

**SURFACE-MOUNT SCHOTTKY BARRIER RECTIFIER**

**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)**
- **An automotive-compliant part is available under separate datasheet ([B140WSQ](#))**

**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 <sup>(3)</sup>
- Weight: 0.004 grams (Approximate)

SOD323



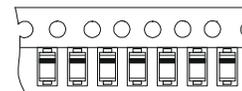
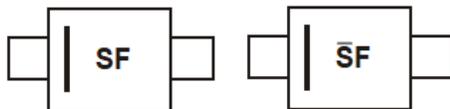
Top View

**Ordering Information** (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
B140WS-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 & SF̄ = Product Type Marking Code

## 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	Value	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	40	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>R</sub>		
RMS Reverse Voltage	V <sub>R(RMS)</sub>	28	V
Average Rectified Output Current	I <sub>O</sub>	1	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	3	A

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P <sub>D</sub>	460	mW
Typical Thermal Resistance Junction to Ambient (Note 5)	R <sub>θJA</sub>	350	°C/W
Typical Thermal Resistance Junction to Ambient (Note 6)	R <sub>θJA</sub>	270	°C/W
Operating and Storage Temperature Range (Note 7)	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	°C

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 8)	V <sub>(BR)R</sub>	40	—	—	V	I <sub>R</sub> = 1mA
Forward Voltage	V <sub>F</sub>	—	0.54	0.62	V	I <sub>F</sub> = 1A
Reverse Current (Note 8)	I <sub>R</sub>	—	2.0	50	μA	V <sub>R</sub> = 40V
Total Capacitance	C <sub>T</sub>	—	125	—	pF	V <sub>R</sub> = 0V, f = 1.0MHz
		—	20	—	pF	V <sub>R</sub> = 10V, f = 1.0MHz

- Notes:
5. Part mounted on FR-4 PC board with recommended pad layout, which can be found on our website at <http://www.diodes.com>.
  6. Part mount on 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.

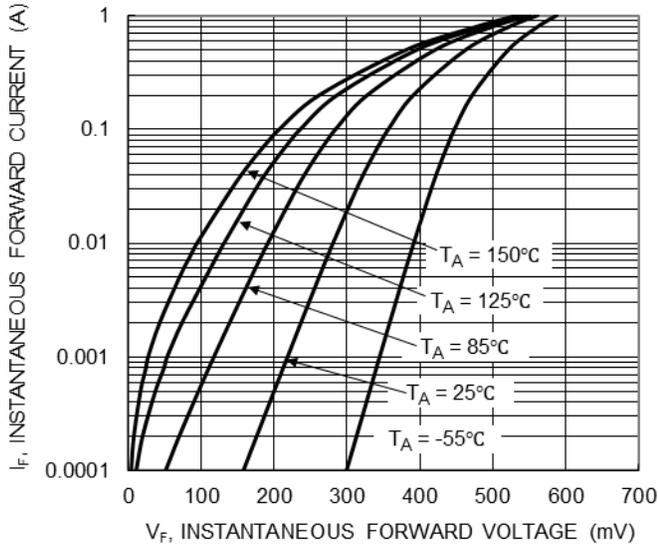


Figure 1. Typical Forward Characteristics

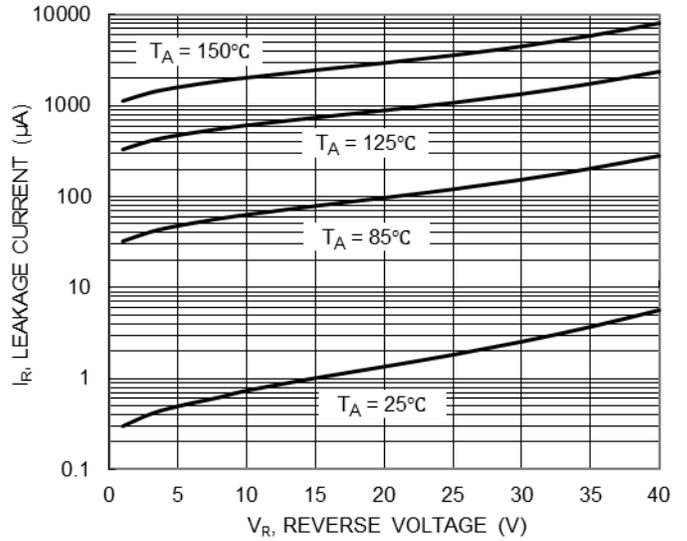


Figure 2. Typical Reverse Characteristics

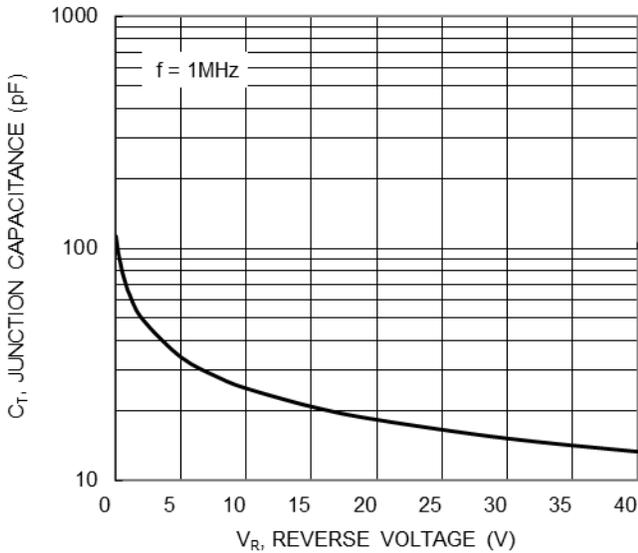


Figure 3. Typical Junction Capacitance

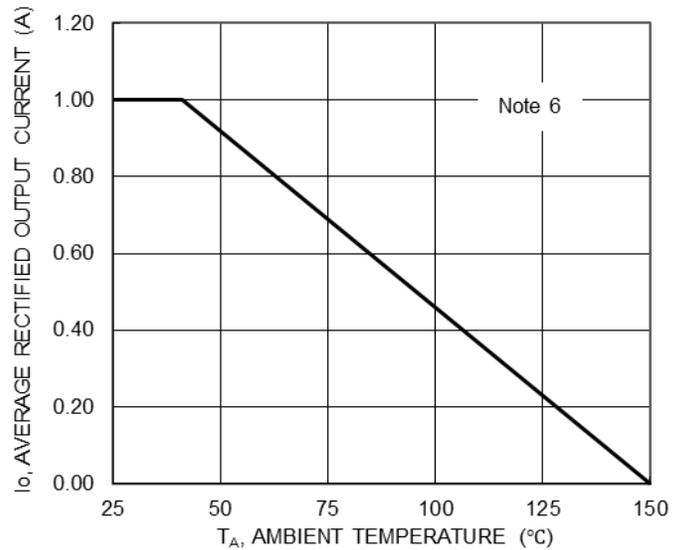
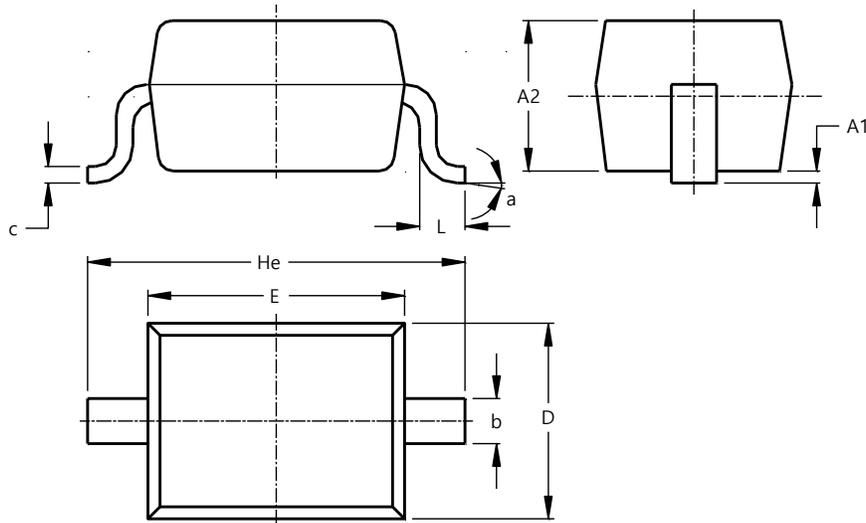


Figure 4. DC Forward Current Derating

## Package Outline Dimensions

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

### SOD323

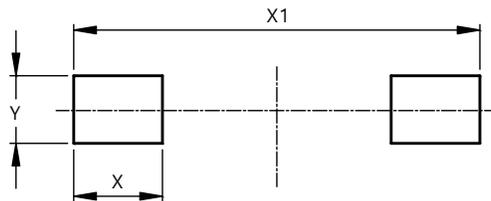


SOD323			
Dim	Min	Max	Typ
A1	--	0.10	0.05
A2	1.00	1.10	1.05
b	0.25	0.35	0.30
c	0.10	0.15	0.11
D	1.20	1.40	1.30
E	1.60	1.80	1.70
He	2.30	2.70	2.50
L	0.20	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

## 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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