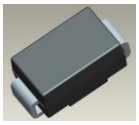
5A SURFACE MOUNT STANDARD RECOVERY RECTIFIER

Features

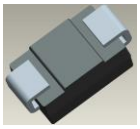
- Glass Passivated Die Construction
- Low Reverse Leakage Current
- Low Forward Voltage Drop
- Surge Overload Rating to 150A Peak
- Ideally Suited for Automated Assembly
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

Mechanical Data

- Case: 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 (e3)
- Polarity: Cathode Band or Cathode Notch
- SMB Weight: 0.09 grams (Approximate)



Top View



Bottom View

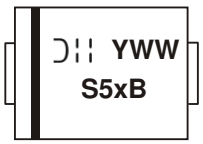
Ordering Information (Note 4)

Part Number	Qualification	Case	Packaging
S5xB-13	Commercial	SMB	3000/Tape & Reel

*x = Device type, e.g. S5JB-13 (SMB package).

Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
2. See https://www.diodes.com/quality/lead-free/ 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



S5xB = Product Type Marking Code, ex: S5JB (SMB Package)
= Manufacturers' Code Marking
YWW = Date Code Marking
Y = Last Digit of Year (ex: 0 for 2020)
WW = Week Code (01 to 53)

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

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

Characteristic	Symbol	S5JB	S5KB	S5MB	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage (Note 5)	V_{RRM} V_{RWM} V_R	600	800	1000	V
RMS Reverse Voltage	$V_{R(RMS)}$	420	560	700	V
Average Rectified Output Current @ T_T = +120°C	I_O	5.0			A
Non-Repetitive Peak Forward Surge Current @T_J = +25°C 8.3ms Single Half Sine-Wave Superimposed on Rated Load @ T_J = +125°C	I_{FSM}	150 120			A
Non-Repetitive Peak Forward Surge Current @T_J = +25°C 1.0ms Single Half Sine-Wave Superimposed on Rated Load @ T_J = +125°C	I_{FSM}	300 240			A
I^2t Rating for Fusing (t = 8.3ms)	I^2t	93			A^2S
I^2t Rating for Fusing (t = 1.0ms)	I^2t	45			A^2S

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Lead (Note 6)	$R_{\theta JL}$	8	°C/W
Typical Thermal Resistance, Junction to Case (Note 6)	$R_{\theta JC}$	10	°C/W
Typical Thermal Resistance, Junction to Ambient (Note 6)	$R_{\theta JA}$	60	°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	S5JB	S5KB	S5MB	Unit
Minimum Reverse Breakdown Voltage	@I_R = 10μA	V_{BR}	600	800	1000	V
Maximum Forward Voltage	@ I_F = 5.0A	V_{FM}	1.15			V
Peak Reverse Current at Rated DC Blocking Voltage (Note 5)	@T_A = +25°C @T_A = +125°C	I_{RM}	10.0 250			μA
Typical Total Capacitance (Note 7)		C_T	28			pF

Notes: 5. Short duration pulse test used to minimize self-heating effect.
6. Thermal Resistance: Junction to terminal, unit mounted on PC board with 5.0mm^2 (0.013 mm thick) copper pads as heat sink.
7. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.

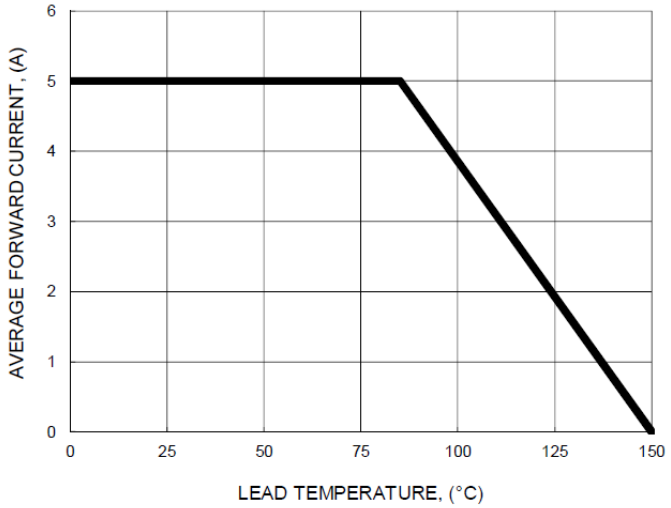


FIG.1- FORWARD CURRENT DERATING CURVE

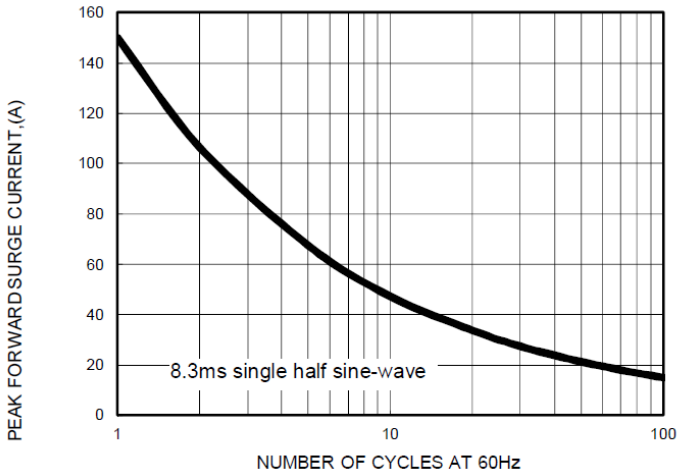


FIG.2- MAXIMUM NON-REPETITIVE SURGE CURRENT

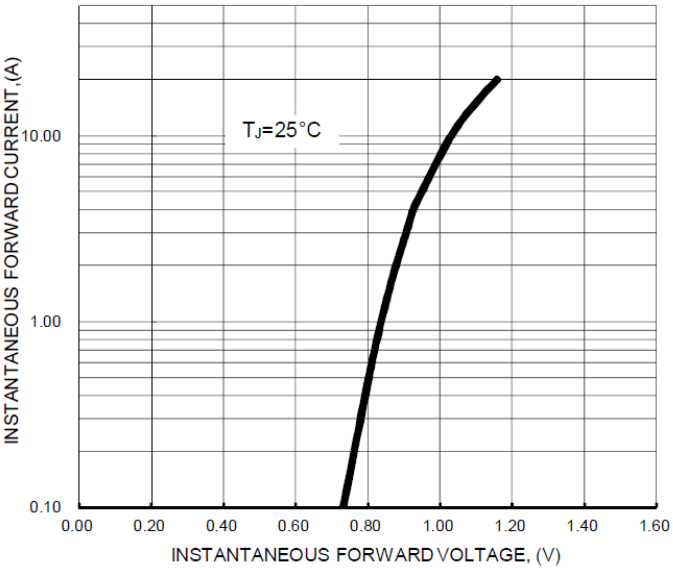


FIG.3- TYPICAL FORWARD CHARACTERISTICS

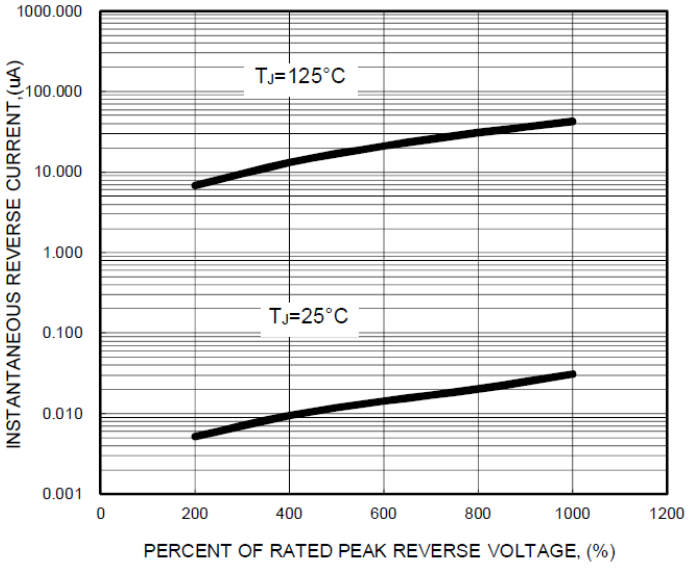
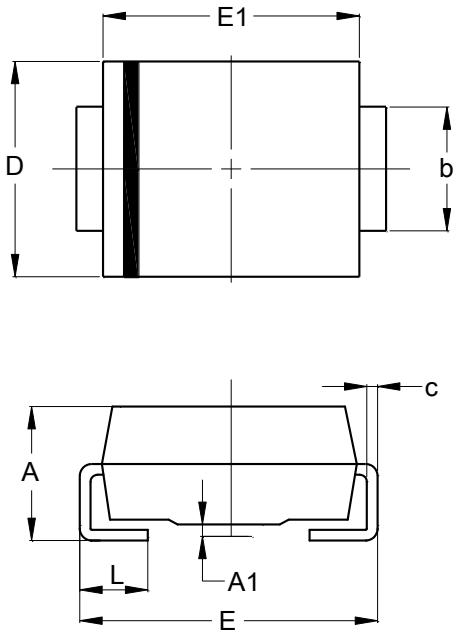


FIG.4- TYPICAL REVERSE CHARACTERISTICS

Package Outline Dimensions

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

SMB

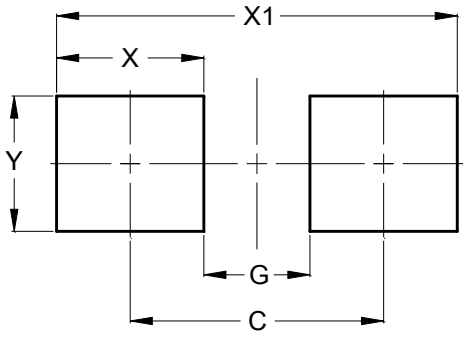


SMB		
Dim	**Min**	**Max**
A	2.00	2.50
A1	0.05	0.20
b	1.96	2.21
c	0.15	0.31
D	3.30	3.94
E	5.00	5.59
E1	4.06	4.57
L	0.76	1.52
All Dimensions in mm		

Suggested Pad Layout

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

SMB



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

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