

## Features

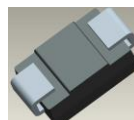
- Glass Passivated Die Construction
- Low Reverse Leakage Current
- Low Forward Voltage Drop
- Surge Overload Rating to 150A Peak
- Ideally Suited for Automated Assembly
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications 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

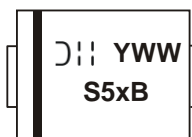
## Ordering Information (Note 4)

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)  
 D = 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<sub>A</sub> = +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	V <sub>R</sub> RM	600	800	1000	V
Working Peak Reverse Voltage	V <sub>R</sub> WM				
DC Blocking Voltage (Note 5)	V <sub>R</sub>				
RMS Reverse Voltage	V <sub>R</sub> (RMS)	420	560	700	V
Average Rectified Output Current @ T <sub>T</sub> = +120°C	I <sub>O</sub>	5.0			A
Non-Repetitive Peak Forward Surge Current @ T <sub>J</sub> = +25°C	I <sub>FSM</sub>	150			A
8.3ms Single Half Sine-Wave Superimposed on Rated Load @ T <sub>J</sub> = +125°C		120			
Non-Repetitive Peak Forward Surge Current @ T <sub>J</sub> = +25°C	I <sub>FSM</sub>	300			A
1.0ms Single Half Sine-Wave Superimposed on Rated Load @ T <sub>J</sub> = +125°C		240			
I <sup>2</sup> t Rating for Fusing ( t = 8.3ms)	I <sup>2</sup> t	93			A <sup>2</sup> S
I <sup>2</sup> t Rating for Fusing ( t = 1.0ms)	I <sup>2</sup> t	45			A <sup>2</sup> S

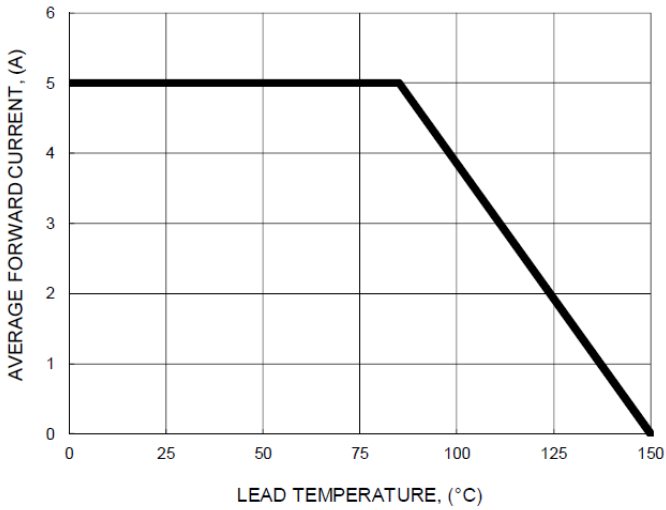
**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Lead (Note 6)	R <sub>θJL</sub>	8	°C/W
Typical Thermal Resistance, Junction to Case (Note 6)	R <sub>θJC</sub>	10	°C/W
Typical Thermal Resistance, Junction to Ambient (Note 6)	R <sub>θJA</sub>	60	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

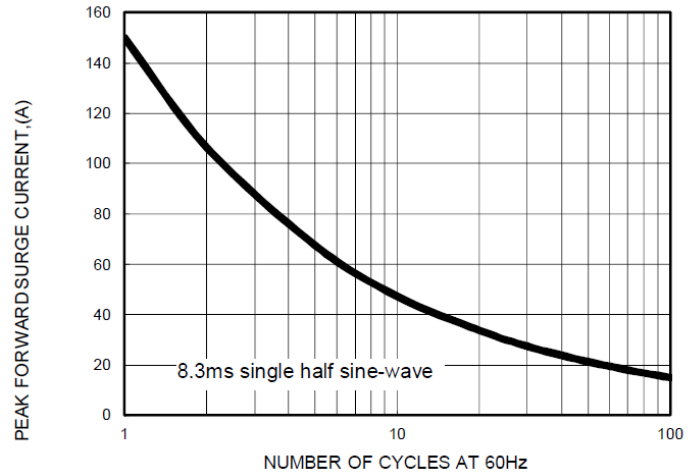
**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	S5JB	S5KB	S5MB	Unit
Minimum Reverse Breakdown Voltage @ I <sub>R</sub> = 10μA	V <sub>BR</sub>	600	800	1000	V
Maximum Forward Voltage @ I <sub>F</sub> = 5.0A	V <sub>FM</sub>	1.15			V
Peak Reverse Current @ T <sub>A</sub> = +25°C	I <sub>RM</sub>	10.0			μA
at Rated DC Blocking Voltage (Note 5) @ T <sub>A</sub> = +125°C		250			
Typical Total Capacitance (Note 7)	C <sub>T</sub>	28			pF

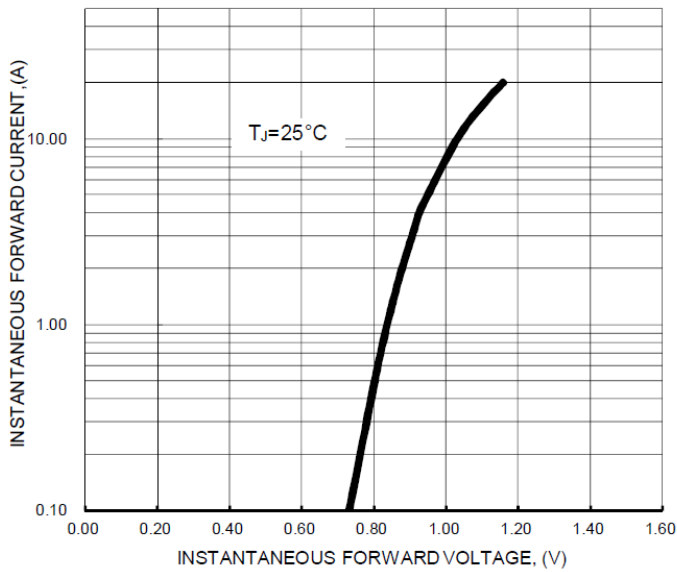
Notes: 5. Short duration pulse test used to minimize self-heating effect.  
6. Thermal Resistance: Junction to terminal, unit mounted on PC board with 5.0mm<sup>2</sup> (0.013 mm thick) copper pads as heat sink.  
7. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.



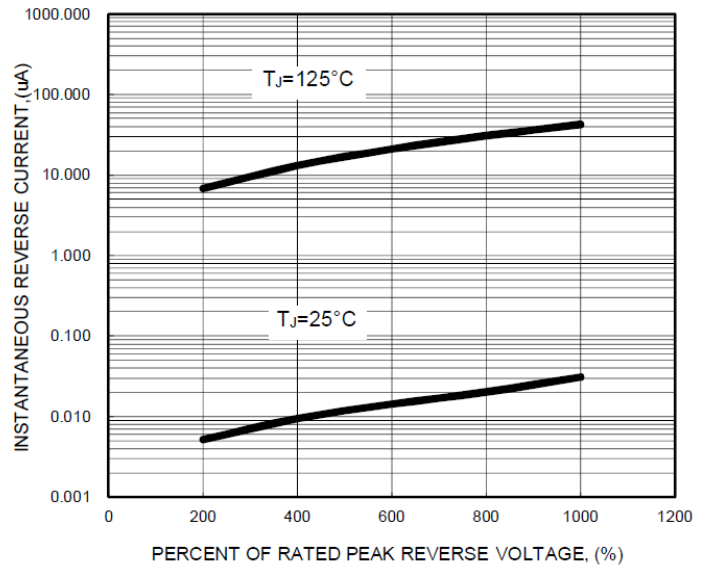
**FIG.1- FORWARD CURRENT DERATING CURVE**



**FIG.2- MAXIMUM NON-REPETITIVE SURGE CURRENT**



**FIG.3- TYPICAL FORWARD CHARACTERISTICS**

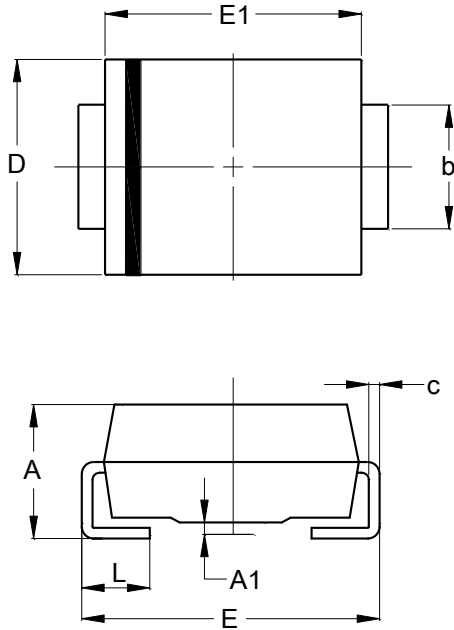


**FIG.4- TYPICAL REVERSE CHARACTERISTICS**

**Package Outline Dimensions**

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

**SMB**

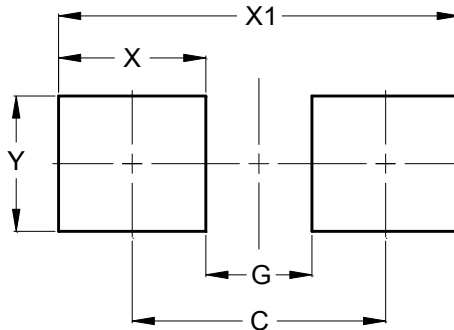


SMB		
Dim	Min	Max
A	2.00	2.50
A1	0.05	0.20
b	1.96	2.21
c	0.15	0.31
D	3.30	3.94
E	5.00	5.59
E1	4.06	4.57
L	0.76	1.52
All Dimensions in mm		

**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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