

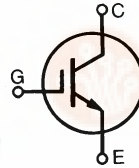


Advanced Technical Information

IGBT

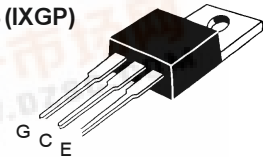
IXGA 4N100
IXGP 4N100

$V_{CES} = 1000 \text{ V}$
 $I_{C25} = 8 \text{ A}$
 $V_{CE(sat)} = 2.7 \text{ V}$

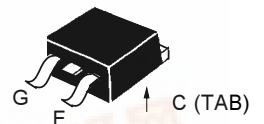


Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}$	1000	V
V_{CGR}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}; R_{GE} = 1 \text{ M}\Omega$	1000	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^\circ\text{C}$	8	A
I_{C90}	$T_C = 90^\circ\text{C}$	4	A
I_{CM}	$T_C = 25^\circ\text{C}, 1 \text{ ms}$	16	A
SSOA (RBSOA)	$V_{GE} = 15 \text{ V}, T_{VJ} = 125^\circ\text{C}, R_G = 120 \Omega$ Clamped inductive load	$I_{CM} = 8$ @ $0.8 V_{CES}$	A
P_C	$T_C = 25^\circ\text{C}$	40	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 Mounting torque with screw M3.5	0.45/4 Nm/lb.in. 0.55/5 Nm/lb.in.	
Weight	TO-220 TO-263	4 2	g

TO-220AB (IXGP)



TO-263 AA (IXGA)



Features

- International standard packages
JEDEC TO-220AB and TO-263AA
- High current handling capability
- 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

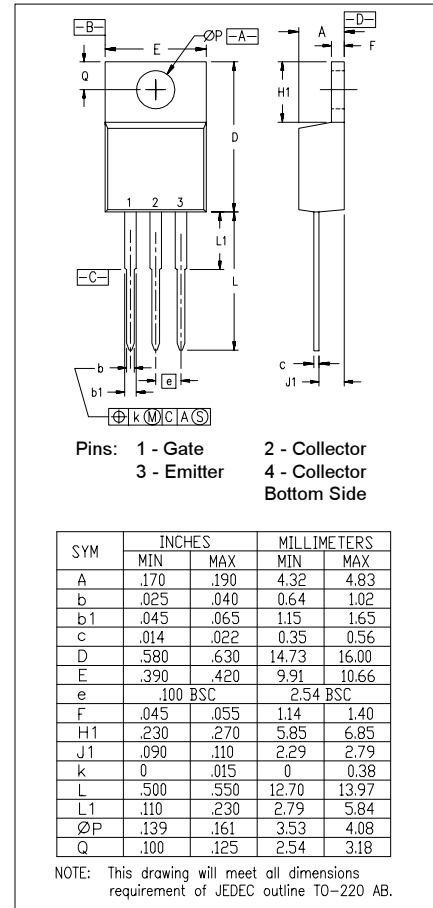
Advantages

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

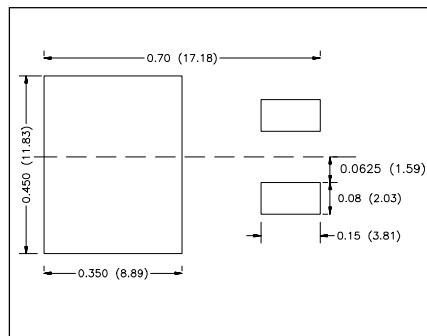
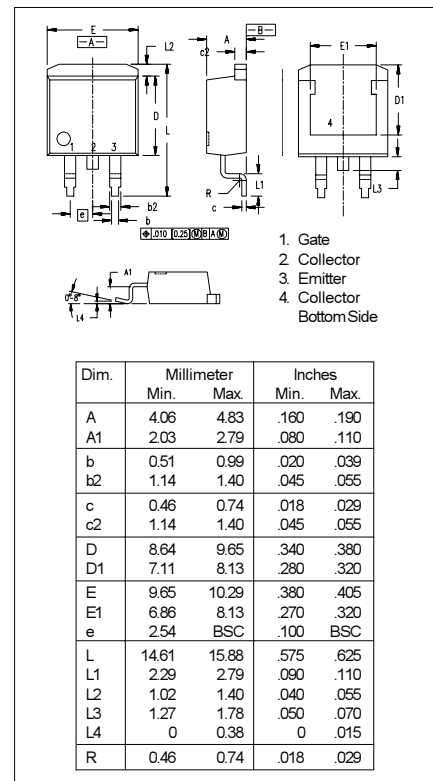
Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{CES}	$I_C = 250 \mu\text{A}, V_{GE} = 0 \text{ V}$	1000		V
$V_{GE(th)}$	$I_C = 100 \mu\text{A}, V_{CE} = V_{GE}$	2.5		V
I_{CES}	$V_{CE} = 0.8 \cdot V_{CES}$ $V_{GE} = 0 \text{ V}$	$T_J = 25^\circ\text{C}$		25 μA
		$T_J = 125^\circ\text{C}$		250 μA
I_{GES}	$V_{CE} = 0 \text{ V}, V_{GE} = \pm 20 \text{ V}$			$\pm 100 \text{ nA}$
	$I_C = I_{CE90}, V_{GE} = 15 \text{ V}$		2.2	2.7 V

Symbol	Test Conditions	Characteristic Values		
		Min.	Typ.	Max.
g_{fs}	$I_C = I_{C90}, V_{CE} = 10\text{ V}$, Pulse test, $t \leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$	2.5	4	S
C_{les}	$V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$, $f = 1\text{ MHz}$		343	pF
C_{oes}			21	pF
C_{res}			5	pF
$I_{C(ON)}$	$V_{GE} = 10\text{ V}$, $V_{CE} = 10\text{ V}$		21	A
Q_g	$I_C = I_{C90}, V_{GE} = 15\text{ V}$, $V_{CE} = 0.5 V_{CES}$		13.6	nC
Q_{ge}			2.5	nC
Q_{gc}			6.5	nC
$t_{d(on)}$	Inductive load, $T_J = 25^\circ\text{C}$ $I_C = I_{C90}, V_{GE} = 15\text{ V}$ $V_{CE} = 800\text{ V}$, $R_G = R_{off} = 120\text{ }\Omega$ Remarks: Switching times may increase for $V_{CE}(\text{Clamp}) > 0.8 V_{CES}$, higher T_J or increased R_G		20	ns
t_{ri}			25	ns
$t_{d(off)}$			390	800 ns
t_{fi}			340	700 ns
E_{off}			0.9	2.0 mJ
$t_{d(on)}$	Inductive load, $T_J = 125^\circ\text{C}$ $I_C = I_{C90}, V_{GE} = 15\text{ V}$ $V_{CE} = 800\text{ V}$, $R_G = R_{off} = 120\text{ }\Omega$ Remarks: Switching times may increase for $V_{CE}(\text{Clamp}) > 0.8 V_{CES}$, higher T_J or increased R_G		20	ns
t_{ri}			25	ns
E_{on}			0.16	mJ
$t_{d(off)}$			700	ns
t_{fi}			520	ns
E_{off}			2.0	mJ
R_{thJC}	TO-220			3.1 KW
R_{thCK}			0.5	KW

TO-220 AB Dimensions



TO-263 AA Outline



Min. Recommended Footprint (Dimensions in inches and mm)