COMPLIANT

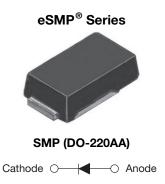
HALOGEN

FREE



Vishay General Semiconductor

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



LINKS TO ADDITIONAL RESOURCES



| PRIMARY CHARACTERISTICS | | | |
|--|----------------|--|--|
| I _{F(AV)} | 2.0 A | | |
| V _{RRM} | 60 V | | |
| I _{FSM} | 50 A | | |
| V _F at I _F = 2.0 A | 0.48 V | | |
| T _J max. | 175 °C | | |
| Package | SMP (DO-220AA) | | |
| Circuit configuration | Single | | |

FEATURES

- Low profile package
- 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 <u>www.vishay.com/doc?99912</u>

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 - halogen-free, RoHS-compliant, and AEC-Q101 qualified

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

| MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted) | | | | |
|---|-------------------------------|-------------|------|--|
| PARAMETER | SYMBOL | V2PM6L | UNIT | |
| Device marking code | | 2M6 | | |
| Maximum repetitive peak reverse voltage | V _{RRM} | 60 | V | |
| Maximum DC forward current | I _F ⁽¹⁾ | 2 | А | |
| Peak forward surge current 10 ms single half sine-wave superimposed on rated load | I _{FSM} | 50 | А | |
| Operating junction and storage temperature range | T _J ⁽²⁾ | -40 to +175 | °C | |
| Operating junction and storage temperature range | T _{STG} | -55 to +175 | °C | |

Notes

- (1) Free air, mounted on recommended copper pad area
- $^{(2)}$ The heat generated must be less than the thermal conductivity from junction-to-ambient: $dP_D/dT_J < 1/R_{\theta JA}$



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| ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | | |
|---|-----------------------|---|-------------------------------|------|------|------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | TYP. | MAX. | UNIT |
| Instantaneous forward voltage | I _F = 1 A | $I_F = 1 \text{ A}$ $I_F = 2 \text{ A}$ $T_A = 25 \text{ °C}$ | V _F ⁽¹⁾ | 0.50 | - | V |
| | I _F = 2 A | | | 0.55 | 0.63 | |
| | I _F = 1 A | T _A = 125 °C | | 0.40 | - | |
| | I _F = 2 A | | | 0.48 | 0.56 | |
| Reverse current | V _R = 60 V | T _A = 25 °C | I _R ⁽²⁾ | - | 0.20 | - mA |
| | v _R = 60 v | T _A = 125 °C | | 0.80 | 5.0 | |
| Typical junction capacitance | 4.0 V, 1 MHz | | CJ | 250 | - | pF |

Notes

 $^{(1)}\,$ Pulse test: 300 μs pulse width, 1 % duty cycle

 $^{(2)}$ Pulse test: pulse width $\leq 5 \text{ ms}$

| THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise specified) | | | | |
|---|--------------------------|-----|------|--|
| PARAMETER | RAMETER SYMBOL V2PM6L UN | | | |
| Typical thormal registance | R _{0JA} (1) | 125 | °C/W | |
| Typical thermal resistance | R _{0JM} (2) | 15 | | |

Notes

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

 $^{(2)}$ Mounted on 10 mm x 10 mm copper pad area PCB; thermal resistance $R_{\theta JM}$ - junction-to-mount

| ORDERING INFORMATION (Example) | | | | | |
|--------------------------------|-----------------|------------------------|---------------|------------------------------------|--|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE | |
| V2PM6L-M3/H | 0.024 | Н | 3000 | 7" diameter plastic tape and reel | |
| V2PM6L-M3/I | 0.024 | I | 10 000 | 13" diameter plastic tape and reel | |
| V2PM6LHM3/H (1) | 0.024 | Н | 3000 | 7" diameter plastic tape and reel | |
| V2PM6LHM3/I (1) | 0.024 | I | 10 000 | 13" diameter plastic tape and reel | |

Note

(1) AEC-Q101 qualified

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

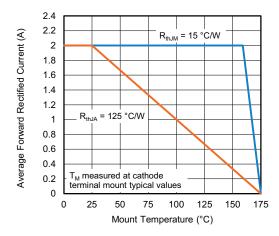


Fig. 1 - Maximum Forward Current Derating Curve

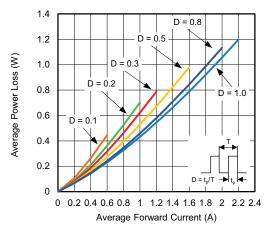


Fig. 2 - Forward Power Loss Characteristics

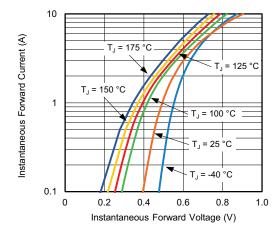


Fig. 3 - Typical Instantaneous Forward Characteristics

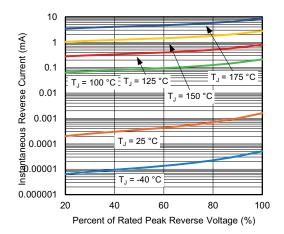


Fig. 4 - Typical Reverse Characteristics

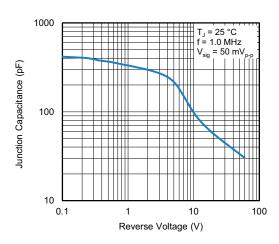


Fig. 5 - Typical Junction Capacitance

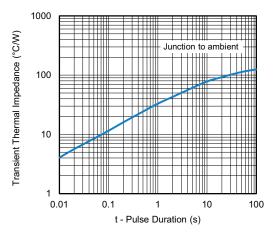


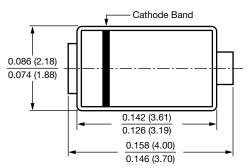
Fig. 6 - Typical Transient Thermal Impedance

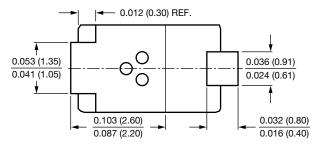


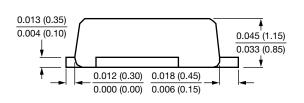
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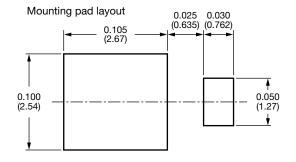
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMP (DO-220AA)











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