

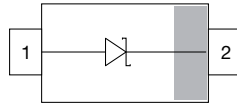


**THE DATASHEET OF  
BAT42W-E3-18**





# Small Signal Schottky Diode



## FEATURES

- These diodes feature very low turn-on voltage and fast switching. These devices are protected by a PN junction guard ring against excessive voltage, such as electrostatic discharges
- For general purpose applications
- 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)



## 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
BAT42W	BAT42W-E3-08	no	LC	Single	3 000 (8 mm tape on 7" reel)	15 000
	BAT42W-HE3_A-08	yes			10 000 (8 mm tape on 13" reel)	10 000
	BAT42W-E3-18	no				
	BAT42W-HE3_A-18	yes				
BAT43W	BAT43W-E3-08	no	LD	Single	3 000 (8 mm tape on 7" reel)	15 000
	BAT43W-HE3_A-08	yes			10 000 (8 mm tape on 13" reel)	10 000
	BAT43W-E3-18	no				
	BAT43W-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>	300	mA
Repetitive peak forward current <sup>(1)</sup>		I <sub>FRM</sub>	500	mA
Surge forward current <sup>(1)</sup>	Duty cycle t <sub>p</sub> / T < 0.5	I <sub>FSM</sub>	4	A
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 <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 lead	Infinite heatsink	R <sub>thJL</sub>	280	K/W
Maximum junction temperature		T <sub>j</sub>	125	°C
Storage temperature range		T <sub>stg</sub>	-65 to +150	°C
Operating temperature range		T <sub>op</sub>	-55 to +125	°C

ELECTRICAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Reverse breakdown voltage	I <sub>R</sub> = 100 μA (pulsed)		V <sub>(BR)</sub>	30			V
Leakage current <sup>(1)</sup>	V <sub>R</sub> = 25 V		I <sub>R</sub>			0.5	μA
	V <sub>R</sub> = 25 V, T <sub>j</sub> = 100 °C		I <sub>R</sub>			100	μA
Forward voltage <sup>(1)</sup>	I <sub>F</sub> = 200 mA		V <sub>F</sub>			1000	mV
	I <sub>F</sub> = 10 mA	BAT42W	V <sub>F</sub>			400	mV
	I <sub>F</sub> = 50 mA	BAT42W	V <sub>F</sub>			650	mV
	I <sub>F</sub> = 2 mA	BAT43W	V <sub>F</sub>	260		330	mV
	I <sub>F</sub> = 15 mA	BAT43W	V <sub>F</sub>			450	mV
Diode capacitance	V <sub>R</sub> = 1 V, f = 1 MHz		C <sub>D</sub>		7		pF
Reverse recovery time	I <sub>F</sub> = 10 mA, I <sub>R</sub> = 10 mA, i <sub>R</sub> = 1 mA, R <sub>L</sub> = 100 Ω		t <sub>rr</sub>			5	ns

Note

<sup>(1)</sup> Pulse test; t<sub>p</sub> ≤ 300 μs, duty cycle t<sub>p</sub>/T < 0.02



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

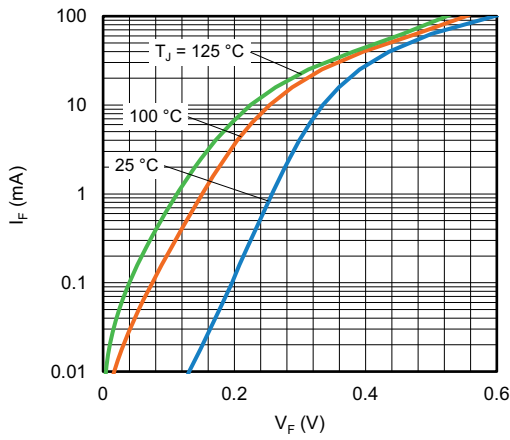


Fig. 1 - Typical Forward Current vs. Forward Voltage

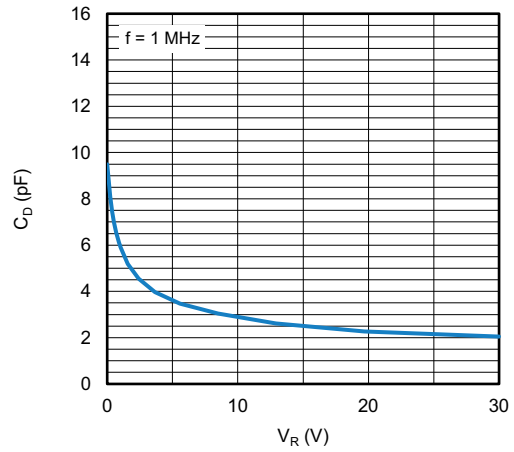


Fig. 3 - Typical Reverse Characteristics

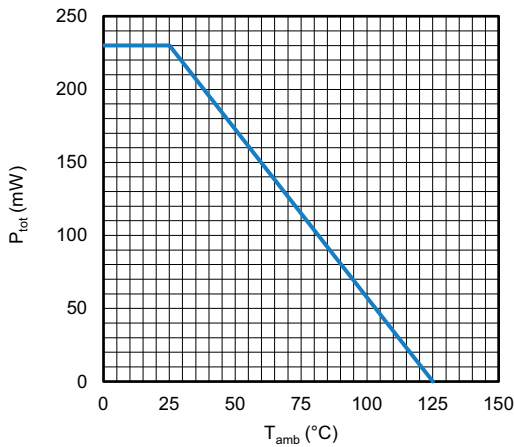


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

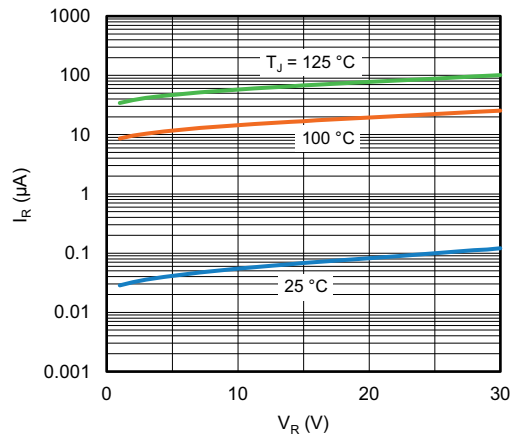
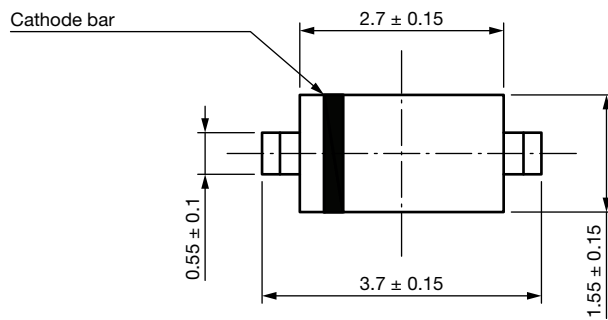
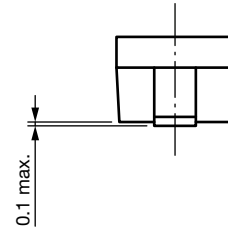
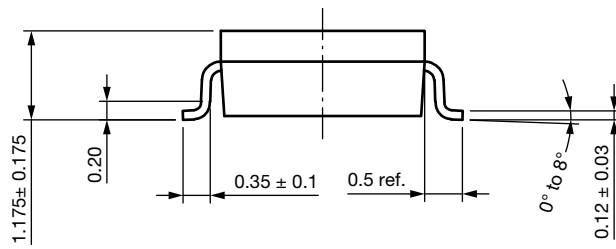


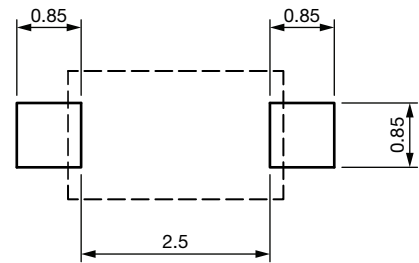
Fig. 4 - Typical Capacitance vs. Reverse Voltage



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



Foot print recommendation

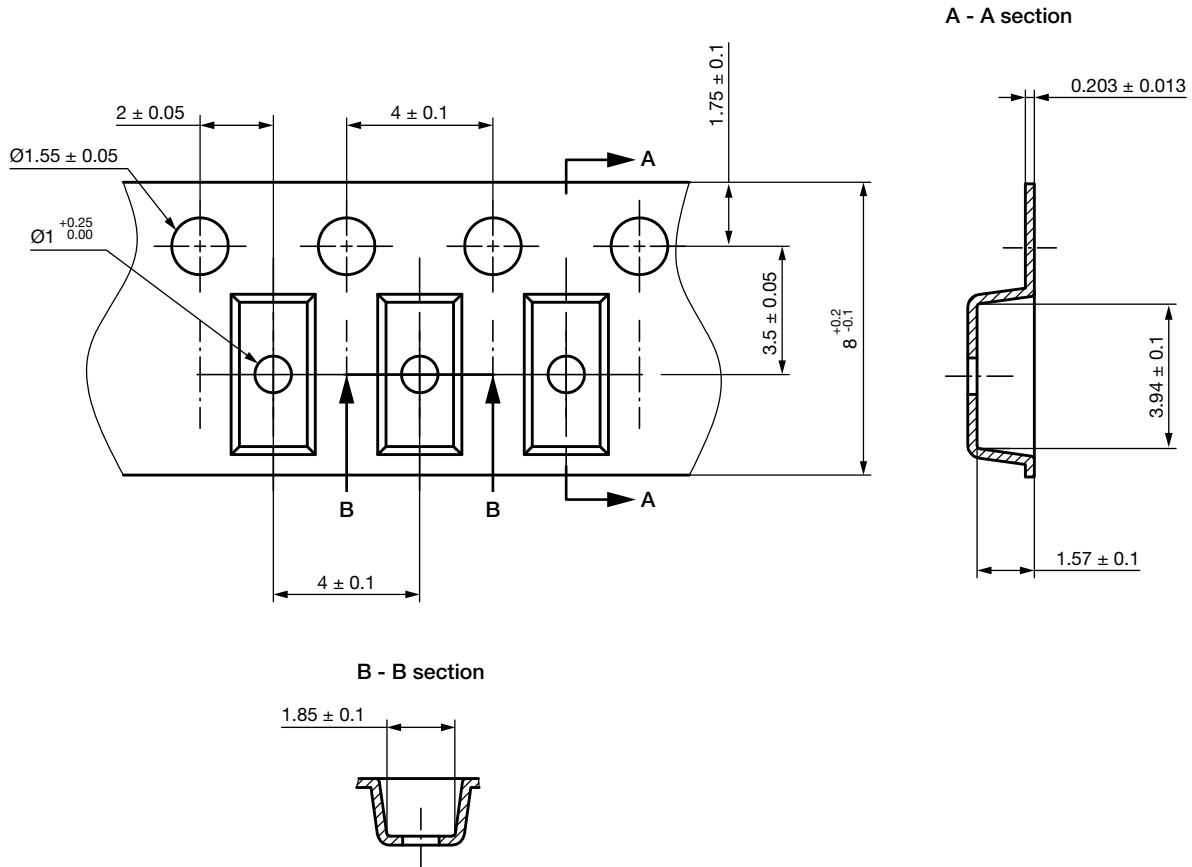


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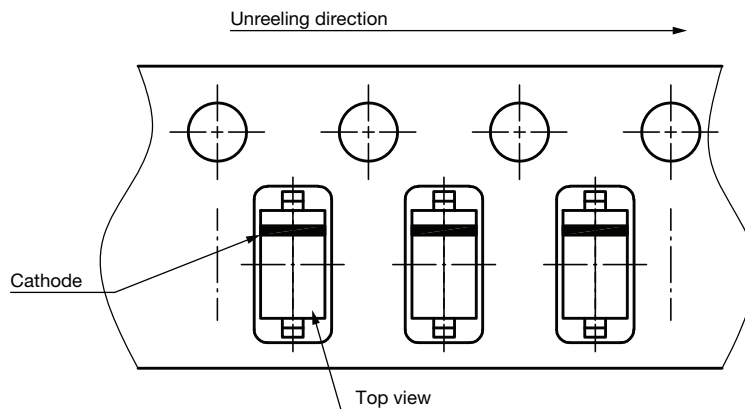
CARRIER TAPE SOD-123



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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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