

## Product Summary

$V_R$ (V)	$I_F$ (A)	$V_F$ Max (V) @ +25°C	$I_R$ Max (μA) @ +25°C
100	0.15	1.0	2.0

## Description and Applications

This Schottky Barrier diode is designed to meet the stringent requirements of AEC-Q101. It is ideally suited to use as:

- Polarity Protection Diode
- Re-Circulating Diode
- Switching Diode

## Features and Benefits

- High Breakdown Voltage
- Low Turn-On Voltage
- Guard Ring Construction for Transient Protection
- **Totally Lead-Free & 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)

## Mechanical Data

- Case: SOD123
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Matte Tin Finish Annealed over Alloy 42 Leadframe. Terminals: Solderable per MIL-STD-202, Method 208 (E3)
- Polarity: Cathode Band
- Weight: 0.01 grams (Approximate)



Top View

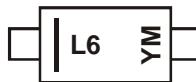
## Ordering Information (Note 5)

Part Number	Case	Packaging
BAT46WQ-7-F	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](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/product\\_compliance\\_definitions.html](http://www.diodes.com/product_compliance_definitions.html).
5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



L6 = Product Type Marking Code  
 YM = Date Code Marking  
 Y = Year (ex: D = 2016)  
 M = Month (ex: 9 = September)

### Date Code Key

Year	2004	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Code	R	B	C	D	E	F	G	H	I	J	K	L
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

**Maximum Ratings** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$		
Working Peak Reverse Voltage	$V_{RWM}$	100	V
DC Blocking Voltage	$V_R$		
Forward Continuous Current	$I_F$	150	mA
Repetitive Peak Forward Current (Note 6) @ $t_P < 1.0\text{s}$ , Duty Cycle < 50%	$I_{FRM}$	350	mA
Forward Surge Forward Current (Note 6) @ $t_P = 10\text{ms}$	$I_{FSM}$	750	mA

**Thermal Characteristics**

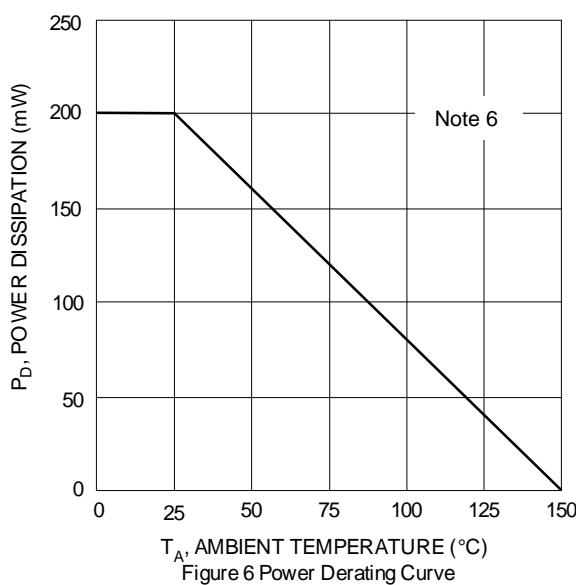
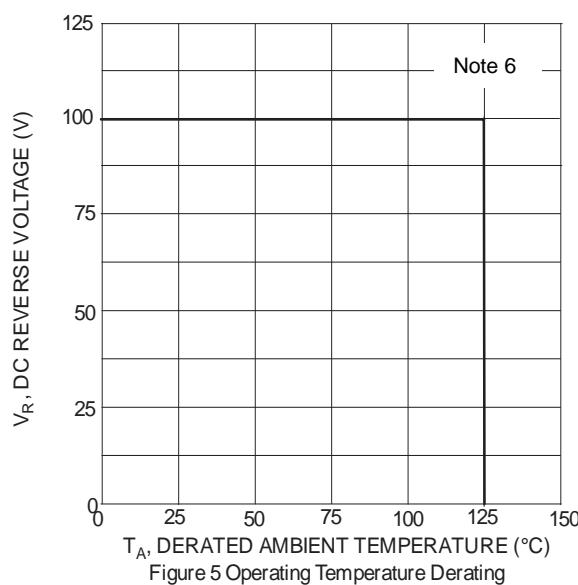
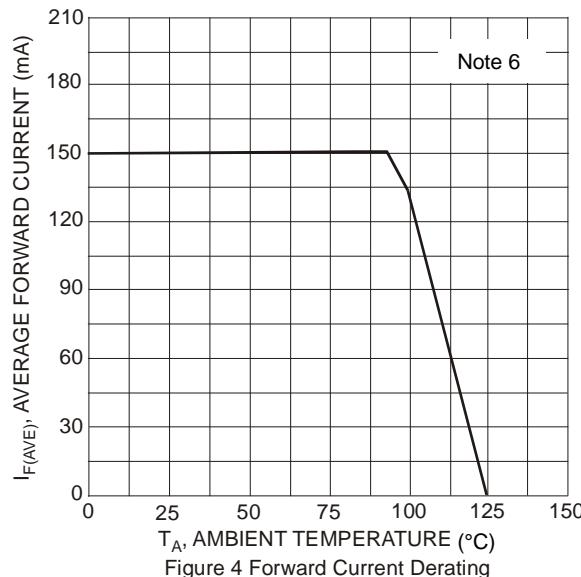
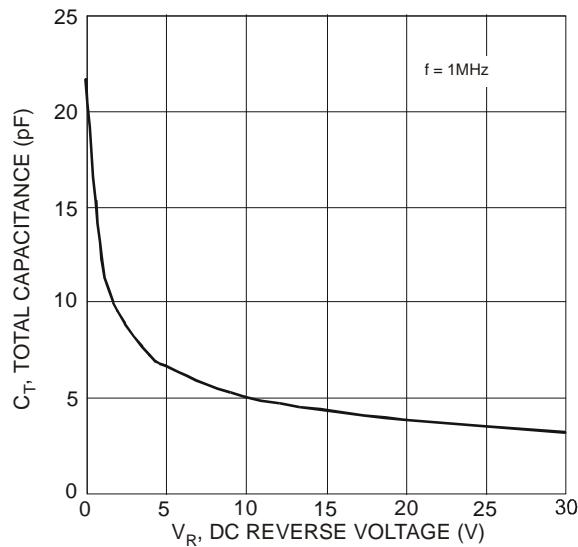
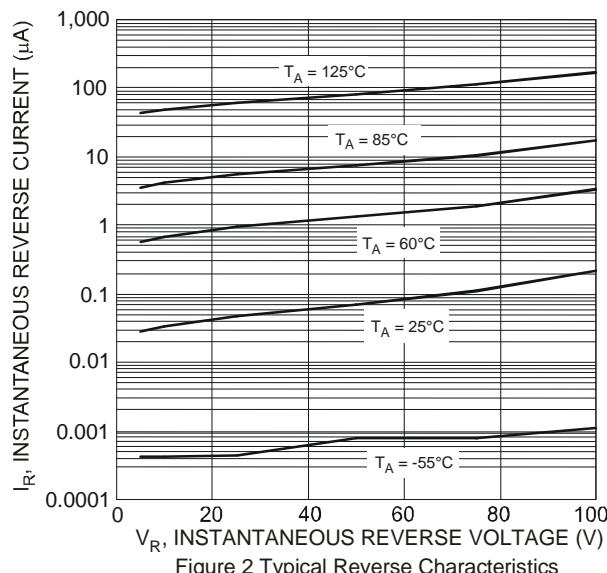
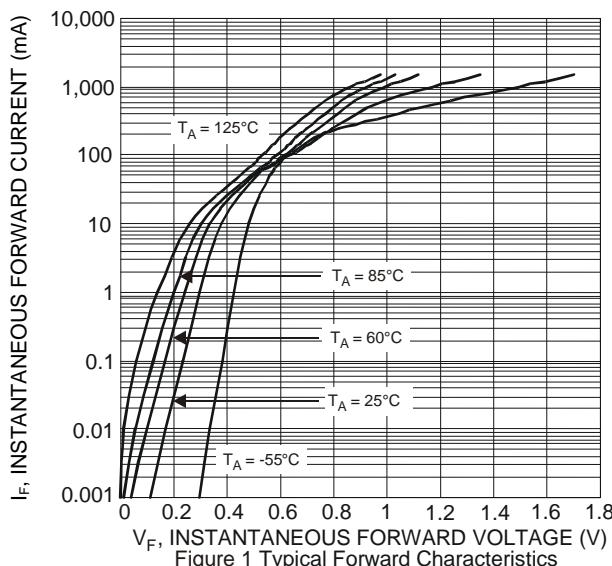
Characteristic	Symbol	Value	Unit
Power Dissipation	$P_D$	200	mW
Thermal Resistance, Junction to Ambient Air (Note 6)	$R_{\theta JA}$	420	
Thermal Resistance, Junction to Ambient Air (Note 7)		370	°C/W
Operating Temperature Range	$T_J$	-55 to +125	°C
Storage Temperature Range	$T_{STG}$	-55 to +150	°C

**Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 8)	$V_{(BR)R}$	100	—	—	V	$I_R = 100\mu\text{A}$
Forward Voltage	$V_F$	—	—	0.25 0.45 1.00	V	$I_F = 0.1\text{mA}$ $I_F = 10\text{mA}$ $I_F = 250\text{mA}$
Peak Reverse Current (Note 8)	$I_R$	—	—	0.3 5.0 0.5 7.5 1.0 15 2.0 20	$\mu\text{A}$	$V_R = 1.5\text{V}$ $V_R = 1.5\text{V}$ , $T_J = +60^\circ\text{C}$ $V_R = 10\text{V}$ $V_R = 10\text{V}$ , $T_J = +60^\circ\text{C}$ $V_R = 50\text{V}$ $V_R = 50\text{V}$ , $T_J = +60^\circ\text{C}$ $V_R = 75\text{V}$ $V_R = 75\text{V}$ , $T_J = +60^\circ\text{C}$
Total Capacitance	$C_T$	—	20 12	—	pF	$V_R = 0\text{V}$ , $f = 1.0\text{MHz}$ $V_R = 1.0\text{V}$ , $f = 1.0\text{MHz}$

Notes:

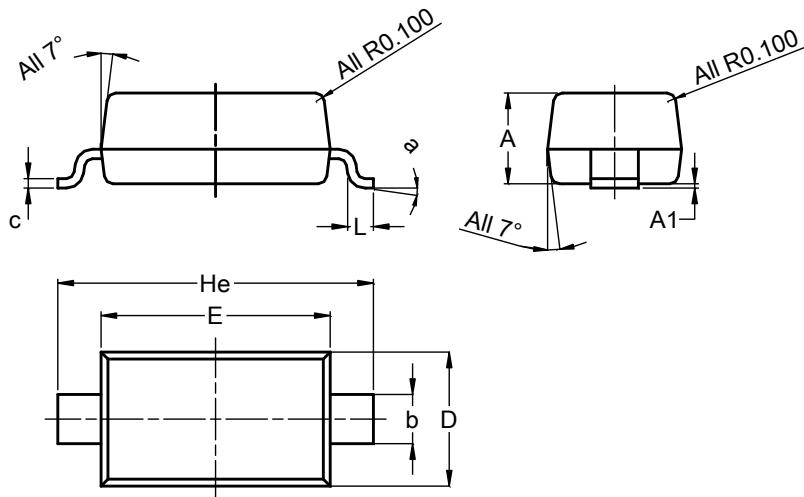
6. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.
7. Part mounted on Polyimide board with recommended pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.
8. Short duration pulse test used to minimize self-heating effect.



## Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOD123



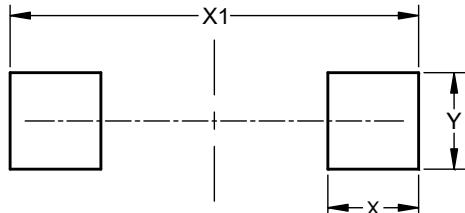
SOD123			
Dim	Min	Max	Typ
A	1.00	1.35	1.05
A1	0.00	0.10	0.05
b	0.52	0.62	0.57
c	0.10	0.15	0.11
D	1.40	1.70	1.55
E	2.55	2.85	2.65
He	3.55	3.85	3.65
L	0.25	0.40	0.30
a	0°	8°	--

All Dimensions in mm

## Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOD123



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

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