IXYS

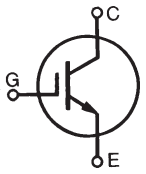
Advance Technical Information

GenX3™ 1000V IGBT

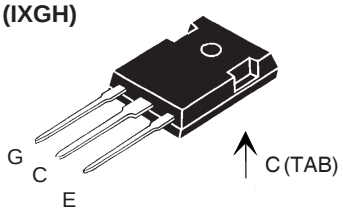
IXGH32N100A3
IXGT32N100A3

V_{CES} = 1000V
I_{C25} = 75A
$V_{CE(sat)}$ ≤ 2.2V

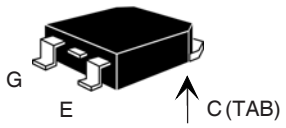
Ultra-low Vsat PT IGBTs for up to 4 kHz switching



TO-247 (IXGH)



TO-268 (IXGT)



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

Symbol	Test Conditions	Maximum Ratings	
V_{CES}	T_C = 25°C to 150°C	1000	V
V_{CGR}	T_J = 25°C to 150°C, R_{GE} = 1MΩ	1000	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	T_C = 25°C, IGBT chip capability	75	A
I_{C110}	T_C = 110°C	32	A
I_{CM}	T_J ≤ 150°C, tp < 300µs	200	A
I_{AS}	T_C = 25°C	20	A
E_{AS}	T_C = 25°C	120	mJ
SSOA (RBSOA)	V_{GE} = 15V, T_{VJ} = 125°C, R_G = 10Ω Clamped inductive load @ ≤ 0.8 • V_{CES}	I_{CM} = 150	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	1.6mm (0.062 in.) from case for 10s	300	°C
T_{SOLD}	Plastic body for 10 seconds	260	°C
M_d	Mounting torque (TO-247)	1.13 / 10	Nm/lb.in.
Weight	TO-247	6	g
	TO-268	5	g

Symbol	Test Conditions (T_J = 25°C unless otherwise specified)	Characteristic Values Min.	Typ.	Max.	
BV_{CES}	I_C = 250µA, V_{GE} = 0V	1000			V
$V_{GE(th)}$	I_C = 250µA, V_{CE} = V_{GE}	3.0		5.0	V
I_{CES}	V_{CE} = V_{CES}			50	µA
	V_{GE} = 0V, T_J = 125°C			1	mA
I_{GES}	V_{CE} = 0V, V_{GE} = ± 20V			±100	nA
$V_{CE(sat)}$	I_C = 32A, V_{GE} = 15V, Note 1		1.90	2.2	V
	T_J = 125°C		2.05		V

Features

- International standard packages
- Low saturation voltage
- Avalanche Rated
- MOS gate turn-on
  - drive simplicity
- Epoxy molding meets UL 94V-O

Applications

- Pulser circuits
- Capacitor discharge

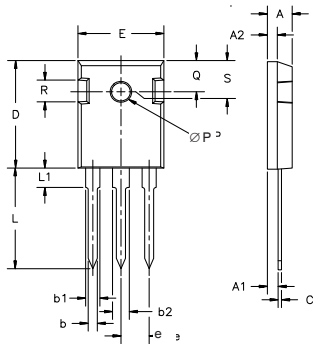
Symbol	Test Conditions (T_J = 25°C unless otherwise specified)	Characteristic Values Min.	Typ.	Max.	
g_{fs}	I_C = 32A, V_{CE} = 10V, Note 1	14	20		S
C_{ies}	V_{CE} = 25V, V_{GE} = 0V, f = 1MHz		2250		pF
C_{oes}			130		pF
C_{res}			48		pF
$Q_{g(on)}$	I_C = 32A, V_{GE} = 15V, V_{CE} = 0.5 • V_{CES}		87		nC
Q_{ge}			16		nC
Q_{gc}			35		nC
$t_{d(on)}$	**Inductive Load, T_J = 25°C** I_C = 32A, V_{GE} = 15V V_{CE} = 800V, R_G = 10Ω		24		ns
t_{ri}			51		ns
E_{on}			2.6		mJ
$t_{d(off)}$			385	700	ns
t_{fi}			540	800	ns
E_{off}			9.5	14	mJ
$t_{d(on)}$	**Inductive Load, T_J = 125°C** I_C = 32A, V_{GE} = 15V V_{CE} = 800V, R_G = 10Ω		52		ns
t_{ri}			23		ns
E_{on}			4.2		mJ
$t_{d(off)}$			400		ns
t_{fi}			770		ns
E_{off}			13		mJ
R_{thJC}				0.42	°C/W
R_{thCS}	TO-247		0.21		°C/W

Note 1: Pulse test, t ≤ 300µs; duty cycle, d ≤ 2%.

ADVANCE TECHNICAL INFORMATION

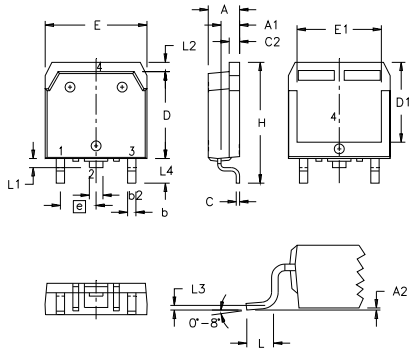
The product presented herein is under development. The Technical Specifications offered are derived from a subjective evaluation of the design, based upon prior knowledge and experience, and constitute a "considered reflection" of the anticipated result. IXYS reserves the right to change limits, test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

TO-247 (IXGH) 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



Terminals: 1 - Gate 2 - Collector
3 - Emitter

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