

## 200mA, 120 - 250V High Voltage SMD Switching Diode

### FEATURES

- Low power loss, high efficiency
- Ideal for automated placement
- High surge current capability
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant
- Halogen-free according to IEC 61249-2-21

### APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- On-board DC/DC converter

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_F$	200	mA
$V_{RRM}$	120 - 250	V
$I_{FSM}$	2.5	A
$V_F$ at $I_F = 200mA$	1.25	V
$T_{J\ MAX}$	150	°C
Package	SOD-323F	
Configuration	Single die	



### MECHANICAL DATA

- Case: SOD-323F
- Molding compound meets UL 94V-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: 4.50mg (approximately)



**SOD-323F**



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	BAV19WS	BAV20WS	BAV21WS	UNIT
Marking code on the device		S5	S6	S7	
Power dissipation	$P_D$	200			mW
Average forward current	$I_F$	200			mA
Repetitive peak reverse voltage	$V_{RRM}$	120	200	250	V
Peak forward surge current	Pulse Width = 1s , Square Wave	0.5			A
	Pulse Width = 1μs , Square Wave				
Junction temperature range	$T_J$	-65 to +150			°C
Storage temperature range	$T_{STG}$	-65 to +150			°C

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

PARAMETER		CONDITIONS	SYMBOL	MIN	MAX	UNIT
Forward voltage <sup>(1)</sup>		$I_F = 100\text{mA}$ , $T_J = 25^\circ\text{C}$	$V_F$	-	1.00	V
		$I_F = 200\text{mA}$ , $T_J = 25^\circ\text{C}$		-	1.25	V
Reverse voltage	BAV19WS	$I_R = 100\mu\text{A}$ , $T_J = 25^\circ\text{C}$	$V_R$	120	-	V
	BAV20WS			200	-	V
	BAV21WS			250	-	V
Reverse current <sup>(2)</sup>	BAV19WS	$V_R = 100\text{V}$ $T_J = 25^\circ\text{C}$	$I_R$	-	0.1	$\mu\text{A}$
	BAV20WS	$V_R = 150\text{V}$ $T_J = 25^\circ\text{C}$		-	0.1	$\mu\text{A}$
	BAV21WS	$V_R = 200\text{V}$ $T_J = 25^\circ\text{C}$		-	0.1	$\mu\text{A}$
Junction capacitance		1MHz, $V_R = 0\text{V}$	$C_J$	-	5	pF
Reverse recovery time		$I_F = I_R = 30\text{mA}$ , $R_L = 100\Omega$ , $I_{rr} = 3\text{mA}$	$t_{rr}$	-	50	ns

**Notes:**

1. Pulse test with  $PW = 0.3\text{ms}$
2. Pulse test with  $PW = 30\text{ms}$

**ORDERING INFORMATION**

ORDERING CODE <sup>(1)(2)</sup>	PACKAGE	PACKING
BAVxWS RR	SOD-323F	3K / 7" Reel
BAVxWS RRG	SOD-323F	3K / 7" Reel
BAVxWS R9	SOD-323F	10K / 13" Reel
BAVxWS R9G	SOD-323F	10K / 13" Reel

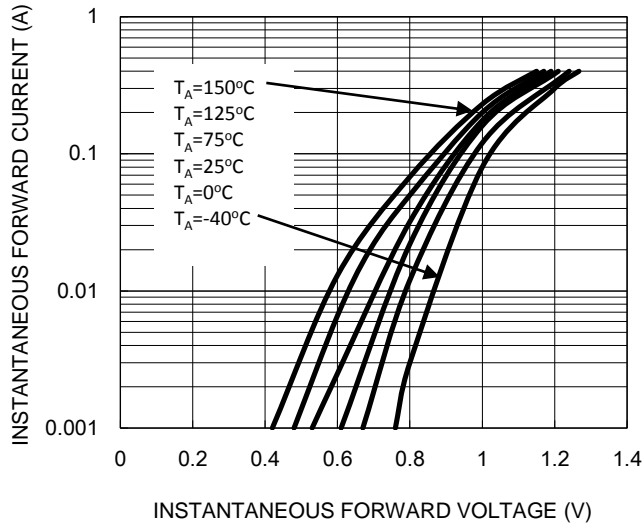
**Notes:**

1. "x" is device code from "19"(BAV19WS) to "21"(BAV21WS)
2. "G" means green compound (halogen-free)

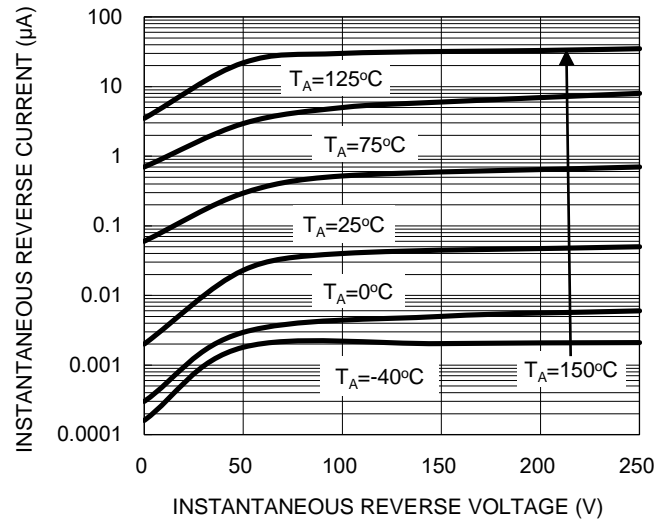
## CHARACTERISTICS CURVES

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

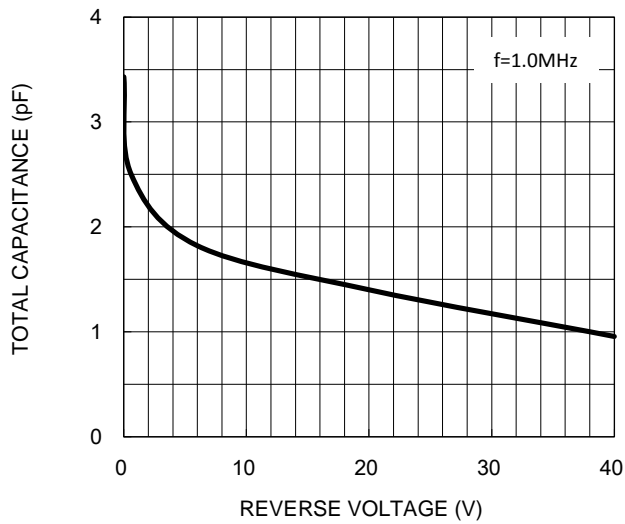
**Fig.1 Typical Forward Characteristics**



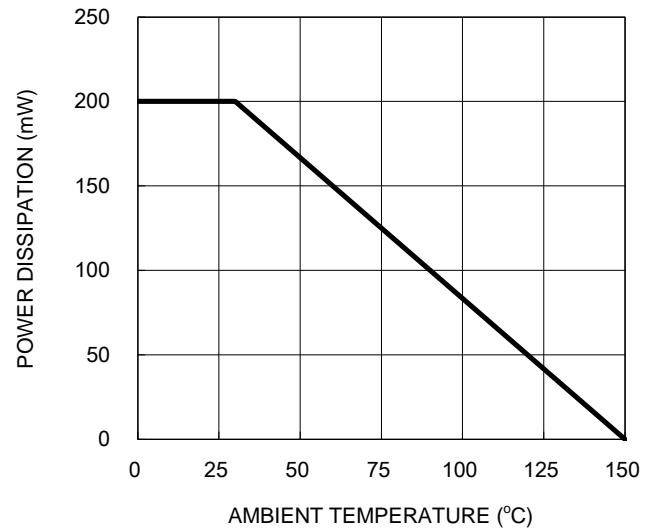
**Fig.2 Typical Reverse Characteristics**



**Fig.3 Typical Capacitance VS. Reverse Voltage**

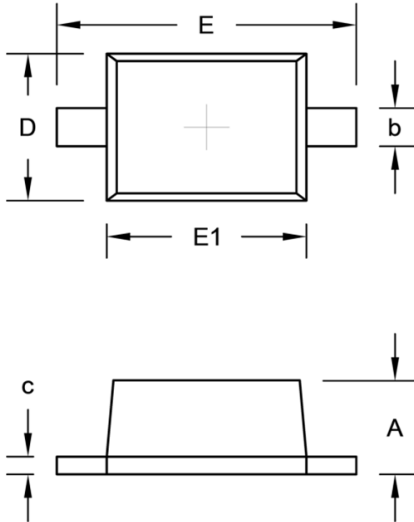


**Fig.4 Power Derating Curve**



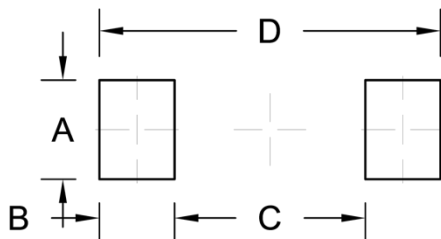
## PACKAGE OUTLINE DIMENSION

SOD-323F



DIM.	Unit (mm)		Unit (inch)	
	Min.	Max.	Min.	Max.
A	0.60	1.00	0.024	0.039
b	0.25	0.40	0.010	0.016
c	0.05	0.25	0.002	0.010
D	1.15	1.35	0.045	0.053
E	2.30	2.80	0.091	0.110
E1	1.60	1.80	0.063	0.071

## SUGGEST PAD LAYOUT



Symbol	Unit (mm)	Unit (inch)
A	0.83	0.033
B	0.63	0.025
C	1.60	0.063
D	2.86	0.113

## 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.

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Taiwan Semiconductor:

[BAV19WS](#) [BAV20WS](#) [BAV21WS](#) [BAV21WS RR](#) [BAV21WS RRG](#) [BAV19WS RRG](#) [BAV19WS RR](#) [BAV20WS](#)  
[RRG](#) [BAV20WS RR](#) [BAV21WS R9G](#)