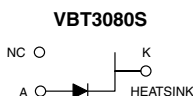
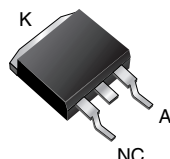


# Trench MOS Barrier Schottky Rectifier

Ultra Low  $V_F = 0.39\text{ V}$  at  $I_F = 5\text{ A}$

**TMBS®**  
**D<sup>2</sup>PAK (TO-263AB)**



## 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](http://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.

## LINKS TO ADDITIONAL RESOURCES



| PRIMARY CHARACTERISTICS      |                               |
|------------------------------|-------------------------------|
| $I_{F(AV)}$                  | 30 A                          |
| $V_{RRM}$                    | 80 V                          |
| $I_{FSM}$                    | 200 A                         |
| $V_F$ at $I_F = 30\text{ A}$ | 0.73 V                        |
| $T_J\text{ max.}$            | 150 °C                        |
| Package                      | D <sup>2</sup> PAK (TO-263AB) |
| Circuit configuration        | Single                        |

## MECHANICAL DATA

**Case:** D<sup>2</sup>PAK (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 T3080S   | 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 <sub>A</sub> = 25 °C unless otherwise noted) |                       |                         |                |      |      |      |
|----------------------------------------------------------------------------|-----------------------|-------------------------|----------------|------|------|------|
| PARAMETER                                                                  | TEST CONDITIONS       |                         | SYMBOL         | TYP. | MAX. | UNIT |
| Instantaneous forward voltage <sup>(1)</sup>                               | I <sub>F</sub> = 5 A  | T <sub>A</sub> = 25 °C  | V <sub>F</sub> | 0.47 | -    | V    |
|                                                                            | I <sub>F</sub> = 15 A |                         |                | 0.61 | -    |      |
|                                                                            | I <sub>F</sub> = 30 A |                         |                | 0.82 | 0.95 |      |
|                                                                            | I <sub>F</sub> = 5 A  | T <sub>A</sub> = 125 °C |                | 0.39 | -    |      |
|                                                                            | I <sub>F</sub> = 15 A |                         |                | 0.57 | -    |      |
|                                                                            | I <sub>F</sub> = 30 A |                         |                | 0.73 | 0.82 |      |
| Reverse current <sup>(2)</sup>                                             | V <sub>R</sub> = 80 V | T <sub>A</sub> = 25 °C  | I <sub>R</sub> | 70   | 1000 | μA   |
|                                                                            |                       | T <sub>A</sub> = 125 °C |                | 23   | 45   | mA   |

**Notes**<sup>(1)</sup> Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle<sup>(2)</sup> Pulse test: Pulse width  $\leq 40\text{ ms}$ 

| <b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted) |                 |           |                      |
|---------------------------------------------------------------------------------------------|-----------------|-----------|----------------------|
| PARAMETER                                                                                   | SYMBOL          | VB T3080S | UNIT                 |
| Typical thermal resistance                                                                  | $R_{\theta JC}$ | 1.5       | $^{\circ}\text{C/W}$ |

| <b>ORDERING INFORMATION</b> (Example) |                 |                 |              |               |               |
|---------------------------------------|-----------------|-----------------|--------------|---------------|---------------|
| PACKAGE                               | PREFERRED P/N   | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| D <sup>2</sup> PAK (TO-263AB)         | VB T3080S-M3/4W | 1.37            | 4W           | 50/tube       | Tube          |
| D <sup>2</sup> PAK (TO-263AB)         | VB T3080S-M3/8W | 1.37            | 8W           | 800/reel      | Tape and reel |

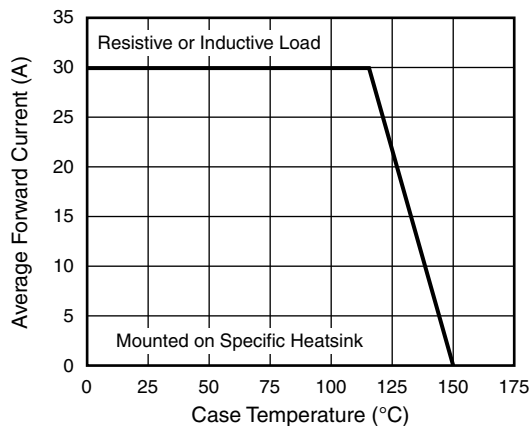
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)


Fig. 1 - Maximum Forward Current Derating Curve

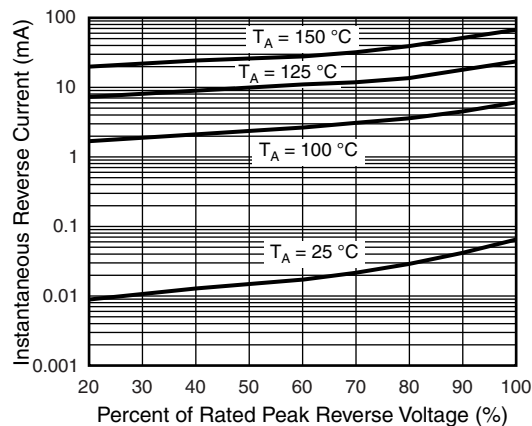


Fig. 4 - Typical Reverse Characteristics Per Diode

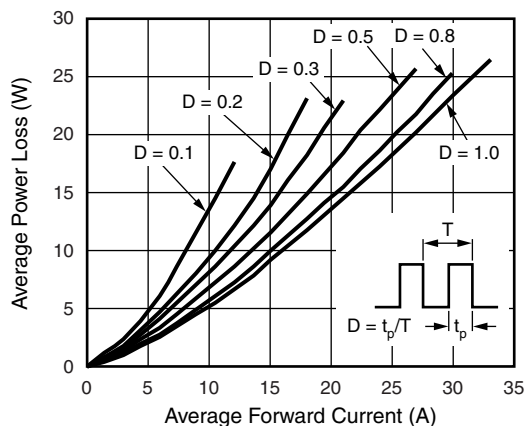


Fig. 2 - Forward Power Loss Characteristics Per Diode

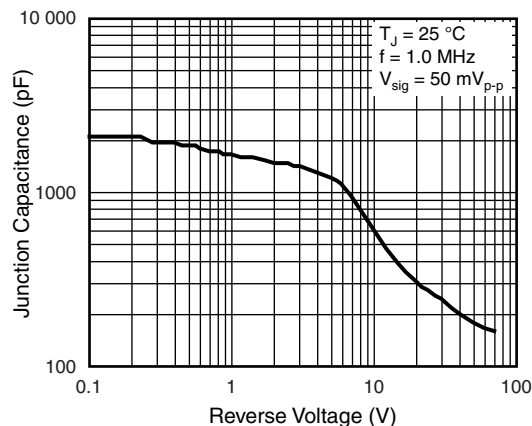


Fig. 5 - Typical Junction Capacitance Per Diode

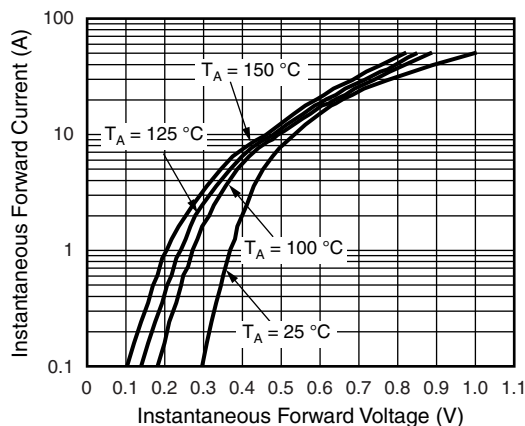


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

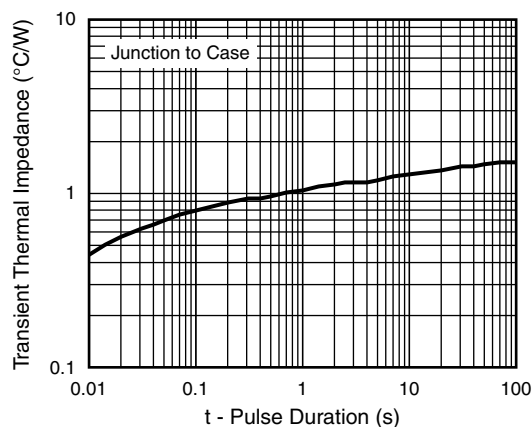
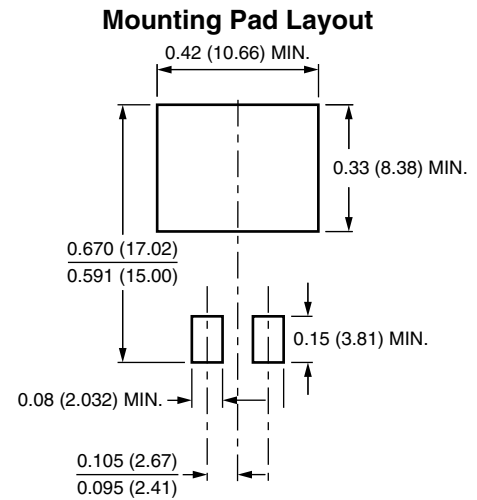
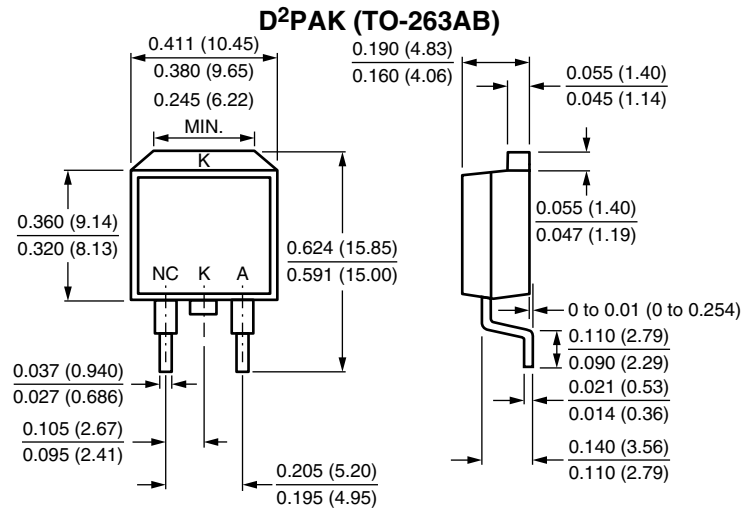


Fig. 6 - Typical Transient Thermal Impedance Per Device

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





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