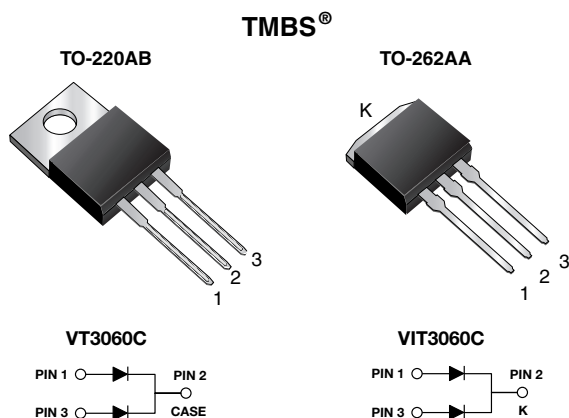


# Dual High Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low  $V_F = 0.38 \text{ V}$  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
- AEC-Q101 qualified
- 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.

## PRIMARY CHARACTERISTICS

|                               |                    |
|-------------------------------|--------------------|
| $I_{F(AV)}$                   | 2 x 15 A           |
| $V_{RRM}$                     | 60 V               |
| $I_{FSM}$                     | 170 A              |
| $V_F$ at $I_F = 15 \text{ A}$ | 0.57 V             |
| $T_J \text{ max.}$            | 150 °C             |
| Package                       | TO-220AB, TO-262AA |
| Diode variations              | Common cathode     |

## 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

Base P/NHM3 - halogen-free, RoHS-compliant, and AEC-Q101 qualified

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 1A whisker test, HM3 suffix meets JESD 201 class 2 whisker test

**Polarity:** As marked

**Mounting Torque:** 10 in-lbs maximum

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

| PARAMETER                                                                          | SYMBOL         | VT3060C     | VIT3060C | UNIT       |
|------------------------------------------------------------------------------------|----------------|-------------|----------|------------|
| Maximum repetitive peak reverse voltage                                            | $V_{RRM}$      | 60          |          | V          |
| Maximum average forward rectified current<br>(fig. 1)                              | $I_{F(AV)}$    | 30          |          | A          |
|                                                                                    |                | 15          |          |            |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$      | 170         |          | A          |
| Voltage rate of change (rated $V_R$ )                                              | $dV/dt$        | 10 000      |          | V/ $\mu$ s |
| Operating junction and storage temperature range                                   | $T_J, T_{STG}$ | -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 per diode                                    | I <sub>F</sub> = 5 A   | T <sub>A</sub> = 25 °C  | V <sub>F</sub> <sup>(1)</sup> | 0.47 | -    | V    |
|                                                                            | I <sub>F</sub> = 7.5 A |                         |                               | 0.51 | -    |      |
|                                                                            | I <sub>F</sub> = 15 A  |                         |                               | 0.60 | 0.70 |      |
|                                                                            | I <sub>F</sub> = 5 A   | T <sub>A</sub> = 125 °C |                               | 0.38 | -    |      |
|                                                                            | I <sub>F</sub> = 7.5 A |                         |                               | 0.44 | -    |      |
|                                                                            | I <sub>F</sub> = 15 A  |                         |                               | 0.57 | 0.65 |      |
| Reverse current per diode                                                  | V <sub>R</sub> = 60 V  | T <sub>A</sub> = 25 °C  | I <sub>R</sub> <sup>(2)</sup> | -    | 1.2  | mA   |
|                                                                            |                        | T <sub>A</sub> = 125 °C |                               | 20   | 45   |      |

**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 <sub>A</sub> = 25 °C unless otherwise noted) |            |                  |         |          |      |
|-------------------------------------------------------------------------|------------|------------------|---------|----------|------|
| PARAMETER                                                               |            | SYMBOL           | VT3060C | VIT3060C | UNIT |
| Typical thermal resistance                                              | per diode  | R <sub>θJC</sub> | 2.5     |          | °C/W |
|                                                                         | per device |                  | 1.7     |          |      |

| ORDERING INFORMATION (Example) |                               |                 |              |               |               |
|--------------------------------|-------------------------------|-----------------|--------------|---------------|---------------|
| PACKAGE                        | PREFERRED P/N                 | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| TO-220AB                       | VT3060C-M3/4W                 | 1.89            | 4W           | 50/tube       | Tube          |
| TO-262AA                       | VIT3060C-M3/4W                | 1.46            | 4W           | 50/tube       | Tube          |
| TO-220AB                       | VT3060CHM3/4W <sup>(1)</sup>  | 1.89            | 4W           | 50/tube       | Tube          |
| TO-262AA                       | VIT3060CHM3/4W <sup>(1)</sup> | 1.46            | 4W           | 50/tube       | Tube          |

**Note**<sup>(1)</sup> AEC-Q101 qualified



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

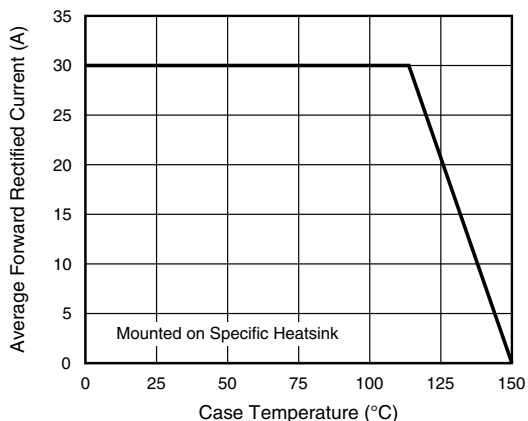


Fig. 1 - Maximum Forward Current Derating Curve

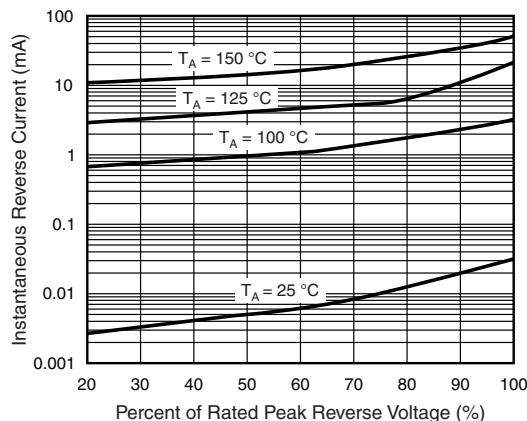


Fig. 4 - Typical Reverse Characteristics

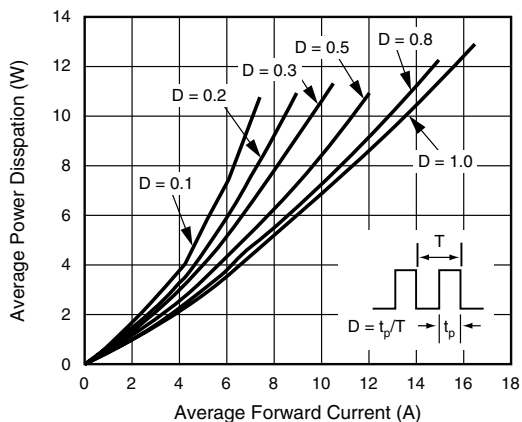


Fig. 2 - Forward Power Dissipation Characteristics

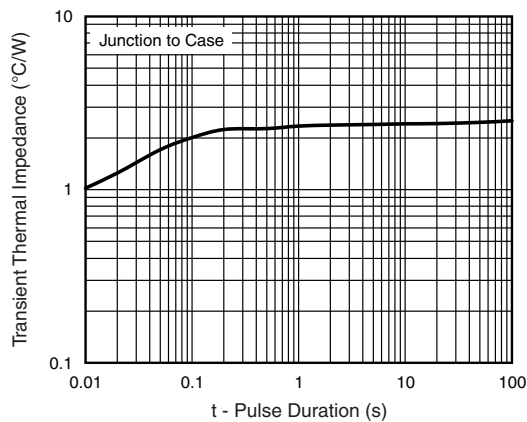


Fig. 5 - Typical Transient Thermal Impedance

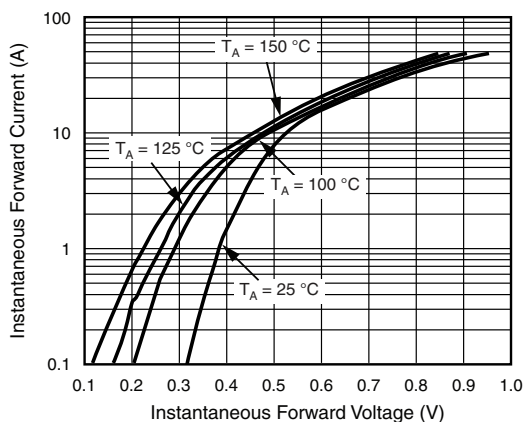


Fig. 3 - Typical Instantaneous Forward Characteristics

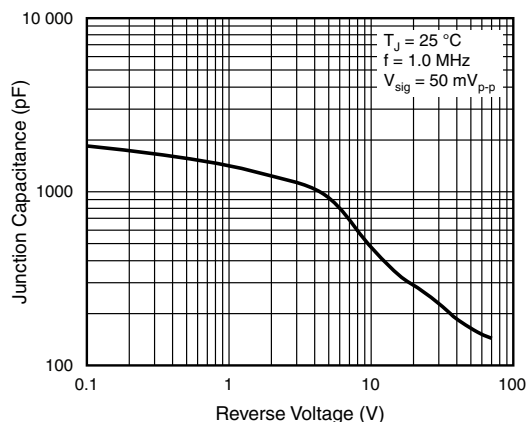
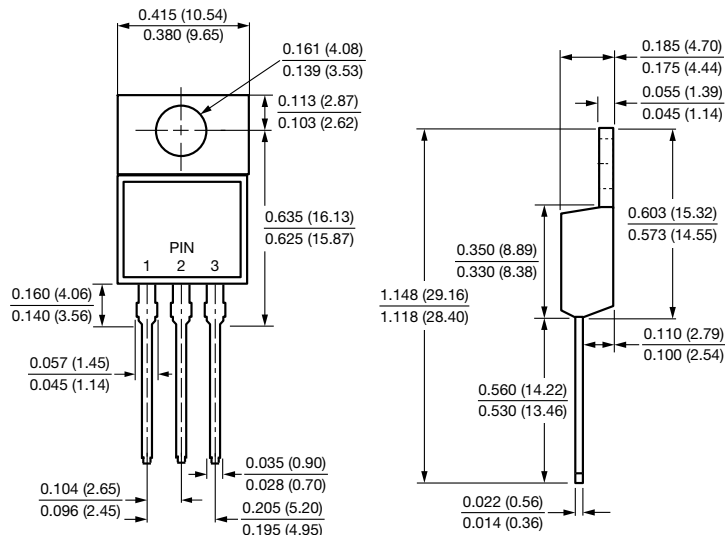


Fig. 6 - Typical Junction Capacitance

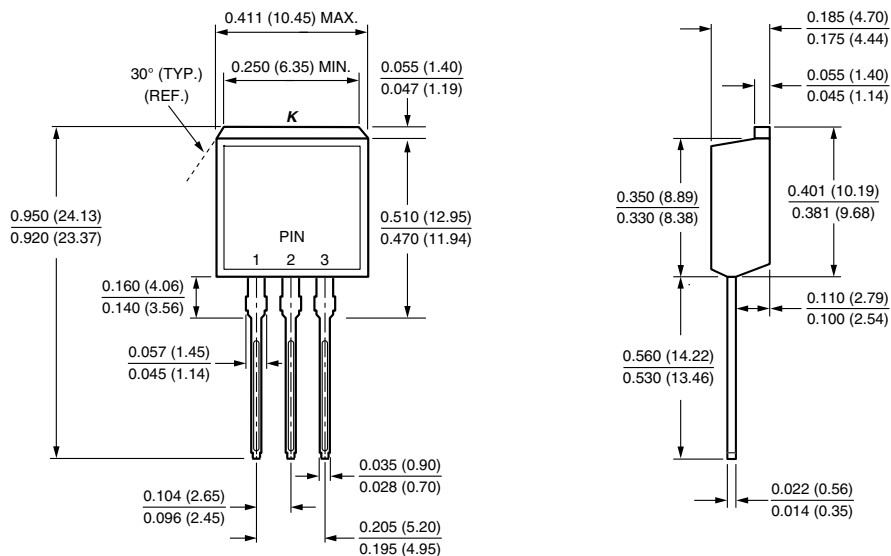


## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### TO-220AB



### TO-262AA





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