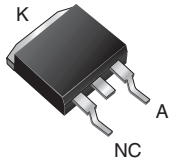
# Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F$ = 0.39 V at $I_F$ = 5 A

**TMBS®**

**D²PAK (TO-263AB)**




**VBT3080S**


## 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 converters, switching power supplies, freewheeling diodes, OR-ing diode, DC/DC converters, and reverse battery protection.

## DESIGN SUPPORT TOOLS

click logo to get started

3D Models Available

## 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

| PRIMARY CHARACTERISTICS | |
|---|---|
| $I_{F(AV)}$ | 30 A |
| $V_{RRM}$ | 80 V |
| $I_{FSM}$ | 200 A |
| $V_F$ at $I_F$ = 30 A | 0.73 V |
| $T_J$ max. | 150 °C |
| Package | D²PAK (TO-263AB) |
| Circuit configuration | Single |

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

| PARAMETER | SYMBOL | VBT3080S | UNIT |
|---|---|---|---|
| Maximum repetitive peak reverse voltage | $V_{RRM}$ | 80 | V |
| Maximum average forward rectified current (fig. 1) | $I_{F(AV)}$ | 30 | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$ | 200 | A |
| Operating junction and storage temperature range | $T_J$, $T_{STG}$ | -55 to +150 | °C |

| ELECTRICAL CHARACTERISTICS ($T_A$ = 25 °C unless otherwise noted) | | | | | | |
|---|---|---|---|---|---|---|
| **PARAMETER** | **TEST CONDITIONS** | | **SYMBOL** | **TYP.** | **MAX.** | **UNIT** |
| Instantaneous forward voltage (1) | $I_F$ = 5 A | $T_A$ = 25 °C | $V_F$ | 0.47 | - | V |
| | $I_F$ = 15 A | | | 0.61 | - | |
| | $I_F$ = 30 A | | | 0.82 | 0.95 | |
| | $I_F$ = 5 A | $T_A$ = 125 °C | | 0.39 | - | |
| | $I_F$ = 15 A | | | 0.57 | - | |
| | $I_F$ = 30 A | | | 0.73 | 0.82 | |
| Reverse current (2) | $V_R$ = 80 V | $T_A$ = 25 °C | $I_R$ | 70 | 1000 | µA |
| | | $T_A$ = 125 °C | | 23 | 45 | mA |

**Notes**

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

(2) Pulse test: Pulse width ≤ 40 ms

| THERMAL CHARACTERISTICS ($T_A$ = 25 °C unless otherwise noted) | | | |
|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **VBT3080S** | **UNIT** |
| Typical thermal resistance | $R_{\theta JC}$ | 1.5 | °C/W |

## RATINGS AND CHARACTERISTICS CURVES ($T_A$ = 25 °C unless otherwise noted)

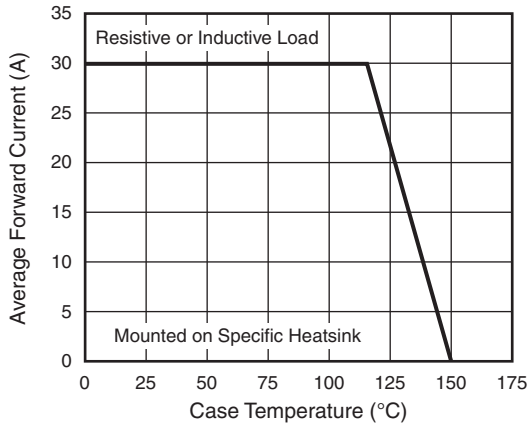



Fig. 1 - Maximum Forward Current Derating Curve

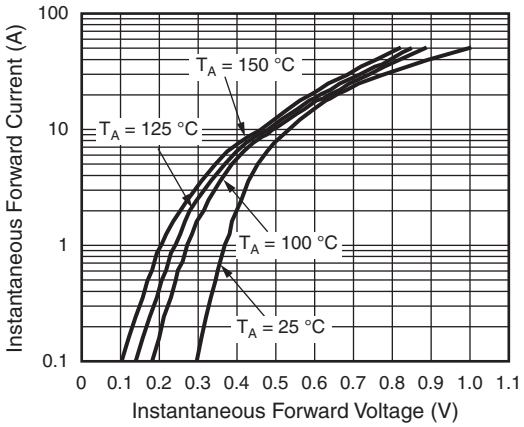



Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

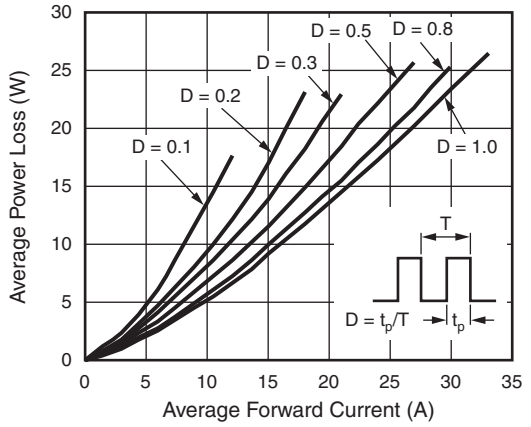



Fig. 2 - Forward Power Loss Characteristics Per Diode

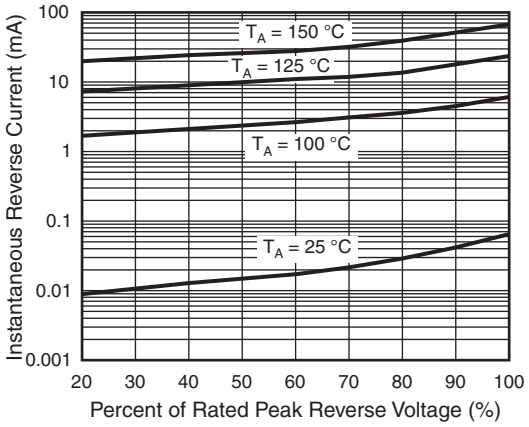



Fig. 4 - Typical Reverse Characteristics Per Diode

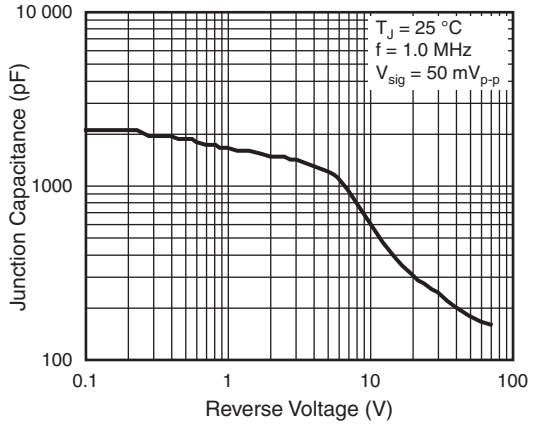



Fig. 5 - Typical Junction Capacitance Per Diode

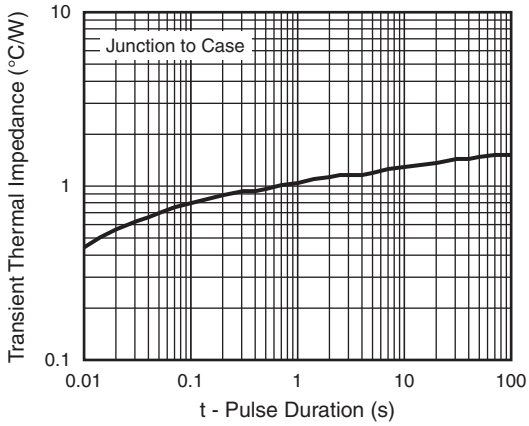
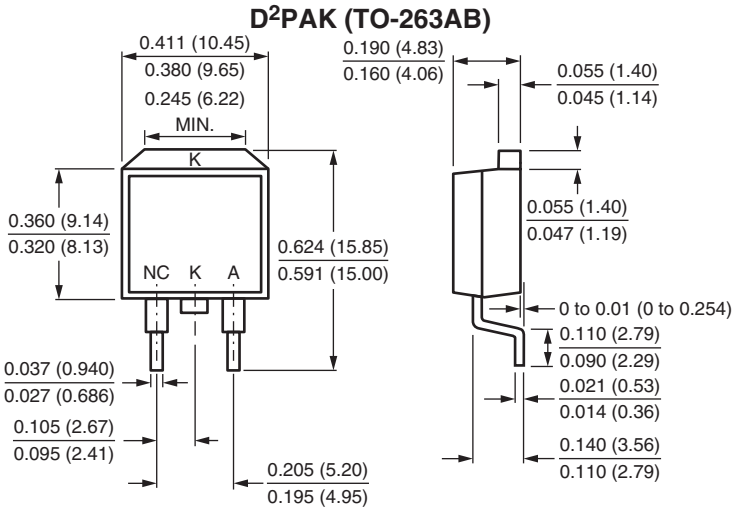
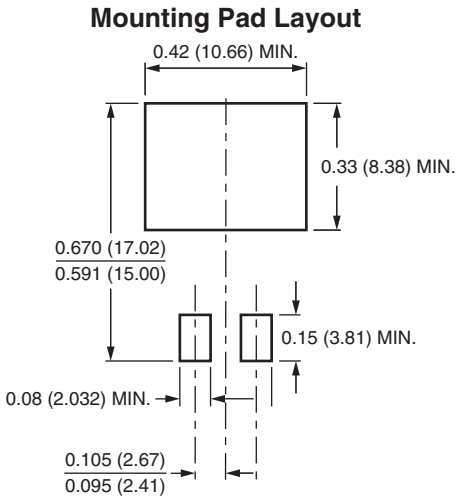



Fig. 6 - Typical Transient Thermal Impedance Per Device

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



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