# MBR735, MBR745

**MBR745 is a Preferred Device**

# 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
- 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

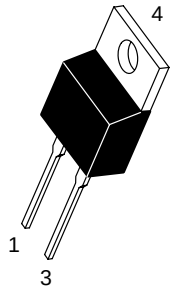
**MAXIMUM RATINGS**

| Rating | Symbol | Value | Unit |
|---|---|---|---|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage MBR735<br>MBR745 | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | <br><br>35<br>45 | V |
| Average Rectified Forward Current (Rated $V_R$, $T_C$ = 105°C) | $I_{F(AV)}$ | 7.5 | A |
| Peak Repetitive Forward Current, (Rated $V_R$, Square Wave, 20 kHz, $T_C$ = 105°C) | $I_{FRM}$ | 15 | A |
| Non–Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz) | $I_{FSM}$ | 150 | A |
| Peak Repetitive Reverse Surge Current (2.0 μs, 1.0 kHz) | $I_{RRM}$ | 1.0 | A |
| Storage Temperature Range | $T_{stg}$ | –65 to +175 | °C |
| Operating Junction Temperature | $T_J$ | –65 to +150 | °C |
| Voltage Rate of Change (Rated $V_R$) | dv/dt | 10,000 | V/μs |

ON Semiconductor™

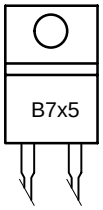
http://onsemi.com

## SCHOTTKY BARRIER RECTIFIERS 7.5 AMPERES 35 and 45 VOLTS


**TO–220AC**
**CASE 221B**
**PLASTIC**

**MARKING DIAGRAM**




B7x5 = Device Code
x = 3 or 4

**ORDERING INFORMATION**

| Device | Package | Shipping |
|---|---|---|
| MBR735 | TO–220 | 50 Units/Rail |
| MBR745 | TO–220 | 50 Units/Rail |

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

## THERMAL CHARACTERISTICS

| Characteristic | Symbol | Value | Unit |
|---|---|---|---|
| Maximum Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 3.0 | °C/W |
| Maximum Thermal Resistance, Junction to Ambient | $R_{\theta JA}$ | 60 | °C/W |

## ELECTRICAL CHARACTERISTICS

| | | | |
|---|---|---|---|
| Maximum Instantaneous Forward Voltage (Note 1.)<br>($i_F$ = 7.5 Amps, $T_C$ = 125°C)<br>($i_F$ = 15 Amps, $T_C$ = 125°C)<br>($i_F$ = 15 Amps, $T_C$ = 25°C) | $v_F$ | <br>0.57<br>0.72<br>0.84 | Volts |
| Maximum Instantaneous Reverse Current (Note 1.)<br>(Rated dc Voltage, $T_C$ = 125°C)<br>(Rated dc Voltage, $T_C$ = 25°C) | $i_R$ | <br>15<br>0.1 | mA |

1. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

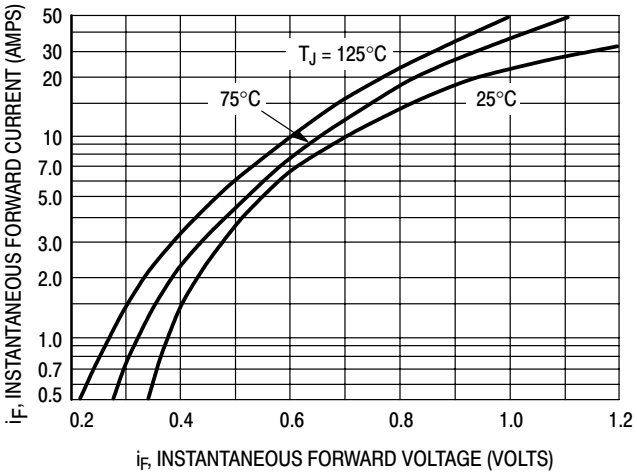



**Figure 1. Typical Forward Voltage**

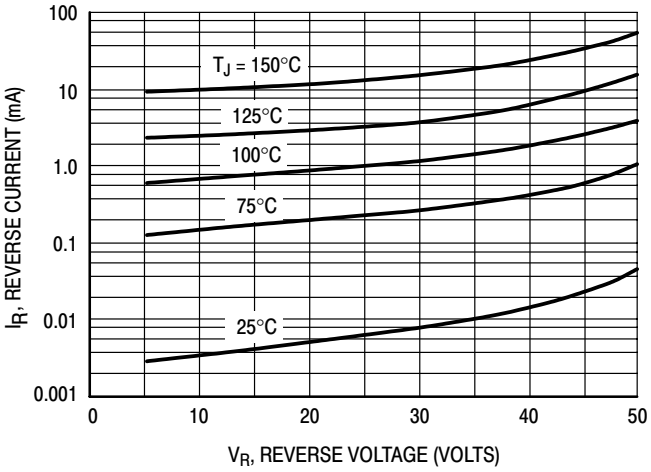



**Figure 2. Typical Reverse Current**

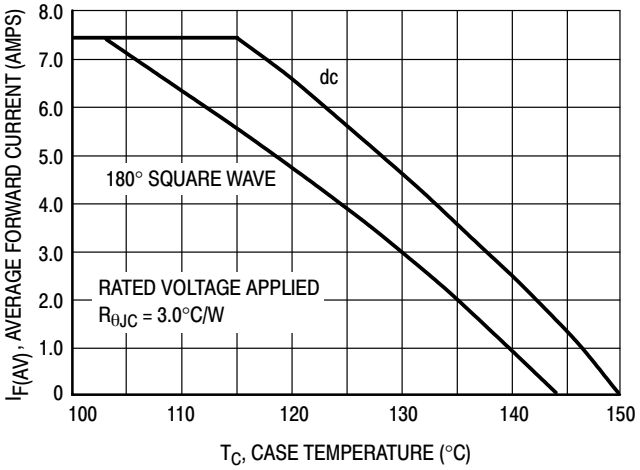



**Figure 3. Current Derating, Case**

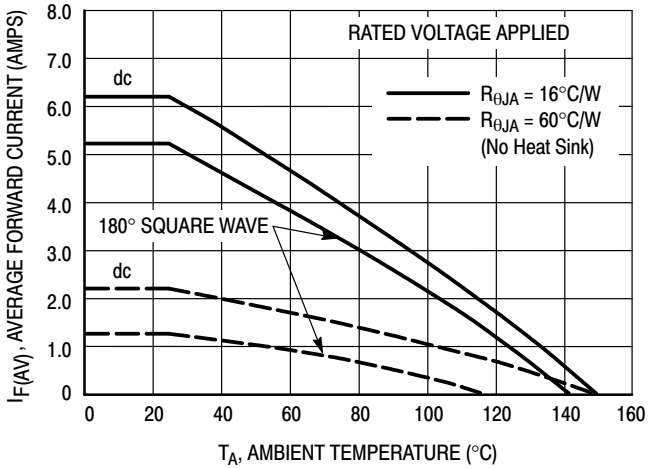



**Figure 4. Current Derating, Ambient**

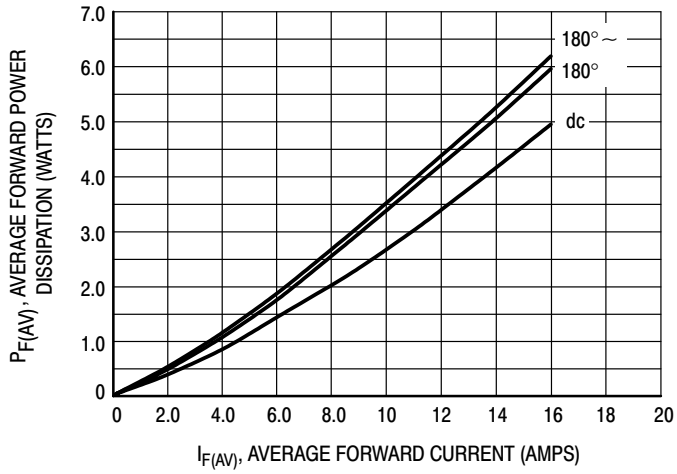
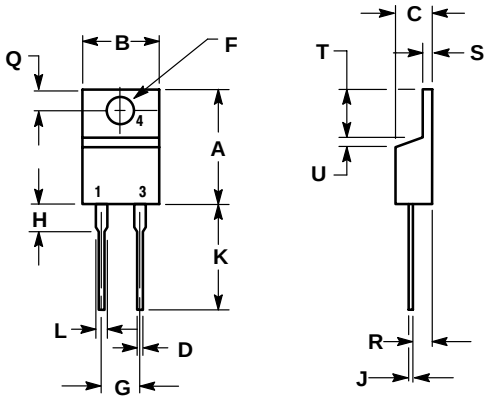



**Figure 5. Power Dissipation**

## PACKAGE DIMENSIONS

**TO–220**
PLASTIC
CASE 221B–04
ISSUE D




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

| | INCHES | | MILLIMETERS | |
|---|---|---|---|---|
| DIM | 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 |

SWITCHMODE is a trademark of Semiconductor Components Industries, LLC.



## PUBLICATION ORDERING INFORMATION

**NORTH AMERICA Literature Fulfillment**:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
**Phone**: 303–675–2175 or 800–344–3860 Toll Free USA/Canada
**Fax**: 303–675–2176 or 800–344–3867 Toll Free USA/Canada
**Email**: ONlit@hibbertco.com
Fax Response Line: 303–675–2167 or 800–344–3810 Toll Free USA/Canada

**N. American Technical Support**: 800–282–9855 Toll Free USA/Canada

**EUROPE:** LDC for ON Semiconductor – European Support
**German Phone**: (+1) 303–308–7140 (Mon–Fri 2:30pm to 7:00pm CET)
**Email**: ONlit–german@hibbertco.com
**French Phone**: (+1) 303–308–7141 (Mon–Fri 2:00pm to 7:00pm CET)
**Email**: ONlit–french@hibbertco.com
**English Phone**: (+1) 303–308–7142 (Mon–Fri 12:00pm to 5:00pm GMT)
**Email**: ONlit@hibbertco.com

**EUROPEAN TOLL–FREE ACCESS*: 00–800–4422–3781**
*Available from Germany, France, Italy, UK, Ireland

**CENTRAL/SOUTH AMERICA:**
**Spanish Phone**: 303–308–7143 (Mon–Fri 8:00am to 5:00pm MST)
**Email**: ONlit–spanish@hibbertco.com
**Toll–Free from Mexico:** Dial 01–800–288–2872 for Access – then Dial 866–297–9322

**ASIA/PACIFIC**: LDC for ON Semiconductor – Asia Support
**Phone**: 303–675–2121 (Tue–Fri 9:00am to 1:00pm, Hong Kong Time)
**Toll Free** from Hong Kong & Singapore:
**001–800–4422–3781**
**Email**: ONlit–asia@hibbertco.com

**JAPAN**: ON Semiconductor, Japan Customer Focus Center
4–32–1 Nishi–Gotanda, Shinagawa–ku, Tokyo, Japan 141–0031
**Phone**: 81–3–5740–2700
**Email**: r14525@onsemi.com

**ON Semiconductor Website**: http://onsemi.com

For additional information, please contact your local Sales Representative.