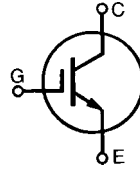


IGBT

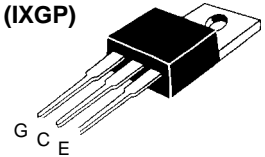
IXGA 20N120
IXGP 20N120

$V_{CES} = 1200 \text{ V}$
 $I_{C25} = 40 \text{ A}$
 $V_{CE(sat)} = 2.5 \text{ V}$
 $t_{fi(typ)} = 380 \text{ ns}$

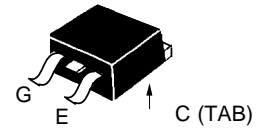


Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}$	1200	V
V_{CGR}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}; R_{GE} = 1 \text{ M}\Omega$	1200	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^\circ\text{C}$	40	A
I_{C90}	$T_C = 90^\circ\text{C}$	20	A
I_{CM}	$T_C = 25^\circ\text{C}, 1 \text{ ms}$	80	A
SSOA (RBSOA)	$V_{GE} = 15 \text{ V}, T_{VJ} = 125^\circ\text{C}, R_G = 47 \Omega$ Clamped inductive load	$I_{CM} = 40$ @ $0.8 V_{CES}$	A
P_C	$T_C = 25^\circ\text{C}$	150	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	$^\circ\text{C}$
Maximum tab temperature for soldering		260	$^\circ\text{C}$
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 AA (IXGA)



Features

- International standard packages JEDEC TO-220AB and TO-263AA
- High current handling capability
- MOS Gate turn-on - drive simplicity

Applications

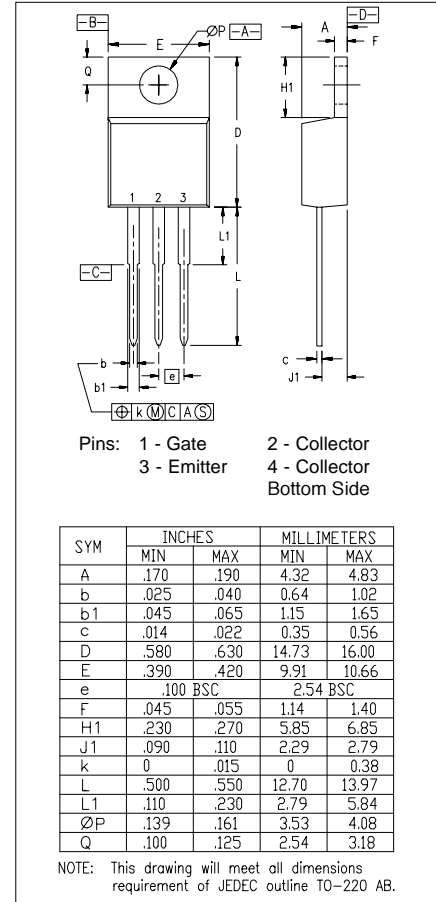
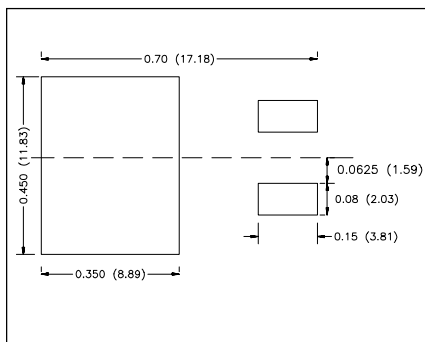
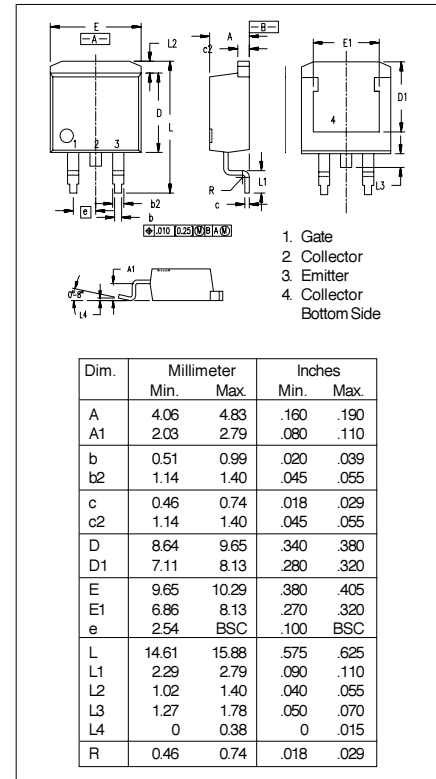
- AC motor speed control
- DC servo and robot drives
- DC choppers
- Uninterruptible power supplies (UPS)
- Switch-mode and resonant-mode power supplies
- Capacitor discharge

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}	$I_C = 1 \text{ mA}, V_{GE} = 0 \text{ V}$	1200		V
$V_{GE(th)}$	$I_C = 250 \mu\text{A}, V_{CE} = V_{GE}$	2.5		V
I_{CES}	$V_{CE} = V_{CES}$ $V_{GE} = 0 \text{ V}$	$T_J = 25^\circ\text{C}$		250 μA
		$T_J = 125^\circ\text{C}$		1 mA
I_{GES}	$V_{CE} = 0 \text{ V}, V_{GE} = \pm 20 \text{ V}$			$\pm 100 \text{ nA}$
$V_{CE(sat)}$	$I_C = I_{C90}, V_{GE} = 15 \text{ V}$		2.0	2.5 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 $\leq 2\%$	12	16	S
C_{ies}	$V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$, $f = 1\text{ MHz}$		1750	pF
C_{oes}			90	pF
C_{res}			31	pF
$I_{C(ON)}$	$V_{GE} = 10\text{ V}$, $V_{CE} = 10\text{ V}$		90	A
Q_g	$I_C = I_{C90}$; $V_{GE} = 15\text{ V}$, $V_{CE} = 0.5 V_{CES}$		63	nC
Q_{ge}			13	nC
Q_{gc}			26	nC
$t_{d(on)}$	Inductive load, $T_J = 25^\circ\text{C}$		28	ns
t_{ri}	$I_C = I_{C90}$; $V_{GE} = 15\text{ V}$		20	ns
$t_{d(off)}$	$V_{CE} = 800\text{ V}$, $R_G = R_{off} = 47\ \Omega$	400	800	ns
t_{fi}	Remarks: Switching times may increase for V_{CE} (Clamp) $> 0.8 V_{CES}$,	380	700	ns
E_{off}	higher T_J or increased R_G	6.5	10.5	mJ
$t_{d(on)}$	Inductive load, $T_J = 125^\circ\text{C}$		30	ns
t_{ri}	$I_C = I_{C90}$; $V_{GE} = 15\text{ V}$		27	ns
E_{on}	$V_{CE} = 800\text{ V}$, $R_G = R_{off} = 47\ \Omega$	0.90		mJ
$t_{d(off)}$	Remarks: Switching times may increase for V_{CE} (Clamp) $> 0.8 V_{CES}$,	700		ns
t_{fi}	higher T_J or increased R_G	550		ns
E_{off}		9.5		mJ
R_{thJC}			0.83	K/W
R_{thCK}	TO-220		0.5	K/W

TO-220 AB Dimensions

TO-263 AA Outline

Min. Recommended Footprint
 (Dimensions in inches and mm)

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