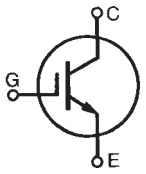
IXYS

Advance Technical Information

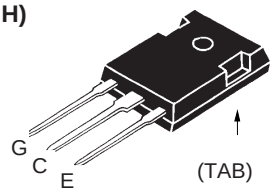
GenX3™ 300V IGBT IXGH60N30C3

High Speed IGBTs for 50-150kHz switching



V_{CES} = 300V
I_{C110} = 60A
$V_{CE(sat)}$ ≤ 1.8V
t_{fi} typ = 70ns

TO-247 AD (IXGH)



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

Symbol	Test Conditions	Maximum Ratings	
V_{CES}	T_J = 25°C to 150°C	300	V
V_{CGR}	T_J = 25°C to 150°C, R_{GE} = 1MΩ	300	V
V_{GES}	Continuous	±20	V
V_{GEM}	Transient	±30	V
I_{C25}	T_C = 25°C (Limited by leads)	75	A
I_{C110}	T_C = 110°C (chip capability)	60	A
I_{CM}	T_C = 25°C, 1ms	420	A
I_A	T_C = 25°C	60	A
E_{AS}	T_C = 25°C	400	mJ
SSOA (RBSOA)	V_{GE} = 15V, T_{VJ} = 125°C, R_G = 5Ω Clamped inductive load @ ≤ 300V	I_{CM} = 170	A
P_C	T_C = 25°C	300	W
T_J		-55 ... +150	°C
T_{JM}		150	°C
T_{stg}		-55 ... +150	°C
T_L	Maximum lead temperature for soldering	300	°C
T_{SOLD}	1.6 mm (0.062 in.) from case for 10s	260	°C
M_d	Mounting torque (TO-247)	1.13/10	Nm/lb.in.
Weight		6	g

Symbol	Test Conditions	Characteristic Values (T_J = 25°C, unless otherwise specified) Min.	Typ.	Max.	
BV_{CES}	I_C = 250μA, V_{GE} = 0V	300			V
$V_{GE(th)}$	I_C = 250μA, V_{CE} = V_{GE}	2.5		5.0	V
I_{CES}	V_{CE} = V_{CES}			30	μA
	V_{GE} = 0V, T_J = 125°C			750	μA
I_{GES}	V_{CE} = 0V, V_{GE} = ± 20V			±100	nA
$V_{CE(sat)}$	I_C = 60A, V_{GE} = 15V		1.55	1.8	V
	T_J = 125°C		1.60		V

Features

- High Frequency IGBT
- Square RBSOA
- High avalanche capability
- Drive simplicity with MOS Gate Turn-On
- High current handling capability

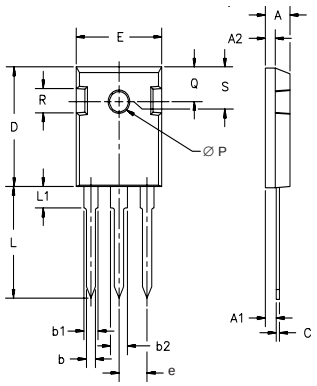
Applications

- PFC Circuits
- PDP Systems
- Switched-mode and resonant-mode converters and inverters
- SMPS
- AC motor speed control
- DC servo and robot drives
- DC choppers

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Symbol	Test Conditions (T_J = 25°C, unless otherwise specified)	Characteristic Values Min.	Typ.	Max.	
g_{fs}	I_C = 0.5 • I_{C110}, V_{CE} = 10V Pulse test, t ≤ 300µs; duty cycle, d ≤ 2%.	28	46		S
C_{ies}	V_{CE} = 25V, V_{GE} = 0V, f = 1MHz		3800		pF
C_{oes}			240		pF
C_{res}			63		pF
Q_g	I_C = I_{C110}, V_{GE} = 15V, V_{CE} = 0.5 • V_{CES}		101		nC
Q_{ge}			21		nC
Q_{gc}			37		nC
$t_{d(on)}$	**Inductive Load, T_J = 25°C** I_C = 0.5 • I_{C110}, V_{GE} = 15V V_{CE} = 200V, R_G = 5Ω		23		ns
t_{ri}			28		ns
E_{on}			0.15		mJ
$t_{d(off)}$			108	160	ns
t_{fi}			68		ns
E_{off}			0.30	0.55	mJ
$t_{d(on)}$	**Inductive Load, T_J = 125°C** I_C = 0.5 • I_{C110}, V_{GE} = 15V V_{CE} = 200V, R_G = 5Ω		22		ns
t_{ri}			28		ns
E_{on}			0.26		mJ
$t_{d(off)}$			120		ns
t_{fi}			101		ns
E_{off}			0.40		mJ
R_{thJC}				0.42	°C/W
R_{thCK}			0.21		°C/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	

ADVANCE TECHNICAL INFORMATION

The product presented herein is under development. The Technical Specifications offered are derived from a subjective evaluation of the design, based upon prior knowledge and experience, and constitute a "considered reflection" of the anticipated result. IXYS reserves the right to change limits, test conditions, and dimensions without notice.

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IXYS MOSFETs and IGBTs are covered by one or moreof the following U.S. patents: 4,835,592 4,850,072 4,881,106 4,931,844 5,017,508 5,034,796 5,049,961 5,063,307 5,187,117 5,237,481 5,381,025 5,486,715 6,162,665 6,259,123 B1 6,306,728 B1 6,404,065 B1 6,534,343 6,583,505 6,683,344 6,710,405 B2 6,710,463 6,727,585 6,759,692 6,771,478 B2 7,005,734 B2 7,063,975 B2 7,071,537 7,157,338B2



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