

## Product Summary

$V_R$ (V)	$I_F$ (A)	$V_{F\text{ MAX}}$ (V) @250mA +25°C	$I_{R\text{ MAX}}$ (μA) @ 75V +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**
- **An Automotive-Compliant Part is Available Under Separate Datasheet ([BAT46WQ](#))**

## 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  $\text{E3}$
- Polarity: Cathode Band
- Weight: 0.01 grams (Approximate)



Top View

## Ordering Information (Note 4)

Part Number	Case	Packaging
BAT46W-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. 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<sub>A</sub> = +25°C, unless otherwise specified.)

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>	100	V
Forward Continuous Current	I <sub>F</sub>	150	mA
Repetitive Peak Forward Current (Note 5) @ t <sub>p</sub> < 1.0s, Duty Cycle < 50%	I <sub>FRM</sub>	350	mA
Forward Surge Forward Current (Note 5) @ t <sub>p</sub> = 10ms	I <sub>FSM</sub>	750	mA

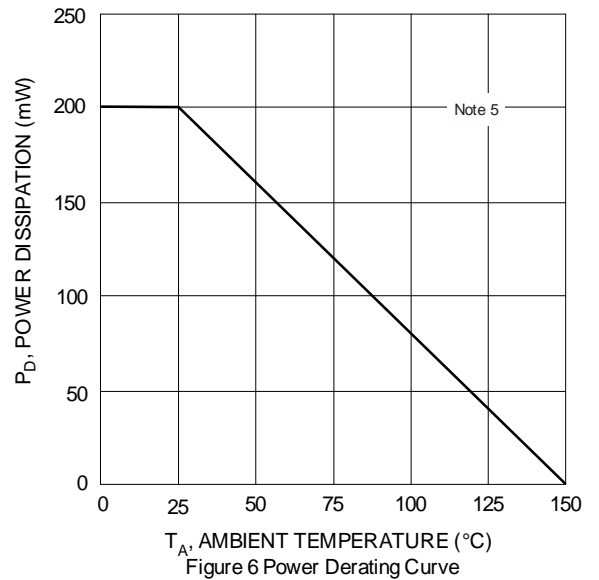
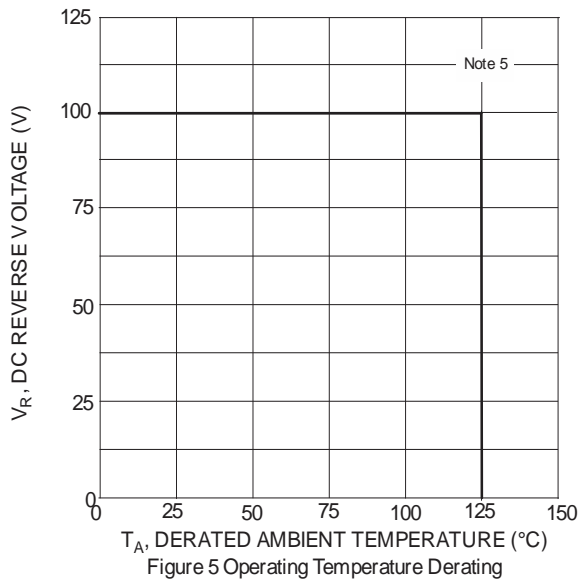
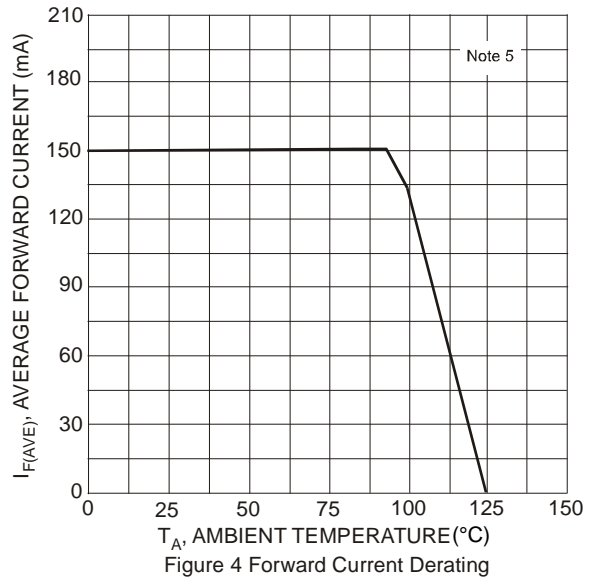
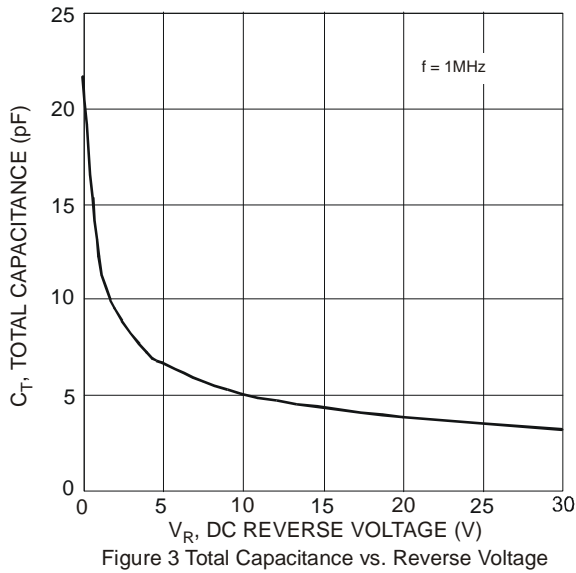
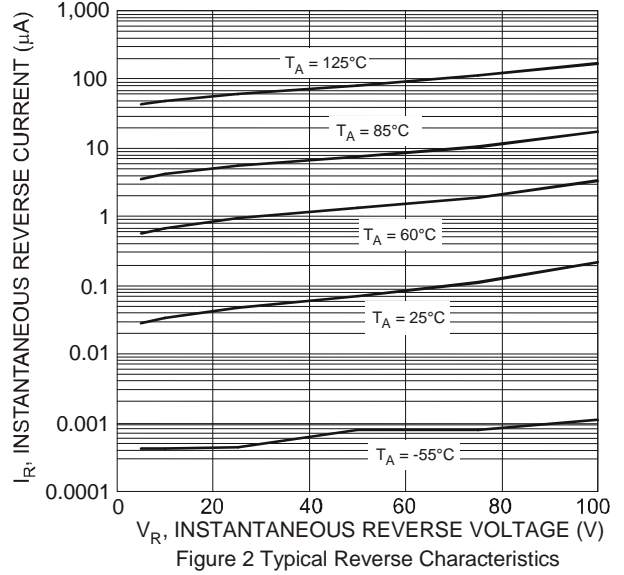
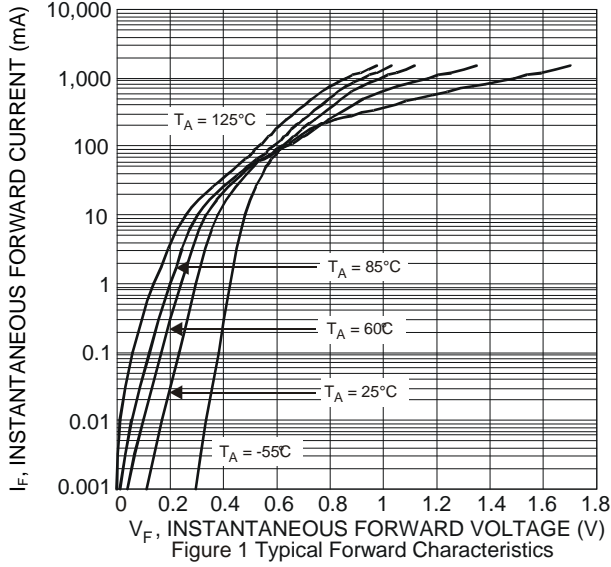
**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation	P <sub>D</sub>	200	mW
Thermal Resistance, Junction to Ambient Air (Note 5)	R <sub>θJA</sub>	420	°C/W
Thermal Resistance, Junction to Ambient Air (Note 6)		370	
Operating Temperature Range	T <sub>J</sub>	-55 to +125	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to +150	°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 7)	V <sub>(BR)R</sub>	100	—	—	V	I <sub>R</sub> = 100μA
Forward Voltage	V <sub>F</sub>	—	—	0.25 0.45 1.00	V	I <sub>F</sub> = 0.1mA I <sub>F</sub> = 10mA I <sub>F</sub> = 250mA
Peak Reverse Current (Note 7)	I <sub>R</sub>	—	—	0.3 5.0 0.5 7.5 1.0 15 2.0 20	μA	V <sub>R</sub> = 1.5V V <sub>R</sub> = 1.5V, T <sub>J</sub> = +60°C V <sub>R</sub> = 10V V <sub>R</sub> = 10V, T <sub>J</sub> = +60°C V <sub>R</sub> = 50V V <sub>R</sub> = 50V, T <sub>J</sub> = +60°C V <sub>R</sub> = 75V V <sub>R</sub> = 75V, T <sub>J</sub> = +60°C
Total Capacitance	C <sub>T</sub>	—	20 12	—	pF	V <sub>R</sub> = 0V, f = 1.0MHz V <sub>R</sub> = 1.0V, f = 1.0MHz

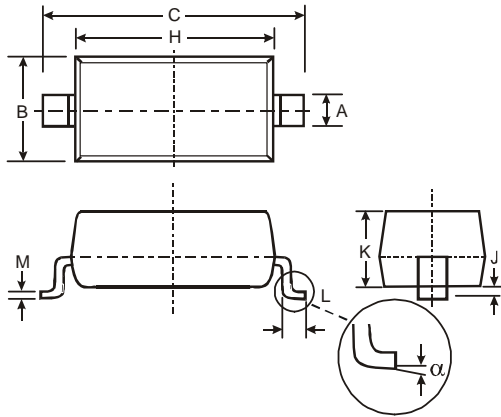
- Notes:
- Part mounted on FR-4 board with recommended pad layout, which can be found on our website at [http://www.diodes.com/product\\_compliance\\_definitions.html](http://www.diodes.com/product_compliance_definitions.html).
  - Part mounted on Polyimide board with recommended pad layout, which can be found on our website at [http://www.diodes.com/product\\_compliance\\_definitions.html](http://www.diodes.com/product_compliance_definitions.html).
  - 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**

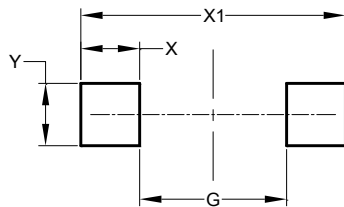


SOD123		
Dim	Min	Max
A	0.55 Typ	
B	1.40	1.70
C	3.55	3.85
H	2.55	2.85
J	0.00	0.10
K	1.00	1.35
L	0.25	0.40
M	0.10	0.15
$\alpha$	0	8°
All Dimensions in mm		

**Suggested Pad Layout**

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

**SOD123**



Dimensions	Value (in mm)
G	2.250
X	0.900
X1	4.050
Y	0.950

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