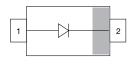




# **Small Signal Switching Diodes, High Voltage**





#### **LINKS TO ADDITIONAL RESOURCES**











### **MECHANICAL DATA**

Case: SOD-123

Weight: approx. 10.6 mg Packaging codes / options:

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

#### **FEATURES**

- Silicon epitaxial planar diodes
- For general purpose
- AEC-Q101 qualified available
- Molding compound meets UL 94 V-0 flammability rating
- Moisture sensitivity level (MSL) 1
- Base P/N-E3 RoHS-compliant, commercial grade



AUTOMOTIVE GRADE



RoHS

- Base P/N-HE3\_A RoHS-compliant, AEC-Q101 qualified
- Material categorization: for definitions of compliance please see <a href="https://www.vishay.com/doc?99912"><u>www.vishay.com/doc?99912</u></a>

PARTS TABLE								
PART	TYPE DIFFERENTIATION	ORDERING CODE	AEC-Q101 QUALIFIED	TYPE MARKING	CIRCUIT CONFIGURATION	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY	
BAV19W	V <sub>R</sub> = 100 V	BAV19W-E3-08	no	AS	Single	3 000	15 000	
		BAV19W-HE3_A-08	yes			(8 mm tape on 7" reel)		
		BAV19W-E3-18	no		70	Sirigie	10 000	10 000
		BAV19W-HE3_A-18	yes			(8 mm tape on 13" reel)	10 000	
BAV20W	V <sub>R</sub> = 150 V	BAV20W-E3-08	no	AT		3 000	15 000	
		BAV20W-HE3_A-08	yes		Single	(8 mm tape on 7" reel)		
		BAV20W-E3-18	no		Sirigle	10 000	10 000	
		BAV20W-HE3_A-18	yes			(8 mm tape on 13" reel)		
BAV21W	V <sub>R</sub> = 200 V	BAV21W-E3-08	no	AU	AU	Single	3 000	15 000
		BAV21W-HE3_A-08	yes				(8 mm tape on 7" reel)	15 000
		BAV21W-E3-18	no				10 000	10 000
		BAV21W-HE3_A-18	yes			(8 mm tape on 13" reel)	10 000	

ABSOLUTE MAXIMUM RATINGS (T <sub>amb</sub> = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT	
		BAV19W	$V_R$	100	V	
Continuous reverse voltage		BAV20W	$V_R$	150	V	
		BAV21W	$V_R$	200	V	
		BAV19W	$V_{RRM}$	120	V	
Repetitive peak reverse voltage		BAV20W	$V_{RRM}$	200	V	
		BAV21W	$V_{RRM}$	250	V	
DC Forward current (1)			l <sub>F</sub>	300	mA	
Rectified current (average) half wave rectification with resist. load (1)			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	On FR-4 board with recommended soldering footprint		P <sub>tot</sub>	300	mW	
Fower dissipation	Infinite heatsink		⊏tot	410	mW	

#### Note

(1) Infinite heatsink



# BAV19W, BAV20W, BAV21W

# Vishay Semiconductors

THERMAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT		
Thermal resistance junction to ambient air	according to JEDEC® 51-3 on FR-4 board with recommended soldering footprint	R <sub>thJA</sub>	420	K/W		
Thermal resistance junction to lead	Infinite heat sink	$R_{thJL}$	300	K/W		
Junction temperature		Tj	150	°C		
Storage temperature range		T <sub>stg</sub>	-65 to +150	°C		
Operating temperature range		T <sub>op</sub>	-55 to +150	°C		

<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	TYP.	MAX.	UNIT	
Converd voltage	I <sub>F</sub> = 100 mA		$V_{F}$		1	V	
Forward voltage	I <sub>F</sub> = 200 mA		$V_{F}$		1.25	V	
	V <sub>R</sub> = 100 V	BAV19W	I <sub>R</sub>		100	nA	
	$V_R = 100 \text{ V}, T_j = 100 ^{\circ}\text{C}$	BAV19W	I <sub>R</sub>		15	μA	
Laglaga augusant	V <sub>R</sub> = 150 V	BAV20W	I <sub>R</sub>		100	nA	
Leakage current	V <sub>R</sub> = 150 V, T <sub>j</sub> = 100 °C	BAV20W	I <sub>R</sub>		15	μA	
	V <sub>R</sub> = 200 V	BAV21W	I <sub>R</sub>		100	nA	
	V <sub>R</sub> = 200 V, T <sub>j</sub> = 100 °C	BAV21W	I <sub>R</sub>		15	μA	
Dynamic forward resistance	rnamic forward resistance I <sub>F</sub> = 10 mA		r <sub>f</sub>	5		Ω	
Diode capacitance	$V_R = 0$ , $f = 1$ MHz		C <sub>D</sub>	0.5		pF	
Reverse recovery time	$I_F = 30$ mA, $I_R = 30$ mA, $i_R = 3$ mA, $R_L = 100$ $\Omega$		t <sub>rr</sub>		50	ns	

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

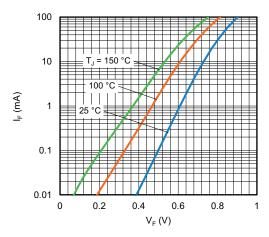


Fig. 1 - Typical Forward Current vs. Forward Voltage

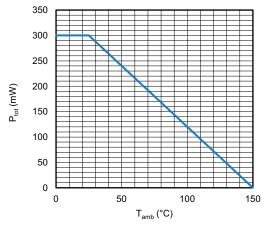


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

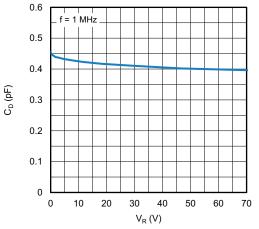


Fig. 3 - Typical Capacitance vs. Reverse Voltage

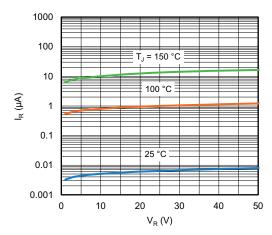
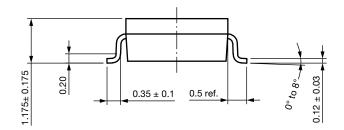
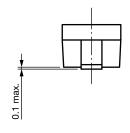
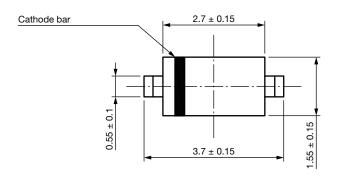


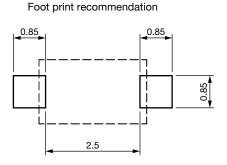
Fig. 4 - Typical Reverse Leakage Current vs. Reverse Voltage

### PACKAGE DIMENSIONS in millimeters (inches): SOD-123









Rev. 01 - Date: 18. Jan. 2022 Document no.: S8-V-3910.01-003 (4)

23223

 $3.94 \pm 0.1$ 

23225

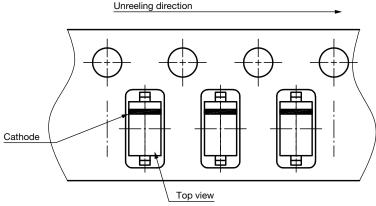
#### **CARRIER TAPE SOD-123**

# A - A section $1.75 \pm 0.1$ $0.203 \pm 0.013$ $2 \pm 0.05$ $4 \pm 0.1$ $\emptyset$ 1.55 ± 0.05 <u>Ø1</u> +0.25 0.00 $3.5\pm0.05$ 8 -0.1 В В 1.57 ± 0.1 $4 \pm 0.1$ B - B section

 $1.85 \pm 0.1$ 

Rev. 02 - Date: 21. Jan. 2014 Document no.: S8-V-3717.10-002 (4) 23224

### **ORIENTATION IN CARRIER TAPE SOD-123**



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Rev. 1.1, 26-Jan-2024 Document Number: 86372



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