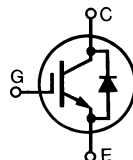


High Voltage, High Gain BIMOSFET™ Monolithic Bipolar MOS Transistor

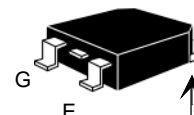
IXBH 16N170
IXBT 16N170

$$\begin{aligned} V_{CES} &= 1700 \text{ V} \\ I_{C25} &= 25 \text{ A} \\ V_{CE(sat)} &= 3.3 \text{ V} \end{aligned}$$

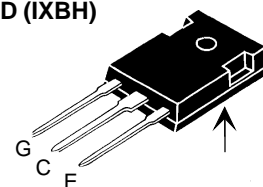


Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}$	1700	V
V_{CGR}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}; R_{GE} = 1 \text{ M}\Omega$	1700	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^\circ\text{C}$	25	A
I_{C90}	$T_C = 90^\circ\text{C}$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

**TO-268
(IXBT)**



TO-247 AD (IXBH)



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

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
- Capacitor discharge circuits

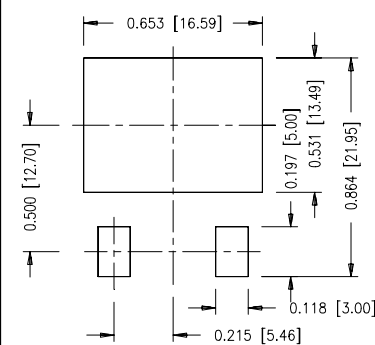
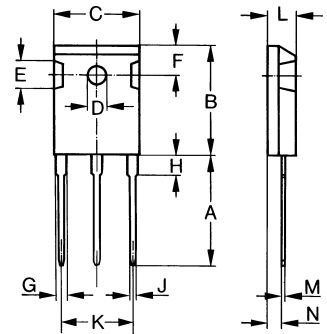
Advantages

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

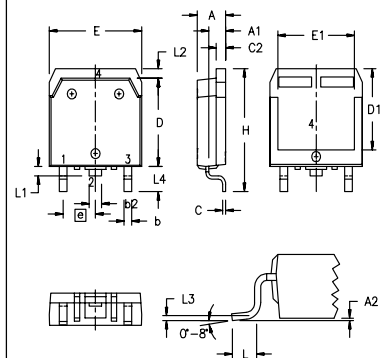
Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
BV_{CES}	$I_C = 250 \mu\text{A}, V_{GE} = 0 \text{ V}$	1700		V
$V_{GE(th)}$	$I_C = 250 \mu\text{A}, V_{CE} = V_{GE}$	2.5		V
I_{CES}	$V_{CE} = 0.8 V_{CES}$ $V_{GE} = 0 \text{ V}$	$T_J = 25^\circ\text{C}$		50 μA
		$T_J = 125^\circ\text{C}$		1.5 mA
I_{GES}	$V_{CE} = 0 \text{ V}, V_{GE} = \pm 20 \text{ V}$			$\pm 100 \text{ nA}$
$V_{CE(sat)}$	$I_C = I_{C90}, V_{GE} = 15 \text{ V}$			3.3 V
		$T_J = 125^\circ\text{C}$	2.9	V

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 %	11	14	S	
C_{ies}	V _{CE} = 25 V, V _{GE} = 0 V, f = 1 MHz		1700	pF	
C_{oes}			83	pF	
C_{res}			31	pF	
Q_g	I _C = I _{C90} ; V _{GE} = 15 V, V _{CE} = 0.5 V _{CES}		69	nC	
Q_{ge}			13	nC	
Q_{gc}			24	nC	
t_{d(on)}	Inductive load, T_J = 25°C I _C = I _{C90} ; V _{GE} = 15 V V _{CE} = 0.8 V _{CES} ; R _G = R _{off} = 33 Ω Remarks: Switching times may increase for V _{CE} (Clamp) > 0.8 • V _{CES} , higher T _J or increased R _G		35	ns	
t_{ri}			25	ns	
t_{d(off)}			600	1000	ns
t_{fi}			1110	1600	ns
E_{off}			12	16	mJ
t_{d(on)}	Inductive load, T_J = 125°C I _C = I _{C90} ; V _{GE} = 15 V V _{CE} = 0.8 V _{CES} ; R _G = R _{off} = 33 Ω Remarks: Switching times may increase for V _{CE} (Clamp) > 0.8 • V _{CES} , higher T _J or increased R _G		35	ns	
t_{ri}			28	ns	
E_{on}			2.0	mJ	
t_{d(off)}			660	ns	
t_{fi}			1600	ns	
E_{off}		15	mJ		
R_{thJC}				0.83 K/W	
R_{thCK}	(TO-247)		0.25	K/W	

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%			3.3 V
I_{RM}	I _F = 25 A, V _{GE} = 0 V, -di _F /dt = 50 A/us		24	A
t_{rr}		V _R = 100A		360

Min. Recommended Footprint

TO-247 AD Outline


Dim.	Millimeter		Inches	
	Min.	Max.	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 (D³ PAK)


Dim.	Millimeter		Inches	
	Min.	Max.	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
L ₁	1.20	1.40	.047	.055
L ₂	1.00	1.15	.039	.045
L ₃	0.25 BSC		.010 BSC	
L ₄	3.80	4.10	.150	.161