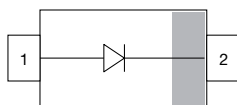


Small Signal Fast Switching Diode



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

AUTOMOTIVE
GRADE
Available



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 ($T_{amb} = 25\text{ }^{\circ}\text{C}$, 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 ⁽¹⁾	$f \geq 50\text{ Hz}$	$I_{F(AV)}$	250	mA
Continuous forward current ⁽¹⁾		I_F	300	mA
Surge forward current ⁽¹⁾	$t_p < 1\text{ s}$	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

⁽¹⁾ 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}	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	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, 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	μA
	$V_R = 100\text{ V}$	I_R	100	μA
	$V_R = 20\text{ V}$, $T_J = 150\text{ }^{\circ}\text{C}$	I_R	50	μA
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

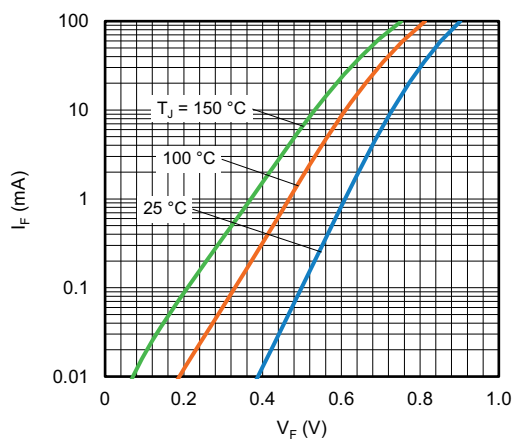
TYPICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)


Fig. 1 - Typical Forward Current vs. Forward Voltage

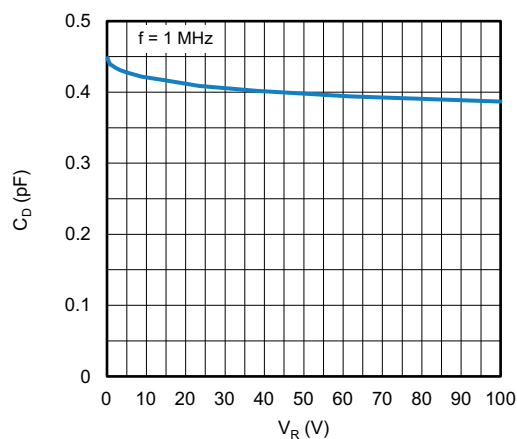


Fig. 3 - Typical Capacitance vs. Reverse Voltage

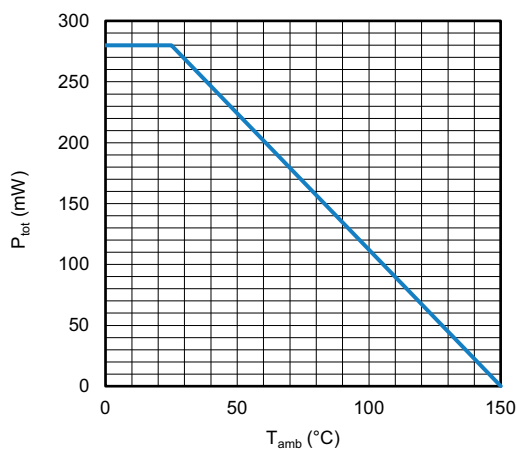


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

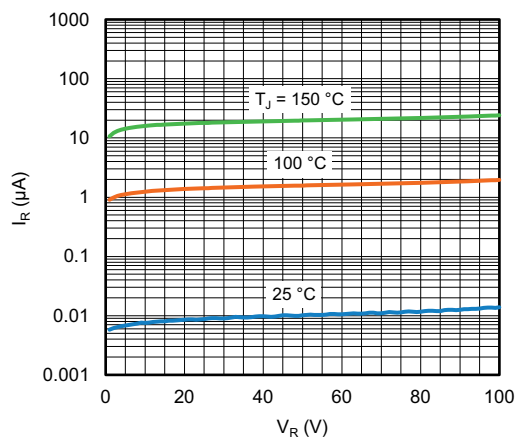
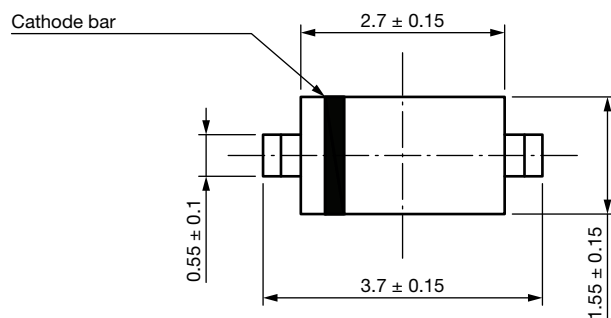
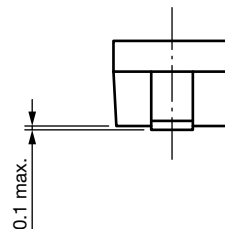
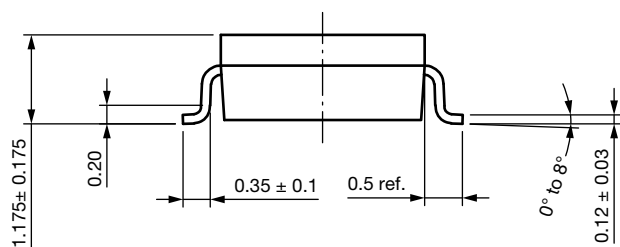


Fig. 4 - Typical Reverse Leakage Current vs. Reverse Voltage



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



Foot print recommendation



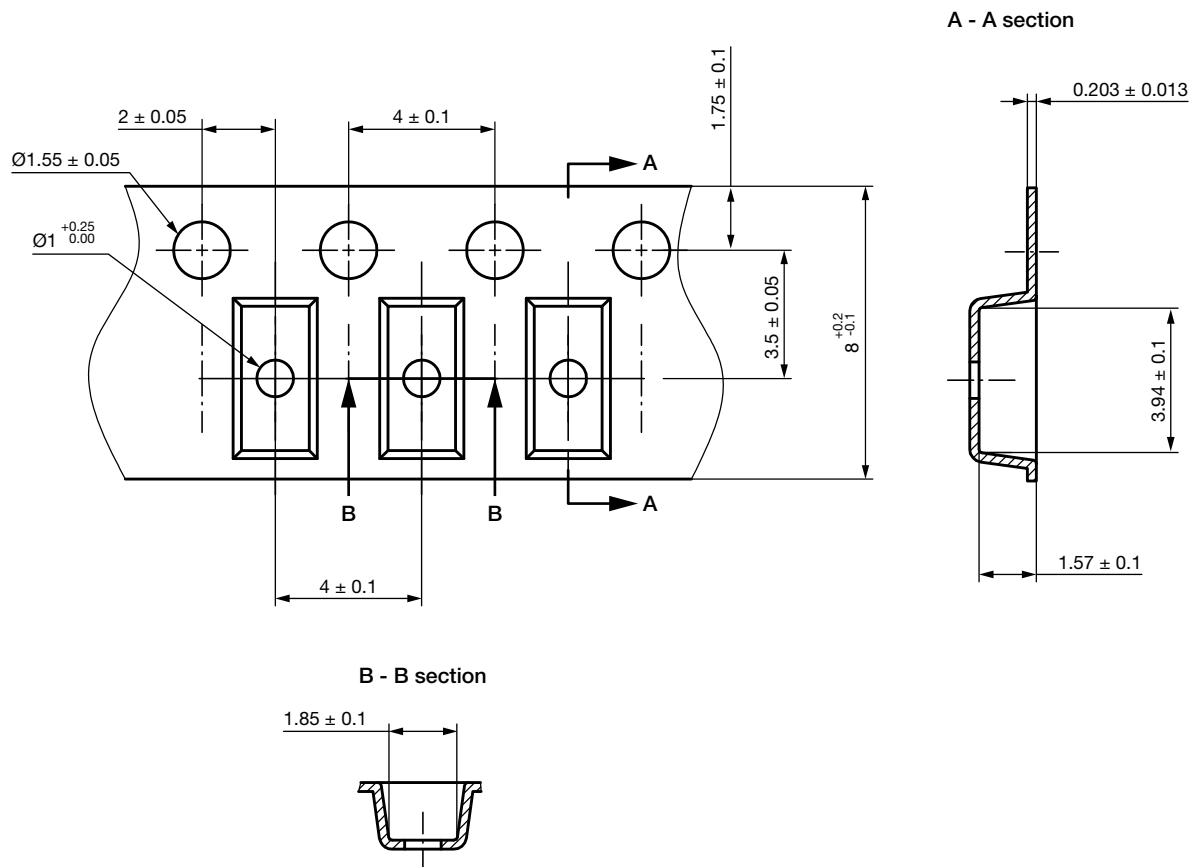
Rev. 01 - Date: 18. Jan. 2022

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

23223



CARRIER TAPE SOD-123



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

23224

ORIENTATION IN CARRIER TAPE SOD-123



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

23225



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.