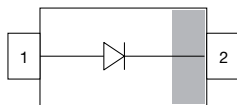


## Small Signal Switching Diodes, High Voltage



### FEATURES

- Silicon epitaxial planar diodes
- For general purpose
- 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   | TYPE DIFFERENTIATION | ORDERING CODE   | AEC-Q101 QUALIFIED | TYPE MARKING | CIRCUIT CONFIGURATION | TAPED UNITS PER REEL              | MINIMUM ORDER QUANTITY |
|--------|----------------------|-----------------|--------------------|--------------|-----------------------|-----------------------------------|------------------------|
| BAV19W | $V_R = 100\text{ V}$ | BAV19W-E3-08    | no                 | AS           | Single                | 3 000<br>(8 mm tape on 7" reel)   | 15 000                 |
|        |                      | BAV19W-HE3_A-08 | yes                |              |                       | 10 000<br>(8 mm tape on 13" reel) | 10 000                 |
|        |                      | BAV19W-E3-18    | no                 |              |                       |                                   |                        |
|        |                      | BAV19W-HE3_A-18 | yes                |              |                       |                                   |                        |
| BAV20W | $V_R = 150\text{ V}$ | BAV20W-E3-08    | no                 | AT           | Single                | 3 000<br>(8 mm tape on 7" reel)   | 15 000                 |
|        |                      | BAV20W-HE3_A-08 | yes                |              |                       | 10 000<br>(8 mm tape on 13" reel) | 10 000                 |
|        |                      | BAV20W-E3-18    | no                 |              |                       |                                   |                        |
|        |                      | BAV20W-HE3_A-18 | yes                |              |                       |                                   |                        |
| BAV21W | $V_R = 200\text{ V}$ | BAV21W-E3-08    | no                 | AU           | Single                | 3 000<br>(8 mm tape on 7" reel)   | 15 000                 |
|        |                      | BAV21W-HE3_A-08 | yes                |              |                       | 10 000<br>(8 mm tape on 13" reel) | 10 000                 |
|        |                      | BAV21W-E3-18    | no                 |              |                       |                                   |                        |
|        |                      | BAV21W-HE3_A-18 | yes                |              |                       |                                   |                        |

### ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)

| PARAMETER  | TEST CONDITION  | PART   | SYMBOL      | VALUE | UNIT |
|--|---|--------|-------------|-------|------|
| Continuous reverse voltage   |   | BAV19W | $V_R$       | 100   | V    |
|  |   | BAV20W | $V_R$       | 150   | V    |
|  |   | BAV21W | $V_R$       | 200   | V    |
| Repetitive peak reverse voltage  |   | BAV19W | $V_{RRM}$   | 120   | V    |
|  |   | BAV20W | $V_{RRM}$   | 200   | V    |
|  |   | BAV21W | $V_{RRM}$   | 250   | V    |
| DC Forward current <sup>(1)</sup>  |   |        | $I_F$       | 300   | mA   |
| Rectified current (average) half wave rectification with resist. load <sup>(1)</sup> |   |        | $I_{F(AV)}$ | 200   | mA   |
| Repetitive peak forward current <sup>(1)</sup>                                       | $f \geq 50\text{ Hz}$ , $\theta = 180^{\circ}$        |        | $I_{FRM}$   | 625   | mA   |
| Surge forward current  | $t < 1\text{ s}$ , $T_j = 25\text{ }^{\circ}\text{C}$ |        | $I_{FSM}$   | 1     | A    |
| Power dissipation  | On FR-4 board with recommended soldering footprint    |        | $P_{tot}$   | 300   | mW   |
|  | Infinite heatsink                                     |        |             | 410   | 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 | $R_{thJA}$ | 420         | K/W                |
| Thermal resistance junction to lead   | Infinite heat sink  | $R_{thJL}$ | 300         | 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   | PART   | SYMBOL   | TYP. | MAX. | UNIT          |
| Forward voltage  | $I_F = 100\text{ mA}$  |        | $V_F$    |      | 1    | V             |
|  | $I_F = 200\text{ mA}$  |        | $V_F$    |      | 1.25 | V             |
| Leakage current  | $V_R = 100\text{ V}$   | BAV19W | $I_R$    |      | 100  | nA            |
|  | $V_R = 100\text{ V}, T_j = 100\text{ }^{\circ}\text{C}$                              | BAV19W | $I_R$    |      | 15   | $\mu\text{A}$ |
|  | $V_R = 150\text{ V}$   | BAV20W | $I_R$    |      | 100  | nA            |
|  | $V_R = 150\text{ V}, T_j = 100\text{ }^{\circ}\text{C}$                              | BAV20W | $I_R$    |      | 15   | $\mu\text{A}$ |
|  | $V_R = 200\text{ V}$   | BAV21W | $I_R$    |      | 100  | nA            |
|  | $V_R = 200\text{ V}, T_j = 100\text{ }^{\circ}\text{C}$                              | BAV21W | $I_R$    |      | 15   | $\mu\text{A}$ |
| Dynamic forward resistance   | $I_F = 10\text{ mA}$   |        | $r_f$    | 5    |      | $\Omega$      |
| Diode capacitance  | $V_R = 0, f = 1\text{ MHz}$  |        | $C_D$    | 0.5  |      | pF            |
| Reverse recovery time  | $I_F = 30\text{ mA}, I_R = 30\text{ mA}, i_R = 3\text{ mA}, R_L = 100\text{ }\Omega$ |        | $t_{rr}$ |      | 50   | ns            |



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

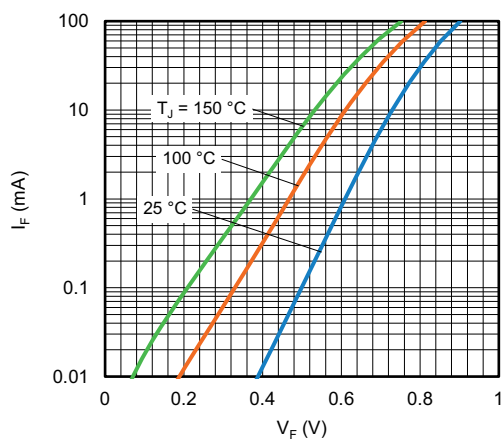


Fig. 1 - Typical Forward Current vs. Forward Voltage

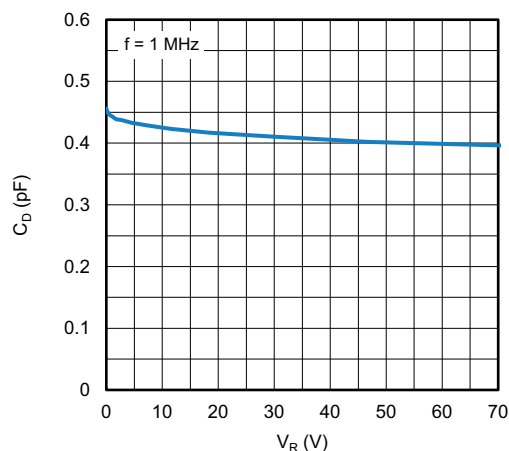


Fig. 3 - Typical Capacitance vs. Reverse Voltage

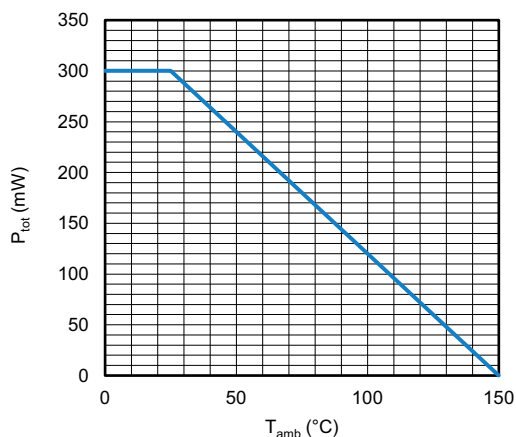


Fig. 2 - Admissible Power Dissipation vs. Ambient Temperature

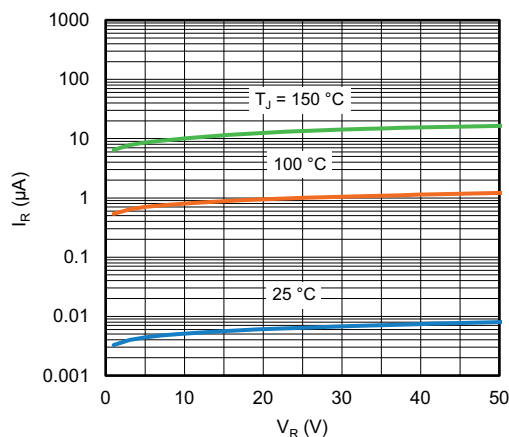
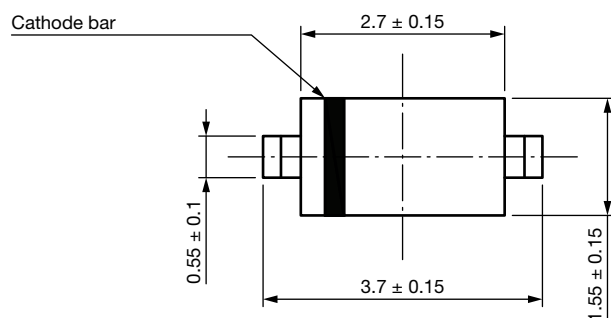
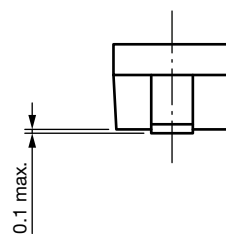
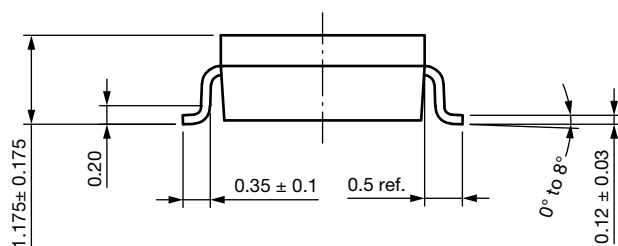


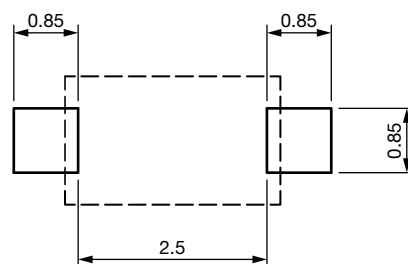
Fig. 4 - Typical Reverse Leakage Current vs. Reverse Voltage



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



Foot print recommendation



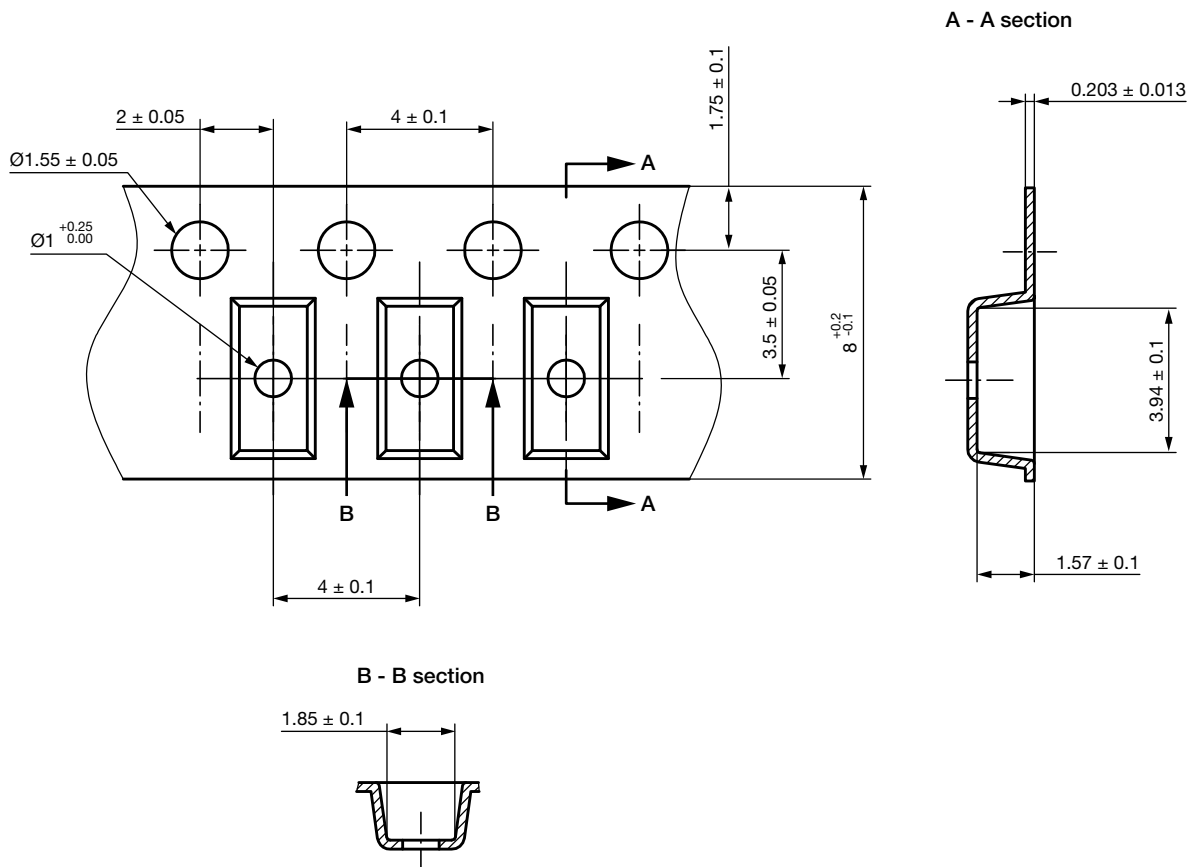
Rev. 01 - Date: 18. Jan. 2022

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

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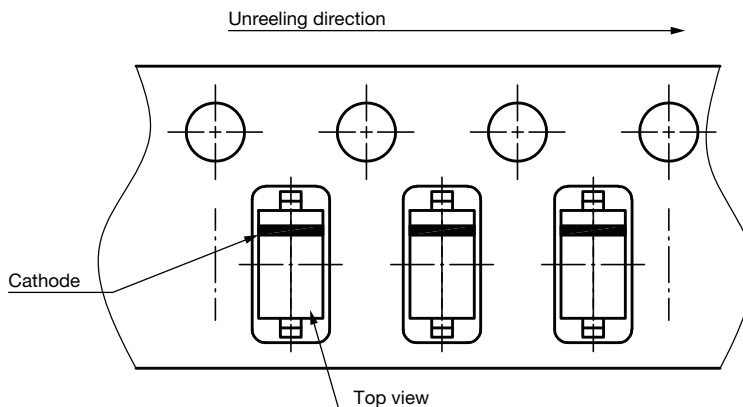
**CARRIER TAPE SOD-123**



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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