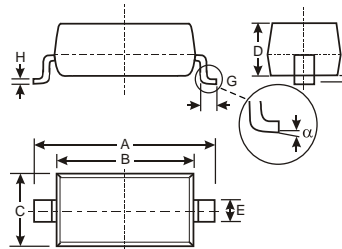


### Features

- Low Forward Voltage Drop
- Guard Ring Construction for Transient Protection
- High Conductance
- **Lead Free/RoHS Compliant (Note 1)**
- **Qualified to AEC-Q101 Standards for High Reliability**

### Mechanical Data

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



SOD-123		
Dim	Min	Max
A	3.55	3.85
B	2.55	2.85
C	1.40	1.70
D	—	1.35
E	0.45	0.65
	0.55 Typical	
G	0.25	—
H	0.11 Typical	
J	—	0.10
	0°	8°
All Dimensions in mm		

### 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 Working Peak Reverse Voltage DC Blocking Voltage	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	40	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	28	V
Average Rectified Output Current (See Figure 4)	I <sub>O</sub>	0.5	A
Non-Repetitive Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	5.5	A

### Thermal Characteristics

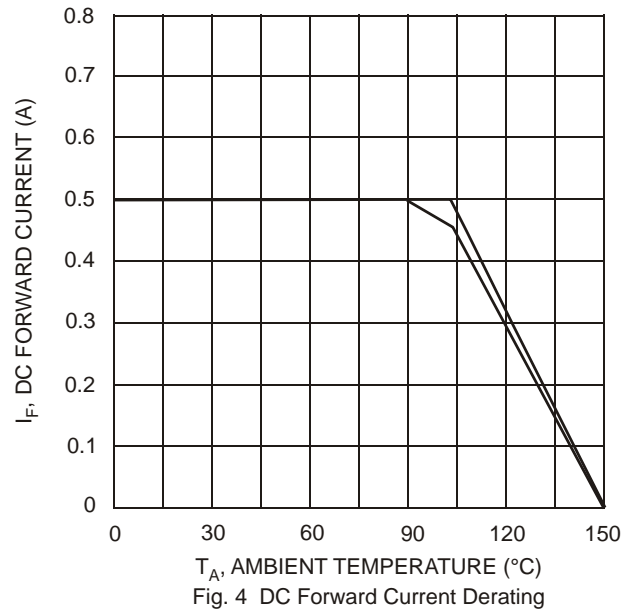
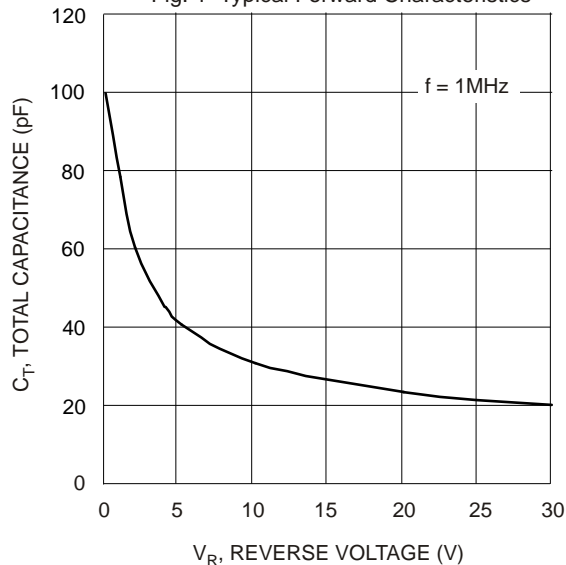
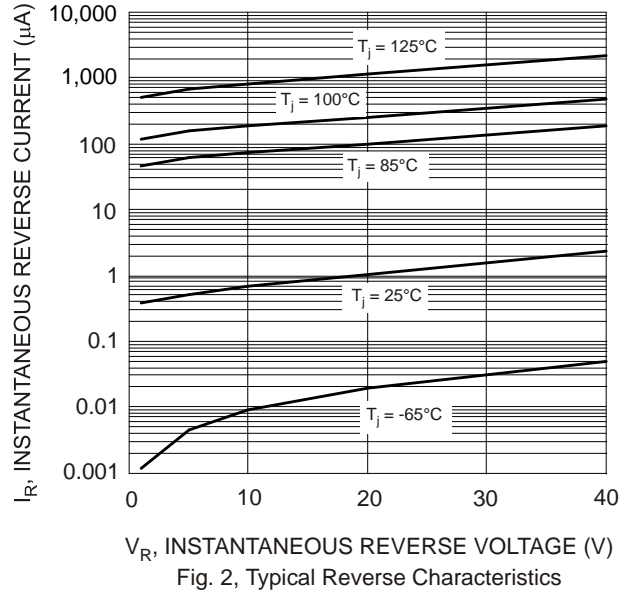
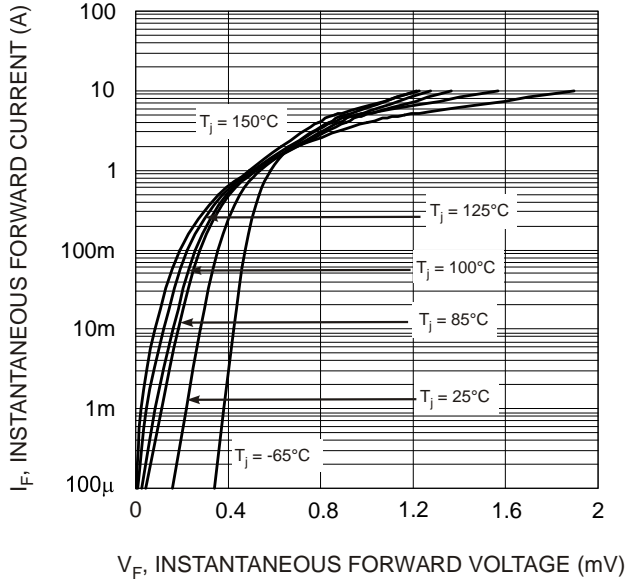
Characteristic	Symbol	Typ	Max	Unit
Thermal Resistance Junction to Ambient Air (Note 2)	R <sub>JA</sub>	385		°C/W
Thermal Resistance Junction to Ambient Air (Note 3)	R <sub>JA</sub>	325		°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150		°C

- Notes:
1. No purposefully added lead.
  2. FR-4 PCB, minimum recommended pad layout per <http://www.diodes.com/datasheets/ap02001.pdf>. T<sub>A</sub> = 25° C.
  3. Polyimide PCB, minimum recommended pad layout per <http://www.diodes.com/datasheets/ap02001.pdf>. T<sub>A</sub> = 25° C.

**Electrical Characteristics** @  $T_A = 25^\circ\text{C}$  unless otherwise specified

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

Notes: 4. Short duration pulse test used to minimize self-heating effect.



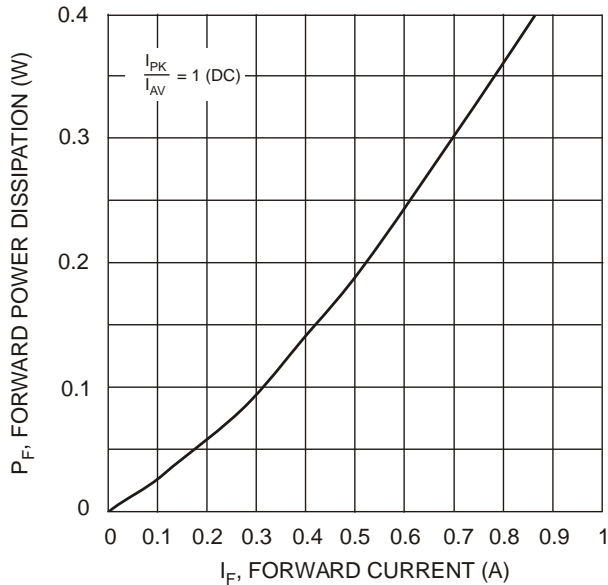


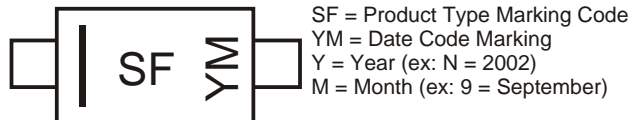
Fig. 5 Forward Power Dissipation

**Ordering Information** (Note 5)

Device	Packaging	Shipping
B0540W-7-F	SOD-123	3000/Tape & Reel

Notes: 5. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**



Date Code Key

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

Month	Jan	Feb	March	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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