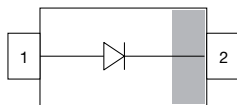


## Small Signal Switching Diodes, High Voltage



### 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
- Base P/N-HE3\_A - RoHS-compliant, AEC-Q101 qualified
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

AUTOMOTIVE  
GRADE  
Available

**RoHS**  
COMPLIANT

### LINKS TO ADDITIONAL RESOURCES



3D Models



Models



Marking


Parametric  
Search


Order Samples

### 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

### PARTS TABLE

PART	TYPE DIFFERENTIATION	ORDERING CODE	AEC-Q101 QUALIFIED	TYPE MARKING	CIRCUIT CONFIGURATION	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY
BAV19W	$V_R = 100\text{ V}$	BAV19W-E3-08	no	AS	Single	3 000 (8 mm tape on 7" reel)	15 000
		BAV19W-HE3_A-08	yes			10 000 (8 mm tape on 13" reel)	10 000
		BAV19W-E3-18	no				
		BAV19W-HE3_A-18	yes				
BAV20W	$V_R = 150\text{ V}$	BAV20W-E3-08	no	AT	Single	3 000 (8 mm tape on 7" reel)	15 000
		BAV20W-HE3_A-08	yes			10 000 (8 mm tape on 13" reel)	10 000
		BAV20W-E3-18	no				
		BAV20W-HE3_A-18	yes				
BAV21W	$V_R = 200\text{ V}$	BAV21W-E3-08	no	AU	Single	3 000 (8 mm tape on 7" reel)	15 000
		BAV21W-HE3_A-08	yes			10 000 (8 mm tape on 13" reel)	10 000
		BAV21W-E3-18	no				
		BAV21W-HE3_A-18	yes				

### ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)

PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT
Continuous reverse voltage		BAV19W	$V_R$	100	V
		BAV20W	$V_R$	150	V
		BAV21W	$V_R$	200	V
Repetitive peak reverse voltage		BAV19W	$V_{RRM}$	120	V
		BAV20W	$V_{RRM}$	200	V
		BAV21W	$V_{RRM}$	250	V
DC Forward current <sup>(1)</sup>			$I_F$	300	mA
Rectified current (average) half wave rectification with resist. load <sup>(1)</sup>			$I_{F(AV)}$	200	mA
Repetitive peak forward current <sup>(1)</sup>	$f \geq 50\text{ Hz}$ , $\theta = 180^{\circ}$		$I_{FRM}$	625	mA
Surge forward current	$t < 1\text{ s}$ , $T_j = 25\text{ }^{\circ}\text{C}$		$I_{FSM}$	1	A
Power dissipation	On FR-4 board with recommended soldering footprint		$P_{tot}$	300	mW
	Infinite heatsink			410	mW

#### Note

<sup>(1)</sup> Infinite heatsink



<b>THERMAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , 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	$R_{thJA}$	420	K/W
Thermal resistance junction to lead	Infinite heat sink	$R_{thJL}$	300	K/W
Junction temperature		$T_j$	150	$^{\circ}\text{C}$
Storage temperature range		$T_{stg}$	-65 to +150	$^{\circ}\text{C}$
Operating temperature range		$T_{op}$	-55 to +150	$^{\circ}\text{C}$

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)						
PARAMETER	TEST CONDITION	PART	SYMBOL	TYP.	MAX.	UNIT
Forward voltage	$I_F = 100\text{ mA}$		$V_F$		1	V
	$I_F = 200\text{ mA}$		$V_F$		1.25	V
Leakage current	$V_R = 100\text{ V}$	BAV19W	$I_R$		100	nA
	$V_R = 100\text{ V}, T_j = 100\text{ }^{\circ}\text{C}$	BAV19W	$I_R$		15	$\mu\text{A}$
	$V_R = 150\text{ V}$	BAV20W	$I_R$		100	nA
	$V_R = 150\text{ V}, T_j = 100\text{ }^{\circ}\text{C}$	BAV20W	$I_R$		15	$\mu\text{A}$
	$V_R = 200\text{ V}$	BAV21W	$I_R$		100	nA
	$V_R = 200\text{ V}, T_j = 100\text{ }^{\circ}\text{C}$	BAV21W	$I_R$		15	$\mu\text{A}$
Dynamic forward resistance	$I_F = 10\text{ mA}$		$r_f$	5		$\Omega$
Diode capacitance	$V_R = 0, f = 1\text{ MHz}$		$C_D$	0.5		pF
Reverse recovery time	$I_F = 30\text{ mA}, I_R = 30\text{ mA}, i_R = 3\text{ mA}, R_L = 100\text{ }\Omega$		$t_{rr}$		50	ns



**TYPICAL CHARACTERISTICS** ( $T_{\text{amb}} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)

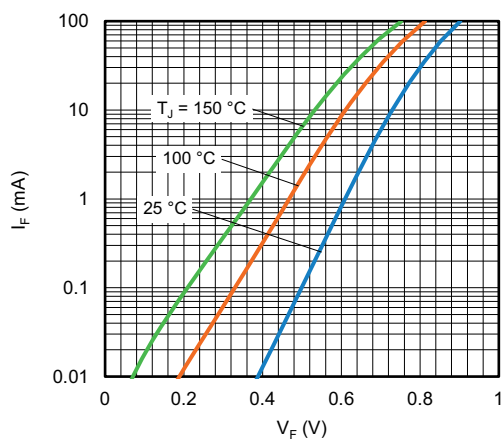


Fig. 1 - Typical Forward Current vs. Forward Voltage

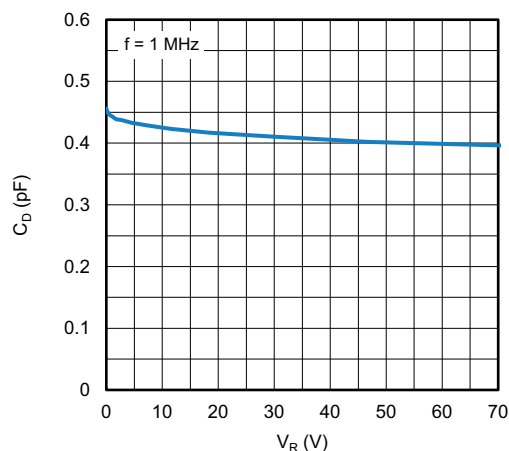


Fig. 3 - Typical Capacitance vs. Reverse Voltage

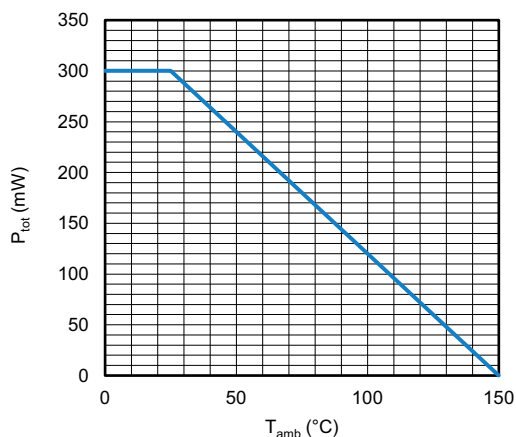


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

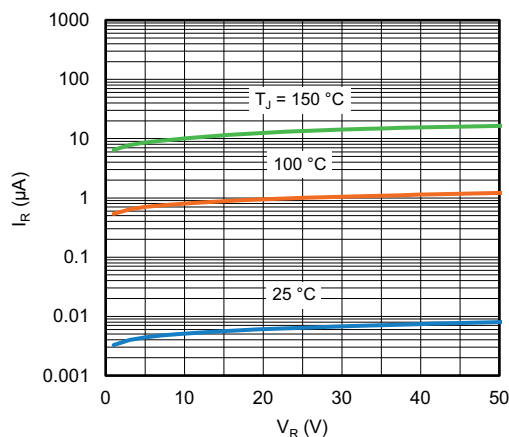
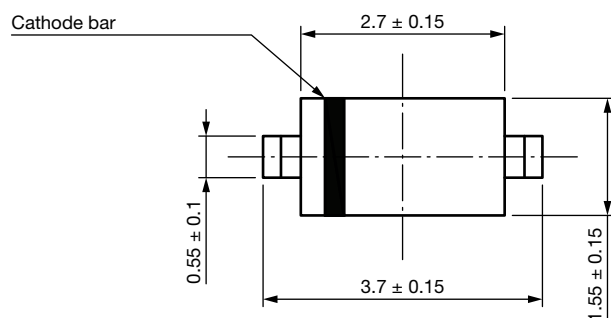
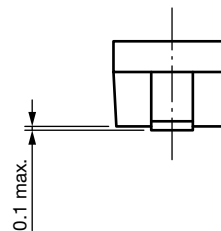
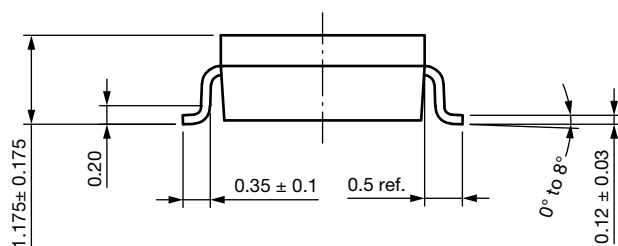


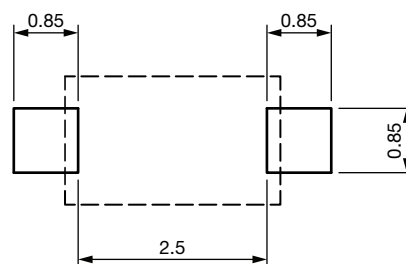
Fig. 4 - Typical Reverse Leakage Current vs. Reverse Voltage



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



Foot print recommendation



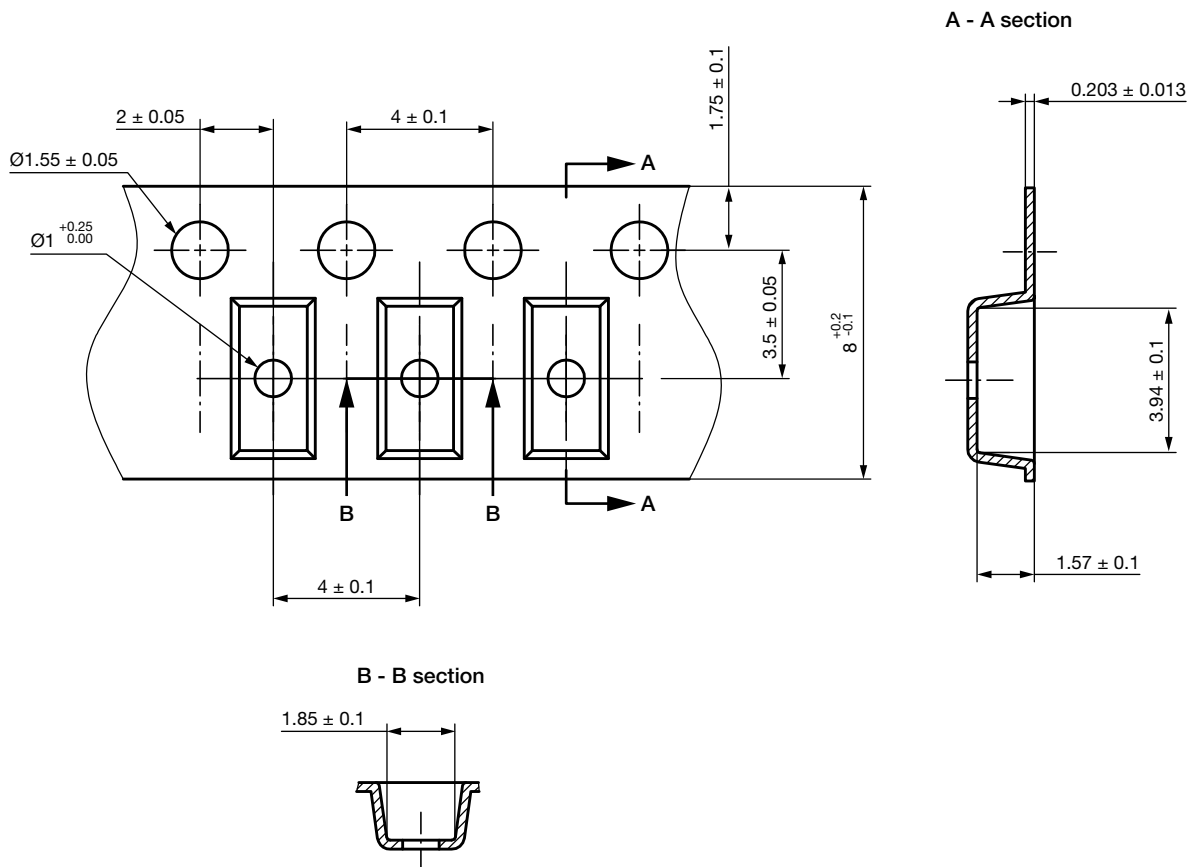
Rev. 01 - Date: 18. Jan. 2022

Document no.: S8-V-3910.01-003 (4)

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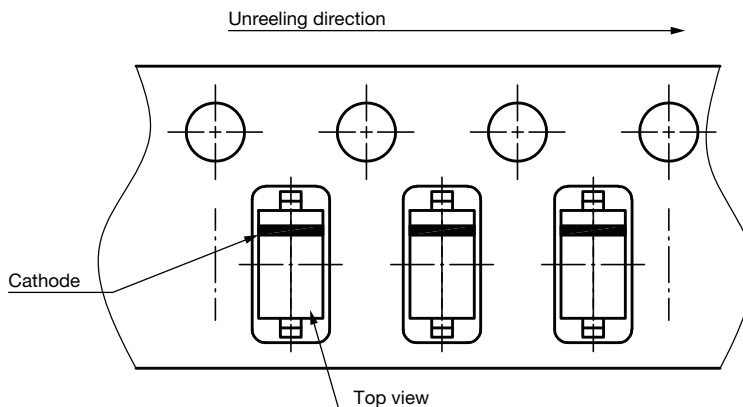
**CARRIER TAPE SOD-123**



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

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**ORIENTATION IN CARRIER TAPE SOD-123**



Rev. 02 - Date: 07. Nov. 2022  
Document no.: S8-V-3717.10-003 (4)

23225



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