



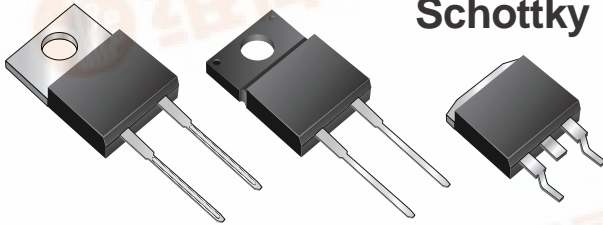
MBR16Hxx, MBRF16Hxx & MBRB16Hxx Series

New Product

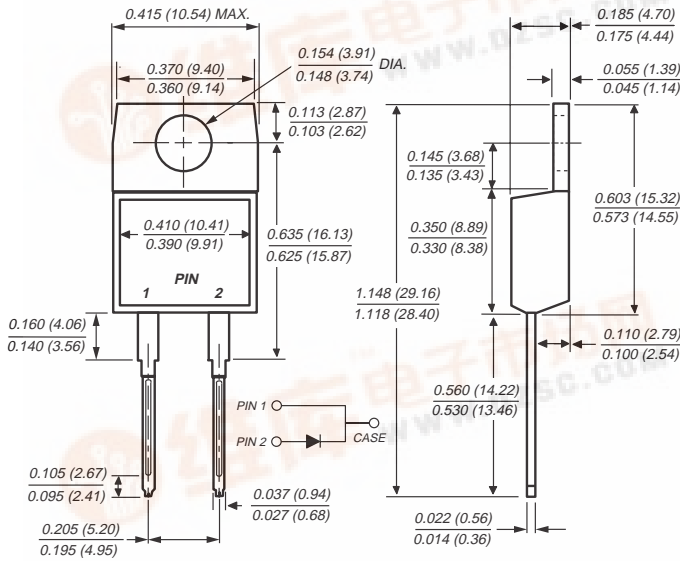
Vishay Semiconductors
formerly General Semiconductor

Schottky Barrier Rectifiers

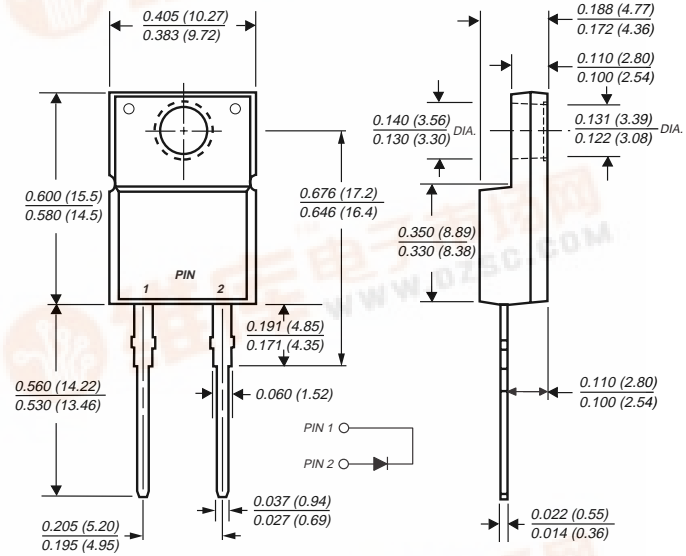
Reverse Voltage 35 to 60 V
Forward Current 16 A



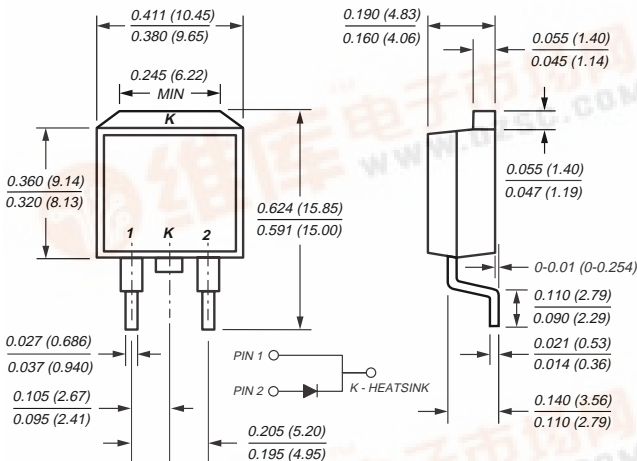
TO-220AC (MBR16Hxx)



ITO-220AC (MBRF16Hxx)



TO-263AB (MBRB16Hxx)



Mounting Pad Layout TO-263AB



Dimensions in inches and (millimeters)

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

Features

- Plastic package has Underwriters Laboratory Flammability Classification 94 V-0
- Metal silicon junction, majority carrier conduction
- Low forward voltage drop, low power loss and 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" (6.35 mm) from case
- Rated for reverse surge and ESD
- 175 °C maximum operation junction temperature

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Maximum Ratings (T_C = 25 °C unless otherwise noted)

| Parameter | Symbol | MBR16H35 | MBR16H45 | MBR16H50 | MBR16H60 | Unit |
|---|--------------------|---|----------|----------|----------|------|
| Maximum repetitive peak reverse voltage | V _{RRM} | 35 | 45 | 50 | 60 | V |
| Working peak reverse voltage | V _{RWM} | 35 | 45 | 50 | 60 | V |
| Maximum DC blocking voltage | V _{DC} | 35 | 45 | 50 | 60 | V |
| Max. average forward rectified current (see fig. 1) | I _{F(AV)} | 16 | | | | A |
| Peak repetitive forward current at T _C = 150 °C (rated V _R , 20 KHz sq. wave) | I _{FRM} | 32 | | | | A |
| Non-repetitive avalanche energy at 25 °C, I _{AS} = 4 A, L = 10 mH | E _{AS} | 80 | | | | mJ |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load (JEDEC Method) | I _{FSM} | 150 | | | | A |
| Peak repetitive reverse surge current at t _p = 2.0 μs, 1 KHz | I _{RRM} | 1.0 | | 0.5 | | A |
| Peak non-repetitive reverse energy (8/20 μs waveform) | E _{RSM} | 20 | | | | mJ |
| Electrostatic discharge capacitor voltage Human body model: C = 100 pF, R = 1.5 kΩ | V _C | 25 | | | | kV |
| Voltage rate of change (rated V _R) | dv/dt | 10,000 | | | | V/μs |
| Operating junction temperature range | T _J | -65 to +175 | | | | °C |
| Storage temperature range | T _{STG} | -65 to +175 | | | | °C |
| RMS Isolation voltage (MBRF type only) from terminals to heatsink with t = 1.0 second, RH ≤ 30% | V _{ISOL} | 4500 ⁽¹⁾ 3500 ⁽²⁾ 1500 ⁽³⁾ | | | | V |

Electrical Characteristics (T_C = 25 °C unless otherwise noted)

| Parameter | Symbol | MBR16H35, MBR16H45 | | MBR16H50, MBR16H60 | | Unit |
|---|----------------|--------------------|--------------|--------------------|--------------|----------|
| | | Typ | Max | Typ | Max | |
| Maximum instantaneous forward voltage ⁽⁴⁾ at I _F = 16 A T _J = 25 °C at I _F = 16 A T _J = 125 °C | V _F | – 0.52 | 0.66 0.56 | – 0.58 | 0.73 0.62 | V |
| Maximum instantaneous reverse current at rated DC blocking voltage ⁽⁴⁾ T _J = 25 °C T _J = 125 °C | I _R | – 6.0 | 100 20 | – 4.0 | 100 20 | μA mA |

Thermal Characteristics (T_C = 25 °C unless otherwise noted)

| Parameter | Symbol | MBR | MBRF | MBRB | Unit |
|--|------------------|-----|------|------|------|
| Typical thermal resistance from junction to case | R _{θJC} | 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: 300 μs pulse width, 1% duty cycle

Ordering Information

| Product | Case | Package Code | Package Option |
|-----------------------|-----------|--------------|---|
| MBR16H35 – MBR16H60 | TO-220AC | 45 | Anti-Static tube, 50/tube, 2K/carton |
| MBRF16H35 – MBRF16H60 | ITO-220AC | 45 | Anti-Static tube, 50/tube, 2K/carton |
| MBRB16H35 – MBRB16H60 | 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 |



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Ratings and Characteristic Curves (T_A = 25°C unless otherwise noted)

Fig. 1 – Forward Current Derating Curve

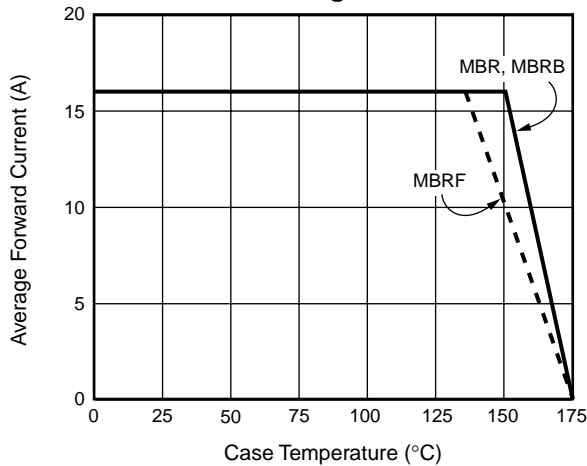


Fig. 2 – Maximum Non-Repetitive Peak Forward Surge Current

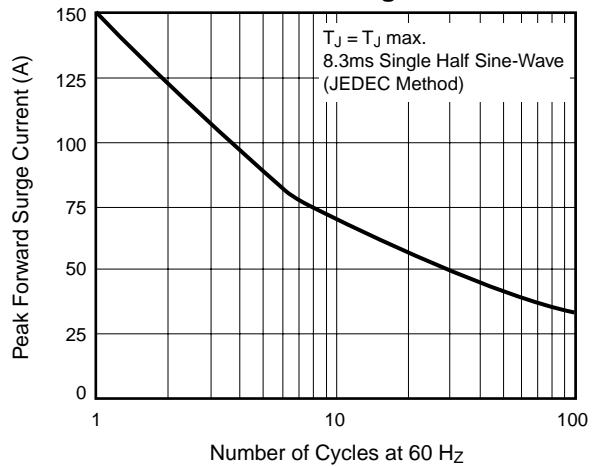


Fig. 3 – Typical Instantaneous Forward Characteristics

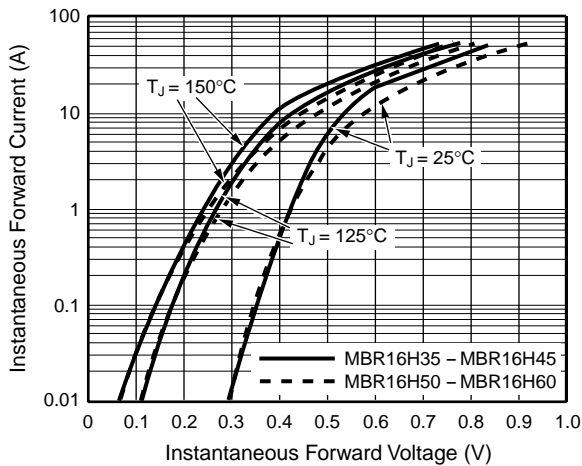


Fig. 4 – Typical Reverse Characteristics

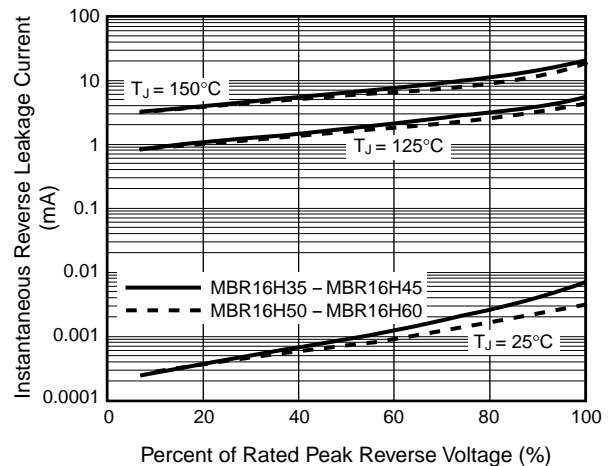


Fig. 5 – Typical Junction Capacitance

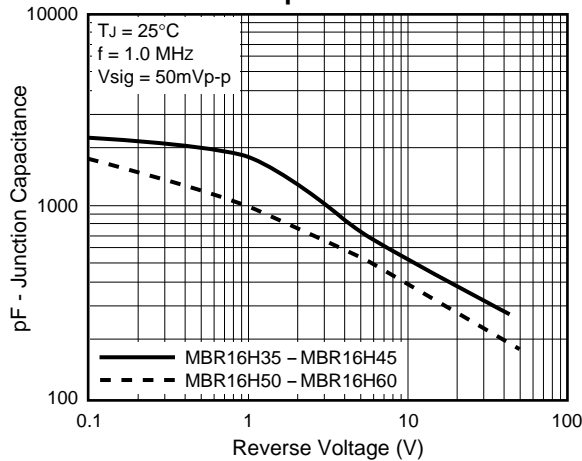


Fig. 6 – Typical Transient Thermal Impedance

