

IGBT

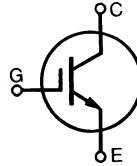
IXGA 8N100 IXGP 8N100

$$V_{CES} = 1000 \text{ V}$$

$$I_{C25} = 16 \text{ A}$$

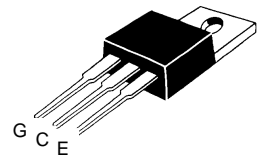
$$V_{CE(sat)} = 2.7 \text{ V}$$

Preliminary data sheet

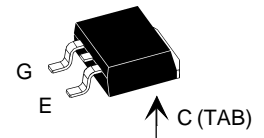


Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ\text{C}$ to 150°C	1000	V
V_{CGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GE} = 1 \text{ M}\Omega$	1000	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^\circ\text{C}$	16	A
I_{C90}	$T_C = 90^\circ\text{C}$	8	A
I_{CM}	$T_C = 25^\circ\text{C}$, 1 ms	32	A
SSOA (RBSOA)	$V_{GE} = 15 \text{ V}$, $T_{VJ} = 125^\circ\text{C}$, $R_G = 120 \Omega$ Clamped inductive load	$I_{CM} = 16$ @ $0.8 V_{CES}$	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.
Weight	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

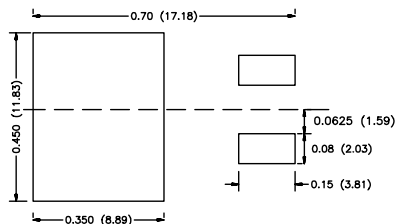
Advantages

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

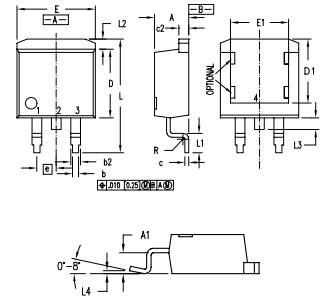
Symbol	Test Conditions	Characteristic Values		
		Min.	Typ.	Max.
BV_{CES}	$I_C = 1 \text{ mA}$, $V_{GE} = 0 \text{ V}$	1000		V
$V_{GE(th)}$	$I_C = 250 \mu\text{A}$, $V_{CE} = V_{GE}$	2.5		V
I_{CES}	$V_{CE} = 0.8 V_{CES}$, $T_J = 25^\circ\text{C}$			25 μA
	$V_{GE} = 0 \text{ V}$, $T_J = 125^\circ\text{C}$			250 μA
I_{GES}	$V_{CE} = 0 \text{ V}$, $V_{GE} = \pm 20 \text{ V}$			$\pm 100 \text{ nA}$
$V_{CE(sat)}$	$I_C = I_{CE90}$, $V_{GE} = 15 \text{ V}$		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	
$t_{d(on)}$	Inductive load, $T_J = 25^\circ\text{C}$ $I_C = I_{C90}$, $V_{GE} = 15\text{ V}$ $V_{CE} = 800\text{ V}$, $R_G = R_{off} = 120\ \Omega$ Remarks: Switching times may increase for $V_{CE}(\text{Clamp}) > 0.8 V_{CES}$, 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
$t_{d(on)}$	Inductive load, $T_J = 125^\circ\text{C}$ $I_C = I_{C90}$, $V_{GE} = 15\text{ V}$ $V_{CE} = 800\text{ V}$, $R_G = R_{off} = 120\ \Omega$ Remarks: Switching times may increase for $V_{CE}(\text{Clamp}) > 0.8 V_{CES}$, 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	

Min. Recommended Footprint

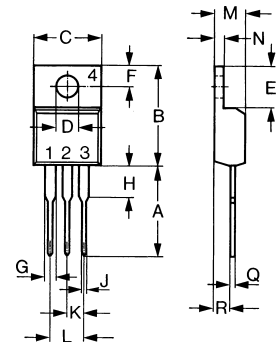


TO-263 AA (IXGA) Outline



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