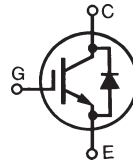


High Voltage IGBT

Avalanche Rated

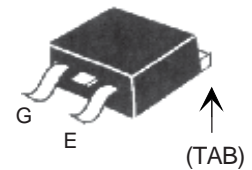
IXGA30N120B3
IXGP30N120B3



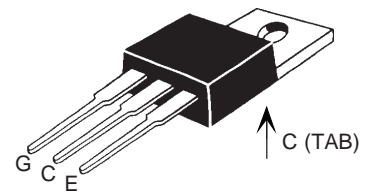
$$\begin{aligned} V_{CES} &= 1200 \text{ V} \\ I_{C25} &= 60 \text{ A} \\ V_{CE(sat)} &= 3.5 \text{ V} \\ t_{fi(typ)} &= 160 \text{ ns} \end{aligned}$$

Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ\text{C}$ to 150°C	1200	V
V_{CGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GE} = 1 \text{ M}\Omega$	1200	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^\circ\text{C}$	60	A
I_{C110}	$T_C = 110^\circ\text{C}$	30	A
I_{CM}	$T_C = 25^\circ\text{C}$, 1 ms	150	A
SSOA (RBSOA)	$V_{GE} = 15 \text{ V}$, $T_{VJ} = 125^\circ\text{C}$, $R_G = 5 \Omega$ Clamped inductive load	$I_{CM} = 90$ @ $0.8 V_{CES}$	A
P_C	$T_C = 25^\circ\text{C}$	300	W
I_{AS}	$T_C = 25^\circ\text{C}$	30	A
E_{AS}		360	mJ
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.	
T_L	Maximum lead temperature for soldering	300	$^\circ\text{C}$
T_{SOLD}	1.6 mm (0.062 in.) from case for 10 s	260	$^\circ\text{C}$
Weight	TO-220	3	g
	TO-263	2.5	g

TO-263 (IXGA)



TO-220 (IXGP)



G = Gate C = Collector
E = Emitter TAB = Collector

Features

- International standard packages JEDEC TO-220AB and TO-263AA
- Low switching losses, Low $V_{(sat)}$ - for minimum on-state conduction losses
- Avalanche Rated

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	Characteristic Values		
		(T _J = 25°C unless otherwise specified)		
		Min.	Typ.	Max.
BV_{CES}	$I_C = 250 \mu\text{A}$, $V_{GE} = 0 \text{ V}$	1200		V
$V_{GE(th)}$	$I_C = 250 \mu\text{A}$, $V_{CE} = V_{GE}$	3.0		5.0 V
I_{CES}	$V_{CE} = V_{CES}$, $V_{GE} = 0 \text{ V}$ Note 1			25 μA 1.0 mA
I_{GES}	$V_{CE} = 0 \text{ V}$, $V_{GE} = \pm 20 \text{ V}$			$\pm 100 \text{ nA}$
$V_{CE(sat)}$	$I_C = 30 \text{ A}$, $V_{GE} = 15 \text{ V}$ Note 2		2.9 2.95	3.5 V

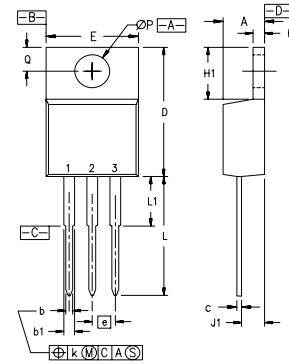
Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$ unless otherwise specified)		
		Min.	Typ.	Max.
g_{fs}	$I_C = 30\text{A}; V_{CE} = 10\text{V}$, Note 2.	15	23	S
C_{ies}	$V_{CE} = 25\text{V}; V_{GE} = 0\text{V}; f = 1\text{MHz}$		2080	pF
C_{oes}		150	pF	
C_{res}		38	pF	
Q_g	$I_C = 30\text{A}; V_{GE} = 15\text{V}; V_{CE} = 0.5 V_{CES}$		90	nC
Q_{ge}		14	nC	
Q_{gc}		36	nC	
$t_{d(on)}$	Inductive load, $T_J = 25^\circ\text{C}$		21	ns
t_{ri}	$I_C = 30\text{A}; V_{GE} = 15\text{V}$		33	ns
$t_{d(off)}$	$V_{CE} = 960\text{V}; R_G = R_{off} = 5\ \Omega$ Note 3.	200	300	ns
t_{fi}		160	320	ns
E_{off}		2.0	4.0	mJ
$t_{d(on)}$	Inductive load, $T_J = 125^\circ\text{C}$		21	ns
t_{ri}	$I_C = 30\text{A}; V_{GE} = 15\text{V}$		36	ns
E_{on}	$V_{CE} = 960\text{V}; R_G = R_{off} = 5\ \Omega$	1.4		mJ
$t_{d(off)}$	Note 3.	250		ns
t_{fi}		340		ns
E_{off}		4.6		mJ
R_{thJC} R_{thCK}	(TO-220)	0.5		0.42°C/W $^\circ\text{C/W}$

- Notes:
1. Device must be heat sunk before measuring leakage current at T_{VJM}^* .
 2. Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $d \leq 2\%$.
 3. Switching times may increase for $V_{CE}(\text{Clamp}) > 0.8 \cdot V_{CES}$, higher T_J or increased R_G .

ADVANCE TECHNICAL INFORMATION

The product presented herein is under development. The Technical Specifications offered are derived from a subjective evaluation of the design, based upon prior knowledge and experience, and constitute a "considered reflection" of the anticipated result. IXYS reserves the right to change limits, test conditions, and dimensions without notice.

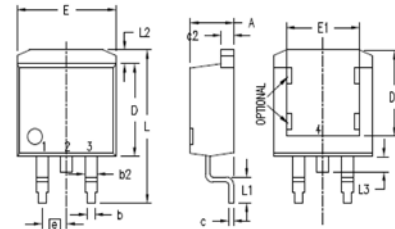
TO-220 (IXGP) Outline



- Pins: 1 - Gate
2 - Drain
3 - Source
4 - Drain

SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.170	.190	4.32	4.83
b	.025	.040	0.64	1.02
b1	.045	.065	1.15	1.65
c	.014	.022	0.35	0.56
D	.580	.630	14.73	16.00
E	.390	.420	9.91	10.66
e	.100 BSC		2.54 BSC	
F	.045	.055	1.14	1.40
H1	.230	.270	5.85	6.85
J1	.090	.110	2.29	2.79
k	0	.015	0	0.38
L	.500	.550	12.70	13.97
L1	.110	.230	2.79	5.84
$\varnothing P$.139	.161	3.53	4.08
Q	.100	.125	2.54	3.18

TO-263 (IXGA) Outline



1. GATE
2. DRAIN (COLLECTOR)
3. SOURCE (EMITTER)
4. DRAIN (COLLECTOR)
BOTTOM SIDE

SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.160	.190	4.06	4.83
A1	.080	.110	2.03	2.79
b	.020	.039	0.51	0.99
b2	.045	.055	1.14	1.40
c	.016	.029	0.40	0.74
c2	.045	.055	1.14	1.40
D	.340	.380	8.64	9.65
D1	.315	.350	8.00	8.89
E	.380	.410	9.65	10.41
E1	.245	.320	6.22	8.13
e	.100 BSC		2.54 BSC	
L	.575	.625	14.61	15.88
L1	.090	.110	2.29	2.79
L2	.040	.055	1.02	1.40
L3	.050	.070	1.27	1.78
L4	0	.005	0	0.13

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

IXYS MOSFETs and IGBTs are covered by one or more of the following U.S. patents:	4,835,592	4,931,844	5,049,961	5,237,481	6,162,665	6,404,065	B1 6,683,344	6,727,585
	4,850,072	5,017,508	5,063,307	5,381,025	6,259,123	B1 6,534,343	6,710,405	B2 6,759,692
	4,881,106	5,034,796	5,187,117	5,486,715	6,306,728	B1 6,583,505	6,710,463	6,771,478 B2