COMPLIANT

HALOGEN

**FREE** 



### Vishay General Semiconductor

# **Surface Mount Fast Switching Rectifier**



**SMC (DO-214AB)** 

PRIMARY CHARACTERISTICS							
I <sub>F(AV)</sub>	3.0 A						
$V_{RRM}$	50 V to 800 V						
I <sub>FSM</sub>	100 A						
t <sub>rr</sub>	150 ns, 250 ns, 500 ns						
V <sub>F</sub>	1.3 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 chip junction
- Fast switching for high efficiency
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: for definitions of compliance please see <a href="https://www.vishay.com/doc?99912"><u>www.vishay.com/doc?99912</u></a>

#### TYPICAL APPLICATIONS

For use in fast switching rectification of power supply, 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, and commercial grade

Terminals: matte tin plated leads, solderable per

J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 1A whisker test

Polarity: color band denotes cathode end

MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)								
PARAMETER	SYMBOL	RS3A	RS3B	RS3D	RS3G	RS3J	RS3K	UNIT
Device marking code		RA	RB	RD	RG	RJ	RK	
Maximum repetitive peak reverse voltage	$V_{RRM}$	50	100	200	400	600	800	V
Maximum RMS voltage	V <sub>RMS</sub>	35	70	140	280	420	500	V
Maximum DC blocking voltage	$V_{DC}$	50	100	200	400	600	800	V
Maximum average forward rectified current at $T_L = 75$ °C	I <sub>F(AV)</sub>	3.0						Α
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	100					Α	
Operating junction 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	RS3A	RS3B	RS3D	RS3G	RS3J	RS3K	UNIT
Maximum instantaneous forward voltage	2.5 A	2.5 A V <sub>F</sub>				1.3				V
Maximum DC reverse current at rated DC blocking voltage $T_A = 25  ^{\circ}\text{C}$ $T_A = 125  ^{\circ}\text{C}$		10						μA		
		T <sub>A</sub> = 125 °C	IR	250						μΑ
Maximum 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>	150			250	500	ns	
Typical junction capacitance	4.0 V, 1	MHz	CJ		44			3	pF	

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)								
PARAMETER	SYMBOL RS3A RS3B RS3D RS3G RS3J RS3K UNIT							
Typical thermal resistance	$R_{\theta JA}^{(1)}$	50						°C/W
rypical thermal resistance	R <sub>0</sub> JL (1)	15						C/VV

#### Note

<sup>(1)</sup> Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. 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				
RS3J-M3/57T	0.211	57T	850	7" diameter plastic tape and reel				
RS3J-M3/9AT	0.211	9AT	3500	13" diameter plastic tape and reel				

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

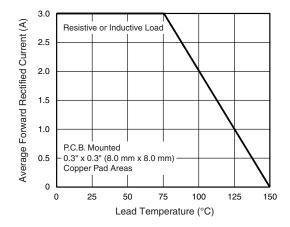


Fig. 1 - Forward Current Derating Curve

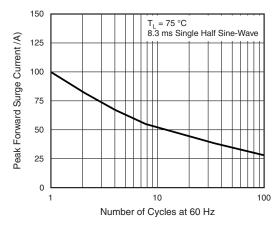


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current



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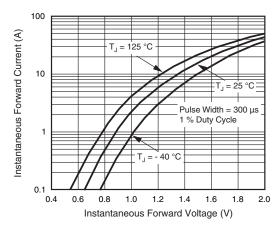


Fig. 3 - Typical Instantaneous Forward Characteristics

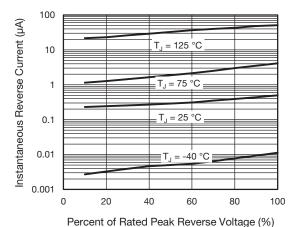


Fig. 4 - Typical Reverse Characteristics

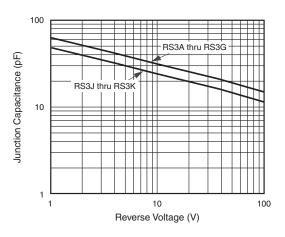


Fig. 5 - Typical Junction Capacitance

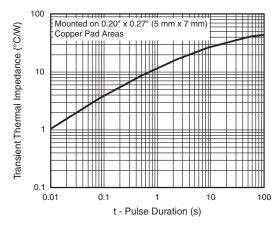
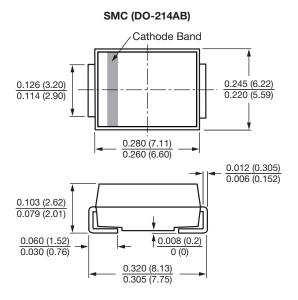
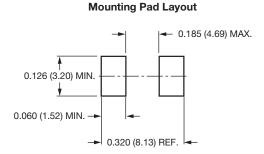


Fig. 6 - Typical Transient Thermal Impedance

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)







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