

## Surface-Mount Glass Passivated Rectifier


**SMA (DO-214AC)**

### DESIGN SUPPORT TOOLS

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PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.0 A
$V_{RRM}$	200 V, 400 V, 600 V, 800 V, 1000 V
$I_{FSM}$	30 A
$I_R$	5.0 $\mu$ A
$V_F$ at $I_F = 1.0$ A ( $T_A = 125$ °C)	0.98 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
- Low forward voltage drop
- Low leakage current
- 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

### TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, 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-E3 - RoHS-compliant, commercial grade

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

E3 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	CS1D	CS1G	CS1J	CS1K	CS1M	UNIT
Device marking code		D	G	J	K	M	
Maximum repetitive peak reverse voltage	$V_{RRM}$	200	400	600	800	1000	V
Average forward rectified current	$I_{F(AV)}$ <sup>(1)</sup>	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

#### Note

<sup>(1)</sup> Free air, mounted on recommended copper pad area

**ELECTRICAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT
Maximum instantaneous forward voltage	$I_F = 0.5\text{ A}$	$V_F^{(1)}$	0.93	-	V
	$I_F = 1.0\text{ A}$		1.0	1.12	
	$I_F = 0.5\text{ A}$		0.82	-	
	$I_F = 1.0\text{ A}$		0.90	0.98	
Maximum DC reverse current at rated DC blocking voltage	Rated $V_R$	$I_R^{(2)}$	-	5.0	$\mu\text{A}$
			-	300	
Typical reverse recovery time	$I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $I_{rr} = 0.25\text{ A}$	$t_{rr}$	1.5	-	$\mu\text{s}$
Typical junction capacitance	4.0 V, 1 MHz	$C_J$	6	-	pF

**Notes**(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle(2) Pulse test: pulse width  $\leq 40\text{ ms}$ **THERMAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

PARAMETER	SYMBOL	CS1D	CS1G	CS1J	CS1K	CS1M	UNIT
Typical thermal resistance	R <sub>θJA</sub> (1)	105					°C/W
	R <sub>θJM</sub> (2)	30					

**Notes**(1) Free air, mounted on recommended copper pad area; thermal resistance  $R_{\theta JA}$  - junction-to-ambient(2) Mounted on 5 mm x 5 mm copper pad areas,  $R_{\theta JM}$  - junction-to-mount at the terminal**ORDERING INFORMATION** (Example)

PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
CS1J-E3/I	0.064	I	7500	13" diameter plastic tape and reel

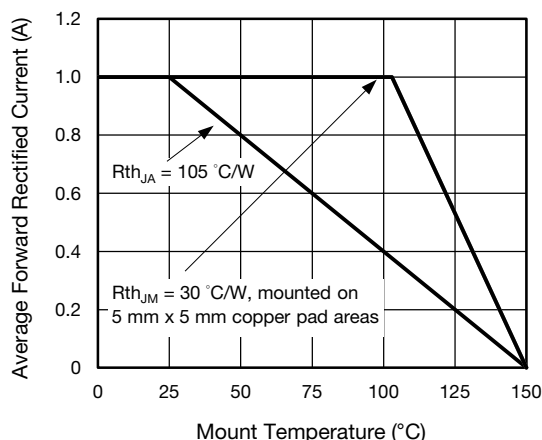
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Maximum Forward Current Derating Curve

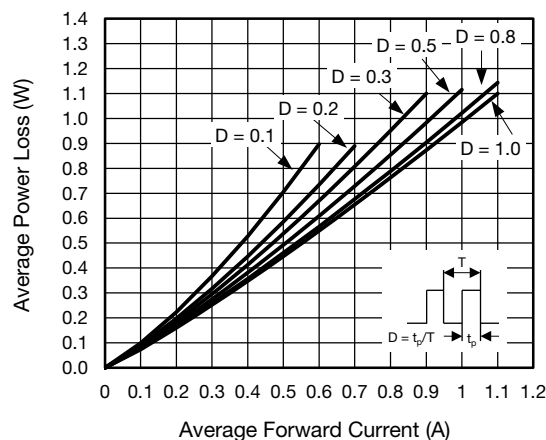


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

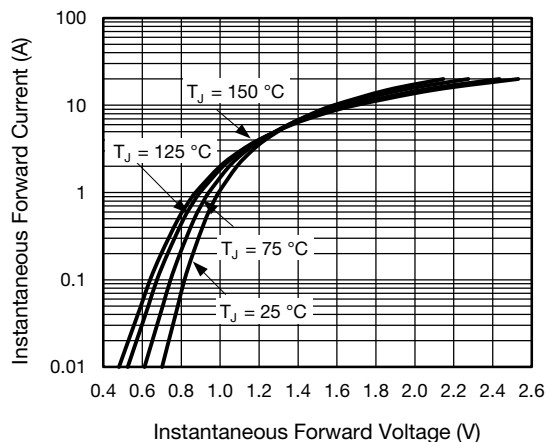


Fig. 3 - Typical Instantaneous Forward Characteristics

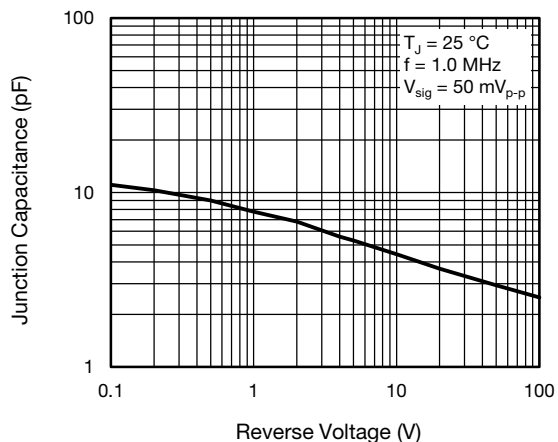


Fig. 5 - Typical Junction Capacitance

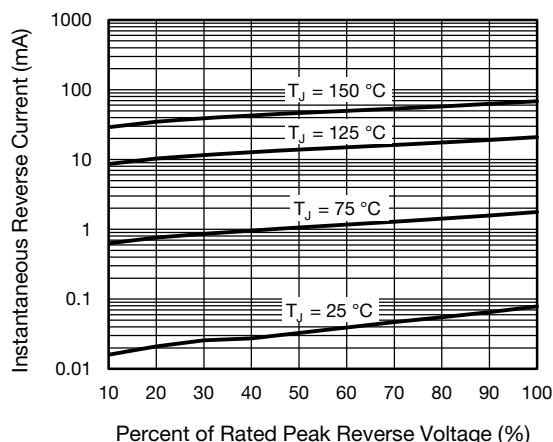


Fig. 4 - Typical Reverse Leakage Characteristics

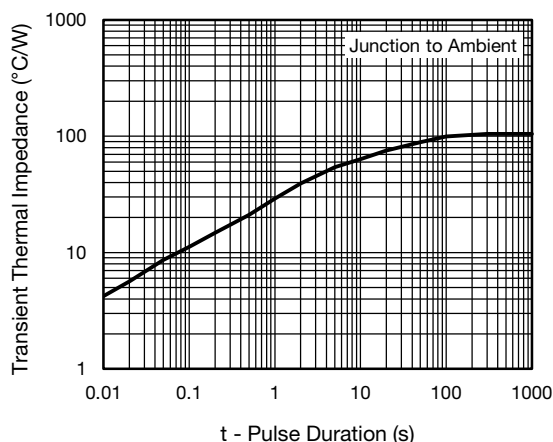
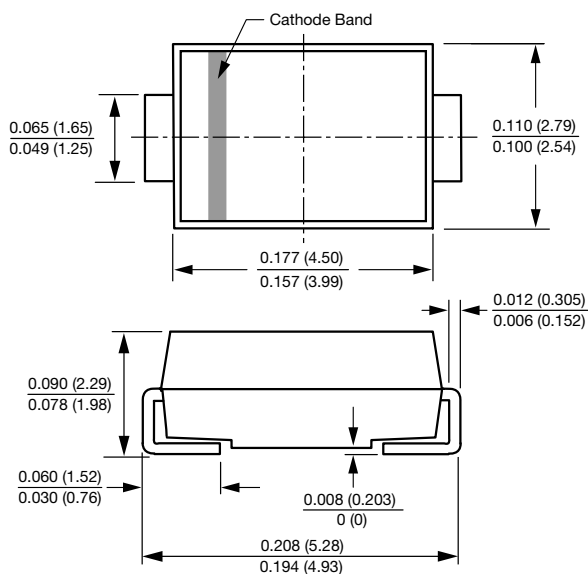
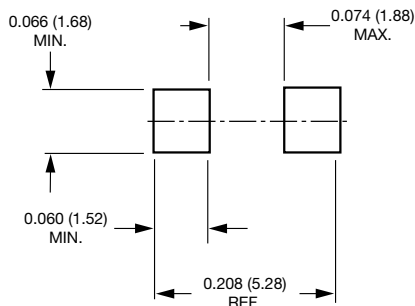


Fig. 6 - Typical Transient Thermal Impedance

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

**SMA (DO-214AC)**

**Mounting Pad Layout**




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