0.5A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

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Features

- Low Forward Voltage Drop
- Guard Ring Construction for Transient Protection
- High Conductance
- **Lead, Halogen and Antimony Free, RoHS Compliant (Note 1)**
- **"Green" Device (Note 5)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

- Case: SOD-123
- Case Material: Molded Plastic, "Green" Molding Compound (Note 5). UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 leadframe) Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.01 grams (approximate)

Top View

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 Rectified Output Current (See Figure 4)	I_O	0.5	A
Non-Repetitive Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	5.5	A

Thermal Characteristics

Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Ambient Air (Note 2) T_A = 25°C	$R_{\theta JA}$	385	—	°C/W
Thermal Resistance Junction to Ambient Air (Note 3) T_A = 25°C	$R_{\theta JA}$	325	—	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150		°C

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit	Test Conditions
Minimum Reverse Breakdown Voltage (Note 4)	$V_{(BR)R}$	40	V	I_R = 20μA
Maximum Forward Voltage Drop	V_{FM}	0.510 0.620 0.460 0.610	V	I_F = 0.5A, T_J = 25°C I_F = 1.0A, T_J = 25°C I_F = 0.5A, T_J = 100°C I_F = 1.0A, T_J = 100°C
Maximum Leakage Current (Note 4)	I_{RM}	10 20	μA	V_R = 20V, T_J = 25°C V_R = 40V, T_J = 25°C
		5.0 13	mA	V_R = 20V, T_J = 100°C V_R = 40V, T_J = 100°C
Total Capacitance	C_T	170	pF	f = 1MHz, V_R = 0V DC

Notes:
1. No purposefully added lead. Halogen and Antimony Free.
2. FR-4 PCB, minimum recommended pad layout per http://www.diodes.com/datasheets/ap02001.pdf.
3. Polymide PCB, minimum recommended pad layout per http://www.diodes.com/datasheets/ap02001.pdf.
4. Short duration pulse test used to minimize self-heating effect.
5. Product manufactured with Data Code V9 (week 33, 2008) and newer are built with Green Molding Compound. Product manufactured prior to Date Code V9 are built with Non-Green Molding Compound and may contain Halogens or Sb_2O_3 Fire Retardants.

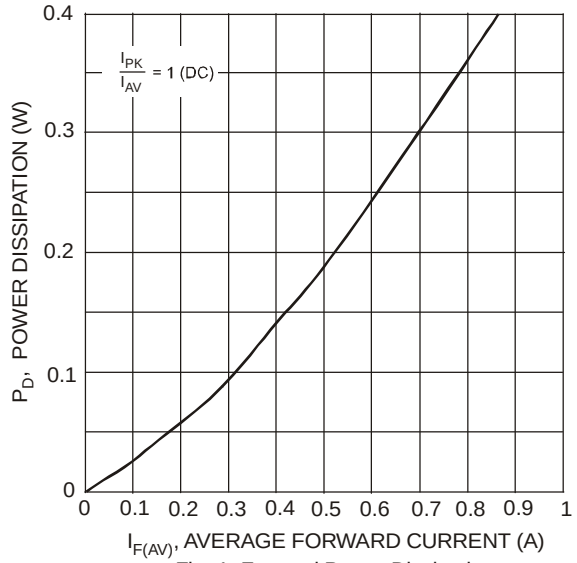


Fig. 1 Forward Power Dissipation

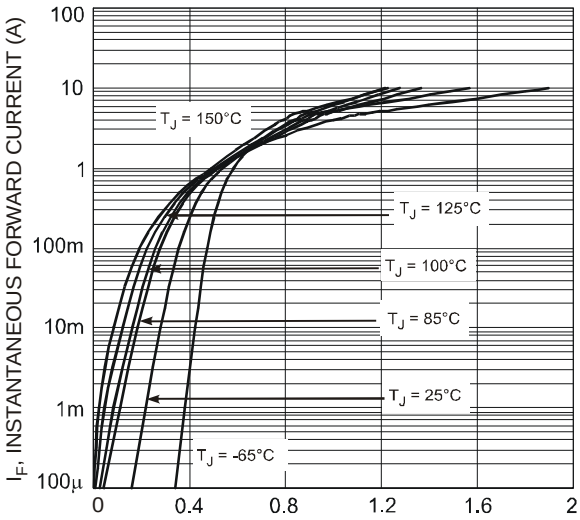


Fig. 2 Typical Forward Characteristics

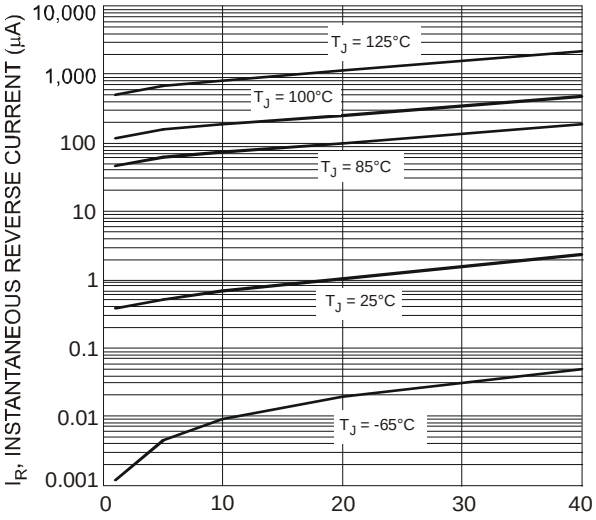


Fig. 3 Typical Reverse Characteristics

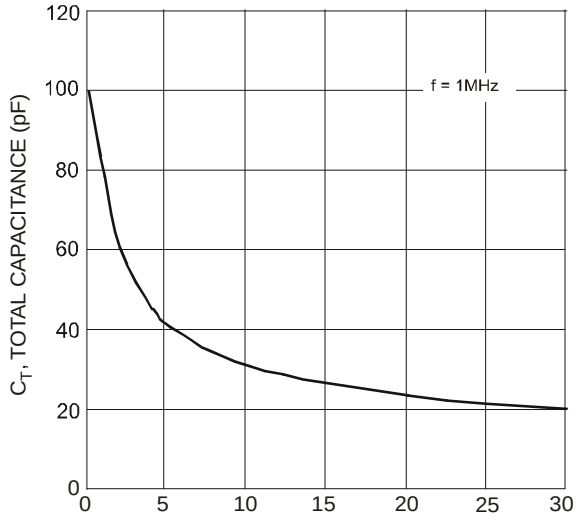


Fig. 4 Total Capacitance vs. Reverse Voltage

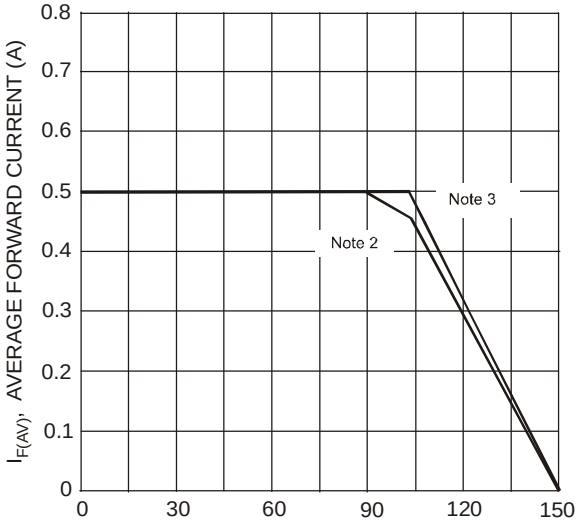


Fig. 5 Forward Current Derating Curve

Ordering Information (Note 6)

Part Number	Case	Packaging
B0540W-7-F	SOD-123	3000/Tape & Reel

Notes: 6. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information

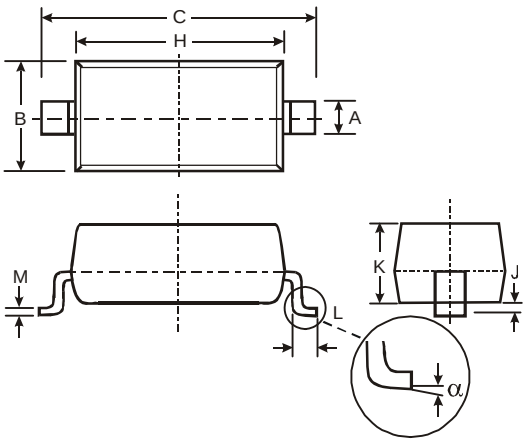
SF = Product Type Marking Code
YM = Date Code Marking
Y = Year (ex: N = 2002)
M = Month (ex: 9 = September)

Date Code Key

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Code	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z

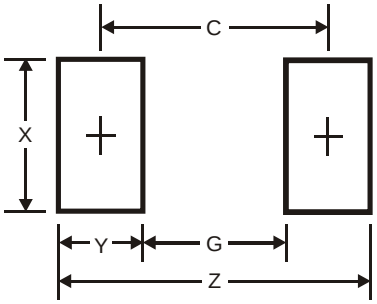
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Package Outline Dimensions



SOD-123		
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



Dimensions	Value (in mm)
Z	4.9
G	2.5
X	0.7
Y	1.2
C	3.7