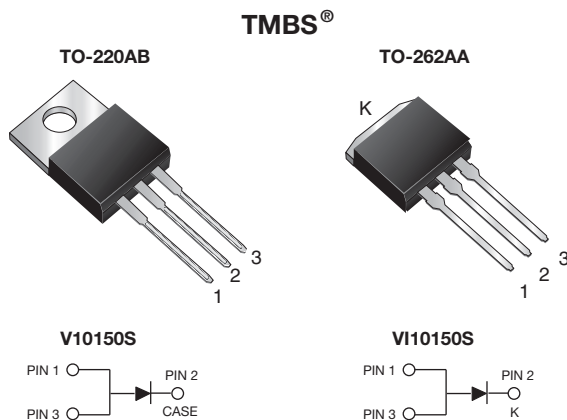


# High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low  $V_F = 0.59\text{ V}$  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
- 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 and TO-262AA

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

|                              |                    |
|------------------------------|--------------------|
| $I_{F(AV)}$                  | 10 A               |
| $V_{RRM}$                    | 150 V              |
| $I_{FSM}$                    | 120 A              |
| $V_F$ at $I_F = 10\text{ A}$ | 0.69 V             |
| $T_J$ max.                   | 150 °C             |
| Package                      | TO-220AB, TO-262AA |
| Diode variation              | Single             |

## MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)

| PARAMETER  | SYMBOL         | V10150S     | VI10150S | UNIT       |
|--|----------------|-------------|----------|------------|
| Maximum repetitive peak reverse voltage  | $V_{RRM}$      | 150         |          | V          |
| Maximum average forward rectified current (fig. 1)                                 | $I_{F(AV)}$    | 10          |          | A          |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$      | 120         |          | A          |
| Voltage rate of change (rated $V_R$ )  | $dV/dt$        | 10 000      |          | V/ $\mu$ s |
| Operating junction and storage temperature range                                   | $T_J, T_{STG}$ | -40 to +150 |          | °C         |

## ELECTRICAL CHARACTERISTICS ( $T_A = 25\text{ °C}$ unless otherwise noted)

| PARAMETER                     | TEST CONDITIONS       | SYMBOL      | TYP. | MAX. | UNIT    |
|-------------------------------|-----------------------|-------------|------|------|---------|
| Instantaneous forward voltage | $I_F = 5\text{ A}$    | $V_F^{(1)}$ | 0.79 | -    | V       |
|                               | $I_F = 10\text{ A}$   |             | 1.05 | 1.20 |         |
|                               | $I_F = 5\text{ A}$    |             | 0.59 | -    |         |
|                               | $I_F = 10\text{ A}$   |             | 0.69 | 0.75 |         |
| Reverse current               | $V_R = 100\text{ V}$  | $I_R^{(2)}$ | 1.3  | -    | $\mu$ A |
|                               | $T_A = 25\text{ °C}$  |             | 1.2  | -    | mA      |
|                               | $T_A = 125\text{ °C}$ |             | -    | 150  | $\mu$ A |
|                               | $V_R = 150\text{ V}$  |             | 3    | 15   | mA      |

### Notes

(1) Pulse test: 300  $\mu$ s pulse width, 1 % duty cycle

(2) Pulse test: Pulse width  $\leq 40\text{ ms}$



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

| PARAMETER                  | SYMBOL          | V10150S | VI10150S | UNIT               |
|----------------------------|-----------------|---------|----------|--------------------|
| Typical thermal resistance | $R_{\theta JC}$ | 2.0     |          | $^\circ\text{C/W}$ |

**ORDERING INFORMATION** (Example)

| PACKAGE  | PREFERRED P/N  | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|----------|----------------|-----------------|--------------|---------------|---------------|
| TO-220AB | V10150S-M3/4W  | 1.88            | 4W           | 50/tube       | Tube          |
| TO-262AA | VI10150S-M3/4W | 1.45            | 4W           | 50/tube       | Tube          |

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

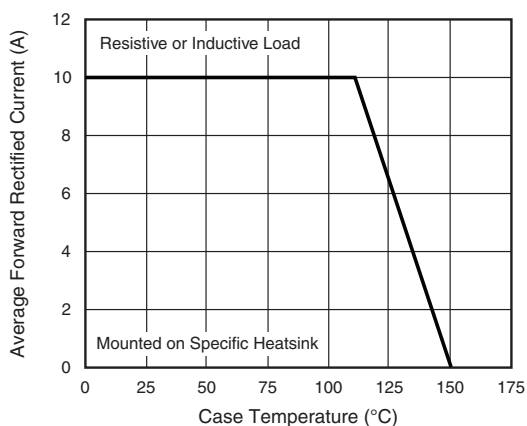


Fig. 1 - Maximum Forward Current Derating Curve

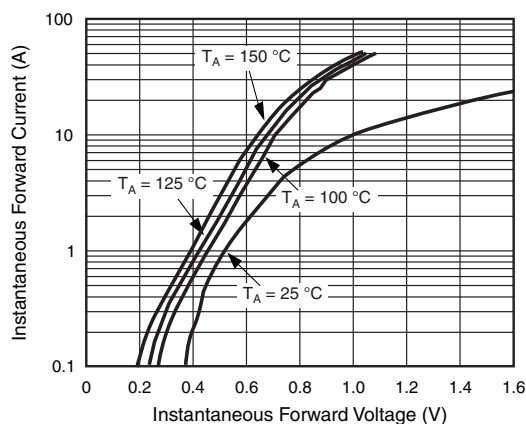


Fig. 3 - Typical Instantaneous Forward Characteristics

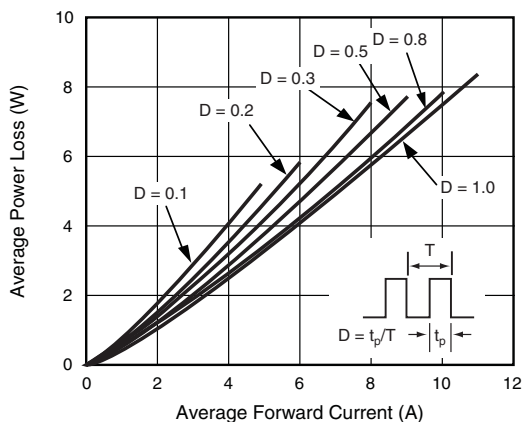


Fig. 2 - Forward Power Dissipation Characteristics

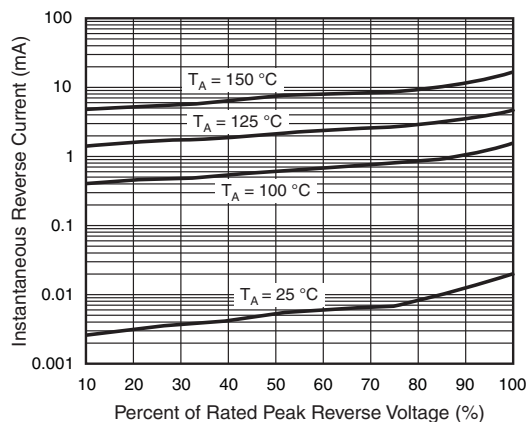


Fig. 4 - Typical Reverse Characteristics

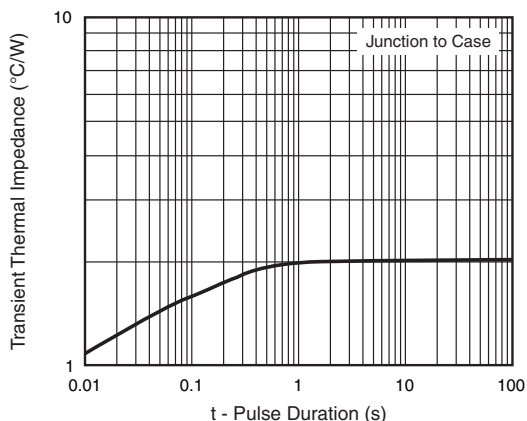


Fig. 5 - Typical Transient Thermal Impedance

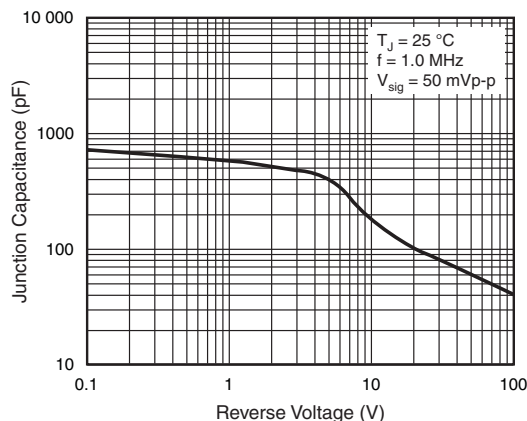
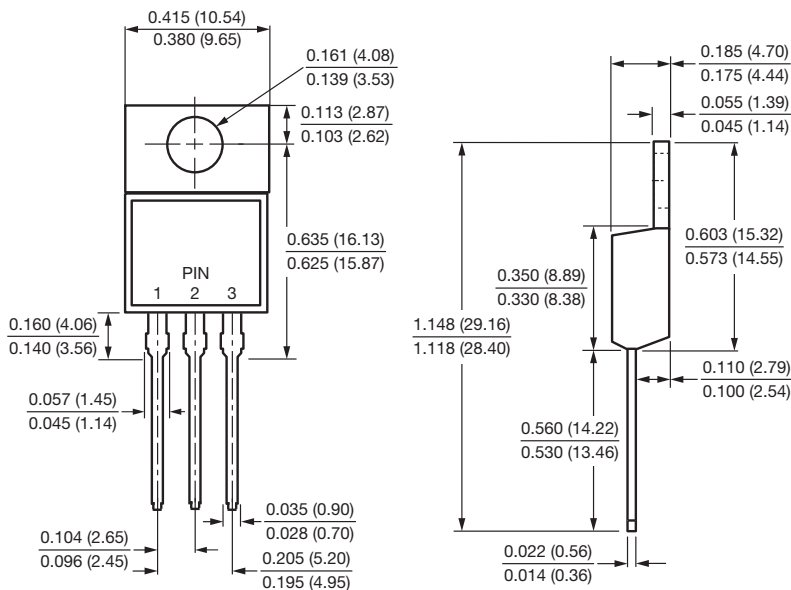
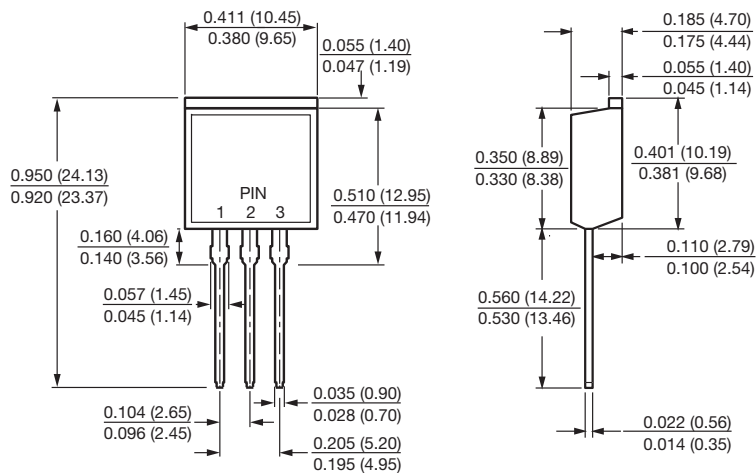


Fig. 6 - Typical Junction Capacitance

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

**TO-220AB**

**TO-262AA**




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