

# MBR1035CT - MBR10200CT

10.0 AMPS. Schottky Barrier Rectifiers

**TO-220AB**

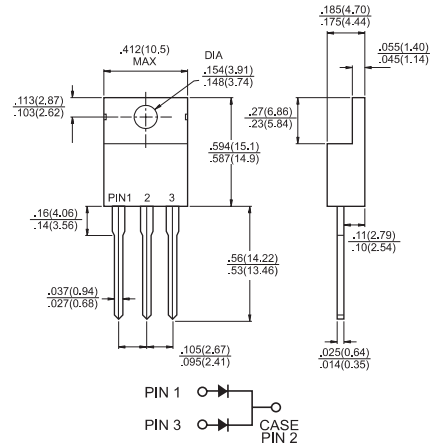


## Features

- ✧ 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
- ✧ Guarding 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
- ✧ Terminals: Pure tin plated, lead free. solderable per MIL-STD-750, Method 2026
- ✧ 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 Tc=125°C                                                                                                                                                                                     | I <sub>(AV)</sub> | 10                           |                              |             |                              |             |                              |              |              | A        |
| Peak Repetitive Forward Current (Rated V <sub>R</sub> , Square Wave, 20KHz) at Tc=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:<br>(Note 2)<br>I <sub>F</sub> =5A, T <sub>C</sub> =25°C<br>I <sub>F</sub> =5A, T <sub>C</sub> =125°C<br>I <sub>F</sub> =10A, T <sub>C</sub> =25°C<br>I <sub>F</sub> =10A, T <sub>C</sub> =125°C | V <sub>F</sub>    | 0.70<br>0.57<br>0.80<br>0.67 | 0.80<br>0.65<br>0.90<br>0.75 |             | 0.85<br>0.75<br>0.95<br>0.85 |             | 0.88<br>0.78<br>0.98<br>0.88 |              | V            |          |
| Maximum Instantaneous Reverse Current @ Tc =25 °C at Rated DC Blocking Voltage<br>@ Tc=125 °C (Note 2)                                                                                                                                    | I <sub>R</sub>    | 0.1                          |                              |             |                              |             |                              |              |              | mA<br>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,  $f=1.0\text{ KHz}$
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

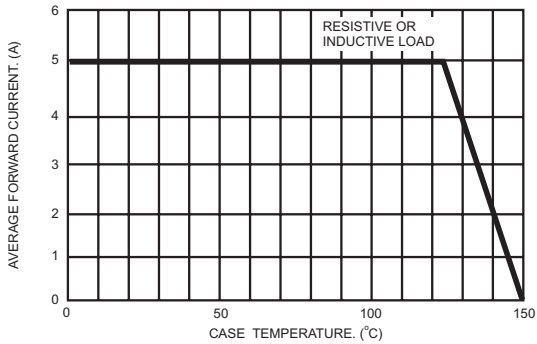


FIG.2- MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

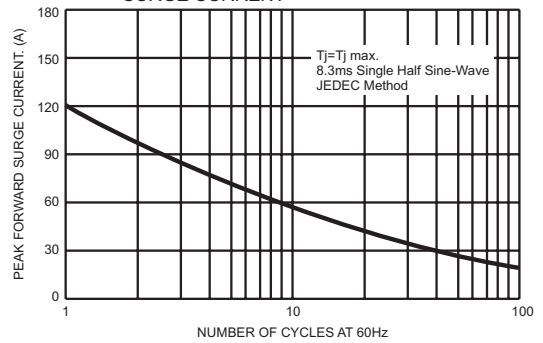


FIG.3- TYPICAL FORWARD CHARACTERISTICS

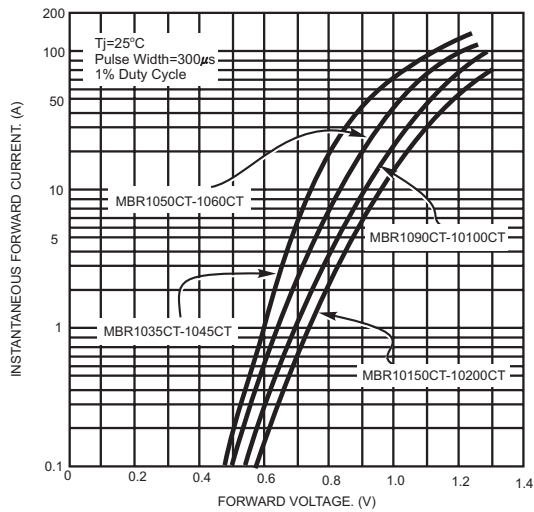


FIG.4- TYPICAL REVERSE CHARACTERISTICS

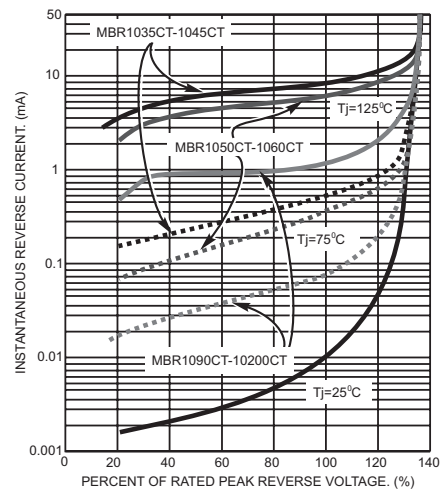


FIG.5- TYPICAL JUNCTION CAPACITANCE

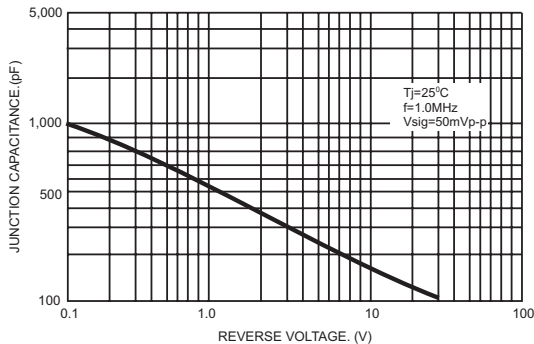


FIG.6- TYPICAL TRANSIENT THERMAL CHARACTERISTICS PER LEG

