



Small Signal Switching Diodes, High Voltage



FEATURES

- Silicon epitaxial planar diodes
- For general purpose
- AEC-Q101 qualified
- Base P/N-E3 - RoHS-compliant, commercial grade
- Base P/N-HE3 - RoHS-compliant, AEC-Q101 qualified
- Material categorization:



RoHS COMPLIANT

For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

MECHANICAL DATA

Case: SOD-123

Weight: approx. 10.3 mg

Packaging codes/options:

18/10K per 13" reel (8 mm tape), 10K/box

08/3K per 7" reel (8 m tape), 15K/box

| PARTS TABLE |                        |                                |              |                       |               |
|-------------|------------------------|--------------------------------|--------------|-----------------------|---------------|
| PART        | TYPE DIFFERENTIATION   | ORDERING CODE                  | TYPE MARKING | INTERNAL CONSTRUCTION | REMARKS       |
| BAV19W      | V <sub>R</sub> = 100 V | BAV19W-E3-08 or BAV19W-E3-18   | A8           | Single diode          | Tape and reel |
|             |                        | BAV19W-HE3-08 or BAV19W-HE3-18 |              |                       |               |
| BAV20W      | V <sub>R</sub> = 150 V | BAV20W-E3-08 or BAV20W-E3-18   | A9           | Single diode          | Tape and reel |
|             |                        | BAV20W-HE3-08 or BAV20W-HE3-18 |              |                       |               |
| BAV21W      | V <sub>R</sub> = 200 V | BAV21W-E3-08 or BAV21W-E3-18   | AA           | Single diode          | Tape and reel |
|             |                        | BAV21W-HE3-08 or BAV21W-HE3-18 |              |                       |               |

| ABSOLUTE MAXIMUM RATINGS (T <sub>amb</sub> = 25 °C, unless otherwise specified)      |                                 |        |                    |       |      |
|--|---------------------------------|--------|--------------------|-------|------|
| PARAMETER  | TEST CONDITION                  | PART   | SYMBOL             | VALUE | UNIT |
| Continuous reverse voltage   |                                 | BAV19W | V <sub>R</sub>     | 100   | V    |
|  |                                 | BAV20W | V <sub>R</sub>     | 150   | V    |
|  |                                 | BAV21W | V <sub>R</sub>     | 200   | V    |
| Repetitive peak reverse voltage  |                                 | BAV19W | V <sub>RRM</sub>   | 120   | V    |
|  |                                 | BAV20W | V <sub>RRM</sub>   | 200   | V    |
|  |                                 | BAV21W | V <sub>RRM</sub>   | 250   | V    |
| DC Forward current <sup>(1)</sup>  |                                 |        | I <sub>F</sub>     | 250   | mA   |
| Rectified current (average) half wave rectification with resist. load <sup>(1)</sup> |                                 |        | I <sub>F(AV)</sub> | 200   | mA   |
| Repetitive peak forward current <sup>(1)</sup>                                       | f ≥ 50 Hz, θ = 180°             |        | I <sub>FRM</sub>   | 625   | mA   |
| Surge forward current  | t < 1 s, T <sub>j</sub> = 25 °C |        | I <sub>FSM</sub>   | 1     | A    |
| Power dissipation <sup>(1)</sup>   |                                 |        | P <sub>tot</sub>   | 410   | mW   |

| THERMAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified) |                |                   |               |      |
|--|----------------|-------------------|---------------|------|
| PARAMETER  | TEST CONDITION | SYMBOL            | VALUE         | UNIT |
| Thermal resistance junction to ambient air <sup>(1)</sup>                      |                | R <sub>thJA</sub> | 375           | °C/W |
| Junction temperature <sup>(1)</sup>  |                | T <sub>j</sub>    | 150           | °C   |
| Storage temperature range <sup>(1)</sup>                                       |                | T <sub>stg</sub>  | - 65 to + 150 | °C   |
| Operating temperature range  |                | T <sub>op</sub>   | - 55 to + 150 | °C   |

Note

<sup>(1)</sup> Valid provided that leads are kept at ambient temperature



| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified) |   |        |          |      |      |      |               |
|--|---|--------|----------|------|------|------|---------------|
| PARAMETER  | TEST CONDITION  | PART   | SYMBOL   | MIN. | 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  | $V_R = 0, f = 1\text{ MHz}$   |        | $C_D$    |      | 1.5  |      | pF            |
| Reverse recovery time  | $I_F = 30\text{ mA}, I_R = 30\text{ mA},$<br>$i_R = 3\text{ mA}, R_L = 100\text{ }\Omega$ |        | $t_{rr}$ |      |      | 50   | ns            |

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

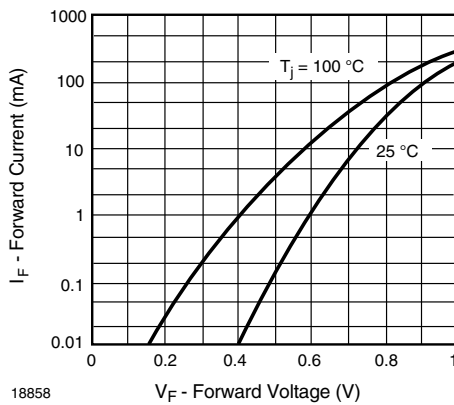


Fig. 1 - Forward Current vs. Forward Voltage

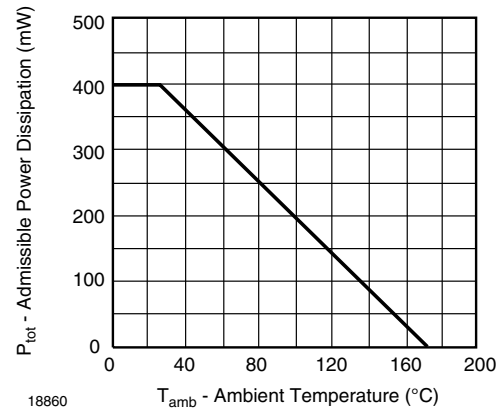


Fig. 3 - Admissible Power Dissipation vs. Ambient Temperature

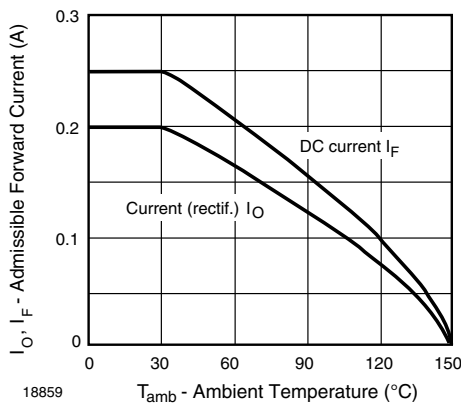


Fig. 2 - Admissible Forward Current vs. Ambient Temperature

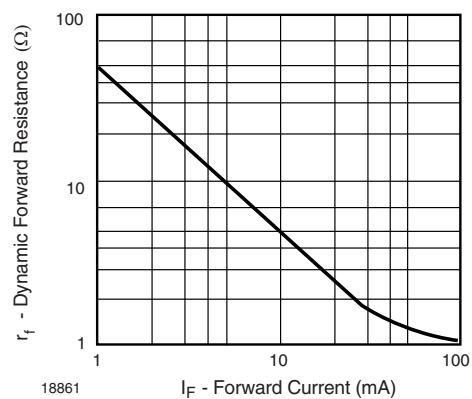


Fig. 4 - Dynamic Forward Resistance vs. Forward Current

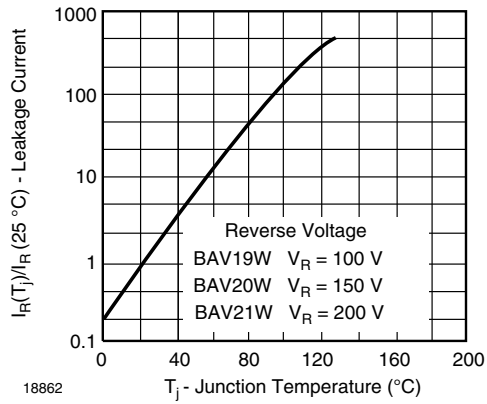


Fig. 5 - Leakage Current vs. Junction Temperature

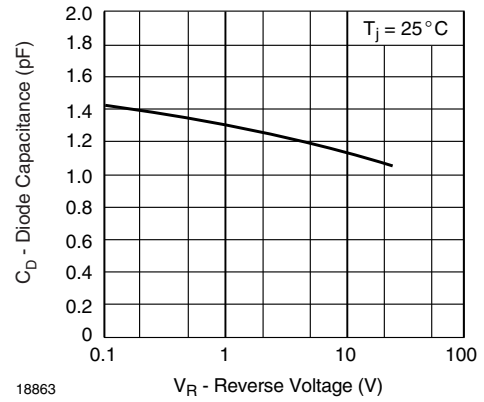


Fig. 6 - Capacitance vs. Reverse Voltage

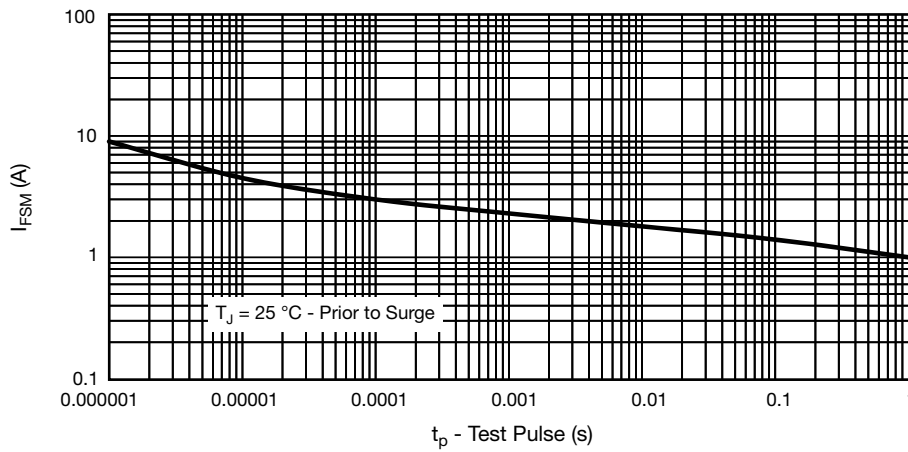
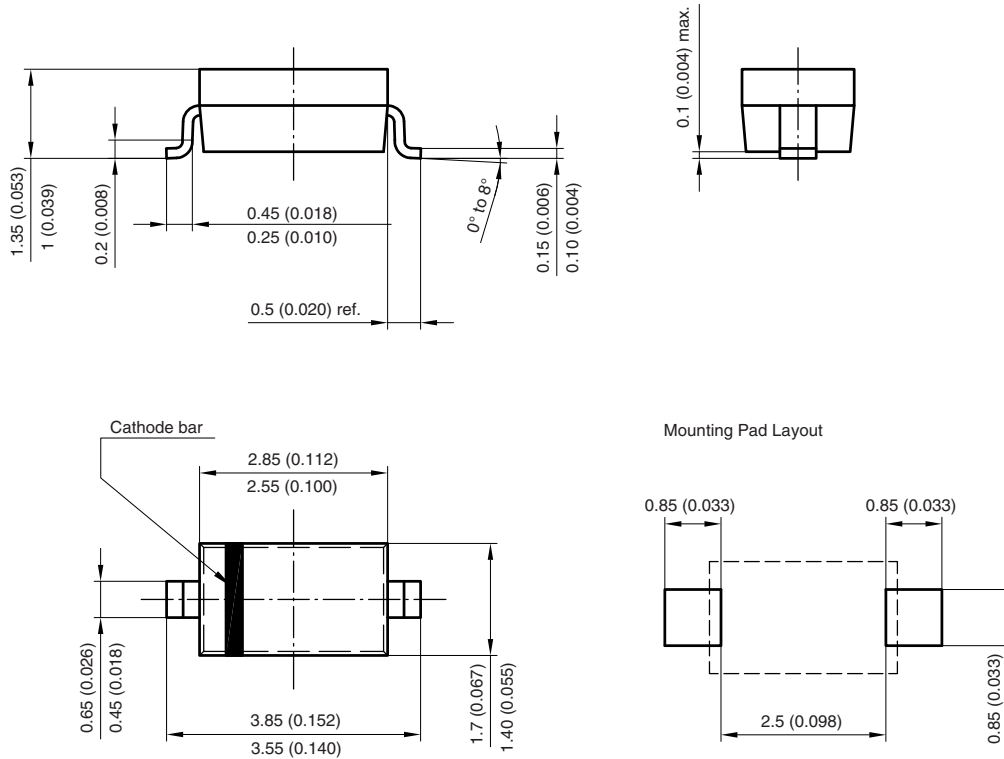


Fig. 7 - Non-Repetitive Peak Forward Current vs. Pulse Duration  
Maximum Admissible Values of Square Pulse



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



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