



S1A/B - S1M/B

#### 1.0A SURFACE MOUNT GLASS PASSIVATED RECTIFIER

#### **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)

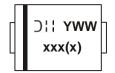
Part Number	Case	Packaging
S1x-13-F	SMA	5000/Tape & Reel
S1xB-13-F	SMB	3000/Tape & Reel

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

Notes

- 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**



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 @TA = 25°C unless otherwise specified

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

For capacitance load, derate current by 20%.

Characteristic	Symbol	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	٧
RMS Reverse Voltage	V <sub>R(RMS)</sub>	35	70	140	280	420	560	700	V
Average Rectified Output Current @ T <sub>T</sub> = 100°C	I <sub>O</sub>				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

### **Thermal Characteristics**

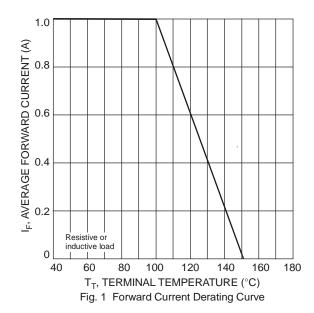
Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Terminal (Note 4)	$R_{ hetaJT}$	30	°C/W
Operating and Storage Temperature Range	$T_{J_1}T_{STG}$	-65 to +150	°C

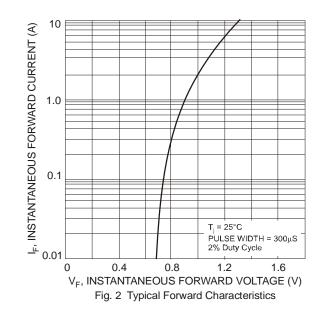
### **Electrical Characteristics** @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic		Symbol	Min	Тур	Max	Unit
Forward Voltage	$@ I_F = 1.0A$	$V_{FM}$	ı	1	1.1	V
Peak Reverse Leakage Current	@ T <sub>A</sub> = 25°C		-	-	5.0	
at Rated DC Blocking Voltage	@ $T_A = 125^{\circ}C$	IRM	-	-	100	μΑ
Reverse Recovery Time (Note 5)		t <sub>rr</sub>	-	1.8	3.0	μS
Typical Total Capacitance (Note 6)		C <sub>T</sub>	-	10	-	pF

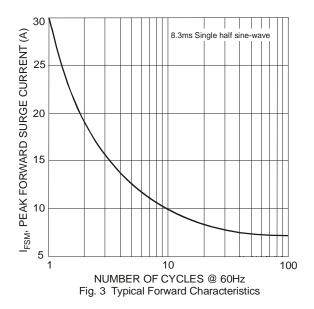
Notes:

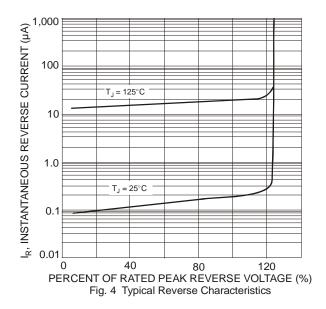
- 4. Thermal resistance junction to terminal, unit mounted on PC board with 5.0 mm² (0.013 mm thick) copper pads as heat sink.
- 5. Measured with  $I_F = 0.5A$ ,  $I_R = 1.0A$ ,  $I_{RR} = 0.25A$ .
- 6. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.



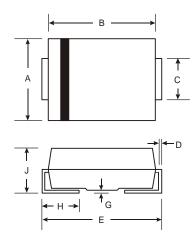








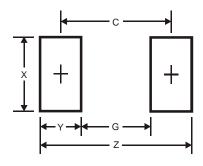
## **Package Outline Dimensions**



	SMA			
Dim	Min	Max		
Α	2.29	2.92		
В	4.00	4.60		
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		
J	2.01	2.30		
All Dimensions in mm				

SMB				
Dim	Min	Max		
Α	3.30	3.94		
В	4.06	4.57		
C	1.96	2.21		
D	0.15	0.31		
Е	5.00	5.59		
G	0.05	0.20		
Н	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
Y	2.5
С	4.3



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