

Vishay General Semiconductor

Surface Mount Fast Switching Rectifier



DO-214AB (SMC)

3.0 A

50 V to 800 V

100 A

150 ns, 250 ns, 500 ns

1.3 V

150 °C

PRIMARY CHARACTERISTICS

I_{F(AV)}

V_{RRM}

IFSM

t_{rr}

 V_{F}

T_J max.

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
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see <u>www.vishay.com/doc?99912</u>

TYPICAL APPLICATIONS

For use in fast switching rectification of power supply, inverters, converters, and freewheeling diodes for consumer, automotive and telecommunication.

MECHANICAL DATA

Case: DO-214AB (SMC) Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS compliant, commercial grade Base P/NHE3 - RoHS compliant, AEC-Q101 qualified

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102 E3 suffix meets JESD 201 class 1A whisker test, 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	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 _{RMS}	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 $^\circ\text{C}$	I _{F(AV)}	3.0						А
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	100						А
Operating junction and storage temperature range	T _J , T _{STG}	- 55 to + 150						°C





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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)										
PARAMETER	TEST CONDITIONS		SYMBOL	RS3A	RS3B	RS3D	RS3G	RS3J	RS3K	UNIT
Maximum instantaneous forward voltage	2.5 A		V _F	1.3						V
Maximum DC reverse current at rated DC blocking voltage		T _A = 25 °C T _A = 125 °C	- I _R	I _R 10 250					μA	
Maximum reverse recovery time	$I_F = 0.5 \text{ A}, I_R = 1.0 \text{ A}, I_{rr} = 0.25 \text{ A}$		t _{rr}		150		250	500	ns	
Typical junction capacitance	4.0 V, 1 MHz		CJ	44			3	pF		

THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)								
PARAMETER	SYMBOL	RS3A	RS3B	RS3D	RS3G	RS3J	RS3K	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$	50						°C/W
Typical merma resistance	R _{0JL} ⁽¹⁾	15						0/10

Note

(1) 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-E3/57T	0.211	57T	850	7" diameter plastic tape and reel					
RS3J-E3/9AT	0.211	9AT	3500	13" diameter plastic tape and reel					
RS3JHE3/57T (1)	0.211	57T	850	7" diameter plastic tape and reel					
RS3JHE3/9AT ⁽¹⁾	0.211	9AT	3500	13" diameter plastic tape and reel					

Note

(1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

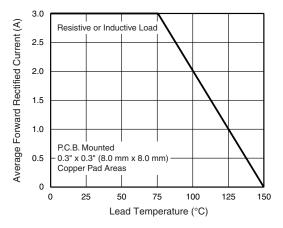


Fig. 1 - Forward Current Derating Curve

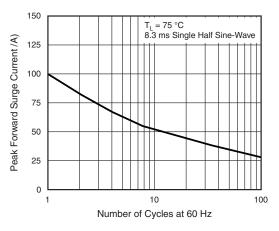


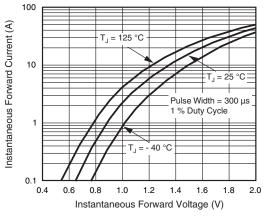
Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

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Fig. 3 - Typical Instantaneous Forward Characteristics

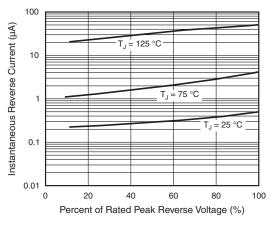
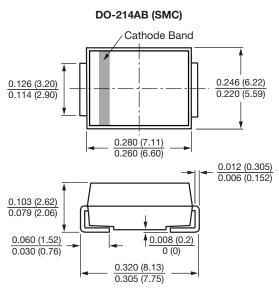


Fig. 4 - Typical Reverse Characteristics





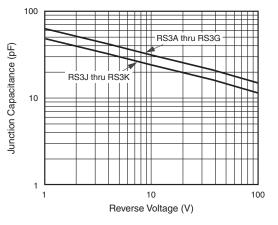


Fig. 5 - Typical Junction Capacitance

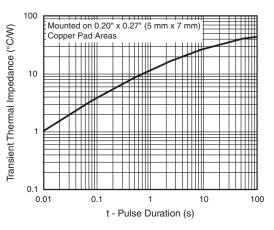
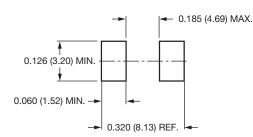


Fig. 6 - Typical Transient Thermal Impedance

Mounting Pad Layout



Revision: 14-Mar-12

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