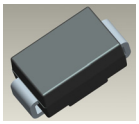
3.0A SURFACE MOUNT GLASS PASSIVATED RECTIFIER

Features

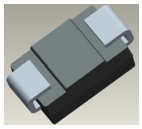
- Glass Passivated Die Construction
- Low Forward Voltage Drop and High Current Capability
- Surge Overload Rating to 100A Peak
- Ideally Suited for Automated Assembly
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: SMB/SMC
- 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 e3
- Polarity: Cathode Band or Cathode Notch
- Weight: SMB 0.093 grams (approximate)
  SMC 0.21 grams (approximate)



Top View



Bottom View

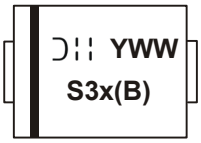
Ordering Information* (Note 4)

Part Number	Compliance	Case	Packaging
S3xB-13-F	Standard	SMB	3000/Tape & Reel
S3x-13-F	Standard	SMC	3000/Tape & Reel

*x = Device type, e.g. S3AB-13-F (SMB package); S3A-13-F (SMC Package).

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 http://www.diodes.com/products/packages.html.

Marking Information



S3x = Product Type Marking Code, ex. S3K (SMC)
S3xB = Product Type Marking Code, ex. S3KB (SMB)
= Manufacturers' code marking
YWW = Date code marking
Y = Last digit of year (ex: 13 for 2013)
WW = Week code (01 to 53)

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Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

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

Characteristic	Symbol	S3 A/AB	S3 B/BB	S3 D/DB	S3 G/GB	S3 J/JB	S3 K/KB	S3 M/MB	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	50	100	200	400	600	800	1000	V
RMS Reverse Voltage	$V_{R(RMS)}$	30	70	140	280	420	560	700	V
Average Rectified Output Current @ T_T = +75°C	I_O	3.0							A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	100							A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Terminal (Note 5)	$R_{\theta JT}$	10	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Forward Voltage @ I_F = 3.0A	V_{FM}	1.15	V
Peak Reverse Current @ T_A = +25°C at Rated DC Blocking Voltage @ T_A = +125 °C	I_{RM}	10 250	µA
Typical Total Capacitance (Note 6)	C_T	40	pF

Notes: 5. Thermal resistance: Junction to Terminal, unit mounted on PC board with 5.0 mm^2 (0.013 mm thick) copper pad as heat sink.
6. Measured at 1.0 MHz and applied reverse voltage of 4.0V DC.

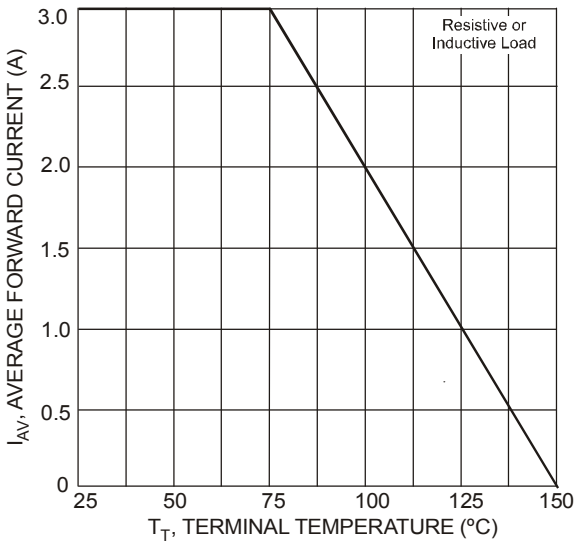

Fig. 1 Forward Current Derating Curve

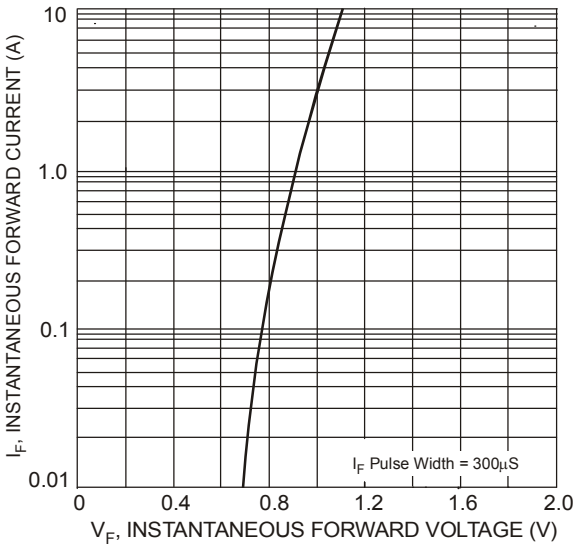

Fig. 2 Typical Forward Characteristics

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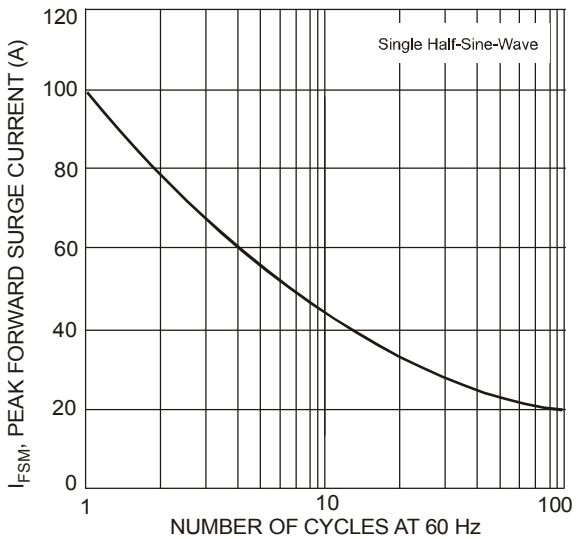


Fig. 3 Forward Surge Current Derating Curve

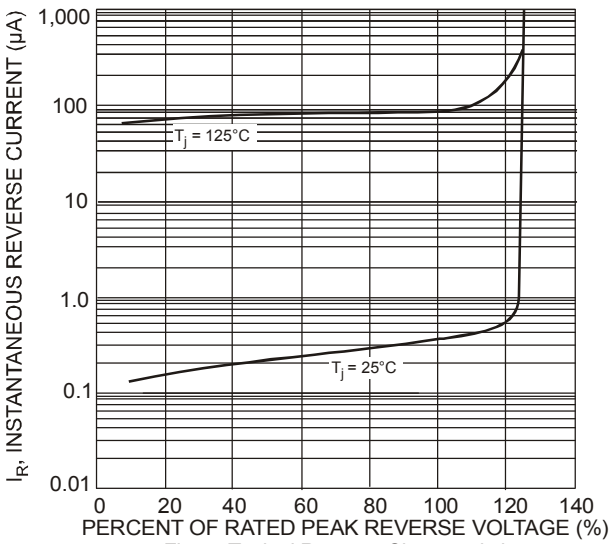
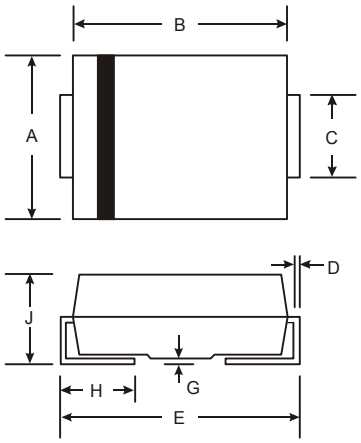


Fig. 4 Typical Reverse Characteristics

Package Outline Dimensions

Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for the latest version.

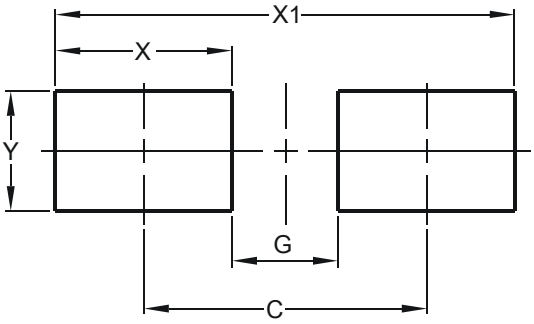


SMB		
Dim	**Min**	**Max**
A	3.30	3.94
B	4.06	4.57
C	1.96	2.21
D	0.15	0.31
E	5.00	5.59
G	0.05	0.20
H	0.76	1.52
J	2.00	2.50
All Dimensions in mm		

SMC		
Dim	**Min**	**Max**
A	5.59	6.22
B	6.60	7.11
C	2.75	3.18
D	0.15	0.31
E	7.75	8.13
G	0.10	0.20
H	0.76	1.52
J	2.00	2.50
All Dimensions in mm		

Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.



SMB	
Dimensions	**Value (in mm)**
C	4.30
G	1.80
X	2.50
X1	6.80
Y	2.30

SMC	
Dimensions	**Value (in mm)**
C	6.80
G	4.40
X	2.50
X1	9.40
Y	3.30

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