IXYS

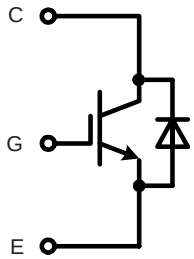
High Voltage BIMOSFET™

Monolithic Bipolar MOS Transistor

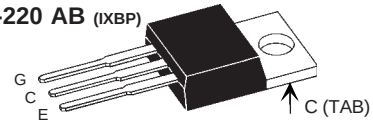
Preliminary data sheet

IXBP 5N160 G
IXBH 5N160 G

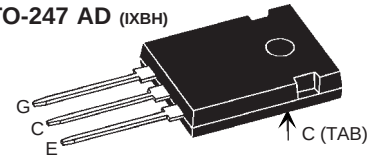
I_{C25} = 5.7 A
V_{CES} = 1600 V
$V_{CE(sat)}$ = 4.9 V
t_f = 70 ns



TO-220 AB (IXBP)



TO-247 AD (IXBH)



A = Anode, C = Cathode , TAB = Cathode

Features

- High Voltage BIMOSFET™
  - substitute for high voltage MOSFETs with significantly lower voltage drop
  - MOSFET compatible control 10 V turn on gate voltage
  - fast switching for high frequency operation
  - reverse conduction capability
- industry standard package
  - TO-220AB
  - TO-247AD

  epoxy meets UL94V-0

Applications

- switched mode power supplies
- DC-DC converters
- resonant converters
- lamp ballasts
- laser generators, x ray generators

IGBT

Symbol	Conditions	Maximum Ratings	
V_{CES}	T_{VJ} = 25°C to 150°C	1600	V
V_{GES}		± 20	V
I_{C25}	T_C = 25°C	5.7	A
I_{C90}	T_C = 90°C	3.5	A
I_{CM}	V_{GE} = 10/0 V; R_G = 47 Ω; T_{VJ} = 125°C	6	A
V_{CEK}	RBSOA, Clamped inductive load; L = 100 µH	$0.8V_{CES}$	
P_{tot}	T_C = 25°C	68	W

Symbol	Conditions	Characteristic Values (T_{VJ} = 25°C, unless otherwise specified) min.	typ.	max.	
$V_{CE(sat)}$	I_C = 3 A; V_{GE} = 15 V; T_{VJ} = 25°C		4.9	7.2	V
	T_{VJ} = 125°C		5.6		V
$V_{GE(th)}$	I_C = 0.3 mA; V_{GE} = V_{CE}	3.5		5.5	V
I_{CES}	V_{GE} = 0 V; V_{CE} = V_{CES}; T_{VJ} = 25°C			150	µA
	V_{CE} = $0.8V_{CES}$; T_{VJ} = 125°C		50		µA
I_{GES}	V_{CE} = 0 V; V_{GE} = ± 20 V			100	nA
$t_{d(on)}$	Inductive load, T_{VJ} = 125°C		140		ns
t_r	V_{CE} = 960 V; I_C = 3 A		200		ns
$t_{d(off)}$	V_{GE} = 10/0 V; R_G = 47 Ω		120		ns
t_f			70		ns
C_{ies}	V_{CE} = 25 V; V_{GE} = 0 V; f = 1 MHz		325		pF
Q_{Gon}	V_{CE} = 600V; V_{GE} = 10 V; I_C = 3 A		26		nC
V_F	(reverse conduction); I_F = 3 A		6		V
R_{thJC}				1.85	K/W

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

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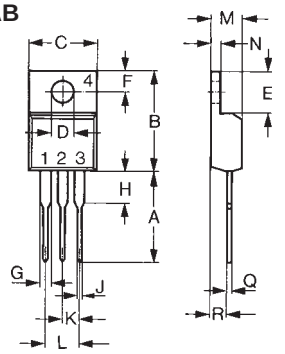
Component

Symbol	Conditions		Maximum Ratings	
T_{VJ}			-55...+150	°C
T_{stg}			-55...+125	°C
M_D	mounting torque	(TO-220)	0.6	Nm
		(TO-247)	1.2	Nm

Symbol	Conditions	Characteristic Values min.	typ.	max.
R_{thCH}	with heatsink compound		0.25	K/W
Weight	(TO-220)		2	g
	(TO-247)		6	g

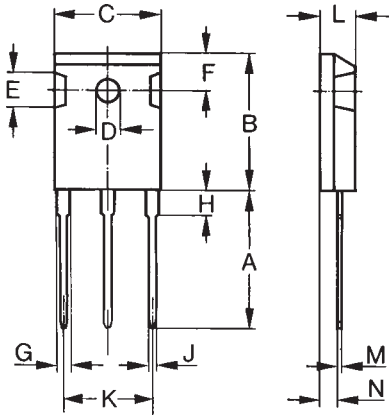
Dimensions

TO-220 AB



Dim.	Millimeter Min.	Max.	Inches 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-247 AD



Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	19.81	20.32	0.780	0.800
B	20.80	21.46	0.819	0.845
C	15.75	16.26	0.610	0.640
D*	3.55	3.65	0.140	0.144
E	4.32	5.49	0.170	0.216
F	5.4	6.2	0.212	0.244
G	1.65	2.13	0.065	0.084
H	-	4.5	-	0.177
J	1.0	1.4	0.040	0.055
K	10.8	11.0	0.426	0.433
L	4.7	5.3	0.185	0.209
M	0.4	0.8	0.016	0.031
N	1.5	2.49	0.087	0.102

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