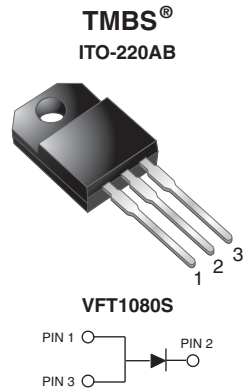


## Trench MOS Barrier Schottky Rectifier

 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
- 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:** ITO-220AB

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      |
| $V_{RRM}$                     | 80 V      |
| $I_{FSM}$                     | 100 A     |
| $V_F$ at $I_F = 10 \text{ A}$ | 0.60 V    |
| $T_J$ max.                    | 150 °C    |
| Package                       | ITO-220AB |
| Circuit configuration         | Single    |

| MAXIMUM RATINGS ( $T_A = 25 \text{ °C}$ unless otherwise noted)                    |                |             |            |
|--|----------------|-------------|------------|
| PARAMETER  | SYMBOL         | VFT1080S    | UNIT       |
| Maximum repetitive peak reverse voltage  | $V_{RRM}$      | 80          | 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 | $I_{FSM}$      | 100         | A          |
| Voltage rate of change (rated $V_R$ )  | $dV/dt$        | 10 000      | V/ $\mu$ s |
| Isolation voltage from terminal to heatsink $t = 1 \text{ min}$                    | $V_{AC}$       | 1500        | V          |
| Operating junction and storage temperature range                                   | $T_J, T_{STG}$ | -55 to +150 | °C         |

| ELECTRICAL CHARACTERISTICS ( $T_A = 25 \text{ °C}$ unless otherwise noted) |                      |                        |             |      |      |         |
|--|----------------------|------------------------|-------------|------|------|---------|
| PARAMETER  | TEST CONDITIONS      |                        | SYMBOL      | TYP. | MAX. | UNIT    |
| Instantaneous forward voltage  | $I_F = 5 \text{ A}$  | $T_A = 25 \text{ °C}$  | $V_F^{(1)}$ | 0.57 | -    | V       |
|  | $I_F = 10 \text{ A}$ |                        |             | 0.67 | 0.81 |         |
|  | $I_F = 5 \text{ A}$  | $T_A = 125 \text{ °C}$ |             | 0.52 | -    |         |
|  | $I_F = 10 \text{ A}$ |                        |             | 0.60 | 0.70 |         |
| Reverse current  | $V_R = 80 \text{ V}$ | $T_A = 25 \text{ °C}$  | $I_R^{(2)}$ | 20   | 600  | $\mu$ A |
|  |                      | $T_A = 125 \text{ °C}$ |             | 10   | 20   | mA      |

#### Notes

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

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

| <b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                 |          |                    |
|---|-----------------|----------|--------------------|
| PARAMETER   | SYMBOL          | VFT1080S | UNIT               |
| Typical thermal resistance  | $R_{\theta JC}$ | 5.5      | $^\circ\text{C/W}$ |

| <b>ORDERING INFORMATION</b> (Example) |                |                 |              |               |               |
|---------------------------------------|----------------|-----------------|--------------|---------------|---------------|
| PACKAGE                               | PREFERRED P/N  | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| ITO-220AB                             | VFT1080S-M3/4W | 1.73            | 4W           | 50/tube       | Tube          |

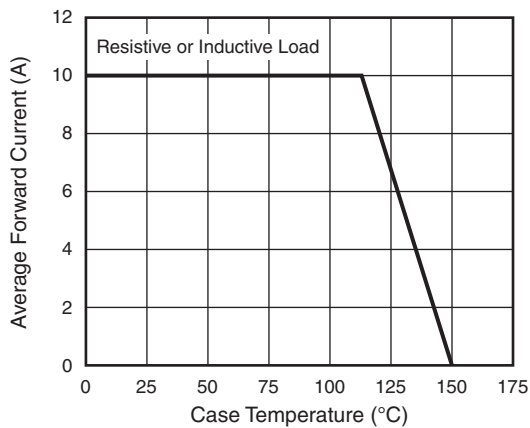
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)


Fig. 1 - Maximum Forward Current Derating Curve

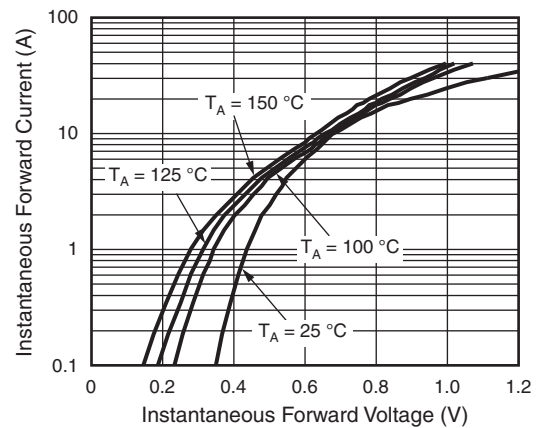


Fig. 3 - Typical Instantaneous Forward Characteristics

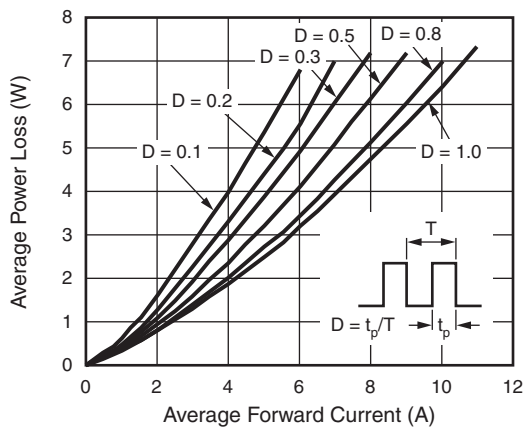


Fig. 2 - Forward Power Dissipation Characteristics

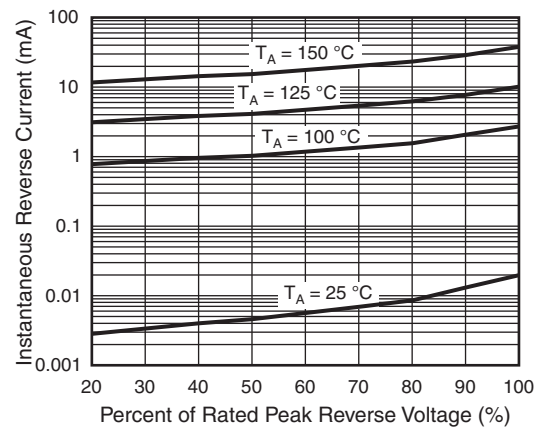


Fig. 4 - Typical Reverse Characteristics

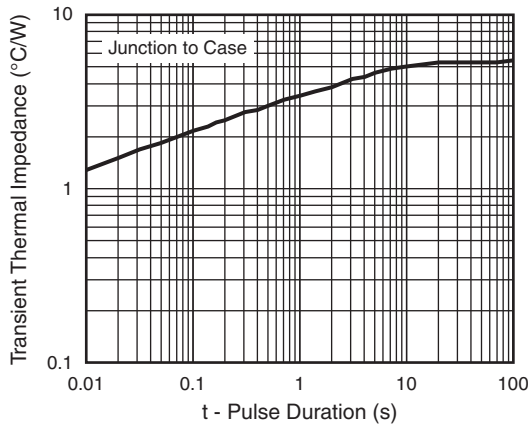


Fig. 5 - Typical Transient Thermal Impedance

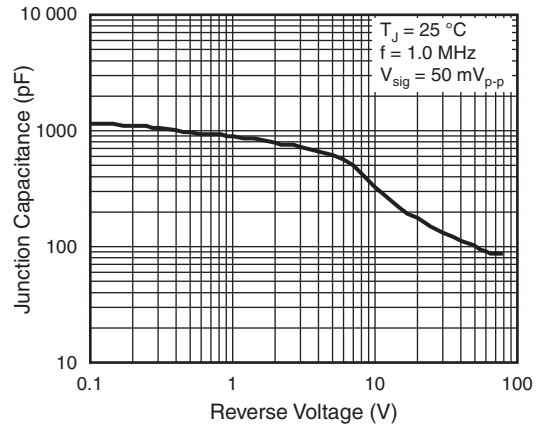
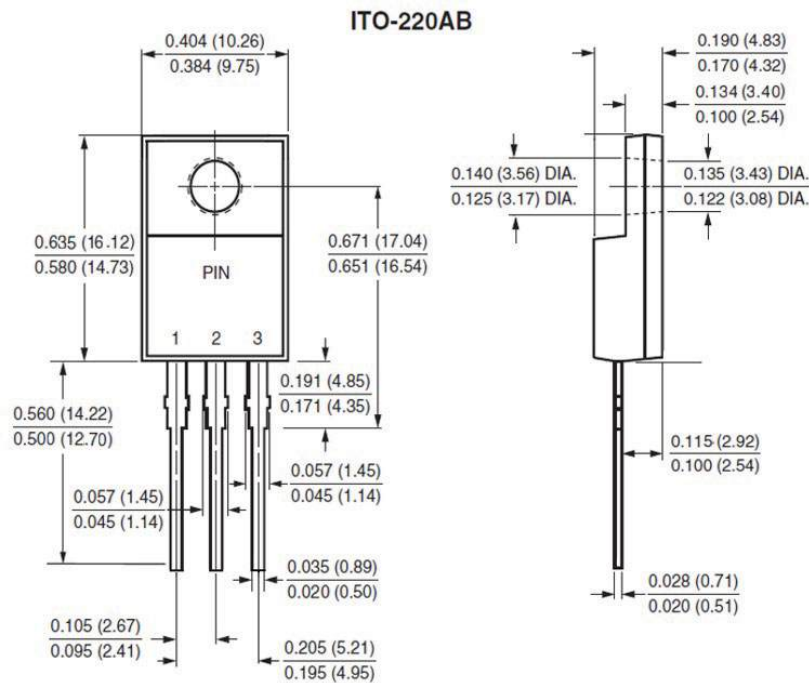


Fig. 6 - Typical Junction Capacitance

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





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