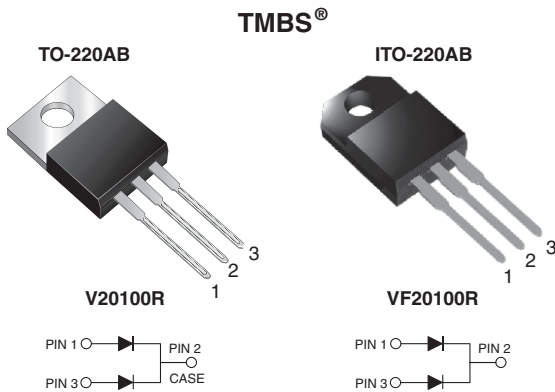


Dual High-Voltage Trench MOS Barrier Schottky Rectifier

Ultra Low $V_F = 0.54 \text{ V}$ at $I_F = 5 \text{ A}$



FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



TYPICAL APPLICATIONS

For use in high frequency inverters, switching power supplies, freewheeling diodes, OR-ing diode, dc-to-dc converters and reverse battery protection.

PRIMARY CHARACTERISTICS

| | |
|-------------------------------|----------|
| $I_{F(AV)}$ | 2 x 10 A |
| V_{RRM} | 100 V |
| I_{FSM} | 120 A |
| V_F at $I_F = 10 \text{ A}$ | 0.65 V |
| T_J max. | 150 °C |

MECHANICAL DATA

Case: TO-220AB and ITO-220AB

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for commercial grade, 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 | V20100R | VF20100R | UNIT |
|--|----------------|---------------|----------|------|
| Maximum repetitive peak reverse voltage | V_{RRM} | 100 | | V |
| Maximum average forward rectified current (Fig. 1) per device per diode | $I_{F(AV)}$ | 20 10 | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | I_{FSM} | 120 | | A |
| Isolation voltage (ITO-220AB only) from terminal to heatsink $t = 1 \text{ min}$ | V_{AC} | 1500 | | V |
| Operating junction and storage temperature range | T_J, T_{STG} | - 40 to + 150 | | °C |



| ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | |
|--|---|---|-----------------|---------------|-----------|----------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | TYP. | MAX. | UNIT |
| Breakdown voltage | I _R = 1.0 mA | T _A = 25 °C | V _{BR} | 100 (minimum) | - | V |
| Instantaneous forward voltage per diode ⁽¹⁾ | I _F = 5 A I _F = 10 A | T _A = 25 °C | V _F | 0.62 0.81 | - 0.90 | V |
| | I _F = 5 A I _F = 10 A | T _A = 125 °C | | 0.54 0.65 | - 0.72 | |
| Reverse current per diode ⁽²⁾ | V _R = 70 V | T _A = 25 °C T _A = 125 °C | I _R | 4 4 | - - | μA mA |
| | V _R = 100 V | T _A = 25 °C T _A = 125 °C | | - 5.6 | 150 15 | μA mA |

Notes:

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: 10 ms pulse width

| THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | |
|---|------------------|---------|----------|------|
| PARAMETER | SYMBOL | V20100R | VF20100R | UNIT |
| Typical thermal resistance per diode | R _{θJC} | 2.8 | 5.0 | °C/W |

| ORDERING INFORMATION (Example) | | | | | |
|--------------------------------|----------------|-----------------|--------------|---------------|---------------|
| PACKAGE | PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| TO-220AB | V20100R-E3/4W | 1.88 | 4W | 50/tube | Tube |
| ITO-220AB | VF20100R-E3/4W | 1.75 | 4W | 50/tube | Tube |

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

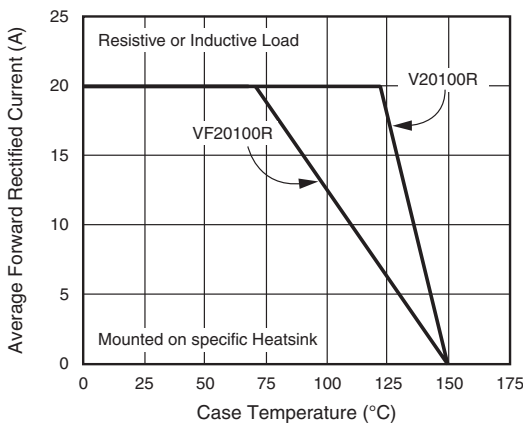


Figure 1. Maximum Forward Current Derating Curve

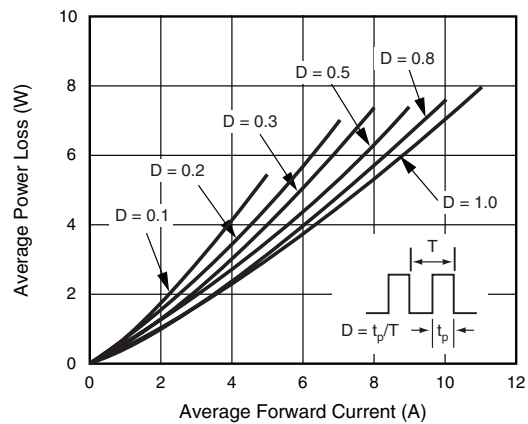


Figure 2. Forward Power Loss Characteristics Per Diode

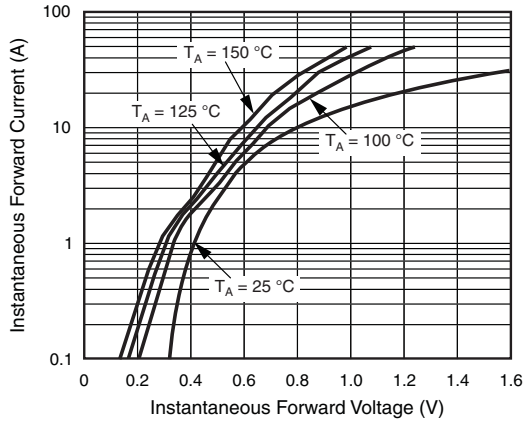


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

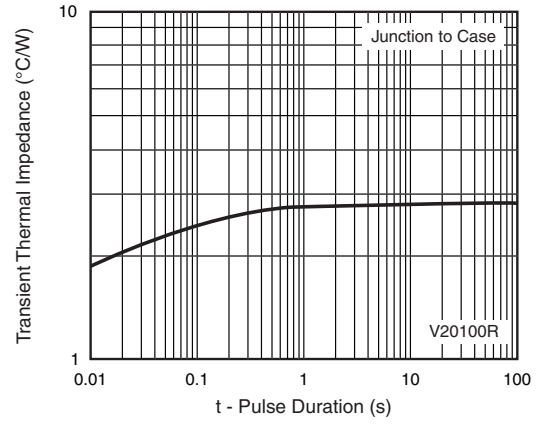


Figure 6. Typical Transient Thermal Impedance Per Diode

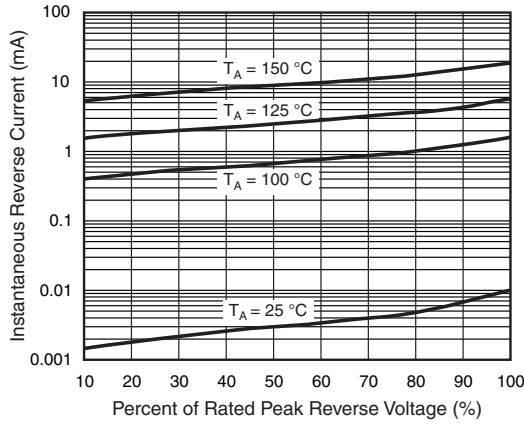


Figure 4. Typical Reverse Characteristics Per Diode

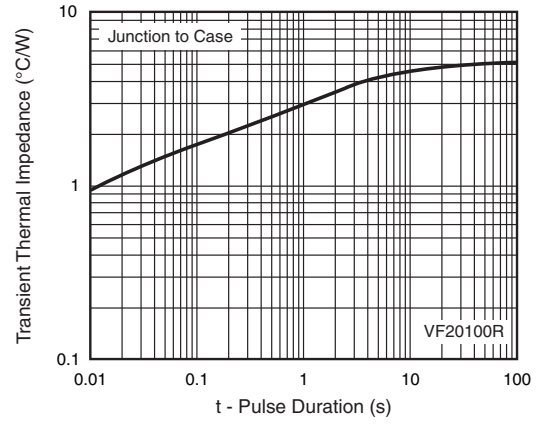


Figure 7. Typical Transient Thermal Impedance Per Diode

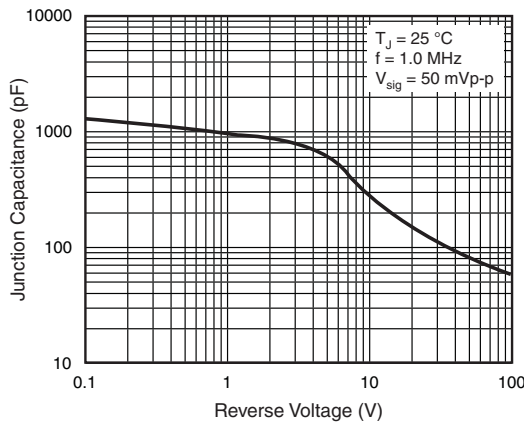
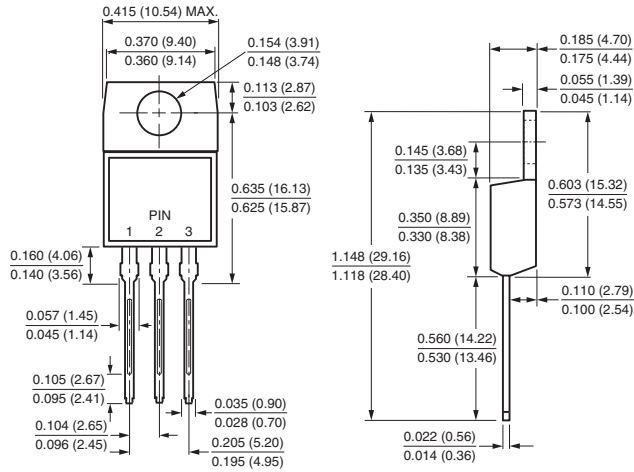


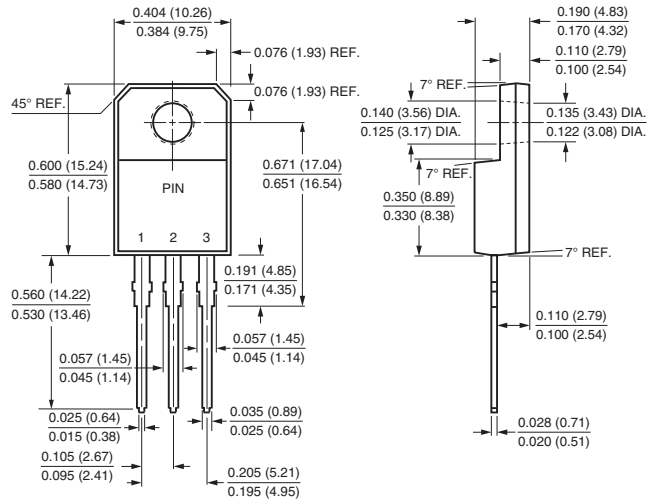
Figure 5. Typical Junction Capacitance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB



ITO-220AB





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