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Vishay General Semiconductor

Surface Mount Fast Switching Rectifier



DO-214AC (SMA)

PRIMARY CHARACTERISTICS							
I _{F(AV)}	1.0 A						
V _{RRM}	50 V to 800 V						
I _{FSM}	30 A						
t _{rr}	150 ns, 250 ns, 500 ns						
V _F	1.3 V						
T _J max.	150 °C						

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 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 - RoHS-compliant, AEC-Q101 qualified 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 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	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}	V _{DC} 50 100 200 400 600		600	800	٧		
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}	- 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						٧
Maximum DC reverse current at rated DC blocking voltage		T _A = 25 °C T _A = 125 °C	I _R	5.0 50				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		10			7	.0	pF

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)								
PARAMETER	SYMBOL RS1A RS1B RS1D RS1G RS1J RS1K UNIT							
Typical thermal resistance	R _{θJA} ⁽¹⁾	105						°C/W
Typical trieffilal resistance	R _{0JL} (1)	32						G/ 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					
RS1JHE3/61T (1)	0.064	61T	1800	7" diameter plastic tape and reel					
RS1JHE3/5AT (1)	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)

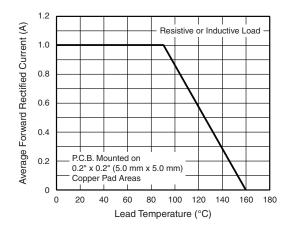


Fig. 1 - Forward Current Derating Curve

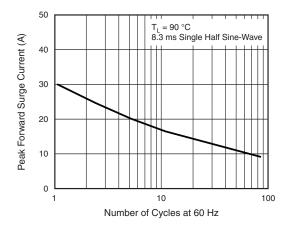


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

⁽¹⁾ AEC-Q101 qualified



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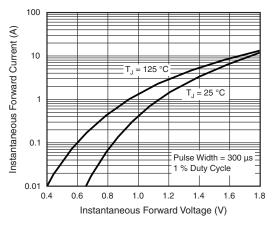


Fig. 3 - Typical Instantaneous Forward Characteristics

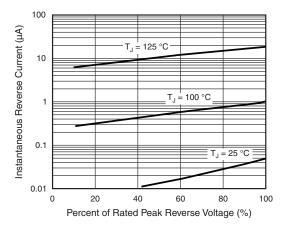


Fig. 4 - Typical Reverse Characteristics

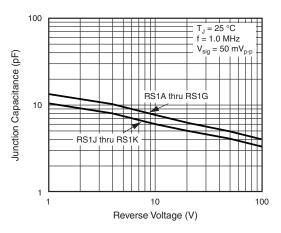


Fig. 5 - Typical Junction Capacitance

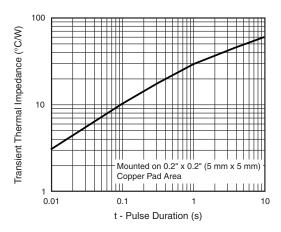
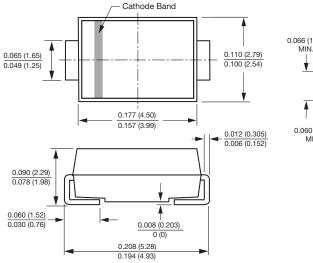


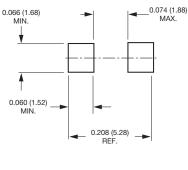
Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AC (SMA)



Mounting Pad Layout





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Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург,

Промышленная ул, дом № 19, литера Н,

помещение 100-Н Офис 331