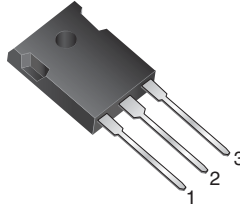
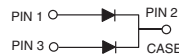


## Dual Common Cathode Schottky Rectifier


**TO-247AD (TO-3P)**


### FEATURES

- Power pack
- Guardring for overvoltage protection
- Lower power losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Solder dip 275 °C max.10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in low voltage, high frequency rectifier of switching mode power supplies, freewheeling diodes, DC/DC converters, or polarity protection application.

### MECHANICAL DATA

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

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-E3 - RoHS-compliant, commercial grade

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test

**Polarity:** As marked

**Mounting Torque:** 10 in-lbs maximum

| PRIMARY CHARACTERISTICS |                        |
|-------------------------|------------------------|
| $I_{F(AV)}$             | 40 A                   |
| $V_{RRM}$               | 35 V, 45 V, 50 V, 60 V |
| $I_{FSM}$               | 400 A                  |
| $V_F$                   | 0.60 V, 0.62 V         |
| $T_J$ max.              | 150 °C                 |
| Package                 | TO-247AD (TO-3P)       |
| Diode variations        | Common cathode         |

| MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ 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 $T_C = 125\text{ °C}$                              | $I_{F(AV)}$     | 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  | $I_{RRM}^{(1)}$ | 2.0         |           | 1.0       |           | A          |
| Voltage rate of change (rated $V_R$ )  | dV/dt           | 10 000      |           |           |           | V/ $\mu$ s |
| Operating junction temperature range   | $T_J$           | -65 to +150 |           |           |           | °C         |
| Storage temperature range  | $T_{STG}$       | -65 to +175 |           |           |           | °C         |

#### Note

<sup>(1)</sup> 2.0  $\mu$ s pulse width, f = 1.0 kHz



| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |             |   |           |           |           |           |      |
|--|-------------|---|-----------|-----------|-----------|-----------|------|
| PARAMETER  | SYMBOL      | TEST CONDITIONS                                       | MBR4035PT | MBR4045PT | MBR4050PT | MBR4060PT | UNIT |
| Maximum instantaneous forward voltage per diode  | $V_F^{(1)}$ | $I_F = 20\text{ A}$ $T_J = 25\text{ }^\circ\text{C}$  |           | 0.70      |           | 0.72      | V    |
|  |             | $I_F = 20\text{ A}$ $T_J = 125\text{ }^\circ\text{C}$ |           | 0.60      |           | 0.62      |      |
|  |             | $I_F = 40\text{ A}$ $T_J = 25\text{ }^\circ\text{C}$  |           | 0.80      |           | -         |      |
|  |             | $I_F = 40\text{ A}$ $T_J = 125\text{ }^\circ\text{C}$ |           | 0.75      |           | -         |      |
| Maximum instantaneous reverse current at rated DC blocking voltage per diode                 | $I_R^{(1)}$ | $T_J = 25\text{ }^\circ\text{C}$                      |           |           | 1.0       |           | mA   |
|  |             | $T_J = 125\text{ }^\circ\text{C}$                     |           |           | 100       |           |      |

**Note**

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

| <b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                 |           |           |           |           |                    |
|---|-----------------|-----------|-----------|-----------|-----------|--------------------|
| PARAMETER   | SYMBOL          | MBR4035PT | MBR4045PT | MBR4050PT | MBR4060PT | UNIT               |
| Thermal resistance, junction to case per diode  | $R_{\theta JC}$ |           |           | 1.2       |           | $^\circ\text{C/W}$ |

| <b>ORDERING INFORMATION</b> (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** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

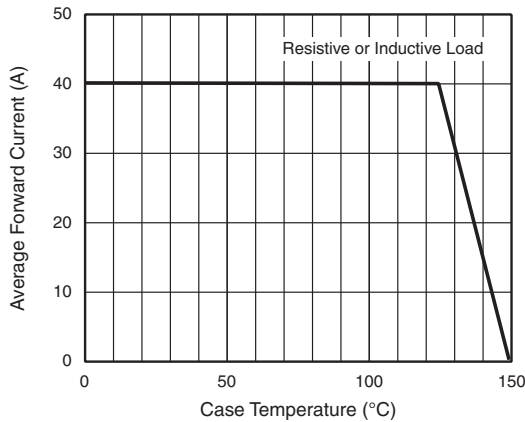


Fig. 1 - Forward Current Derating Curve

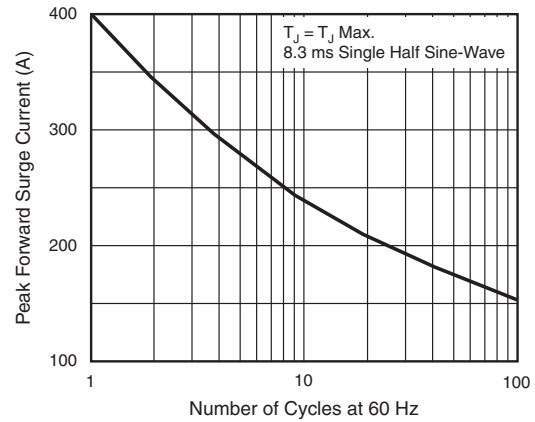


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

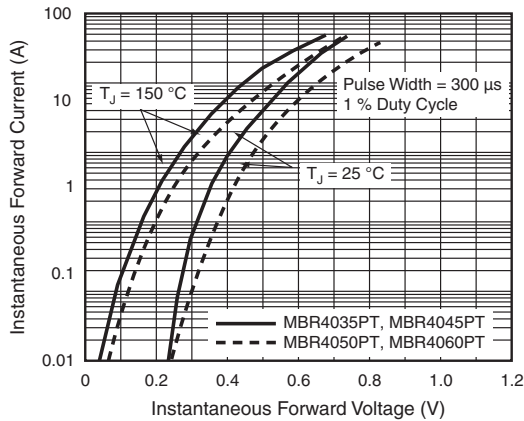


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

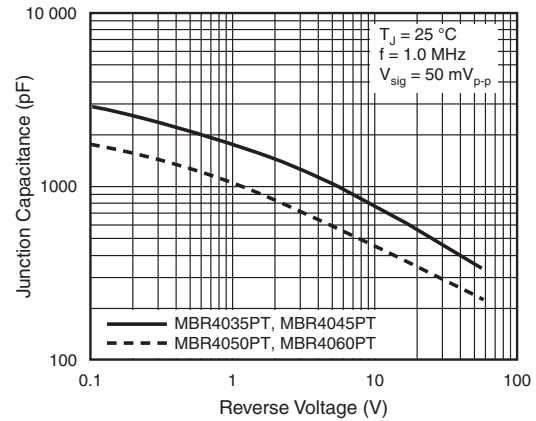


Fig. 5 - Typical Junction Capacitance Per Diode

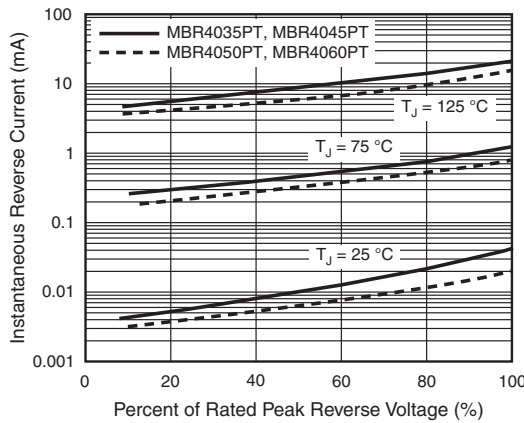


Fig. 4 - Typical Reverse Characteristics Per Diode

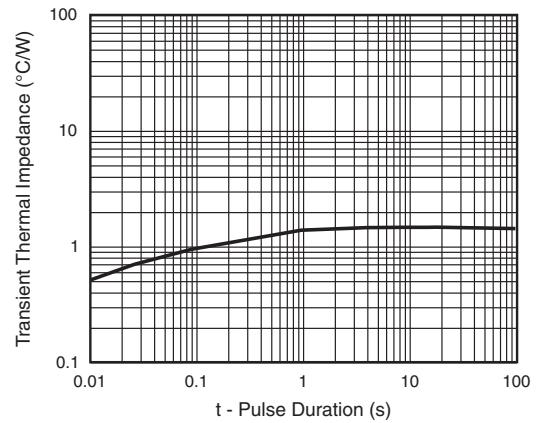
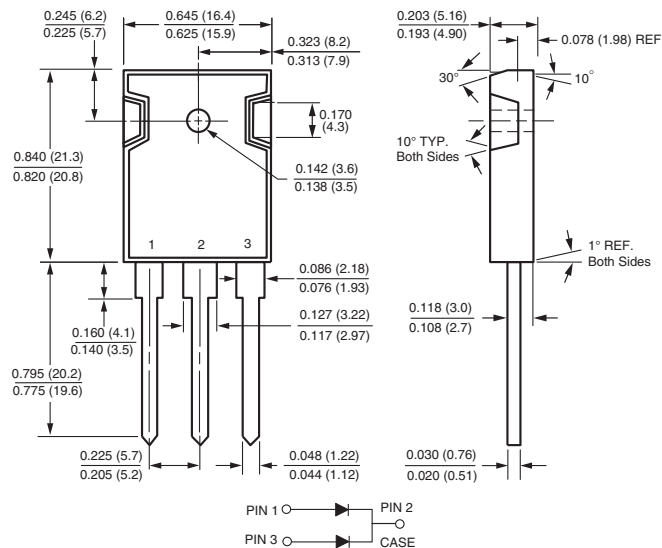


Fig. 6 - Typical Transient Thermal Impedance Per Diode

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### TO-247AD (TO-3P)





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