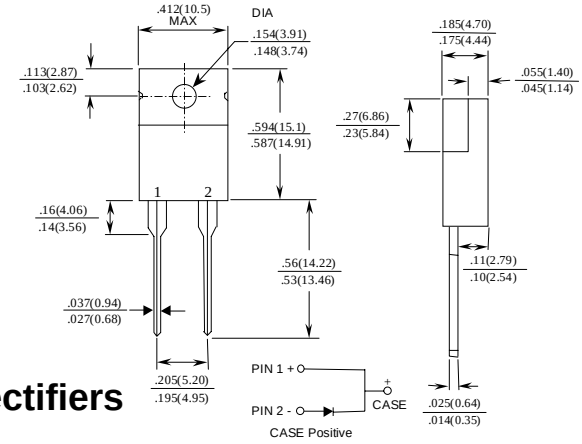
FAIRCHILD SEMICONDUCTOR™

# MBR735 - MBR760

## Features

- Low power loss, high efficiency.
- High surge capacity.
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications.
- Metal silicon junction, majority carrier conduction.
- High current capacity, low forward voltage drop.
- Guard ring for over voltage protection.

**TO-220AC**




# 7.5 Ampere Schottky Barrier Rectifiers

Dimensions are in: inches (mm)

## Absolute Maximum Ratings*

$T_A$ = 25°C unless otherwise noted

| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $I_O$ | Average Rectified Current | 7.5 | A |
| $i_{f(repetitive)}$ | Peak Repetitive Forward Current (Rated $V_R$ , Square Wave, 20 KHz) @ $T_A$ = 105°C | 15 | A |
| $i_{f(surge)}$ | Peak Forward Surge Current 8.3 ms single half-sine-wave Superimposed on rated load (JEDEC method) | 150 | A |
| $P_D$ | Total Device Dissipation<br>Derate above 25°C | 2.0<br>16.6 | W<br>mW/°C |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 60 | °C/W |
| $R_{\theta JL}$ | Thermal Resistance, Junction to Lead | 3.0 | °C/W |
| $T_{stg}$ | Storage Temperature Range | -65 to +175 | °C |
| $T_J$ | Operating Junction Temperature | -65 to +150 | °C |

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

## Electrical Characteristics

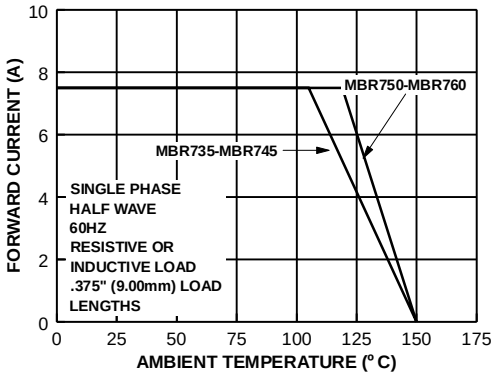
$T_A$ = 25°C unless otherwise noted

| Parameter | Device | | | | Units |
|---|---|---|---|---|---|
| | 735 | 745 | 750 | 760 | |
| Peak Repetitive Reverse Voltage | 35 | 45 | 50 | 60 | V |
| Maximum RMS Voltage | 24 | 31 | 35 | 42 | V |
| DC Reverse Voltage (Rated $V_R$) | 35 | 45 | 50 | 60 | V |
| Voltage Rate of Change (Rated $V_R$) | 10,000 | | | | V/uS |
| Maximum Reverse Current<br>@ rated $V_R$ $T_A$ = 25°C<br>$T_A$ = 125°C | 0.1<br>15 | | 0.5<br>50 | | mA<br>mA |
| Maximum Forward Voltage<br>$I_F$ = 7.5 A, $T_C$ = 25°C<br>$I_F$ = 7.5 A, $T_C$ = 125°C<br>$I_F$ = 15 A, $T_C$ = 25°C<br>$I_F$ = 15 A, $T_C$ = 125°C | -<br>0.57<br>0.84<br>0.72 | | 0.75<br>0.65<br>-<br>- | | V<br>V<br>V<br>V |
| Peak Repetitive Reverse Surge Current 2.0 us Pulse Width, f = 1.0 KHz | 1.0 | | 0.5 | | A |

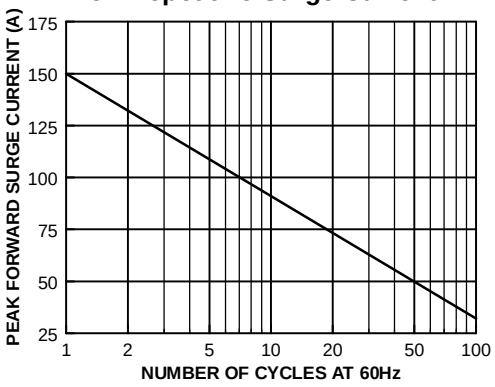
## Schotty Barrier Rectifier
(continued)

## Typical Characteristics

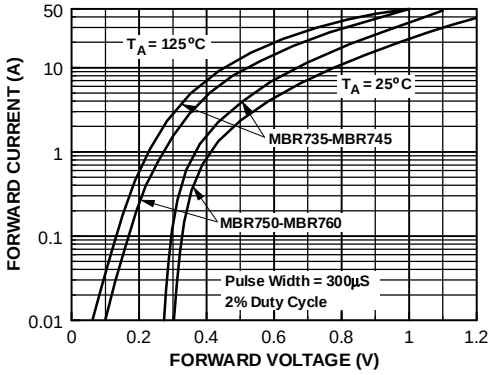
### Forward Current Derating Curve



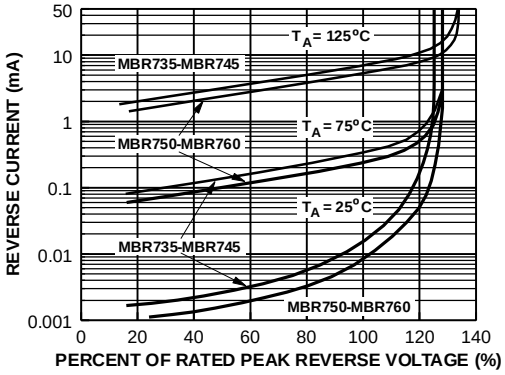

### Non-Repetitive Surge Current



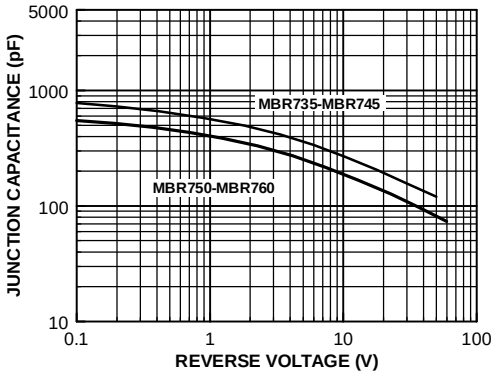

### Forward Characteristics



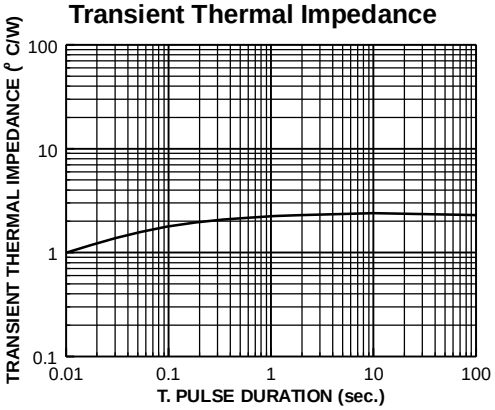

### Reverse Characteristics




### Typical Junction Capacitance




### Transient Thermal Impedance



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|---|---|---|
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