

## 250mA, 100V Schottky Barrier Diode

### FEATURES

- High breakdown voltage
- Low forward voltage
- Surface mount device type
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

### APPLICATIONS

- High-speed switching
- Voltage clamping
- Reverse polarity protection

### MECHANICAL DATA

- Case: SOD-123
- Molding compound meets UL 94 V-0 flammability rating
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Polarity: Indicated by cathode band
- Weight: 11.00mg (approximately)

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	250	mA
$V_{RRM}$	100	V
$V_F$ at $I_F = 10\text{mA}$	0.45	V
$T_{J\text{MAX}}$	125	°C
Package	SOD-123	
Configuration	Single die	



**SOD-123**



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	BAT46GW	UNIT
Marking code on the device		S9	
Power dissipation	$P_D$	200	mW
Non-repetitive peak reverse voltage	$V_{RM}$	100	V
Repetitive peak reverse voltage	$V_{RRM}$	100	V
RMS reverse voltage	$V_{R(RMS)}$	70	V
Forward current	$I_F$	250	mA
Junction temperature range	$T_J$	-55 to +125	°C
Storage temperature range	$T_{STG}$	-55 to +125	°C

<b>THERMAL PERFORMANCE</b>			
<b>PARAMETER</b>	<b>SYMBOL</b>	<b>TYP</b>	<b>UNIT</b>
Junction-to-ambient thermal resistance	$R_{\theta JA}$	331	$^{\circ}C/W$

**Note:** Units mounted on PCB (10mm x 5mm Cu pad test board)

<b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^{\circ}C$ unless otherwise noted)						
<b>PARAMETER</b>	<b>CONDITIONS</b>	<b>SYMBOL</b>	<b>MIN</b>	<b>TYP</b>	<b>MAX</b>	<b>UNIT</b>
Forward voltage <sup>(1)</sup>	$I_F = 0.1mA, T_J = 25^{\circ}C$	$V_F$	-	-	0.25	V
	$I_F = 10mA, T_J = 25^{\circ}C$		-	0.33	0.45	V
	$I_F = 250mA, T_J = 25^{\circ}C$		-	0.78	1.00	V
Reverse voltage <sup>(2)</sup>	$I_R = 100\mu A, T_J = 25^{\circ}C$	$V_R$	100	-	-	V
Reverse current <sup>(2)</sup>	$V_R = 10V, T_J = 25^{\circ}C$	$I_R$	-	-	0.8	$\mu A$
	$V_R = 50V, T_J = 25^{\circ}C$		-	-	2.0	$\mu A$
	$V_R = 75V, T_J = 25^{\circ}C$		-	-	5.0	$\mu A$
Junction capacitance	$f = 1MHz, V_R = 0V$	$C_J$	-	14.5	20	pF

**Notes:**

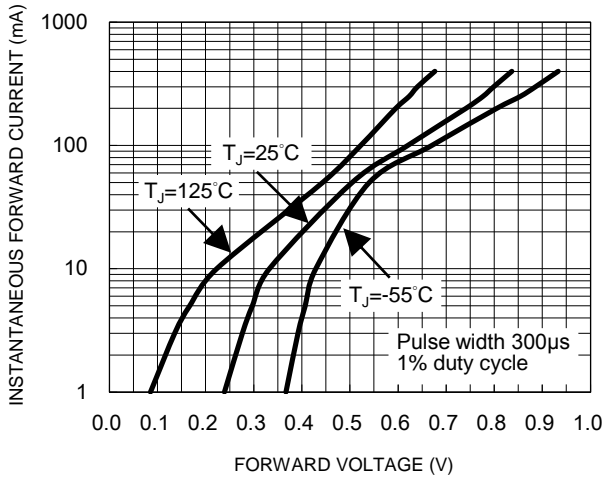
1. Pulse test with PW = 0.3ms
2. Pulse test with PW = 30ms

<b>ORDERING INFORMATION</b>		
<b>ORDERING CODE</b>	<b>PACKAGE</b>	<b>PACKING</b>
BAT46GW RHG	SOD-123	3K / 7" Reel

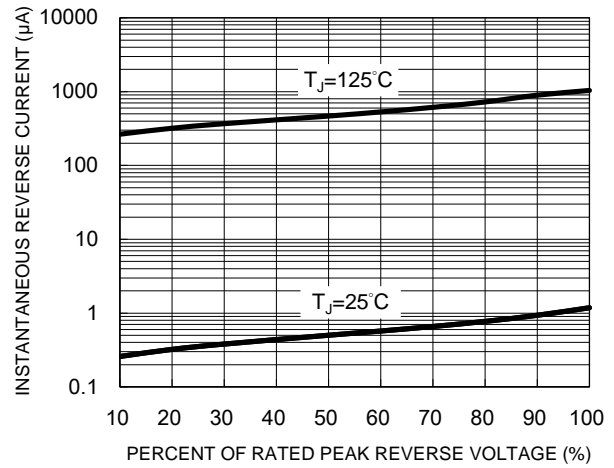
**CHARACTERISTICS CURVES**

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

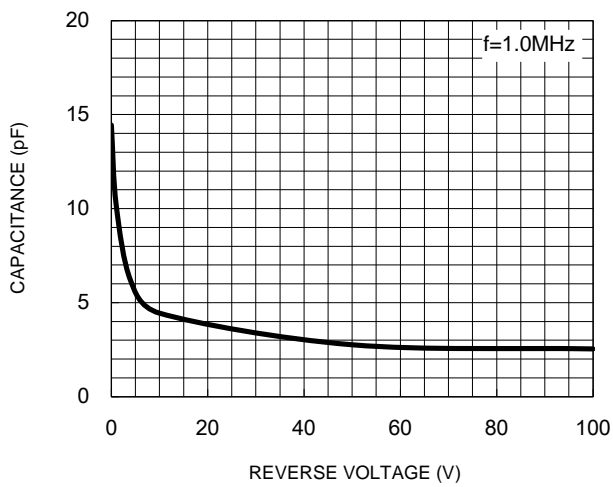
**Fig.1 Typical Forward Characteristics**



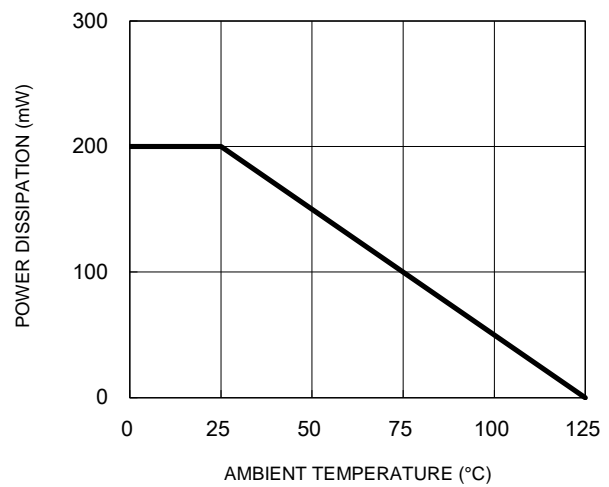
**Fig.2 Typical Reverse Characteristics**



**Fig.3 Typical Junction Capacitance**

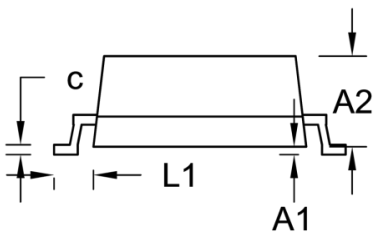
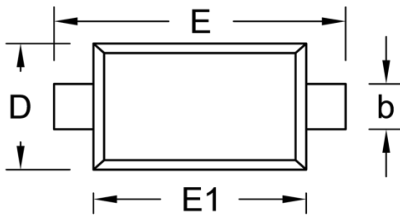


**Fig.4 Power Derating Curve**



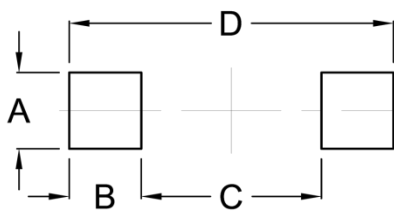
**PACKAGE OUTLINE DIMENSION**

SOD-123



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A1	-	0.10	-	0.004
A2	0.95	1.35	0.037	0.053
b	0.45	0.70	0.018	0.028
c	0.05	0.15	0.002	0.006
D	1.40	1.80	0.055	0.071
E	3.55	3.85	0.140	0.152
E1	2.55	2.85	0.100	0.112
L1	0.50 (REF)		0.020 (REF)	

**SUGGEST PAD LAYOUT**



Symbol	Unit (mm)	Unit (inch)
A	0.95	0.037
B	0.90	0.035
C	2.25	0.089
D	4.05	0.159

## Notice

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf assumes no responsibility or liability for any errors or inaccuracies.

Purchasers are solely responsible for the choice, selection, and use of TSC products and TSC assumes no liability for application assistance or the design of Purchasers' products.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.