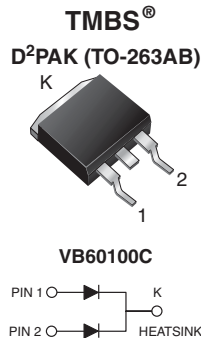


Dual High-Voltage Trench MOS Barrier Schottky Rectifier

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

RoHS
 COMPLIANT
 HALOGEN
FREE

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
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

TYPICAL APPLICATIONS

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

DESIGN SUPPORT TOOLS

[click logo to get started](#)

| 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 |
| Package | D ² PAK (TO-263AB) |
| Circuit configuration | Common cathode |

MECHANICAL DATA

Case: D²PAK (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 2 whisker test

Polarity: as marked

| MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted) | | | |
|--|----------------|-------------|------------|
| PARAMETER | SYMBOL | VB60100C | UNIT |
| Maximum repetitive peak reverse voltage | V_{RRM} | 100 | V |
| Maximum average forward rectified current (fig. 1) | | per device | 60 |
| | | per diode | 30 |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | I_{FSM} | 320 | A |
| Voltage rate of change (rated V_R) | dV/dt | 10 000 | V/ μ s |
| Operating junction and storage temperature range | T_J, T_{STG} | -40 to +150 | °C |



| ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | | |
|---|----------------------|-----------------------------------|--------|------|------|---------------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | TYP. | MAX. | UNIT |
| Instantaneous forward voltage per diode ⁽¹⁾ | $I_F = 5\text{ A}$ | $T_A = 25\text{ }^\circ\text{C}$ | V_F | 0.45 | - | V |
| | $I_F = 10\text{ A}$ | | | 0.52 | - | |
| | $I_F = 15\text{ A}$ | | | 0.58 | 0.63 | |
| | $I_F = 20\text{ A}$ | | | 0.63 | - | |
| | $I_F = 30\text{ A}$ | | | 0.73 | 0.79 | |
| | $I_F = 5\text{ A}$ | $T_A = 125\text{ }^\circ\text{C}$ | | 0.36 | - | |
| | $I_F = 10\text{ A}$ | | | 0.45 | - | |
| | $I_F = 15\text{ A}$ | | | 0.53 | 0.58 | |
| | $I_F = 20\text{ A}$ | | | 0.58 | - | |
| | $I_F = 30\text{ A}$ | | | 0.66 | 0.70 | |
| Reverse current at rated V_R per diode ⁽²⁾ | $V_R = 80\text{ V}$ | $T_A = 25\text{ }^\circ\text{C}$ | I_R | 24 | 500 | μA |
| | | $T_A = 125\text{ }^\circ\text{C}$ | | 13 | 20 | mA |
| | $V_R = 100\text{ V}$ | $T_A = 25\text{ }^\circ\text{C}$ | | 65 | 1000 | μA |
| | | $T_A = 125\text{ }^\circ\text{C}$ | | 30 | - | mA |

Notes(1) Pulse test: 300 μs pulse width, 1 % duty cycle(2) Pulse test: Pulse width $\leq 40\text{ ms}$

| THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | |
|--|-----------------------|----------|--------------------|
| PARAMETER | SYMBOL | VB60100C | UNIT |
| Typical thermal resistance per diode | $R_{\theta\text{JC}}$ | 2.5 | $^\circ\text{C/W}$ |

| ORDERING INFORMATION (Example) | | | | | |
|--------------------------------|----------------|-----------------|--------------|---------------|---------------|
| PACKAGE | PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| TO-263AB | VB60100C-M3/4W | 1.38 | 4W | 50/tube | Tube |
| TO-263AB | VB60100C-M3/8W | 1.38 | 8W | 800/reel | Tape and reel |

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

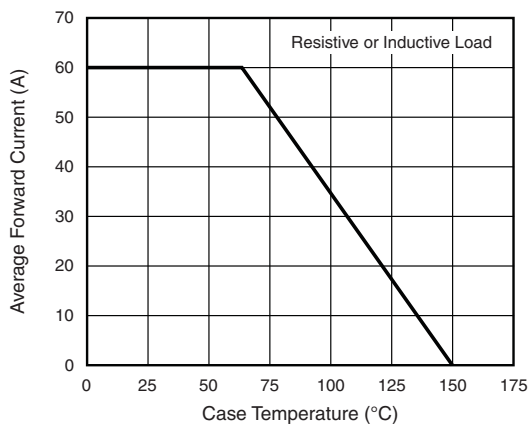


Fig. 1 - Forward Current Derating Curve

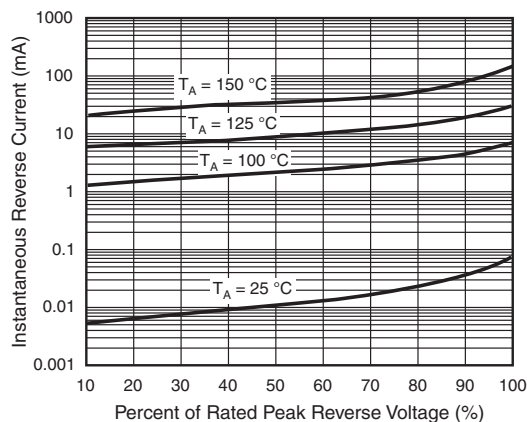


Fig. 4 - Typical Reverse Characteristics Per Diode

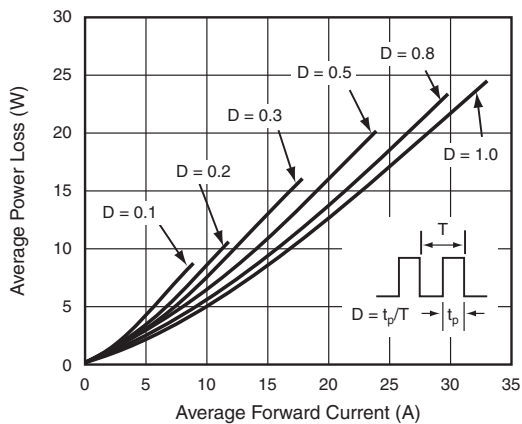


Fig. 2 - Forward Power Loss Characteristics Per Diode

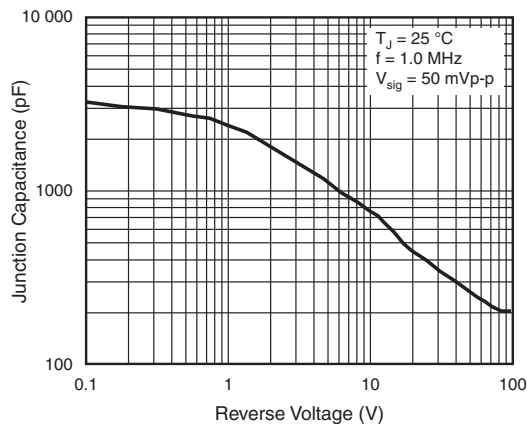


Fig. 5 - Typical Junction Capacitance Per Diode

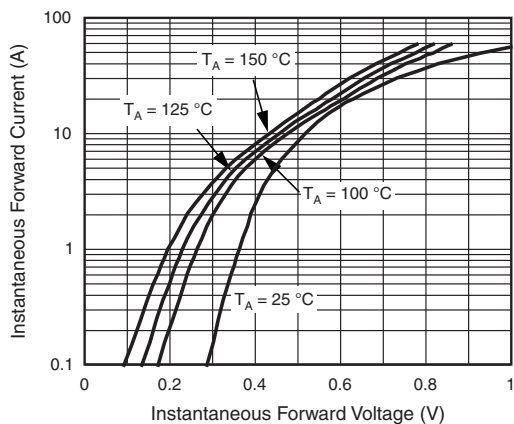


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

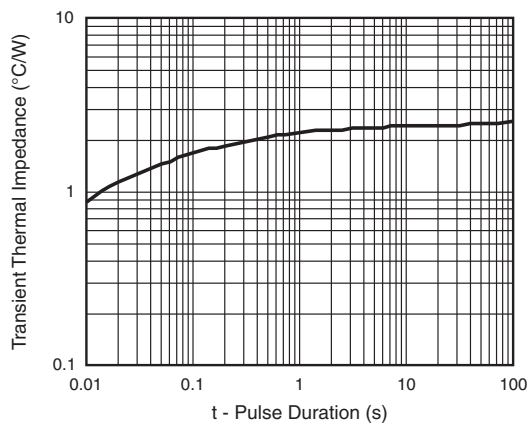
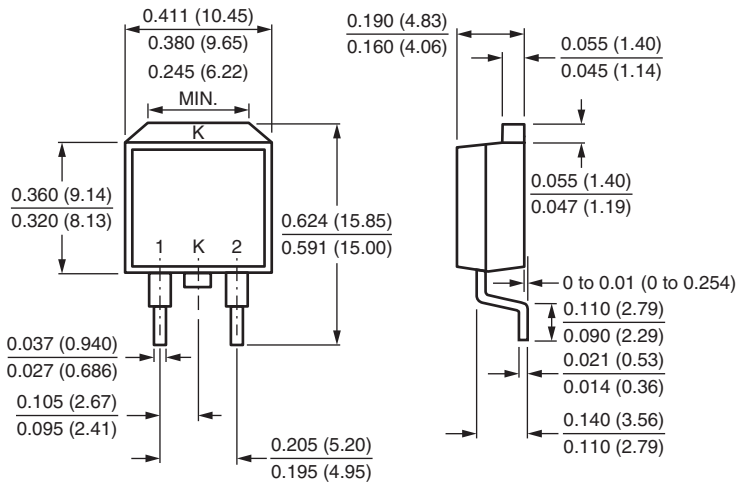


Fig. 6 - Typical Transient Thermal Impedance Per Diode

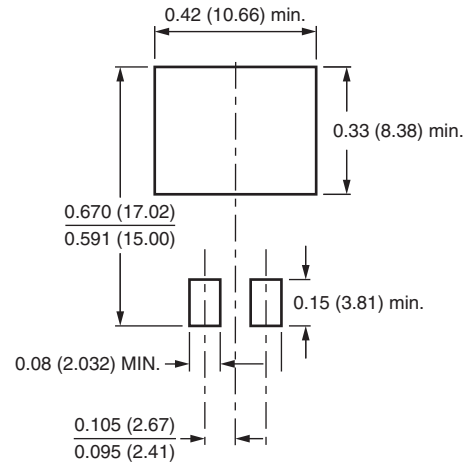


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

D²PAK (TO-263AB)



Mounting Pad Layout





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