



**THE DATASHEET OF  
S5A-E3/9AT**



## Surface-Mount Glass Passivated Rectifier


**SMC (DO-214AB)**

Cathode Anode

### LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	5.0 A
$V_{RRM}$	50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V
$I_{FSM}$	100 A
$I_R$	10 $\mu$ A
$V_F$	1.15 V
$T_J$ max.	175 °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 [www.vishay.com/doc?99912](http://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-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

MAXIMUM RATINGS ( $T_A = 25$ °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	$V_{RRM}$	50	100	200	400	600	800	1000	V
Maximum RMS voltage	$V_{RMS}$	35	70	140	280	420	560	700	V
Maximum DC blocking voltage	$V_{DC}$	50	100	200	400	600	800	1000	V
Maximum average forward rectified current at $T_L = 100$ °C	$I_{F(AV)}$	5.0							A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	100							A
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 to +175							°C



ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °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 rated DC blocking voltage	T <sub>J</sub> = 25 °C	I <sub>R</sub>	10								μA
	T <sub>J</sub> = 125 °C		250								
Typical reverse recovery time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A	t <sub>rr</sub>	2.5								μs
Typical junction capacitance	4.0 V, 1 MHz	C <sub>J</sub>	40								pF

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)										
PARAMETER	SYMBOL	S5A	S5B	S5D	S5G	S5J	S5K	S5M	UNIT	
Typical thermal resistance <sup>(1)</sup>	R <sub>θJL</sub>	10								°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	H	850	7" diameter plastic tape and reel
S5JHE3_A/I <sup>(1)</sup>	0.211	I	3500	13" diameter plastic tape and reel

**Note**

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

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

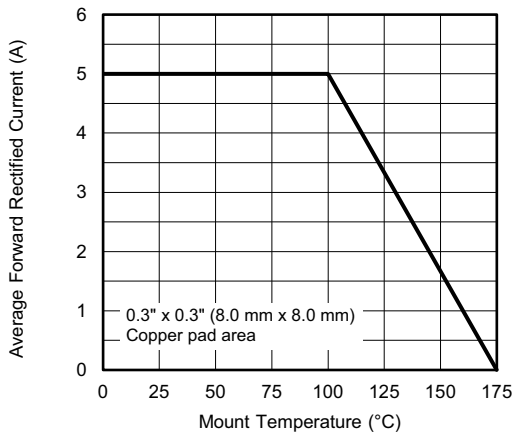


Fig. 1 - Forward Current Derating Curve



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



Fig. 3 - Typical Instantaneous Forward Characteristics



Fig. 5 - Typical Junction Capacitance

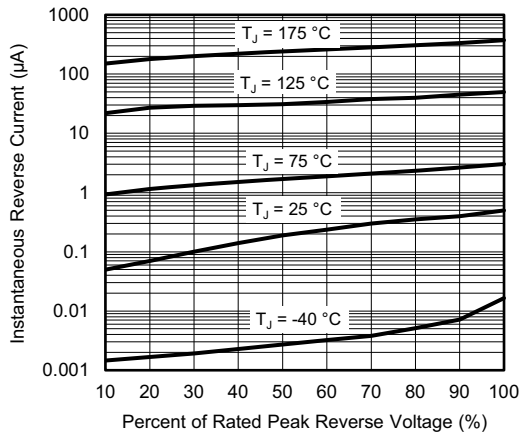
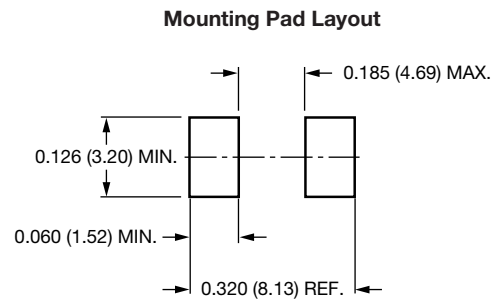
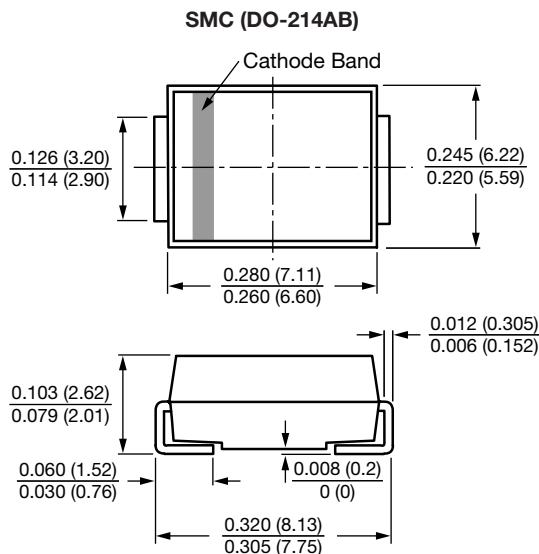


Fig. 4 - Typical Reverse Characteristics

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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