

Features

- Low Forward Voltage Drop
- Guard Ring Construction for Transient Protection
- High Conductance
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The B140WSQ 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/>

Mechanical Data

- Package: SOD323
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Rating Classification 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Polarity: Cathode Band
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 (A3)
- Weight: 0.004 grams (Approximate)

SOD323



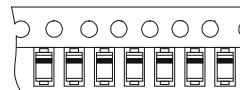
Top View

Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
B140WSQ-7	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. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



SF = Product Type Marking Code

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 _R	40	V
RMS Reverse Voltage	V _{R(RMS)}	28	V
Average Rectified Output Current	I _O	1	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine Wave Superimposed on Rated Load	I _{FSM}	3	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	R _{θJA}	350	°C/W
Typical Thermal Resistance Junction to Ambient (Note 6)	R _{θJA}	270	°C/W
Operating and Storage Temperature Range (Note 7)	T _J , T _{STG}	-55 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 8)	V _{(BR)R}	40	—	—	V	I _R = 1mA
Forward Voltage	V _F	—	0.56	0.62	V	I _F = 1A
Reverse Current (Note 8)	I _R	—	5.0	50	μA	V _R = 40V
Total Capacitance	C _T	—	125	—	pF	V _R = 0V, f = 1.0MHz
			25	—	pF	V _R = 10V, f = 1.0MHz

Notes: 5. 1*MRP FR-4 PC board, 2oz.
6. 1inch sq. copper pad, 2oz.
7. The heat generated must be less than the thermal conductivity from junction to case: $dP_D / dT_J < 1 / R_{\theta JC}$ or junction to ambient: $dP_D / dT_J < 1 / R_{\theta JA}$.
8. Short duration pulse test used to minimize self-heating effect.

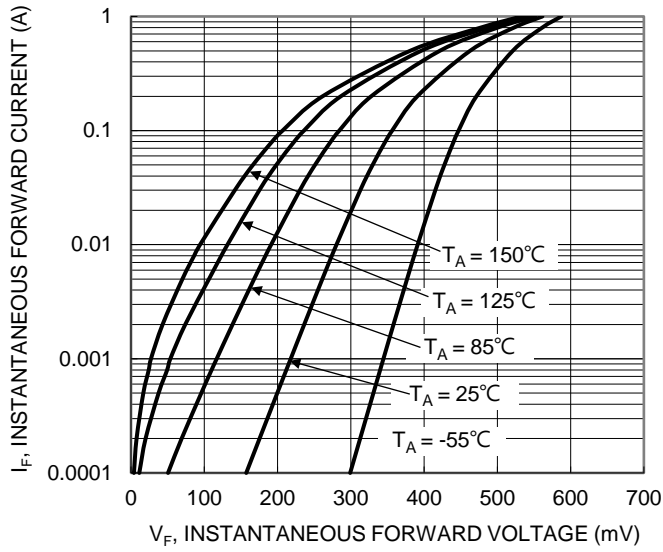


Figure 1. Typical Forward Characteristics

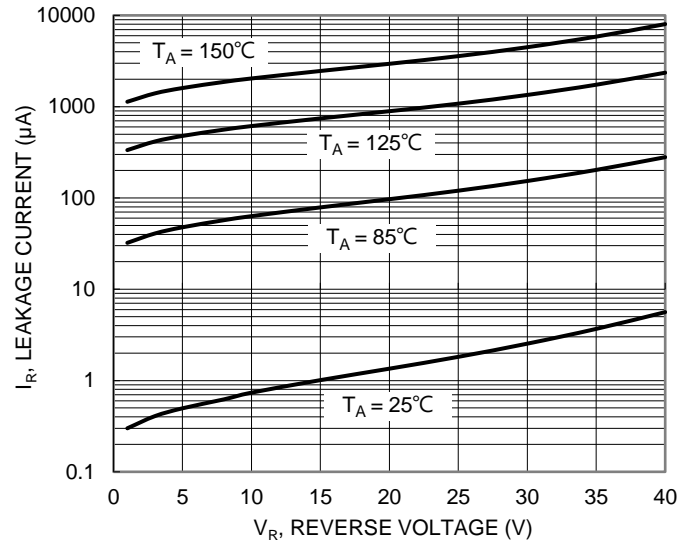


Figure 2. Typical Reverse Characteristics

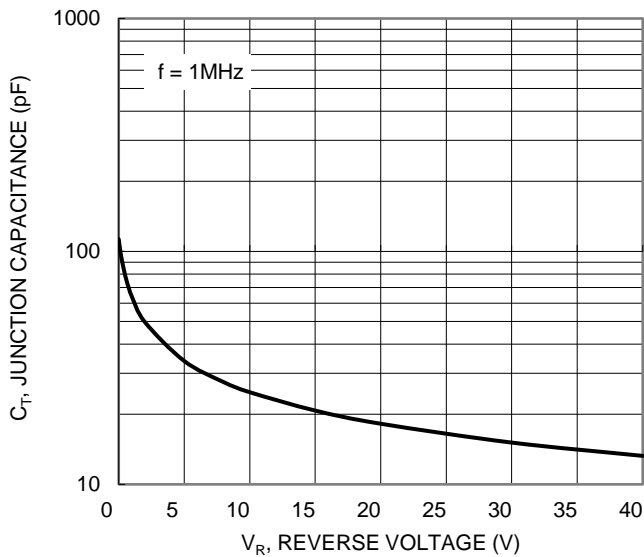


Figure 3. Typical Junction Capacitance

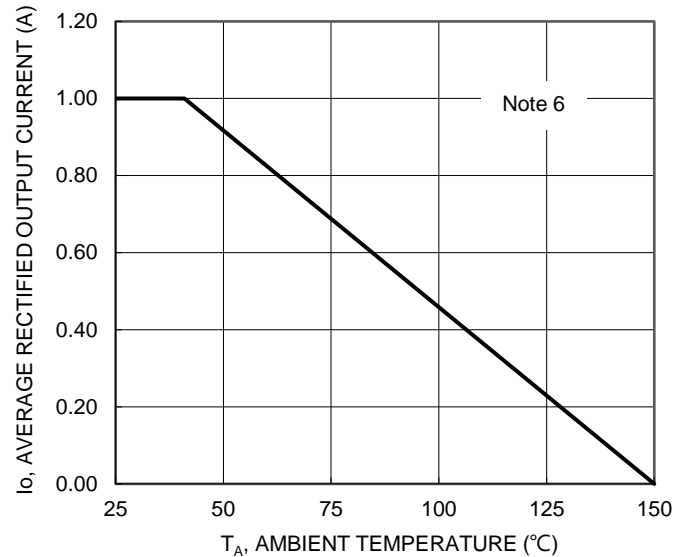
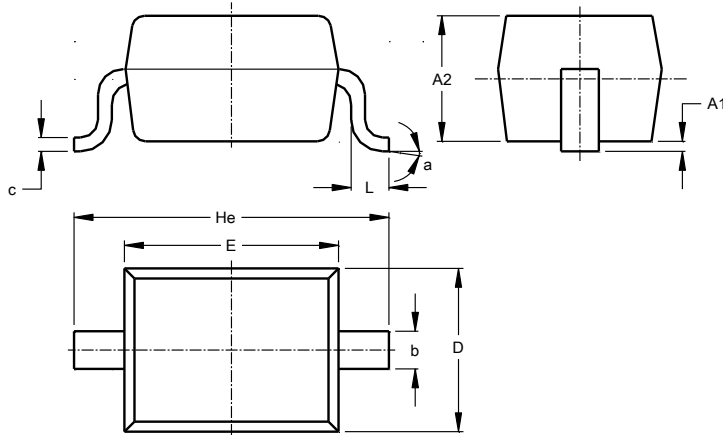


Figure 4. DC Forward Current Derating

Package Outline Dimensions

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

SOD323

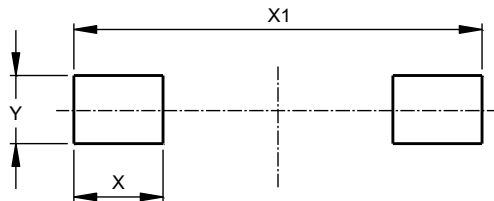


SOD323			
Dim	Min	Max	Typ
A1	--	0.10	0.05
A2	1.00	1.10	1.05
b	0.25	0.35	0.30
c	0.10	0.15	0.11
D	1.20	1.40	1.30
E	1.60	1.80	1.70
He	2.30	2.70	2.50
L	0.20	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

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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