

**1.0A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER**
**Features**

- Guard Ring Die Construction for Transient Protection
- 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-020D
- Terminals: Finish — 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** @ $T_A = 25^\circ\text{C}$  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	$V_{RRM}$	40	V
Working Peak Reverse Voltage	$V_{RWM}$		
DC Blocking Voltage	$V_R$		
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 $t_p = 2\mu\text{s}$ square wave, $f = 1\text{KHz}$	$I_{RRM}$	0.5	A
Non-Repetitive Peak Reverse Current $t_p = 100\mu\text{s}$ square wave	$I_{RSM}$	1.0	A

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 2) (Note 5)	$P_D$	350 410	mW
Typical Thermal Resistance Junction to Ambient (Note 2) (Note 5)	$R_{\theta JA}$	304 251	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +125	$^\circ\text{C}$

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 1)	$V_{(BR)R}$	40	—	—	V	$I_R = 40\mu\text{A}$
Forward Voltage	$V_F$	—	0.52 0.48	0.55 0.51	V	$I_F = 1\text{A}, T_J = 25^\circ\text{C}$ $I_F = 1\text{A}, T_J = 100^\circ\text{C}$
Leakage Current (Note 1)	$I_R$	—	—	10 40 5	$\mu\text{A}$ $\mu\text{A}$ mA	$V_R = 5\text{V}, T_J = 25^\circ\text{C}$ $V_R = 40\text{V}, T_J = 25^\circ\text{C}$ $V_R = 40\text{V}, T_A = 100^\circ\text{C}$

- 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  $0.24" \times 0.16"$ .
  6. Part mounting such that  $R_{\theta JA} = 175^\circ\text{C}/\text{W}$ .

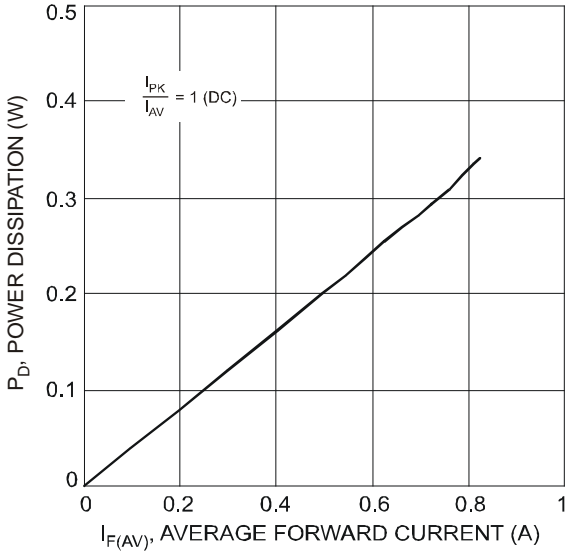


Fig. 1 Forward Power Dissipation

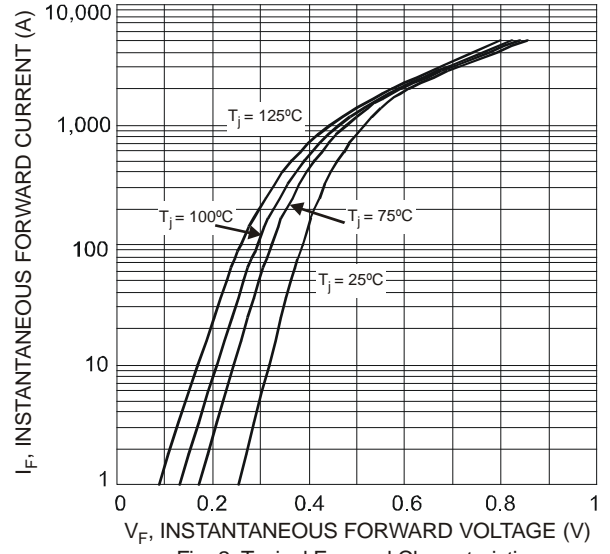


Fig. 2 Typical Forward Characteristics

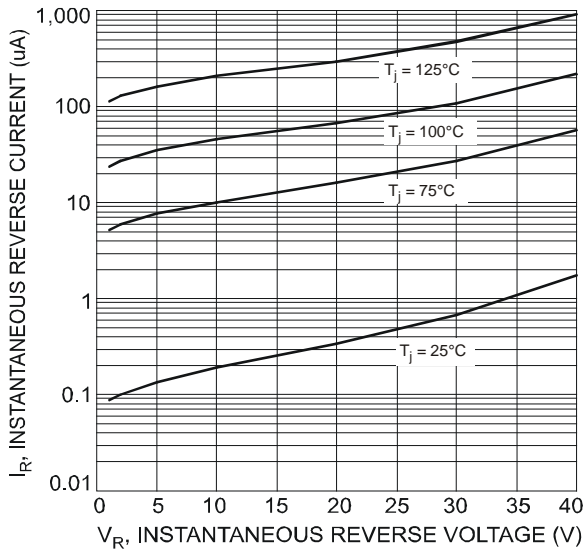


Fig. 3 Typical Reverse Characteristics

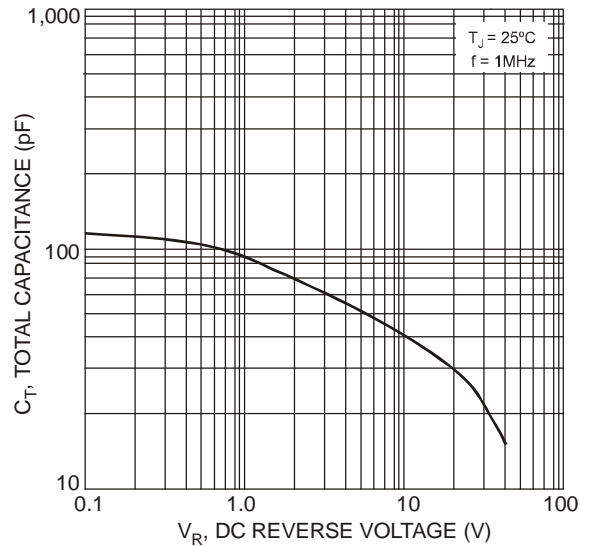


Fig. 4 Total Capacitance vs. Reverse Voltage

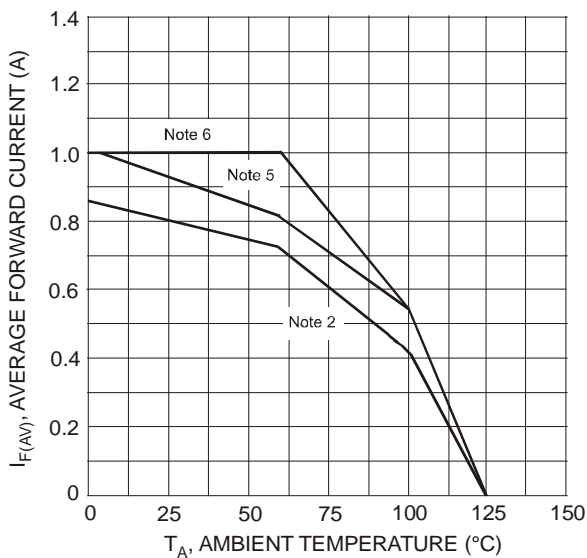


Fig. 5 Forward Current Derating Curve

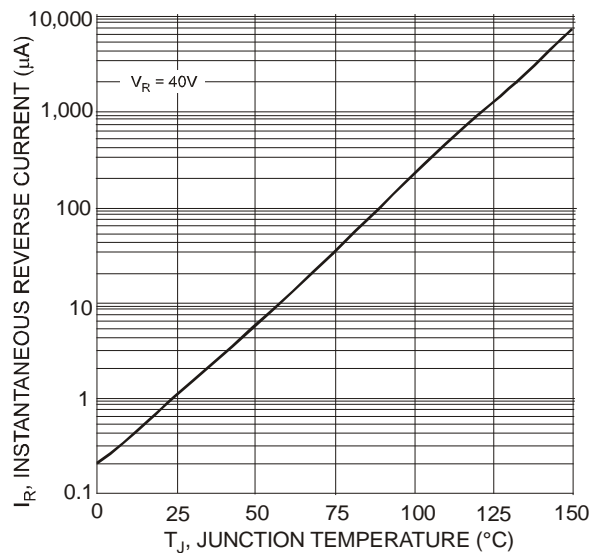


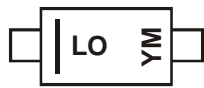
Fig. 6 Typical Reverse Current vs. Junction Temperature

### Ordering Information (Note 7)

Part Number	Case	Packaging
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)

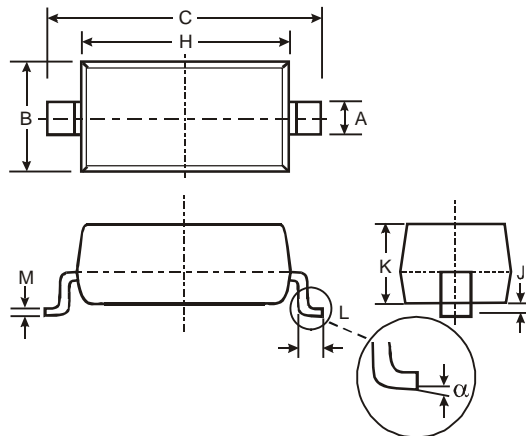
#### Date Code Key

Year	2005	2006	2007	2008	2009	2010	2011	2012
Code	S	T	U	V	W	X	Y	Z

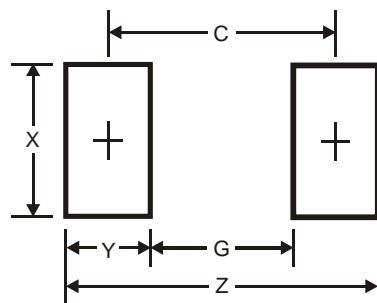
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

### 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
$\alpha$	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

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