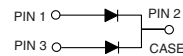


Dual Common-Cathode Schottky Rectifier



TO-247AD (TO-3P)



FEATURES

- Guardring for overvoltage protection
- Lower power losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Solder Dip 260 °C, 40 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



TYPICAL APPLICATIONS

For use in low voltage, high frequency rectifier of switching mode power supplies, free-wheeling diodes, dc-to-dc converters or polarity protection application.

MECHANICAL DATA

Case: TO-247AD (TO-3P)

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D
E3 suffix for commercial grade

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

| MAJOR RATINGS AND CHARACTERISTICS | |
|-----------------------------------|----------------|
| $I_{F(AV)}$ | 40 A |
| V_{RRM} | 35 V to 60 V |
| I_{FSM} | 400 A |
| V_F | 0.60 V, 0.62 V |
| $T_j \text{ max.}$ | 150 °C |

| MAXIMUM RATINGS ($T_A = 25 \text{ }^\circ\text{C}$ unless otherwise noted) | | | | | | |
|---|-------------|---------------|-----------|-----------|-----------|------------------|
| PARAMETER | SYMBOL | MBR4035PT | MBR4045PT | MBR4050PT | MBR4060PT | UNIT |
| Maximum repetitive peak reverse voltage | V_{RRM} | 35 | 45 | 50 | 60 | V |
| Maximum working peak reverse voltage | V_{RWM} | 35 | 45 | 50 | 60 | V |
| Maximum DC blocking voltage | V_{DC} | 35 | 45 | 50 | 60 | V |
| Maximum average forward rectified current at $T_C = 125 \text{ }^\circ\text{C}$ | $I_{F(AV)}$ | 40 | | | | A |
| Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load per diode | I_{FSM} | 400 | | | | A |
| Peak repetitive reverse surge current per diode ⁽¹⁾ | I_{RRM} | 2.0 | | 1.0 | | A |
| Voltage rate of change at (rated V_R) | dv/dt | 10000 | | | | V/ μs |
| Operating junction temperature range | T_J | - 65 to + 150 | | | | °C |
| Storage temperature range | T_{STG} | - 65 to + 175 | | | | °C |

Note:

(1) 2.0 μs pulse width, f = 1.0 kHz

| ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | | |
|---|---|----------------|------------|-----------|-----------|-----------|------|
| PARAMETER | TEST CONDITIONS | SYMBOL | MBR4035PT | MBR4045PT | MBR4050PT | MBR4060PT | UNIT |
| Maximum instantaneous forward voltage per diode ⁽¹⁾ | I _F = 20 A, T _C = 25 °C | V _F | 0.70 | | 0.72 | | V |
| | I _F = 20 A, T _C = 125 °C | | 0.60 | | 0.62 | | |
| | I _F = 40 A, T _C = 25 °C | | 0.80 | | - | | |
| | I _F = 40 A, T _C = 125 °C | | 0.75 | | - | | |
| Maximum instantaneous reverse current at rated DC blocking voltage per diode ⁽¹⁾ | T _C = 25 °C T _C = 125 °C | I _R | 1.0 100 | | | mA | |

Note:

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

| THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | |
|---|------------------|-----------|-----------|-----------|-----------|------|
| PARAMETER | SYMBOL | MBR4035PT | MBR4045PT | MBR4050PT | MBR4060PT | UNIT |
| Maximum thermal resistance from junction to case per diode | R _{θJC} | 1.2 | | | | °C/W |

| ORDERING INFORMATION (Example) | | | | | |
|--------------------------------|-----------------|-----------------|--------------|---------------|---------------|
| PACKAGE | PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| TO-247AD | MBR4045PT-E3/45 | 6.13 | 45 | 30/Tube | Tube |

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

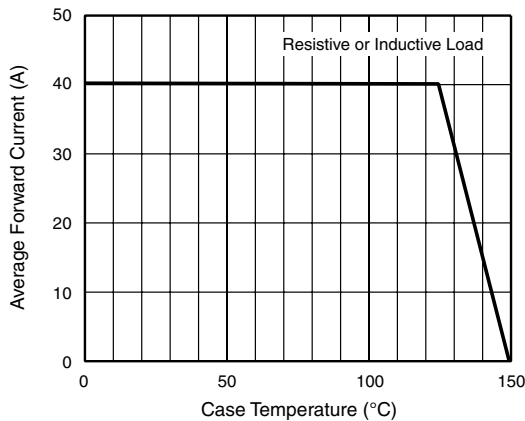


Figure 1. Forward Current Derating Curve

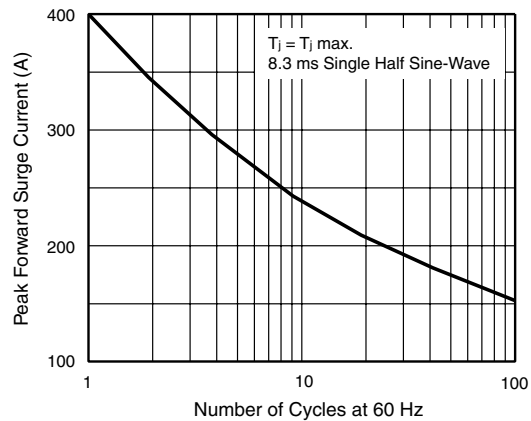


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

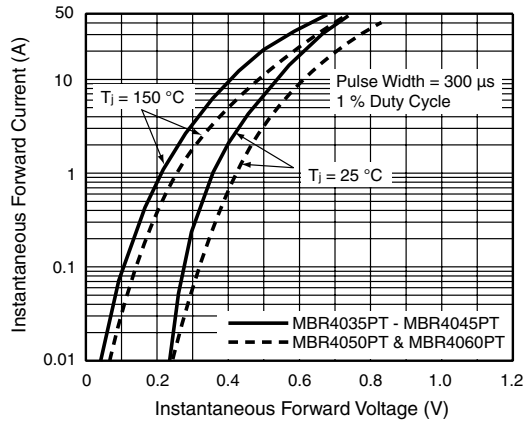


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

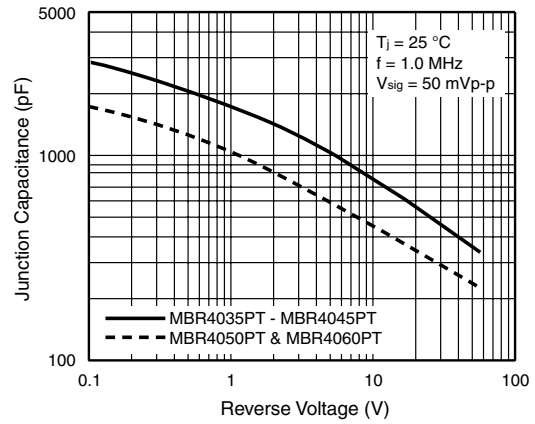


Figure 5. Typical Junction Capacitance Per Diode

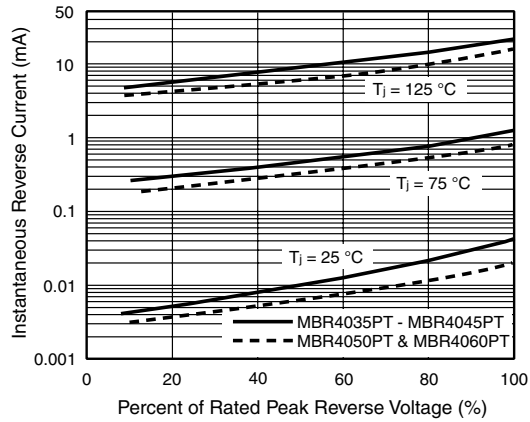


Figure 4. Typical Reverse Characteristics Per Diode

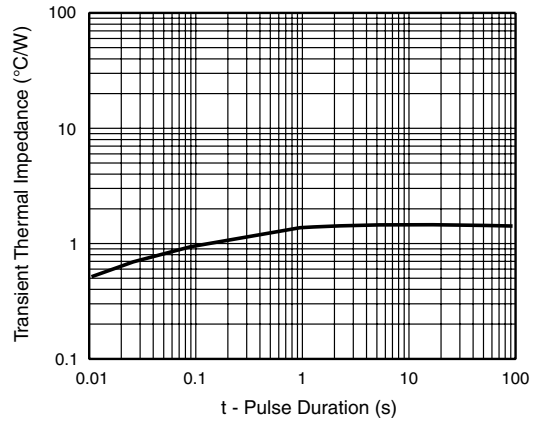
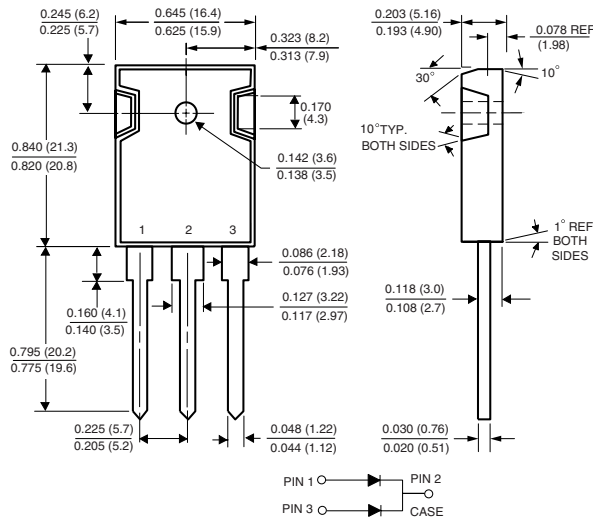


Figure 6. Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-247AD (TO-3P)





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