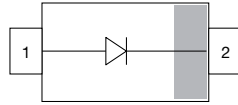


## Small Signal Fast Switching Diode



### FEATURES

- Silicon epitaxial planar diode
- Fast switching diodes ( $t_{rr} \leq 4\text{ns}$ )
- 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](http://www.vishay.com/doc?99912)

 AUTOMOTIVE  
GRADE  
Available

**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 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 ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , 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 <sup>(1)</sup>	$f \geq 50\text{ Hz}$	$I_{F(AV)}$	250	mA
Continuous forward current <sup>(1)</sup>		$I_F$	300	mA
Surge forward current <sup>(1)</sup>	$t_p < 1\text{ s}$	$I_{FSM}$	500	mA
	$t_p = 1\text{ }\mu\text{s}$	$I_{FSM}$	2	A
Power dissipation	On FR-4 board with recommended soldering footprint	$P_{tot}$	280	mW
	Infinite heatsink		380	mW

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



<b>THERMAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Thermal resistance junction to ambient air	According to JEDEC <sup>®</sup> 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	$^{\circ}\text{C}$
Storage temperature range		$T_{stg}$	-65 to +150	$^{\circ}\text{C}$
Operating temperature range		$T_{op}$	-55 to +150	$^{\circ}\text{C}$

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	MAX.	UNIT
Forward voltage	$I_F = 10\text{ mA}$	$V_F$	1	V
	$I_F = 100\text{ mA}$	$V_F$	1.2	V
Leakage current	$V_R = 20\text{ V}$	$I_R$	25	nA
	$V_R = 75\text{ V}$	$I_R$	1	$\mu\text{A}$
	$V_R = 100\text{ V}$	$I_R$	100	$\mu\text{A}$
	$V_R = 20\text{ V}, T_J = 150\text{ }^{\circ}\text{C}$	$I_R$	50	$\mu\text{A}$
Diode capacitance	$V_F = V_R = 0\text{ V}$	$C_D$	1.5	pF
Voltage rise when switching ON	Tested with 50 mA pulses, $t_p = 0.1\text{ }\mu\text{s}$ , rise time < 30 ns, $f_p = (5\text{ to }100)\text{ kHz}$	$V_{fr}$	2.5	V
Reverse recovery time	$I_F = 10\text{ mA}, I_R = 1\text{ mA}, V_R = 6\text{ V}, R_L = 100\text{ }\Omega$	$t_{rr}$	4	ns



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

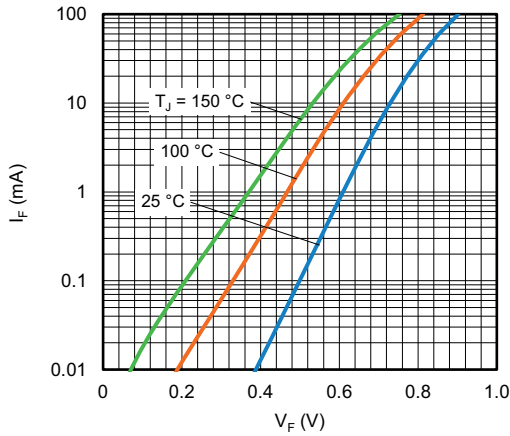


Fig. 1 - Typical Forward Current vs. Forward Voltage

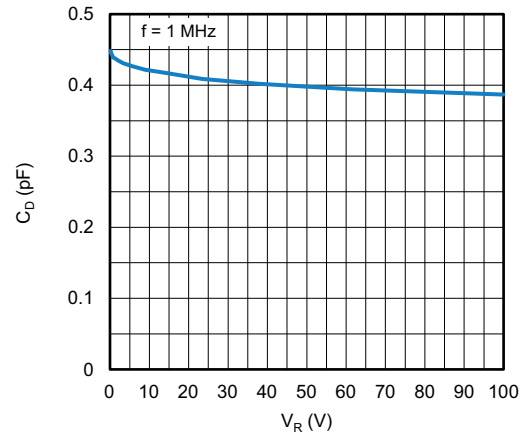


Fig. 3 - Typical Capacitance vs. Reverse Voltage

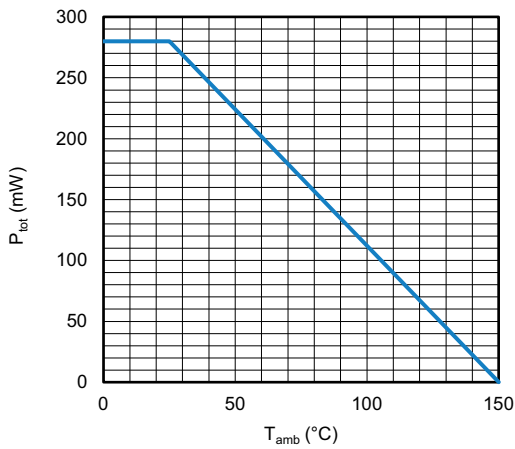


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

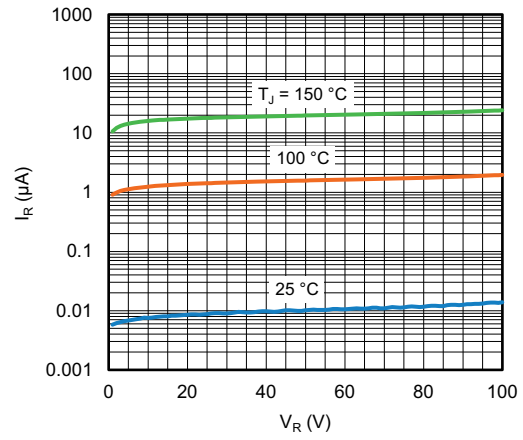
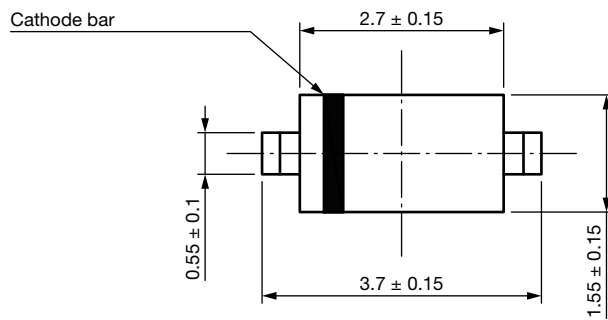
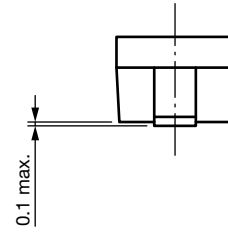
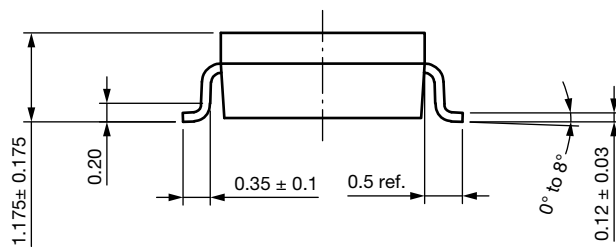


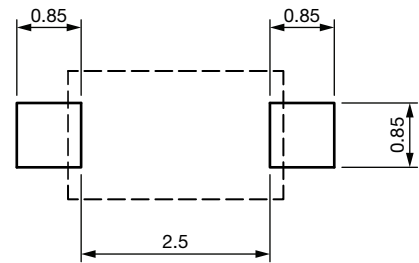
Fig. 4 - Typical Reverse Leakage Current vs. Reverse Voltage



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



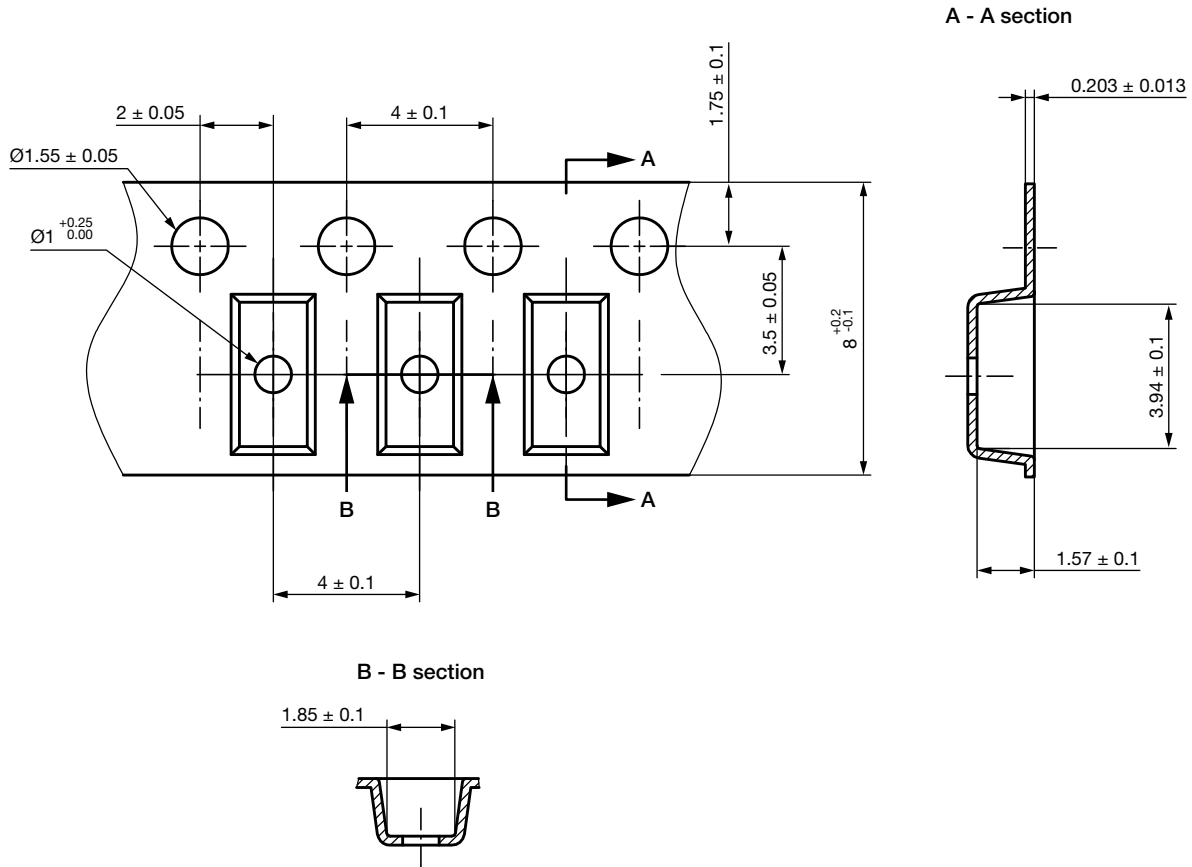
Foot print recommendation



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

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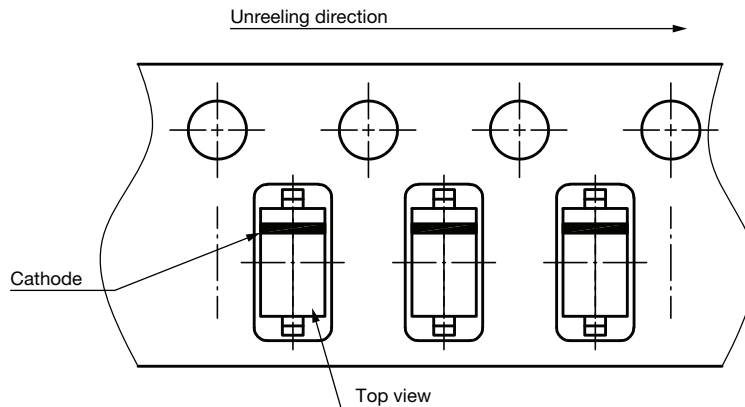
**CARRIER TAPE SOD-123**



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

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**ORIENTATION IN CARRIER TAPE SOD-123**



Rev. 02 - Date: 07. Nov. 2022  
 Document no.: S8-V-3717.10-003 (4)

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