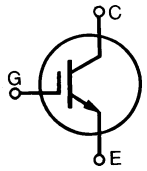
IXYS

IGBT

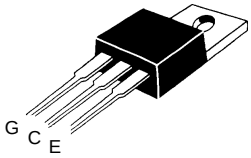
	V_{CES}	I_{C25}	$V_{CE(sat)}$
IXGA/IXGP12N100	1000 V	24 A	3.5 V
IXGA/IXGP12N100A	1000 V	24 A	4.0 V

Preliminary Data Sheet

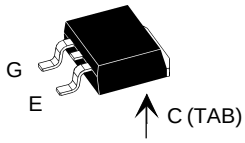


Symbol	Test Conditions	Maximum Ratings	
V_{CES}	T_J = 25°C to 150°C	1000	V
V_{CGR}	T_J = 25°C to 150°C; R_{GE} = 1 MΩ	1000	V
V_{GES}	Continuous	±20	V
V_{GEM}	Transient	±30	V
I_{C25}	T_C = 25°C	24	A
I_{C90}	T_C = 90°C	12	A
I_{CM}	T_C = 25°C, 1 ms	48	A
SSOA (RBSOA)	V_{GE} = 15 V, T_{VJ} = 125°C, R_G = 150 Ω Clamped inductive load, L = 300 μH	I_{CM} = 24 @ 0.8 V_{CES}	A
P_C	T_C = 25°C	100	W
T_J		-55 ... +150	°C
T_{JM}		150	°C
T_{stg}		-55 ... +150	°C
M_d	Mounting torque with screw M3 Mounting torque with screw M3.5	0.45/4 0.55/5	Nm/lb.in. Nm/lb.in.
Weight		4	g
Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s		300	°C

TO-220AB (IXGP)



TO-263 (IXGA)



Features

- International standard packages JEDEC TO-220AB and TO-263AA
- Second generation HDMOS™ process
- Low $V_{CE(sat)}$
  - for minimum on-state conduction losses
- MOS Gate turn-on
  - drive simplicity

Applications

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

Advantages

- Easy to mount with one screw
- Reduces assembly time and cost
- High power density

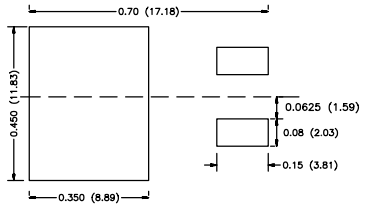
Symbol (T_J = 25°C, unless otherwise specified)	Test Conditions		Characteristic Values Min.	Typ.	Max.	
BV_{CES}	I_C = 3 mA, V_{GE} = 0 V		1000			V
$V_{GE(th)}$	I_C = 250 μA, V_{GE} = V_{GE}		2.5		5.0	V
I_{CES}	V_{CE} = 0.8, V_{CES}	T_J = 25°C			250	μA
	V_{GE} = 0 V	T_J = 125°C			1	mA
I_{GES}	V_{CE} = 0 V, V_{GE} = ±20 V				±100	nA
$V_{CE(sat)}$	I_C = I_{CE90}, V_{GE} = 15	12N100			3.5	V
		12N100A			4.0	V

IXYS reserves the right to change limits, test conditions, and dimensions.

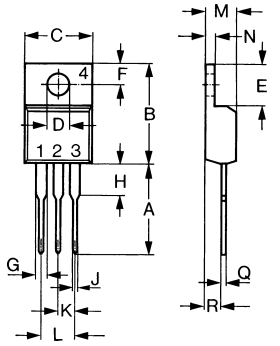
© 2000 IXYS All rights reserved

Symbol	Test Conditions (T_J = 25°C, unless otherwise specified)		Characteristic Values Min.	Typ.	Max.	
g_{fs}	$I_C = I_{C90}$; V_{CE} = 10 V, Pulse test, t ≤ 300 μs, duty cycle ≤ 2 %		6	10		S
Q_g	$I_C = I_{C90}$, V_{GE} = 15 V, V_{CE} = 0.5 V_{CES}			65	90	nC
Q_{ge}				8	20	nC
Q_{gc}				24	45	nC
$t_{d(on)}$	**Inductive load, T_J = 25°C**			100		ns
t_{ri}	$I_C = I_{C90}$, V_{GE} = 15 V, L = 300 μH			200		ns
$t_{d(off)}$	V_{CE} = 800 V, $R_G = R_{off}$ = 120 Ω			850	1000	ns
t_{fi}	Remarks: Switching times may	12N100A		500	700	ns
	increase for V_{CE} (Clamp) > 0.8 V_{CES},	12N100		800	1000	ns
E_{off}	higher T_J or increased R_G	12N100A		2.5	4	mJ
$t_{d(on)}$	**Inductive load, T_J = 125°C**			100		ns
t_{ri}	$I_C = I_{C90}$, V_{GE} = 15 V, L = 300 μH			200		ns
E_{on}	V_{CE} = 800 V, $R_G = R_{off}$ = 120 Ω			1.1		mJ
$t_{d(off)}$	Remarks: Switching times may			900		ns
t_{fi}	increase for V_{CE} (Clamp) > 0.8 V_{CES},	12N100A		950		ns
	higher T_J or increased R_G	12N100		1250		ns
E_{off}		12N100A		4		mJ
		12N100		6		mJ
R_{thJC}					1.25	K/W
R_{thCK}				0.25		K/W

Min. Recommended Footprint

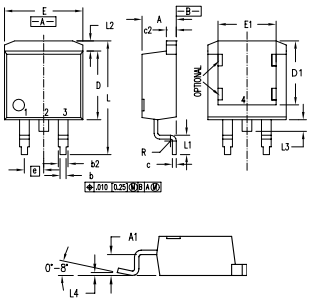


TO-220 AB (IXGP) Outline



Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	12.70	13.97	0.500	0.550
B	14.73	16.00	0.580	0.630
C	9.91	10.66	0.390	0.420
D	3.54	4.08	0.139	0.161
E	5.85	6.85	0.230	0.270
F	2.54	3.18	0.100	0.125
G	1.15	1.65	0.045	0.065
H	2.79	5.84	0.110	0.230
J	0.64	1.01	0.025	0.040
K	2.54	BSC	0.100	BSC
M	4.32	4.82	0.170	0.190
N	1.14	1.39	0.045	0.055
Q	0.35	0.56	0.014	0.022
R	2.29	2.79	0.090	0.110

TO-263 AA (IXGA) Outline



Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	4.06	4.83	.160	.190
A1	2.03	2.79	.080	.110
b	0.51	0.99	.020	.039
b2	1.14	1.40	.045	.055
c	0.46	0.74	.018	.029
c2	1.14	1.40	.045	.055
D	8.64	9.65	.340	.380
D1	7.11	8.13	.280	.320
E	9.65	10.29	.380	.405
E1	6.86	8.13	.270	.320
e	2.54	BSC	.100	BSC
L	14.61	15.88	.575	.625
L1	2.29	2.79	.090	.110
L2	1.02	1.40	.040	.055
L3	1.27	1.78	.050	.070
L4	0	0.38	0	.015
R	0.46	0.74	.018	.029

© 2000 IXYS All rights reserved

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



Disclaimer Notice - Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at www.littelfuse.com/disclaimer-electronics.