

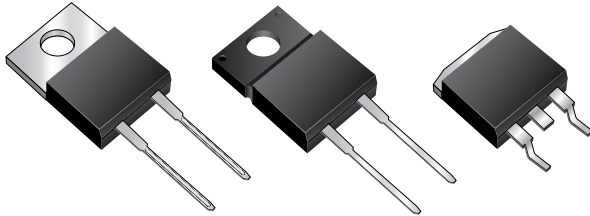


# MBR16xx, MBRF16xx & MBRB16xx Series

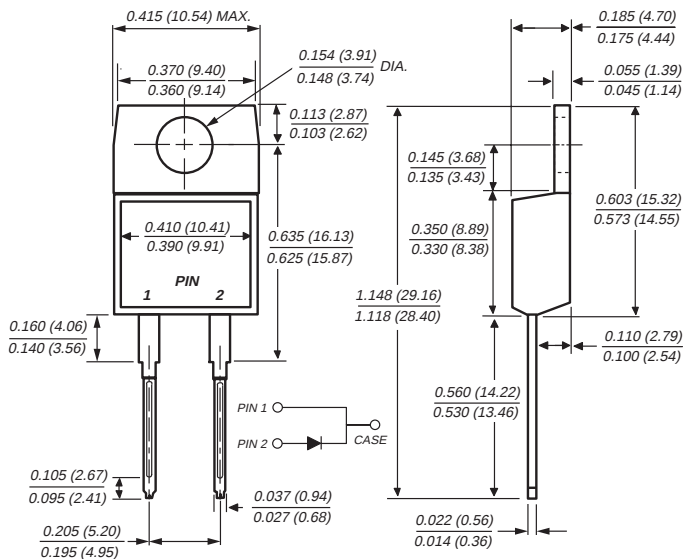
Vishay Semiconductors  
formerly General Semiconductor

## Schottky Barrier Rectifier

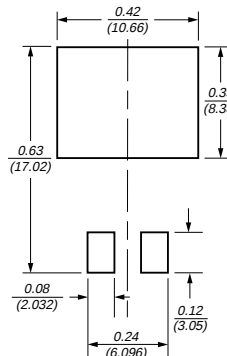
Reverse Voltage 35 to 60V  
Forward Current 16A



TO-220AC (MBR16xx)

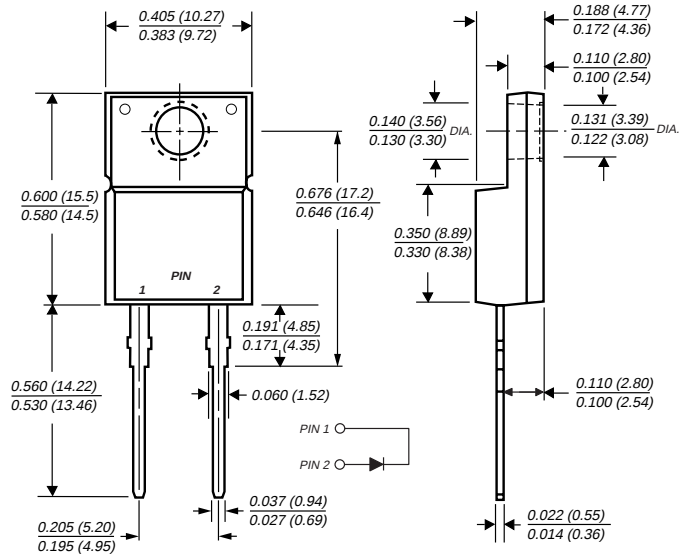


Mounting Pad Layout TO-263AB

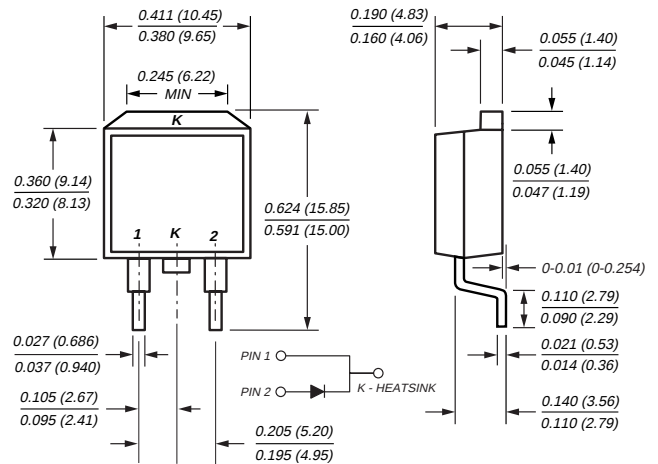


Dimensions in inches  
and (millimeters)

ITO-220AC (MBRF16xx)



TO-263AB (MBRB16xx)



## 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

# MBR16xx, MBRF16xx & MBRB16xx Series



Vishay Semiconductors  
formerly General Semiconductor

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

| Parameter                                                                                              | Symbol             | MBR1635                                         | MBR1645 | MBR1650 | MBR1660 | Unit |
|--------------------------------------------------------------------------------------------------------|--------------------|-------------------------------------------------|---------|---------|---------|------|
| Maximum repetitive peak reverse voltage                                                                | V <sub>RRM</sub>   | 35                                              | 45      | 50      | 60      | V    |
| Working peak reverse voltage                                                                           | V <sub>RWM</sub>   | 35                                              | 45      | 50      | 60      | V    |
| Maximum DC blocking voltage                                                                            | V <sub>DC</sub>    | 35                                              | 45      | 50      | 60      | V    |
| Maximum average forward rectified current at T <sub>C</sub> = 125 °C                                   | I <sub>F(AV)</sub> | 16                                              |         |         |         | A    |
| Peak repetitive forward current at T <sub>C</sub> = 125°C<br>(rated V <sub>R</sub> , sq. wave, 20 KHz) | I <sub>FRM</sub>   | 32                                              |         |         |         | 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<br>at t <sub>p</sub> = 2.0μs, 1KHz                                     | I <sub>RRM</sub>   | 1.0                                             |         | 0.5     |         | A    |
| Voltage rate of change (rated V <sub>R</sub> )                                                         | dv/dt              | 10,000                                          |         | 1,000   |         | V/μs |
| Operating junction temperature range                                                                   | T <sub>J</sub>     | −65 to +150                                     |         |         |         | °C   |
| Storage temperature range                                                                              | T <sub>STG</sub>   | −65 to +175                                     |         |         |         | °C   |
| RMS Isolation voltage (MBRF type only) from terminals to<br>heatsink with t = 1.0 second, RH ≤ 30%     | V <sub>ISOL</sub>  | 4500 (NOTE 1)<br>3500 (NOTE 2)<br>1500 (NOTE 3) |         |         |         | V    |

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

| Parameter                                                                                                                                           | Symbol         | MBR1635      | MBR1645 | MBR1650      | MBR1660 | Unit |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------|---------|--------------|---------|------|
| Maximum instantaneous forward voltage (Note 4)<br>at I <sub>F</sub> = 16A, T <sub>C</sub> = 25°C<br>at I <sub>F</sub> = 16A, T <sub>C</sub> = 125°C | V <sub>F</sub> | 0.63<br>0.57 |         | 0.75<br>0.65 |         | V    |
| Maximum instantaneous reverse current<br>at rated DC blocking voltage (Note 4)                                                                      | I <sub>R</sub> | 0.2<br>40    |         | 1.0<br>50    |         | mA   |

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

| Parameter                                        | Symbol           | MBR | MBRF | MBRB | Unit |
|--------------------------------------------------|------------------|-----|------|------|------|
| Typical thermal resistance from junction to case | R <sub>θJC</sub> | 1.5 | 3.0  | 1.5  | °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

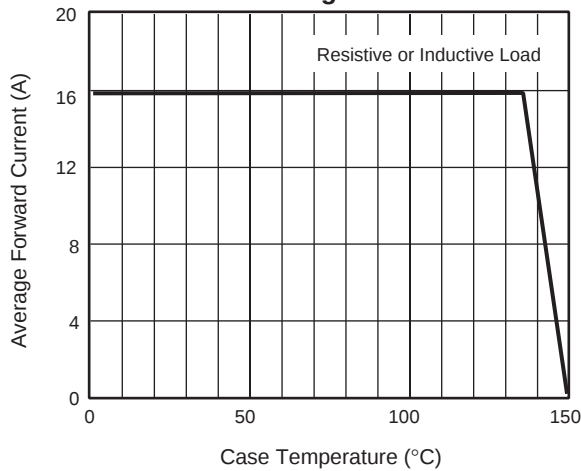
## Ordering Information

| Product             | Case      | Package Code | Package Option                              |
|---------------------|-----------|--------------|---------------------------------------------|
| MBR1635 - MBR1660   | TO-220AC  | 45           | Anti-Static tube, 50/tube, 2K/carton        |
| MBRF1635 - MBRF1660 | ITO-220AC | 45           | Anti-Static tube, 50/tube, 2K/carton        |
| MBRB1635 - MBRB1660 | 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 |

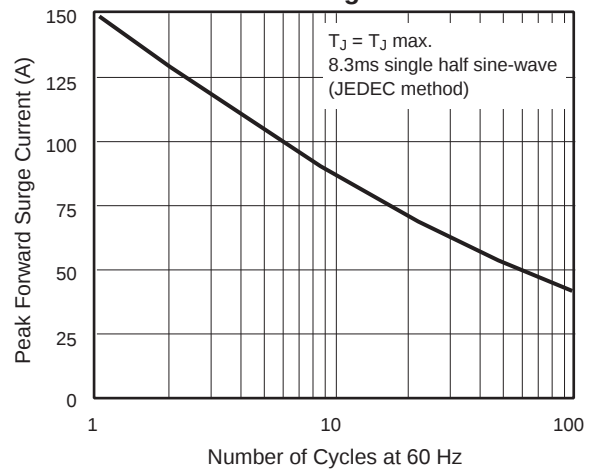


## Ratings and Characteristic Curves ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

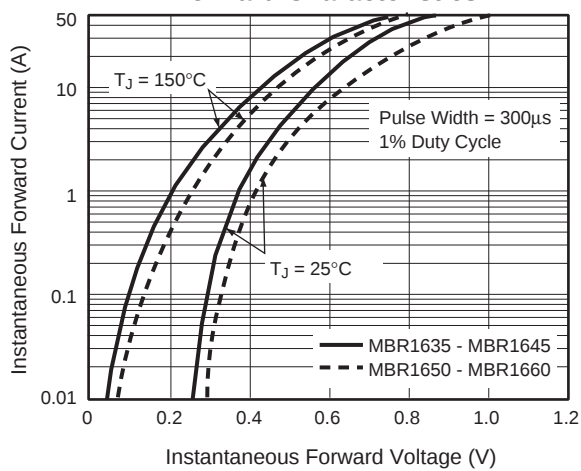
**Fig. 1 - Forward Current Derating Curve**



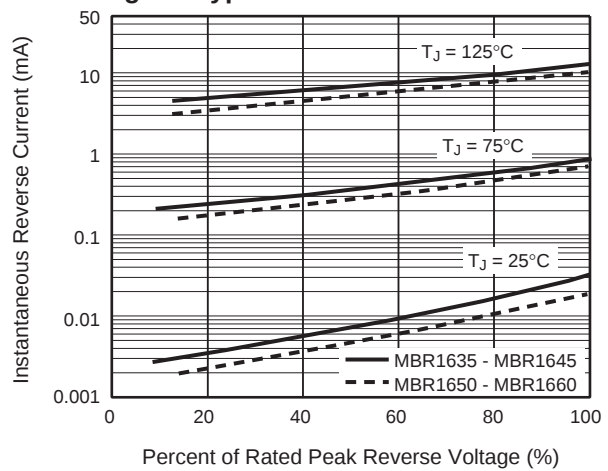
**Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current**



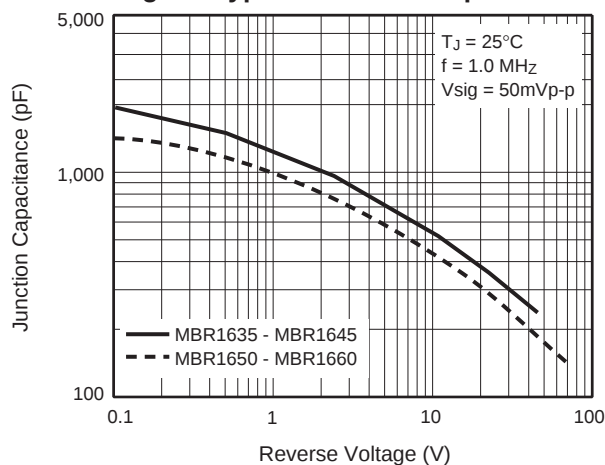
**Fig. 3 - Typical Instantaneous Forward Characteristics**



**Fig. 4 - Typical Reverse Characteristics**



**Fig. 5 - Typical Junction Capacitance**



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

