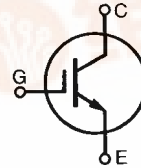




Advance Technical Data

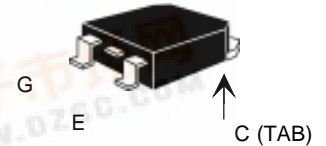
High Voltage IGBT

IXGH 16N170 $V_{CES} = 1700 \text{ V}$
 IXGT 16N170 $I_{C25} = 32 \text{ A}$
 $V_{CE(sat)} = 3.5 \text{ V}$
 $t_{fi(typ)} = 290 \text{ ns}$

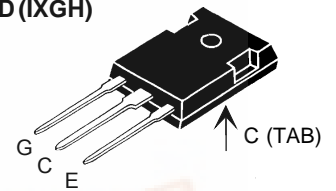


Symbol	Test Conditions	Maximum Ratings
V_{CES}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}$	1700 V
V_{CGR}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}; R_{GE} = 1 \text{ M}\Omega$	1700 V
V_{GES}	Continuous	$\pm 20 \text{ V}$
V_{GEM}	Transient	$\pm 30 \text{ V}$
I_{C25}	$T_C = 25^\circ\text{C}$	32 A
I_{C90}	$T_C = 90^\circ\text{C}$	16 A
I_{CM}	$T_C = 25^\circ\text{C}, 1 \text{ ms}$	80 A
SSOA (RBSOA)	$V_{GE} = 15 \text{ V}, T_{VJ} = 125^\circ\text{C}, R_G = 10 \Omega$ Clamped inductive load	$I_{CM} = 40 \text{ A}$ @ $0.8 V_{CES}$
P_c	$T_C = 25^\circ\text{C}$	190 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)	1.13/10Nm/lb.in.
Weight		TO-247 AD 6 g TO-268 4 g

TO-268 (IXGT)



TO-247 AD (IXGH)



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

Features

- International standard packages JEDEC TO-268 and JEDEC TO-247 AD
- High current handling capability
- MOS Gate turn-on - drive simplicity
- Rugged NPT structure
- Molding epoxies meet UL 94 V-0 flammability classification

Applications

- Capacitor discharge & pulser circuits
- AC motor speed control
- DC servo and robot drives
- DC choppers
- Uninterruptible power supplies (UPS)
- Switched-mode and resonant-mode power supplies

Advantages

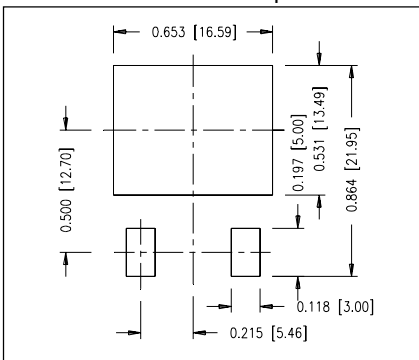
- High power density
- Suitable for surface mounting
- Easy to mount with 1 screw, (isolated mounting screw hole)

Symbol	Test Conditions	Characteristic Values		
		$(T_J = 25^\circ\text{C}, \text{ unless otherwise specified})$		
		min.	typ.	max.
BV_{CES}	$I_C = 250 \mu\text{A}, V_{GE} = 0 \text{ V}$	1700		V
$V_{GE(th)}$	$I_C = 250 \mu\text{A}, V_{CE} = V_{GE}$	3.0		5.0 V
I_{CES}	$V_{CE} = 0.8 \cdot V_{CES}$ $V_{GE} = 0 \text{ V}$			50 μA 500 μA
				$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$
I_{GES}	$V_{CE} = 0 \text{ V}, V_{GE} = \pm 20 \text{ V}$			$\pm 100 \text{ nA}$
$V_{CE(sat)}$	$I_C = I_{C90}, V_{GE} = 15 \text{ V}$	2.7	3.5	V
		3.3		V

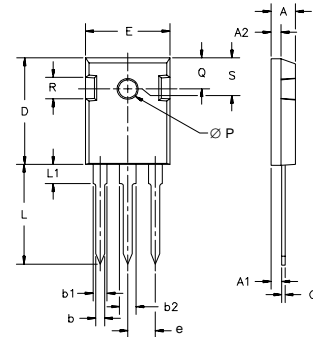


Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)			
		min.	typ.	max.	
g_{fs}	$I_C = I_{C90}, V_{CE} = 10\text{ V}$, Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$	10	14	S	
$I_{C(ON)}$	$V_{GE} = 10\text{ V}$, $V_{CE} = 10\text{ V}$		60	A	
C_{ies}	$V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$, $f = 1\text{ MHz}$		1700	pF	
C_{oes}			83	pF	
C_{res}			30	pF	
Q_g	$I_C = I_{C90}$, $V_{GE} = 15\text{ V}$, $V_{CE} = 0.5 V_{CES}$		69	nC	
Q_{ge}			13	nC	
Q_{gc}			24	nC	
$t_{d(on)}$	Inductive load, $T_J = 25^\circ\text{C}$ $I_C = I_{C90}$, $V_{GE} = 15\text{ V}$ $V_{CE} = 0.8 V_{CES}$, $R_G = R_{off} = 10\ \Omega$ Remarks: Switching times may increase for V_{CE} (Clamp) $> 0.8 \cdot V_{CES}$, higher T_J or increased R_G		45	ns	
t_{ri}			48	ns	
$t_{d(off)}$			200	400	ns
t_{fi}			290	500	ns
E_{off}			6	12	mJ
$t_{d(on)}$	Inductive load, $T_J = 125^\circ\text{C}$ $I_C = I_{C90}$, $V_{GE} = 15\text{ V}$ $V_{CE} = 0.8 V_{CES}$, $R_G = R_{off} = 10\ \Omega$ Remarks: Switching times may increase for V_{CE} (Clamp) $> 0.8 \cdot V_{CES}$, higher T_J or increased R_G		48	ns	
t_{ri}			42	ns	
E_{on}			1.5	mJ	
$t_{d(off)}$			200	ns	
t_{fi}			360	ns	
E_{off}		8	mJ		
R_{thJC}			0.65	K/W	
R_{thCK}	(TO-247)	0.25		K/W	

Min Recommended Footprint

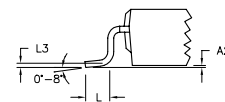
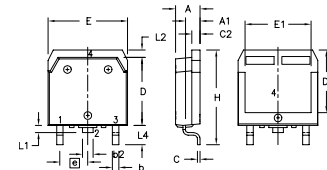


TO-247 AD Outline



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.7	5.3	.185	.209
A ₁	2.2	2.54	.087	.102
A ₂	2.2	2.6	.059	.098
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	.016	.031
D	20.80	21.46	.819	.845
E	15.75	16.26	.610	.640
e	5.20	5.72	0.205	0.225
L	19.81	20.32	.780	.800
L1		4.50		.177
∅P	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

TO-268 Outline



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
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