

### ■ Features

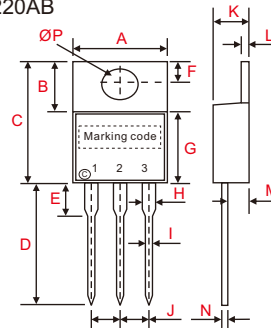
- Low power loss, high efficiency.
- High current capability, low forward voltage drop.
- High surge capability.
- Guardring for overvoltage protection.
- Ultra high-speed switching.
- Silicon epitaxial planar chip, metal silicon junction.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228

### ■ Mechanical data

- Epoxy : UL94-V0 rated flame retardant.
- Case : JEDEC TO-220AB molded plastic body.
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026.
- Polarity: As marked.
- Mounting Position : Any.
- Weight : Approximated 2.25 gram.

### ■ Outline

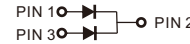
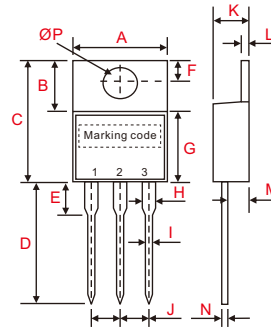
TO-220AB



symbol	Dimensions in inches(millimeters)	
	Min	Max
A	0.398(10.1)	0.406(10.3)
B	0.236(6.0)	0.252(6.4)
C	0.579(14.7)	0.594(15.1)
D	0.543(13.8)	0.551(14.0)
E	0.143(3.63)	0.159(4.03)
F	0.104(2.64)	0.112(2.84)
G	0.335(8.5)	0.350(8.9)
H	0.046(1.17)	0.054(1.37)
I	0.028(0.71)	0.036(0.91)
J	0.098(2.49)	0.102(2.59)
K	0.176(4.47)	0.184(4.67)
L	0.046(1.17)	0.054(1.37)
M	0.102(2.6)	0.110(2.8)
N	0.019(0.28)	0.021(0.48)
ØP	0.147(3.74)	0.155(3.94)

### Alternate

symbol	Dimensions in inches(millimeters)	
	Min	Max
A	0.394(10.0)	0.413(10.5)
B	0.228(5.8)	0.268(6.8)
C	0.570(14.48)	0.625(15.87)
D	0.519(13.18)	0.558(14.18)
E	0.089(3.5)	0.099(3.9)
F	0.100(2.54)	0.120(3.04)
G	0.330(8.38)	0.350(8.9)
H	0.045(1.15)	0.060(1.52)
I	0.029(0.75)	0.037(0.95)
J	0.095(2.42)	0.105(2.66)
K	0.160(4.07)	0.190(4.82)
L	0.045(1.15)	0.055(1.39)
M	0.080(2.04)	0.110(2.8)
N	0.013(0.33)	0.019(0.52)
ØP	0.148(3.75)	0.156(3.95)



Dimensions in inches and (millimeters)

### ■ Maximum ratings and electrical characteristics

Rating at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.

Parameter	Conditions	Symbol	MIN.	TYP.	MAX.	UNIT
Forward rectified current	See Fig.1	$I_O$			30	A
Forward surge current	8.3ms single half sine-wave superimposed on rate load (JEDEC method)	$I_{FSM}$			200	A
Reverse current	$V_R = V_{RRM}$ $T_A = 25^\circ\text{C}$	$I_R$			0.1	mA
	$V_R = V_{RRM}$ $T_A = 125^\circ\text{C}$ , $V_R < 100\text{V}$				20	
	$V_R = V_{RRM}$ $T_A = 125^\circ\text{C}$ , $V_R \geq 100\text{V}$				10	
Diode junction capacitance	f=1MHz and applied 4V DC reverse voltage	$C_J$		150		pF
Thermal resistance	Junction to ambient	$R_{\theta JA}$		30		°C/W
Storage temperature					+150	°C

Symbol	Marking code	Max. repetitive peak reverse voltage $V_{RRM}$ (V)	Max. RMS voltage $V_{RMS}$ (V)	Max. DC blocking voltage $V_R$ (V)	Max. forward voltage @15A, $T_A = 25^\circ\text{C}$ $V_F$ (V)	Operating Junction temperature $T_J$ (°C)
MBR30120CT	MBR30120CT	120	84	120	0.85	-55 ~ +150

■ Rating and characteristic curves

Fig.1 - Forward Current Derating Curve

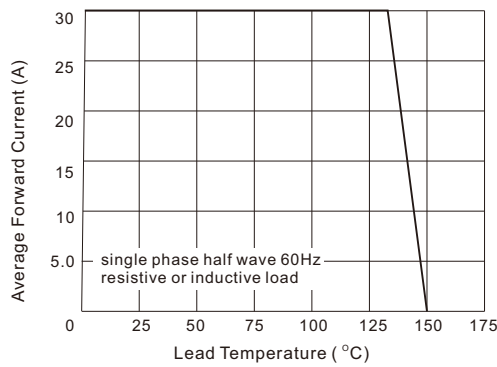


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

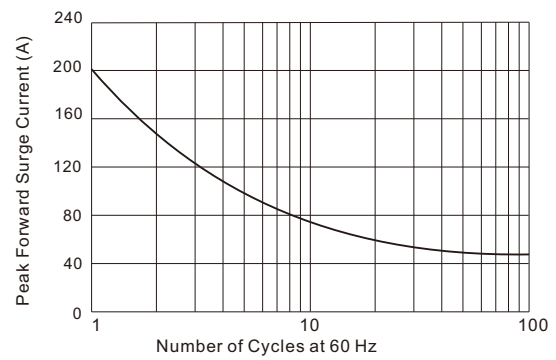


Fig. 3 - Instantaneous Forward Characteristics

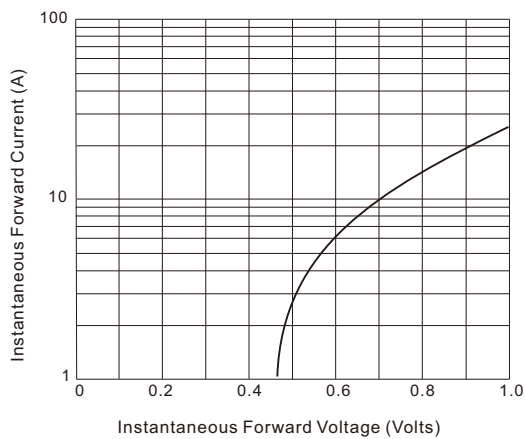
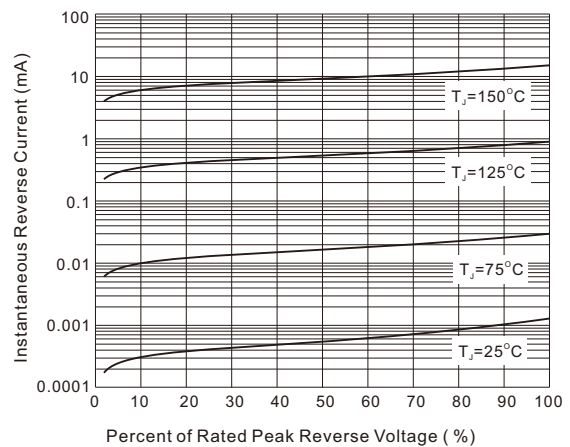


Fig. 4 - Reverse Characteristics



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