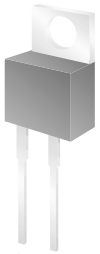
FAIRCHILD SEMICONDUCTOR®

June 2013

# MBR735 - MBR760
# Schottky Rectifiers

## Features

- Low Power Loss, High Efficiency
- High Surge Capacity
- Metal Silicon Junction, Majority Carrier Conduction
- High Current Capacity, Low Forward-Voltage Drop
- Guard Ring for Over-Voltage Protection (OVP)




**TO-220AC**


## Applications

- Low-Voltage, High-Frequency Inverters
- Free Wheeling and Polarity Protection

## Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at $T_A$ = 25°C unless otherwise noted.

| Symbol | Parameter | Value | | | | Units |
|---|---|---|---|---|---|---|
| | | 735 | 745 | 750 | 760 | |
| $V_{RRM}$ | Maximum Repetitive Reverse Voltage | 35 | 45 | 50 | 60 | V |
| $I_{F(AV)}$ | Average Rectified Forward Current | 7.5 | | | | A |
| $I_{FSM}$ | Non-Repetitive Peak Forward Surge Current 8.3 ms Single Half-Sine-Wave | 150 | | | | A |
| $T_{stg}$ | Storage Temperature Range | -65 to +175 | | | | °C |
| $T_J$ | Operating Junction Temperature | -65 to +150 | | | | °C |

## Thermal Characteristics

| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $P_D$ | Power Dissipation | 2.0 | W |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 60 | °C/W |
| $R_{\theta JL}$ | Thermal Resistance, Junction to Lead | 3.0 | °C/W |

## Electrical Characteristics

Values are at $T_A$ = 25°C unless otherwise noted.

| Symbol | Parameter | | Value | | | | Units |
|---|---|---|---|---|---|---|---|
| | | | 735 | 745 | 750 | 760 | |
| $V_F$ | Forward Voltage | $I_F$ = 7.5 A, $T_C$ = 25°C | | | 0.75 | | V |
| | | $I_F$ = 7.5 A, $T_C$ = 125°C | 0.57 | | 0.65 | | |
| | | $I_F$ = 15 A, $T_C$ = 25°C | 0.84 | | | | |
| | | $I_F$ = 15 A, $T_C$ = 125°C | 0.72 | | | | |
| $I_R$ | Reverse Current at rated $V_R$ | $T_C$ = 25°C | 0.1 | | 0.5 | | mA |
| | | $T_C$ = 125°C | 15 | | 50 | | |
| $I_{RRM}$ | Peak Repetitive Reverse Surge Current<br>2.0 µs Pulse Width, f = 1.0 kHz | | 1.0 | | 0.5 | | A |

## Typical Performance Characteristics

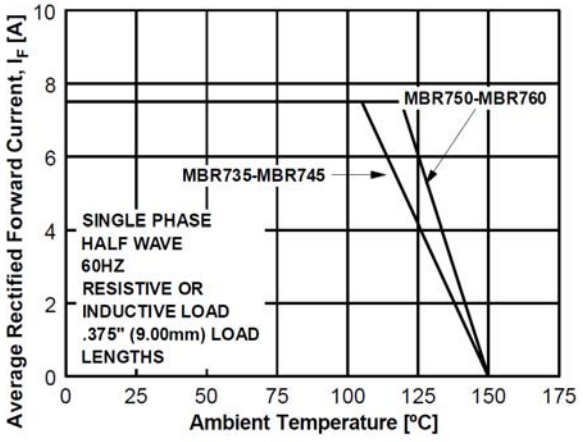



**Figure 1. Forward Current Derating Curve**

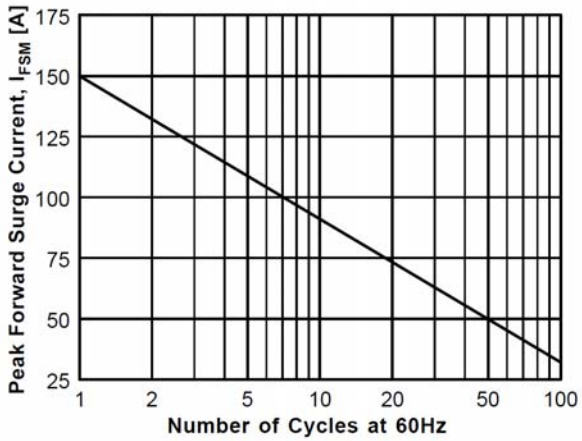



**Figure 2. Non-Repetitive Surge Current**

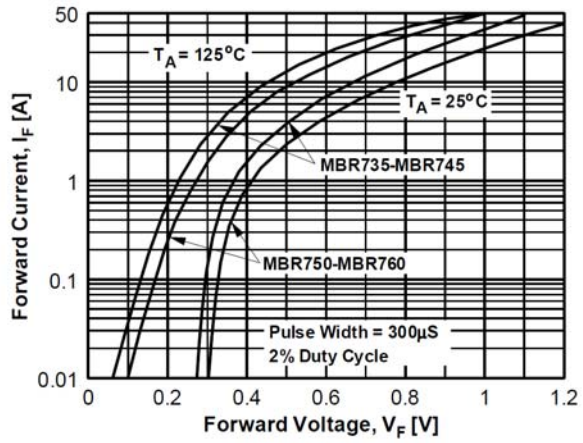



**Figure 3. Forward Voltage Characteristics**

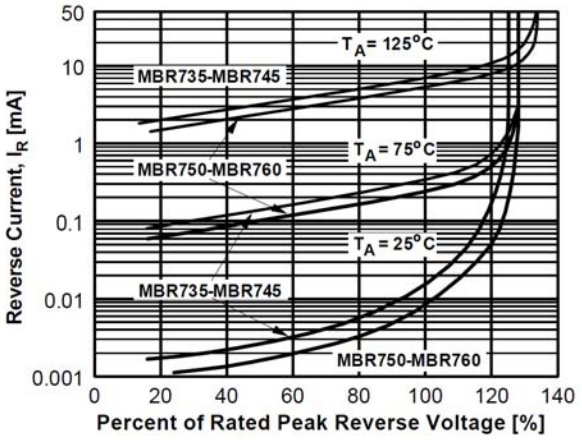



**Figure 4. Reverse Current vs. Reverse Voltage**

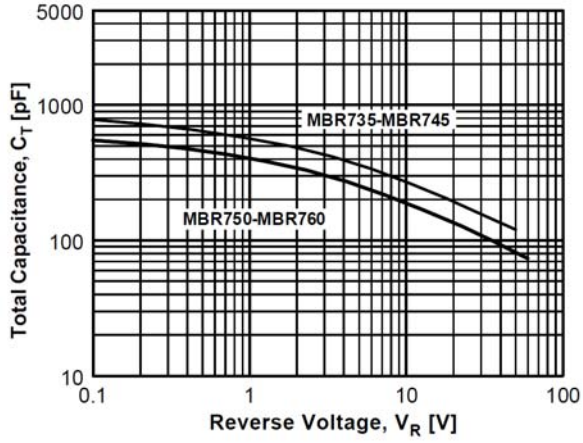



**Figure 5. Total Capacitance**

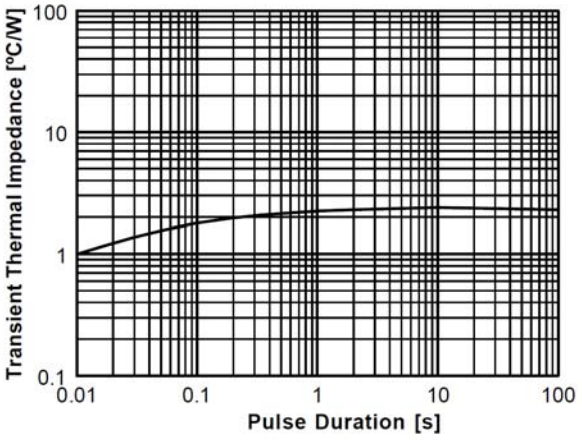



**Figure 6. Thermal Impedance Characteristics**

## Physical Dimensions

TO-220 2L

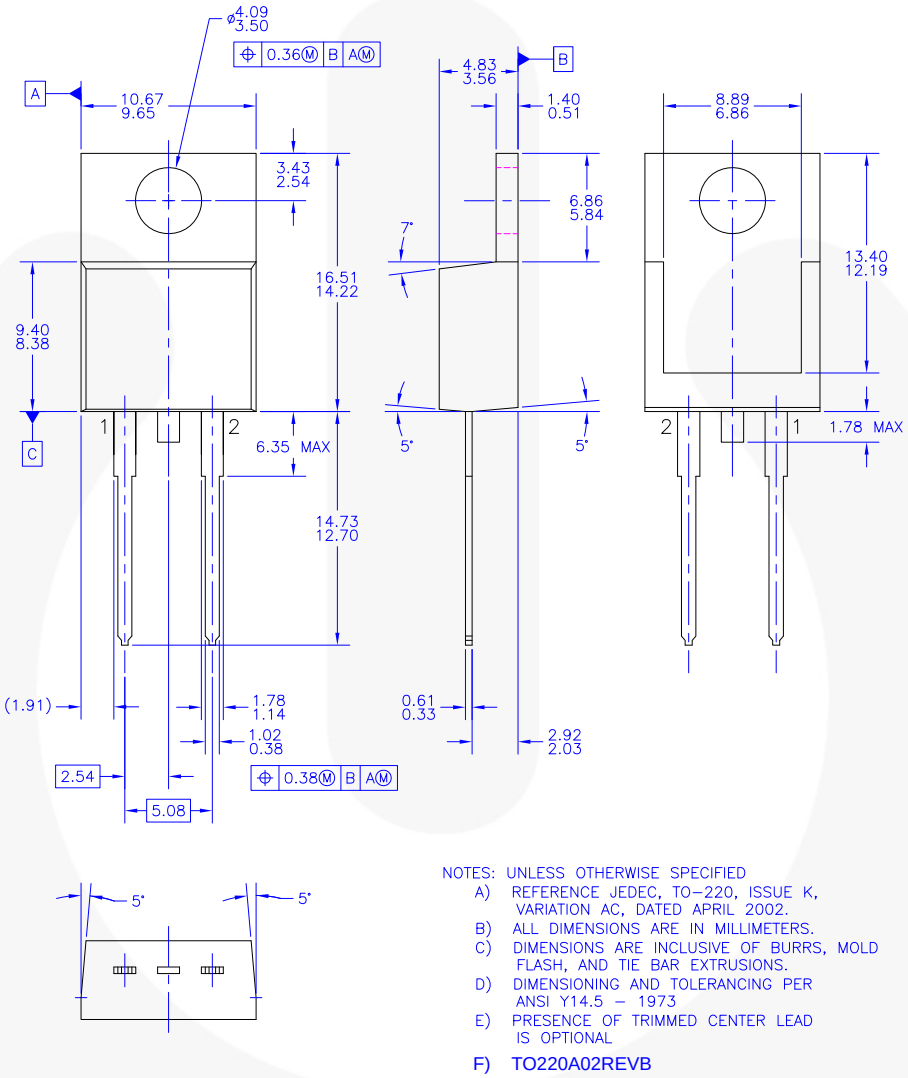



**Figure 7. TO-220, MOLDED, 2-LEAD (ACTIVE)**

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