RS3A, RS3B, RS3D, RS3G, RS3J, RS3K

Vishay General Semiconductor

AUTOMOTIVE

RoHS

COMPLIANT

HALOGEN FREE

Surface-Mount Fast Switching Rectifier



SMC (DO-214AB)

Cathode O Anode

ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS						
I _{F(AV)}	3.0 A					
V_{RRM}	50 V, 100 V, 200 V, 400 V, 600 V, 800 V					
I _{FSM}	100 A					
t _{rr}	150 ns, 250 ns, 500 ns					
V _F	1.3 V					
T _J max.	150 °C					
Package	SMC (DO-214AB)					
Circuit configuration	Single					

FEATURES

- Low profile package
- Ideal for automated placement
- · Glass passivated pellet 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 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 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-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 _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 °C	I _{F(AV)}	3.0					Α	
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	T _A = 25 °C	l _o	10			μA			
rated DC blocking voltage	T _A = 125 °C	IR	250				μΛ		
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		500	ns			
Typical junction capacitance	4.0 V, 1 MHz	CJ	44 34				pF		

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

Note

⁽¹⁾ 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 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_A/H (1)	0.211	Н	850	7" diameter plastic tape and reel					
RS3JHE3_A/I (1)	0.211	I	3500	13" diameter plastic tape and reel					
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					
RS3JHM3_A/H (1)	0.211	Н	850	7" diameter plastic tape and reel					
RS3JHM3_A/I (1)	0.211	I	3500	13" diameter plastic tape and reel					

Note

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

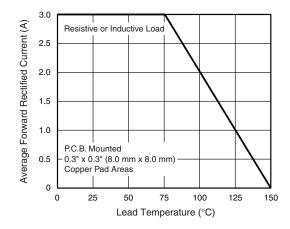


Fig. 1 - Forward Current Derating Curve

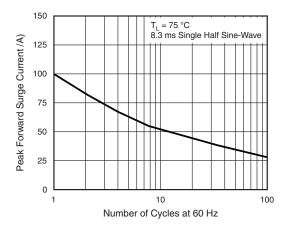


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

⁽¹⁾ AEC-Q101 qualified



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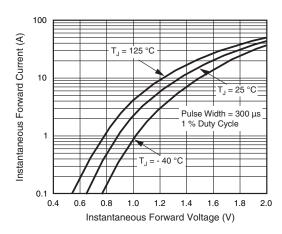


Fig. 3 - Typical Instantaneous Forward Characteristics

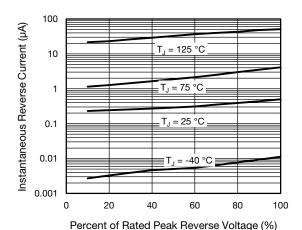


Fig. 4 - Typical Reverse Characteristics

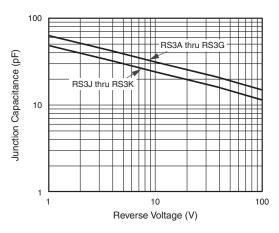


Fig. 5 - Typical Junction Capacitance

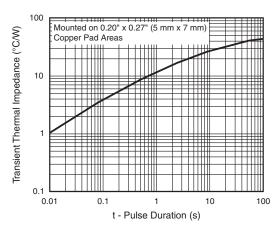
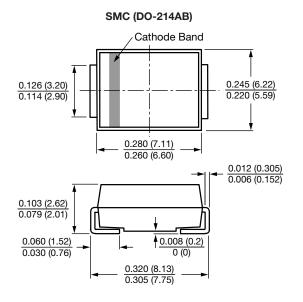
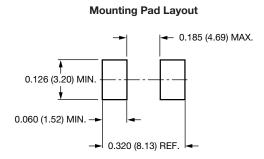


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)







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