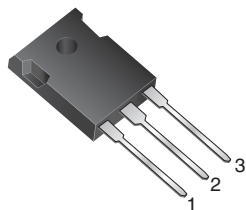


# Dual Common-Cathode High-Voltage Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance



TO-247AD (TO-3P)



## FEATURES

- Guardring for overvoltage protection
- Lower power losses, high efficiency
- Low forward voltage drop
- Low leakage current
- 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.

## PRIMARY CHARACTERISTICS

|             |             |
|-------------|-------------|
| $I_{F(AV)}$ | 2 x 15 A    |
| $V_{RRM}$   | 90 V, 100 V |
| $I_{FSM}$   | 265 A       |
| $V_F$       | 0.67 V      |
| $I_R$       | 5.0 $\mu$ A |
| $T_J$ max.  | 175 °C      |

## MECHANICAL DATA

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

Molding compound meets UL 94V-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

## MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)

| PARAMETER                                                                                    | SYMBOL         | MBR30H90PT    | MBR30H100PT | UNIT       |
|----------------------------------------------------------------------------------------------|----------------|---------------|-------------|------------|
| Maximum repetitive peak reverse voltage                                                      | $V_{RRM}$      | 90            | 100         | V          |
| Working peak reverse voltage                                                                 | $V_{RWM}$      | 90            | 100         | V          |
| Maximum DC blocking voltage                                                                  | $V_{DC}$       | 90            | 100         | V          |
| Maximum average forward rectified current<br>total device<br>per diode                       | $I_{F(AV)}$    | 30<br>15      |             | A          |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | $I_{FSM}$      | 265           |             | A          |
| Peak repetitive reverse surge current at $t_p = 2$ $\mu$ s, 1 kHz per diode                  | $I_{RRM}$      | 1.0           |             | A          |
| Non-repetitive avalanche energy ( $I_{AS} = 0.5$ A, $L = 60$ mH) per diode                   | $E_{AS}$       | 7.5           |             | mJ         |
| Voltage rate of change (rated $V_R$ )                                                        | $dV/dt$        | 10 000        |             | V/ $\mu$ s |
| Operating junction and storage temperature range                                             | $T_J, T_{STG}$ | - 65 to + 175 |             | °C         |

**ELECTRICAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| PARAMETER                                                                    | SYMBOL      | TEST CONDITIONS                                         | MBR30H90PT | MBR30H100PT | UNIT          |
|------------------------------------------------------------------------------|-------------|---------------------------------------------------------|------------|-------------|---------------|
| Maximum instantaneous forward voltage per diode                              | $V_F^{(1)}$ | $I_F = 15\text{ A}$ $T_J = 25\text{ }^{\circ}\text{C}$  | 0.82       |             | V             |
|                                                                              |             | $I_F = 15\text{ A}$ $T_J = 125\text{ }^{\circ}\text{C}$ | 0.67       |             |               |
|                                                                              |             | $I_F = 30\text{ A}$ $T_J = 25\text{ }^{\circ}\text{C}$  | 0.93       |             |               |
|                                                                              |             | $I_F = 30\text{ A}$ $T_J = 125\text{ }^{\circ}\text{C}$ | 0.80       |             |               |
| Maximum instantaneous reverse current at rated DC blocking voltage per diode | $I_R^{(1)}$ | $T_J = 25\text{ }^{\circ}\text{C}$                      | 5.0        |             | $\mu\text{A}$ |
|                                                                              |             | $T_J = 125\text{ }^{\circ}\text{C}$                     | 6.0        |             | mA            |

**Note**(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle**THERMAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| PARAMETER                                      | SYMBOL          | MBR30H90PT | MBR30H100PT | UNIT                 |
|------------------------------------------------|-----------------|------------|-------------|----------------------|
| Thermal resistance, junction to case per diode | $R_{\theta JC}$ | 1.6        |             | $^{\circ}\text{C/W}$ |

**ORDERING INFORMATION** (Example)

| PACKAGE  | PREFERRED P/N     | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|----------|-------------------|-----------------|--------------|---------------|---------------|
| TO-220AD | MBR30H100PT-E3/4W | 6.13            | 45           | 30/tube       | Tube          |

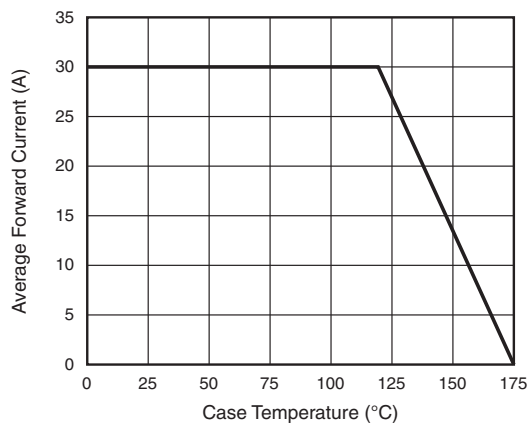
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Forward Derating Curve

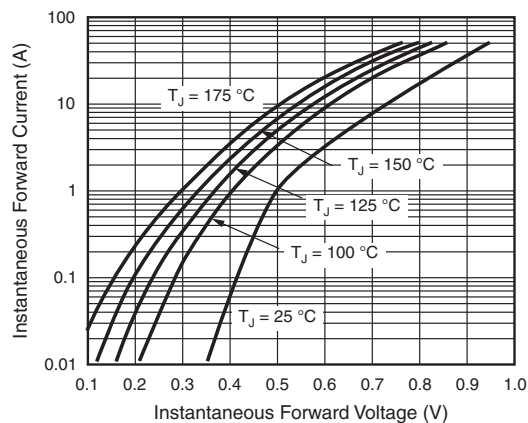


Fig. 2 - Typical Instantaneous Forward Characteristics Per Diode

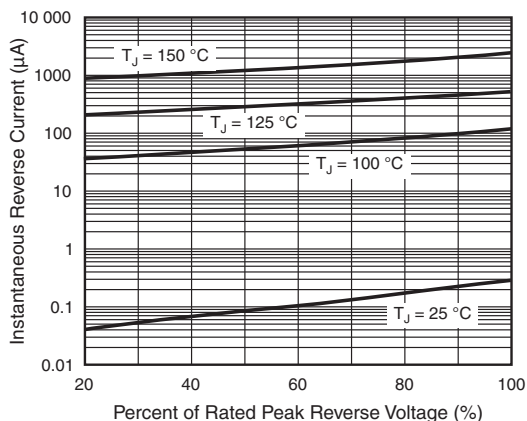


Fig. 3 - Typical Reverse Characteristics Per Diode

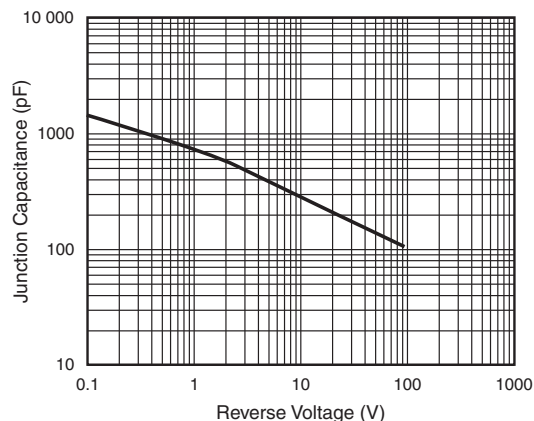
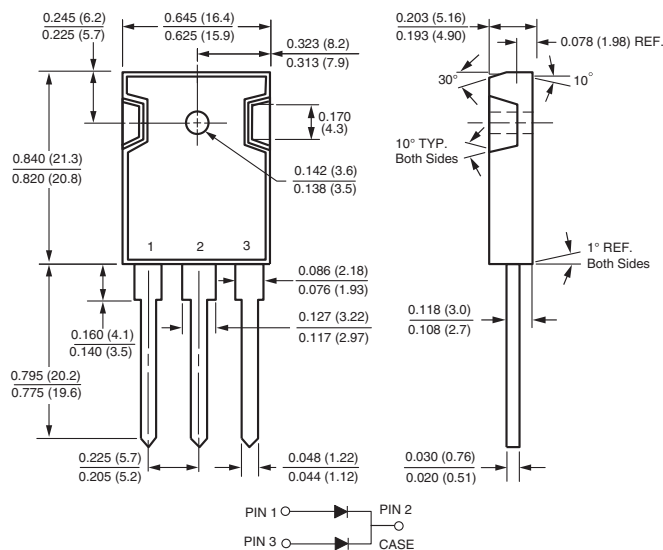


Fig. 4 - Typical Junction Capacitance Per Diode

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

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





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