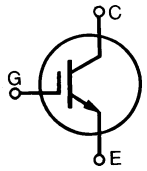
HiPerFAST™ IGBT

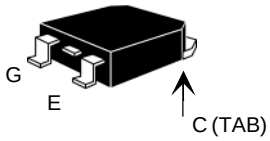
IXGH 35N120B
IXGT 35N120B

V_{CES} = 1200 V
I_{C2} = 70 A
$V_{CE(sat)}$ = 3.3 V
$t_{fi(typ)}$ = 160 ns

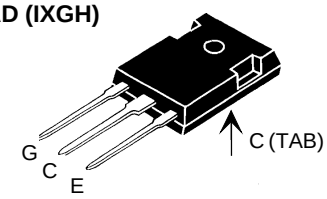


Symbol	Test Conditions	Maximum Ratings	
V_{CES}	T_J = 25°C to 150°C	1200	V
V_{CGR}	T_J = 25°C to 150°C; R_{GE} = 1 MΩ	1200	V
V_{GES}	Continuous	±20	V
V_{GEM}	Transient	±30	V
I_{C25}	T_C = 25°C	70	A
I_{C90}	T_C = 90°C	35	A
I_{CM}	T_C = 25°C, 1 ms	140	A
SSOA (RBSOA)	V_{GE} = 15 V, T_{VJ} = 125°C, R_G = 5 Ω Clamped inductive load	I_{CM} = 90 @ 0.8 V_{CES}	A
P_C	T_C = 25°C	300	W
T_J		-55 ... +150	°C
T_{JM}		150	°C
T_{stg}		-55 ... +150	°C
Maximum Lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s		300	°C
Maximum Tab temperature for soldering SMD devices for 10 s		260	°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

Symbol	Test Conditions	Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
BV_{CES}	I_C = 1 mA, V_{GE} = 0 V	1200			V
$V_{GE(th)}$	I_C = 750 μA, V_{CE} = V_{GE}	2.5		5	V
I_{CES}	V_{CE} = V_{CES}, T_J = 25°C			250	μA
	V_{GE} = 0 V, T_J = 125°C			5	mA
I_{GES}	V_{CE} = 0 V, V_{GE} = ±20 V			±100	nA
$V_{CE(sat)}$	I_C = I_{C90}, V_{GE} = 15 V			3.3	V
	T_J = 125°C		2.7		V

Features

- International standard packages JEDEC TO-268 and JEDEC TO-247 AD
- Low switching losses, low $V_{(sat)}$
- MOS Gate turn-on
  - drive simplicity

Applications

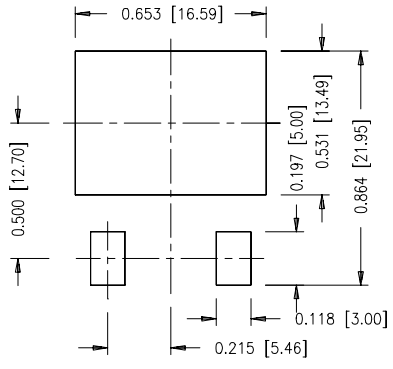
- AC motor speed control
- DC servo and robot drives
- DC choppers
- Uninterruptible power supplies (UPS)
- Switched-mode and resonant-mode power supplies

Advantages

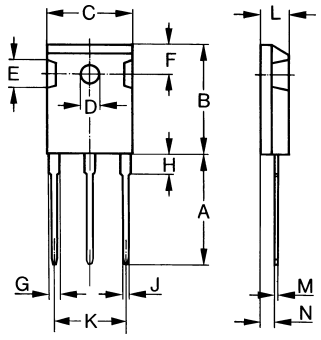
- High power density
- Suitable for surface mounting
- Easy to mount with 1 screw, (isolated mounting screw hole)

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 %	30	40		S
C_{ies}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		4620		pF
C_{oes}			260		pF
C_{res}			90		pF
Q_g	$I_C = I_{C90}$, V_{GE} = 15 V, V_{CE} = 0.5 V_{CES}		170		nC
Q_{ge}			28		nC
Q_{gc}			57		nC
$t_{d(on)}$	**Inductive load, T_J = 25°C**		50		ns
t_{ri}	$I_C = I_{C90}$, V_{GE} = 15 V		27		ns
$t_{d(off)}$	V_{CE} = 0.8 V_{CES}, $R_G = R_{off}$ = 5 Ω		180	280	ns
t_{fi}	Remarks: Switching times may		160	320	ns
E_{off}	increase for V_{CE} (Clamp) > 0.8 • V_{CES}, higher T_J or increased R_G		3.8	7.3	mJ
$t_{d(on)}$	**Inductive load, T_J = 125°C**		55		ns
t_{ri}	$I_C = I_{C90}$, V_{GE} = 15 V		31		ns
E_{on}	V_{CE} = 0.8 V_{CES}, $R_G = R_{off}$ = 5 Ω		2.6		mJ
$t_{d(off)}$	Remarks: Switching times may		300		ns
t_{fi}	increase for V_{CE} (Clamp) > 0.8 • V_{CES},		360		ns
E_{off}	higher T_J or increased R_G		8.0		mJ
R_{thJC}				0.42	K/W
R_{thCK}	(TO-247)		0.25		K/W
	(TO-268)		0.3		K/W

Min. Recommended Footprint

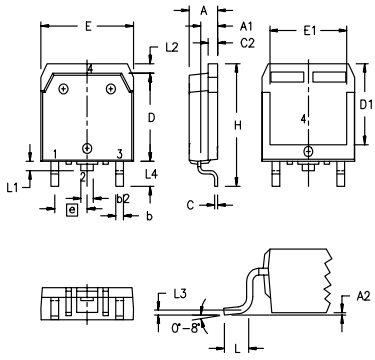


TO-247 AD (IXGH) Outline



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 (D^3 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
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 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
4,850,072 4,931,844 5,034,796 5,063,307 5,237,481 5,381,025