

Surface-Mount Glass Passivated Rectifier



SMC (DO-214AB)



RoHS
COMPLIANT
HALOGEN
FREE

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
- AEC-Q101 qualified available
- Automotive ordering code: base P/NHM3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: SMC (DO-214AB)

Molding compound meets UL 94 V-0 flammability rating
Base P/N-M3 - halogen-free, RoHS-compliant
Base P/NHM3 - halogen-free, RoHS-compliant, and AEC-Q101 qualified

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

M3 and HM3 suffix meets JESD 201 class 2 whisker test

Polarity: Color band denotes cathode end

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	8.0 A
V_{RRM}	400 V, 600 V, 800 V, 1000 V
I_{FSM}	200 A
I_R	10 μ A
V_F at $I_F = 8$ A ($T_A = 125$ °C)	0.87 V
T_J max.	150 °C
Package	SMC (DO-214AB)
Diode variations	Single

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)						
PARAMETER	SYMBOL	S8CG	S8CJ	S8CK	S8CM	UNIT
Device marking code		8G	8J	8K	8M	
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}	200				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** ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	$I_F = 4.0\text{ A}$	$V_F^{(1)}$	0.89	-	V
	$I_F = 8.0\text{ A}$		0.96	0.985	
	$I_F = 4.0\text{ A}$		0.78	-	
	$I_F = 8.0\text{ A}$		0.87	0.935	
Reverse current	Rated V_R	$I_R^{(2)}$	-	10	μA
			-	350	
Typical reverse recovery time	$I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{rr} = 0.25\text{ A}$	t_{rr}	4	-	μs
Typical junction capacitance	4.0 V, 1 MHz	C_J	79	-	pF

Notes

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

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

PARAMETER	SYMBOL	S8CG	S8CJ	S8CK	S8CM	UNIT
Typical thermal resistance	R _{θJA} ⁽¹⁾	75				°C/W
	R _{θJM} ⁽²⁾	9.5				

Notes

- (1) Free air, mounted on recommended PCB, 2 oz. pad area; thermal resistance $R_{\theta JA}$ - junction to ambient
 (2) Mounted on 30 mm x 30 mm Aluminum PCB, thermal resistance $R_{\theta JM}$ - junction to mount

ORDERING INFORMATION (Example)

PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
S8CJ-M3/I	0.257	I	3500	13" diameter plastic tape and reel
S8CJHM3/I ⁽¹⁾	0.257	I	3500	13" diameter plastic tape and reel

Note

- (3) AEC-Q101 qualified

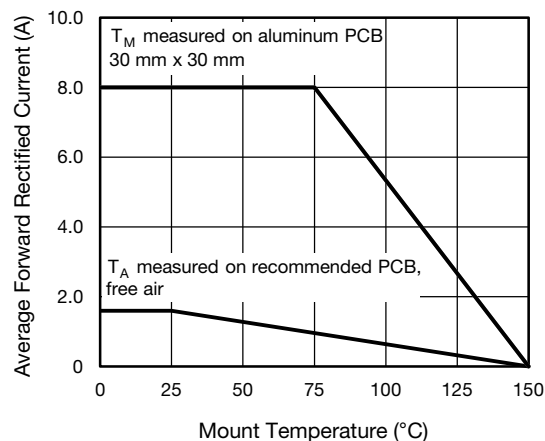
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

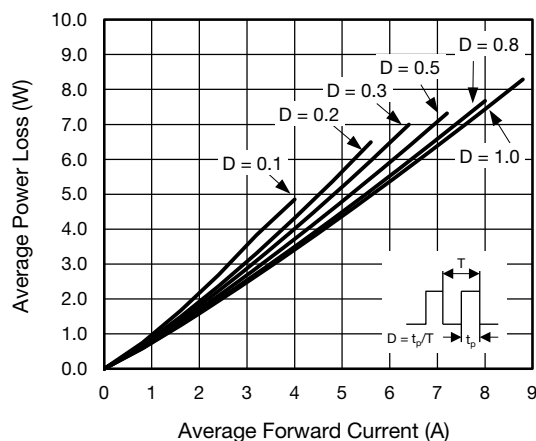


Fig. 2 - Average Power Loss Characteristics

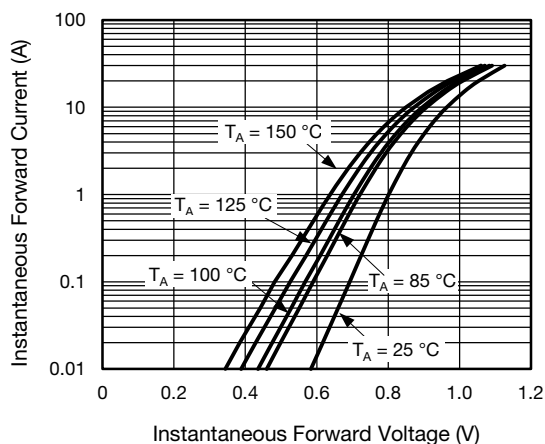


Fig. 3 - Typical Instantaneous Forward Characteristics

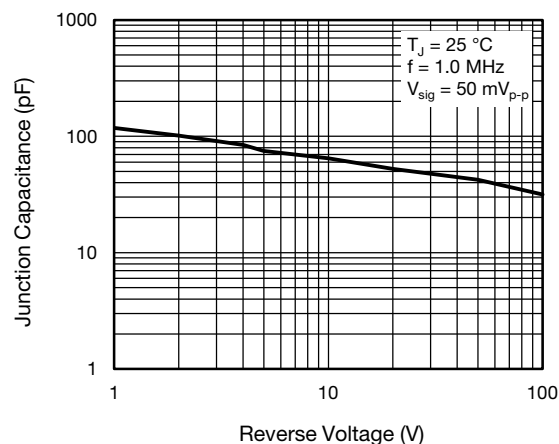


Fig. 5 - Typical Junction Capacitance

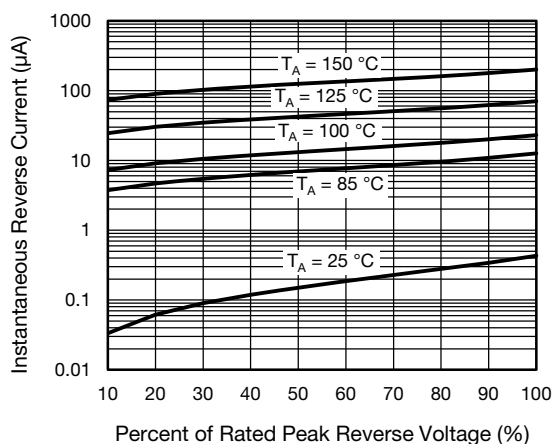


Fig. 4 - Typical Reverse Characteristics

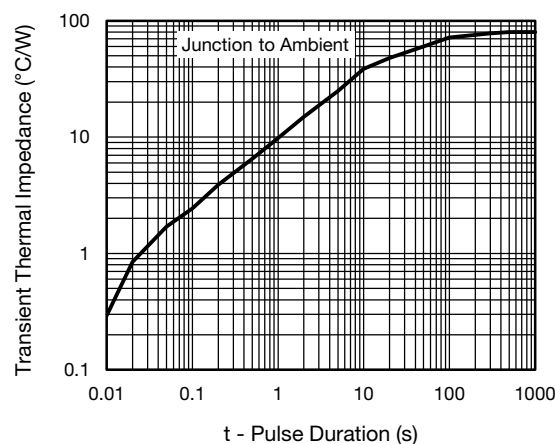
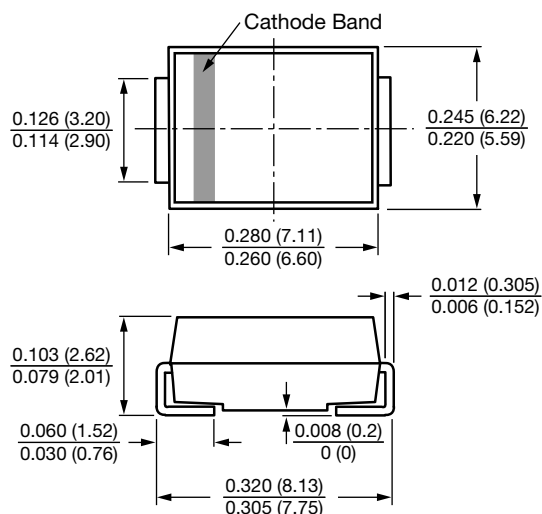
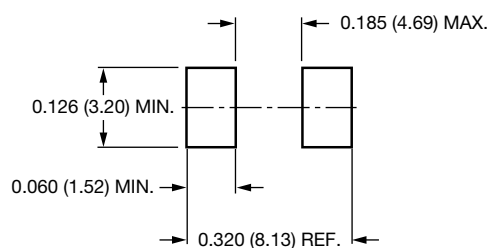


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMC (DO-214AB)

Mounting Pad Layout




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