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## Vishay General Semiconductor

AUTOMOTIVE

RoHS

COMPLIANT HALOGEN

**FREE** 

## **Surface Mount Glass Passivated Rectifier**



SMB (DO-214AA)



### **ADDITIONAL RESOURCES**



PRIMARY CHARACTERISTICS							
I <sub>F(AV)</sub>	1.5 A						
V <sub>RRM</sub>	50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V						
I <sub>FSM</sub>	50 A						
I <sub>R</sub>	1.0 µA						
V <sub>F</sub>	1.15 V						
T <sub>J</sub> max.	150 °C						
Package	SMB (DO-214AA)						
Circuit configuration	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/NHE3 or P/NHM3
- Material categorization: for definitions of compliance please see <a href="https://www.vishay.com/doc?99912">www.vishay.com/doc?99912</a>

### **TYPICAL APPLICATIONS**

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

#### **MECHANICAL DATA**

Case: SMB (DO-214AA)

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

Base P/NHE3\_X - RoHS-compliant and AEC-Q101 qualified Base P/NHM3\_X - halogen-free, RoHS-compliant and AEC-Q101 qualified

("\_X" denotes revision code e.g. A, B,....)

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

E3, M3, HE3, and HM3 suffix meets JESD 201 class 2 whisker test

Polarity: color band denotes cathode end

MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)									
PARAMETER	SYMBOL	S2A	S2B	S2D	S2G	S2J	S2K	S2M	UNIT
Device marking code		SA	SB	SD	SG	SJ	SK	SM	
Max. repetitive peak reverse voltage	V <sub>RRM</sub>	50	100	200	400	600	800	1000	V
Max. RMS voltage	V <sub>RMS</sub>	35	70	140	280	420	560	700	V
Max. DC blocking voltage	V <sub>DC</sub>	50	100	200	400	600	800	1000	V
Max. average forward rectified current at T <sub>L</sub> = 100 °C	I <sub>F(AV)</sub>	1.5				Α			
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	50					Α		
Operating and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150						°C	



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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)											
PARAMETER	TEST CONDITIONS		SYMBOL	S2A	S2B	S2D	S2G	S2J	S2K	S2M	UNIT
Max. instantaneous forward voltage	1.5 A		V <sub>F</sub>	1.15							V
Max. DC reverse current at		T <sub>A</sub> = 25 °C	I_	1.0							
rated DC blocking voltage $T_A = 125 ^{\circ}\text{C}$		'R	125							– μA	
Typical reverse recovery time	$I_F = 0.5 A,$	$I_R = 1.0 \text{ A}, I_{rr} = 0.25 \text{ A}$	t <sub>rr</sub> 2.0		•	μs					
Typical junction capacitance	4.0 V, 1 MI	Hz	C <sub>J</sub> 16					рF			

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)									
PARAMETER	SYMBOL S2A S2B S2D S2G S2J S2K S2M UNIT							UNIT	
Typical thermal resistance (1)	$R_{\theta JA}$	53							°C/W
Typical thermal resistance (1)	$R_{\theta JL}$	16							C/VV

#### Note

<sup>(1)</sup> Thermal resistance from junction to ambient and from junction to lead mounted on PCB with 0.3" x 0.3" (8.0 mm x 8.0 mm) copper pad areas

ORDERING INFORMATION (Example)										
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE						
S2J-E3/52T	0.096	52T	750	7" diameter plastic tape and reel						
S2J-E3/5BT	0.096	5BT	3200	13" diameter plastic tape and reel						
S2JHE3_A/H <sup>(1)</sup>	0.096	Н	750	7" diameter plastic tape and reel						
S2JHE3_A/I <sup>(1)</sup>	0.096	I	3200	13" diameter plastic tape and reel						
S2J-M3/52T	0.096	52T	750	7" diameter plastic tape and reel						
S2J-M3/5BT	0.096	5BT	3200	13" diameter plastic tape and reel						
S2JHM3_A/H <sup>(1)</sup>	0.096	Н	750	7" diameter plastic tape and reel						
S2JHM3_A/I (1)	0.096	I	3200	13" diameter plastic tape and reel						

#### Note

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

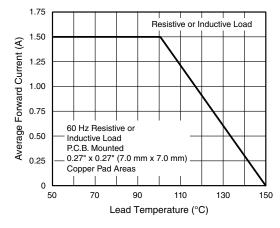


Fig. 1 - Forward Current Derating Curve

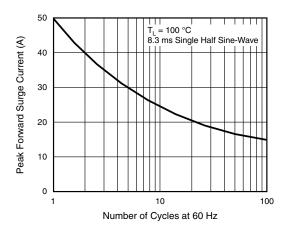


Fig. 2 - Max. Non-Repetitive Peak Forward Surge Current

<sup>(1)</sup> AEC-Q101 qualified

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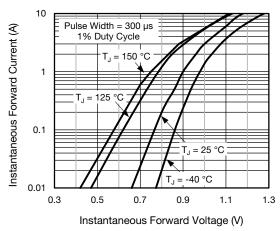


Fig. 3 - Typical Instantaneous Forward Characteristics

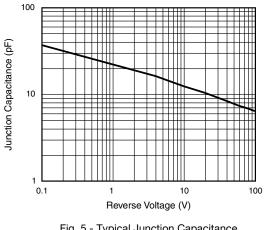


Fig. 5 - Typical Junction Capacitance

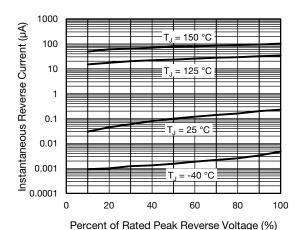


Fig. 4 - Typical Reverse Characteristics

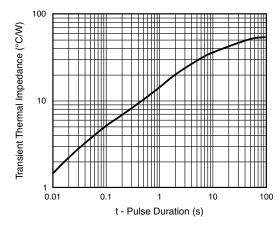
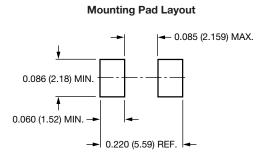


Fig. 6 - Typical Transient Thermal Impedance

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

### SMB (DO-214AA) Cathode Band 0.155 (3.94) 0.086 (2.20) 0.077 (1.95) 0.130(3.30)0.180 (4.57) 0.160 (4.06) 0.012 (0.305) 0.006 (0.152) 0.096 (2.44) 0.084 (2.13) 0.060 (1.52) 0.008 (0.2) 0.030 (0.76) 0 (0) 0.220 (5.59) 0.205 (5.21)





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