

## BAV19WS, BAV20WS, BAV21WS

Vishay Semiconductors

# **Small Signal Switching Diodes, High Voltage**



### **DESIGN SUPPORT TOOLS** click logo to get started



#### **MECHANICAL DATA**

Case: SOD-323

Weight: approx. 4.3 mg
Packaging codes / options:

18/10K per 13" reel (8 mm tape), 10K/box 08/3K per 7" reel (8 mm tape), 15K/box

#### **FEATURES**

- Silicon epitaxial planar diodes
- For general purpose
- AEC-Q101 qualified available
- Base P/N-E3 RoHS-compliant, commercial grade











PARTS TABLE							
PART	TYPE DIFFERENTIATION	ORDERING CODE	TYPE MARKING	CIRCUIT CONFIGURATION	REMARKS		
BAV19WS	V <sub>R</sub> = 100 V	BAV19WS-E3-08 or BAV19WS-E3-18 BAV19WS-HE3-08 or BAV19WS-HE3-18	A8	Single	Tape and reel		
BAV20WS	V <sub>R</sub> = 150 V	BAV20WS-E3-08 or BAV20WS-E3-18 BAV20WS-HE3-08 or BAV20WS-HE3-18	A9	Single	Tape and reel		
BAV21WS	V <sub>R</sub> = 200 V	BAV21WS-E3-08 or BAV21WS-E3-18 BAV21WS-HE3-08 or BAV21WS-HE3-18	AA	Single	Tape and reel		

ABSOLUTE MAXIMUM RATINGS (T <sub>amb</sub> = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT	
		BAV19WS	$V_R$	100	V	
Continuous reverse voltage		BAV20WS	$V_R$	150	V	
		BAV21WS	$V_R$	200	V	
		BAV19WS	$V_{RRM}$	120	V	
Repetitive peak reverse voltage		BAV20WS	$V_{RRM}$	200	V	
		BAV21WS	$V_{RRM}$	250	V	
Forward continuous current (1)			I <sub>F</sub>	250	mA	
Rectified current (average) half wave rectification with resistive load <sup>(1)</sup>			I <sub>F(AV)</sub>	200	mA	
Repetitive peak forward current (1)	f ≥ 50 Hz, θ = 180°		I <sub>FRM</sub>	625	mA	
Surge forward current	t < 1 s, T <sub>J</sub> = 25 °C		I <sub>FSM</sub>	1	Α	
Power dissipation			P <sub>tot</sub>	200	mW	

#### Note

(1) Valid provided that leads are kept at ambient temperature

THERMAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT		
Thermal resistance junction to ambient air		R <sub>thJA</sub>	625	K/W		
Thermal resistance junction to lead		$R_{thJL}$	450	K/W		
Junction temperature		T <sub>j</sub>	150	°C		
Storage temperature range		T <sub>stg</sub>	-65 to +150	°C		
Operating temperature range		T <sub>op</sub>	-55 to +150	°C		

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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I <sub>F</sub> = 100 mA		$V_{F}$			1	V
Forward voltage	$I_F = 200 \text{ mA}$		$V_{F}$			1.25	V
	V <sub>R</sub> = 100 V	BAV19WS	I <sub>R</sub>			100	nA
	V <sub>R</sub> = 100 V, T <sub>J</sub> = 100 °C	BAV19WS	I <sub>R</sub>			15	μΑ
Reverse leakage current	V <sub>R</sub> = 150 V	BAV20WS	I <sub>R</sub>			100	nA
neverse leakage current	V <sub>R</sub> = 150 V, T <sub>J</sub> = 100 °C	BAV20WS	I <sub>R</sub>			15	μΑ
	V <sub>R</sub> = 200 V	BAV21WS	I <sub>R</sub>			100	nA
	V <sub>R</sub> = 200 V, T <sub>J</sub> = 100 °C	BAV21WS	I <sub>R</sub>			15	μΑ
Dynamic forward resistance	I <sub>F</sub> = 10 mA		r <sub>f</sub>		5		Ω
Diode capacitance	V <sub>R</sub> = 0, f = 1 MHz		C <sub>D</sub>			1.5	pF
Reverse recovery time	$I_F = 30 \text{ mA}, I_R = 30 \text{ mA}, \\ i_R = 3 \text{ mA}, R_L = 100 \Omega$		t <sub>rr</sub>			50	ns

### TYPICAL CHARACTERISTICS (T<sub>amb</sub> = 25 °C, unless otherwise specified)

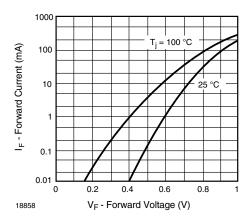


Fig. 1 - Forward Current vs. Forward Voltage

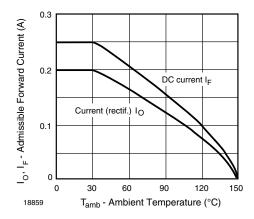


Fig. 2 - Admissible Forward Current vs. Ambient Temperature

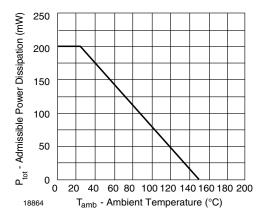


Fig. 3 - Admissible Power Dissipation vs. Ambient Temperature

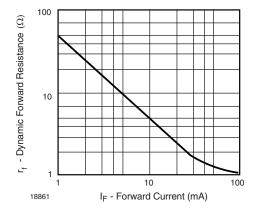
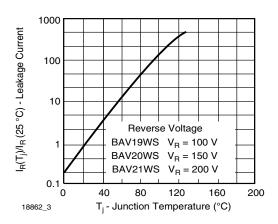
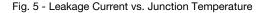


Fig. 4 - Dynamic Forward Resistance vs. Forward Current

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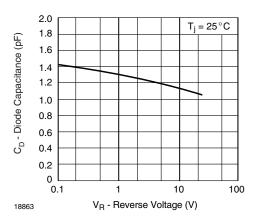
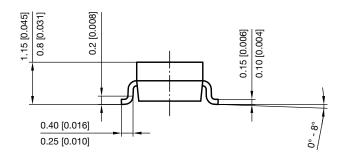
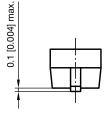
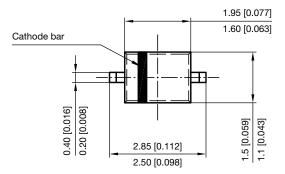


Fig. 6 - Capacitance vs. Reverse Voltage

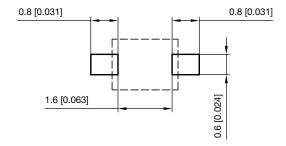
### PACKAGE DIMENSIONS in millimeters (inches): SOD-323







#### Footprint recommendation:



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