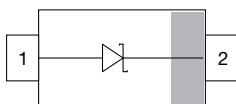


## Small Signal Schottky Diode



### FEATURES

- These diodes feature very low turn-on voltage and fast switching.
- This device is protected by a PN junction guard ring against excessive voltage, such as electrostatic discharges
- 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 - 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



### 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 mm tape), 15K/box

### PARTS TABLE

PART	ORDERING CODE	AEC-Q101 QUALIFIED	TYPE MARKING	CIRCUIT CONFIGURATION	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY
BAT54W	BAT54W-E3-08	no	L8	Single	3 000 (8 mm tape on 7" reel)	15 000
	BAT54W-HE3_A-08	yes			10 000 (8 mm tape on 13" reel)	10 000
	BAT54W-E3-18	no				
	BAT54W-HE3_A-18	yes				

### PACKAGE

PACKAGE NAME	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
SOD-123	10.6 mg	UL 94 V-0	MSL 1 (according J-STD-020)	Peak temperature max. 260 °C

### ABSOLUTE MAXIMUM RATINGS (T<sub>amb</sub> = 25 °C, unless otherwise specified)

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Repetitive peak reverse voltage		V <sub>RRM</sub>	30	V
Forward continuous current <sup>(1)</sup>		I <sub>F</sub>	200	mA
Repetitive peak forward current <sup>(1)</sup>	duty cycle t <sub>p</sub> / T < 0.5	I <sub>FRM</sub>	300	mA
Surge forward current <sup>(1)</sup>	t <sub>p</sub> = 10 ms	I <sub>FSM</sub>	600	mA
Power dissipation	on FR-4 board with recommended soldering footprint	P <sub>tot</sub>	230	mW
	Infinite heatsink		350	mW

**Note**

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

**THERMAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , 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 lead	Infinite heatsink	$R_{thJL}$	280	K/W
Junction temperature		$T_j$	125	$^{\circ}\text{C}$
Storage temperature range		$T_{stg}$	-65 to +150	$^{\circ}\text{C}$
Operating temperature range		$T_{op}$	-55 to +125	$^{\circ}\text{C}$

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

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Reverse breakdown voltage	Tested with 100 $\mu\text{A}$ pulses	$V_{(BR)}$	30			V
Leakage current <sup>(1)</sup>	$V_R = 25\text{ V}$	$I_R$			2	$\mu\text{A}$
Forward voltage <sup>(1)</sup>	$I_F = 0.1\text{ mA}$	$V_F$			240	mV
	$I_F = 1\text{ mA}$	$V_F$			320	mV
	$I_F = 10\text{ mA}$	$V_F$			400	mV
	$I_F = 30\text{ mA}$	$V_F$			500	mV
	$I_F = 100\text{ mA}$	$V_F$			800	mV
Diode capacitance	$V_R = 1\text{ V}$ , $f = 1\text{ MHz}$	$C_D$			10	pF
Reverse recovery time	$I_F = 10\text{ mA}$ , $I_R = 10\text{ mA}$ , $i_R = 1\text{ mA}$ , $R_L = 100\text{ }\Omega$	$t_{rr}$			5	ns

**Note**

<sup>(1)</sup> Pulse test:  $t_p < 300\text{ }\mu\text{s}$ , duty cycle  $t_p/T < 0.02$

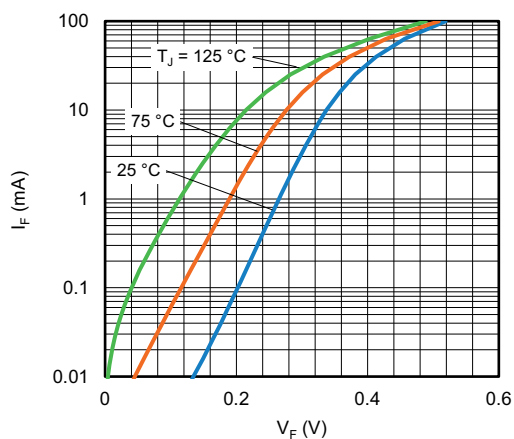
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Typical Forward Current vs. Forward Voltage

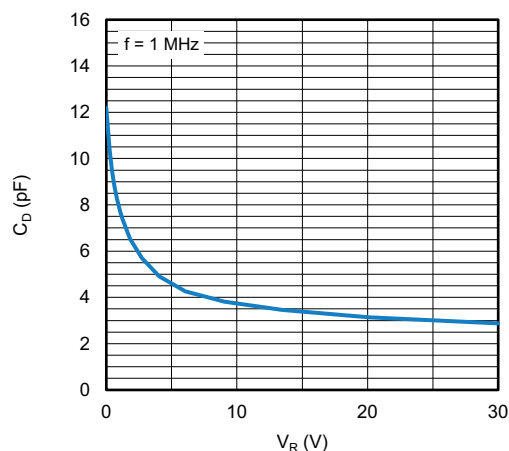


Fig. 3 - Typical Reverse Characteristics

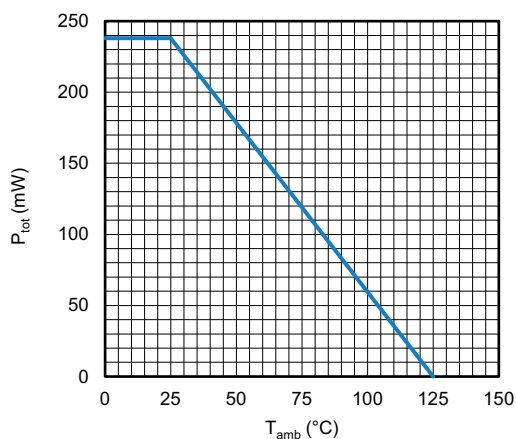


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

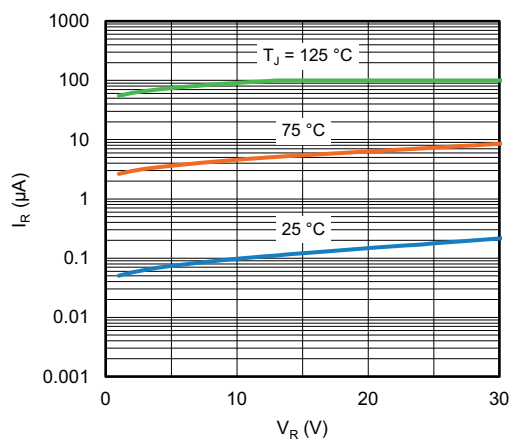
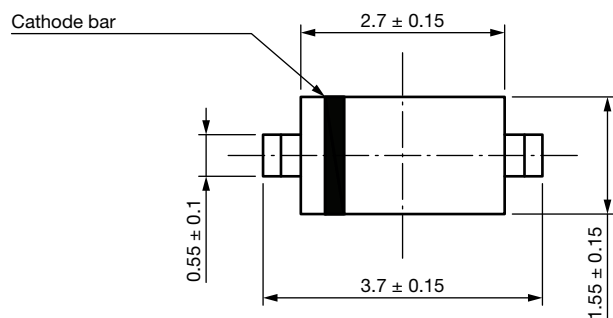
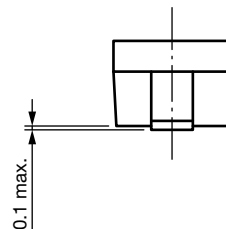
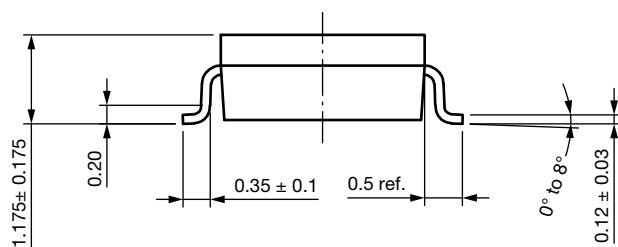
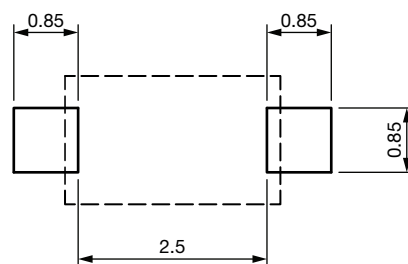


Fig. 4 - Typical Capacitance vs. Reverse Voltage

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


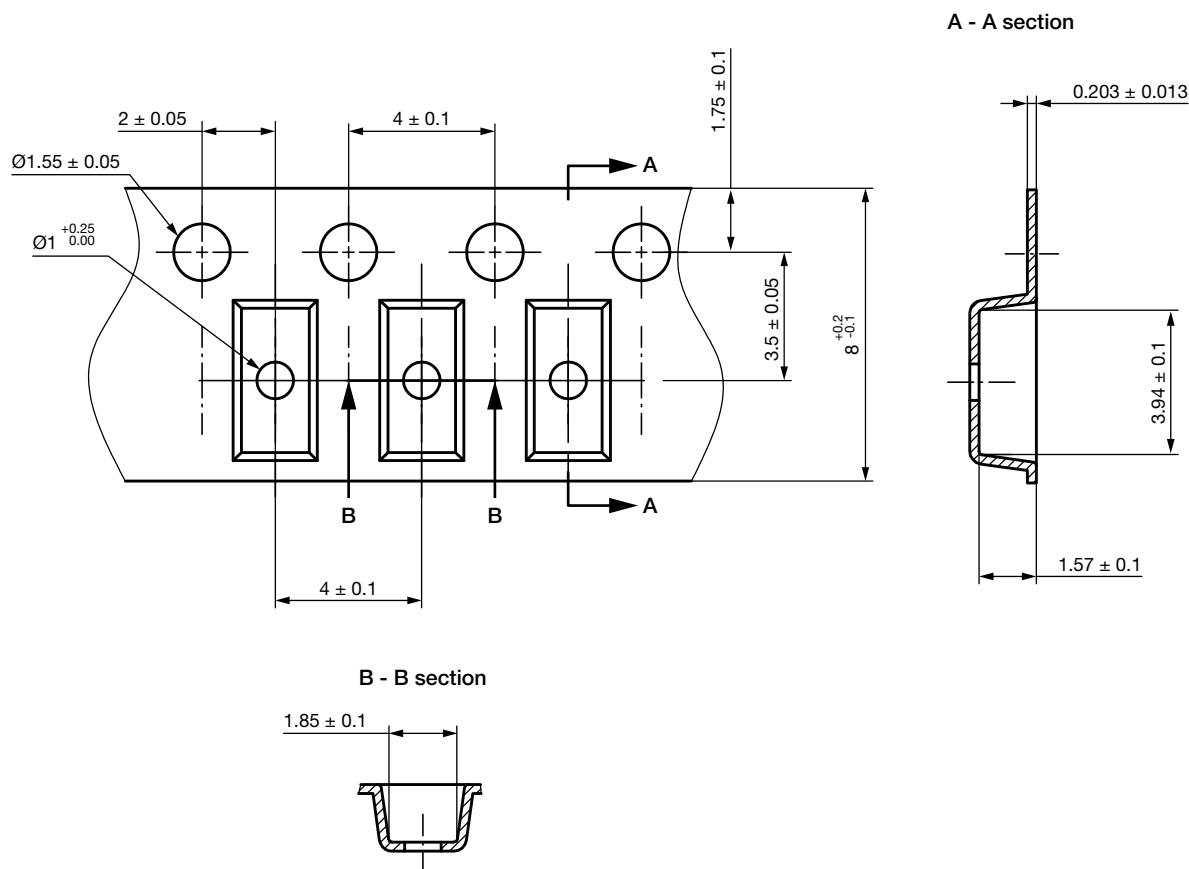
Foot print recommendation



Rev. 01 - Date: 18. Jan. 2022

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

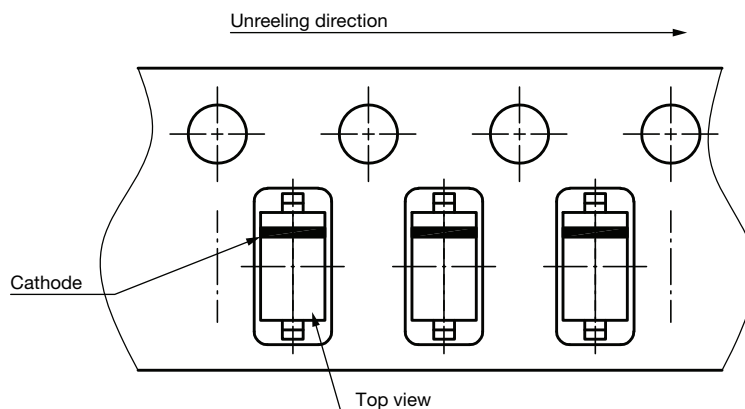
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**CARRIER TAPE SOD-123**


Rev. 02 - Date: 21. Jan. 2014

Document no.: S8-V-3717.10-002 (4)

23224

**OIRIENTATION IN CARRIER TAPE SOD-123**


Rev. 02 - Date: 07. Nov. 2022

Document no.: S8-V-3717.10-003 (4)

23225



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