

S1A-M3, S1B-M3, S1D-M3, S1G-M3, S1J-M3, S1K-M3, S1M-M3

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Vishay General Semiconductor

COMPLIANT

HALOGEN FREE

Surface Mount Glass Passivated Rectifier



DO-214AC (SMA)

PRIMARY CHARACTERISTICS								
I _{F(AV)}	1.0 A							
V _{RRM}	50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V							
I _{FSM}	40 A, 30 A							
E _{AS}	5 mJ							
I _R	1.0 μΑ, 5.0 μΑ							
V _F	1.1 V							
T _J max.	150 °C							
Package	DO-214AC (SMA)							
Diode variations	Single die							

TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes for consumer, automotive and telecommunication.

FEATURES

- Low profile package
- · Ideal for automated placement
- · Glass passivated pellet chip junction
- Low forward voltage drop
- · Low leakage current
- · High forward surge capability
- 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

MECHANICAL DATA

Case: DO-214AC (SMA)

Molding compound meets UL 94 V-0 flammability rating Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

Terminals: Matte tin plated leads, solderable per

J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 1A whisker test

Polarity: Color band denotes cathode end

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)									
PARAMETER	SYMBOL	S1A	S1B	S1D	S1G	S1J	S1K	S1M	UNIT
Device marking code		SA	SB	SD	SG	SJ	SK	SM	
Max. recurrent peak reverse voltage	V _{RRM}	50	100	200	400	600	800	1000	V
Max. RMS voltage	V _{RMS}	V _{RMS} 35 70 140 280 420		420	560	700	٧		
Max. DC blocking voltage	V _{DC}	50	100	200	400	600	800	1000	V
Max. average forward rectified current (fig. 1)	I _{F(AV)}	1.0					Α		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	40 30					30	Α	
Non-repetitive peak reverse avalanche energy at 25 °C, I _{AS} = 1 A, L = 10 mH	E _{AS}	5					mJ		
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +150						°C	

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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)														
PARAMETER	TEST CONDITIONS	SYMBOL	S1A	S1B	S1D	S1G	S1J	S1K	S1M	UNIT				
Max. instantaneous forward voltage	1.0 A	V _F	1.1				1.1		1.1			V		
Max. DC reverse current at rated DC blocking voltage	T _A = 25 °C T _A = 125 °C	- I _R	1.0 5.0 50				.0	μΑ						
Typical reverse recovery time	$I_F = 0.5 \text{ A}, I_R = 1.0 \text{ A}, I_{rr} = 0.25 \text{ A}$	t _{rr}	1.8				1.8		1.8		1.8			μs
Typical junction capacitance	4.0 V, 1 MHz	CJ	12						pF					

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)									
PARAMETER	SYMBOL S1A S1B S1D S1G S1J S1K S1M UNIT					UNIT			
Typical thermal resistance (1)	$R_{\theta JA}$	75					85		°C/W
Typical trieffilal resistance **	$R_{\theta JL}$	27				30		- C/VV	

Note

⁽¹⁾ Thermal resistance from junction to ambient and from junction to lead mounted on PCB with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

ORDERING INFORMATION (Example)								
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE				
S1J-M3/61T	0.064	61T	1800	7" diameter plastic tape and reel				
S1J-M3/5AT	0.064	5AT	7500	13" diameter plastic tape and reel				

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

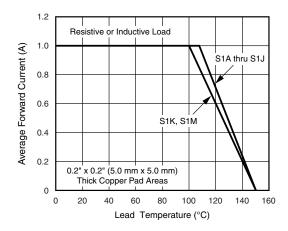


Fig. 1 - Forward Current Derating Curve

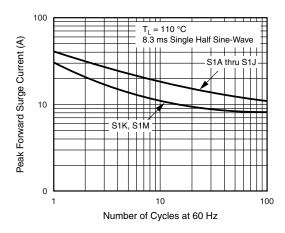


Fig. 2 - Max. Non-Repetitive Peak Forward Surge Current



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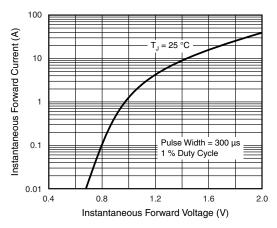


Fig. 3 - Typical Instantaneous Forward Characteristics

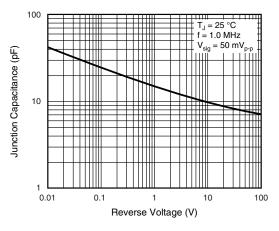


Fig. 5 - Typical Junction Capacitance

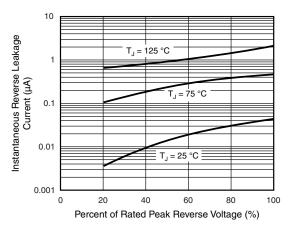


Fig. 4 - Typical Reverse Leakage Characteristics

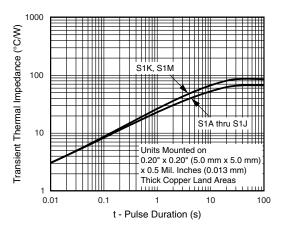
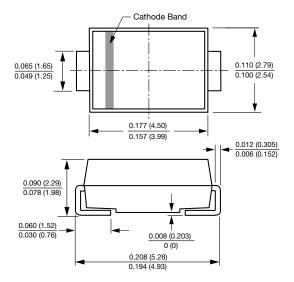


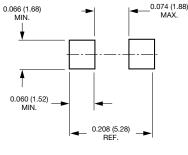
Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AC (SMA)



Mounting Pad Layout





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