1.0A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

Features

- Guard Ring Die Construction for Transient Protection
- Low Leakage Current
- Low Forward Voltage Drop
- **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 (B140HWQ)**

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
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 e3
- Polarity: Cathode Band
- Weight: 0.01 grams (Approximate)

SOD123

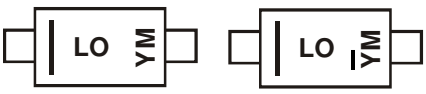
Top View

Ordering Information (Note 4)

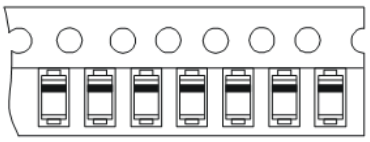
Part Number	Package	Packing	
		Qty.	Carrier
B140HW-7	SOD123	3,000	Tape & Reel

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



LO = Product Type Marking Code
YM & $\overline{Y}$M = Date Code Marking
Y = Year (ex: K = 2023)
M = Month (ex: 9 = September)



Date Code Key

Year	2005	-	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Code	S	-	K	L	M	N	O	P	R	S	T	U

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_R	40	V
RMS Reverse Voltage	$V_{R(RMS)}$	28	V
Average Forward Current (See Figure 1)	$I_{F(AV)}$	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	16	A
Repetitive Peak Reverse Current t_P = 2µs Square Wave, f = 1kHz	I_{RRM}	0.5	A
Non-Repetitive Peak Reverse Current t_P = 100µs Square Wave	I_{RSM}	1.0	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Power Dissipation (Note 5)	P_D	500	mW
Typical Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	250	°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
Reverse Breakdown Voltage (Note 6)	$V_{(BR)R}$	40	—	—	V	I_R = 40µA
Forward Voltage	V_F	— —	0.52 0.48	0.55 0.51	V	I_F = 1A, T_J = +25°C I_F = 1A, T_J = +100°C
Leakage Current (Note 6)	I_R	— — —	— — 0.2	10 40 5	µA µA mA	V_R = 5V, T_J = +25°C V_R = 40V, T_J = +25°C V_R = 40V, T_A = +100°C

Notes: 5. Part mounted on 1 inch sq. 2oz copper pad.
6. Short duration pulse test used to minimize self-heating effect.
7. The heat generated must be less than the thermal conductivity from junction to case: dPD /dTJ < 1/RθJC.

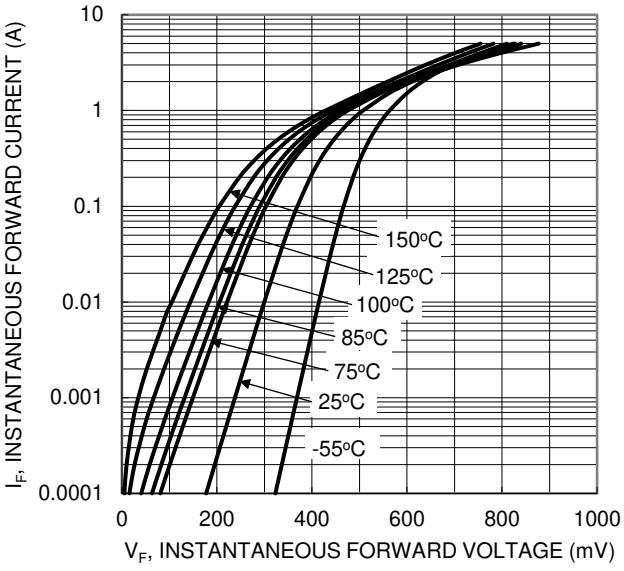


Fig.1 Typical Forward Characteristics

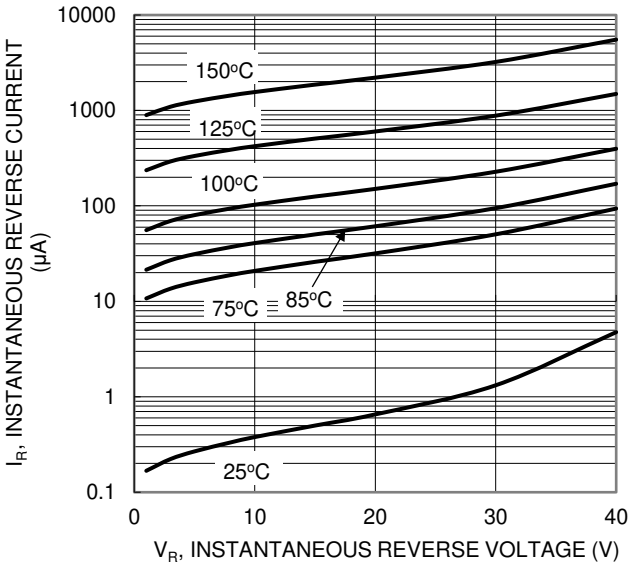


Fig.2 Typical Reverse Characteristics

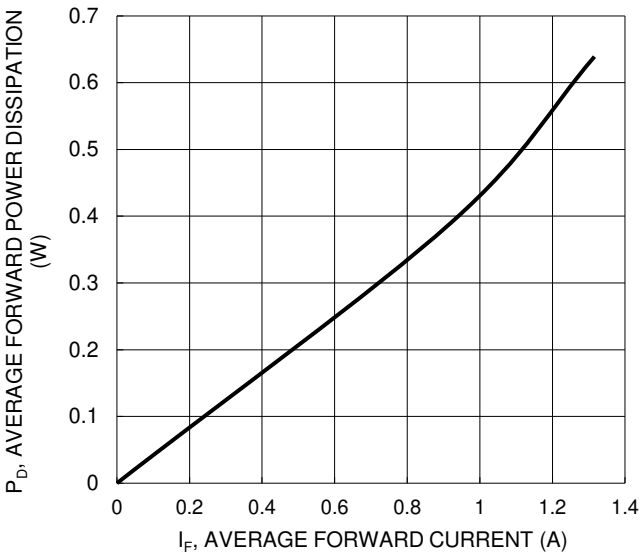


Fig.3 Forward Power Dissipation

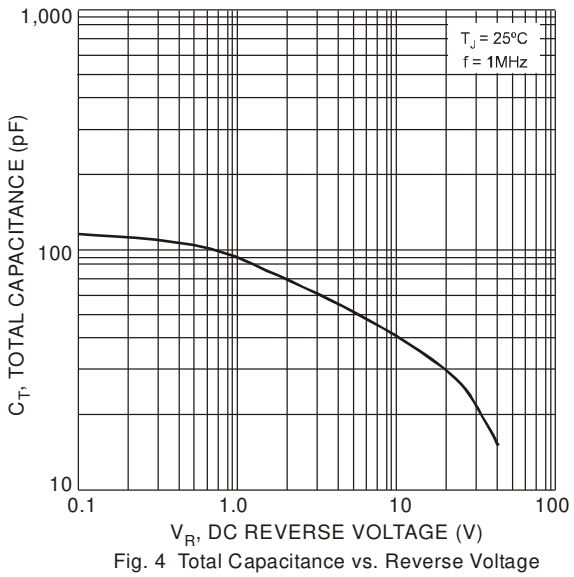


Fig. 4 Total Capacitance vs. Reverse Voltage

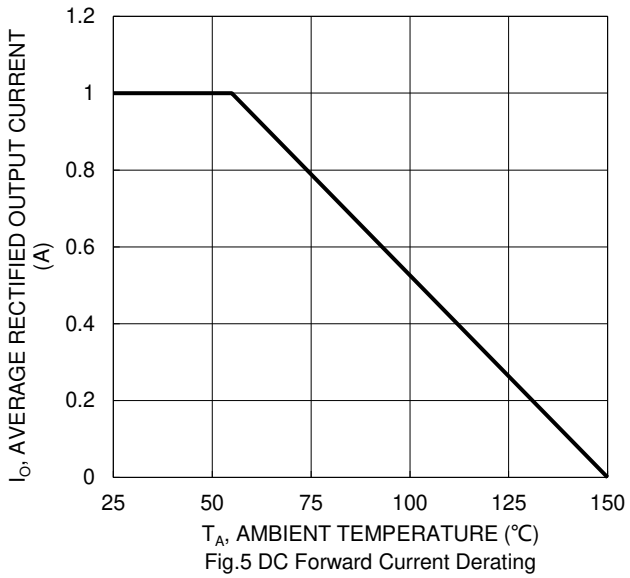
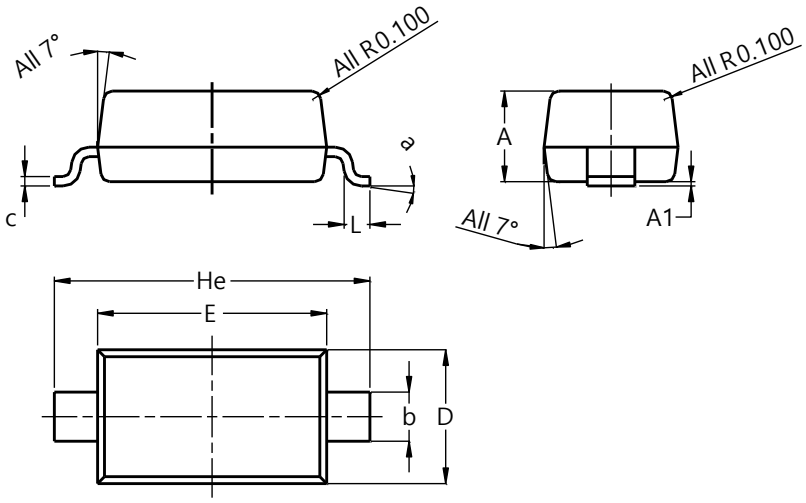


Fig.5 DC Forward Current Derating

Package Outline Dimensions

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

SOD123

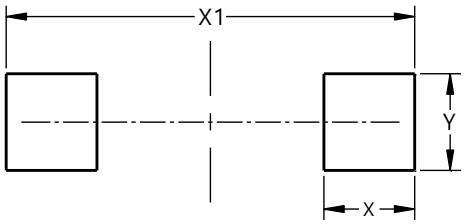


SOD123			
Dim	**Min**	**Max**	**Typ**
A	1.00	1.35	1.05
A1	0.00	0.10	0.05
b	0.52	0.62	0.57
c	0.10	0.15	0.11
D	1.40	1.70	1.55
E	2.55	2.85	2.65
He	3.55	3.85	3.65
L	0.25	0.40	0.30
a	0º	8º	--
All Dimensions in mm			

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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