

Schottky Diode

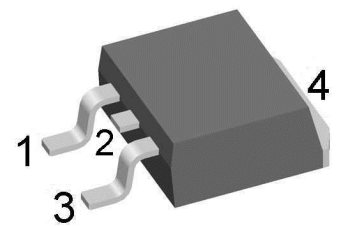
$$\begin{aligned} V_{RRM} &= 45 \text{ V} \\ I_{FAV} &= 2 \times 15 \text{ A} \\ V_F &= 0.43 \text{ V} \end{aligned}$$

High Performance Schottky Diode
 Low Loss and Soft Recovery
 Common Cathode

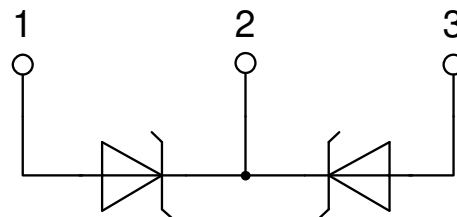
Part number

DSSK28-0045BS

Marking on Product: DSSK28-0045BS



Backside: cathode



Features / Advantages:

- Very low V_f
- Extremely low switching losses
- Low I_{rm} values
- Improved thermal behaviour
- High reliability circuit operation
- Low voltage peaks for reduced protection circuits
- Low noise switching

Applications:

- Rectifiers in switch mode power supplies (SMPS)
- Free wheeling diode in low voltage converters

Package: TO-263 (D2Pak)

- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0

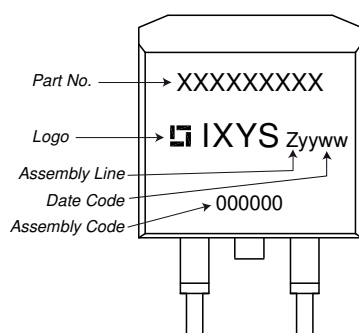
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Schottky				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RSM}	max. non-repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				45	V
V_{RRM}	max. repetitive reverse blocking voltage	$T_{VJ} = 25^{\circ}\text{C}$				45	V
I_R	reverse current, drain current	$V_R = 45\text{ V}$	$T_{VJ} = 25^{\circ}\text{C}$			20	mA
		$V_R = 45\text{ V}$	$T_{VJ} = 100^{\circ}\text{C}$			100	mA
V_F	forward voltage drop	$I_F = 15\text{ A}$	$T_{VJ} = 25^{\circ}\text{C}$			0.48	V
		$I_F = 30\text{ A}$					V
		$I_F = 15\text{ A}$	$T_{VJ} = 125^{\circ}\text{C}$			0.43	V
		$I_F = 30\text{ A}$				0.60	V
I_{FAV}	average forward current	$T_C = 135^{\circ}\text{C}$ rectangular $d = 0.5$	$T_{VJ} = 150^{\circ}\text{C}$			15	A
V_{F0}	threshold voltage	} for power loss calculation only		$T_{VJ} = 150^{\circ}\text{C}$		0.24	V
r_F	slope resistance					11.1	mΩ
R_{thJC}	thermal resistance junction to case					1.4	K/W
R_{thCH}	thermal resistance case to heatsink				0.25		K/W
P_{tot}	total power dissipation	$T_C = 25^{\circ}\text{C}$				90	W
I_{FSM}	max. forward surge current	$t = 10\text{ ms}; (50\text{ Hz}), \text{ sine}; V_R = 0\text{ V}$	$T_{VJ} = 45^{\circ}\text{C}$			320	A
C_J	junction capacitance	$V_R = 5\text{ V}$ $f = 1\text{ MHz}$	$T_{VJ} = 25^{\circ}\text{C}$		980		pF

Package TO-263 (D2Pak)			Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I_{RMS}	RMS current	per terminal			35	A
T_{VJ}	virtual junction temperature		-55		150	°C
T_{op}	operation temperature		-55		125	°C
T_{stg}	storage temperature		-55		150	°C
Weight				2		g
F_c	mounting force with clip		20		60	N

Product Marking



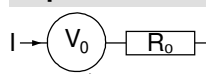
Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DSSK28-0045BS-TRL	DSSK28-0045BS	Tape & Reel	800	484296
Alternative	DSSK28-0045BS-TUB	DSSK28-0045BS	Tube	50	484288

Similar Part	Package	Voltage class
DSB30C45PB	TO-220AB (3)	45
DSB30C45HB	TO-247AD (3)	45
DSB60C45PB	TO-220AB (3)	45
DSB60C45HB	TO-247AD (3)	45

Equivalent Circuits for Simulation

* on die level

$T_{VJ} = 150\text{ °C}$



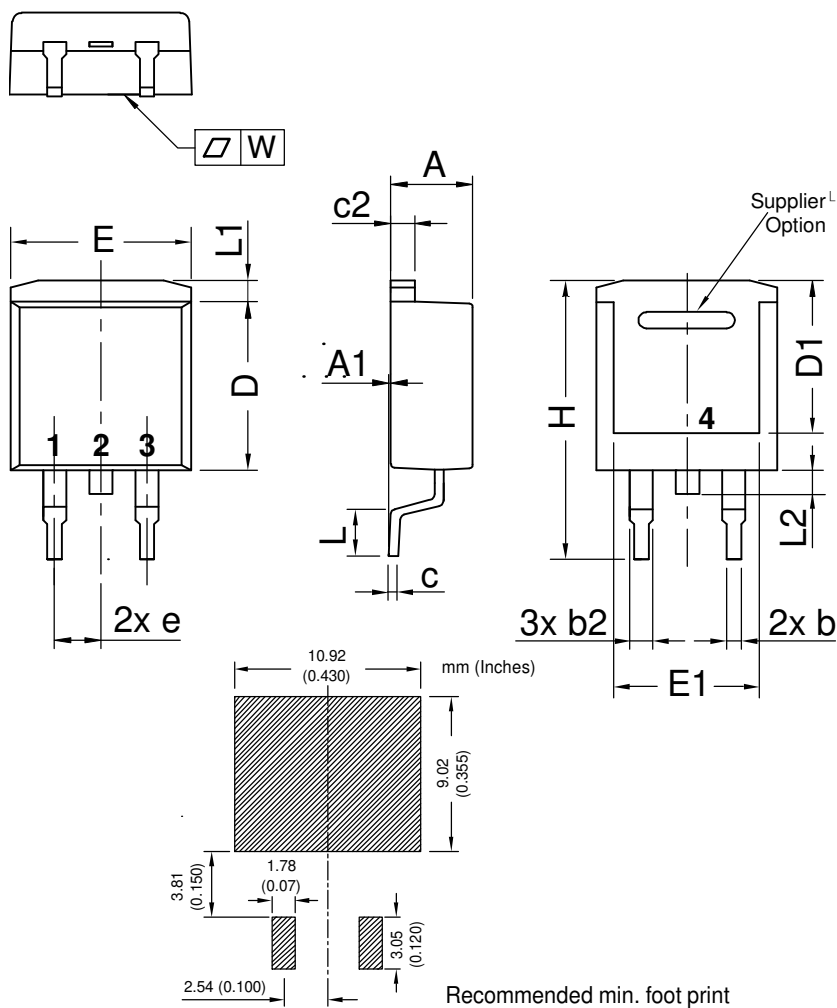
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$V_{0\text{ max}}$ threshold voltage 0.24

$R_{0\text{ max}}$ slope resistance *

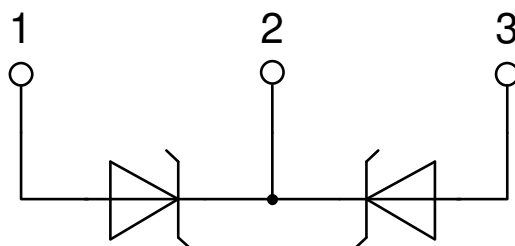
V

mΩ

Outlines TO-263 (D2Pak)


Dim.	Millimeter		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
L1	1.02	1.68	0.040	0.066
W	typ. 0.02	0.040	typ. 0.0008	0.002

All dimensions conform with and/or within JEDEC standard.



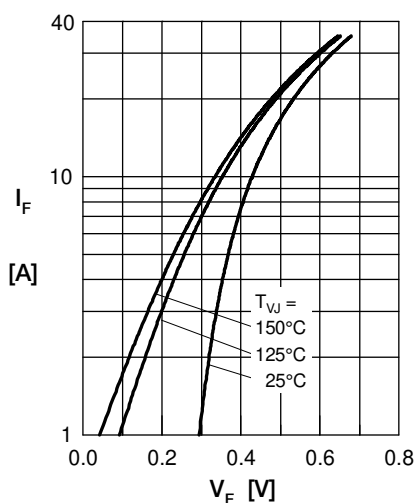
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Fig. 1 Max. forward voltage drop characteristics

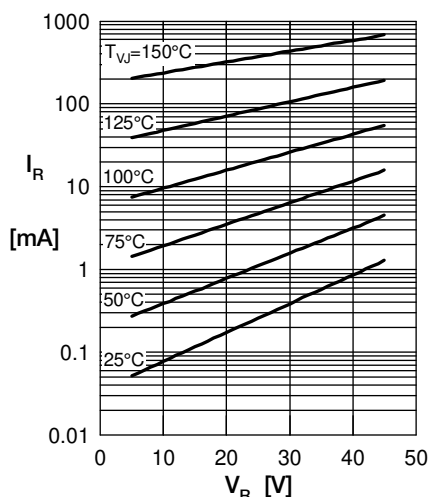


Fig. 2 Typ. reverse current I_R vs. reverse voltage V_R

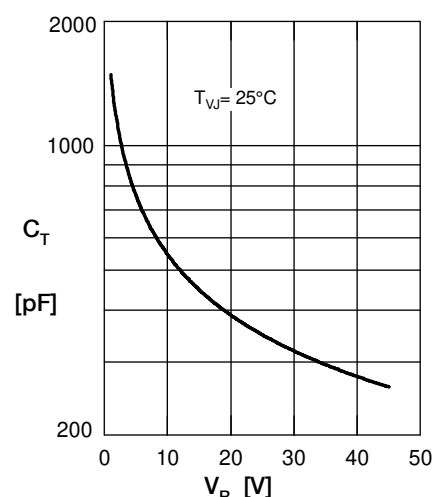


Fig. 3 Typ. junction capacitance C_T vs. reverse voltage V_R

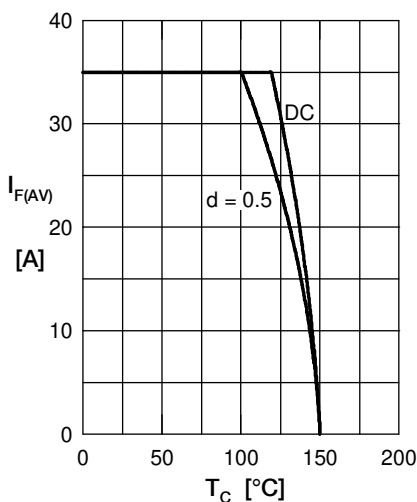


Fig. 4 Average forward current $I_{F(AV)}$ vs. case temp. T_C

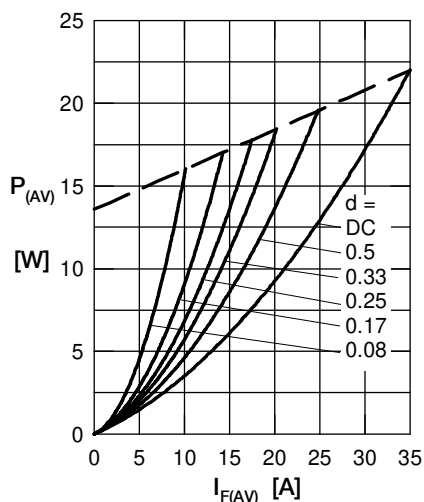


Fig. 5 Forward power loss characteristics

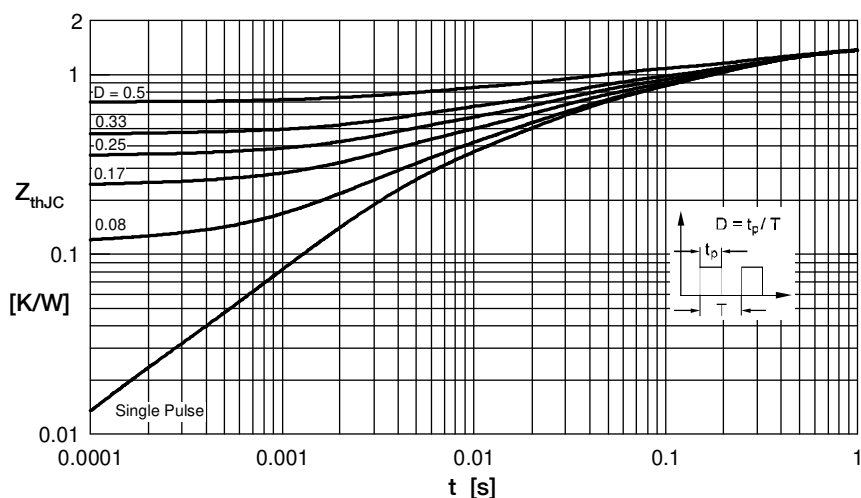


Fig. 6 Transient thermal impedance junction to case at various duty cycles

Note: All curves are per diode

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