SBR0560S1Q

0.5A SBR
SUPER BARRIER RECTIFIER

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 Technology (SBR®)
- 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)**
- **The SBR0560S1Q is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF16949 certified facilities.**
  https://www.diodes.com/quality/product-definitions/

Applications

- SMPS
- DC-DC converters
- Freewheeling diodes
- Reverse-polarity protections

Mechanical Data

- Package: SOD123
- Package 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 e3
- Lead-Free Plating (Matte Tin Finish Annealed over Alloy 42 Leadframe)
- Polarity: Cathode Band
- Weight: 0.01 grams (Approximate)

SOD123

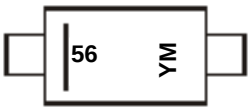
Top View

Ordering Information (Note 5)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
SBR0560S1Q-7	SOD123	3000	Tape & Reel

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
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



56 = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: L = 2024)
M = Month (ex: 9 = September)

Date Code Key

Year	2016	-	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Code	D	-	L	M	N	P	R	S	T	U	V	W

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°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 Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_{RM}	60	V
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 5) Thermal Resistance Junction to Ambient Air (Note 6)	$R_{\theta JA}$ $R_{\theta JA}$	305 271	°C/W
Operating and Storage Temperature Range (Note 7)	T_J, T_{STG}	-65 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage (Per Diode)	V_F	— — —	— 0.44 —	0.44 0.50 0.46	V	I_F = 0.25A, T_J = +25°C I_F = 0.5A, T_J = +25°C I_F = 0.5A, T_J = +125°C
Leakage Current (Note 8)	I_R	— —	— —	100 25	µA mA	V_R = 60V, T_J = +25°C V_R = 60V, T_J = +125°C
Junction Capacitance	C_J	—	50	—	pF	V_R = 4V, T_J = +25°C
Reverse-Recovery Time	t_{RR}	—	8	—	ns	I_F = 0.5A, I_R = 1A I_{RR} = 0.25A

Notes:
5. 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.
6. Part mounted on Polymide board with recommended pad layout, which can be found on our website at http://www.diodes.com/package-outlines.html.
7. The heat generated must be less than thermal conductivity from junction-to-ambient: $dP_D / dT_J < 1 / R_{\theta JA}$.
8. Short duration pulse test used to minimize self-heating effect.

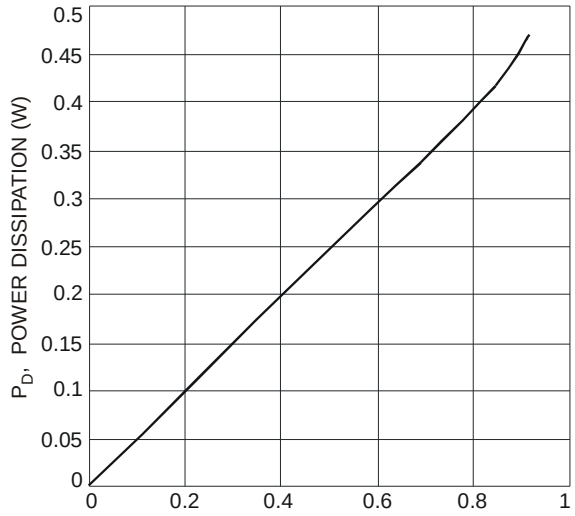


Fig. 1 Forward Power Dissipation

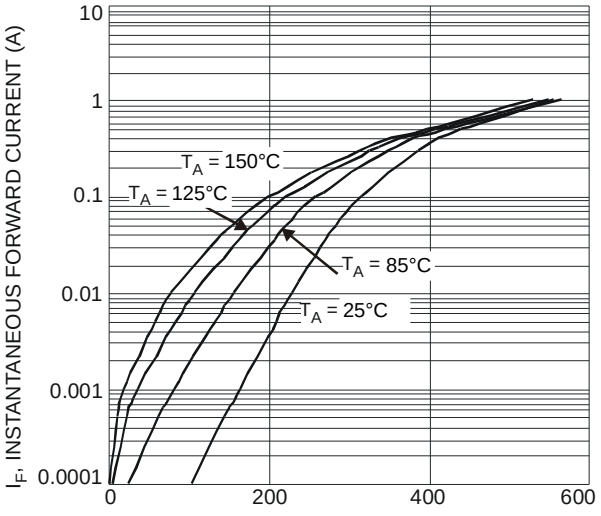


Fig. 2 Typical Forward Characteristics

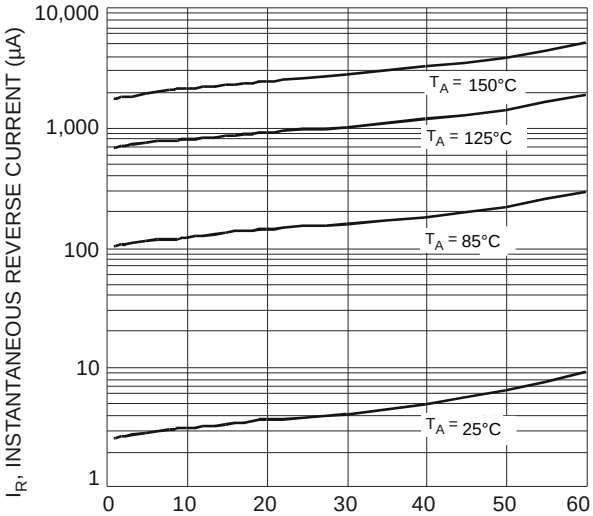


Fig. 3 Typical Reverse Characteristics

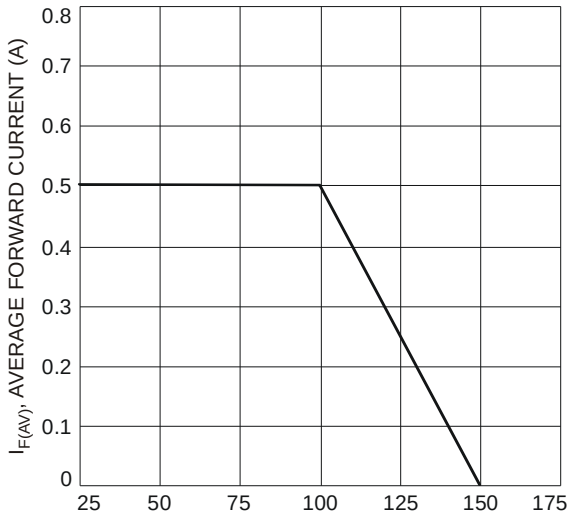


Fig. 4 Forward Current Derating Curve

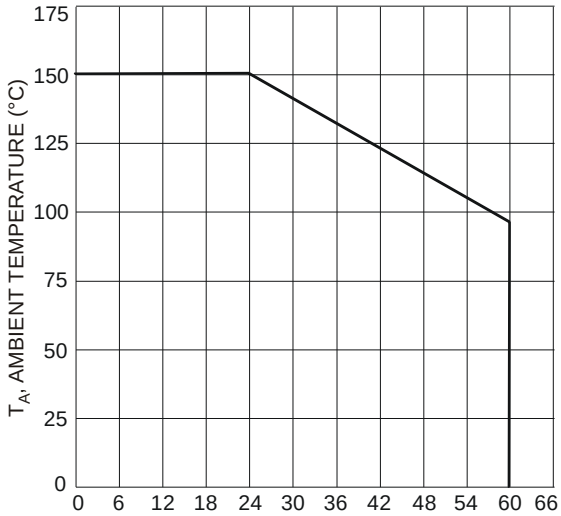
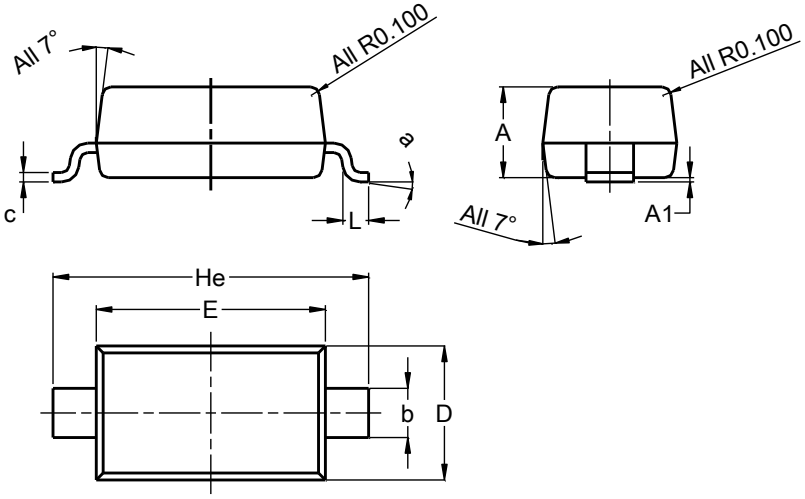


Fig. 5 Operating Temperature Derating

Package Outline Dimensions

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

SOD123

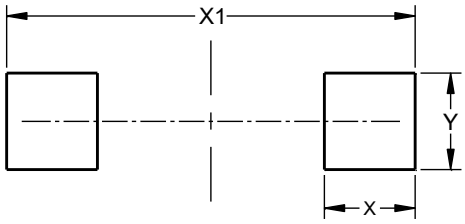


SOD123			
Dim	**Min**	**Max**	**Typ**
A	1.00	1.35	1.05
A1	0.00	0.10	0.05
b	0.52	0.62	0.57
c	0.10	0.15	0.11
D	1.40	1.70	1.55
E	2.55	2.85	2.65
He	3.55	3.85	3.65
L	0.25	0.40	0.30
a	0º	8º	--
All Dimensions in mm			

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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