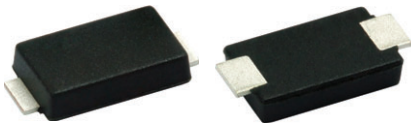
Surface-Mount Glass Passivated Rectifier

eSMP® Series



Top View Bottom View

SlimSMA (DO-221AC)

Cathode ○—▶—○ Anode

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 µA
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

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

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

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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 = 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_{rr} = 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	$R_{\theta JA}$ (1)	125				°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

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

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

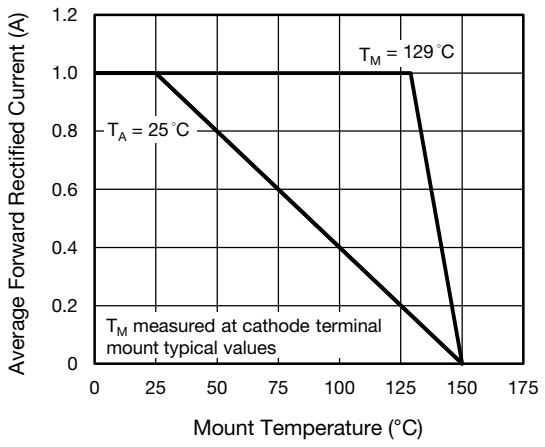

Fig. 1 - Maximum Forward Current Derating Curve

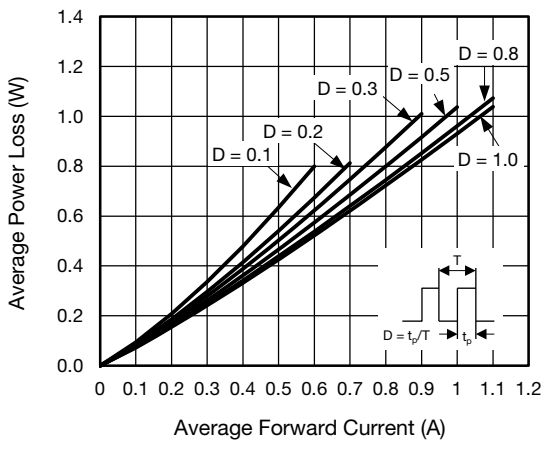

Fig. 2 - Average Power Loss Characteristics

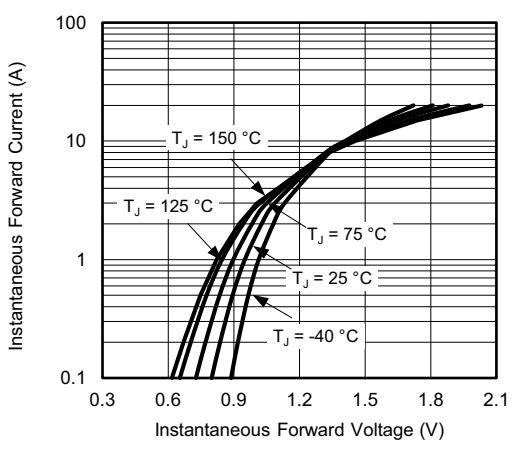

Fig. 3 - Typical Instantaneous Forward Characteristics

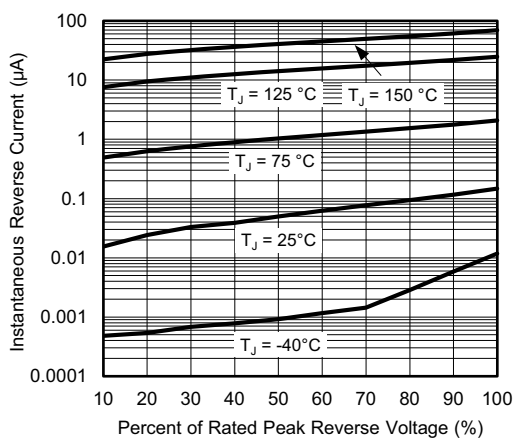

Fig. 4 - Typical Reverse Leakage Characteristics

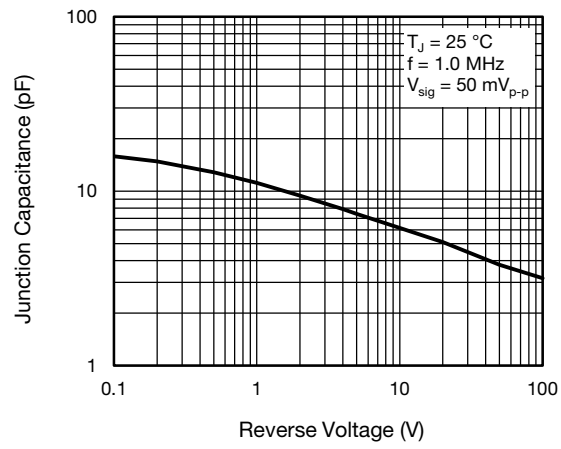

Fig. 5 - Typical Junction Capacitance

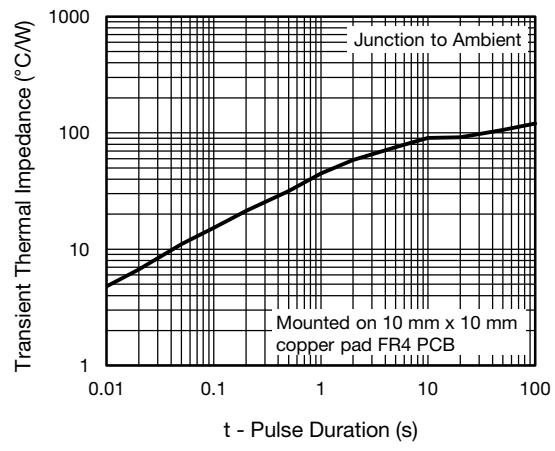

Fig. 6 - Typical Transient Thermal Impedance

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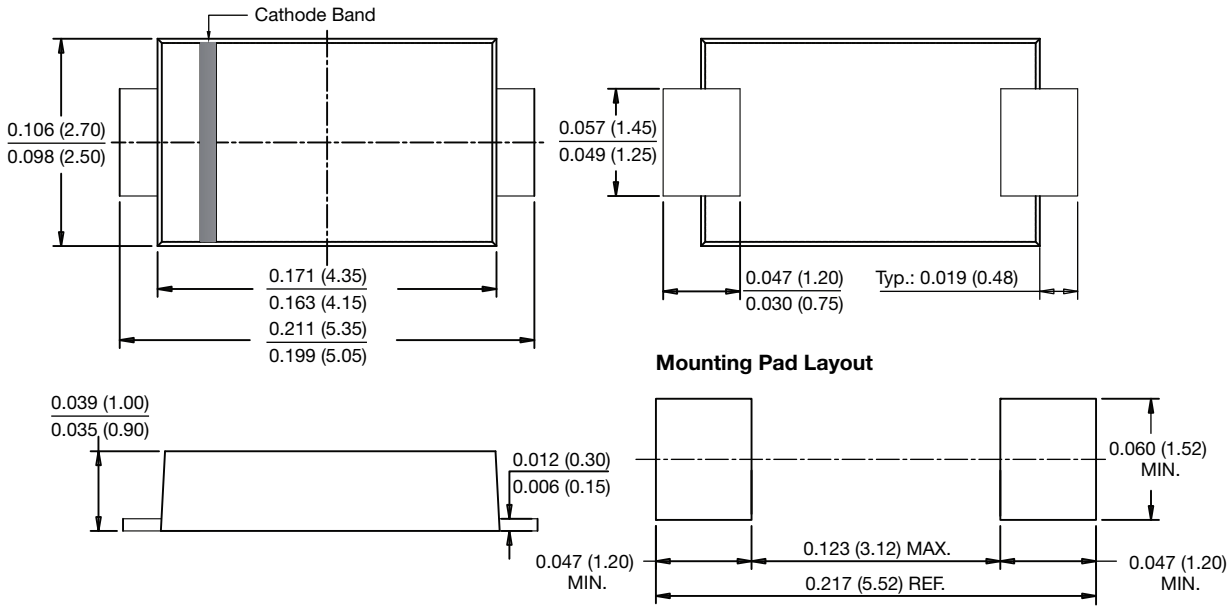
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SlimSMA (DO-221AC)



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