

Surface-Mount Glass Passivated Rectifier


SMC (DO-214AB)

Cathode Anode

LINKS TO ADDITIONAL RESOURCES



3D Models

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	10 A
V_{RRM}	400 V, 600 V, 800 V, 1000 V
I_{FSM}	300 A
I_R	10 μ A
V_F at $I_F = 10$ A ($T_A = 125$ °C)	0.87 V
T_J max.	150 °C
Package	SMC (DO-214AB)
Circuit configurations	Single

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

 AUTOMOTIVE
GRADE
Available

RoHS
COMPLIANT
HALOGEN
FREE

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

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)						
PARAMETER	SYMBOL	S10CG	S10CJ	S10CK	S10CM	UNIT
Device marking code		10G	10J	10K	10M	
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⁾	10				A
	$I_{F(AV)}$ ⁽²⁾	2				A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	300				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 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I _F = 5.0 A	T _A = 25 °C	V _F ⁽¹⁾	0.9	-	V
	I _F = 10.0 A			0.96	1.0	
	I _F = 5.0 A	T _A = 125 °C		0.8	-	
	I _F = 10.0 A			0.87	0.95	
Reverse current	Rated V _R	T _A = 25 °C	I _R ⁽²⁾	-	10	μA
		T _A = 125 °C		-	350	
Typical reverse recovery time	I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A		t _{rr}	5	-	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 ≤ 40 ms

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	S10CG	S10CJ	S10CK	S10CM	UNIT
Typical thermal resistance	R _{θJA} ⁽¹⁾	75				°C/W
	R _{θJM} ⁽²⁾	9.3				

Notes

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

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
S10CJ-M3/I	0.257	I	3500	13" diameter plastic tape and reel
S10CJHM3/I ⁽¹⁾	0.257	I	3500	13" diameter plastic tape and reel

Note

- (1) AEC-Q101 qualified

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

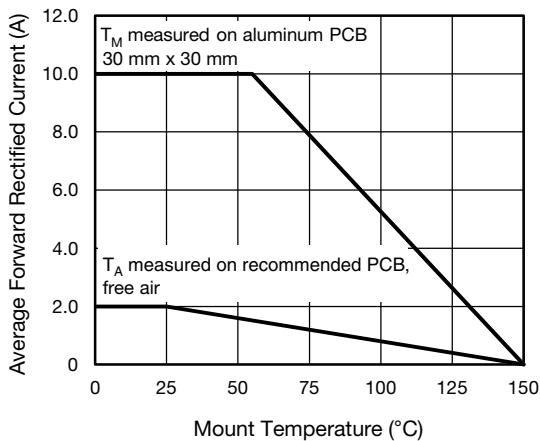


Fig. 1 - Forward Current Derating Curve

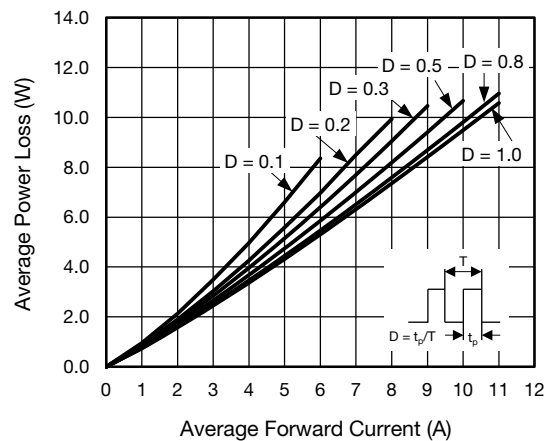


Fig. 2 - Average Power Loss Characteristics

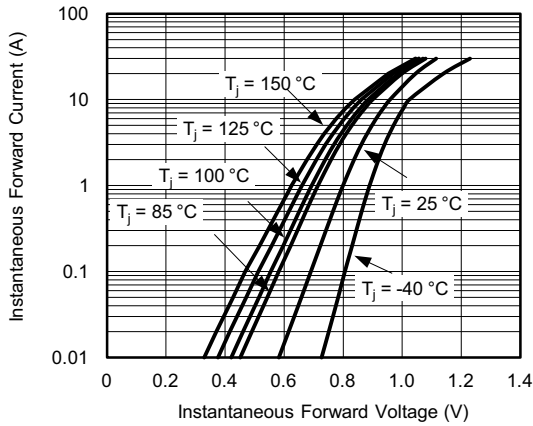


Fig. 3 - Typical Instantaneous Forward Characteristics

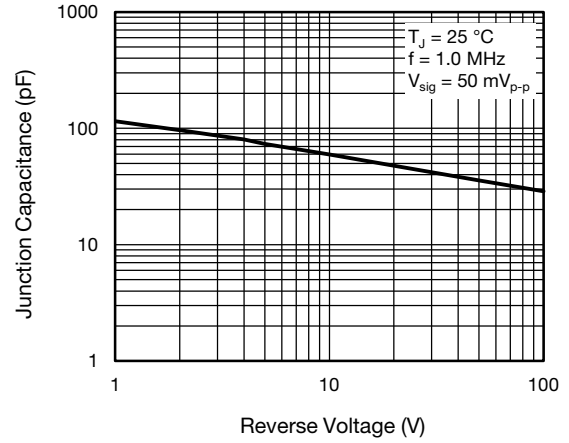


Fig. 5 - Typical Junction Capacitance

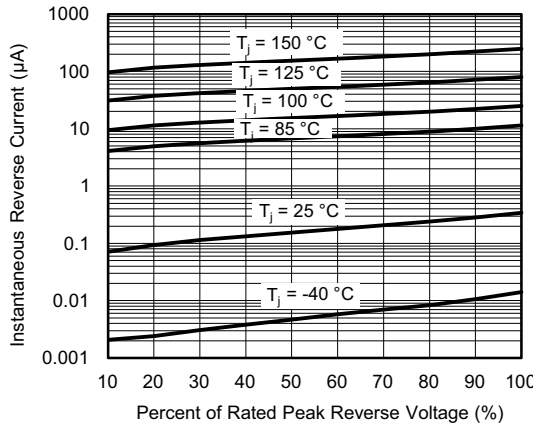


Fig. 4 - Typical Reverse Characteristics

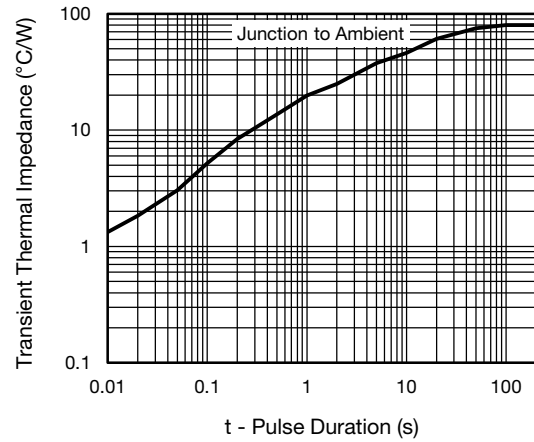
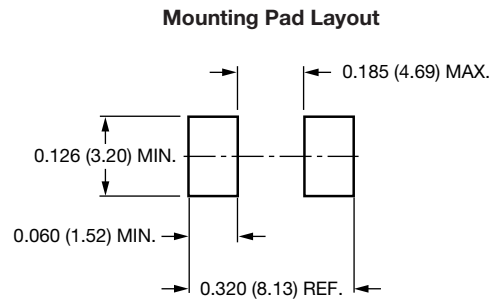
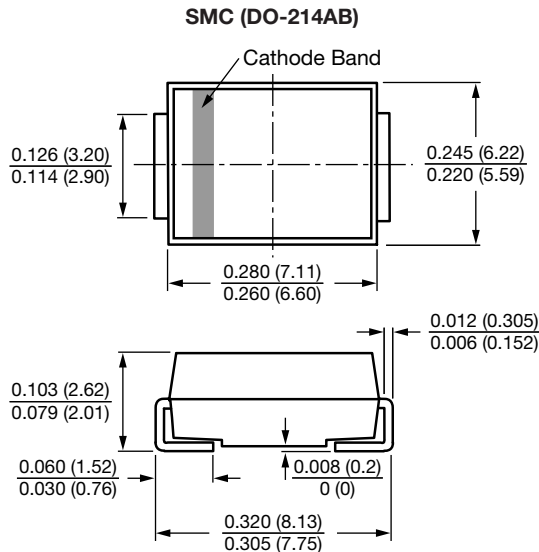


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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