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IXYS Corporation
IXGH40N60C

For any questions, you can email us directly:
sales@integrated-circuit.com

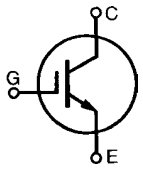
IXYS

HiPerFAST™ IGBT Lightspeed™ Series

IXGH 40N60C
IXGT 40N60C

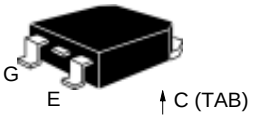
V_{CES} = 600 V
I_{C25} = 75 A
$V_{CE(sat)}$ = 2.5 V
$t_{fi\ typ}$ = 75 ns

Preliminary Data

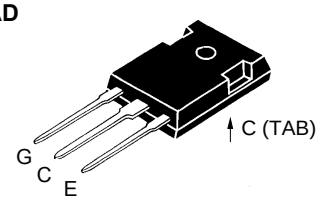


Symbol	Test Conditions	Maximum Ratings	
V_{CES}	T_J = 25°C to 150°C	600	V
V_{CGR}	T_J = 25°C to 150°C; R_{GE} = 1 MΩ	600	V
V_{GES}	Continuous	±20	V
V_{GEM}	Transient	±30	V
I_{C25}	T_C = 25°C	75	A
I_{C110}	T_C = 110°C	40	A
I_{CM}	T_C = 25°C, 1 ms	150	A
SSOA (RBSOA)	V_{GE} = 15 V, T_{VJ} = 125°C, R_G = 10 Ω Clamped inductive load	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)	1.13/10	Nm/lb.in.
Weight	TO-247 AD TO-268 SMD	6 4	g g

TO-268 (IXGT)



TO-247 AD (IXGH)



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

Features

- International standard packages JEDEC TO-247 and surface mountable TO-268
- High current handling capability
- Latest generation HDMOS™ process
- MOS Gate turn-on
  - drive simplicity

Applications

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

Advantages

- High power density
- Very fast switching speeds for high frequency applications

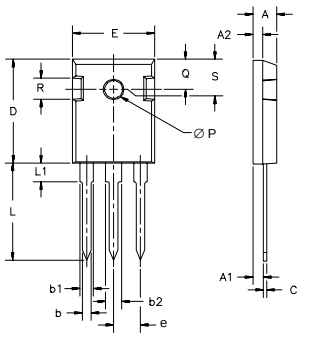
Symbol	Test Conditions	Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
BV_{CES}	I_C = 250 µA, V_{GE} = 0 V	600			V
$V_{GE(th)}$	I_C = 250 µA, V_{CE} = V_{GE}	2.5		5	V
I_{CES}	V_{CE} = 0.8 • V_{CES} T_J = 25°C V_{GE} = 0 V T_J = 150°C			200 1	µA mA
I_{GES}	V_{CE} = 0 V, V_{GE} = ±20 V			±100	nA
$V_{CE(sat)}$	I_C = I_{C110}, V_{GE} = 15 V		2.1	2.5	V

IXYS

IXGH 40N60C
IXGT 40N60C

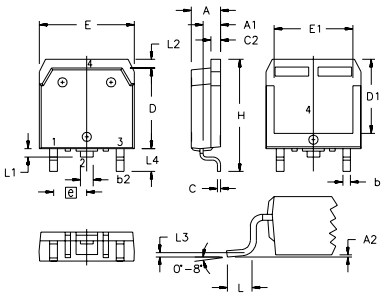
Symbol	Test Conditions	Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
g_{fs}	$I_C = I_{C110}$; V_{CE} = 10 V, Pulse test, t ≤ 300 µs, duty cycle ≤ 2 %	30	40		S
C_{ies}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz		3300		pF
C_{oes}			310		pF
C_{res}			65		pF
Q_g	$I_C = I_{C110}$, V_{GE} = 15 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°C**		25		ns
t_{ri}	$I_C = I_{C110}$, V_{GE} = 15 V		30		ns
$t_{d(off)}$	V_{CE} = 0.8 V_{CES}, $R_G = R_{off}$ = 4.7 Ω		100	150	ns
t_{fi}	Remarks: Switching times may		75	150	ns
E_{off}	increase for V_{CE} (Clamp) > 0.8 • V_{CES}, higher T_J or increased R_G		0.85	1.7	mJ
$t_{d(on)}$	**Inductive load, T_J = 125°C**		25		ns
t_{ri}	$I_C = I_{C110}$, V_{GE} = 15 V		35		ns
E_{on}	V_{CE} = 0.8 V_{CES}, $R_G = R_{off}$ = 4.7 Ω		0.40		mJ
$t_{d(off)}$	Remarks: Switching times may		50		ns
t_{fi}	increase for V_{CE} (Clamp) > 0.8 • V_{CES}, higher T_J or increased R_G		105		ns
E_{off}			1.2		mJ
R_{thJC}				0.50	K/W
R_{thCK}	(IXGH40N60C)		0.25		K/W

TO-247 AD Outline



Dim.	Millimeter Min.	Max.	Inches 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

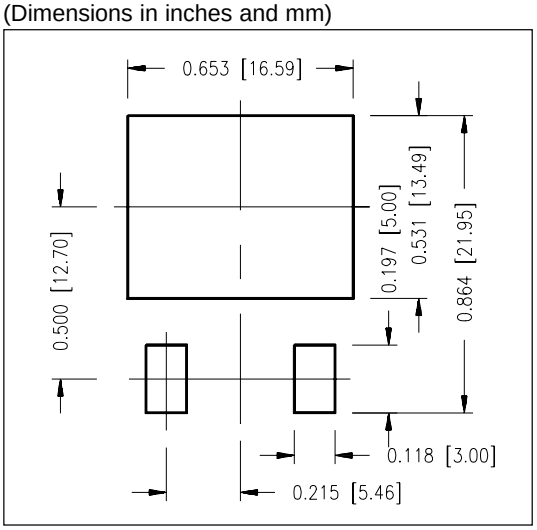
TO-268 Outline



SYM	INCHES MIN	MAX	MILLIMETERS MIN	MAX
A	.193	.201	4.90	5.10
A1	.106	.114	2.70	2.90
A2	.001	.010	0.02	0.25
b	.045	.057	1.15	1.45
b2	.075	.083	1.90	2.10
C	.016	.026	0.40	0.65
C2	.057	.063	1.45	1.60
D	.543	.551	13.80	14.00
D1	.488	.500	12.40	12.70
E	.624	.632	15.85	16.05
E1	.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
L1	.047	.055	1.20	1.40
L2	.039	.045	1.00	1.15
L3	.010 BSC		0.25 BSC	
L4	.150	.161	3.80	4.10

Min. Recommended Footprint

(Dimensions in inches and mm)



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