

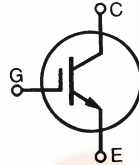


# IGBT

**IXGA 8N100**  
**IXGP 8N100**

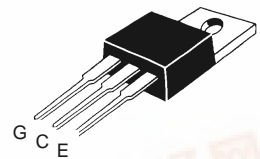
$V_{CES} = 1000\text{ V}$   
 $I_{C25} = 16\text{ A}$   
 $V_{CE(sat)} = 2.7\text{ V}$

Preliminary data sheet

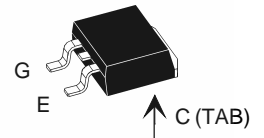


Symbol	Test Conditions	Maximum Ratings	
$V_{CES}$	$T_J = 25^\circ\text{C to } 150^\circ\text{C}$	1000	V
$V_{CGR}$	$T_J = 25^\circ\text{C to } 150^\circ\text{C}; R_{GE} = 1\text{ M}\Omega$	1000	V
$V_{GES}$	Continuous	$\pm 20$	V
$V_{GEM}$	Transient	$\pm 30$	V
$I_{C25}$	$T_C = 25^\circ\text{C}$	16	A
$I_{C90}$	$T_C = 90^\circ\text{C}$	8	A
$I_{CM}$	$T_C = 25^\circ\text{C}, 1\text{ ms}$	32	A
<b>SSOA</b> <b>(RBSOA)</b>	$V_{GE} = 15\text{ V}, T_{VJ} = 125^\circ\text{C}, R_G = 120\ \Omega$ Clamped inductive load	$I_{CM} = 16$ @ $0.8\text{ V}_{CES}$	A
$P_C$	$T_C = 25^\circ\text{C}$	54	W
$T_J$		-55 ... +150	$^\circ\text{C}$
$T_{JM}$		150	$^\circ\text{C}$
$T_{stg}$		-55 ... +150	$^\circ\text{C}$
Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s		300	$^\circ\text{C}$
$M_d$	Mounting torque with screw M3	0.45/4	Nm/lb.in.
	Mounting torque with screw M3.5	0.55/5	Nm/lb.in.
<b>Weight</b>	TO-220	4	g
	TO-263	2	g

## TO-220AB (IXGP)



## TO-263 (IXGA)



## Features

- International standard packages JEDEC TO-220AB and TO-263AA
- 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
- Capacitor discharge

## Advantages

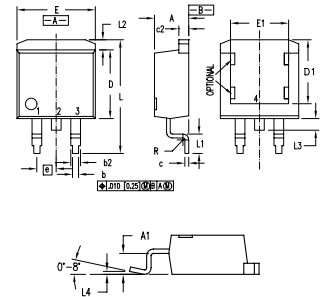
- Easy to mount with one screw
- Reduces assembly time and cost
- High power density

Symbol	Test Conditions ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
$BV_{CES}$	$I_C = 1\text{ mA}, V_{GE} = 0\text{ V}$	1000		V
$V_{GE(th)}$	$I_C = 250\ \mu\text{A}, V_{CE} = V_{GE}$	2.5		V
$I_{CES}$	$V_{CE} = 0.8\text{ V}_{CES}, T_J = 25^\circ\text{C}$			25 $\mu\text{A}$
	$V_{GE} = 0\text{ V}, T_J = 125^\circ\text{C}$			250 $\mu\text{A}$
$I_{GES}$	$V_{CE} = 0\text{ V}, V_{GE} = \pm 20\text{ V}$			$\pm 100\text{ nA}$
$V_{CE(sat)}$	$I_C = I_{C90}, V_{GE} = 15\text{ V}$		2.2	2.7 V



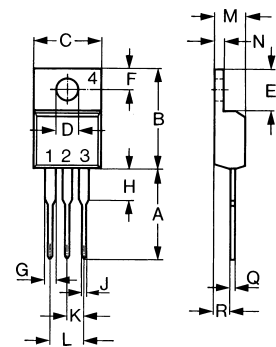
Symbol	Test Conditions ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)	Characteristic Values			
		Min.	Typ.	Max.	
$g_{fs}$	$I_C = I_{C90}$ , $V_{CE} = 10\text{ V}$ Pulse test, $t \leq 300\ \mu\text{s}$ , duty cycle $\leq 2\%$	4	7.6	S	
$I_{C(on)}$	$V_{GE} = 10\text{ V}$ , $V_{CE} = 10\text{ V}$		40	A	
$C_{ies}$	$V_{CE} = 25\text{ V}$ , $V_{GE} = 0\text{ V}$ , $f = 1\text{ MHz}$		595	pF	
$C_{oes}$			34	pF	
$C_{res}$			10	pF	
$Q_g$	$I_C = I_{C90}$ , $V_{GE} = 15\text{ V}$ , $V_{CE} = 0.5 V_{CES}$		22.5	nC	
$Q_{ge}$			4.8	nC	
$Q_{gc}$			8.5	nC	
$t_{d(on)}$	<b>Inductive load, <math>T_J = 25^\circ\text{C}</math></b> $I_C = I_{C90}$ , $V_{GE} = 15\text{ V}$ $V_{CE} = 800\text{ V}$ , $R_G = R_{off} = 120\ \Omega$ Remarks: Switching times may increase for $V_{CE}$ (Clamp) $> 0.8 V_{CES}$ , higher $T_J$ or increased $R_G$		15	ns	
$t_{ri}$			30	ns	
$t_{d(off)}$			600	1000	ns
$t_{fi}$			390	900	ns
$E_{off}$			2.3	5.0	mJ
$t_{d(on)}$	<b>Inductive load, <math>T_J = 125^\circ\text{C}</math></b> $I_C = I_{C90}$ , $V_{GE} = 15\text{ V}$ $V_{CE} = 800\text{ V}$ , $R_G = R_{off} = 120\ \Omega$ Remarks: Switching times may increase for $V_{CE}$ (Clamp) $> 0.8 V_{CES}$ , higher $T_J$ or increased $R_G$		15	ns	
$t_{ri}$			30	ns	
$E_{on}$			0.5	mJ	
$t_{d(off)}$			800	ns	
$t_{fi}$			630	ns	
$E_{off}$		3.7	mJ		
$R_{thJC}$			2.3	K/W	
$R_{thCK}$	TO-220		0.5	K/W	

### 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

### 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

### Min. Recommended Footprint

