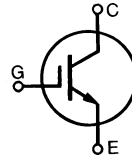


IGBT

IXGA/IXGP12N100 IXGA/IXGP12N100A

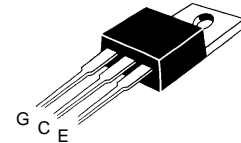
V_{CES}	I_{C25}	$V_{CE(sat)}$
1000 V	24 A	3.5 V
1000 V	24 A	4.0 V

Preliminary Data Sheet

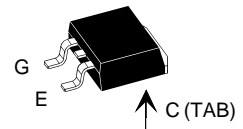


Symbol	Test Conditions	Maximum Ratings
V_{CES}	$T_J = 25^\circ\text{C}$ to 150°C	1000 V
V_{CGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GE} = 1\text{ M}\Omega$	1000 V
V_{GES}	Continuous	± 20 V
V_{GEM}	Transient	± 30 V
I_{C25}	$T_C = 25^\circ\text{C}$	24 A
I_{C90}	$T_C = 90^\circ\text{C}$	12 A
I_{CM}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

TO-220AB (IXGP)



TO-263 (IXGA)



Features

- International standard packages JEDEC TO-220AB and TO-263AA
- Second generation HDMOST™ 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	Test Conditions ($T_J = 25^\circ\text{C}$, unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{CES}	$I_C = 3\text{ mA}$, $V_{GE} = 0\text{ V}$	1000		V
$V_{GE(th)}$	$I_C = 250\ \mu\text{A}$, $V_{GE} = V_{CE}$	2.5		5.0 V
I_{CES}	$V_{CE} = 0.8$, V_{CES}	$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$	250	μA
	$V_{GE} = 0\text{ V}$		1	mA
I_{GES}	$V_{CE} = 0\text{ V}$, $V_{GE} = \pm 20\text{ V}$			$\pm 100\text{ nA}$
$V_{CE(sat)}$	$I_C = I_{CE90}$, $V_{GE} = 15$	12N100		3.5 V
		12N100A		4.0 V

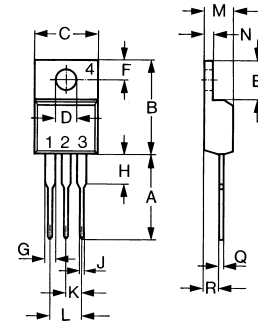
IXYS reserves the right to change limits, test conditions, and dimensions.

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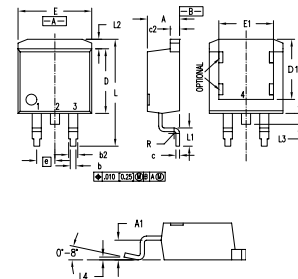
Symbol	Test Conditions	Characteristic Values			
		Min.	Typ.	Max.	
g_{fs}	$I_C = I_{C90}$; $V_{CE} = 10 V$, Pulse test, $t \leq 300 \mu s$, duty cycle $\leq 2 \%$	6	10	S	
Q_g	$I_C = I_{C90}$; $V_{GE} = 15 V$, $V_{CE} = 0.5 V_{CES}$		65	90 nC	
Q_{ge}			8	20 nC	
Q_{gc}			24	45 nC	
$t_{d(on)}$	Inductive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

TO-220 AB (IXGP) Outline



Dim.	Millimeter		Inches	
	Min.	Max.	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		Inches	
	Min.	Max.	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

Min. Recommended Footprint

