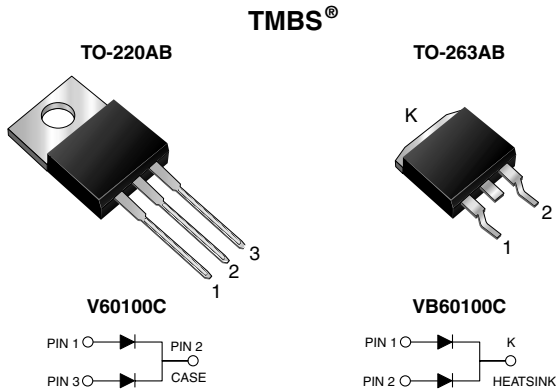


## Dual High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low  $V_F = 0.36\text{ V}$  at  $I_F = 5\text{ A}$



### FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Low thermal resistance
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C (for TO-263AB package)
- Solder dip 260 °C, 40 s (for TO-220AB)
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in high frequency inverters, switching power supplies, freewheeling diodes, OR-ing diode, dc-to-dc converters and reverse battery protection.

| PRIMARY CHARACTERISTICS      |          |
|------------------------------|----------|
| $I_{F(AV)}$                  | 2 x 30 A |
| $V_{RRM}$                    | 100 V    |
| $I_{FSM}$                    | 320 A    |
| $V_F$ at $I_F = 30\text{ A}$ | 0.66 V   |
| $T_J$ max.                   | 150 °C   |

### MECHANICAL DATA

**Case:** TO-220AB and TO-263AB

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

| MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)                               |                |               |          |      |
|--|----------------|---------------|----------|------|
| PARAMETER  | SYMBOL         | V60100C       | VB60100C | UNIT |
| Maximum repetitive peak reverse voltage  | $V_{RRM}$      | 100           |          | V    |
| Maximum average forward rectified current (Fig. 1) per device per diode                      | $I_{F(AV)}$    | 60            | 30       | A    |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | $I_{FSM}$      | 320           |          |      |
| Operating junction and storage temperature range   | $T_J, T_{STG}$ | - 40 to + 150 |          | °C   |



| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |  |   |                 |                                      |                             |          |
|--|--|---|-----------------|--------------------------------------|-----------------------------|----------|
| PARAMETER  | TEST CONDITIONS  |   | SYMBOL          | TYP.                                 | MAX.                        | UNIT     |
| Breakdown voltage  | I <sub>R</sub> = 1.0 mA  | T <sub>A</sub> = 25 °C                            | V <sub>BR</sub> | 100 (minimum)                        | -                           |          |
| Instantaneous forward voltage per diode <sup>(1)</sup>                     | I <sub>F</sub> = 5 A<br>I <sub>F</sub> = 10 A<br>I <sub>F</sub> = 15 A<br>I <sub>F</sub> = 20 A<br>I <sub>F</sub> = 30 A | T <sub>A</sub> = 25 °C                            | V <sub>F</sub>  | 0.45<br>0.52<br>0.58<br>0.63<br>0.73 | -<br>-<br>0.63<br>-<br>0.79 | V        |
|  | I <sub>F</sub> = 5 A<br>I <sub>F</sub> = 10 A<br>I <sub>F</sub> = 15 A<br>I <sub>F</sub> = 20 A<br>I <sub>F</sub> = 30 A | T <sub>A</sub> = 125 °C                           |                 | 0.36<br>0.45<br>0.53<br>0.58<br>0.66 | -<br>-<br>0.58<br>-<br>0.70 |          |
| Reverse current at rated V <sub>R</sub> per diode <sup>(2)</sup>           | V <sub>R</sub> = 80 V  | T <sub>A</sub> = 25 °C<br>T <sub>A</sub> = 125 °C | I <sub>R</sub>  | 24<br>13                             | 500<br>20                   | μA<br>mA |
|  | V <sub>R</sub> = 100 V   | T <sub>A</sub> = 25 °C<br>T <sub>A</sub> = 125 °C |                 | 65<br>30                             | 1000<br>-                   | μA<br>mA |

**Notes:**

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 40 ms

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                  |         |          |      |
|---|------------------|---------|----------|------|
| PARAMETER   | SYMBOL           | V60100C | VB60100C | UNIT |
| Typical thermal resistance per diode                                    | R <sub>θJC</sub> | 2.5     | 2.5      | °C/W |

| ORDERING INFORMATION |                |                 |              |               |               |
|----------------------|----------------|-----------------|--------------|---------------|---------------|
| PACKAGE              | PREFERRED P/N  | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| TO-220AB             | V60100C-E3/4W  | 1.89            | 4W           | 50/tube       | Tube          |
| TO-263AB             | VB60100C-E3/4W | 1.38            | 4W           | 50/tube       | Tube          |
| TO-263AB             | VB60100C-E3/8W | 1.38            | 8W           | 800/reel      | Tape and reel |

**RATINGS AND CHARACTERISTICS CURVES**

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

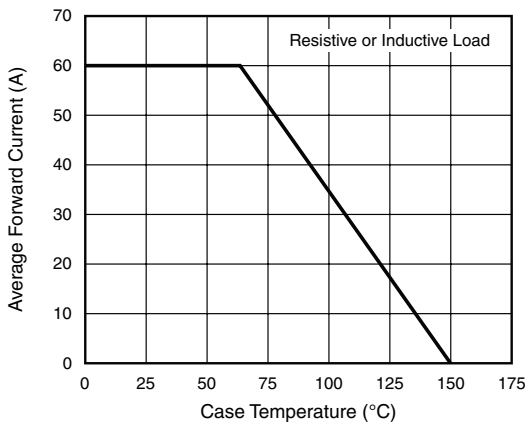


Figure 1. Forward Current Derating Curve

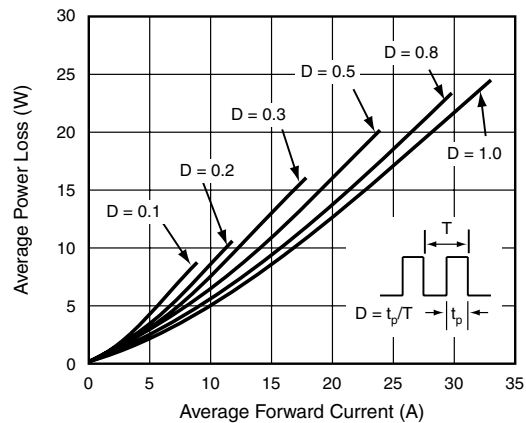


Figure 2. Forward Power Loss Characteristics Per Diode

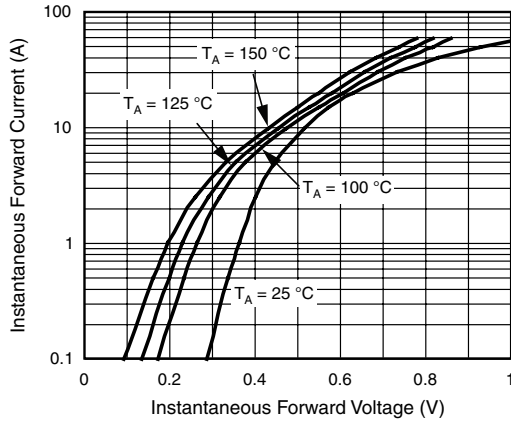


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

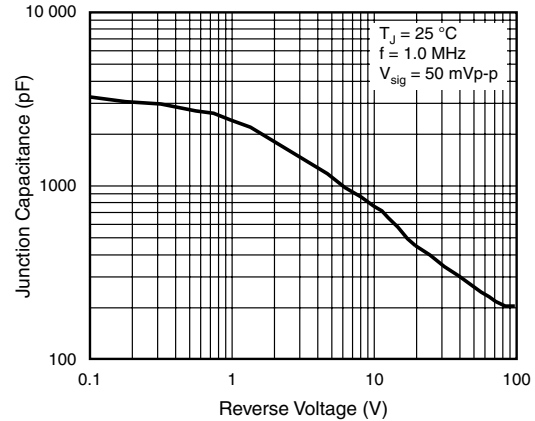


Figure 5. Typical Junction Capacitance Per Diode

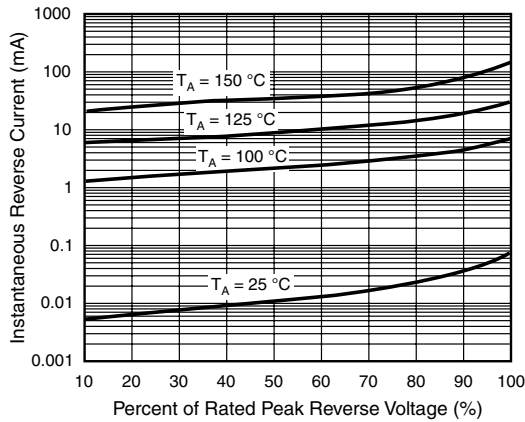


Figure 4. Typical Reverse Characteristics Per Diode

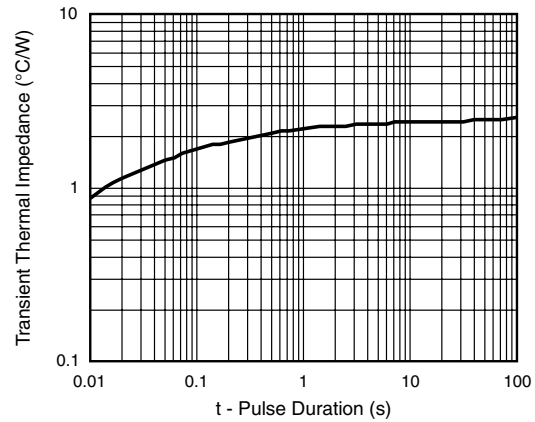
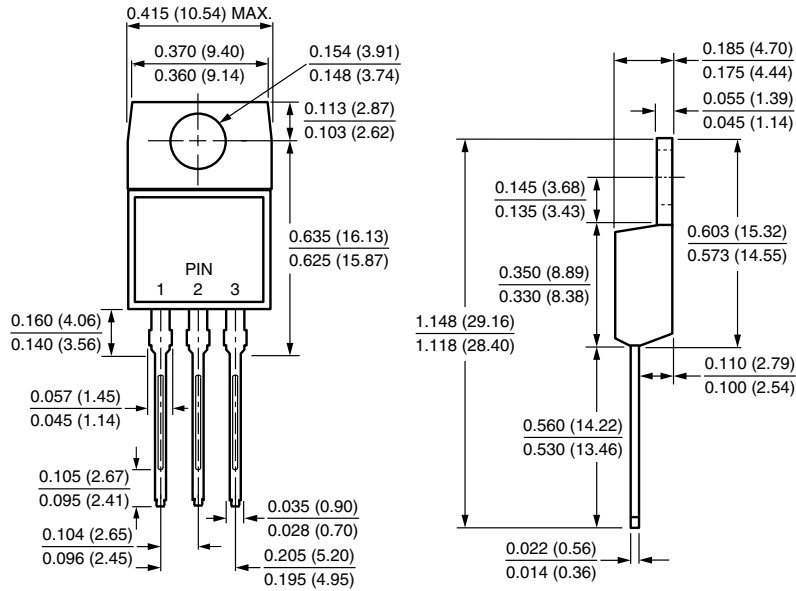


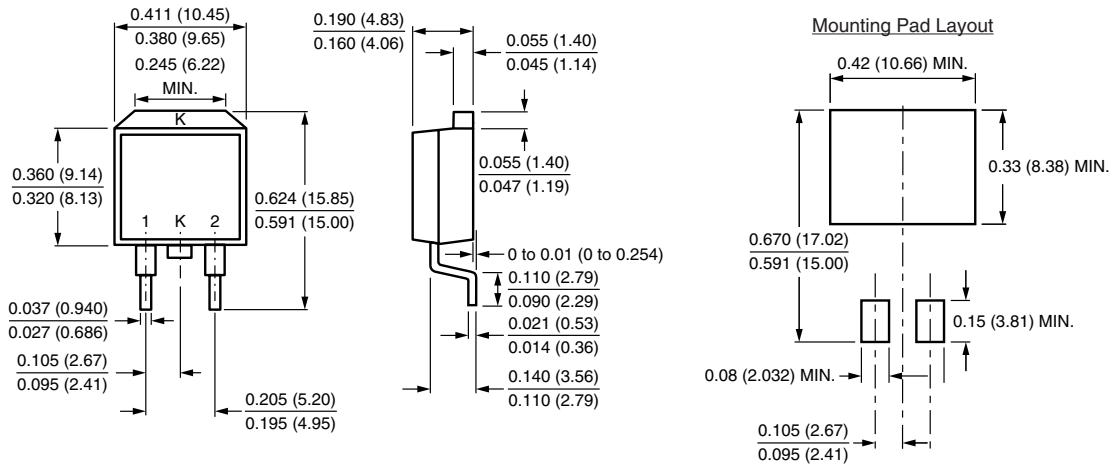
Figure 6. Typical Transient Thermal Impedance Per Diode

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**TO-220AB**



**TO-263AB**





## Disclaimer

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