

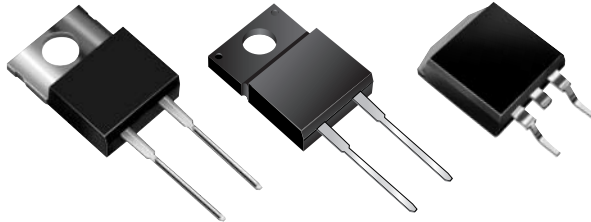


# MBR10H100, MBRF10H100 & MBRB10H100

New Product

Vishay Semiconductors  
formerly General Semiconductor

## High Voltage Schottky Rectifiers

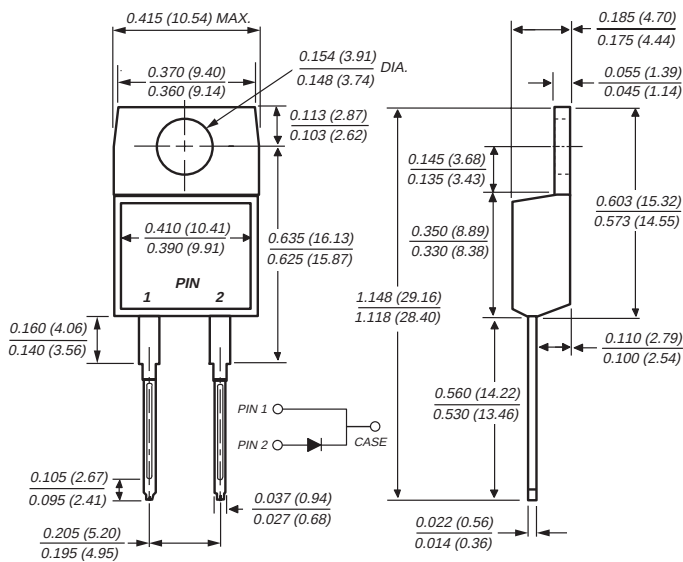


Reverse Voltage 90 to 100V

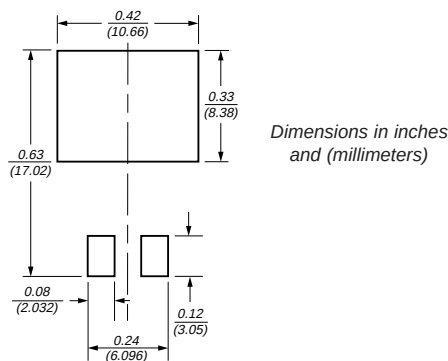
Forward Current 10A

Maximum Junction Temperature 175°C

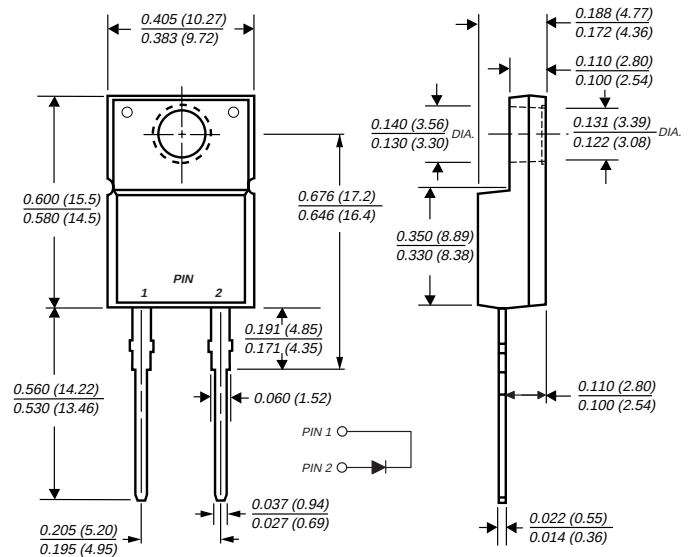
### TO-220AC (MBR10H90, MBR10H100)



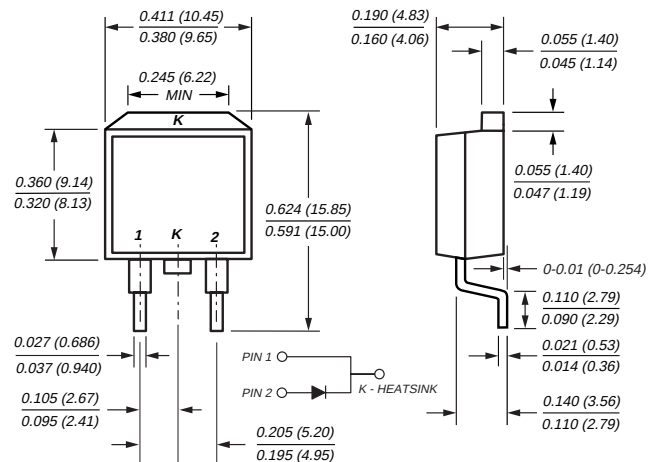
### Mounting Pad Layout TO-263AB



### ITO-220AC (MBRF10H90, MBRF10H100)



### TO-263AB (MBRB10H90, MBRB10H100)



## 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

## Mechanical Data

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

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

High temperature soldering guaranteed: 250°C/10 seconds, 0.25" (6.35mm) from case (TO-220AC & ITO-220AC) at terminals (TO-263AB)

**Polarity:** As marked **Mounting Position:** Any

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

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

**Packaging Codes:** see next page

# MBR10H100, MBRF10H100 & MBRB10H100



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

| Parameter                                                                                              | Symbol                            | MBR10H90                                                          | MBR10H100 | 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                                                              | 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>                  | 250                                                               |           | 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> | 0.77<br>0.64<br>0.88<br>0.73 | V        |
| Maximum reverse current at working peak reverse voltage <sup>(4)</sup><br>T <sub>J</sub> = 25°C<br>T <sub>J</sub> = 125°C                                                                                                                               | I <sub>R</sub> | 4.5<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>θJC</sub> | 2.7 | 5.8  | 2.7  | °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

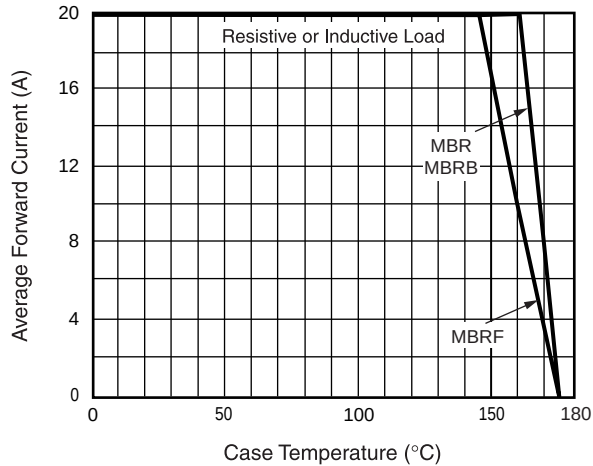
## Ordering Information

| Product                | Case      | Package Code | Package Option                              |
|------------------------|-----------|--------------|---------------------------------------------|
| MBR10H90 - MBR10H100   | TO-220AC  | 45           | Anti-Static tube, 50/tube, 2K/carton        |
| MBRF10H90 - MBRF10H100 | ITO-220AC | 45           | Anti-Static tube, 50/tube, 2K/carton        |
| MBRB10H90 - MBRB10H100 | TO-263AB  | 31           | 13" reel, 800/reel, 4.8K/carton             |
|                        |           | 45           | Anti-Static tube, 50/tube, 2K/carton        |
|                        |           | 81           | Anti-Static 13" reel, 800/reel, 4.8K/carton |

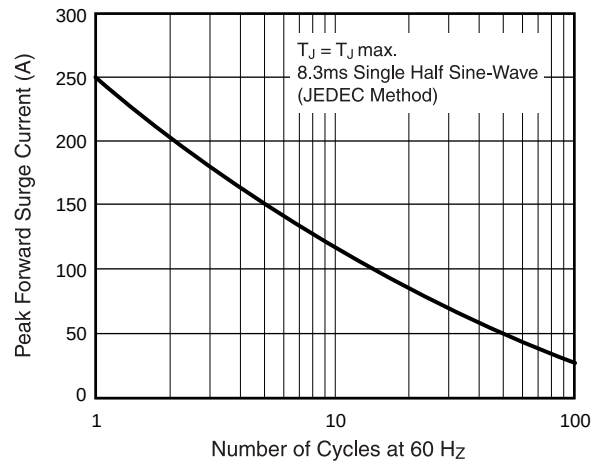


## Ratings and Characteristic Curves ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

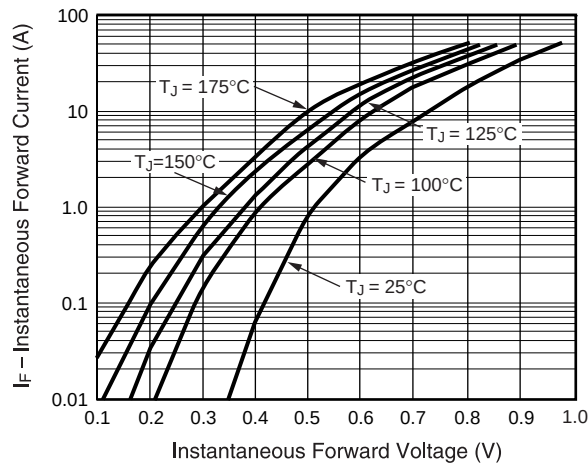
**Fig. 1 - Forward Current Derating Curve**



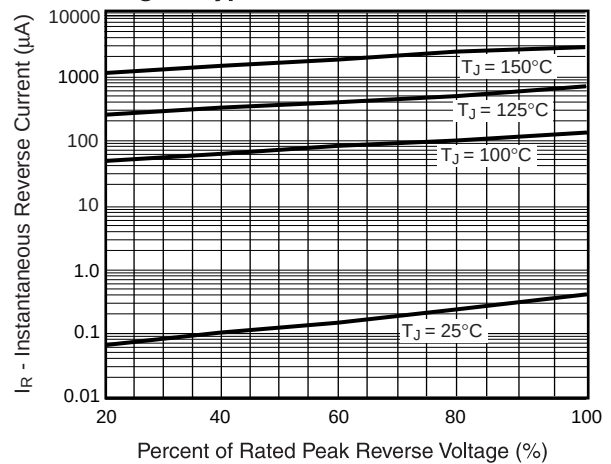
**Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current**



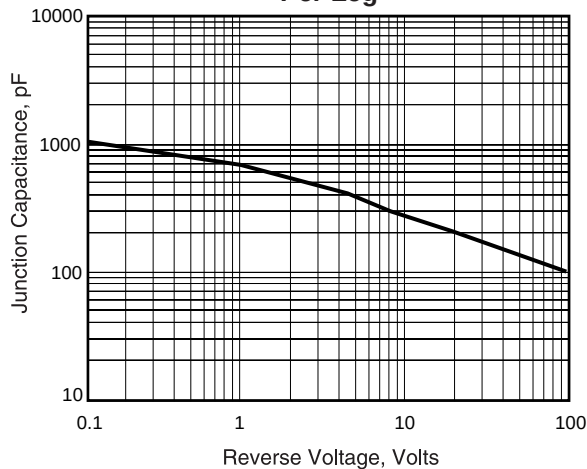
**Fig. 3 - Typical Instantaneous Forward Characteristics**



**Fig. 4 - Typical Reverse Characteristics**



**Fig. 5 - Typical Junction Capacitance Per Leg**



**Fig. 6 - Typical Transient Thermal Impedance Per Leg**

