SD103AWSQ - SD103BWSQ

SURFACE MOUNT SCHOTTKY BARRIER DIODE

Product Summary

V_R (V)	I_{FM} (mA)	$V_{F\ MAX}$ (V) @ 20mA, +25°C	$I_{R\ MAX}$ (µA) @ V_R, +25°C
30	350	0.37	5.0
40			

Features and Benefits

- Low Forward Voltage Drop
- Guard Ring Construction for Transient Protection
- Negligible Reverse Recovery Time
- Low Reverse Capacitance
- Ultra-Small Surface Mount Package
- **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)**

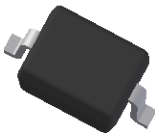
Description and Applications

This Schottky barrier rectifier is designed to meet the stringent requirements of automotive applications. It is ideally suited to use as a:

- Polarity Protection Diode
- Recirculating Diode
- Switching Diode

Mechanical Data

- Case: SOD323
- Case Material: Molded Plastic.
  UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish — Matte Tin Annealed over Alloy 42 Leadframe. Solderable per MIL-STD-202, Method 208 e3
- Polarity: Cathode Band
- Weight: 0.004 grams (Approximate)



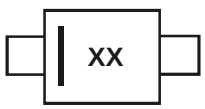
Top View

Ordering Information (Note 5)

Part Number	Compliance	Case	Packaging
SD103AWSQ-7-F	Automotive	SOD323	3000/Tape & Reel
SD103BWSQ-7-F	Automotive	SOD323	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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to https://www.diodes.com/quality/.
5. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information



XX = Product Type Marking Code
S4 = SD103AWSQ
S5 or S4 = SD103BWSQ

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

Characteristic	Symbol	SD103AWSQ	SD103BWSQ	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	40	30	V
RMS Reverse Voltage	$V_{R(RMS)}$	28	21	V
Forward Continuous Current (Note 6)	I_{FM}	350		mA
Non-Repetitive Peak Forward Surge Current @ 8.3ms Half-Sine Waveform	I_{FSM}	1.5		A
Electrostatic Discharge	HBM	6000		V
Electrostatic Discharge	MM	400		V
Electrostatic Discharge	CDM	1000		V

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P_D	200	mW
Thermal Resistance, Junction to Ambient Air (Note 6)	$R_{\theta JA}$	500	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +125	°C

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

Characteristic		Symbol	Min	Typ	Max	Unit	Test Conditions
Reverse Breakdown Voltage (Note 7)	SD103AWSQ SD103BWSQ	$V_{(BR)R}$	40 30	—	—	V	I_R = 100µA I_R = 100µA
Forward Voltage Drop		V_F	—	—	0.37 0.60	V	I_F = 20mA I_F = 200mA
Peak Reverse Current (Note 7)	SD103AWSQ SD103BWSQ	I_R	—	—	5.0	µA	V_R = 30V V_R = 20V
Total Capacitance		C_T	—	35	—	pF	V_R = 0V, f = 1.0MHz
Reverse Recovery Time		t_{RR}	—	10	—	ns	I_F = I_R = 200mA, I_{RR} = 0.1 × I_R, R_L = 100Ω

Notes: 6. Device mounted on FR-4 PCB with minimum recommended pad layout per http://www.diodes.com/package-outlines.html.
7. Short duration test pulse used to minimize self-heating effect.

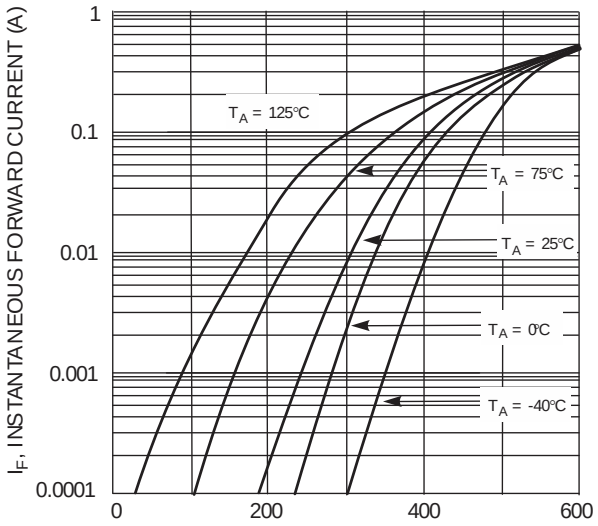


Fig. 1 Typical Forward Characteristics

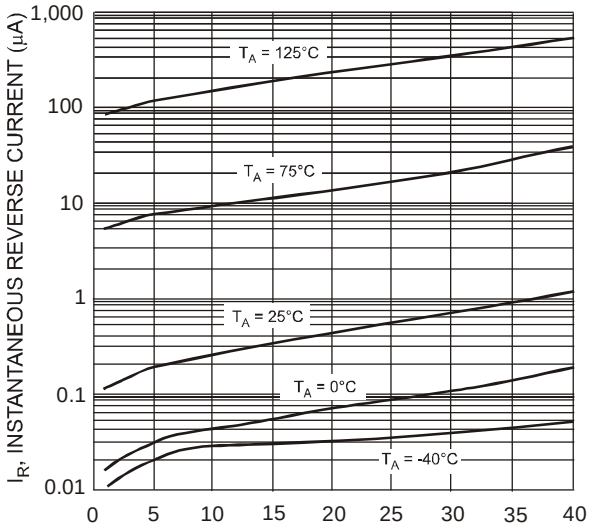


Fig. 2 Typical Reverse Characteristics

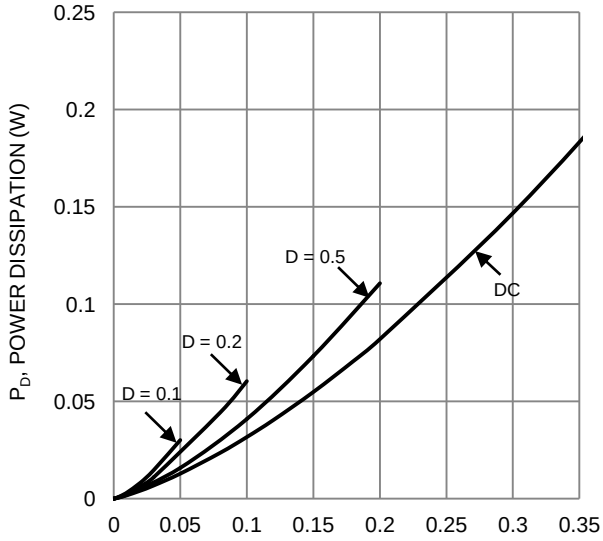


Fig. 3 Forward Power Dissipation T_J = 125°C

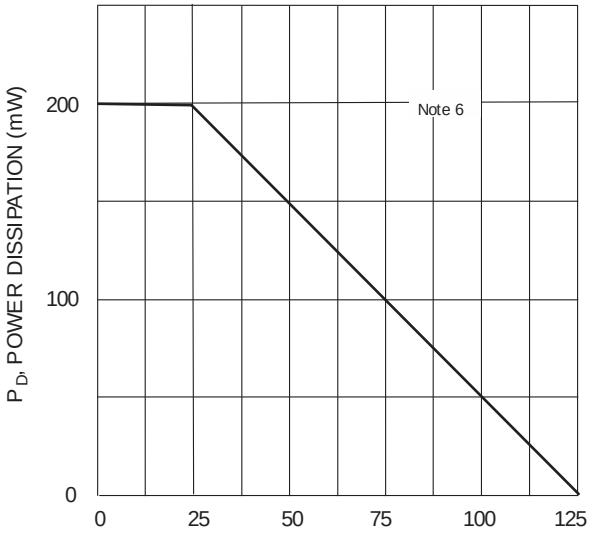


Fig. 4 Power Derating Curve

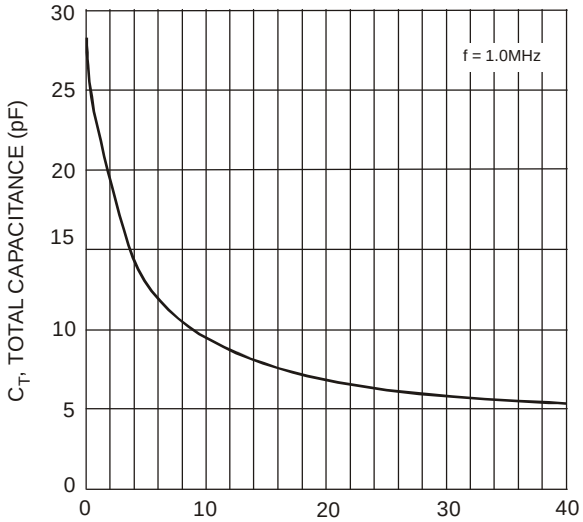


Fig. 5 Total Capacitance vs. Reverse Voltage

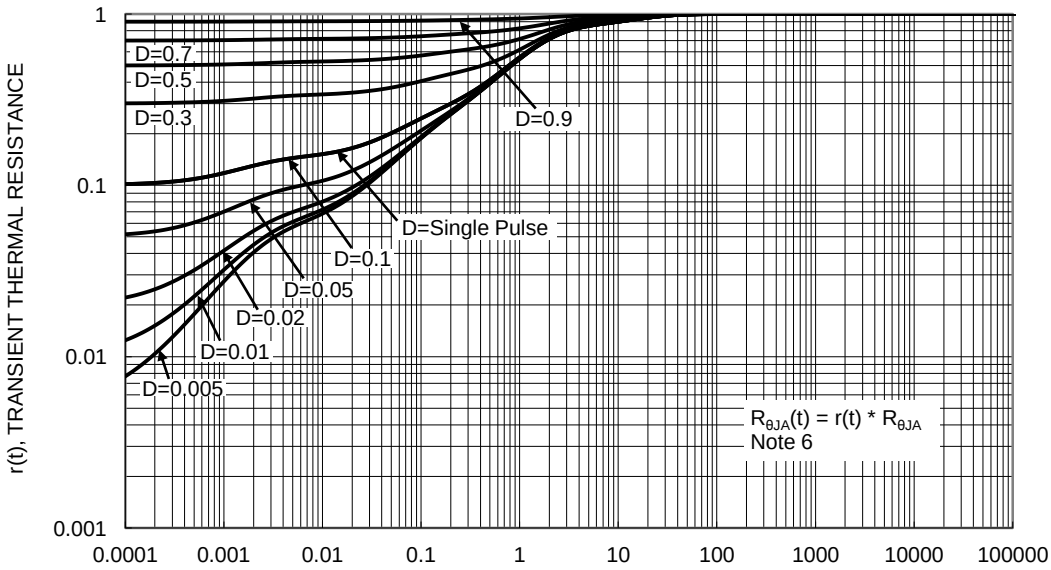
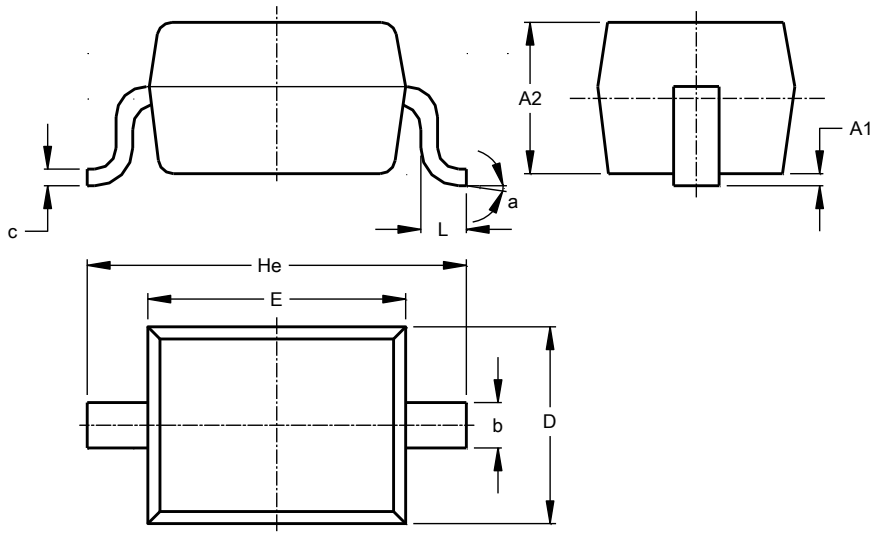


Fig. 6 Transient Thermal Resistance

Package Outline Dimensions

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

SOD323

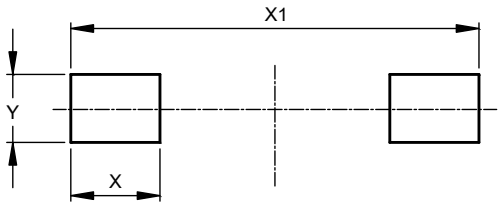


SOD323			
Dim	**Min**	**Max**	**Typ**
A1	--	0.10	0.05
A2	1.00	1.10	1.05
b	0.25	0.35	0.30
c	0.10	0.15	0.11
D	1.20	1.40	1.30
E	1.60	1.80	1.70
He	2.30	2.70	2.50
L	0.20	0.40	0.30
a	0º	8º	--
All Dimensions in mm			

Suggested Pad Layout

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

SOD323



Dimensions	Value (in mm)
X	0.590
X1	2.700
Y	0.450

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