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[IXGA15N120B](#)

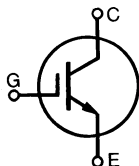
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# HiPerFAST™ IGBT

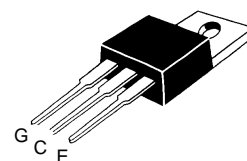
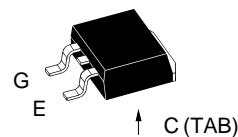
## IXGA 15N120B IXGP 15N120B

$V_{CES} = 1200\text{ V}$   
 $I_{C25} = 30\text{ A}$   
 $V_{CE(sat)} = 3.2\text{ V}$   
 $t_{fi(typ)} = 160\text{ ns}$



Preliminary data

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	$\pm 20$	V
$V_{GEM}$	Transient	$\pm 30$	V
$I_{C25}$	$T_C = 25^\circ\text{C}$	30	A
$I_{C90}$	$T_C = 90^\circ\text{C}$	15	A
$I_{CM}$	$T_C = 25^\circ\text{C}, 1\text{ ms}$	60	A
<b>SSOA</b>	$V_{GE} = 15\text{ V}, T_{VJ} = 125^\circ\text{C}, R_G = 10\ \Omega$	$I_{CM} = 40$	A
<b>(RBSOA)</b>	Clamped inductive load	@ $0.8 V_{CES}$	
$P_C$	$T_C = 25^\circ\text{C}$	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	$^\circ\text{C}$
$M_d$	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 AA (IXGA)**

**Features**

- International standard packages JEDEC TO-220AB and TO-263AA
- Low switching losses, low  $V_{(sat)}$
- 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

**Advantages**

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

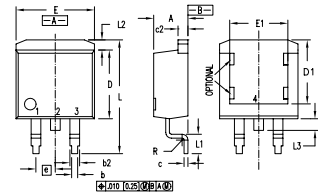
Symbol	Test Conditions	Characteristic Values		
		Min.	Typ.	Max.
$BV_{CES}$	$I_C = 250\ \mu\text{A}, V_{GE} = 0\text{ V}$	1200		V
$V_{GE(th)}$	$I_C = 250\ \mu\text{A}, V_{CE} = V_{GE}$	2.5		V
$I_{CES}$	$V_{CE} = V_{CES}, V_{GE} = 0\text{ V}$	$T_J = 25^\circ\text{C}$		100 $\mu\text{A}$
		$T_J = 125^\circ\text{C}$		3.5 mA
$I_{GES}$	$V_{CE} = 0\text{ V}, V_{GE} = \pm 20\text{ V}$			$\pm 100\text{ nA}$
$V_{CE(sat)}$	$I_C = I_{CE90}, V_{GE} = 15$			3.2 V
		$T_J = 125^\circ\text{C}$	2.5	V



**IXGA 15N120B**  
**IXGP 15N120B**

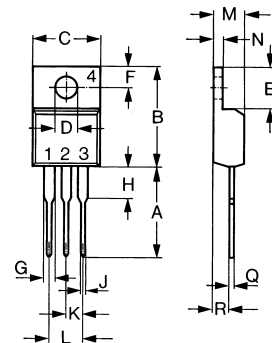
Symbol	Test Conditions	Characteristic Values			
		Min.	Typ.	Max.	
$g_{fs}$	$I_C = I_{C90}; V_{CE} = 10 V$ , Pulse test, $t \leq 300 \mu s$ , duty cycle $\leq 2 \%$	12	15	S	
$C_{ies}$	$V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz$		1720	pF	
$C_{oes}$			95	pF	
$C_{res}$			35	pF	
$Q_g$	$I_C = I_{C90}; V_{GE} = 15 V, V_{CE} = 0.5 V_{CES}$		69	nC	
$Q_{ge}$			13	nC	
$Q_{gc}$			26	nC	
$t_{d(on)}$	<b>Inductive load, <math>T_j = 25^\circ C</math></b> $I_C = I_{C90}, V_{GE} = 15 V$ $V_{CE} = 960 V, R_G = R_{off} = 10 \Omega$ Remarks: Switching times may increase for $V_{CE} (Clamp) > 0.8 V_{CES}$ , higher $T_j$ or increased $R_G$		25	ns	
$t_{ri}$			15	ns	
$t_{d(off)}$			180	280	ns
$t_{fi}$			160	320	ns
$E_{off}$			1.75	3.0	mJ
$t_{d(on)}$	<b>Inductive load, <math>T_j = 125^\circ C</math></b> $I_C = I_{C90}, V_{GE} = 15 V$ $V_{CE} = 960 V, R_G = R_{off} = 10 \Omega$ Remarks: Switching times may increase for $V_{CE} (Clamp) > 0.8 V_{CES}$ , higher $T_j$ or increased $R_G$		25	ns	
$t_{ri}$			18	ns	
$E_{on}$			0.60	mJ	
$t_{d(off)}$			300	ns	
$t_{fi}$			360	ns	
$E_{off}$		3.5	mJ		
$R_{thJC}$	TO-220		0.83	K/W	
$R_{thCK}$			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**

