1.0A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

Product Summary

V_R (V)	I_F (A)	V_F Max (V) @ +25°C	I_R Max (µA) @ +25°C
40	1.0	0.55	40

Features and Benefits

- Guard Ring Die Construction for Transient Protection
- Low Leakage Current
- Low Forward Voltage Drop
- **Totally Lead-Free Finish & 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)**

Applications

- DC-DC Converters
- Mobile Telecoms
- Blocking Diodes
- Reverse Polarity Protection

Mechanical Data

- Case: SOD123
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Finish Annealed over Alloy 42 Leadframe. Solderable per MIL-STD-202, Method 208 e3
- Polarity: Cathode Band
- Weight: 0.01 grams (Approximate)

SOD123

Top View

Ordering Information (Note 5)

Part Number	Case	Packaging
B140HWQ-7	SOD123	3,000/Tape & Reel

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. See http://www.diodes.com/quality/lead_free.html 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 http://www.diodes.com/quality/product_compliance_definitions/.
5. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information

SOD123

LO = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: C = 2015)
M = Month (ex: 9 = September)

Date Code Key

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Code	S	T	U	V	W	X	Y	Z	A	B	C	D	E

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

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

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitance 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 6) (Note 7)	P_D	350 410	mW
Typical Thermal Resistance Junction to Ambient	(Note 6) (Note 7)	$R_{\theta JA}$	304 251	°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 Condition
Reverse Breakdown Voltage (Note 8)	$V_{(BR)R}$	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 8)	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:
6. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at http://www.diodes.com/_files/datasheets/ap02001.pdf.
7. Part mounted on 1 inch sq. 2oz copper pad.
8. Short duration pulse test used to minimize self-heating effect.
9. Part mounting such that $R_{\theta JA}$ = 175°C/W.

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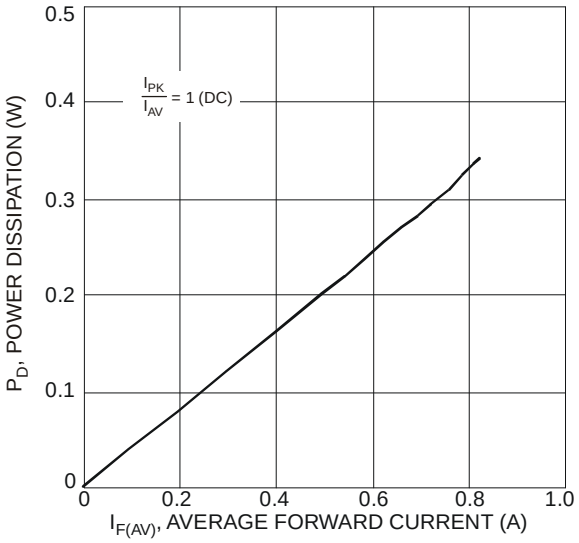

Fig. 1 Forward Power Dissipation

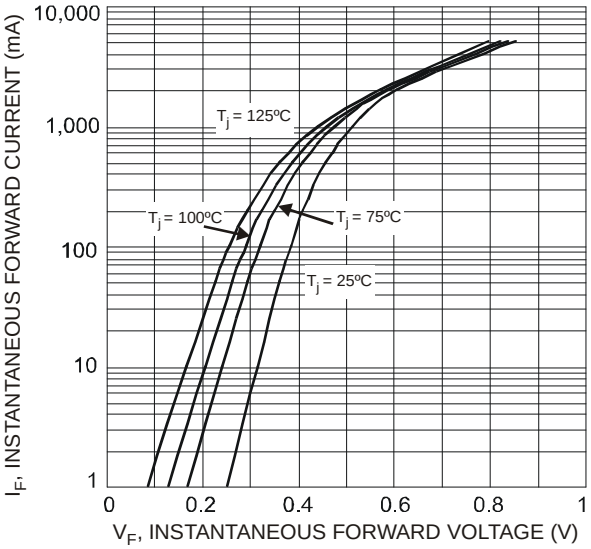

Fig. 2 Typical Forward Characteristics

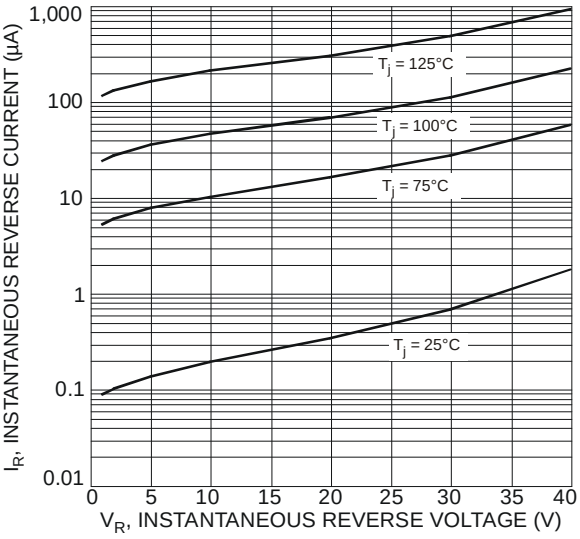

Fig. 3 Typical Reverse Characteristics

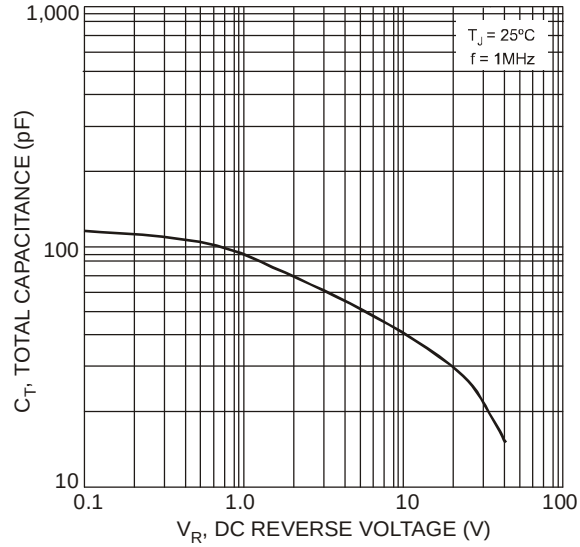

Fig. 4 Total Capacitance vs. Reverse Voltage

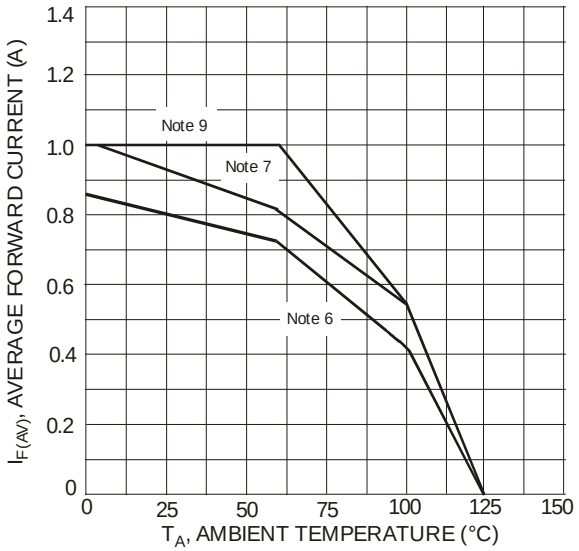

Fig. 5 Forward Current Derating Curve

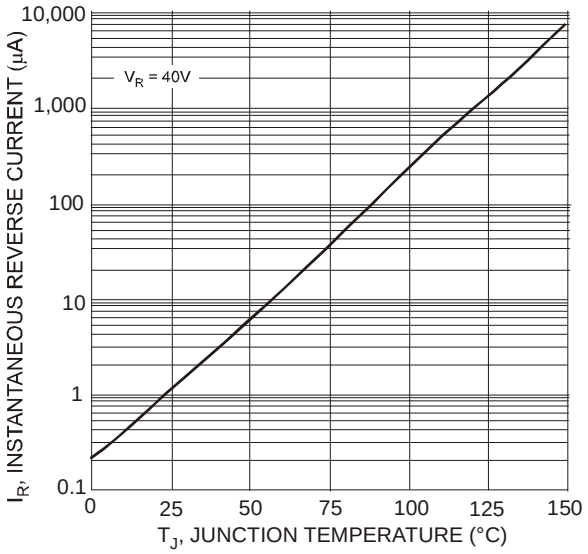

Fig. 6 Typical Reverse Current vs. Junction Temperature

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Package Outline Dimensions

Please see AP02001 at http://www.diodes.com/_files/datasheets/ap02001.pdf for the latest version.

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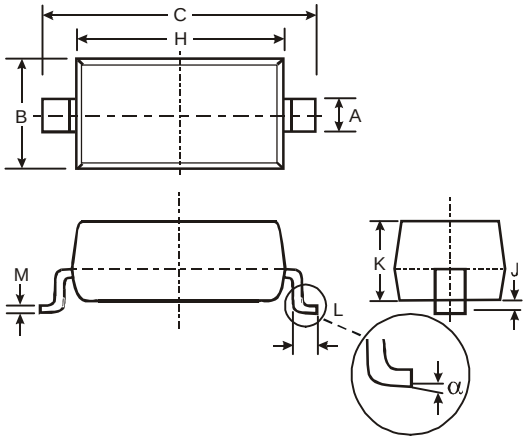
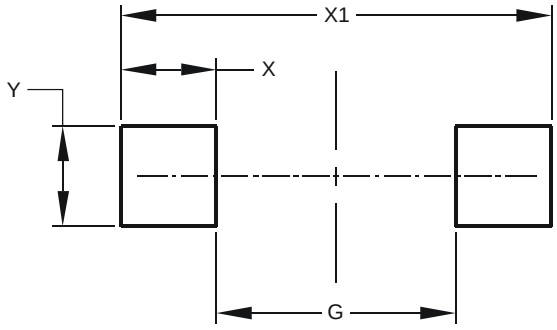


SOD123		
Dim	**Min**	**Max**
A	0.55 Typ	
B	1.40	1.70
C	3.55	3.85
H	2.55	2.85
J	0.00	0.10
K	1.00	1.35
L	0.25	0.40
M	0.10	0.15
α	0	8°
All Dimensions in mm		

Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/_files/datasheets/ap02001.pdf for the latest version.

SOD123



Dimensions	Value (in mm)
G	2.250
X	0.900
X1	4.050
Y	0.950

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