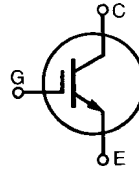


High Voltage IGBT

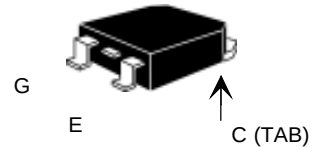
IXGH 32N170A
IXGT 32N170A

$$\begin{aligned} V_{CES} &= 1700 \text{ V} \\ I_{C25} &= 32 \text{ A} \\ V_{CE(sat)} &= 5.0 \text{ V} \\ t_{fi(typ)} &= 50 \text{ ns} \end{aligned}$$

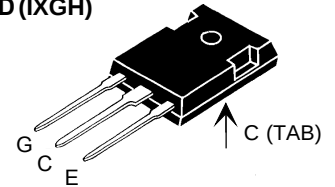


Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}$	1700	V
V_{CGR}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}; R_{GE} = 1 \text{ M}\Omega$	1700	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^\circ\text{C}$	32	A
I_{C90}	$T_C = 90^\circ\text{C}$	21	A
I_{CM}	$T_C = 25^\circ\text{C}, 1 \text{ ms}$	110	A
SSOA (RBSOA)	$V_{GE} = 15 \text{ V}, T_{VJ} = 125^\circ\text{C}, R_G = 5 \Omega$ Clamped inductive load	$I_{CM} = 70$ @ $0.8 V_{CES}$	A
t_{SC}	$T_J = 125^\circ\text{C}, V_{CE} = 1200 \text{ V}; V_{GE} = 15 \text{ V}, R_G = 10 \Omega$	10	μs
P_C	$T_C = 25^\circ\text{C}$	350	W
T_J		-55 ... +150	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
T_{stg}		-55 ... +150	$^\circ\text{C}$
M_d	Mounting torque (M3)	(TO-247) 1.13/10Nm/lb.in.	
Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s		300	$^\circ\text{C}$
Weight	TO-247	6	g
	TO-268	4	g

TO-268 (IXGT)



TO-247 AD (IXGH)



G = Gate,
E = Emitter,

C = Collector,
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}	$V_{CE} = 0.8 \cdot V_{CES}$ $V_{GE} = 0 \text{ V}$ Note 1	$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$		50 μA 2 mA
I_{GES}	$V_{CE} = 0 \text{ V}, V_{GE} = \pm 20 \text{ V}$			$\pm 100 \text{ nA}$
$V_{CE(sat)}$	$I_C = I_{C90}, V_{GE} = 15 \text{ V}$	$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$	4.0 4.8	5.0 V V

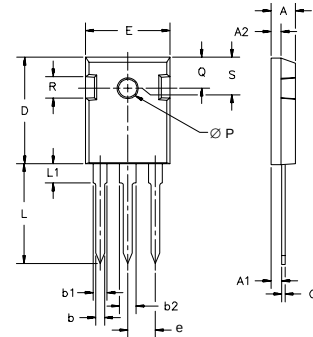
Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
g_{fs}	$I_C = I_{C25}; V_{CE} = 10\text{ V}$ Note 2	16	23	S
C_{ies}	$V_{CE} = 25\text{ V}, V_{GE} = 0\text{ V}, f = 1\text{ MHz}$		3500	pF
C_{oes}			160	pF
C_{res}			40	pF
Q_g	$I_C = I_{C90}, V_{GE} = 15\text{ V}, V_{CE} = 0.5\text{ V}_{CES}$		155	nC
Q_{ge}			30	nC
Q_{gc}			51	nC
$t_{d(on)}$	Inductive load, $T_J = 25^\circ\text{C}$		46	ns
t_{ri}	$I_C = I_{C25}, V_{GE} = 15\text{ V}$ $R_G = 2.7\ \Omega, V_{CE} = 0.8\text{ V}_{CES}$ Note 3		57	ns
$t_{d(off)}$		260	500	ns
t_{fi}		50	100	ns
E_{off}		2.5	4.2	mJ
$t_{d(on)}$	Inductive load, $T_J = 125^\circ\text{C}$		48	ns
t_{ri}	$I_C = I_{C25}, V_{GE} = 15\text{ V}$ $R_G = 2.7\ \Omega, V_{CE} = 0.8\text{ V}_{CES}$ Note 3		59	ns
E_{on}		4.0		mJ
$t_{d(off)}$		300		ns
t_{fi}		70		ns
E_{off}		3.0		mJ
R_{thJC}	(TO-247)			0.35 K/W
R_{thCK}		0.25		K/W

Notes: 1. Device must be heatsunk for high temperature leakage current measurements to avoid thermal runaway.

2. Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$

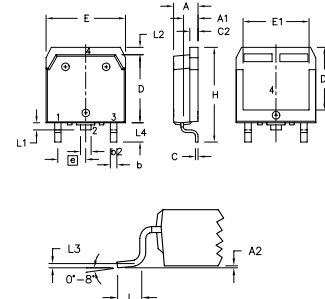
3. Switching times may increase for V_{CE} (Clamp) $> 0.8 \cdot V_{CES}$, higher T_J or increased R_G .

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
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

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	.075	.083
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

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