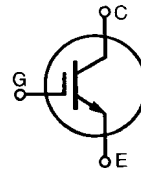


High Voltage IGBT

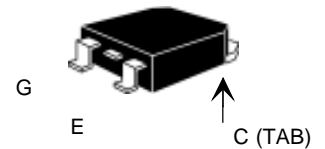
IXGH 10N170
IXGT 10N170

$V_{CES} = 1700 \text{ V}$
 $I_{C25} = 20 \text{ A}$
 $V_{CE(sat)} = 4.0 \text{ V}$
 $t_{fi(typ)} = 260 \text{ ns}$

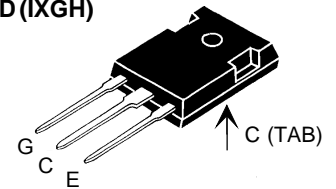


Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}$	1700	V
V_{CGR}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}; R_{GE} = 1 \text{ M}\Omega$	1700	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^\circ\text{C}$	20	A
I_{C90}	$T_C = 90^\circ\text{C}$	10	A
I_{CM}	$T_C = 25^\circ\text{C}, 1 \text{ ms}$	50	A
SSOA (RBSOA)	$V_{GE} = 15 \text{ V}, T_{VJ} = 125^\circ\text{C}, R_G = 33 \Omega$ Clamped inductive load	$I_{CM} = 20$ @ $0.8 V_{CES}$	A
P_C	$T_C = 25^\circ\text{C}$	110	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

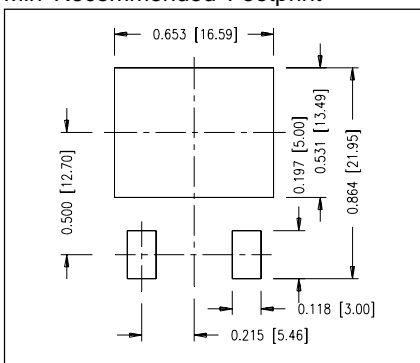
Advantages

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

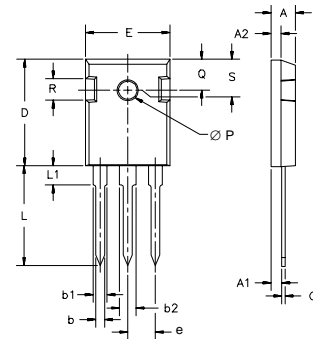
Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
BV_{CES}	$I_C = 250 \mu\text{A}, V_{GE} = 0 \text{ V}$	1700		V
$V_{GE(th)}$	$I_C = 250 \mu\text{A}, V_{CE} = V_{GE}$	3.0		5.0 V
I_{CES}	$V_{CE} = 0.8 \cdot V_{CES}$ $V_{GE} = 0 \text{ V}$			25 μA 200 μA
I_{GES}	$V_{CE} = 0 \text{ V}, V_{GE} = \pm 20 \text{ V}$			$\pm 100 \text{ nA}$
$V_{CE(sat)}$	$I_C = I_{C90}, V_{GE} = 15 \text{ V}$			3.0 V 4.0 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 $\leq 2\%$	5	7	S
$I_{C(ON)}$	$V_{GE} = 10\text{ V}$, $V_{CE} = 10\text{ V}$		30	A
C_{ies}	$V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$, $f = 1\text{ MHz}$		670	pF
C_{oes}		35	pF	
C_{res}		10	pF	
Q_g	$I_C = I_{C90}$, $V_{GE} = 15\text{ V}$, $V_{CE} = 0.5 V_{CES}$		29	nC
Q_{ge}		6	nC	
Q_{gc}		11	nC	
$t_{d(on)}$	Inductive load, $T_J = 25^\circ\text{C}$		45	ns
t_{ri}	$I_C = I_{C25}$, $V_{GE} = 15\text{ V}$		58	ns
$t_{d(off)}$	$V_{CE} = 0.8 V_{CES}$, $R_G = R_{off} = 22\ \Omega$	200	400	ns
t_{fi}	Remarks: Switching times may increase for V_{CE} (Clamp) $> 0.8 \cdot V_{CES}$,	260	500	ns
E_{off}	higher T_J or increased R_G	2.8	5.0	mJ
$t_{d(on)}$	Inductive load, $T_J = 125^\circ\text{C}$		48	ns
t_{ri}	$I_C = I_{C25}$, $V_{GE} = 15\text{ V}$		52	ns
E_{on}	$V_{CE} = 0.8 V_{CES}$, $R_G = R_{off} = 22\ \Omega$	1.0		mJ
$t_{d(off)}$	Remarks: Switching times may increase for V_{CE} (Clamp) $> 0.8 \cdot V_{CES}$,	220		ns
t_{fi}	higher T_J or increased R_G	300		ns
E_{off}		4.7		mJ
R_{thJC}				1.1 KW
R_{thCK}	(TO-247)	0.25		KW

Min Recommended Footprint

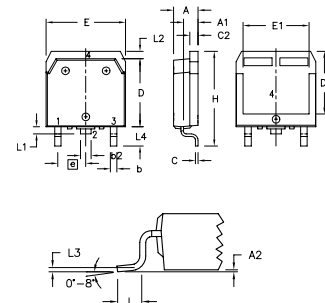


TO-247 AD Outline



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		.010
L4	3.80	4.10	.150	.161

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