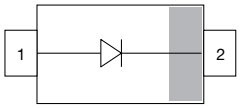
Small Signal Switching Diodes, High Voltage





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

AUTOMOTIVE GRADE Available

Pb-free

e3

RoHS COMPLIANT

LINKS TO ADDITIONAL RESOURCES

3D Models | SPICE 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 V	BAV19W-E3-08	no	AS	Single	3 000 (8 mm tape on 7" reel)	15 000
		BAV19W-HE3_A-08	yes				
		BAV19W-E3-18	no			10 000 (8 mm tape on 13" reel)	10 000
		BAV19W-HE3_A-18	yes				
BAV20W	V_R = 150 V	BAV20W-E3-08	no	AT	Single	3 000 (8 mm tape on 7" reel)	15 000
		BAV20W-HE3_A-08	yes				
		BAV20W-E3-18	no			10 000 (8 mm tape on 13" reel)	10 000
		BAV20W-HE3_A-18	yes				
BAV21W	V_R = 200 V	BAV21W-E3-08	no	AU	Single	3 000 (8 mm tape on 7" reel)	15 000
		BAV21W-HE3_A-08	yes				
		BAV21W-E3-18	no			10 000 (8 mm tape on 13" reel)	10 000
		BAV21W-HE3_A-18	yes				

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °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 (1)			I_F	300	mA
Rectified current (average) half wave rectification with resist. load (1)			$I_{F(AV)}$	200	mA
Repetitive peak forward current (1)	f ≥ 50 Hz, θ = 180°		I_{FRM}	625	mA
Surge forward current	t < 1 s, T_j = 25 °C		I_{FSM}	1	A
Power dissipation	On FR-4 board with recommended soldering footprint		P_{tot}	300	mW
	Infinite heatsink			410	mW

Note
(1) Infinite heatsink

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THERMAL CHARACTERISTICS (T_{amb} = 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_{thJA}	420	K/W
Thermal resistance junction to lead	Infinite heat sink	R_{thJL}	300	K/W
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	-65 to +150	°C
Operating temperature range		T_{op}	-55 to +150	°C

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

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TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

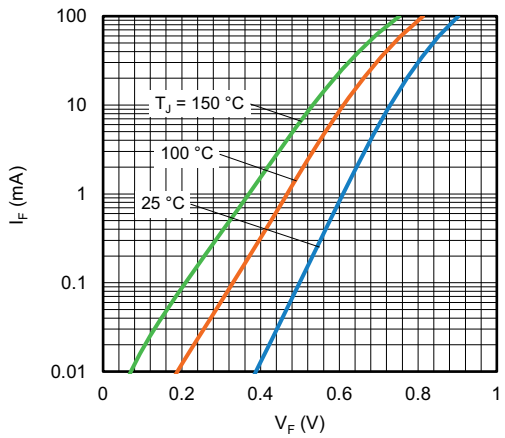


Fig. 1 - Typical Forward Current vs. Forward Voltage

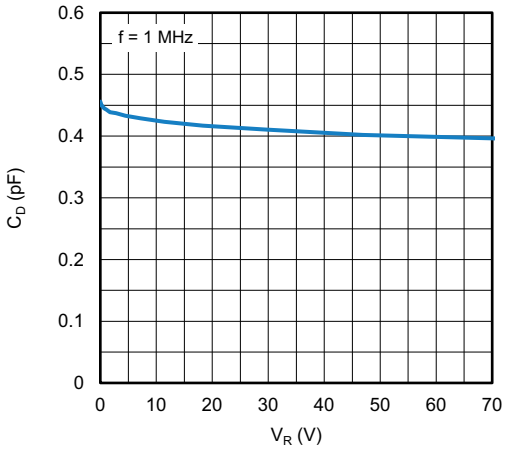


Fig. 3 - Typical Capacitance vs. Reverse Voltage

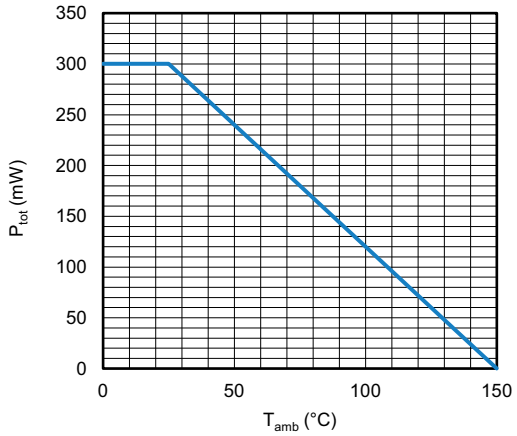


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

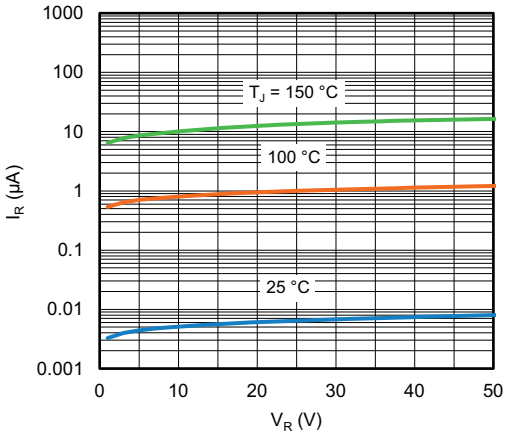
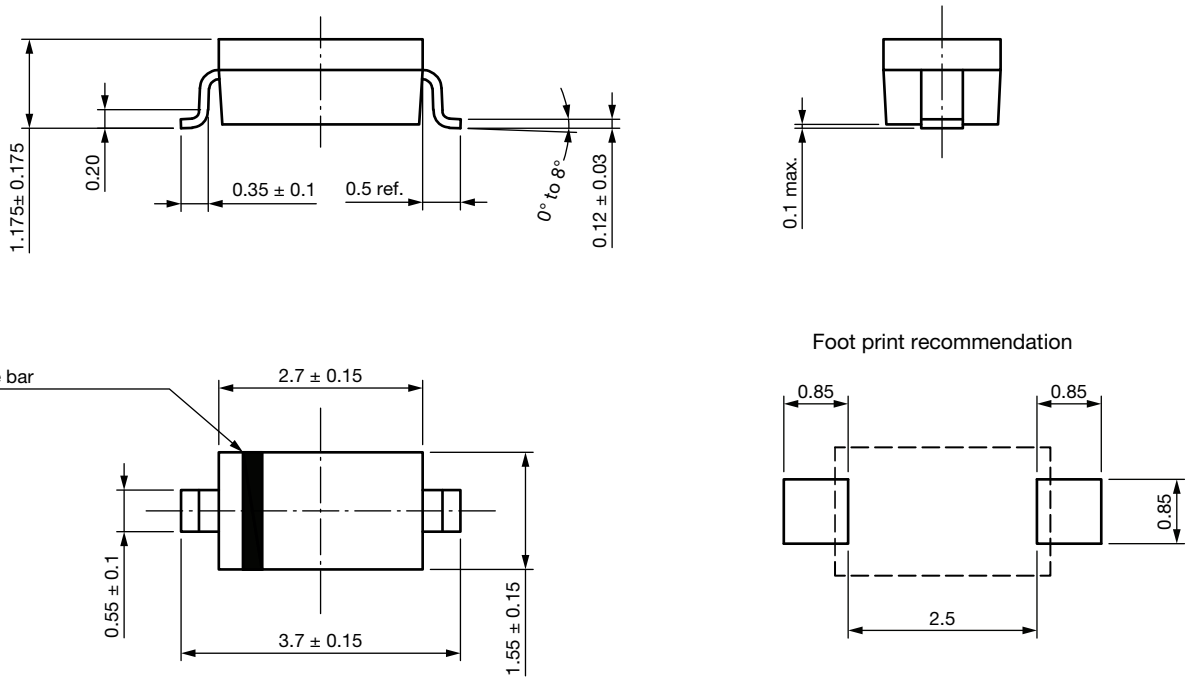


Fig. 4 - Typical Reverse Leakage Current vs. Reverse Voltage

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

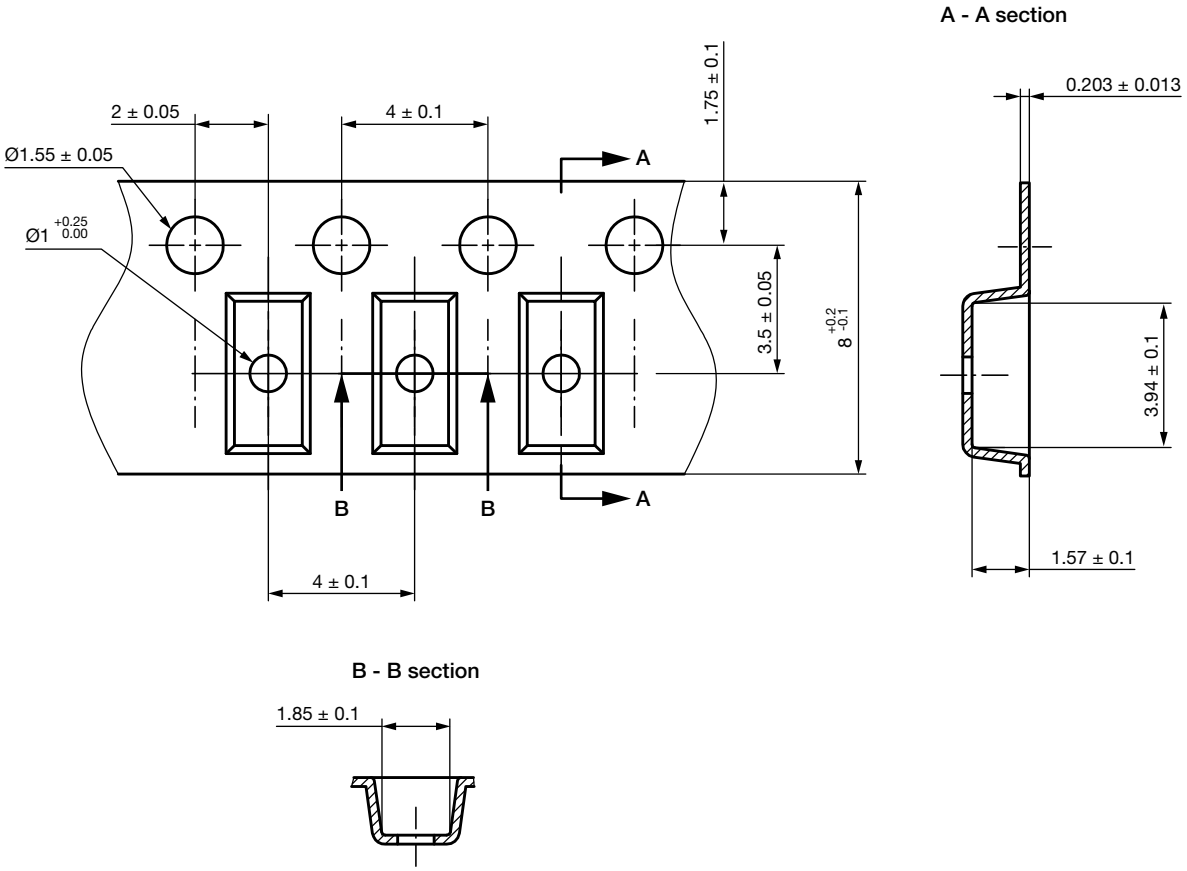


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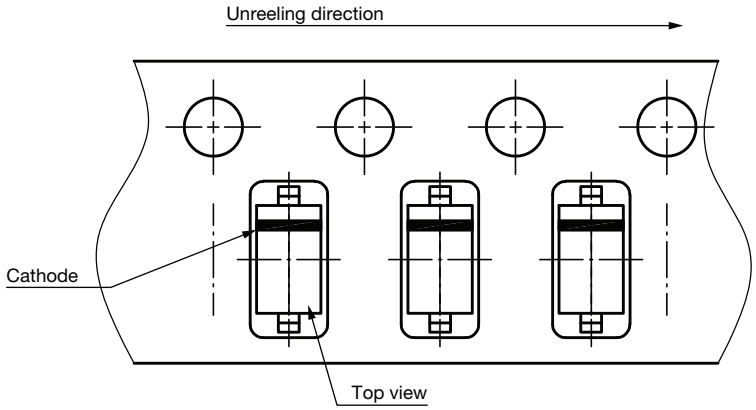
CARRIER TAPE SOD-123



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)

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