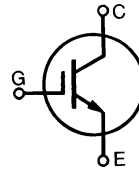


HiPerFAST™ IGBT

IXGH 40N60B
IXGT 40N60B

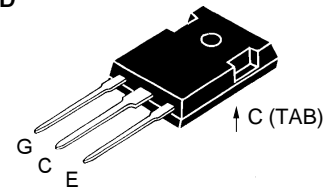
V_{CES} = 600 V
I_{C25} = 75 A
V_{CE(sat)} = 2.1 V
t_{fi} = 180 ns

Preliminary data sheet

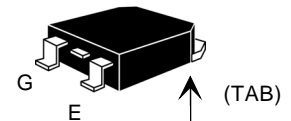


Symbol	Test Conditions	Maximum Ratings	
V _{CES}	T _J = 25°C to 150°C	600	V
V _{CGR}	T _J = 25°C to 150°C; R _{GE} = 1 MΩ	600	V
V _{GES}	Continuous	±20	V
V _{GEM}	Transient	±30	V
I _{C25}	T _C = 25°C	75	A
I _{C110}	T _C = 110°C	40	A
I _{CM}	T _C = 25°C, 1 ms	150	A
SSOA (RBSOA)	V _{GE} = 15 V, T _{VJ} = 125°C, R _G = 10 Ω Clamped inductive load, L = 100 μH	I _{CM} = 80 @ 0.8 V _{CES}	A
P _c	T _C = 25°C	250	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
M _d	Mounting torque (M3)	1.13/10Nm/lb.in.	
Weight		TO-247 AD	6 g
		TO-247 SMD	4 g

TO-247 AD
(IXGH)



TO-268 (D3)
(IXGT)



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

Features

- International standard packages
JEDEC TO-268 surface mountable and JEDEC TO-247 AD
- High current handling capability
- Latest generation HDMOS™ process
- 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

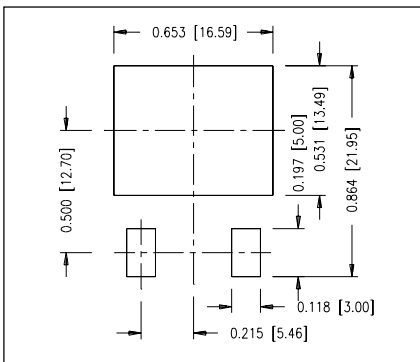
Advantages

- Space savings (two devices in one package)
- High power density
- Suitable for surface mounting
- Switching speed for high frequency applications
- Easy to mount with 1 screw, TO-247 (isolated mounting screw hole)

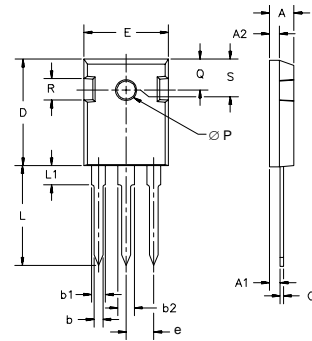
Symbol	Test Conditions	Characteristic Values (T _J = 25°C, unless otherwise specified)		
		min.	typ.	max.
BV _{CES}	I _C = 250 μA, V _{GE} = 0 V BV _{CES} temperature coefficient	600	0.072	V %/K
V _{GE(th)}	I _C = 250 μA, V _{CE} = V _{GE} V _{GE(th)} temperature coefficient	2.5	-0.286	V %/K
I _{CES}	V _{CE} = 0.8 • V _{CES} V _{GE} = 0 V T _J = 25°C T _J = 150°C			200 μA 1 mA
I _{GES}	V _{CE} = 0 V, V _{GE} = ±20 V			±100 nA
V _{CE(sat)}	I _C = I _{C110} , V _{GE} = 15 V	1.6	2.1	V

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)			
		min.	typ.	max.	
g_{fs}	$I_C = I_{C110}$; $V_{CE} = 10\text{ V}$, Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$	30	42	S	
C_{ies}	$V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$, $f = 1\text{ MHz}$		3300	pF	
C_{oes}			310	pF	
C_{res}			65	pF	
Q_g	$I_C = I_{C110}$; $V_{GE} = 15\text{ V}$, $V_{CE} = 0.5 V_{CES}$		116	nC	
Q_{ge}			23	nC	
Q_{gc}			55	nC	
$t_{d(on)}$	Inductive load, $T_J = 25^\circ\text{C}$ $I_C = I_{C110}$; $V_{GE} = 15\text{ V}$ $V_{CE} = 0.8 V_{CES}$; $R_G = R_{off} = 4.7\ \Omega$ Remarks: Switching times may increase for V_{CE} (Clamp) $> 0.8 \cdot V_{CES}$, higher T_J or increased R_G		25	ns	
t_{ri}			30	ns	
$t_{d(off)}$			180	300	ns
t_{fi}			180	270	ns
E_{off}			2.7	4.0	mJ
$t_{d(on)}$		Inductive load, $T_J = 125^\circ\text{C}$ $I_C = I_{C110}$; $V_{GE} = 15\text{ V}$ $V_{CE} = 0.8 V_{CES}$; $R_G = R_{off} = 4.7\ \Omega$ Remarks: Switching times may increase for V_{CE} (Clamp) $> 0.8 \cdot V_{CES}$, higher T_J or increased R_G		25	ns
t_{ri}			35	ns	
E_{on}			0.4	mJ	
$t_{d(off)}$			300	ns	
t_{fi}			270	ns	
E_{off}			4.0	mJ	
R_{thJC}			0.50	KW	
R_{thCK}	(IXGH40N60B)	0.25		KW	

Min Recommended Footprint

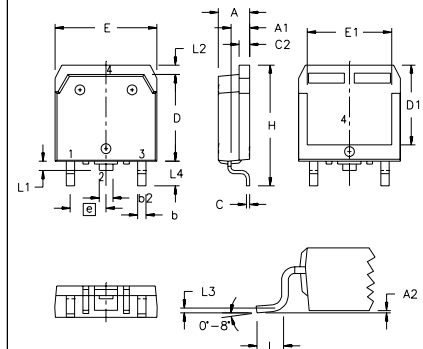


TO-247 AD Outline



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
L ₁		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



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.193	.201	4.90	5.10
A ₁	.106	.114	2.70	2.90
A ₂	.001	.010	0.02	0.25
b	.045	.057	1.15	1.45
b ₂	.075	.083	1.90	2.10
C	.016	.026	0.40	0.65
C ₂	.057	.063	1.45	1.60
D	.543	.551	13.80	14.00
D ₁	.488	.500	12.40	12.70
E	.624	.632	15.85	16.05
E ₁	.524	.535	13.30	13.60
e	.215	BSC	5.45	BSC
H	.736	.752	18.70	19.10
L	.094	.106	2.40	2.70
L ₁	.047	.055	1.20	1.40
L ₂	.039	.045	1.00	1.15
L ₃	.010	BSC	0.25	BSC
L ₄	.150	.161	3.80	4.10

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