

## 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
- Compliant to RoHS directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- 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
$I_{F(AV)}$	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 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:  $4.5 \pm 0.5$  mg (approximately)



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 = 1 s , Square Wave	0.5			A
	Pulse Width = 1 $\mu\text{s}$ , Square Wave				
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 per diode <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	
Reverse voltage	BAV19WS	$I_R = 100\mu\text{A}, T_J = 25^\circ\text{C}$	$V_R$	120	-	V
	BAV20WS			200	-	
	BAV21WS			250	-	
Reverse current <sup>(2)</sup>	BAV19WS	$V_R = 100\text{V}, T_J = 25^\circ\text{C}$	$I_R$	-	100	nA
	BAV20WS	$V_R = 150\text{V}, T_J = 25^\circ\text{C}$				
	BAV21WS	$V_R = 200\text{V}, T_J = 25^\circ\text{C}$				
Junction capacitance		1 MHz, $V_R = 0\text{V}$	$C_J$	-	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:**

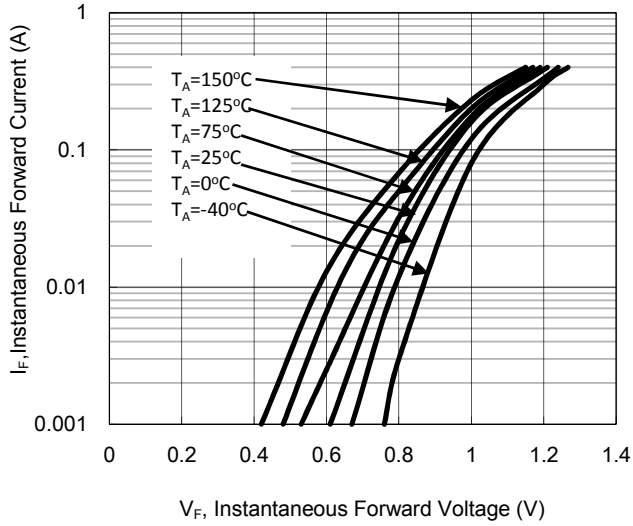
1. Pulse test with  $PW = 0.3\text{ ms}$
2. Pulse test with  $PW = 30\text{ ms}$

<b>ORDERING INFORMATION</b>		
<b>PART NO.</b>	<b>PACKAGE</b>	<b>PACKING</b>
BAV19WS RRG	SOD-323F	3K / 7" Reel
BAV19WS RR	SOD-323F	3K / 7" Reel
BAV19WS R9G	SOD-323F	10K / 13" Reel
BAV19WS R9	SOD-323F	10K / 13" Reel
BAV20WS RRG	SOD-323F	3K / 7" Reel
BAV20WS RR	SOD-323F	3K / 7" Reel
BAV20WS R9G	SOD-323F	10K / 13" Reel
BAV20WS R9	SOD-323F	10K / 13" Reel
BAV21WS RRG	SOD-323F	3K / 7" Reel
BAV21WS RR	SOD-323F	3K / 7" Reel
BAV21WS R9G	SOD-323F	10K / 13" Reel
BAV21WS R9	SOD-323F	10K / 13" Reel

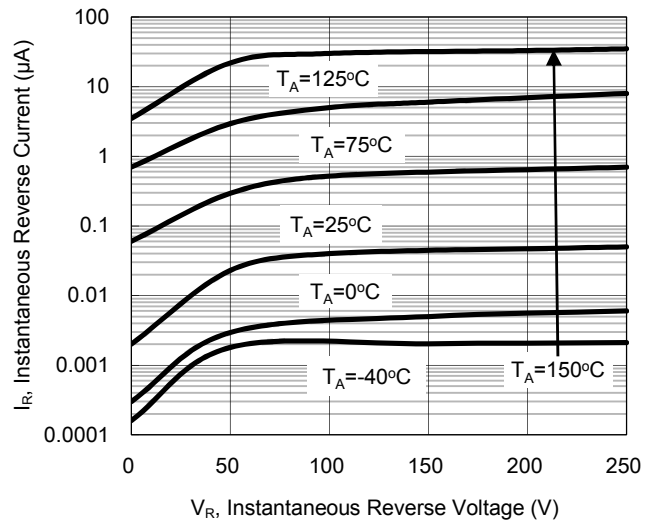
**CHARACTERISTICS CURVES**

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

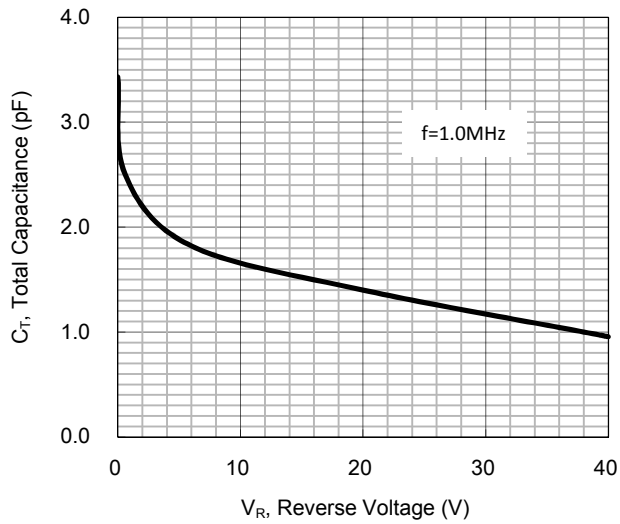
**Fig.1 Typical Forward Characteristics**



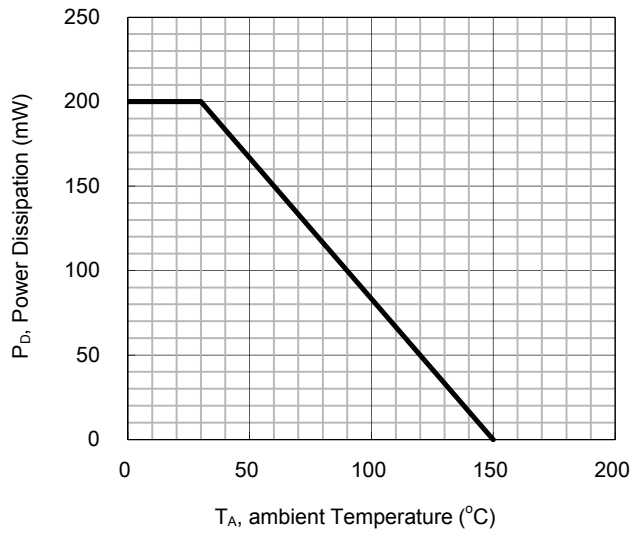
**Fig.2 Typical Reverse Characteristics**



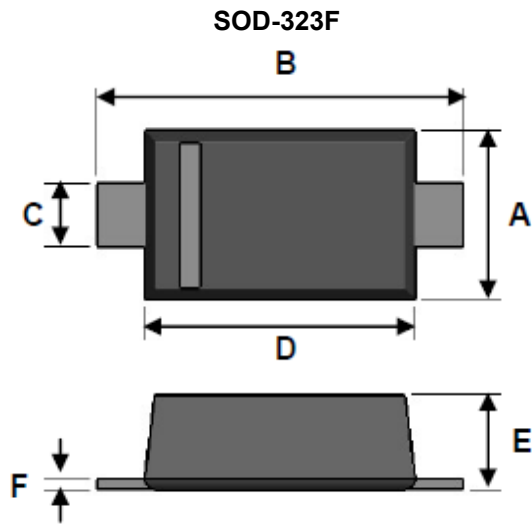
**Fig.3 Typical Capacitance VS. Reverse Voltage**



**Fig.3 Power Derating Curve**

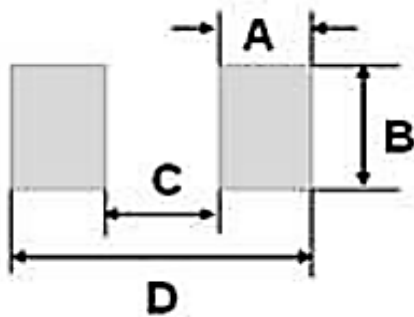


**PACKAGE OUTLINE DIMENSION**



DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.15	1.35	0.045	0.053
B	2.30	2.80	0.091	0.110
C	0.25	0.40	0.010	0.016
D	1.60	1.80	0.063	0.071
E	0.80	1.10	0.031	0.043
F	0.05	0.25	0.002	0.010

**SUGGEST PAD LAYOUT**



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

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