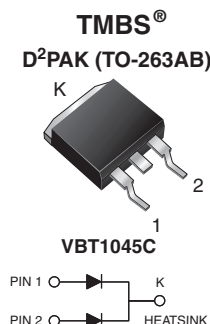


Dual Low-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.34 \text{ V}$ at $I_F = 2.5 \text{ A}$



DESIGN SUPPORT TOOLS

[click logo to get started](#)

3D
Models
Available

| PRIMARY CHARACTERISTICS | |
|--------------------------------|-------------------------------|
| $I_{F(AV)}$ | 2 x 5.0 A |
| V_{RRM} | 45 V |
| I_{FSM} | 100 A |
| V_F at $I_F = 5.0 \text{ A}$ | 0.41 V |
| $T_J \text{ max.}$ | 150 °C |
| Package | D ² PAK (TO-263AB) |
| Circuit configuration | Common cathode |

FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency 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



RoHS
COMPLIANT
HALOGEN
FREE

TYPICAL APPLICATIONS

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

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 1A whisker test

Polarity: as marked

Mounting Torque: 10 in-lbs maximum

| MAXIMUM RATINGS ($T_A = 25 \text{ °C}$ unless otherwise noted) | | | | |
|--|----------------|-------------|------|--|
| PARAMETER | SYMBOL | VB T1045C | UNIT | |
| Maximum repetitive peak reverse voltage | V_{RRM} | 45 | V | |
| Maximum average forward rectified current (fig. 1) | $I_{F(AV)}$ | 10 | A | |
| | | 5 | | |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I_{FSM} | 100 | A | |
| Operating junction and storage temperature range | T_J, T_{STG} | -40 to +150 | °C | |

| ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | |
|--|------------------------|-------------------------|-------------------------------|------|------|------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | TYP. | MAX. | UNIT |
| Instantaneous forward voltage per diode | I _F = 2.5 A | T _A = 25 °C | V _F ⁽¹⁾ | 0.44 | - | V |
| | I _F = 5.0 A | | | 0.49 | 0.58 | |
| | I _F = 2.5 A | T _A = 125 °C | | 0.34 | - | |
| | I _F = 5.0 A | | | 0.41 | 0.50 | |
| Reverse current per diode | V _R = 45 V | T _A = 25 °C | I _R ⁽²⁾ | - | 500 | μA |
| | | T _A = 125 °C | | 5 | 15 | mA |

Notes

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

(2) Pulse test: Pulse width ≤ 40 ms



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

| PARAMETER | | SYMBOL | VBT1045C | UNIT |
|----------------------------|------------|-----------------|----------|--------------------|
| Typical thermal resistance | per diode | $R_{\theta JC}$ | 3.5 | $^\circ\text{C/W}$ |
| | per device | | 2.5 | |

ORDERING INFORMATION (Example)

| PACKAGE | PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|----------|----------------|-----------------|--------------|---------------|---------------|
| TO-263AB | VBT1045C-M3/4W | 1.38 | 4W | 50/tube | Tube |
| TO-263AB | VBT1045C-M3/8W | 1.38 | 8W | 800/reel | Tape and reel |

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

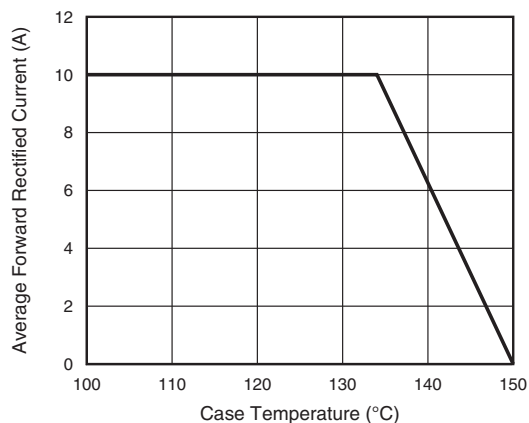


Fig. 1 - Maximum Forward Current Derating Curve

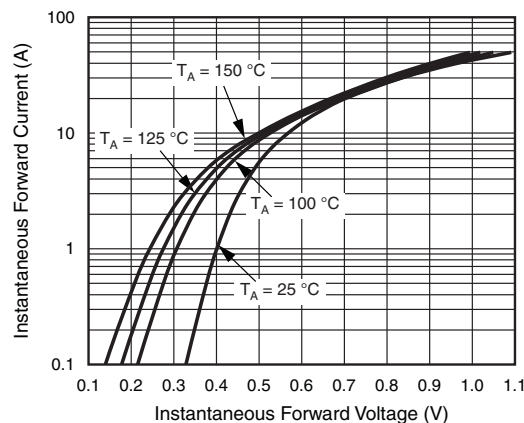


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

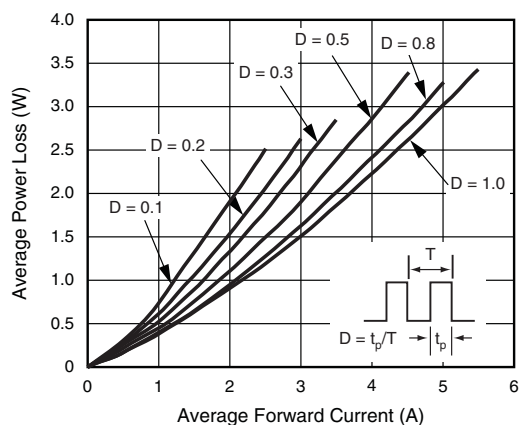


Fig. 2 - Forward Power Loss Characteristics Per Diode

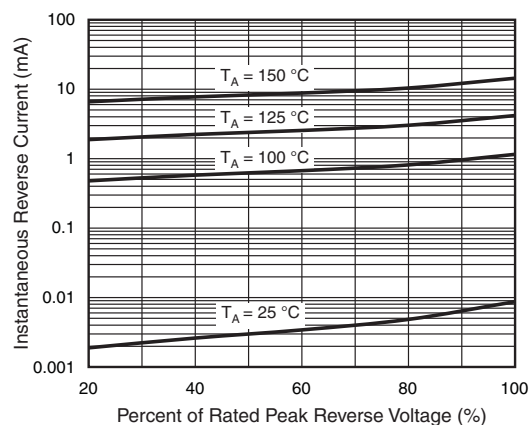


Fig. 4 - Typical Reverse Characteristics Per Diode

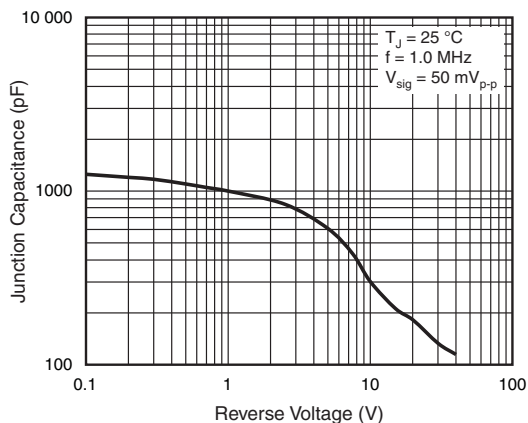


Fig. 5 - Typical Junction Capacitance Per Diode

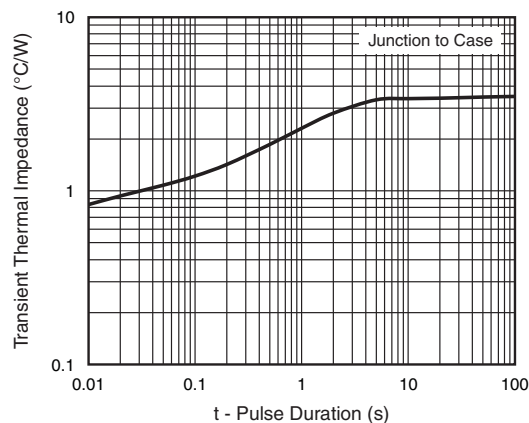
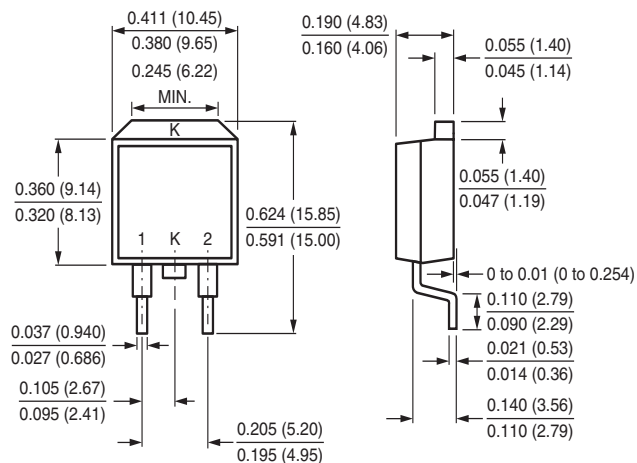
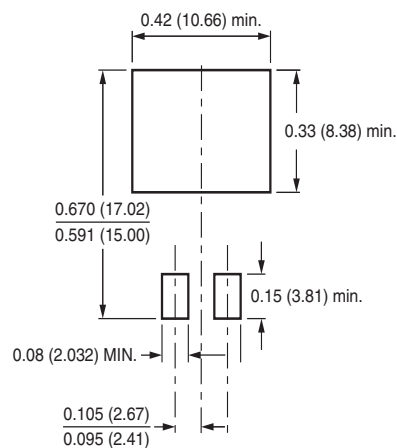


Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

D²PAK (TO-263AB)

Mounting Pad Layout




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