

SWITCHMODE™ Power Rectifiers

... using the Schottky Barrier principle with a platinum barrier metal. These state-of-the-art devices have the following features:

- Guardring for Stress Protection
- Low Forward Voltage
- 150°C Operating Junction Temperature
- Guaranteed Reverse Avalanche
- Epoxy Meets UL94, VO at 1/8"

Mechanical Characteristics:

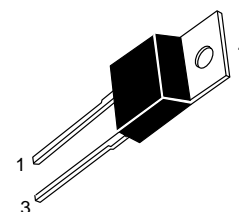
- Case: Epoxy, Molded
- Weight: 1.9 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped 50 units per plastic tube
- Marking: B735, B745



MBR735
MBR745

MBR745 is a
Motorola Preferred Device

**SCHOTTKY BARRIER
RECTIFIERS**
7.5 AMPERES
35 and 45 VOLTS



CASE 221B-03
TO-220AC

MAXIMUM RATINGS

| Rating | Symbol | MBR735 | MBR745 | Unit |
|--|---------------------------------|-------------|-------------|------------------|
| Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage | V_{RRM} V_{RWM} V_R | 35 | 45 | Volts |
| Average Rectified Forward Current (Rated V_R) $T_C = 105^\circ\text{C}$ | $I_F(AV)$ | 7.5 | 7.5 | Amps |
| Peak Repetitive Forward Current (Rated V_R , Square Wave, 20 kHz) $T_C = 105^\circ\text{C}$ | I_{FRM} | 15 | 15 | Amps |
| Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz) | I_{FSM} | 150 | 150 | Amps |
| Peak Repetitive Reverse Surge Current (2.0 μs , 1.0 kHz) | I_{RRM} | 1.0 | 1.0 | Amp |
| Operating Junction Temperature | T_J | -65 to +150 | -65 to +150 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | -65 to +175 | -65 to +175 | $^\circ\text{C}$ |
| Voltage Rate of Change (Rated V_R) | dv/dt | 1000 | 10000 | V/ μs |

THERMAL CHARACTERISTICS

| | | | | |
|---|-----------------|-----|-----|--------------------|
| Maximum Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 3.0 | 3.0 | $^\circ\text{C/W}$ |
| Maximum Thermal Resistance, Junction to Ambient | $R_{\theta JA}$ | 60 | 60 | $^\circ\text{C/W}$ |

ELECTRICAL CHARACTERISTICS

| | | | | |
|---|-------|----------------------|----------------------|-------|
| Maximum Instantaneous Forward Voltage (1) ($i_F = 7.5$ Amps, $T_C = 125^\circ\text{C}$) ($i_F = 15$ Amps, $T_C = 125^\circ\text{C}$) ($i_F = 15$ Amps, $T_C = 25^\circ\text{C}$) | v_F | 0.57 0.72 0.84 | 0.57 0.72 0.84 | Volts |
| Maximum Instantaneous Reverse Current (1) (Rated dc Voltage, $T_C = 125^\circ\text{C}$) (Rated dc Voltage, $T_C = 25^\circ\text{C}$) | i_R | 15 0.1 | 15 0.1 | mA |

(1) Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$.

SWITCHMODE is a trademark of Motorola, Inc.

Preferred devices are Motorola recommended choices for future use and best overall value.



MBR735 MBR745

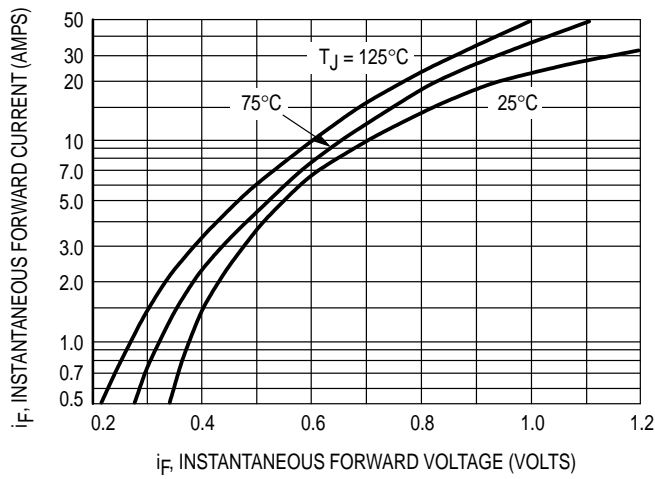


Figure 1. Typical Forward Voltage

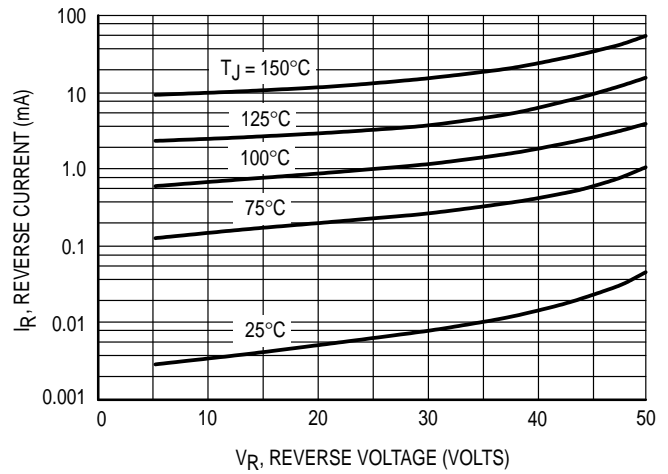


Figure 2. Typical Reverse Current

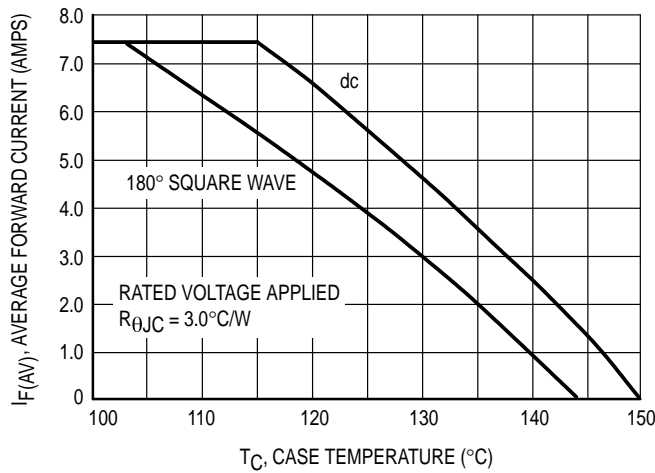


Figure 3. Current Derating, Case

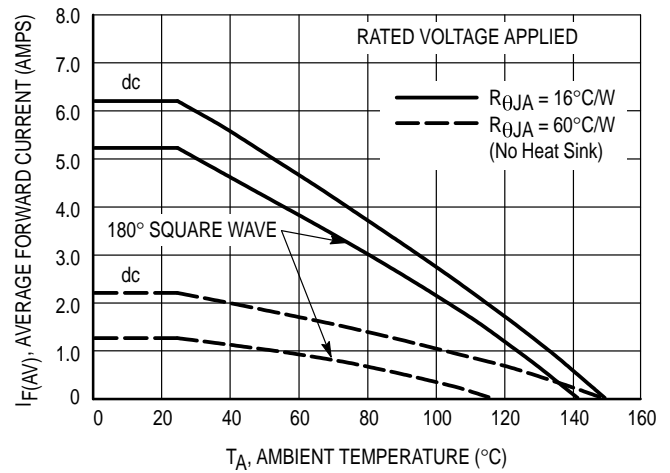


Figure 4. Current Derating, Ambient

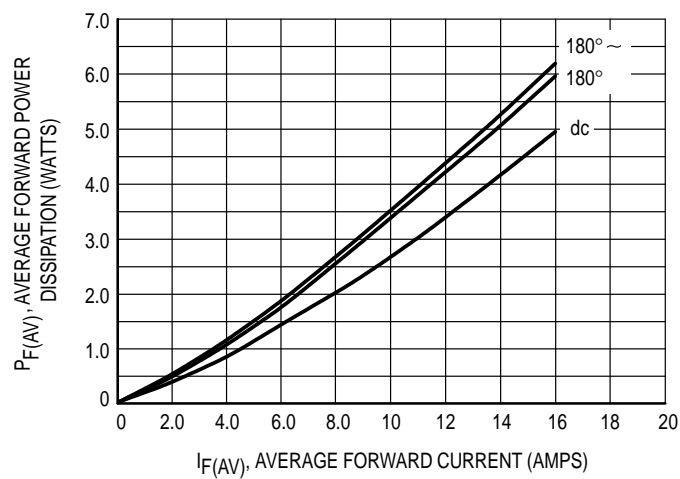
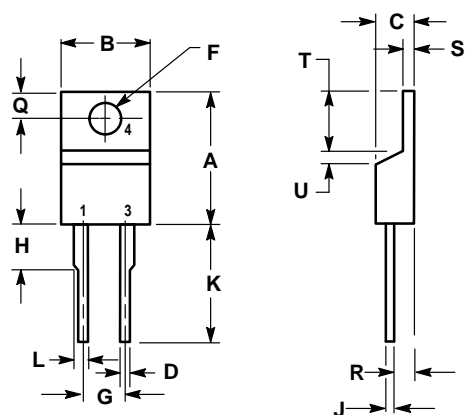


Figure 5. Power Dissipation


PACKAGE DIMENSIONS



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.

| DIM | INCHES | | MILLIMETERS | |
|-----|--------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.595 | 0.620 | 15.11 | 15.75 |
| B | 0.380 | 0.405 | 9.65 | 10.29 |
| C | 0.160 | 0.190 | 4.06 | 4.82 |
| D | 0.025 | 0.035 | 0.64 | 0.89 |
| F | 0.142 | 0.147 | 3.61 | 3.73 |
| G | 0.190 | 0.210 | 4.83 | 5.33 |
| H | 0.110 | 0.130 | 2.79 | 3.30 |
| J | 0.018 | 0.025 | 0.46 | 0.64 |
| K | 0.500 | 0.562 | 12.70 | 14.27 |
| L | 0.045 | 0.060 | 1.14 | 1.52 |
| Q | 0.100 | 0.120 | 2.54 | 3.04 |
| R | 0.080 | 0.110 | 2.04 | 2.79 |
| S | 0.045 | 0.055 | 1.14 | 1.39 |
| T | 0.235 | 0.255 | 5.97 | 6.48 |
| U | 0.000 | 0.050 | 0.000 | 1.27 |

CASE 221B-03
(TO-220AC)
ISSUE B

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◇ CODELINE TO BE PLACED HERE

MBR735/D