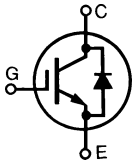
High Voltage, High Gain BIMOSFET™ Monolithic Bipolar MOS Transistor

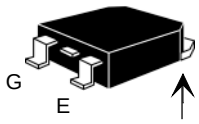
IXBH 16N170A
IXBT 16N170A

V_{CES} = 1700 V
I_{C25} = 16 A
$V_{CE(sat)}$ = 6.0 V
$t_{fi(typ)}$ = 50 ns

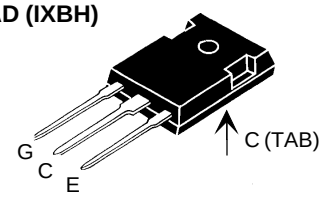


Symbol	Test Conditions		Maximum Ratings	
V_{CES}	T_J = 25°C to 150°C		1700	V
V_{CGR}	T_J = 25°C to 150°C; R_{GE} = 1 MΩ		1700	V
V_{GES}	Continuous		±20	V
V_{GEM}	Transient		±30	V
I_{C25}	T_C = 25°C		16	A
I_{C90}	T_C = 90°C		10	A
I_{CM}	T_C = 25°C, 1 ms		40	A
SSOA (RBSOA)	V_{GE} = 15 V, T_{VJ} = 125°C, R_G = 33 Ω Clamped inductive load	I_{CM} = V_{CES} =	40 1350	A V
t_{SC} **(SCSOA)**	V_{GE} = 15 V, V_{CES} = 1200V, T_J = 125°C R_G = 33 Ω non repetitive		10	µs
P_C	T_C = 25°C		150	W
T_J			-55 ... +150	°C
T_{JM}			150	°C
T_{stg}			-55 ... +150	°C
Maximum Lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s			300	°C
Maximum tab temperature for soldering SMD devices for 10 s			260	°C
M_d	Mounting torque (M3) (TO-247)		1.13/10	Nm/lb.in.
Weight	TO-247 TO-268		6 4	g g

TO-268 (IXBT)



TO-247 AD (IXBH)



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

Symbol	Test Conditions		Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
BV_{CES}	I_C = 250 µA, V_{GE} = 0 V		1700			V
$V_{GE(th)}$	I_C = 250 µA, V_{CE} = V_{GE}		2.5		5.5	V
I_{CES}	V_{CE} = 0.8 V_{CES}				50	µA
	V_{GE} = 0 V; Note 1	T_J = 125°C			1.5	mA
I_{GES}	V_{CE} = 0 V, V_{GE} = ±20 V				±100	nA
$V_{CE(sat)}$	I_C = I_{C90}, V_{GE} = 15 V				6.0	V
	Note 2	T_J = 125°C		5.0		V

Features

- Monolithic fast reverse diode
- High Blocking Voltage
- JEDEC TO-268 surface mount and JEDEC TO-247 AD packages
- Low switching 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
- Capacitor discharge circuits

Advantages

- Lower conduction losses than MOSFETs
- 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.

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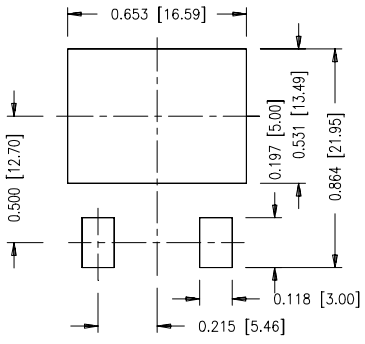
Symbol	Test Conditions	Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
g_{fs}	$I_C = I_{C90}$; V_{CE} = 10 V, Pulse test, t ≤ 300 µs, duty cycle ≤ 2 %	8	12.5		S
C_{ies}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		1400		pF
C_{oes}			90		pF
C_{res}			31		pF
Q_g	$I_C = I_{C90}$, V_{GE} = 15 V, V_{CE} = 0.5 V_{CES}		65		nC
Q_{ge}			13		nC
Q_{gc}			22		nC
$t_{d(on)}$	**Inductive load, T_J = 25°C**		15		ns
t_{ri}	$I_C = I_{C90}$, V_{GE} = 15 V		25		ns
$t_{d(off)}$	V_{CE} = 0.8 V_{CES}, $R_G = R_{off}$ = 10 Ω		160	250	ns
t_{fi}	Remarks: Switching times may increase for V_{CE} (Clamp) > 0.8 • V_{CES}, higher T_J or increased R_G		50	100	ns
E_{off}			1.2	2.5	mJ
$t_{d(on)}$	**Inductive load, T_J = 125°C**		15		ns
t_{ri}	$I_C = I_{C90}$, V_{GE} = 15 V		28		ns
E_{on}	V_{CE} = 0.8 V_{CES}, $R_G = R_{off}$ = 10 Ω		2.0		mJ
$t_{d(off)}$	Remarks: Switching times may increase for V_{CE} (Clamp) > 0.8 • V_{CES}, higher T_J or increased R_G		220		ns
t_{fi}			150		ns
E_{off}			2.6		mJ
R_{thJC}				0.83	K/W
R_{thCK}	(TO-247)		0.25		K/W

Reverse Diode

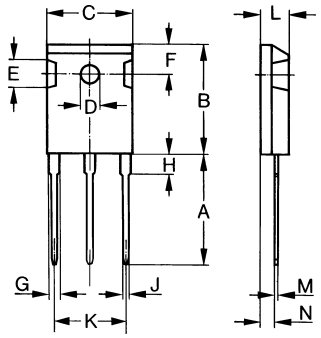
Symbol	Test Conditions	Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
V_F	$I_F = I_{C90}$, V_{GE} = 0 V, Pulse test, t ≤ 300 us, duty cycle d ≤ 2%			5.0	V
I_{RM}	$I_F = I_{C90}$, V_{GE} = 0 V, $-di_F/dt$ = 50 A/us		10		A
t_{rr}	v_R = 100V		360		ns

Notes:
1. Device must be heatsunk for high temperature leakage current measurements to avoid thermal runaway.
2. Pulse test, t ≤ 300 µs, duty cycle ≤ 2 %.

Min. Recommended Footprint

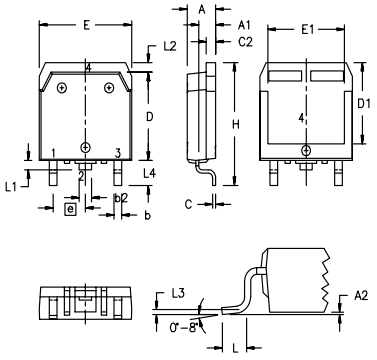


TO-247 AD Outline



Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	19.81	20.32	0.780	0.800
B	20.80	21.46	0.819	0.845
C	15.75	16.26	0.610	0.640
D	3.55	3.65	0.140	0.144
E	4.32	5.49	0.170	0.216
F	5.4	6.2	0.212	0.244
G	1.65	2.13	0.065	0.084
H	-	4.5	-	0.177
J	1.0	1.4	0.040	0.055
K	10.8	11.0	0.426	0.433
L	4.7	5.3	0.185	0.209
M	0.4	0.8	0.016	0.031
N	1.5	2.49	0.087	0.102

TO-268AA (D^3 PAK)



Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	4.9	5.1	.193	.201
A_1	2.7	2.9	.106	.114
A_2	.02	.25	.001	.010
b	1.15	1.45	.045	.057
b_2	1.9	2.1	.75	.83
C	.4	.65	.016	.026
D	13.80	14.00	.543	.551
E	15.85	16.05	.624	.632
E_1	13.3	13.6	.524	.535
e	5.45 BSC		.215 BSC	
H	18.70	19.10	.736	.752
L	2.40	2.70	.094	.106
L1	1.20	1.40	.047	.055
L2	1.00	1.15	.039	.045
L3	0.25 BSC		.010 BSC	
L4	3.80	4.10	.150	.161

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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
4,850,072 4,931,844 5,034,796 5,063,307 5,237,481 5,381,025



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