



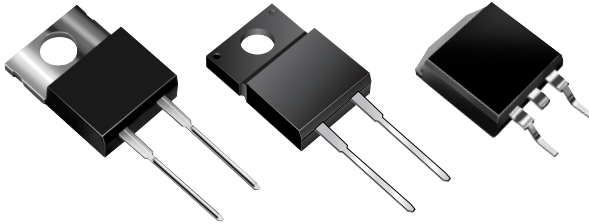
# MBR10100, MBRF10100 & MBRB10100 Series

New Product

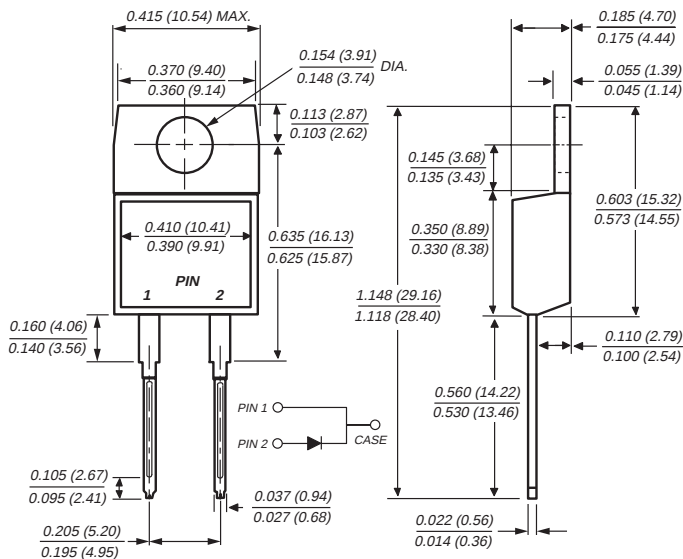
Vishay Semiconductors  
formerly General Semiconductor

## High Voltage Schottky Rectifiers

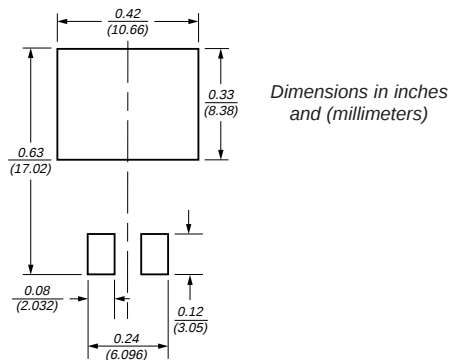
Reverse Voltage 90 to 100V  
Forward Current 10A



TO-220AC (MBR1090, MBR10100)

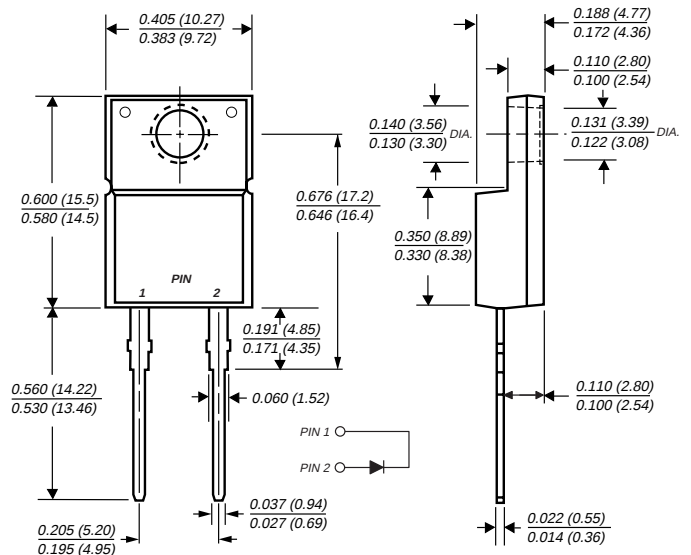


Mounting Pad Layout TO-263AB

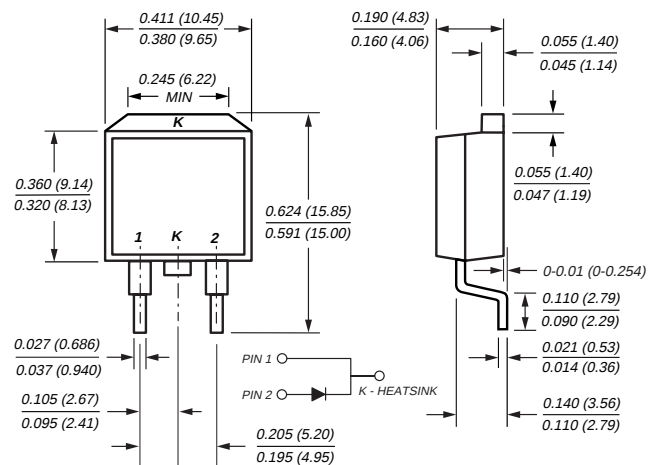


Dimensions in inches  
and (millimeters)

ITO-220AC (MBRF1090, MBRF10100)



TO-263AB (MBRB1090, MBRB10100)



## Features

- Plastic package has Underwriters Laboratory Flammability Classifications 94V-0
- Metal silicon junction, majority carrier conduction
- Low power loss, high efficiency
- Guardring for overvoltage protection
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- High temperature soldering guaranteed: 250°C/10 seconds, 0.25" (6.35mm) from case

## Mechanical Data

**Case:** JEDEC TO-220AC, ITO-220AC & TO-263AB molded plastic body

**Terminals:** Plated leads, solderable per MIL-STD-750, Method 2026

**Polarity:** As marked

**Mounting Position:** Any

**Mounting Torque:** 10 in-lbs maximum

**Weight:** 0.08 oz., 2.24 g

# MBR10100, MBRF10100 & MBRB10100 Series



Vishay Semiconductors  
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## Maximum Ratings (T<sub>C</sub> = 25°C unless otherwise noted)

| Parameter                                                                                              | Symbol                            | MBR1090                                                           | MBR10100 | Unit |
|--------------------------------------------------------------------------------------------------------|-----------------------------------|-------------------------------------------------------------------|----------|------|
| Maximum repetitive peak reverse voltage                                                                | V <sub>RRM</sub>                  | 90                                                                | 100      | V    |
| Working peak reverse voltage                                                                           | V <sub>RWM</sub>                  | 90                                                                | 100      | V    |
| Maximum DC blocking voltage                                                                            | V <sub>DC</sub>                   | 90                                                                | 100      | V    |
| Maximum average forward rectified current<br>at T <sub>C</sub> = 133°C                                 | I <sub>F(AV)</sub>                | 10                                                                |          | A    |
| Peak forward surge current<br>8.3ms single half sine-wave superimposed<br>on rated load (JEDEC Method) | I <sub>FSM</sub>                  | 150                                                               |          | A    |
| Peak repetitive reverse current at t <sub>p</sub> = 2μs, 1KHz                                          | I <sub>RRM</sub>                  | 0.5                                                               |          | A    |
| Voltage rate of change (rated V <sub>R</sub> )                                                         | dv/dt                             | 10,000                                                            |          | V/μs |
| Operating junction and storage temperature range                                                       | T <sub>J</sub> , T <sub>STG</sub> | -65 to +175                                                       |          | °C   |
| RMS Isolation voltage (MBRF type only) from terminals to<br>heatsink with t = 1 second, RH ≤ 30%       | V <sub>ISOL</sub>                 | 4500 <sup>(1)</sup><br>3500 <sup>(2)</sup><br>1500 <sup>(3)</sup> |          | V    |

## Electrical Characteristics (T<sub>C</sub> = 25°C unless otherwise noted)

| Parameter                                                                                                                                                                                                                                              | Symbol         | Value                        | Unit     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------------------|----------|
| Maximum instantaneous forward voltage at: <sup>(4)</sup><br>I <sub>F</sub> = 10A, T <sub>C</sub> = 25°C<br>I <sub>F</sub> = 10A, T <sub>C</sub> = 125°C<br>I <sub>F</sub> = 20A, T <sub>C</sub> = 25°C<br>I <sub>F</sub> = 20A, T <sub>C</sub> = 125°C | V <sub>F</sub> | 0.80<br>0.65<br>0.95<br>0.75 | V        |
| Maximum reverse current<br>at working peak reverse voltage <sup>(4)</sup><br>T <sub>J</sub> = 25°C<br>T <sub>J</sub> = 100°C                                                                                                                           | I <sub>R</sub> | 100<br>6.0                   | μA<br>mA |

## Thermal Characteristics (T<sub>C</sub> = 25°C unless otherwise noted)

| Parameter                  | Symbol                               | MBR     | MBRF     | MBRB    | Unit |
|----------------------------|--------------------------------------|---------|----------|---------|------|
| Typical thermal resistance | R <sub>θJA</sub><br>R <sub>θJC</sub> | 60<br>2 | —<br>3.5 | 60<br>2 | °C/W |

### Notes:

- (1) Clip mounting (on case), where lead does not overlap heatsink with 0.110" offset
- (2) Clip mounting (on case), where leads do overlap heatsink
- (3) Screw mounting with 4-40 screw, where washer diameter is ≤ 4.9 mm (0.19")
- (4) Pulse test: 300μs pulse width, 1% duty cycle

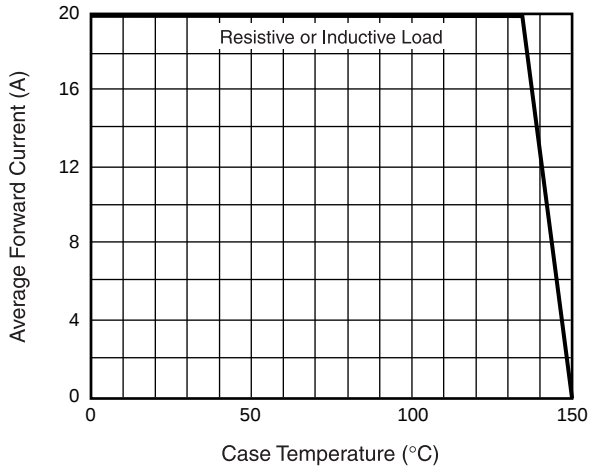
## Ordering Information

| Product             | Case      | Package Code   | Package Option                                                                                                         |
|---------------------|-----------|----------------|------------------------------------------------------------------------------------------------------------------------|
| MBR1090, MBR10100   | TO-220AC  | 45             | Anti-Static tube, 50/tube, 2K/carton                                                                                   |
| MBRF1090, MBRF10100 | ITO-220AC | 45             | Anti-Static tube, 50/tube, 2K/carton                                                                                   |
| MBRB1090, MBRB10100 | TO-263AB  | 31<br>45<br>81 | 13" reel, 800/reel, 4.8K/carton<br>Anti-Static tube, 50/tube, 2K/carton<br>Anti-Static 13" reel, 800/reel, 4.8K/carton |

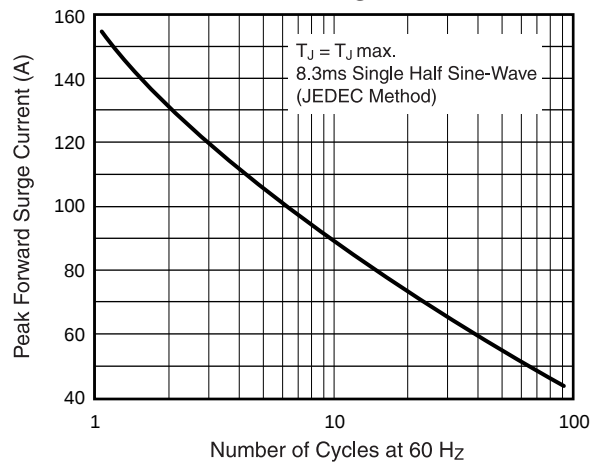


## Ratings and Characteristic Curves ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

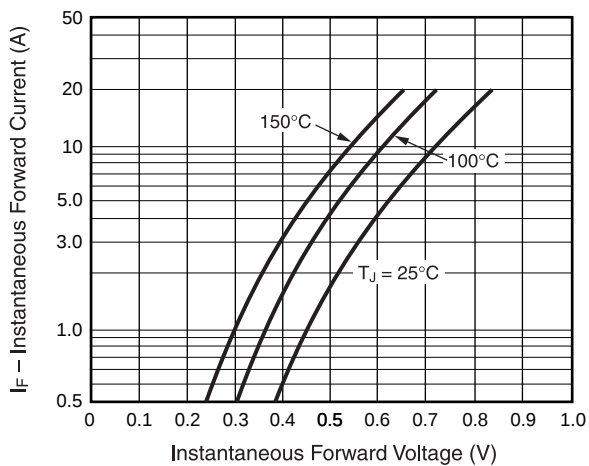
**Fig. 1 - Forward Current Derating Curve**



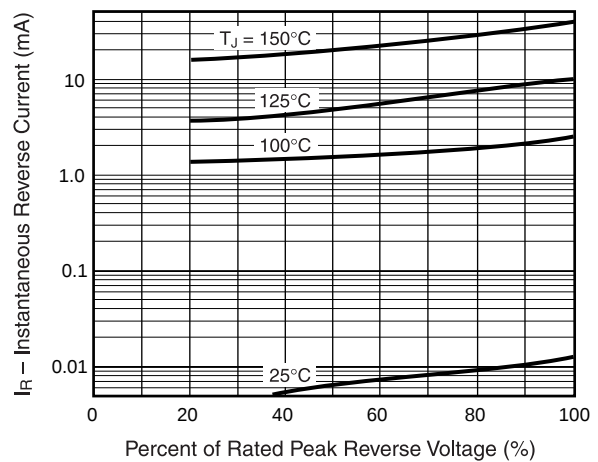
**Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current**



**Fig. 3 - Typical Instantaneous Forward Characteristics**



**Fig. 4 - Typical Reverse Characteristics**



**Fig. 5 - Typical Transient Thermal Impedance**

