

## 200mA, 120V - 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

### APPLICATIONS

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

### 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

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


**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
Non-repetitive square wave peak forward current	$t = 1\text{s}$	0.5			A
	$t = 1\mu\text{s}$	2.5			A
Junction temperature range	$T_J$	-65 to +150			°C
Storage temperature range	$T_{STG}$	-65 to +150			°C

<b>ELECTRICAL SPECIFICATIONS</b> ( $T_A = 25^\circ\text{C}$ unless otherwise noted)						
<b>PARAMETER</b>		<b>CONDITIONS</b>	<b>SYMBOL</b>	<b>MIN</b>	<b>MAX</b>	<b>UNIT</b>
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  $PW = 30\text{ms}$

<b>ORDERING INFORMATION</b>		
<b>ORDERING CODE</b> <sup>(1)(2)</sup>	<b>PACKAGE</b>	<b>PACKING</b>
BAVxWS RR	SOD-323F	3,000 / 7" Tape & Reel
BAVxWS RRG	SOD-323F	3,000 / 7" Tape & Reel
BAVxWS R9	SOD-323F	10,000 / 13" Tape & Reel
BAVxWS R9G	SOD-323F	10,000 / 13" Tape & Reel

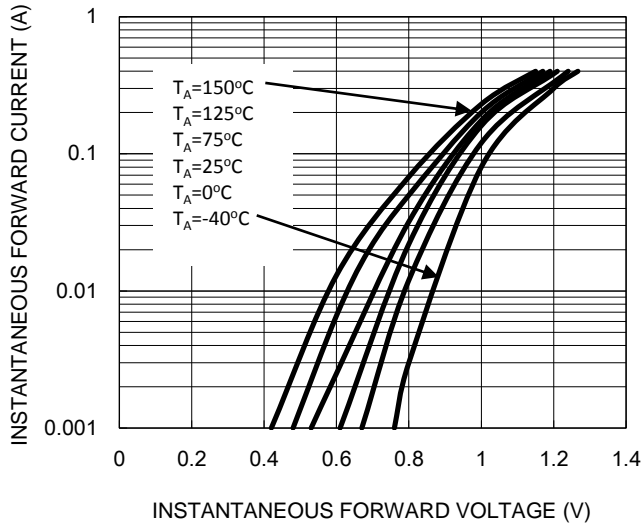
**Notes:**

1. "x" is device code from "19"(BAV19WS) to "21"(BAV21WS)
2. "G" means green compound (halogen-free according to IEC 61249-2-21)

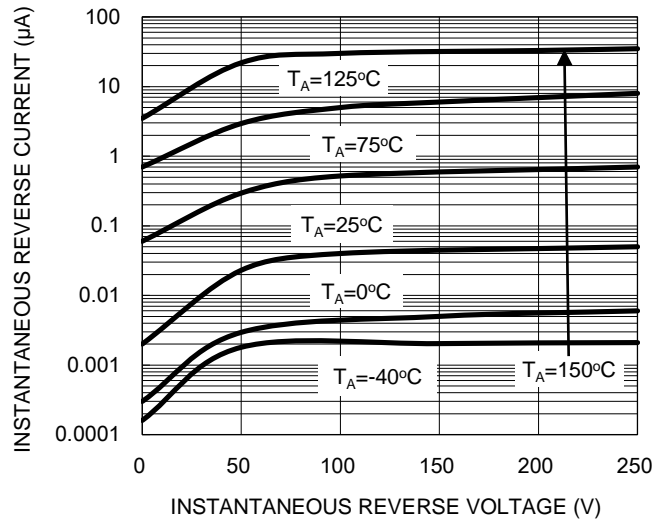
**CHARACTERISTICS CURVES**

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

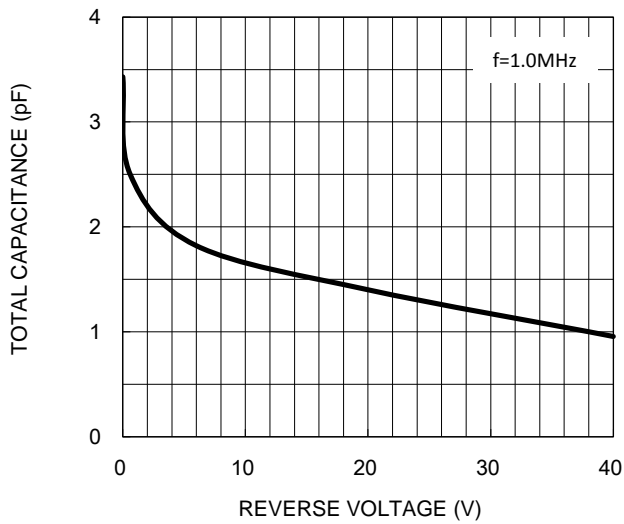
**Fig.1 Typical Forward Characteristics**



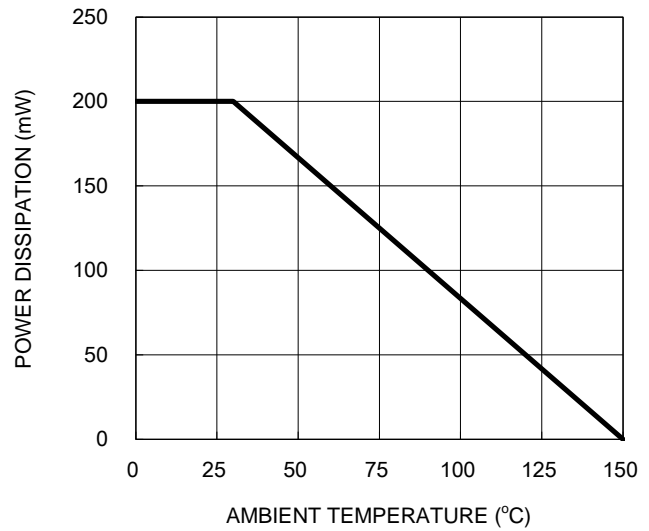
**Fig.2 Typical Reverse Characteristics**



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

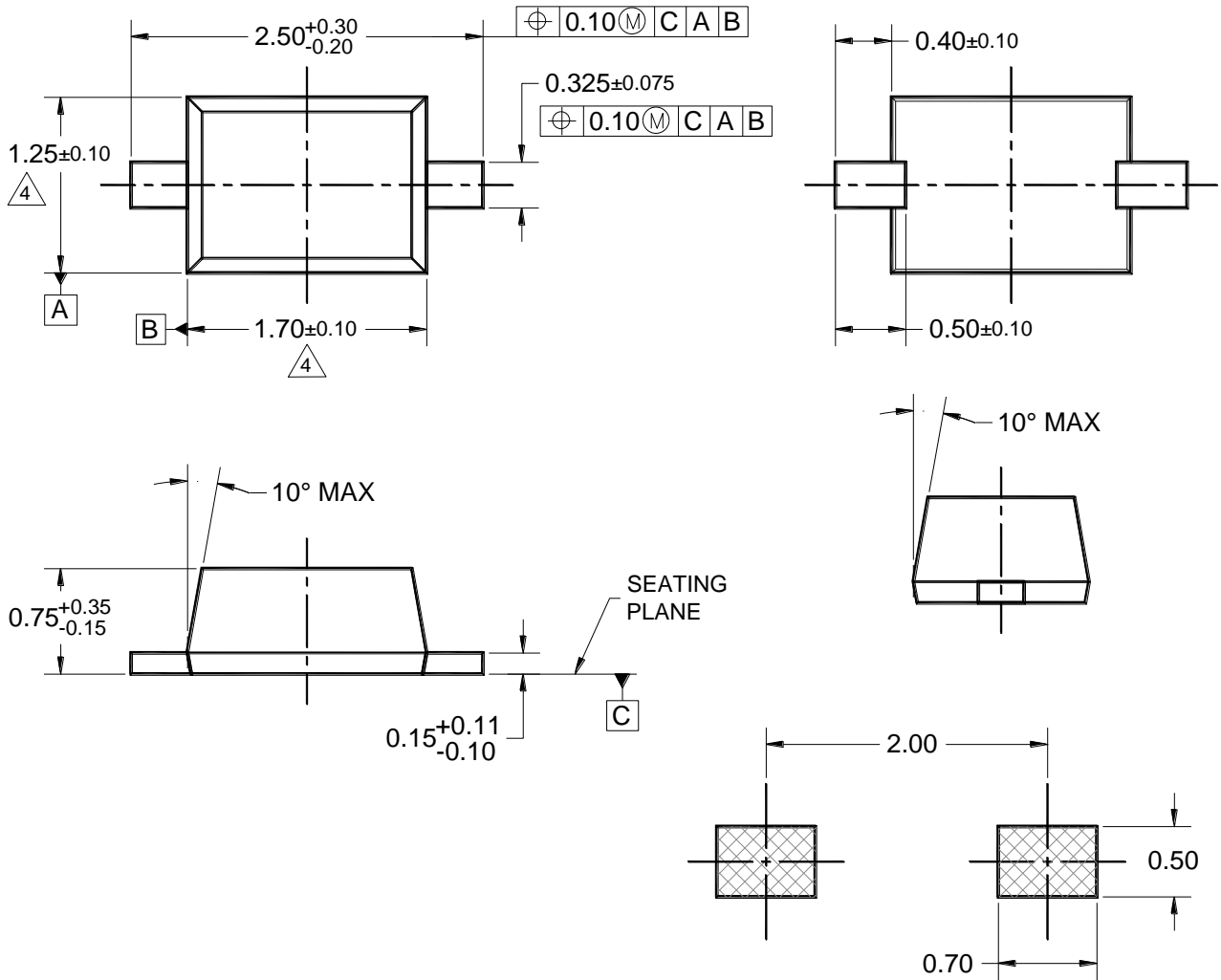


**Fig.4 Power Derating Curve**

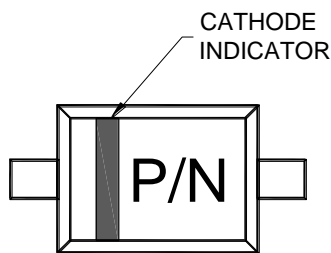


**PACKAGE OUTLINE DIMENSIONS**

**SOD-323F**



**SUGGESTED PAD LAYOUT**



**MARKING DIAGRAM**

P/N = MARKING CODE

**NOTES: UNLESS OTHERWISE SPECIFIED**

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
3. PACKAGE OUTLINE REFERENCE: EIAJ ED-7500A-1, SC-90.

**4** MOLDED PLASTIC BODY LATERAL DIMENSIONS DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.

5. DWG NO. REF: HQ2SD07-SOD323F-018 REV A.