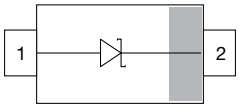
Small Signal Schottky Diode



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 mm tape), 15K/box

FEATURES

AUTOMOTIVE GRADE Available

Pb-free

e3

RoHS COMPLIANT

- 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

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				
	BAT42W-E3-18	no			10 000 (8 mm tape on 13" reel)	10 000
	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				
	BAT43W-E3-18	no			10 000 (8 mm tape on 13" reel)	10 000
	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_{amb} = 25 °C, unless otherwise specified)

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Repetitive peak reverse voltage		V_{RRM}	30	V
Forward continuous current (1)		I_F	300	mA
Repetitive peak forward current (1)		I_{FRM}	500	mA
Surge forward current (1)	Duty cycle t_p / T < 0.5	I_{FSM}	4	A
Power dissipation	On FR-4 board with recommended soldering footprint	P_{tot}	230	mW
	Infinite heatsink		350	mW

Note

(1) Infinite heatsink

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 lead	Infinite heatsink	R_{thJL}	280	K/W
Maximum junction temperature		T_j	125	°C
Storage temperature range		T_{stg}	-65 to +150	°C
Operating temperature range		T_{op}	-55 to +125	°C

ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)							
PARAMETER	**TEST CONDITION**	**PART**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Reverse breakdown voltage	I_R = 100 µA (pulsed)		$V_{(BR)}$	30			V
Leakage current (1)	V_R = 25 V		I_R			0.5	µA
	V_R = 25 V, T_j = 100 °C		I_R			100	µA
Forward voltage (1)	I_F = 200 mA		V_F			1000	mV
	I_F = 10 mA	BAT42W	V_F			400	mV
	I_F = 50 mA	BAT42W	V_F			650	mV
	I_F = 2 mA	BAT43W	V_F	260		330	mV
	I_F = 15 mA	BAT43W	V_F			450	mV
Diode capacitance	V_R = 1 V, f = 1 MHz		C_D		7		pF
Reverse recovery time	I_F = 10 mA, I_R = 10 mA, i_R = 1 mA, R_L = 100 Ω		t_{rr}			5	ns

Note

(1) Pulse test; $t_p \leq 300$ µs, duty cycle $t_p/T < 0.02$

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

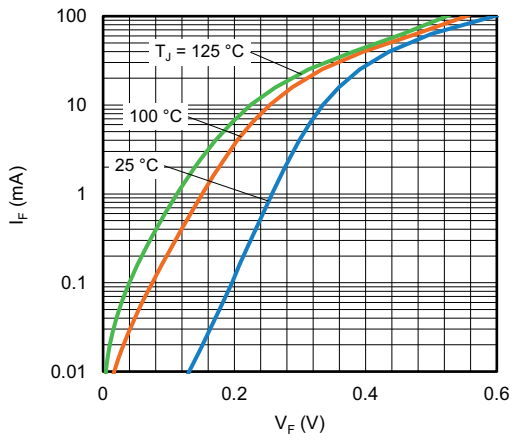


Fig. 1 - Typical Forward Current vs. Forward Voltage

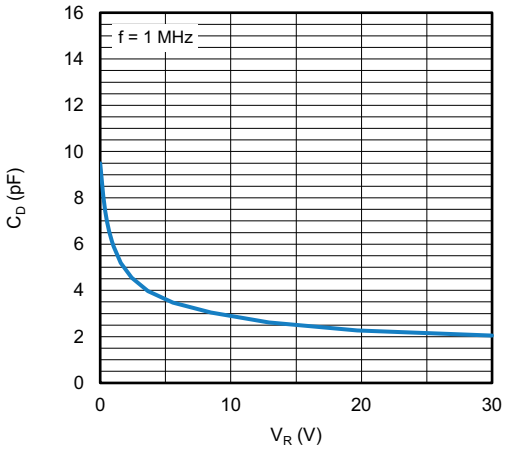


Fig. 3 - Typical Reverse Characteristics

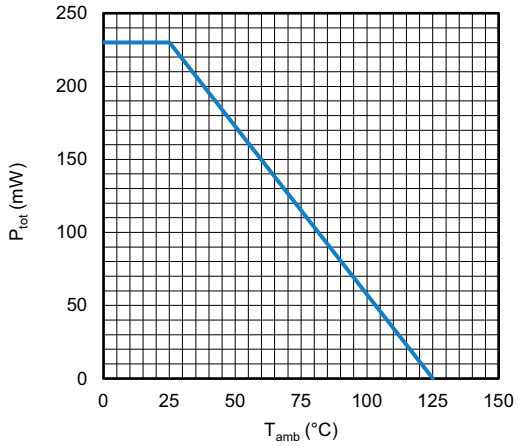


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

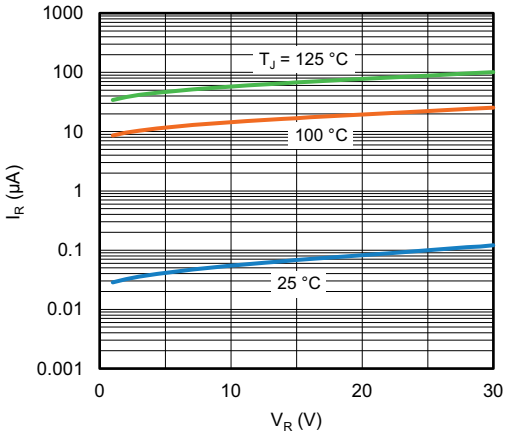
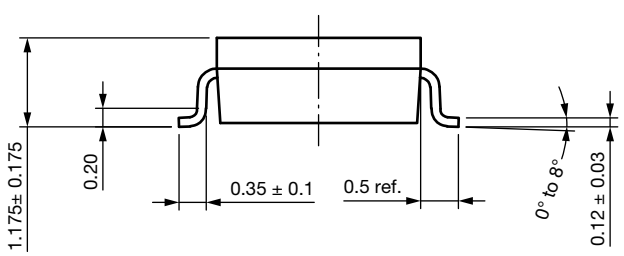
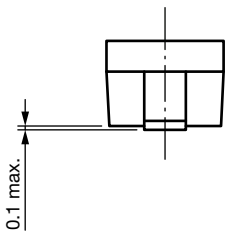
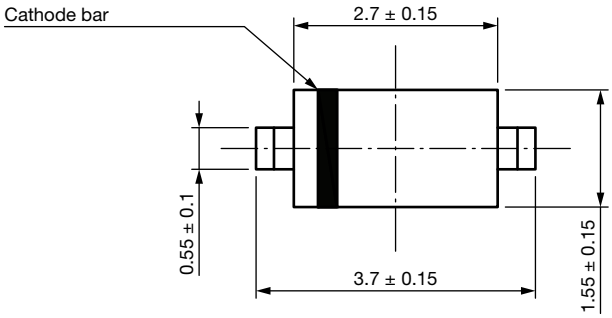


Fig. 4 - Typical Capacitance vs. Reverse Voltage

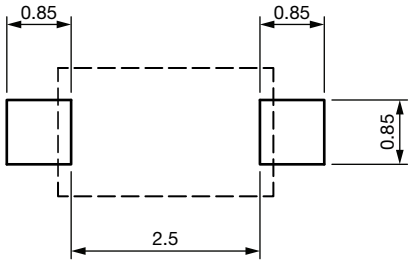
PACKAGE DIMENSIONS in millimeters (inches): **SOD-123**







Foot print recommendation



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

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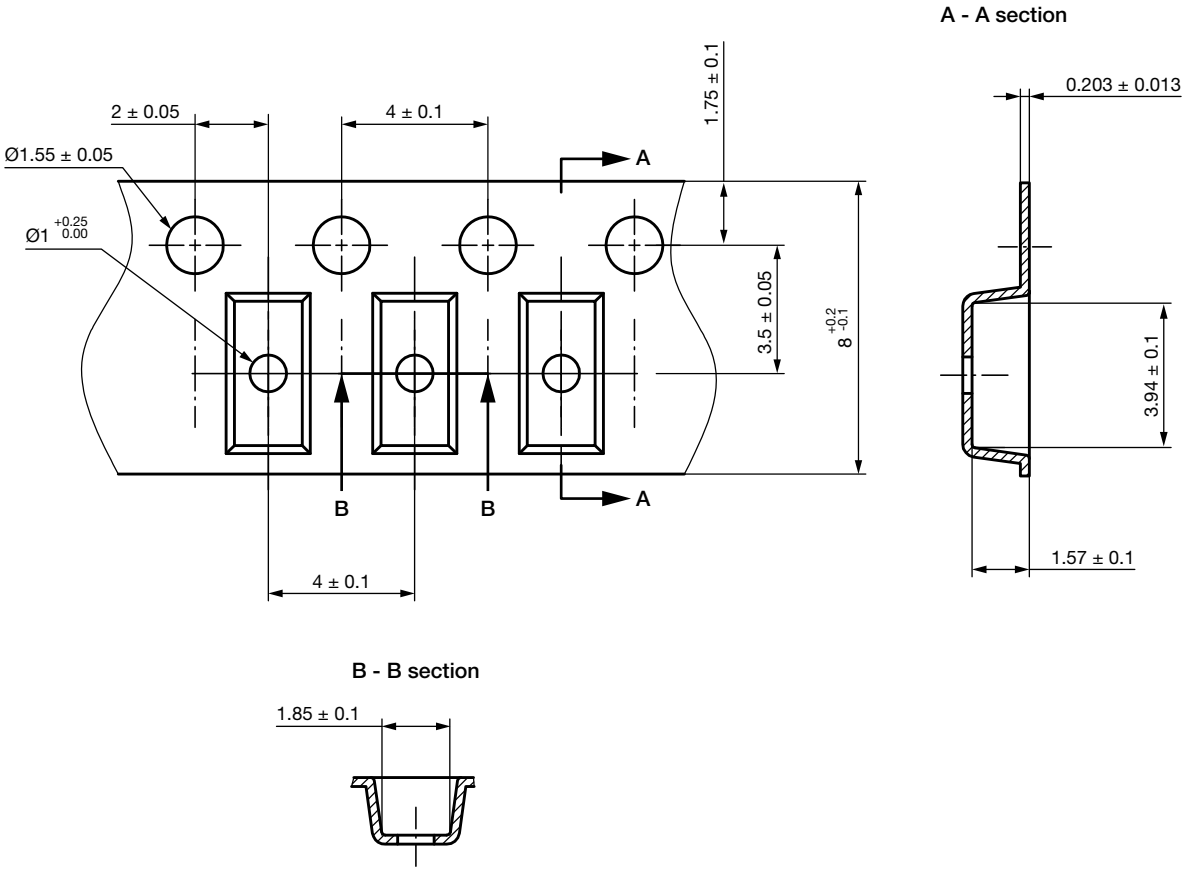
CARRIER TAPE SOD-123



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

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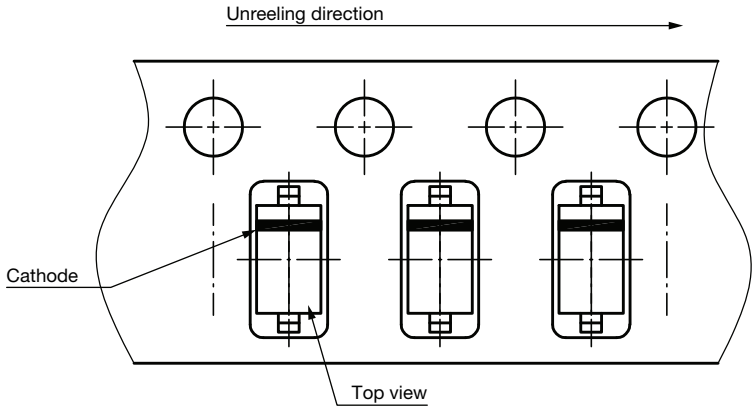
ORIENTATION IN CARRIER TAPE SOD-123



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

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