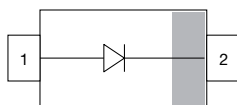


## Small Signal Fast Switching Diode



### 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



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<br>(8 mm tape on 7" reel)   | 15 000                 |
|         | 1N4148W-HE3_A-08 | yes                |              |                       |                                   |                        |
|         | 1N4148W-E3-18    | no                 |              |                       | 10 000<br>(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<br>(according J-STD-020) | Peak temperature max.<br>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® 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            |

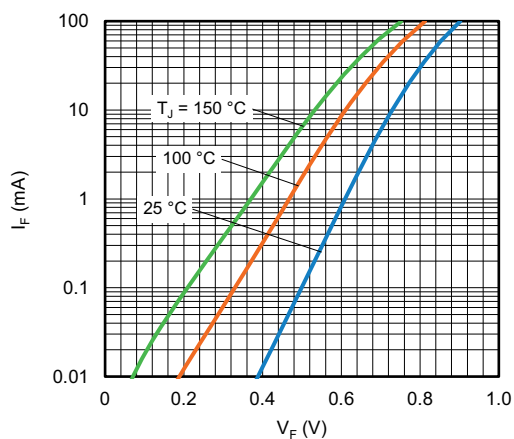
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Typical Forward Current vs. Forward Voltage

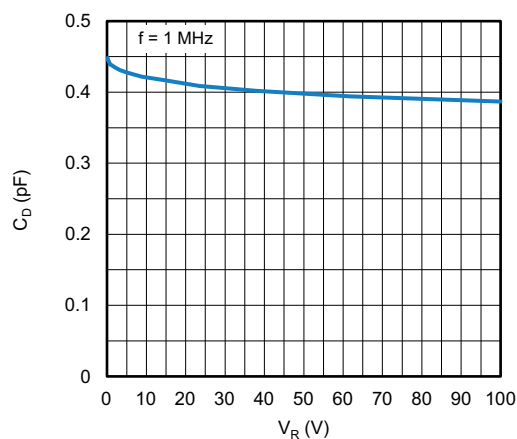


Fig. 3 - Typical Capacitance vs. Reverse Voltage

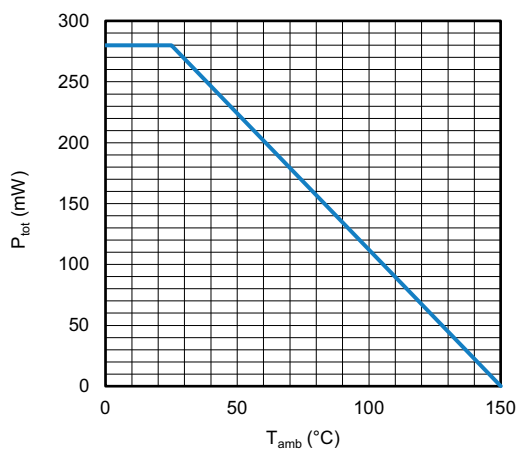


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

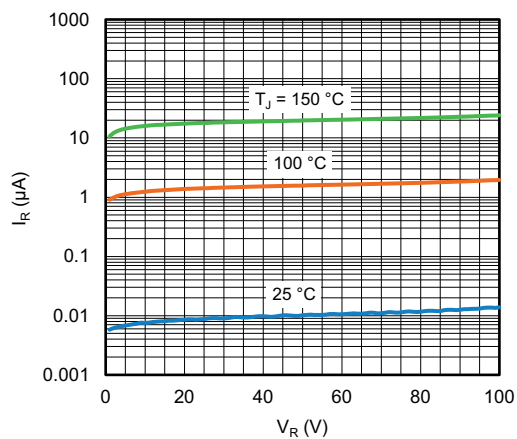
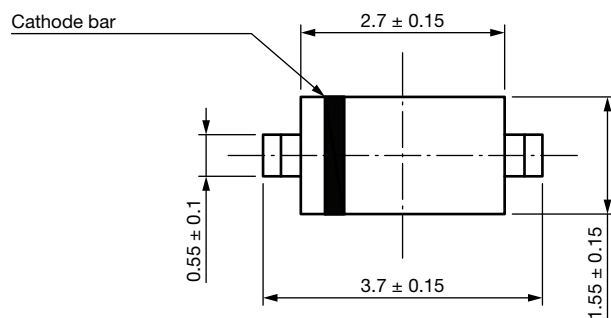
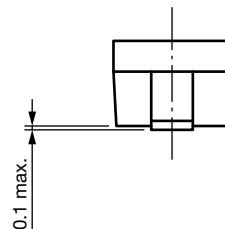
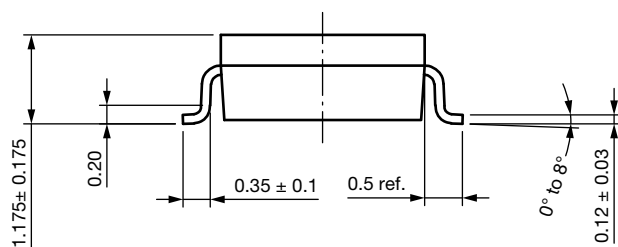


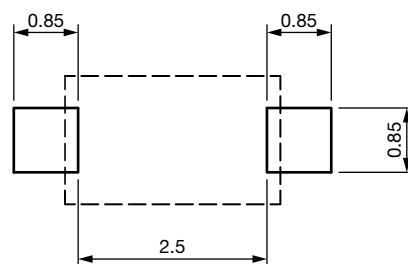
Fig. 4 - Typical Reverse Leakage Current vs. Reverse Voltage



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



Foot print recommendation



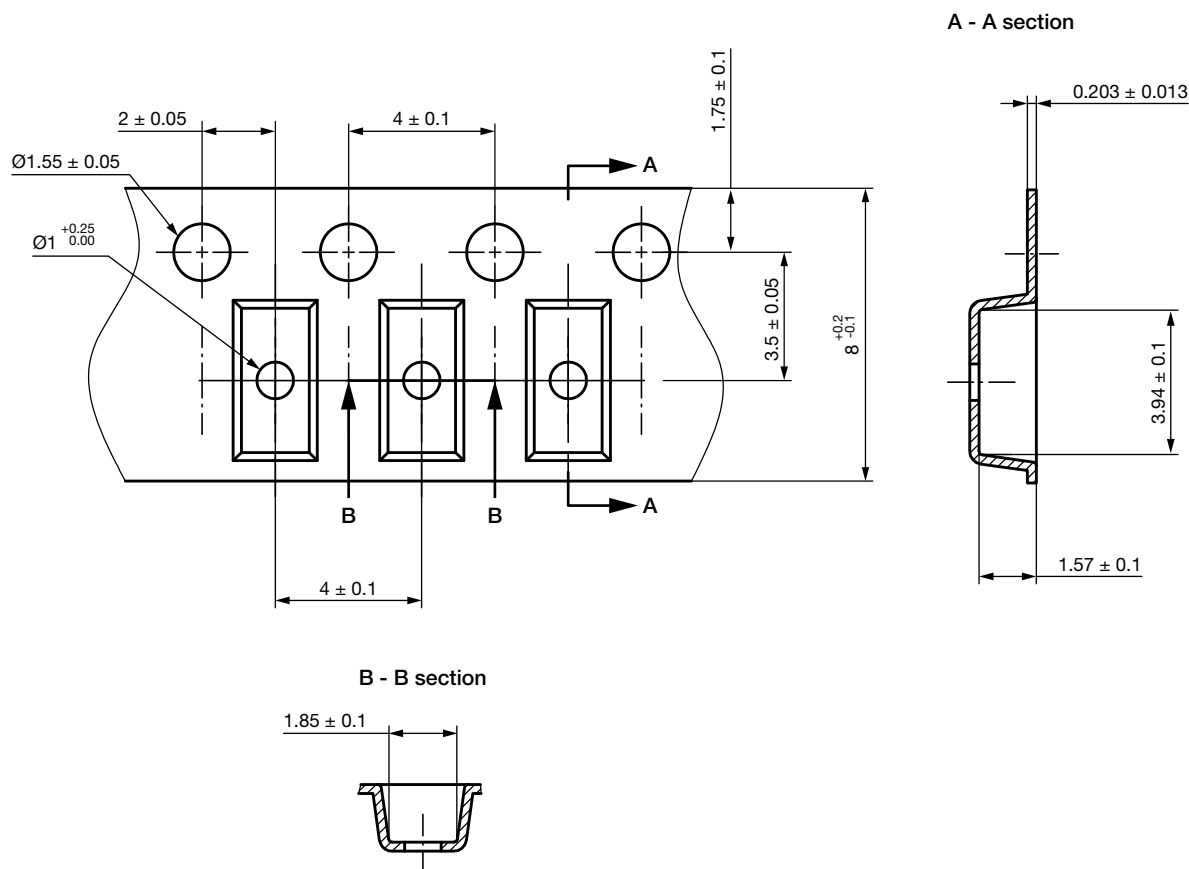
Rev. 01 - Date: 18. Jan. 2022

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

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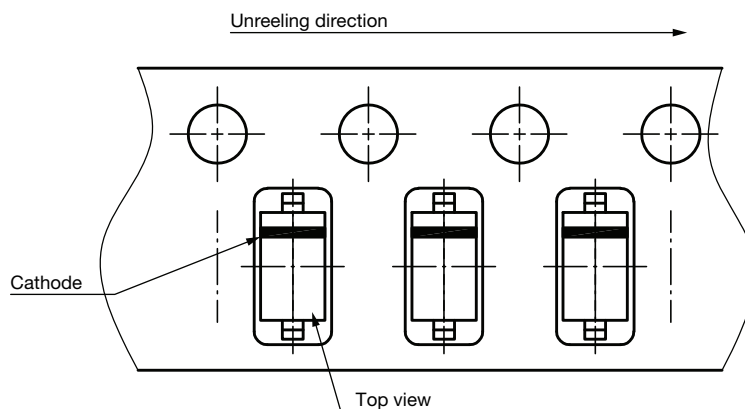
## CARRIER TAPE SOD-123



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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