

## Surface Mount Fast Switching Rectifier


**SMA (DO-214AC)**

### DESIGN SUPPORT TOOLS

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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
$T_J \text{ max.}$	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
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

### TYPICAL APPLICATIONS

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

### MECHANICAL DATA

**Case:** SMA (DO-214AC)

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

**Terminals:** matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 suffix meets JESD 201 class 2 whisker test

**Polarity:** color band denotes cathode end

MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ 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 $T_L = 90\text{ °C}$	$I_{F(AV)}$	1.0						A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	30						A
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 to +150						°C

ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)										
PARAMETER	TEST CONDITIONS		SYMBOL	RS1A	RS1B	RS1D	RS1G	RS1J	RS1K	UNIT
Maximum instantaneous forward voltage	1.0 A		V <sub>F</sub>	1.3						V
Maximum DC reverse current at rated DC blocking voltage		T <sub>A</sub> = 25 °C	I <sub>R</sub>	5.0						μA
		T <sub>A</sub> = 125 °C		50						
Maximum reverse recovery time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A		t <sub>rr</sub>	150				250	500	ns
Typical junction capacitance	4.0 V, 1 MHz		C <sub>J</sub>	10				7.0		pF



THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)								
PARAMETER	SYMBOL	RS1A	RS1B	RS1D	RS1G	RS1J	RS1K	UNIT
Typical thermal resistance	R <sub>θJA</sub> <sup>(1)</sup>	105						°C/W
	R <sub>θJL</sub> <sup>(1)</sup>	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-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

## RATINGS AND CHARACTERISTICS CURVES ( $T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

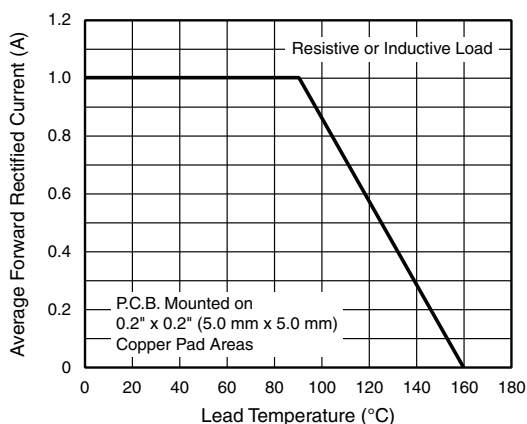


Fig. 1 - Forward Current Derating Curve

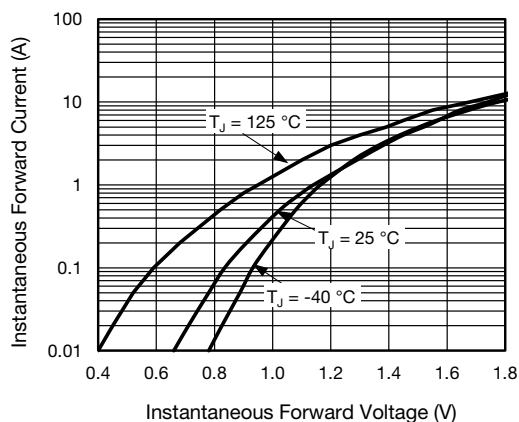


Fig. 3 - Typical Instantaneous Forward Characteristics

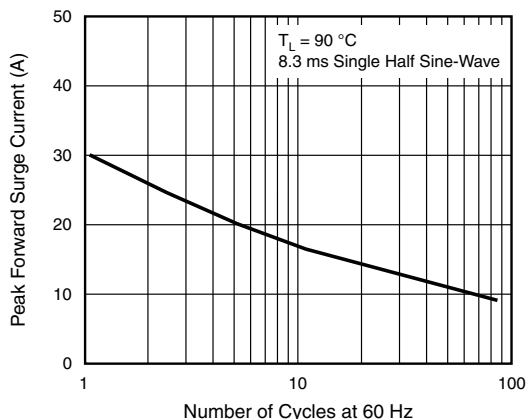


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

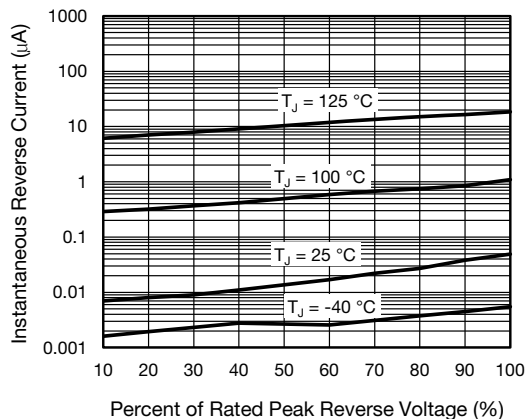


Fig. 4 - Typical Reverse Characteristics

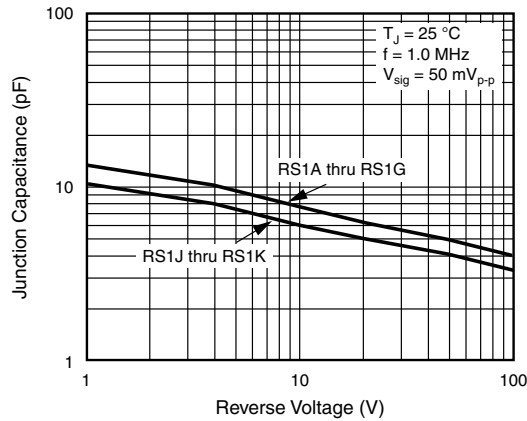


Fig. 5 - Typical Junction Capacitance

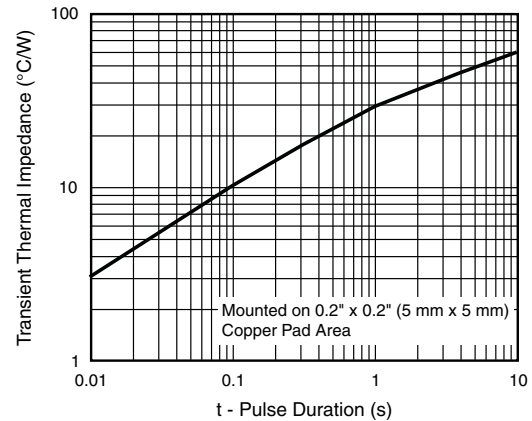
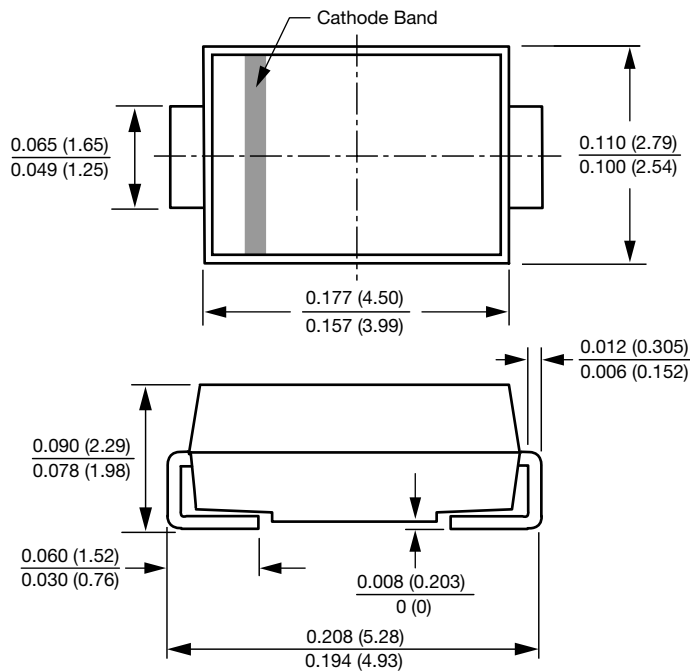
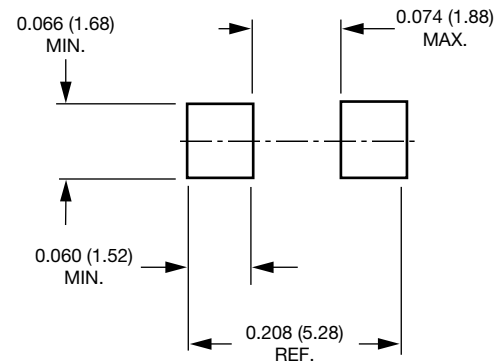


Fig. 6 - Typical Transient Thermal Impedance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**SMA (DO-214AC)**

**Mounting Pad Layout**




## Disclaimer

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