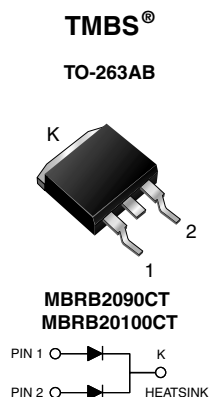


# Dual Common-Cathode High-Voltage Schottky Rectifier



## FEATURES

- Trench MOS Schottky technology
- Lower power losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
FREE

## TYPICAL APPLICATIONS

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

## MECHANICAL DATA

**Case:** TO-263AB

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

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

M3 suffix meets JESD 201 class 1A whisker test

**Polarity:** As marked

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

| PRIMARY CHARACTERISTICS |                |
|-------------------------|----------------|
| Package                 | TO-263AB       |
| $I_{F(AV)}$             | 2 x 10 A       |
| $V_{RRM}$               | 90 V, 100 V    |
| $I_{FSM}$               | 150 A          |
| $V_F$                   | 0.65 V         |
| $T_J$ max.              | 150 °C         |
| Diode variation         | Common cathode |

| MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)                              |                                   |               |             |      |
|----------------------------------------------------------------------------------------------|-----------------------------------|---------------|-------------|------|
| PARAMETER                                                                                    | SYMBOL                            | MBRB2090CT    | MBRB20100CT | UNIT |
| Maximum repetitive peak reverse voltage                                                      | V <sub>RRM</sub>                  | 90            | 100         | V    |
| Working peak reverse voltage                                                                 | V <sub>RWM</sub>                  | 90            | 100         | V    |
| Maximum DC blocking voltage                                                                  | V <sub>DC</sub>                   | 90            | 100         | V    |
| Maximum average forward rectified current at T <sub>C</sub> = 133 °C                         | total device<br>per diode         | 20            |             | A    |
|                                                                                              |                                   | 10            |             |      |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | I <sub>FSM</sub>                  | 150           |             | A    |
| Voltage rate of change (rated V <sub>R</sub> )                                               | dV/dt                             | 10 000        |             | V/μs |
| Operating junction and storage temperature range                                             | T <sub>J</sub> , T <sub>STG</sub> | - 65 to + 150 |             | °C   |

| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)       |                       |                         |                |      |      |
|----------------------------------------------------------------------------------|-----------------------|-------------------------|----------------|------|------|
| PARAMETER                                                                        | TEST CONDITIONS       |                         | SYMBOL         | MAX. | UNIT |
| Maximum instantaneous forward voltage per diode <sup>(1)</sup>                   | I <sub>F</sub> = 10 A | T <sub>C</sub> = 25 °C  | V <sub>F</sub> | 0.80 | V    |
|                                                                                  | I <sub>F</sub> = 10 A | T <sub>C</sub> = 125 °C |                | 0.65 |      |
|                                                                                  | I <sub>F</sub> = 20 A | T <sub>C</sub> = 125 °C |                | 0.75 |      |
| Maximum reverse current per diode at working peak reverse voltage <sup>(2)</sup> |                       |                         | I <sub>R</sub> | 100  | μA   |
|                                                                                  |                       |                         |                | 6.0  | mA   |

## Notes

<sup>(1)</sup> Pulse test: 300  $\mu$ s pulse width, 1 % duty cycle

<sup>(2)</sup> Pulse test: Pulse width  $\leq$  40 ms



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

| PARAMETER                            | SYMBOL          | MBRB | UNIT                 |
|--------------------------------------|-----------------|------|----------------------|
| Typical thermal resistance per diode | $R_{\theta JA}$ | 60   | $^{\circ}\text{C/W}$ |
|                                      | $R_{\theta JC}$ | 2.0  |                      |

## ORDERING INFORMATION (Example)

| PACKAGE  | PREFERRED P/N     | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|----------|-------------------|-----------------|--------------|---------------|---------------|
| TO-263AB | MBRB20100CT-M3/4W | 1.38            | 4W           | 50/tube       | Tube          |
| TO-263AB | MBRb20100CT-M3/8W | 1.38            | 8W           | 800/reel      | Tape and reel |

## RATINGS AND CHARACTERISTICS CURVES

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

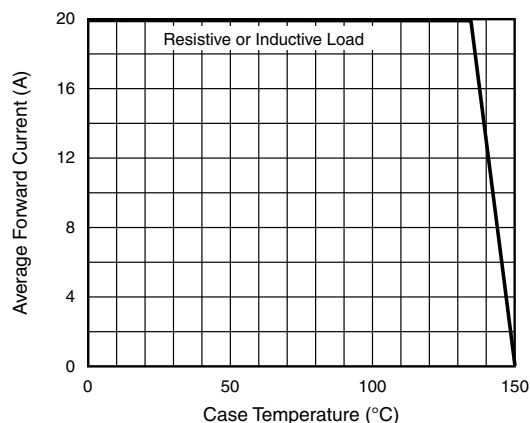


Fig. 1 - Forward Current Derating Curve

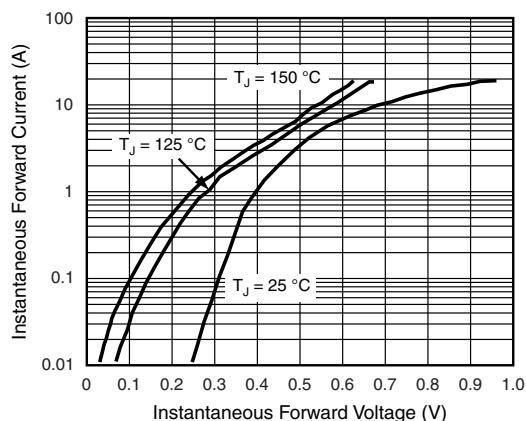


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

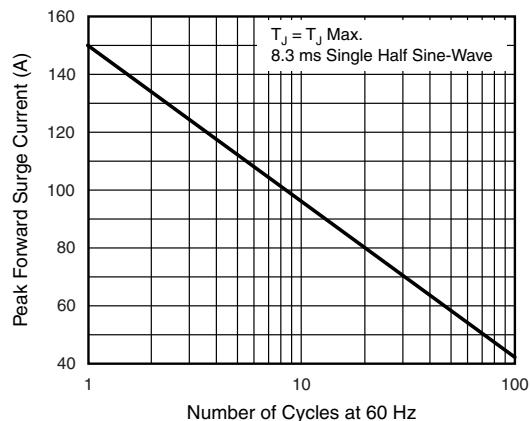


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

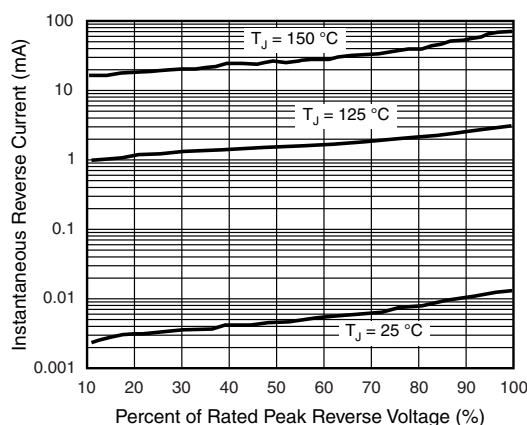


Fig. 4 - Typical Reverse Characteristics Per Diode

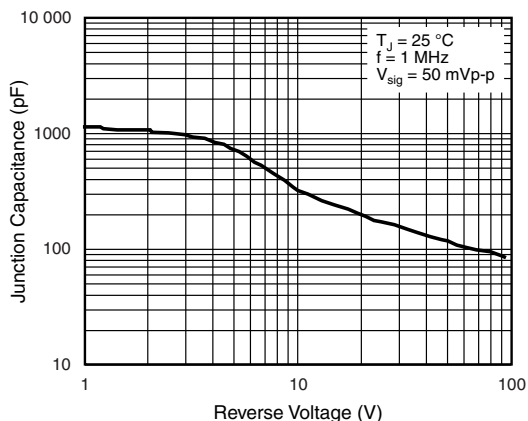


Fig. 5 - Typical Junction Capacitance  
Per Diode

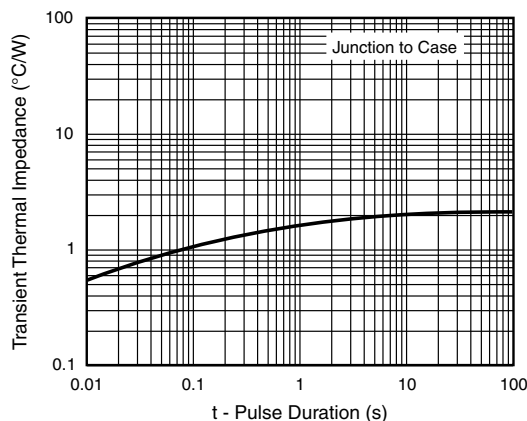
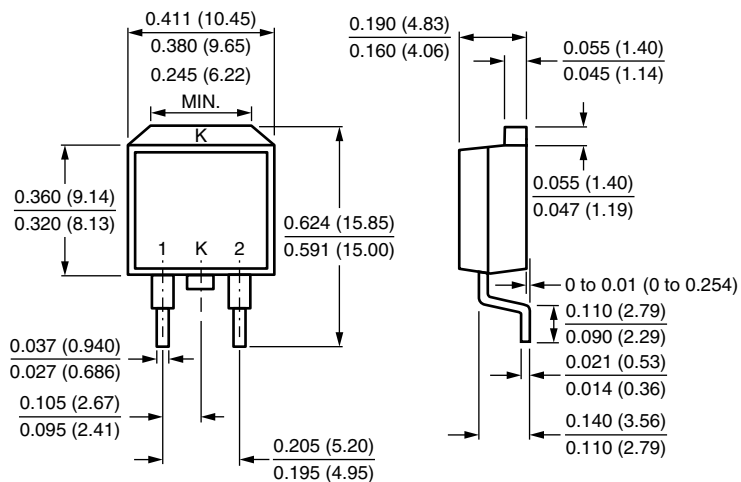


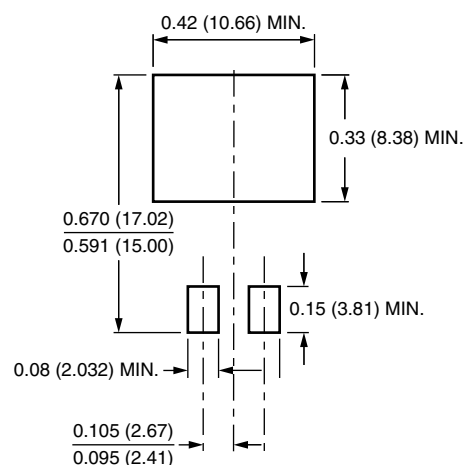
Fig. 6 - Typical Transient Thermal Impedance  
Per Diode

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

#### TO-263AB



#### Mounting Pad Layout





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