



S<sub>1</sub>V

### 1.0A SURFACE MOUNT GLASS PASSIVATED RECTIFIER

### **Features**

- Glass Passivated Die Construction for High Reliability
- Low Forward Voltage Drop
- Surge Overload Rating to 30A Peak
- Ideally Suited for Automated Assembly
- Very High Reverse Breakdown Voltage
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)

### **Mechanical Data**

- Case: SMA
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Lead-Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208 (3)
- Polarity: Cathode Band or Cathode Notch
- Weight: 0.064 grams (Approximate)





Top View

Bottom View

### **Ordering Information** (Note 4)

Part Number	Qualification	Case	Packaging
S1V-13-F	Commercial	SMA	5,000/Tape & Reel

Notes:

- 1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
- 2. See http://www.diodes.com/quality/lead\_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
- 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
- 4. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

# **Marking Information**





# Maximum Ratings (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	2,000	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	1400	V
Average Rectified Output Current @ $T_T = +100$ °C	lo	1.0	Α
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	30	Α
I <sup>2</sup> t Rating for Fusing (t < 8.3ms)	l <sup>2</sup> t	3.74	$A^2S$

### **Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Ambient (Note 5)	R <sub>0JA</sub>	50	°C/W
Operating and Storage Temperature Range	$T_{J_1}T_{STG}$	-55 to +150	°C

## Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic		Symbol	Min	Тур	Max	Unit
Reverse Breakdown Voltage(Note 7)	@ I <sub>R</sub> = 5µA	$V_{(BR)R}$	2,000	_	_	V
Forward Voltage	@ I <sub>F</sub> = 1.0A	VF	_	1.0	1.3	V
Peak Reverse Leakage Current	@ T <sub>A</sub> = +25°C		_	0.2	5.0	
at Rated DC Blocking Voltage	@ $T_A = +125$ °C	IR	_	37	100	μA
Typical Total Capacitance (Note 6)		C <sub>T</sub>	_	4	_	pF

Notes:

- 5. Thermal resistance junction to ambient at 0.375 inch (9.5mm) lead length.6. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.7. Short duration pulse test used to minimize self-heating effect.



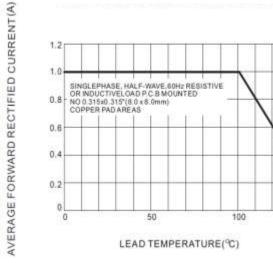
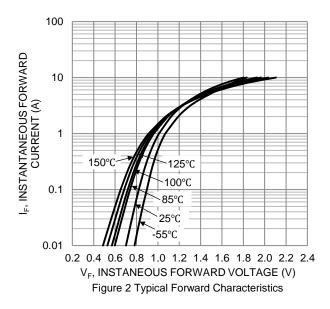
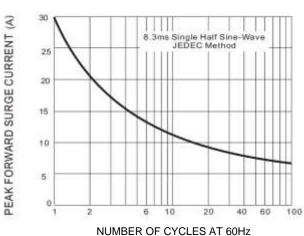


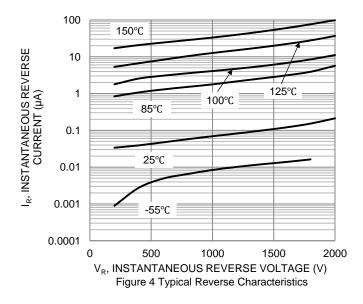
Figure 1 Maximum Average Forward Current Derating

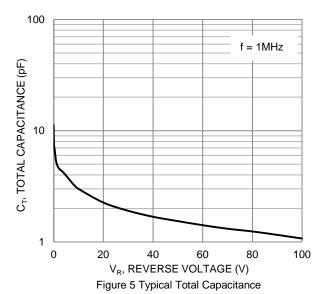
150





NUMBER OF CYCLES AT 60Hz Figure 3 Maximum Non-Repetitive Surge Current



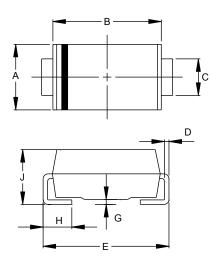




# **Package Outline Dimensions**

Please see http://www.diodes.com/package-outlines.html for the latest version.

#### SMA

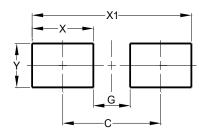


SMA				
Dim	Min	Max		
Α	2.29	2.92		
В	4.00	4.60		
C	1.27	1.63		
D	0.15	0.31		
Е	4.80	5.59		
G	0.05	0.20		
Н	0.76	1.52		
7	1.96	2.40		
All Dimensions in mm				

# **Suggested Pad Layout**

Please see http://www.diodes.com/package-outlines.html for the latest version.

### SMA



Dimensions	Value (in mm)
С	4.00
G	1.50
X	2.50
X1	6.50
Υ	1.70

Note: For high voltage applications, the appropriate industry sector guidelines should be considered with regards to creepage and clearance distances between device terminals and PCB tracking.



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