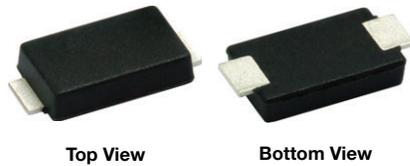


Surface Mount Glass Passivated Rectifier

TMBS® SlimSMA™



DO-221AC

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: DO-221AC (SlimSMA)

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	DO-221AC (SlimSMA)
Diode variations	Single die

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	
	$I_F = 0.5$ A	$T_A = 125$ °C		0.78	-	
				$I_F = 1.0$ A	0.85	
Max. reverse current	Rated V_R	$T_A = 25$ °C	I_R ⁽²⁾	-	5.0	μ A
		$T_A = 125$ °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	-	μ s
Typical junction capacitance	4.0 V, 1 MHz		C_J	7.9	-	pF

Notes

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

⁽²⁾ Pulse test: Pulse width \leq 40 ms



THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ 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

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)

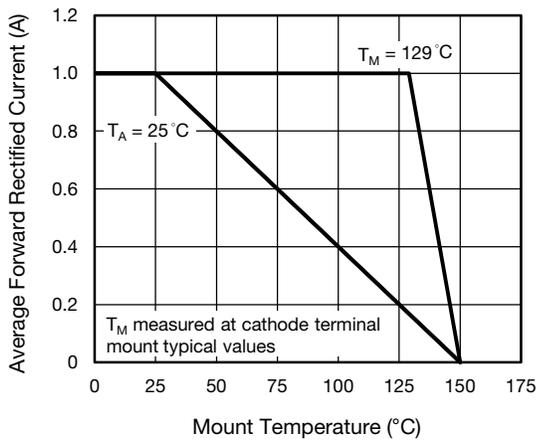


Fig. 1 - Maximum Forward Current Derating Curve

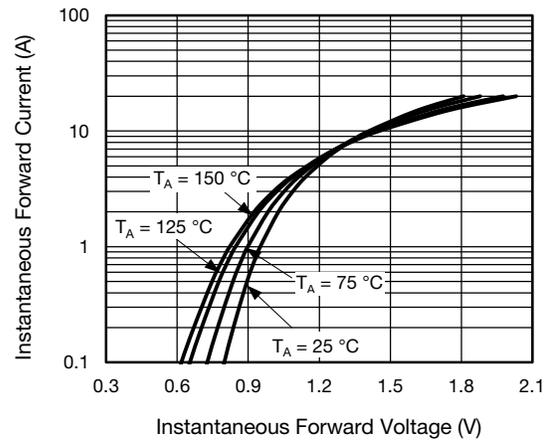


Fig. 3 - Typical Instantaneous Forward Characteristics

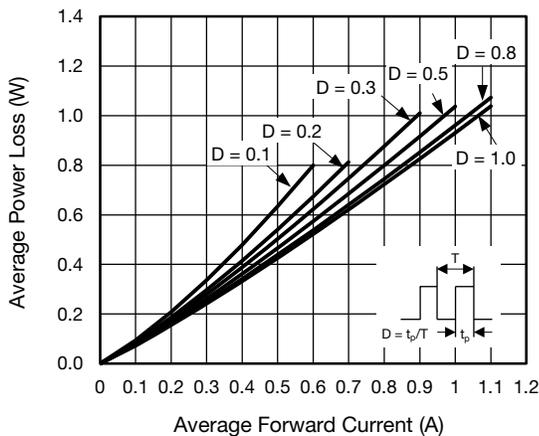


Fig. 2 - Average Power Loss Characteristics

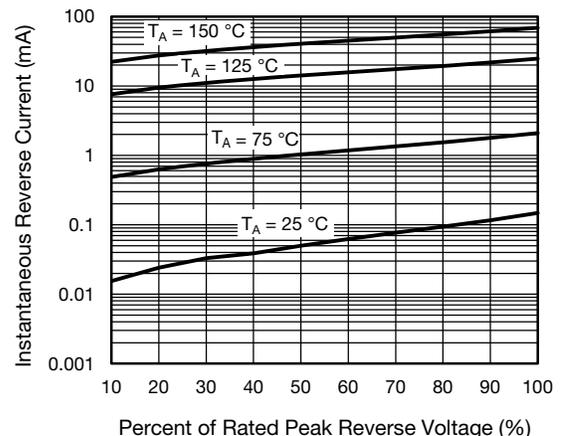


Fig. 4 - Typical Reverse Leakage Characteristics

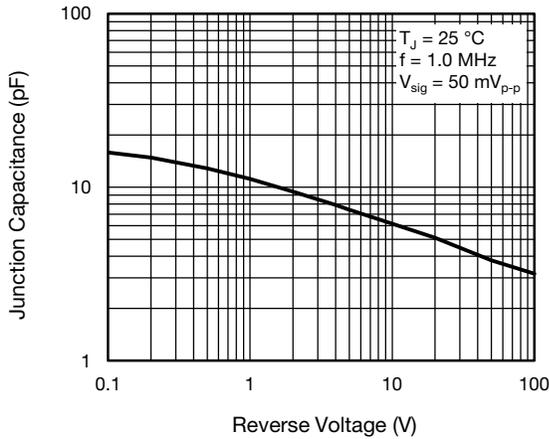


Fig. 5 - Typical Junction Capacitance

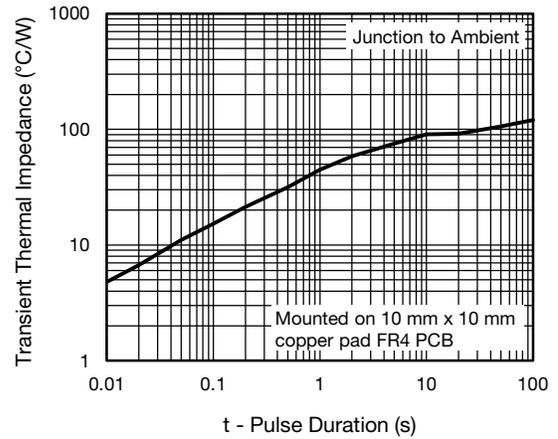
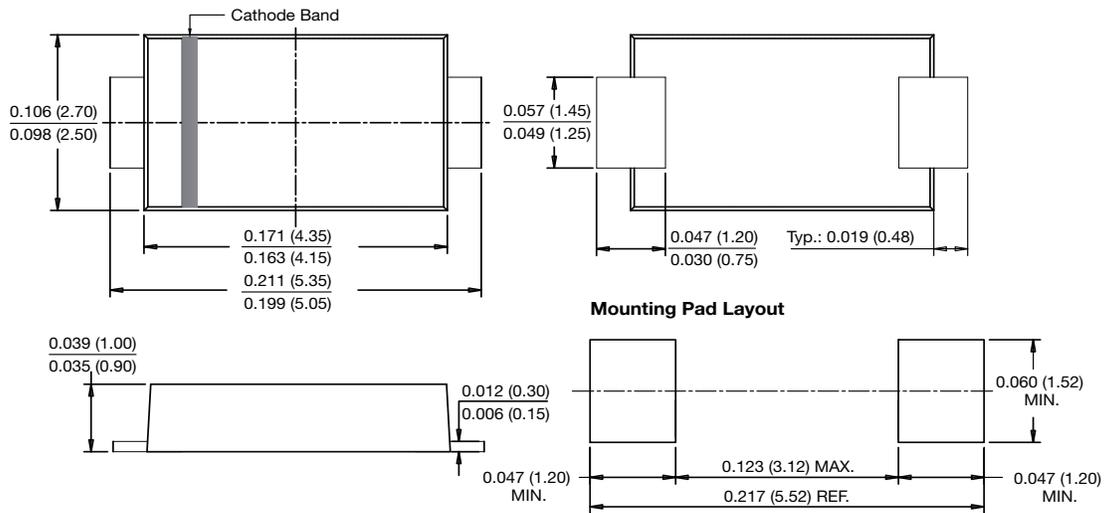


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-221AC (SlimSMA)





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