



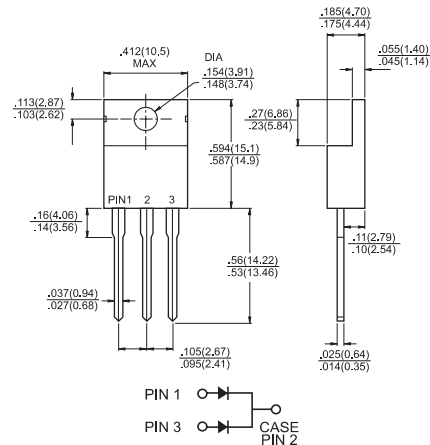
### TO-220AB

## Features

- ✧ Plastic material used carries Underwriters Laboratory Classifications 94V-0
- ✧ Metal silicon junction, majority carrier conduction
- ✧ Low power loss, high efficiency
- ✧ High current capability, low forward voltage drop
- ✧ High surge capability
- ✧ For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- ✧ Guardring for overvoltage protection
- ✧ High temperature soldering guaranteed: 260°C/10 seconds, 0.25" (6.35mm) from case

## Mechanical Data

- ✧ Cases: JEDEC TO-220AB molded plastic body
- ✧ Polarity: As marked
- ✧ Mounting position: Any
- ✧ Mounting torque: 5 in. - lbs. max
- ✧ Weight: 0.08 ounce, 2.24 grams



Dimensions in inches and (millimeters)

## Maximum Ratings and Electrical Characteristics

Rating at 25 °C ambient temperature unless otherwise specified.

Single phase, half wave, 60 Hz, resistive or inductive load.

For capacitive load, derate current by 20%

Type Number	Symbol	MBR 1035 CT	MBR 1045 CT	MBR 1050 CT	MBR 1060 CT	MBR 1090 CT	MBR 10100 CT	MBR 10150 CT	MBR 10200 CT	Units
Maximum Recurrent Peak Reverse Voltage	V <sub>RRM</sub>	35	45	50	60	90	100	150	200	V
Maximum RMS Voltage	V <sub>RMS</sub>	24	31	35	42	63	70	105	140	V
Maximum DC Blocking Voltage	V <sub>DC</sub>	35	45	50	60	90	100	150	200	V
Maximum Average Forward Rectified Current at T <sub>C</sub> =125°C	I <sub>(AV)</sub>	10								A
Peak Repetitive Forward Current (Rated V <sub>R</sub> , Square Wave, 20KHz) at T <sub>C</sub> =125°C	I <sub>FRM</sub>	32								A
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)	I <sub>FSM</sub>	120								A
Peak Repetitive Reverse Surge Current (Note 1)	I <sub>RRM</sub>	1.0							0.5	A
Maximum Instantaneous Forward Voltage at: (Note 2) I <sub>F</sub> =5A, T <sub>C</sub> =25°C I <sub>F</sub> =5A, T <sub>C</sub> =125°C I <sub>F</sub> =10A, T <sub>C</sub> =25°C I <sub>F</sub> =10A, T <sub>C</sub> =125°C	V <sub>F</sub>	0.70 0.57 0.80 0.67	0.80 0.65 0.90 0.75		0.85 0.75 0.95 0.85		0.88 0.78 0.98 0.88		V	
Maximum Instantaneous Reverse Current @ T <sub>C</sub> =25°C at Rated DC Blocking Voltage @ T <sub>C</sub> =125 °C (Note 2)	I <sub>R</sub>	0.1								mA mA
		15		10		2.0				
Voltage Rate of Change (Rated V <sub>R</sub> )	dV/dt	10,000								V/uS
Maximum Typical Thermal Resistance (Note 3)	R <sub>θJC</sub>	1.5								°C/W
Operating Junction Temperature Range	T <sub>J</sub>	-65 to +150								°C
Storage Temperature Range	T <sub>STG</sub>	-65 to +175								°C

Notes: 1. 2.0us Pulse Width,  $f=1.0$  KHz  
2. Pulse Test: 300us Pulse Width, 1% Duty Cycle  
3. Thermal Resistance from Junction to Case Per Leg, Mount on Heatsink Size of 2 in x 3 in x 0.25in Al-Plate.

### RATINGS AND CHARACTERISTIC CURVES (MBR1035CT THRU MBR10200CT)

FIG.1- FORWARD CURRENT DERATING CURVE

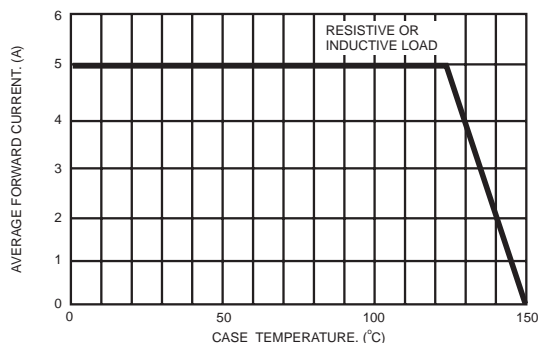


FIG.2- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

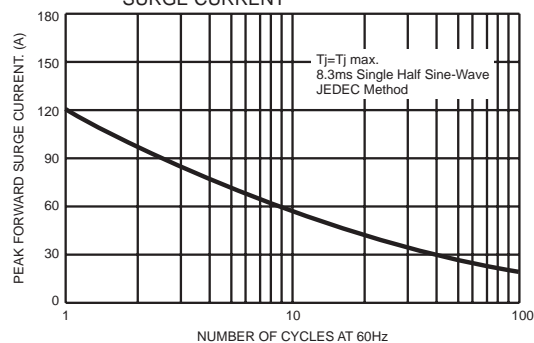


FIG.3- TYPICAL FORWARD CHARACTERISTICS

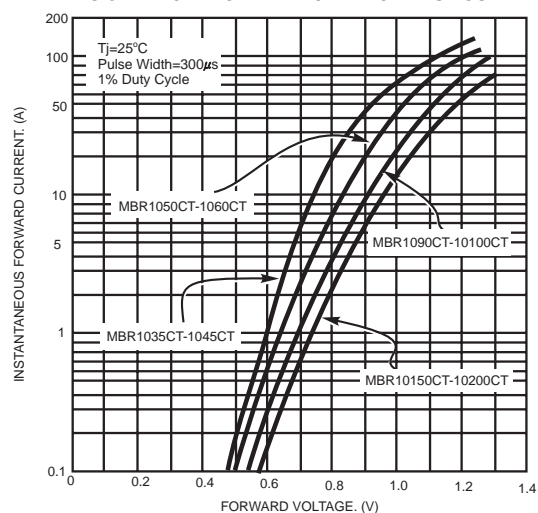


FIG.4- TYPICAL REVERSE CHARACTERISTICS

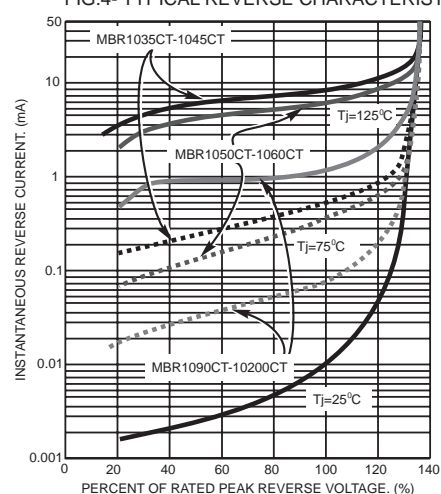


FIG.5- TYPICAL JUNCTION CAPACITANCE

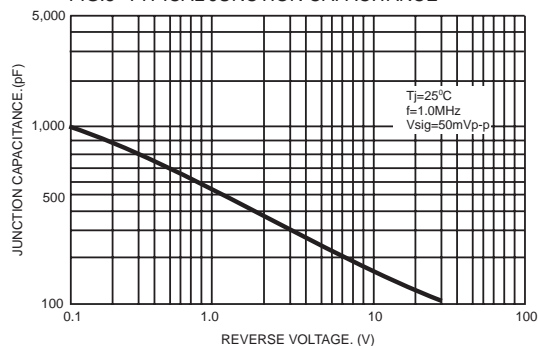


FIG.6- TYPICAL TRANSIENT THERMAL CHARACTERISTICS PER LEG

