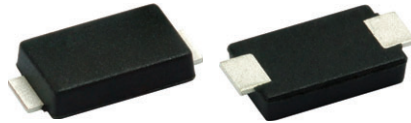


Surface-Mount Glass Passivated Rectifier

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](#)

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 |

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

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 °C unless otherwise noted) | | | | | | |
|--|--|-------------------------|-------------------------------|------|------|------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | TYP. | MAX. | UNIT |
| Instantaneous forward voltage | I _F = 0.5 A | T _A = 25 °C | V _F ⁽¹⁾ | 0.90 | - | V |
| | I _F = 1.0 A | | | 0.95 | 1.1 | |
| | I _F = 0.5 A | T _A = 125 °C | | 0.78 | - | |
| | I _F = 1.0 A | | | 0.85 | 0.98 | |
| Max. reverse current | Rated V _R | T _A = 25 °C | I _R ⁽²⁾ | - | 5.0 | μA |
| | | T _A = 125 °C | | - | 100 | |
| Typical reverse recovery time | I _F = 0.5 A, I _R = 1.0 A, I _{tr} = 0.25 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 ≤ 40 ms

| THERMAL CHARACTERISTICS (T _A = 25 °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_{θJA} - junction to ambient, R_{θJM} - junction to mount

(2) Mounted on 5.0 mm x 5.0 mm pad areas, 2 oz. FR4 PCB; R_{θJM} - 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)

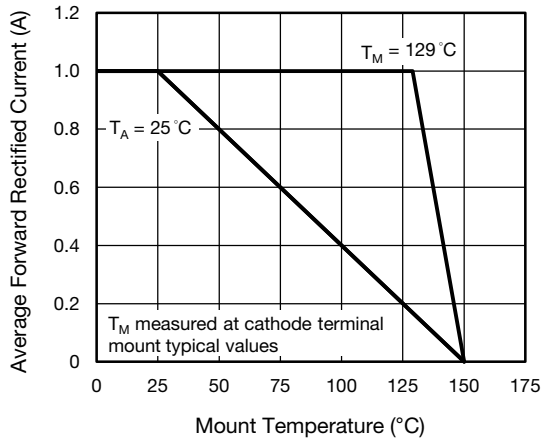


Fig. 1 - Maximum Forward Current Derating Curve

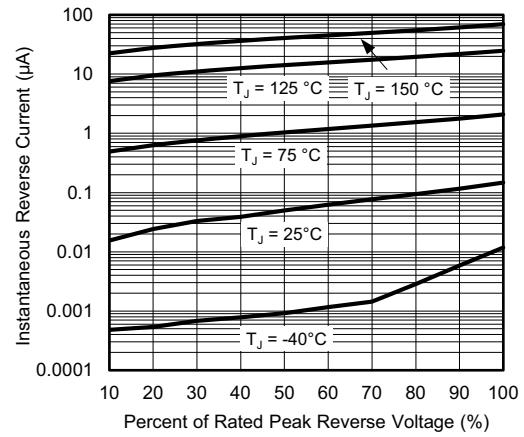


Fig. 4 - Typical Reverse Leakage Characteristics

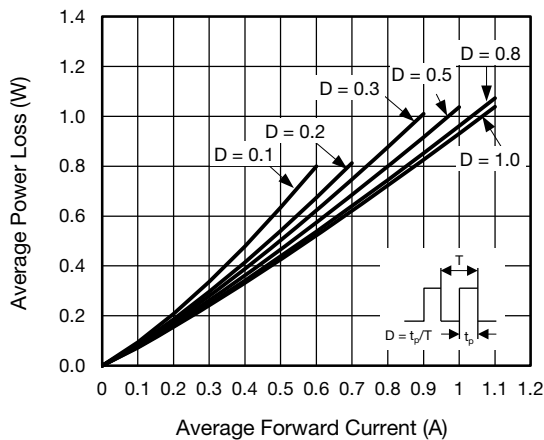


Fig. 2 - Average Power Loss Characteristics

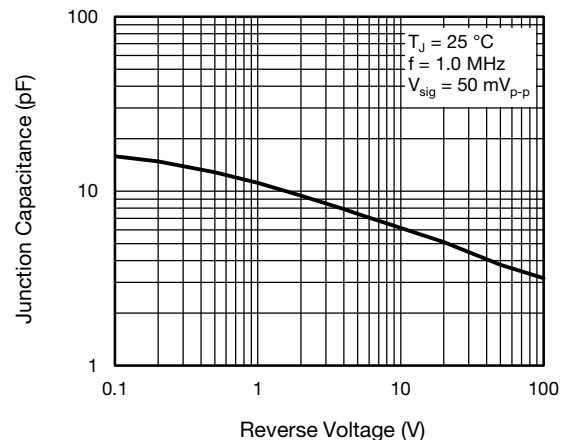


Fig. 5 - Typical Junction Capacitance

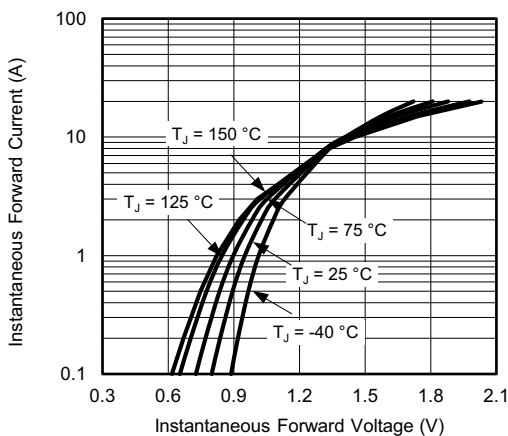


Fig. 3 - Typical Instantaneous Forward Characteristics

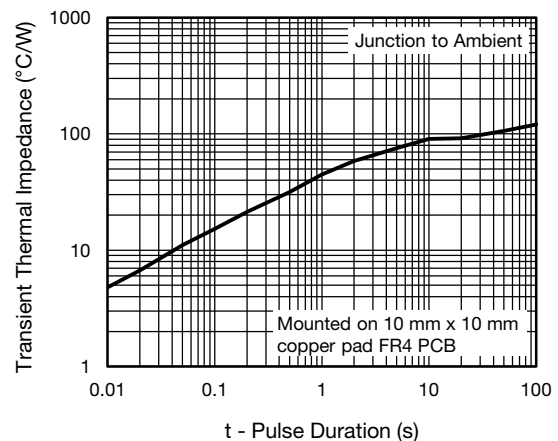
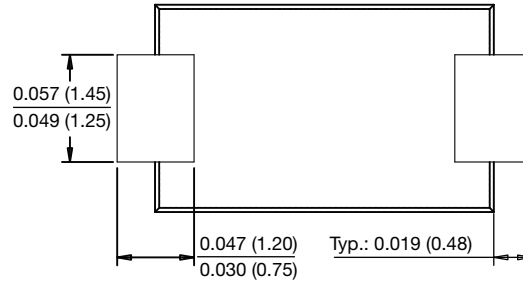
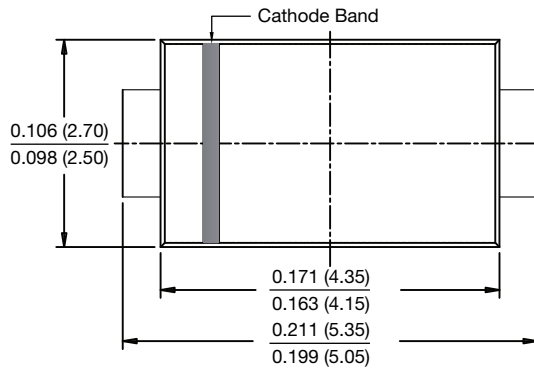


Fig. 6 - Typical Transient Thermal Impedance

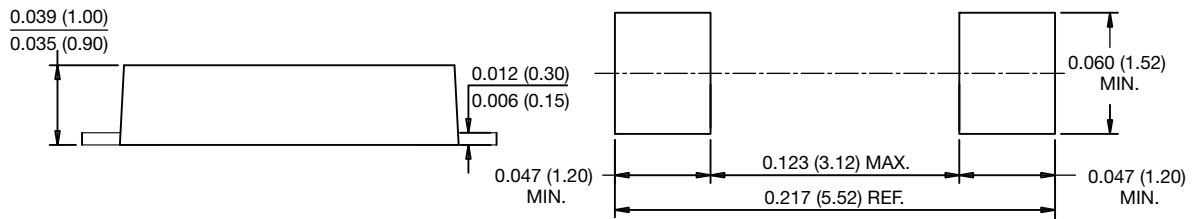


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SlimSMA (DO-221AC)



Mounting Pad Layout





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