

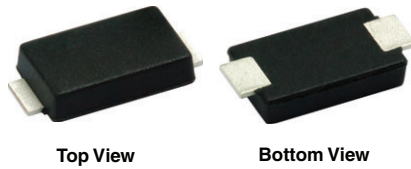


**THE DATASHEET OF  
S1AFG-M3/6A**



## 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](#)

### 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 $\mu$ 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

### 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



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage	$I_F = 0.5\text{ A}$	$T_A = 25\text{ }^\circ\text{C}$	$V_F^{(1)}$	0.90	-	V
	$I_F = 1.0\text{ A}$			0.95	1.1	
	$I_F = 0.5\text{ A}$	$T_A = 125\text{ }^\circ\text{C}$		0.78	-	
	$I_F = 1.0\text{ A}$			0.85	0.98	
Max. reverse current	Rated $V_R$	$T_A = 25\text{ }^\circ\text{C}$	-	5.0	$\mu\text{A}$	
		$T_A = 125\text{ }^\circ\text{C}$	-	100		
Typical reverse recovery time	$I_F = 0.5\text{ A}, I_R = 1.0\text{ A}, I_{rr} = 0.25\text{ A}$	$t_{rr}$	1.47	-	$\mu\text{s}$	
Typical junction capacitance	4.0 V, 1 MHz	$C_J$	7.9	-	pF	

**Notes**

- (1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width  $\leq 40\text{ ms}$

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise specified)						
PARAMETER	SYMBOL	S1AFG	S1AFJ	S1AFK	S1AFM	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$	125				$^\circ\text{C/W}$
	$R_{\theta JM}^{(2)}$	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

<b>ORDERING INFORMATION</b> (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)

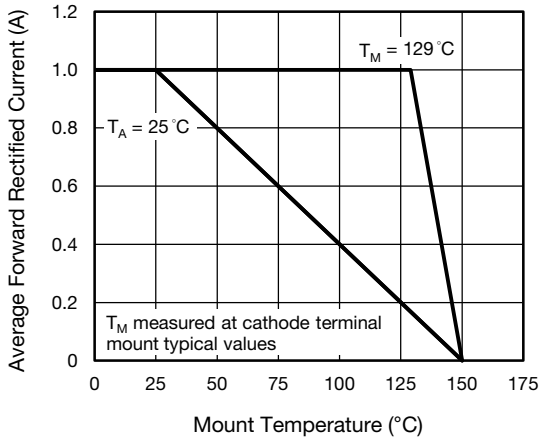


Fig. 1 - Maximum Forward Current Derating Curve

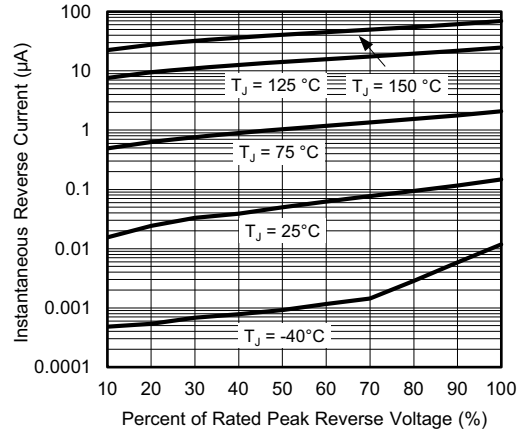


Fig. 4 - Typical Reverse Leakage Characteristics

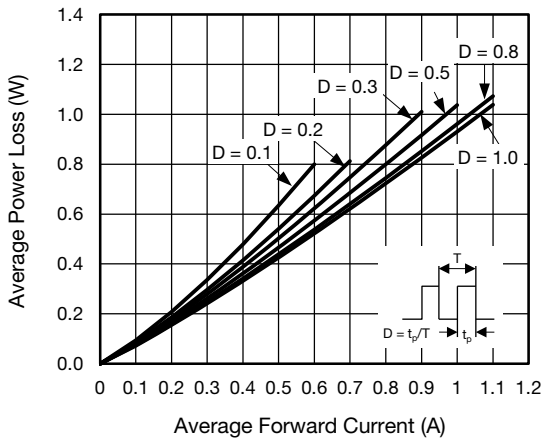


Fig. 2 - Average Power Loss Characteristics

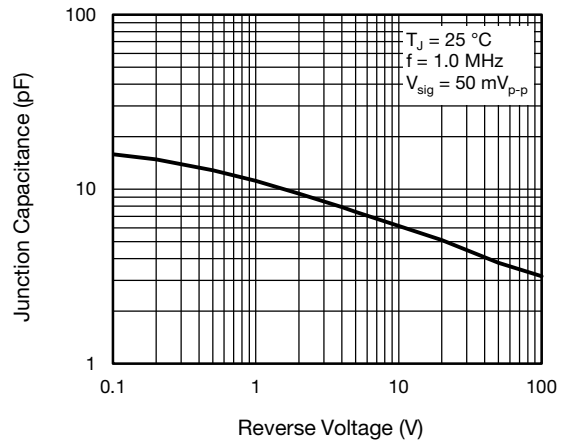


Fig. 5 - Typical Junction Capacitance

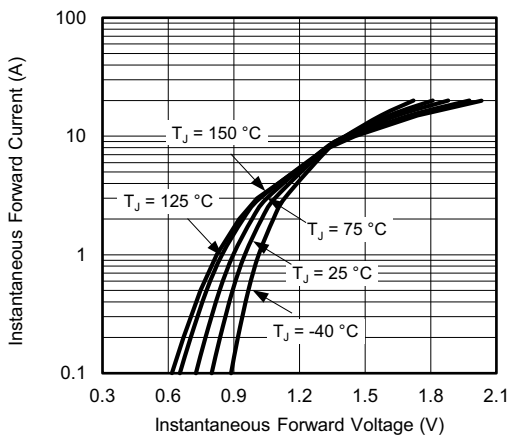


Fig. 3 - Typical Instantaneous Forward Characteristics

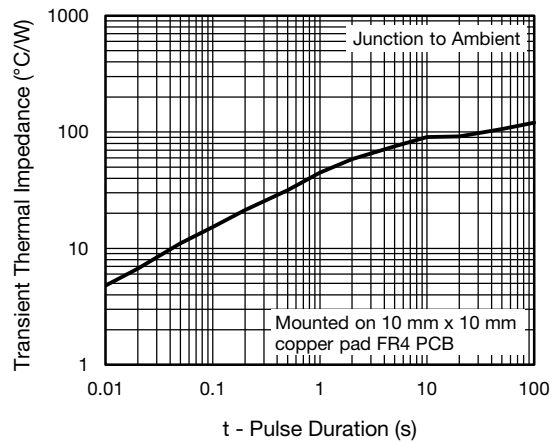
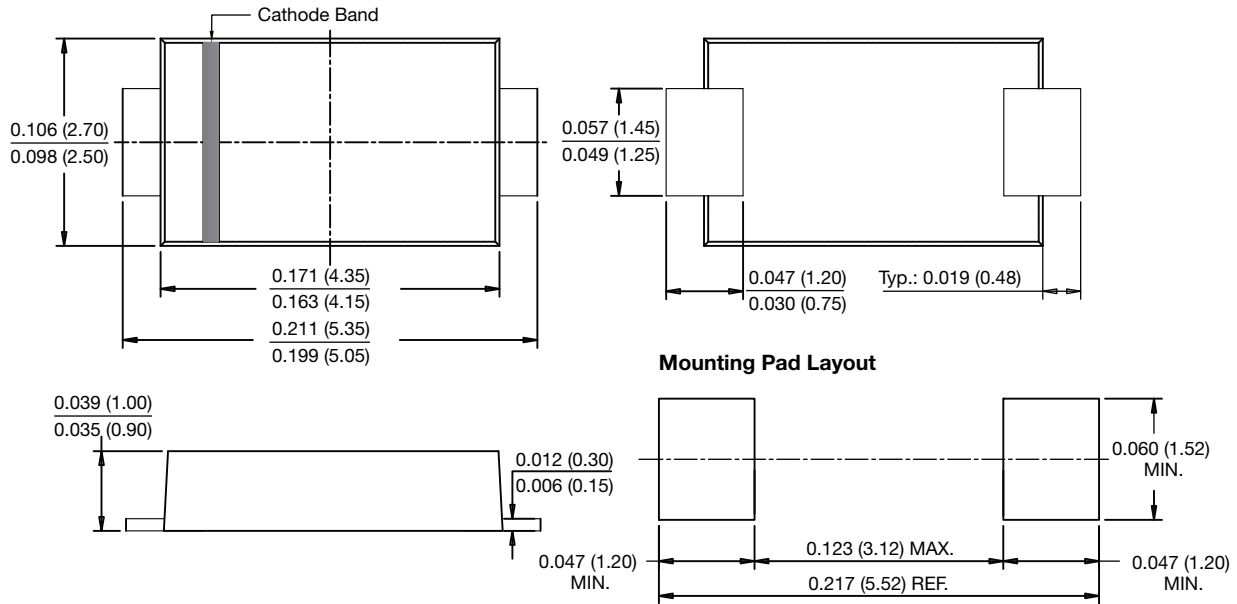


Fig. 6 - Typical Transient Thermal Impedance



## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### SlimSMA (DO-221AC)





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