

# MBR1020-MBR10100

Schottky Barrier Rectifiers

**VOLTAGE RANGE: 30 - 100 V**  
**CURRENT: 10 A**



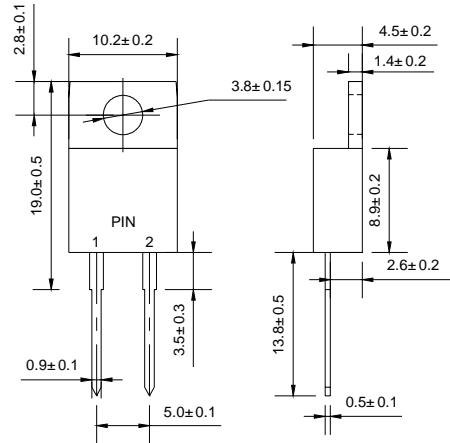
**TO-220AC**

## Features

- ◇ High surge capacity.
- ◇ For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications.
- ◇ Metal silicon junction, majority carrier conduction.
- ◇ High current capacity, low forward voltage drop.
- ◇ Guard ring for over voltage protection.

## Mechanical Data

- ◇ Case: JEDEC TO-220AC, molded plastic body
- ◇ Polarity: As marked
- ◇ Position: Any
- ◇ Weight: 0.069 ounces, 1.96 gram



Dimensions in millimeters

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.

|  |                 | MBR 1020        | MBR 1030 | MBR 1035 | MBR 1040 | MBR 1045 | MBR 1050 | MBR 1060          | MBR 1090 | MBR 10100 | UNITS              |
|--|-----------------|-----------------|----------|----------|----------|----------|----------|-------------------|----------|-----------|--------------------|
| Maximum recurrent peak reverse voltage   | $V_{RRM}$       | 20              | 30       | 35       | 40       | 45       | 50       | 60                | 90       | 100       | V                  |
| Maximum RMS Voltage  | $V_{RMS}$       | 14              | 21       | 25       | 28       | 32       | 35       | 42                | 63       | 70        | V                  |
| Maximum DC blocking voltage  | $V_{DC}$        | 20              | 30       | 35       | 40       | 45       | 50       | 60                | 90       | 100       | V                  |
| Maximum average forward total device rectified current @ $T_C = 125^\circ\text{C}$   | $I_{F(AV)}$     | 10              |          |          |          |          |          |                   |          |           | A                  |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load  | $I_{FSM}$       | 150             |          |          |          |          |          |                   |          |           | A                  |
| Maximum forward voltage<br>( $I_F=10\text{A}, T_C=25^\circ\text{C}$ )<br>( $I_F=10\text{A}, T_C=125^\circ\text{C}$ )<br>(Note 1) ( $I_F=20\text{A}, T_C=25^\circ\text{C}$ )<br>( $I_F=20\text{A}, T_C=125^\circ\text{C}$ ) | $V_F$           |                 |          | -        |          |          | 0.80     | 0.80              | 0.80     | 0.80      | V                  |
|  |                 |                 |          | 0.57     |          |          | 0.70     | 0.70              | 0.65     | 0.65      |                    |
|  |                 |                 |          | 0.84     |          |          | 0.95     | 0.95              | 0.95     | 0.95      |                    |
|  |                 |                 |          | 0.72     |          |          | 0.85     | 0.85              | 0.75     | 0.75      |                    |
| Maximum reverse current @ $T_C=25^\circ\text{C}$   | $I_R$           | 0.1             |          |          |          |          |          |                   |          |           | mA                 |
| at rated DC blocking voltage @ $T_C=125^\circ\text{C}$   |                 | 15              |          |          |          |          |          | 6.0 <sup>3)</sup> |          |           |                    |
| Maximum thermal resistance (Note2)   | $R_{\theta JC}$ | 2.0             |          |          |          |          |          |                   |          |           | $^\circ\text{C/W}$ |
| Operating junction temperature range   | $T_J$           | - 55 ---- + 150 |          |          |          |          |          |                   |          |           | $^\circ\text{C}$   |
| Storage temperature range  | $T_{STG}$       | - 55 ---- + 150 |          |          |          |          |          |                   |          |           | $^\circ\text{C}$   |

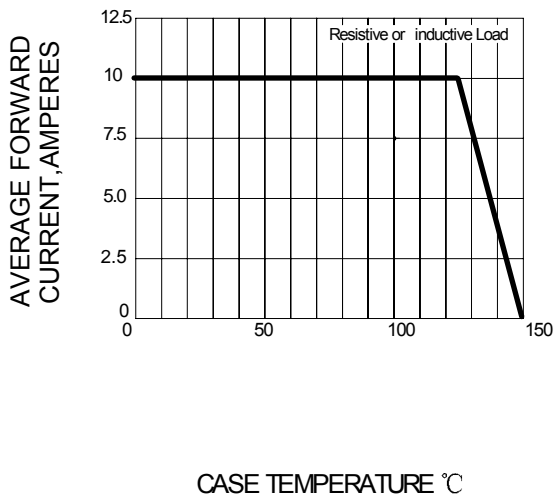
NOTE: 1. Pulse test: 300µs pulse width, 1% duty cycle.

2. Thermal resistance from junction to case.

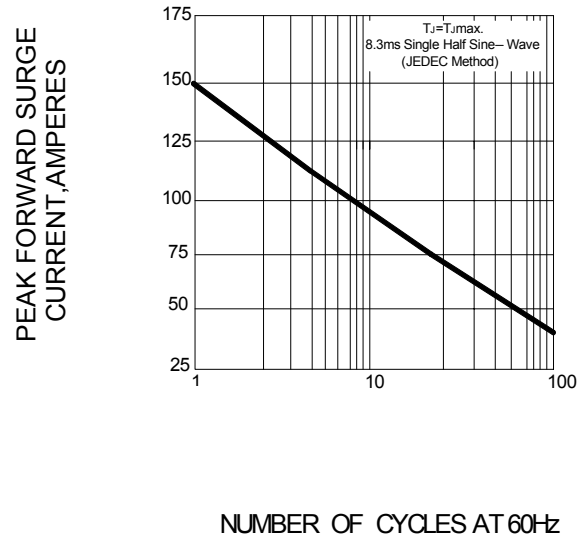
3.  $T_C=100^\circ\text{C}$

## Ratings AND Characteristic Curves

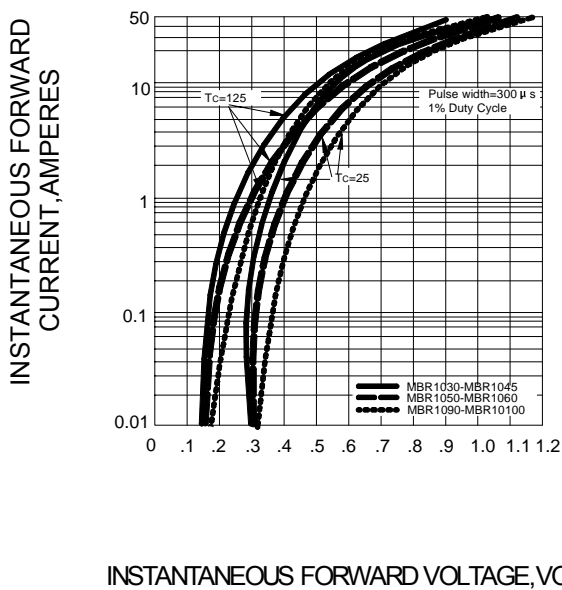
**FIG.1 – FORWARD CURRENT DERATING CURVE**



**FIG.2 – MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT PERLEG**



**FIG.3 – TYPICAL INSTANTANEOUS FORWARD CHARACTERISTIC PERLEG**



**FIG.4 – TYPICAL REVERSE CHARACTERISTICS**

