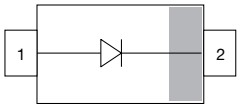
Small Signal Fast Switching Diode



FEATURES

- Silicon epitaxial planar diode
- Fast switching diodes ($t_{rr} \leq 4ns$)
- 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 | 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

PARTS TABLE

PART	ORDERING CODE	AEC-Q101 QUALIFIED	TYPE MARKING	CIRCUIT CONFIGURATION	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY
1N4148W	1N4148W-E3-08	no	AH	Single	3 000 (8 mm tape on 7" reel)	15 000
	1N4148W-HE3_A-08	yes				
	1N4148W-E3-18	no			10 000 (8 mm tape on 13" reel)	10 000
	1N4148W-HE3_A-18	yes				

PACKAGE

PACKAGE NAME	WEIGHT	MOLDING COMPOUND	MOISTURE SENSITIVITY	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
Reverse voltage		V_R	75	V
Repetitive peak reverse voltage		V_{RRM}	100	V
Average rectified current half wave rectification with resistive load (1)	f ≥ 50 Hz	$I_{F(AV)}$	250	mA
Continuous froward current (1)		I_F	300	mA
Surge forward current (1)	t_p < 1 s	I_{FSM}	500	mA
	t_p = 1 µs	I_{FSM}	2	A
Power dissipation	On FR-4 board with recommended soldering footprint	P_{tot}	280	mW
	Infinite heatsink		380	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}	440	K/W
Thermal resistance junction to lead	Infinite heat sink	R_{thJL}	330	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**	**SYMBOL**	**MAX.**	**UNIT**
Forward voltage	I_F = 10 mA	V_F	1	V
	I_F = 100 mA	V_F	1.2	V
Leakage current	V_R = 20 V	I_R	25	nA
	V_R = 75 V	I_R	1	µA
	V_R = 100 V	I_R	100	µA
	V_R = 20 V, T_J = 150 °C	I_R	50	µA
Diode capacitance	$V_F = V_R$ = 0 V	C_D	1.5	pF
Voltage rise when switching ON	Tested with 50 mA pulses, t_p = 0.1 µs, rise time < 30 ns, f_p = (5 to 100) kHz	V_{fr}	2.5	V
Reverse recovery time	I_F = 10 mA, i_R = 1 mA, V_R = 6 V, R_L = 100 Ω	t_{rr}	4	ns

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

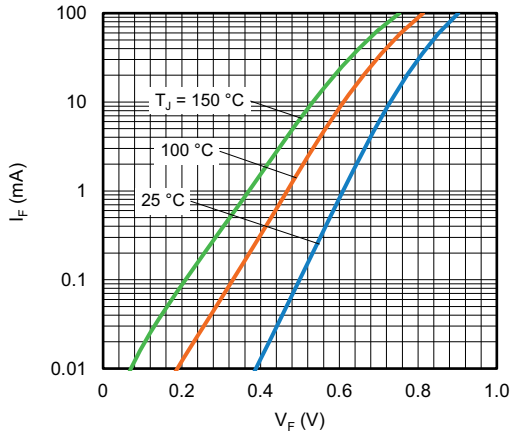


Fig. 1 - Typical Forward Current vs. Forward Voltage

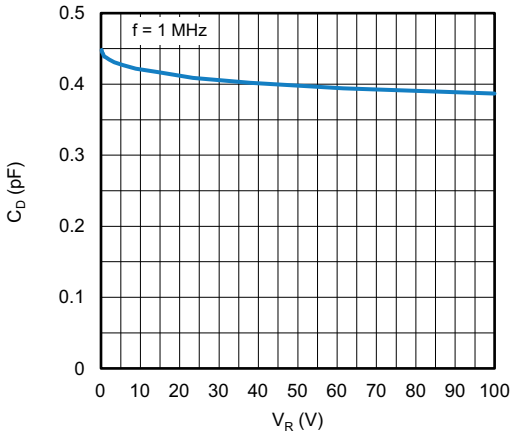


Fig. 3 - Typical Capacitance vs. Reverse Voltage

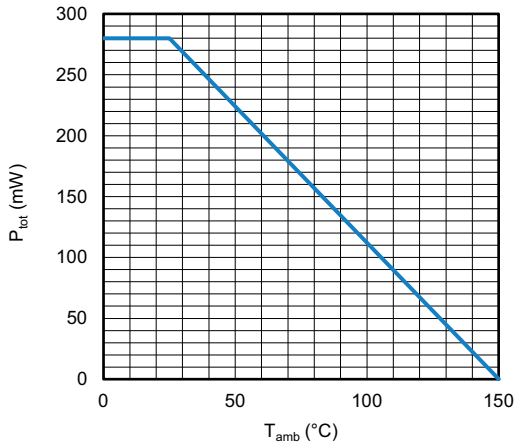


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

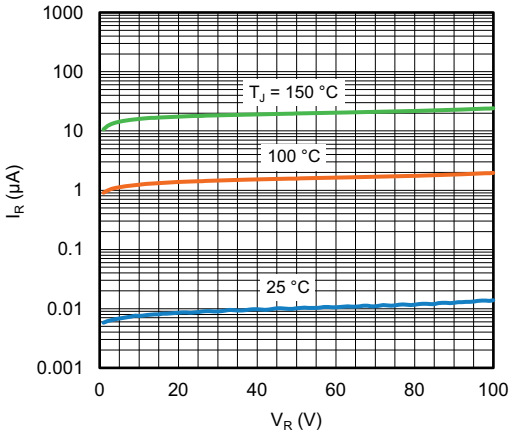
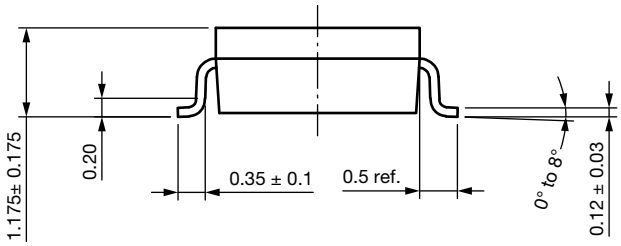
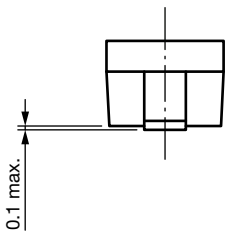
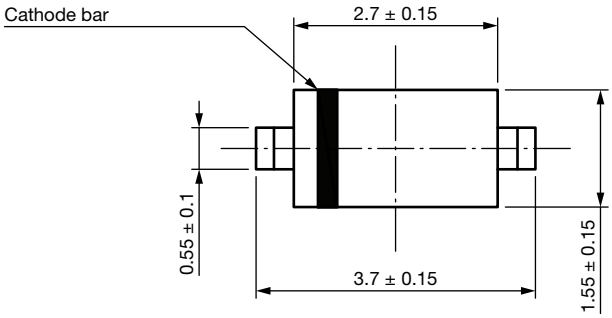


Fig. 4 - Typical Reverse Leakage Current vs. Reverse Voltage

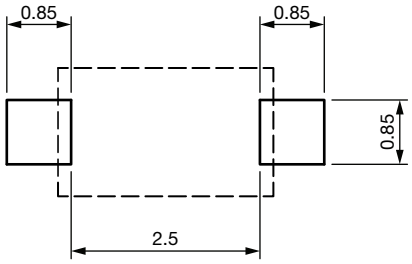
PACKAGE DIMENSIONS in millimeters (inches): **SOD-123**







Foot print recommendation



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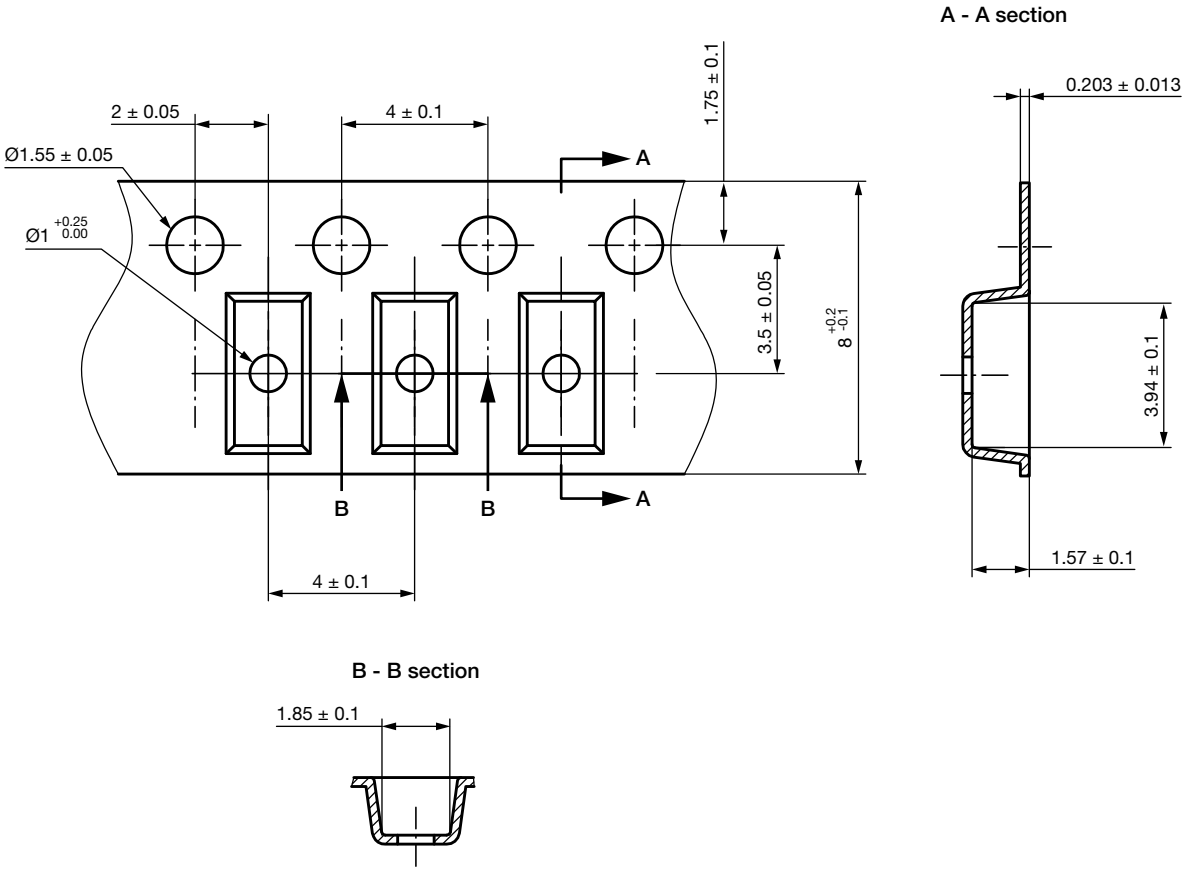
CARRIER TAPE SOD-123



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

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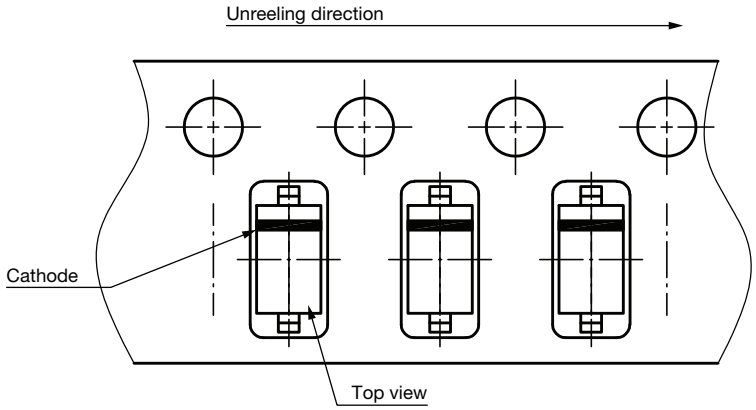
ORIENTATION IN CARRIER TAPE SOD-123



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