

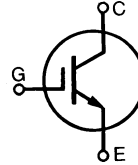
IGBT

Lightspeed Series

IXGH 15N120C
IXGT 15N120C

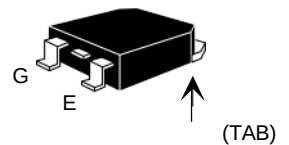
$V_{CES} = 1200 \text{ V}$
 $I_{C25} = 30 \text{ A}$
 $V_{CE(sat)} = 3.8 \text{ V}$
 $t_{fi(typ)} = 115 \text{ ns}$

Preliminary data

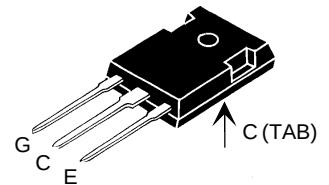


Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}$	1200	V
V_{CGR}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}; R_{GE} = 1 \text{ M}\Omega$	1200	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^\circ\text{C}$	30	A
I_{C90}	$T_C = 90^\circ\text{C}$	15	A
I_{CM}	$T_C = 25^\circ\text{C}, 1 \text{ ms}$	60	A
SSOA (RBSOA)	$V_{GE} = 15 \text{ V}, T_{VJ} = 125^\circ\text{C}, R_G = 10 \Omega$ Clamped inductive load	$I_{CM} = 40$ @ $0.8 V_{CES}$	A
P_C	$T_C = 25^\circ\text{C}$	150	W
T_J		$-55 \dots +150$	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
T_{stg}		$-55 \dots +150$	$^\circ\text{C}$
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 (IXGT)



TO-247 AD (IXGH)



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

Features

- International standard packages
JEDEC TO-268 surface and
JEDEC TO-247 AD
- Low switching losses
- MOS Gate turn-on
- drive simplicity

Applications

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

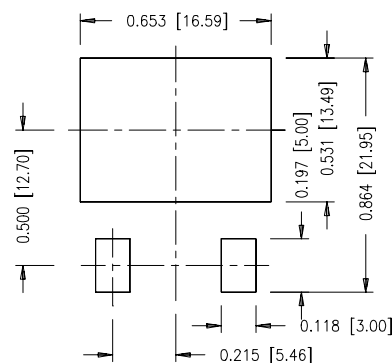
Advantages

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

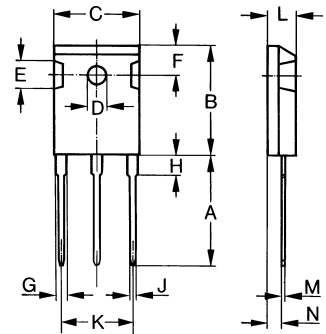
Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
BV_{CES}	$I_C = 250 \mu\text{A}, V_{GE} = 0 \text{ V}$	1200		V
$V_{GE(th)}$	$I_C = 250 \mu\text{A}, V_{CE} = V_{GE}$	2.5		V
I_{CES}	$V_{CE} = V_{CES}, V_{GE} = 0 \text{ V}$ $T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$			100 μA 3.5 mA
I_{GES}	$V_{CE} = 0 \text{ V}, V_{GE} = \pm 20 \text{ V}$			$\pm 100 \text{ nA}$
$V_{CE(sat)}$	$I_C = I_{C90}, V_{GE} = 15 \text{ V}$ $T_J = 125^\circ\text{C}$	3.0		3.8 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 %	12	15	S
C_{ies}	V _{CE} = 25 V, V _{GE} = 0 V, f = 1 MHz		1720	pF
C_{oes}			95	pF
C_{res}			35	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}			26	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} = 10 Ω Remarks: Switching times may increase for V _{CE} (Clamp) > 0.8 • V _{CES} , higher T _j or increased R _G		25	ns
t_{ri}			15	ns
t_{d(off)}			150	200 ns
t_{fi}			115	190 ns
E_{off}			1.05	1.6 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} = 10 Ω Remarks: Switching times may increase for V _{CE} (Clamp) > 0.8 • V _{CES} , higher T _j or increased R _G		25	ns
t_{ri}			18	ns
E_{on}			0.60	mJ
t_{d(off)}			220	ns
t_{fi}			250	ns
E_{off}			2.1	mJ
R_{thJC}				0.83 K/W
R_{thCK}	(TO-247)		0.25	K/W

Min. Recommended Footprint

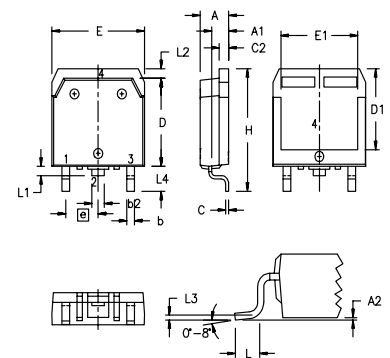


TO-247 AD (IXGH) Outline



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 (D³ 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
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