

## Surface-Mount Glass Passivated Rectifier


**SMC (DO-214AB)**

Cathode  Anode

### LINKS TO ADDITIONAL RESOURCES



### FEATURES

- 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](http://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, 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
$V_{RRM}$	1200 V
$I_{FSM}$	220 A
$I_R$	5 $\mu$ 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

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)			
PARAMETER	SYMBOL	S8Q	UNIT
Device marking code		S8Q	
Maximum repetitive peak reverse voltage	$V_{RRM}$	1200	V
Maximum RMS voltage	$V_{RMS}$	840	V
Maximum DC blocking voltage	$V_{DC}$	1200	V
Maximum average forward rectified current	$I_{F(AV)}^{(1)}$	8.0	A
	$I_{F(AV)}^{(2)}$	1.8	A
Non-repetitive peak forward surge current 8.3 ms single sine-wave on rated load	$I_{FSM}$	220	A
Non-repetitive peak forward surge current 1.0 ms single sine-wave, $T_J = 25$ °C		440	
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

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage	$I_F = 4.0 \text{ A}$	$T_J = 25^\circ\text{C}$	$V_F$ <sup>(1)</sup>	0.90	-	V	
	$I_F = 8.0 \text{ A}$			0.96	1.1		
	$I_F = 4.0 \text{ A}$	$T_J = 125^\circ\text{C}$		0.77	-		
	$I_F = 8.0 \text{ A}$			0.85	-		
Reverse current	Rated $V_R$	$T_J = 25^\circ\text{C}$	$I_R$ <sup>(2)</sup>	-	5	$\mu\text{A}$	
		$T_J = 125^\circ\text{C}$		82	350		
Typical reverse recovery time	$I_F = 0.5 \text{ A}$ , $I_R = 1.0 \text{ A}$ , $I_{rr} = 0.25 \text{ A}$		$t_{rr}$	3	-	$\mu\text{s}$	
Typical junction capacitance	4.0 V, 1 MHz		$C_J$	69	-	pF	

**Notes**

(1) Pulse test: 300  $\mu\text{s}$  pulse width; 1 % duty cycle

(2) Pulse test: pulse width  $\leq 40 \text{ ms}$

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	S8Q	UNIT
Typical thermal resistance	$R_{\theta JA}$ <sup>(1)(2)</sup>	90	$^\circ\text{C/W}$
	$R_{\theta JM}$ <sup>(3)</sup>	4.5	

**Notes**

(1) The heat generated must be less than the thermal conductivity from junction-to-ambient:  $dP_D/dT_J < 1/R_{\theta JA}$

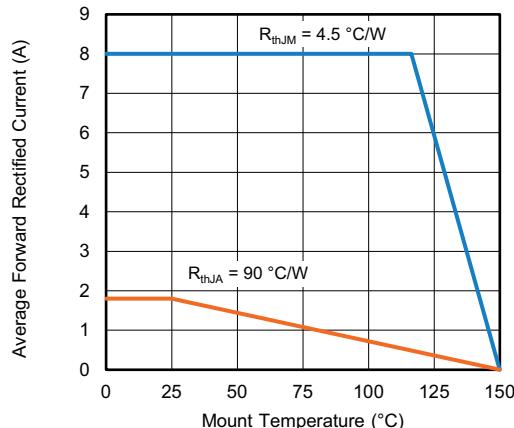
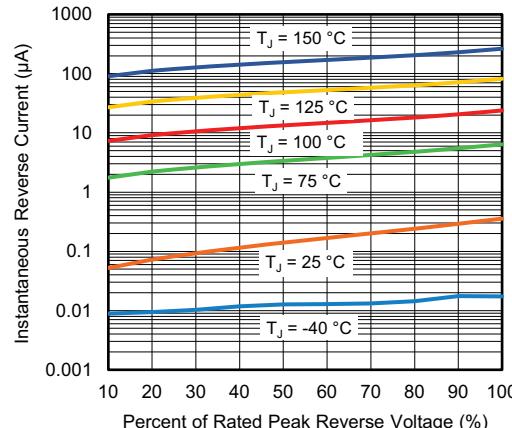
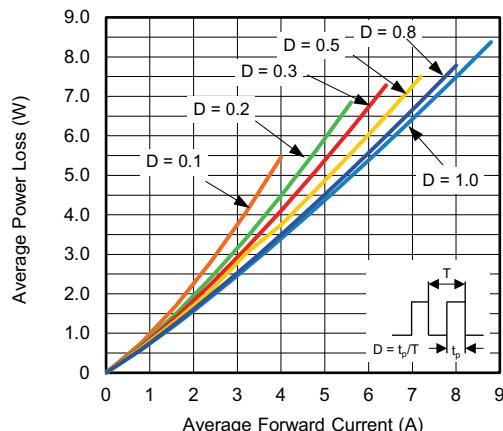
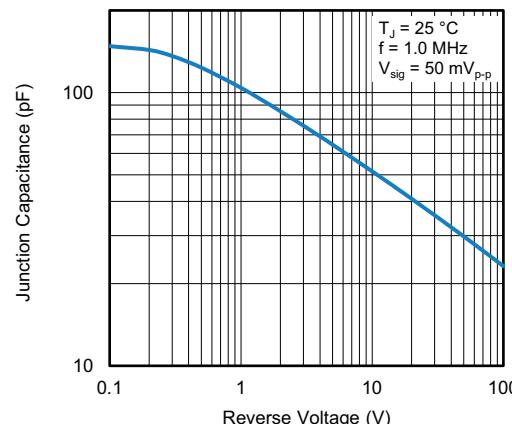
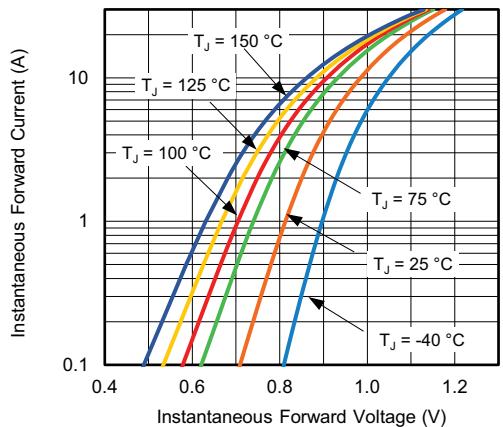
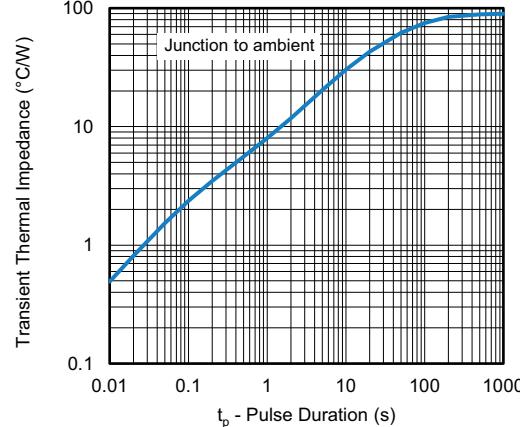
(2) Thermal resistance junction-to-ambient to follow JEDEC® 51-2A, device mounted on FR4 PCB, 2 oz.

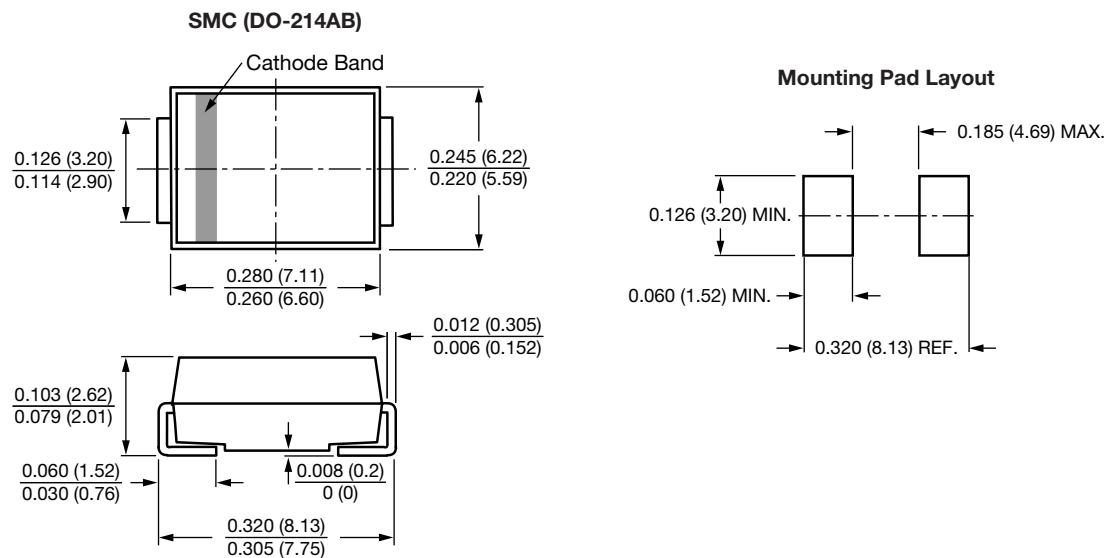
(3) Thermal resistance junction-to-mount to follow JEDEC® 51-14 transient dual interface test method (TDIM)

<b>ORDERING INFORMATION</b> (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
S8Q-M3/I	0.24	I	3500	13" diameter plastic tape and reel
S8QHM3/I <sup>(1)</sup>	0.24	I	3500	13" diameter plastic tape and reel

**Note**

(1) AEC-Q101 qualified

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

**Fig. 1 - Forward Current Derating Curve**

**Fig. 4 - Typical Reverse Characteristics**

**Fig. 2 - Average Power Loss Characteristics**

**Fig. 5 - Typical Junction Capacitance**

**Fig. 3 - Typical Instantaneous Forward Characteristics**

**Fig. 6 - Typical Transient Thermal Impedance**

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)


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