



MBR16xx, MBRF16xx & MBRB16xx Series

Schottky Barrier Rectifiers

Reverse Voltage 35 to 60 Volts Forward Current 16.0 Amperes

Features

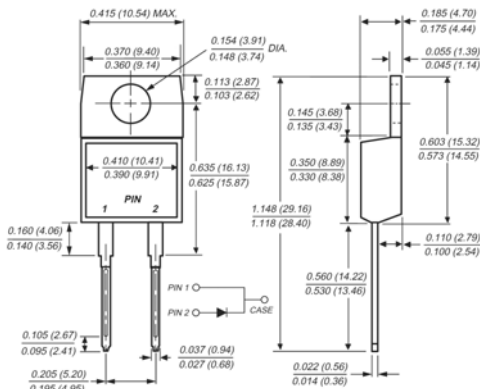
- ◆ Plastic package has Underwriters Laboratory Flammability Classifications 94V-0
- ◆ Metal silicon junction, majority carrier conduction
- ◆ Low power loss, high efficiency
- ◆ Guardring for overvoltage protection
- ◆ For use in low voltage, high frequency inverters, free wheeling, and polarity protection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

Mechanical Data

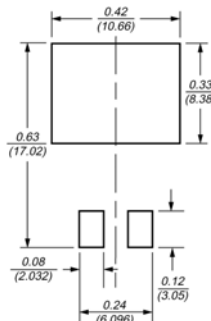
- ◆ Case: JEDEC TO-220AC, ITO-220AC & TO-263AB molded plastic body
- ◆ Terminals: Plated leads, solderable per MIL-STD-750, Method 2026
- ◆ Polarity: As marked
- ◆ Mounting Position: Any
- ◆ Mounting Torque: 10 in-lbs maximum
- ◆ Weight: 0.08 ounce, 2.24 grams



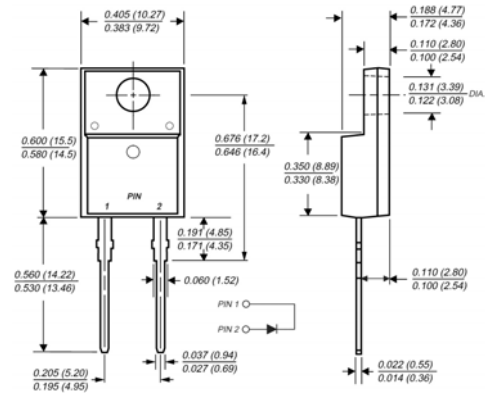
TO-220AC



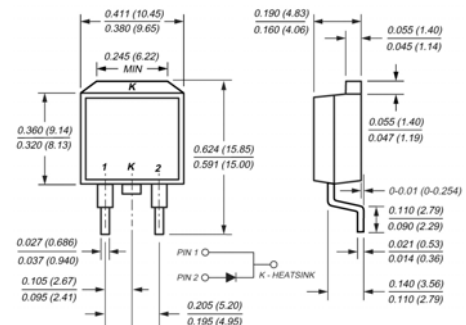
Mounting Pad Layout TO-263AB



ITO-220AC



TO-263AB(D²PAK)



Dimensions in inches and (millimeters)

Maximum Ratings and Electrical Characteristics

($T_C = 25^\circ\text{C}$ unless otherwise noted)

| Parameter | Symbol | MBR1635 | MBR1645 | MBR1650 | MBR1660 | Unit |
|---|-----------------|---|---------|--------------|---------|---------------------------|
| Maximum repetitive peak reverse voltage | V_{RRM} | 35 | 45 | 50 | 60 | Volts |
| Working peak reverse voltage | V_{RWM} | 35 | 45 | 50 | 60 | Volts |
| Maximum DC blocking voltage | V_{DC} | 35 | 45 | 50 | 60 | Volts |
| Maximum average forward rectified current at $T_C=125^\circ\text{C}$ | $I_{F(AV)}$ | 16 | | | | Amps |
| Peak repetitive forward current (rated V_R , sq. wave, 20KHz) at $T_C=125^\circ\text{C}$ | I_{FRM} | 32 | | | | Amps |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) | I_{FSM} | 150 | | | | Amps |
| Peak repetitive reverse current at $t_p = 2.0\mu\text{s}$, 1KHz | I_{RRM} | 1.0 | | 0.5 | | Amps |
| Voltage rate of change (rated V_R) | dv/dt | 10,000 | | 1,000 | | V/ μs |
| Maximum instantaneous forward voltage (Note 4) at $I_F=16\text{A}$, $T_C=25^\circ\text{C}$ at $I_F=16\text{A}$, $T_C=125^\circ\text{C}$ | V_F | 0.63 0.57 | | 0.75 0.65 | | Volt |
| Maximum instantaneous reverse current at rated DC blocking voltage (Note 4) $T_C=25^\circ\text{C}$ $T_C=125^\circ\text{C}$ | I_R | 0.2 40 | | 1.0 50 | | mA |
| Typical thermal resistance from junction to case | $R_{\theta JC}$ | MBR 1.5 / MBRF 3.0 / MBRB 1.5 | | | | $^\circ\text{C}/\text{W}$ |
| RMS Isolation voltage (MBRF type only) from terminals to heatsink with $t = 1.0$ second, $\text{RH} \leq 30\%$ | V_{ISOL} | 4500 (Note 1) 3500 (Note 2) 1500 (Note 3) | | | | Volts |
| Operating junction temperature range | T_J | -55 to +150 | | | | $^\circ\text{C}$ |
| Storage temperature range | T_{STG} | -55 to +150 | | | | $^\circ\text{C}$ |

- 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

RATINGS AND CHARACTERISTIC CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

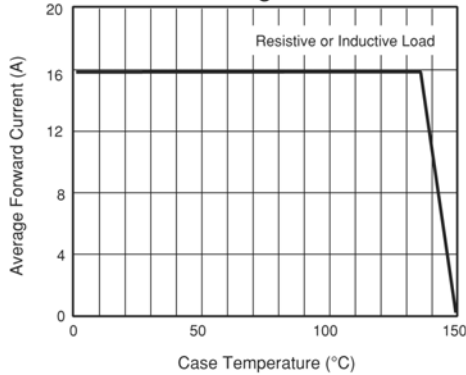


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

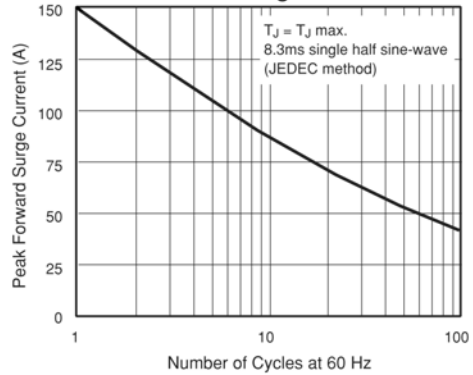


Fig. 3 - Typical Instantaneous Forward Characteristics

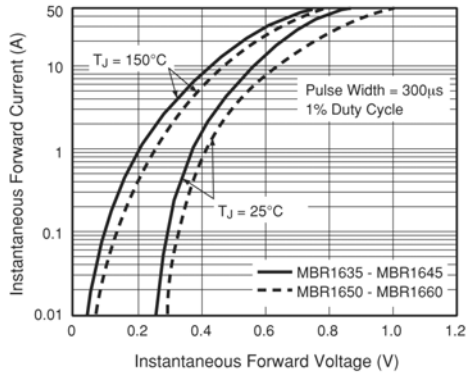


Fig. 4 - Typical Reverse Characteristics

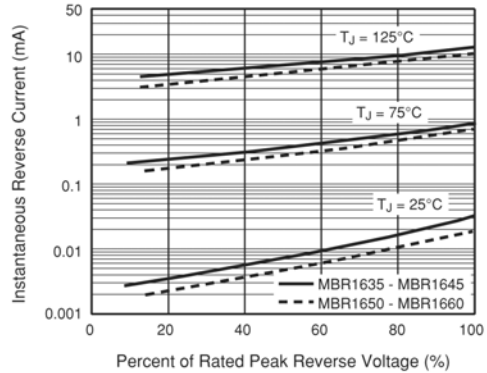


Fig. 5 - Typical Junction Capacitance

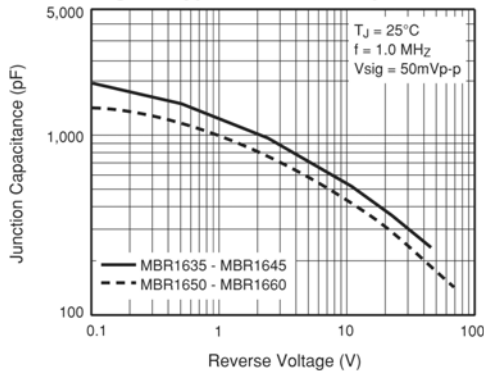


Fig. 6 - Typical Transient Thermal Impedance

