	16	110	167	80-80-80	150	L005c
QJ6025NH5RP	600	25	120	208	50-50-50	150	L011b
QJ6025RH5TP	600	25	120	208	50-50-50	150	L005a
QJ6025LH5TP	600	25	90	208	50-50-50	150	L005c
QJ6025KH6TP	600	25	110	208	80-80-80	150	L002
QJ8025LH5TP	800	25	90	208	50-50-50	150	L005c
Q8025K6TP	800	25	85	208	80-80-80	125	L002
QJ8025NH5RP	800	25	120	208	50-50-50	150	L011b
➢ **QJ8030LH4TP**	800	30	105	290	35-35-35	150	L005c
Q6035NH5RP	600	35	90	290	50-50-50	125	L011b
Q8040K3TP	800	40	75	335	35-35-35-70	125	L002
QK040K4TP	1000	40	75	335	50-50-50-120	125	L002
Q8040K5TP	800	40	75	335	50-50-50	125	L002
QK040J7TP	1000	40	75	335	100-100-100	125	L002a
➢ **QJ8040KH5TP**	800	40	100	420	50-50-50	150	L002

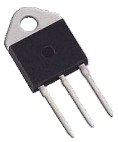
Package style

Outline drawings on pages O-60...O-64

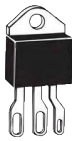
L001 **SOT-223**



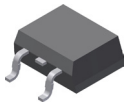
L002 **TO-218AC**



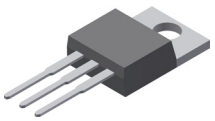
L002a **TO-218X**



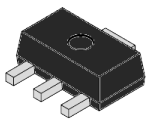
L004 **TO-252AA**



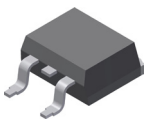
L005a **TO-220AB**



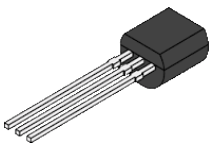
L016 **SOT-89**



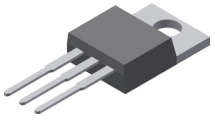
L011b **TO-263AB**



L006 **TO-92**

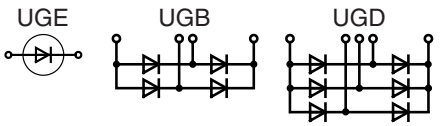


L005c **TO-220AB** (ISO)



Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

1~ / 3~ High Voltage Rectifier Modules

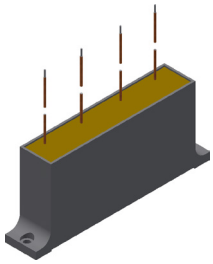


Type	V_{RRM} V	I_{dAV} ① / ② A	I_{FSM} 10 ms, 45°C A	V_{F0} V	r_F mΩ	T_{VJM} °C	R_{thJA1} ① K/W	R_{thJA2} ② K/W	Fig. No.	Package style Outline drawings on pages O-36...O-59
UGE 0421AY4	3200	23 / 7.4	300	1.70	16	150	1.9	7.1	X251	
UGE 0221AY4	4800	10 / 3.8	180	2.55	90	150	1.7	8.0		
UGE 1112AY4	8000	4.2 / 2.0	120	4.25	215	150	4.2	10.0		
UGE 3126AY4	24000	2.0 / 0.8	70	12.00	1800	150	2.7	8.7		
UGB 3132AD	4800	1.3	60	-	-	150	-	-	X252	
UGB 6124AG	10500	1.0	50	-	-	150	-	-	X253b	
UGD 6123AG	7200	1.8	50	-	-	150	-	-	X253a	
UGD 8124AG	10500	1.2								

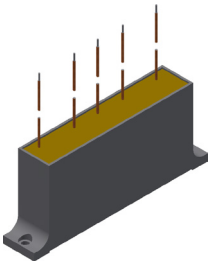
Data according to IEC 60747-2/6

① for oil-cooling with cooling plate, T_A = 35°C
② for natural air cooling without cooling plate, T_A = 45°C

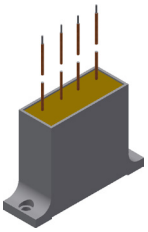
X253b **UGB**



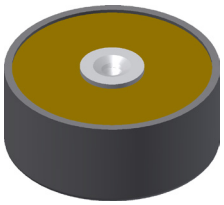
X253a **UGD**



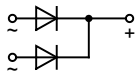
X252 **UGB**



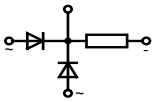
X251 **UGE**



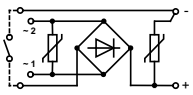
Braking Rectifier Assemblies



VGF 0136 AH



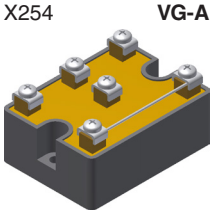
VGF 0136 AB



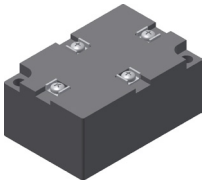
VGB 0124 AY7

Type	V_{vRMS} typ. V	V_{dAV} typ. V	I_{dAVM} typ. A	I_{dAVM} max. A	V_{RRM} max. V	I_{FSM} max. A	I^2t max. A^2s	Fig. No.	Package style Outline drawings on pages O-36...O-59
VGB 0124AY7a	380	340	1.0	1.0	1400	60	28	X254	
VGF 0136AB	1000	440	1.2	1.5	2800	80	40	X255	

X254 **VG-A**

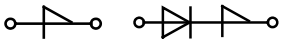


X255 **VG-B**



Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

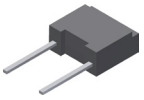
Break-Over Diodes



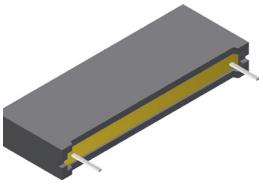
Version R Version RD

Type	V_{BO} T_{VJ} = 25 °C $K_T = 2 \cdot 10^{-3}\ K^{-1}$	I_{BO}	I_H T_{VJ} = 25 °C	V_H	I_D T_{VJ} = 125 °C $V_D = 0.8 \cdot V_{BO}$	I_{AVM} ① T_{amb} = 50 °C	I_{SM}	dv/dt	R_{thJA}	Fig. No.	Package style Outline drawings on pages O-36...O-59
	V	mA	mA	V	µA	A	A	V/µs	K/W		
IXBOD 1-06	600 ±50	< 15	30	4-8	20	0.90	200	>1000	60	X201	
IXBOD 1-07	700										
IXBOD 1-08	800										
IXBOD 1-09	900										
IXBOD 1-10	1000										
IXBOD 1-12R	1200 ±50	< 15	30	4-8	100	0.90	200	>1500	20	X202	
IXBOD 1-12RD											
IXBOD 1-13R	1300										
IXBOD 1-13RD											
IXBOD 1-14R	1400										
IXBOD 1-14RD											
IXBOD 1-15R	1500										
IXBOD 1-15RD											
IXBOD 1-16R	1600										
IXBOD 1-16RD											
IXBOD 1-17R	1700										
IXBOD 1-17RD											
IXBOD 1-18R	1800										
IXBOD 1-18RD											
IXBOD 1-19R	1900										
IXBOD 1-19RD											
IXBOD 1-20R	2000										
IXBOD 1-20RD											
IXBOD 1-21R	2100 ±50	< 15	30	4-8	100	0.90	200	>2500	20		
IXBOD 1-21RD											
IXBOD 1-22R	2200										
IXBOD 1-22RD											
IXBOD 1-23R	2300										
IXBOD 1-23RD											
IXBOD 1-24R	2400										
IXBOD 1-24RD											
IXBOD 1-25R	2500										
IXBOD 1-25RD											
IXBOD 1-26R	2600 ±100										
IXBOD 1-26RD											
IXBOD 1-28R	2800										
IXBOD 1-28RD											
IXBOD 1-30R	3000										
IXBOD 1-30RD											
IXBOD 1-32R	3200										
IXBOD 1-32RD											
IXBOD 1-34R	3400 ±100	< 15	30	4-8	100	0.90	200	>3500	20		
IXBOD 1-36R	3600										
IXBOD 1-38R	3800										
IXBOD 1-40R	4000										
IXBOD 1-42R	4200										

X201 **FP-Case** (oil proof)



X202 **BOD-Package**



① Leads soldered on PCB board, T_{stg} and T_{VJ} = -40 ... +125°C

Break-Over-Diodes Sets

We deliver also:
- Special selection of more than 2 pcs IXBOD1-... for every break down voltage of VBO > 2000 V
- Example

type designation IXBOD Set SA05/00
VBO = 4700 V ±100 V
(we deliver 5 pcs single selected IXBOD1-... in one plastic bag)
Customers use these products on PCB connected in series with parallel resistor R = 10 MΩ
across each IXBOD

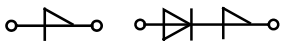
Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

IXBOD 2 - Fast Break-Over Diodes

Advantages compared with IXBOD 1**:**
- Temperature coefficient K_T reduced by a factor of 3
  - tighter definition of the break-over voltage V_{BO}
    -- $V_{BO}(T_{VJ}) = V_{BO}$, 25°C [1 + K_T (T_{VJ} - 25°C)]
  - more precise and controllable design due to smaller tolerances
- Significant reduction of the switching-on time down to a few nanoseconds

Applications:
- Protection circuits for thyristors in high valuable designs
  - high DC current power transmissions for long distances like offshore windmills or hydroelectric dams
- High Intensity Discharge Lighting (HID)

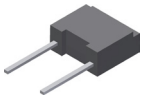
Fast Break-Over Diodes



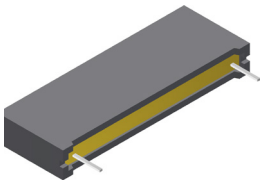
Version R Version RD

Type	V_{BO} T_{VJ} = 25 °C K_T = 0.7·10^{-3} K^{-1}	I_{BO}	I_H T_{VJ} = 25 °C	V_H	I_D T_{VJ} = 125 °C V_D = 0.8 · V_{BO}	I_{AVM} ① T_{amb} = 50 °C	I_{SM}	dv/dt	R_{thJA}	Fig. No.	Package style Outline drawings on pages O-36...O-59
	V	mA	mA	V	µA	A	A	V/µs	K/W		
IXBOD 2-01	100	15	20	4-8	200	0.90	250	>1000	60	X201	
IXBOD 2-02	200 ±10%										
IXBOD 2-03	300 ·V_{BO}										
IXBOD 2-04	400										
IXBOD 2-05	500 ±50										
IXBOD 2-06	600										
IXBOD 2-07	700										
IXBOD 2-08	800										
IXBOD 2-09	900										
IXBOD 2-10	1000										
IXBOD 2-11	1100										
IXBOD 2-12	1200										
IXBOD 2-13	1300										
IXBOD 2-14	1400										
IXBOD 2-15R	1500 ±50	15	20	4-8	200	0.90	250	>1500	20	X202	
IXBOD 2-15RD											
IXBOD 2-16R	1600										
IXBOD 2-16RD											
IXBOD 2-17R	1700										
IXBOD 2-17RD											
IXBOD 2-18R	1800										
IXBOD 2-18RD											
IXBOD 2-19R	1900										
IXBOD 2-19RD											
IXBOD 2-20R	2000										
IXBOD 2-20RD											
IXBOD 2-21R	2100										
IXBOD 2-21RD											
IXBOD 2-22R	2200										
IXBOD 2-22RD											
IXBOD 2-23R	2300										
IXBOD 2-23RD											
IXBOD 2-24R	2400										
IXBOD 2-24RD											
IXBOD 2-25R	2500										
IXBOD 2-25RD											
IXBOD 2-26R	2600 ±100										
IXBOD 2-26RD											
IXBOD 2-27R	2700										
IXBOD 2-27RD											
IXBOD 2-28R	2800										
IXBOD 2-28RD											

X201 **FP-Case** (oil proof)

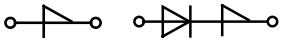


X202 **BOD-Package**



Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

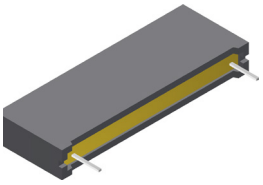
Fast Break-Over Diodes



Version R Version RD

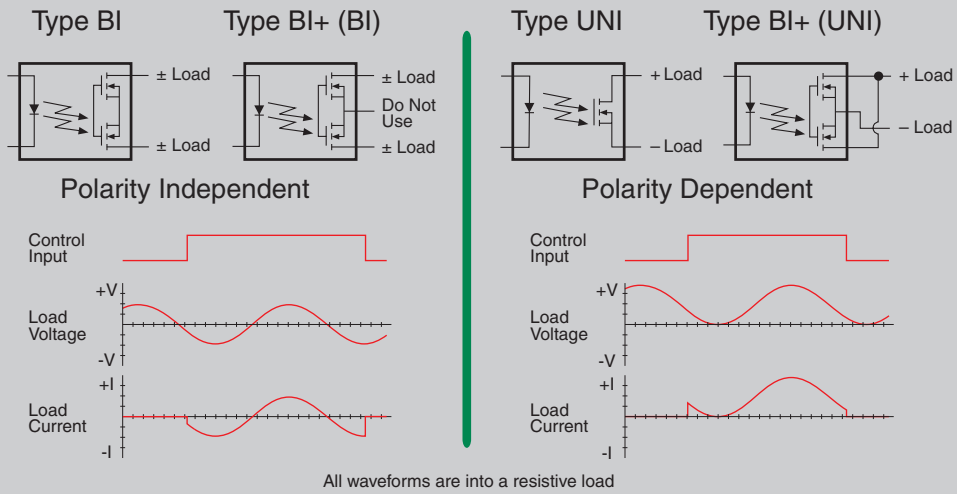
Type	V_{BO}	I_{BO}	I_H	V_H	I_D	I_{AVM} ①	I_{SM}	dv/dt	R_{thJA}	Fig. No.	Package style
	T_{VJ} = 25 °C $K_T = 0.7 \cdot 10^{-3}\ K^{-1}$		T_{VJ} = 25 °C		T_{VJ} = 125 °C $V_D = 0.8 \cdot V_{BO}$	T_{amb} = 50 °C					Outline drawings on pages O-36...O-59
➢ New	V	mA	mA	V	µA	A	A	V/µs	K/W		
IXBOD 2-29R	2900 ±100	15	20	4-8	200	0.90	250	>2500	20	X202	
IXBOD 2-29RD											
IXBOD 2-30R	3000										
IXBOD 2-30RD											
IXBOD 2-31R	3100										
IXBOD 2-31RD											
IXBOD 2-32R	3200										
IXBOD 2-32RD											
IXBOD 2-33R	3300										
IXBOD 2-33RD											
IXBOD 2-34R	3400										
IXBOD 2-34RD											
IXBOD 2-35R	3500										
IXBOD 2-35RD											
IXBOD 2-36R	3600										
IXBOD 2-36RD											X202 **BOD-Package**
IXBOD 2-37R	3700										
IXBOD 2-37RD											
IXBOD 2-38R	3800										
IXBOD 2-38RD											
IXBOD 2-39R	3900										
IXBOD 2-39RD											
IXBOD 2-40R	4000										
IXBOD 2-40RD											
IXBOD 2-41R	4100										
IXBOD 2-41RD											
IXBOD 2-42R	4200										
IXBOD 2-42RD											
IXBOD 2-43R	4300 ±100	15	20	4-8	200	0.90	250	>3500	20		
IXBOD 2-44R	4400										
IXBOD 2-45R	4500										
IXBOD 2-46R	4600										
IXBOD 2-47R	4700										
IXBOD 2-48R	4800										
IXBOD 2-49R	4900										
IXBOD 2-50R	5000										
IXBOD 2-51R	5100										
IXBOD 2-52R	5200										
IXBOD 2-53R	5300										
IXBOD 2-54R	5400										
IXBOD 2-55R	5500										
IXBOD 2-56R	5600										

① Leads soldered on PCB board, T_{stg} and T_{VJ} = -40 ... +125°C



Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.

Solid State Relays



All waveforms are into a resistive load

Type BI relays conduct load current in both directions.

Type BI+ relays, in BI configuration, conduct load current in both directions.

Type UNI relays conduct load current from the positive terminal to the negative terminal only.

Type BI+ relays, in UNI configuration with output MOSFETs wired in parallel, enable higher load current from positive terminal to negative terminal only.

The accompanying SSR tables reference these types (BI, BI+, & UNI) for all devices listed.

- ***Replace electromechanical relays***
- ***Replace mechanical switches***
- ***Implement computer control of electromechanical circuits***

Applications:

- Telecommunications/ data communications
- Instrumentation
- Multiplexers
- Data acquisition/ electronic switching
- Meters (Watt-hour, water, gas)
- Medical equipment (patient/equipment isolation)
- Security
- Industrial controls

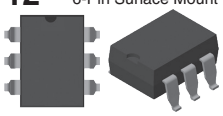
Features:

- Low drive current
- High reliability
- No EMI/RFI generation
- Arc-free with no snubbing circuits
- AC or DC switching
- Current limiting devices available
- FCC compatible
- Low off-state leakage

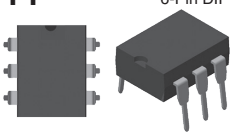
10 4-Pin SOP



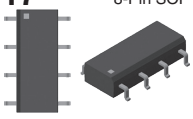
12 6-Pin Surface Mount



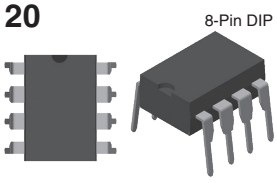
14 6-Pin DIP



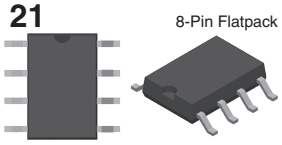
17 8-Pin SOP



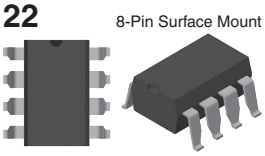
20 8-Pin DIP



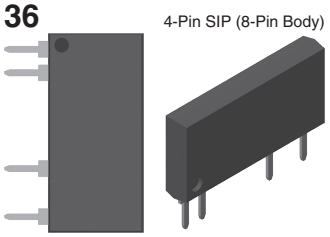
21 8-Pin Flatpack



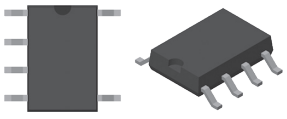
22 8-Pin Surface Mount



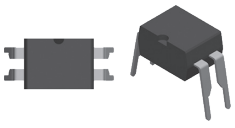
36 4-Pin SIP (8-Pin Body)



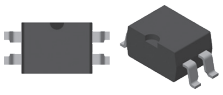
62 6-Pin Flatpack (8-Pin Body)



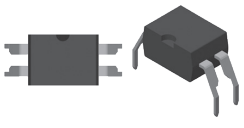
42 4-Pin DIP



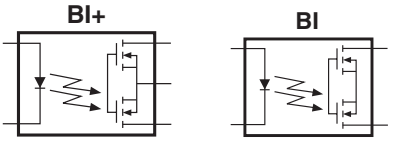
43 4-Pin Surface Mount



44 4-Pin V-DIP



1-Form-A Relays (Normally Open)

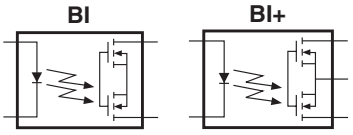


1-Form-A Relays: Single-Pole

Part Number	Relay Type	Blocking Voltage V_P	Load Current mA	On Resistance Ω	Input Control Current mA	Switching Speeds t_{on} / t_{off} ms	Isolation Voltage V_{rms}	Off-State Leakage µA	Package Type Page 119
CPC1006N	BI	60	75	10	0.5	10 / 10	1500	1	10
CPC1008N	BI	100	150	8	2	2 / 1	1500	1	10
CPC1009N	BI	100	150	8	2	2 / 0.5	1500	0.02	10
CPC1010N	BI	250	170	11.5	2	3 / 3	1500	1	10
CPC1014N	BI	60	400	2	2	2 / 1	1500	1	10
CPC1016N	BI	100	100	16	2	2 / 1	1500	1	10
CPC1017N	BI	60	100	16	1	10 / 10	1500	1	10
CPC1018N	BI	60	600	0.8	1	3 / 2	1500	1	10
CPC1019N	BI	60	750	0.6	2	3 / 3	1500	1	10
CPC1020N	BI	30	1200	0.25	2	3 / 3	1500	1	10
CPC1025N	BI	400	120	30	2	2 / 1	1500	1	10
CPC1030N	BI	350	120	30	2	2 / 1	1500	1	10
CPC1035N	BI	350	100	35	2	2 / 1	1500	1	10
CPC1225N	BI	400	120	30	2	2 / 1	1500	1	10
CPC1230N	BI	350	120	30	2	2 / 1	1500	1	10
CPC1317	BI	70	150	16	1	2.5 / 2.5	3750	1	21
CPC1330	BI	350	120	30	2	2 / 1	5000	1	42, 43
CPC1335	BI	350	100	35	1	10 / 10	3750	1	21
CPC1390	BI	400	140	22	2	1 / 1	5000	1	42, 43, 44
CPC1393	BI	600	90	50	2	5 / 5	5000	1	42, 43, 44
CPC1394	BI	600	120	35	2	5 / 3	5000	1	42, 43, 44
CPC1510	BI+	250	200	15	2	2 / 2	3750	1	12, 14
CPC1511	BI	230	450	4	2.5	4 / 2	3750	1	36
CPC1540	BI+	350	120	25	2	2 / 2	3750	1	12, 14
CPC1560	BI+	60	300	5.6	1.1	0.1 / 0.4	3750	1	20, 22
CPC1563	BI+	600	120	35	2	2 / 2	3750	1	12, 14
CPC1593	BI+	600	120	35	2	2 / 2	3750	1	12, 14
LCA100	BI+	350	120	25	5	5 / 5	3750	1	12, 14
LCA100L	BI+	350	120	25	5	5 / 5	3750	1	12, 14
LCA110	BI+	350	120	35	2	3 / 3	3750	1	12, 14
LCA110L	BI+	350	120	35	2	3 / 3	3750	1	12, 14
LCA120	BI+	250	170	20	5	3 / 3	3750	1	12, 14
LCA120L	BI+	250	150	20	5	3 / 3	3750	1	12, 14
LCA125	BI+	300	170	16	5	5 / 5	3750	1	12, 14
LCA125L	BI+	300	170	20	5	5 / 5	3750	1	12, 14

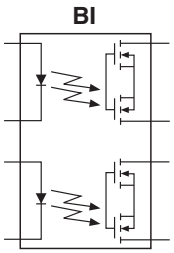
1-Form-A Relays (Normally Open)

1-Form-A Relays: Single-Pole



Part Number	Relay Type	Blocking Voltage V_P	Load Current mA	On Resistance Ω	Input Control Current mA	Switching Speeds t_{on} / t_{off} ms	Isolation Voltage V_{rms}	Off-State Leakage µA	Package Type Page 119
LCA127	BI+	250	200	10	5	5 / 5	3750	1	12, 14
LCA127L	BI+	250	170	15	5	5 / 5	3750	1	12, 14
LCA129	BI+	250	170	20	2	8 / 8	3750	1	12, 14
LCA182	BI+	350	120	35	0.25	3 / 3	3750	1	12, 14
LCA701	BI+	100	1500	0.3	2	4 / 1	3750	1	12, 14
LCA710	BI+	60	1000	0.5	10	2.5 / 0.25	3750	1	12, 14
LCA712	BI+	60	1000	0.5	10	2.5 / 0.35	3750	0.01	12, 14
LCA715	BI+	60	2200	0.15	5	2.5 / 0.25	3750	1	12, 14
LCA717	BI+	30	2000	0.15	2	3 / 3	3750	1	12, 14
OMA160	BI+	250	50	100	10	0.125 / 0.125	3750	0.025	12, 14
PLA110	BI+	400	150	22	5	1 / 0.5	3750	1	12, 14
PLA110L	BI+	400	150	25	5	1 / 0.25	3750	1	12, 14
PLA132	BI+	60	600	1	2	5 / 2	3750	1	12, 14
PLA134	BI+	100	350	3	5	5 / 5	3750	1	12, 14
PLA140	BI+	400	250	8	5	3 / 1	3750	1	12, 14
PLA140L	BI+	400	200	13	5	5 / 3	3750	1	12, 14
PLA143	BI+	600	100	50	2	5 / 5	4000	1	12, 14
PLA150	BI+	250	250	7	5	2.5 / 0.5	3750	1	12, 14
PLA160	BI+	300	50	100	10	0.05 / 0.05	3750	0.025	12, 14
PLA170	BI+	800	100	50	5	5 / 5	3750	1	12, 14
PLA171	BI	800	100	50	2	5 / 5	5000	1	62
PLA172P	BI	800	100	50	2	5 / 5	5000	1	62
PLA190	BI+	400	150	22	5	1 / 0.5	5000	1	12, 14
PLA191	BI+	400	250	8	5	3 / 1	5000	1	12, 14
PLA192	BI+	600	150	22	5	5 / 5	5000	1	12, 14
PLA193	BI+	600	100	50	5	5 / 5	5000	1	12, 14
PLA194	BI+	600	130	35	2	3 / 2	5000	1	12, 14
XCA170	BI+	350	100	50	5	5 / 5	3750	1	12, 14

1-Form-A Relays (Normally Open)

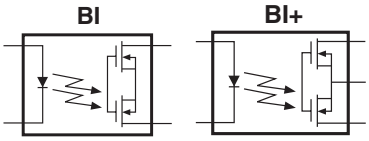


1-Form-A Relays: Dual Single-Pole

Part Number	Relay Type	Blocking Voltage V_P	Load Current mA	On Resistance Ω	Input Control Current mA	Switching Speeds t_{on} / t_{off} ms	Isolation Voltage V_{rms}	Off-State Leakage µA	Package Type Page 119
CPC2014N	BI	60	400	2	2	2 / 1	1500	1	17
CPC2017N	BI	60	120	16	1	3 / 3	1500	1	17
CPC2025N	BI	400	120	30	2	2 / 1	1500	1	17
CPC2030N	BI	350	120	30	2	2 / 1	1500	1	17
LAA100	BI	350	120	25	5	5 / 5	3750	1	20, 21, 22
LAA100L	BI	350	120	25	5	5 / 5	3750	1	20, 21, 22
LAA108	BI	100	300	8	2	3 / 3	3750	1	20, 21, 22
LAA110	BI	350	120	35	5	3 / 3	3750	1	20, 21, 22
LAA110L	BI	350	120	35	5	3 / 3	3750	1	20, 21, 22
LAA120	BI	250	170	20	5	5 / 5	3750	1	20, 21, 22
LAA120L	BI	250	150	25	5	5 / 5	3750	1	20, 21, 22
LAA125	BI	350	170	16	5	5 / 5	3750	1	20, 21, 22
LAA125L	BI	350	150	18	5	5 / 5	3750	1	20, 21, 22
LAA127	BI	250	200	10	5	5 / 5	3750	1	20, 21, 22
LAA127L	BI	250	170	10	5	5 / 5	3750	1	20, 21, 22
LAA710	BI	60	1000	0.5	10	2.5 / 0.25	3750	1	20, 22
OAA160	BI	250	50	100	6	0.125 / 0.125	3750	0.025	20, 21, 22
PAA110	BI	400	150	22	5	1 / 0.25	3750	1	20, 21, 22
PAA110L	BI	400	150	25	5	1 / 0.5	3750	1	20, 21, 22
PAA127	BI	280	200	10	3	0.5 / 0.5	3750	0.025	20, 21, 22
PAA132	BI	60	600	1	2	5 / 2	3750	1	20, 22
PAA140	BI	400	250	8	5	3 / 1	3750	1	20, 21, 22
PAA140L	BI	400	200	13	5	5 / 3	3750	1	20, 22
PAA150	BI	250	250	7	5	2.5 / 0.5	3750	1	20, 21, 22
PAA190	BI	400	150	22	5	1 / 0.5	5000	1	20, 22
PAA191	BI	400	250	8	5	3 / 1	5000	1	20, 22
PAA193	BI	600	100	50	5	5 / 5	5000	10	20, 22
XAA117	BI	60	150	16	1	5 / 5	3750	1	20, 21, 22
XAA170	BI	350	100	50	5	5 / 5	3750	1	20, 21, 22

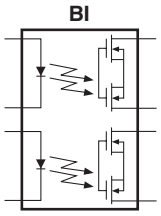
1-Form-B Relays (Normally Closed)

1-Form-B Relays: Single-Pole



Part Number	Relay Type	Blocking Voltage V_P	Load Current mA	On Resistance Ω	Input Control Current mA	Switching Speeds t_{on} / t_{off} ms	Isolation Voltage V_{rms}	Off-State Leakage µA	Package Type Page 119
CPC1106N	BI	60	75	10	0.5	10 / 10	1500	1	10
CPC1114N	BI	60	400	2	2	2 / 5	1500	1	10
CPC1117N	BI	60	150	16	1	10 / 10	1500	1	10
CPC1125N	BI	400	100	35	2	2 / 2	1500	5	10
CPC1130N	BI	350	120	30	2	2 / 2	1500	5	10
CPC1135N	BI	350	120	35	2	2 / 2	1500	5	10
CPC1150N	BI	350	120	50	2	1 / 2	1500	5	10
CPC1231N	BI	350	120	30	2	2 / 2	1500	5	10
CPC1333	BI	350	130	30	2	2 / 3	5000	1	42, 43
LCB110	BI+	350	120	35	5	3 / 3	3750	1	12, 14
LCB111	BI+	350	120	35	2	5 / 5	3750	1	12, 14
LCB120	BI+	250	170	20	5	5 / 5	3750	1	12, 14
LCB126	BI+	250	170	15	5	5 / 5	3750	1	12, 14
LCB127	BI+	250	200	10	5	5 / 5	3750	1	12, 14
LCB710	BI+	60	1000	0.6	2	3 / 3	3750	1	12, 14
LCB716	BI+	60	500	2	2	3 / 3	3750	1	12, 14
LCB717	BI+	30	1500	0.3	2	2 / 5	3750	1	12, 14
PLB150	BI+	250	250	7	5	1 / 2.5	3750	1	12, 14
PLB171	BI	800	80	55	2	5 / 5	5000	1	62
PLB190	BI+	400	130	25	2	1 / 2.5	5000	1	12, 14
XCB170	BI+	350	100	50	5	5 / 5	3750	1	12, 14

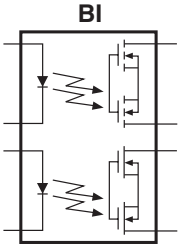
1-Form-B Relays: Dual Single-Pole



Part Number	Relay Type	Blocking Voltage V_P	Load Current mA	On Resistance Ω	Input Control Current mA	Switching Speeds t_{on} / t_{off} ms	Isolation Voltage V_{rms}	Off-State Leakage µA	Package Type Page 119
CPC2125N	BI	400	100	35	2	2 / 2	1500	5	17
LBB110	BI	350	120	35	5	3 / 3	3750	1	20, 21, 22
LBB120	BI	250	170	20	5	5 / 5	3750	1	20, 22
LBB126	BI	250	170	15	5	5 / 5	3750	1	20, 21, 22
LBB127	BI	250	200	10	5	5 / 5	3750	1	20, 21, 22
PBB150	BI	250	250	7	5	2.5 / 2.5	3750	1	20, 21, 22
PBB190	BI	400	130	25	2	1 / 2.5	5000	1	20, 22
XBB170	BI	350	100	50	5	5 / 5	3750	1	20, 21, 22

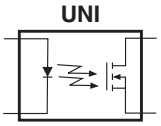
Miscellaneous Relays

1-Form-A & 1-Form-B Combination Relays



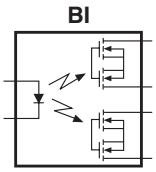
Part Number	Relay Type	Blocking Voltage V_P	Load Current mA	On Resistance Ω	Input Control Current mA	Switching Speeds t_{on} / t_{off} ms	Isolation Voltage V_{rms}	Off-State Leakage A/B µA	Package Type Page 119
CPC2317N	BI	60	120	16	1	3 / 3	1500	1 / 1	17
CPC2330N	BI	350	120	30	2	3 / 3	1500	1 / 5	17
LBA110	BI	350	120	35	2	3 / 3	3750	1 / 1	20, 21, 22
LBA110L	BI	350	120	35	5	3 / 3	3750	1 / 1	20, 21, 22
LBA120	BI	250	170	20	5	5 / 5	3750	1 / 1	20, 21, 22
LBA120L	BI	250	150	25	5	5 / 5	3750	1 / 1	20, 22
LBA127	BI	250	200	10	5	5 / 5	3750	1 / 1	20, 21, 22
LBA127L	BI	250	150	15	5	5 / 5	3750	1 / 1	20, 22
LBA710	BI	60	1000	0.6	2	5 / 5	3750	1 / 1	20, 22
LBA716	BI	60	1000	0.4	2	5 / 5	3750	1 / 1	20, 22
PBA150	BI	250	250	7	5	2.5 / 2.5	3750	1 / 1	20, 22

1-Form-A Relays: Single-Pole, Unidirectional (DC-only)



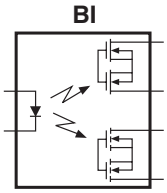
Part Number	Relay Type	Blocking Voltage V_P	Load Current mA	On Resistance Ω	Input Control Current mA	Switching Speeds t_{on} / t_{off} ms	Isolation Voltage V_{rms}	Off-State Leakage µA	Package Type Page 119
CPC1002N	UNI	60	700	0.55	2	5 / 2	1500	1	10
CPC1004N	UNI	100	300	4	2	3 / 1	1500	1	10

2-Form-A Relays: Double-Pole, Single-Throw



Part Number	Relay Type	Blocking Voltage V_P	Load Current mA	On Resistance Ω	Input Control Current mA	Switching Speeds t_{on} / t_{off} ms	Isolation Voltage V_{rms}	Off-State Leakage µA	Package Type Page 119
LCA210	BI	350	85	35	8	3 / 3	3750	1	20, 22
LCA210L	BI	350	85	35	8	4 / 4	3750	1	20, 22
LCA220	BI	250	120	20	10	5 / 5	3750	1	20, 22

1-Form-C Relays: Common Input, Single-Pole, Double-Throw



Part Number	Relay Type	Blocking Voltage V_P	Load Current mA	On Resistance Ω	Input Control Current mA	Switching Speeds t_{on} / t_{off} ms	Isolation Voltage V_{rms}	Off-State Leakage µA	Package Type Page 119
LCC110	BI	350	120	35	8	4 / 4	3750	1	20, 21, 22
LCC120	BI	250	170	20	10	5 / 5	3750	1	20, 22

For data sheets and package outlines go to **www.ixysic.com/Products/ProdList.htm**

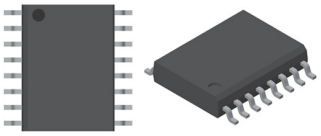
Fault Protected Relays

Current Limiting SSRs with Voltage Triggered Shutdown & Thermal Management

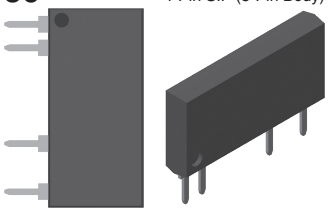
- **Active current-limiting circuitry**
- **Integrated thermal management (ThM)**
- **Voltage triggered shutdown (VTS)**

- Provide excellent power-cross immunity
- Ideal for use in electromagnetically noisy environments
- Resumes normal operation after faults are removed

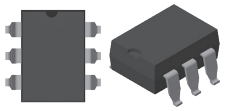
32 16-Pin Surface Mount



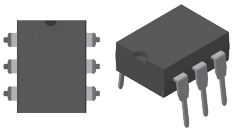
36 4-Pin SIP (8-Pin Body)



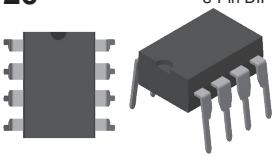
12 6-Pin Surface Mount



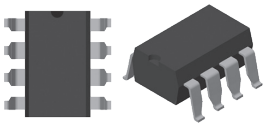
14 6-Pin DIP



20 8-Pin DIP



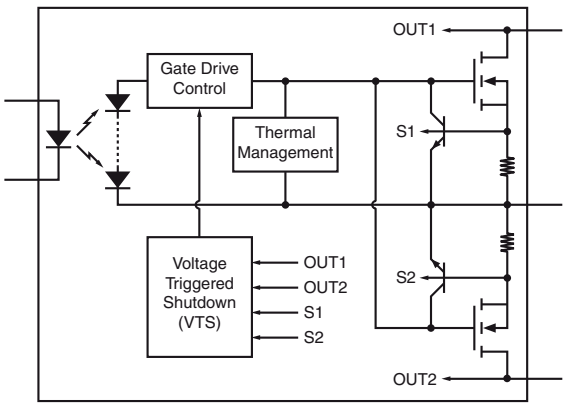
22 8-Pin Surface Mount



Part Number	Blocking Voltage	Input Control Current	On-Resistance (Maximum) Configuration		Load Current (Maximum) Configuration		Current Limit (Maximum) Configuration		VTS [1] Threshold (V_{TH})	Switching Speed	Isolation Voltage	Package Type
➢ New			DC	AC	DC	AC	DC	AC		t_{on} / t_{off}		
	(V_P)	(mA)	(Ω)	(Ω)	(mA)	(mA)	(mA_P)	(mA_P)	(V)	(ms)	(V_{rms})	
CPC1510	250	2	3.75	15	350	200	920	450	-	2 / 2	3750	12, 14
CPC1511	230	2.5	-	4	-	450	-	1400	-	4 / 2	3750	12, 14
CPC1540	350	2	6.75	25	250	120	570	285	100 [1]	2 / 2	3750	36
CPC1560	60	1.1	1.4	5.6	600	300	1500	900	-	0.1 / 0.4	3750	12, 14
➢ **CPC1561**	60	2.5	-	0.245	-	1000 [2]	-	3000	-	2.5 / 0.5	3750	32
CPC1563	600	2	11.75	35	250	120	570	285	100 [1]	2 / 2	3750	12, 14
CPC1593	600	2	11.75	35	250	120	570	285	17.5 [1]	2 / 2	3750	20, 22

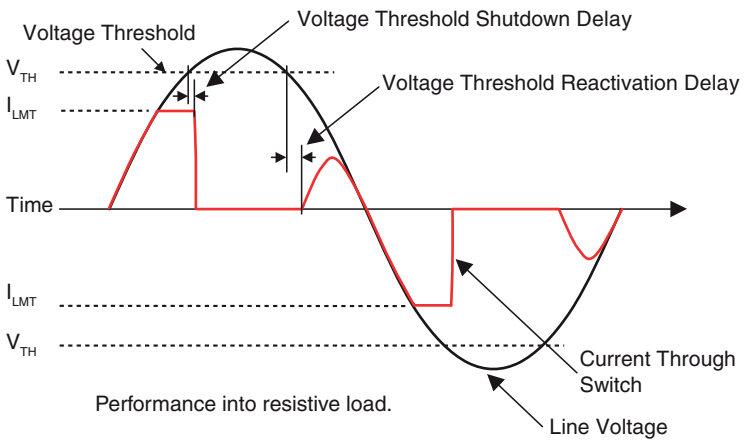
[1] Deactivates the switch when the load voltage exceeds the V_{TH} threshold while the switch is in current limit.
[2] Load current rating at up to 60°C

CPC1540, CPC1563, CPC1593



Applications:

- Telephony hook switch
- VoIP gateways
- I/O subsystems
- Electronic switching
- Medical equipment (patient/equipment isolation)
- Security
- Industrial controls

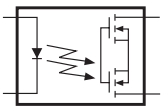


Performance into resistive load.

Power Relays

1-Form-A Power Relays: Single-Pole, Bidirectional

BI

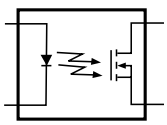


Part No. ➢ New	Relay Type	Blocking Voltage	Load Current			On Resistance	Input Control Current	Switching Speeds	Isolation Voltage	Off-State Leakage	Package Type
			Free Air	5°C/W Heat Sink	T_C = 25°C						
		V_P	A_{rms}	A_{rms}	A_{rms}	Ω	mA	t_{on} / t_{off} ms	V_{rms}	µA	
CPC1906Y	BI	60	2.00	-	-	0.30	10	10 / 5	2500	1	36
CPC1907B	BI	60	6.00	-	-	0.06	5	5 / 1	5000	1	66
CPC1908J	BI	60	3.50	8.50	15	0.30	10	20 / 5	2500	1	29
CPC1909J	BI	60	6.50	15	15	0.10	10	25 / 10	2500	1	37
CPC1916Y	BI	100	2.50	-	-	0.34	10	5 / 3	2500	1	36
CPC1918J	BI	100	5.25	13	15	0.10	10	25 / 10	2500	1	37
CPC1926Y	BI	250	0.70	-	-	1.40	10	10 / 10	2500	1	36
CPC1927J	BI	250	2.70	6.70	15	0.20	10	25 / 10	2500	1	37
CPC1967J	BI	400	1.35	3.35	13.15	0.85	10	20 / 5	2500	1	29
CPC1968J	BI	500	2.00	5	15	0.35	10	20 / 5	2500	1	37
CPC1973Y	BI	400	0.35	-	-	5	10	5 / 3	2500	1	36
CPC1977J	BI	600	1.25	3.10	12.25	1	10	20 / 5	2500	1	29
CPC1978J	BI	800	0.75	1.85	7.25	2.30	10	20 / 5	2500	1	29
CPC1979J	BI	600	1.40	3.50	14.50	0.75	10	25 / 5	2500	1	37
CPC1981Y	BI	1000	0.18	-	-	18	10	10 / 5	2500	1	36
CPC1983B	BI	600	0.50	-	-	6	5	5 / 2	5000	1	66
CPC1983Y	BI	600	0.50	-	-	6	5	5 / 2	2500	1	36
CPC1983YE	BI	600	0.50	-	-	6	5	5 / 2	4000	1	36
➢ **CPC1984Y**	BI	600	1	-	-	0.66	5	10 / 2	4000	1	36
CPC1986J	BI	1000	0.65	1.60	6.50	3	10	20 / 5	2500	1	29
CPC1988J	BI	1000	0.90	2.25	9.40	2.50	10	20 / 5	2500	1	37

Dual 1-Form-A Power Relay: Bidirectional

CPC2907B	BI	60	2	-	-	0.15	5	2.5/0.25	4000	1	66

UNI



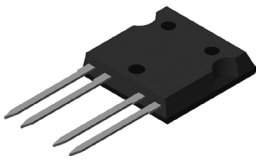
1-Form-A Power Relays: Single-Pole, Unidirectional

CPC1706Y	UNI	60	4	-	-	0.09	5	5 / 2	2500	1	36
CPC1708J	UNI	60	4	11.85	24	0.08	10	20 / 5	2500	1	29
CPC1709J	UNI	60	9	22.8	32	0.05	10	20 / 5	2500	1	37
CPC1718J	UNI	100	6.75	17.5	32	0.075	10	20 / 5	2500	1	37
CPC1726Y	UNI	250	1	-	-	0.75	10	5 / 2	2500	1	36
CPC1727J	UNI	250	3.4	8.6	20	0.09	10	20 / 5	2500	1	37
CPC1777J	UNI	600	1.5	4.6	15	0.5	10	20 / 5	2500	1	29
CPC1779J	UNI	600	1.65	4.12	15	0.4	10	20 / 5	2500	1	37
CPC1786J	UNI	1000	0.65	1.75	6.9	2	10	20 / 5	2500	1	29
CPC1788J	UNI	1000	1	2.45	10.3	1.25	10	20 / 5	2500	1	37

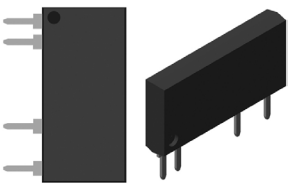
1-Form-B Power Relay: Single-Pole, Unidirectional

CPC1705Y	UNI	60	3.25	-	-	0.09	5	2 / 12	2500	1	36

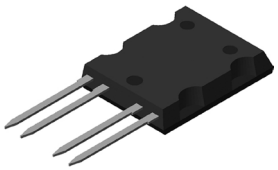
29 i4-PAC



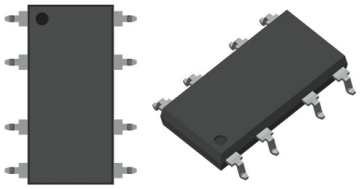
36 Power SIP



37 ISOPLUS-264



66 Power SOIC



For data sheets and package outlines go to **www.ixysic.com/Products/ProdList.htm**

Optically Isolated AC Power Switches

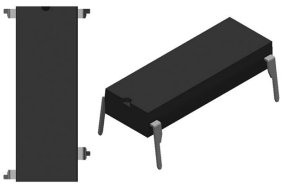
The OptoMOS line of power products uses dual power-SCR outputs to produce an alternative to optocoupler and Triac circuits. These AC Power Switches provide a blocking voltage of up to $800V_P$. In addition, tightly controlled zero-cross circuitry ensures switching of AC loads while minimizing the generation of transients. The input and output circuits are optically coupled to provide $3750V_{rms}$ of isolation and noise immunity between control and load circuits. Long life and environmental integrity make these power switches ideal for controlling a variety of AC circuits in industrial environments where electromagnetic interference would disrupt the operation of electromechanical relays.

Optically Isolated AC Power Switches: $I_{LOAD} \leq 1A$

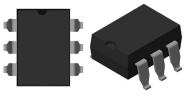
Part No.	Blocking Voltage V_P	Load Current A_{rms}	Input Control Current mA	Operating Frequency Range Hz	Isolation Voltage V_{rms}	Fig. No.
CPC1943	400	0.50	5	20 - 500	3750	15, 16
CPC1945G	400	1	5	20 - 400	3750	2
CPC1945Y	400	1	5	20 - 400	3750	23
CPC1961 Dual	600	0.25 [1)]	5	20 - 500	3750	20, 22
CPC1963	600	0.50	5	20 - 500	3750	15, 16
CPC1965G	600	1	5	20 - 400	3750	2
CPC1965Y	600	1	5	20 - 400	3750	23
CPC1972	800	0.25	5	20 - 500	3750	12, 14
PD1201	400	1	5	20 - 500	3750	2
PD2401	500	1	5	20 - 500	3750	2
PD2601	600	1	5	20 - 500	3750	2
PM1204	400	0.50	5	20 - 500	3750	15, 16
PM1205	500	0.50	5	20 - 500	3750	15, 16
PM1206	600	0.50	5	20 - 500	3750	15, 16
PS1201	400	1	5	20 - 500	3750	23
PS2401	500	1	5	20 - 500	3750	23
PS2601	600	1	5	20 - 500	3750	23

[1)] Maximum continuous load current of a single pole or the sum of the load currents with both poles operating simultaneously

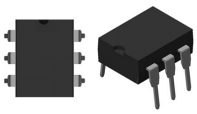
2 4-Pin DIP (16-Pin Body)



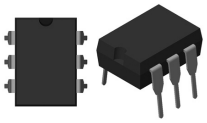
12 6-Pin Surface Mount



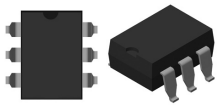
14 6-Pin DIP



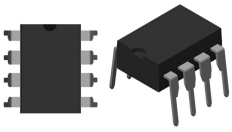
15 6-Pin Power DIP



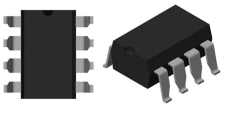
16 6-Pin Power DIP SMD



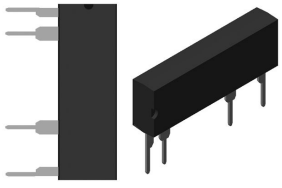
20 8-Pin DIP



22 8-Pin Surface Mount



23 4-Pin SIP (8-Pin Body)

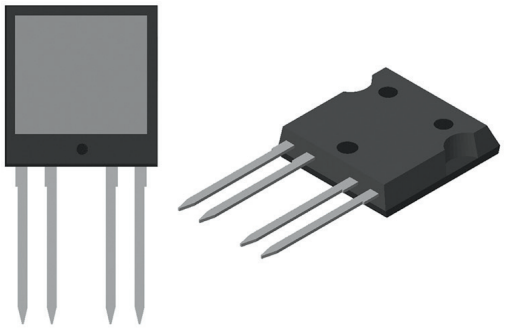


Optically Isolated AC Power Switches: I_{LOAD} >1A

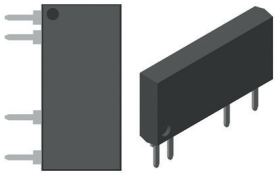
Part No.	Blocking Voltage	Load Current			Input Control Current	Operating Frequency Range	Isolation Voltage	Fig. No.
		No Heat Sink	with 5°C/W Heat Sink	T_C = 25°C				
	V_P	A_{rms}	A_{rms}	A_{rms}	mA	Hz	V_{rms}	
CPC1964B	800	1.5	-	-	5	20 - 500	5000	66
CPC1964BX6 [1]	600	1.5	-	-	5	20 - 500	5000	66
CPC1966	600	3	-	-	5	20 - 500	3750	36
CPC1966B	800	3	-	-	5	20 - 500	5000	66
CPC1966BX8 [1]	800	3	-	-	5	20 - 500	3750	66
CPC1966YX6 [1]	600	3	-	-	5	20 - 500	3750	36
CPC1966YX8 [1]	800	3	-	-	5	20 - 500	3750	36
CPC1976	600	2	-	-	5	20 - 500	3750	36
CPC1976YX6 [1]	600	2	-	-	5	20 - 500	3750	36
CPC1998J	800	5	20	50	5	20 - 500	2500	29
CPC40055ST	800	5	20	40	5	20 - 500	2500	64

[1] **Rapid turn-on (non-zero-cross)**
Rapid turn-on devices turn on when the control input goes true regardless of the load voltage phase, and turn off when the load current crosses zero.

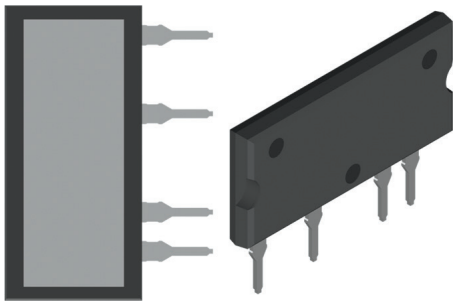
29 i4-PAC



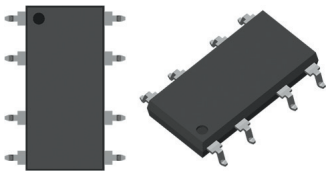
36 Power SIP



64 Super SIP



66 Power SOIC



For data sheets and package outlines go to **www.ixysic.com/Products/ProdList.htm**

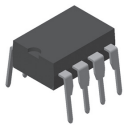
IGBT & MOSFET Gate Drivers

Low-Side Gate Drivers

These ultra-fast, high current MOSFET and IGBT gate drivers are optimized for high efficiency performance in motor drive and power conversion applications. With output current ratings of 1.5A to 30A, they are designed to switch the largest MOSFETs and IGBTs with minimum switching times and at frequencies up to 10MHz.

Part No. ➢ New	Output Type	I_{PEAK} T_C = 25°C A_P	Output Resistance Ω	Logic Config.	Enable Function	Under-voltage Lockout V	Fig. No.	Package Type
IX4426	DUAL	1.5	8.0	I	-	-	54, 56	20
IX4427	DUAL	1.5	8.0	N	-	-	54, 56	
IX4428	DUAL	1.5	8.0	F	-	-	54, 56	
➢ **IX4310T**	SINGLE	2	3.0	D	-	4.2	52	
IXD_602	DUAL	2	4.0	F, I, N	-	-	20, 53, 54, 56	
IXD_604	DUAL	4	2.5	F, I, N, D	•	-	20, 53, 54, 56	
IX4340	DUAL	5	1.5	D	•	$V_{CC} \le 3.8$	53, 54, 92	
IXD_609	SINGLE	9	1.0	I, N, D	•	-	20, 53, 54, 56, 57, 58	52
IXD_614	SINGLE	14	0.8	I, N, D	•	-	20, 53, 57, 58	
IXD_630	SINGLE	30	0.4	I, N, D	•	$V_{CC} \le 12.5$	57, 58	
IXD_630M	SINGLE	30	0.4	I, N, D	•	$V_{CC} \le 9$	57, 58	

20 8-Pin DIP
Package Code: PI



52 SOT23-5
Package Code: R



AEC-Q100 Qualified Low-Side Gate Drivers

Part No. ➢ New	Output Type	I_{PEAK} T_C = 25°C A_P	Output Resistance Ω	Logic Config.	Enable Function	Under-voltage Lockout V	Fig. No.
IXD_604SI	DUAL	4	2.5	F, I, N, D	•		53
IXD_604SIA	DUAL	4	2.5	F, I, N, D	•		54
➢ **IX4340NE**	DUAL	5	1.5	D	•	$V_{CC} \le 3.8$	53
IXD_609SI	SINGLE	9	1.0	I, N, D	•		53
IXD_614SI	SINGLE	14	0.8	I, N, D	•		53

53 8-Pin Power SOIC
Package Code: SI



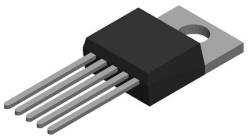
54 8-Pin SOIC
Package Code: SIA



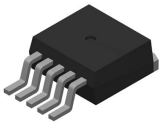
56 8-Pin DFN
Package Code: D2



57 5-Pin TO-220
Package Code: CI



58 5-Pin TO-263
Package Code: YI



92 8-Pin MSOP

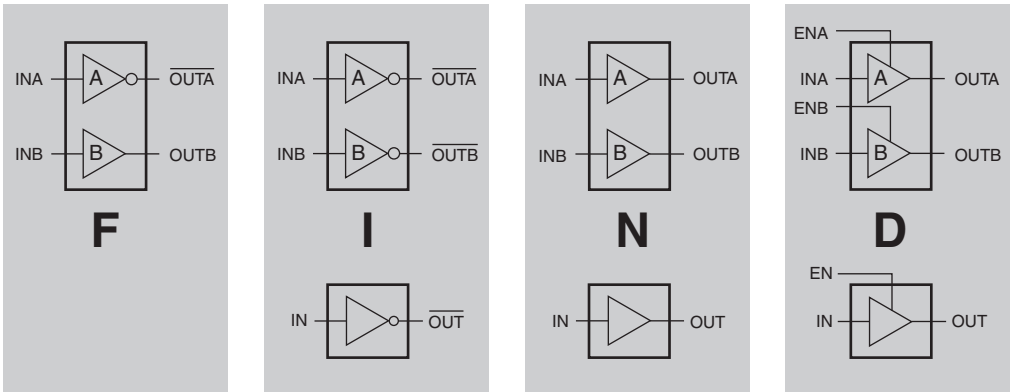


Features:

- 1.5A to 30A Peak Source / Sink Drive Current
- Wide Operating Voltage Range
- -40°C to +125°C Extended Operating Temperature Range
- Logic Input Withstands Negative Swing of up to -5V
- Matched Rise and Fall Times
- Low Propagation Delay Time
- Low Output Impedance

Applications:

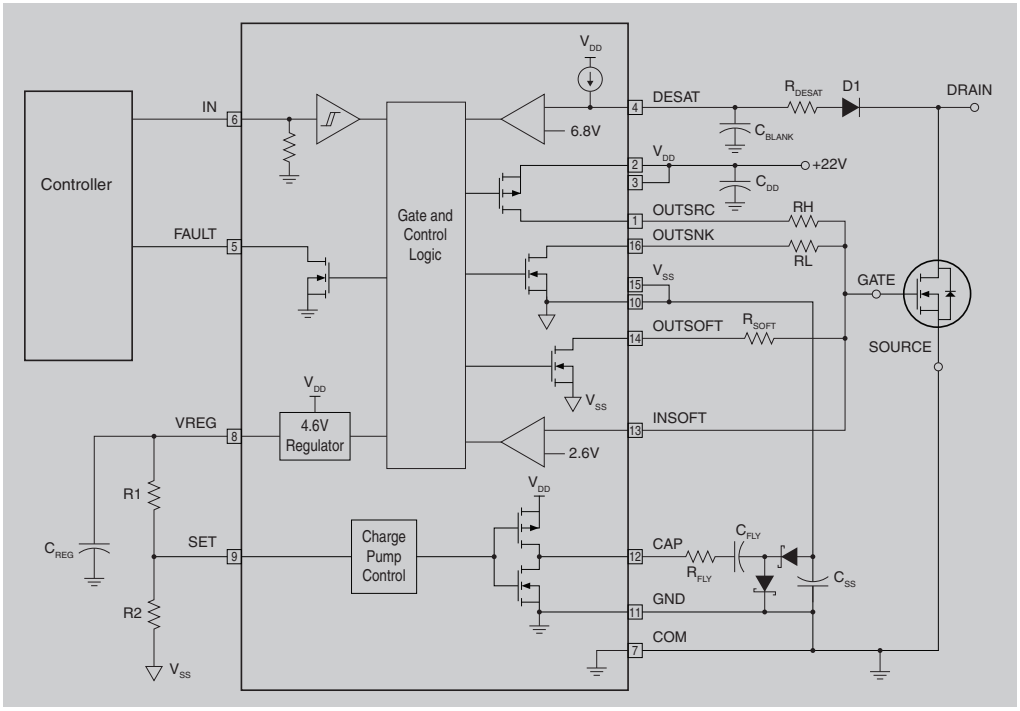
- Efficient Power MOSFET and IGBT Switching
- Switch Mode Power Supplies
- Motor Controls
- DC to DC Converters
- Class-D Switching Amplifiers
- Pulse Transformer Driver

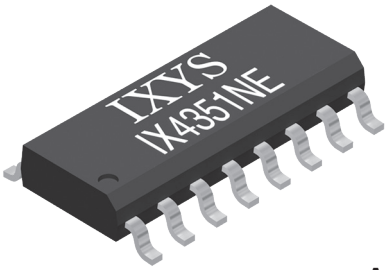


SiC Gate Driver

IX4351NE 9A Low-Side SiC MOSFET & IGBT Driver

NEW





Features:

- Separate 9A peak source and sink outputs
- Operating voltage range: -10V to +25V
- Internal negative charge pump regulator for selectable negative gate drive bias
- Desaturation detection with soft shutdown sink driver
- TTL and CMOS compatible input
- Under Voltage lockout (UVLO)
- Thermal shutdown
- Open drain fault output

Applications:

- Driving SiC MOSFETs and IGBTs
- On-board charger and DC charging station
- Industrial inverters
- PFC, AC/DC and DC/DC converters

The IX4351NE is designed specifically to drive SiC MOSFETs and high power IGBTs. Separate 9A source and sink outputs allow for tailored turn-on and turn-off timing while minimizing switching losses. An internal negative charge regulator provides a selectable negative gate drive bias for improved dV/dt immunity and faster turn-off.

Desaturation detection circuitry detects an over current condition of the SiC MOSFET and initiates a soft turn off, thus preventing a potentially damaging dV/dt event. The logic input is TTL and CMOS compatible; this input does not need to be level shifted even with a negative gate drive bias voltage. Protection features include UVLO detection and thermal shutdown. An open drain FAULT output signals a fault condition to the microcontroller.

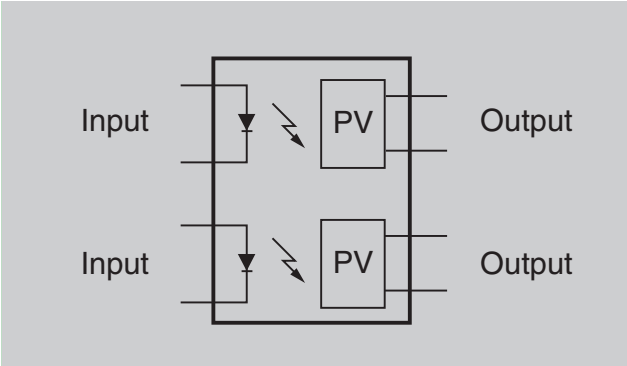
The IX4351NE is rated for operational temperature range of -40°C to +125°C, and is available in a thermally enhanced 16-pin power SOIC package.

For data sheets and package outlines go to **www.ixysic.com/Products/ProdList.htm**

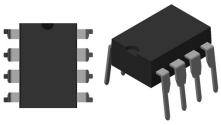
IGBT & MOSFET Gate Drivers

Optically Isolated Photovoltaic Gate Drivers

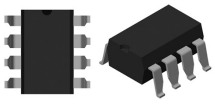
These Dual Optically Isolated Photodiode Arrays, which can produce an open-circuit voltage of up to 12V, are well suited for use in discrete solid state relay designs. The FDA215 and the FDA217 are available in 8-pin DIP and 8-pin surface-mount packages.



8-Pin DIP



8-Pin Surface Mount



Features:

- Isolated 5.5V to 12V Photovoltaic Output
- Floating Outputs for Parallel or Series Configuration

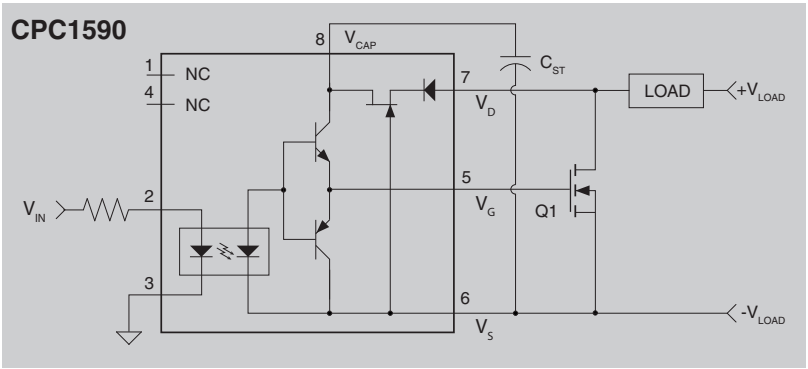
Applications:

- MOSFET Driver
- Isolated Floating Power Source

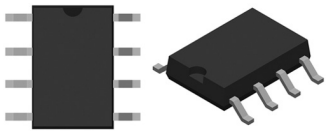
Part No.	Input Control Current mA	Nominal Open-Circuit Voltage V_{OC} V	Nominal Short-Circuit Current I_{SC} µA	Switching Speeds t_{on} / t_{off} ms	Isolation Voltage V_{rms}	Package Type
FDA215	5	5.5	2.5	5 / 5	3750	8-Pin DIP, 8-Pin Surface Mount
FDA217	5	11.75	4.5	2 / 0.5	3750	8-Pin DIP, 8-Pin Surface Mount

Optically Isolated Load-Biased Gate Drivers

The CPC1580 and CPC1590 are high speed, optically isolated Gate Driver ICs. On-chip circuitry charges an external capacitor from the load voltage which eliminates the need for an external IC power supply. These Gate Drivers are ideal for low duty cycle switching applications. Both devices are provided in an 8-pin flatpack package.



8-Pin Flatpack



Features:

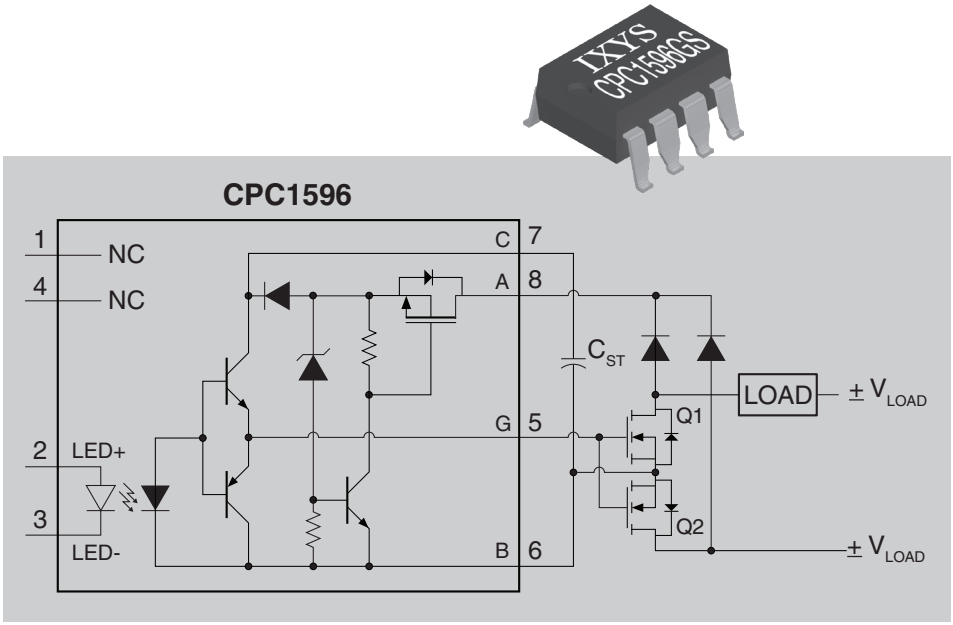
- No External IC Power Supply
- Low Drive Power Requirements (TTL/CMOS Compatible)
- Load Voltages up to 200V
- Fast Switching Speed - On: 40µs / Off: 400µs

Applications:

- Instrumentation
- Multiplexers
- I/O Subsystems
- Meters (Watt-Hour, Water, Gas)
- Medical Equipment (Patient / Equipment Isolation)
- Security
- Industrial Controls

Part No.	Input Control Current (mA)	Gate Voltage @ I_F = 5mA (V_G)	Blocking Voltage (V_P)	Regulated Capacitor Voltage $V_{CAP(max)}$ (V)	Switching Speeds t_{on} / t_{off} (µs)	Isolation Voltage (V_{rms})
CPC1580	2.5	7.5 - 12	65	V_{DS} - 0.2	40 / 400	3750
CPC1590	2.5	7.5 - 12	200	16	40 / 400	3750

CPC1596: 570V Optically Isolated Load-Biased Gate Driver



Features:

- Requires No Load-side Power Supply
- Drives External Power MOSFET
- Only 2.5mA Input LED Current to Drive External MOSFET
- 3750V_{rms} Input-to-Output Isolation

Applications:

Optically Isolated AC or DC Relays for:

- Industrial Controls
- Instrumentation
- Medical Equipment Isolation
- Electronic Switching
- I/O Subsystems
- Appliances

Linear Optocouplers

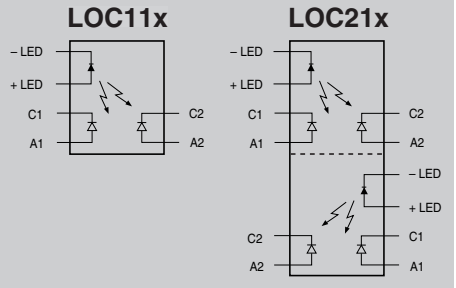
OptoMOS Linear Optocouplers feature an infrared LED optically coupled to a pair of photodiodes. The input photodiode is used to generate a feedback signal that provides a servomechanism to the LED drive current thus compensating for the LED's nonlinear characteristics. The output photodiode provides an isolated output signal that is linear with respect to the servo LED current.

Features:

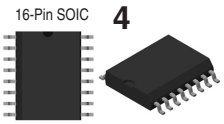
- Couples Analog & Digital Signals
- 3750V_{rms} Input / Output Isolation
- Bandwidth >200kHz in in Photoconductive Mode
- Bandwidth 40kHz in Photovoltaic Mode
- High Gain Stability
- Low Input / Output Capacitance
- Low Power Consumption
- 0.01% Servo Linearity
- THD 87dB Typical

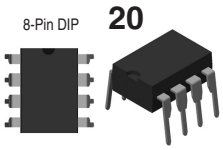
Applications:

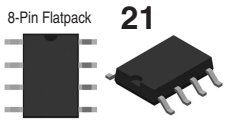
- Power Supply Feedback Voltage / Current
- Medical Sensor Interfacing
- Isolation of Process Control Transducers
- Isolated 4-20mA Converters

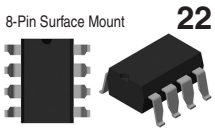


Part No.	Servo Gain $K1 = I_1/I_F$ Min / Max	Forward Gain $K2 = I_2/I_F$ Min / Max	Transfer Gain $K3 = K_2/K_1$ Min / Max	Input Control Current (mA)	Isolation Voltage (V_{rms})	Package Type
LOC110	0.004 / 0.03	0.004 / 0.03	0.668 / 1.179	2 - 10	3750	20, 21, 22
LOC111	0.008 / 0.03	0.006 / 0.03	0.733 / 1.072	2 - 10	3750	20, 21, 22
LOC112	0.004 / 0.03	0.004 / 0.03	0.733 / 1.072	2 - 10	3750	20, 21, 22
LOC117	0.008 / 0.03	0.006 / 0.03	0.887 / 1.072	2 - 10	3750	20, 21, 22
LOC210	0.004 / 0.03	0.004 / 0.03	0.773 / 1.072	2 - 10	3750	4
LOC211	0.008 / 0.03	0.006 / 0.03	0.773 / 1.072	2 - 10	3750	4



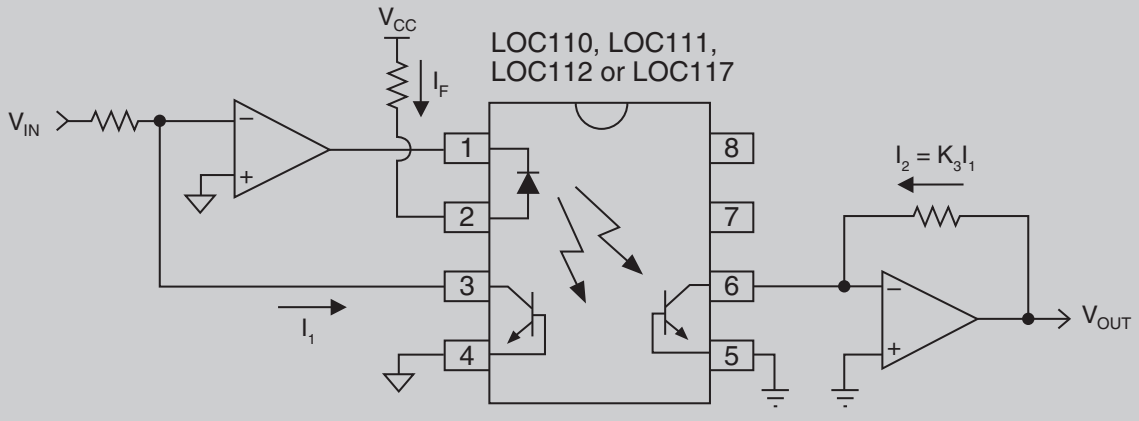






Two Fundamental Operating Configurations:

Isolation Amplifier (Photovoltaic Mode)



Photoconductive Mode:

- **Wide Bandwidth (>200kHz)**
- **8-bit Linearity**

Photovoltaic Mode:

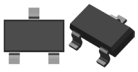
- **14-bit Linearity**
- **40kHz Bandwidth**

N-Channel Depletion Mode FETs

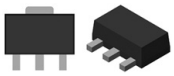
Our N-channel depletion mode Field Effect Transistors (FETs) utilize a proprietary third generation vertical DMOS process. The third generation process realizes world class, high voltage MOSFET performance in an economical silicon gate process. The vertical DMOS process yields a robust device for low-power applications with high input impedance. These highly reliable FET devices have been used extensively in our solid state relays for industrial and telecommunications applications. These normally on MOSFETs are well suited for low cost, pre-regulator applications that are tolerant of high voltage drop and power dissipation between the power source and the output regulator stage.

Part No.	$V_{(BR)DSX}$ (V)	$R_{DS(on)}$ Max (Ω)	$V_{GS(off)}$ Min (V)	$V_{GS(off)}$ Max (V)	I_{DSS} @ V_{GS} = 0V Min (mA)	Package Type
CPC3701	60	1	-1.4	-3.1	600	SOT-89
CPC3703	250	4	-1.6	-3.9	360	SOT-89
CPC3708	350	14	-2.0	-3.6	130	SOT-89 / SOT-223
CPC3710	250	10	-1.6	-3.9	220	SOT-89
CPC3714	350	14	-1.6	-3.9	240	SOT-89
CPC3720	350	22	-1.6	-3.9	130	SOT-89
CPC3730	350	35	-1.6	-3.9	140	SOT-89
CPC3902	250	2.5	-1.4	-3.1	400	SOT-89 / SOT-223
CPC3909	400	6	-1.4	-3.1	300	SOT-89 / SOT-223
CPC3960	600	44	-1.4	-3.1	100	SOT-223
CPC3980	800	45	-1.4	-3.1	100	SOT-223
CPC3982	800	380	-1.4	-3.1	20	SOT-23

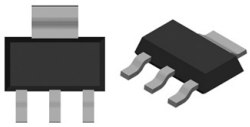
SOT-23



SOT-89



SOT-223



For data sheets and package outlines go to **www.ixysic.com/Products/ProdList.htm**

High Speed Digital Optical Isolators

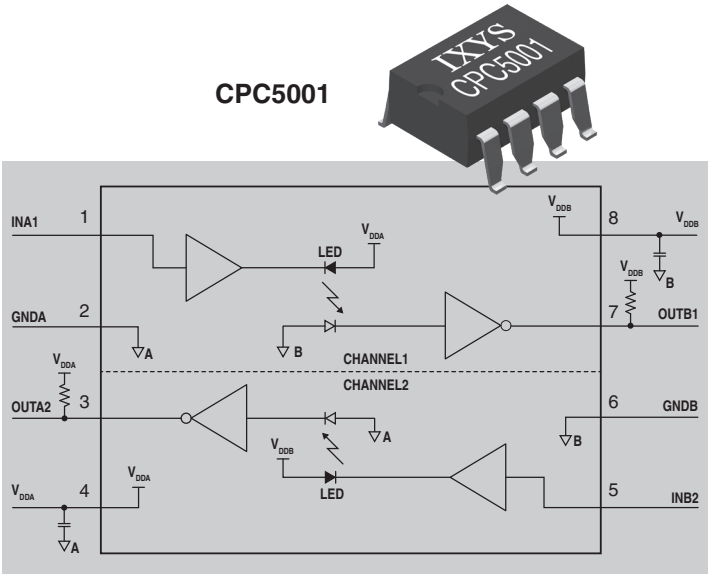
Single-Chanel Each Direction Digital Optical Isolator: CPC5001

Logic level translation for levels as low as 2.7V or as high as 5.5V
Passes DC signals - no refresh clock needed

Features:
- Isolates one signal in each direction
- Operates from 2.7V to 5.5V
- Buffered inputs - no external LED drive required
- Hysteresis at inputs for noise rejection
- Slew-limited drivers reduce EMI
- 3750V_{rms} galvanic isolation from input to output
- Power down to Hi-Z does not load outputs
- 5 Mbaud data rate

Applications:
- Isolated signal monitoring and control
- Power-over-Ethernet, POE
- Power supply high-side interface
- Logic level translation
- Microprocessor system interface
- Inter integrated circuit (I^2C) interface
- Serial peripheral interface
- Full duplex communication
- Isolated line receiver
- Isolated data acquisition systems

CPC5001



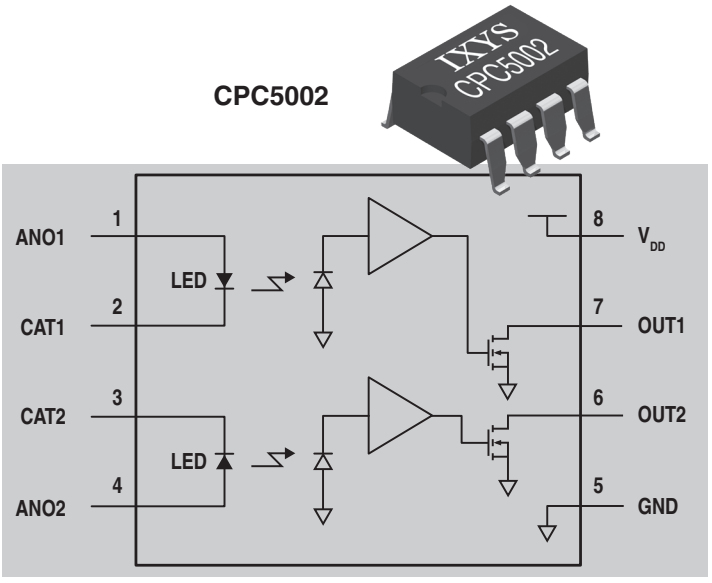
Dual Speed Digital Optical Isolator: CPC5002

3750V_{rms} galvanic isolation from input to output
Passes DC signals - no refresh clock needed

Features:
- Dual optics isolate two signals
- **10 Mbaud** data rate
- Operates over 2.7V < V_{DD} < 5.5V
- Power down to Hi-Z does not load outputs
- Low-power CMOS reduces supply current
- LED drive current only 1.5mA

Applications:
- Isolated line receiver
- Ground loop elimination
- ADC/DAC digital noise isolation
- 4-wire I^2C bus isolation

CPC5002



High Speed Digital Optical Isolators

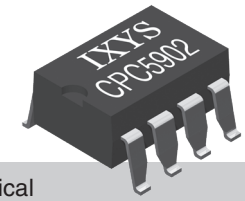
Optically Isolated I²C Bus Repeaters: CPC5902 & CPC5903

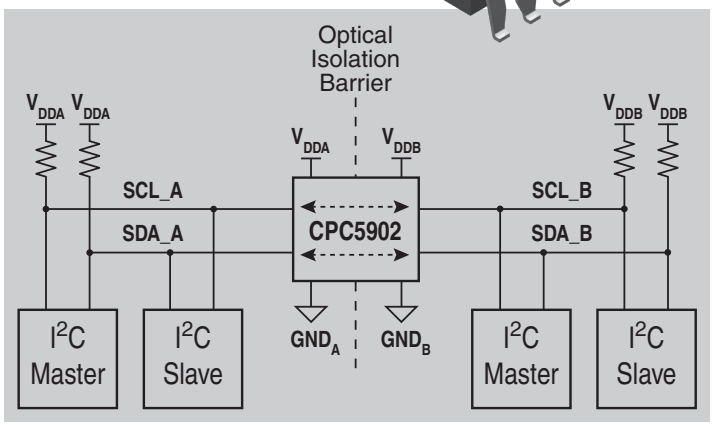
- CPC5902 bidirectionally buffers clock and data signals
- CPC5903 bidirectionally buffers data signal, unidirectionally buffers clock signal
- Logic level translation for levels as low as 2.7V or as high as 5.5V
- Passes DC signals - no refresh clock needed - no clock noise generated

Applications:

- Power-over-Ethernet (POE)
- I²C bus length extender
- Isolated control and signal monitoring
- Power supply high-side interface
- I²C logic level translation

CPC5902

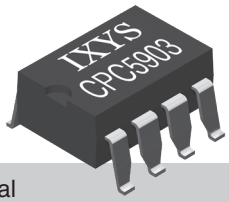




Features:

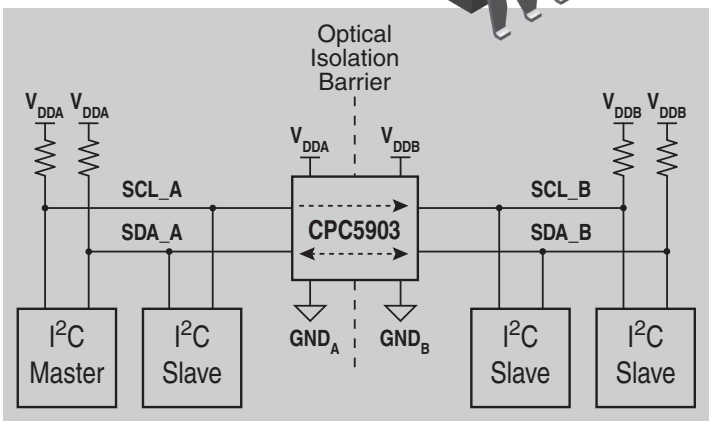
- Extends and isolates I²C interfaces
- Supports standard and fast mode I²C (400kbps)
- Side B fast-mode compliant: V_{DDB} > 4.5V
- Supports I²C clock stretching
- No internal clock - low EM & RF generation
- Operates on 2.7V to 5.5V
- Supports DC logic level buffering without refresh
- Glitch-free operation
- Power down to Hi-Z does not load I²C bus
- Slew-limited drivers reduce EMI
- Immune to external EMI & RF emissions
- High voltage isolation

CPC5903



Features:

- Extends and isolates I²C interfaces
- Supports standard and fast mode I²C (400kbps)
- Side B fast-mode compliant: V_{DDB} > 4.5V
- No internal clock - low EM & RF generation
- Operates on 2.7V to 5.5V
- Supports DC logic level buffering without refresh
- Glitch-free operation
- Power down to Hi-Z does not load I²C bus
- Slew-limited drivers reduce EMI
- Immune to external EMI & RF emissions
- High voltage isolation



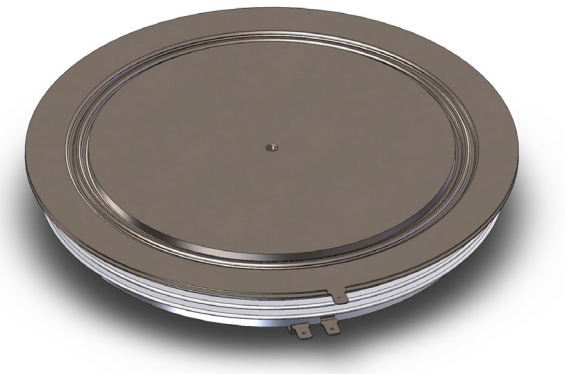
See Application Note TB-101 "Optically Isolating an I²C Interface"

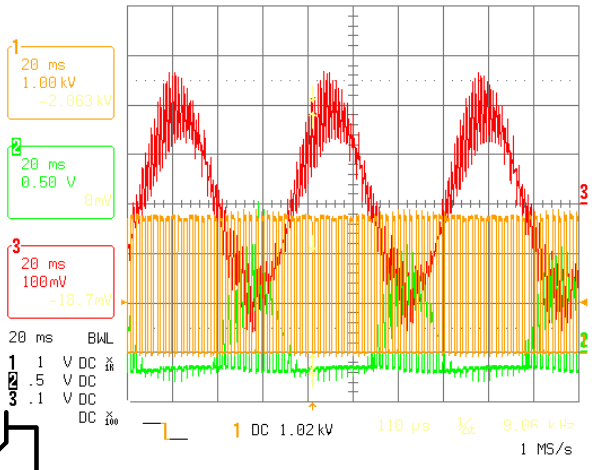
For data sheets and package outlines go to **www.ixysic.com/Products/ProdList.htm**

Product Application Notes and Technical Information

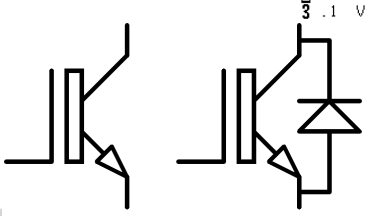
Available from www.ixysuk.com

- Use of a rectifier diode above T_{JMAX} with a short term overload
- Leakage current against temperature and applied voltage
- Setting disc spring type clamps
- Replacement of devices in assembly type XA3370ZX12WRs
- Possible failure modes in press-pack devices
- Recommended clamps for capsule semiconductors
- Guidance for soldering leads to thyristors, GTO thyristors and IGBT's
- Device mounting instruction
- Stocking & handling requirements for press-pack and module devices
- Recommended maximum force for module gate terminals
- Press releases
- Quality documents
- IXYS UK product nomenclatures
- An IGBT in DC Breaker application









Rectifier Diodes

Our comprehensive range of rectifier diodes offers class leading performance and reliability. Devices are available with blocking voltages from 200V up to 7.2kV. Optimised to offer low conduction losses, these devices are ideally suited to line frequency applications up to 400Hz including input rectifiers for variable speed drives, traction converters, trackside substations, welding and DC power supplies. Featuring high temperature alloyed die construction, these devices offer low thermal impedance with high overload capacity and are designed to survive even the most arduous applications.

The latest additions to the IXYS UK Rectifier Diode family are the new 38mm and 50mm dia die Wespack Rectifier Diodes and the new 96mm large area rectifier diodes. These new designs are constructed using low temperature sintering technology and have an improved package design for maximum power to package ratio, as well as better thermal and electromechanical performance. The Wespack parts are available in current ratings up to 5332A and voltage ratings up to 3000V. The 96mm parts are available in current ratings up to 12100A and voltage ratings up to 6000V

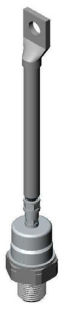
Also now available is a new 1263A rated M24 stud based assembly with voltage grades up to 2500V.

Stud Types

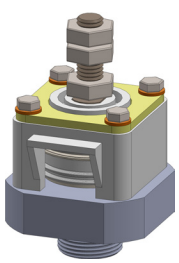
Part No.	V_{RRM}	I_{FAV}	I_{FSM}	I^2t	V_{T0}	r_T	T_{JM}	R_{thJC}		Fig. No.	Package style Outlines on pages O-01...O-35
		T_C = 55°C	10 ms ½ sine V_R - ≤ 60% V_{RRM}		@T_{JM}			d.c. 180° sine	120° Rect.		
	V	A	A	A^2s	V	mΩ	°C	K/W	K/W		
W0428RE250	2500	428	5500	151 x 10^3	0.926	0.739	150	0.1300	0.1530	W39	S R
W0428RE280	2800	428	5500	151 x 10^3	0.926	0.739	150	0.1300	0.1530	W39	
W0428RE320	3200	428	5500	151 x 10^3	0.926	0.739	150	0.1300	0.1530	W39	
W0428RF250	2500	428	5500	151 x 10^3	0.926	0.739	150	0.1300	0.1530	W24	
W0428RF280	2800	428	5500	151 x 10^3	0.926	0.739	150	0.1300	0.1530	W24	
W0428RF320	3200	428	5500	151 x 10^3	0.926	0.739	150	0.1300	0.1530	W24	
W0428SE250	2500	428	5500	151 x 10^3	0.926	0.739	150	0.1300	0.1530	W39	
W0428SE280	2800	428	5500	151 x 10^3	0.926	0.739	150	0.1300	0.1530	W39	
W0428SE320	3200	428	5500	151 x 10^3	0.926	0.739	150	0.1300	0.1530	W39	
W0428SF250	2500	428	5500	151 x 10^3	0.926	0.739	150	0.1300	0.1530	W24	
W0428SF280	2800	428	5500	151 x 10^3	0.926	0.739	150	0.1300	0.1530	W24	
W0428SF320	3200	428	5500	151 x 10^3	0.926	0.739	150	0.1300	0.1530	W24	
W0503RC160	1600	503	5500	151 x 10^3	0.990	0.740	180	0.1300	0.1530	W24	
W0503RC200	2000	503	5500	151 x 10^3	0.990	0.740	180	0.1300	0.1530	W24	
W0503RC240	2400	503	5500	151 x 10^3	0.990	0.740	180	0.1300	0.1530	W24	
W0503SC160	1600	503	5500	151 x 10^3	0.990	0.740	180	0.1300	0.1530	W24	
W0503SC200	2000	503	5500	151 x 10^3	0.990	0.740	180	0.1300	0.1530	W24	
W0503SC240	2400	503	5500	151 x 10^3	0.990	0.740	180	0.1300	0.1530	W24	
W0735RA120	1200	735	9000	405 x 10^3	0.790	0.342	190	0.1300	0.1530	W23	
W0735RA150	1500	735	9000	405 x 10^3	0.790	0.342	190	0.1300	0.1530	W23	
W0735SA120	1200	735	9000	405 x 10^3	0.790	0.342	190	0.1300	0.1530	W23	
W0735SA150	1500	735	9000	405 x 10^3	0.790	0.342	190	0.1300	0.1530	W23	
W1263YC200KER	2000	675	11000	405 x 10^3	0.870	0.330	175	0.1249	0.1359	W114	
W1263YC250KER	2500	675	11000	405 x 10^3	0.870	0.330	175	0.1249	0.1359	W114	
W1263YC200KES	2000	675	11000	405 x 10^3	0.870	0.330	175	0.1249	0.1359	W114	
W1263YC250KES	2500	675	11000	405 x 10^3	0.870	0.330	175	0.1249	0.1359	W114	



W23 Weight 250 g



W24 Weight 250 g



W114 Weight 650 g



W39 Weight 250 g

Standard base clamp kits *for rectifier diodes & phase control thyristors*

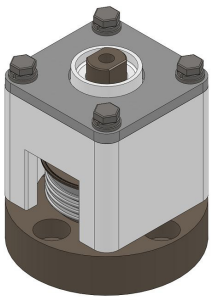
These Single side cooled square base mounting clamps are suitable for 34 mm to 50 mm diameter electrode devices with clamping force in the range from 1130 Kgf to 2140 Kgf. Suitable for devices with blocking voltages from 400 volts up to 6 KV.

Part No.	Electrode Diameter	Outline
❶ **XK1500CB034M**	34-38	WC64
XK1130SB076M	34-38	WC65
XK2140SB076M	47-50	WC66

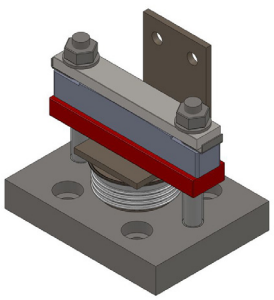
Standard part replacements to the obsolete flat-base power silicon diodes types KBN/R, KCN/R & KDN/R.
For other voltages and thyristor options please consult factory

Part No.	Old square base part no.	Base polarity	V_{RRM} V	I_{FAV} T_C = 100°C A	I_{FSM} kA	I^2t A^2s	V_T V	r_T mΩ	R_{th} K/W	Temp °C	Outlines see pages O-01...O-35
❶ **W1185LC450KBR**	SW45KBR515	Anode	4500	435	10.2	520 x 10^3	1.000	0.575	0.085	160	WC64
❶ **W1185LC450KBN**	SW45KBN515	Cathode	4500	380	10.2	520 x 10^3	1.000	0.575	0.101	160	WC64
❶ **W1411LC360KBR**	SW36KBR595	Anode	3600	505	12.2	744 x 10^3	0.900	0.388	0.085	160	WC64
❶ **W1411LC360KBN**	SW36KBN595	Cathode	3600	445	12.2	744 x 10^3	0.900	0.388	0.101	160	WC64
❶ **W1524LC300KBR**	SW30KBR636	Anode	3000	540	13.4	898 x 10^3	0.870	0.323	0.085	160	WC64
❶ **W1524LC300KBN**	SW30KBN636	Cathode	3000	470	13.4	898 x 10^3	0.870	0.323	0.101	160	WC64
❶ **W1748LC220KBR**	SW22KBR805	Anode	2200	660	13.5	911 x 10^3	0.870	0.280	0.085	175	WC64
❶ **W1748LC220KBN**	SW22KBN805	Cathode	2200	582	13.5	911 x 10^3	0.870	0.280	0.101	175	WC64
❶ **W2058LC120KBR**	SW12KBR935	Anode	1200	760	16.1	1.30 x 10^6	0.790	0.192	0.085	175	WC64
❶ **W2058LC120KBN**	SW12KBN935	Cathode	1200	665	16.1	1.30 x 10^6	0.790	0.192	0.101	175	WC64
W1185LC450KCR	SW45KBR515	Anode	4500	455	10.2	520 x 10^3	1.000	0.575	0.080	160	WC65
W1185LC450KCN	SW45KBN515	Cathode	4500	395	10.2	520 x 10^3	1.000	0.575	0.097	160	WC65
W1411LC360KCR	SW36KBR595	Anode	3600	530	13.2	756 x 10^3	0.900	0.388	0.080	160	WC65
W1411LC360KCN	SW36KBN595	Cathode	3600	460	12.3	759 x 10^3	0.900	0.388	0.097	160	WC65
W1524LC300KCR	SW30KBR635	Anode	3000	565	13.4	898 x 10^3	0.870	0.323	0.080	160	WC65
W1524LC300KCN	SW30KBN636	Cathode	3000	490	13.4	898 x 10^3	0.870	0.323	0.097	160	WC65
W1748LC220KCR	SW22KBR805	Anode	2200	690	13.5	911 x 10^3	0.870	0.280	0.080	175	WC65
W1748LC220KCN	SW22KBN805	Cathode	2200	600	13.5	911 x 10^3	0.870	0.280	0.097	175	WC65
W2058LC120KCR	SW12KBR935	Anode	1200	800	16.1	1.30 x 10^6	0.790	0.192	0.080	175	WC65
W2058LC120KCN	SW12KBN935	Cathode	1200	690	16.1	1.30 x 10^6	0.790	0.192	0.097	175	WC65
W3082MC450KDR	SB45KDR680	Anode	4500	1115	26.6	3.54 x 10^6	0.923	0.192	0.037	160	WC66
W3082MC450KDN	SB45KDN680	Cathode	4500	1030	26.6	3.54 x 10^6	0.923	0.192	0.041	160	WC66
W3708MC350KDR	SB35KDR820	Anode	3500	1240	33.7	5.68 x 10^6	0.958	0.112	0.037	160	WC66
W3708MC350KDN	SB35KDN820	Cathode	3500	1145	33.7	5.68 x 10^6	0.958	0.112	0.041	160	WC66
W3842MC280KDR	SB28KDR950	Anode	2800	1325	33.5	5.61 x 10^6	0.831	0.118	0.037	160	WC66
W3842MC280KDN	SB28KDN950	Cathode	2800	1225	33.5	5.61 x 10^6	0.831	0.118	0.041	160	WC66
W5636MC150KDR	SB15KDR14C	Anode	1500	2035	43.9	9.64 x 10^6	0.698	0.059	0.037	175	WC66
W5636MC150KDN	SB15KDN14C	Cathode	1500	1875	43.9	9.64 x 10^6	0.698	0.059	0.041	175	WC66

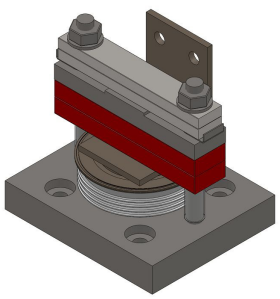
❶ = assembly supplied either as kit of parts or sub-assembly with selected diode or thyristor



WC64



WC65



WC66

Rectifier Diodes

Capsule Types

Part No.	V_{RRM}	I_{FAV}	I_{FSM}	I^2t	V_{T0}	r_T	T_{JM}	R_{thJK}		Fig. No.	Package style
		T_K = 55°C	10 ms ½ sine V_R - ≤ 60% V_{RRM}		@T_{JM}			180° Sine	120° Rect.		Outlines on pages O-01...O-35
	V	A	A	A^2s	V	mΩ	°C	K/W	K/W		
W0507YH420	4200	505	7600	289 x 10^3	0.970	0.880	160	0.1000	0.1170	W3	
W0507YH450	4500	505	7600	289 x 10^3	0.970	0.880	160	0.1000	0.1170	W3	
W0642WC160	1600	680	5500	151 x 10^3	1.070	0.676	190	0.0900	0.0980	W1	
W0642WC200	2000	680	5500	151 x 10^3	1.070	0.676	190	0.0900	0.0980	W1	
W0642WC240	2400	680	5500	151 x 10^3	1.070	0.676	190	0.0900	0.0980	W1	
W0790LG650	6500	790	6000	180 x 10^3	0.919	1.249	150	0.0394	0.0445	W120	
W0790LG720	7200	790	6000	180 x 10^3	0.919	1.249	150	0.0394	0.0445	W120	
W0880LC650	6500	880	6000	180 x 10^3	0.919	1.249	150	0.0330	0.0400	W4	
W0880LC720	7200	880	6000	180 x 10^3	0.919	1.249	150	0.0330	0.0400	W4	
W0925LG500	5000	925	7200	259 x 10^3	1.000	0.702	150	0.0394	0.0445	W120	
W0925LG560	5600	925	7200	259 x 10^3	1.000	0.702	150	0.0394	0.0445	W120	
W0925LG600	6000	925	7200	259 x 10^3	1.000	0.702	150	0.0394	0.0445	W120	
W0944WC120	1200	944	9000	405 x 10^3	0.790	0.342	190	0.0900	0.0980	W1	
W0944WC150	1500	944	9000	405 x 10^3	0.790	0.342	190	0.0900	0.0980	W1	
W1032LC500	5000	1032	7200	259 x 10^3	1.000	0.702	150	0.0330	0.0400	W4	
W1032LC560	5600	1032	7200	259 x 10^3	1.000	0.702	150	0.0330	0.0400	W4	
W1032LC600	6000	1032	7200	259 x 10^3	1.000	0.702	150	0.0330	0.0400	W4	
W1060LG420	4200	1060	9200	423 x 10^3	1.000	0.575	160	0.0394	0.0445	W120	
W1060LG450	4500	1060	9200	423 x 10^3	1.000	0.575	160	0.0394	0.0445	W120	
W1074YC200	2000	1074	10800	583 x 10^3	0.920	0.390	160	0.0500	0.0610	W2	
W1074YC260	2600	1074	10800	583 x 10^3	0.920	0.390	160	0.0500	0.0610	W2	
W1074YC320	3200	1074	10800	583 x 10^3	0.920	0.390	160	0.0500	0.0610	W2	
W1074YH200	2000	1074	10800	583 x 10^3	0.920	0.390	160	0.0500	0.0610	W3	
W1074YH260	2600	1074	10800	583 x 10^3	0.920	0.390	160	0.0500	0.0610	W3	
W1074YH320	3200	1074	10800	583 x 10^3	0.920	0.390	160	0.0500	0.0610	W3	
W1185LC420	4200	1185	9200	423 x 10^3	1.000	0.575	160	0.0330	0.0393	W4	
W1185LC450	4500	1185	9200	423 x 10^3	1.000	0.575	160	0.0330	0.0393	W4	
W1260LG320	3200	1260	10600	562 x 10^3	0.900	0.388	160	0.0394	0.0445	W120	
W1260LG360	3600	1260	10600	562 x 10^3	0.900	0.388	160	0.0394	0.0445	W120	
W1263YC160	1600	1263	11700	684 x 10^3	0.870	0.330	175	0.0500	0.0610	W2	
W1263YC220	2200	1263	11700	684 x 10^3	0.870	0.330	175	0.0500	0.0610	W2	
W1263YC250	2500	1263	11700	684 x 10^3	0.870	0.330	175	0.0500	0.0610	W2	
W1263YH160	1600	1263	11700	684 x 10^3	0.870	0.330	175	0.0500	0.0610	W3	
W1263YH200	2000	1263	11700	684 x 10^3	0.870	0.330	175	0.0500	0.0610	W3	
W1263YH250	2500	1263	11700	684 x 10^3	0.870	0.330	175	0.0500	0.0610	W3	
W1360LG240	2400	1360	12700	800 x 10^3	0.870	0.323	160	0.0394	0.0445	W120	
W1360LG300	3000	1360	12700	800 x 10^3	0.870	0.323	160	0.0394	0.0445	W120	
W1411LC320	3200	1411	10600	562 x 10^3	0.900	0.388	160	0.0330	0.0393	W4	
W1411LC360	3600	1411	10600	562 x 10^3	0.900	0.388	160	0.0330	0.0393	W4	
W1520NC500	5000	1478	12000	720 x 10^3	0.904	0.552	150	0.0220	0.0255	W5	
W1520NC600	6000	1478	12000	720 x 10^3	0.904	0.552	150	0.0220	0.0255	W5	
W1524LC240	2400	1524	12700	800 x 10^3	0.870	0.323	160	0.0330	0.0393	W4	
W1524LC300	3000	1524	12700	800 x 10^3	0.870	0.323	160	0.0330	0.0393	W4	
W1730JK240	2400	1730	12700	800 x 10^3	0.870	0.323	160	0.0270	0.0314	W113	
W1730JK280	2800	1730	12700	800 x 10^3	0.870	0.323	160	0.0270	0.0314	W113	





W1 Weight 70 g



W2 Weight 80 g



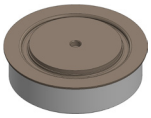
W3 Weight 140 g



W4 Weight 340 g



W5 Weight 510 g

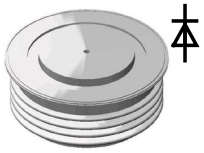


W113 Weight 200 g

Rectifier Diodes

Capsule Types

Part No. ○ Not for new design ➢ New	V_{RRM} V	I_{FAV} T_K = 55°C A	I_{FSM} 10 ms ½ sine V_R - ≤ 60% V_{RRM} A	I^2t A²s	V_{T0} @T_{JM} V	r_T mΩ	T_{JM} °C	R_{thJK} 180° Sine K/W	R_{thJK} 120° Rect. K/W	Fig. No.	Package style Outlines on pages O-01...O-35
W1748LC180	1800	1748	15400	118 x 10^3	0.87	0.28	175	0.033	0.0393	W4	
W1748LC250	2500	1748	15400	118 x 10^3	0.87	0.28	175	0.033	0.0393	W4	
W1856NC460	4600	1856	16000	128 x 10^3	0.975	0.348	160	0.0220	0.0255	W5	
W1856NC480	4800	1856	16000	128 x 10^3	0.975	0.348	160	0.0220	0.0255	W5	
W1975MC650	6500	1975	18000	1.62 x 10^5	0.950	0.510	150	0.0140	0.0158	W54	
W1975MC680	6800	1975	18000	1.62 x 10^6	0.950	0.510	150	0.0140	0.0158	W54	
W1975MC720	7200	1975	18000	1.62 x 10^6	0.950	0.510	150	0.0140	0.0158	W54	
W1980JK180	1800	1980	15400	1.18 x 10^6	0.870	0.280	175	0.0270	0.0314	W113	
W1980JK220	2200	1980	15400	1.18 x 10^6	0.870	0.280	175	0.0270	0.0314	W113	
W2054NC420	4200	2054	19000	1.81 x 10^6	0.800	0.300	160	0.0220	0.0274	W5	
W2054NC450	4500	2054	19000	1.81 x 10^6	0.800	0.300	160	0.0220	0.0274	W5	
W2058LC100	1000	2058	19500	1.90 x 10^6	0.790	0.192	175	0.0330	0.0393	W4	
W2058LC120	1200	2058	19500	1.90 x 10^6	0.790	0.192	175	0.0330	0.0393	W4	
W2058LC140	1400	2058	19500	1.90 x 10^6	0.790	0.192	175	0.0330	0.0393	W4	
W2115MC520	5200	2122	19000	1.81 x 10^6	1.074	0.405	150	0.0140	0.0158	W54	
W2115MC560	5600	2122	19000	1.81 x 10^6	1.074	0.405	150	0.0140	0.0158	W54	
W2115MC600	6000	2122	19000	1.81 x 10^6	1.074	0.405	150	0.0140	0.0158	W54	
W2134NC360	3600	2134	20000	2.00 x 10^6	0.865	0.260	160	0.0220	0.0255	W5	
W2134NC400	4000	2134	20000	2.00 x 10^6	0.865	0.260	160	0.0220	0.0255	W5	
W2340JK120	1200	2340	19500	1.90 x 10^6	0.790	0.192	175	0.0270	0.0314	W113	
W2340JK150	1500	2340	19500	1.90 x 10^6	0.790	0.192	175	0.0270	0.0314	W113	
W2624NC240	2400	2624	28000	3.92 x 10^6	0.780	0.160	160	0.0220	0.0255	W5	
W2624NC280	2800	2624	28000	3.92 x 10^6	0.780	0.160	160	0.0220	0.0255	W5	
W2624ND240	2400	2624	28000	3.92 x 10^6	0.780	0.160	160	0.0220	0.0255	W37	
W2624ND280	2800	2624	28000	3.92 x 10^6	0.780	0.160	160	0.0220	0.0255	W37	
W2820VC420	4200	2820	26200	3.43 x 10^6	1.300	0.147	160	0.0160	0.0190	W6	
W2820VC450	4500	2820	26200	3.43 x 10^6	1.300	0.147	160	0.0160	0.0190	W6	
W2820VF420	4200	2820	26200	3.43 x 10^6	1.300	0.147	160	0.0160	0.0190	W43	
W2820VF450	4500	2820	26200	3.43 x 10^6	1.300	0.147	160	0.0160	0.0190	W43	
W2830HE520	5200	2830	32000	5.12 x 10^6	0.910	0.260	150	0.0123	0.0133	W123	
W2830HE560	5600	2830	32000	5.12 x 10^6	0.910	0.260	150	0.0123	0.0133	W123	
W2830HE600	6000	2830	32000	5.12 x 10^6	0.910	0.260	150	0.0123	0.0133	W123	
➢ **W2840QA180**	1800	2840	20000	2.00 x 10^6	0.940	0.139	180	0.0230	0.0255	W117	
➢ **W2840QA220**	2200	2840	20000	2.00 x 10^6	0.940	0.139	180	0.0230	0.0255	W117	
➢ **W2865HA680**	6800	2862	32400	5.25 x 10^6	0.982	0.308	150	0.0105	0.0116	W121	
➢ **W2865HA720**	7200	2862	32400	5.25 x 10^6	0.982	0.308	150	0.0105	0.0116	W121	
W2899MC460	4600	2899	25400	3.23 x 10^6	0.996	0.222	160	0.0140	0.0158	W54	
W2899MC480	4800	2899	25400	3.23 x 10^6	0.996	0.222	160	0.0140	0.0158	W54	
W3082MC420	4200	3120	26000	3.38 x 10^6	0.923	0.192	160	0.0140	0.0160	W54	
W3082MC450	4500	3120	26000	3.38 x 10^6	0.923	0.192	160	0.0140	0.0160	W54	
W3090HA520	5200	3110	32000	5.12 x 10^6	0.910	0.260	150	0.0105	0.0116	W121	
W3090HA560	5600	3110	32000	5.12 x 10^6	0.910	0.260	150	0.0105	0.0116	W121	
W3090HA600	6000	3110	32000	5.12 x 10^6	0.910	0.260	150	0.0105	0.0116	W121	
○ **W3128VC360**	3600	3128	30000	4.50 x 10^6	0.875	0.158	160	0.0160	0.0190	W6	
○ **W3128VC400**	4000	3128	30000	4.50 x 10^6	0.875	0.158	160	0.0160	0.0190	W6	
○ **W3128VF360**	3600	3128	30000	4.50 x 10^6	0.875	0.158	160	0.0160	0.0190	W43	
○ **W3128VF400**	4000	3128	30000	4.50 x 10^6	0.875	0.158	160	0.0160	0.0190	W43	

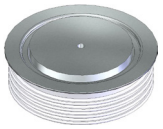

W4 Weight 340 g

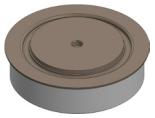

W5 Weight 510 g

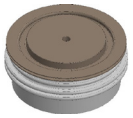

W6 Weight 1000 g

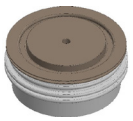

W37 Weight 510 g

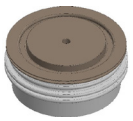

W43 Weight 800 g


W54 Weight 530 g


W113 Weight 200 g


W117 Weight 330 g


W121 Weight 330 g


W123 Weight 330 g

Rectifier Diodes

Capsule Types

Part No. ❖ Avalanche rated diode ○ Not for new design ➢ New	V_{RRM} V	I_{FAV} T_K = 55°C A	I_{FSM} 10 ms ½ sine V_R - ≤ 60% V_{RRM} A	I^2t A²s	V_{T0} @T_{JM} V	r_T mΩ	T_{JM} °C	R_{thJK} 180° Sine K/W	R_{thJK} 120° Rect. K/W	Fig. No.	Package style Outlines on pages O-01...O-35
❖ **W3270NC20A**	2000	3239	27600	3.81 x 10^6	0.818	0.108	175	0.0220	0.0255	W5	
❖ **W3270NC22A**	2200	3239	27600	3.81 x 10^6	0.818	0.108	175	0.0220	0.0255	W5	
W3270NC180	2000	3270	28000	3.92 x 10^6	0.826	0.104	175	0.0220	0.0255	W5	
W3270NC220	2200	3270	28000	3.92 x 10^6	0.826	0.104	175	0.0220	0.0255	W5	
W3305QK240	2400	3305	18500	1.71 x 10^6	0.910	0.150	175	0.0170	0.0207	WD2	
W3305QK280	2800	3305	18500	1.71 x 10^6	0.910	0.150	175	0.0170	0.0207	WD2	
➢ **W3409NK240**	2400	3409	28000	3.92 x 10^6	0.780	0.160	160	0.0145	0.0171	WD8	
➢ **W3409NK280**	2800	3409	28000	3.92 x 10^6	0.780	0.160	160	0.0145	0.0171	WD8	
W3455QK200	2000	3455	20000	2.00 x 10^6	0.940	0.139	180	0.0170	0.0207	WD2	
W3455QK220	2200	3455	20000	2.00 x 10^6	0.940	0.139	180	0.0170	0.0207	WD2	
W3477MC360	3600	3470	28200	3.98 x 10^6	0.908	0.146	160	0.0140	0.0158	W54	
W3477MC400	4000	3470	28200	3.98 x 10^6	0.908	0.146	160	0.0140	0.0158	W54	
W3630TJ650	6500	3630	35000	6.125 x 10^6	0.916	0.262	150	0.0080	0.0085	W89	
W3630TJ720	7200	3630	35000	6.125 x 10^6	0.916	0.262	150	0.0080	0.0085	W89	
W3630TE650	6500	3630	35000	6.125 x 10^6	0.916	0.262	150	0.0080	0.0085	W94	
W3630TE720	7200	3630	35000	6.125 x 10^6	0.916	0.262	150	0.0080	0.0085	W94	
W3697VC220	2200	3697	40000	8.00 x 10^6	0.860	0.100	160	0.0160	0.0190	W6	
W3697VC280	2800	3697	40000	8.00 x 10^6	0.860	0.100	160	0.0160	0.0190	W6	
W3697VF220	2200	3697	40000	8.00 x 10^6	0.860	0.100	160	0.0160	0.0190	W43	
W3697VF280	2800	3697	40000	8.00 x 10^6	0.860	0.100	160	0.0160	0.0190	W43	
W3708MC320	3200	3753	30000	4.50 x 10^6	0.958	0.112	160	0.0140	0.0158	W54	
W3708MC350	3500	3753	30000	4.50 x 10^6	0.958	0.112	160	0.0140	0.0158	W54	
○ **W3743ZC400**	4000	3750	35000	6.13 x 10^6	0.976	0.170	160	0.0110	0.0132	W7	
○ **W3743ZC450**	4500	3750	35000	6.13 x 10^6	0.976	0.170	160	0.0110	0.0132	W7	
○ **W3743ZC500**	5000	3750	35000	6.13 x 10^6	0.976	0.170	160	0.0110	0.0132	W7	
○ **W3743ZD400**	4000	3750	35000	6.13 x 10^6	0.976	0.170	160	0.0110	0.0132	W42	
○ **W3743ZD450**	4500	3750	35000	6.13 x 10^6	0.976	0.170	160	0.0110	0.0132	W42	
○ **W3743ZD500**	5000	3750	35000	6.13 x 10^6	0.976	0.170	160	0.0110	0.0132	W42	
W3841VC300	3000	3841	39800	7.92 x 10^6	0.860	0.115	175	0.0160	0.0190	W6	
W3841VC340	3400	3841	39800	7.92 x 10^6	0.860	0.115	175	0.0160	0.0190	W6	
W3841VF300	3000	3841	39800	7.92 x 10^6	0.860	0.115	175	0.0160	0.0190	W43	
W3841VF340	3400	3841	39800	7.92 x 10^6	0.860	0.115	175	0.0160	0.0190	W43	
W3842MC240	2400	3842	35100	6.1^6 x 10^6	0.831	0.118	160	0.0140	0.0158	W54	
W3842MC280	2800	3842	35100	6.1^6 x 10^6	0.831	0.118	160	0.0140	0.0158	W54	
❖ **W3842MC28A**	2800	3842	35100	6.1^6 x 10^6	0.831	0.118	160	0.0140	0.0158	W54	
W3864QK120	1200	3864	22200	2.4^6 x 10^6	0.861	0.109	180	0.0170	0.0210	WD2	
W3864QK150	1500	3864	22200	2.4^6 x 10^6	0.861	0.109	180	0.0170	0.0210	WD2	
W3864QK180	1800	3864	22200	2.4^6 x 10^6	0.861	0.109	180	0.0170	0.0210	WD2	
W4096ZC420	4200	4096	41700	8.70 x 10^6	0.730	0.158	160	0.0110	0.0132	W7	
W4096ZC450	4500	4096	41700	8.70 x 10^6	0.730	0.158	160	0.0110	0.0132	W7	
W4096ZD420	3400	4096	41700	8.70 x 10^6	0.730	0.158	160	0.0110	0.0132	W42	
W4096ZD450	4500	4096	41700	8.70 x 10^6	0.730	0.158	160	0.0110	0.0132	W42	
W4205TJ520	5200	4205	45000	10.1 x 10^6	0.850	0.190	150	0.0080	0.0085	W89	
W4205TJ560	5600	4205	45000	10.1 x 10^6	0.850	0.190	150	0.0080	0.0085	W89	
W4205TJ600	6000	4205	45000	10.1 x 10^6	0.850	0.190	150	0.0080	0.0085	W89	
W4205TE520	5200	4205	45000	10.1 x 10^6	0.850	0.190	150	0.0080	0.0085	W94	
W4205TE560	5600	4205	45000	10.1 x 10^6	0.850	0.190	150	0.0080	0.0085	W94	
W4205TE600	6000	4205	45000	10.1 x 10^6	0.850	0.190	150	0.0080	0.0085	W94	



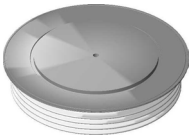
W5 Weight 510 g



W6 Weight 1 kg



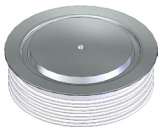
W7 Weight 1.7 kg



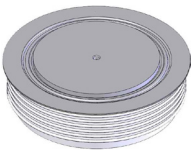
W42 Weight 1.2 kg



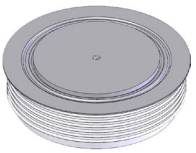
W43 Weight 800 g



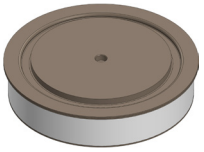
W54 Weight 530 g



W89 Weight 1.3 kg



W94 Weight 1.6 kg



WD8 Weight 250 g

Rectifier Diodes

Capsule Types

Part No. ○ Not for new design ➢ New	V_{RRM} V	I_{FAV} T_K = 55°C A	I_{FSM} 10 ms ½ sine V_R - ≤ 60% V_{RRM} A	I^2t A²s	V_{T0} @T_{JM} V	r_T mΩ	T_{JM} °C	R_{thJK} 180° Sine K/W	R_{thJK} 120° Rect. K/W	Fig. No.	Package style Outlines on pages O-01...O-35
➢ **W4295NK200**	2000	4295	28000	3.92 x 10^6	0.826	0.104	175	0.0145	0.0171	WD8	
➢ **W4295NK220**	2200	4295	28000	3.92 x 10^6	0.826	0.104	175	0.0145	0.0171	WD8	
W4534NC030	300	4534	40000	8.00 x 10^6	0.765	0.052	190	0.0220	0.0255	W5	
W4534NC060	600	4534	40000	8.00 x 10^6	0.765	0.052	190	0.0220	0.0255	W5	
➢ **W4534ND030**	300	4534	40000	8.00 x 10^6	0.765	0.052	190	0.0220	0.0255	W37	
➢ **W4534ND060**	600	4534	40000	8.00 x 10^6	0.765	0.052	190	0.0220	0.0255	W37	
➢ **W4550HA360**	3600	4550	35000	6.13×10^6	0.812	0.123	160	0.0105	0.0116	W121	
➢ **W4550HA400**	4000	4550	35000	6.13×10^6	0.812	0.123	160	0.0150	0.0116	W121	
W4693QK050	500	4693	31500	4.98 x 10^6	0.904	0.057	180	0.0170	0.0207	WD2	
W4693QK080	800	4693	31500	4.98 x 10^6	0.904	0.057	180	0.0170	0.0207	WD2	
W4693QR050	500	4693	31500	4.98 x 10^6	0.904	0.057	180	0.0170	0.0207	WD7	
W4693QR080	800	4693	31500	4.98 x 10^6	0.904	0.057	180	0.0170	0.0207	WD7	
○ **W4713HL300**	3000	4713	56000	15.70 x 10^6	0.807	0.090	160	0.0120	0.0132	WD5	
○ **W4713HL350**	3500	4713	56000	15.70 x 10^6	0.807	0.090	160	0.0120	0.0132	WD5	
○ **W4713HM300**	3000	4713	56000	15.70 x 10^6	0.807	0.090	160	0.0120	0.0132	WD6	
○ **W4713HM350**	3500	4713	56000	15.70 x 10^6	0.807	0.090	160	0.0120	0.0132	WD6	
W4767MC180	1800	4755	38000	7.22 x 10^6	0.827	0.083	175	0.0140	0.0158	W54	
W4767MC220	2200	4755	38000	7.22 x 10^6	0.827	0.083	175	0.0140	0.0158	W54	
W5092ZC320	3200	5092	58000	16.8 x 10^6	0.874	0.079	160	0.0110	0.0132	W7	
W5092ZC350	3500	5092	58000	16.8 x 10^6	0.874	0.079	160	0.0110	0.0132	W7	
W5092ZD320	3200	5092	58000	16.8 x 10^6	0.874	0.079	160	0.0110	0.0132	W42	
W5092ZD350	3500	5092	58000	16.8 x 10^6	0.874	0.079	160	0.0110	0.0132	W42	
W5130MK240	2400	5130	42000	8.82 x 10^6	0.910	0.070	175	0.0130	0.0149	WD3	
W5130MK280	2800	5130	42000	8.82 x 10^6	0.910	0.070	175	0.0130	0.0149	WD3	
W5139TJ450	4500	5139	55000	15.10 x 10^6	0.826	0.136	160	0.0080	0.0085	W89	
W5139TJ480	4800	5139	55000	15.10 x 10^6	0.826	0.136	160	0.0080	0.0085	W89	
W5139TE450	4500	5139	55000	15.10 x 10^6	0.826	0.136	160	0.0080	0.0085	W94	
W5139TE480	4800	5139	55000	15.10 x 10^6	0.826	0.136	160	0.0080	0.0085	W94	
W5282ZC240	2400	5282	60000	18.00 x 10^6	0.970	0.064	160	0.0110	0.0132	W7	
W5282ZC300	3000	5282	60000	18.00 x 10^6	0.970	0.064	160	0.0110	0.0132	W7	
W5282ZD240	2400	5282	60000	18.00 x 10^6	0.970	0.064	160	0.0110	0.0132	W42	
W5282ZD300	3000	5282	60000	18.00 x 10^6	0.970	0.064	160	0.0110	0.0132	W42	
W5334MK200	2000	5334	46800	10.95 x 10^6	0.892	0.069	180	0.0130	0.0149	WD3	
W5334MK220	2200	5334	46800	10.95 x 10^6	0.892	0.069	180	0.0130	0.0149	WD3	
W5636MC120	1200	5636	46000	10.58 x 10^6	0.698	0.059	175	0.0140	0.0160	W54	
W5636MC150	1500	5636	46000	10.58 x 10^6	0.698	0.059	175	0.0140	0.0160	W54	
W5696VC100	1000	5696	53000	14.00 x 10^6	0.650	0.059	190	0.0160	0.0190	W6	
W5696VC140	1400	5696	53000	14.00 x 10^6	0.650	0.059	190	0.0160	0.0190	W6	
W5696VF100	1000	5696	53000	14.00 x 10^6	0.650	0.059	190	0.0160	0.0190	W43	
W5696VF140	1400	5696	53000	14.00 x 10^6	0.650	0.059	190	0.0160	0.0190	W43	
W5715ED520	5200	5715	60600	18.3^6 x 10^6	0.863	0.135	150	0.0060	0.0063	W112	
W5715ED560	5600	5715	60600	18.3^6 x 10^6	0.863	0.135	150	0.0060	0.0063	W112	
W5715ED600	6000	5715	66000	18.3^6 x 10^6	0.863	0.135	150	0.0060	0.0063	W112	
W5838ZC180	1800	5838	64000	20.50 x 10^6	0.800	0.074	175	0.0110	0.0132	W7	
W5838ZC220	2200	5838	64000	20.50 x 10^6	0.800	0.074	175	0.0110	0.0132	W7	
W5838ZD180	1800	5838	64000	20.50 x 10^6	0.800	0.074	175	0.0110	0.0132	W42	
W5838ZD220	2200	5838	64000	20.50 x 10^6	0.800	0.074	175	0.0110	0.0132	W42	
W5984TJ360	3600	5984	62000	19.20 x 10^6	0.758	0.097	160	0.0080	0.0085	W89	
W5984TJ400	4000	5984	62000	19.20 x 10^6	0.758	0.097	160	0.0080	0.0085	W89	





WD2 Weight 200 g



WD3 Weight 270 g



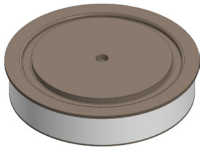
WD5 Weight 1.2 kg



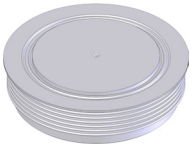
WD6 Weight 1.5 kg



WD7 Weight 200 g



WD8 Weight 250 g



W112 Weight 2.1 kg

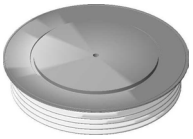
Rectifier Diodes

Capsule Types

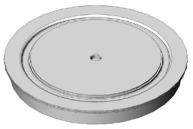
Part No.	V_{RRM}	I_{FAV}	I_{FSM}	I^2t	V_{T0}	r_T	T_{JM}	R_{thJK}		Fig. No.	Package style
		T_K = 55°C	10 ms ½ sine V_R - ≤ 60% V_{RRM}		@ T_{JM}			180° Sine	120° Rect.		Outlines on pages O-01...O-35
➢ New	V	A	A	A^2s	V	mΩ	°C	K/W	K/W		
W5984TE360	3600	5984	62000	19.20 x 10^6	0.758	0.097	160	0.0080	0.0085	W94	
W5984TE400	4000	5984	62000	19.20 x 10^6	0.758	0.097	160	0.0080	0.0085	W94	
W6262ZC200	2000	6262	67000	22.40 x 10^6	0.730	0.064	175	0.0110	0.0132	W7	
W6262ZC240	2400	6262	67000	22.40 x 10^6	0.730	0.064	175	0.0110	0.0132	W7	
W6262ZD200	2000	6262	67000	22.40 x 10^6	0.730	0.064	175	0.0110	0.0132	W42	
W6262ZD240	2400	6262	67000	22.40 x 10^6	0.730	0.064	175	0.0110	0.0132	W42	
W6360EC520	5200	6360	60600	18.36 x 10^6	0.863	0.135	150	0.0050	0.0054	W111	
W6360EC560	5600	6360	60600	18.36 x 10^6	0.863	0.135	150	0.0050	0.0054	W111	
W6360EC600	6000	6360	66000	18.36 x 10^6	0.863	0.135	150	0.0050	0.0054	W111	
W7032DB020	200	8690	49500	12.30 x 10^6	0.700	0.029	170	0.0100	0.0136	W49	
W7032DB040	400	8690	49500	12.30 x 10^6	0.700	0.029	170	0.0100	0.0136	W49	
W7045MC030	300	7045	54000	14.60 x 10^6	0.793	0.033	190	0.0140	0.0158	W54	
W7045MC060	600	7045	54000	14.60 x 10^6	0.793	0.033	190	0.0140	0.0158	W54	
➢ **W8400ED320**	3200	8400	83000	34.40 x 10^6	0.817	0.061	160	0.0060	0.0063	W112	
➢ **W8400ED350**	3500	8400	83000	34.40 x 10^6	0.817	0.061	160	0.0060	0.0063	W112	
W8405ZC100	1000	8405	72000	25.90 x 10^6	0.670	0.038	190	0.0110	0.0132	W7	
W8405ZC140	1400	8405	72000	25.90 x 10^6	0.670	0.038	190	0.0110	0.0132	W7	
W8405ZD100	1000	8405	72000	25.90 x 10^6	0.670	0.038	190	0.0110	0.0132	W42	
W8405ZD140	1400	8405	72000	25.90 x 10^6	0.670	0.038	190	0.0110	0.0132	W42	
W8570TJ180	1800	8570	70200	24.60 x 10^6	0.690	0.050	175	0.0080	0.0085	W89	
W8570TJ220	2200	8570	70200	24.60 x 10^6	0.690	0.050	175	0.0080	0.0085	W89	
W8570TE180	1800	8570	70200	24.60 x 10^6	0.690	0.050	175	0.0080	0.0085	W94	
W8570TE220	2200	8570	70200	24.60 x 10^6	0.690	0.050	175	0.0080	0.0085	W94	
W9830TJ120	1200	9830	72000	25.90 x 10^6	0.670	0.043	190	0.0080	0.0085	W89	
W9830TJ150	1500	9830	72000	25.90 x 10^6	0.670	0.043	190	0.0080	0.0085	W89	
W9830TE120	1200	9830	72000	25.90 x 10^6	0.670	0.043	190	0.0080	0.0085	W94	
W9830TE150	1500	9830	72000	25.90 x 10^6	0.670	0.043	190	0.0080	0.0085	W94	
W106CEC240	2400	10650	92000	42.32 x 10^6	0.734	0.047	160	0.0050	0.0054	W111	
W106CEC280	2800	10650	92000	42.32 x 10^6	0.734	0.047	160	0.0050	0.0054	W111	
➢ **W108CED180**	1800	10815	94500	44.65 x 10^6	0.726	0.042	175	0.0060	0.0063	W112	
➢ **W108CED220**	2200	10815	94500	44.65 x 10^6	0.726	0.042	175	0.0060	0.0063	W112	
W121CEC180	1800	12100	94500	44.65 x 10^6	0.726	0.042	175	0.0050	0.0054	W111	
W121CEC220	2200	12100	94500	44.65 x 10^6	0.726	0.042	175	0.0050	0.0054	W111	



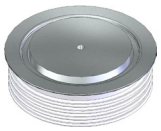
W7 Weight 17 kg



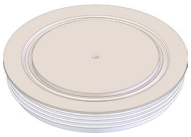
W42 Weight 1.2 kg



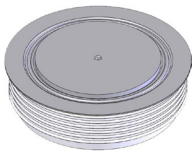
W49 Weight 120 g



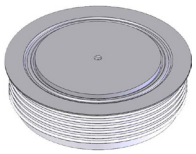
W54 Weight 530 g



W111 Weight 1.6 kg



W94 Weight 1.6 kg



W89 Weight 1.3 kg

Fast Recovery Diodes

Fast Recovery Diodes are an essential complement to any switching device and are more often than not the limiting factor in the design and performance of modern power converters. To address the needs of our customers, we have developed an unparalleled range of Fast Recovery Diodes. These diodes are available with blocking voltages up to 6.5 kV making them suitable for operation with DC link voltages up to 3.3 kV and average current ratings to 4 kA depending upon type. The devices utilise both alloyed and floating silicon technologies to deliver robust devices that you can rely on in demanding applications. This range has been sub-classified as follows to aid appropriate device selection; Fast Recovery, Soft Recovery, Extra Fast Recovery Diodes and HP Sonic-FRDs.

Standard Fast Recovery Capsule Types

These parts are particularly suitable for use as anti-parallel diodes in Gate Turn-Off thyristors and Fast Thyristor inverters, diodes for choppers.

Part No.	V_{RRM}	I_{FAV}	I_{FSM}	I^2t	Typ. Reverse Recovery T_J = 150°C				V_{T0}	r_T	T_{JM}	R_{thJK}	Fig. No.	Package style
		T_K = 55°C	10 ms ½ sine V_R - ≤ 60% V_{RRM}		t_{rr}	Q_{rr}	@I_{FM}	@ $-di_F/dt$	@T_{JM} = 150°C			d.c. 180° sine		Outlines on pages O-01...O-35
	V	A	A	A^2s	µs	µC	A	A/µs	V	mΩ	°C	K/W		
M0588LC400	4000	588	3955	78.2 x 10^3	3.50	450	1000	60	2.320	1.770	150	0.0330	W4	
M0588LC450	4500	588	3955	78.2 x 10^3	3.50	450	1000	60	2.320	1.770	150	0.0330	W4	
M0790YC200	2000	790	9000	405 x 10^3	4.00	425	1000	60	1.272	0.584	150	0.0500	W2	
M0790YC250	2500	790	9000	405 x 10^3	4.00	425	1000	60	1.272	0.584	150	0.0500	W2	W2 Weight 80 g
M0790YH200	2000	790	9000	405 x 10^3	4.00	425	1000	60	1.272	0.584	150	0.0500	W3	
M0790YH250	2500	790	9000	405 x 10^3	4.00	425	1000	60	1.272	0.584	150	0.0500	W3	
M0914LC200	2000	914	8500	361 x 10^3	3.20	300	1000	60	1.768	0.653	150	0.0320	W4	
M0914LC250	2500	914	8500	361 x 10^3	3.20	300	1000	60	1.768	0.653	150	0.0320	W4	
M1010NC400	4000	1010	9600	461 x 10^3	3.20	1450	1000	200	1.700	1.030	150	0.0220	W5	W3 Weight 140 g
M1010NC450	4500	1010	9600	461 x 10^3	3.20	1450	1000	200	1.700	1.030	150	0.0220	W5	
M1010ND400	4000	1010	9600	461 x 10^3	3.20	1450	1000	200	1.700	1.030	150	0.0220	W37	
M1010ND450	4500	1010	9600	461 x 10^3	3.20	1450	1000	200	1.700	1.030	150	0.0220	W37	
M1163NC400	4000	1163	10800	583 x 10^3	6.40	1200	1000	60	1.500	0.770	150	0.0220	W5	W4 Weight 340 g
M1163NC450	4500	1163	10800	583 x 10^3	6.40	1200	1000	60	1.500	0.770	150	0.0220	W5	
M1163ND400	4000	1163	10800	583 x 10^3	6.40	1200	1000	60	1.500	0.770	150	0.0220	W37	
M1163ND450	4500	1163	10800	583 x 10^3	6.40	1200	1000	60	1.500	0.770	150	0.0220	W37	
M1502NC200	2000	1502	17000	1.45 x 10^6	3.50	350	1000	60	1.240	0.440	150	0.0220	W5	
M1502NC250	2500	1502	17000	1.45 x 10^6	3.50	350	1000	60	1.240	0.440	150	0.0220	W5	
M1502ND200	2000	1502	17000	1.45 x 10^6	3.50	350	1000	60	1.240	0.440	150	0.0220	W37	W5 Weight 510 g
M1502ND250	2500	1502	17000	1.45 x 10^6	3.50	350	1000	60	1.240	0.440	150	0.0220	W37	
M1583VC400	4000	1583	24800	3.08 x 10^6	5.00	2000	1000	200	1.693	0.525	150	0.0160	W6	
M1583VC450	4500	1583	24800	3.08 x 10^6	5.00	2000	1000	200	1.693	0.525	150	0.0160	W6	
M1583VF400	4000	1583	24800	3.08 x 10^6	5.00	2000	1000	200	1.693	0.525	150	0.0160	W43	
M1583VF450	4500	1583	24800	3.08 x 10^6	5.00	2000	1000	200	1.693	0.525	150	0.0160	W43	W6 Weight 1 kg
M1609NC200	2000	1609	17500	1.53 x 10^6	3.20	800	1000	200	1.310	0.345	150	0.0220	W5	
M1609NC260	2600	1609	17500	1.53 x 10^6	3.20	800	1000	200	1.310	0.345	150	0.0220	W5	
M1609ND200	2000	1609	17500	1.53 x 10^6	3.20	800	1000	200	1.310	0.345	150	0.0220	W37	
M1609ND260	2600	1609	17500	1.53 x 10^6	3.20	800	1000	200	1.310	0.345	150	0.0220	W37	W37 Weight 510 g
M2273VC300	3000	2273	28000	3.92 x 10^6	8.50	2500	1000	60	1.239	0.244	150	0.0160	W6	
M2273VC360	3600	2273	28000	3.92 x 10^6	8.50	2500	1000	60	1.239	0.244	150	0.0160	W6	
M2273VF300	3000	2273	28000	3.92 x 10^6	8.50	2500	1000	60	1.239	0.244	150	0.0160	W43	
M2273VF360	3600	2273	28000	3.92 x 10^6	8.50	2500	1000	60	1.239	0.244	150	0.0160	W43	W43 Weight 800 g
M2325HA400	4000	2325	28000	3.92 x 10^6	5.40	2300	1000	200	1.581	0.402	150	0.0105	W121	
M2325HA450	4500	2325	28000	3.92 x 10^6	5.40	2300	1000	200	1.581	0.402	150	0.0105	W121	

Standard Fast Recovery Capsule Types

These parts are particularly suitable for use as anti-parallel diodes in Gate Turn-Off thyristors and Fast Thyristor inverters, diodes for choppers.

Part No.	V_{RRM}	I_{FAV}	I_{FSM}	I^2t	Typ. Reverse Recovery T_J = 150°C				V_{T0}	r_T	T_{JM}	R_{thJK} d.c.	Fig. No.	Package style
		T_K = 55°C	10 ms ½ sine V_R - ≤ 60% V_{RRM}		t_{rr}	Q_{rr}	@I_{FM}	@ -di_F/dt	@T_{JM} = 150°C			180° sine		Outlines on pages O-01...O-35
➢ New	V	A	A	A^2s	µs	µC	A	A/µs	V	mΩ	°C	K/W		
M2408NC020	200	2408	24000	2.88 x 10^6	1.90	250	1000	200	1.065	0.122	150	0.0220	W5	
M2408NC060	600	2408	24000	2.88 x 10^6	1.90	250	1000	200	1.065	0.122	150	0.0220	W5	
M2408ND020	200	2408	24000	2.88 x 10^6	1.90	250	1000	200	1.065	0.122	150	0.0220	W37	
M2408ND060	600	2408	24000	2.88 x 10^6	1.90	250	1000	200	1.065	0.122	150	0.0220	W37	
➢ **M2505MC220**	2200	2505	27000	3.65 x 10^6	7.60	1950	2000	60	0.991	0.162	125	0.0140	W54	
➢ **M2505MC250**	2500	2505	27000	3.65 x 10^6	7.60	1950	2000	60	0.991	0.162	125	0.0140	W54	
M2639ZC360	3600	2639	27520	3.79 x 10^6	8.50	2300	1000	60	1.380	0.290	150	0.0110	W7	
M2639ZC420	4200	2639	27520	3.79 x 10^6	8.50	2300	1000	60	1.380	0.290	150	0.0110	W7	
M2639ZD360	3600	2639	27520	3.79 x 10^6	8.50	2300	1000	60	1.380	0.290	150	0.0110	W42	
M2639ZD420	4200	2639	27520	3.79 x 10^6	8.50	2300	1000	60	1.380	0.290	150	0.0110	W42	
M2698ZC250	2500	2698	27800	3.86 x 10^6	6.20	1200	1000	60	1.000	0.330	150	0.0110	W7	
M2698ZC280	2800	2698	27800	3.86 x 10^6	6.20	1200	1000	60	1.000	0.330	150	0.0110	W7	
M2698ZC350	3500	2698	27800	3.86 x 10^6	6.20	1200	1000	60	1.000	0.330	150	0.0110	W7	
M2698ZD250	2500	2698	27800	3.86 x 10^6	6.20	1200	1000	60	1.000	0.330	150	0.0110	W42	
M2698ZD280	2800	2698	27800	3.86 x 10^6	6.20	1200	1000	60	1.000	0.330	150	0.0110	W42	
M2698ZD350	3500	2698	27800	3.86 x 10^6	6.20	1200	1000	60	1.000	0.330	150	0.0110	W42	
M2837VC180	1800	2837	31800	5.10 x 10^6	7.00	2100	1000	60	0.900	0.170	150	0.0160	W6	
M2837VC250	2500	2837	31800	5.10 x 10^6	7.00	2100	1000	60	0.900	0.170	150	0.0160	W6	
M2837VF180	1800	2837	31800	5.10 x 10^6	7.00	2100	1000	60	0.900	0.170	150	0.0160	W43	
M2837VF250	2500	2837	31800	5.10 x 10^6	7.00	2100	1000	60	0.900	0.170	150	0.0160	W43	
M3770ZC200	2000	3770	44000	9.68 x 10^6	7.00	2000	1000	60	1.190	0.118	150	0.0110	W7	
M3770ZC240	2400	3770	44000	9.68 x 10^6	7.00	2000	1000	60	1.190	0.118	150	0.0110	W7	
M3770ZC300	3000	3770	44000	9.68 x 10^6	7.00	2000	1000	60	1.190	0.118	150	0.0110	W7	
M3770ZD200	2000	3770	44000	9.68 x 10^6	7.00	2000	1000	60	1.190	0.118	150	0.0110	W7	
M3770ZD240	2400	3770	44000	9.68 x 10^6	7.00	2000	1000	60	1.190	0.118	150	0.0110	W42	
M3770ZD300	3000	3770	44000	9.68 x 10^6	7.00	2000	1000	60	1.190	0.118	150	0.0110	W42	



W5 Weight 510 g



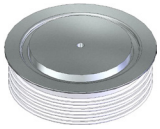
W6 Weight 1 kg



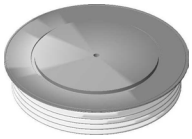
W7 Weight 17 kg



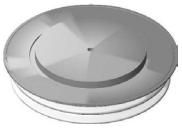
W37 Weight 510 g



W54 Weight 530 g



W42 Weight 1.2 kg



W43 Weight 800 g

Soft Recovery Diodes

Our soft recovery diodes are available with a range of reverse recovery characteristics tailored to meet the requirements of both freewheeling and snubber applications.These devices are available with blocking voltages up to 6kV and average currents up to 2413A. 24mm to 75mm diameter silicon slices. These parts are particularly suitable where soft recovery is required, such as RCD snubbers, voltage clamping and snubberless applications.

Stud Types

Part No.	V_{RRM}	I_{FAV}	I_{FSM}	I^2t	Typ. Reverse Recovery				V_{T0}	r_T	T_{JM}	R_{thJC}	Fig. No.	Package style
		T_C = 55°C	10 ms ½ sine V_R - ≤ 60% V_{RRM}		t_{rr} @ T_{JM}	Q_{rr} @ T_{JM}	I_{FM} @ T_{JM}	-di_F/dt @ T_{JM}	@ T_{JM}	@ T_{JM}		d.c. 180° sine		Outlines on pages O-01...O-35
	V	A	A	A^2s	µs	µC	A	A/µs	V	mW	°C	K/W		
M0130RL200	2000	130	2240	25.0 x 10^3	2.60	430	1000	150	1.290	1.540	125	0.3000	W20	
M0130RL250	2500	130	2240	25.0 x 10^3	2.60	430	1000	150	1.290	1.540	125	0.3000	W20	
M0130SL200	2000	130	2240	25.0 x 10^3	2.60	430	1000	150	1.290	1.540	125	0.3000	W20	
M0130SL250	2500	130	2240	25.0 x 10^3	2.60	430	1000	150	1.290	1.540	125	0.3000	W20	
M0130RM200	2000	130	2240	25.0 x 10^3	2.60	430	1000	150	1.290	1.540	125	0.3000	W21	
M0130RM250	2500	130	2240	25.0 x 10^3	2.60	430	1000	150	1.290	1.540	125	0.3000	W21	
M0130SM200	2000	130	2240	25.0 x 10^3	2.60	430	1000	150	1.290	1.540	125	0.3000	W21	
M0130SM250	2500	130	2240	25.0 x 10^3	2.60	430	1000	150	1.290	1.540	125	0.3000	W21	
M0139RL120	1200	139	2450	30.0 x 10^3	1.00	125	1000	100	1.240	1.280	125	0.3000	W20	
M0139RL180	1800	139	2450	30.0 x 10^3	1.00	125	1000	100	1.240	1.280	125	0.3000	W20	
M0139SL120	1200	139	2450	30.0 x 10^3	1.00	125	1000	100	1.240	1.280	125	0.3000	W20	
M0139SL180	1800	139	2450	30.0 x 10^3	1.00	125	1000	100	1.240	1.280	125	0.3000	W20	
M0139RM120	1200	139	2450	30.0 x 10^3	1.00	125	1000	100	1.240	1.280	125	0.3000	W21	
M0139RM180	1800	139	2450	30.0 x 10^3	1.00	125	1000	100	1.240	1.280	125	0.3000	W21	
M0139SM120	1200	139	2450	30.0 x 10^3	1.00	125	1000	100	1.240	1.280	125	0.3000	W21	
M0139SM180	1800	139	2450	30.0 x 10^3	1.00	125	1000	100	1.240	1.280	125	0.3000	W21	
M0268RC200	2000	268	4250	90.3 x 10^3	2.80	300	1000	150	1.210	1.200	125	0.1300	W24	
M0268RC250	2500	268	4250	90.3 x 10^3	2.80	300	1000	150	1.210	1.200	125	0.1300	W24	
M0268SC200	2000	268	4250	90.3 x 10^3	2.80	300	1000	150	1.210	1.200	125	0.1300	W24	
M0268SC250	2500	268	4250	90.3 x 10^3	2.80	300	1000	150	1.210	1.200	125	0.1300	W24	
M0268RJ200	2000	268	4250	90.3 x 10^3	2.80	300	1000	150	1.210	1.200	125	0.1300	W22	
M0268RJ250	2500	268	4250	90.3 x 10^3	2.80	300	1000	150	1.210	1.200	125	0.1300	W22	
M0268SJ200	2000	268	4250	90.3 x 10^3	2.80	300	1000	150	1.210	1.200	125	0.1300	W22	
M0268SJ250	2500	268	4250	90.3 x 10^3	2.80	300	1000	150	1.210	1.200	125	0.1300	W22	
M0280RC200	2000	280	4500	100 x 10^3	2.80	610	1000	150	1.280	0.920	125	0.1300	W24	
M0280RC250	2500	280	4500	100 x 10^3	2.80	610	1000	150	1.280	0.920	125	0.1300	W24	
M0280SC200	2000	280	4500	100 x 10^3	2.80	610	1000	150	1.280	0.920	125	0.1300	W24	
M0280SC250	2500	280	4500	100 x 10^3	2.80	610	1000	150	1.280	0.920	125	0.1300	W24	
M0280RJ200	2000	280	4500	100 x 10^3	2.80	610	1000	150	1.280	0.920	125	0.1300	W22	
M0280RJ250	2500	280	4500	100 x 10^3	2.80	610	1000	150	1.280	0.920	125	0.1300	W22	
M0280SJ200	2000	280	4500	100 x 10^3	2.80	610	1000	150	1.280	0.920	125	0.1300	W22	
M0280SJ250	2500	280	4500	100 x 10^3	2.80	610	1000	150	1.280	0.920	125	0.1300	W22	
M0334RC120	1200	334	4500	101 x 10^3	3.50	160	550	40	1.000	0.740	125	0.1300	W24	
M0334RC200	2000	334	4500	101 x 10^3	3.50	160	550	40	1.000	0.740	125	0.1300	W24	
M0334SC120	1200	334	4500	101 x 10^3	3.50	160	550	40	1.000	0.740	125	0.1300	W24	
M0334SC200	2000	334	4500	101 x 10^3	3.50	160	550	40	1.000	0.740	125	0.1300	W24	
M0334RJ120	1200	334	4500	101 x 10^3	3.50	160	550	40	1.000	0.740	125	0.1300	W22	
M0334RJ200	2000	334	4500	101 x 10^3	3.50	160	550	40	1.000	0.740	125	0.1300	W22	
M0334SJ120	1200	334	4500	101 x 10^3	3.50	160	550	40	1.000	0.740	125	0.1300	W22	
M0334SJ200	2000	334	4500	101 x 10^3	3.50	160	550	40	1.000	0.740	125	0.1300	W22	
M0336RA120	1200	336	4500	101 x 10^3	3.00	140	550	40	1.020	0.700	125	0.1300	W23	
M0336RA140	1400	336	4500	101 x 10^3	3.00	140	550	40	1.020	0.700	125	0.1300	W23	
M0336SA120	1200	336	4500	101 x 10^3	3.00	140	550	40	1.020	0.700	125	0.1300	W23	
M0336SA140	1400	336	4500	101 x 10^3	3.00	140	550	40	1.020	0.700	125	0.1300	W23	





W20 Weight 85 g



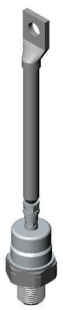
W21 Weight 85 g



W22 Weight 200 g



W23 Weight 250 g



W24 Weight 250 g

Capsule Types

Part No.	V_{RRM}	I_{FAV} T_K =	I_{FSM}	I^2t	Typ. Reverse Recovery T_{JM}				V_{T0}	r_T	T_{JM}	R_{thJK} d.c.	Fig. No.	Package style Outlines on pages O-01...O-35
		55°C	10 ms ½ sine V_R - ≤ 60% V_{RRM}		t_{rr}	Q_{rr}	@ I_{FM}	@ -di_F/dt	@ T_{JM}			180° sine		
	V	A	A	A^2s	µs	µC	A	A/µs	V	mΩ	°C	K/W		
M0225YH300	3000	225	2000	20 x 10^3	3.00	220	550	40	1.900	4.160	150	0.1000	W3	
M0225YH360	3600	225	2000	20 x 10^3	3.00	220	550	40	1.900	4.160	150	0.1000	W3	
M0225YH450	4500	225	2000	20 x 10^3	3.00	220	550	40	1.900	4.160	150	0.1000	W3	
M0310YH300	3000	310	4590	105 x 10^3	2.80	275	1000	100	1.490	2.060	150	0.1000	W3	
M0310YH350	3500	310	4590	105 x 10^3	2.80	275	1000	100	1.490	2.060	150	0.1000	W3	
M0347WC160	1600	347	4250	90.3 x 10^3	2.80	210	550	40	1.210	1.200	125	0.0900	W1	
M0347WC200	2000	347	4250	90.3 x 10^3	2.80	210	550	40	1.210	1.200	125	0.0900	W1	
M0347WC250	2500	347	4250	90.3 x 10^3	2.80	210	550	40	1.210	1.200	125	0.0900	W1	
M0358WC120	1200	358	2450	30 x 10^3	1.40	125	1000	100	1.460	0.800	125	0.0900	W1	
M0358WC180	1800	358	2450	30 x 10^3	1.40	125	1000	100	1.460	0.800	125	0.0900	W1	
M0367WC140	1400	367	4500	101x 10^3	3.30	300	550	40	1.280	0.920	125	0.0900	W1	
M0367WC220	2200	367	4500	101 x 10^3	3.30	300	550	40	1.280	0.920	125	0.0900	W1	
M0367WC280	2800	367	4500	101 x 10^3	3.30	300	550	40	1.280	0.920	125	0.0900	W1	
M0371YH350	3500	371	4900	120 x 10^3	3.20	1260	1000	200	1.050	1.650	150	0.1000	W3	
M0371YH450	4500	371	4900	120 x 10^3	3.20	1260	1000	200	1.050	1.650	150	0.1000	W3	
M0433WC120	1200	433	4500	101 x 10^3	3.50	270	550	40	1.000	0.740	125	0.0900	W1	
M0433WC160	1600	433	4500	101 x 10^3	3.50	270	550	40	1.000	0.740	125	0.0900	W1	
M0433WC200	2000	433	4500	101 x 10^3	3.50	270	550	40	1.000	0.740	125	0.0900	W1	
M0437WC080	800	437	4500	101 x 10^3	3.00	75	550	40	1.020	0.700	125	0.0900	W1	
M0437WC140	1400	437	4500	101 x 10^3	3.00	75	550	40	1.020	0.700	125	0.0900	W1	
M0451YC120	1200	451	4500	101 x 10^3	2.80	120	550	40	1.000	0.740	125	0.0850	W2	
M0451YC160	1600	451	4500	101 x 10^3	2.80	120	550	40	1.000	0.740	125	0.0850	W2	
M0451YC200	2000	451	4500	101 x 10^3	2.80	120	550	40	1.000	0.740	125	0.0850	W2	
M0659LC400	4000	659	7620	290 x 10^3	4.20	800	1000	60	1.710	0.925	125	0.0330	W4	
M0659LC450	4500	659	7620	290 x 10^3	4.20	800	1000	60	1.710	0.925	125	0.0330	W4	
M0710LC560	5600	710	8400	353 x 10^3	4.00	2100	1000	200	1.450	0.875	125	0.0330	W4	
M0710LC600	6000	710	8400	353 x 10^3	4.00	2100	1000	200	1.450	0.875	125	0.0330	W4	
M0736LC400	4000	736	9000	405 x 10^3	5.20	1250	1000	60	1.606	0.700	125	0.0330	W4	
M0736LC450	4500	736	9000	405 x 10^3	5.20	1250	1000	60	1.606	0.700	125	0.0330	W4	
M0759YC120	1200	759	9500	450 x 10^3	2.00	80	550	50	1.130	0.380	125	0.0500	W2	
M0759YC160	1600	759	9500	450 x 10^3	2.00	80	550	50	1.130	0.380	125	0.0500	W2	
M0759YH120	1200	759	9500	450 x 10^3	2.00	80	550	50	1.130	0.380	125	0.0500	W3	
M0759YH160	1600	759	9500	450 x 10^3	2.00	80	550	50	1.130	0.380	125	0.0500	W3	
M0859LC140	1400	859	10000	500 x 10^3	3.00	280	800	50	1.170	0.320	125	0.0440	W4	
M0859LC160	1600	859	10000	500 x 10^3	3.00	280	800	50	1.170	0.320	125	0.0440	W4	
M0859LC180	1800	859	10000	500 x 10^3	3.00	280	800	50	1.170	0.320	125	0.0440	W4	
M0863LC260	2600	863	10000	500 x 10^3	4.80	950	1000	60	1.308	0.538	125	0.0330	W4	
M0863LC300	3000	863	10000	500 x 10^3	4.80	950	1000	60	1.308	0.538	125	0.0330	W4	
M0863LC360	3600	863	10000	500 x 10^3	4.80	950	1000	60	1.308	0.538	125	0.0330	W4	
M0872LC140	1400	872	10000	500 x 10^3	4.00	700	1000	60	1.090	0.340	125	0.0440	W4	
M0872LC180	1800	872	10000	500 x 10^3	4.00	700	1000	60	1.090	0.340	125	0.0440	W4	
M0872LC210	2100	872	10000	500 x 10^3	4.00	700	1000	60	1.090	0.340	125	0.0440	W4	
M0955LC200	2000	955	11700	684 x 10^3	3.40	500	1000	60	1.440	0.330	125	0.0330	W4	
M0955LC250	2500	955	11700	684 x 10^3	3.40	500	1000	60	1.440	0.330	125	0.0330	W4	
M0955JK200	2000	1105	11700	684 x 10^3	3.40	500	1000	60	1.440	0.330	125	0.0270	W113	
M0955JK250	2500	1105	11700	684 x 10^3	3.40	500	1000	60	1.440	0.330	125	0.0270	W113	

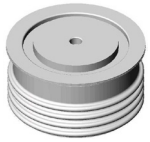




W1 Weight 70 g



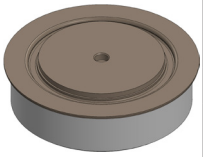
W2 Weight 80 g



W3 Weight 140 g



W4 Weight 340 g



W113 Weight 200 g

Capsule Types

Part No.	V_{RRM}	I_{FAV} T_K =	I_{FSM}	I^2t	Typ. Reverse Recovery T_{JM}				V_{T0}	r_T	T_{JM}	R_{thJK} d.c.	Fig. No.	Package style
		55°C	10 ms ½ sine V_R - ≤ 60% V_{RRM}		t_{rr}	Q_{rr}	@I_{FM}	@ -di_F/dt	@T_{JM}			180° sine		Outlines on pages O-01...O-35
	V	A	A	A^2s	µs	µC	A	A/µs	V	mΩ	°C	K/W		
M1022LC120	1200	1022	14000	980 x 10^3	3.00	375	1000	60	1.240	0.330	125	0.0330	W4	
M1022LC160	1600	1022	14000	980 x 10^3	3.00	375	1000	60	1.240	0.330	125	0.0330	W4	
M1022LC200	2000	1022	14000	980 x 10^3	3.00	375	1000	60	1.240	0.330	125	0.0330	W4	
M1080LC100	1000	1080	13500	910 x 10^3	1.90	85	1000	60	1.125	0.314	125	0.0330	W4	
M1080LC120	1200	1080	13500	910 x 10^3	1.90	85	1000	60	1.125	0.314	125	0.0330	W4	
M1102NC500	5000	1102	13000	845 x 10^3	5.50	3300	1000	200	1.360	0.557	125	0.0220	W5	
M1102NC600	6000	1102	13000	845 x 10^3	5.50	3300	1000	200	1.360	0.557	125	0.0220	W5	
M1102ND500	5000	1102	13000	845 x 10^3	5.50	3300	1000	200	1.360	0.557	125	0.0220	W37	
M1102ND600	6000	1102	13000	845 x 10^3	5.50	3300	1000	200	1.360	0.557	125	0.0220	W37	
M1104NC400	4000	1104	13000	845 x 10^3	6.00	2100	1000	60	1.370	0.553	125	0.0220	W5	
M1104NC450	4500	1104	13000	845 x 10^3	6.00	2100	1000	60	1.370	0.553	125	0.0220	W5	
M1104ND400	4000	1104	13000	845 x 10^3	6.00	2100	1000	60	1.370	0.553	125	0.0220	W37	
M1104ND450	4500	1104	13000	845 x 10^3	6.00	2100	1000	60	1.370	0.553	125	0.0220	W37	
M1242NC260	2600	1242	16400	1.34 x 10^6	6.00	1500	1000	60	1.270	0.420	125	0.0220	W5	
M1242NC360	3600	1242	16400	1.34 x 10^6	6.00	1500	1000	60	1.270	0.420	125	0.0220	W5	
M1242ND260	2600	1242	16400	1.34 x 10^6	6.00	1500	1000	60	1.270	0.420	125	0.0220	W37	
M1242ND360	3600	1242	16400	1.34 x 10^6	6.00	1500	1000	60	1.270	0.420	125	0.0220	W37	
M1494NC160	1600	1494	19600	1.92 x 10^6	3.90	815	1000	60	1.150	0.265	125	0.0220	W5	
M1494NC250	2500	1494	19600	1.92 x 10^6	3.90	815	1000	60	1.150	0.265	125	0.0220	W5	
M1494ND160	1600	1494	19600	1.92 x 10^6	3.90	815	1000	60	1.150	0.265	125	0.0220	W37	
M1494ND250	2500	1494	19600	1.92 x 10^6	3.90	815	1000	60	1.150	0.265	125	0.0220	W37	
M1494NK160	1600	1975	19600	1.92 x 10^6	3.90	815	1000	60	1.150	0.265	125	0.0145	WD8	
M1494NK250	2500	1975	19600	1.92 x 10^6	3.90	815	1000	60	1.150	0.265	125	0.0145	WD8	
M1565VC400	4000	1565	19700	1.94 x 10^6	5.00	4000	1000	200	1.090	0.360	125	0.0180	W6	
M1565VC450	4500	1565	19700	1.94 x 10^6	5.00	4000	1000	200	1.090	0.360	125	0.0180	W6	
M1565VF400	4000	1565	19700	1.94 x 10^6	5.00	4000	1000	200	1.090	0.360	125	0.0180	W43	
M1565VF450	4500	1565	19700	1.94 x 10^6	5.00	4000	1000	200	1.090	0.360	125	0.0180	W43	
M1858NC120	1200	1858	25000	3.25 x 10^6	2.50	120	1000	60	1.127	0.127	125	0.0220	W5	
M1858NC160	1600	1858	25000	3.25 x 10^6	2.50	120	1000	60	1.127	0.127	125	0.0220	W5	
M1858ND120	1200	1858	25000	3.25 x 10^6	2.50	120	1000	60	1.127	0.127	125	0.0220	W37	
M1858ND160	1600	1858	25000	3.25 x 10^6	2.50	120	1000	60	1.127	0.127	125	0.0220	W37	
M2322ZC300	3000	2322	23000	2.64 x 10^6	6.50	3200	1000	150	1.670	0.186	125	0.0110	W7	
M2322ZC400	4000	2322	23000	2.64 x 10^6	6.50	3200	1000	150	1.670	0.186	125	0.0110	W7	
M2322ZD300	3000	2322	23000	2.64 x 10^6	6.50	3200	1000	150	1.670	0.186	125	0.0110	W42	
M2322ZD400	4000	2322	23000	2.64 x 10^6	6.50	3200	1000	150	1.670	0.186	125	0.0110	W42	
M2413VC200	2000	2413	32000	5.12 x 10^6	5.00	2500	1000	200	1.090	0.121	125	0.0160	W6	
M2413VC250	2500	2413	32000	5.12 x 10^6	5.00	2500	1000	200	1.090	0.121	125	0.0160	W6	
M2413VF200	2000	2413	32000	5.12 x 10^6	5.00	2500	1000	200	1.090	0.121	125	0.0160	W43	
M2413VF250	2500	2413	32000	5.12 x 10^6	5.00	2500	1000	200	1.090	0.121	125	0.0160	W43	
M3560TJ420	4200	3560	36000	6.48 x 10^6	7.00	4100	1000	150	1.253	0.137	125	0.0080	W89	
M3560TJ450	4500	3560	36000	6.48 x 10^6	7.00	4100	1000	150	1.253	0.137	125	0.0080	W89	
M4305TJ240	2400	4305	49000	12.0 x 10^6	5.00	2500	1000	150	1.104	0.087	125	0.0080	W89	
M4305TJ280	2800	4305	49000	12.0 x 10^6	5.00	2500	1000	150	1.104	0.087	125	0.0080	W89	



W4 Weight 340 g



W5 Weight 510 g



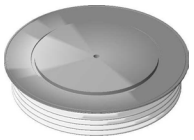
W6 Weight 1 kg



W7 Weight 1.7 kg



W37 Weight 510 g



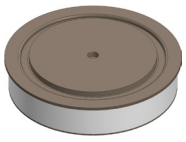
W42 Weight 1.2 kg



W43 Weight 800 g



W89 Weight 1.3 kg



WD8 Weight 250 g

Extra Fast Recovery Diodes

These products are designed to offer the lowest practical values of reverse recovery current whilst offering wide safe operating area and high di/dt capability required by modern switching components.

Capsule Types

Part No.	V_{RRM}	I_{FAV}	I_{FSM}	I^2t	Typ. Reverse Recovery					V_{T0}	r_T	T_{JM}	R_{thJK}	Fig. No.
		T_K = 55°C	10 ms ½ sine V_R - ≤ 60% V_{RRM}		I_{rm} @ T_{JM}	t_{rr} @ T_{JM}	Q_{rr} @ T_{JM}	@I_{FM}	@ -di_F/dt	@T_{JM}	@T_{JM}		d.c. 180° sine	
	V	A	A	A^2s	A	µs	µC	A	A/µs	V	mΩ	°C	K/W	
F0240YC250	2500	240	3100	48.1 x 10^3	40	2.00	100	550	40	2.271	2.853	150	0.1000	W2
F0240YC300	3000	240	3100	48.1 x 10^3	40	2.00	100	550	40	2.271	2.853	150	0.1000	W2
F0240YH250	2500	240	3100	48.1 x 10^3	40	2.00	100	550	40	2.271	2.853	150	0.1000	W3
F0240YH300	3000	240	3100	48.1 x 10^3	40	2.00	100	550	40	2.271	2.853	150	0.1000	W3
F0300WC140	1400	240	2700	36.5 x 10^3	530	3.00	70	550	40	1.760	2.210	125	0.0950	W1
F0300WC180	1800	240	2700	36.5 x 10^3	530	3.00	70	550	40	1.760	2.210	125	0.0950	W1
F0800LC140	1400	775	7630	291 x 10^3	380	1.10	200	1000	200	1.494	0.692	125	0.0320	W4
F0800LC180	1800	775	7630	291 x 10^3	380	1.10	200	1000	200	1.494	0.692	125	0.0320	W4
F0900VC450	4500	816	10450	546 x 10^3	120	3.80	230	1000	60	2.024	1.274	115	0.0160	W6
F0900VC520	5200	816	10450	546 x 10^3	120	3.80	230	1000	60	2.024	1.274	115	0.0160	W6
F0900VF450	4500	816	10450	546 x 10^3	120	3.80	230	1000	60	2.024	1.274	115	0.0160	W43
F0900VF520	5200	816	10450	546 x 10^3	120	3.80	230	1000	60	2.024	1.274	115	0.0160	W43
F1000LC080	800	826	8500	361 x 10^3	320	1.60	250	1000	800	1.530	0.547	125	0.0320	W4
F1000LC120	1200	826	8500	361 x 10^3	320	1.60	250	1000	800	1.530	0.547	125	0.0320	W4
F1300NC45P	4500	1346	20800	2.16 x 10^6	470	4.30	2150	1000	200	1.569	0.318	140	0.0240	W5
F1300NC50P	5000	1346	20800	2.16 x 10^6	470	4.30	2150	1000	200	1.569	0.318	140	0.0240	W5
F1300NC55P	5500	1346	20800	2.16 x 10^6	470	4.30	2150	1000	200	1.569	0.318	140	0.0240	W5
F1400NC140	1400	1093	17250	1.49 x 10^6	800	1.50	1000	1400	1000	1.618	0.388	125	0.0240	W5
F1400NC180	1800	1093	17250	1.49 x 10^6	800	1.50	1000	1400	1000	1.618	0.388	125	0.0240	W5
F1500NC200	2000	1054	13750	950 x 10^3	1065	1.50	1500	1500	2000	1.372	0.535	125	0.0240	W5
F1500NC250	2500	1054	13750	950 x 10^3	1065	1.50	1500	1500	2000	1.372	0.535	125	0.0240	W5
F1600NC080	800	1326	20000	2.0 x 10^6	480	2.30	700	1600	800	1.320	0.268	125	0.0240	W5
F1600NC120	1200	1326	20000	2.0 x 10^6	480	2.30	700	1600	800	1.320	0.268	125	0.0240	W5

Outlines on pages O-01...O-35



W1 Weight 70 g



W2 Weight 80 g



W3 Weight 140 g



W4 Weight 340 g



W5 Weight 510 g



W6 Weight 1 kg



W43 Weight 800 g

High Power Sonic FRD's

IXYS UK brings you a world-leading class of ultra fast and ultra soft recovery diode available from 1.7kV to 6.5kV in current ratings from 170A to 4000A. These diodes incorporate a unique manufacturing process and lifetime control to offer a class leading trade-off between conduction and switching losses. The wide safe operating area (SOA) makes them ideal as freewheeling diodes for snubberless IGBT and IGCT applications or any application which requires a fast, low loss diode. For example, traction, medium voltage drives, induction heating and pulsed power applications.

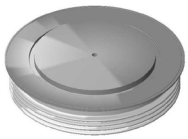
Capsule Types

Part No.	V_{RRM}	I_{FAV}	I_{FSM}	I^2t	Typ. Reverse Recovery T_{JM}					V_{T0}	r_T	T_{JM}	R_{thJK}	Fig. No.
		T_K = 55°C	10 ms ½ sine $V_R \le 60\%\ V_{RRM}$		I_{rm}	t_{rr}	Q_{rr}	@ I_{FM}	@ $-di_F/dt$	@T_{JM}			180° Sine	
○ Not for new design														
➢ New	V	A	A	A^2s	A	µs	µC	A	A/µs	V	mΩ	°C	K/W	
E0330MF65F	6500	277	2790	38.9 x 10^3	400	1.2	550	330	1000	1.890	5.80	125	0.0425	W99
E0460QC45E	4500	533	6800	231 x 10^3	460	1.15	685	500	1000	2.246	2.716	140	0.0274	W68
E0660NC45E	4500	760	9160	420 x 10^3	700	1.1	1050	660	1500	2.194	1.814	140	0.0200	W5
E0660NH45E	4500	760	9160	420 x 10^3	700	1.1	1050	660	1500	2.194	1.814	140	0.0200	W47
E0770HF65F	6500	617	6973	243 x 10^3	600	0.9	735	770	2000	2.777	2.03	125	0.0189	W100
E1000TF65F	6500	820	8455	357 x 10^3	1000	1.2	1350	1000	2500	1.895	1.925	125	0.0141	W97
E1250HC45E	4500	1355	20500	2.11 x 10^6	1000	1.2	1850	1250	2000	2.072	1.166	140	0.0105	W122
E1375EF65F	6500	1125	12180	742 x 10^3	1600	1.1	2100	1375	3500	1.890	1.423	125	0.0106	W101
➢ **E1500MC33E**	3300	1580	17330	1.5 x 10^6	1380	1.85	2040	1500	2000	1.509	0.464	140	0.0162	W54
E1500NC36P	3600	1280	17050	1.45 x 10^6	1425	2.8	2750	1000	1000	1.417	0.656	140	0.0190	W5
E1500NC42P	4200	1280	17050	1.45 x 10^6	1425	2.8	2750	1000	1000	1.417	0.656	140	0.0190	W5
E1500NC48P	4800	1280	17050	1.45 x 10^6	1425	2.8	2750	1000	1000	1.417	0.656	140	0.0190	W5
E1500NH36P	3600	1280	17050	1.45 x 10^6	1425	2.8	2750	1000	1000	1.417	0.656	140	0.0190	W47
E1500NH42P	4200	1280	17050	1.45 x 10^6	1425	2.8	2750	1000	1000	1.417	0.656	140	0.0190	W47
E1500NH48P	4800	1280	17050	1.45 x 10^6	1425	2.8	2750	1000	1000	1.417	0.656	140	0.0190	W47
➢ **E1680NC17F**	1700	785	8355	349 x 103	950	0.45	540	1680	8500	1.364	0.584	125	0.0357	W5
E1800TC45E	4500	2215	29050	4.22 x 10^6	1490	1.15	2800	1800	3000	2.171	0.634	140	0.0068	W28
E2060FF65F	6500	1690	17400	1.51 x 10^6	2050	1.1	2800	2060	4500	1.845	0.951	125	0.0071	W105
E2400EC45E	4500	2490	32100	5.15 x 10^6	2130	1.22	3900	2400	4000	2.114	0.646	140	0.0056	W111
E3000EC45E	4500	3410	45700	10.5 x 10^6	3050	1.25	5000	3000	5000	2.124	0.339	140	0.0050	W111
E4000FD45E	4500	4210	54800	15.0 x 10^6	3650	1.5	5750	4000	5000	2.117	0.351	140	0.0035	W59

Outlines on pages O-01...O-35



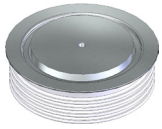
W5 Weight 510 g



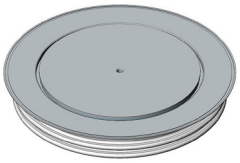
W28 Weight 1.23 kg



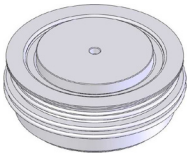
W47 Weight 250 g



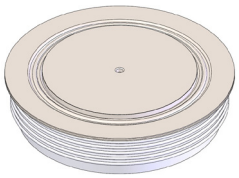
W54 Weight 530 g



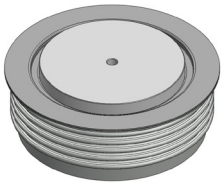
W59 Weight 2.25 kg



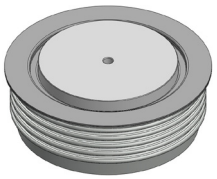
W68 Weight 300 g



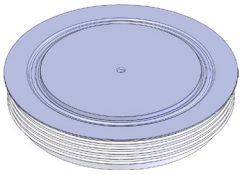
W97 Weight 1 kg



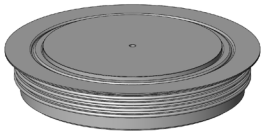
W99 Weight 500 g



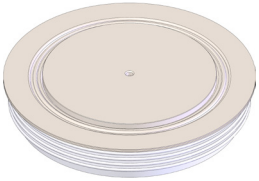
W100 Weight 600 g



W101 Weight 1.5 kg



W105 Weight 2.3 kg



W111 Weight 1.6 kg

Phase Control Thyristors

IXYS UK provides one of the most comprehensive ranges of standard phase control thyristors in the industry. Devices with voltage ranges from 200V to 6500V are available, making them suitable for applications with line voltages from 230V to over 1000V (higher voltage applications are now served by our range of Medium Voltage Thyristors). IXYS UK Westcode Ltd. is a leading supplier of phase control products into demanding markets such as industrial DC drives, controlled rectifiers, marine/rail propulsion systems, wind power converters, electrochemical power supplies and soft starters. These devices are optimised to give low conduction losses and are primarily intended for applications with line frequencies up to 400Hz.

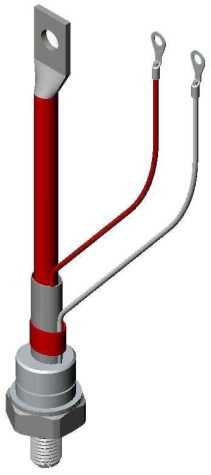
The Wespack outline (WPxx) is an innovative concept in phase control thyristors for applications requiring devices rated to 2200V. It gives the maximum power rating for weight and volume without compromising on quality and reliability. It also gives the maximum current rating and lowest thermal resistance for the package size.

The newest additions to IXYS UK's phase control thyristor range are the 96mm diameter die capsules. These devices are constructed using low temperature sintering technology offering better thermal and electromechanical capability and are available with current ratings up to 6405A and voltage ratings up to 4500V.

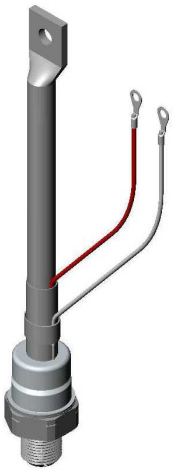
Stud Types

Part No.	V_{DRM} V_{RRM}	I_{TAV}	I_{TSM}	I^2t	V_{T0}	r_T	T_{JM}	R_{thJC}		Fig. No.
		T_C = 55°C	10 ms ½ sine V_R - ≤ 60% V_{RRM}		@T_{JM}			d.c. 180° sine	120° Rect.	
	V	A	A	A^2s	V	mΩ	°C	K/W	K/W	
N0180SH120	1200	180	2450	30.0 x 10^3	0.900	1.790	125	0.2300	0.2800	W17
N0180SH160	1600	180	2450	30.0 x 10^3	0.900	1.790	125	0.2300	0.2800	W17
N0335SC120	1200	335	4650	108 x 10^3	0.920	0.990	125	0.1200	0.1400	W18
N0335SC160	1600	335	4650	108 x 10^3	0.920	0.990	125	0.1200	0.1400	W18
N0416SC040	400	416	6000	180 x 10^3	0.850	0.535	125	0.1200	0.1400	W18
N0416SC080	800	416	6000	180 x 10^3	0.850	0.535	125	0.1200	0.1400	W18

Outlines on pages
O-01...O-35



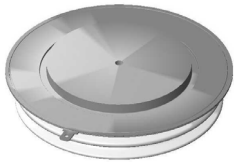
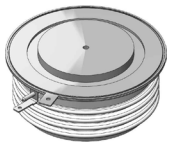
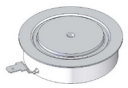
W17 Weight 130 g



W18 Weight 280 g

Phase Control Thyristors

Capsule Types

Part No.	V_{DRM} V_{RRM}	I_{TAV} T_K = 55°C	I_{TSM} 10 ms ½ sine V_R - ≤ 60% V_{RRM}	I^2t	V_{T0} @T_{JM}	r_T @T_{JM}	T_{JM}	R_{thJK} 180° Sine	R_{thJK} 120° Rect.	Fig. No.	Package style Outlines on pages O-01...O-35
○ Not for new design											
➢ New	V	A	A	A^2s	V	mΩ	°C	K/W	K/W		
N0465WN140	1400	465	4500	101 x 10^3	0.900	0.850	125	0.0800	0.0912	W90	 W10 Weight 340 g
N0465WN160	1600	465	4500	101 x 10^3	0.900	0.850	125	0.0800	0.0912	W90	
N0530YN220	2200	530	6300	198 x 10^3	1.100	1.250	125	0.0480	0.0494	W91	
N0530YN250	2500	530	6300	198 x 10^3	1.100	1.250	125	0.0480	0.0494	W91	
N0616LC400	4000	616	5250	138 x 10^3	1.220	1.530	125	0.0320	0.0393	W10	
N0616LC450	4500	616	5250	138 x 10^3	1.220	1.530	125	0.0320	0.0393	W10	
N0634LC380	3800	634	7000	245 x 10^3	1.100	1.500	125	0.0320	0.0393	W10	 W11 Weight 510 g
N0634LC420	4200	634	7000	245 x 10^3	1.100	1.500	125	0.0320	0.0393	W10	
N0646LC300	3000	646	5700	162 x 10^3	1.210	1.360	125	0.0320	0.0393	W10	
N0646LC360	3600	646	5700	162 x 10^3	1.210	1.360	125	0.0320	0.0393	W10	
N0795YN140	1400	795	9450	444 x 10^3	0.950	0.450	125	0.0480	0.0494	W91	
N0795YN180	1800	795	9450	444 x 10^3	0.950	0.450	125	0.0480	0.0494	W91	
N0882NC400	4000	882	7700	296 x 10^3	1.300	0.920	125	0.0240	0.0273	W11	 W12 Weight 1 kg
N0882NC450	4500	882	7700	296 x 10^3	1.300	0.920	125	0.0240	0.0273	W11	
N0910LC200	2000	910	9200	423 x 10^3	1.040	0.606	125	0.0320	0.0393	W10	
N0910LC260	2600	910	9200	423 x 10^3	1.040	0.606	125	0.0320	0.0393	W10	
N0910LC280	2800	910	9200	423 x 10^3	1.040	0.606	125	0.0320	0.0393	W10	
N1010NC300	3000	1010	12100	732 x 10^3	1.170	0.687	125	0.0240	0.0273	W11	 W62 Weight 1 kg
N1010NC380	3800	1010	12100	732 x 10^3	1.170	0.687	125	0.0240	0.0273	W11	
➢ **N1052LC200**	2000	1052	13200	870 x 10^3	1.000	0.416	125	0.0320	0.0393	W10	
➢ **N1052LC220**	2200	1052	13200	870 x 10^3	1.000	0.416	125	0.0320	0.0393	W10	
N1075LN180	1800	1240	15750	1.24 x 10^6	0.850	0.320	130	0.0330	0.0371	W92	 W90 Weight 90 g
N1132NC300	3000	1132	14300	1.02 x 10^6	1.150	0.510	125	0.0240	0.0271	W11	
N1132NC340	3400	1132	14300	1.02 x 10^6	1.150	0.510	125	0.0240	0.0271	W11	
N1132NC360	3600	1132	14300	1.02 x 10^6	1.150	0.510	125	0.0240	0.0271	W11	
N1140LN140	1400	1315	17500	1.53 x 10^6	0.820	0.280	130	0.0330	0.0371	W92	 W91 Weight 110 g
N1159NC380	3800	1159	14500	1.05 x 10^6	1.100	0.574	125	0.0220	0.0255	W11	
N1159NC420	4200	1159	14500	1.05 x 10^6	1.100	0.574	125	0.0220	0.0255	W11	
N1174JK200	2000	1174	13200	870 x 10^3	1.000	0.416	125	0.0270	0.0314	WP1	
N1174JK220	2200	1174	13200	870 x 10^3	1.000	0.416	125	0.0270	0.0314	WP1	
N1263JK160	1600	1263	15000	1.13 x 10^6	1.015	0.332	125	0.0270	0.0314	WP1	 W92 Weight 280 g
N1263JK180	1800	1263	15000	1.13 x 10^6	1.015	0.332	125	0.0270	0.0314	WP1	
○ **N1351VC400**	4000	1351	17500	1.53 x 10^6	1.200	0.553	125	0.0170	0.0206	W12	
○ **N1351VC450**	4500	1351	17500	1.53 x 10^6	1.200	0.553	125	0.0170	0.0206	W12	
○ **N1351VF400**	4000	1351	17500	1.53 x 10^6	1.200	0.553	125	0.0170	0.0206	W62	
○ **N1351VF450**	4500	1351	17500	1.53 x 10^6	1.200	0.553	125	0.0170	0.0206	W62	
N1366JK080	800	1366	15900	1.26 x 10^6	0.985	0.270	125	0.0270	0.0314	WP1	 WP1 Weight 180 g
N1366JK120	1200	1366	15900	1.26 x 10^6	0.985	0.270	125	0.0270	0.0314	WP1	
N1366JK140	1400	1366	15900	1.26 x 10^6	0.985	0.270	125	0.0270	0.0314	WP1	
○ **N1449QL200**	2000	1410	17300	1.50 x 10^6	1.060	0.317	125	0.0230	0.0272	WP6	 WP2 Weight 200 g
○ **N1449QL220**	2200	1410	17300	1.50 x 10^6	1.060	0.317	125	0.0230	0.0272	WP6	
N1467NC200	2000	1467	21500	2.31 x 10^6	1.000	0.272	125	0.0240	0.0271	W11	
N1467NC260	2600	1467	21500	2.31 x 10^6	1.000	0.272	125	0.0240	0.0271	W11	
N1547NC160	1600	1547	23300	2.71 x 10^6	0.920	0.252	125	0.0240	0.0271	W11	 WP6 Weight 330 g
N1547NC200	2000	1547	23300	2.71 x 10^6	0.920	0.252	125	0.0240	0.0271	W11	

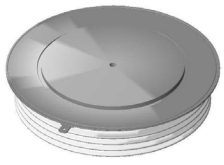
Phase Control Thyristors

Capsule Types

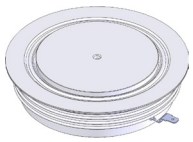
Part No. ○ Not for new design	V_{DRM} V_{RRM}	I_{TAV}	I_{TSM}	I^2t	V_{T0}	r_T	T_{JM}	R_{thJK}		Fig. No.	Package style Outlines on pages O-01...O-35
		T_K = 55°C	10 ms ½ sine V_R - ≤ 60% V_{RRM}		@T_{JM}			180° Sine	120° Rect.		
	V	A	A	A^2s	V	mΩ	°C	K/W	K/W		
○ **N1581QL160**	1600	1535	19100	1.82 x 10^6	1.022	0.253	125	0.0230	0.0270	WP6	
○ **N1581QL180**	1800	1535	19100	1.82 x 10^6	1.022	0.253	125	0.0230	0.0270	WP6	
N1651QK200	2000	1651	17300	1.50 x 10^6	1.060	0.317	125	0.0180	0.0217	WP2	
N1651QK220	2200	1651	17300	1.50 x 10^6	1.060	0.317	125	0.0180	0.0217	WP2	
○ **N1661VC300**	3000	1661	23000	2.65 x 10^6	1.040	0.350	125	0.0170	0.0206	W12	
○ **N1661VC360**	3600	1661	23000	2.65 x 10^6	1.040	0.350	125	0.0170	0.0206	W12	
○ **N1661VF300**	3000	1661	23000	2.65 x 10^6	1.040	0.350	125	0.0170	0.0206	W62	
○ **N1661VF360**	3600	1661	23000	2.65 x 10^6	1.040	0.350	125	0.0170	0.0206	W62	
N1718NC120	1200	1718	27200	3.70 x 10^6	0.979	0.169	125	0.0240	0.0271	W11	
N1718NC180	1800	1718	27200	3.70 x 10^6	0.979	0.169	125	0.0240	0.0271	W11	
N1718NC200	2000	1718	27200	3.70 x 10^6	0.979	0.169	125	0.0240	0.0271	W11	
N1725MC320	3200	1725	20000	2.00 x 10^6	1.022	0.396	125	0.0150	0.0165	W70	
N1725MC360	3600	1725	20000	2.00 x 10^6	1.022	0.396	125	0.0150	0.0165	W70	
N1802NC120	1200	1802	29600	4.38 x 10^6	0.855	0.171	125	0.0240	0.0271	W11	
N1802NC160	1600	1802	29600	4.38 x 10^6	0.855	0.171	125	0.0240	0.0271	W11	
N1806QK160	1600	1806	19100	1.82 x 10^6	1.022	0.253	125	0.0180	0.0217	WP2	
N1806QK180	1800	1806	19100	1.82 x 10^6	1.022	0.253	125	0.0180	0.0217	WP2	
○ **N1817QL080**	800	1760	22000	2.42 x 10^6	0.955	0.177	125	0.0230	0.0272	WP6	
○ **N1817QL120**	1200	1760	22000	2.42 x 10^6	0.955	0.177	125	0.0230	0.0272	WP6	
○ **N1817QL140**	1400	1760	22000	2.42 x 10^6	0.955	0.177	125	0.0230	0.0272	WP6	
○ **N2015ML200**	2000	2015	32400	5.25 x 10^6	0.883	0.210	125	0.0180	0.0201	WP5	
○ **N2015ML220**	2200	2015	32400	5.25 x 10^6	0.883	0.210	125	0.0180	0.0201	WP5	
N2055MC260	2600	2105	25800	3.33 x 10^6	0.970	0.240	125	0.0150	0.0165	W70	
N2055MC280	2800	2105	25800	3.33 x 10^6	0.970	0.240	125	0.0150	0.0165	W70	
N2055HE420	4200	2055	24000	2.88 x 10^6	0.977	0.342	125	0.0125	0.0138	W80	
N2055HE450	4500	2055	24000	2.88 x 10^6	0.977	0.342	125	0.0125	0.0138	W80	
N2083QK080	800	2083	22000	2.42 x 10^6	0.955	0.177	125	0.0180	0.0217	WP2	
N2083QK120	1200	2083	22000	2.42 x 10^6	0.955	0.177	125	0.0180	0.0217	WP2	
N2083QK140	1400	2083	22000	2.42 x 10^6	0.955	0.177	125	0.0180	0.0217	WP2	
N2086NC060	600	2086	35000	6.13 x 10^6	0.840	0.108	125	0.0240	0.0271	W11	
N2086NC100	1000	2086	35000	6.13 x 10^6	0.840	0.108	125	0.0240	0.0271	W11	
N2154JK020	200	2154	22700	2.58 x 10^6	0.890	0.107	140	0.0270	0.0314	WP1	
N2154JK040	400	2154	22700	2.58 x 10^6	0.890	0.107	140	0.0270	0.0314	WP1	
N2154JK060	600	2154	22700	2.58 x 10^6	0.890	0.107	140	0.0270	0.0314	WP1	
N2172ZC420	4200	2172	28000	3.92 x 10^6	1.350	0.294	125	0.0110	0.0119	W13	
N2172ZC450	4500	2172	28000	3.92 x 10^6	1.350	0.294	125	0.0110	0.0119	W13	
N2172ZD420	4200	2172	28000	3.92 x 10^6	1.350	0.294	125	0.0110	0.0119	W46	
N2172ZD450	4500	2172	28000	3.92 x 10^6	1.350	0.294	125	0.0110	0.0119	W46	
○ **N2191ML160**	1600	2191	34500	5.95 x 10^6	0.940	0.154	125	0.0180	0.0201	WP5	
○ **N2191ML180**	1800	2191	34500	5.95 x 10^6	0.940	0.154	125	0.0180	0.0201	WP5	
N2285HA420	4200	2285	24000	2.88x 10^6	0.977	0.342	125	0.0105	0.0118	W79	
N2285HA450	4500	2285	24000	2.88x 10^6	0.977	0.342	125	0.0105	0.0118	W79	
N2367MK200	2000	2367	32400	5.25 x 10^6	0.883	0.210	125	0.0140	0.0157	WP3	
N2367MK220	2200	2367	32400	5.25 x 10^6	0.883	0.210	125	0.0140	0.0157	WP3	
N2385HE320	3200	2385	28400	4.03 x 10^6	0.910	0.243	125	0.0125	0.0138	W80	
N2385HE360	3600	2385	28400	4.03 x 10^6	0.910	0.243	125	0.0125	0.0138	W80	

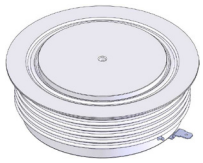

W11 Weight 510 g


W13 Weight 1.7 kg

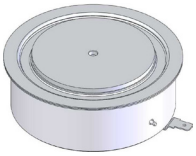

W46 Weight 1.2 kg

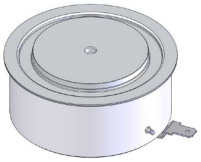

W70 Weight 550 g


W79 Weight 890 g


W80 Weight 1.2 kg


WP3 Weight 260 g


WP5 Weight 500 g

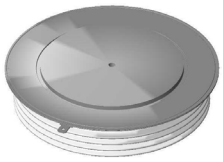

WP6 Weight 330 g

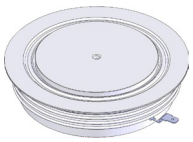
Phase Control Thyristors

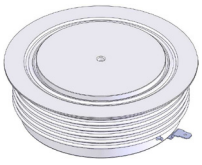
Capsule Types

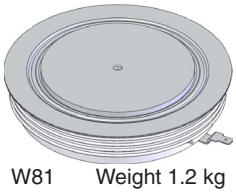
Part No. ○ Not for new design	V_{DRM} V_{RRM} V	I_{TAV} T_K = 55°C A	I_{TSM} 10 ms ½ sine V_R - ≤ 60% V_{RRM} A	I^2t A^2s	V_{T0} @T_{JM} V	r_T @T_{JM} mΩ	T_{JM} °C	R_{thJK} 180° Sine K/W	R_{thJK} 120° Rect. K/W	Fig. No.	Package style Outlines on pages O-01...O-35
N2418ZC300	3000	2418	30000	4.50 x 10^6	1.160	0.246	125	0.0110	0.0119	W13	
N2418ZC360	3600	2418	30000	4.50 x 10^6	1.160	0.246	125	0.0110	0.0119	W13	
N2418ZD300	3000	2418	30000	4.50 x 10^6	1.160	0.246	125	0.0110	0.0119	W46	
N2418ZD360	3600	2418	30000	4.50 x 10^6	1.160	0.246	125	0.0110	0.0119	W46	
N2500VC120	1200	2500	37000	6.85 x 10^6	0.880	0.124	125	0.0170	0.0206	W12	
N2500VC160	1600	2500	37000	6.85 x 10^6	0.880	0.124	125	0.0170	0.0206	W12	
N2500VF120	1200	2500	37000	6.85 x 10^6	0.880	0.124	125	0.0170	0.0206	W62	
N2500VF160	1600	2500	37000	6.85 x 10^6	0.880	0.124	125	0.0170	0.0206	W62	
○ **N2520ML080**	800	2520	38200	7.30 x 10^6	0.980	0.090	125	0.0180	0.0201	WP5	
○ **N2520ML120**	1200	2520	38200	7.30 x 10^6	0.980	0.090	125	0.0180	0.0201	WP5	
○ **N2520ML140**	1400	2520	38200	7.30 x 10^6	0.980	0.090	125	0.0180	0.0201	WP5	
N2543ZC240	2400	2543	32000	5.12 x 10^6	0.780	0.274	125	0.0110	0.0119	W13	
N2543ZC300	3000	2543	32000	5.12 x 10^6	0.780	0.274	125	0.0110	0.0119	W13	
N2543ZD240	2400	2543	32000	5.12 x 10^6	0.780	0.274	125	0.0110	0.0119	W46	
N2543ZD300	3000	2543	32000	5.12 x 10^6	0.780	0.274	125	0.0110	0.0119	W46	
N2593MK160	1600	2593	34500	5.95 x 10^6	0.940	0.154	125	0.0140	0.0157	WP3	
N2593MK180	1800	2593	34500	5.95 x 10^6	0.940	0.154	125	0.0140	0.0157	WP3	
N2600MC160	1600	2600	30000	4.50 x 10^6	0.950	0.130	125	0.0150	0.0165	W70	
N2600MC180	1800	2600	30000	4.50 x 10^6	0.950	0.130	125	0.0150	0.0165	W70	
N2655HA320	3200	2655	28400	4.03 x 10^6	0.910	0.243	125	0.0105	0.0118	W79	
N2655HA360	3600	2655	28400	4.03 x 10^6	0.910	0.243	125	0.0105	0.0118	W79	
N2825TE420	4200	2825	36900	6.81 x 10^6	1.210	0.270	125	0.0080	0.0085	W82	
N2825TE450	4500	2825	36900	6.81 x 10^6	1.210	0.270	125	0.0080	0.0085	W82	
N2825TJ420	4200	2825	36900	6.81 x 10^6	1.210	0.270	125	0.0080	0.0085	W81	
N2825TJ450	4500	2825	36900	6.81 x 10^6	1.210	0.270	125	0.0080	0.0085	W81	
N2830HE260	2600	2830	36000	6.48 x 10^6	0.930	0.150	125	0.0125	0.0138	W80	
N2830HE280	2800	2830	36000	6.48 x 10^6	0.930	0.150	125	0.0125	0.0138	W80	
○ **N2900QL020**	200	2900	28000	3.92 x 10^6	0.850	0.080	150	0.0230	0.0272	WP6	
○ **N2900QL040**	400	2900	28000	3.92 x 10^6	0.850	0.080	150	0.0230	0.0272	WP6	
○ **N2900QL060**	600	2900	28000	3.92 x 10^6	0.850	0.080	150	0.0230	0.0272	WP6	
N3012ZC200	2000	3012	45100	10.2 x 10^6	0.920	0.160	125	0.0110	0.0119	W13	
N3012ZC260	2600	3012	45100	10.2 x 10^6	0.920	0.160	125	0.0110	0.0119	W13	
N3012ZD200	2000	3012	45100	10.2 x 10^6	0.920	0.160	125	0.0110	0.0119	W46	
N3012ZD260	2600	3012	45100	10.2 x 10^6	0.920	0.160	125	0.0110	0.0119	W46	
N3022MK080	800	3022	38200	7.30 x 10^6	0.981	0.090	125	0.0140	0.0157	WP3	
N3022MK120	1200	3022	38200	7.30 x 10^6	0.981	0.090	125	0.0140	0.0157	WP3	
N3022MK140	1400	3022	38200	7.30 x 10^6	0.981	0.090	125	0.0140	0.0157	WP3	
N3029ZC240	2400	3029	38200	7.30 x 10^6	0.947	0.154	125	0.0110	0.0119	W13	
N3029ZC280	2800	3029	38200	7.30 x 10^6	0.947	0.154	125	0.0110	0.0119	W13	
N3029ZD240	2400	3029	38200	7.30 x 10^6	0.947	0.154	125	0.0110	0.0119	W46	
N3029ZD280	2800	3029	38200	7.30 x 10^6	0.947	0.154	125	0.0110	0.0119	W46	
N3165HA260	2600	3165	36000	6.48 x 10^6	0.930	0.150	125	0.0105	0.0118	W79	
N3165HA280	2800	3165	36000	6.48 x 10^6	0.930	0.150	125	0.0105	0.0118	W79	
N3175HE160	1600	3175	45500	10.40 x 10^6	0.900	0.110	125	0.0125	0.0138	W80	
N3175HE180	1800	3175	45500	10.40 x 10^6	0.900	0.110	125	0.0125	0.0138	W80	


W13 Weight 1.7 kg


W46 Weight 1.2 kg

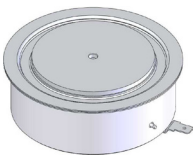

W79 Weight 890 g

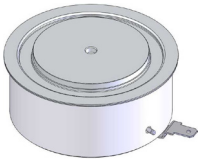

W80 Weight 1.2 kg


W81 Weight 1.2 kg


WP2 Weight 200 g


WP4 Weight 550 g


WP5 Weight 500 g


WP6 Weight 330 g

Phase Control Thyristors

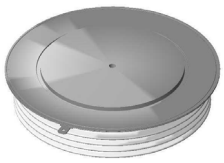
Capsule Types

Part No.	V_{DRM} V_{RRM}	I_{TAV} T_K = 55°C	I_{TSM} 10 ms ½ sine V_R - ≤ 60% V_{RRM}	I^2t	V_{T0} @T_{JM}	r_T @T_{JM}	T_{JM}	R_{thJK} 180° Sine	R_{thJK} 120° Rect.	Fig. No.	Package style Outlines on pages O-01...O-35
➢ New	V	A	A	A^2s	V	mΩ	°C	K/W	K/W		
N3229QK020	200	3229	28000	3.92 x 10^6	0.926	0.067	140	0.0180	0.0217	WP2	
N3229QK040	400	3229	28000	3.92 x 10^6	0.926	0.067	140	0.0180	0.0217	WP2	
N3229QK060	600	3229	28000	3.92 x 10^6	0.926	0.067	140	0.0180	0.0217	WP2	
N3533ZC140	1400	3533	50000	12.5 x 10^6	0.970	0.095	125	0.0110	0.0120	W13	
N3533ZC180	1800	3533	50000	12.5 x 10^6	0.970	0.095	125	0.0110	0.0120	W13	
N3533ZC220	2200	3533	50000	12.5 x 10^6	0.970	0.095	125	0.0110	0.0120	W13	
N3533ZD140	1400	3533	50000	12.5 x 10^6	0.970	0.095	125	0.0110	0.0120	W46	
N3533ZD180	1800	3533	50000	12.5 x 10^6	0.970	0.095	125	0.0110	0.0120	W46	
N3533ZD220	2200	3533	50000	12.5 x 10^6	0.970	0.095	125	0.0110	0.0120	W46	
N3565HA160	1600	3565	45500	10.4 x 10^6	0.900	0.110	125	0.0105	0.0118	W79	
N3565HA180	1800	3565	45500	10.4 x 10^6	0.900	0.110	125	0.0105	0.0118	W79	
○ N3597ML020	200	3597	45400	10.3 x 10^6	0.840	0.053	140	0.0180	0.0201	WP5	
○ N3597ML040	400	3597	45400	10.3 x 10^6	0.840	0.053	140	0.0180	0.0201	WP5	
○ N3597ML060	600	3597	45400	10.3 x 10^6	0.840	0.053	140	0.0180	0.0201	WP5	
N3620TE320	3200	3620	52500	11.2 x 10^6	0.911	0.168	125	0.0080	0.0085	W82	
N3620TE360	3600	3620	52500	11.2 x 10^6	0.911	0.168	125	0.0080	0.0085	W82	
N3620TJ320	3200	3620	52500	11.2 x 10^{66}	0.911	0.168	125	0.0080	0.0085	W81	
N3620TJ360	3600	3620	52500	11.2 x 10^6	0.911	0.168	125	0.0080	0.0085	W81	
N3790TE240	2400	3790	49500	12.3 x 10^6	0.900	0.150	125	0.0080	0.0085	W82	
N3790TE280	2800	3790	49500	12.3 x 10^6	0.900	0.150	125	0.0080	0.0085	W82	
N3790TJ240	2400	3790	49500	12.3 x 10^6	0.900	0.150	125	0.0080	0.0085	W81	
N3790TJ280	2800	3790	49500	12.3 x 10^6	0.900	0.150	125	0.0080	0.0085	W81	
N3880ZD160	1600	3880	59000	17.4 x 10^6	0.986	0.068	125	0.0110	0.0119	W46	
N3880ZD180	1800	3880	59000	17.4 x 10^6	0.986	0.068	125	0.0110	0.0119	W46	
N3904HK200	2000	3904	50900	12.95 x 10^6	0.920	0.111	125	0.0090	0.0099	WP4	
N3904HK220	2200	3904	50900	12.95 x 10^6	0.920	0.111	125	0.0090	0.0099	WP4	
N3930ZC120	1200	3930	54000	14.6 x 10^6	0.841	0.080	125	0.0110	0.0119	W13	
N3930ZC160	1600	3930	54000	14.6 x 10^6	0.841	0.080	125	0.0110	0.0119	W13	
N3930ZD120	1200	3930	54000	14.6 x 10^6	0.841	0.080	125	0.0110	0.0119	W46	
N3930ZD160	1600	3930	54000	14.6 x 10^6	0.841	0.080	125	0.0110	0.0119	W46	
N4085ZC080	800	4085	64000	20.5 x 10^6	0.850	0.070	125	0.0110	0.0119	W13	
N4085ZC120	1200	4085	64000	20.5 x 10^6	0.850	0.070	125	0.0110	0.0119	W13	
N4085ZD080	800	4085	64000	20.5 x 10^6	0.850	0.070	125	0.0110	0.0119	W46	
N4085ZD120	1200	4085	64000	20.5 x 10^6	0.850	0.070	125	0.0110	0.0119	W46	
➢ N4165EE420	4200	4165	56000	15.7 x 10^6	0.977	0.177	125	0.0060	0.0064	W108	
➢ N4165EE450	4500	4165	56000	15.7 x 10^6	0.977	0.177	125	0.0060	0.0064	W108	
N4316MK020	200	4316	45400	10.3 x 10^6	0.840	0.053	140	0.0140	0.0157	WP3	
N4316MK040	400	4316	45400	10.3 x 10^6	0.840	0.053	140	0.0140	0.0157	WP3	
N4316MK060	600	4316	45400	10.3 x 10^6	0.840	0.053	140	0.0140	0.0157	WP3	
N4340TE180	1800	4340	55000	15.1 x 10^6	0.886	0.105	125	0.0080	0.0085	W82	
N4340TE220	2200	4340	55000	15.1 x 10^6	0.886	0.105	125	0.0080	0.0085	W82	
N4340TJ180	1800	4340	55000	15.1 x 10^6	0.886	0.105	125	0.0080	0.0085	W81	
N4340TJ220	2200	4340	55000	15.1 x 10^6	0.886	0.105	125	0.0080	0.0085	W81	
N4472HK160	1600	4472	59000	17.40 x 10^6	0.986	0.068	125	0.0090	0.0099	WP4	
N4472HK180	1800	4472	59000	17.40 x 10^6	0.986	0.068	125	0.0090	0.0099	WP4	

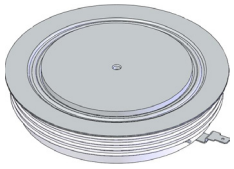




W13 Weight 1.7 kg



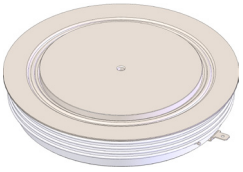
W46 Weight 1.2 kg



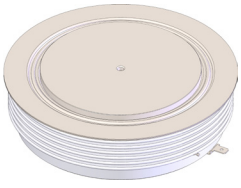
W81 Weight 1.2 kg



W82 Weight 1.65 kg



W107 Weight 1.6 kg

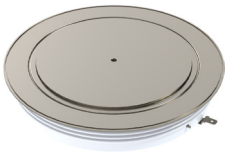


W108 Weight 2.1 kg

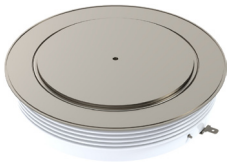
Phase Control Thyristors

Capsule Types

Part No.	V_{DRM} V_{RRM}	I_{TAV} T_K = 55°C	I_{TSM} 10 ms ½ sine V_R - ≤ 60% V_{RRM}	I^2t	V_{T0} @T_{JM}	r_T @T_{JM}	T_{JM}	R_{thJK} 180° Sine	R_{thJK} 120° Rect.	Fig. No.	Package style Outlines on pages O-01...O-35
➢ New	V	A	A	A^2s	V	mΩ	°C	K/W	K/W		
➢ **N4650EA420**	4200	4650	56000	15.7 x 10^6	0.977	0.177	125	0.0050	0.0054	W107	
➢ **N4650EA450**	4500	4650	56000	15.7 x 10^6	0.977	0.177	125	0.0050	0.0054	W107	
➢ **N4845EE320**	3200	4845	65000	21.1 x 10^6	0.913	0.125	125	0.0060	0.0065	W108	
➢ **N4845EE360**	3600	4845	65000	21.1 x 10^6	0.913	0.125	125	0.0060	0.0065	W108	
➢ **N4940HK120**	1200	4940	62000	19.0 x 10^6	0.939	0.520	125	0.0090	0.0099	WP4	
➢ **N4940HK140**	1400	4940	62000	19.0 x 10^6	0.939	0.520	125	0.0090	0.0099	WP4	
N5320FE420	4200	5320	78000	30.42 x 10^6	1.060	0.130	125	0.0048	0.0051	W119	
N5320FE450	4500	5320	78000	30.42 x 10^6	1.060	0.130	125	0.0048	0.0051	W119	
➢ **N5415EA320**	3200	5415	65000	21.1 x 10^6	0.913	0.125	125	0.0050	0.0054	W107	
➢ **N5415EA360**	3600	5415	65000	21.1 x 10^6	0.913	0.125	125	0.0050	0.0054	W107	
➢ **N5715EE240**	2400	5715	80000	32.0 x 10^6	0.840	0.085	125	0.0060	0.0065	W108	
➢ **N5715EE280**	2800	5715	80000	32.0 x 10^6	0.840	0.085	125	0.0060	0.0065	W108	
N5910FA420	4200	5910	78000	30.42 x 10^6	1.060	0.130	125	0.0040	0.0044	W118	
N5910FA450	4500	5910	78000	30.42 x 10^6	1.060	0.130	125	0.0040	0.0044	W118	
N6012ZD020	200	6012	65000	21.13 x 10^6	0.853	0.029	140	0.0110	0.0119	W46	
N6012ZD040	400	6012	65000	21.13 x 10^6	0.853	0.029	140	0.0110	0.0119	W46	
N6012ZD060	600	6012	65000	21.13 x 10^6	0.853	0.029	140	0.0110	0.0119	W46	
➢ **N6405EA240**	2400	6405	80000	32.0 x 10^6	0.840	0.085	125	0.0050	0.0054	W107	
➢ **N6405EA280**	2800	6405	80000	32.0 x 10^6	0.840	0.085	125	0.0050	0.0054	W107	
N6974HK020	200	6974	65000	21.13 x 10^6	0.853	0.029	140	0.0090	0.0099	WP4	
N6974HK040	400	6974	65000	21.13 x 10^6	0.853	0.029	140	0.0090	0.0099	WP4	
N6974HK060	600	6974	65000	21.13 x 10^6	0.853	0.029	140	0.0090	0.0099	WP4	
➢ **N7585FE240**	2400	7535	110000	60.50 x 10^6	0.780	0.062	125	0.0048	0.0051	W119	
➢ **N7585FE280**	2800	7535	110000	60.50 x 10^6	0.780	0.062	125	0.0048	0.0051	W119	
➢ **N7905FE180**	1800	7905	117000	68.44 x 10^6	0.770	0.056	125	0.0048	0.0051	W119	
➢ **N7905FE220**	2200	7905	117000	68.44 x 10^6	0.770	0.056	125	0.0048	0.0051	W119	
➢ **N8440FA240**	2400	8440	110000	60.50 x 10^6	0.780	0.062	125	0.0040	0.0044	W118	
➢ **N8440FA280**	2800	8440	110000	60.50 x 10^6	0.780	0.062	125	0.0040	0.0044	W118	
➢ **N8800FA180**	1800	8800	117000	68.44 x 10^6	0.770	0.056	125	0.0040	0.0044	W118	
➢ **N8800FA220**	2200	8800	117000	68.44 x 10^6	0.770	0.056	125	0.0040	0.0044	W118	



W118 Weight 2.2 kg



W119 Weight 2.9 kg



WP3 Weight 260 g



WP4 Weight 550 g

Medium Voltage Thyristors

Medium voltage applications place additional demands on phase controlled thyristors. To meet these demands we have developed a comprehensive range of thyristors optimised for medium voltage applications and series operation. As voltages increase, so do switching losses and turn-off time to a point where they become significant in line frequency applications. Our patented distributed gate architecture ensures excellent switching performance over a wide range of voltage, current and di/dt. Device lifetime is also engineered to achieve an optimum balance between conduction losses, commutation losses and turn-off time to give maximum power handling from line frequency to 400Hz. This also gives significant benefits when series or parallel connection of devices is required. Medium voltage thyristors are available from 3kV up to 6.5kV with silicon diameters from 38mm to 96mm making them particularly suitable for high power converters such as medium voltage DC drives, medium voltage soft starts and utility applications such as HVDC, static VAr compensators, excitation and transfer switches.

We recognise the importance of reliability in these large, capital intensive applications and as a result we subject these parts to extended levels of both routine and type testing to ensure that your investment gives years of trouble free service.

Capsule Types

Part No.	V_{DRM} V_{RRM}	I_{TAV}	I_{TSM}	I^2t	t_q	Typ. Reverse Recovery Charge			V_{T0}	r_T	T_{JM}	R_{thJK}		Fig. No.
		T_K = 55°C	10 ms ½ sine		@ 200 V/µs	T_{JM}			@ T_{JM}			180° Sine	120° Rect.	
			V_R - ≤ 60% V_{RRM}			Q_{rr}	@ I_{TM}	@ -di/dt						
	V	A	A	A^2s	µs	µC	A	A/µs	V	mΩ	°C	K/W	K/W	
K0445LG600	6000	450	6400	200 ×10³	700-1000	3100	500	10	1.560	2.270	125	0.0380	0.0400	W56
K0445LG650	6500	450	6400	200×10³	700-1000	3100	500	10	1.560	2.270	125	0.0380	0.0400	W56
K0500LC600	6000	500	6400	200 ×10³	700-1000	3100	500	10	1.560	2.270	125	0.0320	0.0347	W10
K0500LC650	6500	500	6400	200×10³	700-1000	3100	500	10	1.560	2.270	125	0.0320	0.0347	W10
K0560QE600	6000	575	7700	296×10³	1000-1100	4400	700	10	1.460	1.750	125	0.0310	0.0329	W76
K0560QE650	6500	575	7700	296×10³	1000-1100	4400	700	10	1.460	1.750	125	0.0310	0.0329	W76
K0625QA600	6000	640	7700	296×10³	1000-1100	4750	1000	10	1.460	1.750	125	0.0260	0.0281	W75
K0625QA650	6500	640	7700	296×10³	1000-1100	4750	1000	10	1.460	1.750	125	0.0260	0.0281	W75
K0890NC360	3600	890	10900	594 x 10³	350-550	4000	1000	10	1.516	0.800	125	0.0240	0.0270	W11
K0890NC420	4200	890	10900	594 x 10³	350-550	4000	1000	10	1.516	0.800	125	0.0240	0.0270	W11
K0900ME600	6000	1010	12600	794 x 10³	850-1150	6200	1000	10	1.610	0.900	125	0.0180	0.0204	W78
K0900ME650	6500	1010	12600	794 x 10³	850-1150	6200	1000	10	1.610	0.900	125	0.0180	0.0204	W78
K1010MA600	6000	1130	12600	794 x 10³	850-1150	6200	1000	10	1.610	0.900	125	0.0150	0.0174	W77
K1010MA650	6500	1130	12600	794 x 10³	850-1150	6200	1000	10	1.610	0.900	125	0.0150	0.0174	W77
K1121NC320	3200	1121	15000	1.13 x 10⁶	200-300	2000	1000	10	1.098	0.542	125	0.0240	0.0270	W11
K1121NC360	3600	1121	15000	1.13 x 10⁶	200-300	2000	1000	10	1.098	0.542	125	0.0240	0.0270	W11
K1197NC280	2800	1197	10650	567 x 10³	200-300	2700	1000	10	1.335	0.372	125	0.0240	0.0270	W11
K1197NC320	3200	1197	10650	567 x 10³	200-300	2700	1000	10	1.335	0.372	125	0.0240	0.0270	W11

Outlines on pages O-01...O-35



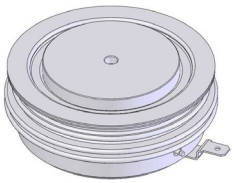
W10 Weight 340 g



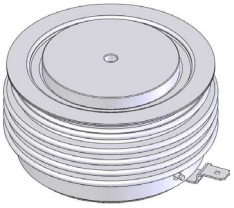
W11 Weight 510 g



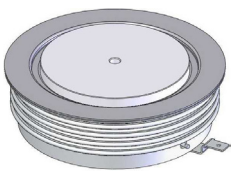
W56 Weight 271 g



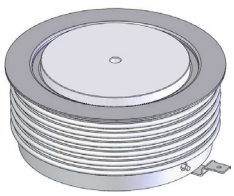
W75 Weight 330 g



W76 Weight 420 g



W77 Weight 550 g



W78 Weight 730 g

Medium Voltage Thyristors

Capsule Types

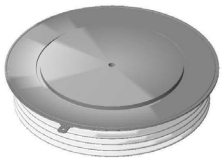
Part No.	V_{DRM}	I_{TAV}	I_{TSM}	I^2t	t_q	Typ. Reverse Recovery Charge			V_{T0}	r_T	T_{JM}	R_{thJK}		Fig. No.
	V_{RRM}		10 ms ½ sine		@	T_{JM}						180°	120°	
✧ under development		T_K = 55°C	V_R - ≤ 60% V_{RRM}		200 V/µs	Q_{rr}	@ I_{TM}	@ -di/dt	@ T_{JM}			Sine	Rect.	
➢ New	V	A	A	A^2s	µs	µC	A	A/µs	V	mΩ	°C	K/W	K/W	
✧ **K1210MA480**	4800	1210	15300	1.17 x 10^6	750-1050	3550	1000	10	1.477	0.797	125	0.0150	0.0174	W77
✧ **K1210MA520**	5200	1210	15300	1.17 x 10^6	750-1050	3550	1000	10	1.477	0.797	125	0.0150	0.0174	W77
➢ **K1270MA420**	4200	1270	16700	1.39 x 10^6	650-950	2150	1000	10	1.331	0.741	125	0.0150	0.0174	W77
➢ **K1270MA450**	4500	1270	16700	1.39 x 10^6	650-950	2150	1000	10	1.331	0.741	125	0.0150	0.0174	W77
K1495HE600	6000	1495	21800	2.38 x 10^6	1200-1500	9000	1500	10	1.496	0.606	125	0.0125	0.0132	W80
K1495HE650	6500	1495	21800	2.38 x 10^6	1200-1500	9000	1500	10	1.496	0.606	125	0.0125	0.0132	W80
K1670HA600	6000	1670	21800	2.38 x 10^6	1200-1500	9000	1500	10	1.496	0.606	125	0.0105	0.0113	W79
K1670HA650	6500	1670	21800	2.38 x 10^6	1200-1500	9000	1500	10	1.496	0.606	125	0.0105	0.0113	W79
✧ **K1785HA420**	4200	1785	26600	3.53 x 10^6	1050-1350	5150	1500	10	1.373	0.536	125	0.0105	0.0113	W79
✧ **K1785HA450**	4500	1785	26600	3.53 x 10^6	1050-1350	5150	1500	10	1.373	0.536	125	0.0105	0.0113	W79
K1947ZC400	4000	1947	25000	3.13 x 10^6	600-700	8800	1000	10	1.221	0.425	125	0.0110	0.0119	W13
K1947ZC450	4500	1947	25000	3.13 x 10^6	600-700	8800	1000	10	1.221	0.425	125	0.0110	0.0119	W13
K1947ZD400	4000	1947	25000	3.13 x 10^6	600-700	8800	1000	10	1.221	0.425	125	0.0110	0.0119	W46
K1947ZD450	4500	1947	25000	3.13 x 10^6	600-700	8800	1000	10	1.221	0.425	125	0.0110	0.0119	W46
K2085TE600	6000	2145	33000	5.45 x 10^6	1450-1800	11000	3000	10	1.260	0.410	125	0.0095	0.0101	W82
K2085TE650	6500	2145	33000	5.45 x 10^6	1450-1800	11000	3000	10	1.260	0.410	125	0.0095	0.0101	W82
K2095ZC360	3600	2095	18200	1.66 x 10^6	400-500	4550	2000	10	1.502	0.296	125	0.0110	0.0119	W13
K2095ZC420	4200	2095	18200	1.66 x 10^6	400-500	4550	2000	10	1.502	0.296	125	0.0110	0.0119	W13
K2095ZD360	3600	2095	18200	1.66 x 10^6	400-500	4550	2000	10	1.502	0.296	125	0.0110	0.0119	W46
K2095ZD420	4200	2095	18200	1.66 x 10^6	400-500	4550	2000	10	1.502	0.296	125	0.0110	0.0119	W46
K2325TJ600	6000	2380	33000	5.45 x 10^6	1450-1800	11000	3000	10	1.260	0.410	125	0.0080	0.0085	W81
K2325TJ650	6500	2380	33000	5.45 x 10^6	1450-1800	11000	3000	10	1.260	0.410	125	0.0080	0.0085	W81
➢ **K3745EA600**	6000	3745	35400	6.26 x 10^6	1500-1800	14000	4000	10	1.320	0.270	125	0.0050	0.0054	W107
➢ **K3745EA650**	6500	3745	35400	6.26 x 10^6	1500-1800	14000	4000	10	1.320	0.270	125	0.0050	0.0054	W107
✧ **K4005EA480**	4800	4005	43200	9.33 x 10^6	1300-1600	8000	4000	10	1.359	0.216	125	0.0050	0.0054	W107
✧ **K4005EA520**	5200	4005	43200	9.33 x 10^6	1300-1600	8000	4000	10	1.359	0.216	125	0.0050	0.0054	W107
✧ **K4215EA420**	4200	4215	47000	11.0 x 10^6	1200-1500	4800	4000	10	1.224	0.201	125	0.0050	0.0054	W107
✧ **K4215EA450**	4500	4215	47000	11.0 x 10^6	1200-1500	4800	4000	10	1.224	0.201	125	0.0050	0.0054	W107

✧ New parts under development, please consult factory for more details.

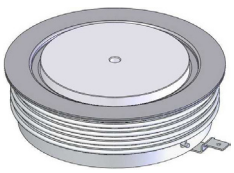
Outlines on pages O-01...O-35



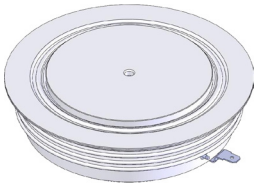
W13 Weight 1.7 kg



W46 Weight 1.2 kg



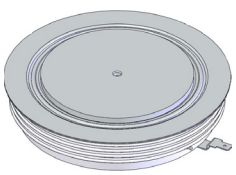
W77 Weight 550 g



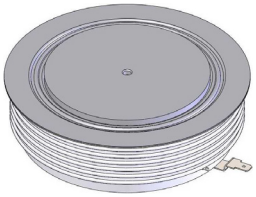
W79 Weight 890 g



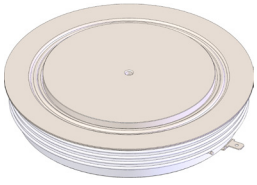
W80 Weight 1.2 kg



W81 Weight 1.2 kg



W82 Weight 1.65 kg



W107 Weight 1.6 kg

Fast Turn Off Thyristors

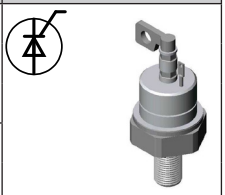
IXYS UK Westcode Ltd's „P" series of fast switching thyristors have a regenerative gate structure to ensure low switching losses and high di/dt performance. „P" series devices are suitable for existing inverters, DC chopper drives, UPS and Pulse Power applications. In addition to pressure contact technology these devices offer low reverse recovery charge values, low forward switching losses and high reliability. These devices are not recommended for new designs.

A new addition for 2019-20 is an M24 stud based assembly, with a current rating of 472A, voltage ratings up to 1600V and t_q starting at 25µs.

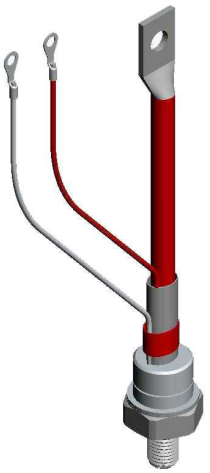
Stud Types

Part No.	V_{DRM} V_{RRM}	I_{TAV} T_C = 55°C	I_{TSM} 10 ms ½ sine V_R - ≤ 60% V_{RRM}	I^2t	t_q @ 200 V/µs	Typ. Reverse Recov. Charge T_{JM} Q_{rr}	@ I_{TM}	@ -di/dt	V_{T0} @ T_{JM}	r_T @ T_{JM}	R_{thJC} 180° sine	Fig. No.	Package style Outlines on pages O-01...O-35
○ Not for new design	V	A	A	A^2s	µs	µC	A	A/µs	V	mΩ	K/W		
○ **P0128SH10C**	1000	128	1700	19 x 10^3	15	50	100	10	1.600	2.490	0.2300	W17	
○ **P0128SH10D**	1000	128	1700	19 x 10^3	20	50	100	10	1.600	2.490	0.2300	W17	
○ **P0128SH10E**	1000	128	1700	19 x 10^3	25	50	100	10	1.600	2.490	0.2300	W17	
○ **P0128SH12C**	1200	128	1700	19 x 10^3	15	50	100	10	1.600	2.490	0.2300	W17	
○ **P0128SH12D**	1200	128	1700	19 x 10^3	20	50	100	10	1.600	2.490	0.2300	W17	
○ **P0128SH12E**	1200	128	1700	19 x 10^3	25	50	100	10	1.600	2.490	0.2300	W17	
○ **P0128SJ10C**	1000	128	1700	19 x 10^3	15	50	100	10	1.600	2.490	0.2300	W16	
○ **P0128SJ10D**	1000	128	1700	19 x 10^3	20	50	100	10	1.600	2.490	0.2300	W16	
○ **P0128SJ10E**	1000	128	1700	19 x 10^3	25	50	100	10	1.600	2.490	0.2300	W16	
○ **P0128SJ12C**	1200	128	1700	19 x 10^3	15	50	100	10	1.600	2.490	0.2300	W16	
○ **P0128SJ12D**	1200	128	1700	19 x 10^3	20	50	100	10	1.600	2.490	0.2300	W16	
○ **P0128SJ12E**	1200	128	1700	19 x 10^3	25	50	100	10	1.600	2.490	0.2300	W16	
R0472YC12EKER	1200	240	4000	80 x 10^3	25	155	550	40	1.648	1.125	0.1249	W115	
R0472YC12FKER	1200	240	4000	80 x 10^3	30	155	550	40	1.648	1.125	0.1249	W115	
R0472YC16EKER	1600	240	4000	80 x 10^3	25	155	550	40	1.648	1.125	0.1249	W115	
R0472YC16FKER	1600	240	4000	80 x 10^3	30	155	550	40	1.648	1.125	0.1249	W115	
○ **P0248SC12D**	1200	248	2700	36.5 x 10^3	20	45	300	20	1.600	1.230	0.1200	W18	
○ **P0248SC12E**	1200	248	2700	36.5 x 10^3	25	45	300	20	1.600	1.230	0.1200	W18	
○ **P0273SC12D**	1200	273	3250	52.8 x 10^3	20	80	300	20	1.550	0.870	0.1200	W18	
○ **P0273SC12E**	1200	273	3250	52.8 x 10^3	25	80	300	20	1.550	0.870	0.1200	W18	
○ **P0273SC12F**	1200	273	3250	52.8 x 10^3	30	80	300	20	1.550	0.870	0.1200	W18	
○ **P0306SC08A**	800	306	4700	110 x 10^3	10	50	300	20	1.400	0.670	0.1200	W18	
○ **P0306SC08B**	800	306	4700	110 x 10^3	12	50	300	20	1.400	0.670	0.1200	W18	
○ **P0306SC08C**	800	306	4700	110 x 10^3	15	50	300	20	1.400	0.670	0.1200	W18	
○ **P0311SC12E**	1200	311	3600	64.8 x 10^3	25	55	300	20	1.170	0.920	0.1200	W18	
○ **P0311SC12F**	1200	311	3600	64.8 x 10^3	30	55	300	20	1.170	0.920	0.1200	W18	
○ **P0330SC04A**	400	330	5000	125 x 10^3	10	55	300	20	1.050	0.880	0.1200	W18	
○ **P0330SC04C**	400	330	5000	125 x 10^3	15	55	300	20	1.050	0.880	0.1200	W18	
○ **P0330SC06A**	600	330	5000	125 x 10^3	10	55	300	20	1.050	0.880	0.1200	W18	
○ **P0330SC06C**	600	330	5000	125 x 10^3	15	55	300	20	1.050	0.880	0.1200	W18	
○ **P0330SC08A**	800	330	5000	125 x 10^3	10	55	300	20	1.050	0.880	0.1200	W18	
○ **P0330SC08C**	800	330	5000	125 x 10^3	15	55	300	20	1.050	0.880	0.1200	W18	
○ **P0431SC04B**	400	431	6500	211 x 10^3	12	190	300	20	0.950	0.377	0.1200	W18	
○ **P0431SC04C**	400	431	6500	211 x 10^3	15	190	300	20	0.950	0.377	0.1200	W18	
○ **P0431SC06B**	600	431	6500	211 x 10^3	12	190	300	20	0.950	0.377	0.1200	W18	
○ **P0431SC06C**	600	431	6500	211 x 10^3	15	190	300	20	0.950	0.377	0.1200	W18	

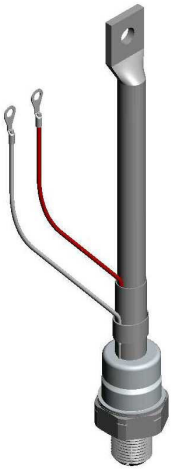
T_{JM} = 125°C



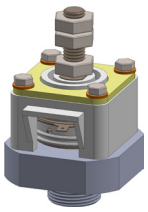
W16 Weight 100 g



W17 Weight 130 g



W18 Weight 280 g



W115 Weight 650 g

Fast Turn Off Thyristors

Capsule Types

Part No.	V_{DRM} V_{RRM} V	I_{TAV} T_K = 55°C A	I_{TSM} 10 ms ½ sine V_R - ≤ 60% V_{RRM} A	I^2t A^2s	t_q @ 200 V/µs µs	Typ. Reverse Recovery Charge T_{JM} Q_{rr} µC	@ I_{TM} A	@ -di/dt A/µs	V_{T0} @ T_{JM} V	r_T @ T_{JM} mΩ	R_{thJC} d.c. 180° sine K/W	Fig. No.	Package style Outlines on pages O-01...O-35
○ **P0295WC12D**	1200	295	2700	36.5 x 10^3	20	50	300	20	1.600	1.230	0.0950	W8	
○ **P0295WC12E**	1200	295	2700	36.5 x 10^3	25	50	300	20	1.600	1.230	0.0950	W8	
○ **P0327WC08C**	800	327	3250	63.9 x 10^3	15	45	300	20	1.550	0.870	0.0950	W8	
○ **P0327WC08D**	800	327	3250	63.9 x 10^3	20	45	300	20	1.550	0.870	0.0950	W8	
○ **P0327WC08E**	800	327	3250	63.9 x 10^3	25	45	300	20	1.550	0.870	0.0950	W8	
○ **P0327WC08F**	800	327	3250	63.9 x 10^3	30	45	300	20	1.550	0.870	0.0950	W8	
○ **P0327WC12C**	1200	327	3250	63.9 x 10^3	15	45	300	20	1.550	0.870	0.0950	W8	
○ **P0327WC12D**	1200	327	3250	63.9x 10^3	20	45	300	20	1.550	0.870	0.0950	W8	
○ **P0327WC12E**	1200	327	3250	63.9 x 10^3	25	45	300	20	1.550	0.870	0.0950	W8	
○ **P0327WC12F**	1200	327	3250	63.9 x 10^3	30	45	300	20	1.550	0.870	0.0950	W8	
○ **P0366WC04A**	400	366	4700	110 x 10^3	10	25	300	20	1.400	0.670	0.0950	W8	
○ **P0366WC04B**	400	366	4700	110 x 10^3	12	25	300	20	1.400	0.670	0.0950	W8	
○ **P0366WC04C**	400	366	4700	110 x 10^3	15	25	300	20	1.400	0.670	0.0950	W8	
○ **P0366WC06A**	600	366	4700	110 x 10^3	10	25	300	20	1.400	0.670	0.0950	W8	
○ **P0366WC06B**	600	366	4700	110 x 10^3	12	25	300	20	1.400	0.670	0.0950	W8	
○ **P0366WC06C**	600	366	4700	110 x 10^3	15	25	300	20	1.400	0.670	0.0950	W8	
○ **P0366WC08A**	800	366	4700	110 x 10^3	10	25	300	20	1.400	0.670	0.0950	W8	
○ **P0366WC08B**	800	366	4700	110 x 10^3	12	25	300	20	1.400	0.670	0.0950	W8	
○ **P0366WC08C**	800	366	4700	110 x 10^3	15	25	300	20	1.400	0.670	0.0950	W8	
○ **P0367WC12E**	1200	367	3600	64.8 x 10^3	25	50	300	20	1.170	0.920	0.0950	W8	
○ **P0367WC12F**	1200	367	3600	64.8 x 10^3	30	50	300	20	1.170	0.920	0.0950	W8	
○ **P0389WC04B**	400	389	5000	125 x 10^3	12	30	300	20	1.050	0.880	0.0950	W8	
○ **P0389WC04C**	400	389	5000	125 x 10^3	15	30	300	20	1.050	0.880	0.0950	W8	
○ **P0389WC08B**	800	389	5000	125 x 10^3	12	30	300	20	1.050	0.880	0.0950	W8	
○ **P0389WC08C**	800	389	5000	125 x 10^3	15	30	300	20	1.050	0.880	0.0950	W8	
○ **P0515WC04B**	400	515	6500	211 x 10^3	12	180	300	20	0.950	0.377	0.0950	W8	
○ **P0515WC04C**	400	515	6500	211 x 10^3	15	180	300	20	0.950	0.377	0.0950	W8	
○ **P0515WC04D**	400	515	6500	211 x 10^3	20	180	300	20	0.950	0.377	0.0950	W8	
○ **P0515WC06B**	600	515	6500	211 x 10^3	12	180	300	20	0.950	0.377	0.0950	W8	
○ **P0515WC06C**	600	515	6500	211 x 10^3	15	180	300	20	0.950	0.377	0.0950	W8	
○ **P0515WC06D**	600	515	6500	211 x 10^3	20	180	300	20	0.950	0.377	0.0950	W8	
○ **P0838LC06B**	600	1110	12300	750 x 10^3	12	160	800	50	1.200	0.280	0.0320	W10	
○ **P0838LC06C**	600	1110	12300	750 x 10^3	15	160	800	50	1.200	0.280	0.0320	W10	
○ **P0838LC08B**	800	1110	12300	750 x 10^3	12	160	800	50	1.200	0.280	0.0320	W10	
○ **P0838LC08C**	800	1110	12300	750 x 10^3	15	160	800	50	1.200	0.280	0.0320	W10	
○ **P0848YC04B**	400	848	8750	383 x 10^3	12	200	550	40	1.010	0.305	0.0500	W58	
○ **P0848YC04C**	400	848	8750	383 x 10^3	15	200	550	40	1.010	0.305	0.0500	W58	
○ **P0848YC06B**	600	848	8750	383 x 10^3	12	200	550	40	1.010	0.305	0.0500	W58	
○ **P0848YC06C**	600	848	8750	383 x 10^3	15	200	550	40	1.010	0.305	0.0500	W58	
○ **P1007LC08D**	800	1007	9500	451 x 10^3	20	400	800	50	1.509	0.265	0.0320	W10	
○ **P1007LC08E**	800	1007	9500	451 x 10^3	25	400	800	50	1.509	0.265	0.0320	W10	
○ **P1007LC08F**	800	1007	9500	451 x 10^3	30	400	800	50	1.509	0.265	0.0320	W10	
○ **P1007LC12D**	1200	1007	9500	451 x 10^3	20	400	800	50	1.509	0.265	0.0320	W10	
○ **P1007LC12E**	1200	1007	9500	451 x 10^3	25	400	800	50	1.509	0.265	0.0320	W10	
○ **P1007LC12F**	1200	1007	9500	451 x 10^3	30	400	800	50	1.509	0.265	0.0320	W10	

T_{JM} = 125°C

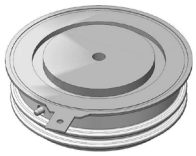




W8 Weight 70 g



W10 Weight 340 g



W58 Weight 90 g

Distributed Gate Thyristors

IXYS UK Westcode Ltd is recognised as the Worldwide leader in distributed gate technology. These devices are available with blocking voltages to 4.5kV and average currents in excess of 5kA, with tq ratings from 10µs. The unique distributed gate design and lifetime control features give these devices both high di/dt capability and fast, low recovery turn-off, while maintaining a low on-state voltage drop. Ideally suited to applications including: induction power supplies, high frequency inverters/converters, UPS and pulse power.

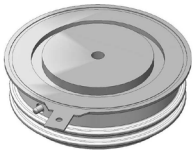
Capsule Types

Part No.	V_{DRM}	V_{RRM}	I_{TAV}	I_{TSM}	I^2t	t_q	Typ. Reverse Recovery Charge @T_{JM}			V_{T0}	r_T	R_{thJK}	Fig. No.	Package style
			T_K = 55°C	10 ms ½ sine V_R - ≤ 60% V_{RRM}		@ 200 V/µs	Q_{rr}	@I_{TM}	@-di/dt	@T_{JM}		180° Sine		Outlines on pages O-01...O-35
	V	V	A	A	A^2s	µs	µC	A	A/µs	V	mΩ	K/W		
R0472YC12E	1200	1200	472	4300	92.5 x 10^3	25	155	550	40	1.648	1.125	0.05000	W58	
R0472YC12F	1200	1200	472	4300	92.5 x 10^3	30	155	550	40	1.648	1.125	0.05000	W58	
R0472YC16E	1600	1600	472	4300	92.5 x 10^3	25	155	550	40	1.648	1.125	0.05000	W58	
R0472YC16F	1600	1600	472	4300	92.5 x 10^3	30	155	550	40	1.648	1.125	0.05000	W58	
R0487YC12D	1200	1200	487	4300	92.5 x 10^3	20	90	550	40	1.738	0.943	0.05000	W58	
R0487YC12E	1200	1200	487	4300	92.5 x 10^3	25	90	550	40	1.738	0.943	0.05000	W58	
R0487YC14D	1400	1400	487	4300	92.5 x 10^3	20	90	550	40	1.738	0.943	0.05000	W58	
R0487YC14E	1400	1400	487	4300	92.5 x 10^3	25	90	550	40	1.738	0.943	0.05000	W58	
R0577YC12C	1200	1200	577	6000	180 x 10^3	15	150	550	40	1.510	0.640	0.05000	W58	
R0577YC12D	1200	1200	577	6000	180 x 10^3	20	150	550	40	1.510	0.640	0.05000	W58	
R0577YC12E	1200	1200	577	6000	180 x 10^3	25	150	550	40	1.510	0.640	0.05000	W58	
R0633YC12D	1200	1200	633	6300	200 x 10^3	20	125	550	40	1.250	0.614	0.05000	W58	
R0633YC12E	1200	1200	633	6300	200 x 10^3	25	125	550	40	1.250	0.614	0.05000	W58	
R0633YC12F	1200	1200	633	6300	200 x 10^3	30	125	550	40	1.250	0.614	0.05000	W58	
R0717LC14G	1400	1400	717	7050	248.5 x 10^3	35	425	1000	60	1.752	0.732	0.03200	W10	
R0717LC14H	1400	1400	717	7050	248.5 x 10^3	40	425	1000	60	1.752	0.732	0.03200	W10	
R0717LC16G	1600	1600	717	7050	248.5 x 10^3	35	425	1000	60	1.752	0.732	0.03200	W10	
R0717LC16H	1600	1600	717	7050	248.5 x 10^3	40	425	1000	60	1.752	0.732	0.03200	W10	
R0736LC20J	2000	2000	736	6800	231 x 10^3	50	640	1000	60	1.842	0.619	0.03200	W10	
R0736LC20K	2000	2000	736	6800	231 x 10^3	60	640	1000	60	1.842	0.619	0.03200	W10	
R0736LC22J	2200	2000	736	6800	231 x 10^3	50	640	1000	60	1.842	0.619	0.03200	W10	
R0736LC22K	2200	2000	736	6800	231 x 10^3	60	640	1000	60	1.842	0.619	0.03200	W10	
R0736LC25J	2500	2000	736	6800	231 x 10^3	50	640	1000	60	1.842	0.619	0.03200	W10	
R0736LC25K	2500	2000	736	6800	231 x 10^3	60	640	1000	60	1.842	0.619	0.03200	W10	
R0736LC25L	2500	2000	736	6800	231 x 10^3	65	640	1000	60	1.842	0.619	0.03200	W10	
R0736LC25M	2500	2000	736	6800	231 x 10^3	70	640	1000	60	1.842	0.619	0.03200	W10	
R0809LC10A	1000	1000	809	8000	320 x 10^3	10	120	1000	60	2.100	0.300	0.03200	W10	
R0809LC10B	1000	1000	809	8000	320 x 10^3	12	120	1000	60	2.100	0.300	0.03200	W10	
R0830LC12C	1200	1200	830	8500	361 x 10^3	15	285	1000	60	1.900	0.357	0.03200	W10	
R0830LC12D	1200	1200	830	8500	361 x 10^3	20	285	1000	60	1.900	0.357	0.03200	W10	
R0830LC12E	1200	1200	830	8500	361 x 10^3	25	285	1000	60	1.900	0.357	0.03200	W10	
R0830LC12F	1200	1200	830	8500	361 x 10^3	30	285	1000	60	1.900	0.357	0.03200	W10	
R0830LC14C	1400	1400	830	8500	361 x 10^3	15	285	1000	60	1.900	0.357	0.03200	W10	
R0830LC14D	1400	1400	830	8500	361 x 10^3	20	285	1000	60	1.900	0.357	0.03200	W10	
R0830LC14E	1400	1400	830	8500	361 x 10^3	25	285	1000	60	1.900	0.357	0.03200	W10	
R0830LC14F	1400	1400	830	8500	361 x 10^3	30	285	1000	60	1.900	0.357	0.03200	W10	
R0878LC18K	1800	1800	878	7500	281 x 10^3	60	720	1000	60	1.447	0.480	0.03200	W10	
R0878LC18L	1800	1800	878	7500	281 x 10^3	65	720	1000	60	1.447	0.480	0.03200	W10	
R0878LC18M	1800	1800	878	7500	281 x 10^3	70	720	1000	60	1.447	0.480	0.03200	W10	
R0878LC20K	2000	1800	878	7500	281 x 10^3	60	720	1000	60	1.447	0.480	0.03200	W10	
R0878LC20L	2000	1800	878	7500	281 x 10^3	65	720	1000	60	1.447	0.480	0.03200	W10	
R0878LC20M	2000	1800	878	7500	281 x 10^3	70	720	1000	60	1.447	0.480	0.03200	W10	
R0878LC21K	2100	1800	878	7500	281 x 10^3	60	720	1000	60	1.447	0.480	0.03200	W10	
R0878LC21L	2100	1800	878	7500	281 x 10^3	65	720	1000	60	1.447	0.480	0.03200	W10	
R0878LC21M	2100	1800	878	7500	281 x 10^3	70	720	1000	60	1.447	0.480	0.03200	W10	
R0929LC12A	1200	1200	929	9000	405 x 10^3	10	150	1000	60	1.549	0.350	0.03200	W10	
R0929LC12B	1200	1200	929	9000	405 x 10^3	12	150	1000	60	1.549	0.350	0.03200	W10	
R0929LC12C	1200	1200	929	9000	405 x 10^3	15	150	1000	60	1.549	0.350	0.03200	W10	
R0964LC10C	1000	1000	964	9400	442 x 10^3	15	170	1000	60	1.530	0.309	0.03200	W10	
R0964LC10D	1000	1000	964	9400	442 x 10^3	20	170	1000	60	1.530	0.309	0.03200	W10	
R0964LC10E	1000	1000	964	9400	442 x 10^3	25	170	1000	60	1.530	0.309	0.03200	W10	
R0964LC12C	1200	1200	964	9400	442 x 10^3	15	170	1000	60	1.530	0.309	0.03200	W10	
R0964LC12D	1200	1200	964	9400	442 x 10^3	20	170	1000	60	1.530	0.309	0.03200	W10	
R0964LC12E	1200	1200	964	9400	442 x 10^3	25	170	1000	60	1.530	0.309	0.03200	W10	





W10 Weight 340 g



W58 Weight 90 g

Distributed Gate Thyristors

Capsule Types

Part No.	V_{DRM}	V_{RRM}	I_{TAV}	I_{TSM}	I^2t	t_q	Typ. Reverse Recovery Charge @T_{JM}			V_{T0}	r_T	R_{thJK}	Fig. No.	Package style
○ Not for new design			T_K = 55°C	10 ms ½ sine V_R - ≤ 60% V_{RRM}		@ 200 V/µs	Q_{rr}	@I_{TM}	@-di/dt	@T_{JM}		180° Sine		Outlines on pages O-01...O-35
➢ New	V	V	A	A	A^2s	µs	µC	A	A/µs	V	mΩ	K/W		
R0990LC08A	800	800	990	11000	605 x 10^3	10	90	1000	60	1.350	0.350	0.03200	W10	
R0990LC08B	800	800	990	11000	605 x 10^3	12	90	1000	60	1.350	0.350	0.03200	W10	
R0990LC08C	800	800	990	11000	605 x 10^3	15	90	1000	60	1.350	0.350	0.03200	W10	
➢ **R1045NC28L**	2800	2800	1055	12500	781 x 10^3	60	950	1000	60	1.640	0.430	0.02400	W11	
➢ **R1045NC28M**	2800	2800	1055	12500	781 x 10^3	70	950	1000	60	1.640	0.430	0.02400	W11	
➢ **R1045NC32L**	3200	3200	1055	12500	781 x 10^3	60	950	1000	60	1.640	0.430	0.02400	W11	
➢ **R1045NC32M**	3200	3200	1055	12500	781 x 10^3	70	950	1000	60	1.640	0.430	0.02400	W11	
R1124NC18J	1800	1800	1124	13500	0.91 x 10^6	50	640	1000	60	1.540	0.379	0.02400	W11	
R1124NC18K	1800	1800	1124	13500	0.91 x 10^6	60	640	1000	60	1.540	0.379	0.02400	W11	
R1124NC18L	1800	1800	1124	13500	0.91 x 10^6	65	640	1000	60	1.540	0.379	0.02400	W11	
R1124NC18M	1800	1800	1124	13500	0.91 x 10^6	70	640	1000	60	1.540	0.379	0.02400	W11	
R1124NC20J	2000	1800	1124	13500	0.91 x 10^6	50	640	1000	60	1.540	0.379	0.02400	W11	
R1124NC20K	2000	1800	1124	13500	0.91 x 10^6	60	640	1000	60	1.540	0.379	0.02400	W11	
R1124NC20L	2000	1800	1124	13500	0.91 x 10^6	65	640	1000	60	1.540	0.379	0.02400	W11	
R1124NC20M	2000	1800	1124	13500	0.91 x 10^6	70	640	1000	60	1.540	0.379	0.02400	W11	
R1124NC21J	2100	1800	1124	13500	0.91 x 10^6	50	640	1000	60	1.540	0.379	0.02400	W11	
R1124NC21K	2100	1800	1124	13500	0.91 x 10^6	60	640	1000	60	1.540	0.379	0.02400	W11	
R1124NC21L	2100	1800	1124	13500	0.91 x 10^6	65	640	1000	60	1.540	0.379	0.02400	W11	
R1124NC21M	2100	1800	1124	13500	0.91 x 10^6	70	640	1000	60	1.540	0.379	0.02400	W11	
R1127NC32P	3200	3200	1127	12800	819 x 10^3	120	3500	1000	60	1.500	0.474	0.02200	W11	
R1127NC32R	3200	3200	1127	12800	819 x 10^3	140	3500	1000	60	1.500	0.474	0.02200	W11	
R1127NC32S	3200	3200	1127	12800	819 x 10^3	160	3500	1000	60	1.500	0.474	0.02200	W11	
R1127NC32T	3200	3200	1127	12800	819 x 10^3	200	3500	1000	60	1.500	0.474	0.02200	W11	
R1127NC34R	3400	3400	1127	12800	819 x 10^3	140	3500	1000	60	1.500	0.474	0.02200	W11	
R1127NC34S	3400	3400	1127	12800	819 x 10^3	160	3500	1000	60	1.500	0.474	0.02200	W11	
R1127NC34T	3400	3400	1127	12800	819 x 10^3	200	3500	1000	60	1.500	0.474	0.02200	W11	
R1127NC36R	3600	3600	1127	12800	819 x 10^3	140	3500	1000	60	1.500	0.474	0.02200	W11	
R1127NC36S	3600	3600	1127	12800	819 x 10^3	160	3500	1000	60	1.500	0.474	0.02200	W11	
R1127NC36T	3600	3600	1127	12800	819 x 10^3	200	3500	1000	60	1.500	0.474	0.02200	W11	
R1158NC26N	2600	2600	1158	14500	1.05 x 10^6	100	1600	1000	60	1.600	0.400	0.02200	W11	
R1158NC26P	2600	2600	1158	14500	1.05 x 10^6	120	1600	1000	60	1.600	0.400	0.02200	W11	
R1158NC26T	2600	2600	1158	14500	1.05 x 10^6	200	1600	1000	60	1.600	0.400	0.02200	W11	
R1178NC14E	1400	1400	1178	17000	1.45 x 10^6	25	320	1000	60	1.600	0.300	0.02400	W11	
R1178NC14F	1400	1400	1178	17000	1.45 x 10^6	30	320	1000	60	1.600	0.300	0.02400	W11	
R1178NC14G	1400	1400	1178	17000	1.45 x 10^6	35	320	1000	60	1.600	0.300	0.02400	W11	
R1211NC12C	1200	1200	1211	17600	1.548 x 10^6	15	230	1000	60	1.720	0.230	0.02400	W11	
R1211NC12D	1200	1200	1211	17600	1.548 x 10^6	20	230	1000	60	1.720	0.230	0.02400	W11	
R1211NC12E	1200	1200	1211	17600	1.548 x 10^6	25	230	1000	60	1.720	0.230	0.02400	W11	
R1271NC12B	1200	1200	1271	18000	1.62 x 10^6	12	200	1000	60	1.547	0.237	0.02400	W11	
R1271NC12C	1200	1200	1271	18000	1.62 x 10^6	15	200	1000	60	1.547	0.237	0.02400	W11	
R1271NC12D	1200	1200	1271	18000	1.62 x 10^6	20	200	1000	60	1.547	0.237	0.02400	W11	
R1271NC12E	1200	1200	1271	18000	1.62 x 10^6	25	200	1000	60	1.547	0.237	0.02400	W11	
R1275NC18L	1800	1800	1275	15500	1.20 x 10^6	65	940	1000	60	1.207	0.342	0.02400	W11	
R1275NC18M	1800	1800	1275	15500	1.20 x 10^6	70	940	1000	60	1.207	0.342	0.02400	W11	
R1275NC20L	2000	1800	1275	15500	1.20 x 10^6	65	940	1000	60	1.207	0.342	0.02400	W11	
R1275NC20M	2000	1800	1275	15500	1.20 x 10^6	70	940	1000	60	1.207	0.342	0.02400	W11	
R1275NC21L	2100	1800	1275	15500	1.20 x 10^6	65	940	1000	60	1.207	0.342	0.02400	W11	
R1275NC21M	2100	1800	1275	15500	1.20 x 10^6	70	940	1000	60	1.207	0.342	0.02400	W11	
○ **R1279NC22J**	2200	2200	1279	14800	1.10 x 10^6	50	1250	1000	60	1.440	0.330	0.02200	W11	
○ **R1279NC22K**	2200	2200	1279	14800	1.10 x 10^6	60	1250	1000	60	1.440	0.330	0.02200	W11	
○ **R1279NC22L**	2200	2200	1279	14800	1.10 x 10^6	65	1250	1000	60	1.440	0.330	0.02200	W11	
○ **R1279NC22M**	2200	2200	1279	14800	1.10 x 10^6	70	1250	1000	60	1.440	0.330	0.02200	W11	
○ **R1279NC25J**	2500	2500	1279	14800	1.10 x 10^6	50	1250	1000	60	1.440	0.330	0.02200	W11	
○ **R1279NC25K**	2500	2500	1279	14800	1.10 x 10^6	60	1250	1000	60	1.440	0.330	0.02200	W11	
○ **R1279NC25L**	2500	2500	1279	14800	1.10 x 10^6	65	1250	1000	60	1.440	0.330	0.02200	W11	
○ **R1279NC25M**	2500	2500	1279	14800	1.10 x 10^6	70	1250	1000	60	1.440	0.330	0.02200	W11	





W10 Weight 340 g



W11 Weight 510 g

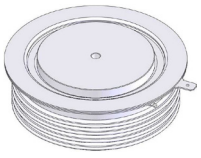
Distributed Gate Thyristors

Capsule Types

Part No.	V_{DRM}	V_{RRM}	I_{TAV}	I_{TSM}	I^2t	t_q	Typ. Reverse Recovery Charge @T_{JM}			V_{T0}	r_T	R_{thJK}	Fig. No.	Package style
○ Not for new design			T_K = 55°C	10 ms ½ sine V_R - ≤ 60% V_{RRM}		@ 200 V/µs	Q_{rr}	@I_{TM}	@-di/dt	@T_{JM}		180° Sine		Outlines on pages O-01...O-35
	V	V	A	A	A^2s	µs	µC	A	A/µs	V	mΩ	K/W		
○ **R1280NC21J**	2100	2100	1280	14800	1.10 x 10^6	50	1200	1000	60	1.440	0.330	0.02200	W11	
○ **R1280NC21K**	2100	2100	1280	14800	1.10 x 10^6	60	1200	1000	60	1.440	0.330	0.02200	W11	
○ **R1280NC21L**	2100	2100	1280	14800	1.10 x 10^6	65	1200	1000	60	1.440	0.330	0.02200	W11	
○ **R1280NC21M**	2100	2100	1280	14800	1.10 x 10^6	70	1200	1000	60	1.440	0.330	0.02200	W11	
○ **R1280NC22J**	2200	2100	1280	14800	1.10 x 10^6	50	1200	1000	60	1.440	0.330	0.02200	W11	
○ **R1280NC22K**	2200	2100	1280	14800	1.10 x 10^6	60	1200	1000	60	1.440	0.330	0.02200	W11	
○ **R1280NC22L**	2200	2100	1280	14800	1.10 x 10^6	65	1200	1000	60	1.440	0.330	0.02200	W11	
○ **R1280NC22M**	2200	2100	1280	14800	1.10 x 10^6	70	1200	1000	60	1.440	0.330	0.02200	W11	
○ **R1280NC25J**	2500	2100	1280	14800	1.10 x 10^6	50	1200	1000	60	1.440	0.330	0.02200	W11	
○ **R1280NC25K**	2500	2100	1280	14800	1.10 x 10^6	60	1200	1000	60	1.440	0.330	0.02200	W11	
○ **R1280NC25L**	2500	2100	1280	14800	1.10 x 10^6	65	1200	1000	60	1.440	0.330	0.02200	W11	
○ **R1280NC25M**	2500	2100	1280	14800	1.10 x 10^6	70	1200	1000	60	1.440	0.330	0.02200	W11	
○ **R1331NC10B**	1000	1000	1331	18200	1.66 x 10^6	12	200	1000	60	1.450	0.285	0.02200	W11	
○ **R1331NC10C**	1000	1000	1331	18200	1.66 x 10^6	15	200	1000	60	1.450	0.285	0.02200	W11	
○ **R1331NC10D**	1000	1000	1331	18200	1.66 x 10^6	20	200	1000	60	1.450	0.285	0.02200	W11	
○ **R1331NC12B**	1200	1200	1331	18200	1.66 x 10^6	12	200	1000	60	1.450	0.285	0.02200	W11	
○ **R1331NC12C**	1200	1200	1331	18200	1.66 x 10^6	15	200	1000	60	1.450	0.285	0.02200	W11	
○ **R1331NC12D**	1200	1200	1331	18200	1.66 x 10^6	20	200	1000	60	1.450	0.285	0.02200	W11	
R1446NC12C	1200	1200	1446	19500	1.90 x 10^6	15	300	1000	60	1.304	0.199	0.02400	W11	
R1446NC12D	1200	1200	1446	19500	1.90 x 10^6	20	300	1000	60	1.304	0.199	0.02400	W11	
R1446NC12E	1200	1200	1446	19500	1.90 x 10^6	25	300	1000	60	1.304	0.199	0.02400	W11	
R1446NC12F	1200	1200	1446	19500	1.90 x 10^6	30	300	1000	60	1.304	0.199	0.02400	W11	
○ **R1448NC14H**	1400	1400	1448	15500	1.20 x 10^6	40	950	1000	60	1.300	0.250	0.02200	W11	
○ **R1448NC14J**	1400	1400	1448	15500	1.20 x 10^6	50	950	1000	60	1.300	0.250	0.02200	W11	
○ **R1448NC18H**	1800	1800	1448	15500	1.20 x 10^6	40	950	1000	60	1.300	0.250	0.02200	W11	
○ **R1448NC18J**	1800	1800	1448	15500	1.20 x 10^6	50	950	1000	60	1.300	0.250	0.02200	W11	
○ **R1448NC20H**	2000	2000	1448	15500	1.20 x 10^6	40	950	1000	60	1.300	0.250	0.02200	W11	
○ **R1448NC20J**	2000	2000	1448	15500	1.20 x 10^6	50	950	1000	60	1.300	0.250	0.02200	W11	
○ **R1448NC20K**	2000	2000	1448	15500	1.20 x 10^6	60	950	1000	60	1.300	0.250	0.02200	W11	
○ **R1448NC20L**	2000	2000	1448	15500	1.20 x 10^6	65	950	1000	60	1.300	0.250	0.02200	W11	
○ **R1448NC20M**	2000	2000	1448	15500	1.20 x 10^6	70	950	1000	60	1.300	0.250	0.02200	W11	
R1605MC20E	2000	2000	1605	20700	2.14 x 10^6	25	900	1000	60	2.100	0.200	0.01500	W70	
R1605MC20F	2000	2000	1605	20700	2.14 x 10^6	30	900	1000	60	2.100	0.200	0.01500	W70	
R1605MC20G	2000	2000	1605	20700	2.14 x 10^6	35	900	1000	60	2.100	0.200	0.01500	W70	
R1605MC20H	2000	2000	1605	20700	2.14 x 10^6	40	900	1000	60	2.100	0.200	0.01500	W70	
R1605MC20J	2000	2000	1605	20700	2.14 x 10^6	50	900	1000	60	2.100	0.200	0.01500	W70	
R1605MC22E	2200	2200	1605	20700	2.14 x 10^6	25	900	1000	60	2.100	0.200	0.01500	W70	
R1605MC22F	2200	2200	1605	20700	2.14 x 10^6	30	900	1000	60	2.100	0.200	0.01500	W70	
R1605MC22G	2200	2200	1605	20700	2.14 x 10^6	35	900	1000	60	2.100	0.200	0.01500	W70	
R1605MC22H	2200	2200	1605	20700	2.14 x 10^6	40	900	1000	60	2.100	0.200	0.01500	W70	
R1605MC22J	2200	2200	1605	20700	2.14 x 10^6	50	900	1000	60	2.100	0.200	0.01500	W70	
R1700MC18E	1800	1800	1700	20000	2.0 x 10^6	25	1400	1000	60	1.600	0.250	0.01500	W70	
R1700MC18F	1800	1800	1700	20000	2.0 x 10^6	30	1400	1000	60	1.600	0.250	0.01500	W70	
R1700MC18G	1800	1800	1700	20000	2.0 x 10^6	35	1400	1000	60	1.600	0.250	0.01500	W70	
R1700MC18H	1800	1800	1700	20000	2.0 x 10^6	40	1400	1000	60	1.600	0.250	0.01500	W70	
R1700MC18J	1800	1800	1700	20000	2.0 x 10^6	50	1400	1000	60	1.600	0.250	0.01500	W70	
R1700MC21E	2100	1800	1700	20000	2.0 x 10^6	25	1400	1000	60	1.600	0.250	0.01500	W70	
R1700MC21F	2100	1800	1700	20000	2.0 x 10^6	30	1400	1000	60	1.600	0.250	0.01500	W70	
R1700MC21G	2100	1800	1700	20000	2.0 x 10^6	35	1400	1000	60	1.600	0.250	0.01500	W70	
R1700MC21H	2100	1800	1700	20000	2.0 x 10^6	40	1400	1000	60	1.600	0.250	0.01500	W70	
R1700MC21J	2100	1800	1700	20000	2.0 x 10^6	50	1400	1000	60	1.600	0.250	0.01500	W70	



W11 Weight 510 g



W70 Weight 550 g

Distributed Gate Thyristors

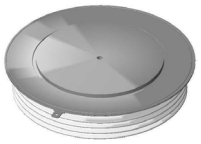
Capsule Types

Part No.	V_{DRM}	V_{RRM}	I_{TAV}	I_{TSM}	I^2t	t_q	Typ. Reverse Recovery Charge			V_{T0}	r_T	R_{thJK}	Fig. No.	Package style
							@T_{JM}							Outlines on pages O-01...O-35
			T_K = 55°C	10 ms ½ sine V_R - ≤ 60% V_{RRM}		@ 200 V/µs	Q_{rr}	@I_{TM}	@-di/dt	@T_{JM}		180° Sine		
➢ New	V	V	A	A	A^2s	µs	µC	A	A/µs	V	mΩ	K/W		
R1955MC14D	1400	1400	1955	26500	3.51×10^6	20	1000	1000	60	1.460	0.910	0.01500	W70	
R1955MC14E	1400	1400	1955	26500	3.51×10^6	25	1000	1000	60	1.460	0.910	0.01500	W70	
R1955MC14F	1400	1400	1955	26500	3.51×10^6	30	1000	1000	60	1.460	0.910	0.01500	W70	
R1955MC16D	1600	1600	1955	26500	3.51×10^6	20	1000	1000	60	1.460	0.910	0.01500	W70	
R1955MC16E	1600	1600	1955	26500	3.51×10^6	25	1000	1000	60	1.460	0.910	0.01500	W70	
R1955MC16F	1600	1600	1955	26500	3.51×10^6	30	1000	1000	60	1.460	0.910	0.01500	W70	
R2075MC12A	1200	1200	2075	29000	4.21×10^6	10	300	1000	60	1.390	0.167	0.01500	W70	
R2075MC12B	1200	1200	2075	29000	4.21×10^6	12	300	1000	60	1.390	0.167	0.01500	W70	
R2075MC12C	1200	1200	2075	29000	4.21×10^6	15	300	1000	60	1.390	0.167	0.01500	W70	
➢ **R2295HA22F**	2200	2200	2295	30000	4.50×10^6	30	875	1000	60	1.690	0.190	0.01100	W79	
➢ **R2295HA22H**	2200	2200	2295	30000	4.50×10^6	40	875	1000	60	1.690	0.190	0.01100	W79	
R2475ZC28M	2800	2800	2475	31000	4.81×10^6	70	3900	4000	60	1.504	0.174	0.01100	W13	
R2475ZC28N	2800	2800	2475	31000	4.81×10^6	100	3900	4000	60	1.504	0.174	0.01100	W13	
R2475ZC28R	2800	2800	2475	31000	4.81×10^6	140	3900	4000	60	1.504	0.174	0.01100	W13	
R2475ZD28M	2800	2800	2475	31000	4.81×10^6	70	3900	4000	60	1.504	0.174	0.01100	W46	
R2475ZD28N	2800	2800	2475	31000	4.81×10^6	100	3900	4000	60	1.504	0.174	0.01100	W46	
R2475ZD28R	2800	2800	2475	31000	4.81×10^6	140	3900	4000	60	1.504	0.174	0.01100	W46	
R2619ZC18J	1800	1800	2619	33800	5.71×10^6	50	1850	4000	60	1.308	0.173	0.01100	W13	
R2619ZC18K	1800	1800	2619	33800	5.71×10^6	60	1850	4000	60	1.308	0.173	0.01100	W13	
R2619ZC18L	1800	1800	2619	33800	5.71×10^6	65	1850	4000	60	1.308	0.173	0.01100	W13	
R2619ZC20J	2000	2000	2619	33800	5.71×10^6	50	1850	4000	60	1.308	0.173	0.01100	W13	
R2619ZC20K	2000	2000	2619	33800	5.71×10^6	60	1850	4000	60	1.308	0.173	0.01100	W13	
R2619ZC20L	2000	2000	2619	33800	5.71×10^6	65	1850	4000	60	1.308	0.173	0.01100	W13	
R2619ZC21J	2100	2100	2619	33800	5.71×10^6	50	1850	4000	60	1.308	0.173	0.01100	W13	
R2619ZC21K	2100	2100	2619	33800	5.71×10^6	60	1850	4000	60	1.308	0.173	0.01100	W13	
R2619ZC21L	2100	2100	2619	33800	5.71×10^6	65	1850	4000	60	1.308	0.173	0.01100	W13	
R2619ZC25J	2500	2100	2619	33800	5.71×10^6	50	1850	4000	60	1.308	0.173	0.01100	W13	
R2619ZC25K	2500	2100	2619	33800	5.71×10^6	60	1850	4000	60	1.308	0.173	0.01100	W13	
R2619ZC25L	2500	2100	2619	33800	5.71×10^6	65	1850	4000	60	1.308	0.173	0.01100	W13	
R2619ZD18J	1800	1800	2619	33800	5.71×10^6	50	1850	4000	60	1.308	0.173	0.01100	W46	
R2619ZD18K	1800	1800	2619	33800	5.71×10^6	60	1850	4000	60	1.308	0.173	0.01100	W46	
R2619ZD18L	1800	1800	2619	33800	5.71×10^6	65	1850	4000	60	1.308	0.173	0.01100	W46	
R2619ZD20J	2000	2000	2619	33800	5.71×10^6	50	1850	4000	60	1.308	0.173	0.01100	W46	
R2619ZD20K	2000	2000	2619	33800	5.71×10^6	60	1850	4000	60	1.308	0.173	0.01100	W46	
R2619ZD20L	2000	2000	2619	33800	5.71×10^6	65	1850	4000	60	1.308	0.173	0.01100	W46	
R2619ZD21J	2100	2100	2619	33800	5.71×10^6	50	1850	4000	60	1.308	0.173	0.01100	W46	
R2619ZD21K	2100	2100	2619	33800	5.71×10^6	60	1850	4000	60	1.308	0.173	0.01100	W46	
R2619ZD21L	2100	2100	2619	33800	5.71×10^6	65	1850	4000	60	1.308	0.173	0.01100	W46	
R2619ZD25J	2500	2100	2619	33800	5.71×10^6	50	1850	4000	60	1.308	0.173	0.01100	W46	
R2619ZD25K	2500	2100	2619	33800	5.71×10^6	60	1850	4000	60	1.308	0.173	0.01100	W46	
R2619ZD25L	2500	2100	2619	33800	5.71×10^6	65	1850	4000	60	1.308	0.173	0.01100	W46	
R2620ZC22J	2200	2200	2620	33800	5.71×10^6	50	2100	4000	60	1.500	0.143	0.01100	W13	
R2620ZC22K	2200	2200	2620	33800	5.71×10^6	60	2100	4000	60	1.500	0.143	0.01100	W13	
R2620ZC22L	2200	2200	2620	33800	5.71×10^6	65	2100	4000	60	1.500	0.143	0.01100	W13	
R2620ZC25J	2500	2500	2620	33800	5.71×10^6	50	2100	4000	60	1.500	0.143	0.01100	W13	
R2620ZC25K	2500	2500	2620	33800	5.71×10^6	60	2100	4000	60	1.500	0.143	0.01100	W13	
R2620ZC25L	2500	2500	2620	33800	5.71×10^6	65	2100	4000	60	1.500	0.143	0.01100	W13	
R2620ZD22J	2200	2200	2620	33800	5.71×10^6	50	2100	4000	60	1.500	0.143	0.01100	W46	
R2620ZD22K	2200	2200	2620	33800	5.71×10^6	60	2100	4000	60	1.500	0.143	0.01100	W46	
R2620ZD22L	2200	2200	2620	33800	5.71×10^6	65	2100	4000	60	1.500	0.143	0.01100	W46	
R2620ZD25J	2500	2500	2620	33800	5.71×10^6	50	2100	4000	60	1.500	0.143	0.01100	W46	
R2620ZD25K	2500	2500	2620	33800	5.71×10^6	60	2100	4000	60	1.500	0.143	0.01100	W46	
R2620ZD25L	2500	2500	2620	33800	5.71×10^6	65	2100	4000	60	1.500	0.143	0.01100	W46	

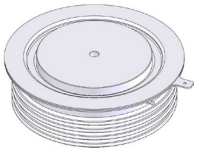




W13 Weight 1.7 kg



W46 Weight 1.2 kg



W70 Weight 550 g

Distributed Gate Thyristors

Capsule Types

Part No.	V_{DRM}	V_{RRM}	I_{TAV}	I_{TSM}	I^2t	t_q	Typ. Reverse Recovery Charge			V_{T0}	r_T	R_{thJK}	Fig. No.	Package style
						@	@T_{JM}			@T_{JM}				Outlines on pages O-01...O-35
○ Not for new design			T_K =	10 ms ½ sine		200	Q_{rr}	@I_{TM}	@-di/dt			180°		
➢ New	V	V	55°C A	V_R - ≤ 60% V_{RRM} A	A^2s	V/µs µs	µC	A	A/µs	V	mΩ	Sine K/W		
R2714ZC14H	1400	1400	2714	35600	6.34 x 10^6	40	1400	4000	60	1.250	0.163	0.01100	W13	
R2714ZC14J	1400	1400	2714	35600	6.34 x 10^6	50	1400	4000	60	1.250	0.163	0.01100	W13	
R2714ZC14K	1400	1400	2714	35600	6.34 x 10^6	60	1400	4000	60	1.250	0.163	0.01100	W13	
R2714ZC18H	1800	1800	2714	35600	6.34 x 10^6	40	1400	4000	60	1.250	0.163	0.01100	W13	
R2714ZC18J	1800	1800	2714	35600	6.34 x 10^6	50	1400	4000	60	1.250	0.163	0.01100	W13	
R2714ZC18K	1800	1800	2714	35600	6.34 x 10^6	60	1400	4000	60	1.250	0.163	0.01100	W13	
R2714ZD14H	1400	1400	2714	35600	6.34 x 10^6	40	1400	4000	60	1.250	0.163	0.01100	W46	
R2714ZD14J	1400	1400	2714	35600	6.34 x 10^6	50	1400	4000	60	1.250	0.163	0.01100	W46	
R2714ZD14K	1400	1400	2714	35600	6.34 x 10^6	60	1400	4000	60	1.250	0.163	0.01100	W46	
R2714ZD18H	1800	1800	2714	35600	6.34 x 10^6	40	1400	4000	60	1.250	0.163	0.01100	W46	
R2714ZD18J	1800	1800	2714	35600	6.34 x 10^6	50	1400	4000	60	1.250	0.163	0.01100	W46	
R2714ZD18K	1800	1800	2714	35600	6.34 x 10^6	60	1400	4000	60	1.250	0.163	0.01100	W46	
○ **R3047TC24K**	2400	2400	3047	50000	12.5 x 10^6	60	2100	4000	60	1.580	0.170	0.00800	W14	
○ **R3047TC24M**	2400	2400	3047	50000	12.5 x 10^6	70	2100	4000	60	1.580	0.170	0.00800	W14	
○ **R3047TC24N**	2400	2400	3047	50000	12.5 x 10^6	100	2100	4000	60	1.580	0.170	0.00800	W14	
○ **R3047TC28K**	2800	2800	3047	50000	12.5 x 10^6	60	2100	4000	60	1.580	0.170	0.00800	W14	
○ **R3047TC28M**	2800	2800	3047	50000	12.5 x 10^6	70	2100	4000	60	1.580	0.170	0.00800	W14	
○ **R3047TC28N**	2800	2800	3047	50000	12.5 x 10^6	100	2100	4000	60	1.580	0.170	0.00800	W14	
➢ **R3115TJ24J**	2400	2400	3115	56000	15.68 x 10^6	50	3350	2000	60	1.884	0.120	0.00800	W81	
➢ **R3115TJ24K**	2400	2400	3115	56000	15.68 x 10^6	60	3350	2000	60	1.884	0.120	0.00800	W81	
➢ **R3115TJ28J**	2800	2800	3115	56000	15.68 x 10^6	50	3350	2000	60	1.884	0.120	0.00800	W81	
➢ **R3115TJ28K**	2800	2800	3115	56000	15.68 x 10^6	60	3350	2000	60	1.884	0.120	0.00800	W81	
R3370ZC12C	1200	1200	3370	43900	9.64 x 10^6	15	600	4000	60	1.353	0.064	0.01100	W13	
R3370ZC12D	1200	1200	3370	43900	9.64 x 10^6	20	600	4000	60	1.353	0.064	0.01100	W13	
R3370ZC12E	1200	1200	3370	43900	9.64 x 10^6	25	600	4000	60	1.353	0.064	0.01100	W13	
R3370ZD12C	1200	1200	3370	43900	9.64 x 10^6	15	600	4000	60	1.353	0.064	0.01100	W46	
R3370ZD12D	1200	1200	3370	43900	9.64 x 10^6	20	600	4000	60	1.353	0.064	0.01100	W46	
R3370ZD12E	1200	1200	3370	43900	9.64 x 10^6	25	600	4000	60	1.353	0.064	0.01100	W46	
○ **R3559TC20K**	2000	2000	3559	38900	7.57 x 10^6	60	1750	4000	60	1.173	0.155	0.00800	W14	
○ **R3559TC20M**	2000	2000	3559	38900	7.57 x 10^6	70	1750	4000	60	1.173	0.155	0.00800	W14	
○ **R3559TC20N**	2000	2000	3559	38900	7.57 x 10^6	100	1750	4000	60	1.173	0.155	0.00800	W14	
○ **R3968FC24K**	2400	2400	4001	66000	21.78 x 10^6	60	2600	4000	60	1.453	0.125	0.00650	W15	
○ **R3968FC24M**	2400	2400	4001	66000	21.78 x 10^6	70	2600	4000	60	1.453	0.125	0.00650	W15	
○ **R3968FC24N**	2400	2400	4001	66000	21.78 x 10^6	100	2600	4000	60	1.453	0.125	0.00650	W15	
○ **R3968FC28K**	2800	2800	4001	66000	21.78 x 10^6	60	2600	4000	60	1.453	0.125	0.00650	W15	
○ **R3968FC28M**	2800	2800	4001	66000	21.78 x 10^6	70	2600	4000	60	1.453	0.125	0.00650	W15	
○ **R3968FC28N**	2800	2800	4001	66000	21.78 x 10^6	100	2600	4000	60	1.453	0.125	0.00650	W15	
➢ **R4680EA24K**	2400	2400	4680	67000	22.40 x 10^6	60	3000	1000	60	1.509	0.128	0.00500	W107	
➢ **R4680EA24L**	2400	2400	4680	67000	22.40 x 10^6	65	3000	1000	60	1.509	0.128	0.00500	W107	
➢ **R4680EA24M**	2400	2400	4680	67000	22.40 x 10^6	70	3000	1000	60	1.509	0.128	0.00500	W107	
➢ **R4680EA28K**	2800	2800	4680	67000	22.40 x 10^6	60	3000	1000	60	1.509	0.128	0.00500	W107	
➢ **R4680EA28L**	2800	2800	4680	67000	22.40 x 10^6	65	3000	1000	60	1.509	0.128	0.00500	W107	
➢ **R4680EA28M**	2800	2800	4680	67000	22.40 x 10^6	70	3000	1000	60	1.509	0.128	0.00500	W107	
➢ **R5145FA42V**	4200	4500	5145	66000	21.78 x 10^6	250	12000	4000	60	1.659	0.107	0.00450	W118	
➢ **R5145FA42W**	4200	4500	5145	66000	21.78 x 10^6	300	12000	4000	60	1.659	0.107	0.00450	W118	
➢ **R5145FA45V**	4500	4500	5145	66000	21.78 x 10^6	250	12000	4000	60	1.659	0.107	0.00450	W118	
➢ **R5145FA45W**	4500	4500	5145	66000	21.78 x 10^6	300	12000	4000	60	1.659	0.107	0.00450	W118	
➢ **R5370EA18J**	1800	1800	5370	70000	24.5 x 10^6	50	3000	1000	60	1.661	0.071	0.00500	W107	
➢ **R5370EA18K**	1800	1800	5370	70000	24.5 x 10^6	60	3000	1000	60	1.661	0.071	0.00500	W107	
➢ **R5370EA22J**	2200	2200	5370	70000	24.5 x 10^6	50	3000	1000	60	1.661	0.071	0.00500	W107	
➢ **R5370EA22K**	2200	2200	5370	70000	24.5 x 10^6	60	3000	1000	60	1.661	0.071	0.00500	W107	





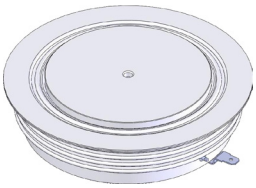
W13 Weight 1.7 kg



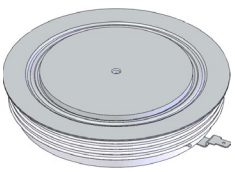
W14 Weight 1.3 kg



W15 Weight 2.8 kg



W107 Weight 1.6 kg



W81 Weight 1.2 kg



W46 Weight 1.2 kg

Distributed Gate Thyristors

Asymmetric Thyristors

These devices are available up to a voltage of 2800V. They exhibit very fast turn-on times and are capable of very high values of both critical di/dt and dv/dt. For the device type, they also exhibit high current ratings in excess of 1000A. Asymmetric construction optimizes the forward losses against the turn-off losses and gives the best performance in their voltage class.

Part No.	V_{DRM}	V_{RRM}	I_{TAV}	I_{TSM}	I^2t	t_{gd}	typ. t_q	$(di/dt)_{cr}$	$(dv/dt)_{cr}$	V_{T0}	r_T	T_{JM}	R_{thJK}	Fig. No.
			T_K = 55°C	10 ms ½ sine		25°c typ.	@ 200 V/µs	@ T_{JM}	@ T_{JM}	@T_{JM}			180° Sine	
	V	V	A	A	A^2s	µs	µC	A/µs	V/µs	V	mΩ	°C	K/W	
A0516YC240	2400	10	516	5700	151 x 10^3	0.5	55	2000	3000	1.630	0.850	125	0.0500	W58
A0516YC280	2800	10	516	5700	151 x 10^3	0.5	55	2000	3000	1.630	0.850	125	0.0500	W58
A1237NC240	2400	30	1237	18000	1.62 x 10^6	0.9	30	2000	3000	1.707	0.212	125	0.0240	W11
A1237NC280	2800	30	1237	18000	1.62 x 10^6	0.9	30	2000	3000	1.707	0.212	125	0.0240	W11

Outlines on pages O-01...O-35



W11 Weight 510 g

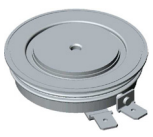


W58 Weight 90 g

Pulse Thyristors

IXYS UK Westcode Ltd are at the forefront of solid state pulsed power technology, offering custom solutions to complex pulsed power problems.
Standard Devices with voltage ratings to 2.5kV, pulsed currents to 150kA peak and di/dt capabilities to over 30kA/µs are available. Please consult factory for other requirements for voltage ratings up to 4.5kV and pulsed current ratings >200kA

Part No.	V_{DRM} V_{GK} = 2 V	V_{RRM}	V_{DC} V_{GK} = 2 V	I_{PULSE}	$(di/dt)_{cr}$	V_{T0}	r_T	T_{JM}	R_{thJC}	Fig. No.	Package style
						@T_{JM}			180° Sine		Outlines on pages O-01...O-35
	V	V	V	kA	kA/µs	V	mΩ	°C	K/W		
Y200CKC250	2500	2000	1500	20	5	1.216	2.20	125	0.065	W34	
Y500CNC250	2500	2000	1500	50	11	1.755	1.12	125	0.027	W36	



W34 Weight 120 g



W36 Weight 500 g

Gate Turn Off Thyristors

IXYS UK offers a broad range of high specification devices with voltage ratings to 4.5kV (2.8kV DC link) and controllable current ratings of up to 4kA are available to meet the toughest demands in applications such as traction propulsion and auxiliaries, AC industrial drives, FACT's and active VAr controllers. Offering both symmetrical devices for applications with a reverse blocking requirement e.g. current sourced inverters and asymmetric blocking devices for applications where no reverse blocking requirement exists e.g. voltage sourced inverters.

Gate Turn-off Thyristors are still the component of choice when it comes to very high power converters and we remain totally commited to this technology for the foreseeable future with an active program for continued product improvement.

Part No.	V_{DRM}	V_{RRM}	I_{TGQM} @ C_S		I_{TAV}	I_{TSM}	I^2t	Typ. Switching Times		V_T	T_{JM}	R_{thJK}	Fig.
	V_{GK} = -2V				T_K = 55°C	10 ms ½ sine $V_R \leq 10$ V		t_{gt}	t_{gq}	I_T = I_{TGQM}		180° Sine	No.
➢ New	V	V	A	µC	A	kA	kA^2s	µs	µs	V	°C	K/W	
➢ **G1000NC45B**	4500	18	1000	2.0	545	8.00	320×10^3	3.5	15	4.0	125	0.0270	W36
G1000QC25B	2500	18	1000	1.0	615	8.00	320×10^3	2.8	13	2.5	125	0.0380	W35
G1000QC45B	4500	18	1000	1.0	443	6.50	211×10^3	3.4	14	4.0	125	0.0380	W35
G2000HF250	2500	18	2000	4.0	1030	16.00	1.28×10^6	3.0	25	2.8	125	0.0220	W85
G2000HF450	4500	18	2000	4.0	890	13.70	938×10^3	4.0	25	3.5	125	0.0220	W85
G2500HF250	2500	18	2500	6.0	1085	16.00	1.28×10^6	3.0	25	3.1	125	0.0200	W85
G3000TF250	2500	18	3000	5.0	1690	30.00	4.5×10^6	3.5	26	2.5	125	0.0120	W86
G3000TF450	4500	18	3000	6.0	1381	24.00	2.88×10^6	4.0	22	4.0	125	0.0120	W86
➢ **G4000EF250**	2500	18	4000	6.0	2005	32.00	5.12×10^6	4.5	28	3.0	125	0.0110	W104
G4000EF450	4500	18	4000	6.0	1480	26.00	3.38×10^6	4.0	30	4.4	125	0.0110	W104
H0500KC200	2000	2000	500	1.0	280	3.00	45×10^3	2.0	5	3.2	125	0.0650	W34
H0500KC20Y	2000	100	500	1.0	280	3.00	45×10^3	2.0	5	3.2	125	0.0650	W34
H0500KC25D	2500	2000	500	1.0	280	3.00	45×10^3	2.0	5	3.2	125	0.0650	W34
H0500KC25Y	2500	100	500	1.0	280	3.00	45×10^3	2.0	5	3.2	125	0.0650	W34
H0700KC140	1400	1400	700	1.5	360	4.00	80×10^3	3.0	5	2.8	125	0.0630	W34
H0700KC14Y	1400	100	700	1.5	360	4.00	80×10^3	3.0	5	2.8	125	0.0630	W34
H0700KC17D	1700	1400	700	1.5	360	4.00	80×10^3	3.0	5	2.8	125	0.0630	W34
H0700KC17Y	1700	100	700	1.5	360	4.00	80×10^3	3.0	5	2.8	125	0.0630	W34
H1200NC200	2000	2000	1200	3.0	670	10.50	550×10^3	3.0	12	3.3	125	0.0270	W36
H1200NC20Y	2000	100	1200	3.0	670	10.50	550×10^3	3.0	12	3.3	125	0.0270	W36
H1200NC25D	2500	2000	1200	3.0	670	10.50	550×10^3	3.0	12	3.3	125	0.0270	W36
H1200NC25Y	2500	100	1200	3.0	670	10.50	550×10^3	3.0	12	3.3	125	0.0270	W36
S0300SR12Y	1200	100	480	1.0	215	3.50	61.2×10^3	3.5	9	2.4	125	0.1300	W87
S0500YC20Y	2000	100	500	1.0	275	4.00	80×10^3	3.5	10	2.5	125	0.0870	W93
S0500YC25Y	2500	100	500	1.0	275	4.00	80×10^3	3.5	10	2.5	125	0.0870	W93
S0500KC200	2000	2000	500	1.0	330	4.00	80×10^3	3.5	10	2.5	125	0.0650	W34
S0500KC20Y	2000	100	500	1.0	330	4.00	80×10^3	3.5	10	2.5	125	0.0650	W34
S0500KC25D	2500	2000	500	1.0	330	4.00	80×10^3	3.5	10	2.5	125	0.0650	W34
S0500KC25Y	2500	100	500	1.0	330	4.00	80×10^3	3.5	10	2.5	125	0.0650	W34
S0700KC140	1400	1400	700	1.5	430	5.00	125×10^3	3.0	10	2.2	125	0.0630	W34
S0700KC14Y	1400	100	700	1.5	430	5.00	125×10^3	3.0	10	2.2	125	0.0630	W34
S0700KC17D	1700	1400	700	1.5	430	5.00	125×10^3	3.0	10	2.2	125	0.0630	W34
S0700KC17Y	1700	100	700	1.5	430	5.00	125×10^3	3.0	10	2.2	125	0.0630	W34
S1200NC200	2000	2000	1200	3.0	790	13.00	840×10^3	4.5	19	2.7	125	0.0270	W36
S1200NC20Y	2000	100	1200	3.0	790	13.00	840×10^3	4.5	19	2.7	125	0.0270	W36
S1200NC25D	2500	2000	1200	3.0	790	13.00	840×10^3	4.5	19	2.7	125	0.0270	W36
S1200NC25Y	2500	100	1200	3.0	790	13.00	840×10^3	4.5	19	2.7	125	0.0270	W36

Outlines on pages O-01...O-35



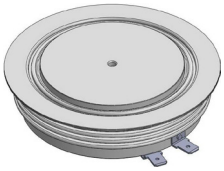
W34 Weight 120 g



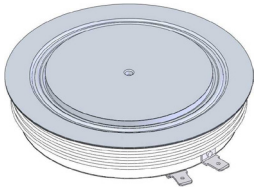
W35 Weight 300 g



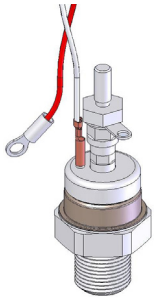
W36 Weight 500 g



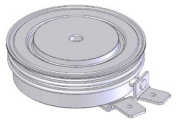
W85 Weight 990 g



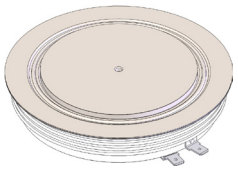
W86 Weight 1.24 kg



W87 Weight 250 g



W93 Weight 90 g



W104 Weight 1.5 kg

Insulated Gate Bi-polar Transistors
Capsule Types

As a pioneer of Press-Pack IGBT technology, we are able to offer a range of class leading devices with voltage ratings of 1.7kV (900V DC link), 2.5kV (1.25kV DC link), 4.5kV (2.8kV DC link) and 6.5kV (3.6kV DC link). The construction of these devices is totally free from wire and solder bonds which all but eliminates the problems of mechanical fatigue associated with conventional modules. Internal stray inductance in both the gate connections and emitter connections is vastly reduced when compared to conventional modules leading to improved ruggedness and short circuit behavior, which is further enhanced by direct cooling of the emitter side of the chip.

These devices are based on a state of the art soft punch through (SPT++) process, which yields exceptional values of $V_{CE(sat)}$ and soft switching behavior despite the high voltage ratings. The devices feature a positive temperature coefficient making them suitable for reliable parallel operation. Devices are available with or without integral anti-parallel diode; a range of complimentary High Power Sonic Diodes optimized for use with these IGBTs are available now with a new generation using improved technology in development. Please contact your representative for more information.

The press-pack IGBTs exhibit exceptional power cycling performance; typically an order of magnitude better than modules, making them highly suited to applications such as metals and traction drive systems where there are repeated cyclic power demands. Press-pack IGBTs have a stable short circuit failure mode which, as well as safety benefits, makes them an ideal choice for medium and high voltage applications where series connection is required. Stable short circuit failure mode allows for the design in of n+ redundancy without additional bypass switches and costly explosion proof enclosures. Typical examples include HVDC, FACTs, Active VAr controllers / compensators and medium voltage drives. In applications above 4MW press-pack IGBTs offer exceptional power density, far exceeding that achievable with comparable modules in multi-level / MMC based converters.

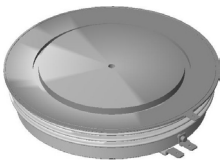
These PPIGBT's are largely backwardly compatible with standard 2.5kV and 4.5kV GTOs in many applications such as AC drives. This makes these parts a simple and economical path to upgrade or refurbish equipment that previously used GTOs, such as locomotives or medium voltage drives. They are suitable for all cooling options including direct liquid immersion. Complementary gate drives, mounting clamps and passive components available.

Part No.	V_{CES}	I_C	I_{CM}	$V_{CE(sat)}$ @ I_C	IGBT Switching Typical		V_F	Diode Recovery Typical			T_{JM}	R_{thJK}		Fig. No.
					E_{ON}	E_{OFF}	$I_F = I_C$	I_{rm}	t_{rr}	Q_r		IGBT	Diode	
➢ New	V	A	A	V	J	J	V	A	µs	µC	°C	K/W	K/W	
➢ **T0600NC17A**	1700	600	1200	3.0	0.29	0.50	2.25	300	0.5	175	125	0.0541	0.125	W40
➢ **T0840NC17E**	1700	840	1680	3.0	0.41	0.70	N/A	N/A	N/A	N/A	125	0.0386	N/A	W40
T0960VC17G	1700	960	1920	3.0	0.47	0.80	2.05	540	0.6	310	125	0.0338	0.0625	W67
➢ **T1440VC17E**	1700	1440	2880	3.0	0.70	1.20	N/A	N/A	N/A	N/A	125	0.0225	N/A	W67
➢ **T1680TC17G**	1700	1680	3360	3.0	0.82	1.40	2.05	945	0.5	545	125	0.0193	0.0357	W41
➢ **T0140QC33G**	3300	140	280	3.35	0.37	0.38	3.0	100	1.9	150	125	0.108	0.1728	W109
➢ **T0285NC33E**	3300	285	570	3.4	0.73	0.75	N/A	N/A	N/A	N/A	125	0.0546	N/A	W40
➢ **T0425VC33G**	3300	425	850	3.4	1.1	1.12	3.0	305	1.7	440	125	0.0364	0.0576	W67
➢ **T0640VC33E**	3300	640	1280	3.4	1.65	1.68	N/A	N/A	N/A	N/A	125	0.0243	N/A	W67
➢ **T0710TC33A**	3300	710	1420	3.4	1.83	1.87	3.3	455	1.5	655	125	0.0218	0.0432	W41
➢ **T1000TC33E**	3300	1000	2000	3.4	2.6	2.7	N/A	N/A	N/A	N/A	125	0.0156	N/A	W41
➢ **T1000EC33G**	3300	1000	2000	3.4	2.6	2.7	3.0	470	1.7	1040	125	0.0156	0.0247	W44
➢ **T1500EC33E**	3300	1500	3000	3.4	3.9	4.05	N/A	N/A	N/A	N/A	125	0.0104	N/A	W44
➢ **T2000GC33G**	3300	2000	4000	3.4	5.2	5.4	3.0	940	2.2	2070	125	0.0078	0.0123	W45

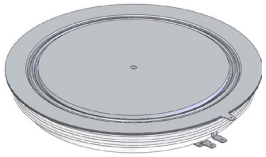
Outlines on pages O-01...O-35



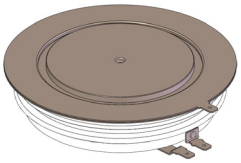
W40 Weight 430 g



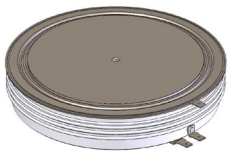
W41 Weight 1.2 kg



W45 Weight 2 kg



W67 Weight 650 g



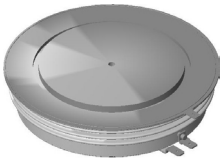
W71 Weight 1.5 kg

Insulated Gate Bi-polar Transistors
Capsule Types

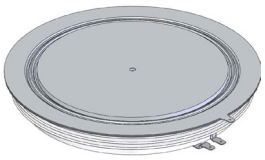
Part No. ✪ under development ➢ New	V_{CES}	I_C	I_{CM}	$V_{CE(sat)}$ @ I_C	IGBT Switching Typical E_{ON}	IGBT Switching Typical E_{OFF}	V_F $I_F = I_C$	Diode Recovery Typical I_{rm}	Diode Recovery Typical t_{rr}	Diode Recovery Typical Q_r	T_{JM}	R_{thJK} IGBT	R_{thJK} Diode	Fig. No.
	V	A	A	V	J	J	V	A	µs	µC	°C	K/W	K/W	
➢ **T0115QC45G**	4500	115	230	3.5	0.83	0.48	3.45	95	2.5	180	125	0.1080	0.1728	W109
T0240NB45E	4500	240	480	3.6	1.5	1.0	N/A	N/A	N/A	N/A	125	0.0546	N/A	W40
T0340VB45G	4500	340	680	3.5	2.2	1.3	3.45	220	3.2	500	125	0.0364	0.0576	W67
T0510VB45E	4500	510	1020	3.5	3.3	2.2	N/A	N/A	N/A	N/A	125	0.0243	N/A	W67
T0600TB45A	4500	600	1200	3.7	3.6	2.5	3.7	640	1.2	700	125	0.0218	0.0432	W41
T0800TB45E	4500	800	1600	3.5	5	3.5	N/A	N/A	N/A	N/A	125	0.0156	N/A	W41
T0800EB45G	4500	800	1600	3.5	5	3.5	3.5	550	1.7	1020	125	0.0156	0.0247	W44
T0900EB45A	4500	900	1800	3.6	5.4	3.8	3.9	800	1.6	1000	125	0.0146	0.0288	W44
T1200EB45E	4500	1200	2400	3.6	7	5.5	N/A	N/A	N/A	N/A	125	0.0104	N/A	W44
T1600GB45G	4500	1600	3200	3.5	12	8.7	3.45	1270	1.75	1960	125	0.0078	0.0123	W45
T1800GB45A	4500	1800	3600	3.6	11	10.5	3.9	1600	1.6	2000	125	0.0073	0.0115	W45
➢ **T2000BB45G**	4500	2000	4000	3.5	14	12.5	3.55	2050	1.6	2450	125	0.0064	0.0096	W110
T2400GB45E	4500	2400	4800	3.6	14	13	N/A	N/A	N/A	N/A	125	0.0052	N/A	W45
T2960BB45E	4500	3000	6000	3.6	11.5	17.5	N/A	N/A	N/A	N/A	125	0.0042	N/A	W110
T0258HF65G	6500	258	516	4.8	1.8	1.45	3.45	300	1.2	410	125	0.0328	0.0567	W95
T0385HF65E	6500	385	770	4.8	2.7	2.2	N/A	N/A	N/A	N/A	125	0.0219	N/A	W95
T0600AF65G	6500	600	1030	4.8	4.2	3.4	3.5	700	1.2	950	125	0.0141	0.0243	W98
T0900AF65E	6500	900	1800	4.8	6.3	5.1	N/A	N/A	N/A	N/A	125	0.0094	N/A	W98
T0900DF65A	6500	900	1800	4.8	6.3	5.1	3.4	1050	1.2	1450	125	0.0094	0.0155	W96
T1290BF65A	6500	1290	2580	4.8	9.0	7.3	3.6	1400	1.1	1900	125	0.0066	0.0122	W103
T1375DF65E	6500	1375	2750	4.8	9.6	7.8	N/A	N/A	N/A	N/A	125	0.0062	N/A	W96
T1890BF65E	6500	1890	3780	4.8	13.2	10.6	N/A	N/A	N/A	N/A	125	0.0045	N/A	W103

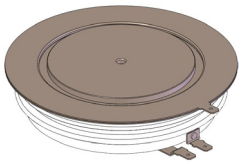
Outlines on pages O-01...O-35

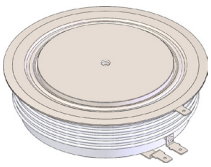

W40 Weight 430 g

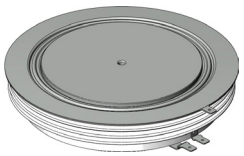

W41 Weight 1.2 kg

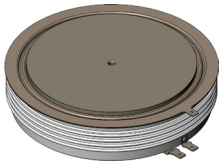

W44 Weight 1.2 kg

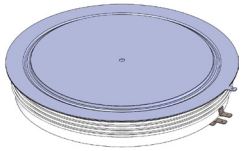

W45 Weight 2 kg

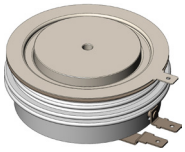

W67 Weight 650 g

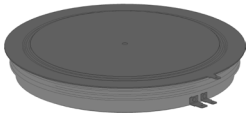

W95 Weight 825 g


W96 Weight 1.5 kg


W98 Weight 1.8 kg


W103 Weight 3.2 kg

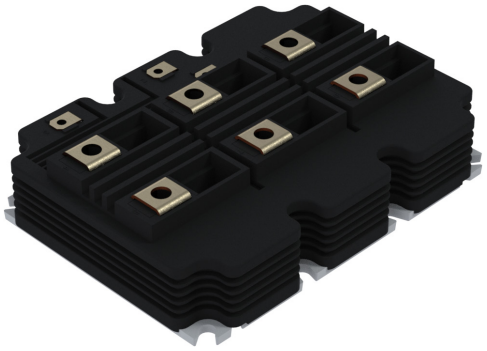

W109 Weight 360 g


W110 Weight 2.8 kg

Insulated Gate Bi-polar Transistors
Module Types

Part No.	V_{CES}	I_C	I_{CM}	$V_{CE(sat)}$	IGBT Switching		V_F	Diode Recovery				T_{JM}	R_{thJK}		Fig. No.
				@ I_C	Typical		$I_F = I_C$	Typical					IGBT	Diode	
➢ New	V	A	A	V	E_{ON} J	E_{OFF} J	V	I_{rm} A	t_{rr} µs	Q_r µC	E_{rec} J	°C	K/W	K/W	
➢ **MTE1200AD45AA**	4500	1200	2400	3.40	7.70	7.00	3.30	1700	0.60	710	2.30	125	0.0075	0.0133	W125

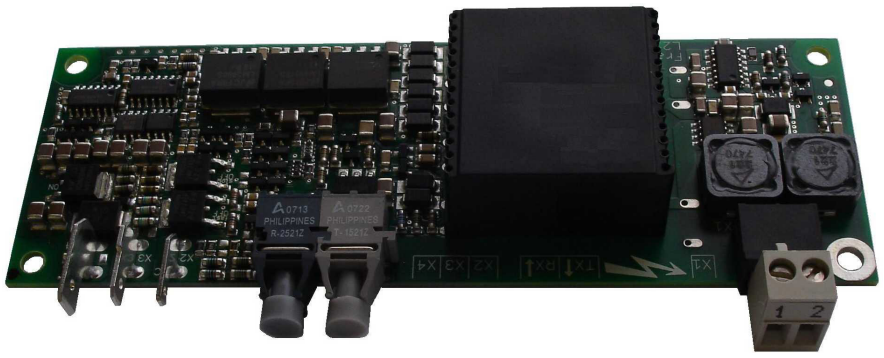
W125 Weight 1.35 kg



Press-Pack IGBT Gate Drive Units

The C044BG400 IGBT Gate Driver is a low power consumption driver with on board VCE desaturation detection for high reliability application. The driver features a fibre-optic communication interface for drive, status and switching feedback signals. A fully supervised DC/DC converter with EMI filtering, low coupling capacitance and high partial discharge level is integrated into the board. The high voltage collector sense and gate interface are implemented on a separate card to allow close coupling to the IGBT. A range of pre-configured boards is available to complement IXYS UK's range of press-pack IGBTs – other applications on request.

Gate Drive Part Number	IGBT Type
C0044BG400SCB	T0600NC17A
C0044BG400SCA	T0840NC17E
C0044BG400SCC	T0960VC17G
C0044BG400SCD	T1440VC17E
C0044BG400SCE	T1680TC17G
C0044BG400SCF	T0140QC33G
C0044BG400SCG	T0285NC33E
C0044BG400SCH	T0425VC33G
C0044BG400SCJ	T0640VC33E
C0044BG400SCK	T0710TC33A
C0044BG400SCM	T1000EC33G
C0044BG400SCL	T1000TC33E
C0044BG400SCN	T1500EC33E
C0044BG400SCS	T2000GC33G
C0044BG400SCR	T0115QC45G
C0044BG400SBL	T0240NB45E
C0044BG400SBQ	T0340VB45G
C0044BG400SBE	T0510VB45E
C0044BG400SBM	T0600TB45A
C0044BG400SBG	T0800EB45G
C0044BG400SBN	T0800TB45E
C0044BG400SBP	T0900EB45A
C0044BG400SBR	T1200EB45E
C0044BG400SBJ	T1600GB45G
C0044BG400SBS	T1800GB45A
C0044BG400SBZ	T2000BB45G
C0044BG400SBT	T2400GB45E
C0044BG400SBW	T2960BB45E



FEATURES

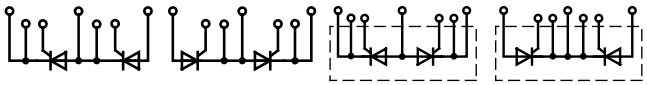
- High reliability topology
- Designed for ultra low power consumption
- Build in DC/DC-converter with soft start
- Integrated input filter for low EMI
- Separate low impedance path for parasitic EMI currents
- PD-Voltage levels available up to 11 kV on request.
- Low impedance from gate to emitter at start-up and power fail
- Monitoring of all secondary supply voltages
- Monitoring of IGBT switching status (VCE-de-sat detection)
- Soft switch-OFF at $V_{CE\text{-}de\text{-}sat}$ fault condition
- Fiber-optic links for switching commands and status control
- Low light protection for input signal
- Short-pulse suppression. configurable
- Balanced propagation delay time
- Gate Current up to 44 A
- Optional gate-speed-up capacitors

APPLICATION

- Large and medium drives
- Renewable generation.
- Utilities scale converters

Dual Thyristor Modules

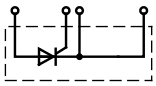
IXYS UK Westcode Ltd. has UL Certification for most modules (Underwriters Laboratories Inc). See the UL Listing.



MCR... MCC... MCA... MCK...

Part No.	V_{RRM} V_{DRM}	I_{TAV}	@ T_C	I_{TRMS}	I_{TSM} 125°C 10 ms	V_{T0}	r_T	T_{VJM}	R_{thJC} per Die	R_{thCH} per Die	Fig. No.
	V	A	°C	A	A	V	mΩ	°C	K/W	K/W	
MCC160-30io3	3000	170	85	385	3650	1.200	2.300	125	0.110	0.0400	W102
MCC160-36io3	3600	170	85	385	3650	1.200	2.300	125	0.110	0.0400	W102
MCC220-28io3	2800	235	85	543	5000	0.900	1.100	125	0.110	0.0400	W102
MCC265-24io3	2400	280	85	655	6900	0.800	0.700	125	0.110	0.0400	W102
MCC320-30io2	3000	327	85	765	5000	1.150	0.800	125	0.062	0.0200	W74
MCC320-36io2	3600	327	85	765	5000	1.150	0.800	125	0.062	0.0200	W74
MCC325-14io3	1400	345	85	785	7650	0.750	0.500	125	0.110	0.0400	W102
MCC325-18io3	1800	345	85	785	7650	0.750	0.500	125	0.110	0.0400	W102
MCC380-28io2	2800	395	85	620	8100	1.000	0.650	125	0.062	0.0200	W74
MCC431-20io2	2000	429	85	1020	10900	1.000	0.410	125	0.062	0.0200	W74
MCC431-22io2	2200	429	85	1020	10900	1.000	0.410	125	0.062	0.0200	W74
MCC431-24io2	2400	429	85	1020	10900	1.000	0.410	125	0.062	0.0200	W74
MCC500-14io1	1400	500	89	1294	16500	0.850	0.270	125	0.062	0.0200	W63
MCC500-18io1	1800	500	89	1294	16500	0.850	0.270	125	0.062	0.0200	W63
MCC500-22io1	2200	500	80	1071	14000	0.880	0.460	125	0.062	0.0200	W63
MCK500-14io1	1400	500	89	1294	16500	0.850	0.270	125	0.062	0.0200	W63
MCK500-18io1	1800	500	89	1294	16500	0.850	0.270	125	0.062	0.0200	W63
MCK500-22io1	2200	500	80	1071	14000	0.880	0.460	125	0.062	0.0200	W63
MCA500-14io1	1400	500	89	1294	16500	0.850	0.270	125	0.062	0.0200	W63
MCA500-18io1	1800	500	89	1294	16500	0.850	0.270	125	0.062	0.0200	W63
MCA500-22io1	2200	500	80	1071	14000	0.880	0.460	125	0.062	0.0200	W63
MCC501-12io2	1200	503	85	1195	14500	0.850	0.300	125	0.062	0.0200	W74
MCC501-14io2	1400	503	85	1195	14500	0.850	0.300	125	0.062	0.0200	W74
MCC501-16io2	1600	503	85	1195	14500	0.850	0.300	125	0.062	0.0200	W74
MCC501-18io2	1800	503	85	1195	14500	0.850	0.300	125	0.062	0.0200	W74
MCC550-12io1	1200	550	85	1318	18000	0.839	0.244	125	0.062	0.0200	W63
MCC550-16io1	1600	550	85	1318	18000	0.839	0.244	125	0.062	0.0200	W63
MCK550-12io1	1200	550	85	1318	18000	0.839	0.244	125	0.062	0.0200	W63
MCK550-16io1	1600	550	85	1318	18000	0.839	0.244	125	0.062	0.0200	W63
MCA550-12io1	1200	550	85	1318	18000	0.839	0.244	125	0.062	0.0200	W63
MCA550-16io1	1600	550	85	1318	18000	0.839	0.244	125	0.062	0.0200	W63
MCC552-12io2	1200	550	85	1300	15800	0.770	0.259	125	0.062	0.0200	W74
MCC552-14io2	1400	550	85	1300	15800	0.770	0.259	125	0.062	0.0200	W74
MCC552-16io2	1600	550	85	1300	15800	0.770	0.259	125	0.062	0.0200	W74
MCC500-30io7	3000	500	85	1181	16200	1.079	0.422	125	0.050	0.0160	W88
MCC500-36io7	3600	500	85	1181	16200	1.079	0.422	125	0.050	0.0160	W88
MCR500-30io7	3000	500	85	1181	16200	1.079	0.422	125	0.050	0.0160	W88
MCR500-36io7	3600	500	85	1181	16200	1.079	0.422	125	0.050	0.0160	W88
MCC580-28io7	2800	581	85	1372	18900	0.926	0.313	125	0.050	0.0160	W88
MCR580-28io7	2800	581	85	1372	18900	0.926	0.313	125	0.050	0.0160	W88
MCC650-24io7	2400	646	85	1542	22100	0.874	0.227	125	0.050	0.0160	W88
MCR650-24io7	2400	646	85	1542	22100	0.874	0.227	125	0.050	0.0160	W88
MCC720-14io7	1400	719	85	1633	25200	0.823	0.241	130	0.050	0.0160	W88
MCC720-18io7	1800	719	85	1633	25200	0.823	0.241	130	0.050	0.0160	W88
MCR720-14io7	1400	719	85	1633	25200	0.823	0.241	130	0.050	0.0160	W88
MCR720-18io7	1800	719	85	1633	25200	0.823	0.241	130	0.050	0.0160	W88

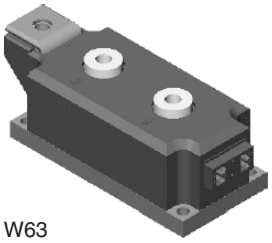
Single Thyristor Modules



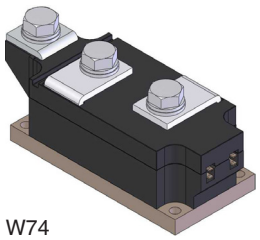
MCO

Part No.	V_{RRM} V_{DRM}	I_{TAV}	@ T_C	I_{TRMS}	I_{TSM} 125°C 10ms	V_{T0}	r_T	T_{VJM}	R_{thJC} per Die	R_{thCH} per Die	Fig. No.
➢ New	V	A	°C	A	A	V	mΩ	°C	K/W	K/W	
MCO560-30io1	3000	560	85	879	18900	1.050	0.470	125	0.042	0.0100	W73
MCO560-36io1	3600	560	85	879	18900	1.050	0.470	125	0.042	0.0100	W73
MCO635-28io1	2800	635	85	1880	20700	0.950	0.350	125	0.042	0.0100	W73
MCO741-22io1	2200	765	85	2110	29000	0.850	0.277	125	0.042	0.0100	W73
MCO801-14io1	1400	830	85	2335	30000	0.800	0.240	130	0.042	0.0100	W73
MCO801-18io1	1800	830	85	2335	30000	0.800	0.240	130	0.042	0.0100	W73
➢ **N4340TJ180MBR**	1800	1110	85	3500	55000	0.886	0.105	125	0.031	0.0035	W116
➢ **N4340TJ220MBR**	2200	1110	85	3500	55000	0.886	0.105	125	0.031	0.0035	W116

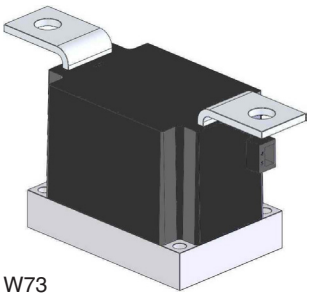
Outlines on pages O-01...O-35



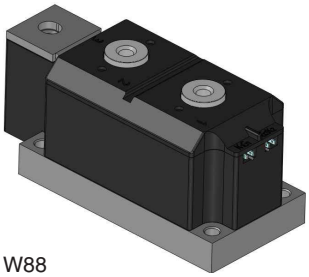
W63



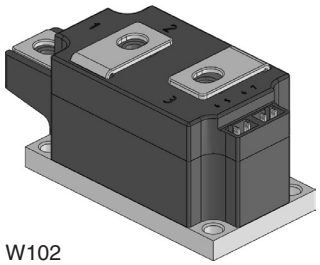
W74



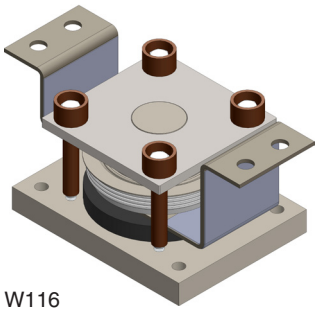
W73



W88

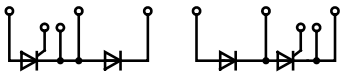


W102



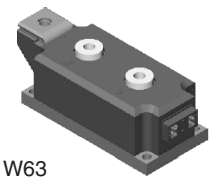
W116

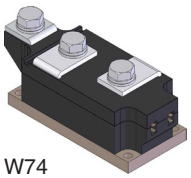
Thyristor / Diode Modules

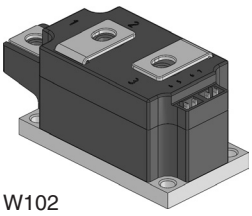


IXYS UK Westcode Ltd. has UL Certification for most modules (Underwriters Laboratories Inc). See the UL Listing.

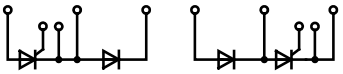
Part No.	V_{RRM} V_{DRM}	I_{TAV}	@ T_C	I_{TRMS}	I_{TSM} 125°C 10 ms	V_{T0}	r_T	T_{VJM}	R_{thJC} per Die	R_{thCH} per Die	Fig. No.	Package style Outline drawings on page O-01...O-35
	V	A	°C	A	A	V	mΩ	°C	K/W	K/W		
MCD160-30io3	3000	170	85	385	3650	1.200	2.300	125	0.110	0.0400	W102	
MCD160-36io3	3600	170	85	385	3650	1.200	2.300	125	0.110	0.0400	W102	
MDC160-30io3	3000	170	85	385	3650	1.200	2.300	125	0.110	0.0400	W102	
MDC160-36io3	3600	170	85	385	3650	1.200	2.300	125	0.110	0.0400	W102	
MCD220-28io3	2800	235	85	543	5000	0.900	1.100	125	0.110	0.0400	W102	
MDC220-28io3	2800	235	85	543	5000	0.900	1.100	125	0.110	0.0400	W102	
MCD265-24io3	2400	280	85	655	6900	0.800	0.700	125	0.110	0.0400	W102	
MDC265-24io3	2400	280	85	655	6900	0.800	0.700	125	0.110	0.0400	W102	
MCD320-30io2	3000	327	85	765	5000	1.150	0.800	125	0.065	0.0200	W74	
MCD320-36io2	3600	327	85	765	5000	1.150	0.800	125	0.065	0.0200	W74	
MDC320-30io2	3000	327	85	765	5000	1.150	0.800	125	0.065	0.0200	W74	
MDC320-36io2	3600	327	85	765	5000	1.150	0.800	125	0.065	0.0200	W74	
MCD325-14io3	1400	345	85	785	7650	0.750	0.500	125	0.110	0.0400	W102	
MCD325-18io3	1800	345	85	785	7650	0.750	0.500	125	0.110	0.0400	W102	
MDC325-14io3	1400	345	85	785	7650	0.750	0.500	125	0.110	0.0400	W102	
MDC325-18io3	1800	345	85	785	7650	0.750	0.500	125	0.110	0.0400	W102	
MCD380-28io2	2800	395	85	620	8100	1.000	0.650	125	0.062	0.0200	W74	
MDC380-28io2	2800	395	85	620	8100	1.000	0.650	125	0.062	0.0200	W74	
MCD431-20io2	2000	429	85	1020	10900	1.000	0.410	125	0.062	0.0200	W74	
MCD431-22io2	2200	429	85	1020	10900	1.000	0.410	125	0.062	0.0200	W74	
MCD431-24io2	2400	429	85	1020	10900	1.000	0.410	125	0.062	0.0200	W74	
MDC431-20io2	2000	429	85	1020	10900	1.000	0.410	125	0.062	0.0200	W74	
MDC431-22io2	2200	429	85	1020	10900	1.000	0.410	125	0.062	0.0200	W74	
MDC431-24io2	2400	429	85	1020	10900	1.000	0.410	125	0.062	0.0200	W74	
MCD500-14io1	1400	500	89	1294	16500	0.820	0.270	125	0.062	0.0200	W63	
MCD500-18io1	1800	500	89	1294	16500	0.820	0.270	125	0.062	0.0200	W63	
MCD500-22io1	2200	500	80	1071	14000	0.880	0.460	125	0.062	0.0200	W63	
MDC500-14io1	1400	500	89	1294	16500	0.820	0.270	125	0.062	0.0200	W63	
MDC500-18io1	1800	500	89	1294	16500	0.820	0.270	125	0.062	0.0200	W63	
MDC500-22io1	2200	500	80	1071	14000	0.880	0.460	125	0.062	0.0200	W63	
MCD501-12io2	1200	503	85	1195	14500	0.850	0.300	125	0.062	0.0200	W74	
MCD501-14io2	1400	503	85	1195	14500	0.850	0.300	125	0.062	0.0200	W74	
MCD501-16io2	1600	503	85	1195	14500	0.850	0.300	125	0.062	0.0200	W74	
MCD501-18io2	1800	503	85	1195	14500	0.850	0.300	125	0.062	0.0200	W74	
MDC501-12io2	1200	503	85	1195	14500	0.850	0.300	125	0.062	0.0200	W74	
MDC501-14io2	1400	503	85	1195	14500	0.850	0.300	125	0.062	0.0200	W74	
MDC501-16io2	1600	503	85	1195	14500	0.850	0.300	125	0.062	0.0200	W74	
MDC501-18io2	1800	503	85	1195	14500	0.850	0.300	125	0.062	0.0200	W74	
MCD550-12io1	1200	550	85	1318	18000	0.839	0.244	125	0.062	0.0200	W63	
MCD550-16io1	1600	550	85	1318	18000	0.839	0.244	125	0.062	0.0200	W63	


W63


W74


W102

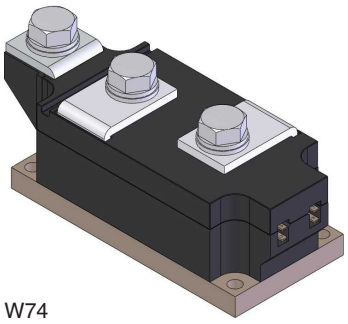
Thyristor / Diode Modules



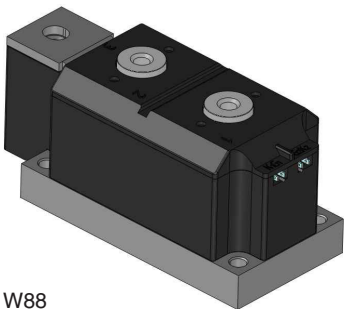
MCD... MDC...

IXYS UK Westcode Ltd. has UL Certification for most modules (Underwriters Laboratories Inc). See the UL Listing.

Part No.	V_{RRM} V_{DRM}	I_{TAV}	@ T_C	I_{TRMS}	I_{TSM} 125°C 10 ms	V_{T0}	r_T	T_{VJM}	R_{thJC} per Die	R_{thCH} per Die	Fig. No.	Package style Outline drawings on page O-01...O-35
	V	A	°C	A	A	V	mΩ	°C	K/W	K/W		
MDC550-12io1	1200	550	85	1318	18000	0.839	0.244	125	0.062	0.0200	W63	
MDC550-16io1	1600	550	85	1318	18000	0.839	0.244	125	0.062	0.0200	W63	
MCD552-12io2	1200	550	85	1300	15800	0.770	0.259	125	0.062	0.0200	W74	
MCD552-14io2	1400	550	85	1300	15800	0.770	0.259	125	0.062	0.0200	W74	
MCD552-16io2	1600	550	85	1300	15800	0.770	0.259	125	0.062	0.0200	W74	
MDC552-12io2	1200	550	85	1300	15800	0.770	0.259	125	0.062	0.0200	W74	
MDC552-14io2	1400	550	85	1300	15800	0.770	0.259	125	0.062	0.0200	W74	
MDC552-16io2	1600	550	85	1300	15800	0.770	0.259	125	0.062	0.0200	W74	
MCD500-30io7	3000	500	85	1181	16200	1.079	0.422	125	0.050	0.0160	W88	
MCD500-36io7	3600	500	85	1181	16200	1.079	0.422	125	0.050	0.0160	W88	
MDC500-30io7	3000	500	85	1181	16200	1.079	0.422	125	0.050	0.0160	W88	
MDC500-36io7	3600	500	85	1181	16200	1.079	0.422	125	0.050	0.0160	W88	
MCD580-28io7	2800	581	85	1372	18900	0.926	0.313	125	0.050	0.0160	W88	
MDC580-28io7	2800	581	85	1372	18900	0.926	0.313	125	0.050	0.0160	W88	
MCD650-24io7	2400	646	85	1542	22100	0.874	0.227	125	0.050	0.0160	W88	
MDC650-24io7	2400	646	85	1542	22100	0.874	0.227	125	0.050	0.0160	W88	
MCD720-14io7	1400	719	85	1633	25200	0.823	0.241	125	0.050	0.0160	W88	
MCD720-18io7	1800	719	85	1633	25200	0.823	0.241	125	0.050	0.0160	W88	
MDC720-14io7	1400	719	85	1633	25200	0.823	0.241	125	0.050	0.0160	W88	
MDC720-18io7	1800	719	85	1633	25200	0.823	0.241	125	0.050	0.0160	W88	

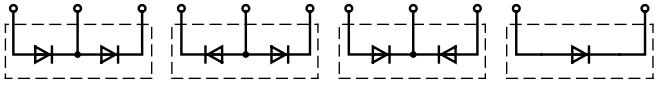


W74



W88

Dual Diode Modules

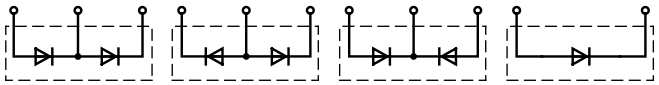


MDD... MDA... MDK... MDO...

IXYS UK Westcode Ltd. has UL Certification for most modules (Underwriters Laboratories Inc). See the UL Listing.

Part No.	V_{RRM}	I_{FAV}	@ T_C	I_{FRMS}	I_{FSM} 150°C 10 ms	V_{T0}	r_T	T_{VJM}	R_{thJC} per Die	R_{thCK} per Die	Fig. No.
	V	A	°C	A	A	V	mΩ	°C	K/W	K/W	
MDD275-30N3	3000	290	85	580	4500	0.90	1.570	150	0.110	0.0400	W102
MDD275-36N3	3600	290	85	580	4500	0.90	1.570	150	0.110	0.0400	W102
MDA275-30N3	3000	290	85	580	4500	0.90	1.570	150	0.110	0.0400	W102
MDA275-36N3	3600	290	85	580	4500	0.90	1.570	150	0.110	0.0400	W102
MDK275-30N3	3000	290	85	580	4500	0.90	1.570	150	0.110	0.0400	W102
MDK275-36N3	3600	290	85	580	4500	0.90	1.570	150	0.110	0.0400	W102
MDD410-24N3	2400	440	85	910	7800	0.85	0.450	150	0.110	0.0400	W102
MDD410-28N3	2800	440	85	910	7800	0.85	0.450	150	0.110	0.0400	W102
MDA410-24N3	2400	440	85	910	7800	0.85	0.450	150	0.110	0.0400	W102
MDA410-28N3	2800	440	85	910	7800	0.85	0.450	150	0.110	0.0400	W102
MDK410-24N3	2400	440	85	910	7800	0.85	0.450	150	0.110	0.0400	W102
MDK410-28N3	2800	440	85	910	7800	0.85	0.450	150	0.110	0.0400	W102
MDD510-14N3	1400	545	85	1135	10900	0.75	0.250	150	0.110	0.0400	W102
MDD510-18N3	1800	545	85	1135	10900	0.75	0.250	150	0.110	0.0400	W102
MDA510-14N3	1400	545	85	1135	10900	0.75	0.250	150	0.110	0.0400	W102
MDA510-18N3	1800	545	85	1135	10900	0.75	0.250	150	0.110	0.0400	W102
MDK510-14N3	1400	545	85	1135	10900	0.75	0.250	150	0.110	0.0400	W102
MDK510-18N3	1800	545	85	1135	10900	0.75	0.250	150	0.110	0.0400	W102
MDD600-14N1	1400	600	111	1818	21800	0.75	0.200	150	0.062	0.0200	W63
MDD600-18N1	1800	600	111	1818	21800	0.75	0.200	150	0.062	0.0200	W63
MDD600-22N1	2200	600	111	1818	21800	0.75	0.200	150	0.062	0.0200	W63
MDA600-14N1	1400	600	111	1818	21800	0.75	0.200	150	0.062	0.0200	W63
MDA600-18N1	1800	600	111	1818	21800	0.75	0.200	150	0.062	0.0200	W63
MDA600-22N1	2200	600	111	1818	21800	0.75	0.200	150	0.062	0.0200	W63
MDK600-14N1	1400	600	111	1818	21800	0.75	0.200	150	0.062	0.0200	W63
MDK600-18N1	1800	600	111	1818	21800	0.75	0.200	150	0.062	0.0200	W63
MDK600-22N1	2200	600	111	1818	21800	0.75	0.200	150	0.062	0.0200	W63
MDD630-30N2	3000	630	85	1275	11700	0.80	0.500	150	0.062	0.0200	W74
MDD630-36N2	3600	630	85	1275	11700	0.80	0.500	150	0.062	0.0200	W74
MDA630-30N2	3000	630	85	1275	11700	0.80	0.500	150	0.062	0.0200	W74
MDA630-36N2	3600	630	85	1275	11700	0.80	0.500	150	0.062	0.0200	W74
MDK630-30N2	3000	630	85	1275	11700	0.80	0.500	150	0.062	0.0200	W74
MDK630-36N2	3600	630	85	1275	11700	0.80	0.500	150	0.062	0.0200	W74
MDD 710-22N2	2200	708	85	1440	12750	0.80	0.350	150	0.062	0.0200	W74
MDD 710-26N2	2600	708	85	1440	12750	0.80	0.350	150	0.062	0.0200	W74
MDA 710-22N2	2200	708	85	1440	12750	0.80	0.350	150	0.062	0.0200	W74
MDA 710-26N2	2600	708	85	1440	12750	0.80	0.350	150	0.062	0.0200	W74
MDK 710-22N2	2200	708	85	1440	12750	0.80	0.350	150	0.062	0.0200	W74
MDK 710-26N2	2600	708	85	1440	12750	0.80	0.350	150	0.062	0.0200	W74
MDD 810-12N2	1200	807	85	1661	17250	0.78	0.230	150	0.062	0.0200	W74
MDD 810-16N2	1600	807	85	1661	17250	0.78	0.230	150	0.062	0.0200	W74
MDD 810-18N2	1800	807	85	1661	17250	0.78	0.230	150	0.062	0.0200	W74
MDA 810-12N2	1200	807	85	1661	17250	0.78	0.230	150	0.062	0.0200	W74
MDA 810-16N2	1600	807	85	1661	17250	0.78	0.230	150	0.062	0.0200	W74
MDA 810-18N2	1800	807	85	1661	17250	0.78	0.230	150	0.062	0.0200	W74

Dual Diode Modules

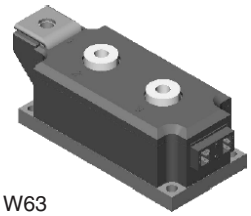


MDD... MDA... MDK... MDO...

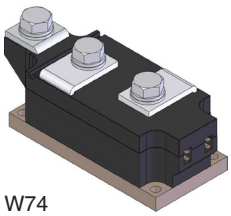
IXYS UK Westcode Ltd. has UL Certification for most modules (Underwriters Laboratories Inc). See the UL Listing.

Part No.	V_{RRM}	I_{FAV}	@ T_C	I_{FRMS}	I_{FSM} 150°C 10 ms	V_{T0}	r_T	T_{VJM}	R_{thJC} per Die	R_{thCK} per Die	Fig. No.
	V	A	°C	A	A	V	mΩ	°C	K/W	K/W	
MDK 810-12N2	1200	807	85	1661	17250	0.78	0.230	150	0.062	0.0200	W74
MDK 810-16N2	1600	807	85	1661	17250	0.78	0.230	150	0.062	0.0200	W74
MDK 810-18N2	1800	807	85	1661	17250	0.78	0.230	150	0.062	0.0200	W74
MDD1080-18N7	1800	1080	85	2235	29100	0.78	0.157	150	0.050	0.0160	W88
MDD1080-24N7	2400	1080	85	2235	29100	0.78	0.157	150	0.050	0.0160	W88
MDD1080-28N7	2800	1080	85	2235	29100	0.78	0.157	150	0.050	0.0160	W88
MDA1080-18N7	1800	1080	85	2235	29100	0.78	0.157	150	0.050	0.0160	W88
MDA1080-24N7	2400	1080	85	2235	29100	0.78	0.157	150	0.050	0.0160	W88
MDA1080-28N7	2800	1080	85	2235	29100	0.78	0.157	150	0.050	0.0160	W88
MDK1080-18N7	1800	1080	85	2235	29100	0.78	0.157	150	0.050	0.0160	W88
MDK1080-24N7	2400	1080	85	2235	29100	0.78	0.157	150	0.050	0.0160	W88
MDK1080-28N7	2800	1080	85	2235	29100	0.78	0.157	150	0.050	0.0160	W88

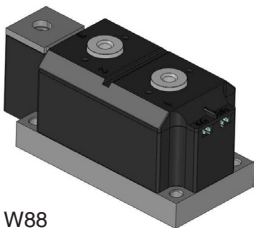
Outlines on pages O-01...O-35



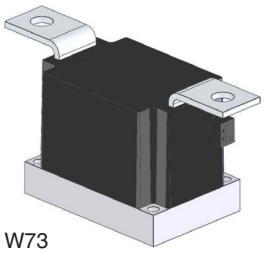
W63



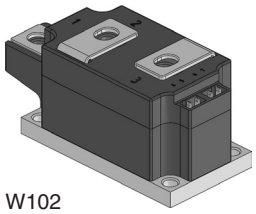
W74



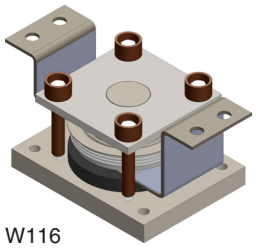
W88



W73



W102



W116

Single Diode Modules

IXYS UK Westcode Ltd. has UL Certification for most modules (Underwriters Laboratories Inc).

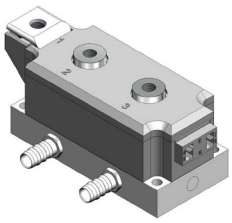
Part No.	V_{RRM}	I_{FAV}	@ T_C	I_{FRMS}	I_{FSM} 150°C 10 ms	V_{T0}	r_T	T_{VJM}	R_{thJC} per Die	R_{thCK} per Die	Fig. No.
➢ New *	V	A	°C	A	A	V	mΩ	°C	K/W	K/W	
MDO1120-24N1	2400	1189	85	1869	32400	0.80	0.170	150	0.042	0.0100	W73
MDO1120-28N1	2800	1189	85	1869	32400	0.80	0.170	150	0.042	0.0100	W73
MDO1201-14N1	1400	1520	85	3665	36000	0.80	0.100	160	0.042	0.0100	W73
MDO1201-18N1	1800	1520	85	3665	36000	0.80	0.100	160	0.042	0.0100	W73
MDO1201-22N1	2200	1520	85	3665	36000	0.80	0.100	160	0.042	0.0100	W73
➢ **W8570TJ180MBR**	1800	2830	85	6435	70200	0.69	0.050	175	0.031	0.0035	W116
➢ **W8570TJ220MBR**	2200	2830	85	6435	70200	0.69	0.050	175	0.031	0.0035	W116
➢ **W9830TJ120MBR**	1200	3345	85	7280	72000	0.67	0.043	190	0.031	0.0035	W116
➢ **W9830TJ150MBR**	1500	3345	85	7280	72000	0.67	0.043	190	0.031	0.0035	W116

Water Cooled Dual Diode Modules

IXYS UK's range of water cooled modules feature a direct cooled base, with no extra interface to the die allowing for more efficient cooling giving an enhanced average current rating.

IXYS UK Westcode Ltd has UL Certification for most modules (Underwriters Laboratories Inc).
See the UL Listing.

Part No.	V_{RRM} V	I_{FAV} A	@ T_C °C	I_{FRMS} A	I_{FSM} 150°C 10ms A	V_{T0} V	r_T mΩ	T_{VJM} °C	R_{thJW} per Die K/W	Fig. No.	Package style Outline drawings on page O-01...O-35
MDD950-14N1W	1400	950	45	1773	21800	0.75	0.200	150	0.090	W64	
MDD950-18N1W	1800	950	45	1773	21800	0.75	0.200	150	0.090	W64	
MDD950-22N1W	2200	950	45	1773	21800	0.75	0.200	150	0.090	W64	
MDA950-14N1W	1400	950	45	1773	21800	0.75	0.200	150	0.090	W64	
MDA950-18N1W	1800	950	45	1773	21800	0.75	0.200	150	0.090	W64	
MDA950-22N1W	2200	950	45	1773	21800	0.75	0.200	150	0.090	W64	
MDK950-14N1W	1400	950	45	1773	21800	0.75	0.200	150	0.090	W64	
MDK950-18N1W	1800	950	45	1773	21800	0.75	0.200	150	0.090	W64	
MDK950-22N1W	2200	950	45	1773	21800	0.75	0.200	150	0.090	W64	



W64

Water Cooled Thyristor/Diode Modules

Part No.	V_{RRM} V_{DRM} V	I_{TAV} A	@ T_C °C	I_{TRMS} A	I_{TSM} 125°C 10ms A	V_{T0} V	r_T mΩ	T_{VJM} °C	R_{thJW} per Die K/W	Fig. No.
MCD600-22io1W	2200	600	40	1116	16500	0.88	0.460	125	0.090	W64
MDC600-22io1W	2200	600	40	1116	16500	0.88	0.460	125	0.090	W64
MCD700-14io1W	1400	700	42	1331	16500	0.85	0.270	125	0.090	W64
MCD700-18io1W	1800	700	42	1331	16500	0.85	0.270	125	0.090	W64
MDC700-14io1W	1400	700	42	1331	16500	0.85	0.270	125	0.090	W64
MDC700-18io1W	1800	700	42	1331	16500	0.85	0.270	125	0.090	W64

Water Cooled Dual Thyristor Modules

Part No.	V_{RRM} V_{DRM} V	I_{TAV} A	@ T_C °C	I_{TRMS} A	I_{TSM} 125°C 10ms A	V_{T0} V	r_T mΩ	T_{VJM} °C	R_{thJW} per Die K/W	Fig. No.
MCA600-22io1W	2200	600	40	1116	16500	0.88	0.460	125	0.090	W64
MCC600-22io1W	2200	600	40	1116	16500	0.88	0.460	125	0.090	W64
MCK600-22io1W	2200	600	40	1116	16500	0.88	0.460	125	0.090	W64
MCC700-14io1W	1400	700	42	1331	16500	0.85	0.270	125	0.090	W64
MCC700-18io1W	1800	700	42	1331	16500	0.85	0.270	125	0.090	W64
MCA700-14io1W	1400	700	42	1331	16500	0.85	0.270	125	0.090	W64
MCA700-18io1W	1800	700	42	1331	16500	0.85	0.270	125	0.090	W64
MCK700-14io1W	1400	700	42	1331	16500	0.85	0.270	125	0.090	W64
MCK700-18io1W	1800	700	42	1331	16500	0.85	0.270	125	0.090	W64

Power Semiconductor Assemblies From IXYS UK

Power Semiconductor Assemblies

With over 80 years of experience, our dedicated team of talented design engineers can deliver a wide variety of industry leading solutions ranging from simple standard sub-assemblies to complicated multi-megawatt power systems.

IXYS UK's power electronics assemblies group has been an integral part of our core business since the early 1920's when we began production of the first commercially available solid state rectifiers.

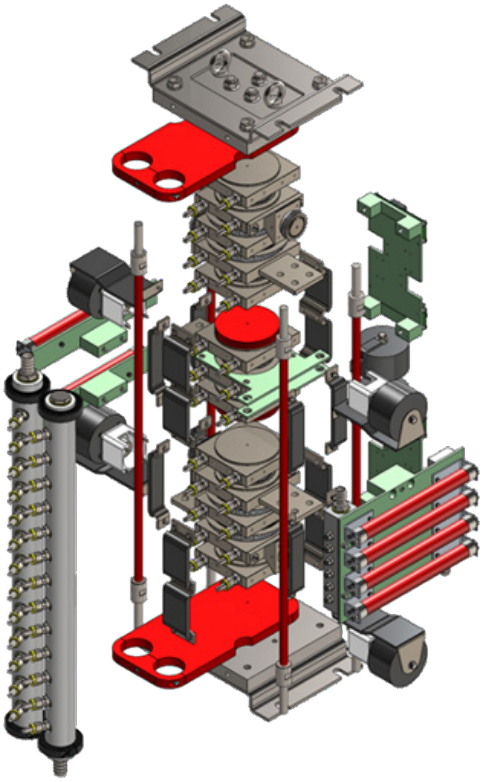
Our dedicated team of highly experienced specialists are on hand to provide our customers with first class support on everything from a simple air-cooled rectifier to a highly integrated custom power converter.

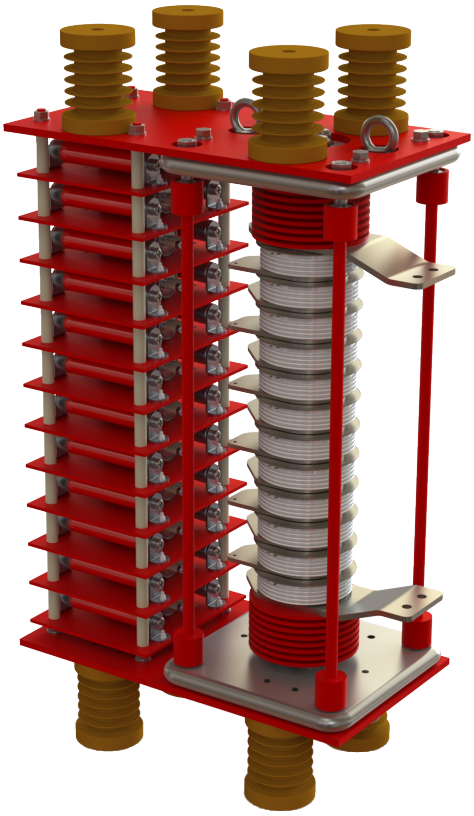
Using the latest 3D modelling and simulation techniques, we can significantly reduce the cycle time from concept to fully developed design, minimising risk and identifying opportunity for optimisation early in the project.

With double digit growth in the preceding 5 years, in 2010 we moved into a new 300m^2 dedicated production facility complemented by a well-equipped power lab. These new facilities, supported by an expanded team of engineers and technicians form the foundations for continued investment and growth in this strategic area of our business.

Standard Assemblies

IXYS UK's standard assemblies also include the new press-pack IGBT 3-level inverters. 3 separate designs are available, a totally independent 3.3kV system, a 6.6kV system and a 10kV system. The 6.6kV and 10kV systems are based on the combination of 2 IGBT stacks and 1 diode stack. Each system benefits from direct water cooling to provide highly effective heat dissipation away from the devices and pre-loaded disc spring clamping to evenly distribute the applied force across the entire surface area of the device.
Also designed into each system is an integrated snubber circuit design and an isolated clamping rod system to limit the occurrence of eddy currents within the unit.





Pulsed Power

As a pioneer in the development of solid state pulsed power components and systems, we are able to deliver anything from discrete components to fully integrated energy transfer switches. With systems successfully delivering voltage ratings of over 50kV and pulsed currents up to 140kA, we have a wealth of experience at your disposal. Our modular design solutions based on either pulse thyristor or press-pack IGBT technology and integrating control and protection functions provide you with a flexible 'black-box' approach to energy transfer problems.

We are involved with pulsed power on a global basis, working with prestigious research organisations such as CERN, Switzerland as well as medium voltage manufacture for emerging commercial applications such as laser supplies, PUV and PEF sterilisation, magnetisation and metal forming.

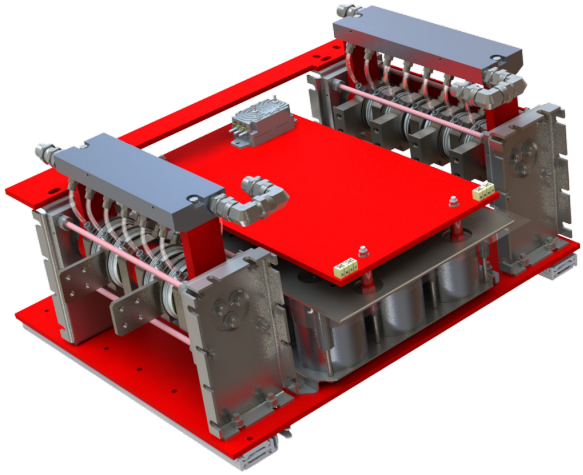
Power Semiconductor Assemblies From IXYS UK

Traction Applications

With over 40 years of experience, our dedicated team of design engineers can deliver solutions to a whole range of design problems, ranging from simple trackside rectifiers to complex propulsion converters.

IXYS UK power electronic assemblies group pioneered the early development of solid state converters for traction systems in the late 1950's as part of the Westinghouse brake & signal company. Over the years we have gained an enviable reputation within the rail sector as a solution provider.

Using our experience and broad network of contacts within the industry, we are able to offer assistance in tackling issues such as; component obsolescence, improving power equipment reliability, contract maintenance of power modules, refurbishment of power electronics, upgrades to existing systems and, of course, subcontract manufacture for new projects.



Working systematically to the highest international standards, we can give your equipment a new lease of life and help protect your investment in these valuable assets.

Component obsolescence is becoming a significant problem for the rail sector as equipment design life invariably exceeds that of the modern power electronics components. Our highly skilled team of engineers are able to re-engineer older equipment to incorporate the latest technology whilst maintaining compatibility.

As equipment reached half-life, many of the major power components will reach the end of their useful life resulting in a sharp decline in equipment reliability and availability. In these circumstances we can offer a full overhaul and refurbishment program for your power electronics, from engineering analysis, test and measurement through to delivery and validation of refurbished equipment.

For larger projects such as fleet wide refits, we are able to work within a consortium of specialist international companies to ensure you have the right skills on hand to deliver turnkey solutions to your requirements. This may include system analysis, project management, risk assessment and safety case.

Custom assemblies – our design philosophy

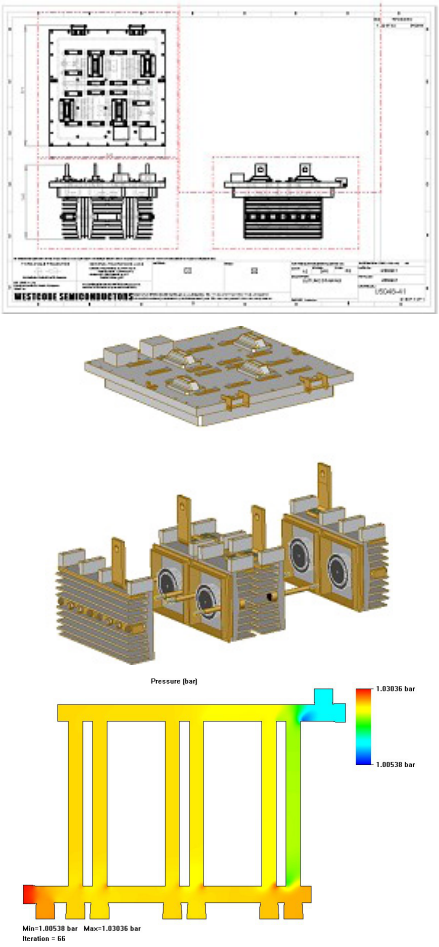
From concept through development and manufacture to after sales support, we believe strongly in working closely with our customer every step of the way – extending our philosophy of teamwork beyond our own organisation.

We understand that good communication and close collaboration help us provide the very best service to our customers.

Using the latest 3D modelling techniques we can visualise concepts and check form, fit and function with virtual prototypes. Also, utilising advanced software packages, IXYS UK can carry out simulation modelling, allowing us to model pressure drops through coolers/manifolds and heat flows through heatsinks.

Whether finding solutions to complex engineering problems or simply manufacturing to your designs, you will find IXYS UK offers outstanding value for money, excellent quality and first class customer service.

By working closely together from the very start of a project we aim to provide the best solutions on time and in budget.



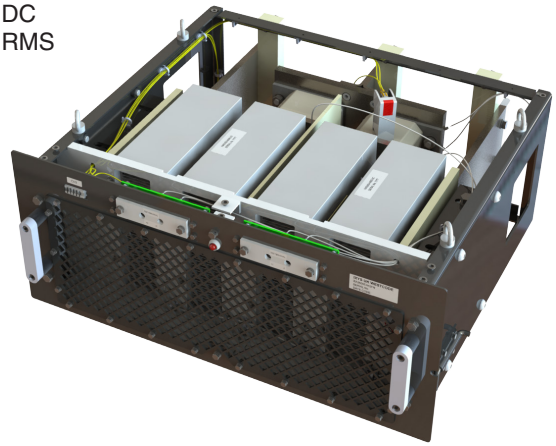
Power Semiconductor Assemblies From IXYS UK

Silicon Assemblies

A wide range of units are available, incorporating international standard outline silicon semiconductors. IXYS UK products have gained a worldwide reputation for quality in military, industrial and domestic applications.

Standard extruded aluminium heatsink profiles are used for mounting discrete semiconductor devices in various configurations, for example:

- Single-phase diode bridges with current ratings from 70 to 5710 Amps DC
- Single-phase half or fully controlled bridges from 35 to 2200 Amps DC
- Three-phase diode bridges with current ratings from 100 to 7190 Amps DC
- Three-phase half or fully controlled bridges from 45 to 3790 Amps DC
- Hexaphase single way diode assemblies from 200 to 14380 Amps DC
- Hexaphase single way thyristor assemblies from 90 to 7580 Amps DC
- AC regulators, single and three-phase from 40 to 2940 Amps RMS



Included in our standard range are solid-state, water-cooled AC regulators for resistance welding, with ratings from 315 to 3020 Amps RMS.

Also available are water cooled, single and three-phase assemblies from 1200 to 6000 Amps RMS.

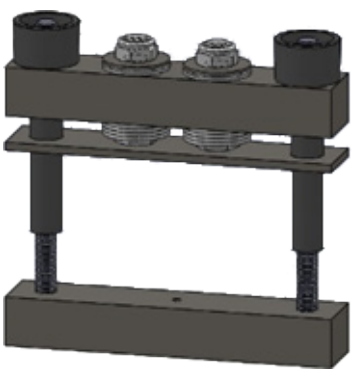
All the above ranges are suitable for 440VRMS, 50Hz mains operation.



Components

To complement our range of power semiconductors and assemblies IXYS UK can offer a range of supporting components including:

- Heatsinks
- Coolers
- Mounting clamps
- Ultra-rapid semiconductor protection fuses
- Capacitors
  - Snubbers
  - Rectification
  - Specialist DC link
- Gate drive units

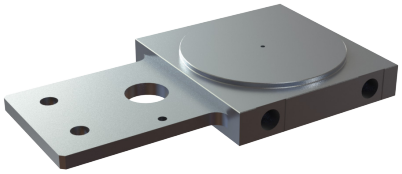


Beyond Semiconductors

Our flexible manufacturing facility is able to readily adapt to our customer's needs. In addition to power semiconductor assembly, we can offer complementary sub-assemblies to our customer's requirements, such as fuse panels and capacitor banks as well as contract manufacture to your designs.

Application and engineering support

Our highly experienced technical team is on hand to provide our customers with first class support for everything from the application of our range of discrete devices to the design and development of complex systems. We can help you from concept through design to manufacture and test, working closely with you every step of the way.

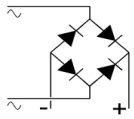






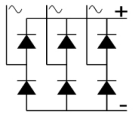
Single phase diode bridges — **Approx. total loss 2x I_{DC} @ 25°C**

Assembly Part Number	I_{DC} amps Air Forced 2.5m/s T_a=25°C	T_a=35°C	T_a=45°C	I_{FSM} amps I_{TSM} amps	I^2t A^2s	Fig.	Dimensions mm W	H	D	Mass kg	Device Type and Quantity	Heat Sink Type
SXB1375B	1375	1303	1230	19500	$1.9x10^6$	1	382	325	405	20	W2058LC (4)	B(2x83.1x180)
SXB2096B	2096	1987	1874	33000	$5.45x10^6$	1	382	325	405	20	W3270NC (4)	B(2x83.1x180)
SXB3442B	3442	3277	3109	53000	$13.5x10^6$	2	382	593	405	40	W5696VC (4)	B(2x180)
SXB4264B	4264	4051	3835	72000	$22.5x10^6$	2	382	593	405	40	W8405ZC (4)	B(2x180)



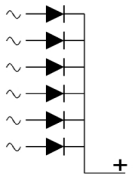
Three phase diode bridges — **Approx. total loss 2.5x I_{DC} @ 25°C**

Assembly Part Number	I_{DC} amps Air Forced 2.5m/s T_a=25°C	T_a=35°C	T_a=45°C	I_{FSM} amps I_{TSM} amps	I^2t A^2s	Fig.	Dimensions mm W	H	D	Mass kg	Device Type and Quantity	Heat Sink Type
SXB1920G	1920	1822	1721	19500	$1.9x10^6$	3	548	325	405	30	W2058LC (6)	B(2x83.1x180)
SXB2939G	2939	2788	2634	33000	$5.45x10^6$	3	548	325	405	30	W3270NC (6)	B(2x83.1x180)
SXB4869G	4869	4640	4407	53000	$13.5x10^6$	4	548	593	405	60	W5696VC (6)	B(2x180)
SXB5993G	5993	5701	5402	72000	$22.5x10^6$	4	548	593	405	60	W8405ZC (6)	B(2x180)



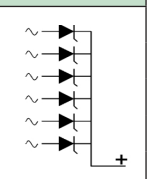
Six phase diode, single way with IPT — **Approx. total loss 1.25x I_{DC} @ 25°C**

Assembly Part Number	I_{DC} amps Air Forced 2.5m/s T_a=25°C	T_a=35°C	T_a=45°C	I_{FSM} amps I_{TSM} amps	I^2t A^2s	Fig.	Dimensions mm W	H	D	Mass kg	Device Type and Quantity	Heat Sink Type
SXB3840HEX	3840	3644	3442	19500	$1.9x10^6$	5	548	325	395	30	W2058LC (6)	B(2x83.1x180)
SXB5877HEX	5877	5576	5268	33000	$5.45x10^6$	5	548	325	395	30	W3270NC (6)	B(2x83.1x180)
SXB9737HEX	9737	9281	8813	53000	$13.5x10^6$	6	548	593	395	60	W5696VC (6)	B(2x180)
SXB11987HEX	11987	11401	10804	72000	$22.5x10^6$	6	548	593	395	60	W8405ZC (6)	B(2x180)



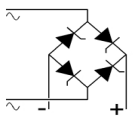
Six phase thyristor, single way with IPT — **Approx. total loss 1.5x I_{DC} @ 25°C**

Assembly Part Number	I_{DC} amps Air Forced 2.5m/s T_a=25°C	T_a=35°C	T_a=45°C	I_{FSM} amps I_{TSM} amps	I^2t A^2s	Fig.	Dimensions mm W	H	D	Mass kg	Device Type and Quantity	Heat Sink Type
SXB3529HEXT	3529	3244	2949	29600	$4.38x10^6$	5	548	325	395	30	N1802LC (6)	B(2x83.1x180)
SXB4649HEXT	4649	4270	3878	37000	$6.85x10^6$	6	548	593	395	60	N2500VC (6)	B(2x180)
SXB6240HEXT	6240	5714	5173	64000	$20.5x10^6$	6	548	593	395	60	N4085ZC (6)	B(2x180)



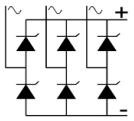
Single phase fully controlled bridges — **Approx. total loss 2.5x I_{DC} @ 25°C**

Assembly Part Number	I_{DC} amps Air Forced 2.5m/s T_a=25°C	T_a=35°C	T_a=45°C	I_{FSM} amps I_{TSM} amps	I^2t A^2s	Fig.	Dimensions mm W	H	D	Mass kg	Device Type and Quantity	Heat Sink Type
SXB1265FB	1265	1161	1054	29600	$4.38x10^6$	1	382	325	405	20	N1802NC (4)	B(2x83.1x180)
SXB1645FB	1645	1508	1367	37000	$6.85x10^6$	2	382	593	405	40	N2500VC (4)	B(2x180)
SXB2167FB	2167	1981	1790	64000	$20.5x10^6$	2	382	593	405	40	N4085ZC (4)	B(2x180)



Three phase fully controlled bridges — **Approx. total loss 3x I_{DC} @ 25°C**

Assembly Part Number	I_{DC} amps Air Forced 2.5m/s T_a=25°C	T_a=35°C	T_a=45°C	I_{FSM} amps I_{TSM} amps	I^2t A^2s	Fig.	Dimensions mm W	H	D	Mass kg	Device Type and Quantity	Heat Sink Type
SXB1764FG	1764	1622	1475	29600	$4.38x10^6$	3	548	325	405	30	N1802NC (6)	B(2x83.1x180)
SXB2324FG	2324	2135	1939	37000	$6.85x10^6$	4	548	593	405	60	N2500VC (6)	B(2x180)
SXB3120FG	3120	2857	2586	64000	$20.5x10^6$	4	548	593	405	60	N4085ZC (6)	B(2x180)



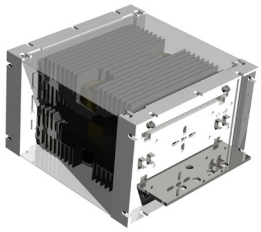
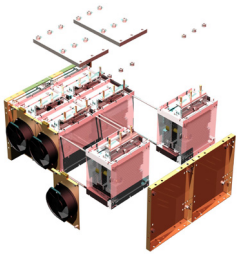
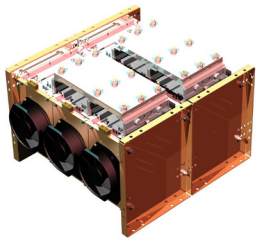
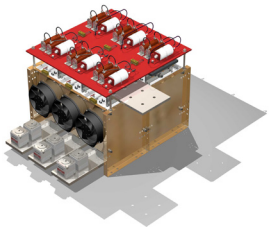
Westack - *Modular Solutions*

Cooling for each module section is provided by the use of a low noise 115/230 V ac fan which is protected against overloading by an integral thermal cut-out.

Surge suppression and fusing provides reliable and safe operation. Surge suppression (protecting the devices from voltage transients) and high speed fuses (to protect against short circuit) are available. Contact IXYS UK for details.

All plastic components are UL recognised and meet the requirements of the European Union Directive 2002/95/EC covering the restricted use of certain hazardous substances in electrical and electronic equipment.

Using ISO 9001 ensures that our products consistently meet customer's requirements, and that quality is consistently improved.

Westack - *Modular Solutions are available in 6 standard configurations. others by request.*



Figure 1
Weight 20 kg



Figure 2
Weight 40 kg

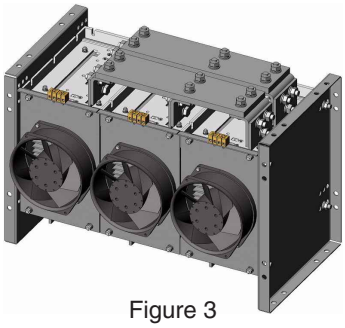


Figure 3
Weight 30 kg



Figure 4
Weight 60 kg

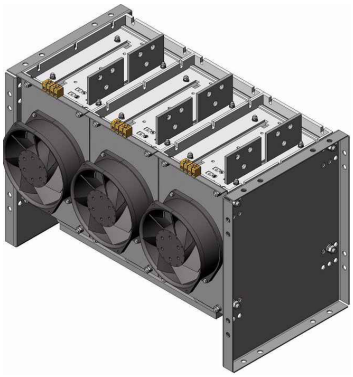


Figure 5
Weight 30 kg

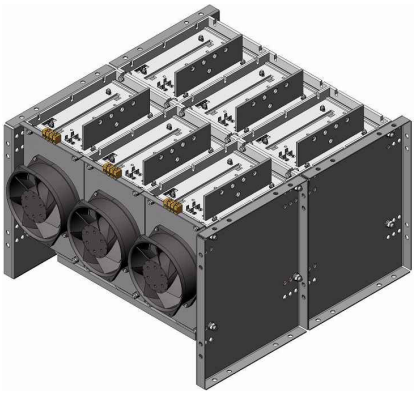


Figure 6
Weight 60 kg

Westack*LITE - Modular Solutions*

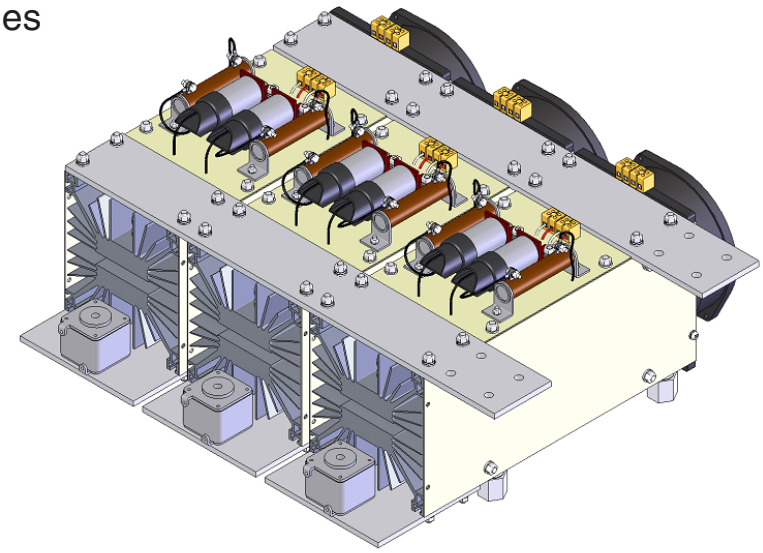
A simple but highly efficient range of stacks incorporating the new **WESPACK** range of phase control thyristors.

Currently available in 3 standard configurations:

AC voltage regulators

Single-phase bridges

Three-phase bridges

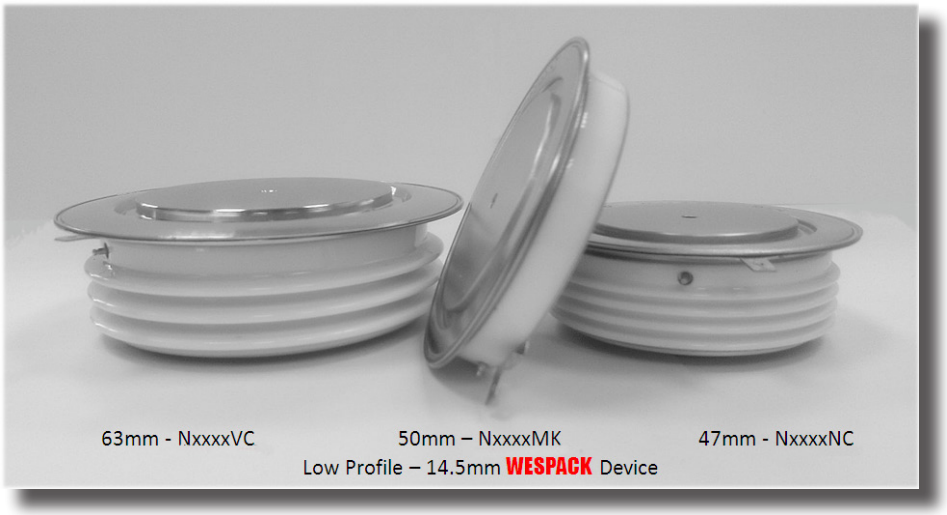


These stacks can easily be modified to meet individual customer requirements.

Fully dimensioned drawings are available upon request from the Chippenham Factory.

Features and Benefits

WESPACK devices provide the maximum power rating for weight and volume without compromising on quality and reliability.



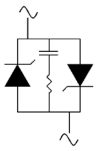
Cooling is provided by means of a low noise dual voltage (230V/115V) ac fan that is protected against overloading by an integral thermal cut-out.

Surge suppression and fusing can be added to protect the devices from voltage transients and short circuits.

Westack*LITE - Modular Solutions*

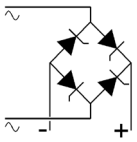
AC regulators — **Approx. total loss 1.3x I_{RMS}**

Assembly Part Number	I_{DC} amps Air Forced 5m/s $T_a = 25°C$	$T_a = 35°C$	$T_a = 45°C$	I_{FSM} amps I_{TSM} amps	I^2t A^2s	Fig.	Dimensions mm W	H	D	Mass kg	Device Type and Quantity	Heat Sink Type
SXC1195FR	1195	1098	997	19100	$1.82x10^6$	1	168	415	212	10	N1806QK (2)	(2x150. 1x330)
SXC1464FR	1464	1348	1227	32400	$5.25x10^6$	1	168	415	212	10	N2367MK (2)	(2x150. 1x330)
SXC1788FR	1788	1636	1480	50900	$12.95x10^6$	1	168	415	212	10	N3904HK (2)	(2x150. 1x330)



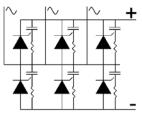
Single phase fully controlled bridges — **Approx. total loss 2.5x I_{DC}**

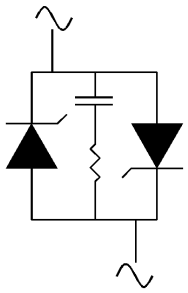
Assembly Part Number	I_{DC} amps Air Forced 2.5m/s $T_a = 25°C$	$T_a = 35°C$	$T_a = 45°C$	I_{FSM} amps I_{TSM} amps	I^2t A^2s	Fig.	Dimensions mm W	H	D	Mass kg	Device Type and Quantity	Heat Sink Type
SXC1076FB	1076	988	897	19100	$1.82x10^6$	2	330	415	212	20	N1806QK (4)	(2x150. 1x330)
SXC1318FB	1318	1213	1104	32400	$5.25x10^6$	2	330	415	212	20	N2367MK (4)	(2x150. 1x330)
SXC1609FB	1609	1473	1332	50900	$12.95x10^6$	2	330	415	212	20	N3904HK (4)	(2x150. 1x330)

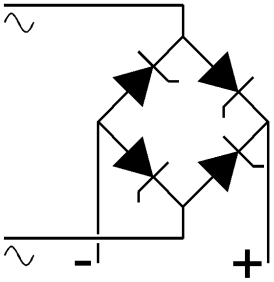


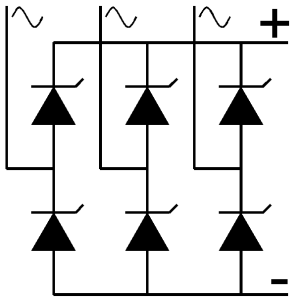
Three phase fully controlled bridges — **Approx. total loss 3x I_{DC}**

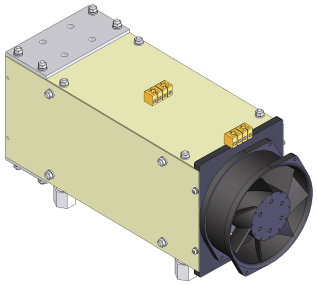
Assembly Part Number	I_{DC} amps Air Forced 2.5m/s $T_a = 25°C$	$T_a = 35°C$	$T_a = 45°C$	I_{FSM} amps I_{TSM} amps	I^2t A^2s	Fig.	Dimensions mm W	H	D	Mass kg	Device Type and Quantity	Heat Sink Type
SXC1517FG	1517	1396	1270	19100	$1.82x10^6$	3	492	415	212	30	N1806QK (6)	(2x150. 1x330)
SXC1871FG	1871	1725	1573	32400	$5.25x10^6$	3	492	415	212	30	N2367MK (6)	(2x150. 1x330)
SXC2319FG	2319	2125	1926	50900	$12.95x10^6$	3	492	415	212	30	N3904HK (6)	(2x150. 1x330)

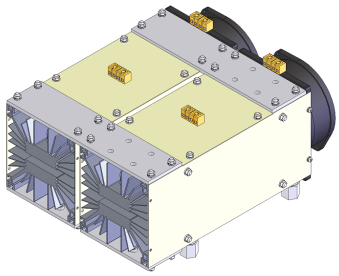


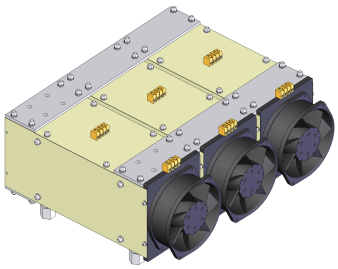


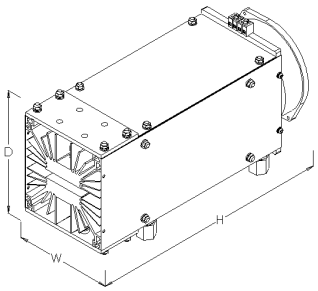


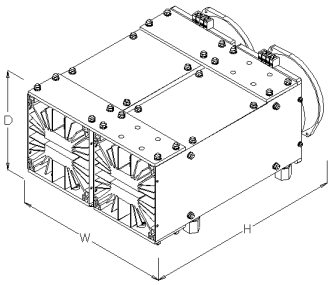












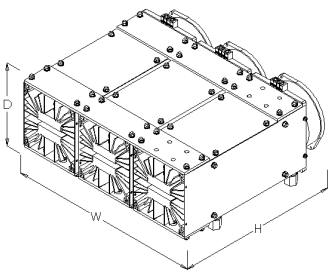


Figure 1
Weight 10 kg

Figure 2
Weight 20 kg

Figure 3
Weight 30 kg

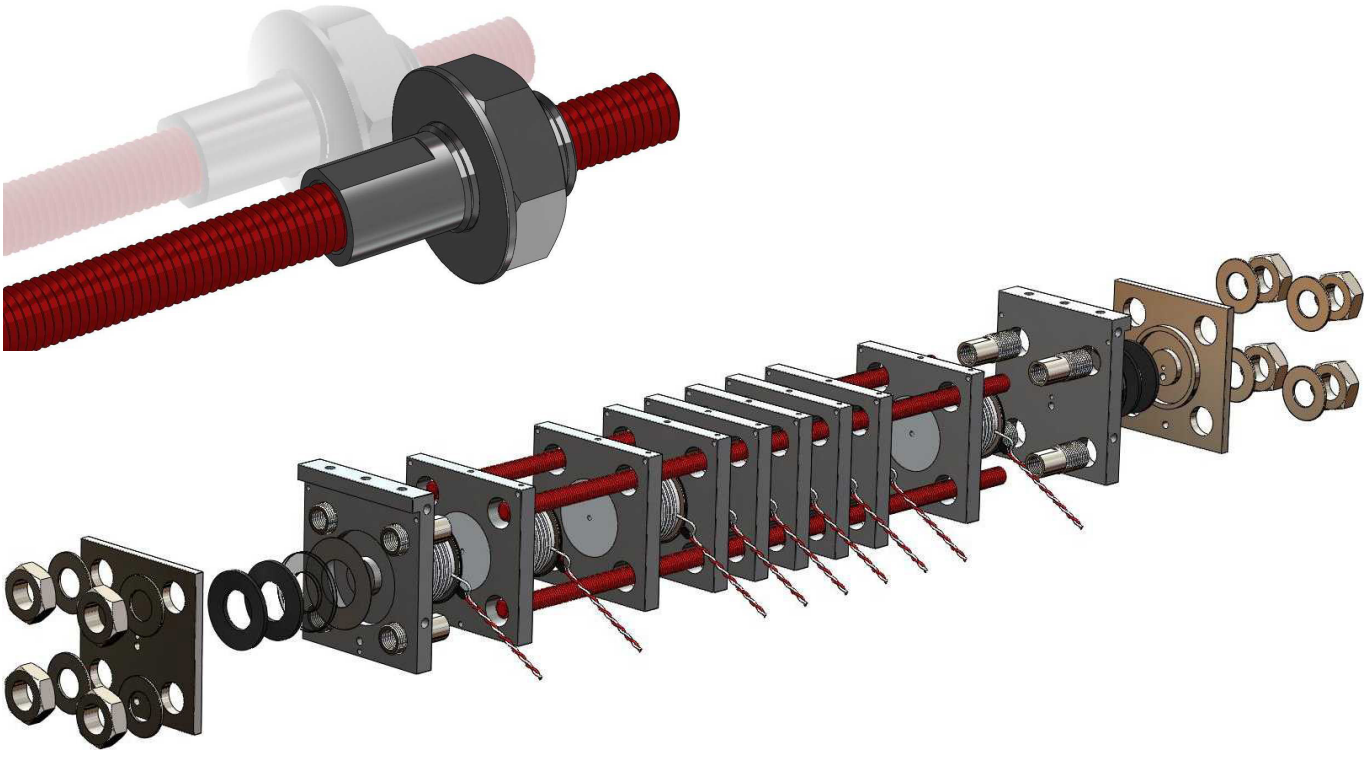
Power Semiconductor Accessories

As part of our continuing commitment to meet our customers' demands, we offer a range of products to support our high power semiconductor devices and our silicon assembly business.

The following pages show a selection of accessories available to our customers, from heatsinks and coolers, to bar or box clamps, to mounting grease!

Part No.	Old Part Number	Accessory
XSGSCX13		Press Pack Semiconductor Mounting Grease, supplied in 1kg tins
XST1000M08P	PTFE1000M8	M8 PTFE tube x 1m length insulation
XST1000M10P	PTFE1000M10	M10 PTFE tube x 1m length insulation
XST1000M12P	PTFE1000M12	M12 PTFE tube x 1m length insulation
XST1000M16P	PTFE1000M16	M16 PTFE tube x 1m length insulation
L0001YC600XXX	n/a	30mm diameter electrode Insulator Capsule
L0001QC600XXX	n/a	38mm diameter electrode Insulator Capsule
L0001NC600XXX	n/a	47mm diameter electrode Insulator Capsule
L0001HC600XXX	n/a	66mm diameter electrode Insulator Capsule
L0001ZF600XXX	n/a	73mm diameter electrode Insulator Capsule
L0001TC600XXX	n/a	75mm diameter electrode Insulator Capsule

Part No.	Old Part Number	Accessory	Type
XSL200D8WRC	U9948	200mm long single Co-Axial cable, Red / White, M5 ring terminal for Ø75 IGBT & below	IGBT
XSL200D8WRCP	U9947	200mm long double Co-Axial cable, Red / White, M5 ring terminal for Ø85 IGBT & above	IGBT
XSL220C2WRT		220mm long twisted pair, Silicone sleeve cable 16/0.2, Red / White, M4 ring terminal	Thyristor
XSL300C2WRP	U9900	300mm long pair, Silicone sleeve cable 16/0.2, Red / White, M4 ring terminal	Thyristor
XSL300C2WS	U9900 (Gate Only)	300mm long gate wire, Silicone sleeve cable 16/0.2, White, M4 ring terminal	Thyristor
XSL350C2WRP	U9723	350mm long pair, Silicone sleeve cable 16/0.2, Red / White, M4 ring terminal	Thyristor
XSL400C2WRP	U9860	400mm long pair, Silicone sleeve cable 16/0.2, Red / White, M4 ring terminal	Thyristor
XSL500C2WRP	U9855	500mm long pair, Silicone sleeve cable 16/0.2, Red / White, M4 ring terminal	Thyristor
XSL600C2WRP	U9775	600mm long pair, Silicone sleeve cable 16/0.2, Red / White, M4 ring terminal	Thyristor
XSL1000C2WRP	U9734/U9801/U9849	1000mm long pair, Silicone sleeve cable 16/0.2, Red / White, M4 ring terminal	Thyristor
XSL1000C2WRT	U9952	1000mm long twisted pair, Silicone sleeve cable 16/0.2, Red / White, M4 ring terminal	Thyristor
XSL1100C2WRT	U9779	1100mm long twisted pair, Silicone sleeve cable 16/0.2, Red / White, M4 ring terminal	Thyristor



We can supply discrete parts. kits of parts or complete assemblies to satisfy your requirements.

Please contact the Chippenham Factory for further information.

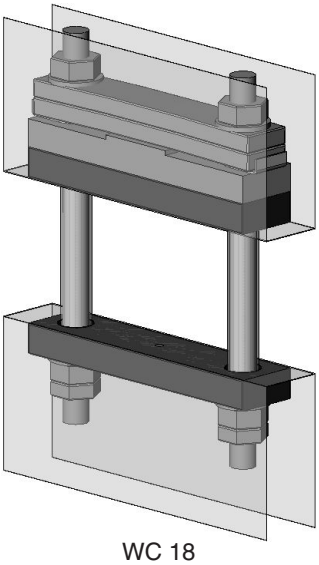
Standard Bar Clamps

Type Part No.	Fixing Centres mm	Rod Size	Capsule Device Outline	Mounting Surface Diameter mm	Nominal Thickness mm	$T_{J\ Max.}$ °C	Outline No.
XK0450DA056M	65	M8	DO-200AA/TO-200AB	19.0	13.8	190	WC2
XK0450DT056M							WC3
XK0450SA056M							WC1
XK0550DA056M	65	M8	GTO	29.5	16	190	WC5
XK0550SA056M							WC4
XK0900DA056M *	65	M8	Diode/Thyristor	25.1	14.6	190	WC7
XK0900DT056M *							WC8
XK0900SA056M							WC6
XK0600DA074M	89	M10	Press-Pack IGBTs	47.0	27	190	WC10
XK0600SA074M							WC9
XK1000DA074M	89	M10	Press-Pack IGBTs	47.0	27	190	WC12
XK1000SA074M							WC11
XK1100DA076M	89	M10	DO-200AB/TO-200AC	34.0	26.2	190	WC13
XK1130DA076M	89	M10	DO-200AB/TO-200AC	34.0	26.2	190	WC15
XK1130DT076M						190	WC16
XK1130SA076M						190	WC14
XK1800DA076M	89	M10	Wespack PCT	38.0	14	190	WC18
XK1800DT076M							WC19
XK1800SA076M							WC17
XK2100DA076M	89	M10	GTO	47.0	27	190	WC21
XK2100DA076ML						125	
XK2100SA076M						190	WC20
XK2100SA076ML						125	
XK2140DA076M *	89	M10	DO-200/Thyristor	47.0	26.8	190	WC23
XK2140DA076ML *						125	
XK2140DT076M *						190	WC24
XK2140DT076ML *						125	
XK2140SA076M						190	WC22
XK2140SA076ML						125	
XK2700DA076M	89	M10	Wespack PCT	50.0	14	190	WC26
XK2700DT076M							WC27
XK2700SA076M							WC25
XK2000DA114M	132	M12	Press-Pack IGBTs	75.0	26	190	WC29
XK2000SA114M							WC28
XK2500DA114M	132	M12	Press-Pack IGBTs	75.0	26	190	WC31
XK2500SA114M							WC30
XK2500DA116M	132	M12	GTO	63.0	26	190	WC33
XK2500DA116ML						125	
XK2500SA116M						190	WC32
XK2500SA116ML						125	
XK3000DA116M *	132	M12	DO-200AD/Thyristor	63.0	33	190	WC35
XK3000DA116ML *						125	
XK3000SA116M						190	WC34
XK3000SA116ML						125	
XK3500DA116M	132	M12	GTO	75.0	26	190	WC37
XK3500DA116ML						125	
XK3500SA116M						190	WC36
XK3500SA116ML						125	

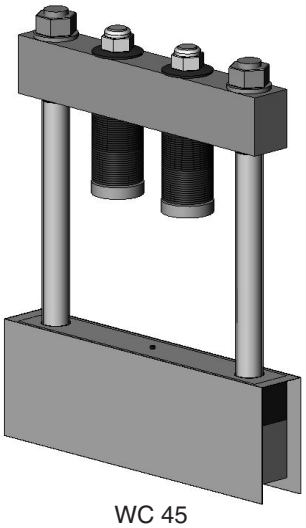
Standard Bar Clamps

Type Part No.	Fixing Centres mm	Rod Size	Capsule Device Outline	Mounting Surface Diameter mm	Nominal Thickness mm	$T_{J\ Max.}$	Outline No.
XK4000DA116M *	132	M12	Diode/Thyristor	73.0	36.8	190	WC39
XK4000DA116ML *						125	
XK4000SA116M						190	WC38
XK4000SA116ML						125	
XK5000DA128M	146	M16	GTO	75.0	26	190	WC40
XK5000DA128ML						125	
XK7000DA128M	146	M16	Diode/Thyristor	75.0	26.6	190	WC41
XK7000DA128ML						125	
XK3060DA140ML	154	M12	Press-Pack IGBTs	85.1	26	125	WC43
XK3060SA140ML							WC42
XK9000SA160M	180	M16	Thyristor	99.3	35.8	190	WC44
XK9000SA160ML						125	
XK9000DA160M	180	M16	Thyristor	99.3	35.8	190	WC45
XK9000DA160ML						125	
XK6120DA180ML	196	M16	Press-Pack IGBTs	125.0	26	125	WC46
XK6120SA180ML							WC47
XK8000DA180ML	196	M16	Press-Pack IGBTs	132.0	26	125	WC67
XK8000SA180ML							WC68

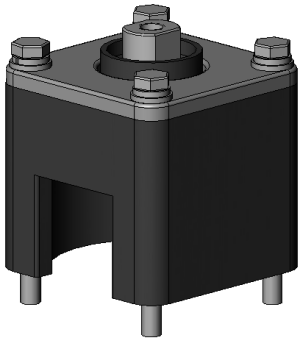
* Not for new design. For new replacement part see page 177



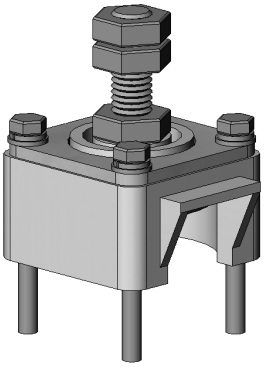
WC 18



WC 45



WC 50



WC 48/49

Bar Clamps - new range!

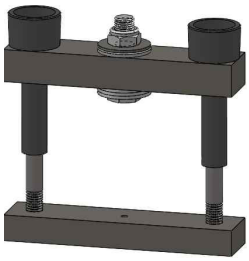
Range	Part number	#### = Force kgf	Max cell dia mm	$T_{J\ MAX.}$ °C	xxx = max Z - dim range mm	Outline
XSK042	XSK####DA042xxx	0500/0900	42	190	025-076*	WC58
	XSK####DT042xxx	0500/0900	42	190	025-076*	WC59
	XSK####DF042xxx	0500/0900	42	190	025-076*	WC60
XSK054	XSK####DA054xxx	0900	54	190	025-076*	WC58
	XSK####DT054xxx	0900	54	190	025-076*	WC59
	XSK####DF054xxx	0900	54	190	025-076*	WC60
XSK056	XSK####DA056xxx	0500/0900	56	190	038-120*	WC58
	XSK####DT056xxx	0500/0900	56	190	038-120*	WC59
	XSK####DF056xxx	0500/0900	56	190	038-120*	WC60
	XSK####DA056xxx	1500	56	190	038-120*	WC58/SP
	XSK####DT056xxx	1500	56	190	038-120*	WC59/SP
	XSK####DF056xxx	1500	56	190	038-120*	WC60/SP
XSK065	XSK####DA065xxx	0500/0900	65	190	038-120*	WC58
	XSK####DT065xxx	0500/0900	65	190	038-120*	WC59
	XSK####DF065xxx	0500/0900	65	190	038-120*	WC60
	XSK####DA065xxx	1500	65	190	038-120*	WC58/SP
	XSK####DT065xxx	1500	65	190	038-120*	WC59/SP
	XSK####DF065xxx	1500	65	190	038-120*	WC60/SP
XSK075	XSK####DA075xxx	0900/1500	75	190	038-120*	WC58
	XSK####DT075xxx	0900/1500	75	190	038-120*	WC59
	XSK####DF075xxx	0900/1500	75	190	038-120*	WC60
	XSK####DA075xxx	2200	75	190	038-120*	WC61
	XSK####DT075xxx	2200	75	190	038-120*	WC62
	XSK####DF075xxx	2200	75	190	038-120*	WC63
XSK087	XSK####DA087xxx	1500/2200	87	190	038-120*	WC61
	XSK####DT087xxx	1500/2200	87	190	038-120*	WC62
	XSK####DF087xxx	1500/2200	87	190	038-120*	WC63
	XSK####DA087xxx	3000	87	190	038-120*	WC61/SP
	XSK####DT087xxx	3000	87	190	038-120*	WC62/SP
	XSK####DF087xxx	3000	87	190	038-120*	WC63/SP
XSK103	XSK####DA103xxx	2200	103	190	038-120*	WC58/SP
	XSK####DF103xxx	2200	103	190	038-120*	WC60/SP
	XSK####DA103xxx	3200	103	190	038-120*	WC61/SP
	XSK####DF103xxx	3200	103	190	038-120*	WC63/SP
	XSK####DA103xxx	4000	103	190	038-120*	WC61/SP
	XSK####DF103xxx	4000	103	190	038-120*	WC63/SP
XSK112	XSK####DA112xxx	2800/3200/3800/4500	112	190	038-120*	WC61/SP
	XSK####DF112xxx	2800/3200/3800/4500	112	190	038-120*	WC63/SP
XSK120	XSK####DA120xxx	3800/4500/5000	120	190	050-120*	WC61/SP
	XSK####DF120xxx	3800/4500/5000	120	190	050-120*	WC63/SP
XSK126	XSK####DA126xxx	3800/4500/5000	126	190	050-120*	WC61/SP
	XSK####DF126xxx	3800/4500/5000	126	190	050-120*	WC63/SP
XSK160	XSK####DA160xxx	8000/9000	160	190	050-120*	WC61/SP
	XSK####DF160xxx	8000/9000	160	190	050-120*	WC63/SP

Bar Clamps - new range!

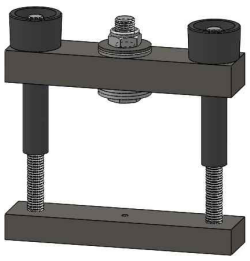
Range	A	A1	B	C	C1	D	E	F	G	H	Fixing
XSK042	69.85	74.89	54.00	15.88	21.04	42.00	8.64	PCF	PCF	12.70	M6
XSK054	82.55	86.04	65.00	15.88	21.04	54.00	8.62	34.93	PCF	12.70	M6
XSK056	95.25	-	70.00	25.40	-	56.00	12.19	PCF	PCF	9.53	M8
XSK065	104.39	-	79.00	25.40	-	65.00	12.19	PCF	PCF	12.70	M8
XSK075	112.78	-	89.00	25.40	-	75.00	12.19	PCF	PCF	12.70	M8
XSK087	127.00	-	102.00	25.40	-	87.00	12.19	PCF	PCF	19.05	M8
XSK103 (2200/3200)	144.78	-	118.00	25.40	36.00	103.00	12.19	PCF	PCF	19.05	M8
XSK103 (4000)	144.78	154.11	118.00	25.40	36.00	103.00	16.56	PCF	PCF	19.05	M10
XSK112	165.02	-	132.00	25.40	36.00	112.00	16.56	PCF	PCF	25.40	M10
XSK120	172.72	-	140.00	25.40	36.00	120.00	16.56	PCF	PCF	25.40	M10
XSK126	181.1	-	146	25.4	36	126	16.56	PCF	PCF	25.4	M10
XSK160	216.07	-	180	38.1	-	160	16.56	PCF	PCF	38.1	M12

Notes: PCF = Dimension is dependent on clamp force and cell height. Please consult factory.
“A1“ dimension only shown where “A1“ is larger than “A“.
“C1“ dimension only shown where “C1“ is larger than “C“.
All dimensions in mm.

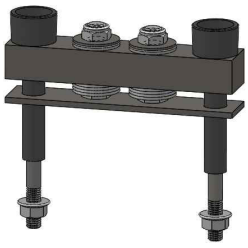
Outline drawings
on O-01...O-35



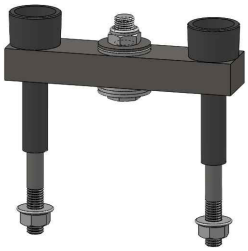
WC 58



WC 60



WC 62



WC 59



WC 61



WC 63

Bar Clamps for WESPACK™ *and GTO range*

Part No.	Rod Size & Length mm	Insulator Size & Length mm	Fixing centres	Electrode Diameter	Clamp Forces	„Z“ mm	„D“ mm	Fig. No.
XSK1500DA076038	M8 x 90	M8 x 60	89.0	32	10kN to 20kN	38	27.5	WC51
XSK1500DA076076	M8 x 130	M8 x 95				76	62.5	
XSK1500DA076101	M8 x 160	M8 x 120				101	87.6	
XSK2000DA076038	M8 x 95	M8 x 60	89.0	38	13kN to 20kN	38	25.9	WC52
XSK2000DA076076	M8 x 130	M8 x 95				76	61.0	
XSK2000DA076101	M8 x 160	M8 x 120				101	85.9	
XSK3000DA076038	M8 x 100	M8 x 65	89.0	50	25kN to 31kN	38	26.2	WC53
XSK3000DA076076	M8 x 130	M8 x 100				76	56.1	
XSK3000DA076101	M8 x 160	M8 x 125				101	86.1	
XSK3400DA076038	M8 x 100	M8 x 65	89.0	50	27kN to 34kN	38	24.6	WC54
XSK3400DA076076	M8 x 140	M8 x 105				76	64.5	
XSK3400DA076101	M8 x 160	M8 x 130				101	89.7	
XSK3800DA116M076	M10 x 150	M12 x 100	132.0	66	32kN to 38kN	76	59.7	WC55
XSK3800DA116M101	M10 x 180	M12 x 125				101	84.6	
XSK4400DA116M076	M10 x 150	M12 x 105	132.0	68	36kN to 44kN	76	63.0	WC56
XSK4400DA116M101	M10 x 180	M12 x 130				101	87.9	
XSK6000DA116M076	M10 x 150	M12 x 105	132.0	75	50kN to 60kN	76	59.9	WC57
XSK6000DA116M101	M10 x 180	M12 x 130				101	84.8	

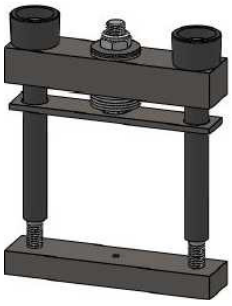
Note: 1 Kgf = 9.8 Newtons

T_{JMAX} = 190°C

Outline drawings are available from pages O-01...O-35



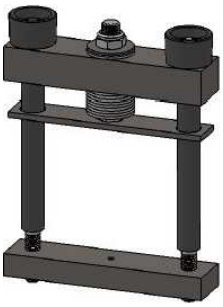
WC51



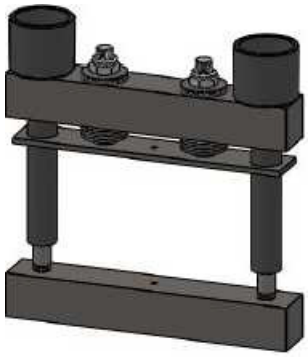
WC52



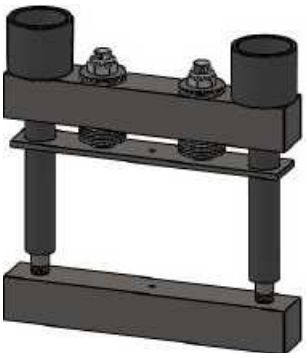
WC53



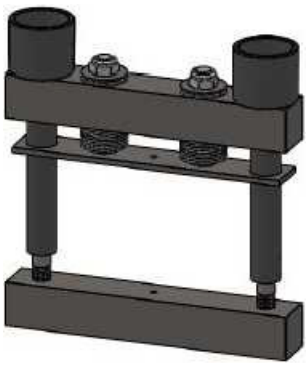
WC54



WC55



WC56



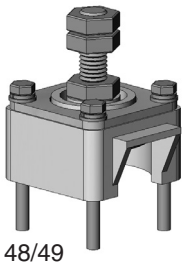
WC57

Box Clamps

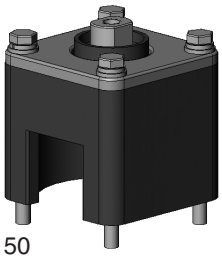
Part No.	Moulded Box Style	Fixing Centres mm	Rod Size	Capsule Device			Outline Ref.
				Outline	Mounting Surface Ø mm	Nominal Thickness mm	
XK0450BA019M **XK0450BB019M**	Injection Compression	50 PCD	M5x50 Bolts	W1 / W8 / W90	19.0	13.8	WC48
XK0450BA025M **XK0450BB025M**	Injection Compression	50 PCD	M5x50 Bolts	W2 / W58	25.1	14.6	WC49
XK1000BA025M	Injection	50 PCD	M5x50 Bolts	W91	25.1	14.0	WC49
XK1500BA034M	Injection	70 PCD	M6x50 Bolts	W4 / W10 / W92	34.0	26.2	WC50

Note: 1 Kgf = 9.8 Newtons

Outline drawings are available from pages O-01...O-35



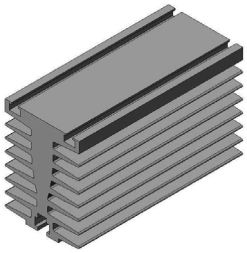
WC 48/49



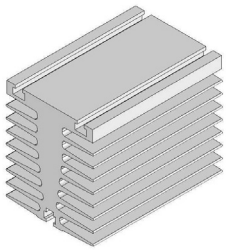
WC 50

Heatsinks

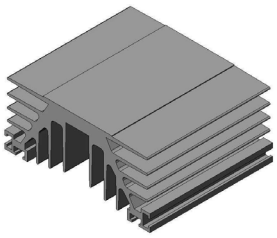
Part No.	Weight Kg/m	Periphery mm	Area mm^2	Fig.
XSFGxxxxAN	8.1	1059	2979	WH1
XSFGAxxxxAN	15.6	1682	5867	WH2
XSFHxxxxAN	12.7	1684	4655	WH3
XSFTxxxxAN	20	2065	7573	WH4
XSFTBxxxxAN	29	2467	10905	WH5
XSFTCxxxxAN	28	2544	10561	WH6
XSFLPxxxxAN	30	6620	11172	WH7
XSF46xxxxAN	20	2822	7411	WH8
XSF30xxxxAN	Dimensions 125mm x 125mm x 4 vanes			



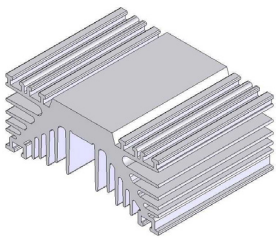
WH1



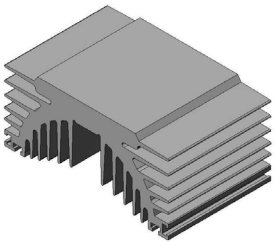
WH2



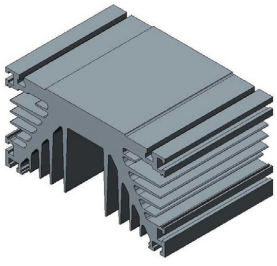
WH3



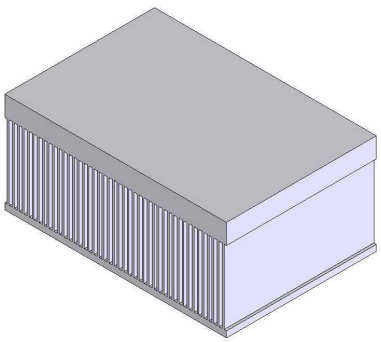
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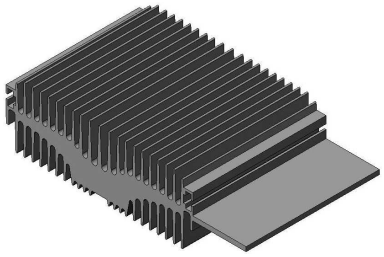
WH5



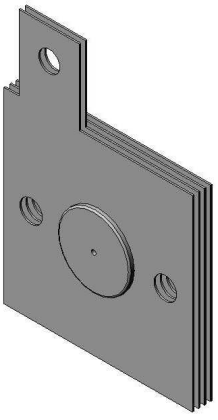
WH6



WH7



WH8



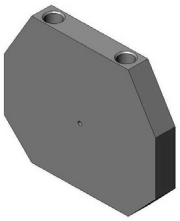
WH9

Coolers

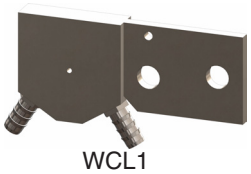
Part No.	Weight kg	Cooler Thickness mm	Busbar Thickness mm	Description	Fig. No.
XW076NC16A	0.418	16	N/A	47mm WC Cu	WCL2
XW076NC16B		16		47mm WC Cu with Busbar (10mm Hose)	WCL1
XW076NC16BS		16		47mm WC Cu with Busbar + spirol pins fitted (10mm Hose)	WCL1
XW076NC16BT	0.612	16	6.4	47mm WC Cu with Busbar + thermostat hole (10mm Hose)	WCL1
XW076NC16C		16		47mm WC Cu with Busbar (½" Hose)	WCL1
XW076NC16CT		16		47mm WC Cu with Busbar + thermostat hole (½" Hose)	WCL1
XW076NC16R	0.581	16	6.35	47mm WC Cu reversed with Busbar	WCL12
XW076NC16W	0.400	16	N/A	47mm WC Cu reversed	WCL13
XW116ZC20A	1.300	20	N/A	73mm WC Cu	WCL4
XW116ZC20B	1.750	20	10	73mm WC Cu with Busbar	WCL3
XW116ZC20C	2.120	20	10	73mm WC Cu with alt. Busbar	WCL5
XW116ZC20R	1.672	20	10	73mm WC Cu reversed with Busbar	WCL14
XW116ZC20W	1.119	20	N/A	73mm WC Cu reversed	WCL15
XW127EC25A	1.650	25	N/A	85mm WC Cu Helix	WCL16
XW127EC25B	2.200	25	8	85mm WC Cu with Busbar Helix	WCL17
XW127EA25A	0.500	25	N/A	85mm WC Al Helix	WCL16
XW127EA25B	0.650	25	8	85mm WC Al with Busbar Helix	WCL17
XW160FC25A	3.620	25	N/A	100mm WC Cu	WCL6
XW160FC25B	4.520	25	10	100mm WC Cu with Busbar	WCL7
XW180GC34A	4.920	34	N/A	125mm WC Cu Helix	WCL11
XW180GC34B	5.950	34	10	125mm WC Cu with Busbar Helix	WCL10
XW180GA34A	1.500	34	N/A	125mm WC Al Helix	WCL11
XW180GA34B	1.800	34	10	125mm WC Al with Busbar Helix	WCL10
XW180BA34E	1.550	34	N/A	132mm WC Al Helix	WCL19
XW180BA34F	1.850	34	10	132mm WC Al with Busbar Helix	WCL20
XW270QA25A	2.941	25	N/A	270 x 190mm WC Al Cold Plate	WCL9


WCL2

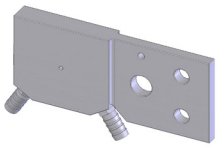

WCL4

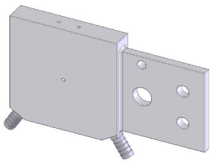

WCL8

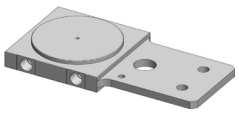
Outlines on pages O-01...O-35

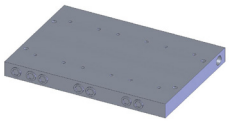

WCL1

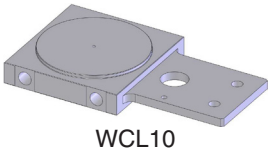

WCL3

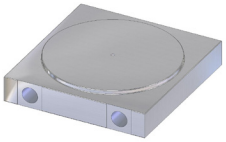

WCL5

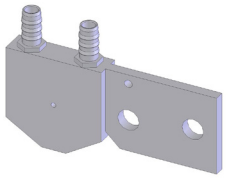

WCL6

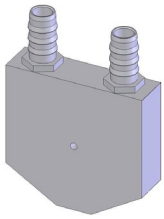

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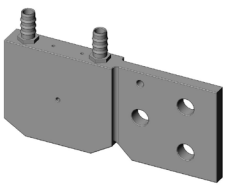

WCL9 -WS65

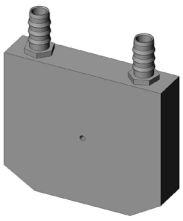

WCL10

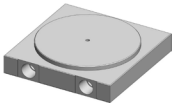

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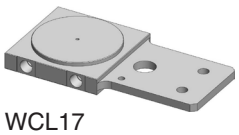

WCL12 -WS71-1

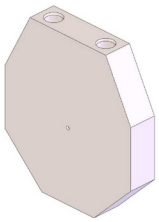

WCL13 -WS71-2


WCL14 -WS72-1


WCL15 -WS72-2


WCL16


WCL17

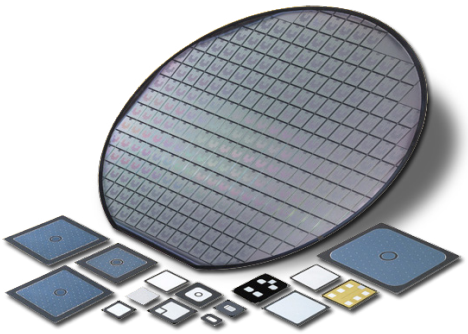

WCL18

Part No.	Cooler Accessories
XSNM12H10S	M12 Cooler Connection, 10mm Hose & Stainless Steel material
XSNM12H12S	M12 Cooler Connection, 12mm Hose & Stainless Steel material

Power Semiconductor Chips

Littelfuse IXYS offers a wide range of power semiconductor dies for a multitude of applications.

Bipolar Chips	V_{RRM} / V_{DRM} V	$I_{F(AV)M}$ / $I_{T(AV)M}$ A	t_{rr} ns
Schottky Diodes	8 - 200	5 - 300	-
HiPerFRED™ (Low Leakage)	200 - 1200	10 - 150	30 - 40
Sonic™ Fast Recovery Diodes	600 - 1800	5 - 150	30 - 60
FRED™ (Low Forward Voltage Drop)	200 - 1200	10 - 150	40 - 60
Semi-Fast Diodes	1200 - 1600	15 - 60	60 - 100
Rectifier Diodes	1200 - 2200	10 - 400	-
Phase Control Thyristors	800 - 2200	5 - 300	-

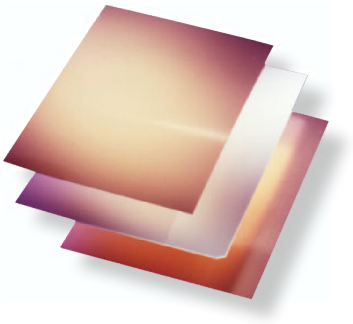


Mode of Shipment:

- in wafer form, unsawn, electrically tested, rejects are inked
- sawn wafer on foil, electrically tested, rejects are inked
- known good die in tray (Waffle Pack)
- customized die sizes / geometry on request

For chip sales please see:
https://www.littelfuse.com/products/power-semiconductors

Direct Copper Bonded Ceramic Substrates



DCB Ceramic Substrates (Al_2O_3)

Littelfuse IXYS manufactures Direct Copper Bonded substrates on aluminum oxide (Al_2O_3) base. DCB ceramic substrates form the basis for new product ideas and electronic developments with a high degree of integration.

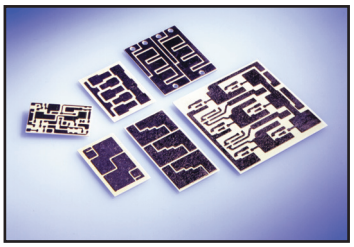
- carriers for semiconductor chips and connection clips
- circuits similar to that on a PC board
- electrical isolator for separating „current paths“ from „heat paths“
- transfer medium for heat dissipation from active parts into heat sink

Standard bonded DCB panel dimensions are:

Unclad aluminum oxide ceramic			
Al_2O_3 content		> 96	%
dimensions		138x210, 138x190.5, 115x165*	mm
usable area	max.	130x200, 130x180, 107x156*	mm
thickness		0.63, 0.38, 0.25	mm
arc through voltage		10	kV
thermal conductivity		> 24	W/m · K
Conduction layers - both sides			
copper thickness		0.5, 0.3 (< 0.3 on request)	mm
conductor width	min.	0.5, 0.3 + / - 0.2	mm
conductor spacing	min.	0.4 + / - 0.2	mm
spacing conductor/edge of ceramic	min.	0.35 + / - 0.2	mm
surface finishes available		bare copper; nickel plated; nickel + gold plated	
peel-off resistance (90° peel test)		>6	N/mm
DCB ceramic substrate			
application temperature range		-55...+850	°C
resistant to hydrogen	max.	400	°C
thermal expansion coefficient	to typ.	7.4 x 10-6	K^{-1}

DCB parts are available as:

- bonded plate
- bonded and patterned plate
- prelasered, unbroken plate
- individuale substrates
- customer specific substrates on request



* = (for 0.25 mm thk.)

Application Notes Highlights

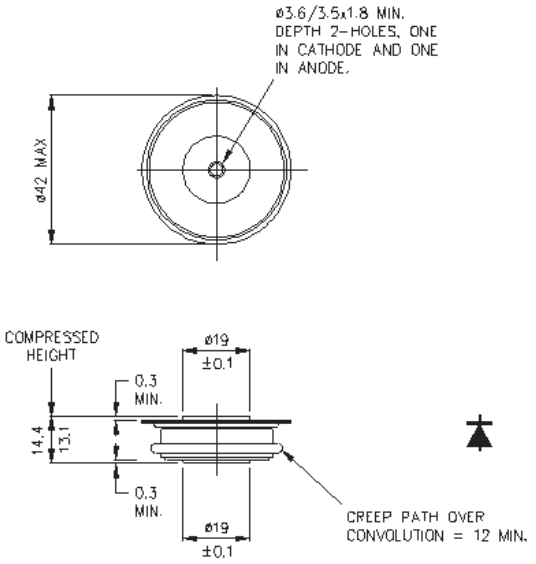
further information and downloads see www.ixys.com

Power Factor Correction	
IXAN0001	3-Phase PFC using Vienna Rectifier Approach and Modular Construction for Improved Overall Performance, Efficiency and Reliability
IXAN0002	Single and Three-Phase Rectifiers with Active Power Factor Correction for Enhanced Mains Power Quality
IXAN0003	Rectifiers with Power Factor Correction
IXAN0004	Design and Experimental Investigation of a Three-Phase, High Power Density, High Efficiency, Unity Power Factor PWM (VIENNA) Rectifier Employing a Novel Integrated Power Semiconductor Module
IXAN0005	Status of the Techniques of Three-Phase Rectifier Systems with Low Effects on the Mains
MOSFETs and IGBTs Drivers	
IXAN0012	MOSFET/IGBT Drivers - Theory and Applications
IXAN0011	Driving Your MOSFETs Wild to Obtain Greater Efficiencies, Power Densities and Lower Overall Cost
BiMOSFETs Applications	
IXAN0013	Capacitor Charge/Discharge Circuits, utilizing High Voltage IGBTs and ZCS Resonant Mode Techniques
IXAN0014	Comparative Performance of BiMOSFETs in Fly-back Converter Circuits
IXAN0015	Use of BiMOSFETs in Modern Radar Transmitters
IXAN0016	IXBH40N160 BiMOSFET Developed for High Voltage and High Frequency Applications
IXAN0017	New 1600V BiMOSFET Transistors Open Up New Applications
Automotive Applications	
IXAN0018	A High Current Dual Inline Packaged Trench MOSFET Three Phase Full Bridge as Contribution to Automotive System Integration
IXAN0019	High Power TrenchMOSFETs Solutions in Automotive Designs
IXAN0020	Power Electronic Supply for Automotive Starter Generator
IXAN0021	New Trench Power MOSFETs in Isolated Packages
Isolation Techniques, Mounting, Soldering and Cooling	
IXAN0022	Capitalizing on the Advantages of ISOPLUS Products
IXAN0023	General Mounting Instructions
IXAN0025	ISOPLUS-The Revolution in Discrete Isolation Technique
IXAN0026	Combining the Features of Modules and Discretes in a New Power Semiconductor Packages
IXAN0028	The Revolution in Discrete Isolation Technique
IXAN0030	Surface Mount Soldering Recommendations for TO-263 and TO-268 case styles
IXAN0031	New ISOPLU247 Power Package Features 2500V Internal Isolation Revolutionary Approach Improves Thermal Conductance and Reliability
IXAN0071	The SMPD Package and its Mounting Instructions
Power Modules	
IXAN0034	Recommended Use of the Integrated NTC Thermistor Temperature Sensor in IXYS Power Modules
IXAN0035	Mounting Instructions for _A7, _E7, _A8 and _E8 Module Series
IXAN0036	Investigations on Electromagnetic Compatibility of Power Semiconductor Modules Integrated in a Module
IXAN0037	Power Cycle Capability of solder contact DCB-Modules
FREDs and Schottky Diodes	
IXAN0042	Is the Lowest Forward Voltage Drop Schottky Diode Always the Best Choice?
IXAN0043	Input Rectifiers with Semifast Diodes for DC link.
IXAN0044	Characteristics and Applications of Fast Recovery Epitaxial Diodes.
IXAN0060	Optimized Ultra Fast Diodes for Switching Applications
Power MOSFETs	
IXAN0057	Series Operation of MOSFET and IGBT Switches
IXAN0061	Power MOSFET Basics
IXAN0062	IXYS Power MOSFET Products
IXAN0063	Application note on Depletion-mode
IXAN0064	IXYS P-Channel MOSFET
IXAN0065	IXYS Power MOSFET Datasheet Parameters Definition
IXAN0068	Linear Power MOSFETS Basic and Application
IXAN0069	Synchronous DC to DC Converter Design
IGBTs	
IXAN0063	IGBTs
IXAN0070	Drive with the IXYS XPT IGBT
IXAN0072	Discrete 600V GenX3 XPT IGBTs

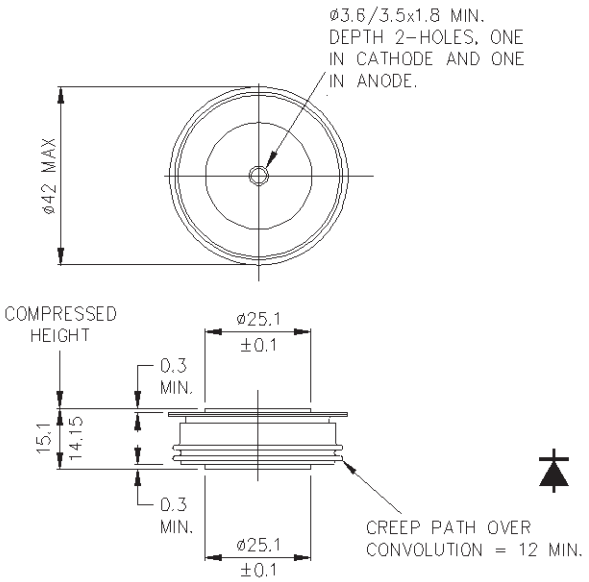
Outline drawings

Dimensions in mm and inches (1 mm = 0.0394“)

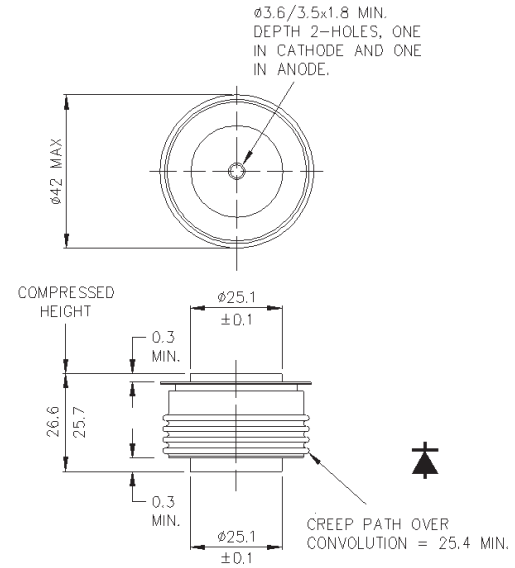
W1 - 100A241



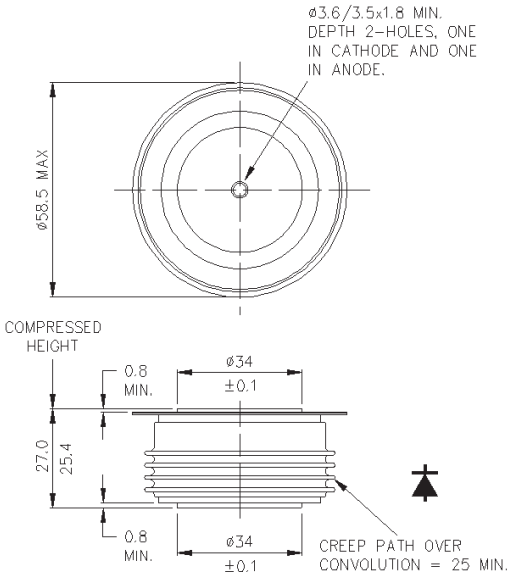
W2 - 100A291



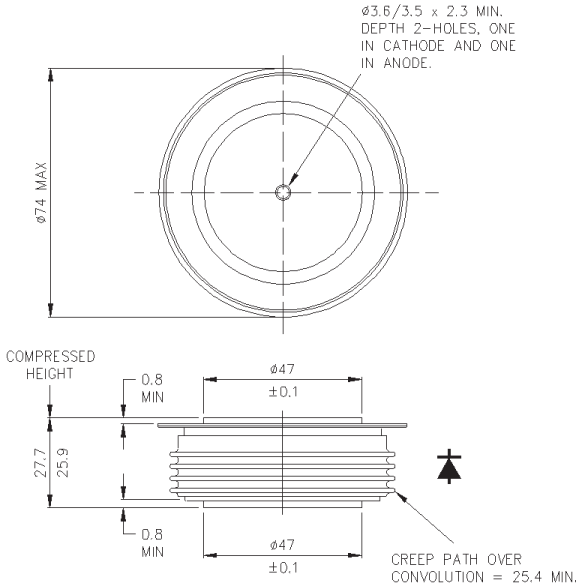
W3 - 100A317



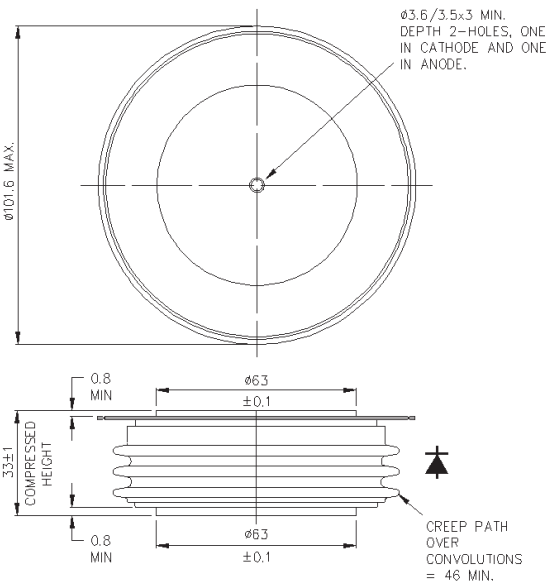
W4 - 100A243



W5 - 100A249



W6 - 100A270

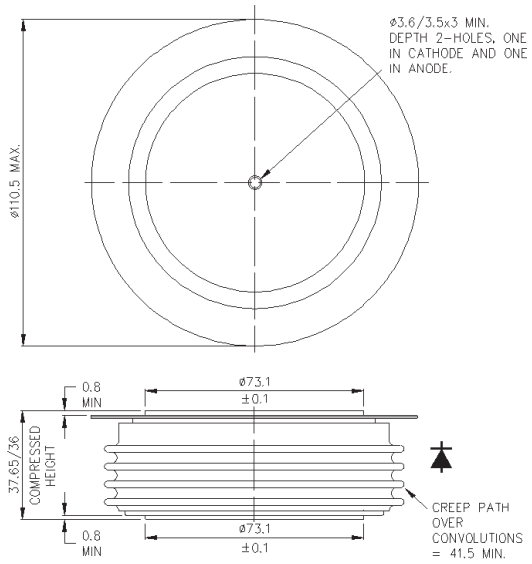


Outline drawings

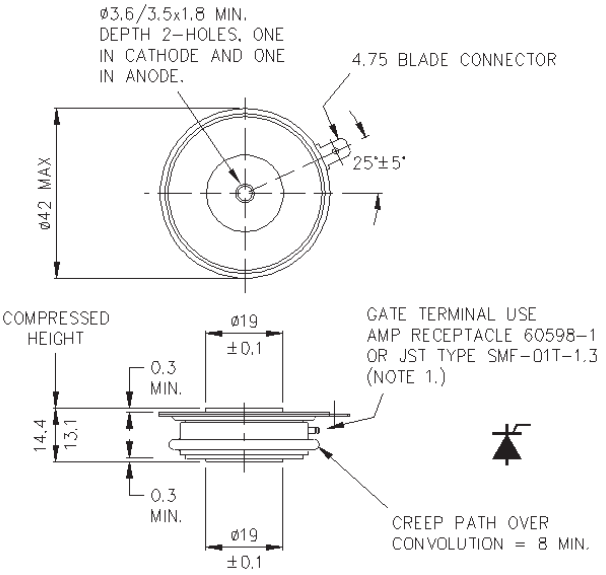
IXYS
A Littelfuse Technology
UK Chippenham

Dimensions in mm and inches (1 mm = 0.0394“)

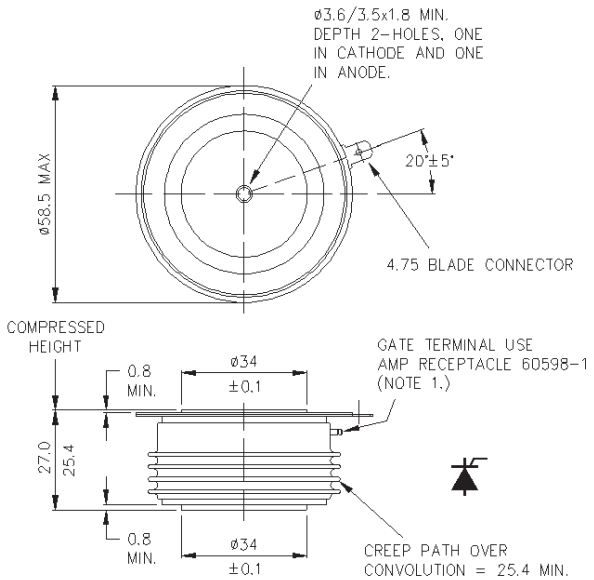
W7 - 100A293



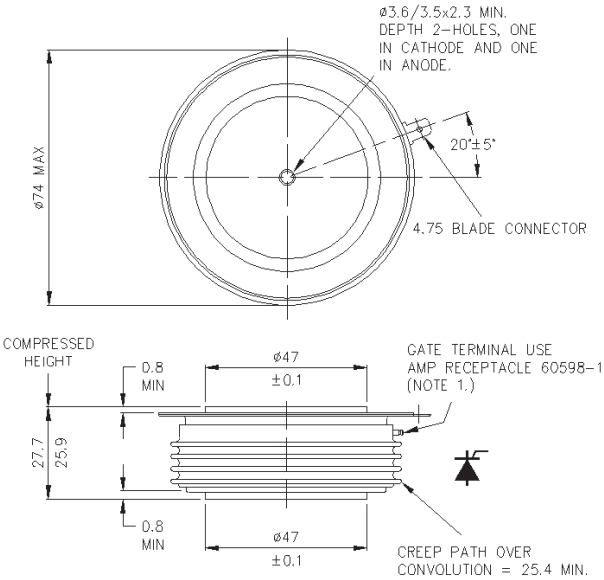
W8 - 101A212



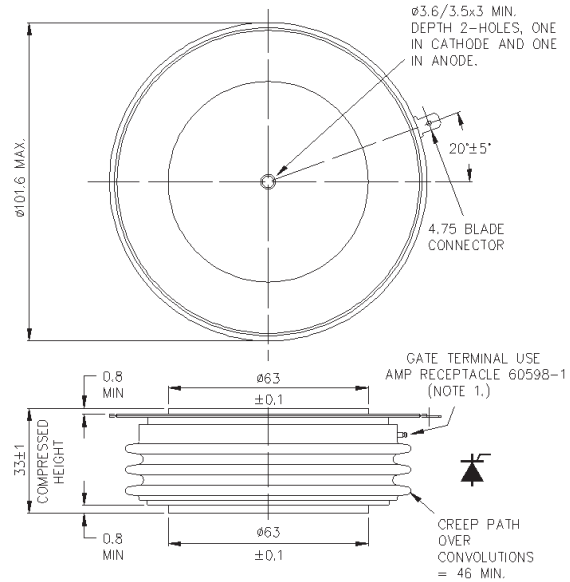
W10 - 101A216



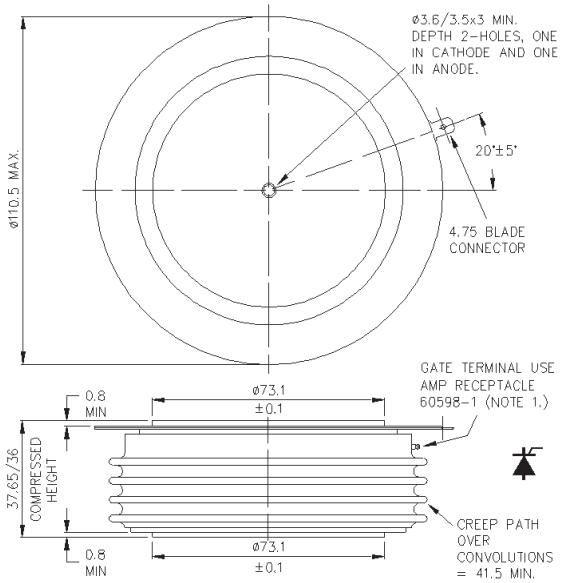
W11 - 101A223



W12 - 101A232



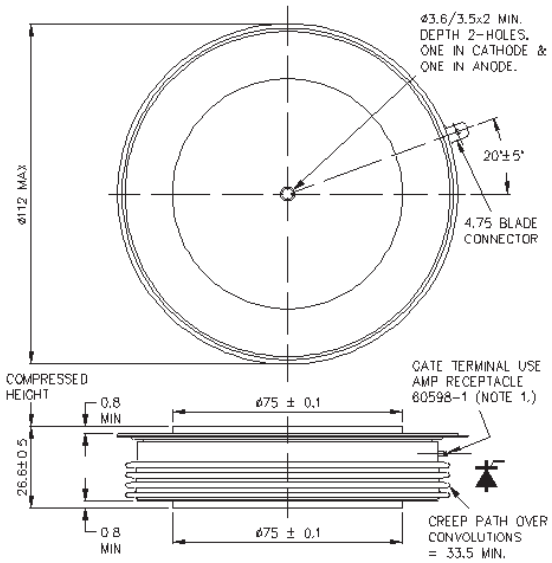
W13 - 101A281



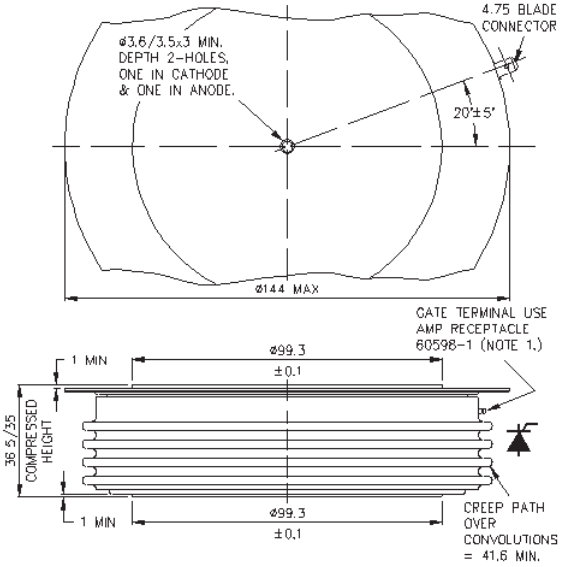
Outline drawings

Dimensions in mm and inches (1 mm = 0.0394“)

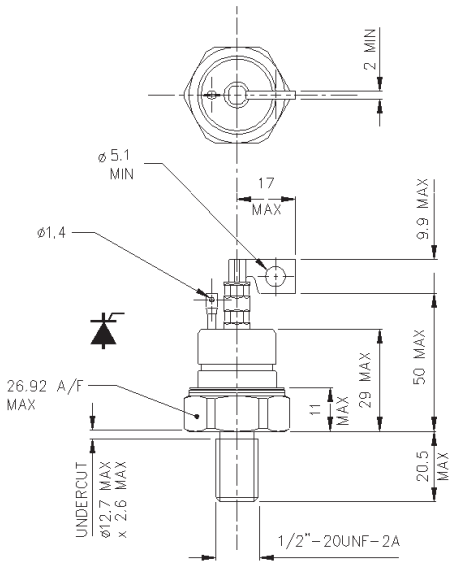
W14 - 101A325



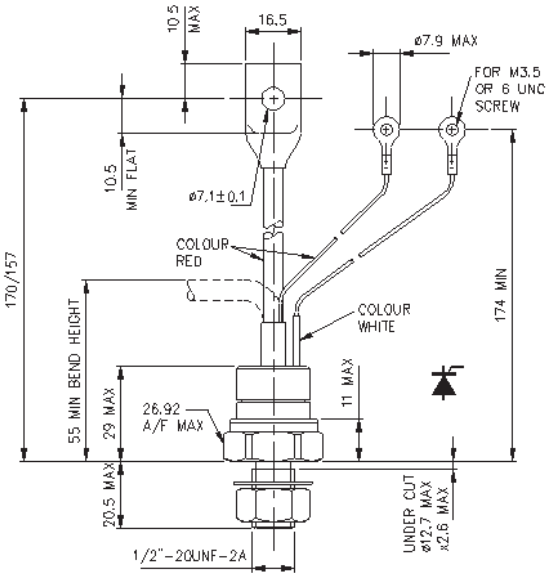
W15 - 101A322



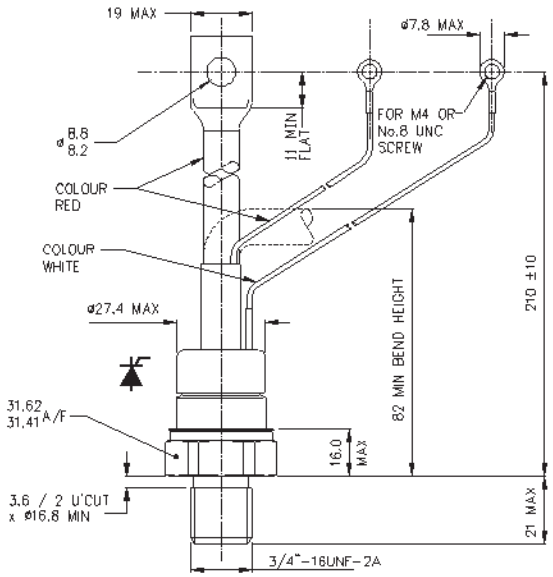
W16 - 101A235



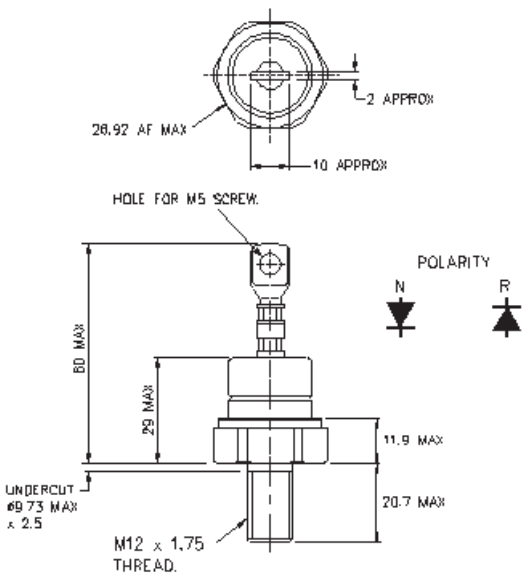
W17 - 101A231



W18 - 101A225



W20 - 100A303

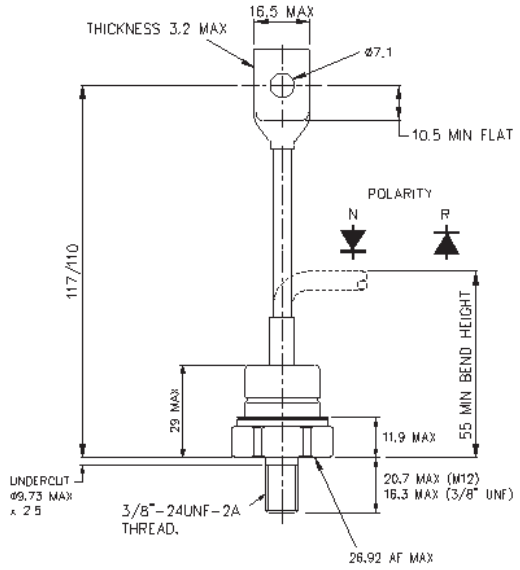


Outline drawings

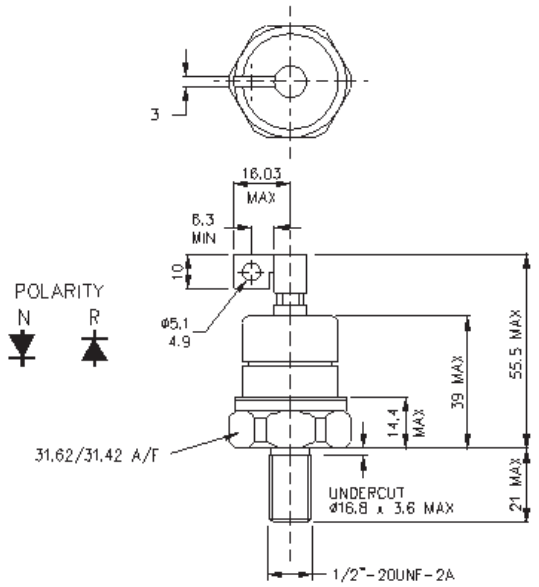
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Dimensions in mm and inches (1 mm = 0.0394“)

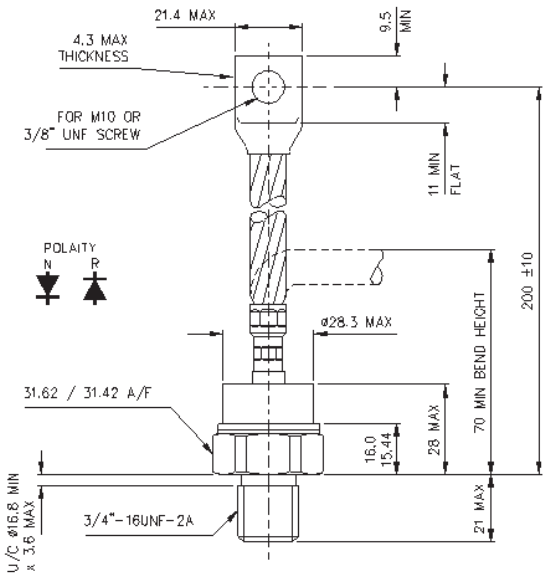
W21 - 100A294



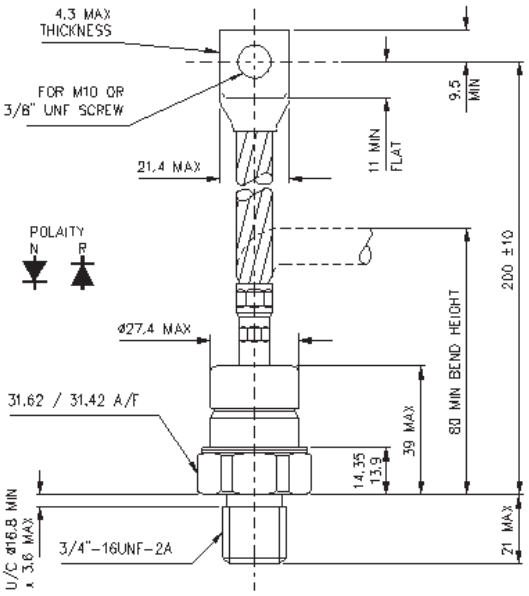
W22 - 100A297



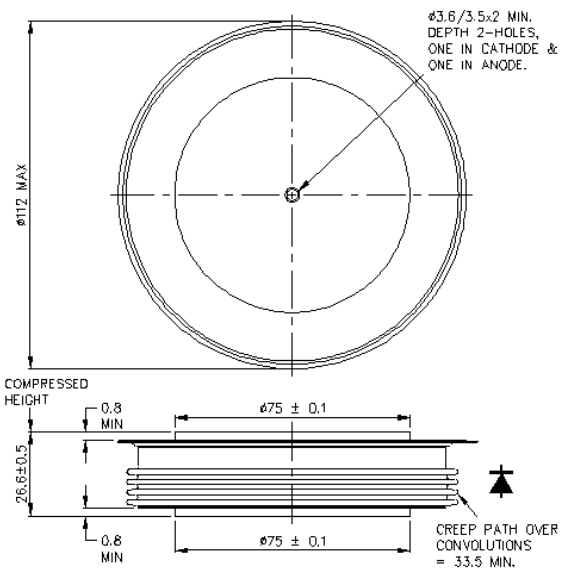
W23 - 100A281



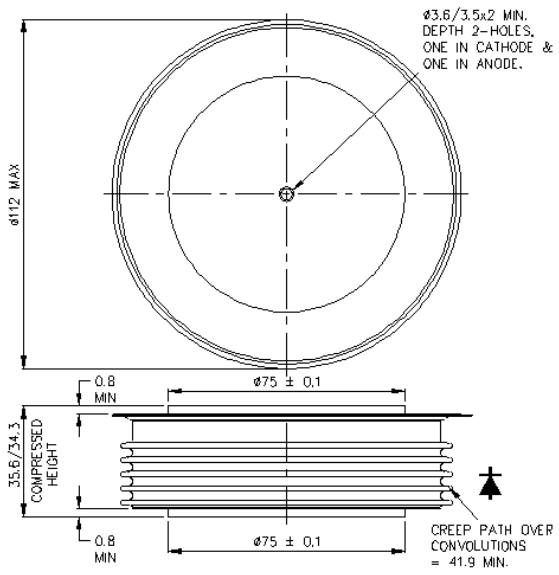
W24 - 100A280



W28 - 100A330



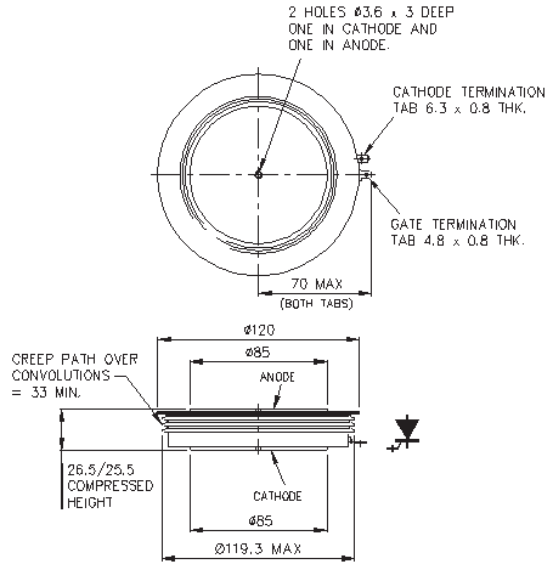
W29 - 100A342



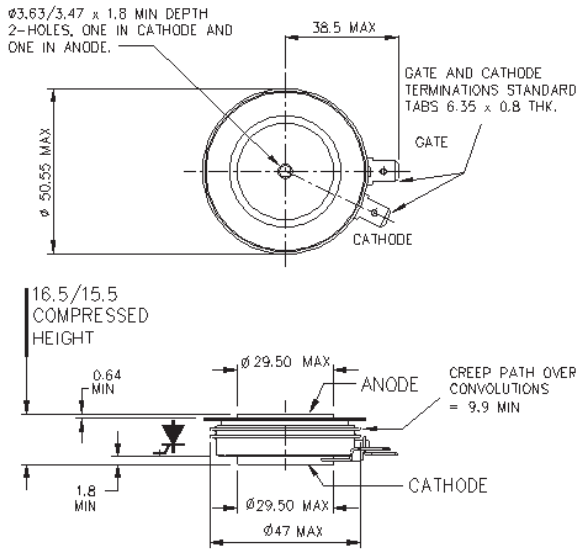
Outline drawings

Dimensions in mm and inches (1 mm = 0.0394“)

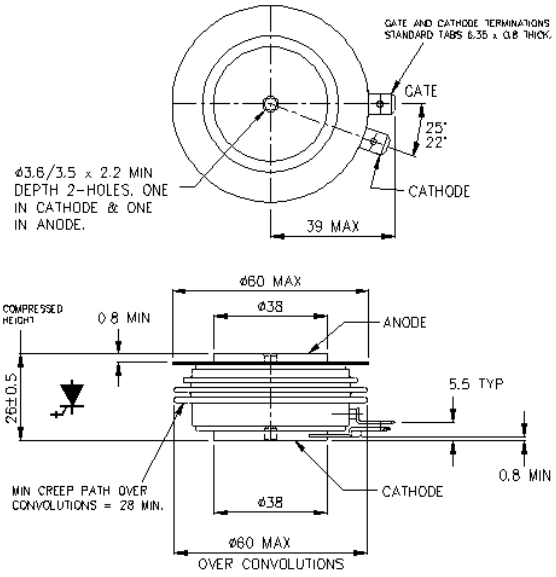
W33 - 101A346



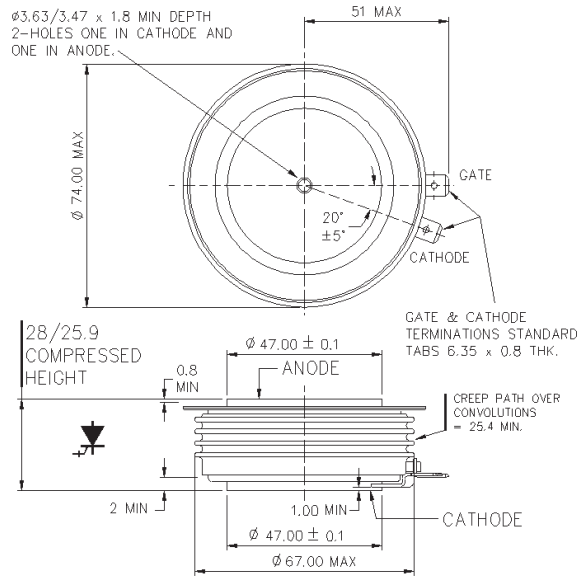
W34 - 101A287



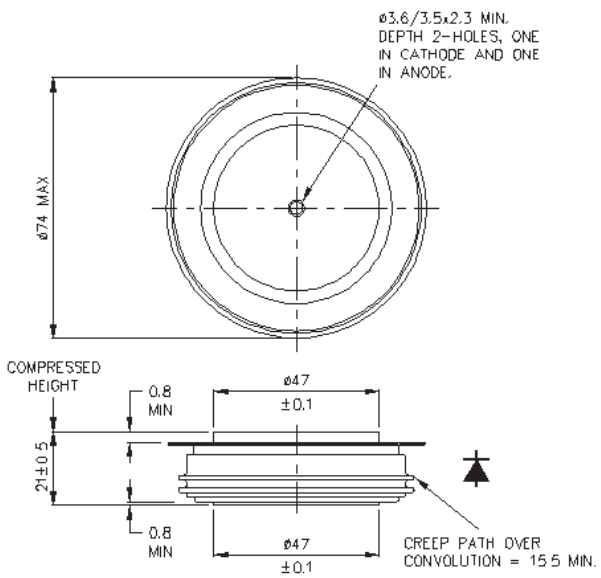
W35 - 101A358



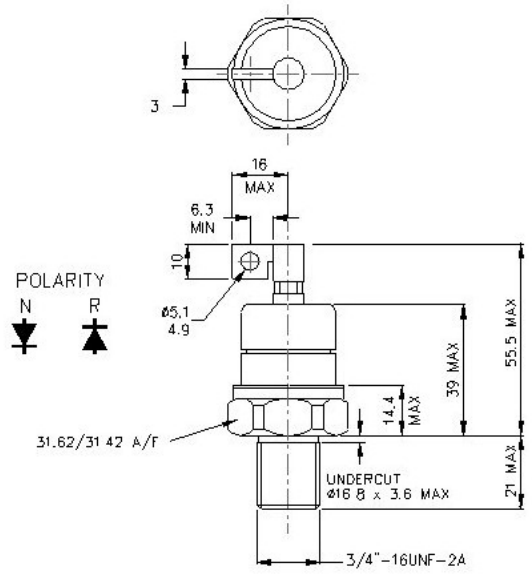
W36 - 101A288



W37 - 100A325



W39 - 100A338

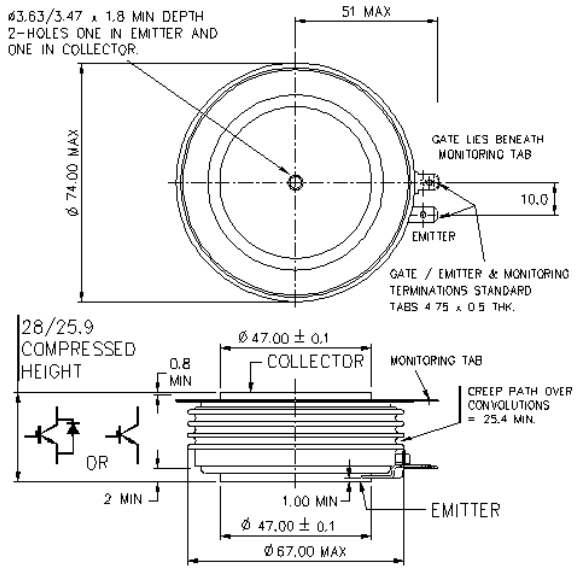


Outline drawings

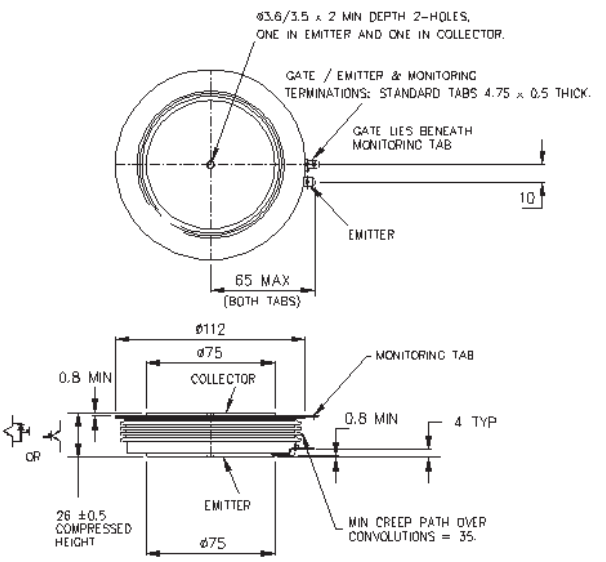
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Dimensions in mm and inches (1 mm = 0.0394“)

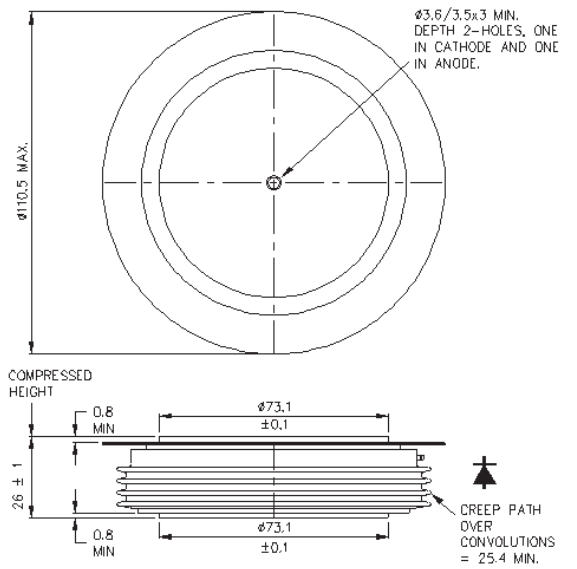
W40 - 171A107



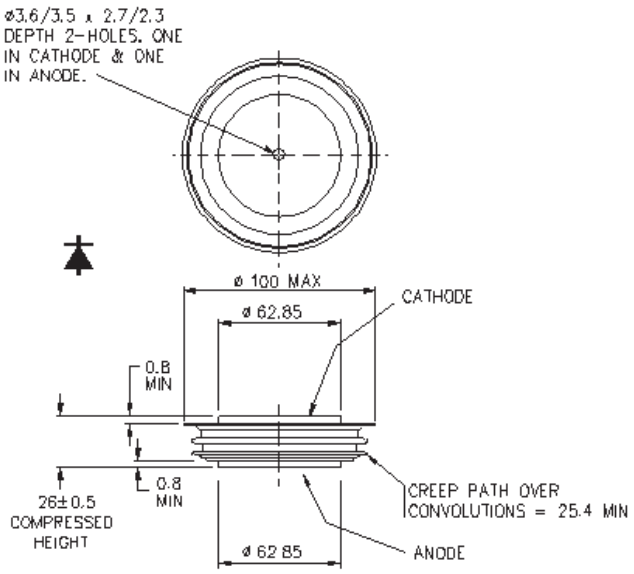
W41 - 171A108



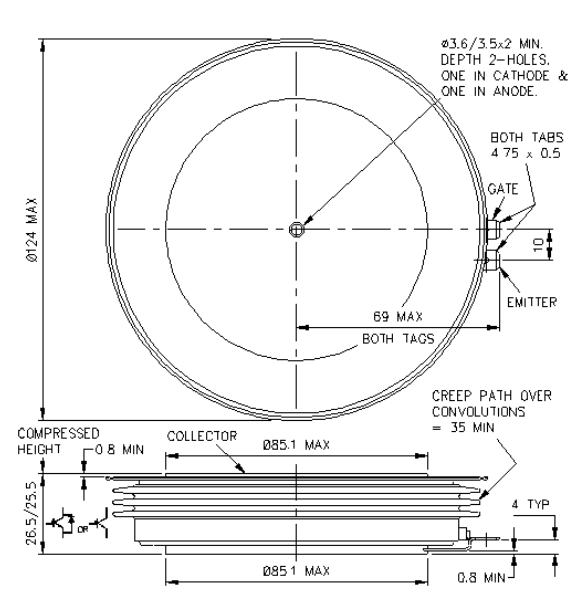
W42- 100A310



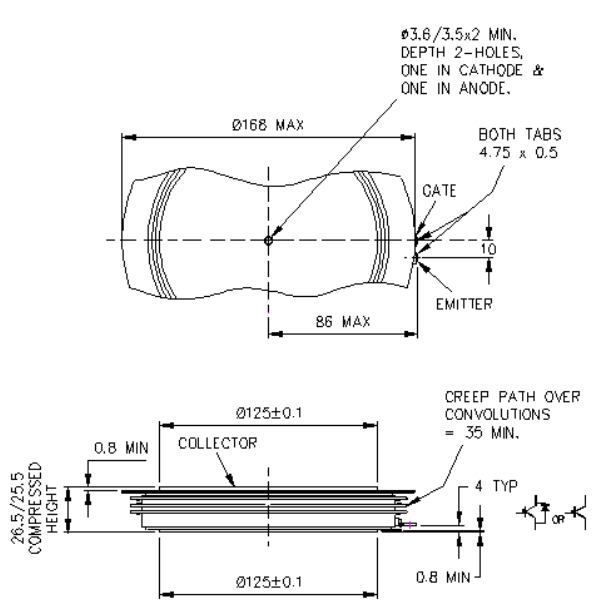
W43 - 100A320



W44 - 101A340



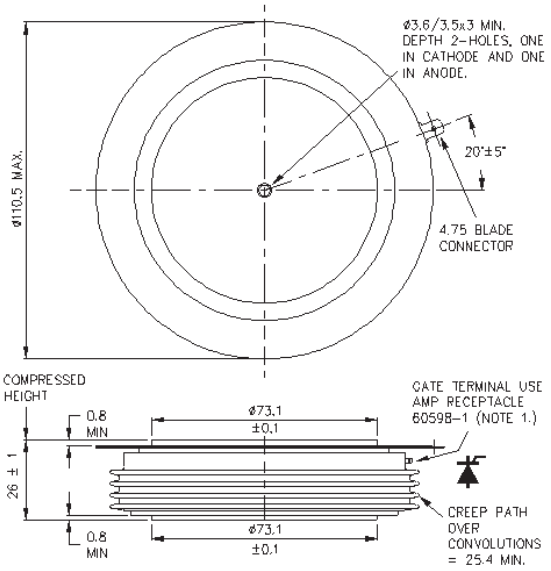
W45 - 101A359



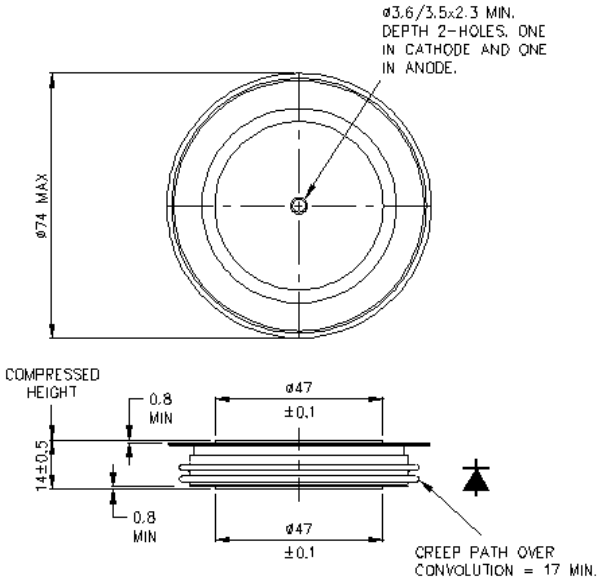
Outline drawings

Dimensions in mm and inches (1 mm = 0.0394“)

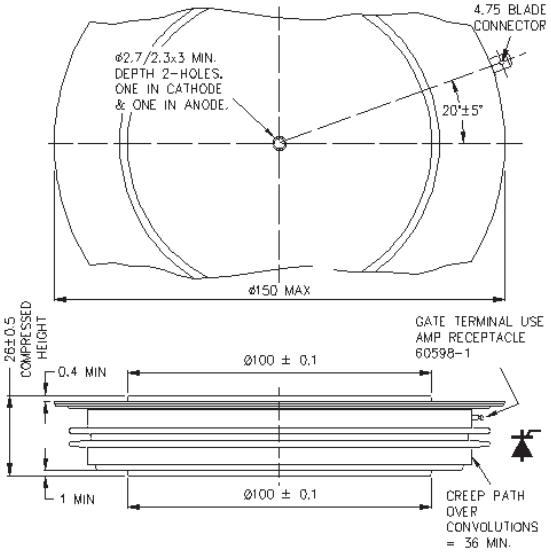
W46 - 101A305



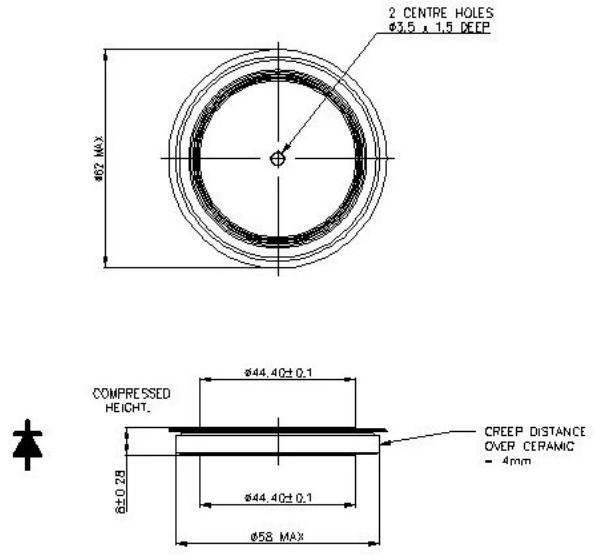
W47 - 100A322



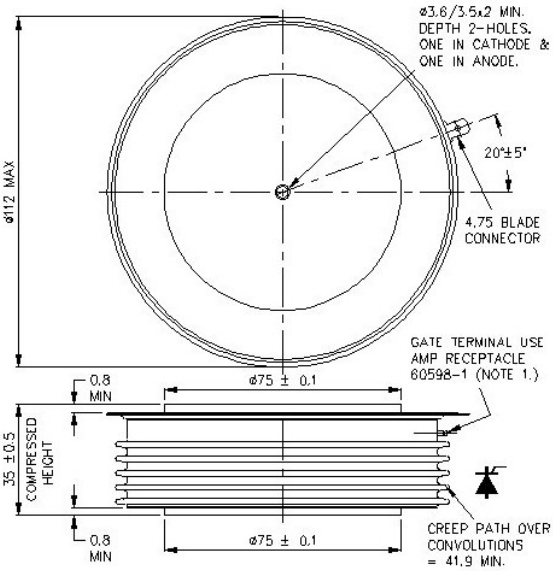
W48 - 101A347



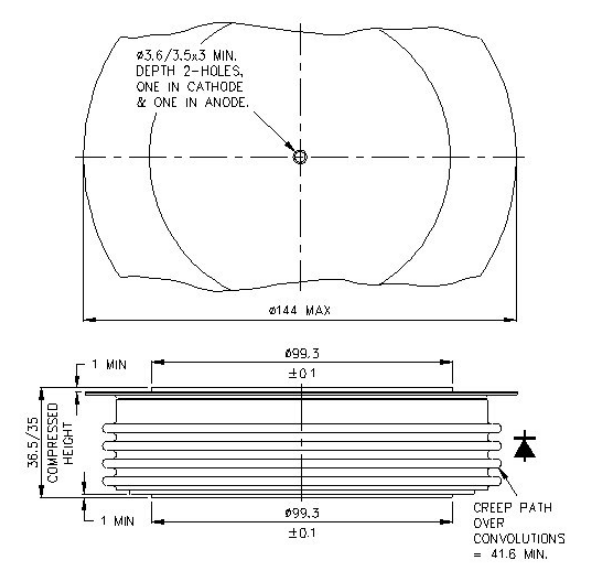
W49 100A354



W51 - 101A334



W52 - 100A328

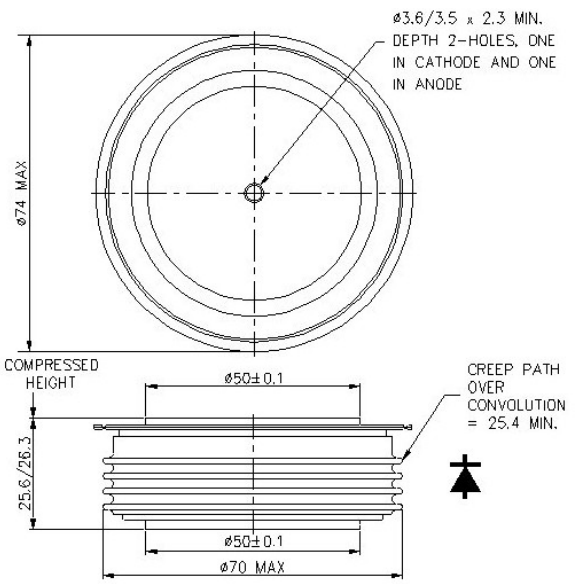


Outline drawings

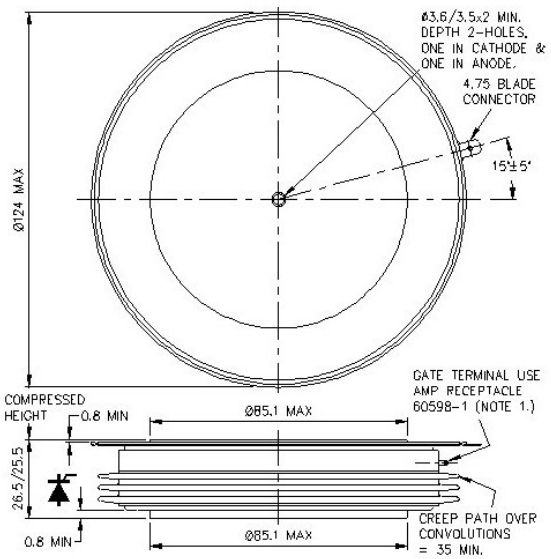
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Dimensions in mm and inches (1 mm = 0.0394“)

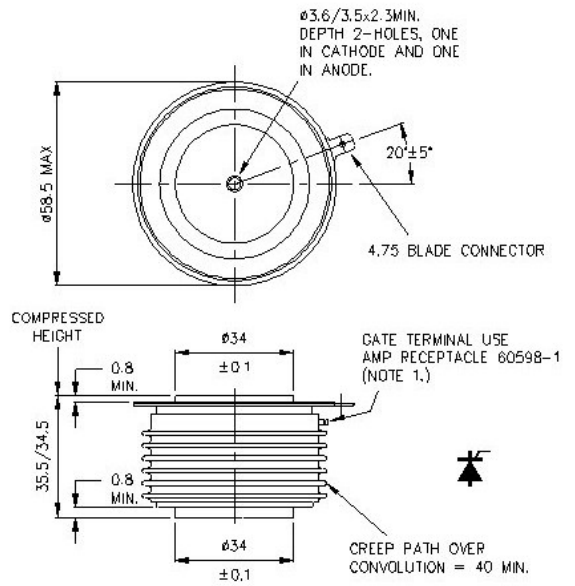
W54 - 100A353



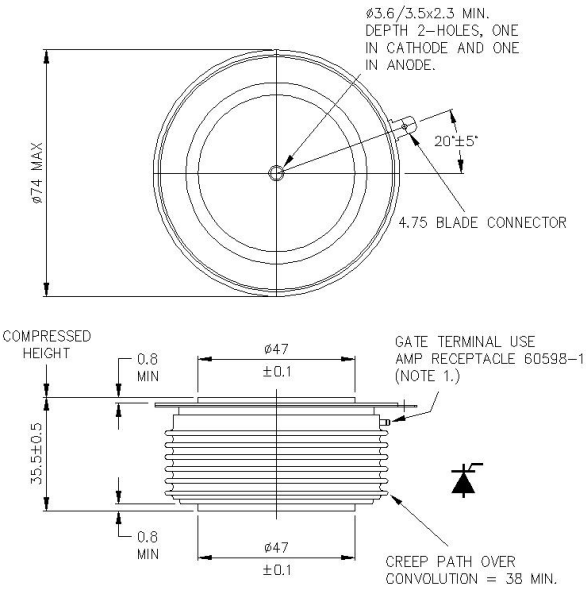
W55 - 101A352



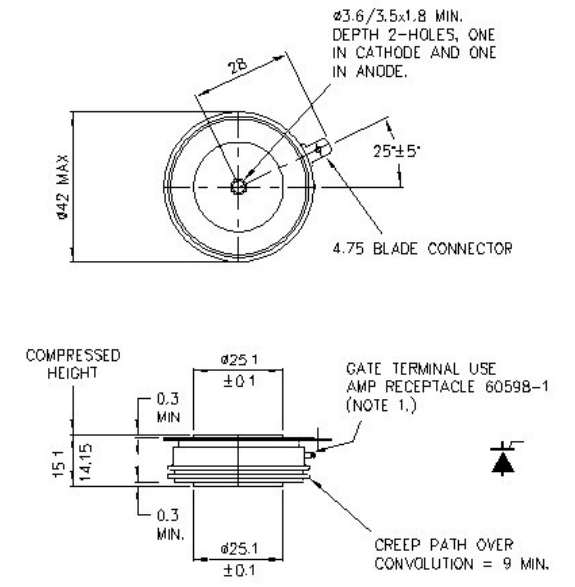
W56 - 101A365



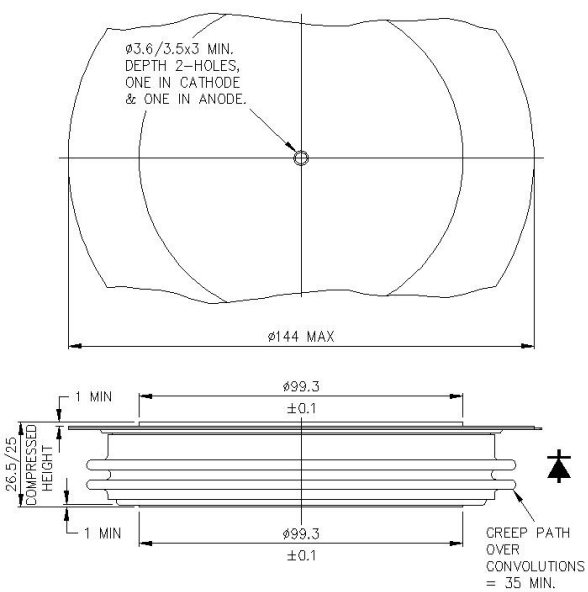
W57 - 101A363



W58 - 101A237



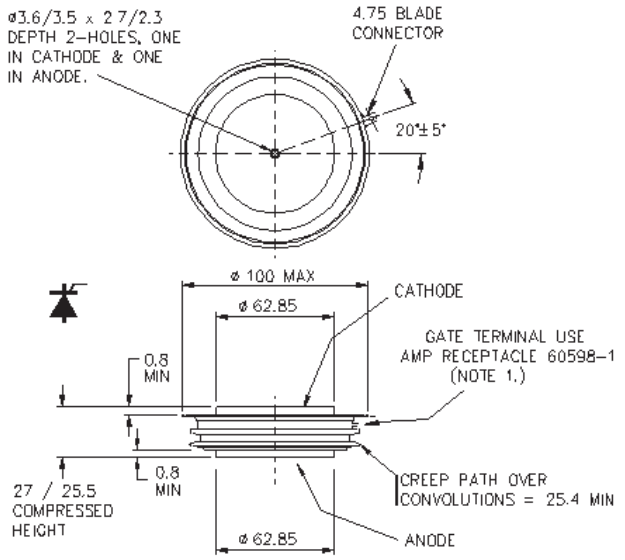
W59 - 100A359



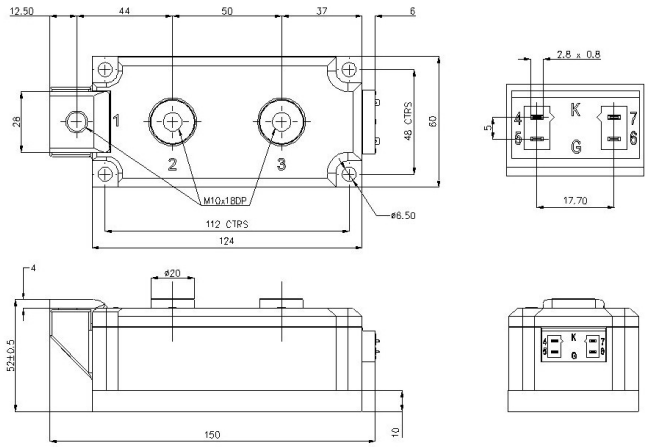
Outline drawings

Dimensions in mm and inches (1 mm = 0.0394“)

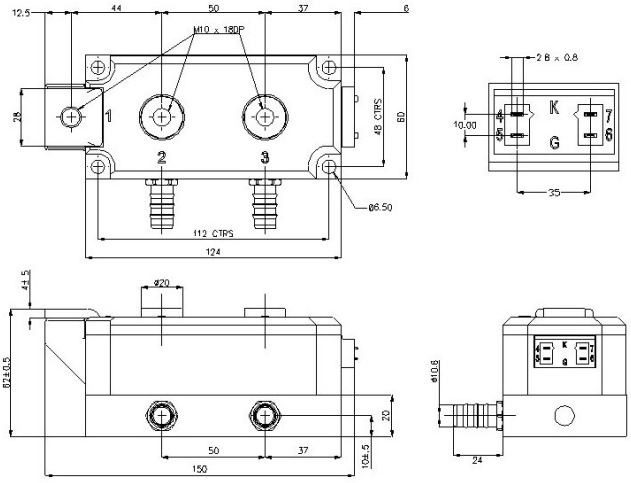
W62 - 101A314



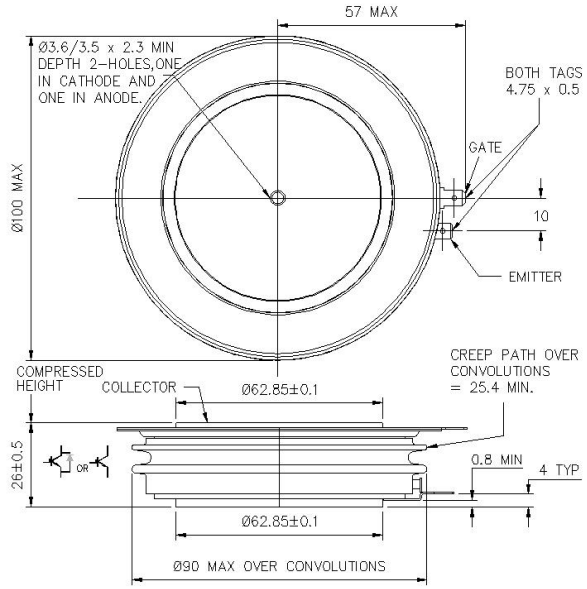
W63 - 150A111



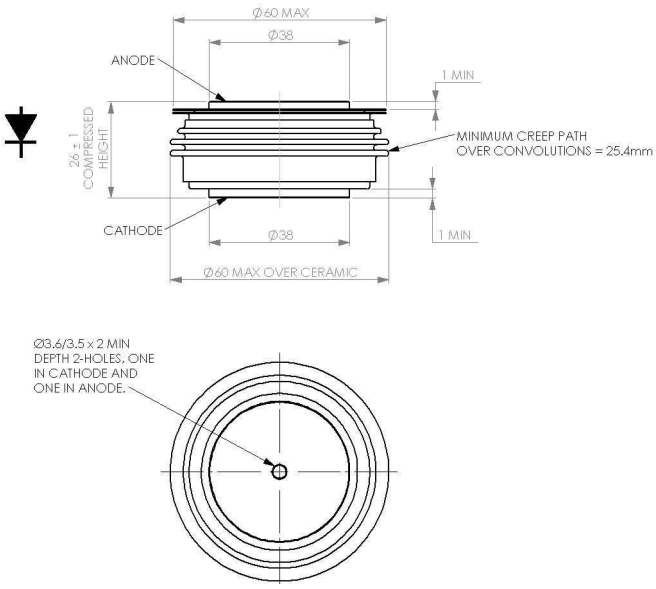
W64 - 150A113



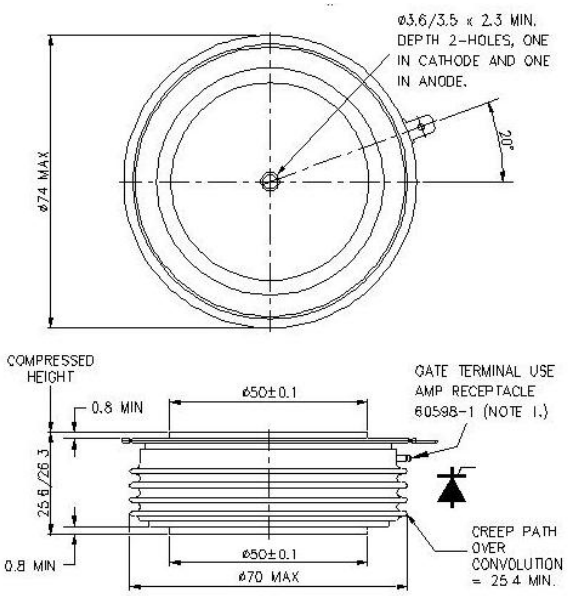
W67 - 101A366



W68 - 100A367



W70 - 101A357

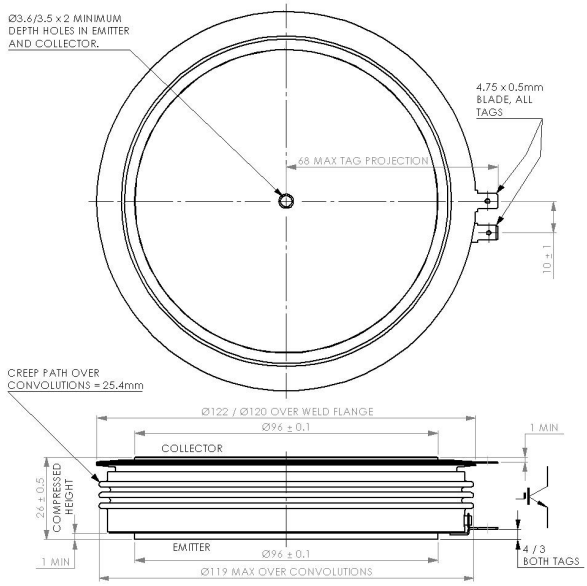


Outline drawings

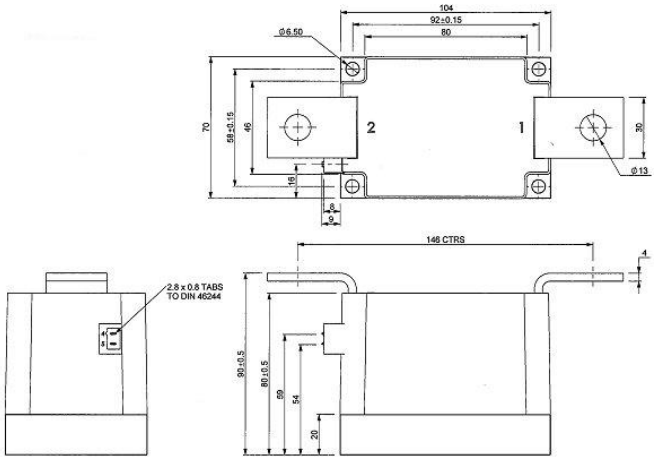
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Dimensions in mm and inches (1 mm = 0.0394“)

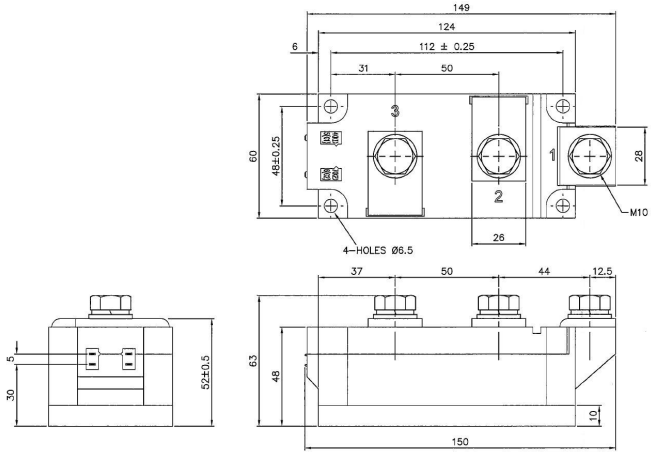
W71 - 101A375



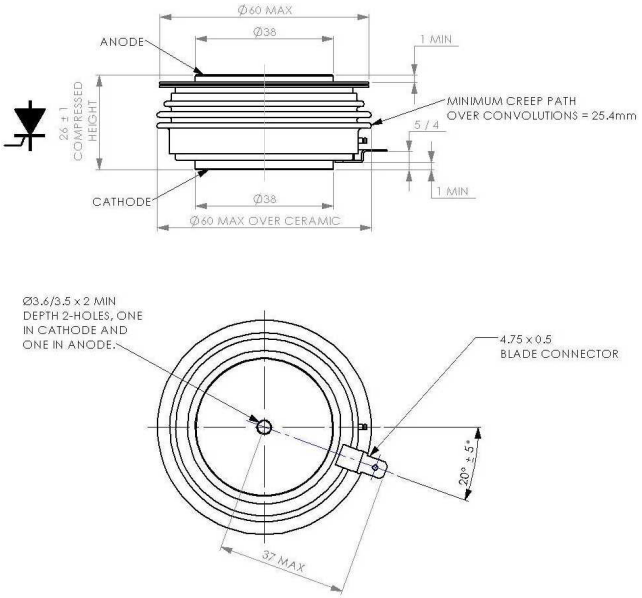
W73 - 150A122



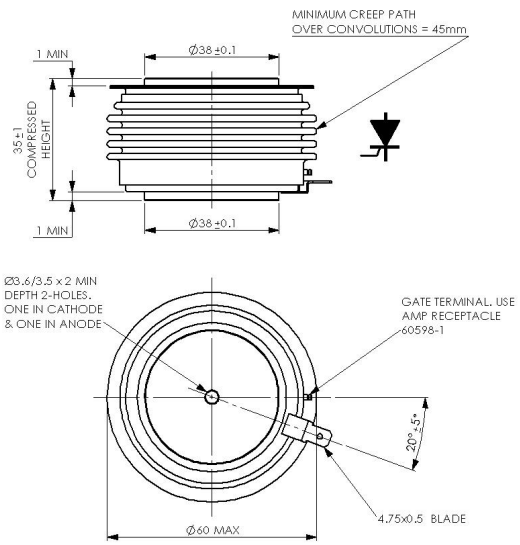
W74 - 150A123



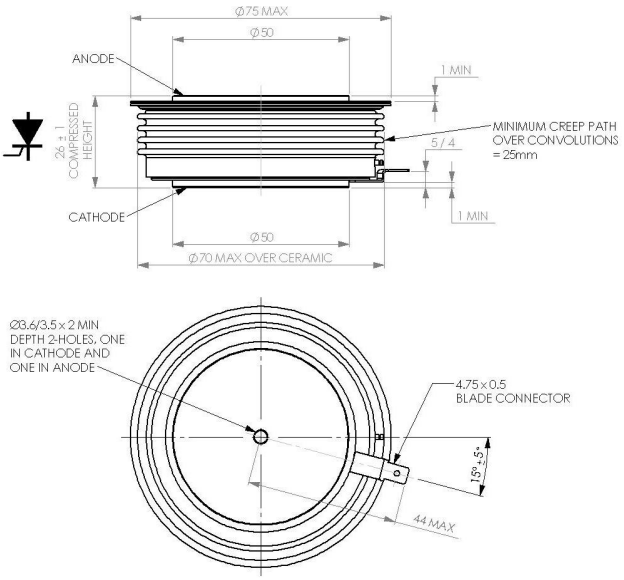
W75 - 101A377



W76 - 101A392



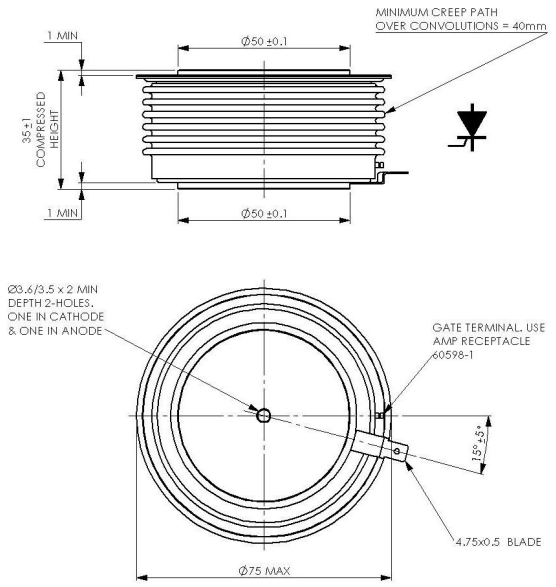
W77 - 101A372



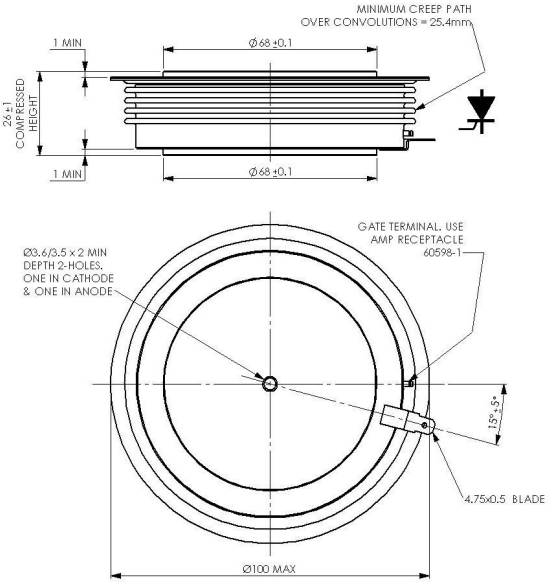
Outline drawings

Dimensions in mm and inches (1 mm = 0.0394“)

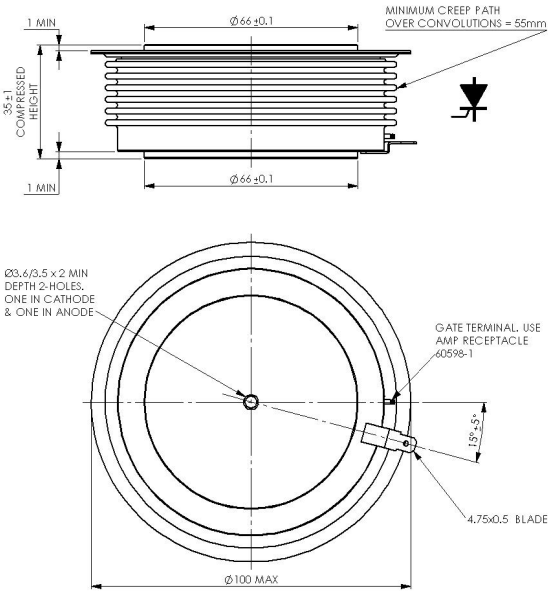
W78 - 101A393



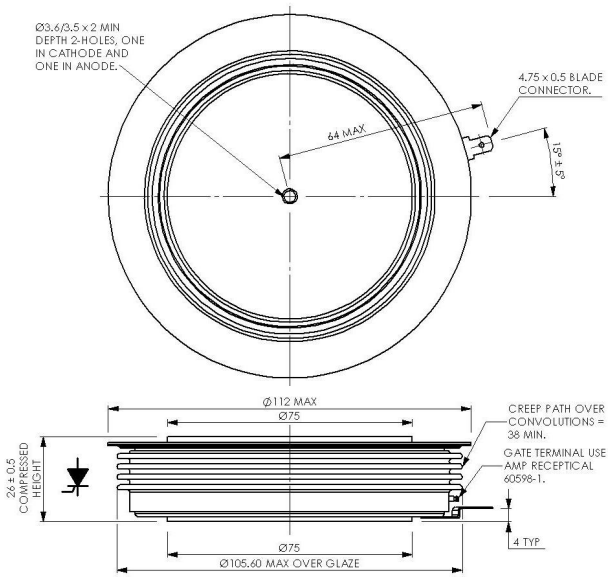
W79 - 101A391



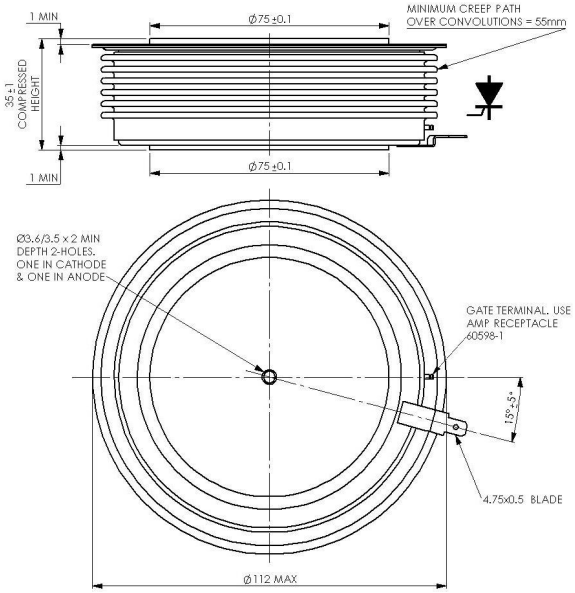
W80 - 101A394



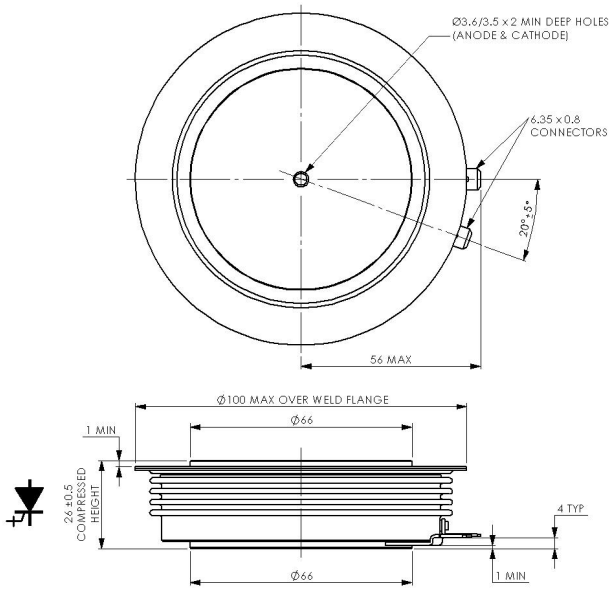
W81 - 101A373



W82 - 101A395



W85 - 101A388

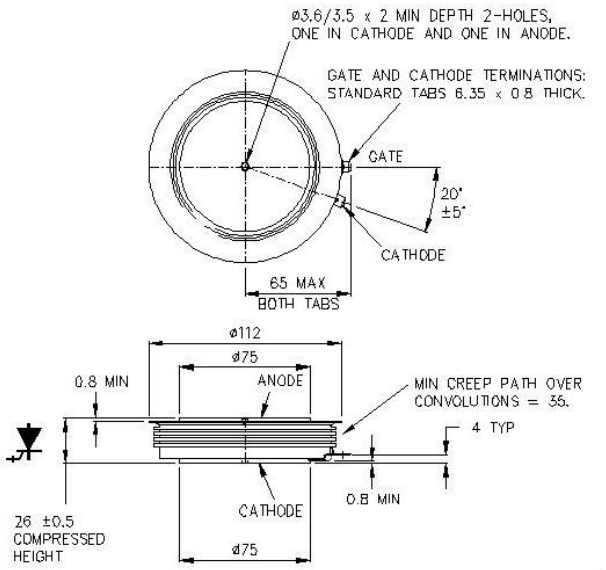


Outline drawings

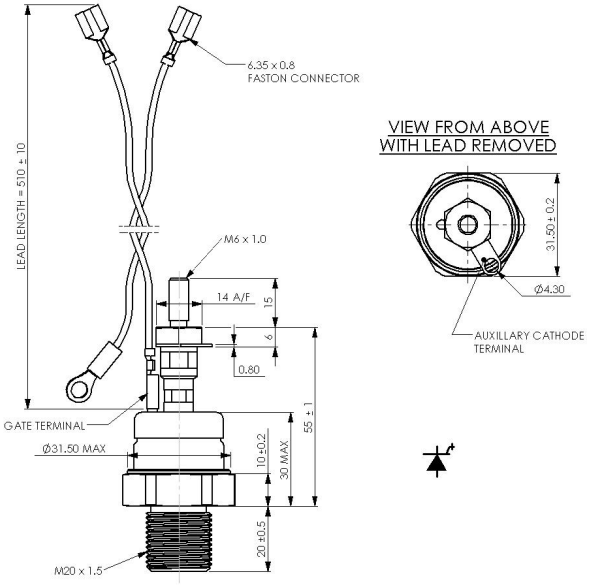
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Dimensions in mm and inches (1 mm = 0.0394“)

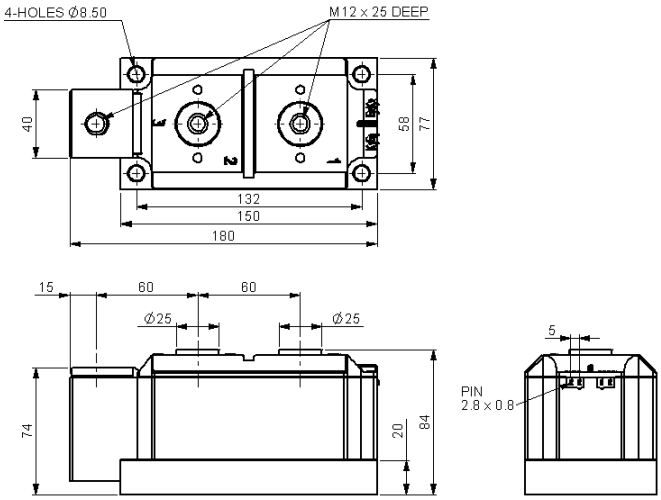
W86 - 101A316



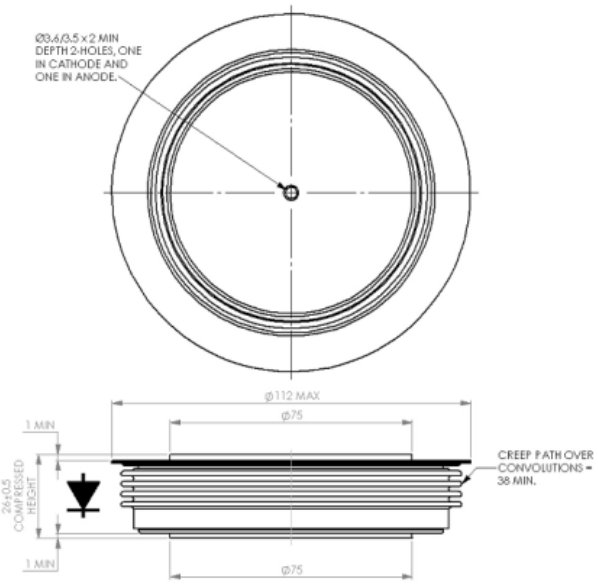
W87 101A376



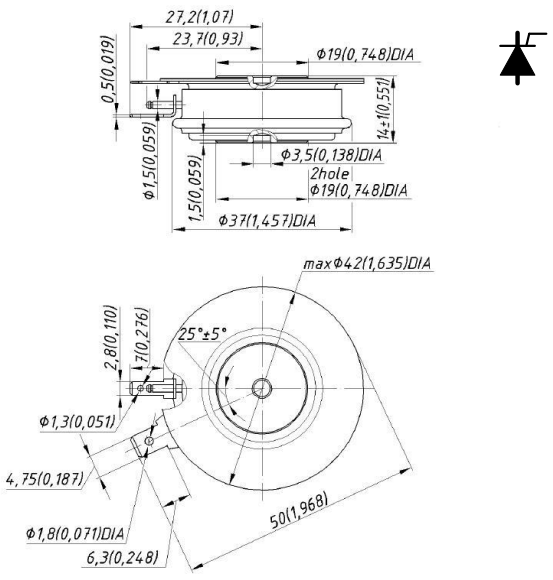
W88 - 150A124



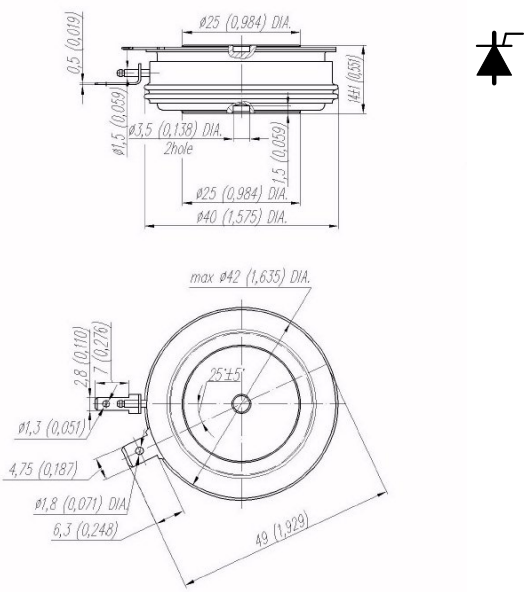
W89 - 100A368



W90 - 101A405



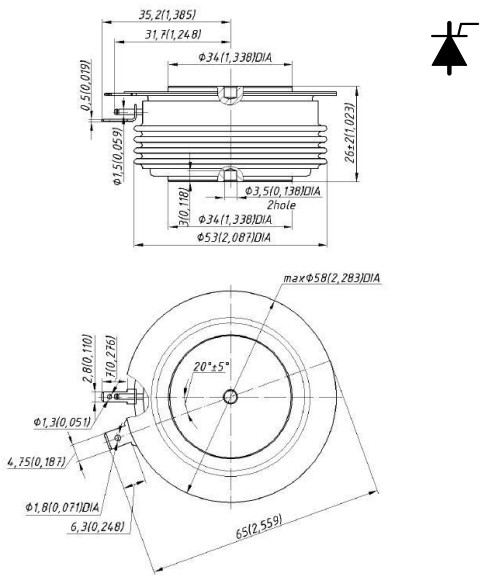
W91 - 101A406



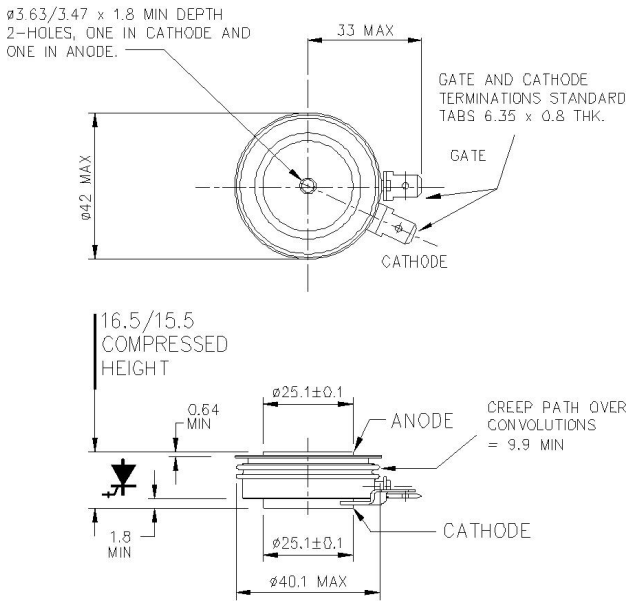
Outline drawings

Dimensions in mm and inches (1 mm = 0.0394“)

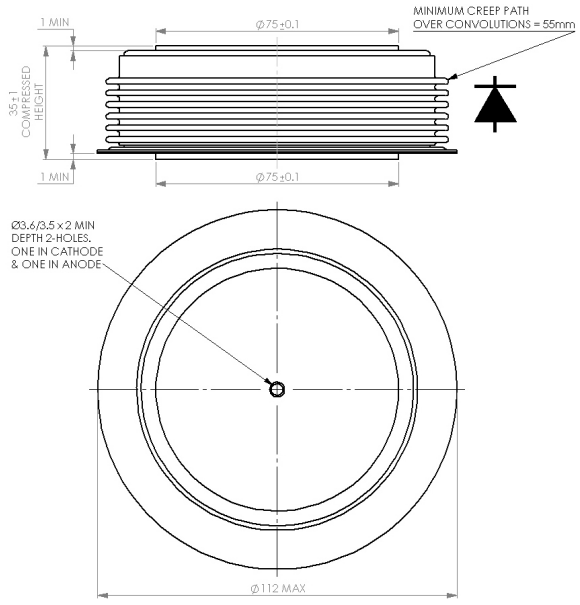
W92 - 101A407



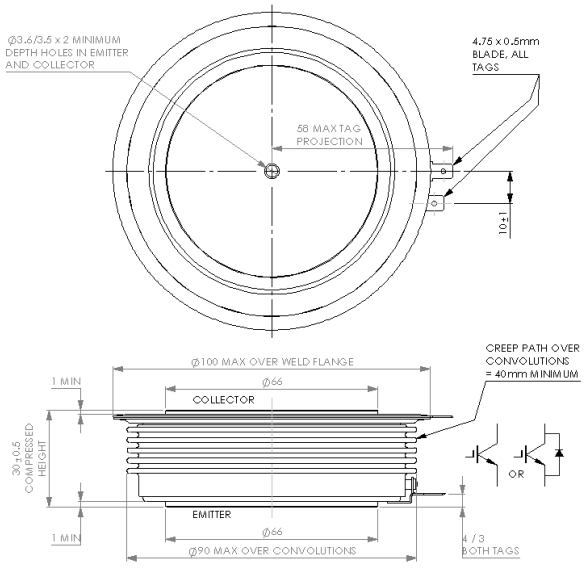
W93 - 101A404



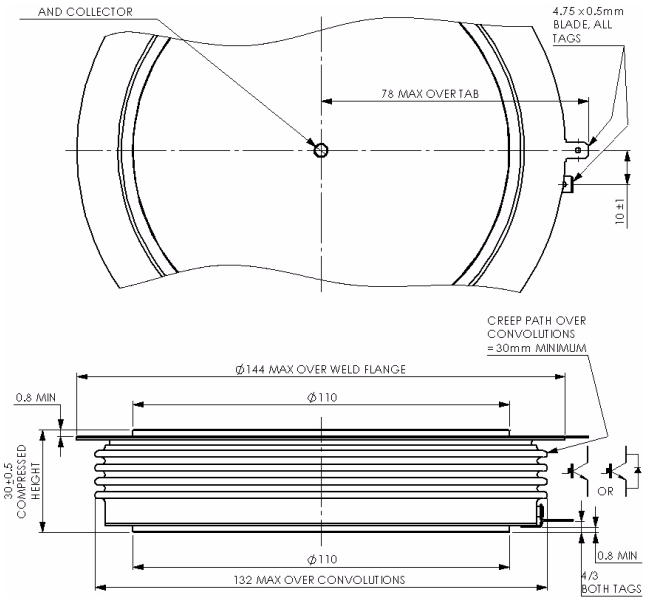
W94 - 100A372



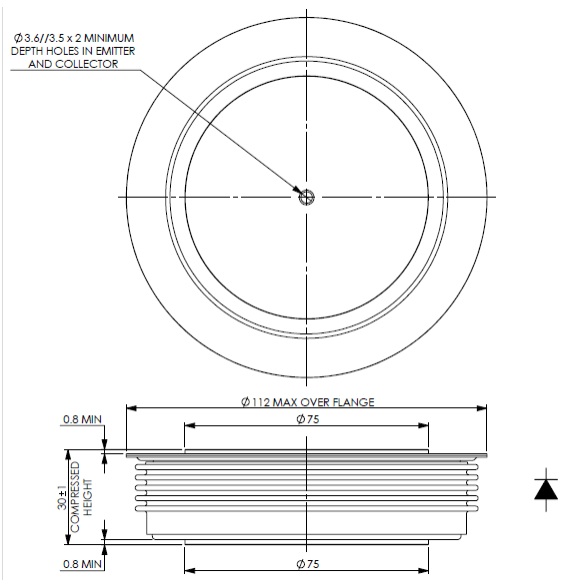
W95 - 101A403



W96 - 101A409



W97 - 100A379

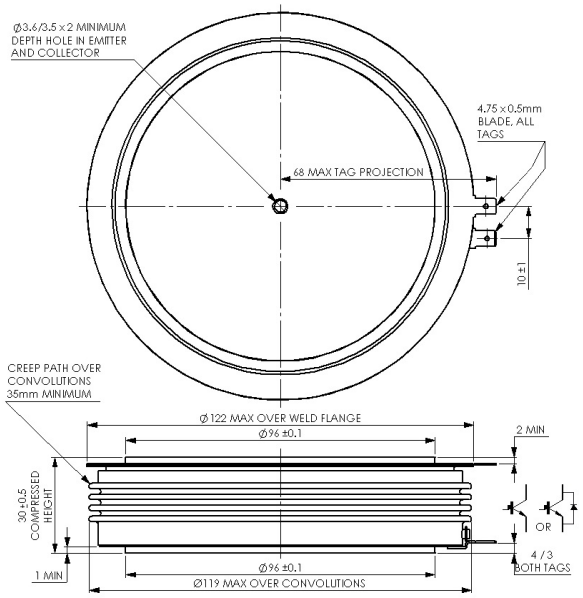


Outline drawings

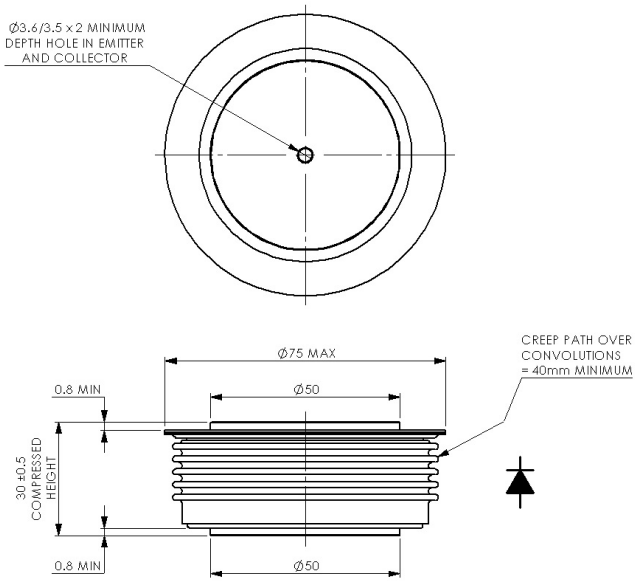
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Dimensions in mm and inches (1 mm = 0.0394“)

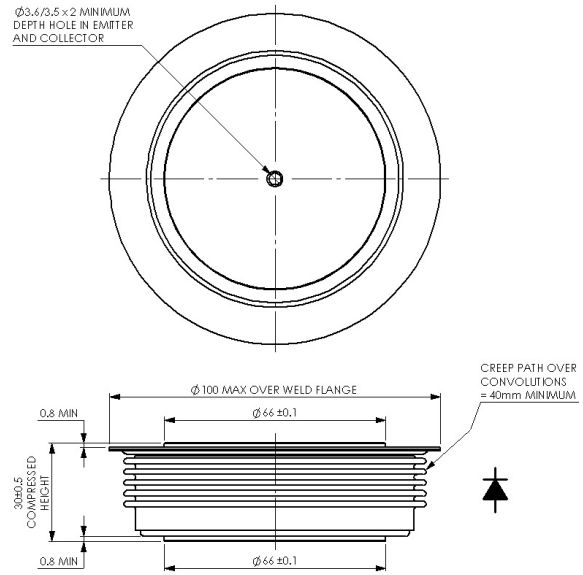
W98 - 101A413



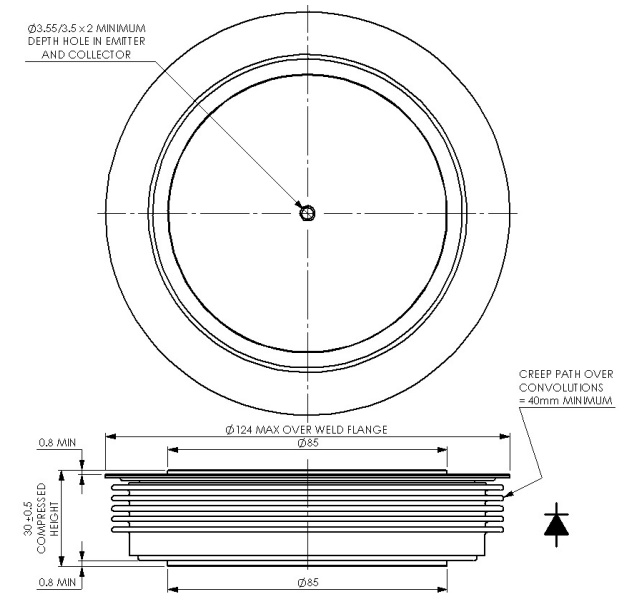
W99 - 100A383



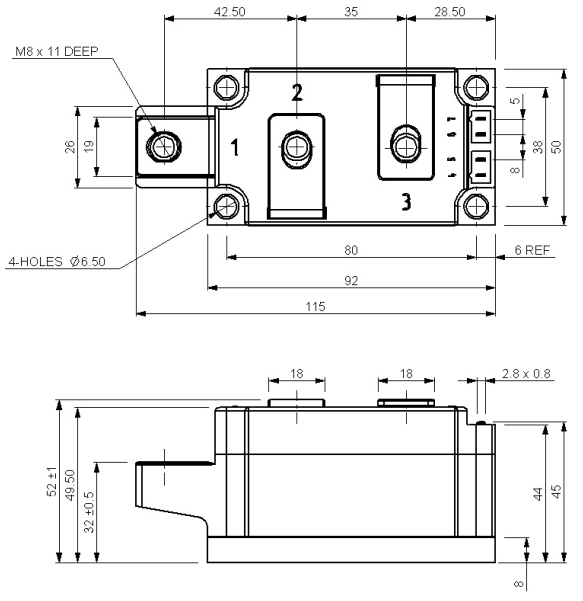
W100 - 100A384



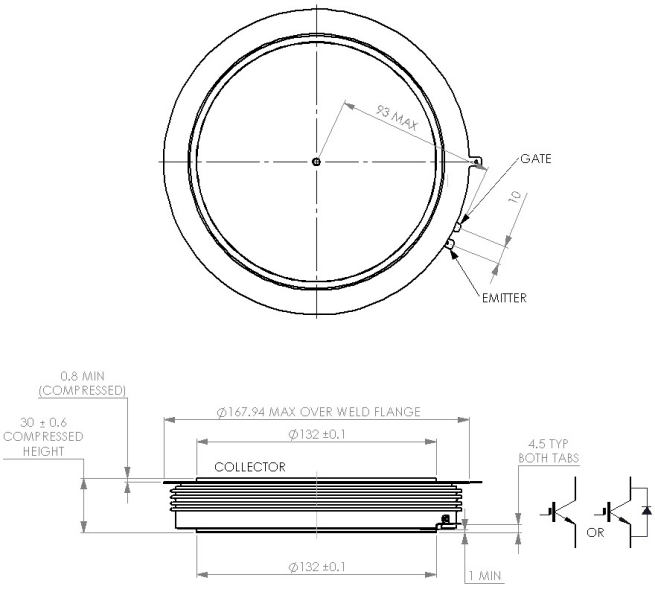
W101 - 100A380



W102 - 150A125



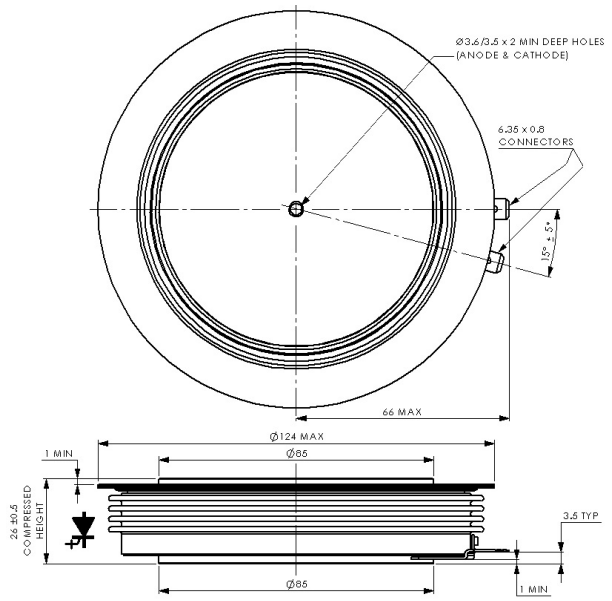
W103 - 101A401



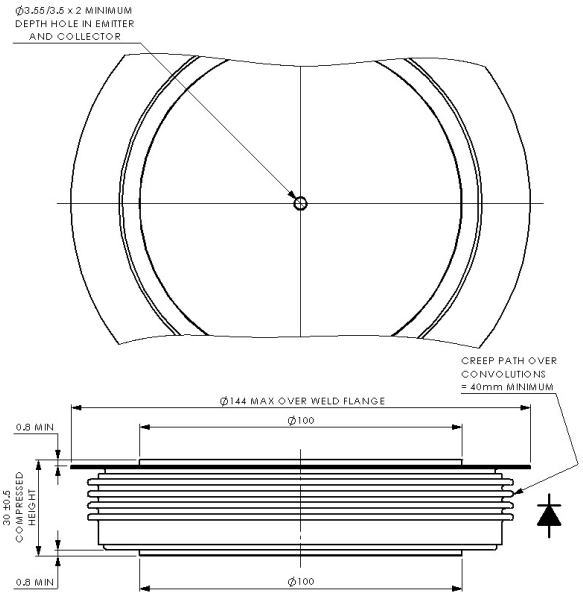
Outline drawings

Dimensions in mm and inches (1 mm = 0.0394“)

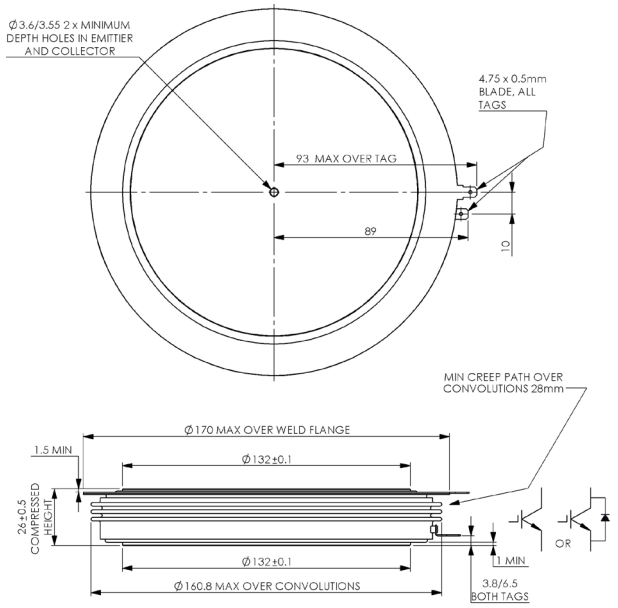
W104 - 101A408



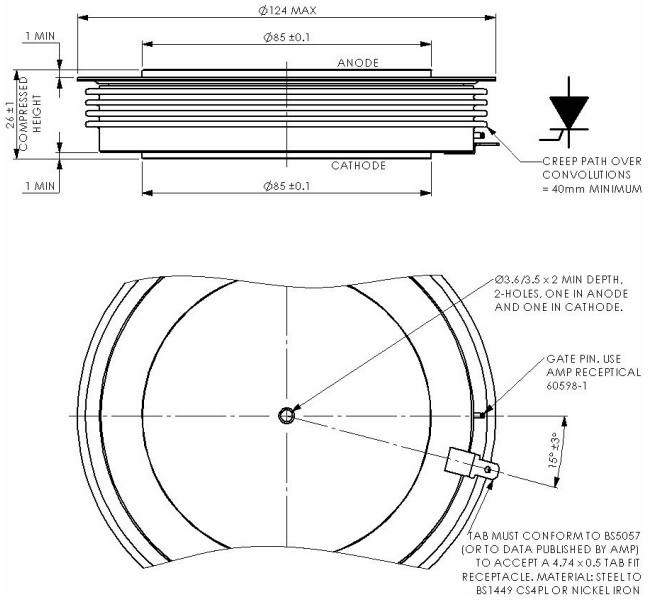
W105 - 100A385



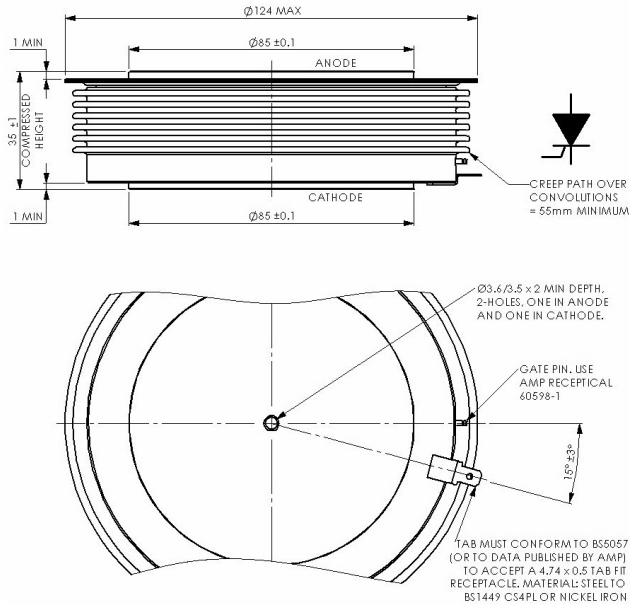
W106 - 101A420



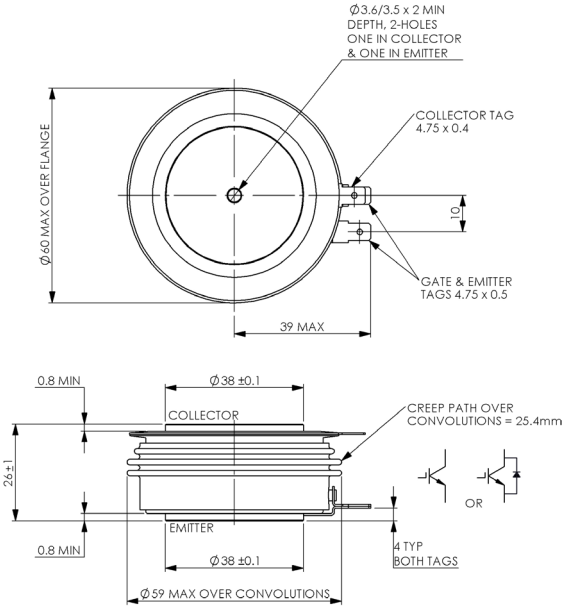
W107 - 101A411



W108 - 101A410



W109 - 101A425

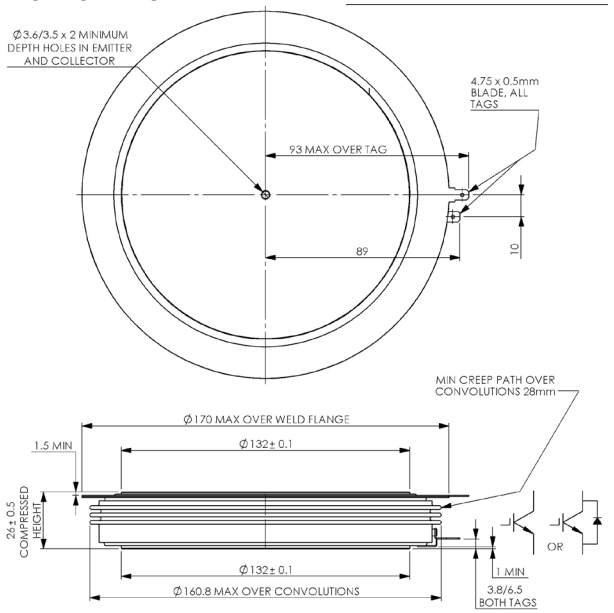


Outline drawings

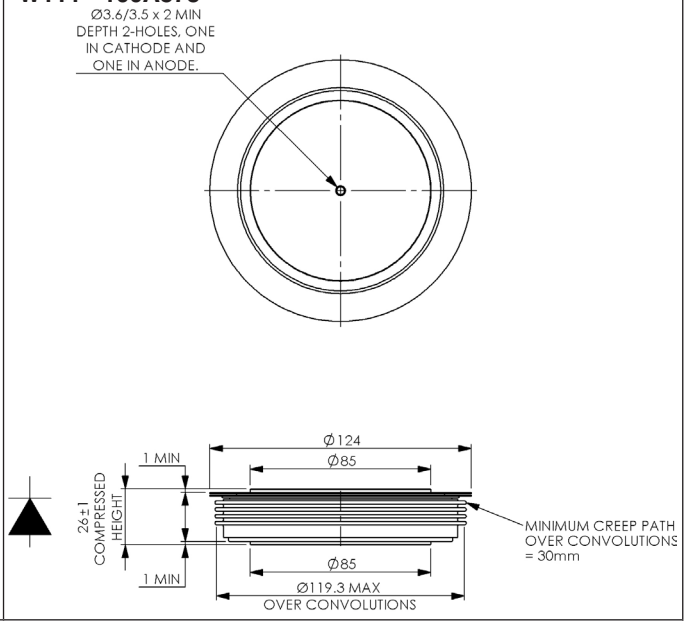
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Dimensions in mm and inches (1 mm = 0.0394“)

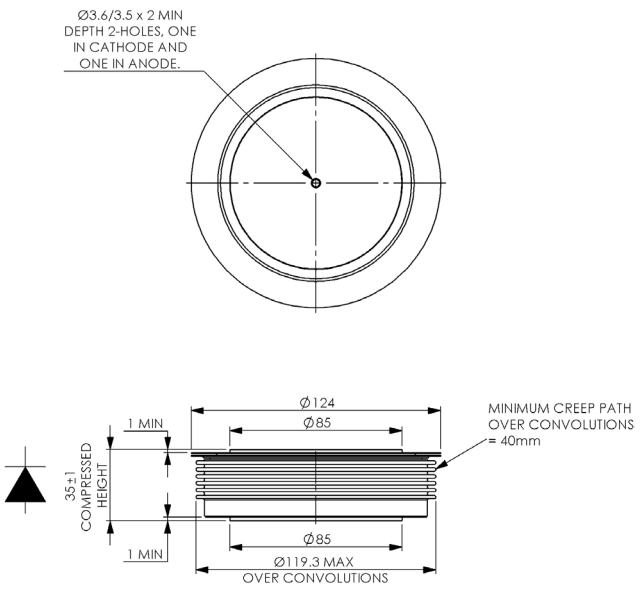
W110 - 101A418



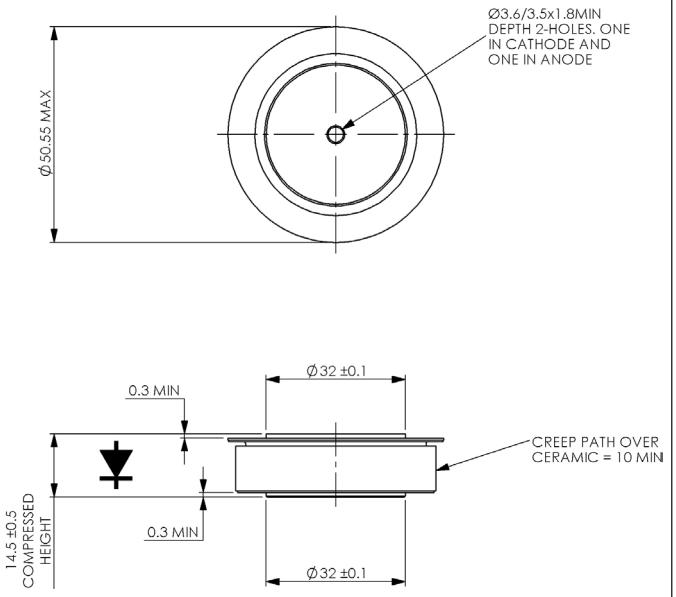
W111 - 100A378



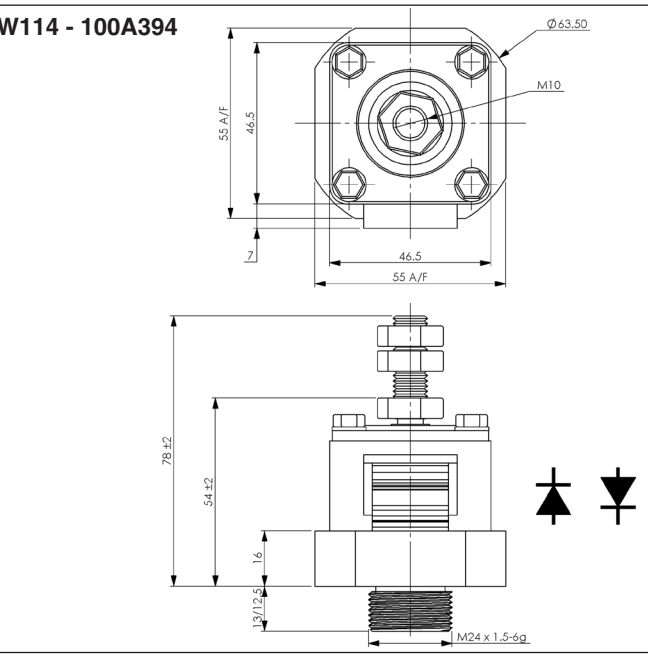
W112 - 100A377



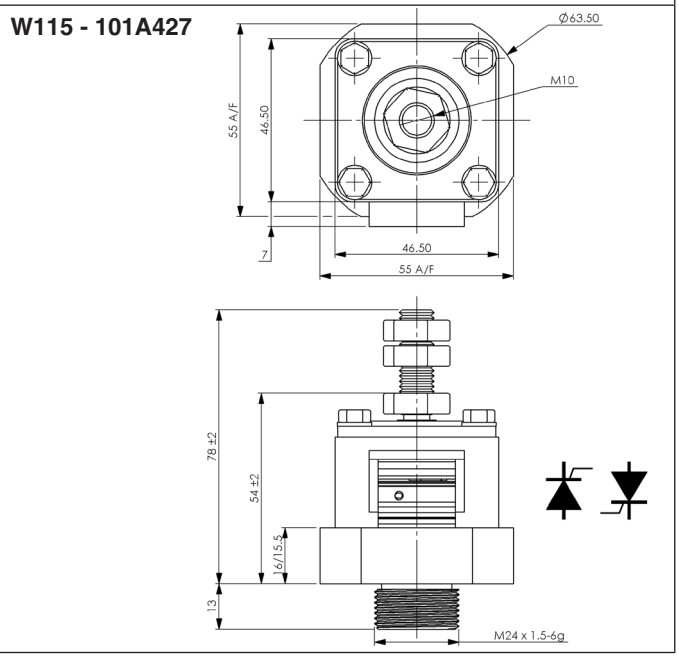
W113 - 100A393



W114 - 100A394



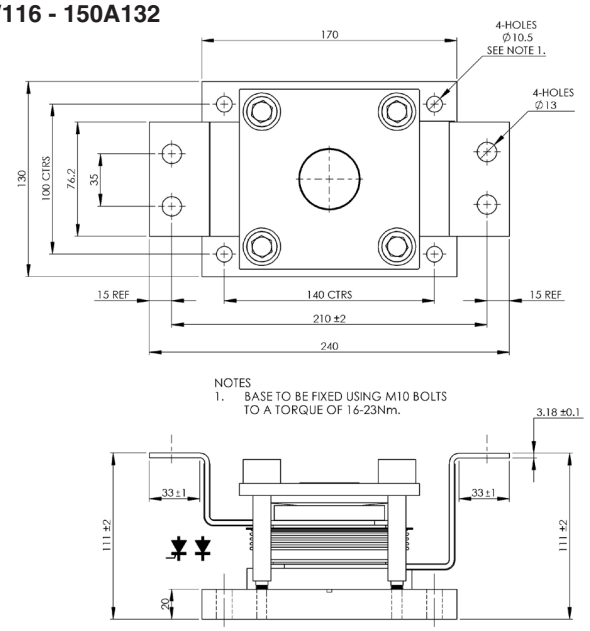
W115 - 101A427



Outline drawings

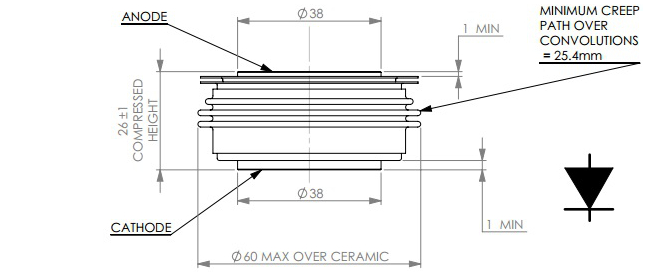
Dimensions in mm and inches (1 mm = 0.0394“)

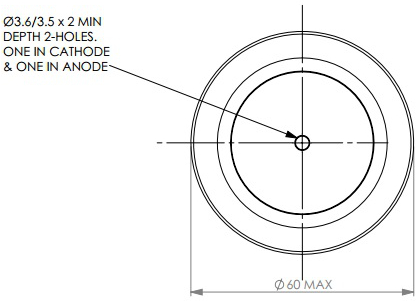
W116 - 150A132



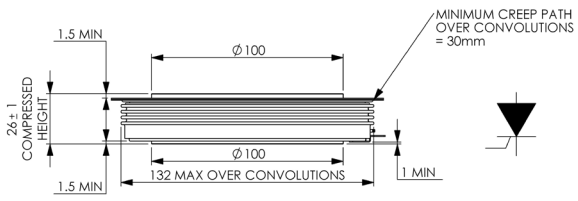
NOTES
1. BASE TO BE FIXED USING M10 BOLTS TO A TORQUE OF 16-23Nm.

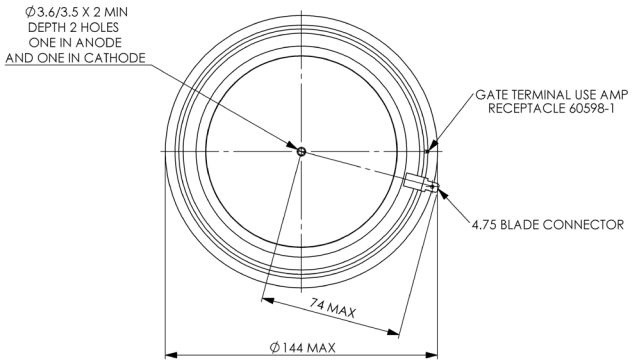
W117 - 100A375



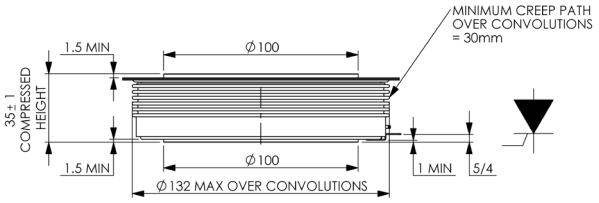


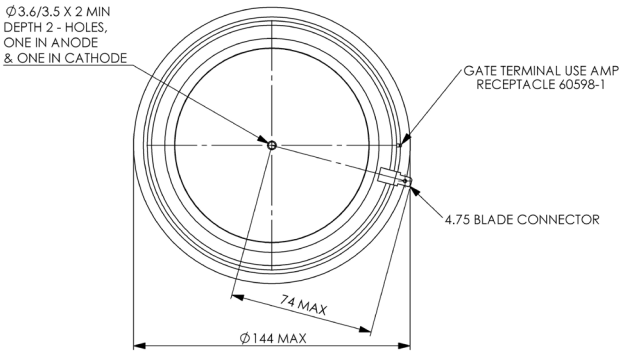
W118 - 101A428



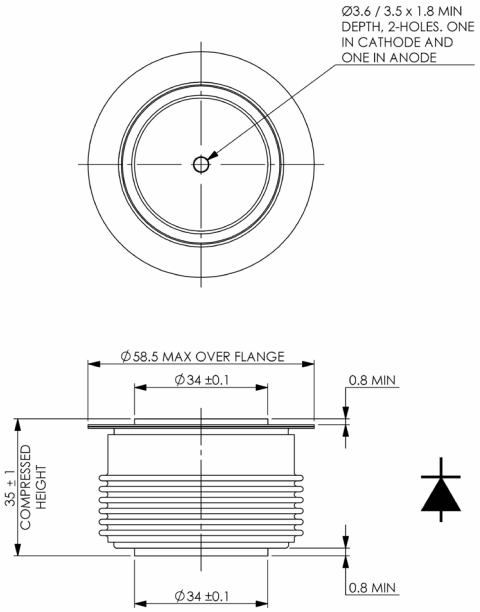


W119 - 101A421

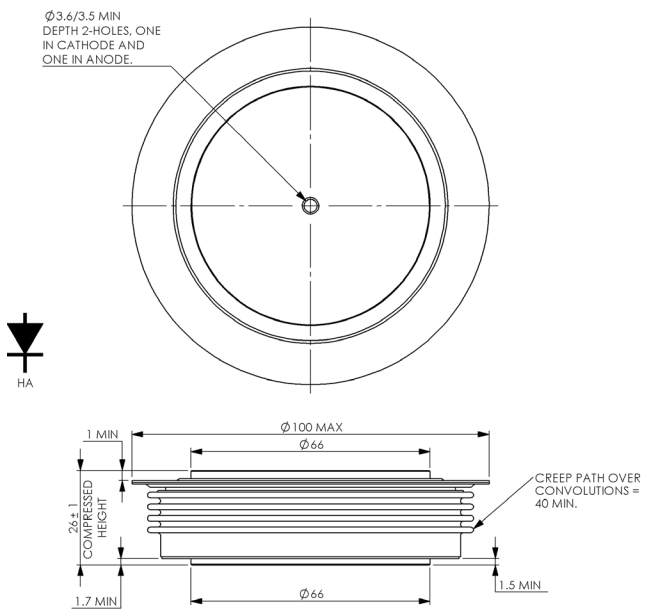




W120 - 100A395



W121 - 100A381

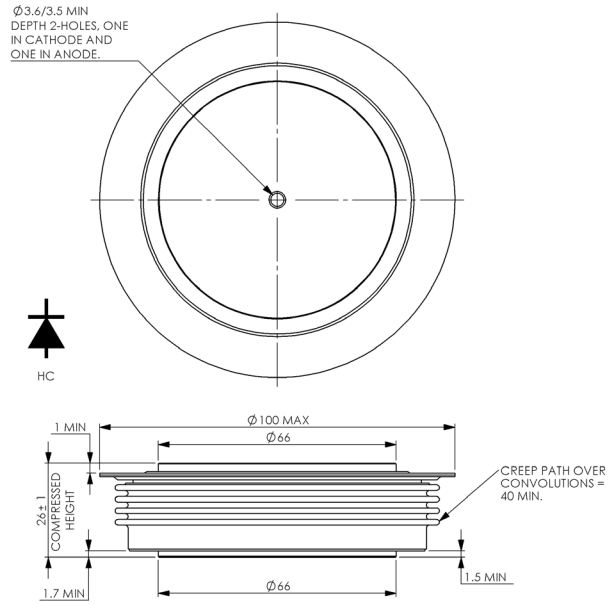


Outline drawings

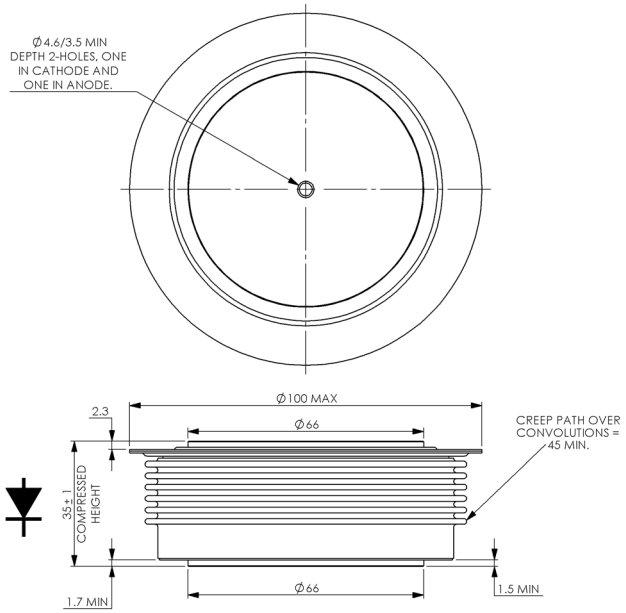
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Dimensions in mm and inches (1 mm = 0.0394“)

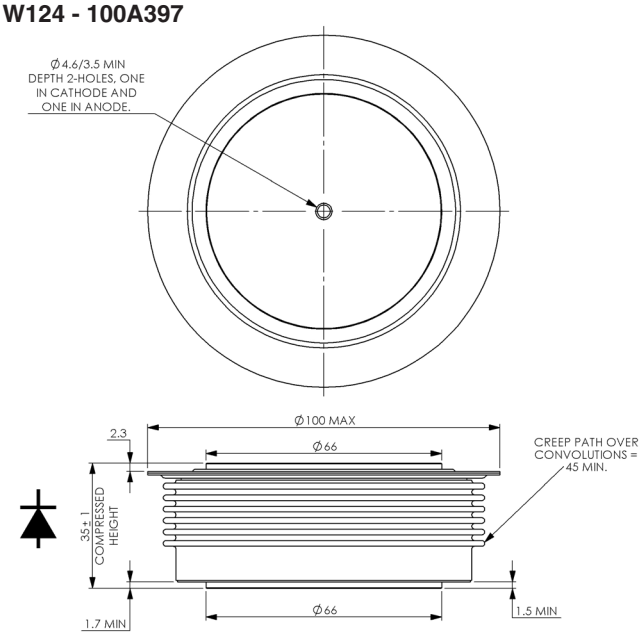
W122 - 100A396



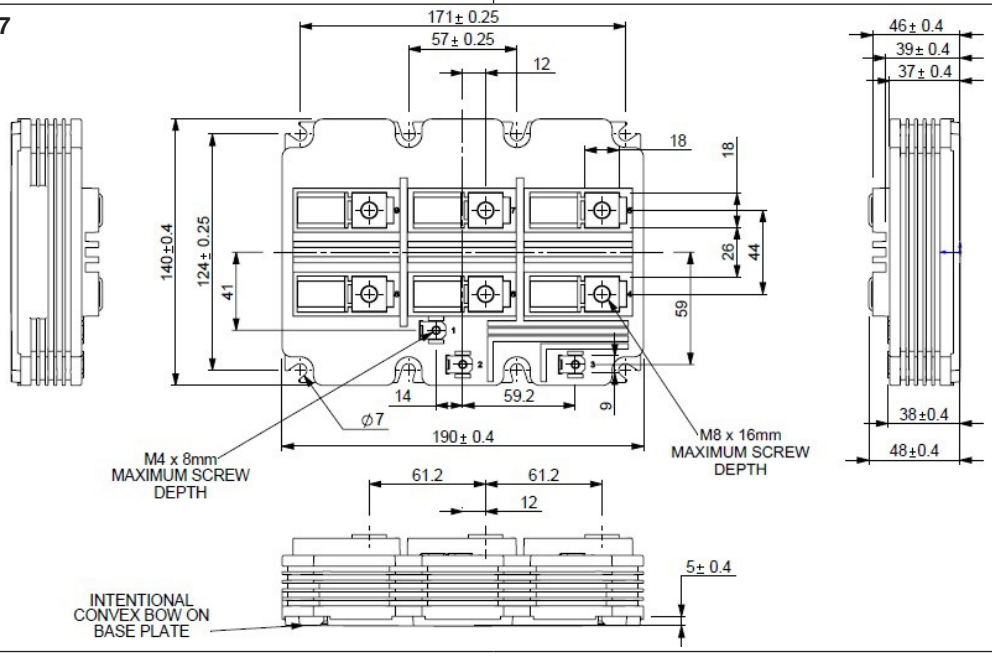
W123 - 100A382



W124 - 100A397



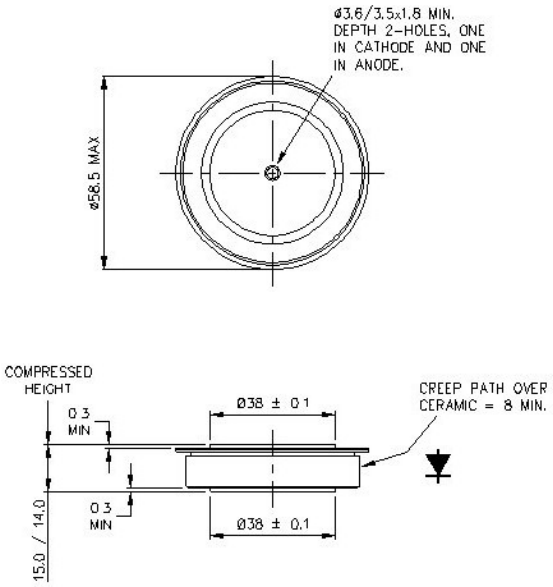
W125 - 150A127



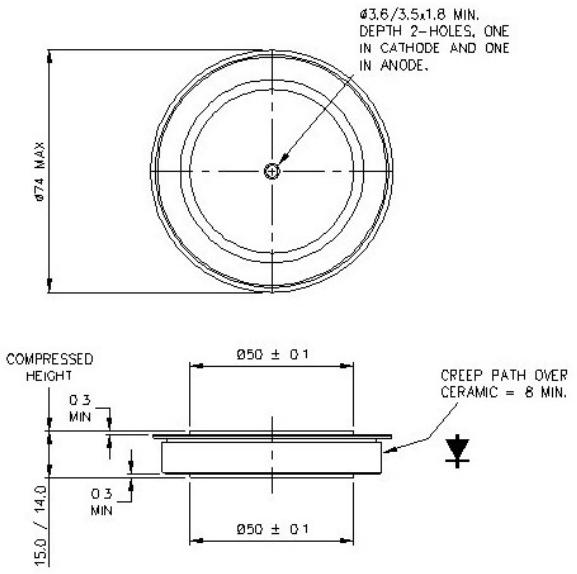
Outline drawings

Dimensions in mm and inches (1 mm = 0.0394“)

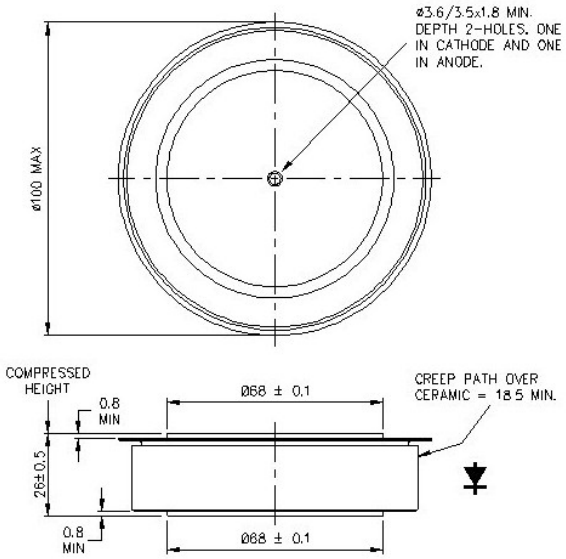
WD2 - 100A325



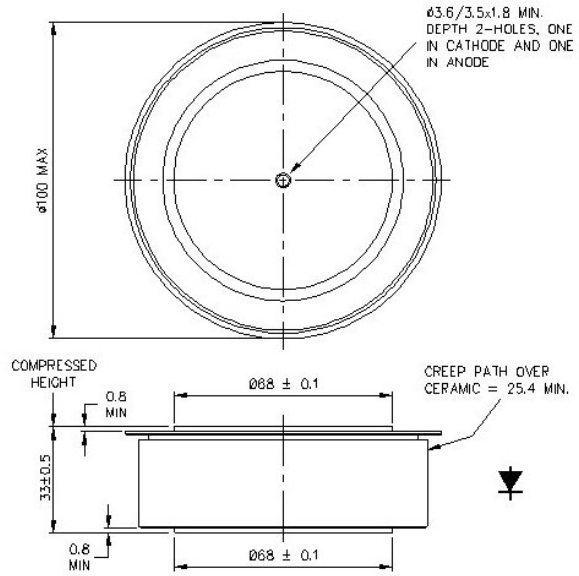
WD3 - 100A356



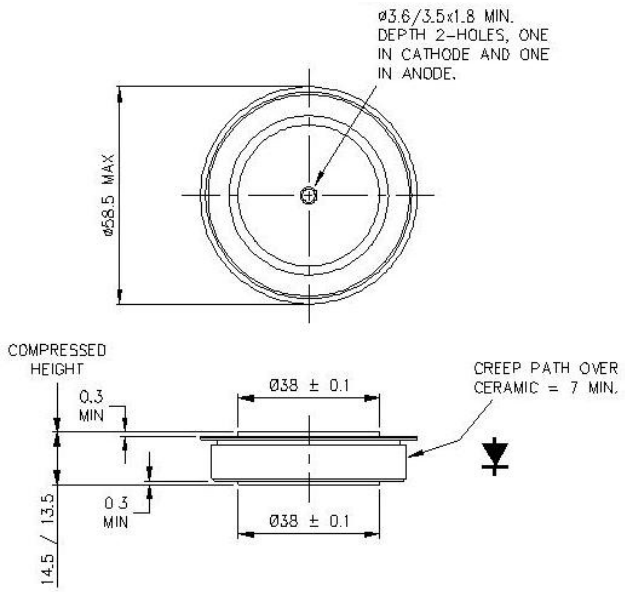
WD5 - 100A361 - 26 mm thick



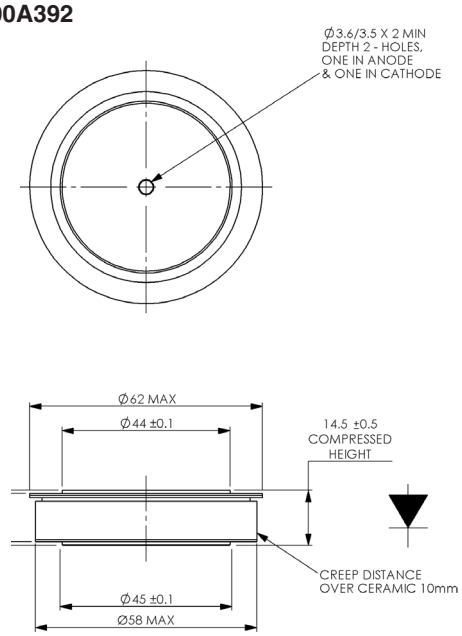
WD6 - 100A360 - 33 mm thick



WD7 - 100A363



WD8 - 100A392

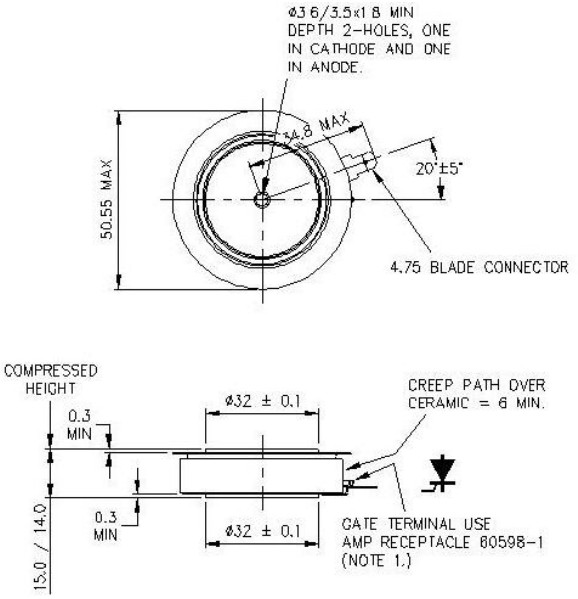


Outline drawings

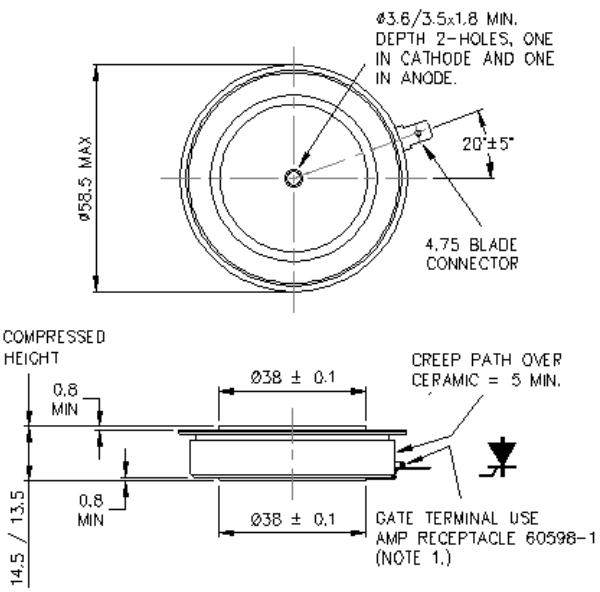
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Dimensions in mm and inches (1 mm = 0.0394“)

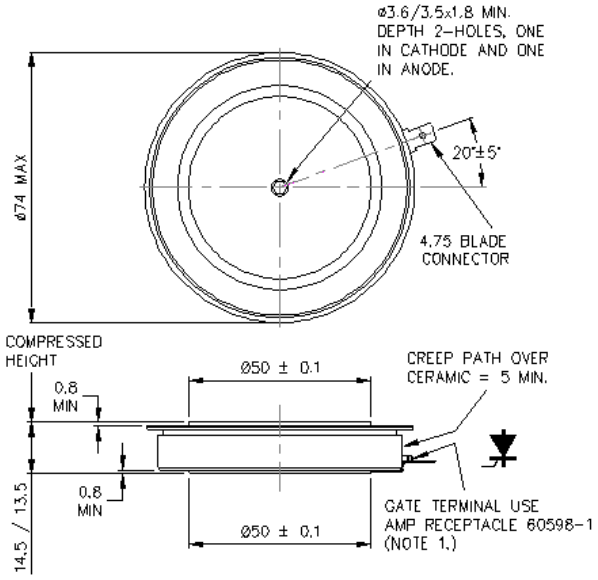
WP1 - 101A361



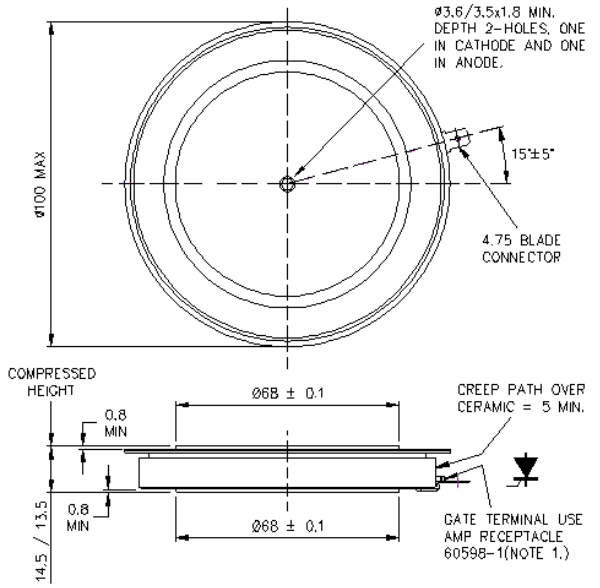
WP2 - 101A354



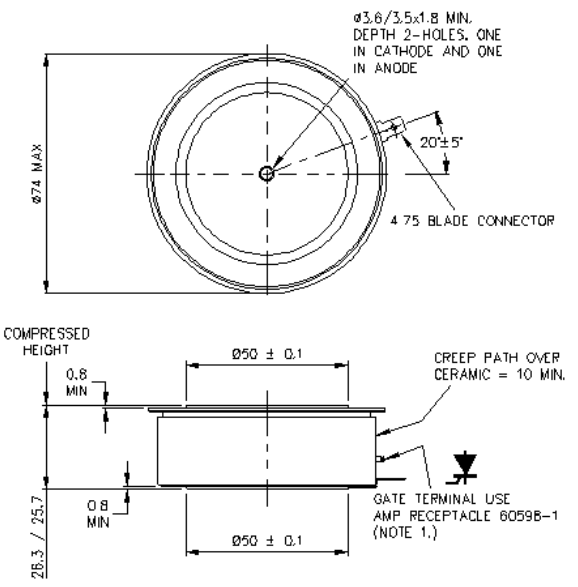
WP3 - 101A353



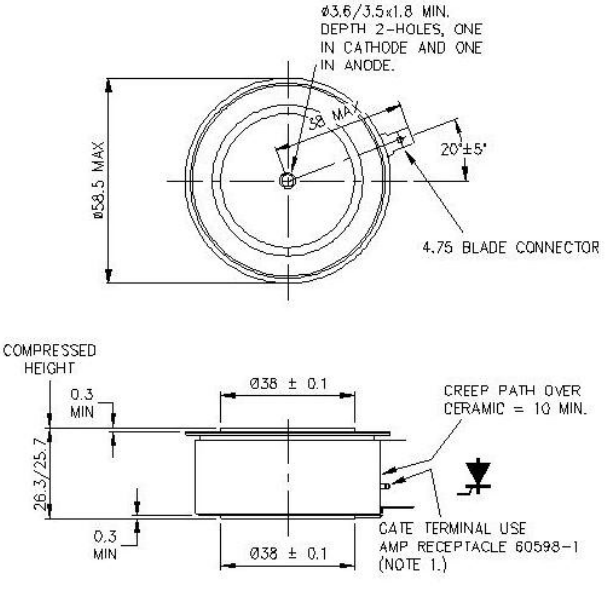
WP4 - 101A355



WP5 - 101A356



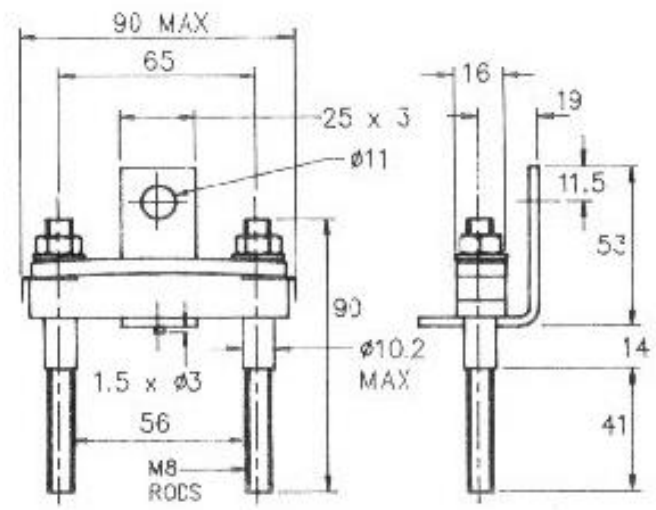
WP6 - 101A389



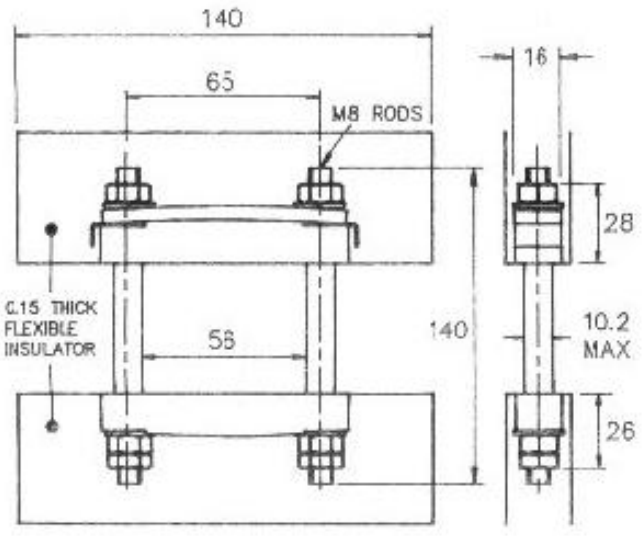
Outline drawings

Dimensions in mm and inches (1 mm = 0.0394“)

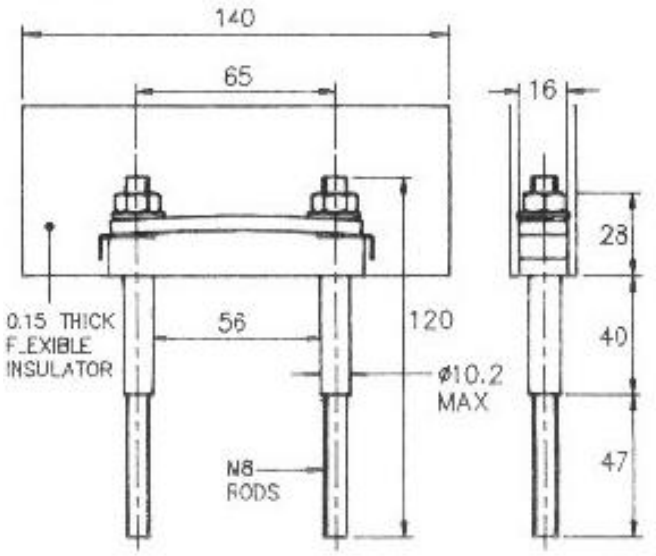
WC1 - XK0450SA056M



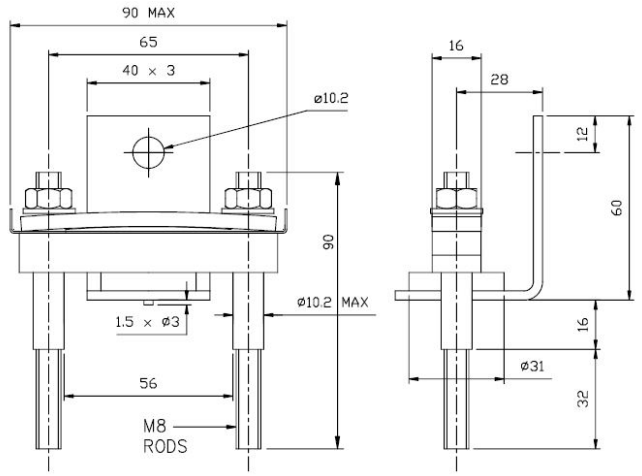
WC2 - XK0450DA056M



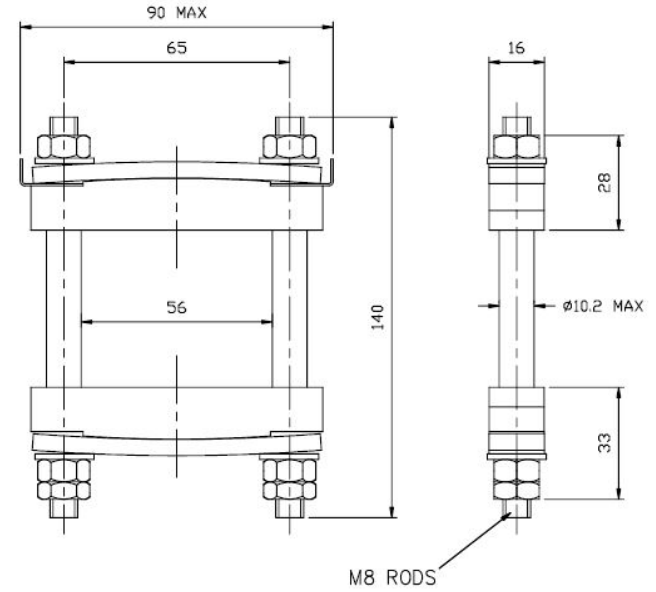
WC3 - XK0450DT056M



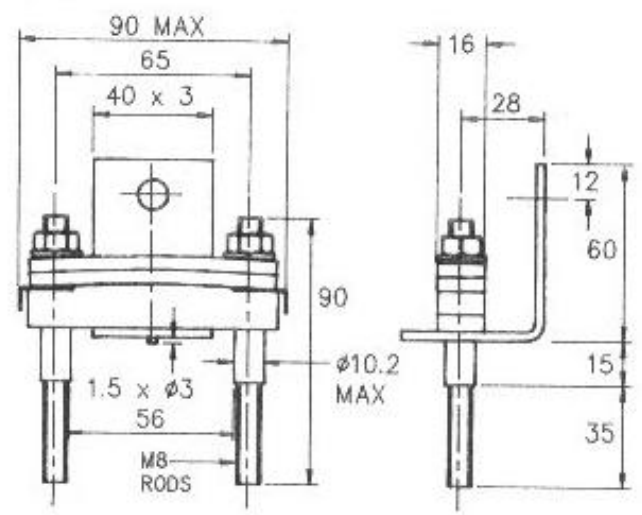
WC4 - XK0550SA056M



WC5 - XK0550DA056M



WC6 - XK0900SA056M

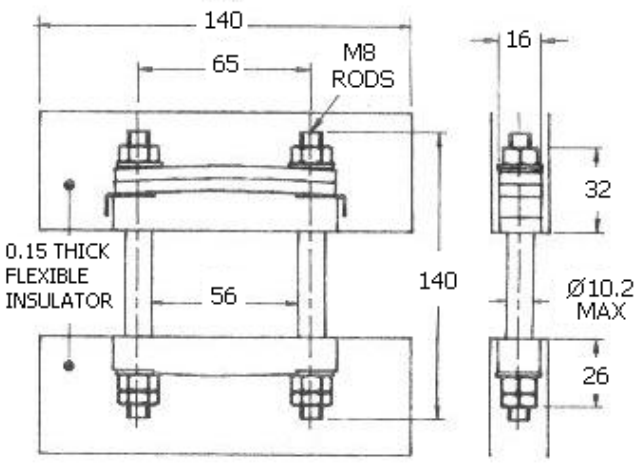


Outline drawings

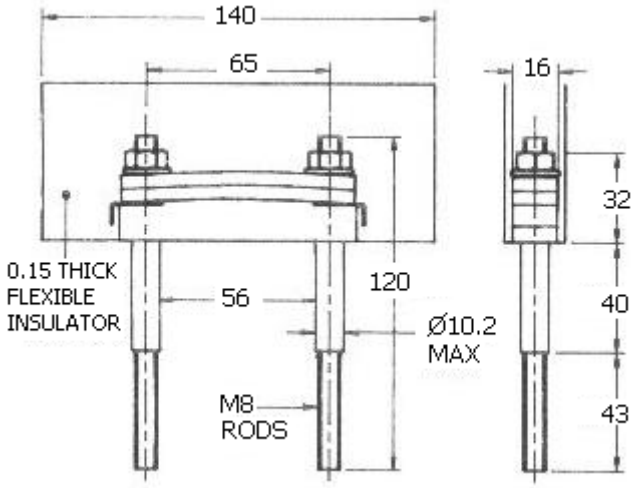
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Dimensions in mm and inches (1 mm = 0.0394“)

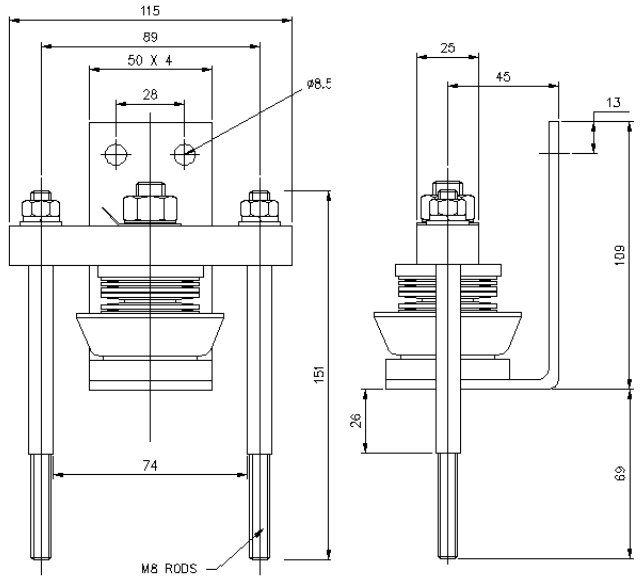
WC7 - XK0900DA056M



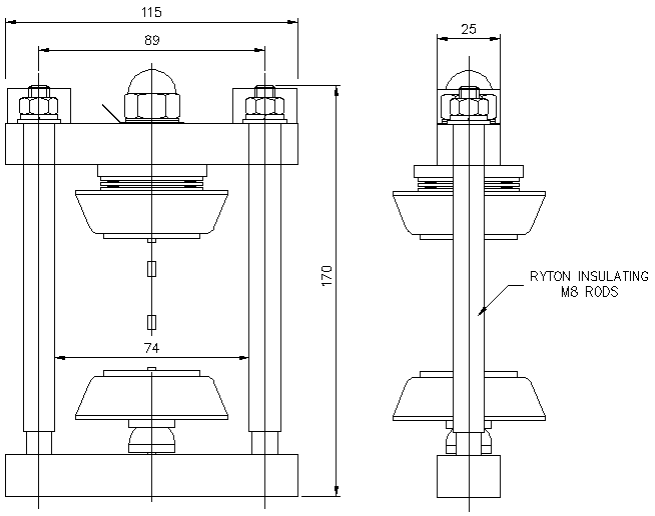
WC8 - XK0900DT056M



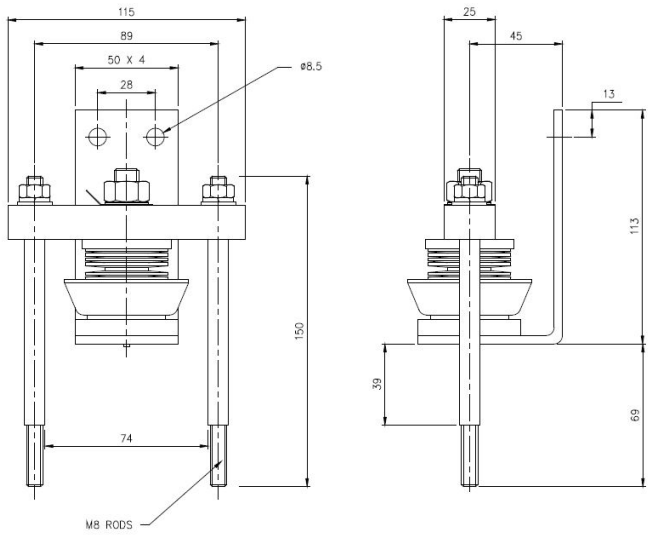
WC9 - XK0600SA074M



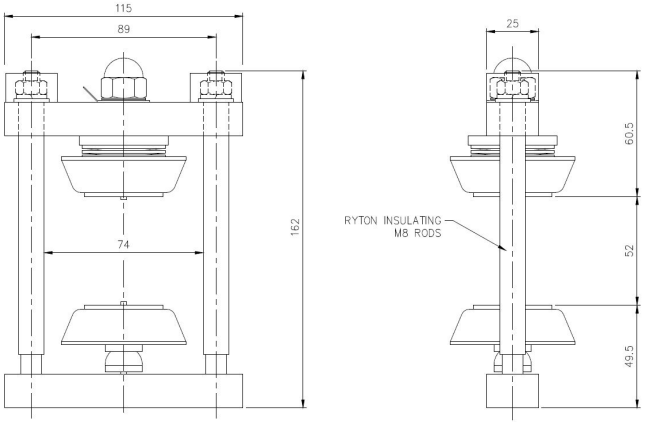
WC10 - XK0600DA074M



WC11 - XK1000SA074M



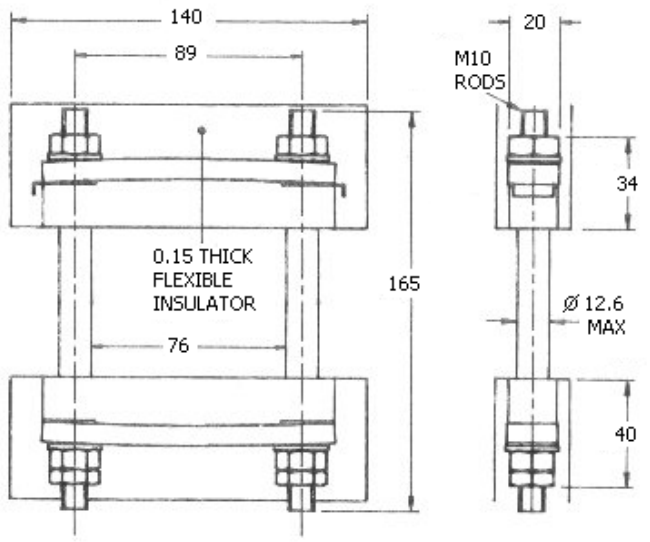
WC12 - XK1000DA074M



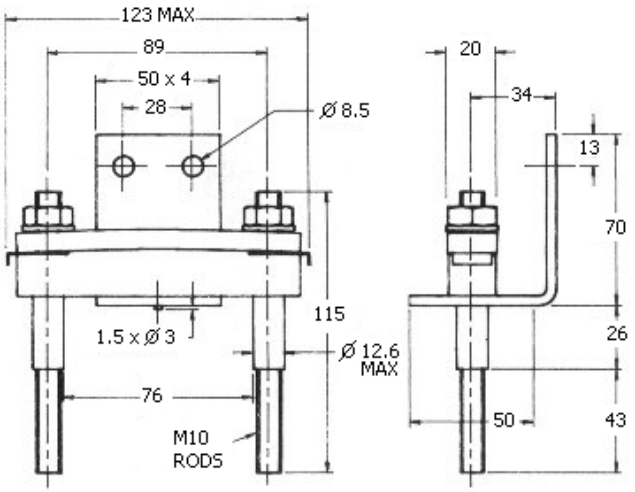
Outline drawings

Dimensions in mm and inches (1 mm = 0.0394“)

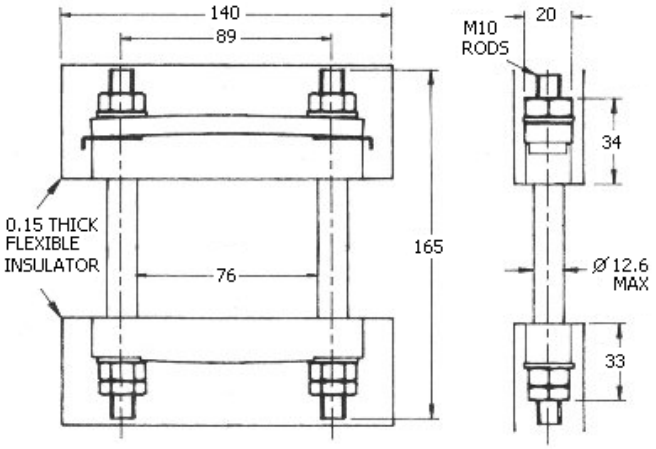
WC13 - XK1100DA076M



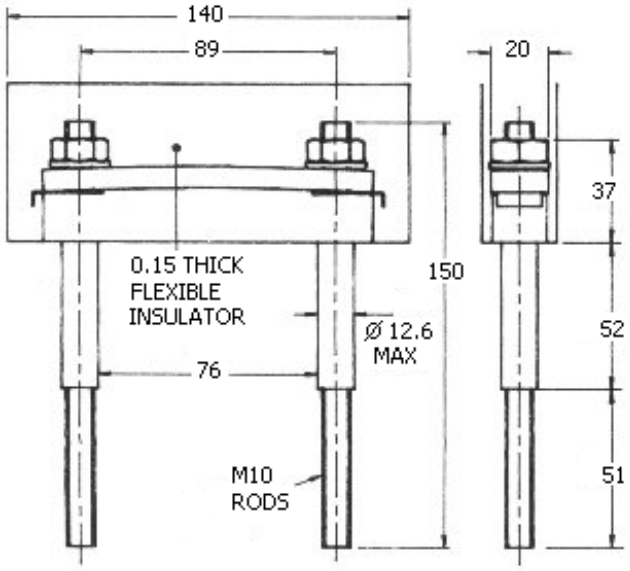
WC14 - XK1130SA076M



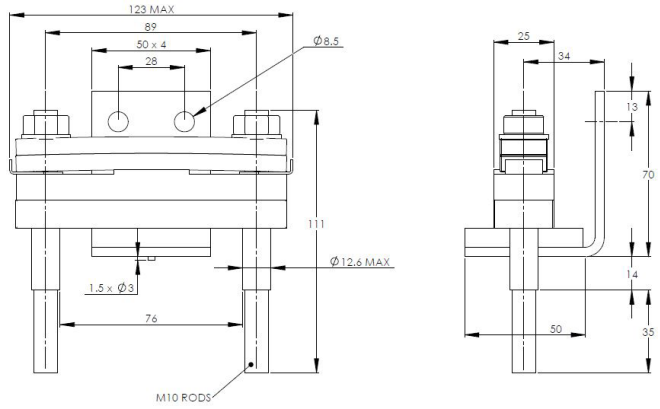
WC15 - XK1130DA076M



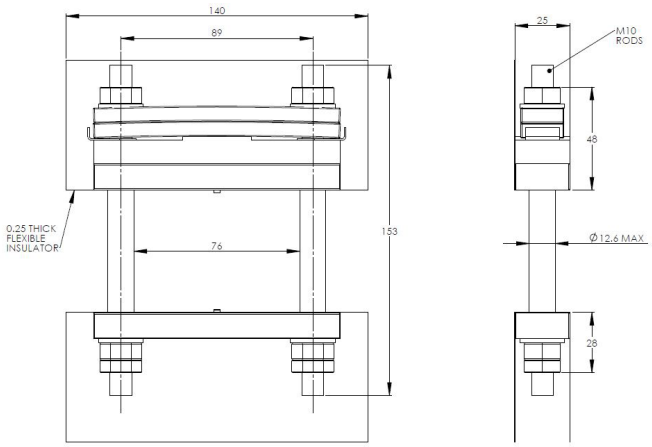
WC16 - XK1130DT076M



WC17 - XK1800SA076M



WC18 - XK1800DA076M

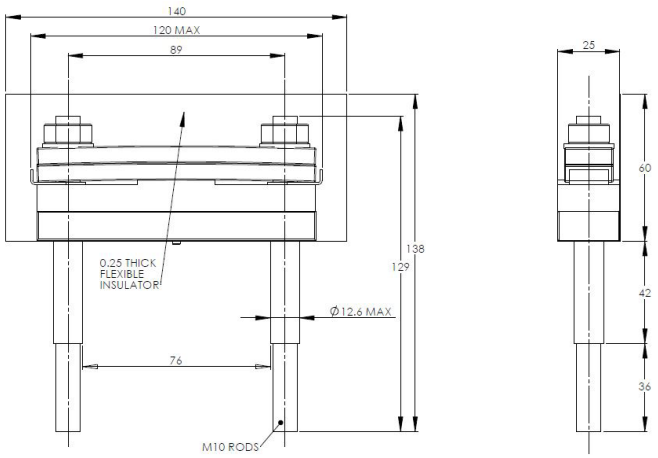


Outline drawings

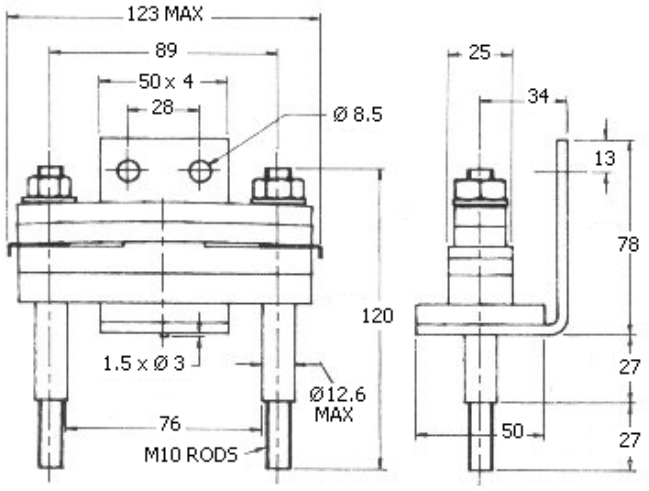
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Dimensions in mm and inches (1 mm = 0.0394“)

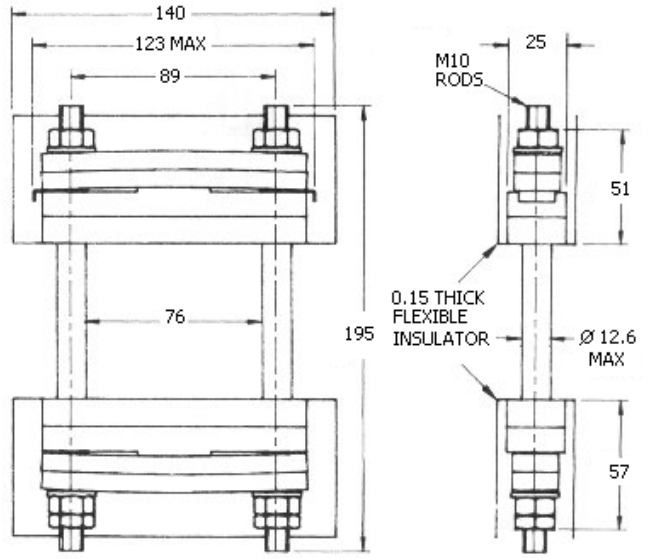
WC19 - XK1800DT076M



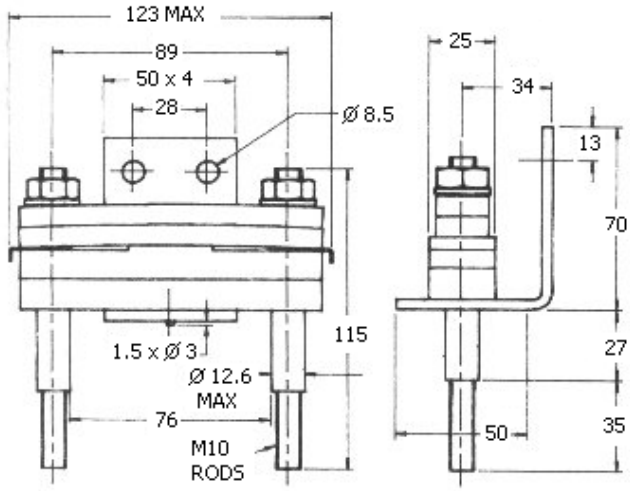
WC20 - XK2100SA076M/ML



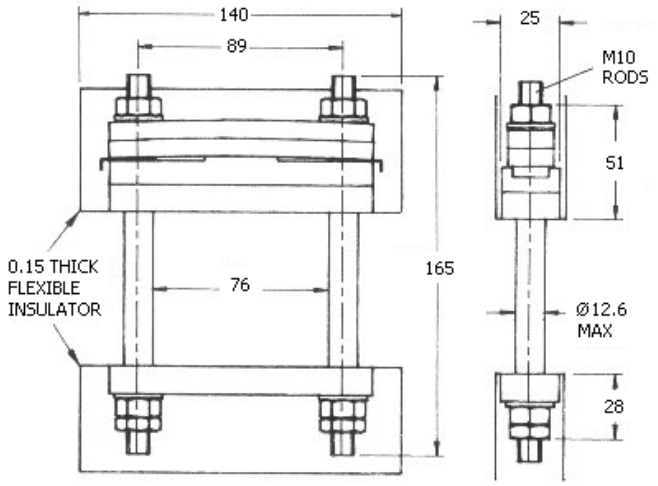
WC21 - XK2100DA076M/ML



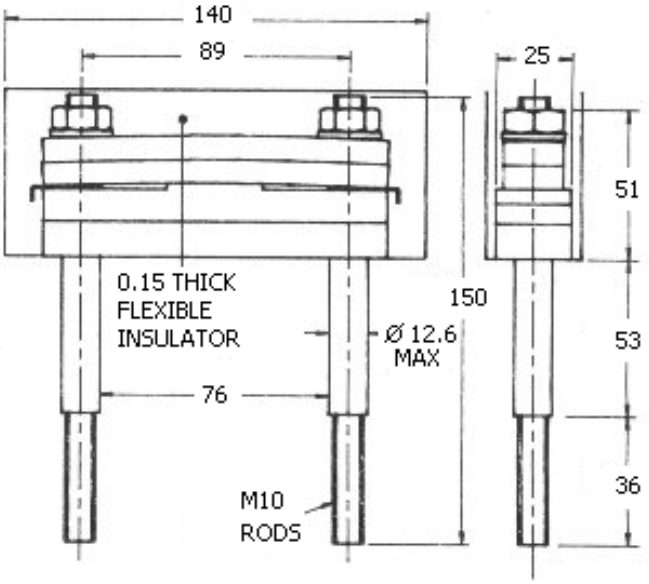
WC22 - XK2140SA076M/ML



WC23 - XK2140DA076M/ML



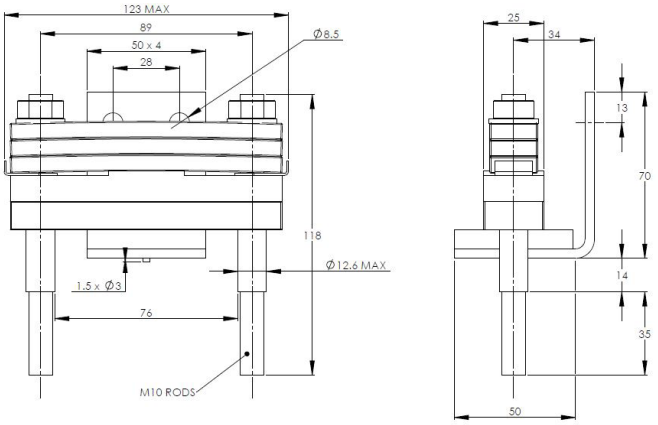
WC24 - XK2140DT076M/ML



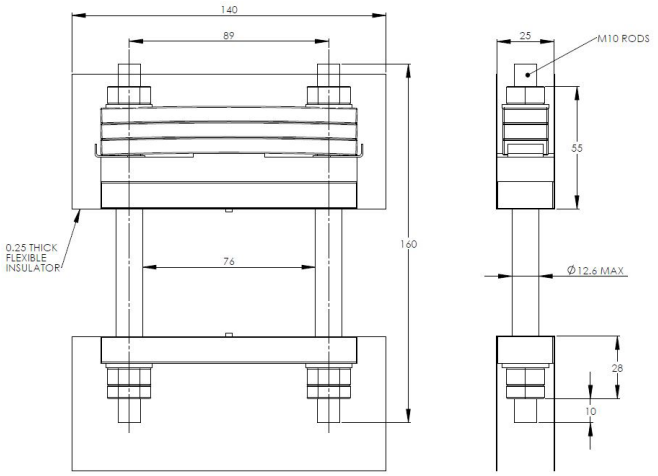
Outline drawings

Dimensions in mm and inches (1 mm = 0.0394“)

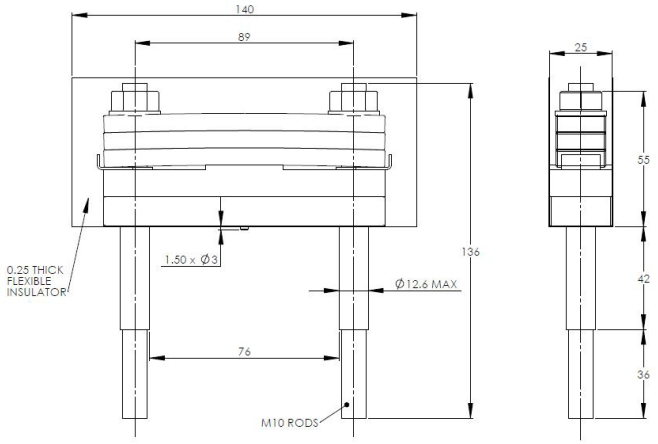
WC25 - XK2700SA076M



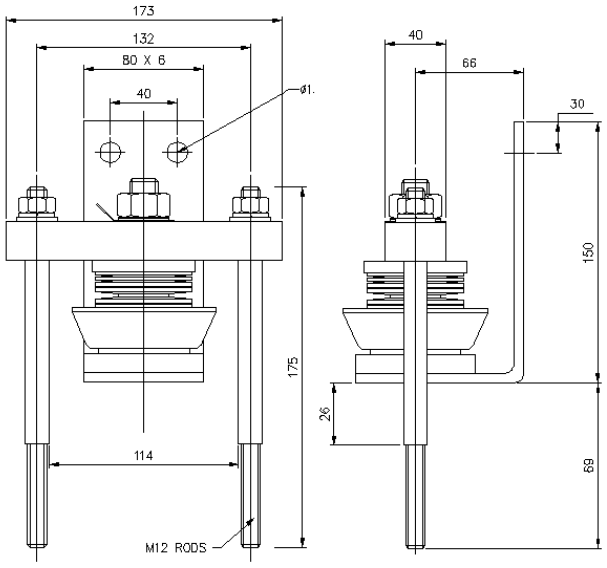
WC26 - XK2700DA076M



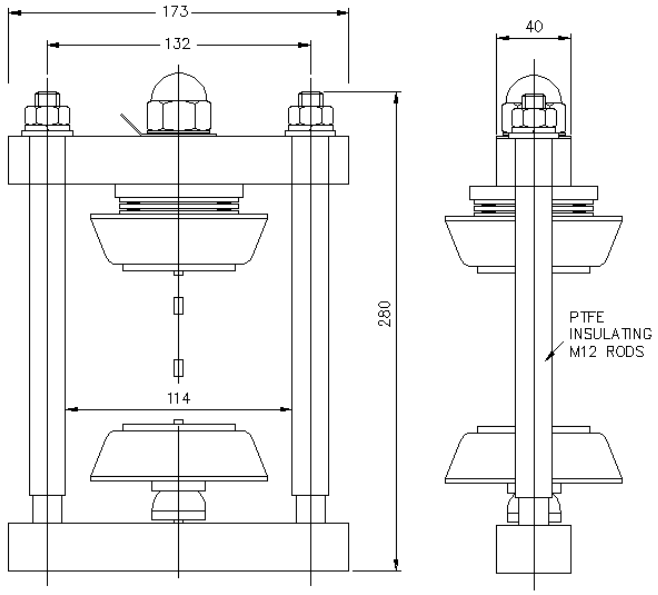
WC27 - XK2700DT076M



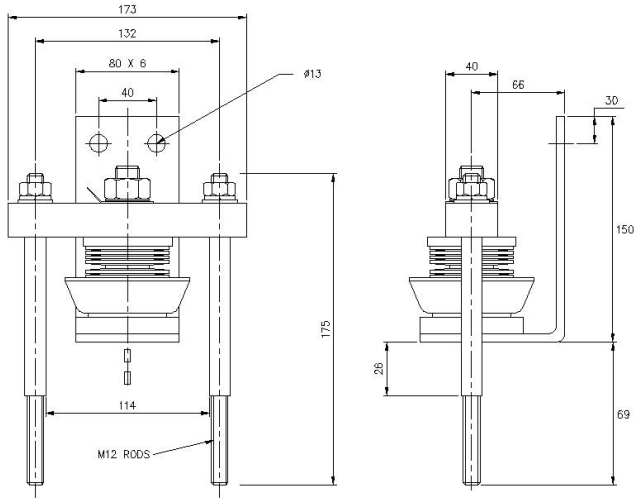
WC28 - XK2000SA114M



WC29 - XK2000DA114M



WC30 - XK2500SA114M

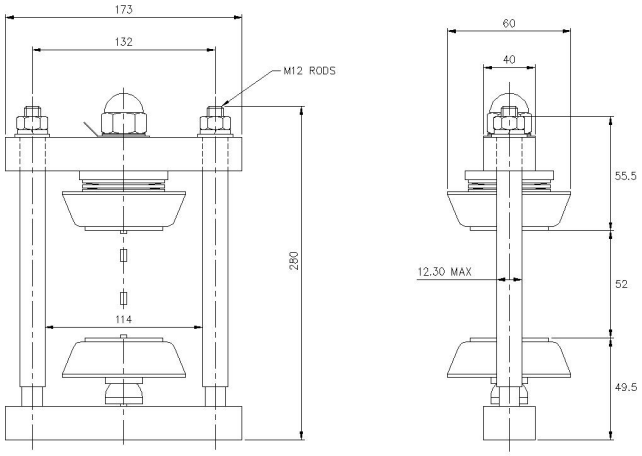


Outline drawings

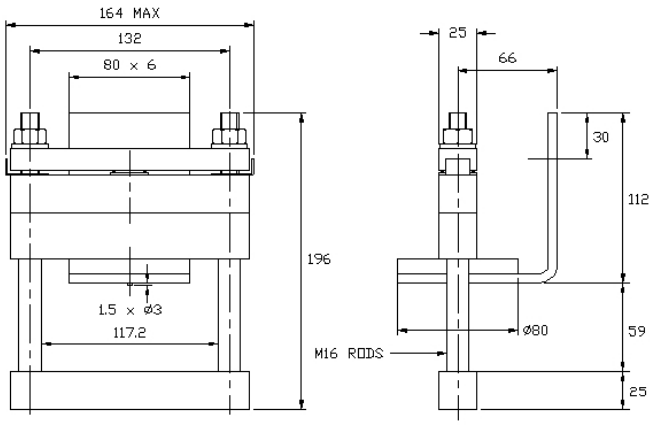
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Dimensions in mm and inches (1 mm = 0.0394“)

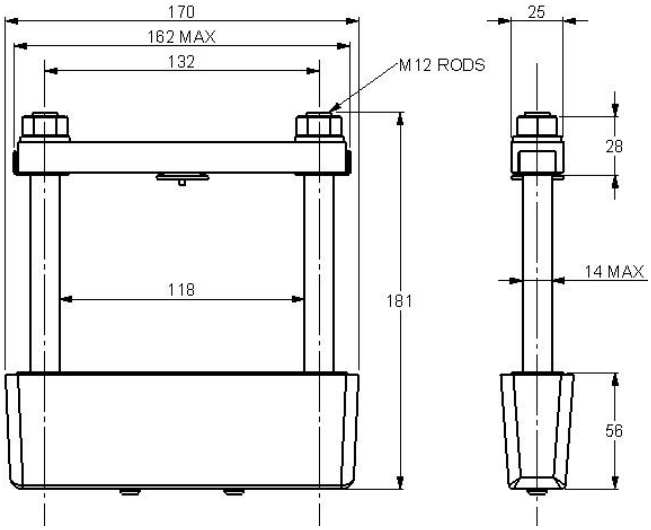
WC31 - XK2500DA114M



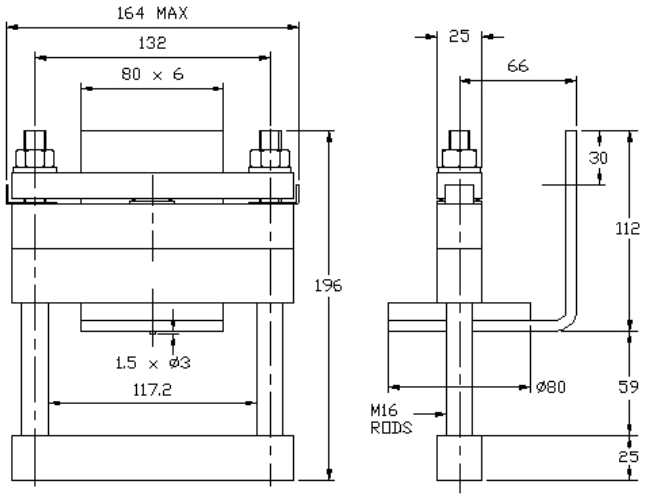
WC32 - XK2500SA116M/ML



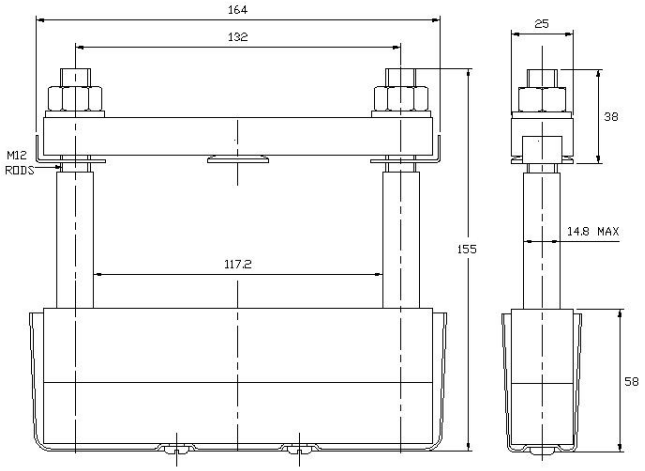
WC33 - XK2500DA116M/ML



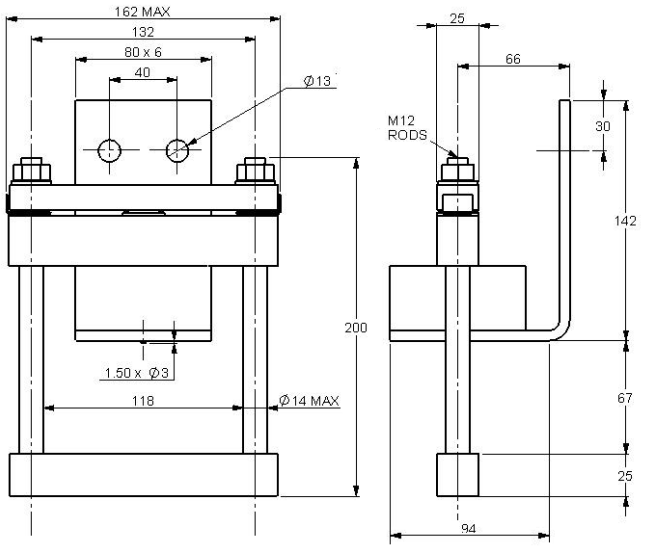
WC34 - XK3000SA116M/ML



WC35 - XK3000DA116M/Mx



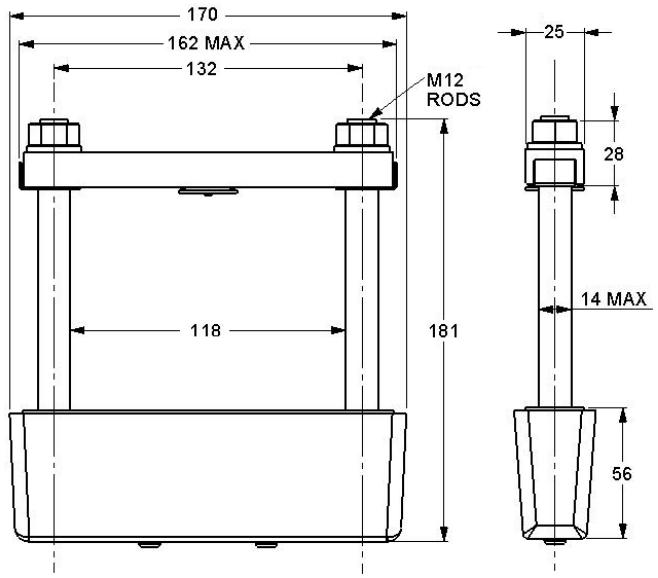
WC36 - XK3500SA116M/ML



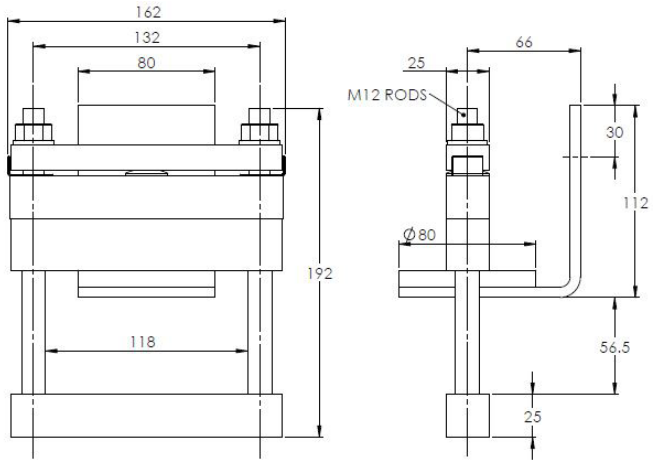
Outline drawings

Dimensions in mm and inches (1 mm = 0.0394“)

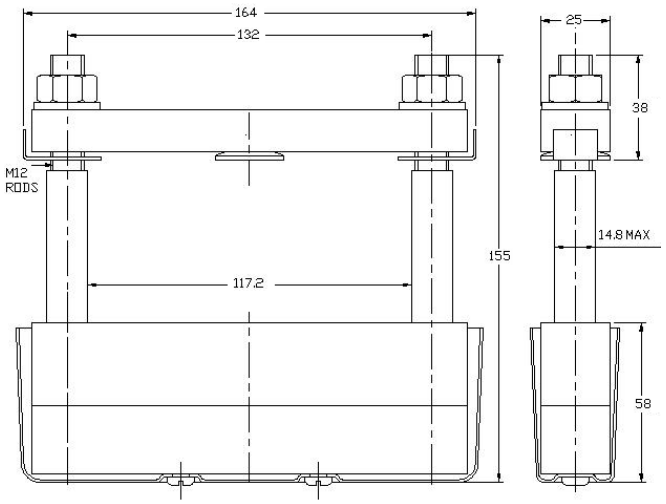
WC37 - XK3500DA116M/ML



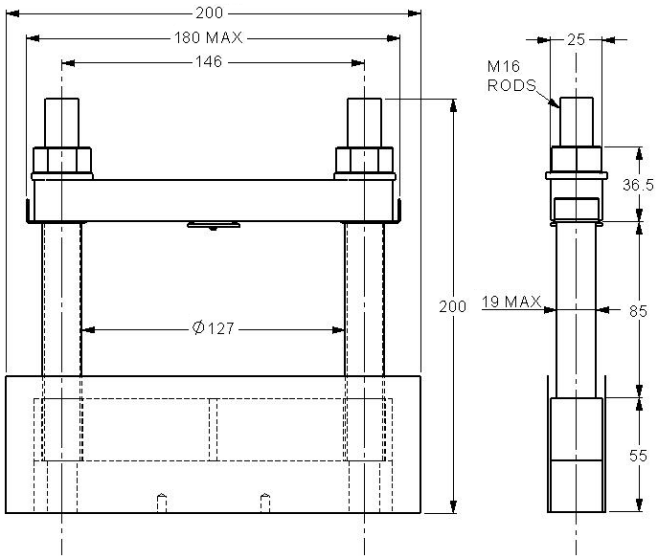
WC38 - XK4000SA116M/ML



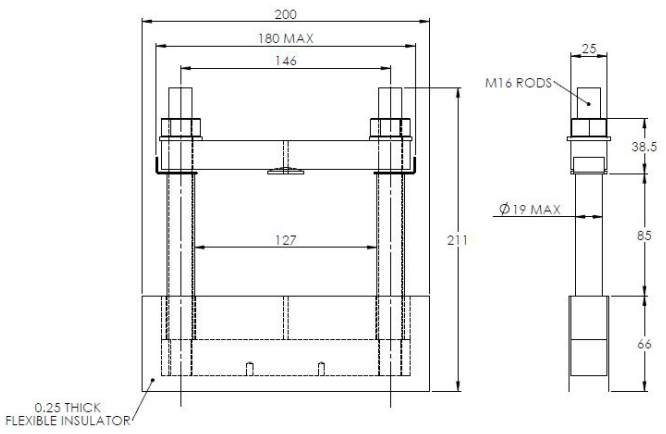
WC39 - XK4000DA116M/ML



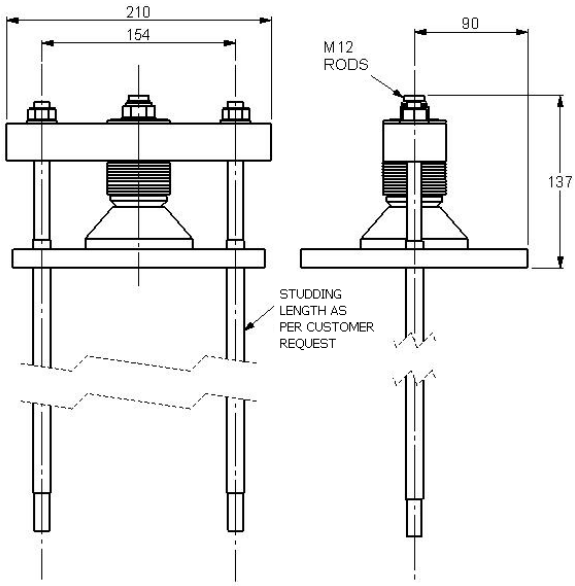
WC40 - XK5000DA128M/ML



WC41 - XK7000DA128M/ML



WC42 - XK3060SA140ML

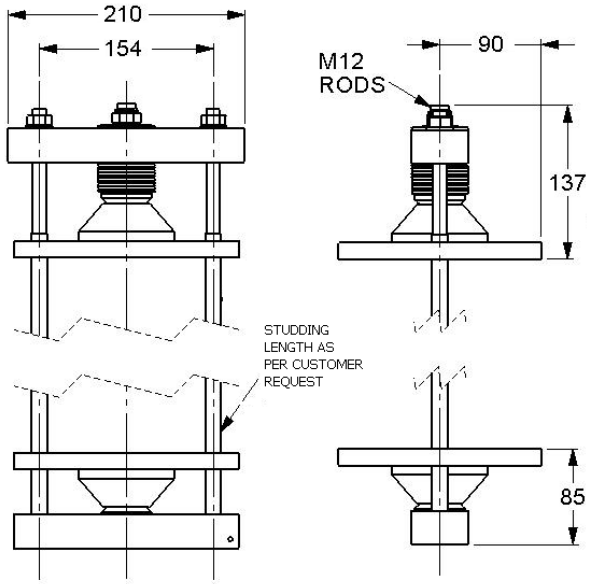


Outline drawings

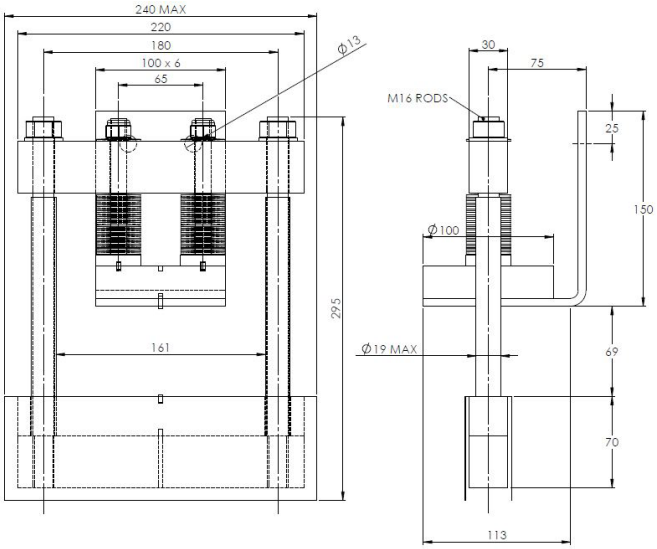
IXYS A Littelfuse Technology
UK Chippenham

Dimensions in mm and inches (1 mm = 0.0394“)

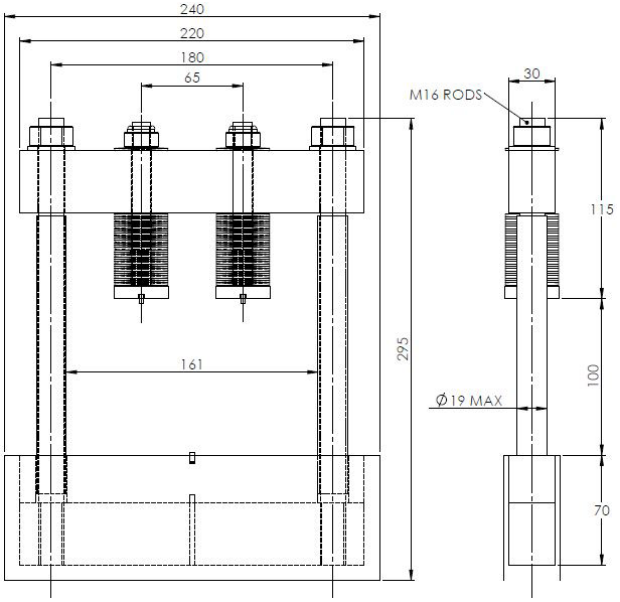
WC43 - XK3060DA140ML



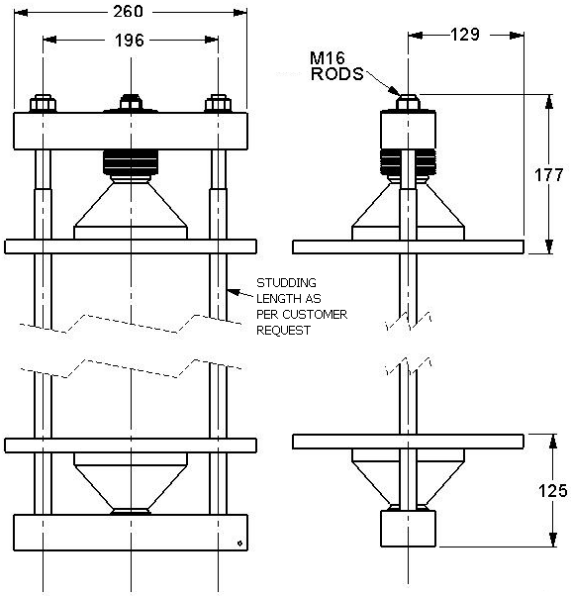
WC44 - XK9000SA160M/ML



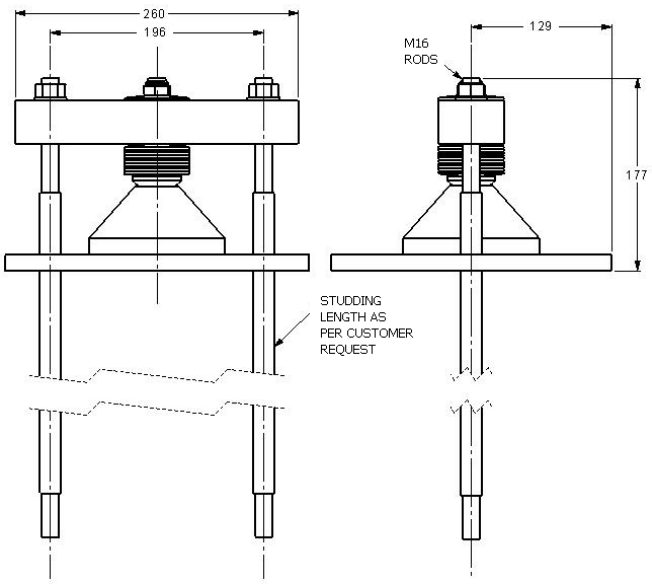
WC45 - XK9000DA160M/ML



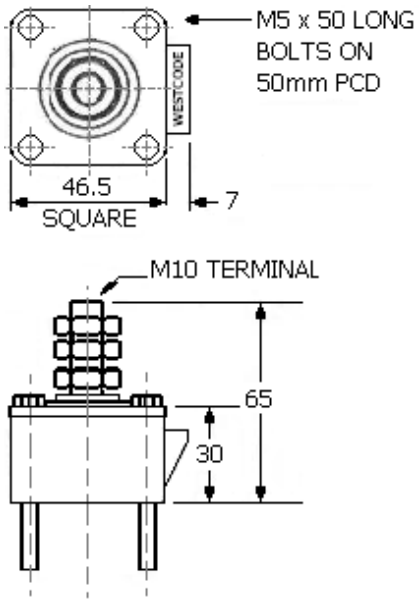
WC46 - XK6120DA180ML



WC47 - XK6120SA180ML



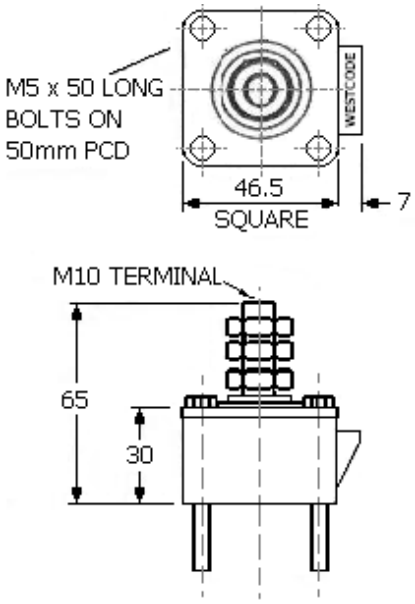
WC48 - XK0450xx019M



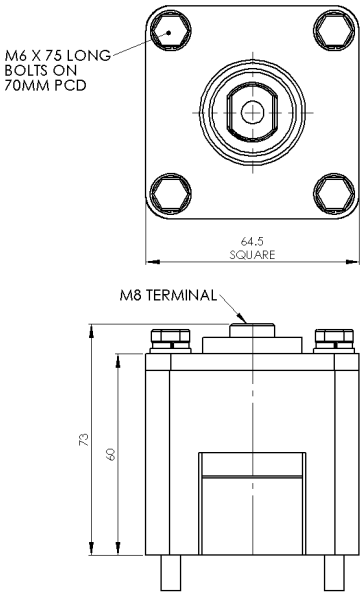
Outline drawings

Dimensions in mm and inches (1 mm = 0.0394“)

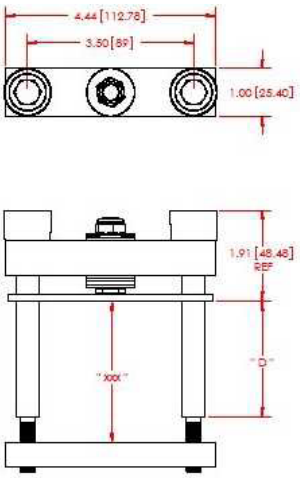
WC49 - XK####xx025M



WC50 - XK1500BA034M



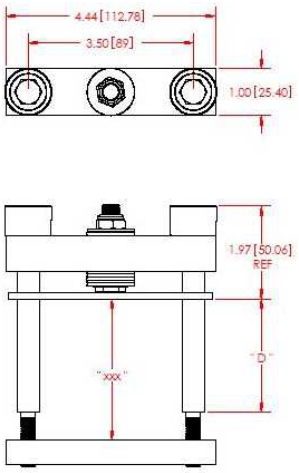
WC51 - XSK1500DA076xxx



Notes:

1. DIMENSIONS IN INCHES [MILLIMETERS].
2. " Z " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.
3. " D " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.

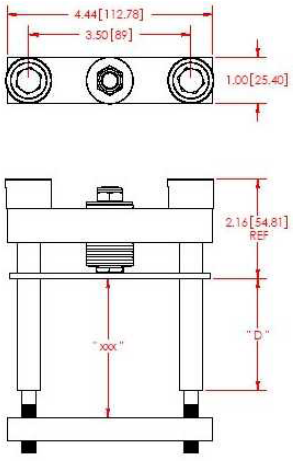
WC52 - XSK2000DA076xxx



Notes:

1. DIMENSIONS IN INCHES [MILLIMETERS].
2. " Z " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.
3. " D " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.

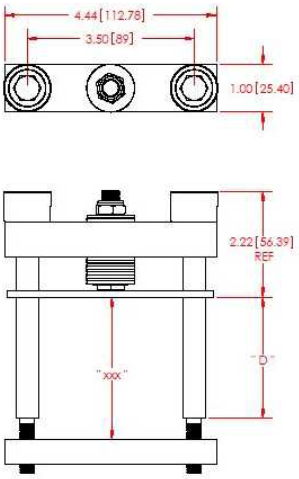
WC53 - XSK3000DA076xxx



Notes:

1. DIMENSIONS IN INCHES [MILLIMETERS].
2. " Z " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.
3. " D " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.

WC54 - XSK3400DA076xxx



Notes:

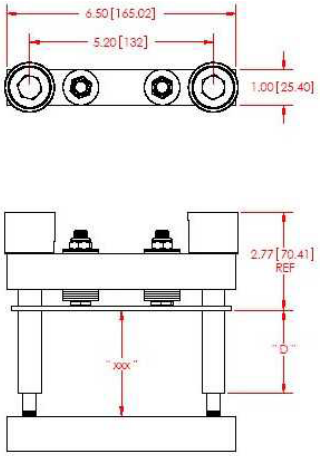
1. DIMENSIONS IN INCHES [MILLIMETERS].
2. " Z " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.
3. " D " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.

Outline drawings

IXYS A Littelfuse Technology
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Dimensions in mm and inches (1 mm = 0.0394“)

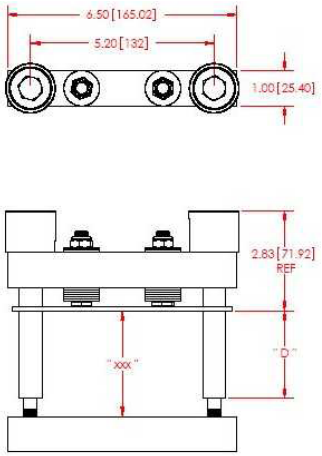
WC55 - SK3800DA116Mxxx



Notes:

1. DIMENSIONS IN INCHES [MILLIMETERS].
2. " Z " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.
3. " D " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.

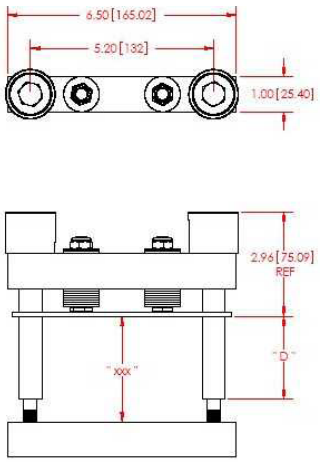
WC56 - XSK4400DA116Mxxx



Notes:

1. DIMENSIONS IN INCHES [MILLIMETERS].
2. " Z " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.
3. " D " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.

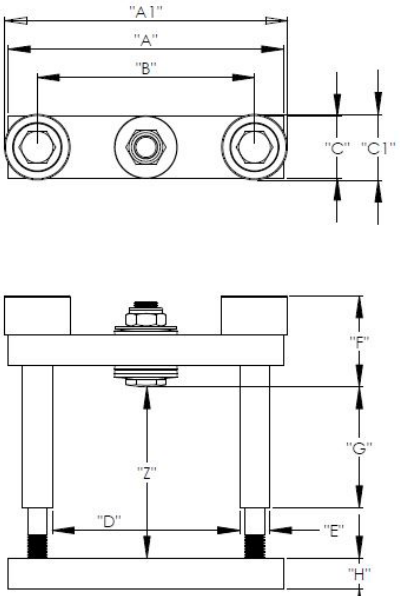
WC57 - XSK6000DA116Mxxx



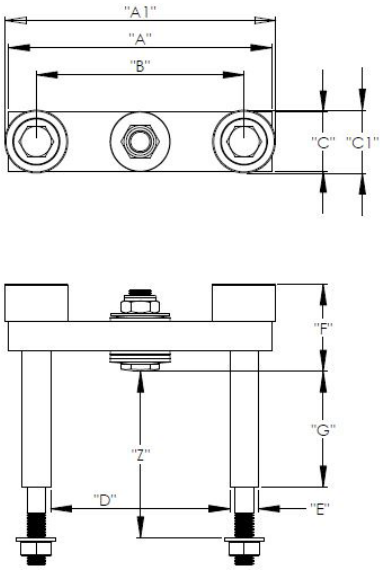
Notes:

1. DIMENSIONS IN INCHES [MILLIMETERS].
2. " Z " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.
3. " D " DIMENSION CAN BE CHANGED AS PER REQUIREMENT.

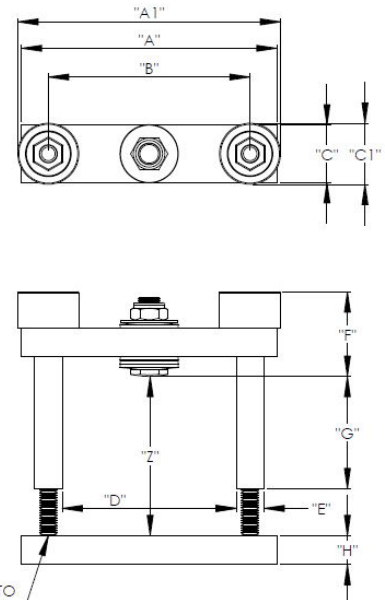
WC58- DA



WC59 - DT



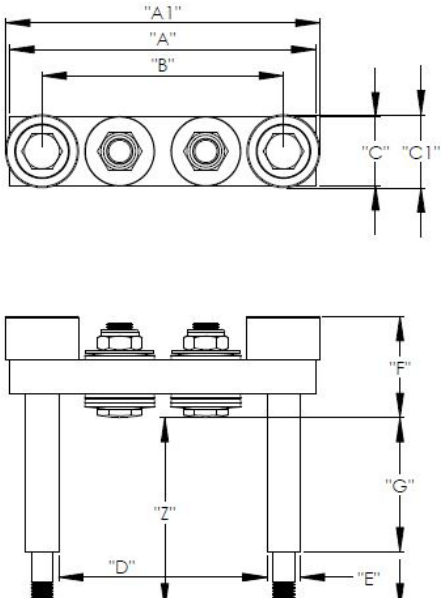
WC60 - DF



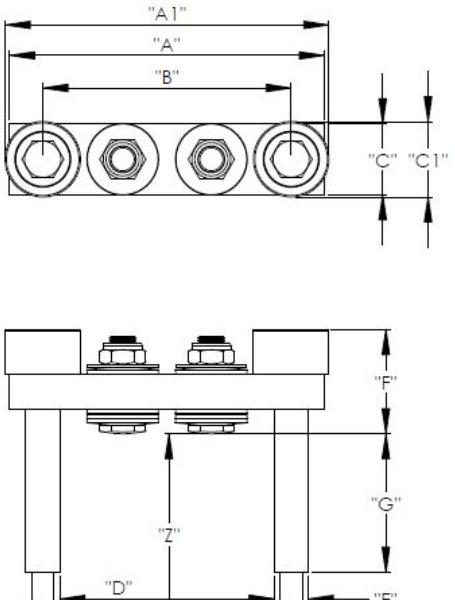
Outline drawings

Dimensions in mm and inches (1 mm = 0.0394“)

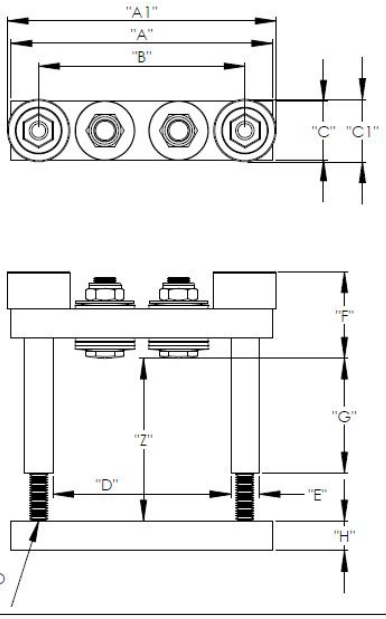
WC61 - DA



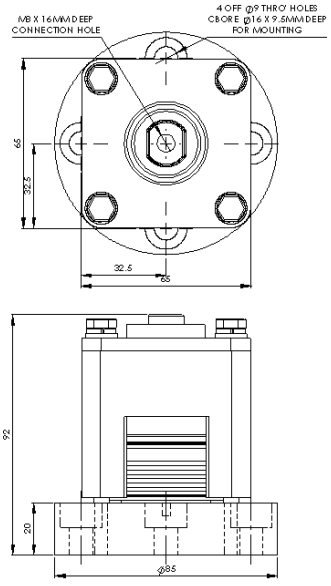
WC62 - DT



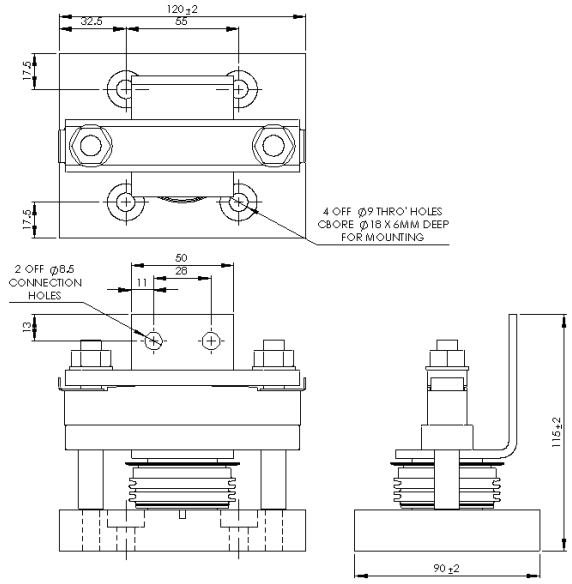
WC63 - DF



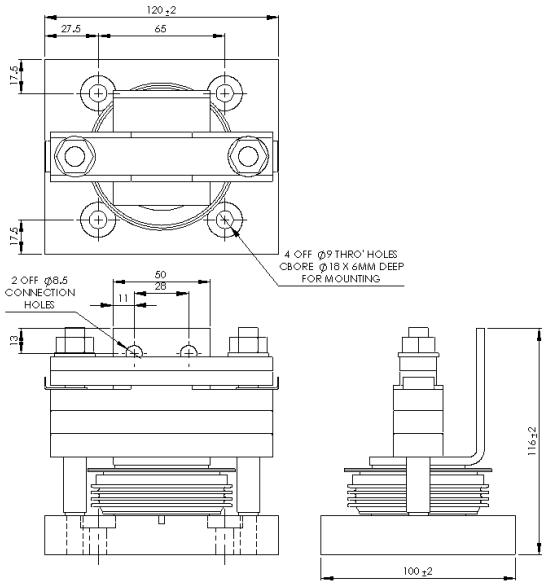
WC64 - XK1500CB034M



WC65 - XK1130SB076M



WC66 - XK2140SB076M

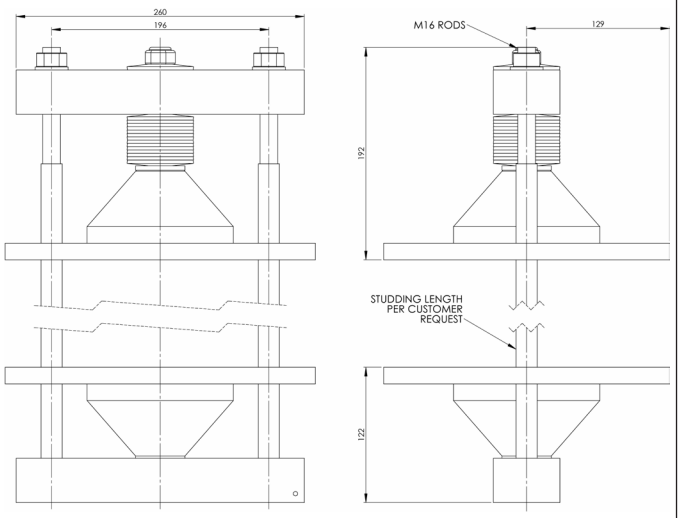


Outline drawings

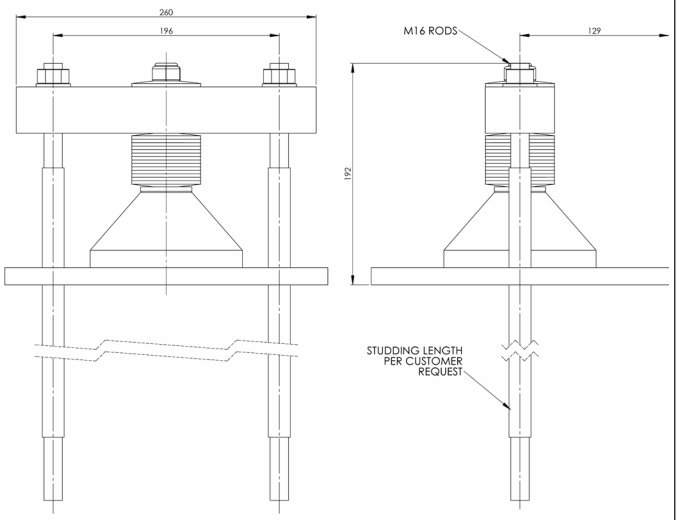
IXYS A Littelfuse Technology
UK Chippenham

Dimensions in mm and inches (1 mm = 0.0394“)

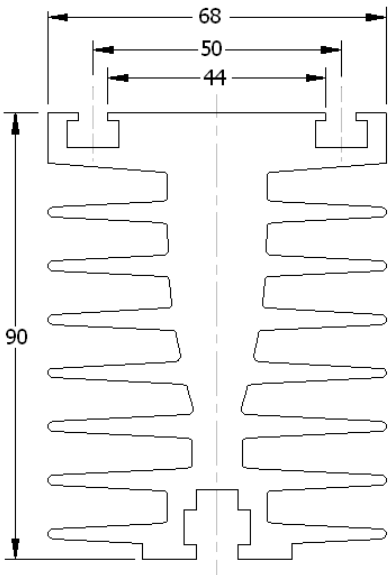
WC67 - XK8000DA180ML



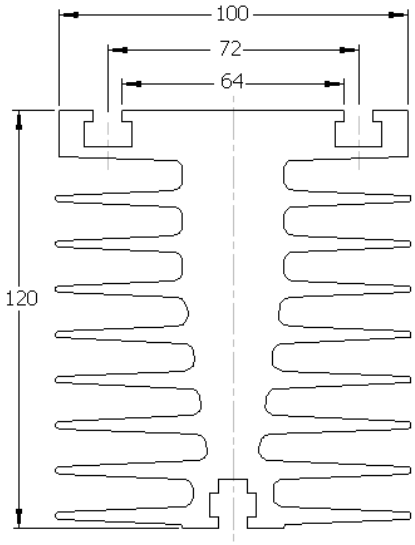
WC68 - XK8000SA180ML



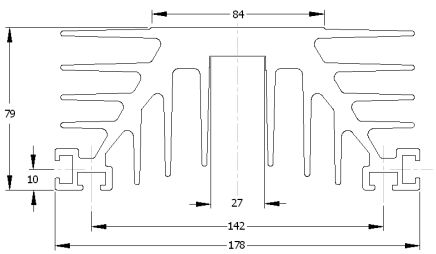
WH1 - G FIN



WH2 - GA FIN



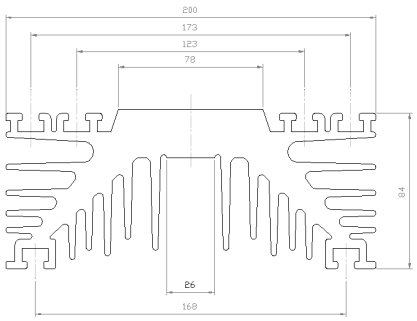
WH3 - H FIN



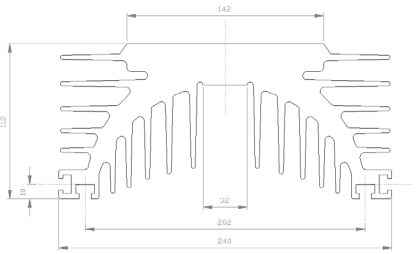
Outline drawings

Dimensions in mm and inches (1 mm = 0.0394“)

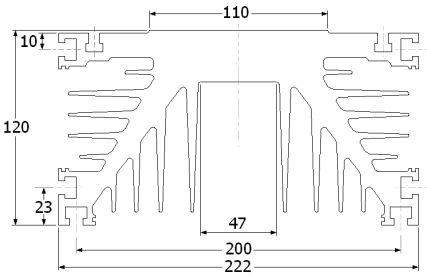
WH4 - T FIN



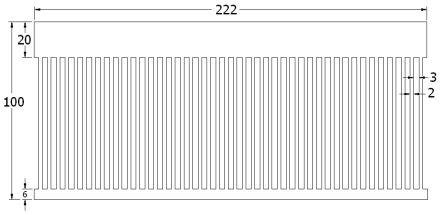
WH5 - TB FIN



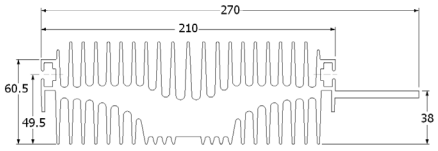
WH6 - TC FIN



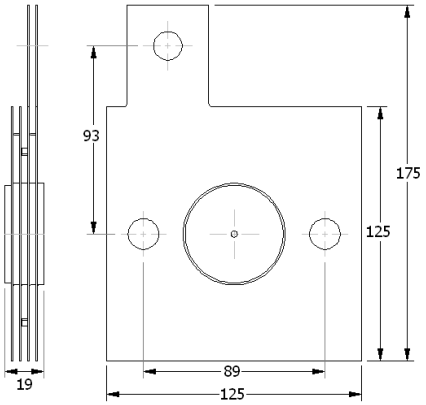
WH7 - LP100



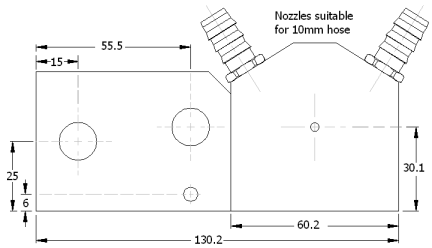
WH8 - WS46



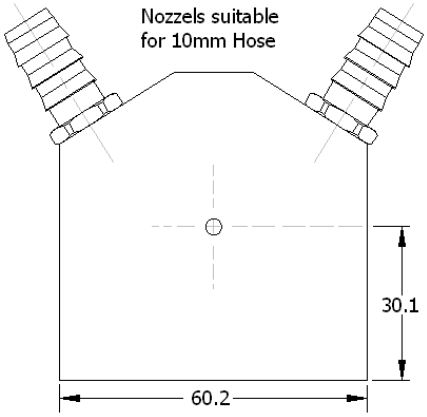
WH9 - WS30 - COPPER



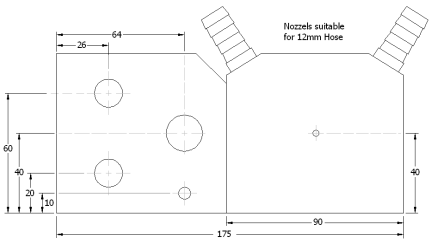
WCL1 - LK COOLER



WCL2 - LKA COOLER



WCL3 - LKB COOLER

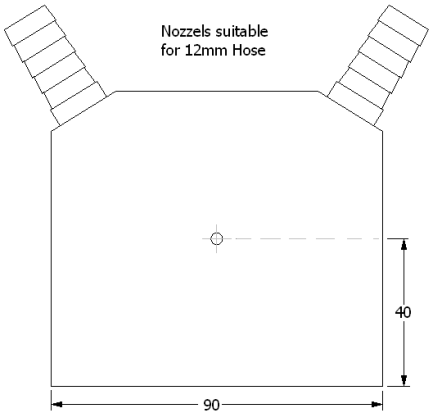


Outline drawings

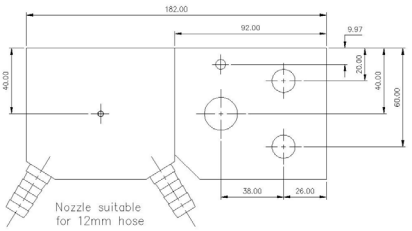
IXYS A Littelfuse Technology
UK Chippenham

Dimensions in mm and inches (1 mm = 0.0394“)

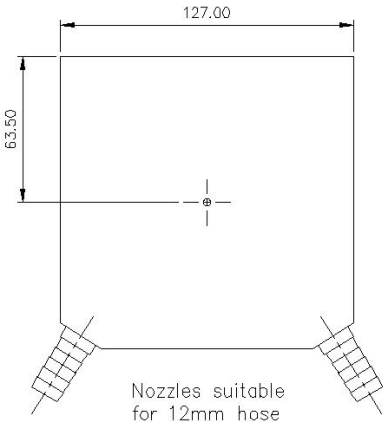
WCL4 - LKC COOLER



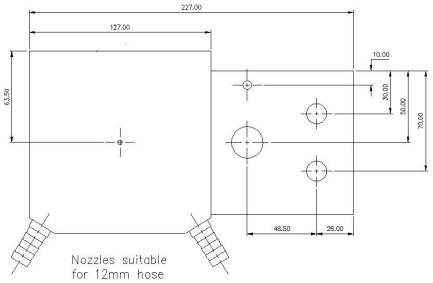
WCL5 - LKD COOLER



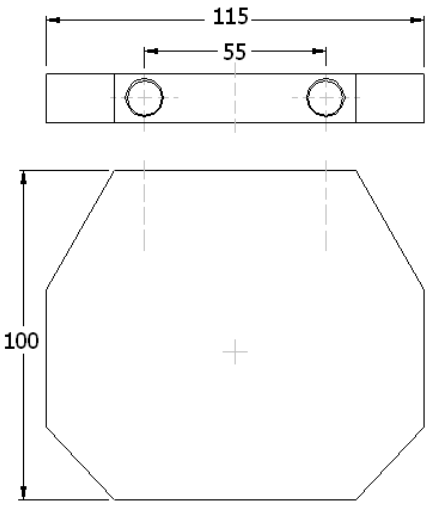
WCL6 - LKE COOLER



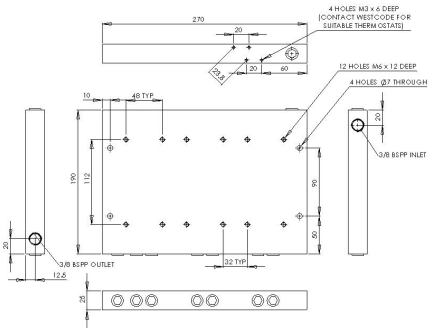
WCL7 - LKF



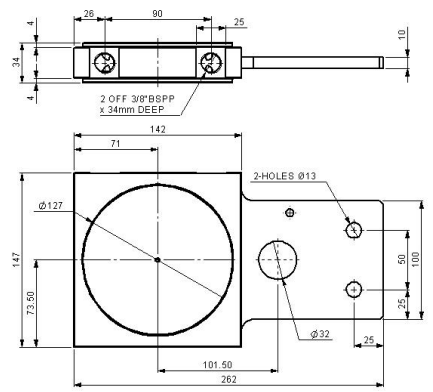
WCL8 - WS27



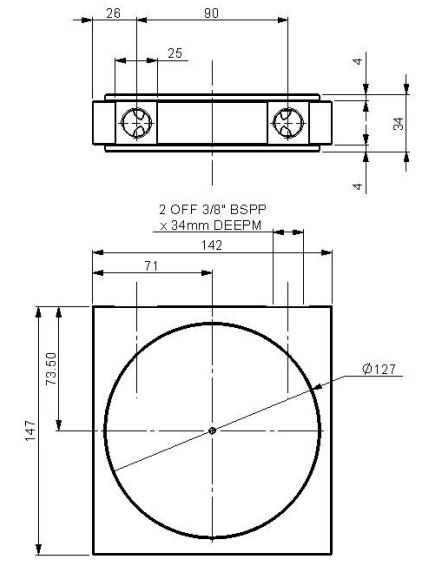
WCL9 - WS65 COOLER



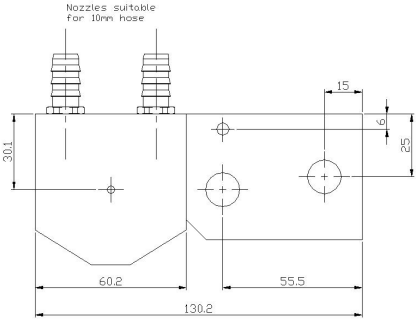
WCL10 - WS69 COOLER



WCL11 - WS70 COOLER



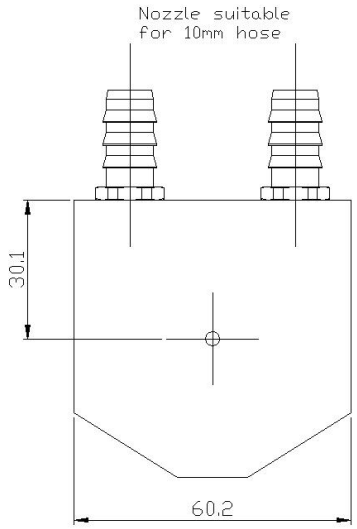
WCL12 - WS71-1 COOLER



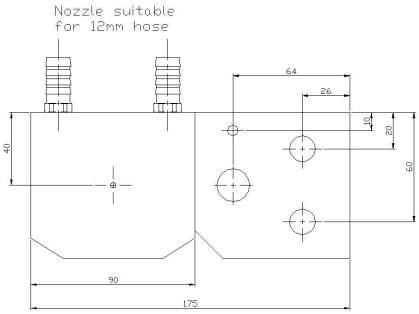
Outline drawings

Dimensions in mm and inches (1 mm = 0.0394“)

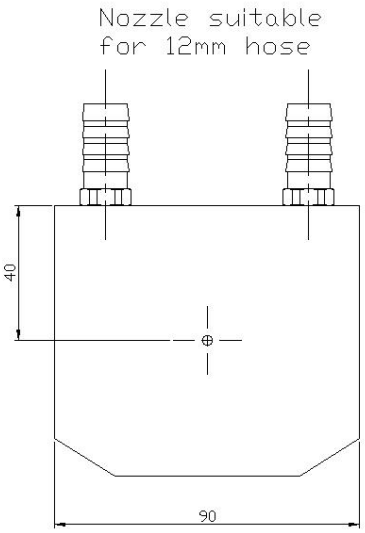
WCL13 - WS71-2 COOLER



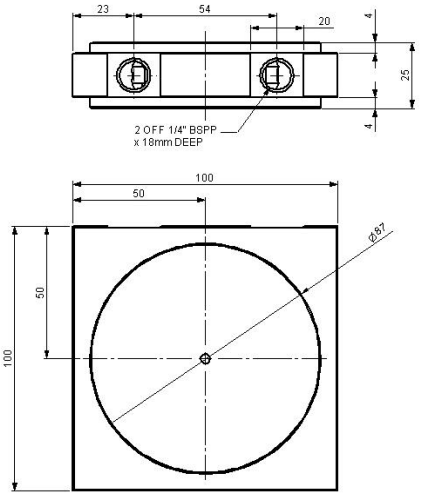
WCL14 - WS72-1 COOLER



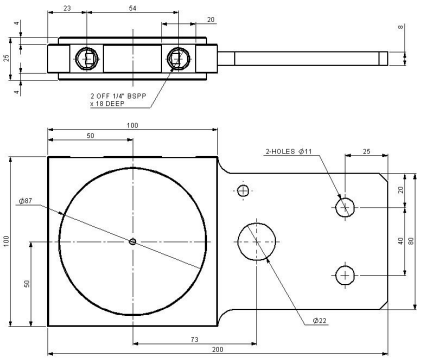
WCL15 - WS72-2 COOLER



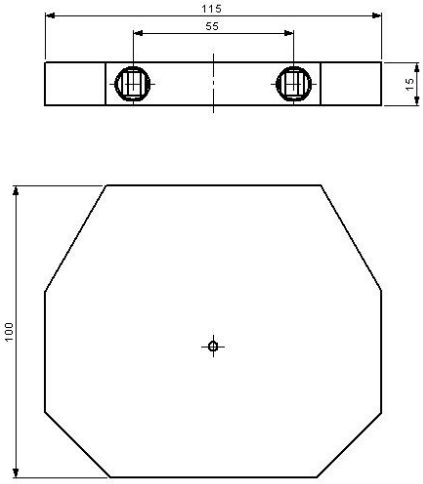
WCL16 - XW127ExxxA



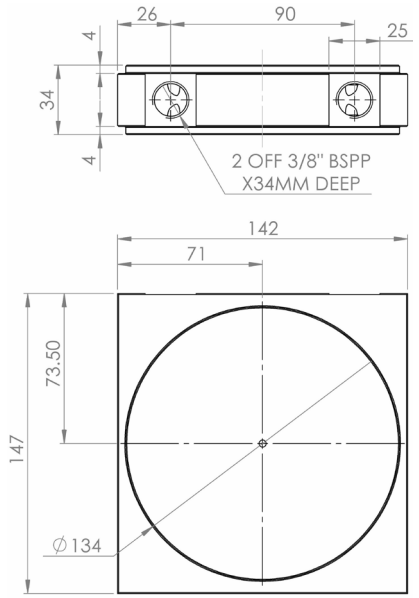
WCL17 - XW127ExxxB



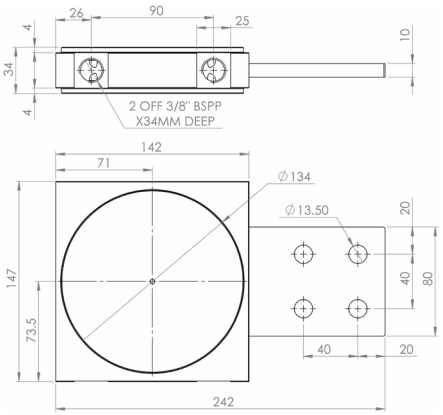
WCL18 - XW180GN25A



WCL19 - XW180BxxxE



WCL20 - XW180BxxxF

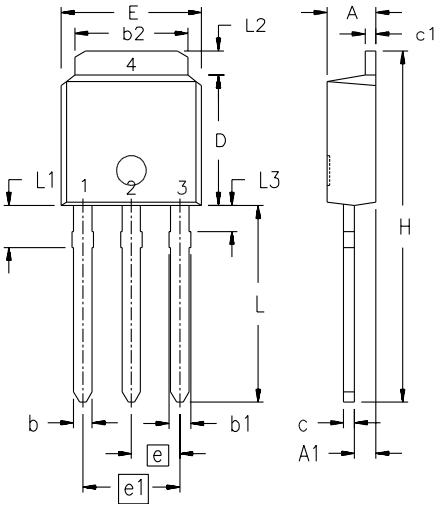


Outline drawings

IXYS
A Littelfuse Technology
Germany

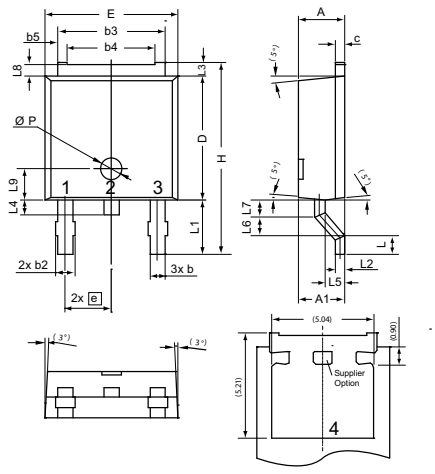
Dimensions in mm and inches (1 mm = 0.0394“)

X003 TO-251 AA — Weight = 0.4 g



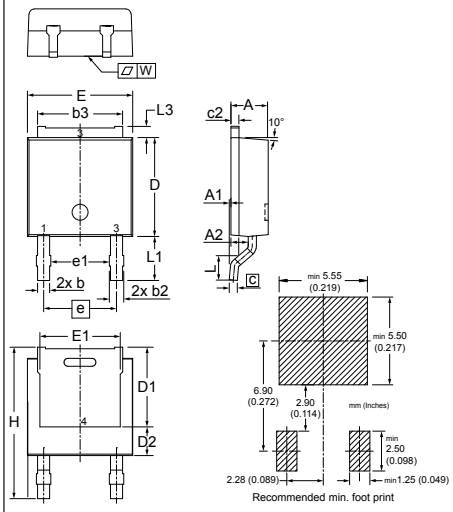
Dim.	Millimeters min	Millimeters max	Inches min	Inches max
A	2.19	2.38	0.086	0.094
A1	0.89	1.14	0.035	0.045
b	0.64	0.89	0.025	0.035
b1	0.76	1.14	0.030	0.045
b2	5.21	5.46	0.205	0.215
c	0.46	0.58	0.018	0.023
c1	0.46	0.58	0.018	0.023
D	5.97	6.22	0.235	0.245
E	6.35	6.73	0.250	0.265
e	2.28 BSC		0.090 BSC	
e1	4.57 BSC		0.180 BSC	
H	17.02	17.78	0.670	0.700
L	8.89	9.65	0.350	0.380
L1	1.91	2.28	0.075	0.090
L2	0.89	1.27	0.035	0.050
L3	1.15	1.52	0.045	0.060

X004 TO-252 AA (D PAK) — Weight = 0.3 g



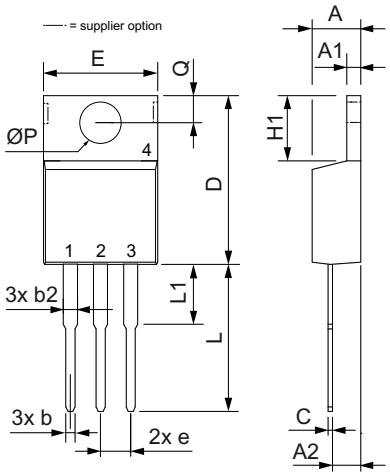
Dim.	Millimeters min	Millimeters max	Inches min	Inches max
A	2.20	2.40	0.087	0.094
A1	2.10	2.50	0.083	0.098
b	0.66	0.86	0.026	0.034
b2	-	0.96	-	0.038
b3	5.04	5.64	0.198	0.222
b4	4.34 BSC		0.171 BSC	
b5	0.50 BSC		0.020 BSC	
c	0.40	0.60	0.016	0.024
D	5.90	6.30	0.232	0.248
E	6.40	6.80	0.252	0.268
e	2.10	2.50	0.083	0.098
H	9.20	9.80	0.362	0.386
L	0.55	1.02	0.022	0.040
L1	2.50	2.90	0.098	0.114
L2	0.40	0.60	0.016	0.024
L3	0.50	0.90	0.020	0.035
L4	0.60	1.00	0.024	0.039
L5	0.82	1.22	0.032	0.048
L6	0.79	0.99	0.031	0.039
L7	0.81	1.01	0.032	0.040
L8	0.40	0.80	0.016	0.031
L9	1.50 BSC		0.059 BSC	
Ø P	1.00 BSC		0.039 BSC	

X004a TO-252 AA (D PAK HV) — Weight = 0.3 g



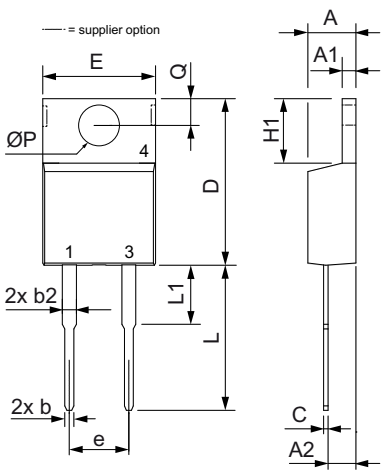
Dim.	Millimeters min	Millimeters max	Inches min	Inches max
A	2.18	2.39	0.086	0.094
A1	0.00	0.13	0.000	0.005
A2	0.97	1.17	0.038	0.046
b	0.64	0.89	0.025	0.035
b2	0.76	1.14	0.030	0.045
b3	5.08	5.59	0.200	0.220
c	0.46	0.61	0.018	0.024
c2	0.46	0.58	0.018	0.023
D	5.97	6.22	0.235	0.245
D1	4.57	5.21	0.180	0.205
D2	2.03		0.080	
E	6.35	6.73	0.250	0.265
E1	4.32	5.21	0.170	0.205
e	4.57		0.180	
e1	3.62		0.143	
H	9.15	10.34	0.360	0.407
L	1.40	1.78	0.055	0.070
L1	2.54	2.92	0.100	0.115
L3	0.64	1.02	0.025	0.040
W	typ. 0.02	0.040	typ. 0.0008	0.000

X005a TO-220 AB — Weight = 2 g



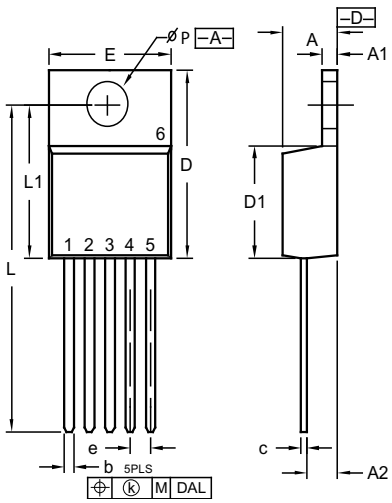
Dim.	Millimeters min	Millimeters max	Inches min	Inches max
A	4.32	4.82	0.170	0.190
A1	1.14	1.39	0.045	0.055
A2	2.29	2.79	0.090	0.110
b	0.64	1.01	0.025	0.040
b2	1.15	1.65	0.045	0.065
C	0.35	0.56	0.014	0.022
D	14.73	16.00	0.580	0.630
E	9.91	10.66	0.390	0.420
e	2.54 BSC		0.100 BSC	
H1	5.85	6.85	0.230	0.270
L	12.70	13.97	0.500	0.550
L1	2.79	5.84	0.110	0.230
Ø P	3.54	4.08	0.139	0.161
Q	2.54	3.18	0.100	0.125

X005b TO-220 AC — Weight = 2 g



Dim.	Millimeters min	Millimeters max	Inches min	Inches max
A	4.32	4.82	0.170	0.190
A1	1.14	1.39	0.045	0.055
A2	2.29	2.79	0.090	0.110
b	0.64	1.01	0.025	0.040
b2	1.15	1.65	0.045	0.065
C	0.35	0.56	0.014	0.022
D	14.73	16.00	0.580	0.630
E	9.91	10.66	0.390	0.420
e	5.08 BSC		0.200 BSC	
H1	5.85	6.85	0.230	0.270
L	12.70	13.97	0.500	0.550
L1	2.79	5.84	0.110	0.230
Ø P	3.54	4.08	0.139	0.161
Q	2.54	3.18	0.100	0.125

X006 TO-220 (5) — Weight = 2 g



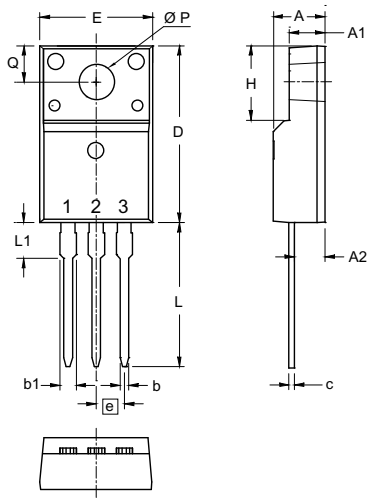
Dim.	Millimeters min	Millimeters max	Inches min	Inches max
A	4.32	4.82	0.170	0.190
A1	1.14	1.39	0.045	0.055
A2	2.29	2.79	0.090	0.110
b	0.64	1.01	0.025	0.040
c	0.38	0.64	0.015	0.025
D	14.73	15.75	0.580	0.620
D1	8.64	9.40	0.340	0.370
E	9.91	10.54	0.390	0.415
e	1.70 BSC		0.067 BSC	
k	0.00	0.36	0.000	0.014
L	25.27	26.54	0.995	1.045
L1	11.94	12.95	0.470	0.510
Ø P	3.53	3.96	0.139	0.156

Outline drawings

Dimensions in mm and inches (1 mm = 0.0394“)

X007a TO-220 ABFP

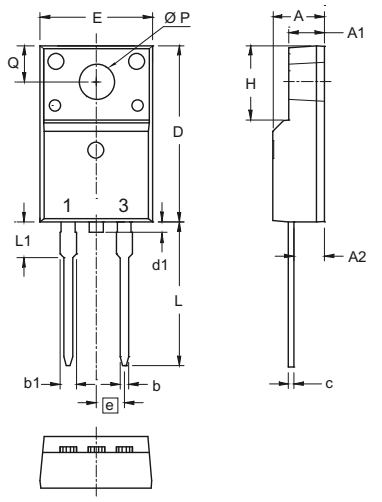
Weight = 2 g



Dim.	Millimeters		Inches	
	min	max	min	max
A	4.50	4.90	0.177	0.193
A1	2.34	2.74	0.092	0.108
A2	2.56	2.96	0.101	0.117
b	0.70	0.90	0.028	0.035
b1	1.27	1.47	0.050	0.058
c	0.45	0.60	0.018	0.024
D	15.67	16.07	0.617	0.633
E	9.96	10.36	0.392	0.408
e	2.54 BSC		0.100 BSC	
H	6.48	6.88	0.255	0.271
L	12.68	13.28	0.499	0.523
L1	3.03	3.43	0.119	0.135
Ø P	3.08	3.28	0.121	0.129
Q	3.20	3.40	0.126	0.134

X007b TO-220 ACFP

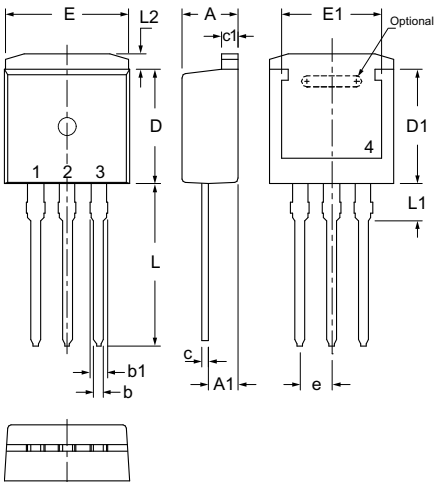
Weight = 2 g



Dim.	Millimeters		Inches	
	min	max	min	max
A	4.50	4.90	0.177	0.193
A1	2.34	2.74	0.092	0.108
A2	2.56	2.96	0.101	0.117
b	0.70	0.90	0.028	0.035
b1	1.27	1.47	0.050	0.058
c	0.45	0.60	0.018	0.024
D	15.67	16.07	0.617	0.633
d1	0.00	1.10	0.000	0.043
E	9.96	10.36	0.392	0.408
e	2.54 BSC		0.100 BSC	
H	6.48	6.88	0.255	0.271
L	12.68	13.28	0.499	0.523
L1	3.03	3.43	0.119	0.135
Ø P	3.08	3.28	0.121	0.129
Q	3.20	3.40	0.126	0.134

X008a TO-262 I²PAK

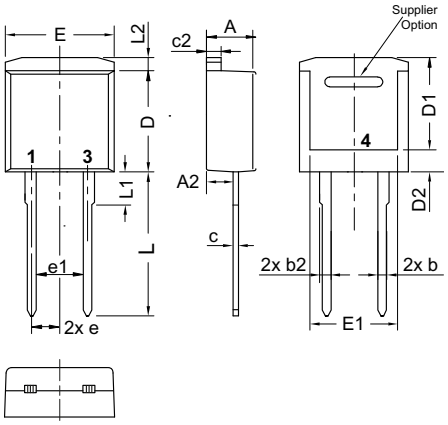
Weight = 1.5 g



Dim.	Millimeters		Inches	
	min	max	min	max
A	4.30	4.70	0.169	0.185
A1	2.20	2.60	0.087	0.102
b	0.70	0.90	0.028	0.035
b1	1.37	1.57	0.054	0.062
c	0.45	0.60	0.018	0.024
c1	1.25	1.40	0.049	0.055
D	9.00	9.40	0.355	0.370
D1	7.20		0.284	
E	9.70	9.90	0.382	0.390
E1	7.00		0.276	
e	2.54 BSC		0.100 BSC	
L	12.88	13.28	0.507	0.523
L1	3.00	-	0.118	-
L2	1.00	1.40	0.039	0.055

X008b TO-262 I²PAK

Weight = 1.5 g

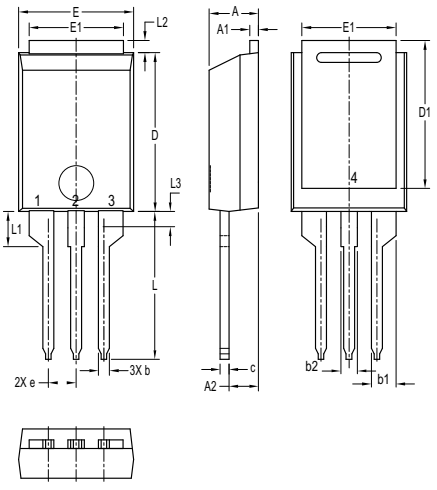


Dim.	Millimeters		Inches	
	min	max	min	max
A	4.06	4.83	0.160	0.190
A2	2.41		0.095	
b	0.51	0.99	0.020	0.039
b2	1.14	1.40	0.045	0.055
c	0.40	0.74	0.016	0.029
c2	1.14	1.40	0.045	0.055
D	8.38	9.40	0.330	0.370
D1	8.00	8.89	0.315	0.350
D2	2.5		0.098	
E	9.65	10.41	0.380	0.410
E1	6.22	8.50	0.245	0.335
e	2.54 BSC		0.100 BSC	
e1	4.28		0.169	
L	13.00	13.60	0.512	0.535
L1	2.90	3.10	0.114	0.122
L2	1.02	1.68	0.040	0.066

X009a PLUS220™

Weight = 2.5 g

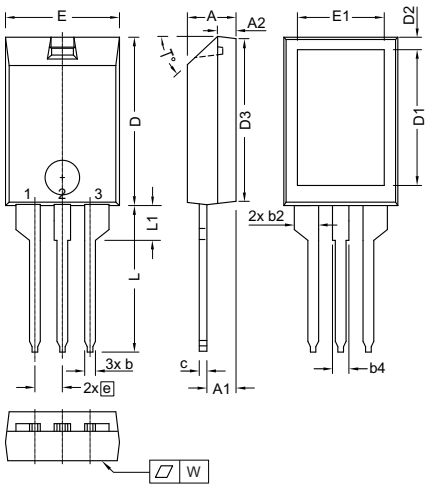
b) middle leg cut



Dim.	Millimeters		Inches	
	min	max	min	max
A	4.30	4.70	0.169	0.185
A1	0.70	0.90	0.028	0.035
A2	2.50	3.00	0.098	0.118
b	0.90	1.20	0.035	0.047
b1	2.03	2.41	0.080	0.095
b2	1.37	1.63	0.054	0.064
c	0.70	0.90	0.028	0.035
D	14.00	15.00	0.551	0.591
D1	13.00	13.70	0.512	0.539
E	10.00	11.00	0.394	0.433
E1	8.40	8.80	0.331	0.346
e	2.54 BSC		0.100 BSC	
L	13.00	14.00	0.512	0.551
L1	3.00	3.50	0.118	0.138
L2	0.90	1.30	0.035	0.051
L3	1.20	1.50	0.047	0.059

X010a ISOPLUS220™ AB

Weight = 2.5 g



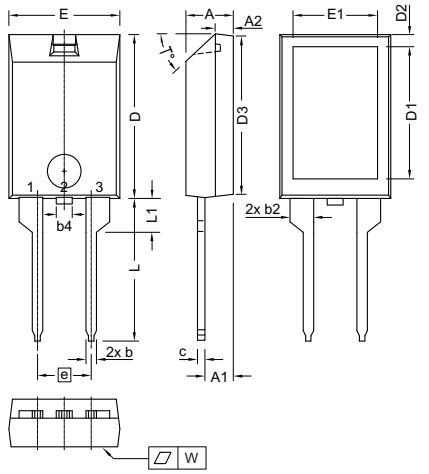
Dim.	Millimeters		Inches	
	min	max	min	max
A	4.00	5.00	0.157	0.197
A1	2.50	3.00	0.098	0.118
A2	1.60	1.80	0.063	0.071
b	0.90	1.30	0.035	0.051
b2	2.35	2.55	0.093	0.100
b4	1.25	1.65	0.049	0.065
c	0.70	1.00	0.028	0.039
D	15.00	16.00	0.591	0.630
D1	12.00	13.00	0.472	0.512
D2	1.10	1.50	0.043	0.059
D3	14.90	15.50	0.587	0.610
E	10.00	11.00	0.394	0.433
E1	7.50	8.50	0.295	0.335
e	2.54 BSC		0.100 BSC	
L	13.00	14.50	0.512	0.571
L1	3.00	3.50	0.118	0.138
T°	42.5	47.5		
W	-	0.10	-	0.004

Outline drawings

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Germany

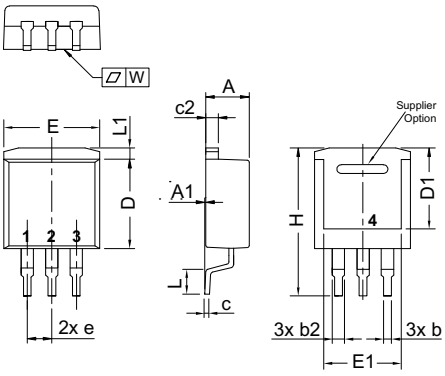
Dimensions in mm and inches (1 mm = 0.0394“)

X010b ISOPLUS220™ AC Weight = 2.5 g



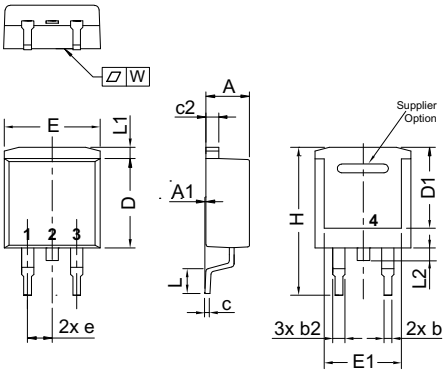
Dim.	Millimeters min	Millimeters max	Inches min	Inches max
A	4.00	5.00	0.157	0.197
A1	2.50	3.00	0.098	0.118
A2	1.60	1.80	0.063	0.071
b	0.90	1.30	0.035	0.051
b2	1.25	1.65	0.049	0.065
b4	2.35	2.55	0.093	0.100
c	0.70	1.00	0.028	0.039
D	15.00	16.00	0.591	0.630
D1	12.00	13.00	0.472	0.512
D2	1.10	1.50	0.043	0.059
D3	14.90	15.50	0.587	0.610
E	10.00	11.00	0.394	0.433
E1	7.50	8.50	0.295	0.335
e	5.08 BSC		0.200 BSC	
L	13.00	14.50	0.512	0.571
L1	3.00	3.50	0.118	0.138
T°	42.5	47.5		
W	-	0.10	-	0.004

X011a TO-263 AA (D²PAK) Weight = 1.5 g



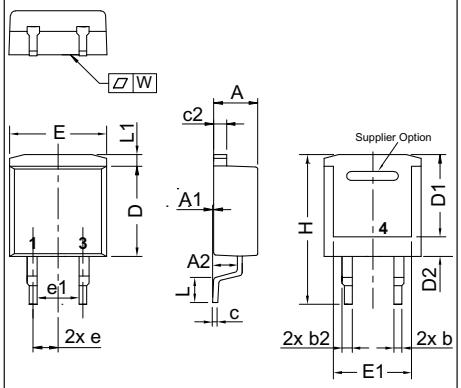
Dim.	Millimeters min	Millimeters max	Inches min	Inches max
A	4.06	4.83	0.160	0.190
A1	typ. 0.10		typ. 0.004	
b	0.51	0.99	0.020	0.039
b2	1.14	1.40	0.045	0.055
c	0.40	0.74	0.016	0.029
c2	1.14	1.40	0.045	0.055
D	8.38	9.40	0.330	0.370
D1	8.00	8.89	0.315	0.350
E	9.65	10.41	0.380	0.410
E1	6.22	8.13	0.245	0.320
e	2,54 BSC		0,100 BSC	
H	14.61	15.88	0.575	0.625
L	1.78	2.79	0.070	0.110
L1	1.02	1.68	0.040	0.066
W	typ. 0.02	0.040	typ. 0.0008	0.002

X011b TO-263 AB (D²PAK) Weight = 1.5 g



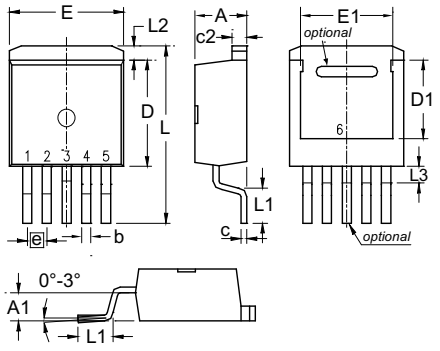
Dim.	Millimeters min	Millimeters max	Inches min	Inches max
A	4.06	4.83	0.160	0.190
A1	typ. 0.10		typ. 0.004	
b	0.51	0.99	0.020	0.039
b2	1.14	1.40	0.045	0.055
c	0.40	0.74	0.016	0.029
c2	1.14	1.40	0.045	0.055
D	8.38	9.40	0.330	0.370
D1	8.00	8.89	0.315	0.350
E	9.65	10.41	0.380	0.410
E1	6.22	8.13	0.245	0.320
e	2,54 BSC		0,100 BSC	
H	14.61	15.88	0.575	0.625
L	1.78	2.79	0.070	0.110
L1	1.02	1.68	0.040	0.066
W	typ. 0.02	0.040	typ. 0.0008	0.002

X011c TO-263 AB (D²PAK HV) Weight = 1.5 g



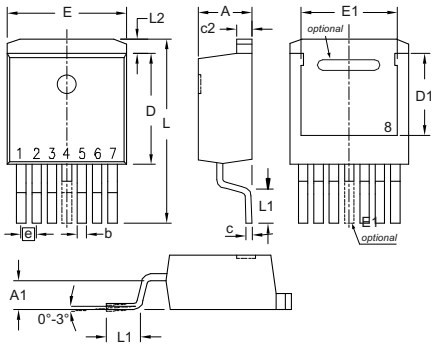
Dim.	Millimeters min	Millimeters max	Inches min	Inches max
A	4.06	4.83	0.160	0.190
A1	typ 0.10		typ 0.004	
A2	2.41		0.095	
b	0.51	0.99	0.020	0.039
b2	1.14	1.40	0.045	0.055
c	0.40	0.74	0.016	0.029
c2	1.14	1.40	0.045	0.055
D	8.38	9.40	0.330	0.370
D1	8.00	8.89	0.315	0.350
D2	2.5		0.098	
E	9.65	10.41	0.380	0.410
E1	6.22	8.50	0.245	0.335
e	2.54 BSC		0.100 BSC	
e1	4.28		0.169	
H	14.61	15.88	0.575	0.625
L	1.78	2.79	0.070	0.110
L2	1.02	1.68	0.040	0.066
W	typ 0.02	0.040	typ 0.0008	0.002

X012a TO-263 (5) Weight = 1.5 g



Dim.	Millimeters min	Millimeters max	Inches min	Inches max
A	4.20	4.80	0.160	0.190
A1	2.10	2.70	0.083	0.106
b	0.60	0.99	0.024	0.039
c	0.40	0.70	0.016	0.028
c2	1.20	1.40	0.047	0.055
D	8.80	9.50	0.346	0.374
D1	6.60	7.20	0.260	0.283
E	9.65	10.30	0.380	0.406
E1	7.50	8.20	0.295	0.323
e	1.70 BSC		0.067 BSC	
L	14.80	15.80	0.583	0.622
L1	2.24	2.84	0.088	0.112
L2	1.00	1.40	0.039	0.067
L3	1.20	1.70	0.047	0.067

X012b TO-263 (7) c) middle leg cut Weight = 2.5 g

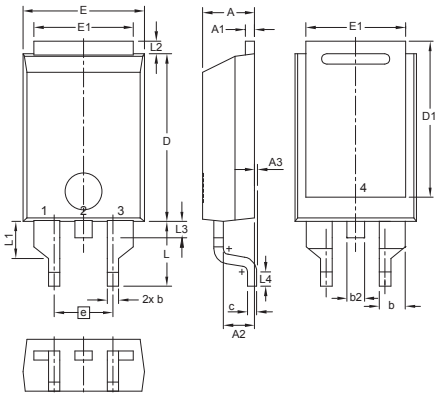


Dim.	Millimeters min	Millimeters max	Inches min	Inches max
A	4.20	4.60	0.165	0.181
A1	2.45	2.75	0.096	0.108
b	0.65	0.90	0.026	0.035
c	0.40	0.60	0.016	0.024
c2	1.14	1.40	0.045	0.055
D	8.38	8.64	0.330	0.340
D1	6.10	6.35	0.240	0.250
E	10.00	10.30	0.394	0.406
E1	7.34	8.00	0.290	0.315
e	1.27 BSC		0.050 BSC	
L	14.73	15.75	0.580	0.620
L1	2.24	2.84	0.088	0.112
L2	1.35	1.55	0.053	0.061

Outline drawings

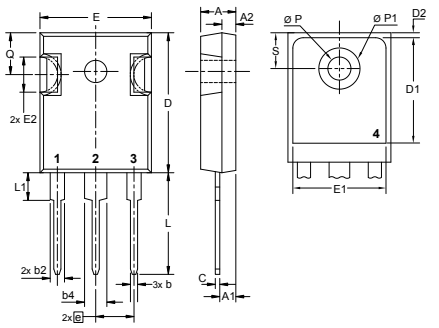
Dimensions in mm and inches (1 mm = 0.0394“)

X013 PLUS220™ (SMD) Weight = 2 g



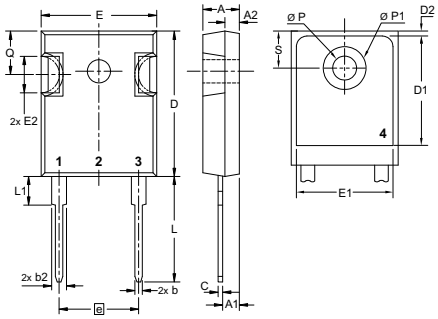
Dim.	Millimeters		Inches	
	min	max	min	max
A	4.30	4.70	0.169	0.185
A1	0.70	0.90	0.028	0.035
A2	2.50	3.00	0.098	0.118
A3	0.00	0.25	0.000	0.010
b	0.90	1.20	0.035	0.047
b1	2.03	2.41	0.080	0.095
b2	1.37	1.63	0.054	0.064
c	0.70	0.90	0.028	0.035
D	14.00	15.00	0.551	0.591
D1	13.00	13.70	0.512	0.539
E	10.00	11.00	0.394	0.433
E1	8.40	8.80	0.331	0.346
e	5.08 BSC		0.200 BSC	
L	5.30	5.80	0.209	0.228
L1	3.00	3.50	0.118	0.138
L2	0.90	1.30	0.035	0.051
L3	1.20	1.50	0.047	0.059
L4	1.00	1.50	0.039	0.059

X014a TO-247 AD Weight = 6 g



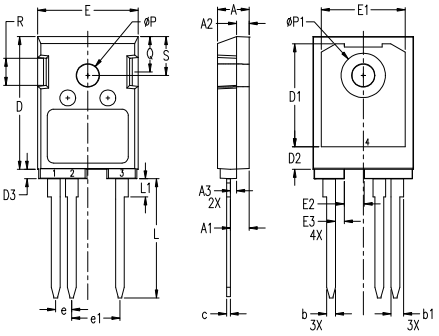
Dim.	Millimeters		Inches	
	min	max	min	max
A	4.70	5.30	0.185	0.209
A1	2.21	2.59	0.087	0.102
A2	1.50	2.49	0.059	0.098
b	0.99	1.40	0.039	0.055
b2	1.65	2.39	0.065	0.094
b4	2.59	3.43	0.102	0.135
c	0.38	0.89	0.015	0.035
D	20.79	21.45	0.819	0.845
D1	13.07	-	0.515	-
D2	0.51	1.35	0.020	0.053
E	15.48	16.24	0.610	0.640
E1	13.45	-	0.53	-
E2	4.31	5.48	0.170	0.216
e	5.45 BSC		0.215 BSC	
L	19.80	20.30	0.078	0.800
L1	-	4.49	-	0.177
Ø P	3.55	3.65	0.140	0.144
Ø P1	-	7.39	-	0.290
Q	5.38	6.19	0.212	0.244
S	6.14 BSC		0.242 BSC	

X014b TO-247 AD Weight = 6 g



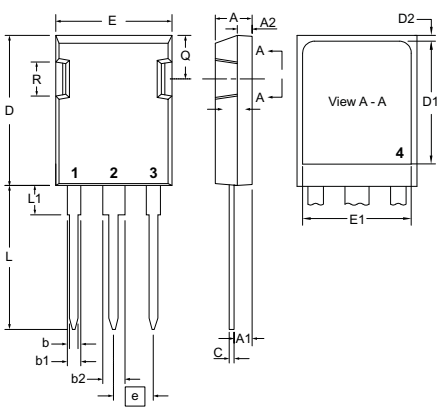
Dim.	Millimeters		Inches	
	min	max	min	max
A	4.70	5.30	0.185	0.209
A1	2.21	2.59	0.087	0.102
A2	1.50	2.49	0.059	0.098
b	0.99	1.40	0.039	0.055
b2	1.65	2.39	0.065	0.094
b4	2.59	3.43	0.102	0.135
c	0.38	0.89	0.015	0.035
D	20.79	21.45	0.819	0.845
D1	13.07	-	0.515	-
D2	0.51	1.35	0.020	0.053
E	15.48	16.24	0.610	0.640
E1	13.45	-	0.530	-
E2	4.31	5.48	0.170	0.216
e	10.90 BSC		0.430 BSC	
L	19.80	20.30	0.078	0.800
L1	-	4.49	-	0.177
Ø P	3.55	3.65	0.140	0.144
Ø P1	-	7.39	-	0.290
Q	5.38	6.19	0.212	0.244
S	6.14 BSC		0.242 BSC	

X014c TO-247 AD Weight = 6 g



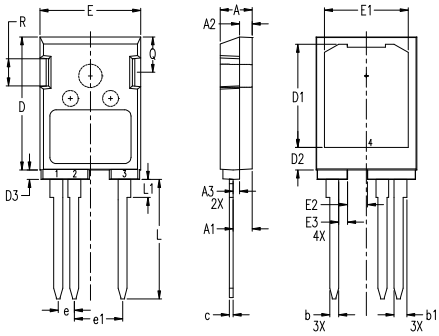
Dim.	Millimeters		Inches	
	min	max	min	max
A	4.90	5.10	0.193	0.201
A1	2.90	3.10	0.114	0.122
A2	1.90	2.10	0.075	0.083
A3	0.90	1.10	0.035	0.043
b	1.35	1.50	0.053	0.059
b1	1.90	2.10	0.075	0.083
c	0.55	0.75	0.022	0.030
D	20.80	21.40	0.819	0.843
D1	16.20	16.40	0.638	0.646
D2	3.40	3.70	0.134	0.146
D3	1.40	1.60	0.055	0.063
E	15.80	16.20	0.622	0.638
E1	13.20	13.40	0.520	0.528
E2	3.00	3.20	0.118	0.126
E3	1.30	1.50	0.051	0.059
e	2.54 BSC		0.100 BSC	
e1	7.62 BSC		0.300 BSC	
L	18.60	19.00	0.732	0.748
L1	2.70	3.00	0.106	0.118
Ø P	3.50	3.60	0.138	0.142
Ø P1	6.90	7.10	0.272	0.280
Q	5.50	5.70	0.216	0.224
R	4.20	4.30	0.165	0.169
S	6.10	6.30	0.240	0.248

X015a PLUS247™ Weight = 7 g



Dim.	Millimeters		Inches	
	min	max	min	max
A	4.83	5.21	0.190	0.205
A1	2.29	2.54	0.090	0.100
A2	1.91	2.16	0.075	0.085
b	1.14	1.40	0.045	0.055
b1	1.90	2.10	0.075	0.084
b2	2.92	3.12	0.115	0.123
C	0.60	0.80	0.024	0.031
D	20.80	21.34	0.819	0.840
E	15.75	16.13	0.620	0.635
e	5.45 BSC		0.215 BSC	
L	19.80	20.30	0.078	0.800
L1	3.80	4.30	0.150	0.170
Q	5.60	6.20	0.220	0.244
R	4.32	4.83	0.170	0.190

X015c PLUS247™ Weight = 7 g



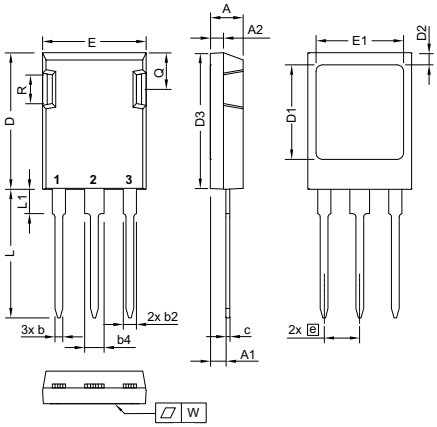
Dim.	Millimeters		Inches	
	min	max	min	max
A	4.90	5.10	0.193	0.201
A1	2.90	3.10	0.114	0.122
A2	1.90	2.10	0.075	0.083
A3	0.90	1.10	0.035	0.043
b	1.35	1.50	0.053	0.059
b1	1.90	2.10	0.075	0.083
c	0.55	0.75	0.022	0.030
D	20.80	21.40	0.819	0.843
D1	16.20	16.40	0.638	0.646
D2	3.40	3.70	0.134	0.146
D3	1.40	1.60	0.055	0.063
E	15.80	16.20	0.622	0.638
E1	13.20	13.40	0.520	0.528
E2	3.00	3.20	0.118	0.126
E3	1.30	1.50	0.051	0.059
e	2.54 BSC		0.100 BSC	
e1	7.62 BSC		0.300 BSC	
L	18.60	19.00	0.732	0.748
L1	2.70	3.00	0.106	0.118
Q	5.50	5.70	0.216	0.224
R	4.20	4.30	0.165	0.169

Outline drawings

IXYS
A Littelfuse Technology
Germany

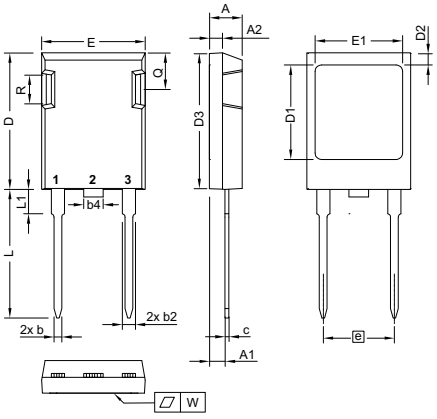
Dimensions in mm and inches (1 mm = 0.0394“)

X016a ISOPLUS247™ Weight = 4.5 g



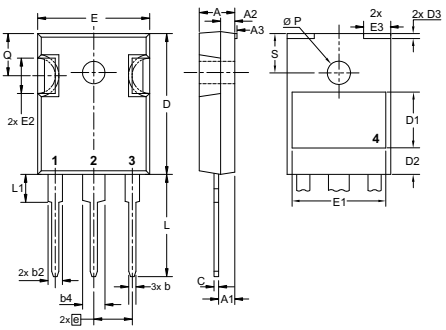
Dim.	Millimeters min	Millimeters max	Inches min	Inches max
A	4.83	5.21	0.190	0.205
A1	2.29	2.54	0.090	0.100
A2	1.91	2.16	0.075	0.085
b	1.14	1.40	0.045	0.055
b2	1.91	2.20	0.075	0.087
b4	2.92	3.24	0.115	0.128
c	0.61	0.83	0.024	0.033
D	20.80	21.34	0.819	0.840
D1	15.75	16.26	0.620	0.640
D2	1.65	2.15	0.065	0.085
D3	20.30	20.70	0.799	0.815
E	15.75	16.13	0.620	0.635
E1	13.21	13.72	0.520	0.540
e	5.45 BSC		0.215 BSC	
L	19.81	20.60	0.780	0.811
L1	3.81	4.38	0.150	0.172
Q	5.59	6.20	0.220	0.244
R	4.25	5.50	0.167	0.217
W	-	0.10	-	0.004

X016b ISOPLUS247™ Weight = 4.5 g



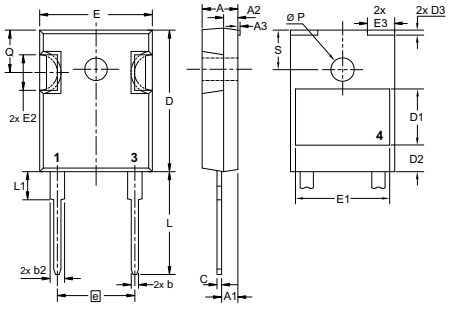
Dim.	Millimeters min	Millimeters max	Inches min	Inches max
A	4.83	5.21	0.190	0.205
A1	2.29	2.54	0.090	0.100
A2	1.91	2.16	0.075	0.085
b	1.14	1.40	0.045	0.055
b2	1.91	2.20	0.075	0.087
b4	2.92	3.24	0.115	0.128
c	0.61	0.83	0.024	0.033
D	20.80	21.34	0.819	0.840
D1	15.75	16.26	0.620	0.640
D2	1.65	2.15	0.065	0.085
D3	20.30	20.70	0.799	0.815
E	15.75	16.13	0.620	0.635
E1	13.21	13.72	0.520	0.540
e	10.90 BSC		0.430 BSC	
L	19.81	20.60	0.780	0.811
L1	3.81	4.38	0.150	0.172
Q	5.59	6.20	0.220	0.244
R	4.25	5.50	0.167	0.217
W	-	0.10	-	0.004

X016c ISO247™ Weight = 4.5 g



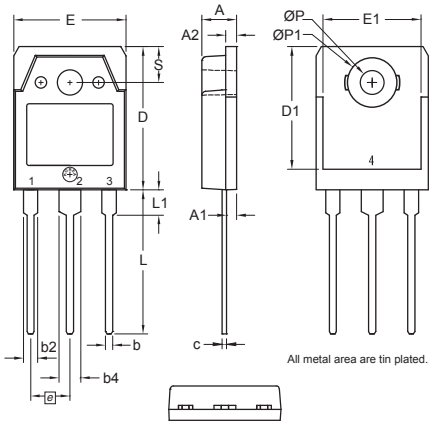
Dim.	Millimeters min	Millimeters max	Inches min	Inches max
A	4.70	5.30	0.185	0.209
A1	2.21	2.59	0.087	0.102
A2	1.50	2.49	0.059	0.098
A3	typ. 0.05		typ. 0.002	
b	0.99	1.40	0.039	0.055
b2	1.65	2.39	0.065	0.094
b4	2.59	3.43	0.102	0.135
C	0.38	0.89	0.015	0.035
D	20.79	21.45	0.819	0.844
D1	typ. 8.90		typ. 0.350	
D2	typ. 2.90		typ. 0.114	
D3	typ. 1.00		typ. 0.039	
E	15.49	16.24	0.610	0.639
E1	typ. 13.45		typ. 0.530	
E2	4.31	5.48	0.170	0.216
E3	typ. 4.00		typ. 0.157	
e	5.46 BSC		0.215 BSC	
L	19.80	20.30	0.780	0.799
L1	-	4.49	-	0.177
Ø P	3.55	3.65	0.140	0.144
Q	5.38	6.19	0.212	0.244
S	6.14 BSC		0.242 BSC	

X016d ISO247™ Weight = 4 g



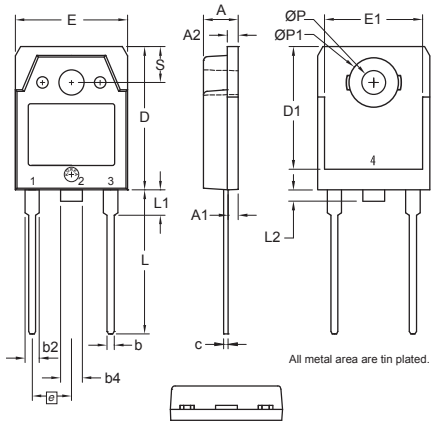
Dim.	Millimeters min	Millimeters max	Inches min	Inches max
A	4.70	5.30	0.185	0.209
A1	2.21	2.59	0.087	0.102
A2	1.50	2.49	0.059	0.098
A3	typ. 0.05		typ. 0.002	
b	0.99	1.40	0.039	0.055
b2	1.65	2.39	0.065	0.094
C	0.38	0.89	0.015	0.035
D	20.79	21.45	0.819	0.844
D1	typ. 8.90		typ. 0.350	
D2	typ. 2.90		typ. 0.114	
D3	typ. 1.00		typ. 0.039	
E	15.49	16.24	0.610	0.639
E1	typ. 13.45		typ. 0.530	
E2	4.31	5.48	0.170	0.216
E3	typ. 4.00		typ. 0.157	
e	10.92 BSC		0.430 BSC	
L	19.80	20.30	0.780	0.799
L1	-	4.49	-	0.177
Ø P	3.55	3.65	0.140	0.144
Q	5.38	6.19	0.212	0.244
S	6.14 BSC		0.242 BSC	

X017a TO-3P Weight = 5.5 g



Dim.	Millimeters min	Millimeters max	Inches min	Inches max
A	4.70	4.90	0.185	0.193
A1	1.30	1.50	0.051	0.059
A2	1.45	1.65	0.057	0.065
b	0.90	1.15	0.035	0.045
b2	1.90	2.20	0.075	0.087
b4	2.90	3.20	0.114	0.126
c	0.55	0.80	0.022	0.031
D	19.80	20.10	0.780	0.791
D1	16.90	17.20	0.665	0.677
E	15.50	15.80	0.610	0.622
E1	13.50	13.70	0.531	0.539
e	5.45 BSC		0.215 BSC	
L	19.80	20.20	0.780	0.795
L1	3.40	3.60	0.134	0.142
Ø P	3.20	3.40	0.126	0.134
Ø P1	6.90	7.10	0.272	0.280
S	4.90	5.10	0.193	0.201

X017b TO-3P Weight = 5.5 g



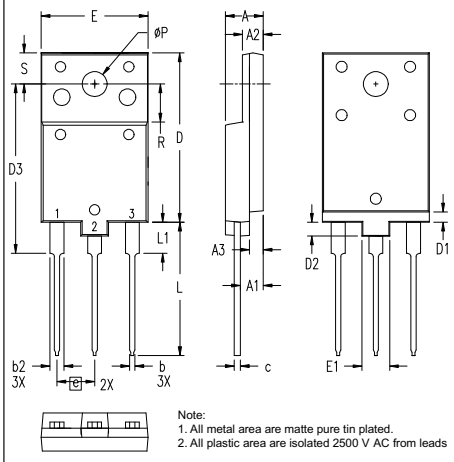
Dim.	Millimeters min	Millimeters max	Inches min	Inches max
A	4.70	4.90	0.185	0.193
A1	1.30	1.50	0.051	0.059
A2	1.45	1.65	0.057	0.065
b	0.90	1.15	0.035	0.045
b2	1.90	2.20	0.075	0.087
b4	2.90	3.20	0.114	0.126
c	0.55	0.80	0.022	0.031
D	19.80	20.10	0.780	0.791
D1	16.90	17.20	0.665	0.677
E	15.50	15.80	0.610	0.622
E1	13.50	13.70	0.531	0.539
e	5.45 BSC		0.215 BSC	
L	19.80	20.20	0.780	0.795
L1	3.40	3.60	0.134	0.142
L2	0.00	1.40	0.000	0.055
Ø P	3.20	3.40	0.126	0.134
Ø P1	6.90	7.10	0.272	0.280
S	4.90	5.10	0.193	0.201

Outline drawings

Dimensions in mm and inches (1 mm = 0.0394“)

X017c TO-3PFP

Weight = 5.5 g

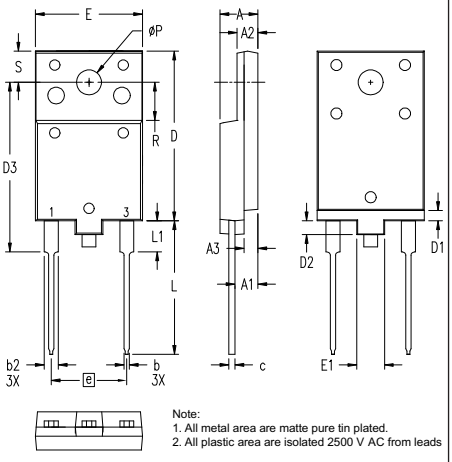


Note:
1. All metal area are matte pure tin plated.
2. All plastic area are isolated 2500 V AC from leads

Dim.	Millimeters		Inches	
	min	max	min	max
A	5.40	5.80	0.213	0.228
A1	3.10	3.50	0.122	0.138
A2	2.90	3.30	0.114	0.130
A3	1.90	2.30	0.075	0.091
b	0.65	0.95	0.026	0.037
b2	1.90	2.30	0.075	0.091
c	0.80	1.10	0.031	0.043
D	24.30	24.70	0.957	0.972
D1	1.30	1.70	0.051	0.067
D2	1.80	2.2	0.071	0.087
E	15.40	15.80	0.606	0.622
E1	3.90	4.30	0.154	0.169
e	5.45 BSC		0.215 BSC	
L	19.00	19.50	0.748	0.768
L1	4.30	4.70	0.169	0.185
Ø P	3.40	3.80	0.134	0.150
R	5.30	5.70	0.209	0.224
S	4.30	4.70	0.169	0.185

X017d TO-3PFP

Weight = 5.4 g

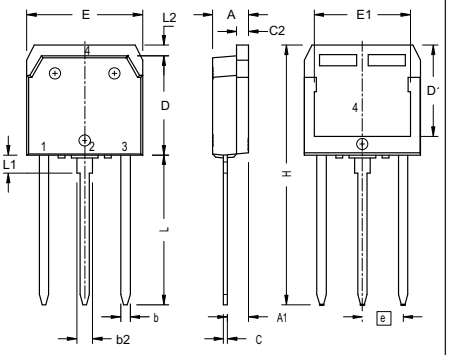


Note:
1. All metal area are matte pure tin plated.
2. All plastic area are isolated 2500 V AC from leads

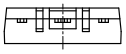
Dim.	Millimeters		Inches	
	min	max	min	max
A	5.40	5.80	0.213	0.228
A1	3.10	3.50	0.122	0.138
A2	2.90	3.30	0.114	0.130
A3	1.90	2.30	0.075	0.091
b	0.65	0.95	0.026	0.037
b2	1.90	2.30	0.075	0.091
c	0.80	1.10	0.031	0.043
D	24.30	24.70	0.957	0.972
D1	1.30	1.70	0.051	0.067
D2	1.80	2.2	0.071	0.087
E	15.40	15.80	0.606	0.622
E1	3.90	4.30	0.154	0.169
e	10.9 BSC		0.430 BSC	
L	19.00	19.50	0.748	0.768
L1	4.30	4.70	0.169	0.185
Ø P	3.40	3.80	0.134	0.150
R	5.30	5.70	0.209	0.224
S	4.30	4.70	0.169	0.185

X018 TO-268 I³PAK

Weight = 4.5 g



NOTE ALL METAL AREA ARE SOLDERED.

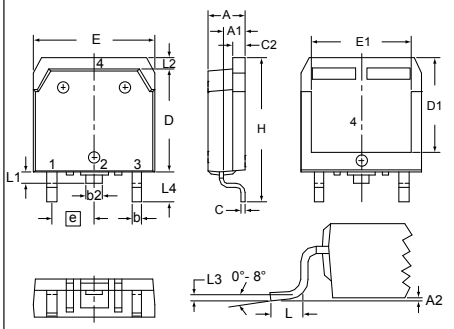


1 - GATE
2 - DRAIN (COLLECTOR)
3 - SOURCE (EMITTER)
4 - DRAIN (COLLECTOR)

Dim.	Millimeters		Inches	
	min	max	min	max
A	4.90	5.10	0.193	0.201
A1	2.70	2.90	0.106	0.114
b	1.15	1.45	0.045	0.057
b2	1.90	2.10	0.075	0.083
C	0.40	0.65	0.016	0.026
C 2	1.45	1.60	0.057	0.063
D	13.80	14.00	0.543	0.551
D1	12.40	12.70	0.488	0.500
E	15.85	16.05	0.624	0.632
E1	13.30	13.60	0.524	0.535
e	5.45 BSC		0.215 BSC	
H	34.67	35.43	1.365	1.395
L	19.81	20.32	0.780	0.800
L1	2.00	2.30	0.079	0.091
L2	1.00	1.15	0.039	0.045

X019 TO-268 AA (D³PAK)

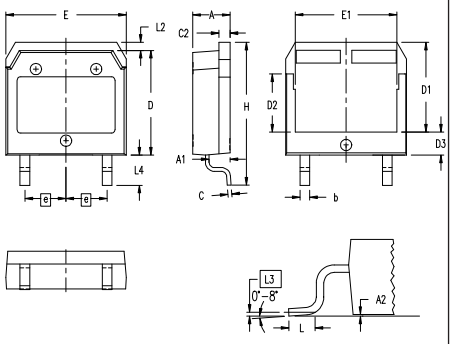
Weight = 4 g



Dim.	Millimeters		Inches	
	min	max	min	max
A	4.90	5.10	0.193	0.201
A1	2.70	2.90	0.106	0.114
A2	0.02	0.25	0.001	0.100
b	1.15	1.45	0.045	0.057
b2	1.90	2.10	0.075	0.083
C	0.40	0.65	0.016	0.026
C 2	1.45	1.60	0.057	0.063
D	13.80	14.00	0.543	0.551
D1	12.40	12.70	0.488	0.500
E	15.85	16.05	0.624	0.632
E1	13.30	13.60	0.524	0.535
e	5.45 BSC		0.215 BSC	
H	18.70	19.10	0.736	0.752
L	2.40	2.70	0.094	0.106
L1	1.20	1.40	0.047	0.055
L2	1.00	1.15	0.039	0.045
L3	2.54 BSC		0.100 BSC	
L4	3.80	4.10	0.150	0.161

X019a TO-268 AA (D³PAK HV)

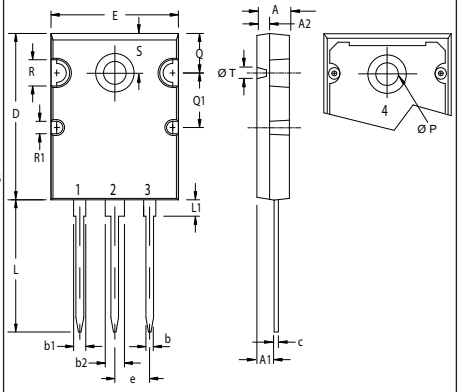
Weight = 4 g



Dim.	Millimeters		Inches	
	min	max	min	max
A	4.90	5.10	0.193	0.201
A1	2.70	2.90	0.106	0.114
A2	0.02	0.25	0.001	0.100
b	1.15	1.45	0.045	0.057
C	0.40	0.65	0.016	0.026
C 2	1.45	1.60	0.057	0.063
D	13.80	14.00	0.543	0.551
D1	11.80	12.10	0.465	0.476
D2	7.50	7.80	0.295	0.307
D3	2.90	3.20	0.114	0.126
E	15.85	16.05	0.624	0.632
E1	13.30	13.60	0.524	0.535
e	5.45 BSC		0.215 BSC	
H	18.70	19.10	0.736	0.752
L	1.70	2.00	0.067	0.079
L2	1.00	1.15	0.039	0.045
L3	0.25 BSC		0.010 BSC	
L4	3.80	4.10	0.150	0.161

X020a TO-264 AA

Weight = 10 g



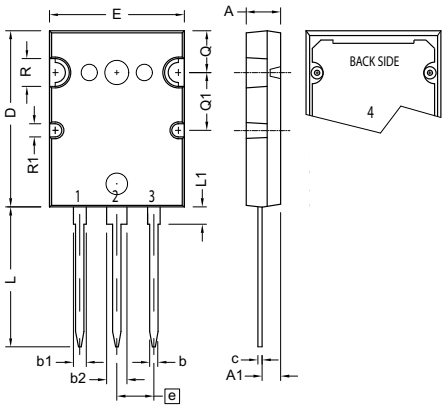
Dim.	Millimeters		Inches	
	min	max	min	max
A	4.82	5.13	0.190	0.202
A1	2.54	2.89	0.100	0.114
A2	2.00	2.10	0.079	0.083
b	1.12	1.42	0.044	0.056
b2	2.90	3.09	0.114	0.122
c	0.53	0.83	0.021	0.033
D	25.91	26.16	1.020	1.030
E	19.81	19.96	0.780	0.786
e	5.45 BSC		0.215 BSC	
J	0.00	0.25	0.000	0.010
K	0.00	0.25	0.000	0.010
L	20.32	20.83	0.800	0.820
L1	2.29	2.59	0.090	0.102
P	3.17	2.66	0.125	0.144
Q	6.07	6.27	0.239	0.247
Q1	8.38	8.69	0.330	0.342
R	3.81	4.32	0.150	0.170
R1	1.78	2.29	0.070	0.090
S	6.04	6.30	0.238	0.248
T	1.57	1.83	0.062	0.072

Outline drawings

IXYS
A Littelfuse Technology
Germany

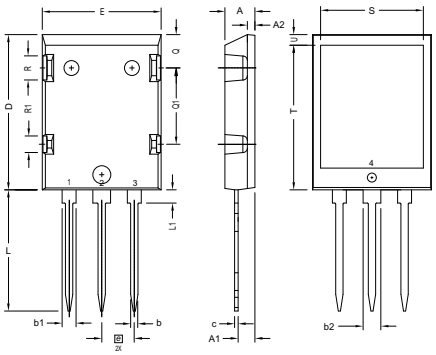
Dimensions in mm and inches (1 mm = 0.0394“)

X021a PLUS264™ Weight = 10 g



Dim.	Millimeters		Inches	
	min	max	min	max
A	4.70	5.31	0.185	0.209
A1	2.59	3.00	0.102	0.118
b	0.94	1.40	0.037	0.055
b1	2.21	2.59	0.087	0.102
b2	2.79	3.20	0.110	0.126
c	0.43	0.74	0.017	0.029
D	25.58	26.59	1.007	1.047
E	19.30	20.29	0.760	0.799
e	5.45 BSC		0.215 BSC	
L	19.79	21.39	0.779	0.842
L1	2.21	2.59	0.087	0.102
Q	6.10	6.50	0.240	0.256
Q1	8.38	8.79	0.330	0.346
Ø R	3.94	4.75	0.155	0.187
ØR1	2.16	2.36	0.085	0.093

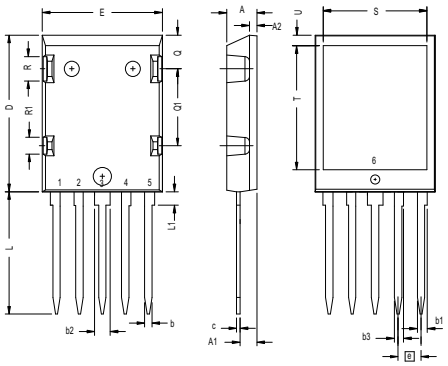
X022a ISOPLUS264™ Weight = 7.5 g



Dim.	Millimeters		Inches	
	min	max	min	max
A	4.83	5.21	0.190	0.205
A1	2.59	3.00	0.102	0.118
A2	1.17	1.40	0.046	0.055
b	1.14	1.40	0.045	0.055
b1	1.60	1.83	0.063	0.072
b2	2.54	2.79	0.100	0.110
b3	1.47	1.73	0.058	0.068
c	0.51	0.74	0.020	0.029
D	25.91	26.42	1.020	1.040
E	19.56	20.29	0.770	0.799
e	3.81 BSC		0.150 BSC	
L	19.81	21.83	0.780	0.820
L1	2.03	2.59	0.080	0.102
Q	5.33	5.97	0.210	0.235
Q1	12.45	13.03	0.490	0.513
R	3.81	4.57	0.150	0.180
R1	2.54	3.30	0.100	0.130
S	16.97	17.53	0.668	0.690
T	20.34	20.85	0.801	0.821
U	1.65	2.03	0.065	0.080

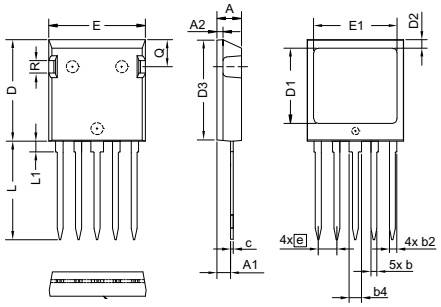
X022 ISOPLUS264™ Weight = 7.5 g

c) 5 pin
d) 3 (sym) w/o pin 2 & 4
e) 3 (HV) w/o pin 3 & 4
f) 2 (HV) w/o pin 2 & 3 & 4



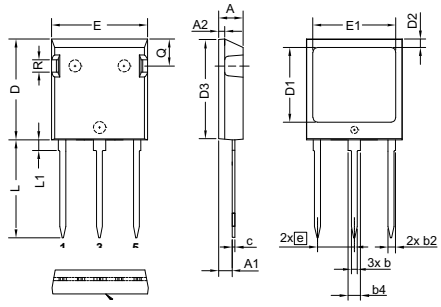
Dim.	Millimeters		Inches	
	min	max	min	max
A	4.83	5.21	0.190	0.205
A1	2.59	3.00	0.102	0.118
A2	1.17	1.40	0.046	0.055
b	1.14	1.40	0.045	0.055
b1	1.60	1.83	0.063	0.072
b2	2.54	2.79	0.100	0.110
b3	1.47	1.73	0.058	0.068
c	0.51	0.74	0.020	0.029
D	25.91	26.42	1.020	1.040
E	19.56	20.29	0.770	0.799
e	3.81 BSC		0.150 BSC	
L	19.81	21.83	0.780	0.820
L1	2.03	2.59	0.080	0.102
Q	5.33	5.97	0.210	0.235
Q1	12.45	13.03	0.490	0.513
R	3.81	4.57	0.150	0.180
R1	2.54	3.30	0.100	0.130
S	16.97	17.53	0.668	0.690
T	20.34	20.85	0.801	0.821
U	1.65	2.03	0.065	0.080

X024a ISOPLUS i4-PAC™ Weight = 6 g



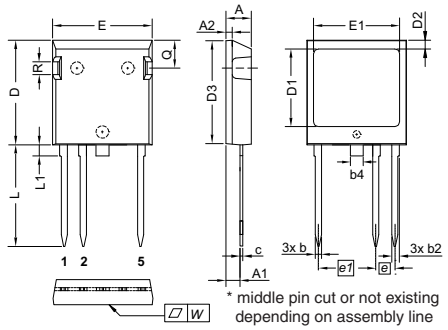
Dim.	Millimeters		Inches	
	min	max	min	max
A	4.83	5.21	0.190	0.205
A1	2.59	3.00	0.102	0.118
A2	1.17	2.16	0.046	0.085
b	1.14	1.40	0.045	0.055
b2	1.47	1.73	0.058	0.068
b4	2.54	2.79	0.100	0.110
c	0.51	0.74	0.020	0.029
D	20.80	21.34	0.819	0.840
D1	14.99	15.75	0.590	0.620
D2	1.65	2.03	0.065	0.080
D3	20.30	20.70	0.799	0.815
E	19.56	20.29	0.770	0.799
E1	16.76	17.53	0.660	0.690
e	3.81 BSC		0.150 BSC	
L	19.81	21.34	0.780	0.840
L1	2.11	2.59	0.083	0.102
Q	5.33	6.20	0.210	0.244
R	2.54	4.57	0.100	0.180
W	-	0.10	-	0.004

X024b ISOPLUS i4-PAC™ Weight = 5.5 g



Dim.	Millimeters		Inches	
	min	max	min	max
A	4.83	5.21	0.190	0.205
A1	2.59	3.00	0.102	0.118
A2	1.17	2.16	0.046	0.085
b	1.14	1.40	0.045	0.055
b2	1.47	1.73	0.058	0.068
b4	2.54	2.79	0.100	0.110
c	0.51	0.74	0.020	0.029
D	20.80	21.34	0.819	0.840
D1	14.99	15.75	0.590	0.620
D2	1.65	2.03	0.065	0.080
D3	20.30	20.70	0.799	0.815
E	19.56	20.29	0.770	0.799
E1	16.76	17.53	0.660	0.690
e	7.62 BSC		0.300 BSC	
L	19.81	21.34	0.780	0.840
L1	2.11	2.59	0.083	0.102
Q	5.33	6.20	0.210	0.244
R	2.54	4.57	0.100	0.180
W	-	0.10	-	0.004

X024c ISOPLUS i4-PAC™ Weight = 5.5 g



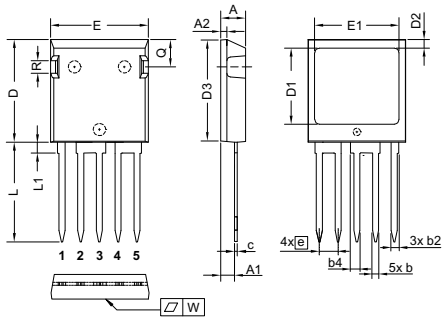
* middle pin cut or not existing depending on assembly line

Dim.	Millimeters		Inches	
	min	max	min	max
A	4.83	5.21	0.190	0.205
A1	2.59	3.00	0.102	0.118
A2	1.17	2.16	0.046	0.085
b	1.14	1.40	0.045	0.055
b2	1.47	1.73	0.058	0.068
b4*	2.54	2.79	0.100	0.110
c	0.51	0.74	0.020	0.029
D	20.80	21.34	0.819	0.840
D1	14.99	15.75	0.590	0.620
D2	1.65	2.03	0.065	0.080
D3	20.30	20.70	0.799	0.815
E	19.56	20.29	0.770	0.799
E1	16.76	17.53	0.660	0.690
e	3.81 BSC		0.150 BSC	
e1	11.43 BSC		0.450 BSC	
L	19.81	21.34	0.780	0.840
L1	2.11	2.59	0.083	0.102
Q	5.33	6.20	0.210	0.244
R	2.54	4.57	0.100	0.180
W	-	0.10	-	0.004

Outline drawings

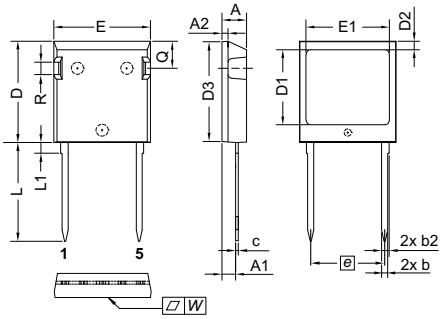
Dimensions in mm and inches (1 mm = 0.0394“)

X024d ISOPLUS i4-PAC™ Weight = 6 g



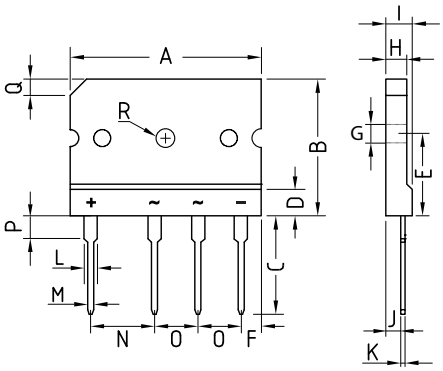
Dim.	Millimeters		Inches	
	min	max	min	max
A	4.83	5.21	0.190	0.205
A1	2.59	3.00	0.102	0.118
A2	1.17	2.16	0.046	0.085
b	1.14	1.40	0.045	0.055
b2	1.47	1.73	0.058	0.068
c	0.51	0.74	0.020	0.029
D	20.80	21.34	0.819	0.840
D1	14.99	15.75	0.590	0.620
D2	1.65	2.03	0.065	0.080
D3	20.30	20.70	0.799	0.815
E	19.56	20.29	0.770	0.799
E1	16.76	17.53	0.660	0.690
e	3.81 BSC		0.150 BSC	
L	19.81	21.34	0.780	0.840
L1	2.11	2.59	0.083	0.102
Q	5.33	6.20	0.210	0.244
R	2.54	4.57	0.100	0.180
W	-	0.10	-	0.004

X024e ISOPLUS i4-PAC™ Weight = 6 g



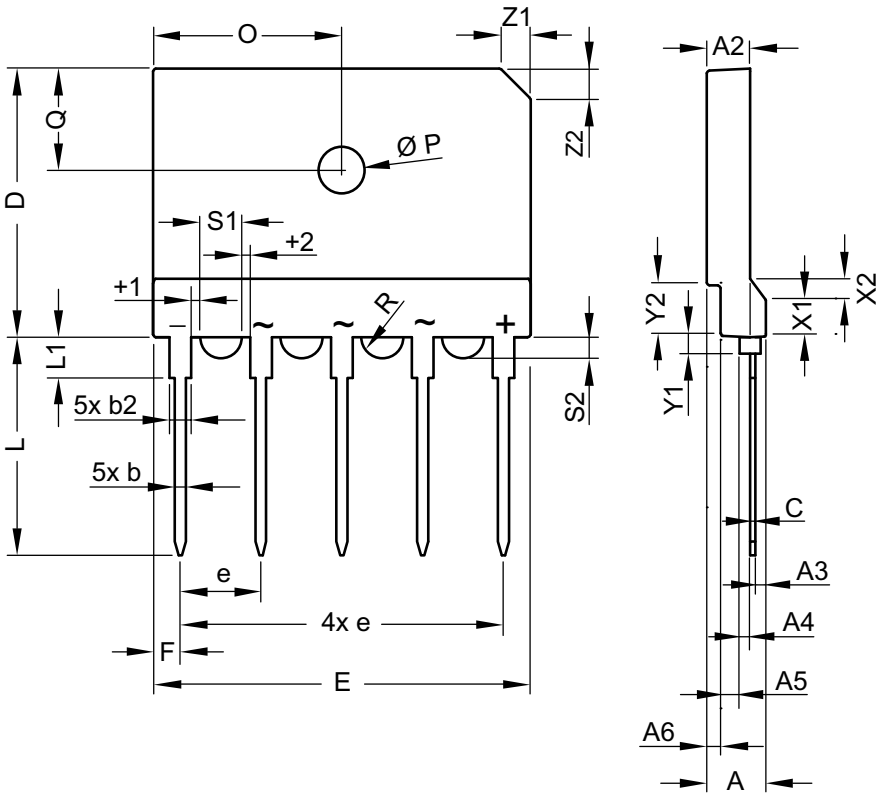
Dim.	Millimeters		Inches	
	min	max	min	max
A	4.83	5.21	0.190	0.205
A1	2.59	3.00	0.102	0.118
A2	1.17	2.16	0.046	0.085
b	1.14	1.40	0.045	0.055
b2	1.47	1.73	0.058	0.068
c	0.51	0.74	0.020	0.029
D	20.80	21.34	0.819	0.840
D1	14.99	15.75	0.590	0.620
D2	1.65	2.03	0.065	0.080
D3	20.30	20.70	0.799	0.815
E	19.56	20.29	0.770	0.799
E1	16.76	17.53	0.660	0.690
e	15.24 BSC		0.600 BSC	
L	19.81	21.34	0.780	0.840
L1	2.11	2.59	0.083	0.102
Q	5.33	6.20	0.210	0.244
R	2.54	4.57	0.100	0.180
W	-	0.10	-	0.004

X025a GBFP Weight = 7 g



Dim.	Millimeters		Inches	
	min	max	min	max
A	29.70	30.30	1.170	1.194
B	19.70	20.30	0.776	0.800
C	17.00	18.00	0.670	0.709
D	4.70	4.90	0.185	0.193
E	10.80	11.20	0.426	0.441
F	2.30	2.70	0.091	0.106
G	3.10	3.40	0.122	0.134
H	3.40	3.80	0.134	0.150
I	4.40	4.80	0.173	0.189
J	2.50	2.90	0.099	0.114
K	0.60	0.80	0.024	0.032
L	2.00	2.40	0.079	0.095
M	0.90	1.10	0.035	0.043
N	9.80	10.20	0.386	0.402
O	7.30	7.70	0.288	0.303
P	3.80	4.20	0.150	0.165
Q	(3.0) x 45°		(0.118) x 45°	
Ø R	3.1	3.4	0.122	0.134

X025b GUFP Weight = 8.5 g



Dim.	Millimeters			Inches		
	min	typ.	max	min	typ.	max
A	5.40	5.50	5.60	0.213	0.217	0.221
A2	3.90	4.00	4.10	0.154	0.158	0.162
A3	0.95	1.00	1.10	0.037	0.039	0.043
A4	0.95	1.00	1.05	0.037	0.039	0.041
A5	1.60	1.70	1.80	0.063	0.067	0.071
A6	1.25	1.30	1.35	0.049	0.051	0.053
b	0.95	1.00	1.05	0.037	0.039	0.041
b2	1.95	2.00	2.05	0.077	0.079	0.081
C	0.45	0.50	0.55	0.018	0.020	0.022
D	24.80	25.00	25.20	0.977	0.985	0.993
E	34.70	35.00	35.30	1.367	1.379	1.391
e	BSC	7.50		BSC	0.296	
F	2.40	2.50	2.60	0.095	0.099	0.102
L	2.30	20.40	2.50	0.091	0.804	0.099
L1	3.70	3.75	3.80	0.146	0.148	0.150
O	17.40	17.50	17.60	0.686	0.690	0.693
Ø P	4.10	4.20	4.30	0.162	0.165	0.169
Q	9.20	9.30	9.40	0.362	0.366	0.370
$^{0}/_{2}$ R	-	1.77	-	-	0.070	-
s1	3.45	3.50	3.55	0.136	0.138	0.140
s2	1.45	1.50	1.55	0.057	0.059	0.061
t1	0.95	1.00	1.05	0.037	0.039	0.041
t2	0.95	1.00	1.05	0.037	0.039	0.041
x1	3.20	3.30	3.40	0.126	0.130	0.134
x2	1.90	2.00	2.10	0.075	0.079	0.083
y1	1.60	1.65	1.70	0.063	0.065	0.067
y2	4.65	4.70	4.75	0.183	0.185	0.187
z1	2.80	2.90	3.00	0.110	0.114	0.118

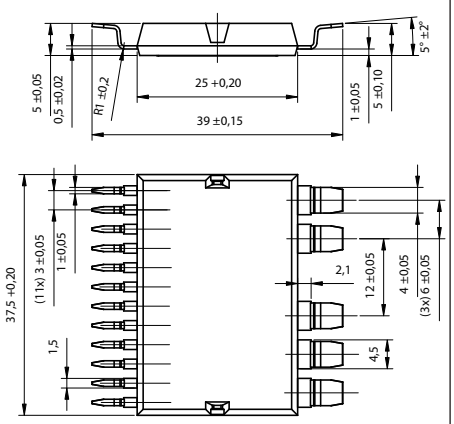
Outline drawings

IXYS A Littelfuse Technology
Germany

Dimensions in mm and inches (1 mm = 0.0394“)

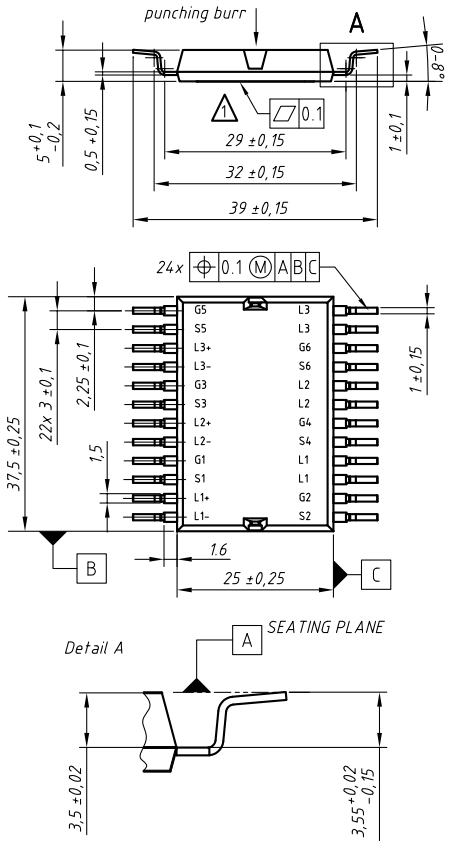
X026c ISOPLUS™-DIL (SMD)

Weight = 13 g



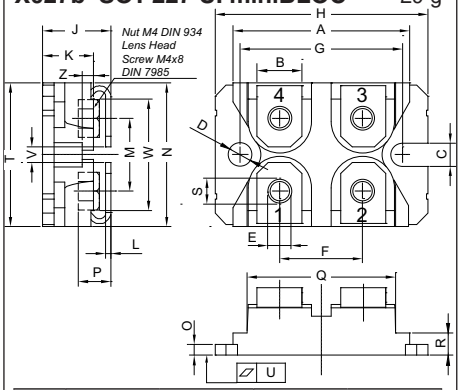
X026d ISOPLUS™-DIL (SMD)

Weight = 13 g



X027a SOT-227 B miniBLOC
X027b SOT-227 UI miniBLOC

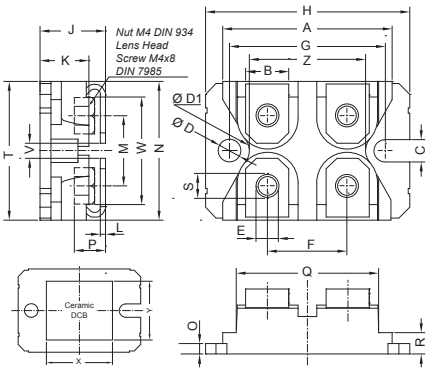
Weight = 29 g



Dim.	Millimeters		Inches	
	min	max	min	max
A	31.50	31.88	1.240	1.255
B	7.80	8.20	0.307	0.323
C	4.09	4.29	0.161	0.169
D	4.09	4.29	0.161	0.169
E	4.09	4.29	0.161	0.169
F	14.91	15.11	0.587	0.595
G	30.12	30.30	1.186	1.193
H	37.80	38.23	1.488	1.505
J	11.68	12.22	0.460	0.481
K	8.92	9.60	0.351	0.378
L	0.74	0.84	0.029	0.033
M	12.50	13.10	0.492	0.516
N	25.15	25.42	0.990	1.001
O	1.95	2.13	0.077	0.084
P	4.95	6.20	0.195	0.244
Q	26.54	26.90	1.045	1.059
R	3.94	4.42	0.155	0.174
S	4.55	4.85	0.179	0.191
T	24.59	25.25	0.968	0.994
U	-0.05	0.10	-0.002	0.004
V	3.20	5.50	0.126	0.217
W	19.81	21.08	0.780	0.830
Z	2.50	2.70	0.098	0.106

X028 ISOPLUS227™

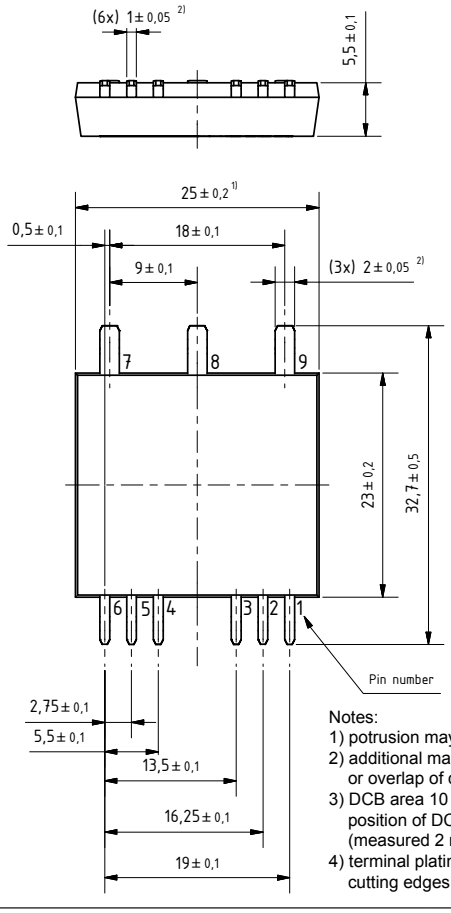
Weight = 19 g

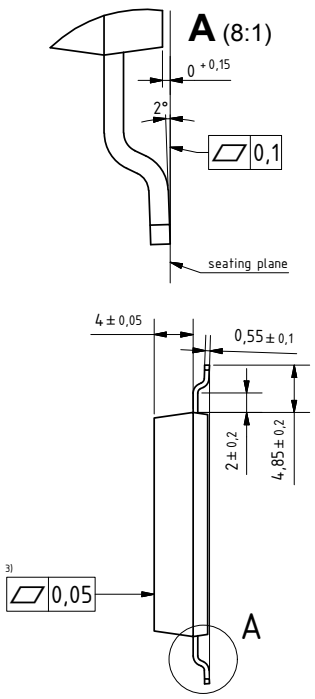


Dim.	Millimeter		Inches	
	min	max	min	max
A	31.50	32.26	1.240	1.270
B	7.87	8.38	0.310	0.330
C	3.94	4.19	0.155	0.165
D	3.94	4.19	0.155	0.165
D1	3.81	3.98	0.150	0.157
E	4.06	4.27	0.160	0.168
F	14.91	15.11	0.587	0.595
G	30.12	30.30	1.186	1.193
H	37.80	38.23	1.489	1.505
J	11.81	12.22	0.465	0.481
K	9.40	9.65	0.370	0.380
L	0.76	0.84	0.030	0.033
M	12.60	12.85	0.496	0.506
N	25.15	25.42	0.990	1.001
O	2.54	2.64	0.100	0.105
P	4.95	5.97	0.195	0.235
Q	26.54	26.90	1.045	1.059
R	4.06	4.32	0.160	0.170
S	4.72	4.85	0.186	0.191
T	24.59	25.07	0.968	0.987
U	-0.03	0.05	-0.001	0.002
V	3.30	4.06	0.130	0.160
W	19.81	21.08	0.780	0.830
X	19.56	20.57	0.770	0.810
Y	17.27	18.29	0.680	0.720
Z	22.48	22.66	0.885	0.892

X030a SMPD-B

Weight = 8.5 g





Notes:
1) potrusion may add 0.2 mm max. on each side
2) additional max. 0.05 mm per side by punching misalignement or overlap of dam bar or bending compression
3) DCB area 10 to 50 µm convex; position of DCB area in relation to plastic rim: ±25 µm (measured 2 mm from Cu rim)
4) terminal plating: 2 - 6 µm Ni + 10 - 25 µm Sn (galv.) cutting edges may be partially free of plating

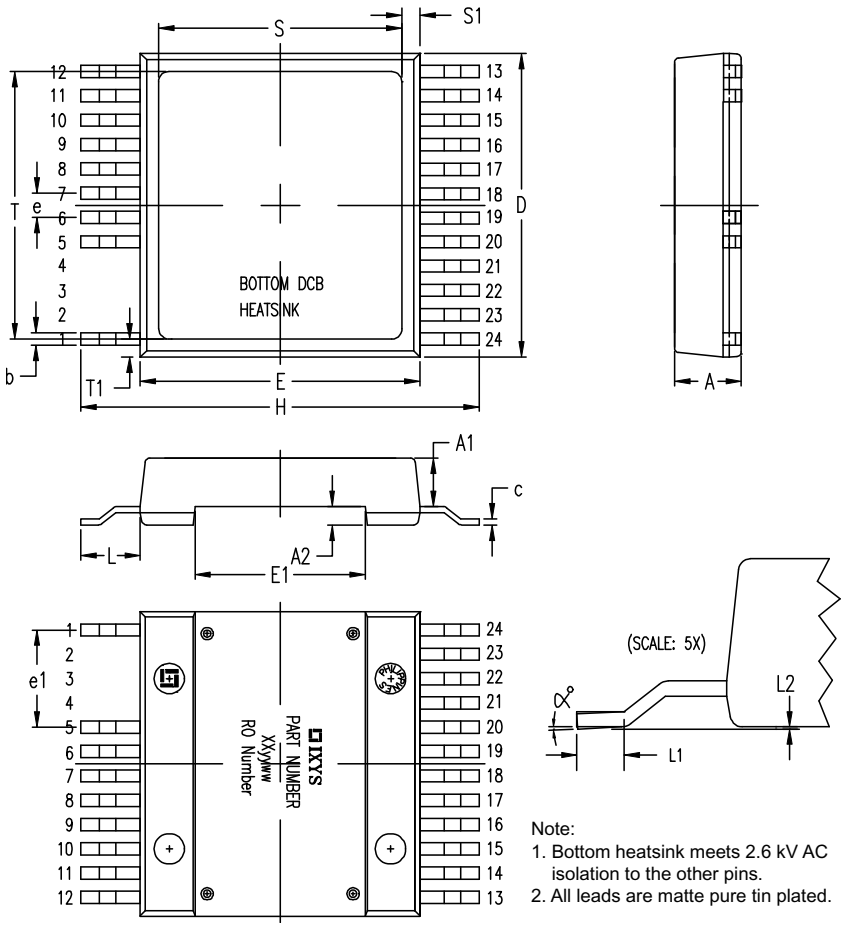
Outline drawings

Dimensions in mm and inches (1 mm = 0.0394“)

X031...* SMPD-X

* See data sheet for pin arrangement

Weight = 8.5 g*

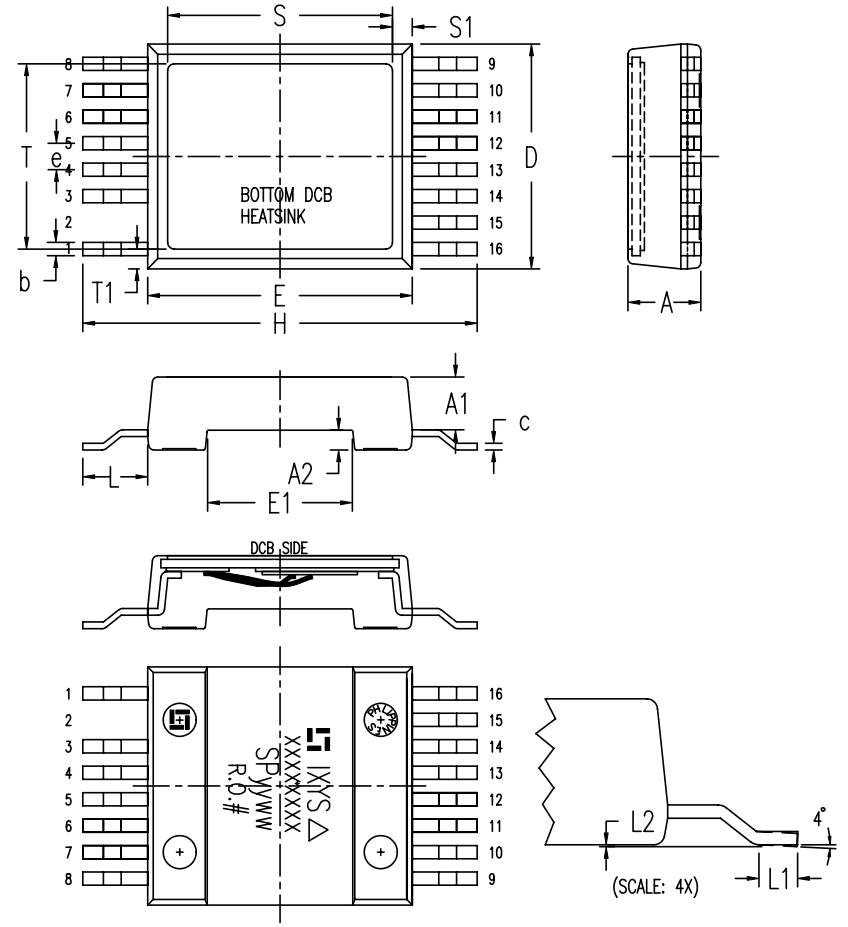


Dim.	Millimeters		Inches	
	min	max	min	max
A	5.30	5.70	0.209	0.224
A1	3.90	4.10	0.154	0.161
A2	1.40	1.60	0.055	0.063
b	0.90	1.15	0.035	0.045
c	0.45	0.65	0.018	0.026
D	24.80	25.25	0.976	0.994
E	22.80	23.25	0.898	0.915
E1	13.80	14.20	0.543	0.559
e	2.00	BSC	0.079	BSC
e1	8.00	BSC	0.315	BSC
H	32.30	33.30	1.272	1.311
L	4.60	5.30	0.181	0.209
L1	1.30	1.70	0.051	0.067
L2	0.00	0.15	0.000	0.006
S	18.85	20.12	0.742	0.792
S1	1.45	2.08	0.057	0.082
T	20.90	22.17	0.823	0.873
T1	1.42	2.03	0.056	0.080
a	4°	-	4°	-

Note:
1. Bottom heatsink meets 2.6 kV AC isolation to the other pins.
2. All leads are matte pure tin plated.

X032... MiniSMPD

* See data sheet for pin arrangement



Dim.	Millimeters		Inches	
	min	max	min	max
A	5.30	5.70	0.209	0.224
A1	3.90	4.10	0.154	0.161
A2	1.40	1.60	0.055	0.063
b	0.90	1.15	0.035	0.045
c	0.45	0.65	0.018	0.026
D	16.80	17.20	0.661	0.677
E	19.80	20.20	0.780	0.795
E1	10.80	11.20	0.425	0.441
e	2.00 BSC		0.079 BSC	
H	29.50	30.10	1.161	1.185
L	4.60	5.30	0.181	0.209
L1	1.30	1.70	0.051	0.067
L2	0.00	0.15	0.000	0.006
S	16.80	17.20	0.661	0.677
S1	1.30	1.70	0.051	0.067
T	13.80	14.20	0.543	0.559
T1	1.30	1.70	0.051	0.067

NOTE:
1. All leads are matte pure tin plated.
2. Cu surface of bottom DCB is pre-Ni plated unless otherwise.
3. Cu surface of bottom DCB is electrically isolated 2.500V AC from all other leads.
4. Unless other specified, pin out are as follows:
   Pin #1 - Gate
   Pin #3 - Gate return or source
   Pin #4 through #8 - Source (emitter)
   Pin #9 through #16 - Drain (collector)

Outline drawings

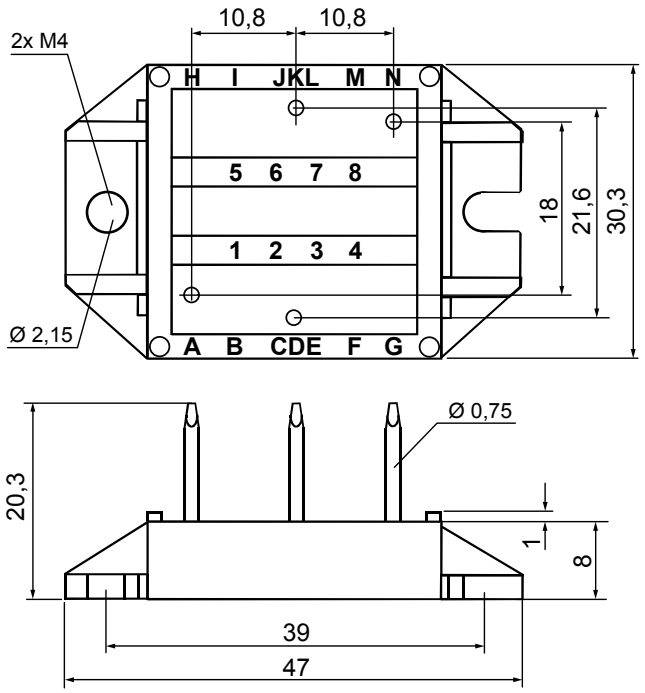
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Germany

Dimensions in mm and inches (1 mm = 0.0394“)

X101 ECO-PAC1

Weight = 19 g

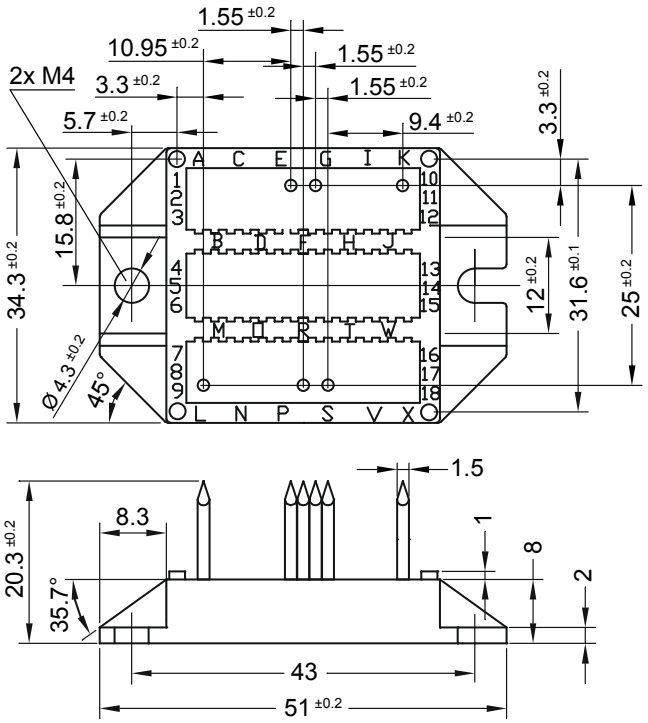
See data sheet for pin arrangement



X102 ECO-PAC2

Weight = 23 g

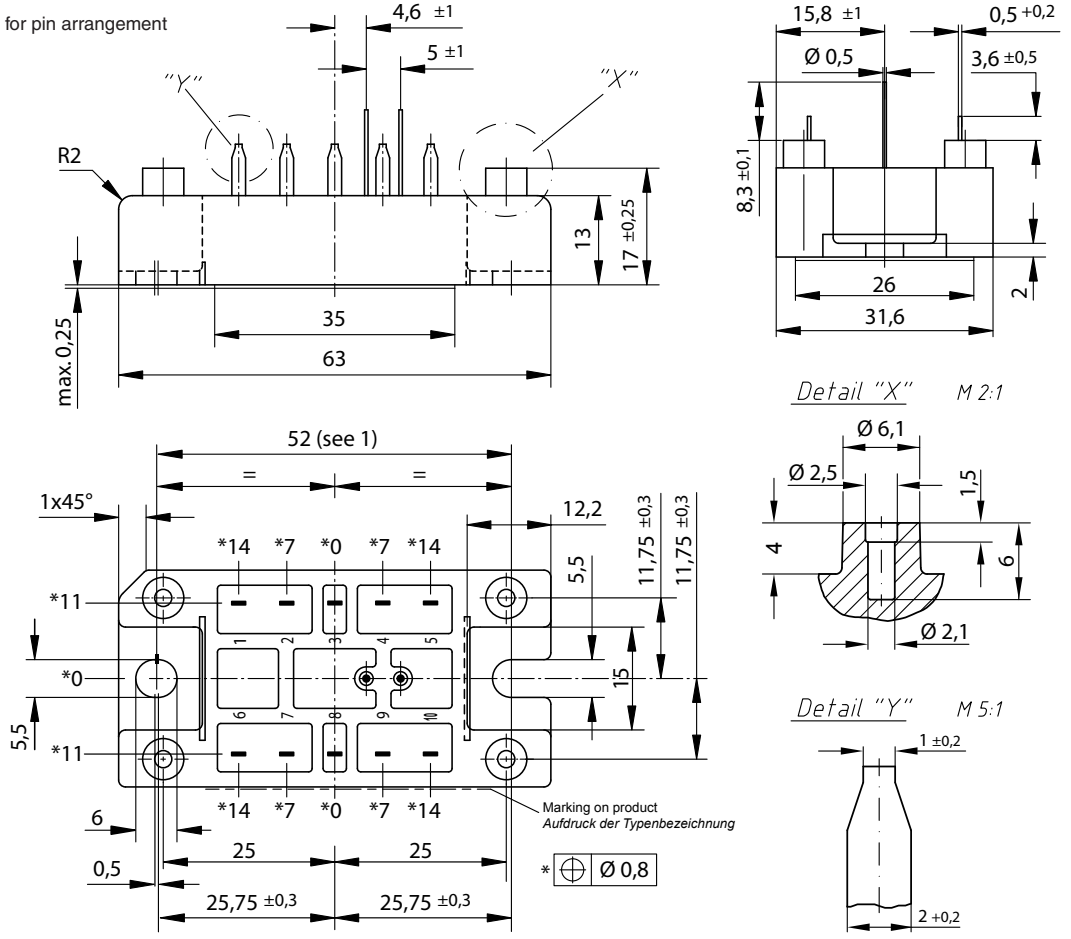
See data sheet for pin arrangement



X103 V1-A-Pack

Weight = 37 g

See data sheet for pin arrangement



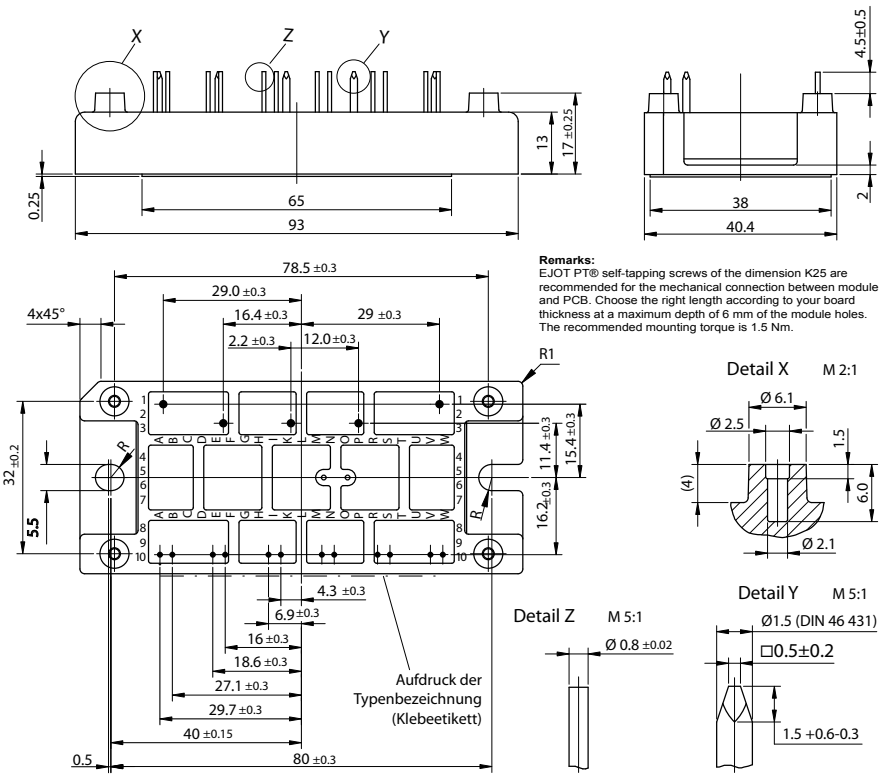
Outline drawings

Dimensions in mm and inches (1 mm = 0.0394“)

X104 V2-Pack

Weight = 76 g

See data sheet for pin arrangement

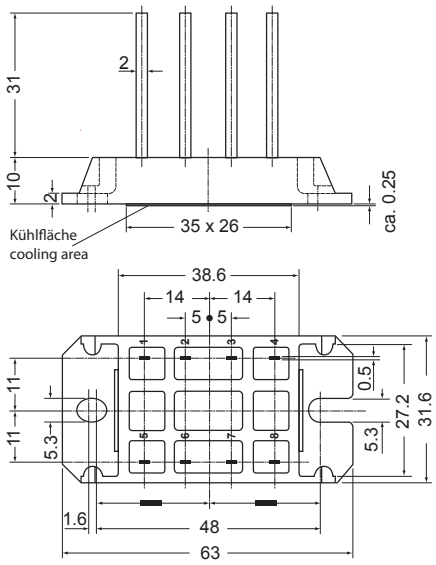


X105 V1-B-Pack

Weight =

a: pin length = 31 mm — 30 g

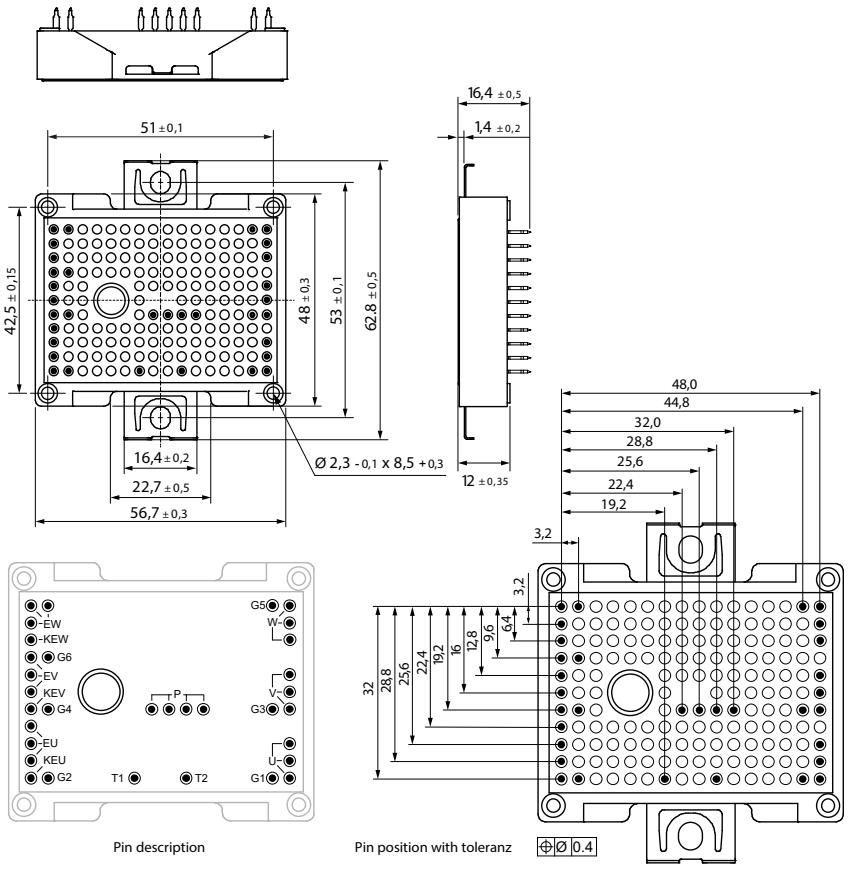
b: pin length = 16 mm — 28 g



X109 Mini-Pack2B

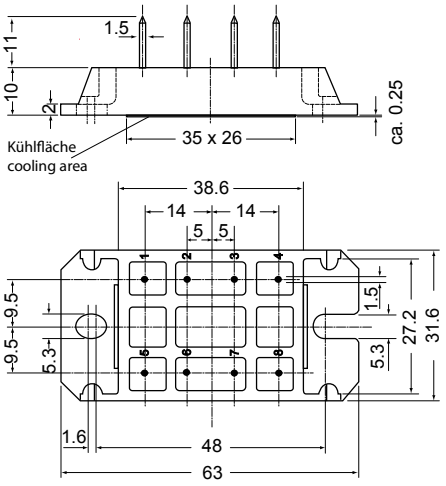
Weight = 42 g

See data sheet for pin arrangement



X105c V1-B-Pack

Weight = 25 g

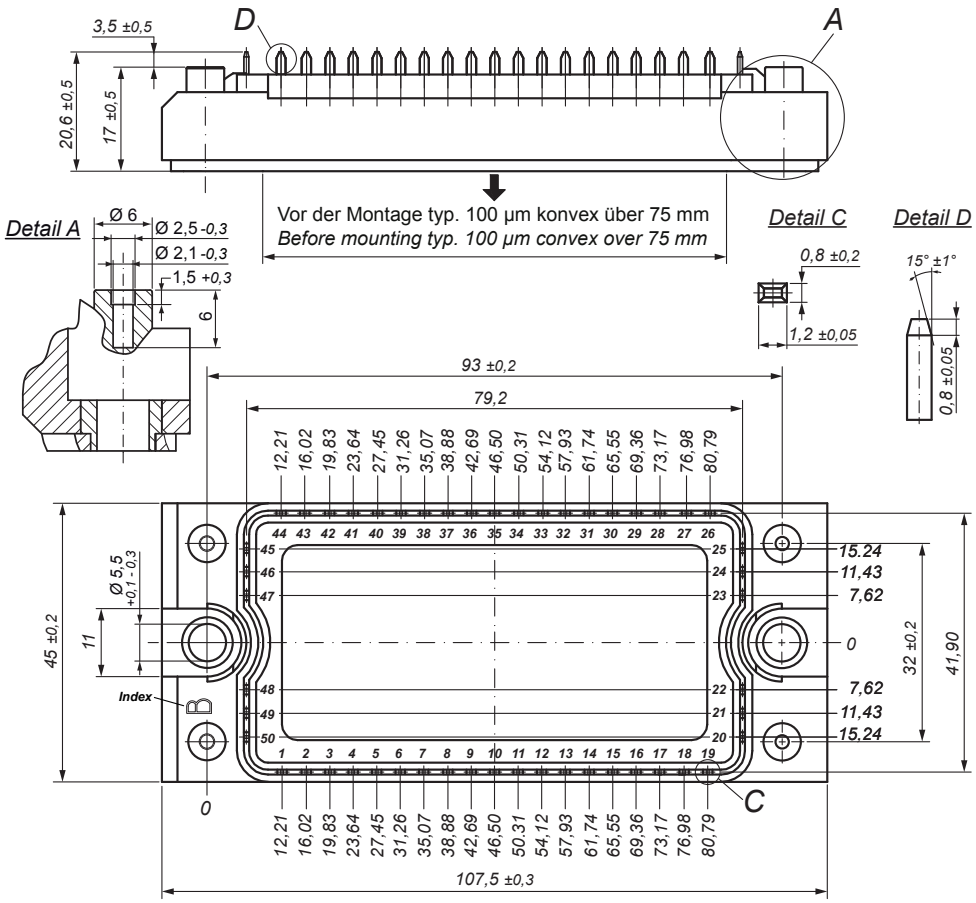


Outline drawings

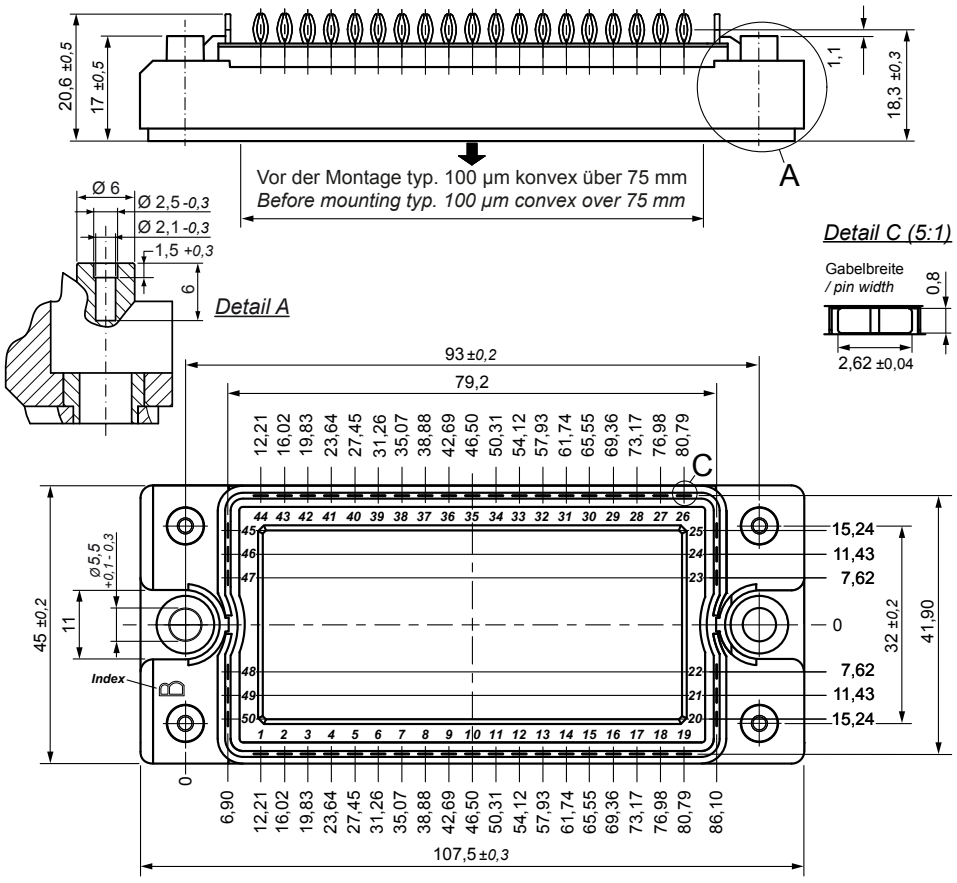
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Dimensions in mm and inches (1 mm = 0.0394“)

X112 E2-Pack Pin configuration see data sheets Weight = 176 g

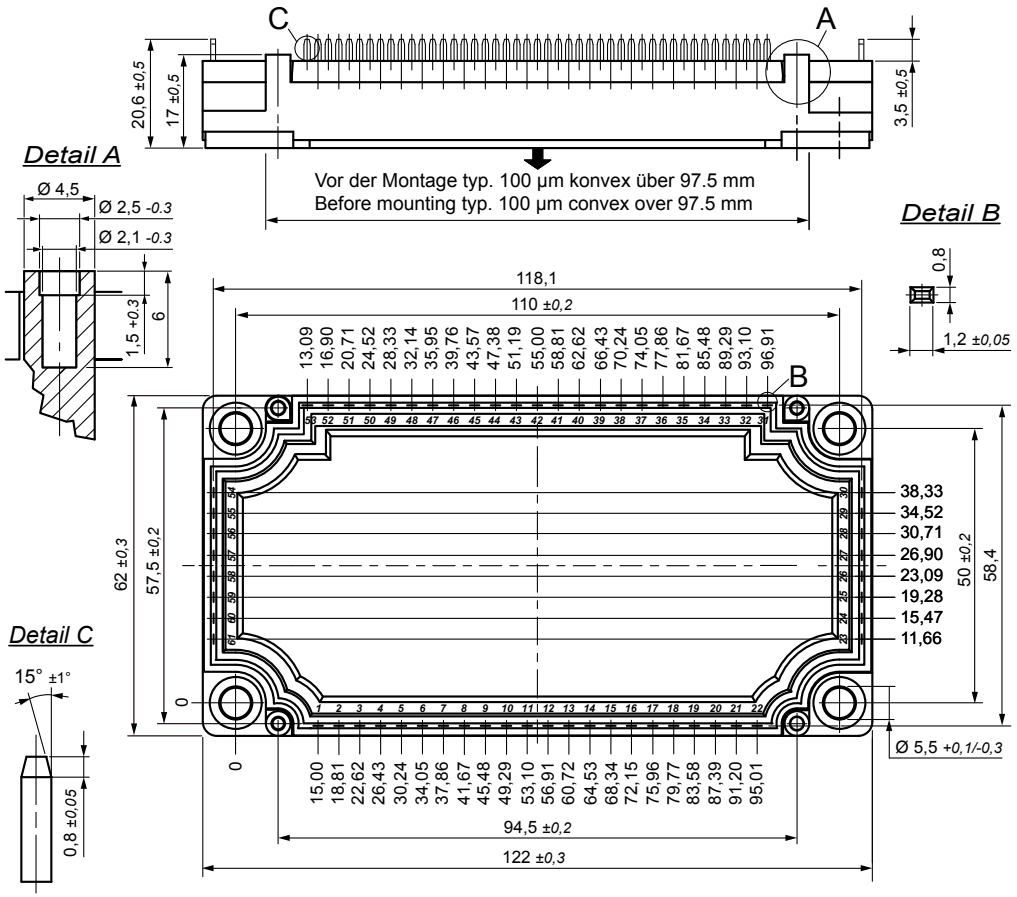


X112a E2-Pack PFP Pin configuration see data sheets Weight = 176 g

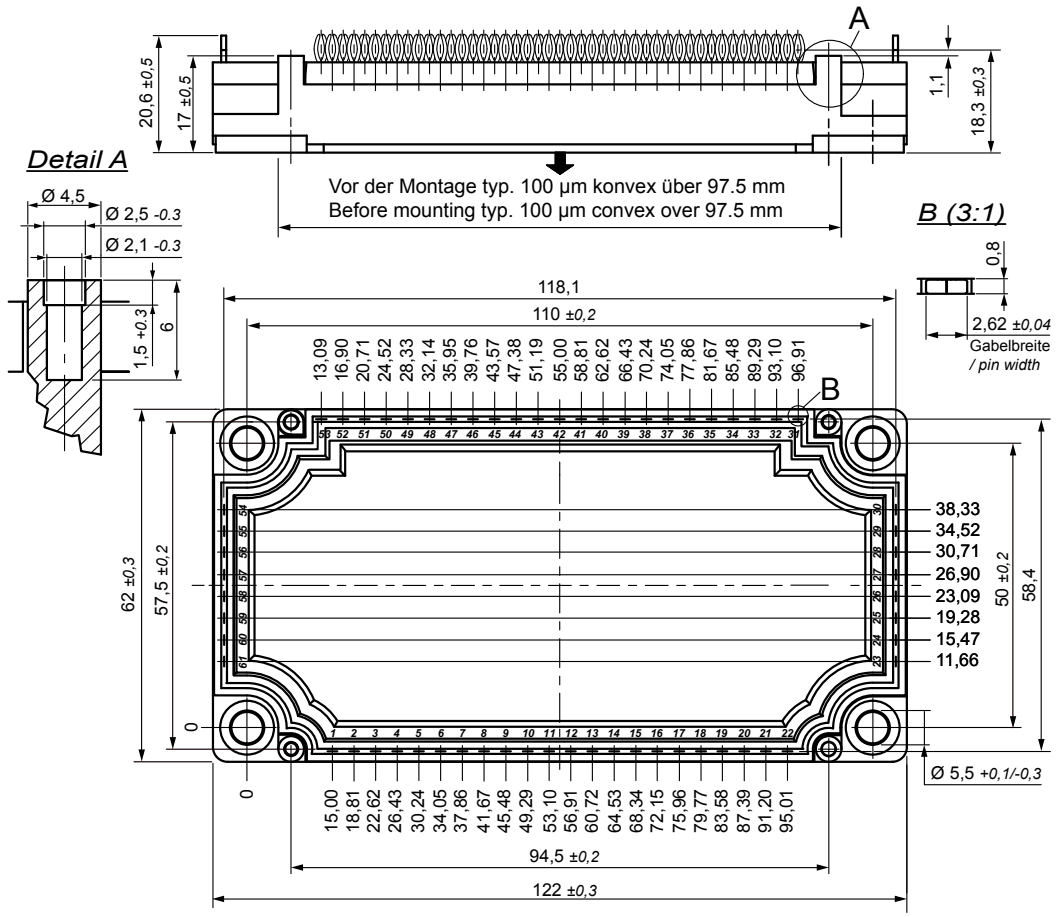


Dimensions in mm and inches (1 mm = 0.0394“)

X113 E3-Pack Pin configuration see data sheets Weight = 270 g



X113a E3-Pack PFP Pin configuration see data sheets Weight = 270 g

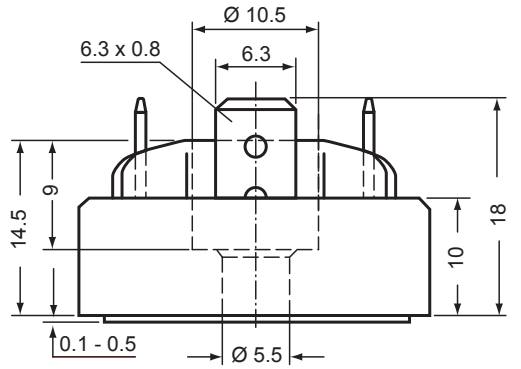


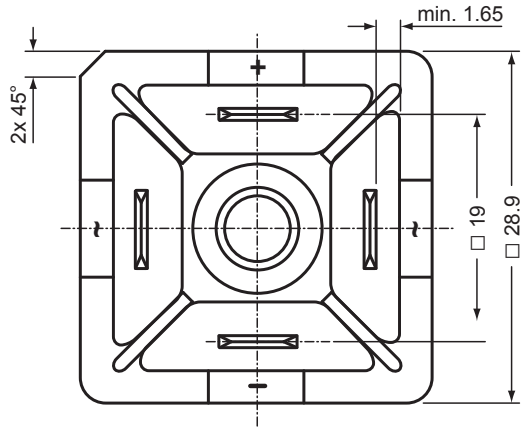
Outline drawings

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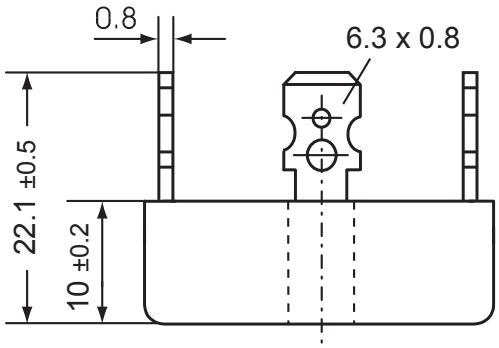
Dimensions in mm and inches (1 mm = 0.0394“)

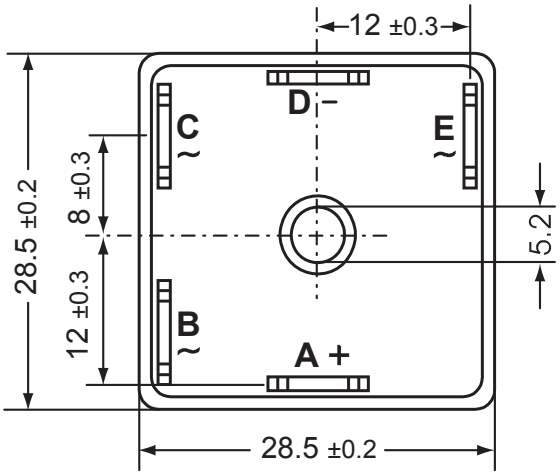
X115 FO-A Weight = 15 g



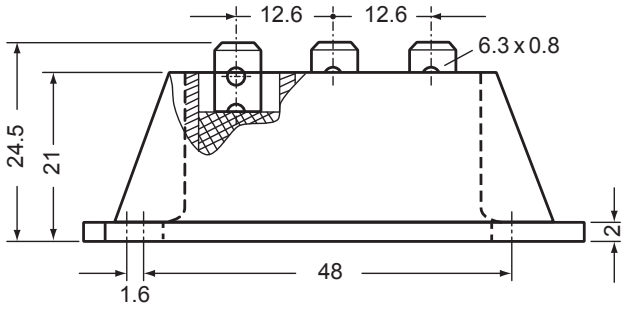


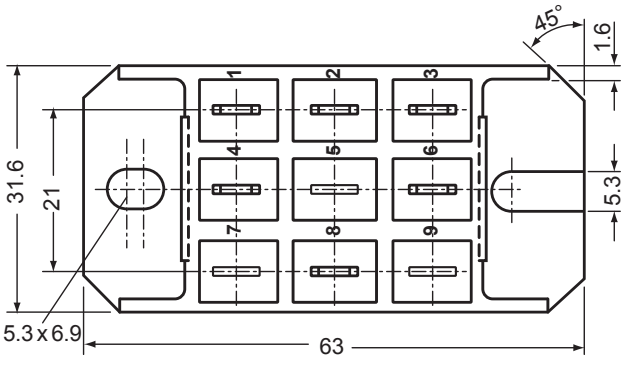
X116 FO-B Weight =
a: VUO 20 g
b: w/o terminal C (VBO) 19 g



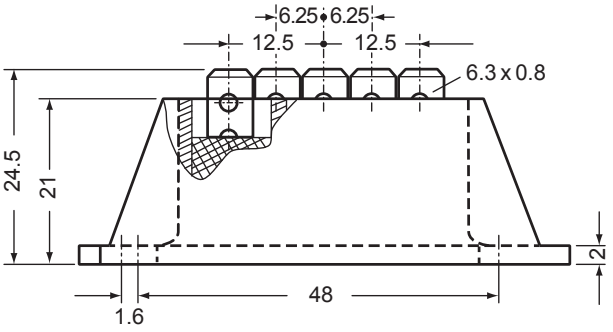


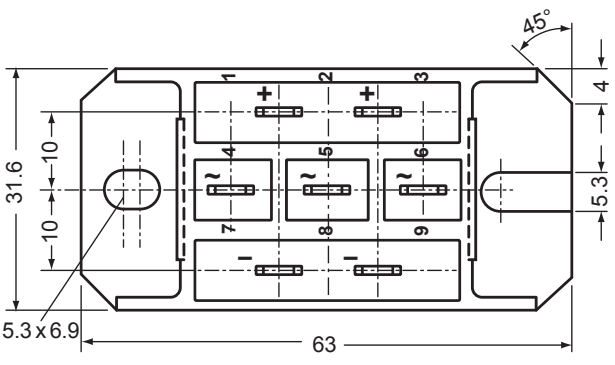
X117a FO-F-A Weight = 45 g





X117b FO-F-B Weight = 45 g





Outline drawings

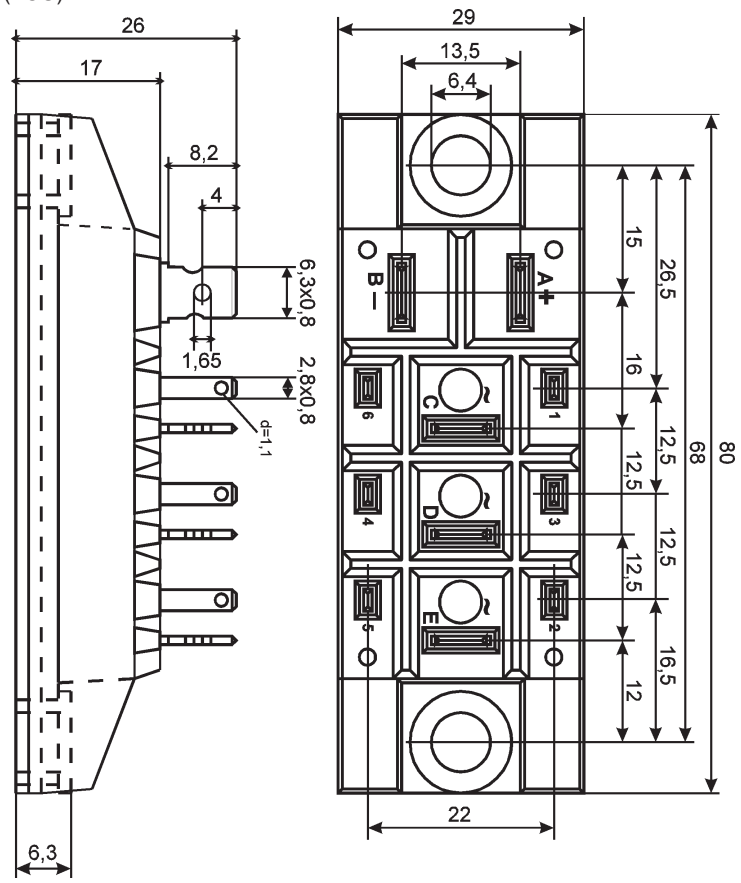
Dimensions in mm and inches (1 mm = 0.0394“)

X118 FO-T-A

Weight = 104 g

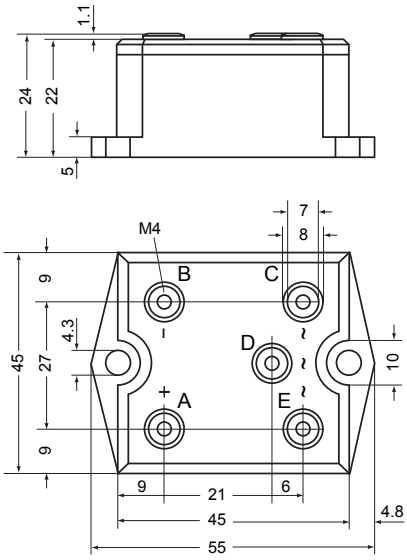
c: w/o terminal 4, 5, & 6 (VVZ & VVZF)
d: w/o terminal 1, 2, 3, 4, 5, & 6 (VUO)

See data sheet for pin arrangement



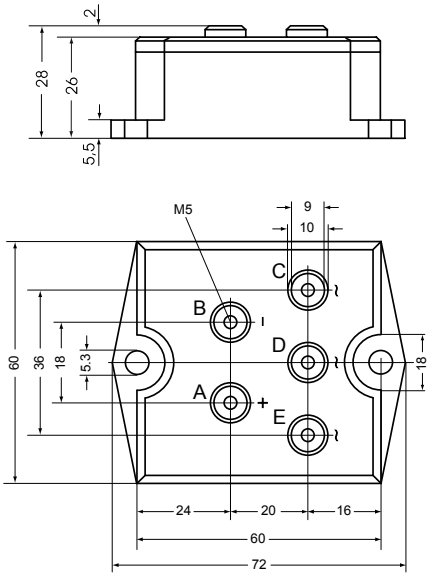
X119 PWS-A

Weight =
a: VUO 104 g
b: w/o terminal D (VBO) 100 g



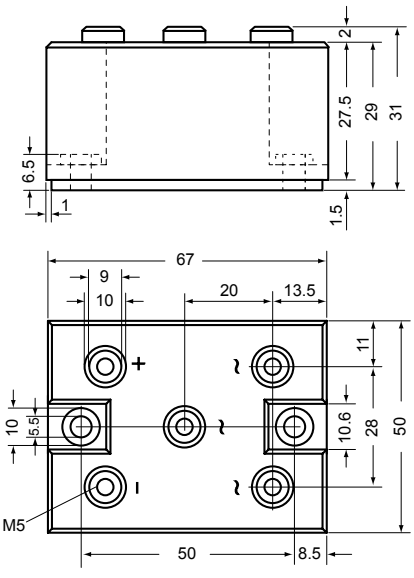
X120 PWS-B

Weight =
a: VUO 203 g
b: w/o terminal D (VBO) 193 g



X121 PWS-C

Weight =
a: VUO 250 g
b: w/o terminal D (VBO) 237 g

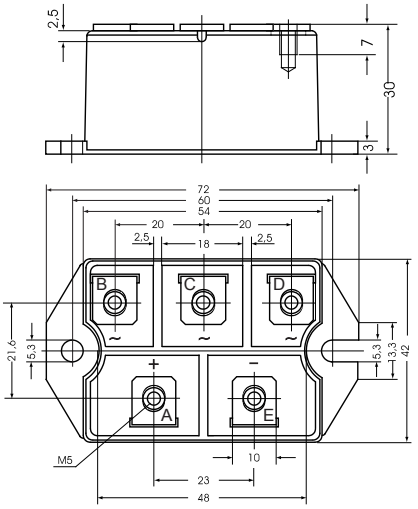


Outline drawings

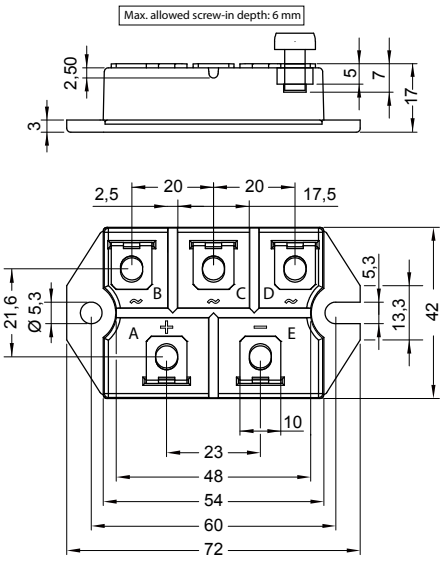
IXYS A Littelfuse Technology
Germany

Dimensions in mm and inches (1 mm = 0.0394“)

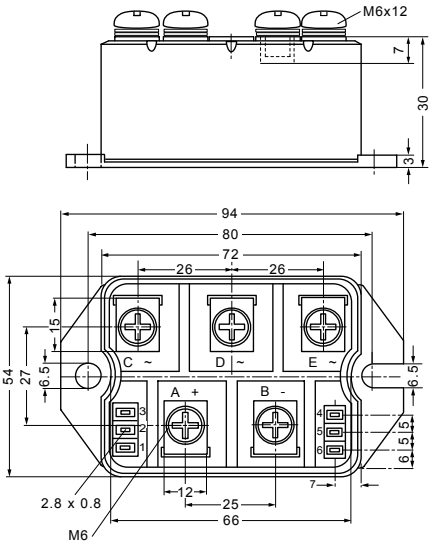
X122 PWS-D Weight =
a: VUO 159 g
b: w/o terminal C (VBO) 153 g



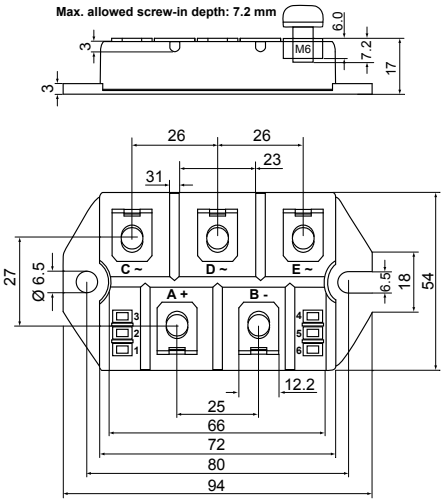
X122 PWS-D Flat Weight =
c: VUO 118 g



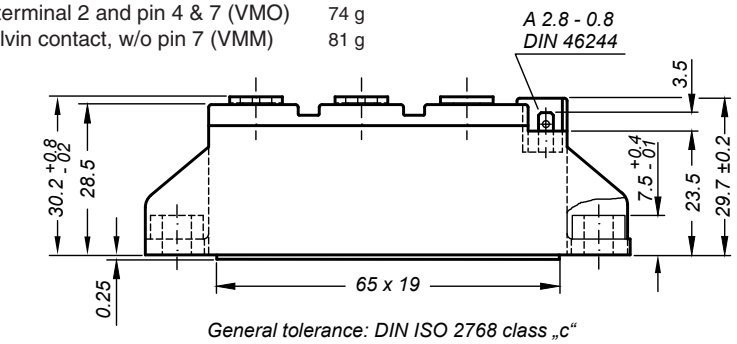
X123 PWS-E Weight =
a: VTO 284 g
b: w/o terminal 4, 5 & 6 (VVZ) 284 g
c: w/o terminal 1, 2, 3, 4, 5 & 6 (VUO) 284 g
d: w/o terminal D, 3, 4, 5 & 6 (VHF) 273 g
e: w/o terminal D, 1, 2, 3, 4, 5 & 6 (VBO) 273 g



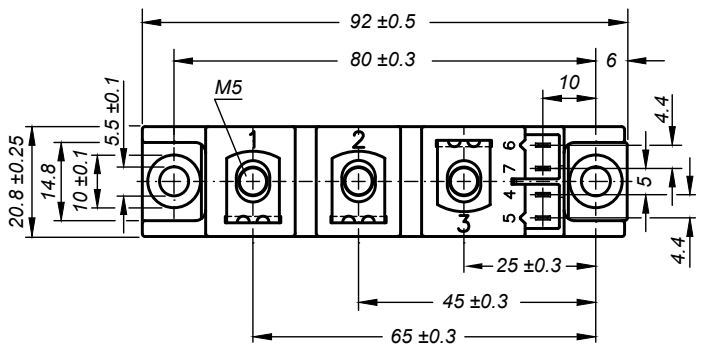
X123 PWS-E Flat Weight = 220 g
h: w/o terminal 1, 2, 3, 4, 5 & 6 (VUO)



X125 TO-240 AA Weight =
a: + Kelvin contact (MCC) 81 g
b: + Kelvin contact, w/o pin 6 & 7 (MCD) 81 g
c: w/o Kelvin contact 4 & 7 (MCC) 81 g
d: w/o Kelvin contact 4, 7 & pin 6 (MCD) 81 g
e: w/o pin 4, 5, 6 & 7 (MDD) 81 g
f: w/o terminal 2 and pin 4 & 7 (VMO) 74 g
g: + Kelvin contact, w/o pin 7 (VMM) 81 g



General tolerance: DIN ISO 2768 class „c“



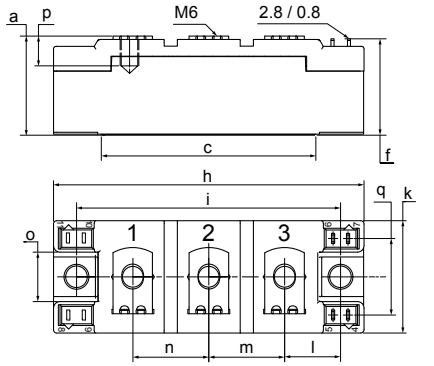
Optional accessories for modules
Keyed gate/cathode twin plugs with wire length = 350 mm, gate = white, cathode = red
Type ZY 200L (L = Left for pin pair 4/5)
Type ZY 200R (R = Right for pin pair 6/7) } UL 758, style 3751

Outline drawings

Dimensions in mm and inches (1 mm = 0.0394“)

X126 Y4-M6

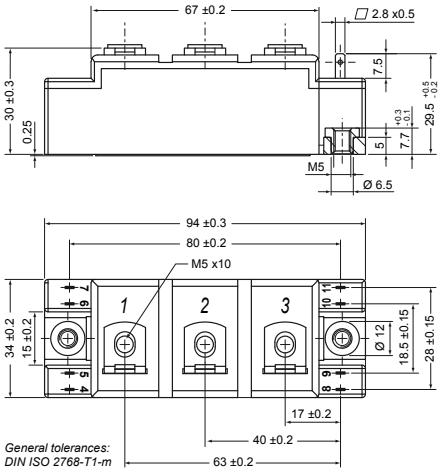
	Weight =
a: + Kelvin cont., w/o pin 8 up to 11 (MCC)	131 g
b: + Kelvin cont., w/o pin 6 up to 11 (MCD)	131 g
c: w/o pin 4 up to 11 (MDD)	126 g
d: w/o terminal 2 & pin 4 up to 11 (MEO)	108 g



Dim.	Millimeters		Inches	
	min	max	min	max
a	30.0	30.6	1.181	1.205
c	64.0	65.0	2.520	2.559
f	28.6	29.2	1.126	1.150
h	93.5	94.5	3.681	3.720
i	79.5	80.5	3.130	3.169
j	4.8	5.2	0.189	0.205
k	33.4	34.0	1.315	1.339
l	16.7	17.3	0.657	0.681
m	22.7	23.3	0.894	0.917
n	22.7	23.3	0.894	0.917
o	14.0	15.0	0.551	0.591
p	typ. 10.5		typ. 0.413	
q	22.8	23.3	0.898	0.917

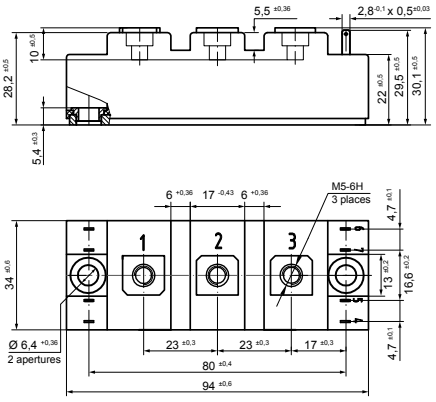
X127 Y4-M5

	Weight =
a: w/o pin 8 up to 11 (MII)	110 g
b: w/o pin 6 up to 11 (MID)	108 g
c: w/o pin 4, 5 & 8 up to 11 (MDI)	108 g



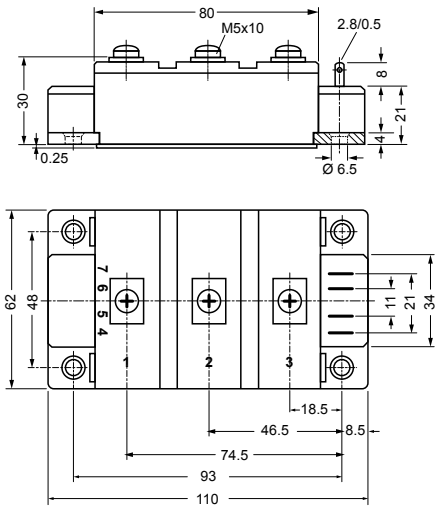
X127 Y4-M5-A

	Weight =
d: w/o pin 8 up to 11 (..PF..)	170 g
e: w/o pin 6 up to 11 (..RF..)	168 g
f: w/o pin 4, 5 & 8 up to 11 (..QF..)	166 g



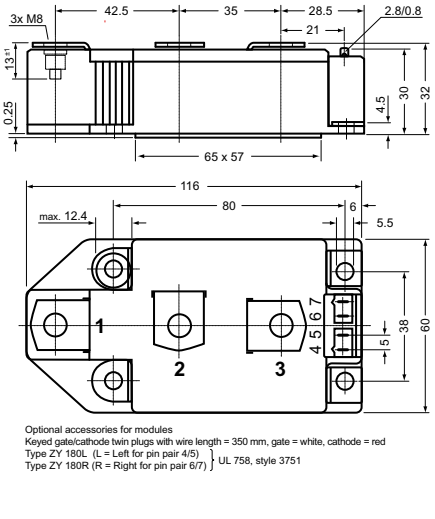
X128 Y3-DCB

	Weight =
a: w/o pin 4 up to 7 (VMM, MII)	222 g
b: w/o pin 4 up to 9 (MID)	220 g
c: w/o pin 4 up to 7, 10 & 11 (MDI)	220 g
d: w/o terminal 3 & pin 6 up to 11 (VMO)	200 g
e/f/g: see data sheet	



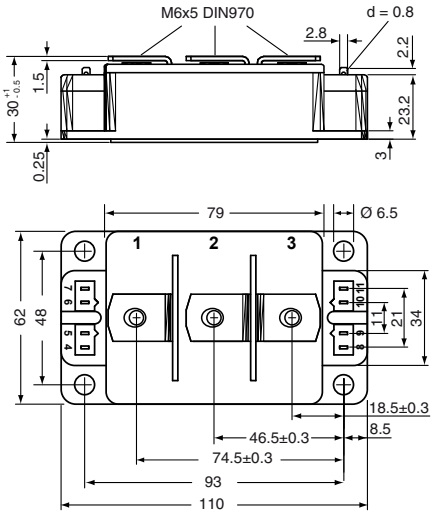
X129 Y2-DCB

	Weight =
a: + Kelvin contact (MCC)	245 g
b: + Kelvin contact, w/o pin 6 & 7 (MCD)	245 g
c: w/o pin 4, 5, 6 & 7 (MDD)	244 g



X130 Y3-Li

	Weight =
a: w/o pin 4-7, low inductance (VMM, MII)	226 g
b: w/o pin 4-9, low inductance (MID)	226 g
c: w/o pin 4-7, 10&11, low inductance (MDI)	226 g
d: w/o terminal 1&pin 6-11, low ind. (VMO)	206 g
e: w/o pin 4&5, low ind. (VMM, MII+NTC)	226 g
f: w/o pin 4, 5, 8 & 9, low ind. (MID+NTC)	226 g

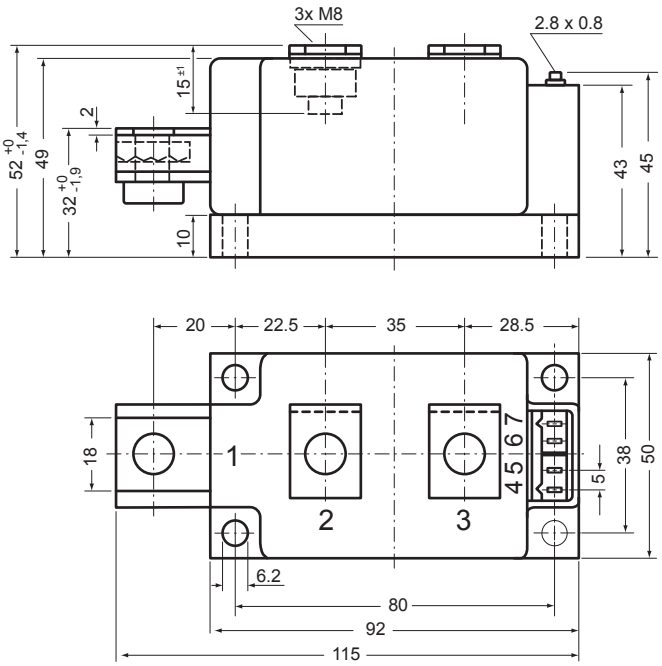


Outline drawings

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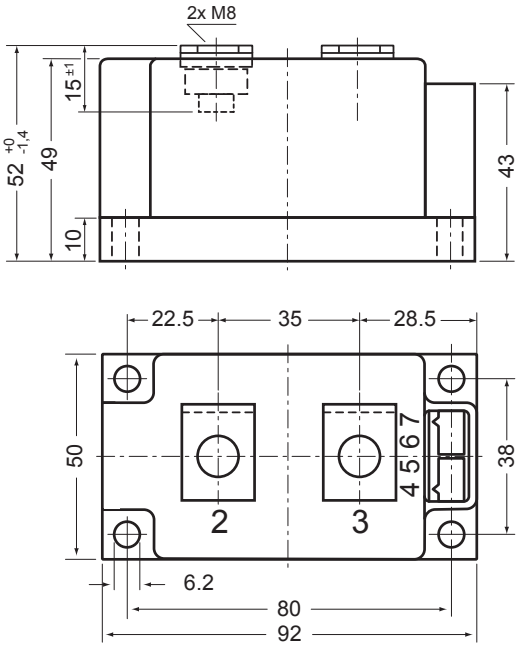
Dimensions in mm and inches (1 mm = 0.0394“)

X131 Y1-CU Weight =
a: + Kelvin contact (MCC) 680 g
b: + Kelvin contact, w/o pin 6&7 (MCD) 680 g
c: w/o pin 4, 5, 6 & 7 (MDD) 680 g

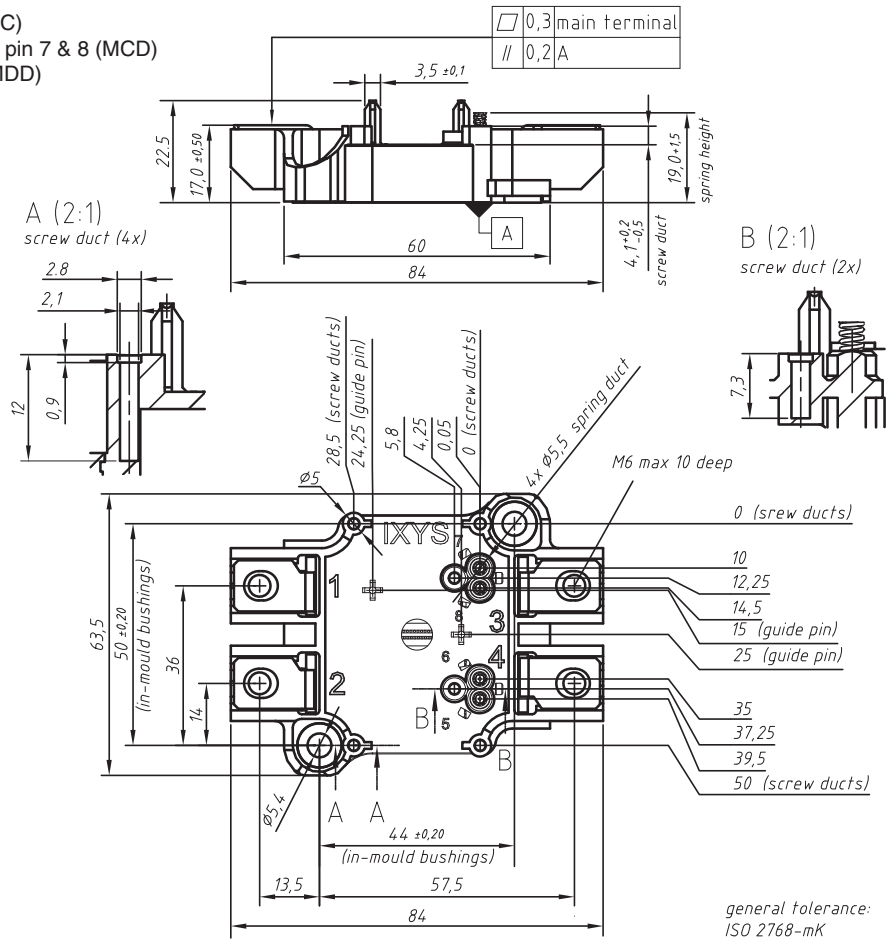


Optional accessories for modules
Keyed gate/cathode twin plugs with wire length = 350 mm, gate = white, cathode = red
Type ZY 180L (L = Left for pin pair 4/5) } UL 758, style 3751
Type ZY 180R (R = Right for pin pair 6/7) }

X132 Y1-2-CU Weight = 650 g
a: + Kelvin contact w/o pin 6&7 (MCO)
b: w/o pin 4, 5, 6 & 7 (MDO)



X141 SimBus A Weight = 152 g
a: + Kelvin contact (MCC)
b: + Kelvin contact, w/o pin 7 & 8 (MCD)
c: w/o pin 5, 6, 7 & 8 (MDD)

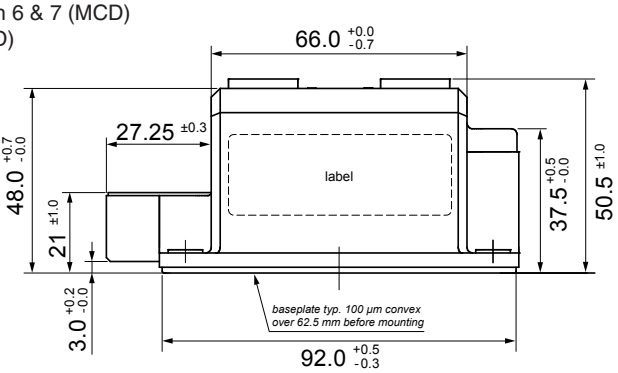


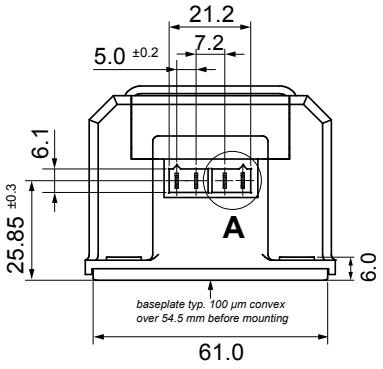
Dimensions in mm and inches (1 mm = 0.0394“)

X142 ComPack

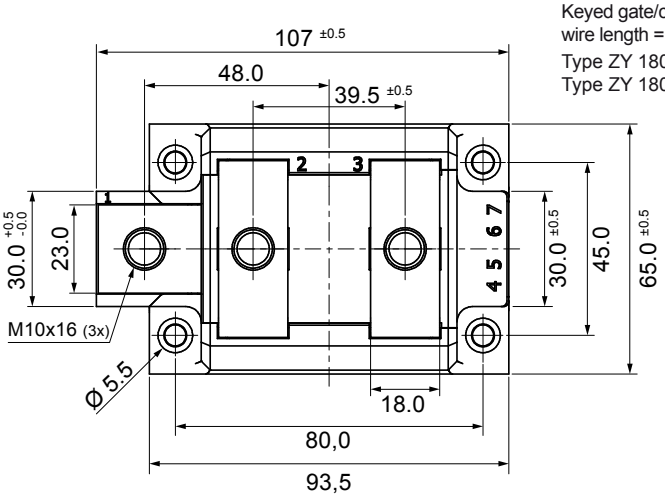
Weight = 500 g

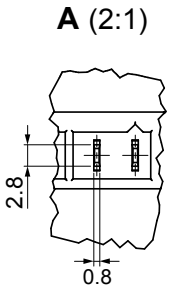
a: + Kelvin contact (MCC)
b: + Kelvin contact, w/o pin 6 & 7 (MCD)
c: w/o pin 4, 5, 6 & 7 (MDD)





Optional accessories for modules
Keyed gate/cathode twin plugs with
wire length = 350 mm, gate = white, cathode = red
Type ZY 180L (L = Left for pin pair 4/5) } UL 758,
Type ZY 180R (R = Right for pin pair 6/7) } style 3751

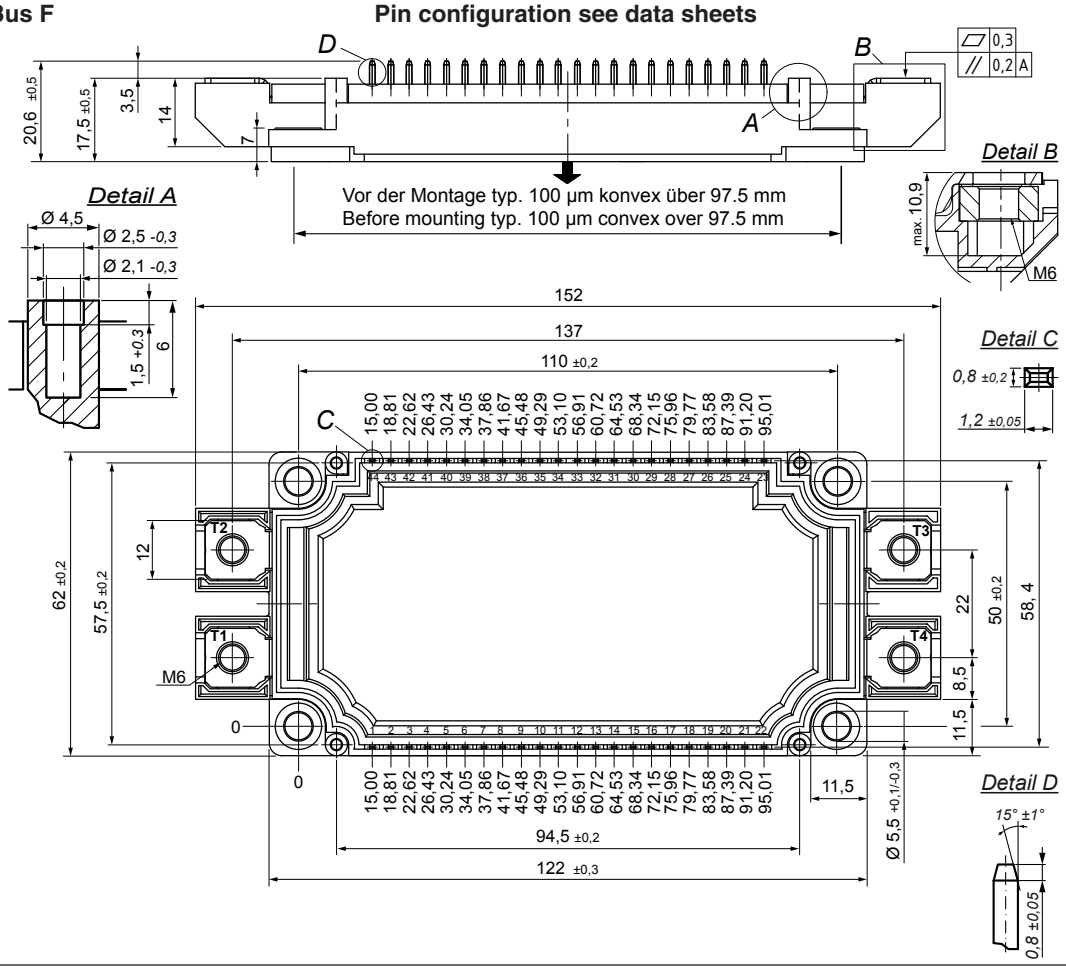




X143 SimBus F

Pin configuration see data sheets

Weight = 150 g

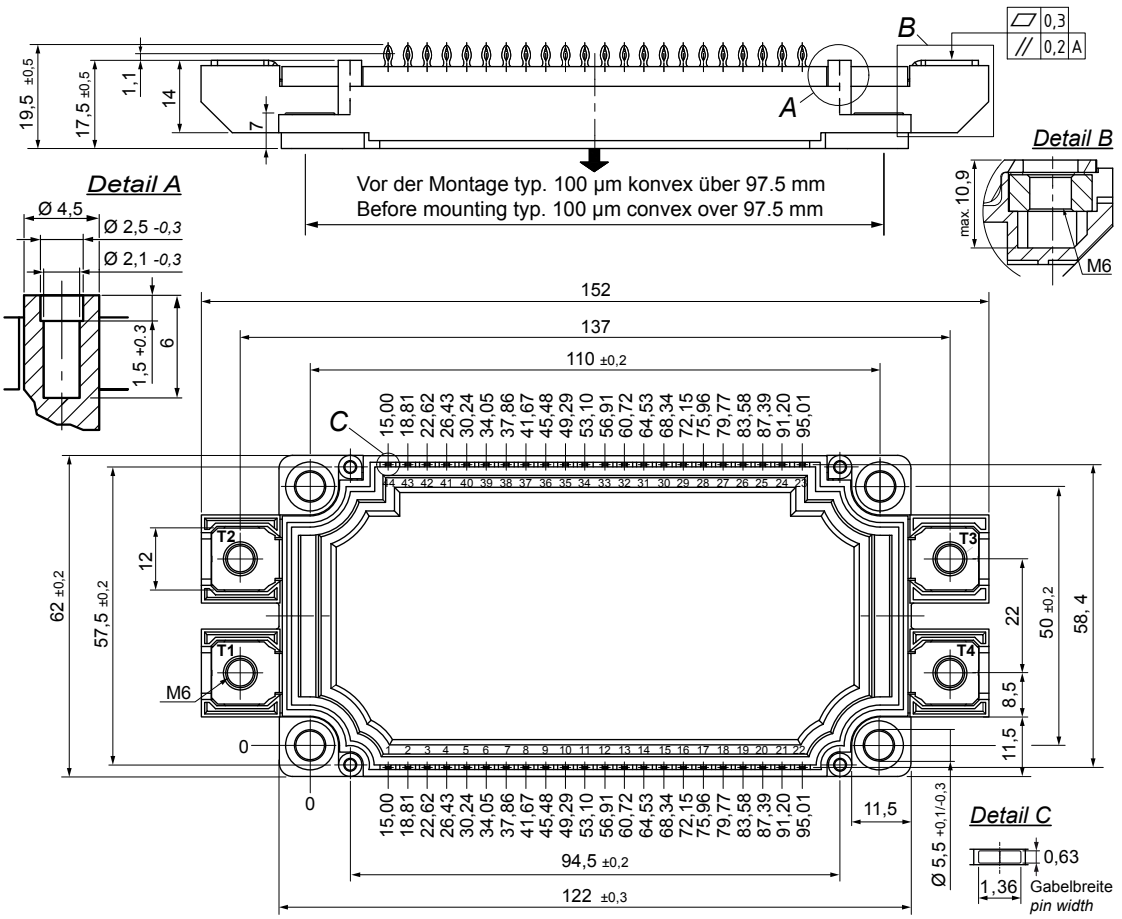


Outline drawings

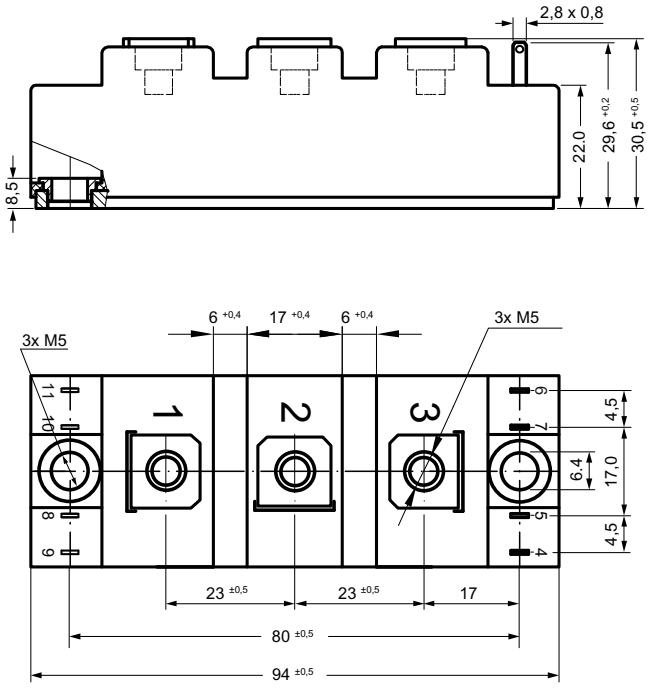
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Dimensions in mm and inches (1 mm = 0.0394“)

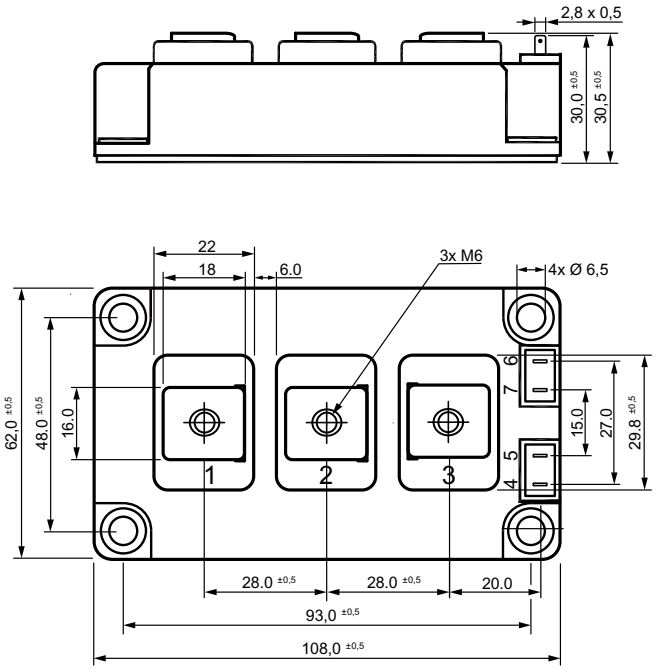
X143a SimBus F PFP — Pin configuration see data sheets — Weight = 150 g



Modul-34mm — Weight = 160 g



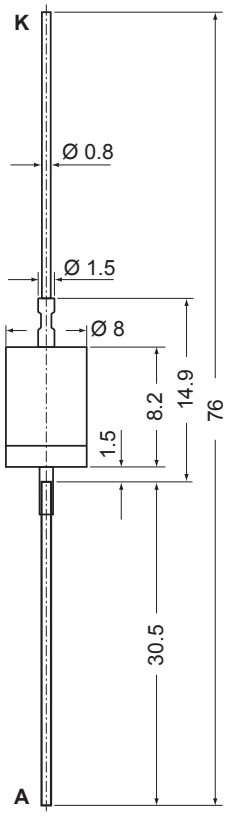
Modul-62mm — Weight = 320 g



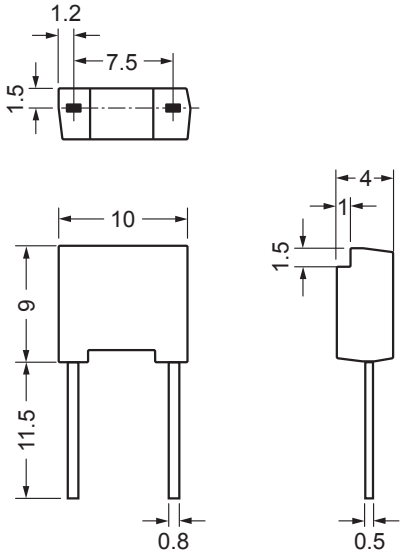
Outline drawings

Dimensions in mm and inches (1 mm = 0.0394“)

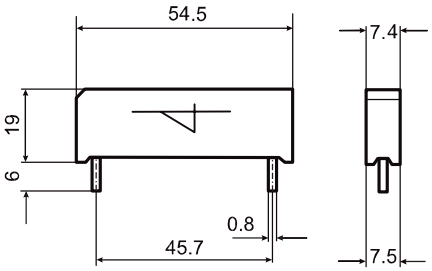
X200 Metal-can Weight = 2.5 g



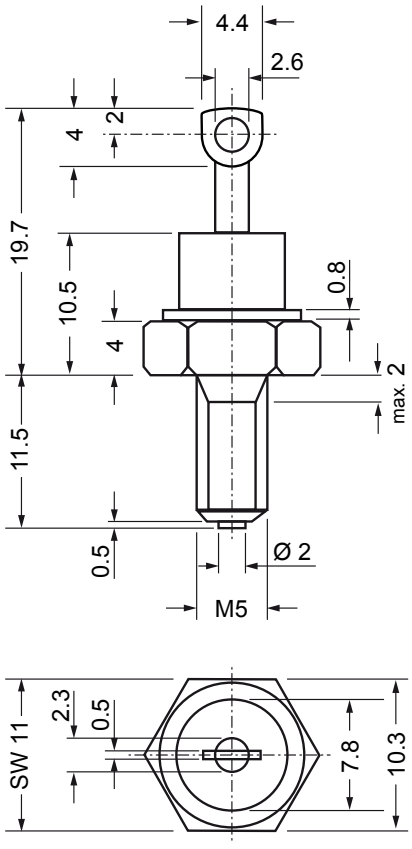
X201 FP-Case (oilproof) Weight = 0.9 g



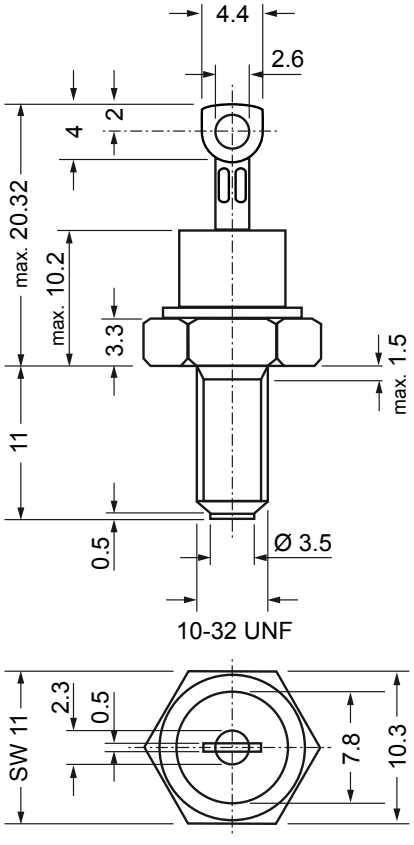
X202 BOD-Package Weight = 9.5 g



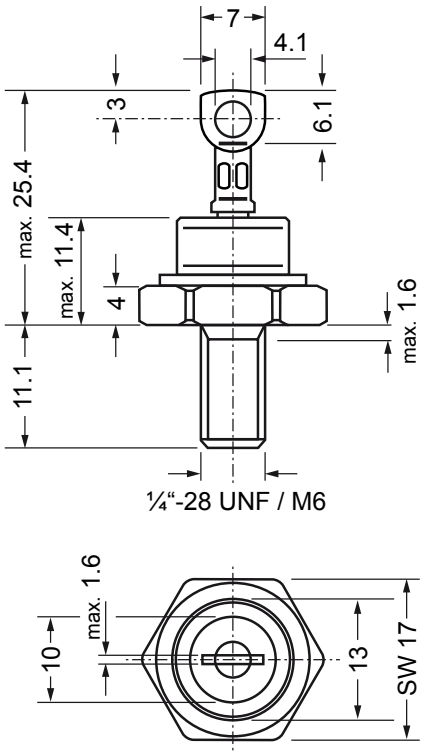
X204 DO-203 AA [M] (DO-4) Weight = 6 g



X205 DO-203 AA [UNF] (DO-4) Weight = 5.5 g



X206a DO-203 AB [UNF] (DO-5)
X206b DO-203 AB [M] (DO-5)
Weight = 14 g

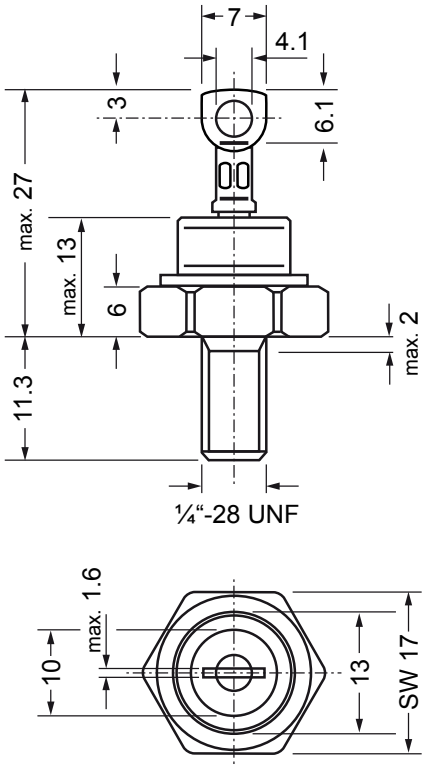


Outline drawings

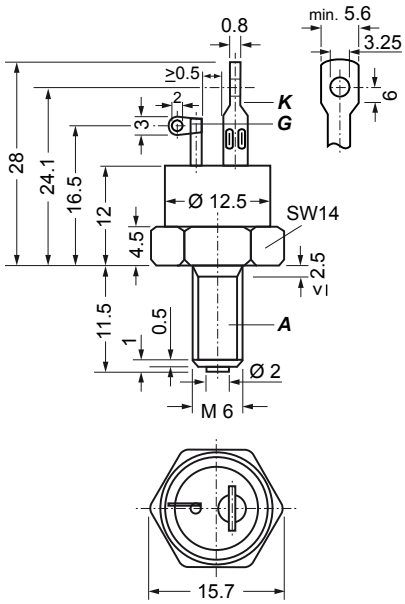
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Germany

Dimensions in mm and inches (1 mm = 0.0394“)

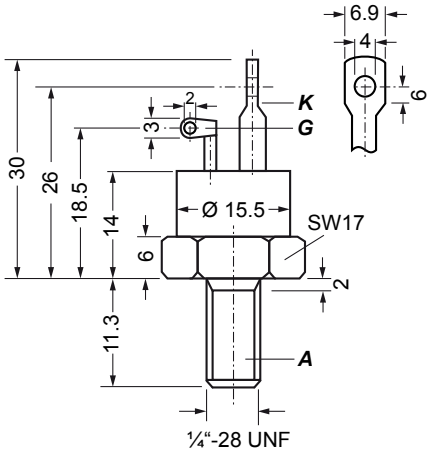
X207 DO-203 AB (DO-5) Weight = 20 g



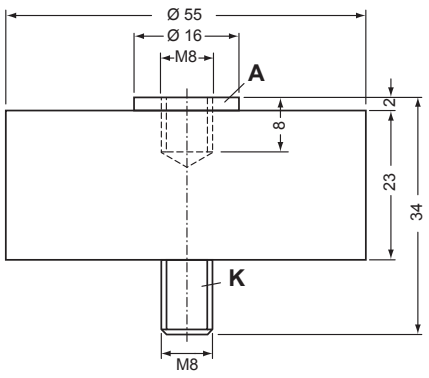
X209 TO-208 AA (TO-48) Weight = 11.6 g



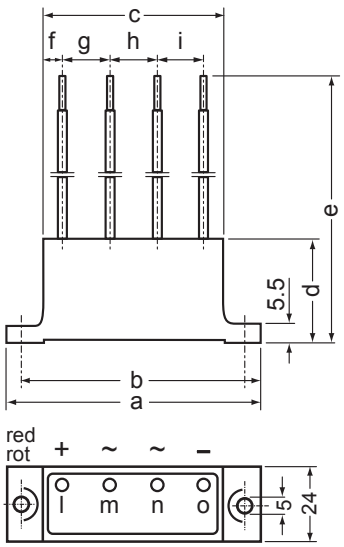
X210 TO-208 AC (TO-65) Weight = 21.7 g



X251 UGE-single Weight = 125 g

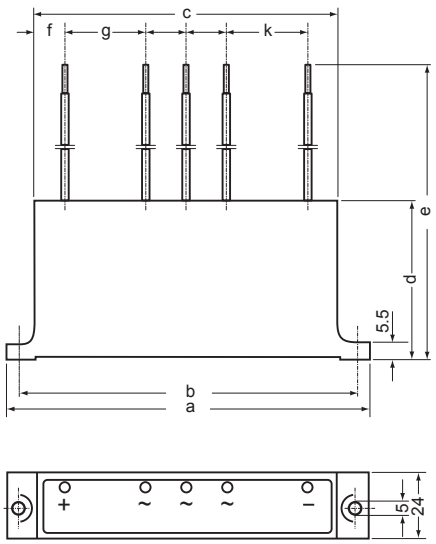


X252 UG Weight = 155 g



X253a UG Weight = 310 g

b: w/o middle terminal



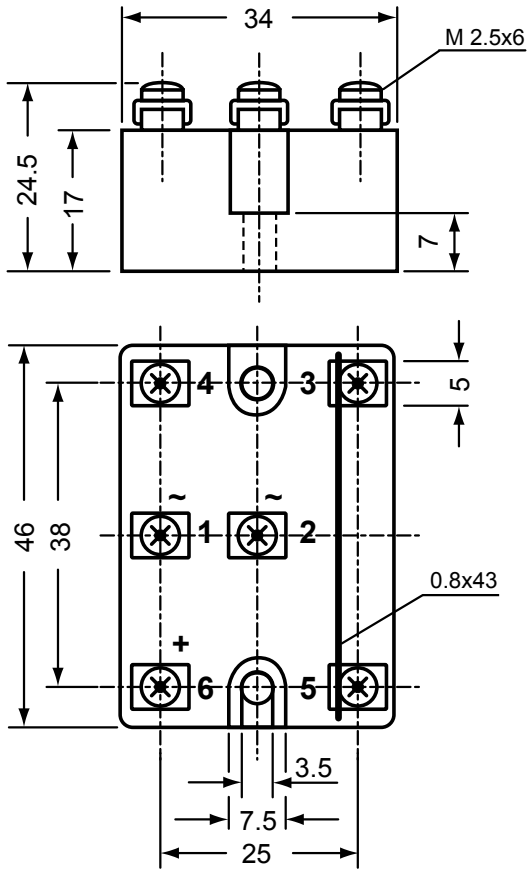
Type	a	b	c	d	e	f	g	h	i	k
UGB 3132 AD	80	70	57	58.5	260	6	15	15	15	
UGB 6124 AG	135	125	112	58.5	260	11	32.5	25	32.5	
UGD 6123 AG	135	125	112	58.5	260	8	30	18	18	30
UGD 8124 AG	135	125	112	58.5	260	8	30	18	18	30

Dimensions in mm

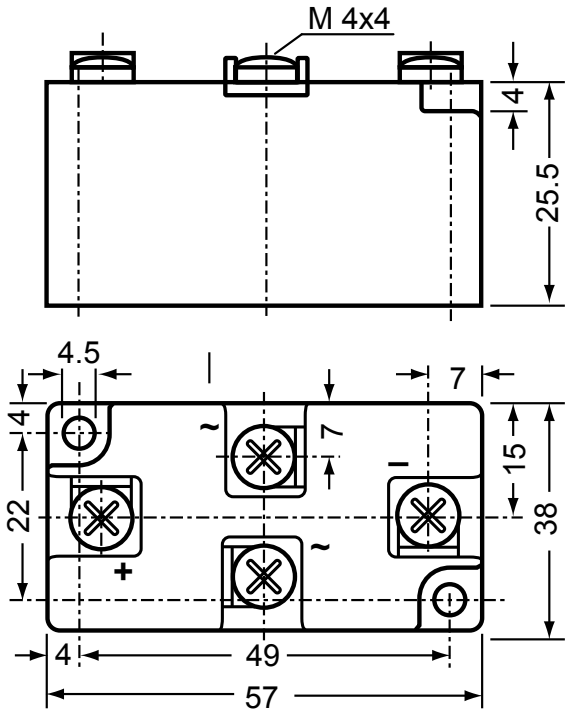
Outline drawings

Dimensions in mm and inches (1 mm = 0.0394“)

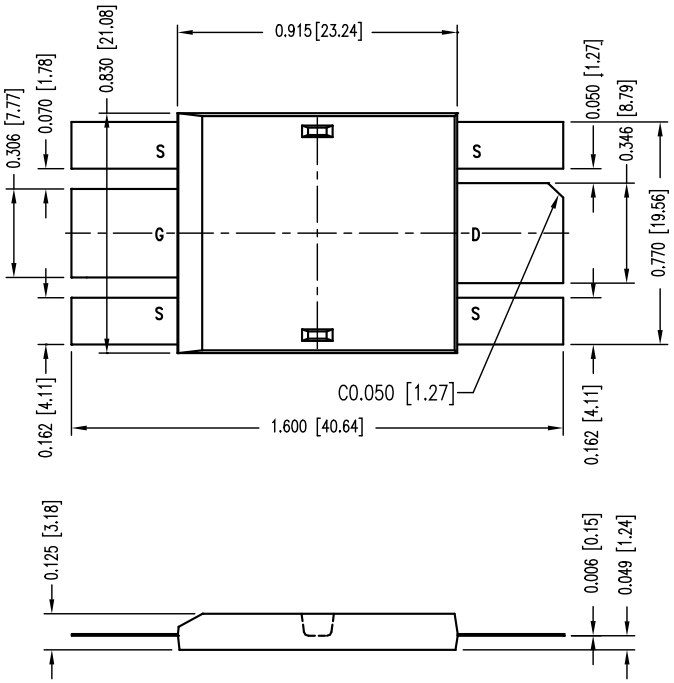
X254 VG-A Weight = 61 g



X255 VG-B Weight = 87 g



D5 DE475

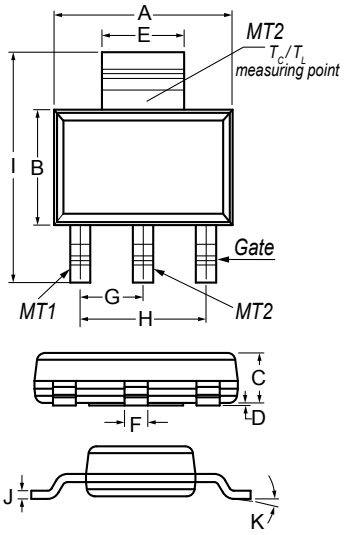


Outline drawings

Littelfuse

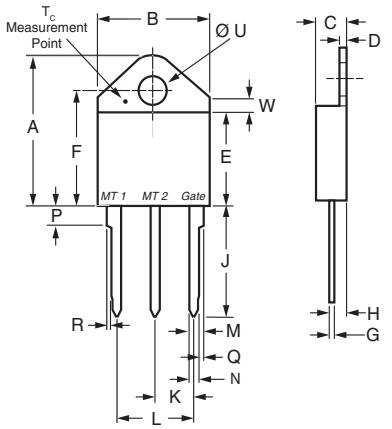
Dimensions in mm and inches (1 mm = 0.0394“)

L001 SOT-223 Weight = 0.11 g



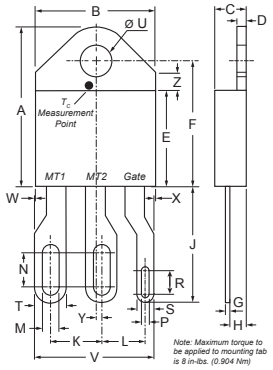
Dim.	Millimeters			Inches		
	min	typ	max	min	typ	max
A	6.30	6.50	6.70	0.248	0.256	0.264
B	3.30	3.50	3.70	0.130	0.138	0.146
C	-	-	1.80	-	-	0.071
D	0.02	-	0.10	0.001	-	0.004
E	2.90	3.00	3.15	0.114	0.118	0.124
F	0.60	0.70	0.85	0.024	0.027	0.034
G	-	2.30	-	-	0.090	-
H	-	4.60	-	-	0.181	-
I	6.70	7.00	7.30	0.264	0.276	0.287
J	0.24	0.26	0.35	0.009	0.010	0.014
K	10° max					

L002 TO-218AC Weight = 5 g



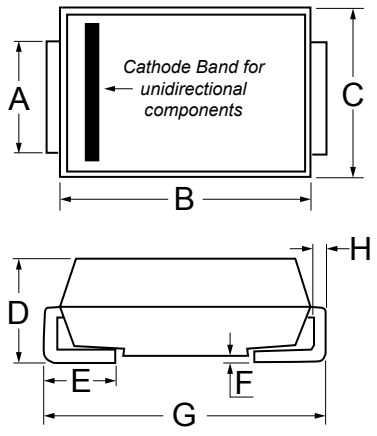
Dim.	Millimeter		Inches	
	min	max	min	max
A	20.57	21.21	0.810	0.835
B	15.49	16.00	0.610	0.630
C	4.52	4.78	0.178	0.188
D	1.40	1.78	0.055	0.070
E	12.37	12.62	0.487	0.497
F	16.13	16.64	0.635	0.655
G	0.56	0.74	0.022	0.029
H	1.91	2.41	0.075	0.095
J	14.61	15.88	0.575	0.625
K	5.36	5.56	0.211	0.219
L	10.72	11.10	0.422	0.437
M	1.47	1.73	0.058	0.068
N	1.14	1.40	0.045	0.055
P	2.41	2.92	0.095	0.115
Q	0.20	0.41	0.008	0.016
R	0.20	0.41	0.008	0.016
U	4.10	4.20	0.164	0.165
W	2.17	2.42	0.085	0.095

L002a TO-218X Weight = 5.2 g



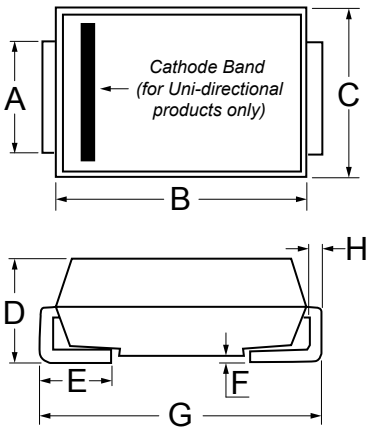
Dim.	Millimeter		Inches	
	min	max	min	max
A	20.57	21.21	0.810	21.210
B	15.49	16.00	0.610	16.000
C	4.52	4.78	0.178	4.780
D	1.40	1.78	0.055	1.780
E	12.37	12.62	0.487	12.620
F	16.13	16.64	0.635	16.640
G	0.56	0.74	0.022	0.740
H	1.91	2.41	0.075	2.410
J	14.61	15.88	0.575	15.880
K	6.50	6.71	0.256	6.710
L	5.58	5.79	0.220	5.790
M	2.03	2.24	0.080	2.240
N	4.29	4.49	0.169	4.490
P	0.86	1.07	0.034	1.070
R	2.87	3.07	0.113	3.070
S	2.18	2.44	0.086	2.440
T	3.96	4.22	0.156	4.220
U	0.41	0.42	0.164	0.420
V	15.31	15.70	0.603	15.700
W	0.00	0.13	0.000	0.130
X	0.07	0.30	0.003	0.300
Y	0.71	0.81	0.028	0.810
Z	2.17	2.42	0.085	2.420

L003a DO-214AA Weight = 0.1 g



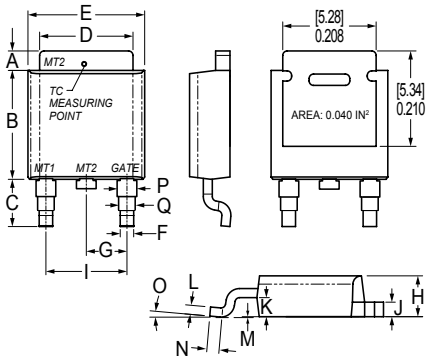
Dim.	Millimeters		Inches	
	min	max	min	max
A	1.950	2.200	0.077	0.086
B	4.060	4.570	0.160	0.180
C	3.300	3.940	0.130	0.155
D	2.130	2.440	0.084	0.096
E	0.760	1.520	0.030	0.060
F	-	0.203	-	0.008
G	5.210	5.590	0.205	0.220
H	0.152	0.305	0.006	0.012

L003b DO-214AB Weight = 0.2 g



Dim.	Millimeters		Inches	
	min	max	min	max
A	2.900	3.200	0.114	0.126
B	6.600	7.110	0.260	0.280
C	5.590	6.220	0.220	0.245
D	2.060	2.620	0.079	0.103
E	0.760	1.520	0.030	0.060
F	-	0.203	-	0.008
G	7.750	8.130	0.305	0.320
H	0.152	0.305	0.006	0.012

L004 TO-252AA Weight = 0.3 g

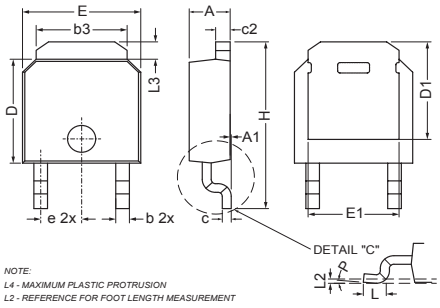


Dim.	Millimeters			Inches		
	min	nom	max	min	nom	max
A	0.94	1.01	1.09	0.037	0.040	0.043
B	5.97	6.16	6.22	0.235	0.243	0.245
C	2.69	2.74	2.87	0.106	0.108	0.113
D	5.21	5.29	5.41	0.205	0.208	0.213
E	6.48	6.65	6.73	0.255	0.262	0.265
F	0.69	0.80	0.84	0.027	0.031	0.033
G	2.21	2.28	2.36	0.087	0.090	0.093
H	2.16	2.33	2.41	0.085	0.092	0.095
I	4.47	4.55	4.67	0.176	0.179	0.184
J	0.46	0.51	0.58	0.018	0.020	0.023
K	0.90	0.95	1.00	0.04	0.04	0.04
L	0.46	0.51	0.58	0.018	0.020	0.023
M	0.00	0.00	0.10	0.000	0.000	0.004
N	0.53	0.67	0.69	0.02	0.03	0.03
O	0°	0°	5°	0°	0°	5°
P	1.06	1.20	1.32	0.042	0.047	0.052
Q	0.86	1.00	1.11	0.034	0.039	0.044

Dimensions in mm and inches (1 mm = 0.0394“)

L004a TO-252

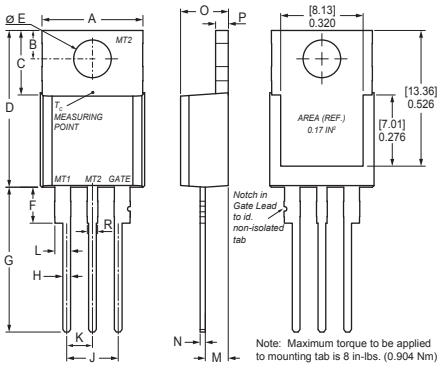
Weight = 0.3 g



NOTE:
L4 - MAXIMUM PLASTIC PROTRUSION
L2 - REFERENCE FOR FOOT LENGTH MEASUREMENT

Dim.	Millimeters			Inches		
	min	nom	max	min	nom	max
A	2.16	2.29	2.41	0.085	0.090	0.095
A1	0	0.08	0.13	0	0.003	0.005
b	0.64	0.76	0.89	0.025	0.030	0.035
b3	4.95	5.08	5.46	0.195	0.200	0.215
c	0.46	0.51	0.61	0.018	0.020	0.024
C2	0.46	0.81	0.89	0.018	0.032	0.035
D	5.97	6.10	6.22	0.235	0.240	0.245
D1	5.21	-	-	0.205	-	-
E	6.35	6.60	6.73	0.250	0.260	0.265
E1	4.32	-	-	0.170	-	-
e	2.29 BSC			0.090 BSC		
H	9.40	9.83	10.41	0.370	0.387	0.410
L	1.02	1.14	1.27	0.040	0.045	0.050
L2	0.25 BSC			0.010 BSC		
L3	0.89	-	1.27	0.035	-	0.050
P	0°	-	8°	0°	-	8°

L005a TO-220AB (NON-ISO) Weight = 2 g

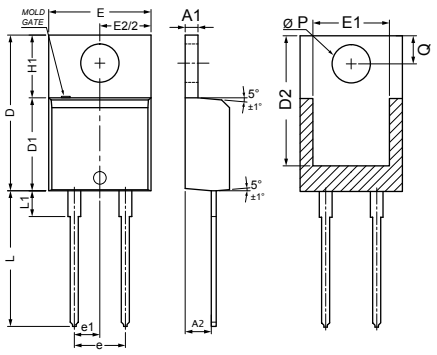


Note: Maximum torque to be applied to mounting tab is 8 in-lbs. (0.904 Nm)

Dim.	Millimeters		Inches	
	min	max	min	max
A	9.65	10.67	0.380	0.420
B	2.67	2.92	0.105	0.115
C	5.84	6.35	0.230	0.250
D	14.99	15.75	0.590	0.620
E	3.61	3.73	0.142	0.147
F	2.79	3.30	0.110	0.130
G	13.72	14.61	0.540	0.575
H	0.64	0.89	0.025	0.035
J	4.95	5.21	0.195	0.205
K	2.41	2.67	0.095	0.105
L	1.52	1.91	0.060	0.075
M	2.16	2.41	0.085	0.095
N	0.46	0.61	0.018	0.024
O	4.52	4.78	0.178	0.188
P	1.14	1.52	0.045	0.060
R	0.97	1.22	0.038	0.048

L005b TO-220AC

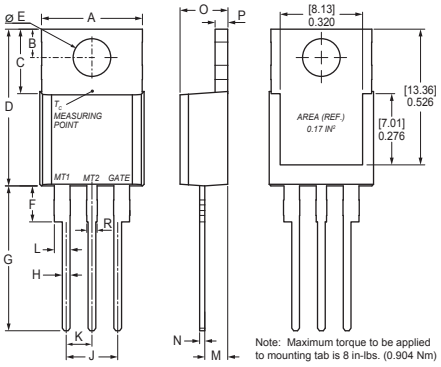
Weight = 2 g



Dim.	Millimeter		
	min	nominal	max
A	4.320	4.450	4.570
A1	1.140	1.270	1.400
A2	2.500	-	2.740
b	0.690	-	0.880
b1	0.680	-	0.870
b2	1.230	-	1.390
b3	1.220	1.270	1.380
c	0.360	-	0.503
c1	0.630	-	0.527
D	14.900	-	15.600
D1	8.615	-	9.017
D2	12.840	-	12.950
E	10.000	10.180	10.360
E1	7.570	7.610	7.680
e1	2.490	2.540	2.590
e	5.030	5.080	5.130
H1	6.295	6.545	6.795
L	13.000	13.500	14.000
L1	2.390	-	3.250
øP	3.710	3.840	3.960
Q	2.650	-	3.050
R	-	-	0.254

L005c TO-220AB (ISO)

Weight = 2 g

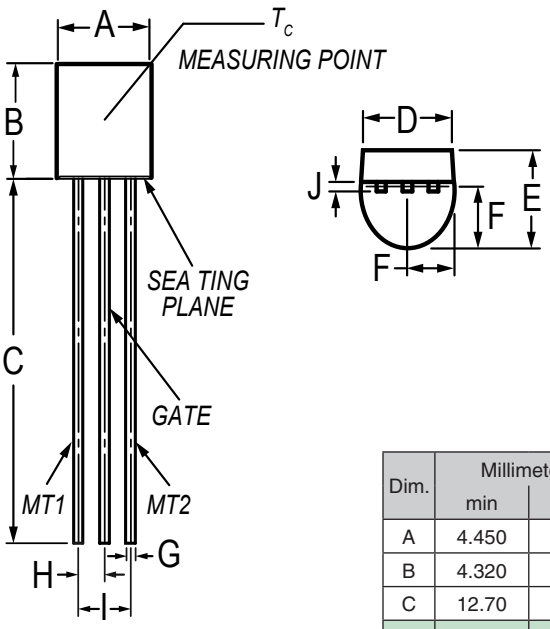


Note: Maximum torque to be applied to mounting tab is 8 in-lbs. (0.904 Nm)

Dim.	Millimeters		Inches	
	min	max	min	max
A	9.65	10.67	0.380	0.420
B	2.67	2.92	0.105	0.115
C	5.84	6.35	0.230	0.250
D	14.99	15.75	0.590	0.620
E	3.61	3.73	0.142	0.147
F	2.79	3.30	0.110	0.130
G	13.72	14.61	0.540	0.575
H	0.64	0.89	0.025	0.035
J	4.95	5.21	0.195	0.205
K	2.41	2.67	0.095	0.105
L	1.52	1.91	0.060	0.075
M	2.16	2.41	0.085	0.095
N	0.46	0.61	0.018	0.024
O	4.52	4.78	0.178	0.188
P	1.14	1.52	0.045	0.060
R	0.97	1.22	0.038	0.048

L006a TO-92
L006b TO-92 (GAK)

Weight = 0.2 g



Dim.	Millimeters		Inches	
	min	max	min	max
A	4.450	5.200	0.175	0.205
B	4.320	5.330	0.170	0.210
C	12.70		0.500	
D	3.430		0.135	
E	3.180	4.190	0.125	0.165
F	2.040	2.660	0.080	0.105
G	0.407	0.533	0.016	0.021
H	1.150	1.390	0.045	0.055
I	2.420	2.660	0.095	0.105
J	0.380	0.500	0.015	0.020

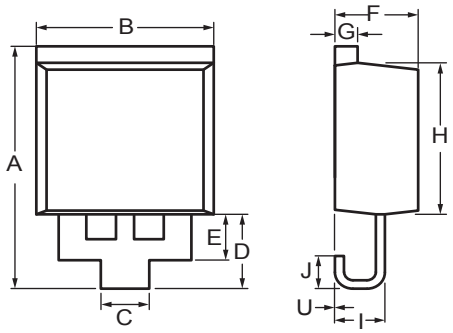
Outline drawings

Littelfuse

Dimensions in mm and inches (1 mm = 0.0394“)

L007 SMTO-263

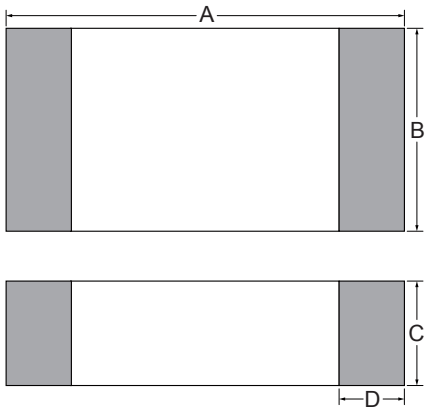
Weight = 2.6 g



Dim.	Millimeters		Inches	
	min	max	min	max
A	14.44	15.24	0.568	0.600
B	9.65	10.67	0.38	0.420
C	2.50	2.90	0.098	0.114
D	4.30	4.80	0.169	0.189
E	2.60	3.00	0.102	0.118
F	4.52	4.78	0.178	0.188
G	1.14	1.52	0.045	0.06
H	9.14	9.40	0.360	0.370
I	2.69	3.09	0.106	0.122
J	1.75	2.25	0.069	0.089
U	0	0.25	0	0.010

L008 1206 SMD

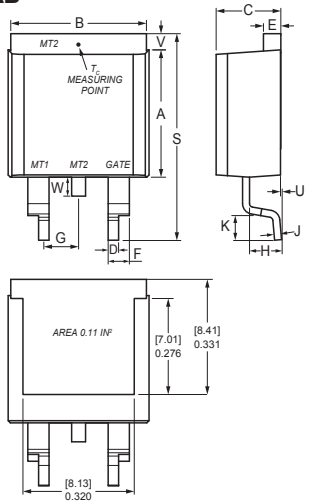
Weight = 0.008 g



Dim.	Millimeters		Inches	
	min	max	min	max
A	3.022	3.378	0.119	0.133
B	1.430	1.730	0.056	0.068
C	0.820	0.850	0.027	0.039
D	0.320	0.720	0.012	0.028

L011b TO-263AB

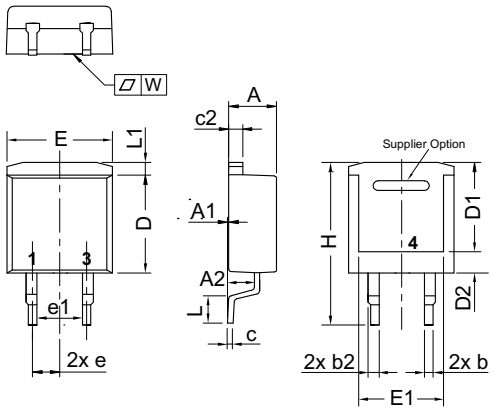
Weight = 1.5 g



Dim.	Millimeter		Inches	
	min	max	min	max
A	9.14	9.40	0.360	0.370
B	9.65	10.67	0.380	0.420
C	4.52	4.78	0.178	0.188
D	0.64	0.89	0.025	0.035
E	1.14	1.52	0.045	0.060
F	1.52	1.91	0.060	0.075
G	2.41	2.67	0.095	0.105
H	2.34	2.59	0.092	0.102
J	0.46	0.61	0.018	0.024
K	2.29	2.79	0.090	0.110
S	14.99	15.88	0.590	0.625
V	0.89	1.14	0.035	0.045
U	0.05	0.25	0.002	0.010
W	1.02	1.78	0.040	0.070

X011c TO-263 AB (D²PAK HV)

Weight = 1.5 g

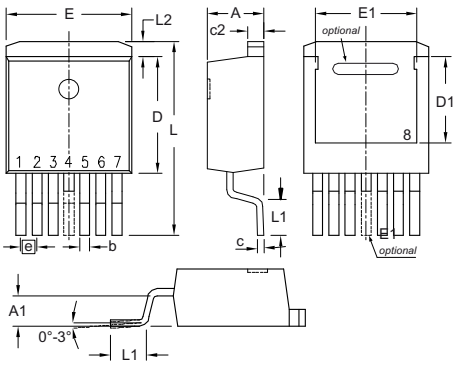


Dim.	Millimeters		Inches	
	min	max	min	max
A	4.06	4.83	0.160	0.190
A1	typ 0.10		typ 0.004	
A2	2.41		0.095	
b	0.51	0.99	0.020	0.039
b2	1.14	1.40	0.045	0.055
c	0.40	0.74	0.016	0.029
c2	1.14	1.40	0.045	0.055
D	8.38	9.40	0.330	0.370
D1	8.00	8.89	0.315	0.350
D2	2.5		0.098	
E	9.65	10.41	0.380	0.410
E1	6.22	8.50	0.245	0.335
e	2.54 BSC		0.100 BSC	
e1	4.28		0.169	
H	14.61	15.88	0.575	0.625
L	1.78	2.79	0.070	0.110
L2	1.02	1.68	0.040	0.066
W	typ 0.02	0.040	typ 0.0008	0.002

Dimensions in mm and inches (1 mm = 0.0394“)

L012b TO-263 (7) c) middle leg cut

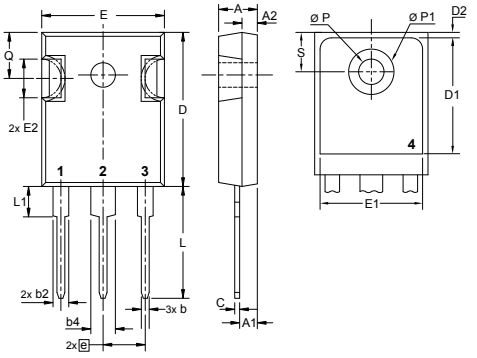
Weight = 2.5 g



Dim.	Millimeter		Inches	
	min	max	min	max
A	4.20	4.60	0.165	0.181
A1	2.45	2.75	0.096	0.108
b	0.65	0.90	0.026	0.035
c	0.40	0.60	0.016	0.024
c2	1.14	1.40	0.045	0.055
D	8.38	8.64	0.330	0.340
D1	6.10	6.35	0.240	0.250
E	10.00	10.30	0.394	0.406
E1	7.34	8.00	0.290	0.315
e	1.27 BSC		0.050 BSC	
L	14.73	15.75	0.580	0.620
L1	2.24	2.84	0.088	0.112
L2	1.35	1.55	0.053	0.061

L014a TO-247AD

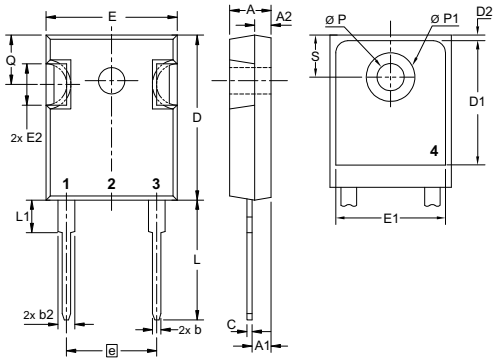
Weight = 6 g



Dim.	Millimeter		Inches	
	min	max	min	max
A	4.70	5.30	0.185	0.209
A1	2.21	2.59	0.087	0.102
A2	1.50	2.49	0.059	0.098
b	0.99	1.40	0.039	0.055
b2	1.65	2.39	0.065	0.094
b4	2.59	3.43	0.102	0.135
c	0.38	0.89	0.015	0.035
D	20.79	21.45	0.819	0.845
D1	13.07	-	0.515	-
D2	0.51	1.35	0.020	0.053
E	15.48	16.24	0.610	0.640
E1	13.45	-	0.53	-
E2	4.31	5.48	0.170	0.216
e	5.45 BSC		0.215 BSC	
L	19.80	20.30	0.078	0.800
L1	-	4.49	-	0.177
Ø P	3.55	3.65	0.140	0.144
Ø P1	-	7.39	-	0.290
Q	5.38	6.19	0.212	0.244
S	6.14 BSC		0.242 BSC	

L014b TO-247 AD

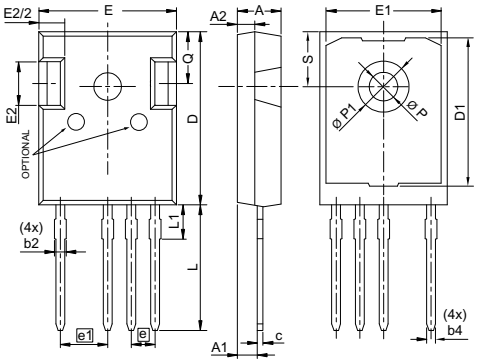
Weight = 6 g



Dim.	Millimeters		Inches	
	min	max	min	max
A	4.70	5.30	0.185	0.209
A1	2.21	2.59	0.087	0.102
A2	1.50	2.49	0.059	0.098
b	0.99	1.40	0.039	0.055
b2	1.65	2.39	0.065	0.094
b4	2.59	3.43	0.102	0.135
c	0.38	0.89	0.015	0.035
D	20.79	21.45	0.819	0.845
D1	13.07	-	0.515	-
D2	0.51	1.35	0.020	0.053
E	15.48	16.24	0.610	0.640
E1	13.45	-	0.530	-
E2	4.31	5.48	0.170	0.216
e	10.90 BSC		0.430 BSC	
L	19.80	20.30	0.078	0.800
L1	-	4.49	-	0.177
Ø P	3.55	3.65	0.140	0.144
Ø P1	-	7.39	-	0.290
Q	5.38	6.19	0.212	0.244
S	6.14 BSC		0.242 BSC	

L014d TO-247-4L

Weight = 6 g



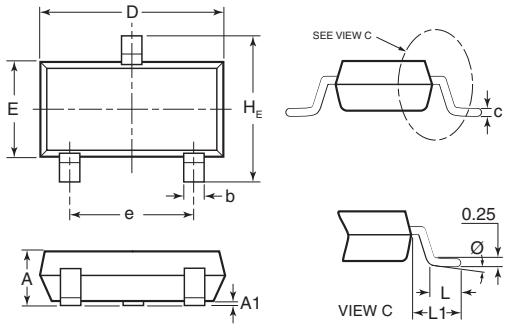
Dim.	Millimeters		Inches	
	min	max	min	max
A	4.70	5.31	0.185	0.209
A1	2.21	2.59	0.087	0.102
A2	1.85	2.16	0.073	0.085
b	1.10	1.30	0.043	0.051
b2	1.30	1.50	0.051	0.059
c	0.50	0.89	0.020	0.035
D	20.80	21.46	0.819	0.845
D1	13.50	-	-	-
e	2.54 BSC		0.100 BSC	
e1	5.08 BSC		0.200 BSC	
E	15.49	16.26	0.610	0.640
E1	13.06	14.15	0.514	0.557
E2	4.32	4.83	0.170	0.190
L	19.81	20.57	0.780	0.810
L1	3.81	4.50	0.150	0.177
Ø P	3.55	3.70	0.140	0.146
Ø P1	7.00	7.40	0.276	0.291
Q	5.38	6.20	0.212	0.244
S	6.15 BSC		0.242 BSC	

Outline drawings

Dimensions in mm and inches (1 mm = 0.0394“)

L015 SOT-23

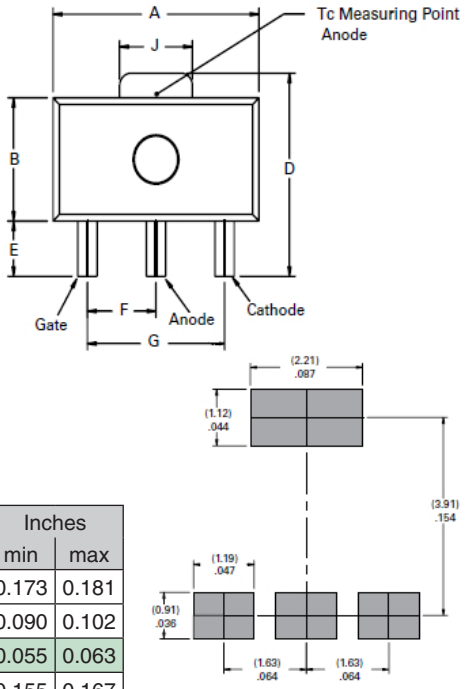
Weight = 0.008 g



Dim.	Millimeter		Inches	
	min	max	min	max
A	0.89	1.17	0.035	0.046
A1	0.05	0.15	0.001	0.006
b	0.30	0.50	0.012	0.020
c	0.08	0.20	0.003	0.008
D	2.80	3.00	0.110	0.118
E	1.20	1.40	0.047	0.055
e	1.90 BSC		0.075 BSC	
L	0.40	0.58	0.016	0.023
L1	0.46	0.64	0.018	0.025
H_E	2.10	2.49	0.083	0.098
Ø	0°	10°	0°	10°

L016 SOT-89

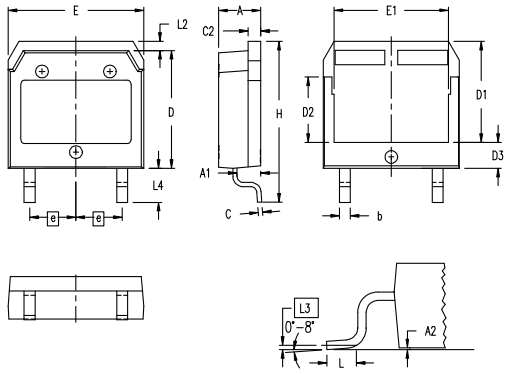
Weight = 0.045 g



Dim.	Millimeter		Inches	
	min	max	min	max
A	4.40	4.60	0.173	0.181
B	2.29	2.60	0.090	0.102
C	1.40	1.60	0.055	0.063
D	3.94	4.25	0.155	0.167
E	0.89	1.20	0.035	0.047
F	1.42	1.57	0.056	0.062
G	2.92	3.07	0.115	0.121
H	0.35	0.44	0.014	0.017
I	0.36	0.48	0.014	0.019
J	1.62	1.83	0.064	0.072

L019a TO-268 AA (D^3PAK HV)

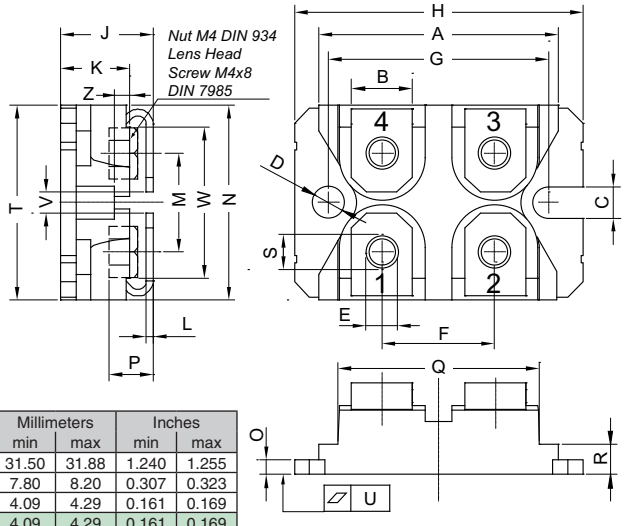
Weight = 4 g



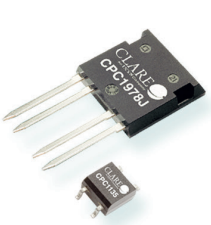
Dim.	Millimeters		Inches	
	min	max	min	max
A	4.90	5.10	0.193	0.201
A1	2.70	2.90	0.106	0.114
A2	0.02	0.25	0.001	0.100
b	1.15	1.45	0.045	0.057
C	0.40	0.65	0.016	0.026
C 2	1.45	1.60	0.057	0.063
D	13.80	14.00	0.543	0.551
D1	11.80	12.10	0.465	0.476
D2	7.50	7.80	0.295	0.307
D3	2.90	3.20	0.114	0.126
E	15.85	16.05	0.624	0.632
E1	13.30	13.60	0.524	0.535
e	5.45 BSC		0.215 BSC	
H	18.70	19.10	0.736	0.752
L	1.70	2.00	0.067	0.079
L2	1.00	1.15	0.039	0.045
L3	0.25 BSC		0.010 BSC	
L4	3.80	4.10	0.150	0.161

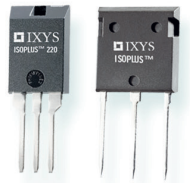
L027a SOT-227 B miniBLOC

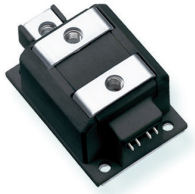
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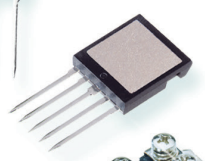


Dim.	Millimeters		Inches	
	min	max	min	max
A	31.50	31.88	1.240	1.255
B	7.80	8.20	0.307	0.323
C	4.09	4.29	0.161	0.169
D	4.09	4.29	0.161	0.169
E	4.09	4.29	0.161	0.169
F	14.91	15.11	0.587	0.595
G	30.12	30.30	1.186	1.193
H	37.80	38.23	1.488	1.505
J	11.68	12.22	0.460	0.481
K	8.92	9.60	0.351	0.378
L	0.74	0.84	0.029	0.033
M	12.50	13.10	0.492	0.516
N	25.15	25.42	0.990	1.001
O	1.95	2.13	0.077	0.084
P	4.95	6.20	0.195	0.244
Q	26.54	26.90	1.045	1.059
R	3.94	4.42	0.155	0.174
S	4.55	4.85	0.179	0.191
T	24.59	25.25	0.968	0.994
U	-0.05	0.10	-0.002	0.004
V	3.20	5.50	0.126	0.217
W	19.81	21.08	0.780	0.830
Z	2.50	2.70	0.098	0.106

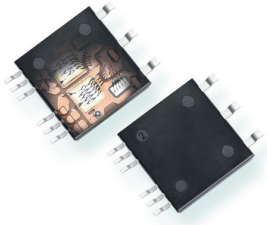

CLARE
CPC1978J

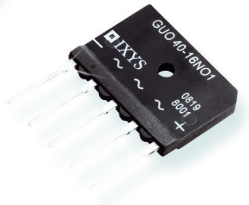

IXYS
ISOPLUS™ 220
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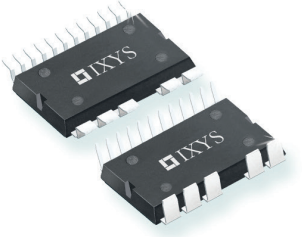


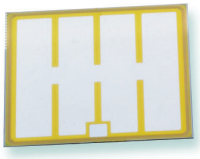




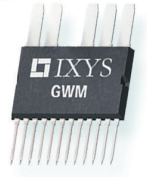


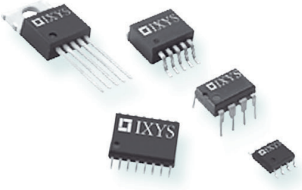

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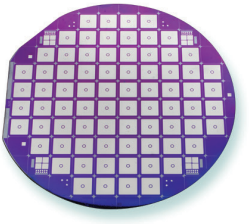

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IXYS



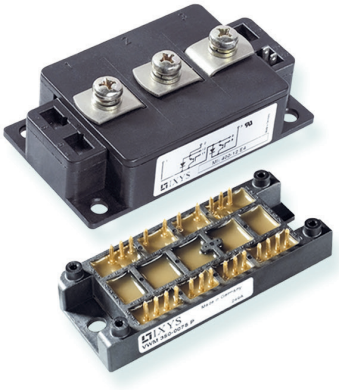


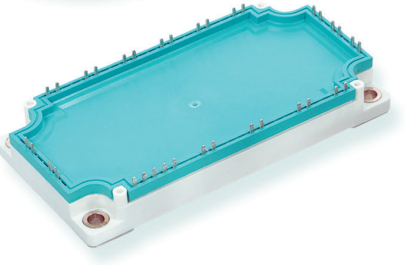

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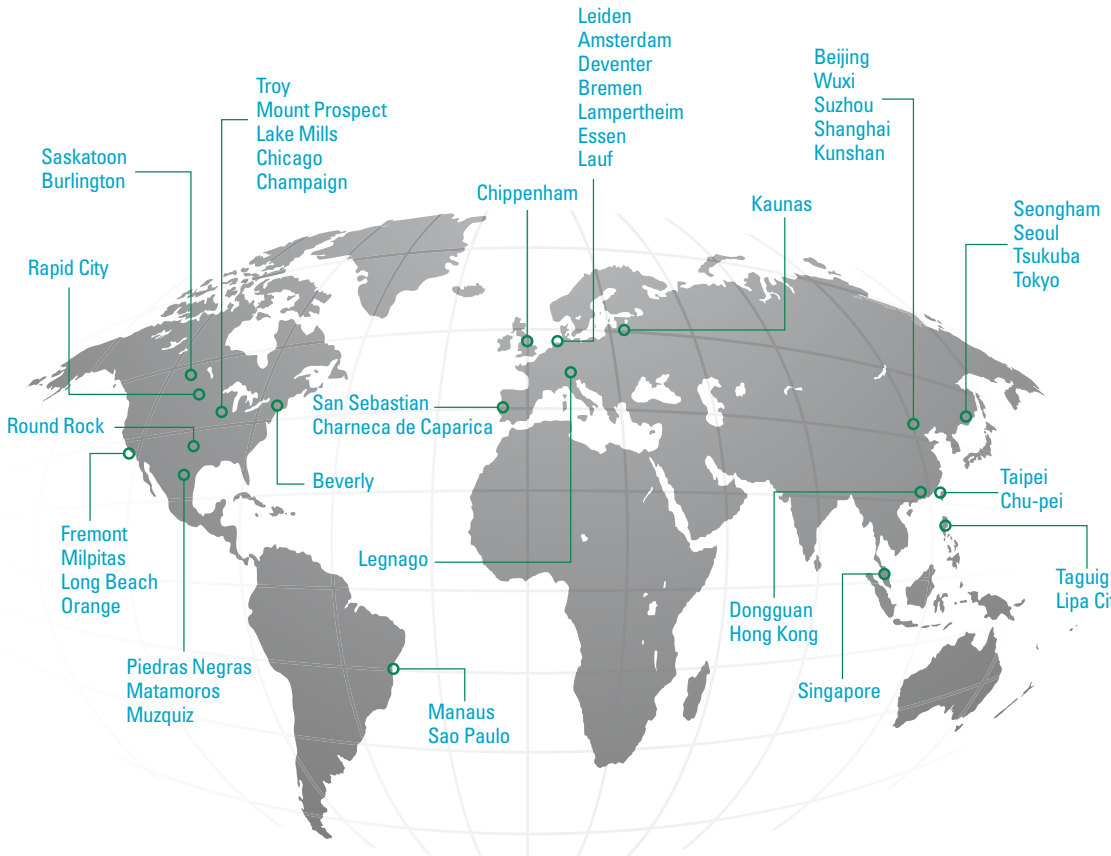








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