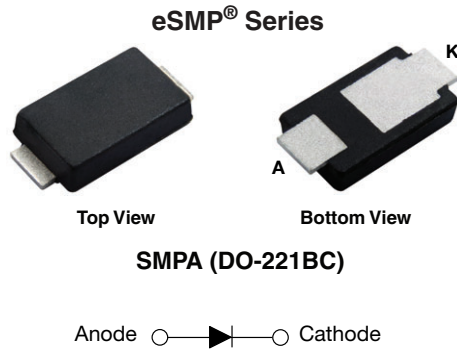


Surface-Mount TMBS® (Trench MOS Barrier Schottky) Rectifier



FEATURES

- Very low profile - typical height of 0.95 mm
- Ideal for automated placement
- Trench MOS Schottky technology
- Low power losses, high efficiency
- Low forward voltage drop
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE

TYPICAL APPLICATIONS

For use in low voltage, high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

MECHANICAL DATA

Case: SMPA (DO-221BC)

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 JESD22-B102

M3 suffix meets JESD 201 class 2 whisker test

Polarity: Color band denotes cathode end

LINKS TO ADDITIONAL RESOURCES



3D Models

| PRIMARY CHARACTERISTICS | |
|--|-----------------|
| $I_{F(AV)}$ | 8.0 A |
| V_{RRM} | 50 V |
| I_{FSM} | 120 A |
| V_F at $I_F = 8.0$ A ($T_A = 125$ °C) | 0.41 V |
| T_J max. | 150 °C |
| Package | SMPA (DO-221BC) |
| Circuit configuration | Single |

| MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted) | | | |
|--|----------------|-------------|------|
| PARAMETER | SYMBOL | V8PAN50 | UNIT |
| Device marking code | | 8N5 | |
| Maximum repetitive peak reverse voltage | V_{RRM} | 50 | V |
| Maximum DC forward current | $I_F^{(1)}$ | 8.0 | A |
| | $I_F^{(2)}$ | 3.7 | |
| Maximum DC reverse voltage | V_{DC} | 35 | V |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I_{FSM} | 120 | A |
| Operating junction and storage temperature range | T_J, T_{STG} | -40 to +150 | °C |

Notes

(1) Units mounted on 3 cm x 3 cm Aluminum, 2 oz. PCB

(2) Free air, mounted on recommended copper pad area



| ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | |
|--|------------------------|-------------------------|-------------------------------|------|------|------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | TYP. | MAX. | UNIT |
| Instantaneous forward voltage | I _F = 4.0 A | T _A = 25 °C | V _F ⁽¹⁾ | 0.42 | - | V |
| | I _F = 8.0 A | | | 0.48 | 0.56 | |
| | I _F = 4.0 A | T _A = 125 °C | | 0.32 | - | |
| | I _F = 8.0 A | | | 0.41 | 0.50 | |
| Reverse current | V _R = 35 V | T _A = 25 °C | I _R ⁽²⁾ | 25 | - | μA |
| | | T _A = 125 °C | | 19 | - | mA |
| | V _R = 50 V | T _A = 25 °C | | - | 1500 | μA |
| | | T _A = 125 °C | | 31 | 70 | mA |
| Typical junction capacitance | 4.0 V, 1 MHz | | C _J | 1060 | - | pF |

Notes

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 5 ms

| THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise specified) | | | |
|---|---------------------------------|---------|------|
| PARAMETER | SYMBOL | V8PAN50 | UNIT |
| Typical thermal resistance | R _{θJA} ⁽¹⁾ | 100 | °C/W |
| | R _{θJM} ⁽²⁾ | 5 | |

Notes

- (1) Free air, mounted on recommended PCB, 2 oz. pad area; thermal resistance R_{θJA} - junction to ambient
- (2) Units mounted on 3 cm x 3 cm Aluminum, 2 oz. pad area; thermal resistance R_{θJM} - junction to mount

| ORDERING INFORMATION (Example) | | | | |
|--------------------------------|-----------------|------------------------|---------------|------------------------------------|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| V8PAN50-M3/I | 0.032 | I | 14 000 | 13" diameter plastic tape and reel |

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise specified)

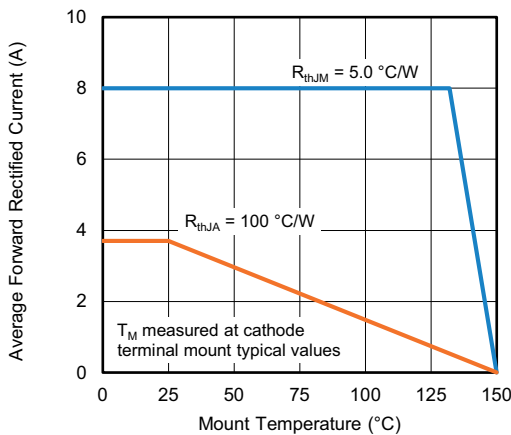


Fig. 1 - Maximum Forward Current Derating Curve

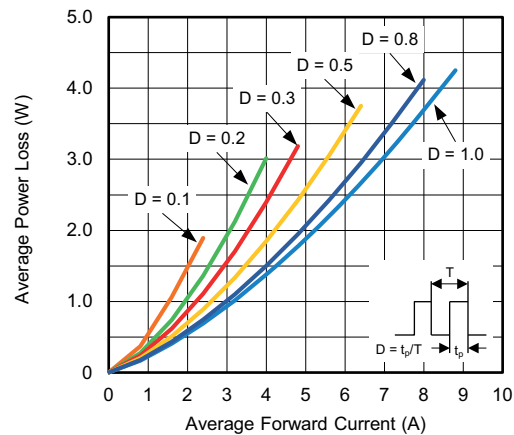


Fig. 2 - Forward Power Loss Characteristics

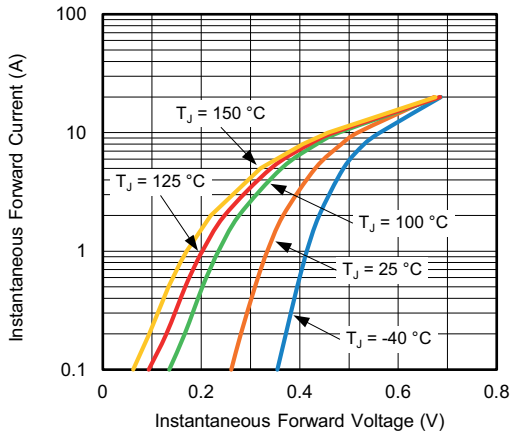


Fig. 3 - Typical Instantaneous Forward Characteristics

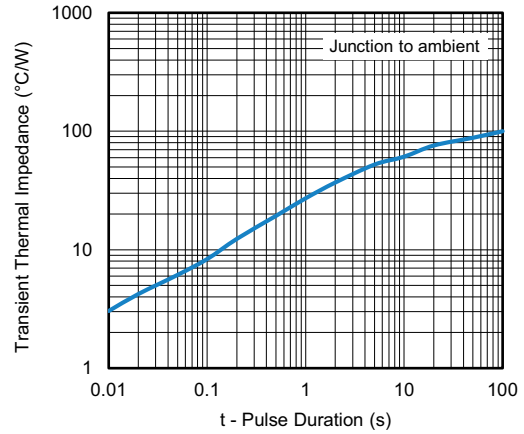


Fig. 6 - Typical Transient Thermal Impedance

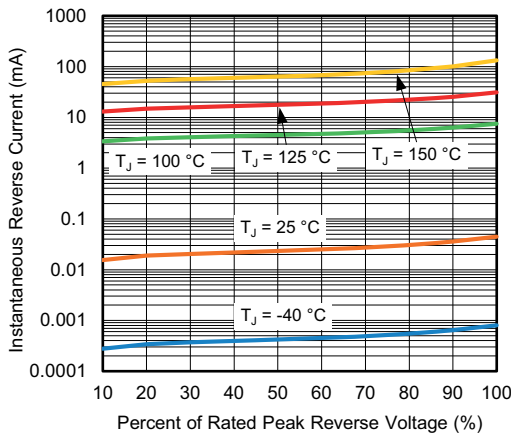


Fig. 4 - Typical Reverse Leakage Characteristics

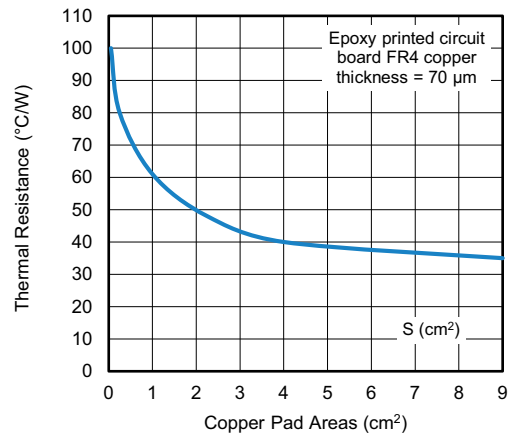


Fig. 7 - Thermal Resistance Junction to Ambient vs. Copper Pad Areas

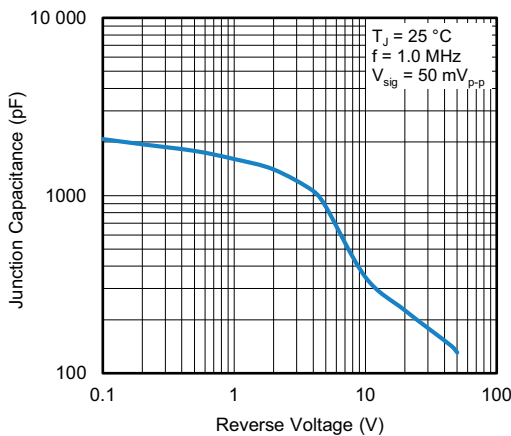
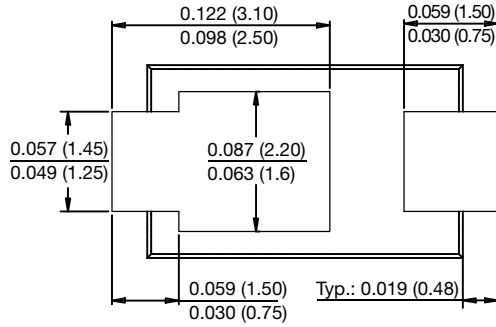
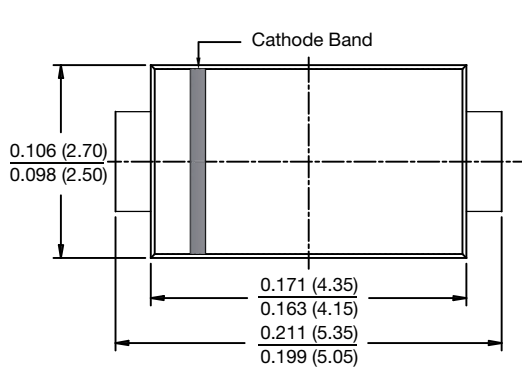


Fig. 5 - Typical Junction Capacitance

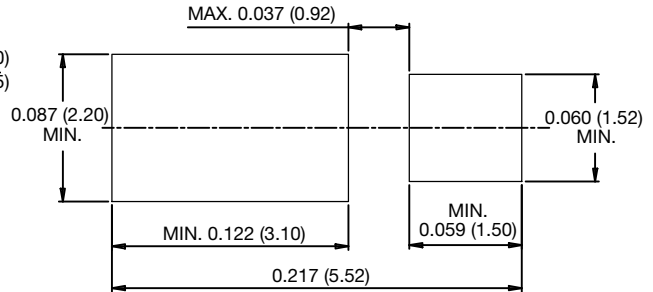


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMPA (DO-221BC)



Mounting Pad Layout





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