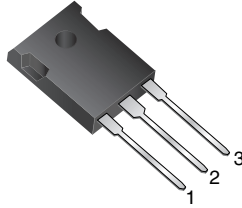
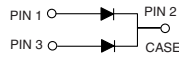


## Dual Common-Cathode Schottky Rectifier



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 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in low voltage, high frequency rectifier of switching mode power supplies, freewheeling 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-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test

**Polarity:** As marked

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

| PRIMARY CHARACTERISTICS |                |
|-------------------------|----------------|
| $I_{F(AV)}$             | 30 A           |
| $V_{RRM}$               | 35 V to 60 V   |
| $I_{FSM}$               | 200 A          |
| $V_F$                   | 0.60 V, 0.65 V |
| $T_J \text{ max.}$      | 150 °C         |

| MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)                                |             |               |           |           |           |            |
|---|-------------|---------------|-----------|-----------|-----------|------------|
| PARAMETER   | SYMBOL      | MBR3035PT     | MBR3045PT | MBR3050PT | MBR3060PT | 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 (Fig. 1)  | $I_{F(AV)}$ | 30            |           |           |           | A          |
| Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load per diode | $I_{FSM}$   | 200           |           |           |           | A          |
| Peak repetitive reverse surge current per diode <sup>(1)</sup>                                | $I_{RRM}$   | 2.0           |           | 1.0       |           | A          |
| Voltage rate of change at (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:**

(1) 2.0  $\mu$ s pulse width,  $f = 1.0$  kHz



| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)                  |                         |                         |                |           |           |           |           |      |
|---|-------------------------|-------------------------|----------------|-----------|-----------|-----------|-----------|------|
| PARAMETER   | TEST CONDITIONS         |                         | SYMBOL         | MBR3035PT | MBR3045PT | MBR3050PT | MBR3060PT | UNIT |
| Maximum instantaneous forward voltage per diode <sup>(1)</sup>                              | I <sub>F</sub> = 20 A   | T <sub>C</sub> = 25 °C  | V <sub>F</sub> | -         | -         | 0.75      | -         | V    |
|   | I <sub>F</sub> = 20 A   | T <sub>C</sub> = 125 °C |                | 0.60      | -         | 0.65      | -         |      |
|   | I <sub>F</sub> = 30 A   | T <sub>C</sub> = 25 °C  |                | 0.76      | -         | -         | -         |      |
|   | I <sub>F</sub> = 30 A   | T <sub>C</sub> = 125 °C |                | 0.72      | -         | -         | -         |      |
| Maximum instantaneous reverse current at rated DC blocking voltage per diode <sup>(1)</sup> | T <sub>C</sub> = 25 °C  |                         | I <sub>R</sub> | 1.0       | -         | 5.0       | -         | mA   |
|   | T <sub>C</sub> = 125 °C |                         |                | 60        | -         | 100       | -         |      |

**Note:**

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

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                  |           |           |           |           |      |  |
|---|------------------|-----------|-----------|-----------|-----------|------|--|
| PARAMETER   | SYMBOL           | MBR3035PT | MBR3045PT | MBR3050PT | MBR3060PT | UNIT |  |
| Thermal resistance from junction to case per diode                      | R <sub>θJC</sub> | 1.4       |           |           |           | °C/W |  |

| ORDERING INFORMATION (Example) |                 |                 |              |               |               |
|--------------------------------|-----------------|-----------------|--------------|---------------|---------------|
| PACKAGE                        | PREFERRED P/N   | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| TO-247AD                       | MBR3045PT-E3/45 | 6.13            | 45           | 30/tube       | Tube          |

## RATINGS AND CHARACTERISTICS CURVES

(T<sub>A</sub> = 25 °C unless otherwise specified)

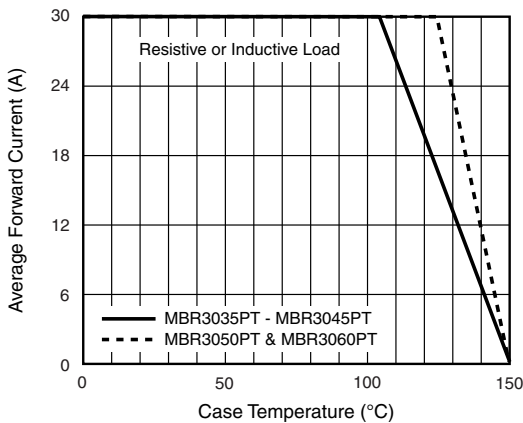


Figure 1. Forward Current Derating Curve

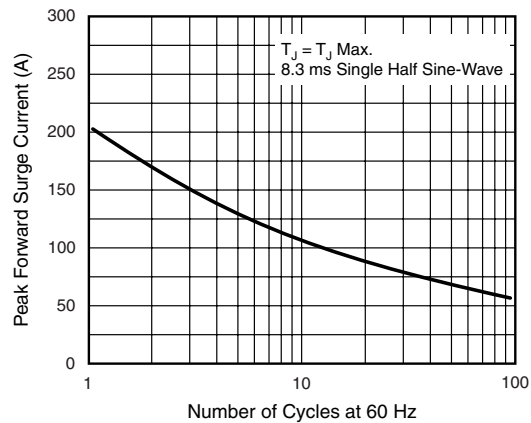


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

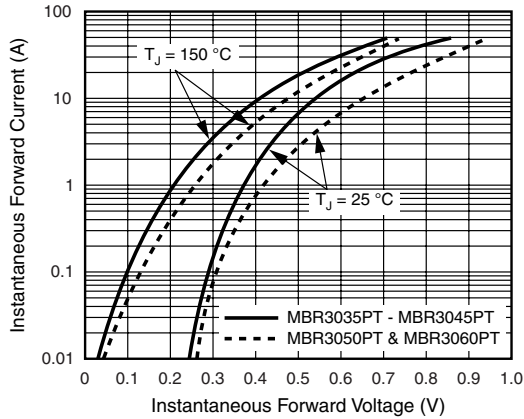


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

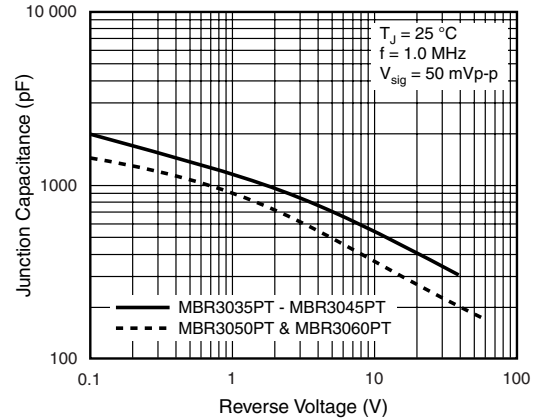


Figure 5. Typical Junction Capacitance Per Diode

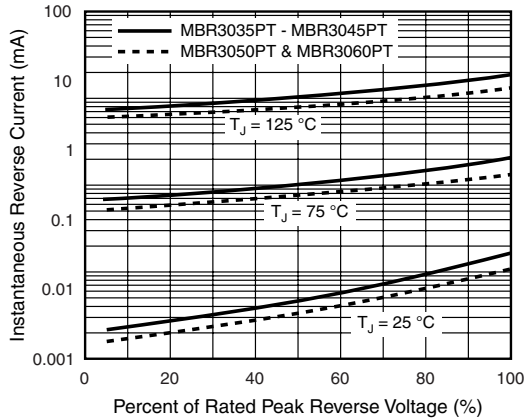


Figure 4. Typical Reverse Characteristics Per Diode

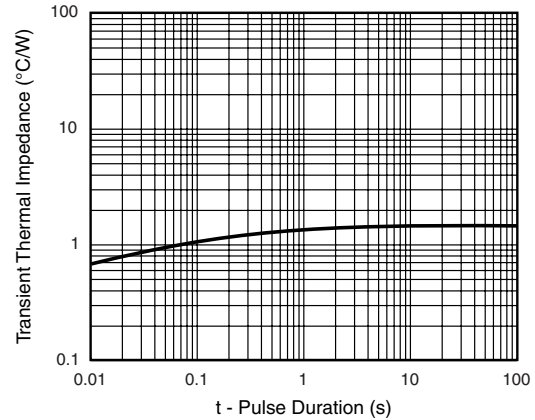
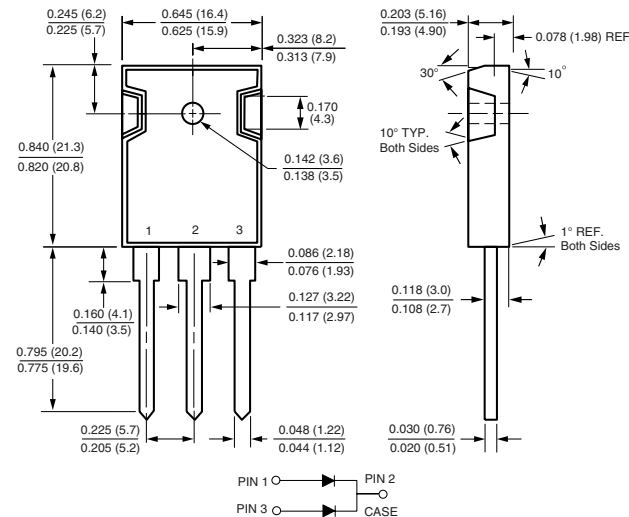


Figure 6. Typical Transient Thermal Impedance Per Diode

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

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





## Disclaimer

All product specifications and data are subject to change without notice.

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