RS1A, RS1B, RS1D, RS1G, RS1J, RS1K

Vishay General Semiconductor

Surface Mount Fast Switching Rectifier



DO-214AC (SMA)

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	DO-214AC (SMA)						
Diode variation	Single die						

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
- 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: DO-214AC (SMA)

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - 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 suffix meets JESD 201 class 2 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	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					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	RS1A	RS1B	RS1D	RS1G	RS1J	RS1K	UNIT
Maximum instantaneous forward voltage	1.0 A		V _F	1.3						V
Maximum DC reverse current at		T _A = 25 °C	I_	5.0						μA
rated DC blocking voltage		T _A = 125 °C	I _R	50					μΑ	
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	10			7	pF		

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

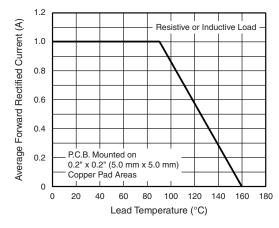
Note

⁽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				

Note

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





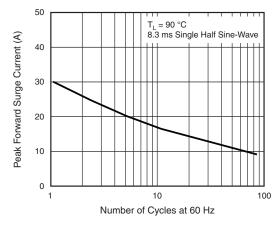


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

⁽¹⁾ AEC-Q101 qualified

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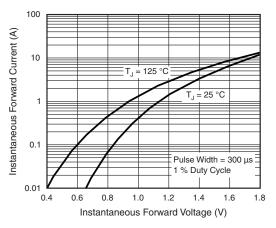


Fig. 3 - Typical Instantaneous Forward Characteristics

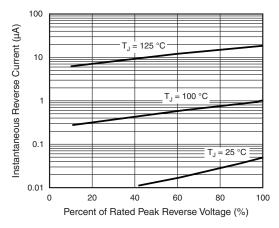


Fig. 4 - Typical Reverse Characteristics

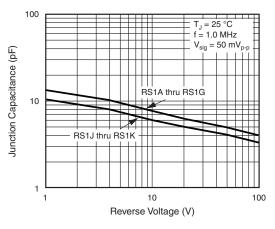


Fig. 5 - Typical Junction Capacitance

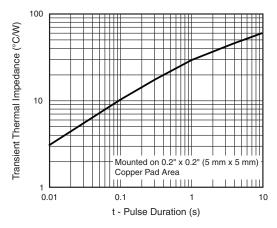
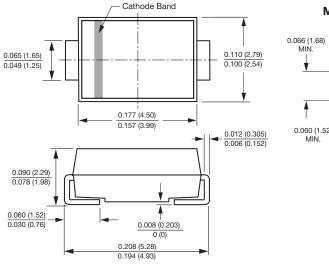


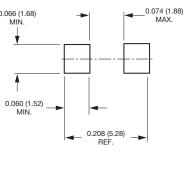
Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AC (SMA)



Mounting Pad Layout



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