IXYS

High Voltage, High Gain BIMOSFET™ Monolithic Bipolar MOS Transistor

Preliminary Data Sheet

IXBH 10N170

V_{CES}	=	1700 V
I_{C25}	=	20 A
$V_{CE(sat)}$	=	3.8 V

Symbol | **Test Conditions** | **Characteristic Values** (T_J = 25°C, unless otherwise specified) | min. | typ. | max.

Symbol	Test Conditions	min.	typ.	max.
g_{fs}	I_C = I_{C90}; V_{CE} = 10 V; Pulse test, t ≤ 300 µs, duty cycle d ≤ 2 %	4.0	6.5	S
C_{ies}			700	pF
C_{oes}	f = 1 MHz		40	pF
C_{res}			12	pF
Q_g			30	nC
Q_{ge}	I_C = I_{C90}; V_{CE} = 0.5 V_{CES}		6	nC
Q_{gc}			10	nC
$t_{d(on)}$	Inductive load, T_J = 25°C		35	ns
t_{ri}	I_C = I_{C90}; V_{CE} = 0.8 V_{CES}; R_G = R_{off} = 56 Ω		28	ns
$t_{d(off)}$			500	ns
t_{fi}			1000	ns
E_{off}			6	mJ
$t_{d(on)}$	Inductive load, T_J = 125°C		35	ns
t_{ri}			28	ns
E_{on}			17	mJ
$t_{d(off)}$			600	ns
t_{fi}			1200	ns
E_{off}			8	mJ
R_{thJC}				0.69 K/W
R_{thCK}			0.25	K/W

Reverse Diode (Characteristic Values) (T_J = 25°C, unless otherwise specified)

Symbol	Test Conditions	min.	typ.	max.
V_F	I_F = I_{C90}; V_{GE} = 0 V; Pulse test, t ≤ 300 µs, duty cycle d ≤ 2%			3.0 V
I_{RM}	I_F = I_{C90}; V_{GE} = 0 V; -di/dt = 50 A/µs; V_R = 100 V		10	A
t_{rr}			300	ns

Mounting torque (M3) (TO-247) 0.8...1.2 Nm/lb.in.

Weight TO-247 AD 6 g

Symbol	Test Conditions	min.	typ.	max.
V_{CES}	I_C = 250 µA, V_{GE} = 0 V			V
$V_{GE(th)}$	I_C = 250 µA, V_{CE} = V_{GE}	3.5		5.0 V
I_{CES}	V_{CE} = 0.8 V_{CES}; V_{GE} = 0 V; T_J = 25°C			10 µA
	T_J = 125°C			100 µA
I_{GES}	V_{CE} = 0 V; V_{GE} = ±20 V			±100 nA
$V_{CE(sat)}$	I_C = I_{C90}; V_{GE} = 15 V; T_J = 25°C		3.4	3.8 V
	T_J = 125°C		4.1	V

Temperature Coefficient 3.10 %/K

Temperature Coefficient 0.24 %/K

TO-247 AD Outline

Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	4.7	5.3	.185	.209
A_1	2.2	2.54	.087	.100
A_2	2.2	2.6	.087	.102
b	1.0	1.4	.040	.055
b_1	1.65	2.13	.065	.084
b_2	2.87	3.12	.113	.123
C	.4	.8	.015	.031
D	20.80	21.46	.819	.845
E	15.75	16.26	.620	.640
e	5.20	5.72	0.205	0.225
L	19.81	20.32	.780	.800
L_1		4.50		.177
øP	3.55	3.65	.140	.144
Q	5.89	6.40	0.232	0.252
R	4.32	5.49	.170	.216
S	6.15 BSC		.242 BSC	

G – Gate, C – Collector,
E – Emitter, TAB – Collector

TO-268 Outline

Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	4.9	5.1	.193	.201
A_1	7.80	8.00	.307	.315
b	1.15	1.45	.045	.057
b2	1.15	1.45	.045	.057
C	.4	.6	.016	.024
C2	2.2	2.4	.087	.094
D	14.0	14.2	.551	.559
D1	12.1	12.3	.476	.484
E	13.9	14.1	.547	.555
e	5.45 BSC		.215 BSC	
H	19.10	19.70	.752	.776
L	2.00	2.40	.079	.094
L1	1.00	1.40	.039	.055
L2	0.90	1.40	.035	.055
L3	0.25 BSC		.010 BSC	
L4	3.9	4.3	.154	.169

Features

- High Blocking Voltage
- JEDEC TO-268 surface and JEDEC TO-247 AD
- Low conduction losses
- High current handling capability
- MOS Gate turn-on
  - drive simplicity
- Molding epoxies meet UL 94 V-0 flammability classification

Applications

- AC motor speed control
- Uninterruptible power supplies (UPS)
- Switched-mode and resonant-mode power supplies
- DC choppers
- Temperature and lighting controls

Advantages

- High power density
- Suitable for surface mounting
- Easy to mount with 1 screw (isolated mounting screw hole)

IXYS reserves the right to change limits, test conditions, and dimensions.

IXYS MOSFETs and IGBTs are covered by one or more of the following U.S. patents: 4,835,592 4,881,106 5,017,508 5,049,961 5,187,117 5,486,715 6,306,728B1 6,259,123B1 6,306,728B1 4,850,072 4,931,844 5,034,796 5,063,307 5,237,481 5,381,025 6,404,065B1 6,162,665 6,534,343

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