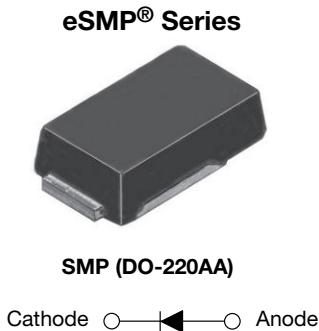


Surface-Mount TMBS® (Trench MOS Barrier Schottky) Rectifier



ADDITIONAL RESOURCES


[3D Models](#)

FEATURES

- Low profile package
- 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
- AEC-Q101 qualified available
 - Automotive ordering code; base P/NHM3
- 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: SMP (DO-220AA)

Molding compound meets UL 94 V-0 flammability rating
 Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade
 Base P/NHM3_X - halogen-free, RoHS-compliant, and AEC-Q101 qualified
 ("_X" denotes revision code e.g. A, B,....)

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
 M3 suffix meets JESD 201 class 2 whisker test, HM3 suffix meets JESD 201 class 2 whisker test

Polarity: color band denotes the cathode end

| PRIMARY CHARACTERISTICS | |
|-------------------------|----------------|
| $I_{F(AV)}$ | 3.0 A |
| V_{RRM} | 60 V |
| I_{FSM} | 60 A |
| V_F at $I_F = 3.0$ A | 0.48 V |
| T_J max. | 150 °C |
| Package | SMP (DO-220AA) |
| Circuit configuration | Single |

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)

| PARAMETER | SYMBOL | V3P6 | UNIT |
|---|-------------------|-------------|------|
| Device marking code | | V36 | |
| Maximum repetitive peak reverse voltage | V_{RRM} | 60 | V |
| Maximum DC forward current | I_F (1) | 3.0 | A |
| | I_F (2) | 2.4 | |
| Peak forward surge current 10 ms single half sine-wave superimposed on rated load | I_{FSM} | 60 | A |
| Voltage rate of change (rated V_R) | dV/dt | 10 000 | V/μs |
| Operating junction and storage temperature range | T_J , T_{STG} | -55 to +150 | °C |

Notes

(1) Mounted on 8 mm x 8 mm pad areas, 1 oz. FR4 PCB
 (2) Free air, mounted on recommended copper pad area

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

| PARAMETER | TEST CONDITIONS | | SYMBOL | TYP. | MAX. | UNIT |
|-------------------------------|--------------------------------|---------------------------|-----------|------|------|---------------|
| Instantaneous forward voltage | $I_F = 3.0 \text{ A}$ | $T_A = 25^\circ\text{C}$ | V_F (1) | 0.53 | 0.63 | V |
| | | $T_A = 125^\circ\text{C}$ | | 0.48 | 0.59 | |
| Reverse current | $V_R = 60 \text{ V}$ | $T_A = 25^\circ\text{C}$ | I_R (2) | - | 900 | μA |
| | | $T_A = 125^\circ\text{C}$ | | 4 | 15 | mA |
| Typical junction capacitance | $4.0 \text{ V}, 1 \text{ MHz}$ | | C_J | 250 | - | pF |

Notes

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

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

THERMAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

| PARAMETER | SYMBOL | V3P6 | UNIT |
|----------------------------|---------------------|------|------|
| Typical thermal resistance | $R_{\theta JA}$ (1) | 125 | °C/W |
| | $R_{\theta JM}$ (2) | 15 | |

Notes

(1) Free air, mounted on recommended PCB, 1 oz. pad area; thermal resistance $R_{\theta JA}$ - junction to ambient

(2) Units mounted on PCB with specific copper pad areas; $R_{\theta JM}$ - junction to mount

ORDERING INFORMATION (Example)

| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|-----------------|-----------------|------------------------|---------------|------------------------------------|
| V3P6-M3/84A | 0.024 | 84A | 3000 | 7" diameter plastic tape and reel |
| V3P6-M3/85A | 0.024 | 85A | 10 000 | 13" diameter plastic tape and reel |
| V3P6HM3_A/H (1) | 0.024 | H | 3000 | 7" diameter plastic tape and reel |
| V3P6HM3_A/I (1) | 0.024 | I | 10 000 | 13" diameter plastic tape and reel |

Note

(1) AEC-Q101 qualified

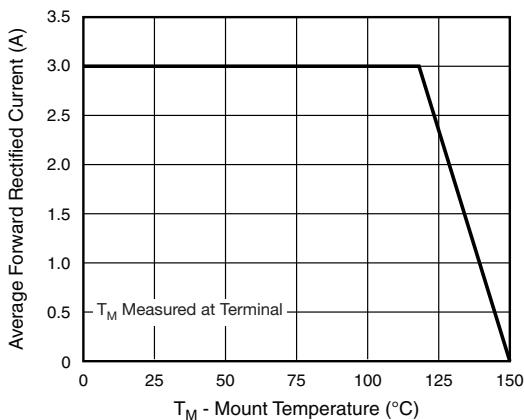
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25^\circ\text{C}$ unless otherwise noted)


Fig. 1 - Maximum Forward Current Derating Curve

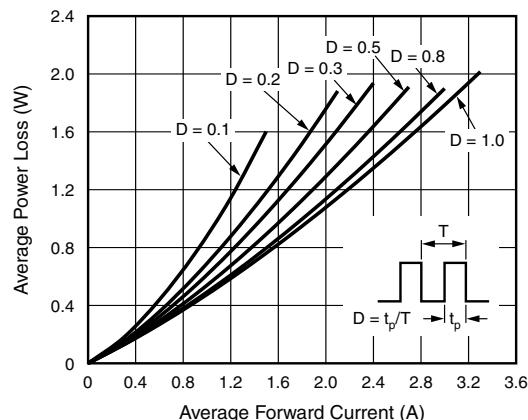


Fig. 2 - Forward Power Loss Characteristics

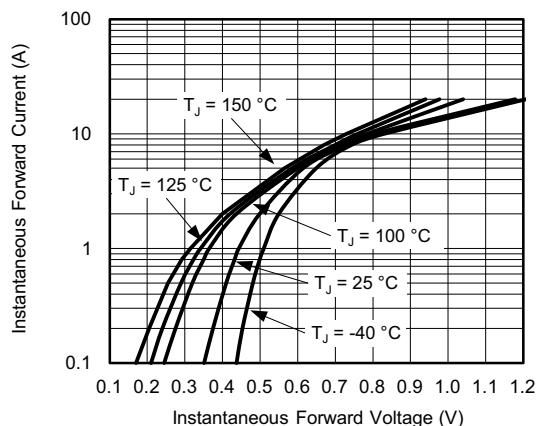


Fig. 3 - Typical Instantaneous Forward Characteristics

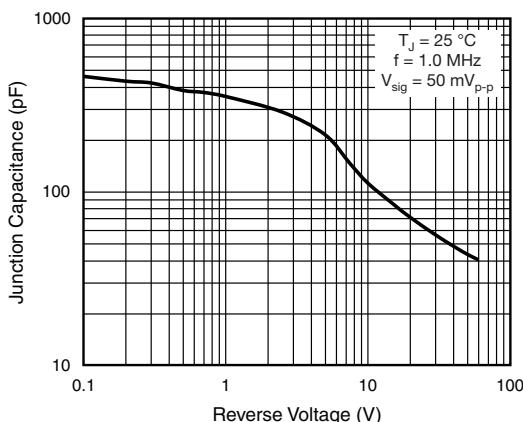


Fig. 5 - Typical Junction Capacitance

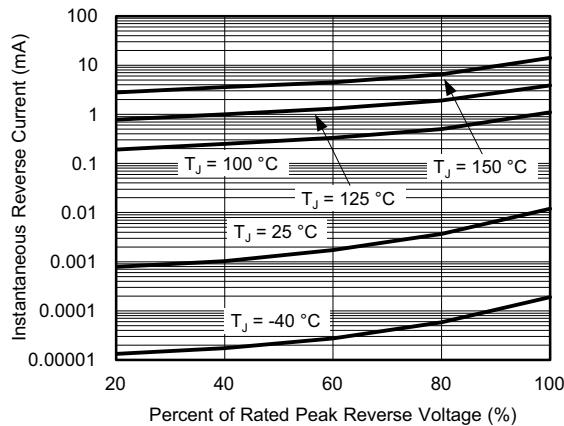


Fig. 4 - Typical Reverse Characteristics

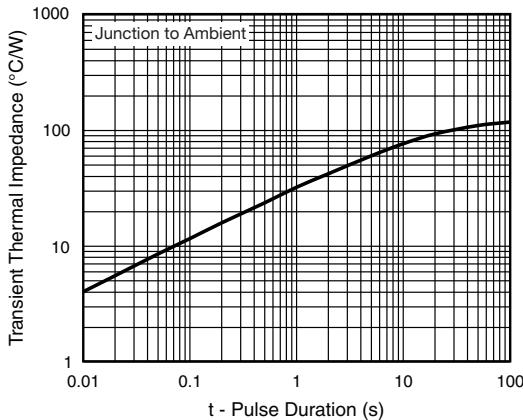
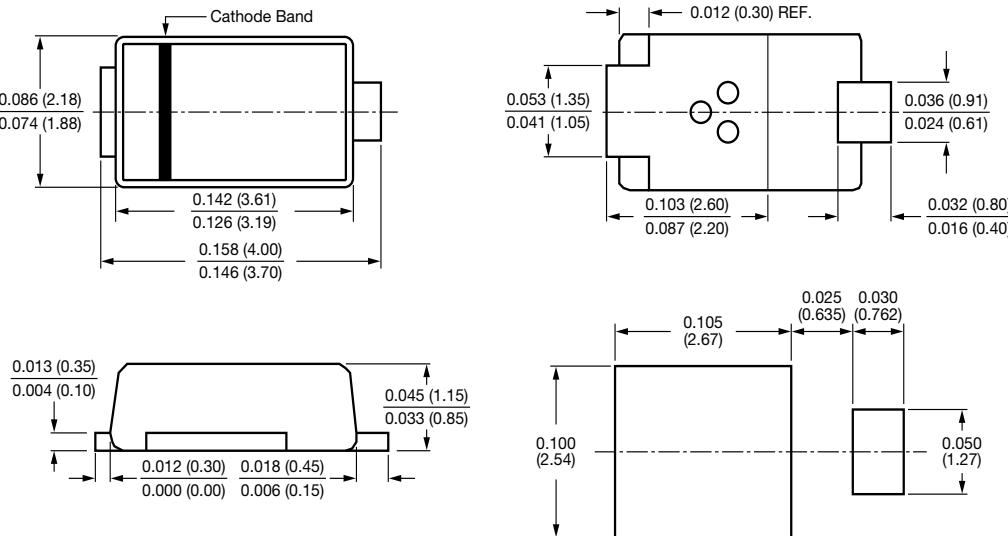


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMP (DO-220AA)



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