

MBR4035PT - MBR4060PT

40 A Schottky Barrier Rectifiers

Features

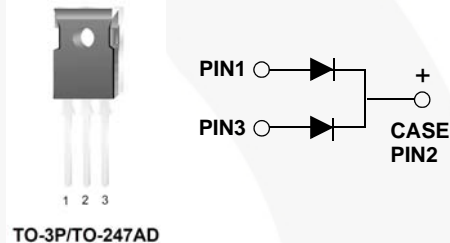
- Low Power Loss, High Efficiency
- High Surge Capacity
- Metal Silicon Junction, Majority Carrier Conduction
- High Current Capacity, Low Forward Voltage Drop
- Guard Ring for Over-Voltage Protection (OVP)

Applications

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

Description

This center-tap Schottky rectifier is optimal for secondary rectification and free-wheeling applications for high-efficiency DC-DC convertor design, which features very low forward voltage drop and low leakage current.



Ordering Information

| Part Number | Marking | Package | Packing Method |
|-------------|-----------|-----------|----------------|
| MBR4035PT | MBR4035PT | TO-247 3L | Rail |
| MBR4045PT | MBR4045PT | | |
| MBR4050PT | MBR4050PT | | |
| MBR4060PT | MBR4060PT | | |

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

| Symbol | Parameter | Value | | | | Units |
|-------------|---|-------------|------------|------------|------------|------------------|
| | | MBR 4035PT | MBR 4045PT | MBR 4050PT | MBR 4060PT | |
| V_{RRM} | Maximum Repetitive Reverse Voltage | 35 | 45 | 50 | 60 | V |
| $I_{F(AV)}$ | Average Rectified Forward Current .375-inch Lead Length at $T_A = 125^\circ\text{C}$ | 40 | | | | A |
| I_{FSM} | Non-Repetitive Peak Forward Surge Current: 8.3 ms Single Half-Sine-Wave | 400 | | | | A |
| T_{STG} | Storage Temperature Range | -65 to +175 | | | | $^\circ\text{C}$ |
| T_J | Operating Junction Temperature Range | -65 to +150 | | | | $^\circ\text{C}$ |

Thermal Characteristics

| Symbol | Parameter | Value | Units |
|-----------------|--------------------------------------|-------|-------|
| P_D | Power Dissipation | 3.0 | W |
| $R_{\theta JL}$ | Thermal Resistance, Junction to Lead | 1.2 | °C/W |

Electrical Characteristics

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

| Symbol | Parameter | | Value | | | | Units |
|-----------|---|--|---------------|---------------|---------------|---------------|-------|
| | | | MBR 4035PT | MBR 4045PT | MBR 4050PT | MBR 4060PT | |
| V_F | Maximum Forward Voltage, per Leg | $I_F = 20\text{ A}, T_C = 25^\circ\text{C}$ | 0.70 | | 0.72 | | V |
| | | $I_F = 20\text{ A}, T_C = 125^\circ\text{C}$ | 0.60 | | 0.62 | | |
| | | $I_F = 40\text{ A}, T_C = 25^\circ\text{C}$ | 0.80 | | | | |
| | | $I_F = 40\text{ A}, T_C = 125^\circ\text{C}$ | 0.75 | | | | |
| I_R | Maximum Reverse Current at Rated V_R | $T_A = 25^\circ\text{C}$ | 1.0 | | | mA | |
| | | $T_A = 125^\circ\text{C}$ | 100.0 | | | | |
| I_{RRM} | Peak Repetitive Reverse Surge Current, per Leg 2.0 μs Pulse Width, $f = 1.0\text{ kHz}$ | | 2.0 | | 1.0 | A | |

Typical Performance Characteristics

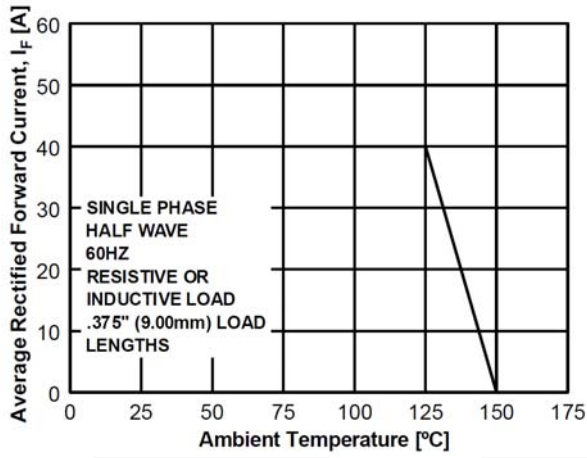


Figure 1. Forward Current Derating Curve

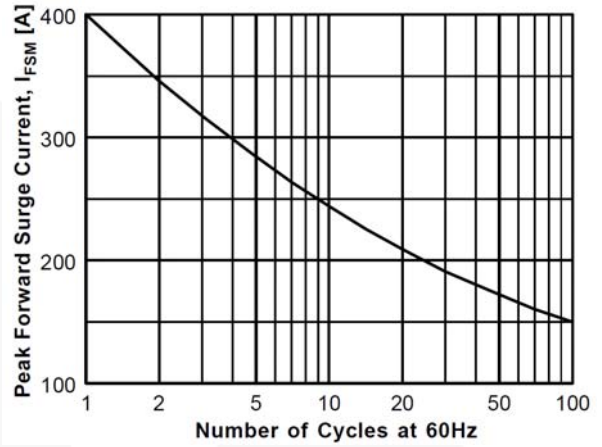


Figure 2. Non-Repetitive Surge Current

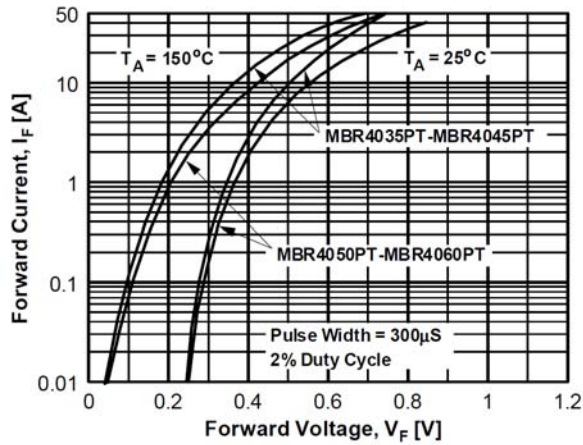


Figure 3. Forward Voltage Characteristics

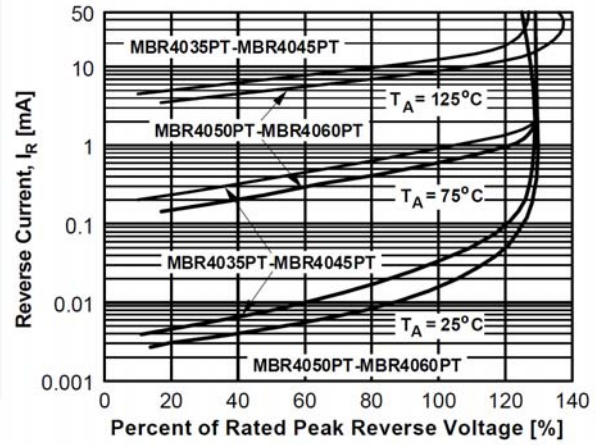


Figure 4. Reverse Current vs. Reverse Voltage

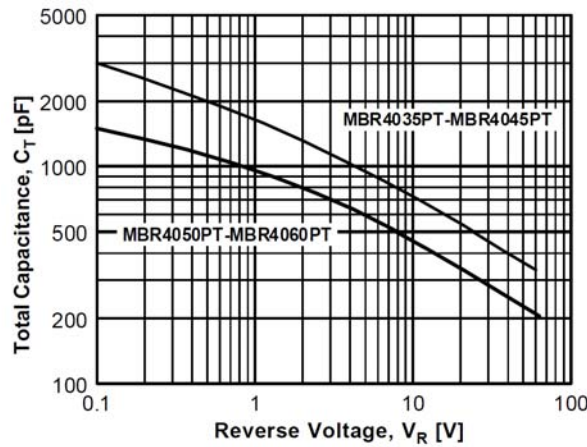


Figure 5. Total Capacitance

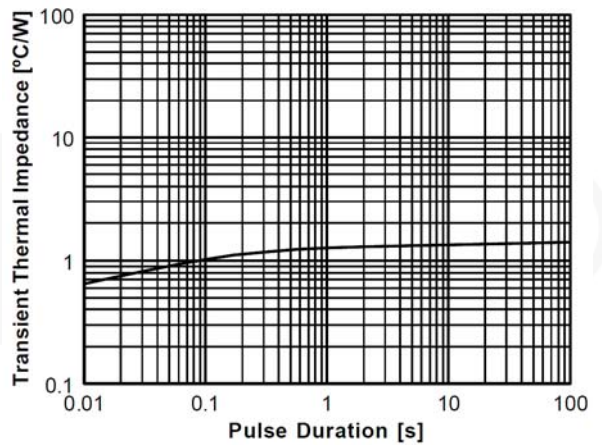







Figure 6. Thermal Impedance Characteristics



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