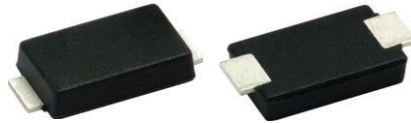


## Surface-Mount Glass Passivated Rectifier

### 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](http://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 $\mu$ 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	$I_{F(AV)}$ <sup>(1)</sup>	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

<sup>(1)</sup> Free air, mounted on recommended copper pad area



ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage	I <sub>F</sub> = 0.5 A	T <sub>A</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	0.90	-	V
	I <sub>F</sub> = 1.0 A			0.95	1.1	
	I <sub>F</sub> = 0.5 A	T <sub>A</sub> = 125 °C		0.78	-	
	I <sub>F</sub> = 1.0 A			0.85	0.98	
Max. reverse current	Rated V <sub>R</sub>	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	-	5.0	μA
		T <sub>A</sub> = 125 °C		-	100	
Typical reverse recovery time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A	t <sub>rr</sub>	1.47	-	μs	
Typical junction capacitance	4.0 V, 1 MHz	C <sub>J</sub>	7.9	-	pF	

**Notes**

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

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise specified)						
PARAMETER	SYMBOL	S1AFG	S1AFJ	S1AFK	S1AFM	UNIT
Typical thermal resistance	R <sub>θJA</sub> <sup>(1)</sup>	125				°C/W
	R <sub>θJM</sub> <sup>(2)</sup>	23				

**Notes**

(1) Free air, mounted on recommended PCB, 2 oz. pad area; thermal resistance R<sub>θJA</sub> - junction to ambient, R<sub>θJM</sub> - junction to mount

(2) Mounted on 5.0 mm x 5.0 mm pad areas, 2 oz. FR4 PCB; R<sub>θJM</sub> - 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)

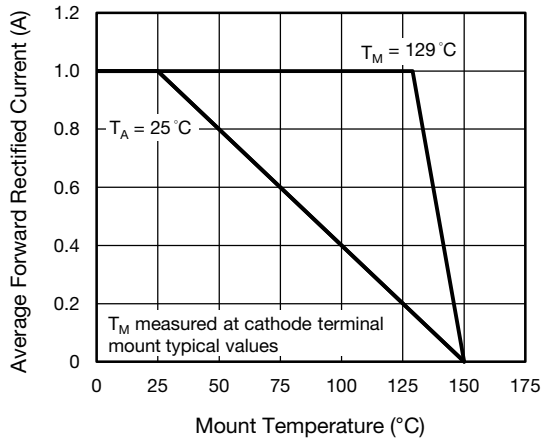


Fig. 1 - Maximum Forward Current Derating Curve

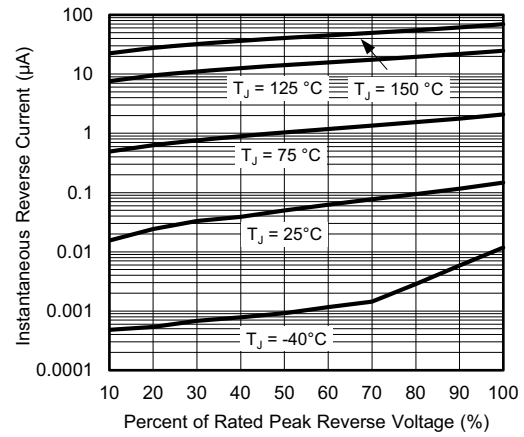


Fig. 4 - Typical Reverse Leakage Characteristics

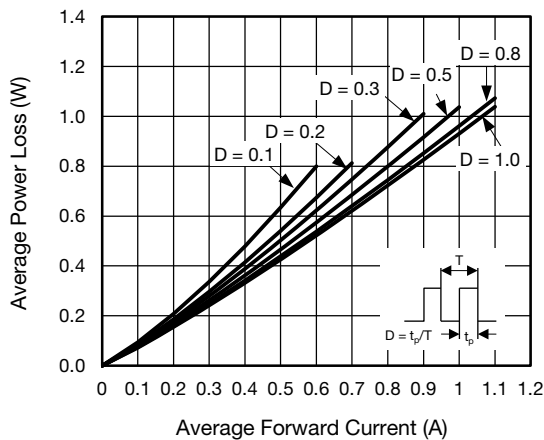


Fig. 2 - Average Power Loss Characteristics

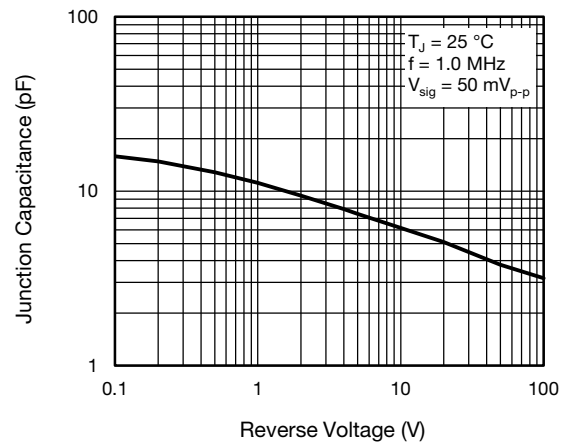


Fig. 5 - Typical Junction Capacitance

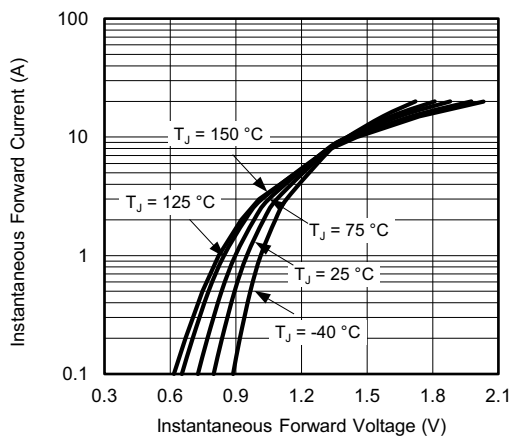


Fig. 3 - Typical Instantaneous Forward Characteristics

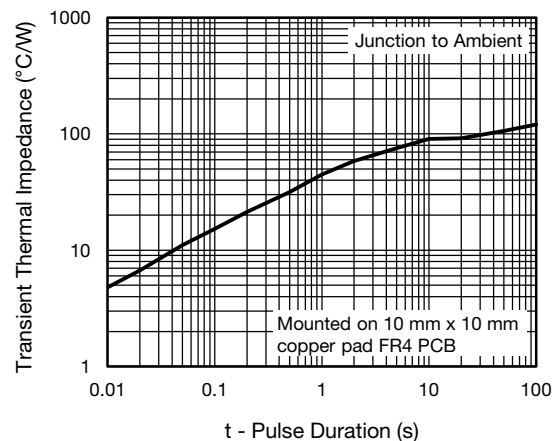
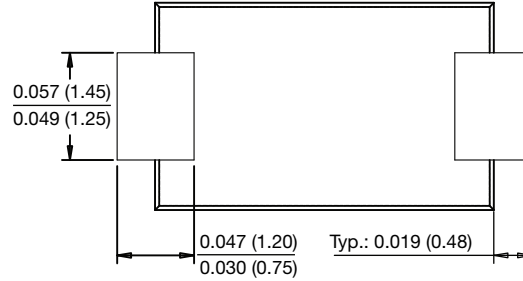
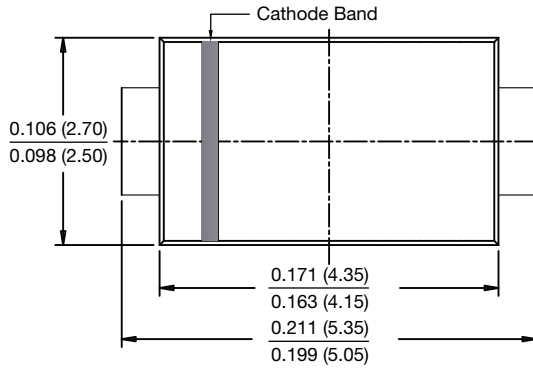


Fig. 6 - Typical Transient Thermal Impedance

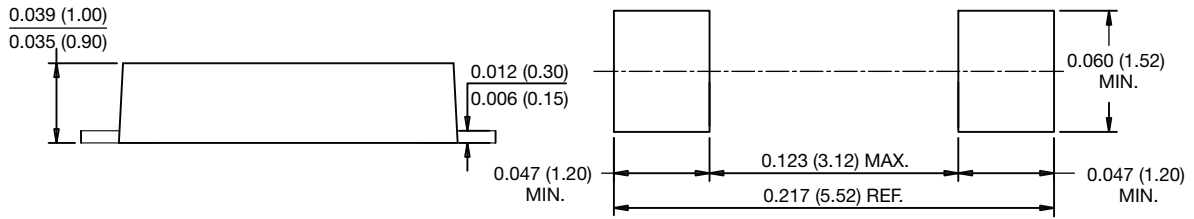


## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### SlimSMA (DO-221AC)



### Mounting Pad Layout





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