

## Vishay General Semiconductor

## **Dual Trench MOS Barrier Schottky Rectifier**

Ultra Low  $V_F = 0.49 \text{ V}$  at  $I_F = 3 \text{ A}$ 



| PRIMARY CHARACTERISTICS                |                |  |  |  |
|--|----------------|--|--|--|
| I <sub>F(AV)</sub>                     | 2 x 5 A        |  |  |  |
| V <sub>RRM</sub>                       | 80 V           |  |  |  |
| I <sub>FSM</sub>                       | 80 A           |  |  |  |
| V <sub>F</sub> at I <sub>F</sub> = 5 A | 0.57 V         |  |  |  |
| T <sub>J</sub> max.                    | 150 °C         |  |  |  |
| Package                                | ITO-220AB      |  |  |  |
| Circuit configuration                  | Common cathode |  |  |  |

#### **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.vishav.com/doc?99912

# **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

| MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)                    |                                   |             |      |  |  |
|--|-----------------------------------|-------------|------|--|--|
| PARAMETER  | SYMBOL                            | VFT1080C    | UNIT |  |  |
| Maximum repetitive peak reverse voltage  | V <sub>RRM</sub>                  | 80          | V    |  |  |
| per device   |                                   | 10          | ^    |  |  |
| Maximum average forward rectified current (fig. 1) per diode                       | I <sub>F(AV)</sub>                | 5           | A    |  |  |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I <sub>FSM</sub>                  | 80          | А    |  |  |
| Voltage rate of change (rated V <sub>R</sub> )                                     | dV/dt                             | 10 000      | V/µs |  |  |
| Isolation voltage from terminal to heatsink t = 1 min                              | V <sub>AC</sub>                   | 1500        | V    |  |  |
| Operating junction and storage temperature range                                   | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150 | °C   |  |  |

| <b>ELECTRICAL CHARACTERISTICS</b> (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> = 3 A  | T <sub>A</sub> = 25 °C  | V <sub>F</sub> <sup>(1)</sup> | 0.54 | -    | V    |  |
|   | I <sub>F</sub> = 5 A  |                         |                               | 0.63 | 0.72 |      |  |
|   | I <sub>F</sub> = 3 A  | T <sub>A</sub> = 125 °C |                               | 0.49 | -    |      |  |
|   | I <sub>F</sub> = 5 A  |                         |                               | 0.57 | 0.66 |      |  |
| Reverse current per diode   | V 90 V                | T <sub>A</sub> = 25 °C  | I <sub>R</sub> <sup>(2)</sup> | 12   | 400  | μΑ   |  |
|   | V <sub>R</sub> = 80 V | T <sub>A</sub> = 125 °C |                               | 6    | 15   | mA   |  |

(1) Pulse test: 300 µs pulse width, 1 % duty cycle

(2) Pulse test: Pulse width ≤ 40 ms



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| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |            |                    |          |        |  |
|---|------------|--------------------|----------|--------|--|
| PARAMETER   |            | SYMBOL             | VFT1080C | UNIT   |  |
| Typical thermal resistance  | per diode  | - R <sub>θJC</sub> | 6.5      | - °C/W |  |
|   | per device |                    | 5.5      |        |  |

| ORDERING INFORMATION (Example)                  |                |      |    |               |               |  |
|---|----------------|------|----|---------------|---------------|--|
| PACKAGE PREFERRED P/N UNIT WEIGHT (g) PACKAGE C |                |      |    | BASE QUANTITY | DELIVERY MODE |  |
| ITO-220AB                                       | VFT1080C-M3/4W | 1.70 | 4W | 50/tube       | Tube          |  |

#### **RATINGS AND CHARACTERISTICS CURVES** (T<sub>A</sub> = 25 °C unless otherwise noted)

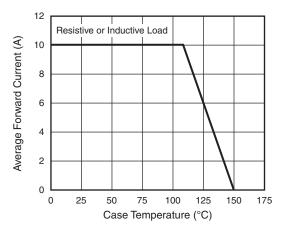


Fig. 1 - Maximum Forward Current Derating Curve

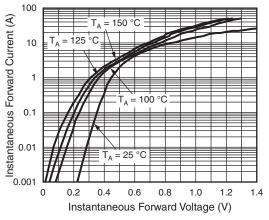


Fig. 3 - Typical Instantaneous Forward Characteristics

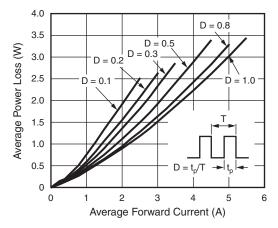


Fig. 2 - Forward Power Dissipation Characteristics

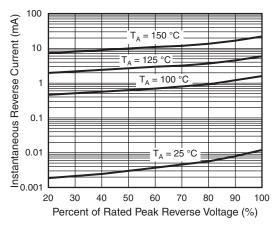


Fig. 4 - Typical Reverse Characteristics



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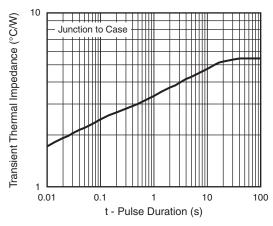


Fig. 5 - Typical Transient Thermal Impedance

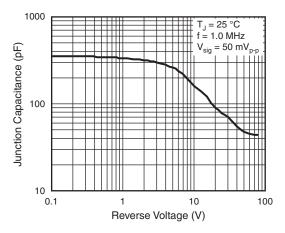
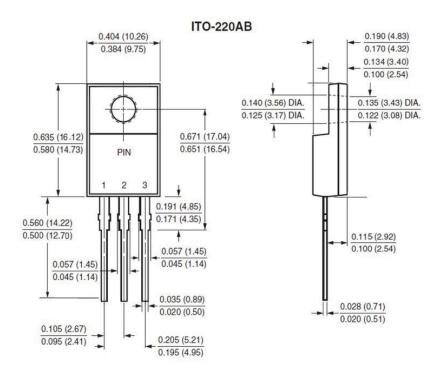


Fig. 6 - Typical Junction Capacitance

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





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