

Surface-Mount Glass Passivated Rectifier



SMC (DO-214AB)

Cathode  Anode

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



RoHS
COMPLIANT
HALOGEN
FREE

LINKS TO ADDITIONAL RESOURCES



TYPICAL APPLICATIONS

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

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	8.0 A
V_{RRM}	400 V, 600 V, 800 V, 1000 V
I_{FSM}	220 A
I_R	10 μ A
V_F at $I_F = 8$ A ($T_J = 125$ °C)	0.85 V
T_J max.	150 °C
Package	SMC (DO-214AB)
Circuit configuration	Single

MECHANICAL DATA

Case: SMC (DO-214AB)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS-compliant, commercial grade

Base P/N-M3 - halogen-free, RoHS-compliant, commercial grade

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 and 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	S8G	S8J	S8K	S8M	UNIT
Device marking code		S8G	S8J	S8K	S8M	
Maximum repetitive peak reverse voltage	V_{RRM}	400	600	800	1000	V
Maximum RMS voltage	V_{RMS}	280	420	560	700	V
Maximum DC blocking voltage	V_{DC}	400	600	800	1000	V
Maximum average forward rectified current	$I_{F(AV)}^{(1)}$	8.0				A
	$I_{F(AV)}^{(2)}$	1.6				A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	220				A
Peak forward surge current single half sine-wave at 1.0 ms	I_{FSM}	500				A
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150				°C

Notes

(1) Mounted on aluminum PCB 30 mm x 30 mm with aluminum heatsink

(2) Free air, mounted on recommended copper pad area

ELECTRICAL CHARACTERISTICS (T _J = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I _F = 4.0 A	T _J = 25 °C	V _F ⁽¹⁾	0.89	-	V
	I _F = 8.0 A			0.95	0.975	
	I _F = 4.0 A	T _J = 125 °C		0.78	-	
	I _F = 8.0 A			0.85	0.971	
Reverse current	Rated V _R	T _J = 25 °C	I _R ⁽²⁾	-	10	μA
		T _J = 125 °C		-	200	
Typical reverse recovery time	I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A		t _{rr}	3.6	-	μs
Typical junction capacitance	4.0 V, 1 MHz		C _J	72	-	pF

Notes

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

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	S8G	S8J	S8K	S8M	UNIT
Typical thermal resistance	R _{θJA} ⁽¹⁾⁽²⁾	88				°C/W
	R _{θJM} ⁽³⁾	4.5				

Notes

- (1) The heat generated must be less than the thermal conductivity from junction-to-ambient: $dP_D/R_{\theta JA}$
(2) Thermal resistance junction-to-ambient to follow JEDEC® 51-2A, device mounted on FR4 PCB, 2 oz., standard footprint
(3) Thermal resistance junction-to-mount to follow JEDEC® 51-14 transient dual interface test method (TDIM)

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
S8J-E3/I	0.243	I	3500	13" diameter plastic tape and reel
S8J-M3/I	0.243	I	3500	13" diameter plastic tape and reel

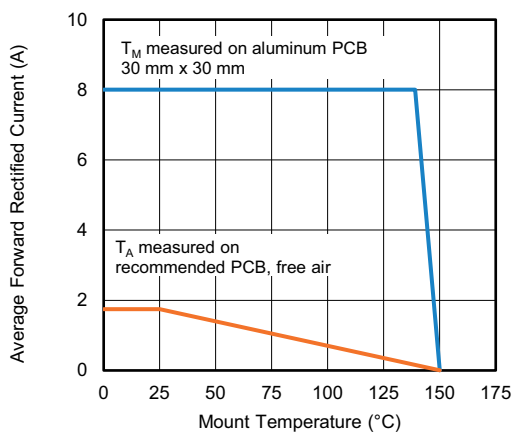
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)


Fig. 1 - Forward Current Derating Curve

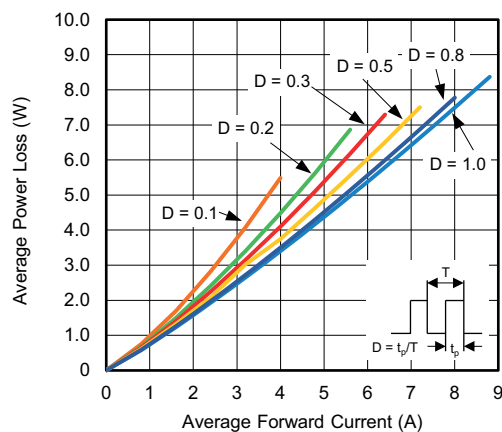


Fig. 2 - Average Power Loss Characteristics

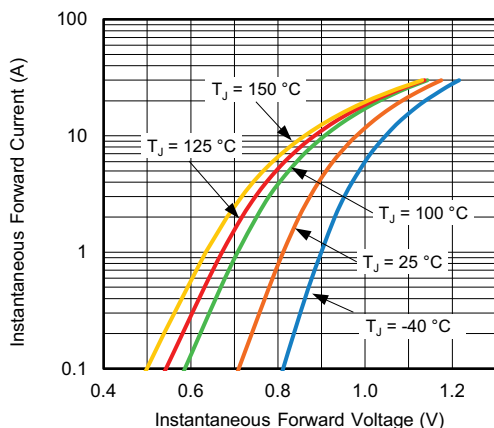


Fig. 3 - Typical Instantaneous Forward Characteristics

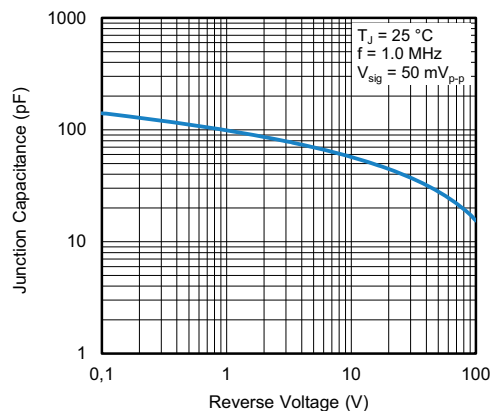


Fig. 5 - Typical Junction Capacitance

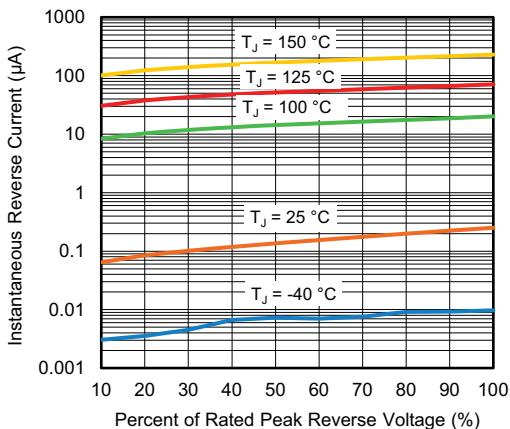


Fig. 4 - Typical Reverse Characteristics

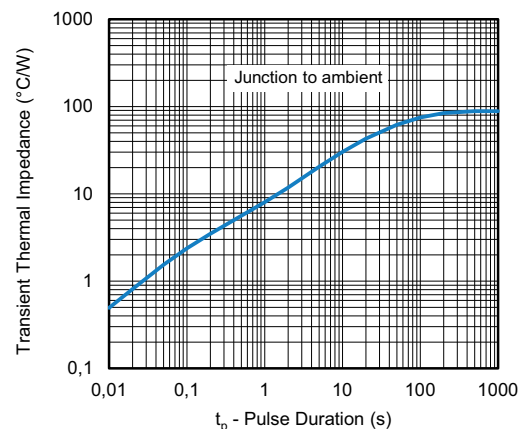
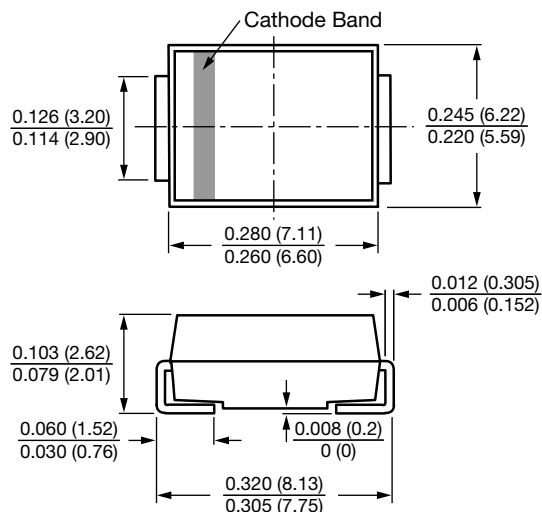


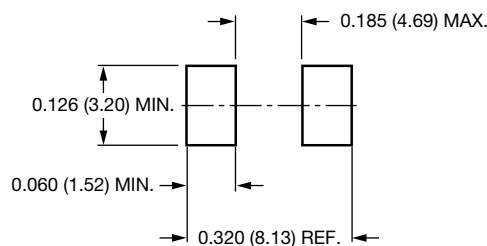
Fig. 6 - Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMC (DO-214AB)



Mounting Pad Layout





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