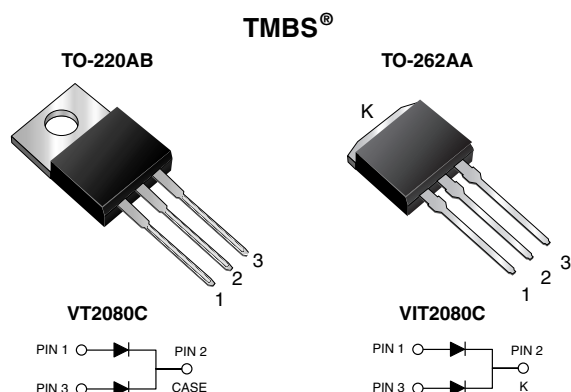




## Dual Trench MOS Barrier Schottky Rectifier

Ultra Low  $V_F = 0.52\text{ V}$  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
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition



**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 10 A |
| $V_{RRM}$                    | 80 V     |
| $I_{FSM}$                    | 100 A    |
| $V_F$ at $I_F = 10\text{ A}$ | 0.60 V   |
| $T_J$ max.                   | 150 °C   |

### 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         | VT2080C       | VIT2080C | UNIT       |
|------------------------------------------------------------------------------------|----------------|---------------|----------|------------|
| Maximum repetitive peak reverse voltage                                            | $V_{RRM}$      | 80            |          | V          |
| Maximum average forward rectified current (fig. 1)                                 | $I_{F(AV)}$    | 20            |          | A          |
|                                                                                    |                | 10            |          |            |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | $I_{FSM}$      | 100           |          | 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         |

## VT2080C, VIT2080C

Vishay General Semiconductor

**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> | 0.57 | -    | V    |
|                                         | I <sub>F</sub> = 10 A |                         |                               | 0.67 | 0.81 |      |
|                                         | I <sub>F</sub> = 5 A  | T <sub>A</sub> = 125 °C |                               | 0.52 | -    |      |
|                                         | I <sub>F</sub> = 10 A |                         |                               | 0.60 | 0.70 |      |
| Reverse current per diode               | V <sub>R</sub> = 80 V | T <sub>A</sub> = 25 °C  | I <sub>R</sub> <sup>(2)</sup> | 20   | 600  | μA   |
|                                         |                       | T <sub>A</sub> = 125 °C |                               | 10   | 20   | 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     | VT2080C | VIT2080C | UNIT |
|----------------------------|------------|---------|----------|------|
| Typical thermal resistance | per diode  | 3.0     |          | °C/W |
|                            | per device | 2.0     |          |      |

**ORDERING INFORMATION** (Example)

| PACKAGE  | PREFERRED P/N                 | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|----------|-------------------------------|-----------------|--------------|---------------|---------------|
| TO-220AB | VT2080C-M3/4W                 | 1.88            | 4W           | 50/tube       | Tube          |
| TO-262AA | VIT2080C-M3/4W                | 1.44            | 4W           | 50/tube       | Tube          |
| TO-220AB | VT2080CHM3/4W <sup>(1)</sup>  | 1.88            | 4W           | 50/tube       | Tube          |
| TO-262AA | VIT2080CHM3/4W <sup>(1)</sup> | 1.44            | 4W           | 50/tube       | Tube          |

**Note**

(1) AEC-Q101 qualified

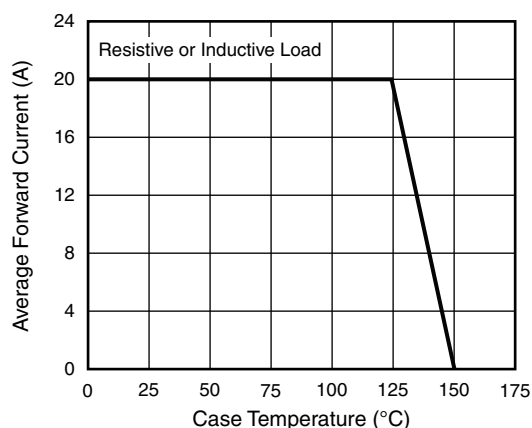
**RATINGS AND CHARACTERISTICS CURVES**( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Maximum Forward Current Derating Curve

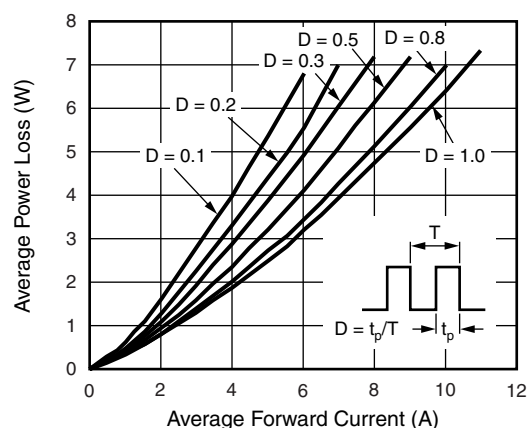


Fig. 2 - Forward Power Dissipation Characteristics

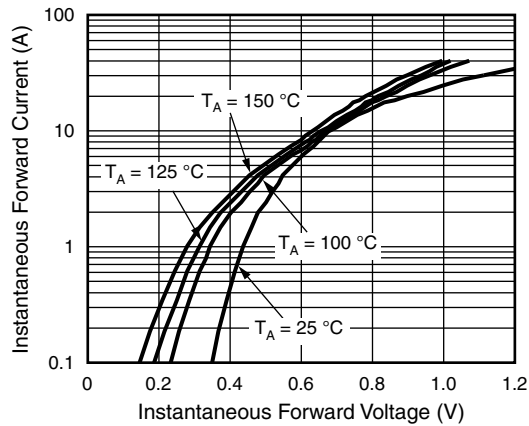


Fig. 3 - Typical Instantaneous Forward Characteristics

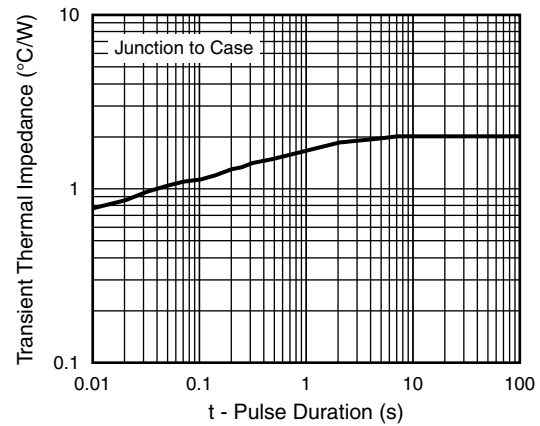


Fig. 5 - Typical Transient Thermal Impedance

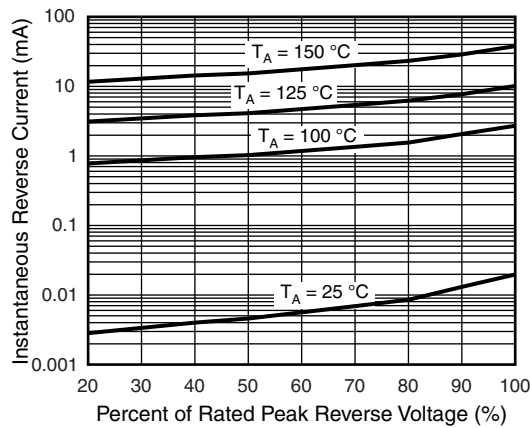


Fig. 4 - Typical Reverse Characteristics

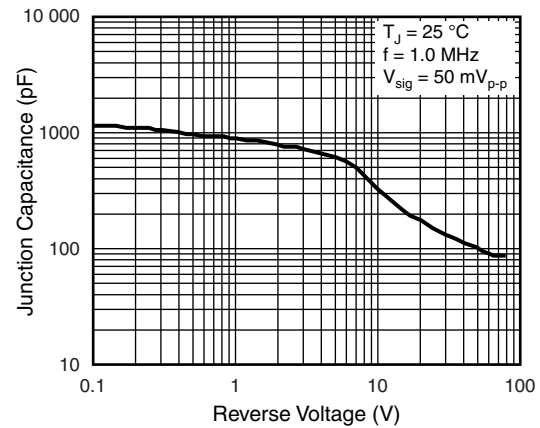
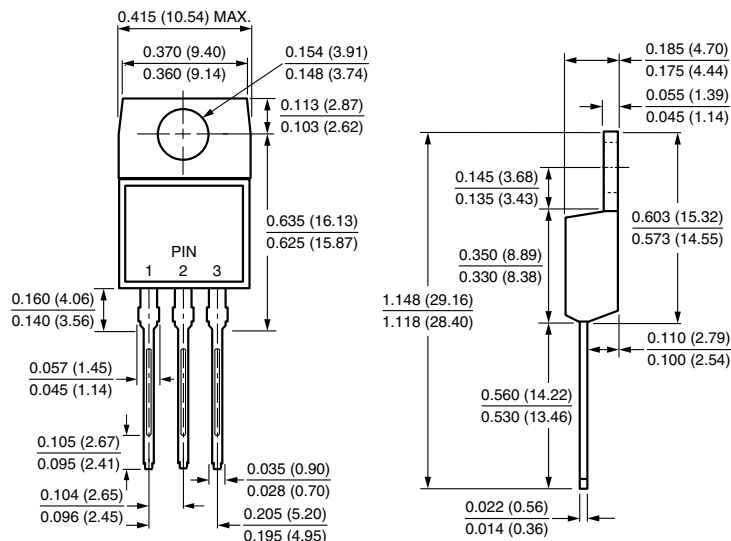
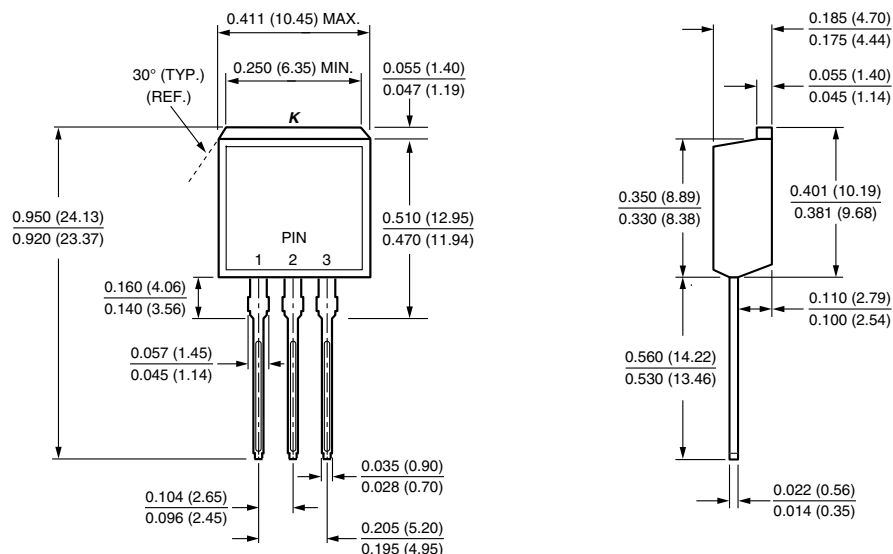


Fig. 6 - Typical Junction Capacitance

## VT2080C, VIT2080C

Vishay General Semiconductor

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)**TO-220AB****TO-262AA**



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