



**THE DATASHEET OF
S2MA-13-F**

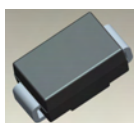


1.5A SURFACE MOUNT GLASS PASSIVATED RECTIFIER
Features

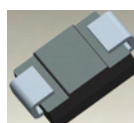
- Glass Passivated Die Construction
- Low Forward Voltage Drop and High Current Capability
- Surge Overload Rating to 50A Peak
- Ideally Suited for Automated Assembly
- **Lead Free Finish/RoHS Compliant (Note 1)**
- **Green Molding Compound (No Halogen and Antimony) (Note 2)**

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



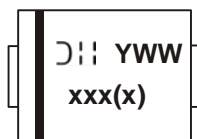
Bottom View

Ordering Information (Note 3)

Part Number	Case	Packaging
S2xA-13-F	SMA	5000/Tape & Reel
S2x-13-F	SMB	3000/Tape & Reel

*x = Device type, e.g. S2AA-13-F (SMA package); S2A-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>.

Marking Information


- xxx = Product type marking code, ex: S2A (SMB package)
- xxxx = Product type marking code, ex: S2AA (SMA package)
- DII = Manufacturers' code marking
- YWW = Date code marking
- Y = Last digit of year (ex: 2 for 2002)
- WW = Week code (01 to 53)

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

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

Characteristic	Symbol	S2 A/AA	S2 B/BA	S2 D/DA	S2 G/GA	S2 J/JA	S2 K/KA	S2 M/MA	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	V
Working Peak Reverse Voltage	V_{RWM}								
DC Blocking Voltage	V_R								
RMS Reverse Voltage	$V_{R(RMS)}$	35	70	140	280	420	560	700	V
Average Rectified Output Current @ $T_T = 100^\circ\text{C}$	$I_{(AV)}$	1.5							A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	50							A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Terminal (Note 4)	$R_{\theta JT}$	20	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	$^\circ\text{C}$

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Forward Voltage @ $I_F = 1.5\text{A}$	V_{FM}	1.15	V
Peak Reverse Current @ $T_A = 25^\circ\text{C}$	I_{RM}	5.0	μA
at Rated DC Blocking Voltage @ $T_A = 125^\circ\text{C}$		125	
Typical Total Capacitance (Note 5)	C_T	20	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 at 1.0 MHz and applied reverse voltage of 4.0V DC.

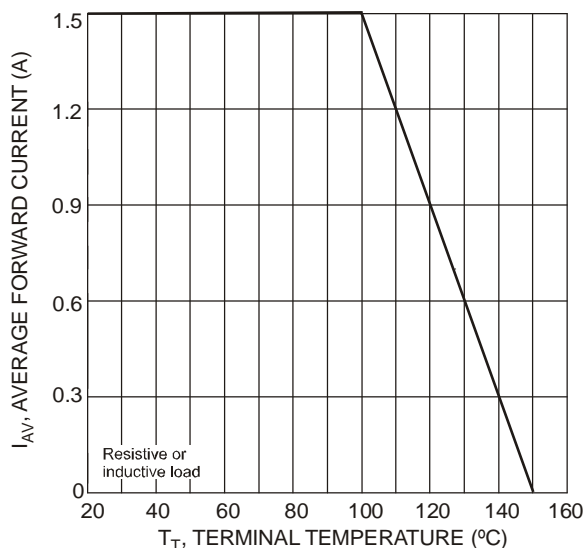


Fig. 1 Forward Current Derating Curve

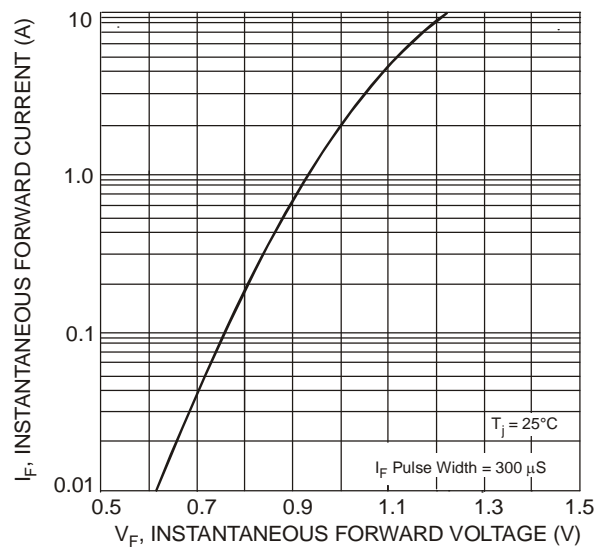


Fig. 2 Typical Forward Characteristics

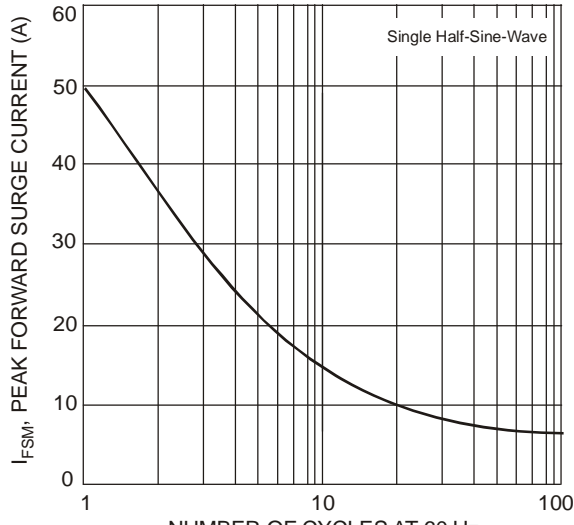


Fig. 3 Forward Surge Current Derating Curve

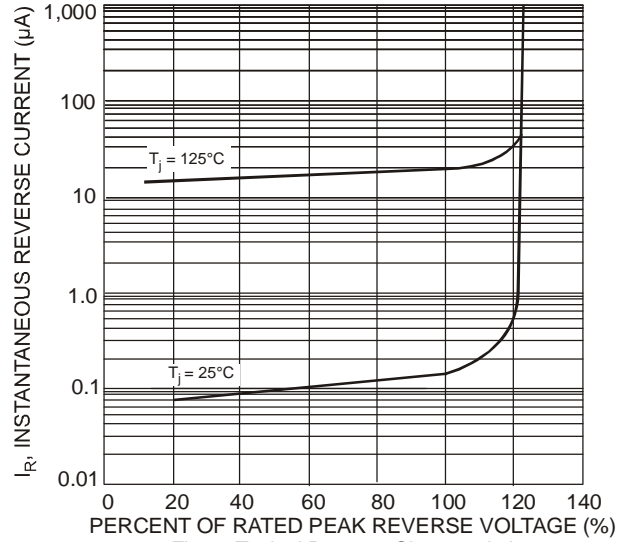
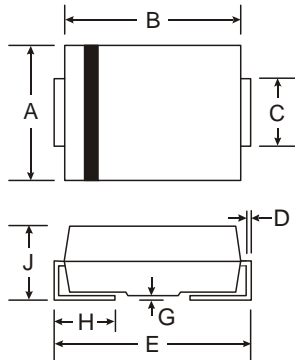


Fig. 4 Typical Reverse Characteristics

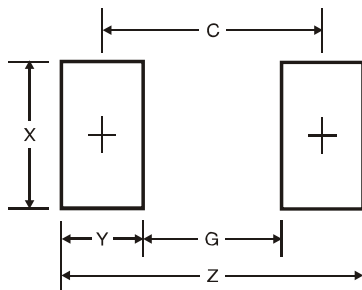
Package Outline Dimensions



SMA		
Dim	Min	Max
A	2.29	2.92
B	4.00	4.60
C	1.27	1.63
D	0.15	0.31
E	4.80	5.59
G	0.05	0.20
H	0.76	1.52
J	2.01	2.30
All Dimensions in mm		

SMB		
Dim	Min	Max
A	3.30	3.94
B	4.06	4.57
C	1.96	2.21
D	0.15	0.31
E	5.00	5.59
G	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
X	1.7
Y	2.5
C	4.0

SMB Dimensions	Value (in mm)
Z	6.7
G	1.8
X	2.3
Y	2.5
C	4.3

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