

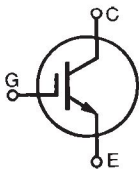


HiPerFAST™ IGBT

IXGA 7N60B
IXGP 7N60B

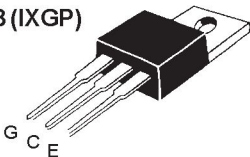
V_{CES}
 I_{C25}
 $V_{CE(sat)}$
 t_{fi}

= 600 V
= 14 A
= 2 V
= 150 ns

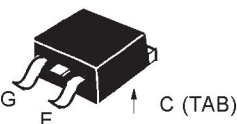


Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^{\circ}\text{C}$ to 150°C	600	V
V_{CGR}	$T_J = 25^{\circ}\text{C}$ to 150°C ; $R_{GE} = 1\text{ M}\Omega$	600	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^{\circ}\text{C}$	14	A
I_{C90}	$T_C = 90^{\circ}\text{C}$	7	A
I_{CM}	$T_C = 25^{\circ}\text{C}$, 1 ms	30	A
SSOA (RBSOA)	$V_{GE} = 15\text{ V}$, $T_{VJ} = 125^{\circ}\text{C}$, $R_G = 22\text{ }\Omega$ Clamped inductive load, $L = 300\text{ }\mu\text{H}$	$I_{CM} = 14$ @ $0.8\text{ }V_{CES}$	A
P_c	$T_C = 25^{\circ}\text{C}$	54	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, (TO-220)	M3 0.45/4 M3.5 0.55/5	Nm/lb.in.
Weight	TO-220	4	g
	TO-263	2	g

TO-220AB (IXGP)



TO-263 AA (IXGA)



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

Features

- International standard packages JEDEC TO-263 surface mountable and JEDEC TO-220 AB
- Medium frequency IGBT
- High current handling capability
- HiPerFAST™ HDMOS™ process
- MOS Gate turn-on - drive simplicity

Applications

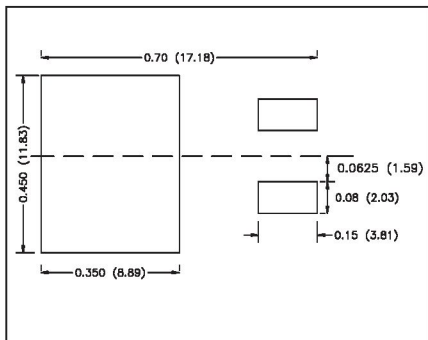
- Uninterruptible power supplies (UPS)
- Switched-mode and resonant-mode power supplies
- AC motor speed control
- DC servo and robot drives
- DC choppers

Advantages

- High power density
- Suitable for surface mounting
- Very low switching losses for high frequency applications

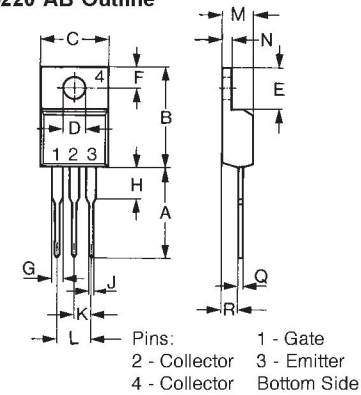
Symbol	Test Conditions	Characteristic Values ($T_J = 25^{\circ}\text{C}$, unless otherwise specified)		
		min.	typ.	max.
BV_{CES}	$I_C = 250\text{ }\mu\text{A}$, $V_{GE} = 0\text{ V}$	600		V
$V_{GE(th)}$	$I_C = 250\text{ }\mu\text{A}$, $V_{CE} = V_{GE}$	2.5		5.5 V
I_{CES}	$V_{CE} = 0.8\text{ }V_{CES}$ $V_{GE} = 0\text{ V}$ $T_J = 25^{\circ}\text{C}$ $T_J = 125^{\circ}\text{C}$			100 μA 500 μA
I_{GES}	$V_{CE} = 0\text{ V}$, $V_{GE} = \pm 20\text{ V}$			$\pm 100\text{ nA}$
$V_{CE(sat)}$	$I_C = I_{C90}$, $V_{GE} = 15\text{ V}$	1.8	2.0	V

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		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 $\leq 2\%$	3	7	S
C_{ies}	$V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$, $f = 1\text{ MHz}$		500	pF
C_{oes}			50	pF
C_{res}			17	pF
Q_g	$I_C = I_{C90}, V_{GE} = 15\text{ V}$, $V_{CE} = 0.5 V_{CES}$		25	nC
Q_{ge}			5	nC
Q_{gc}			10	nC
$t_{d(on)}$	Inductive load, $T_J = 25^\circ\text{C}$ $I_C = I_{C90}, V_{GE} = 15\text{ V}$, $L = 300\text{ }\mu\text{H}$, $V_{CE} = 0.8 V_{CES}$, $R_G = R_{off} = 22\text{ }\Omega$ Remarks: Switching times may increase for V_{CE} (Clamp) $> 0.8 V_{CES}$, higher T_J or increased R_G		9	ns
t_{ri}			10	ns
E_{on}			0.07	mJ
$t_{d(off)}$			100	ns
t_{fi}			150	ns
E_{off}			0.3	mJ
$t_{d(on)}$	Inductive load, $T_J = 125^\circ\text{C}$ $I_C = I_{C90}, V_{GE} = 15\text{ V}$, $L = 300\text{ }\mu\text{H}$, $V_{CE} = 0.8 V_{CES}$, $R_G = R_{off} = 22\text{ }\Omega$ Remarks: Switching times may increase for V_{CE} (Clamp) $> 0.8 V_{CES}$, higher T_J or increased R_G		10	ns
t_{ri}			15	ns
E_{on}			0.15	mJ
$t_{d(off)}$			200	ns
t_{fi}			250	ns
E_{off}			0.6	mJ
R_{thJC}	(TO-220)		0.25	2.3 KW
R_{thCK}				KW



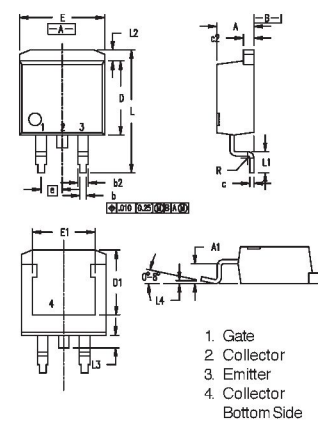
Min. Recommended Footprint
(Dimensions in inches and mm)

TO-220 AB 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

TO-263 AA 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

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 4,881,106 5,017,508
4,850,072 4,931,844 5,034,796

5,049,961 5,187,117
5,063,307 5,237,481

5,486,715 6,306,798B1
5,397,523

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