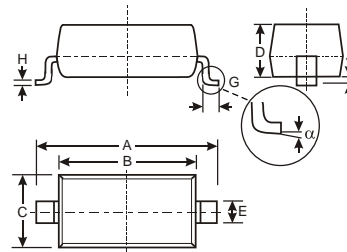


**Features**

- Guard Ring Die Construction for Transient Protection
- Very Low Leakage Current
- Low Forward Voltage Drop
- **Lead Free By Design/RoHS Compliant (Note 3)**
- **"Green Device" (Note 4)**

**Mechanical Data**

- Case: SOD-123
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Finish Matte Tin Finish annealed over Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band
- Marking: Date Code & Type Code, See Page 3
- Type Code: LO
- 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

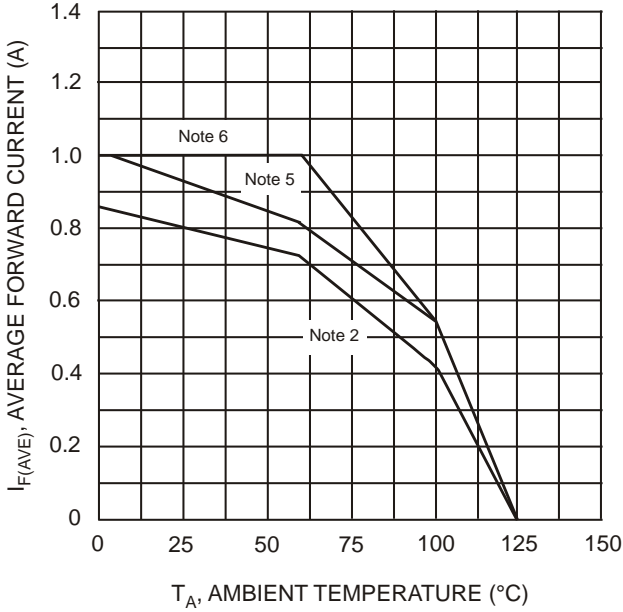
Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V <sub>R(RM)</sub> V <sub>R(WM)</sub> V <sub>R</sub>	40	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	28	V
Average Forward Current (See Figure 1)	I <sub>F(AV)</sub>	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	6.6	A
Repetitive Peak Reverse Current t <sub>p</sub> = 2µs square wave, f = 1KHz	I <sub>R(RM)</sub>	0.5	A
Non-Repetitive Peak Reverse Current t <sub>p</sub> = 100µs square wave	I <sub>R(SM)</sub>	1.0	A
Power Dissipation (Note 2) (Note 5)	P <sub>d</sub>	350 410	mW
Typical Thermal Resistance Junction to Ambient (Note 2) (Note 5)	R <sub>JA</sub>	360 305	°C/W
Operating Temperature Range	T <sub>J</sub>	-65 to +125	°C
Storage Temperature Range	T <sub>STG</sub>	-65 to +125	°C

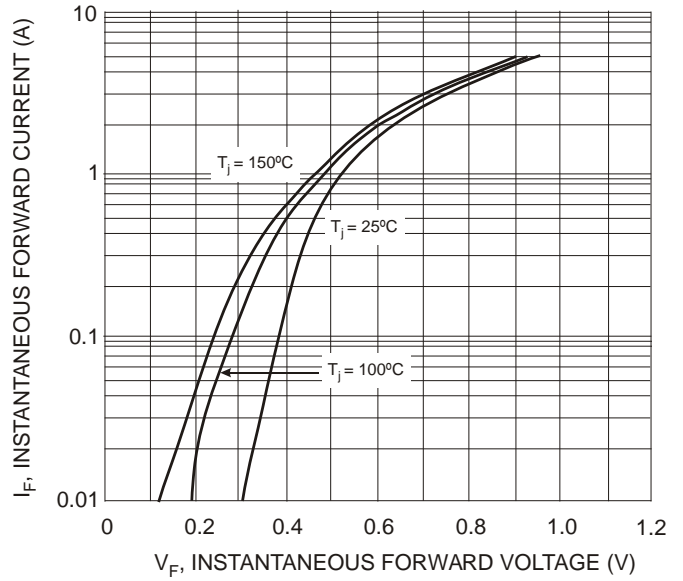
**Electrical Characteristics** @ T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 1)	V <sub>(BR)R</sub>	40			V	I <sub>R</sub> = 40µA
Forward Voltage	V <sub>F</sub>		0.48	0.55 0.51	V	I <sub>F</sub> = 1A, T <sub>J</sub> = 25°C I <sub>F</sub> = 1A, T <sub>J</sub> = 100°C
Leakage Current (Note 1)	I <sub>R</sub>		0.2	10 40 5	µA µA mA	V <sub>R</sub> = 5V, T <sub>J</sub> = 25°C V <sub>R</sub> = 40V, T <sub>J</sub> = 25°C V <sub>R</sub> = 40V, T <sub>A</sub> = 100°C

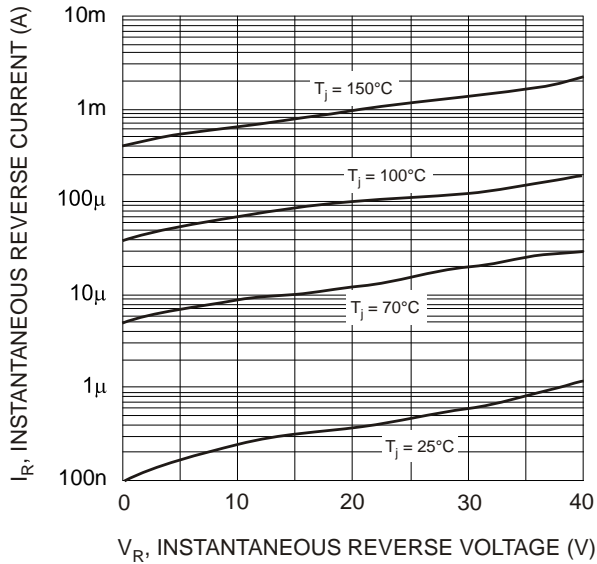
- Notes:
1. Short duration pulse test used to minimize self-heating effect.
  2. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.
  3. No purposefully added lead.
  4. Diodes Inc.'s "Green" policy can be found on our website at [http://www.diodes.com/products/lead\\_free/index.php](http://www.diodes.com/products/lead_free/index.php).
  5. Part mounted on polyimide board with pad sizes 0.24" x 0.16".
  6. Part mounting such that R<sub>JA</sub> = 175°C/W.



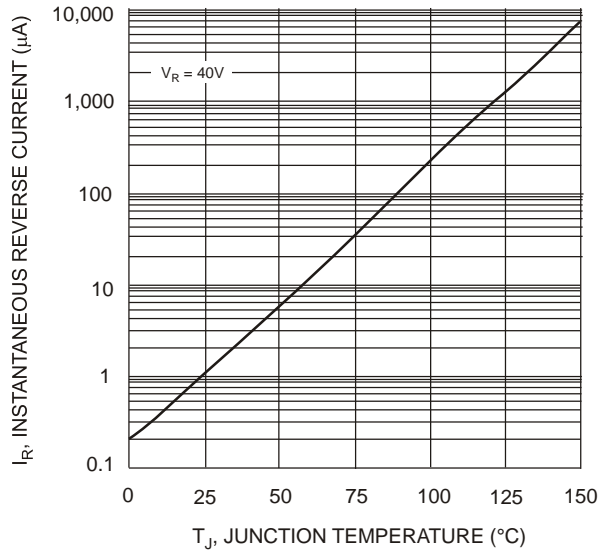
$T_A$ , AMBIENT TEMPERATURE ( $^{\circ}\text{C}$ )  
Fig. 1 Forward Current Derating



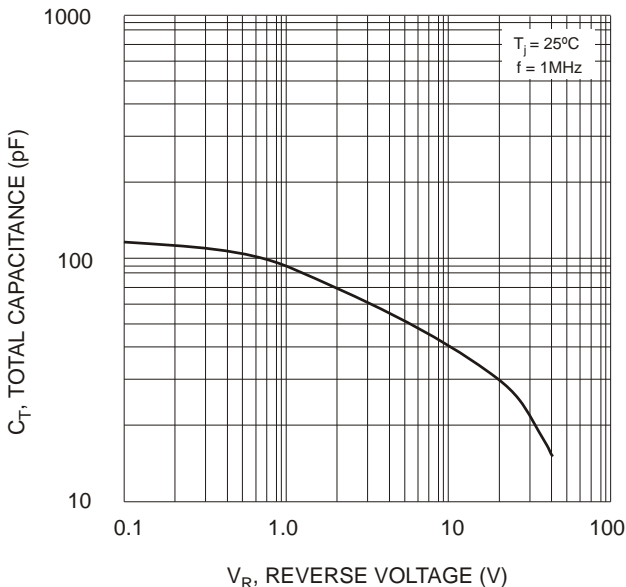
$V_F$ , INSTANTANEOUS FORWARD VOLTAGE (V)  
Fig. 2 Typical Forward Characteristics



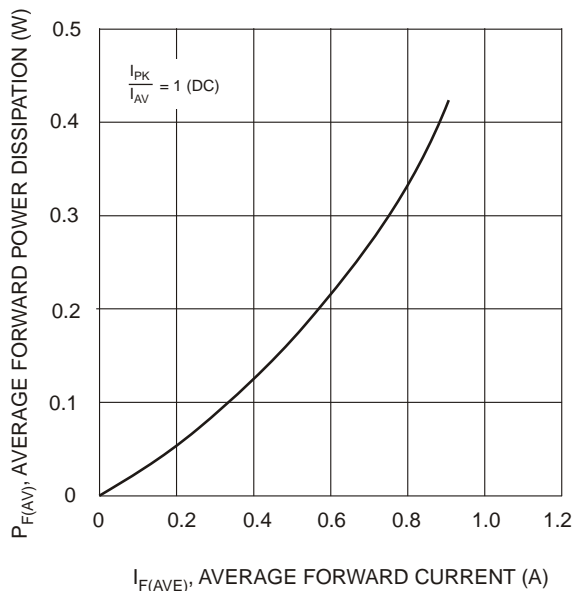
$V_R$ , INSTANTANEOUS REVERSE VOLTAGE (V)  
Fig. 3 Typical Reverse Current vs. Reverse Voltage



$T_j$ , JUNCTION TEMPERATURE ( $^{\circ}\text{C}$ )  
Fig. 4 Typical Reverse Current vs. Junction Temperature



$V_R$ , REVERSE VOLTAGE (V)  
Fig. 5 Typical Total Capacitance vs. Reverse Voltage



$I_{F(AVE)}$ , AVERAGE FORWARD CURRENT (A)  
Fig. 6 Forward Power Derating

**Ordering Information** (Note 7)

Device	Packaging	Shipping
B140HW-7	SOD-123	3000/Tape & Reel

Notes: 7. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**



LO = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: S = 2005)  
 M = Month (ex: 9 = September)

Date Code Key

Year	2005	2006	2007	2008	2009
Code	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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