

Product Summary (@T_A = +25°C)

V _{RRM} (V)	I _O (A)	V _{F MAX} (V)	I _{R MAX} (μA)
60	0.5	0.5	100

Features and Benefits

- Low Forward Voltage Drop
- Low Reverse Leakage
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier (SBR[®]) Technology
- Soft, Fast Switching Capability
- +150°C Operating Junction Temperature
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

Applications

- SMPS
- DC-DC Converter
- Freewheeling Diodes
- Reverse Polarity Protection

Mechanical Data

- Case: SOD123
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Leads: Solderable per MIL-STD-202, Method 208
Lead Free Plating (Matte Tin Finish Annealed over Alloy 42 Leadframe)
- Polarity: Cathode Band
- Weight: 0.01 grams (Approximate)



Top View

Ordering Information (Note 5)

Part Number	Case	Packaging
SBR0560S1Q-7	SOD123	3000/Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to <https://www.diodes.com/quality/product-compliance-definitions/>
 5. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



56 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: E = 2017)
 M = Month (ex: 9 = September)

Date Code Key

Year	2004	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Code	R	B	C	D	E	F	G	H	I	J	K	L
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Maximum Ratings (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

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

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	60	V
Working Peak Reverse Voltage	V_{RWM}		
DC Blocking Voltage	V_{RM}		
Average Rectified Output Current	I_O	500	mA
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	15	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Thermal Resistance Junction to Ambient Air (Note 6)	$R_{\theta JA}$	305	$^\circ\text{C/W}$
Thermal Resistance Junction to Ambient Air (Note 7)	$R_{\theta JA}$	271	
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	Min	Typ	Max	Unit	Test Condition
Forward Voltage (Per Diode)	V_F	-	-	0.44	V	$I_F = 0.25\text{A}, T_J = +25^\circ\text{C}$
			0.44	0.50		$I_F = 0.5\text{A}, T_J = +25^\circ\text{C}$
			-	0.46		$I_F = 0.5\text{A}, T_J = +125^\circ\text{C}$
Leakage Current (Note 8)	I_R	-	-	100	μA mA	$V_R = 60\text{V}, T_J = +25^\circ\text{C}$
			-	25		$V_R = 60\text{V}, T_J = +125^\circ\text{C}$

- Notes:
- Part mounted on FR-4 board with recommended pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.
 - Part mounted on Polyimide board with recommended pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.
 - Short duration pulse test used to minimize self-heating effect.

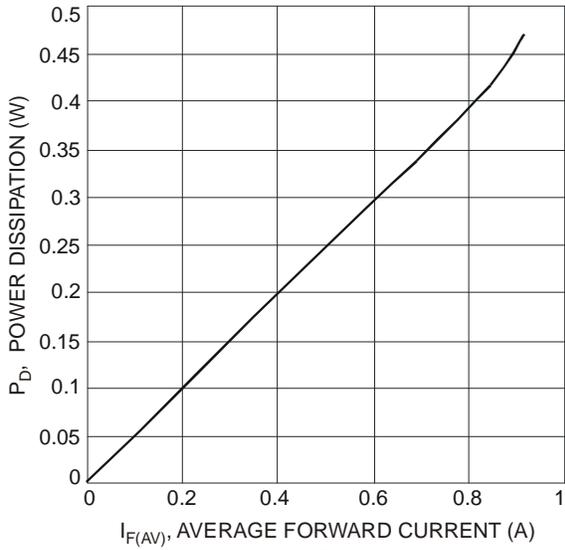


Fig. 1 Forward Power Dissipation

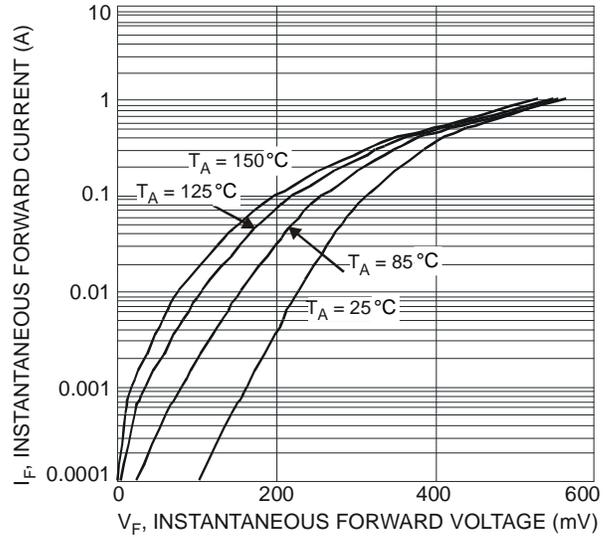


Fig. 2 Typical Forward Characteristics

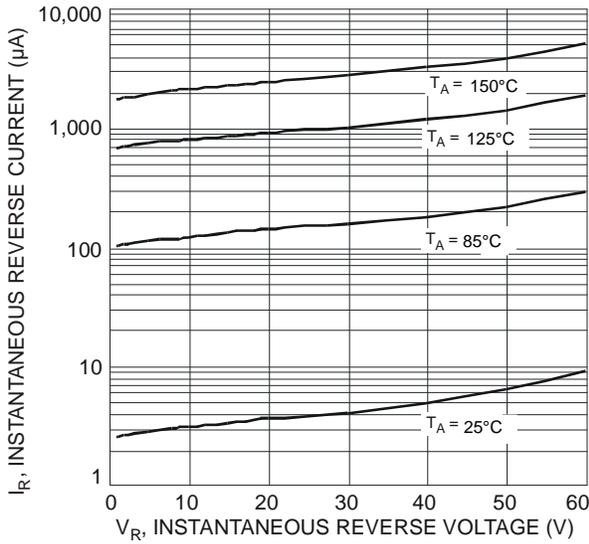


Fig. 3 Typical Reverse Characteristics

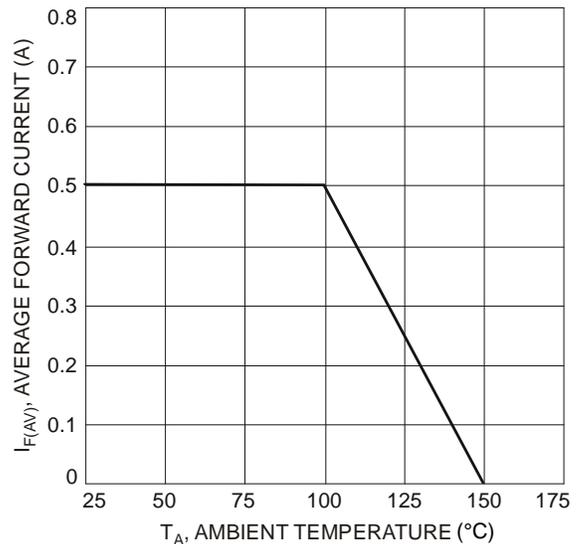


Fig. 4 Forward Current Derating Curve

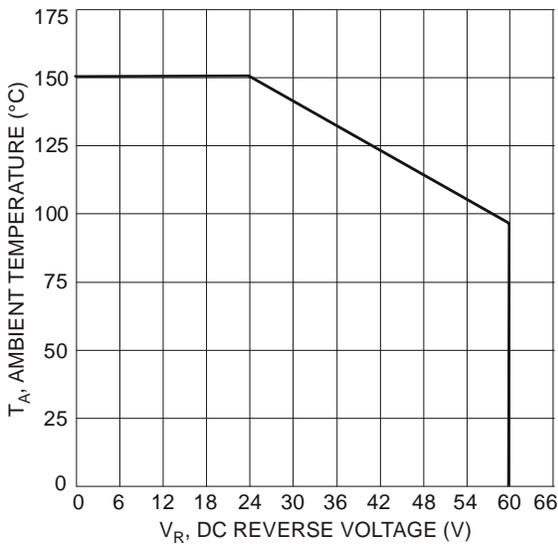
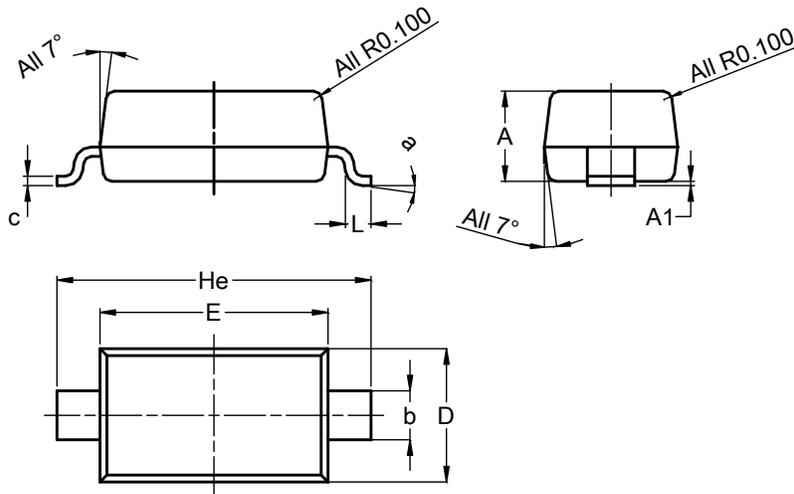


Fig. 5 Operating Temperature Derating

Package Outline Dimensions

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

SOD123

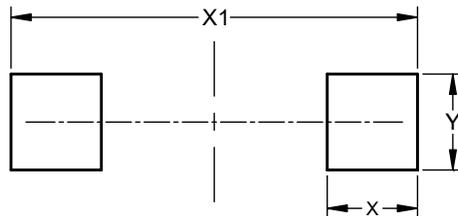


SOD123			
Dim	Min	Max	Typ
A	1.00	1.35	1.05
A1	0.00	0.10	0.05
b	0.52	0.62	0.57
c	0.10	0.15	0.11
D	1.40	1.70	1.55
E	2.55	2.85	2.65
He	3.55	3.85	3.65
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

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

SOD123



Dimensions	Value (in mm)
X	0.900
X1	4.050
Y	0.950

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