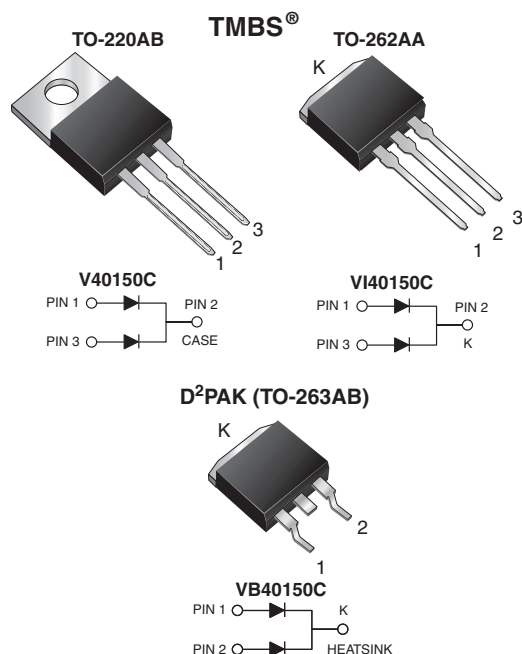




## Dual High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low  $V_F = 0.55\text{ V}$  at  $I_F = 5\text{ A}$ 

## FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Solder bath temperature 275 °C max. 10 s, per JESD 22-B106
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C (for TO-263AB package)
- 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 DC/DC converters, switching power supplies, freewheeling diodes, OR-ing diode, and reverse battery protection.

## MECHANICAL DATA

**Case:** TO-220AB, TO-262AA, and 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

## DESIGN SUPPORT TOOLS

[click logo to get started](#)

**3D**  
Models  
Available

| PRIMARY CHARACTERISTICS      |                                                   |
|------------------------------|---------------------------------------------------|
| $I_{F(AV)}$                  | 2 x 20 A                                          |
| $V_{RRM}$                    | 150 V                                             |
| $I_{FSM}$                    | 160 A                                             |
| $V_F$ at $I_F = 20\text{ A}$ | 0.75 V                                            |
| $T_J$ max.                   | 150 °C                                            |
| Package                      | TO-220AB, TO-262AA, D <sup>2</sup> PAK (TO-263AB) |
| Circuit configuration        | Common cathode                                    |

| MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)                                  |                                   |             |          |          |      |
|--------------------------------------------------------------------------------------------------|-----------------------------------|-------------|----------|----------|------|
| PARAMETER                                                                                        | SYMBOL                            | V40150C     | VB40150C | VI40150C | UNIT |
| Maximum repetitive peak reverse voltage                                                          | V <sub>RRM</sub>                  | 150         |          |          | V    |
| Maximum average forward rectified current<br>(fig. 1) <div>per device</div> <div>per diode</div> | I <sub>F(AV)</sub>                | 40          |          |          | A    |
|                                                                                                  |                                   | 20          |          |          |      |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load               | I <sub>FSM</sub>                  | 160         |          |          | A    |
| Voltage rate of change (rated V <sub>R</sub> )                                                   | dV/dt                             | 10 000      |          |          | V/μs |
| Operating junction and storage temperature range                                                 | T <sub>J</sub> , T <sub>STG</sub> | -55 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 | I <sub>F</sub> = 5 A   | T <sub>A</sub> = 25 °C  | V <sub>F</sub> <sup>(1)</sup> | 0.69 | -    | V    |
|                                         | I <sub>F</sub> = 10 A  |                         |                               | 0.84 | -    |      |
|                                         | I <sub>F</sub> = 20 A  |                         |                               | 1.15 | 1.43 |      |
|                                         | I <sub>F</sub> = 5 A   | T <sub>A</sub> = 125 °C |                               | 0.55 | -    |      |
|                                         | I <sub>F</sub> = 10 A  |                         |                               | 0.64 | -    |      |
|                                         | I <sub>F</sub> = 20 A  |                         |                               | 0.75 | 0.82 |      |
| Reverse current per diode               | V <sub>R</sub> = 100 V | T <sub>A</sub> = 25 °C  | I <sub>R</sub> <sup>(2)</sup> | 2    | -    | μA   |
|                                         |                        | T <sub>A</sub> = 125 °C |                               | 2.5  | -    | mA   |
|                                         | V <sub>R</sub> = 150 V | T <sub>A</sub> = 25 °C  |                               | -    | 250  | μA   |
|                                         |                        | T <sub>A</sub> = 125 °C |                               | 5    | 25   | mA   |

**Notes**(1) Pulse test: 300  $\mu\text{s}$  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          | V40150C | VB40150C | VI40150C | UNIT                 |
|--------------------------------------|-----------------|---------|----------|----------|----------------------|
| Typical thermal resistance per diode | $R_{\theta JC}$ | 1.8     |          |          | $^{\circ}\text{C/W}$ |

**ORDERING INFORMATION** (Example)

| PACKAGE  | PREFERRED P/N  | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|----------|----------------|-----------------|--------------|---------------|---------------|
| TO-220AB | V40150C-M3/4W  | 1.89            | 4W           | 50/tube       | Tube          |
| TO-262AA | VI40150C-M3/4W | 1.46            | 4W           | 50/tube       | Tube          |
| TO-263AB | VB40150C-M3/I  | 1.39            | I            | 800/reel      | Tape and reel |



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

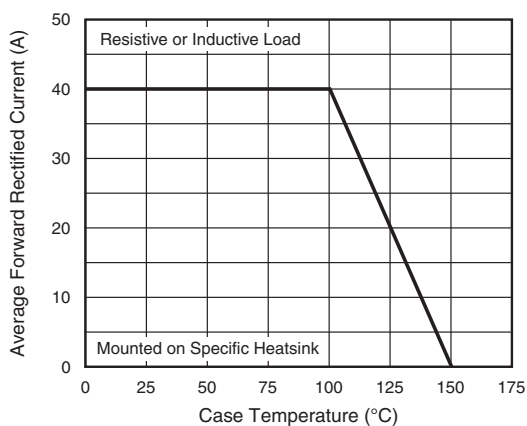


Fig. 1 - Maximum Forward Current Derating Curve

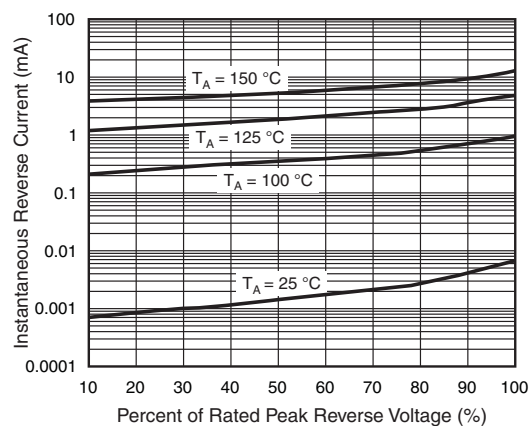


Fig. 4 - Typical Reverse Characteristics

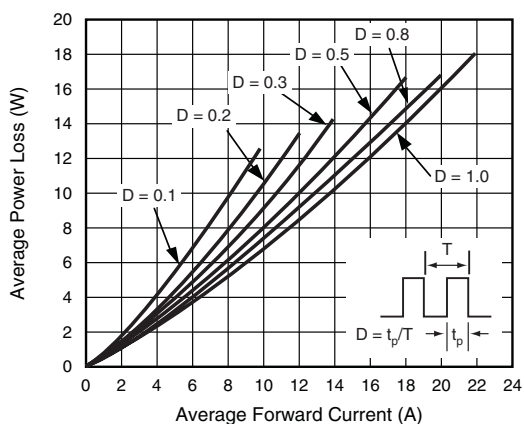


Fig. 2 - Forward Power Dissipation Characteristics

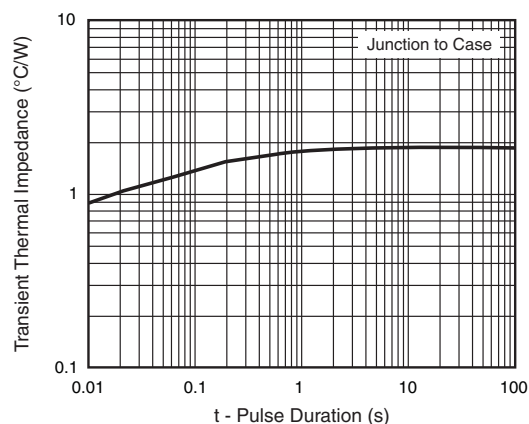


Fig. 5 - Typical Transient Thermal Impedance

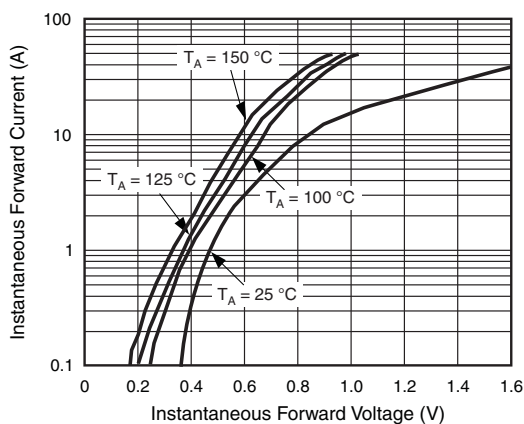


Fig. 3 - Typical Instantaneous Forward Characteristics

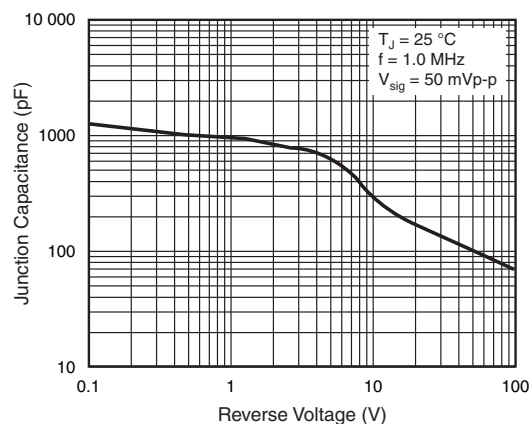
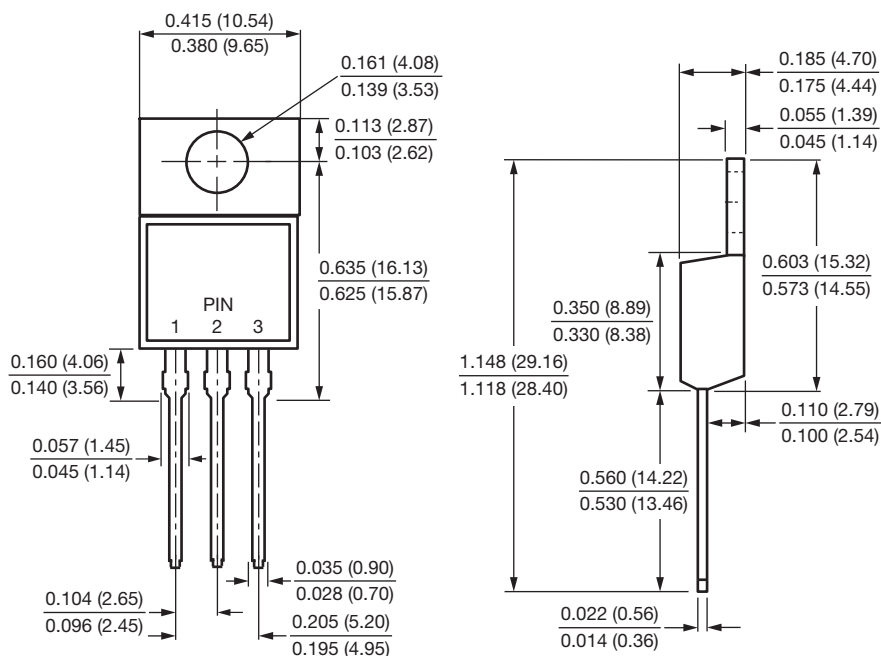


Fig. 6 - Typical Junction Capacitance

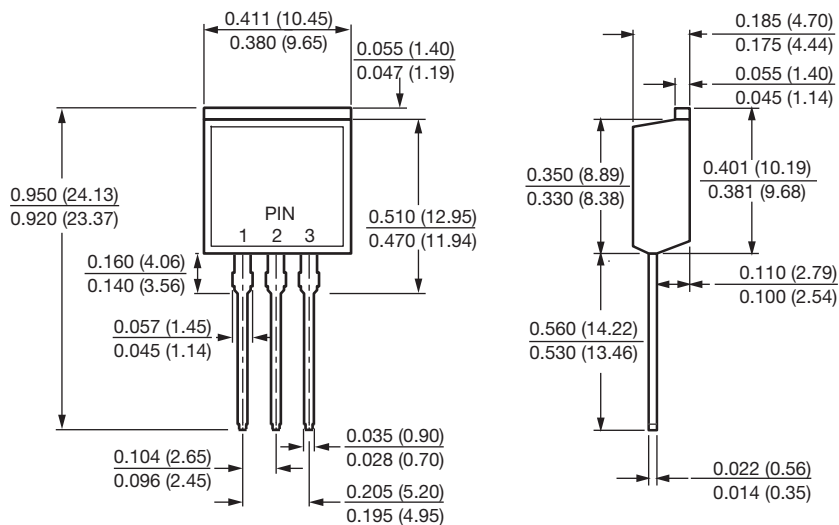


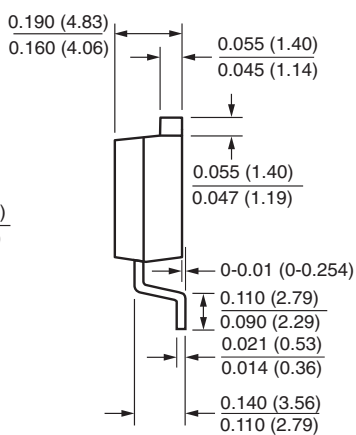
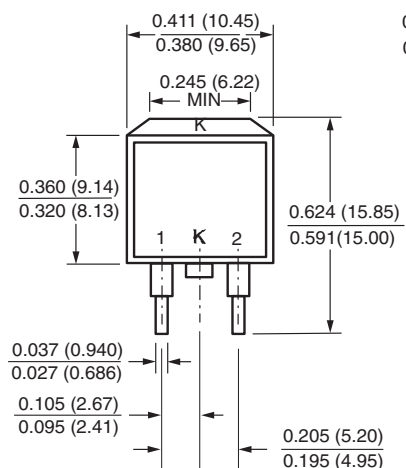
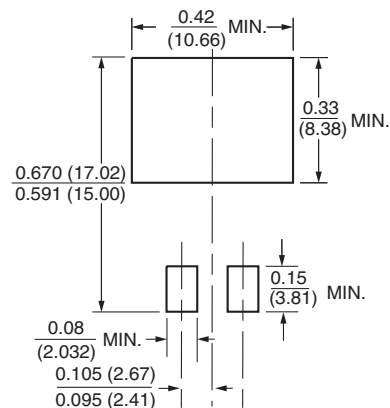
## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### TO-220AB



### TO-262AA



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

**Mounting Pad Layout**




## Disclaimer

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