

### Features

- Glass Passivated Die Construction for High Reliability
- Surge Overload Rating to 30A Peak
- Ideally Suited for Automated Assembly
- Lead Free Finish/RoHS Compliant (Note 1)
- Green Molding Compound (No Halogen and Antimony)
  (Note 2)

## **Mechanical Data**

- Case: SMA/SMB
- 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: SMA 0.064 grams (approximate) SMB - 0.093 grams (approximate)



Top View

Bottom View

## Ordering Information (Note 3)

Part Number	Case	Packaging
S1x-13-F	SMA	5000/Tape & Reel
S1xB-13-F	SMB	3000/Tape & Reel

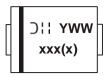
\* x = Device type, e.g. S1A-13-F (SMA package); S1AB-13-F (SMB package).

1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see EU Directive 2002/95/EC Annex Notes. 2. Product manufactured with Data Code 0924 (week 24, 2009) and newer are built with Green Molding Compound.

3. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

## **Marking Information**

Notes:



XXX = Product type marking code, ex: S1A (SMA package) XXXX = Product type marking code, ex: S1AB (SMB package) J!! = Manufacturers' code marking YWW = Date code marking Y = Last digit of year (ex: 2 for 2002) WW = Week code (01 to 53)



#### Maximum Ratings @T<sub>A</sub> = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.

Characteristic		S1 A/AB	S1 B/BB	S1 D/DB	S1 G/GB	S1 J/JB	S1 K/KB	S1 M/MB	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	50	100	200	400	600	800	1000	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	35	70	140	280	420	560	700	V
Average Rectified Output Current $@ T_T = 100^{\circ}C$	lo				1.0				Α
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave superimposed on rated load					30				А

# **Thermal Characteristics**

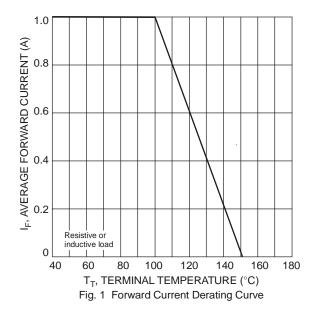
Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Terminal (Note 4)	$R_{ extsf{ heta}JT}$	30	°C/W
Operating and Storage Temperature Range	T <sub>J,</sub> T <sub>STG</sub>	-65 to +150	°C

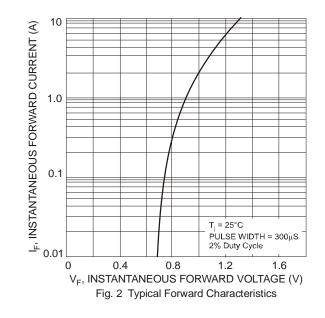
# Electrical Characteristics @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic		Symbol	Min	Тур	Max	Unit
Forward Voltage	@ I <sub>F</sub> = 1.0A	V <sub>FM</sub>	-	-	1.1	V
Peak Reverse Leakage Current	@ $T_A = 25^{\circ}C$		-	-	5.0	
at Rated DC Blocking Voltage	@ T <sub>A</sub> = 125°C	IRM	-	-	100	μΑ
Reverse Recovery Time (Note 5)		t <sub>rr</sub>	-	1.8	3.0	μS
Typical Total Capacitance (Note 6)		CT	-	10	-	pF

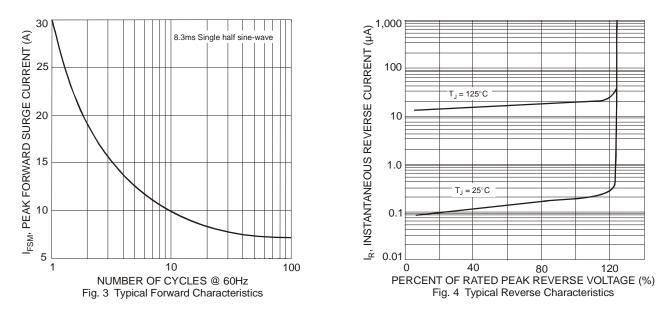
Notes: 4. Thermal resistance junction to terminal, unit mounted on PC board with 5.0 mm<sup>2</sup> (0.013 mm thick) copper pads as heat sink. 5. Measured with  $I_F = 0.5A$ ,  $I_R = 1.0A$ ,  $I_{RR} = 0.25A$ .

6. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.

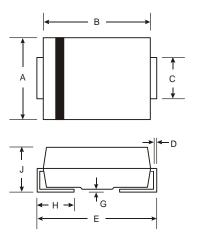








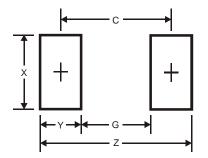
# **Package Outline Dimensions**



SMA				
Dim	Min	Max		
Α	2.29	2.92		
в	4.00	4.60		
С	1.27	1.63		
D	0.15	0.31		
ш	4.80	5.59		
G	0.05	0.20		
Н	0.76	1.52		
<b>ر</b>	2.01	2.30		
All Dimensions in mm				

SMB				
Dim	Dim Min Max			
Α	3.30	3.94		
В	4.06	4.57		
С	1.96	2.21		
D	0.15	0.31		
Е	<b>E</b> 5.00 5.59			
<b>G</b> 0.05 0.20				
H 0.76 1.52				
J	2.00	2.50		
All Dimensions in mm				

# Suggested Pad Layout



SMA Dimensions	Value (in mm)	
Z	6.5	
G	1.5	
Х	1.7	
Y	2.5	
С	4.0	

SMB	
Dimensions	Value (in mm)
Z	6.7
G	1.8
Х	2.3
Ŷ	2.5
С	4.3



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