RS1A, RS1B, RS1D, RS1G, RS1J, RS1K

Vishay General Semiconductor

AUTOMOTIVE

RoHS

COMPLIANT

HALOGEN FREE

Surface-Mount Fast Switching Rectifier



SMA (DO-214AC)



LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS						
I _{F(AV)}	1.0 A					
V_{RRM}	50 V, 100 V, 200 V, 400 V, 600 V, 800 V					
I _{FSM}	30 A					
t _{rr}	150 ns, 250 ns, 500 ns					
V_{F}	1.3 V					
T_J max.	150 °C					
Package	SMA (DO-214AC)					
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 www.vishay.com/doc?99912

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: SMA (DO-214AC)

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	RS1A	RS1B	RS1D	RS1G	RS1J	RS1K	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 = 90 °C	I _{F(AV)}	1.0					Α	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	30					Α	
Operating junction and storage temperature range	T _J , T _{STG}	TG -55 to +150					°C	



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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)									
PARAMETER	TEST CONDITIONS	SYMBOL	RS1A	RS1B	RS1D	RS1G	RS1J	RS1K	UNIT
Maximum instantaneous forward voltage	1.0 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	5.0						μΑ
Maximum reverse recovery time	$I_F = 0.5 A$, $I_R = 1.0 A$, $I_{rr} = 0.25 A$	t _{rr}	150 250 500				500	ns	
Typical junction capacitance	4.0 V, 1 MHz	CJ	10 7.0 p				pF		

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)								
PARAMETER	SYMBOL RS1A RS1B RS1D RS1G RS1J RS1K UNIT						UNIT	
Typical thermal resistance	R _{0JA} (1)	105						°C/W
Typical thermal resistance	R _{0JL} (1)	32						

Note

⁽¹⁾ Thermal resistance from junction to ambient and from junction to lead mounted on PCB with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

ORDERING INFORMATION (Example)									
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE					
RS1J-E3/61T	0.064	61T	1800	7" diameter plastic tape and reel					
RS1J-E3/5AT	0.064	5AT	7500	13" diameter plastic tape and reel					
RS1JHE3_A/H (1)	0.064	Н	1800	7" diameter plastic tape and reel					
RS1JHE3_A/I (1)	0.064	I	7500	13" diameter plastic tape and reel					
RS1J-M3/61T	0.064	61T	1800	7" diameter plastic tape and reel					
RS1J-M3/5AT	0.064	5AT	7500	13" diameter plastic tape and reel					
RS1JHM3_A/H (1)	0.064	Н	1800	7" diameter plastic tape and reel					
RS1JHM3_A/I (1)	0.064	I	7500	13" diameter plastic tape and reel					

Note

⁽¹⁾ AEC-Q101 qualified

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

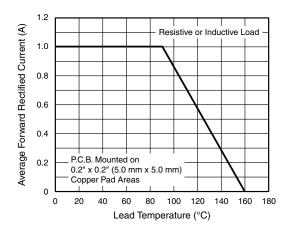


Fig. 1 - Forward Current Derating Curve

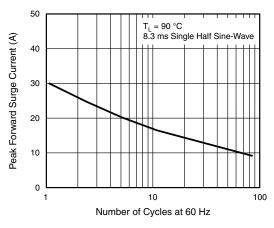


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

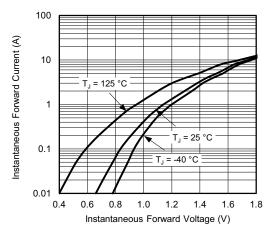
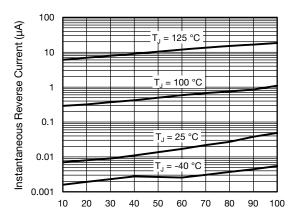


Fig. 3 - Typical Instantaneous Forward Characteristics



Percent of Rated Peak Reverse Voltage (%)
Fig. 4 - Typical Reverse Characteristics

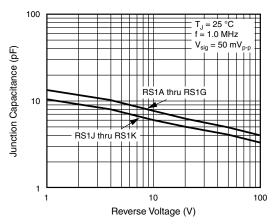


Fig. 5 - Typical Junction Capacitance

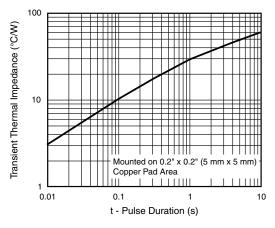


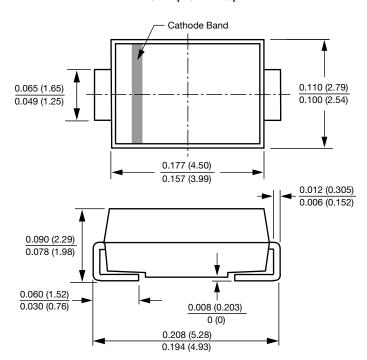
Fig. 6 - Typical Transient Thermal Impedance

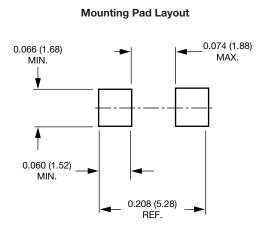
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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMA (DO-214AC)







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