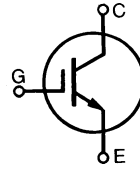


HiPerFAST™ IGBT

IXGA 15N120B
IXGP 15N120B

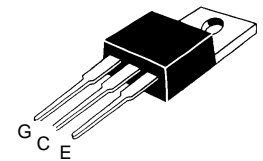
$V_{CES} = 1200\text{ V}$
 $I_{C25} = 30\text{ A}$
 $V_{CE(sat)} = 3.2\text{ V}$
 $t_{fi(typ)} = 160\text{ ns}$



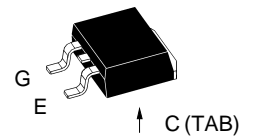
Preliminary data

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	± 20	V
V_{GEM}	Transient	± 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
SSOA (RBSOA)	$V_{GE} = 15\text{ V}, T_{VJ} = 125^\circ\text{C}, R_G = 10\ \Omega$ 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	$^\circ\text{C}$
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
- Low switching losses, low $V_{(sat)}$
- MOS Gate turn-on - drive simplicity

Applications

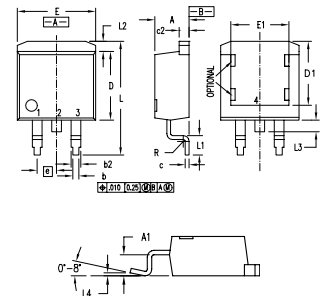
- AC motor speed control
- DC servo and robot drives
- DC choppers
- Uninterruptible power supplies (UPS)
- Switch-mode and resonant-mode power supplies

Advantages

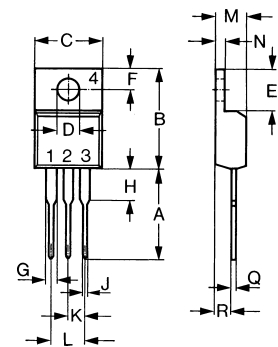
- Easy to mount with one screw
- Reduces assembly time and cost
- High power density

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{CES}	$I_C = 250\ \mu\text{A}, V_{GE} = 0\text{ V}$	1200		V
$V_{GE(th)}$	$I_C = 250\ \mu\text{A}, V_{CE} = V_{GE}$	2.5		V
I_{CES}	$V_{CE} = V_{CES}, T_J = 25^\circ\text{C}$			100 μA
	$V_{GE} = 0\text{ V}, T_J = 125^\circ\text{C}$			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

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	15	S
C_{ies}	$V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$, $f = 1\text{ MHz}$		1720	pF
C_{oes}			95	pF
C_{res}			35	pF
Q_g	$I_C = I_{C90}$; $V_{GE} = 15\text{ V}$, $V_{CE} = 0.5 V_{CES}$		69	nC
Q_{ge}			13	nC
Q_{gc}			26	nC
$t_{d(on)}$	Inductive load, $T_J = 25^\circ\text{C}$		25	ns
t_{ri}	$I_C = I_{C90}$; $V_{GE} = 15\text{ V}$		15	ns
$t_{d(off)}$	$V_{CE} = 960\text{ V}$, $R_G = R_{off} = 10\ \Omega$		180	ns
t_{fi}	Remarks: Switching times may increase for V_{CE} (Clamp) $> 0.8 V_{CES}$		160	ns
E_{off}	higher T_J or increased R_G		1.75	3.0 mJ
$t_{d(on)}$	Inductive load, $T_J = 125^\circ\text{C}$		25	ns
t_{ri}	$I_C = I_{C90}$; $V_{GE} = 15\text{ V}$		18	ns
E_{on}	$V_{CE} = 960\text{ V}$, $R_G = R_{off} = 10\ \Omega$		0.60	mJ
$t_{d(off)}$	Remarks: Switching times may increase for V_{CE} (Clamp) $> 0.8 V_{CES}$		300	ns
t_{fi}	higher T_J or increased R_G		360	ns
E_{off}			3.5	mJ
R_{thJC}			0.83	K/W
R_{thCK}	TO-220		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
