

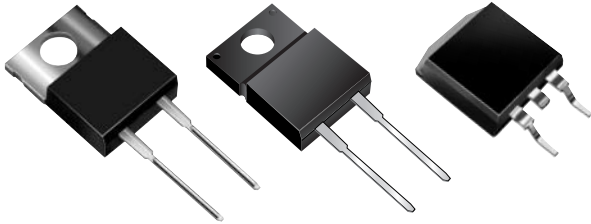


MBR10xx, MBRF10xx & MBRB10xx Series

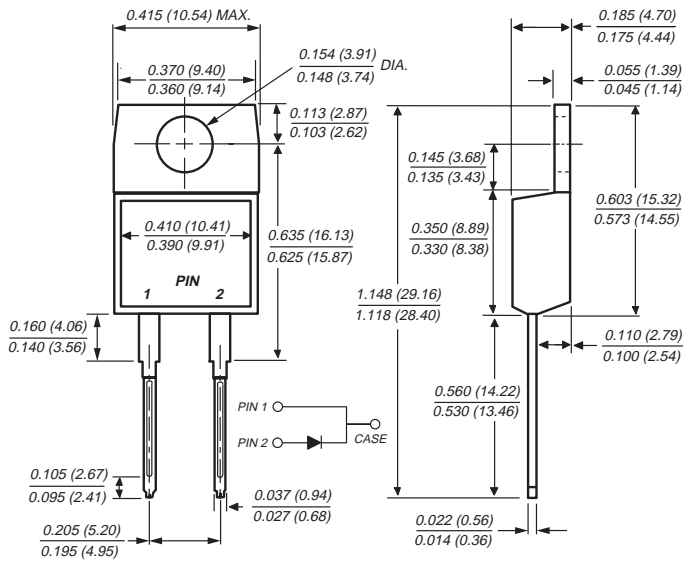
Vishay Semiconductors
formerly General Semiconductor

Schottky Barrier Rectifier

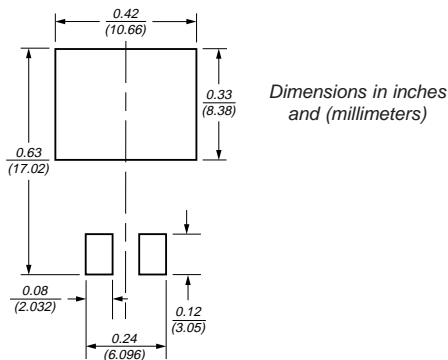
Reverse Voltage 35 to 60V
Forward Current 10A



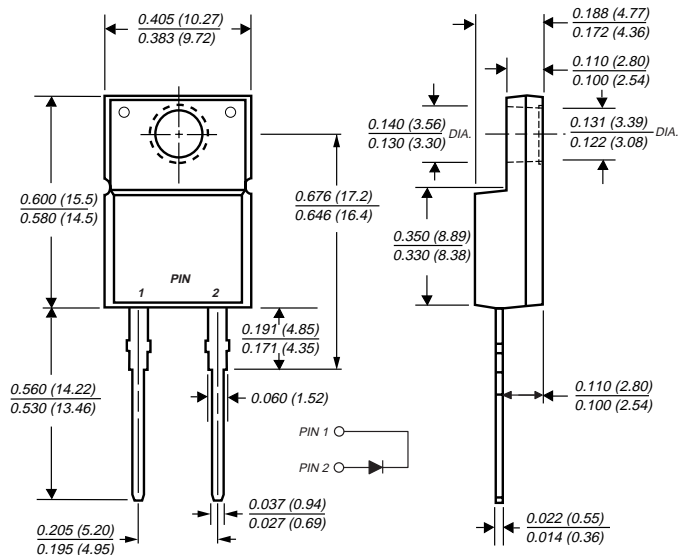
TO-220AC (MBR10xx)



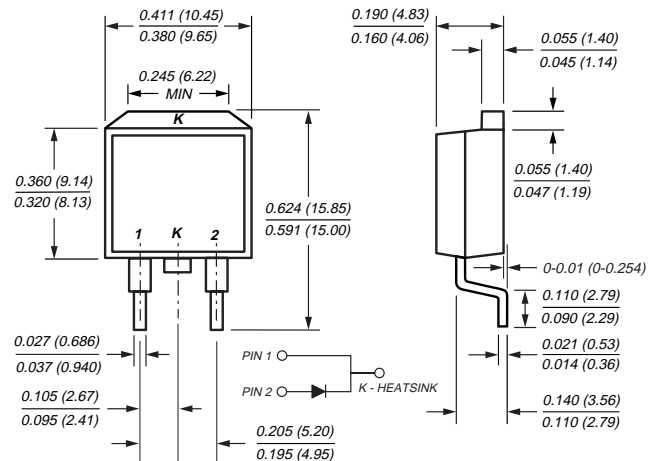
Mounting Pad Layout TO-263AB



ITO-220AC (MBRF10xx)



TO-263AB (MBRB10xx)



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 ounce, 2.24 grams

MBR10xx, MBRF10xx & MBRB10xx Series



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

| Parameter | Symbol | MBR1035 | MBR1045 | MBR1050 | MBR1060 | 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 |
| Maximum average forward rectified current (See Fig. 1) | I _{F(AV)} | 10 | | | | A |
| Peak repetitive forward current at T _C = 135°C (sq. wave, 20 KHz) | I _{FRM} | 20 | | | | A |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) per leg | I _{FSM} | 150 | | | | A |
| Peak repetitive reverse current per leg at t _p = 2.0μs, 1KHz | I _{RRM} | 1.0 | 0.5 | | | A |
| Voltage rate of change (rated V _R) | dv/dt | 10,000 | | | | V/μs |
| Operating junction temperature range | T _J | -65 to +150 | | | | °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 | MBR1035 | MBR1045 | MBR1050 | MBR1060 | Unit |
|--|----------------|---------------------------|------------|------------------------------|---------|------|
| Maximum instantaneous forward voltage per leg ⁽⁴⁾ at I _F = 10A, T _C = 25°C at I _F = 10A, T _C = 125°C at I _F = 20A, T _C = 25°C at I _F = 20A, T _C = 125°C | V _F | – 0.57 0.84 0.72 | | 0.80 0.70 0.95 0.85 | | V |
| Maximum instantaneous reverse current at rated DC blocking voltage ⁽⁴⁾ T _C = 25°C T _C = 125°C | I _R | | 0.10 15 | | | mA |

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

| Parameter | Symbol | MBR | MBRF | MBRB | Unit |
|--|------------------|-----|------|------|------|
| Maximum thermal resistance, junction to case | R _{θJC} | 2.0 | 4.0 | 2.0 | °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 |
|---------------------|-----------|--------------|---|
| MBR1035 - MBR1060 | TO-220AC | 45 | Anti-Static tube, 50/tube, 2K/carton |
| MBRF1035 - MBRF1060 | ITO-220AC | 45 | Anti-Static tube, 50/tube, 2K/carton |
| MBRB1035 - MBRB1060 | 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

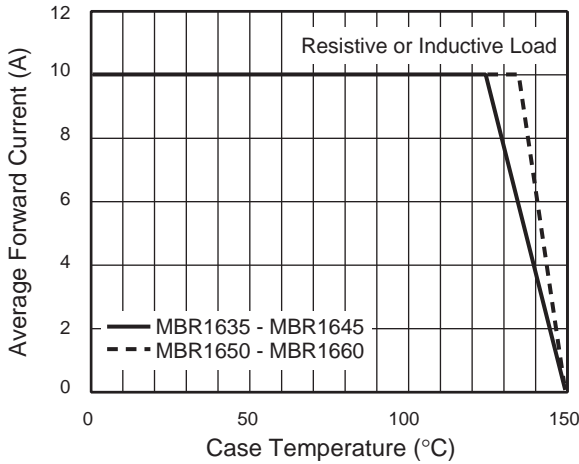


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

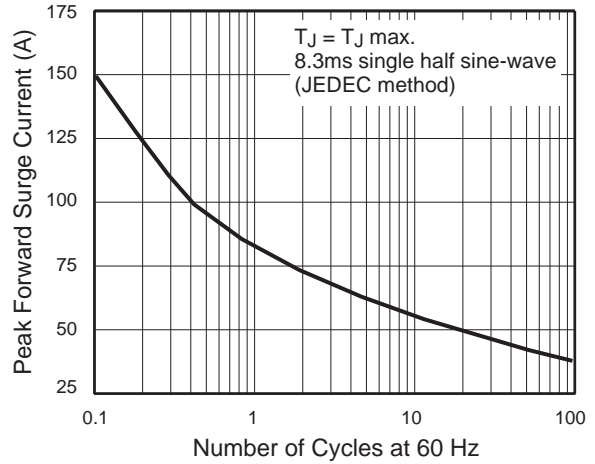


Fig. 3 - Typical Instantaneous Forward Characteristics

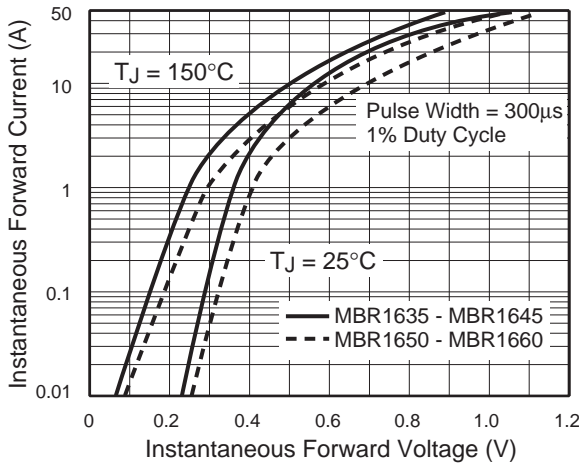


Fig. 4 - Typical Reverse Characteristics

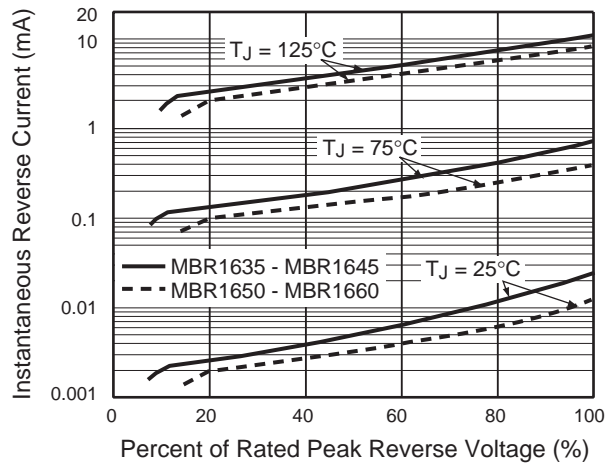


Fig. 5 - Typical Junction Capacitance

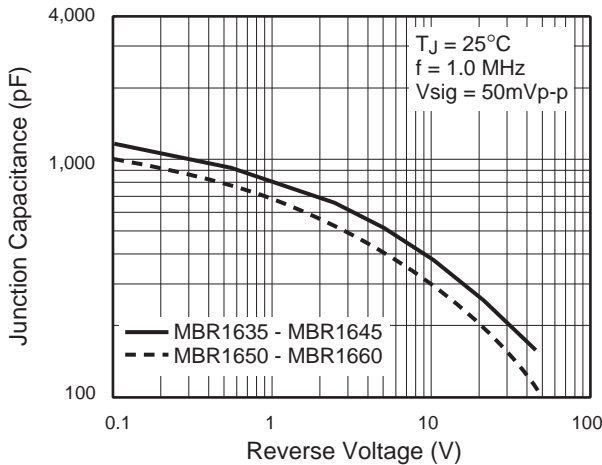


Fig. 6 - Typical Transient Thermal Impedance

