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Vishay General Semiconductor

## **Surface-Mount Glass Passivated Rectifier**



SMC (DO-214AB)

Cathode O Anode

### LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS							
I <sub>F(AV)</sub> 5.0 A							
V <sub>RRM</sub>	50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V						
I <sub>FSM</sub>	100 A						
I <sub>R</sub>	10 µA						
V <sub>F</sub>	1.15 V						
T <sub>J</sub> max.	150 °C						
Package	SMC (DO-214AB)						
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 <u>www.vishay.com/doc?99912</u>

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

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

E3, M3, and HE3 suffix meets JESD 201 class 2 whisker test **Polarity:** color band denotes cathode end

<b>MAXIMUM RATINGS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)									
PARAMETER	SYMBOL	S5A	S5B	S5D	S5G	S5J	S5K	S5M	UNIT
Device marking code		5A	5B	5D	5G	5J	5K	5M	
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	50	100	200	400	600	800	1000	V
Maximum RMS voltage	V <sub>RMS</sub>	35	70	140	280	420	560	700	V
Maximum DC blocking voltage	V <sub>DC</sub>	50	100	200	400	600	800	1000	V
Maximum average forward rectified current at $T_L = 75$ °C	I <sub>F(AV)</sub>	5.0					Α		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	100					А		
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	TG -55 to +150 °C					°C		







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<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25 \text{ °C}$ unless otherwise noted)											
PARAMETER	TEST CONDITIONS		SYMBOL	S5A	S5B	S5D	S5G	S5J	S5K	S5M	UNIT
Maximum instantaneous forward voltage	5.0 A		V <sub>F</sub>	1.15					V		
Maximum DC reverse current at		T <sub>A</sub> = 25 °C	- I <sub>B</sub>	10							μA
rated DC blocking voltage $T_A = 125^{\circ}$		T <sub>A</sub> = 125 °C	·n	250							μ. ι
Typical reverse recovery time	$I_F = 0.5$ $I_{rr} = 0.2$	A, I <sub>R</sub> = 1.0 A, 5 A	t <sub>rr</sub>	2.5					μs		
Typical junction capacitance	4.0 V, 1	l MHz	CJ	40					pF		

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25 \text{ °C}$ unless otherwise noted)								
PARAMETER	AMETER SYMBOL S5A S5B S5D S5G S5J S5K S5M UNIT							UNIT
Typical thermal resistance <sup>(1)</sup>	R <sub>θJL</sub>	10 °C			°C/W			

Note

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

ORDERING INFORMATION (Example)									
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE					
S5J-E3/57T	0.211	57T	850	7" diameter plastic tape and reel					
S5J-E3/9AT	0.211	9AT	3500	13" diameter plastic tape and reel					
S5J-M3/57T	0.211	57T	850	7" diameter plastic tape and reel					
S5J-M3/9AT	0.211	9AT	3500	13" diameter plastic tape and reel					
S5JHE3_A/H <sup>(1)</sup>	0.211	Н	850	7" diameter plastic tape and reel					
S5JHE3_A/I <sup>(1)</sup>	0.211	I	3500	13" diameter plastic tape and reel					

Note

(1) AEC-Q101 qualified



## S5A, S5B, S5D, S5G, S5J, S5K, S5M

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### RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)

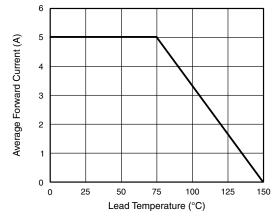


Fig. 1 - Forward Current Derating Curve

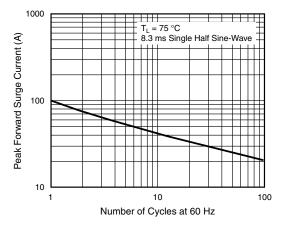


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

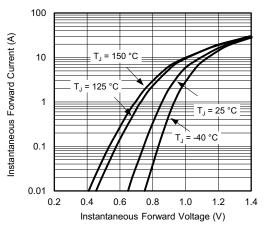


Fig. 3 - Typical Instantaneous Forward Characteristics

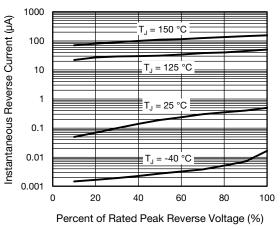


Fig. 4 - Typical Reverse Characteristics

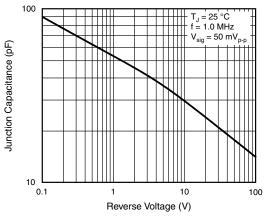


Fig. 5 - Typical Junction Capacitance

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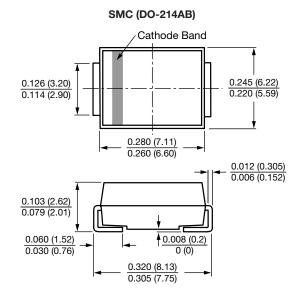
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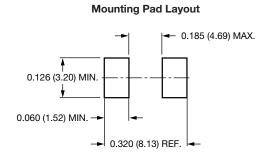


# S5A, S5B, S5D, S5G, S5J, S5K, S5M

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







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