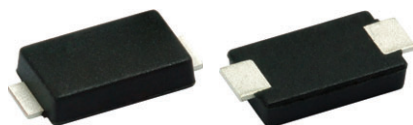


Surface-Mount Glass Passivated Rectifier

eSMP® Series



Top View

Bottom View

SlimSMA (DO-221AC)

Cathode  Anode

FEATURES

- Very low profile - typical height of 0.95 mm
- Ideal for automated placement
- Glass passivated pellet chip junction
- Low forward voltage drop
- Low leakage current
- 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

LINKS TO ADDITIONAL RESOURCES



3D Models

TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes for consumer, and industrial applications

MECHANICAL DATA

Case: SlimSMA (DO-221AC)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-M3 - halogen-free, RoHS-compliant

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 2 whisker test

Polarity: color band denotes cathode end

PRIMARY CHARACTERISTICS

| | |
|---------------------------------|-----------------------------|
| $I_{F(AV)}$ | 1.0 A |
| V_{RRM} | 400 V, 600 V, 800 V, 1000 V |
| I_{FSM} | 35 A |
| I_R | 5 μ A |
| V_F at $I_F = 1.0$ A (125 °C) | 0.85 V |
| T_J max. | 150 °C |
| Package | SlimSMA (DO-221AC) |
| Circuit configuration | Single |

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

| PARAMETER | SYMBOL | S1AFG | S1AFJ | S1AFK | S1AFM | UNIT |
|---|----------------------------|-------------|-------|-------|-------|------|
| Device marking code | | SG | SJ | SK | SM | |
| Maximum repetitive peak reverse voltage | V_{RRM} | 400 | 600 | 800 | 1000 | V |
| Maximum average forward rectified current | $I_{F(AV)}$ ⁽¹⁾ | 1.0 | | | | A |
| Peak forward surge current 10 ms single half sine-wave superimposed on rated load | I_{FSM} | 35 | | | | A |
| Operating junction and storage temperature range | T_J, T_{STG} | -55 to +150 | | | | °C |

Notes

⁽¹⁾ Free air, mounted on recommended copper pad area

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

| PARAMETER | TEST CONDITIONS | SYMBOL | TYP. | MAX. | UNIT |
|-------------------------------|--|-------------|------|------|---------------|
| Instantaneous forward voltage | $I_F = 0.5\text{ A}$ | $V_F^{(1)}$ | 0.90 | - | V |
| | $I_F = 1.0\text{ A}$ | | 0.95 | 1.1 | |
| | $I_F = 0.5\text{ A}$ | | 0.78 | - | |
| | $I_F = 1.0\text{ A}$ | | 0.85 | 0.98 | |
| Max. reverse current | Rated V_R | $I_R^{(2)}$ | - | 5.0 | μA |
| | | | - | 100 | |
| Typical reverse recovery time | $I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $t_{rr} = 0.25\text{ A}$ | t_{rr} | 1.47 | - | μs |
| Typical junction capacitance | 4.0 V, 1 MHz | C_J | 7.9 | - | pF |

Notes(1) Pulse test: 300 μs pulse width, 1 % duty cycle(2) Pulse test: Pulse width $\leq 40\text{ ms}$ **THERMAL CHARACTERISTICS** ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)

| PARAMETER | SYMBOL | S1AFG | S1AFJ | S1AFK | S1AFM | UNIT |
|----------------------------|---------------------------------|-------|-------|-------|-------|------|
| Typical thermal resistance | R _{θJA} ⁽¹⁾ | 125 | | | | °C/W |
| | R _{θJM} ⁽²⁾ | 23 | | | | |

Notes(1) Free air, mounted on recommended PCB, 2 oz. pad area; thermal resistance $R_{\theta JA}$ - junction to ambient, $R_{\theta JM}$ - junction to mount(2) Mounted on 5.0 mm x 5.0 mm pad areas, 2 oz. FR4 PCB; $R_{\theta JM}$ - junction to mount**ORDERING INFORMATION** (Example)

| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|---------------|-----------------|------------------------|---------------|------------------------------------|
| S1AFJ-M3/6A | 0.032 | 6A | 3500 | 7" diameter plastic tape and reel |
| S1AFJ-M3/6B | 0.032 | 6B | 14 000 | 13" diameter plastic tape and reel |

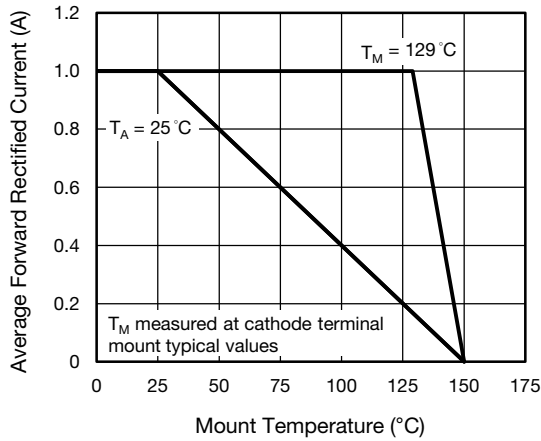
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)


Fig. 1 - Maximum Forward Current Derating Curve

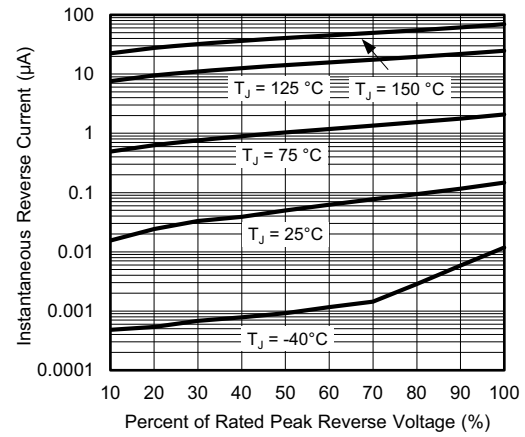


Fig. 4 - Typical Reverse Leakage Characteristics

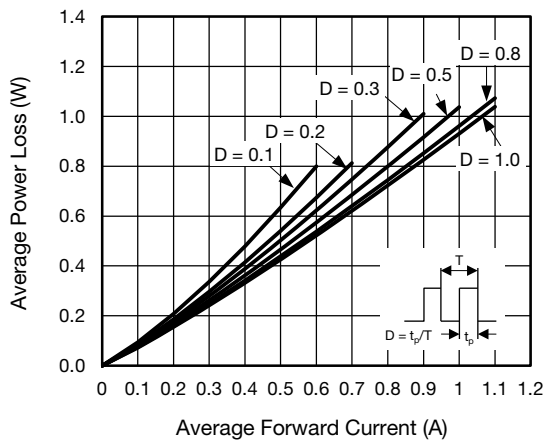


Fig. 2 - Average Power Loss Characteristics

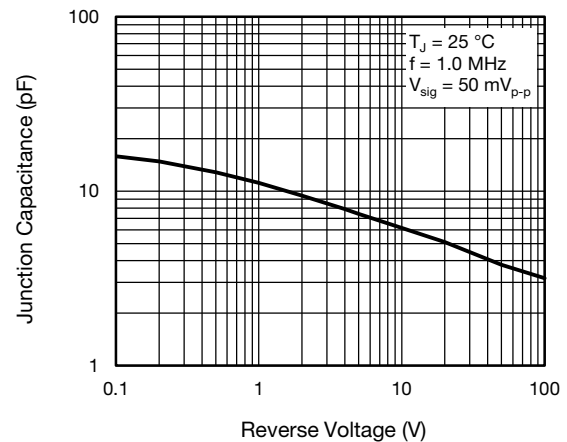


Fig. 5 - Typical Junction Capacitance

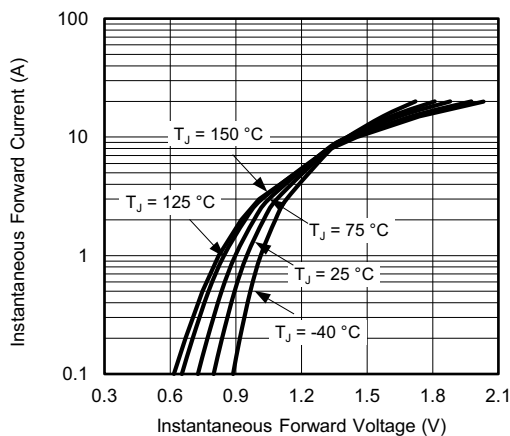


Fig. 3 - Typical Instantaneous Forward Characteristics

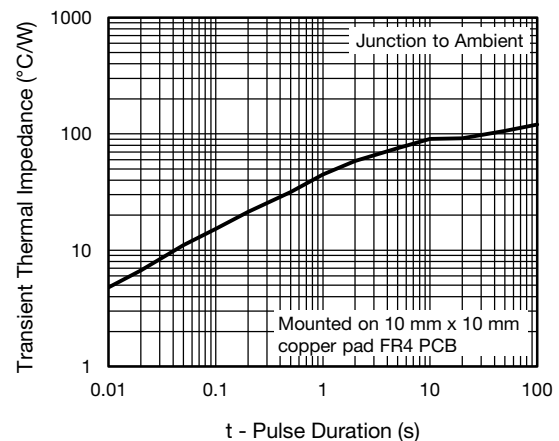
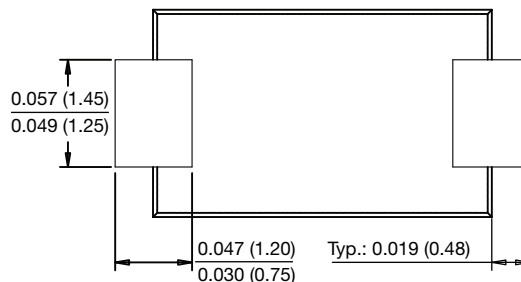
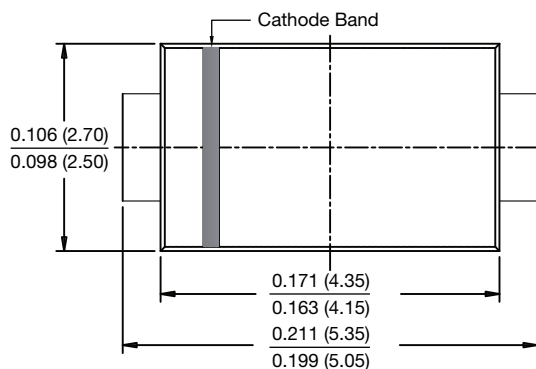


Fig. 6 - Typical Transient Thermal Impedance

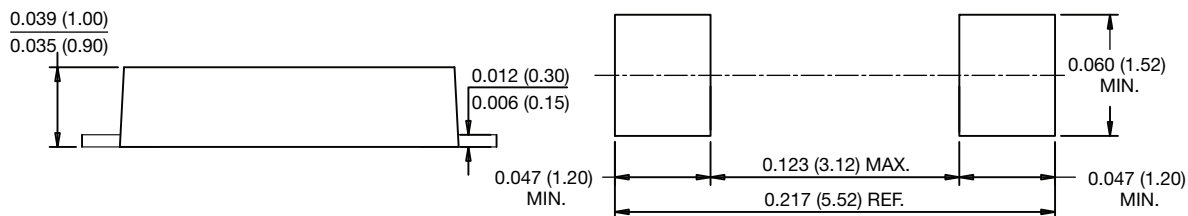


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SlimSMA (DO-221AC)



Mounting Pad Layout





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