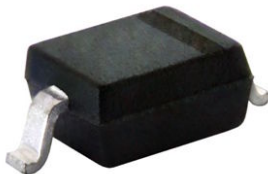


## Small Signal Switching Diodes, High Voltage



**DESIGN SUPPORT TOOLS** click logo to get started



### MECHANICAL DATA

**Case:** SOD-323

**Weight:** approx. 4.3 mg

**Packaging codes / options:**

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

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

### FEATURES

- Silicon epitaxial planar diodes
- For general purpose
- AEC-Q101 qualified available
- Base P/N-E3 - RoHS-compliant, commercial grade
- Base P/N-HE3 - RoHS-compliant, AEC-Q101 qualified
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT

### PARTS TABLE

| PART    | TYPE DIFFERENTIATION | ORDERING CODE                                                      | TYPE MARKING | CIRCUIT CONFIGURATION | REMARKS       |
|---------|----------------------|--------------------------------------------------------------------|--------------|-----------------------|---------------|
| BAV19WS | $V_R = 100\text{ V}$ | BAV19WS-E3-08 or BAV19WS-E3-18<br>BAV19WS-HE3-08 or BAV19WS-HE3-18 | A8           | Single                | Tape and reel |
| BAV20WS | $V_R = 150\text{ V}$ | BAV20WS-E3-08 or BAV20WS-E3-18<br>BAV20WS-HE3-08 or BAV20WS-HE3-18 | A9           | Single                | Tape and reel |
| BAV21WS | $V_R = 200\text{ V}$ | BAV21WS-E3-08 or BAV21WS-E3-18<br>BAV21WS-HE3-08 or BAV21WS-HE3-18 | AA           | Single                | Tape and reel |

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

| PARAMETER                                                                              | TEST CONDITION                                        | PART    | SYMBOL      | VALUE | UNIT |
|----------------------------------------------------------------------------------------|-------------------------------------------------------|---------|-------------|-------|------|
| Continuous reverse voltage                                                             |                                                       | BAV19WS | $V_R$       | 100   | V    |
|                                                                                        |                                                       | BAV20WS | $V_R$       | 150   | V    |
|                                                                                        |                                                       | BAV21WS | $V_R$       | 200   | V    |
| Repetitive peak reverse voltage                                                        |                                                       | BAV19WS | $V_{RRM}$   | 120   | V    |
|                                                                                        |                                                       | BAV20WS | $V_{RRM}$   | 200   | V    |
|                                                                                        |                                                       | BAV21WS | $V_{RRM}$   | 250   | V    |
| Forward continuous current <sup>(1)</sup>                                              |                                                       |         | $I_F$       | 250   | mA   |
| Rectified current (average) half wave rectification with resistive 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                                                                      |                                                       |         | $P_{tot}$   | 200   | mW   |

#### Note

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

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

| PARAMETER                                  | TEST CONDITION | SYMBOL     | VALUE       | UNIT               |
|--------------------------------------------|----------------|------------|-------------|--------------------|
| Thermal resistance junction to ambient air |                | $R_{thJA}$ | 625         | K/W                |
| Thermal resistance junction to lead        |                | $R_{thJL}$ | 450         | 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                                                                            | 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             |
| Reverse leakage current                                                                           | $V_R = 100\text{ V}$                                                                      | BAV19WS | $I_R$    |      |      | 100  | nA            |
|                                                                                                   | $V_R = 100\text{ V}, T_J = 100\text{ }^{\circ}\text{C}$                                   | BAV19WS | $I_R$    |      |      | 15   | $\mu\text{A}$ |
|                                                                                                   | $V_R = 150\text{ V}$                                                                      | BAV20WS | $I_R$    |      |      | 100  | nA            |
|                                                                                                   | $V_R = 150\text{ V}, T_J = 100\text{ }^{\circ}\text{C}$                                   | BAV20WS | $I_R$    |      |      | 15   | $\mu\text{A}$ |
|                                                                                                   | $V_R = 200\text{ V}$                                                                      | BAV21WS | $I_R$    |      |      | 100  | nA            |
|                                                                                                   | $V_R = 200\text{ V}, T_J = 100\text{ }^{\circ}\text{C}$                                   | BAV21WS | $I_R$    |      |      | 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)

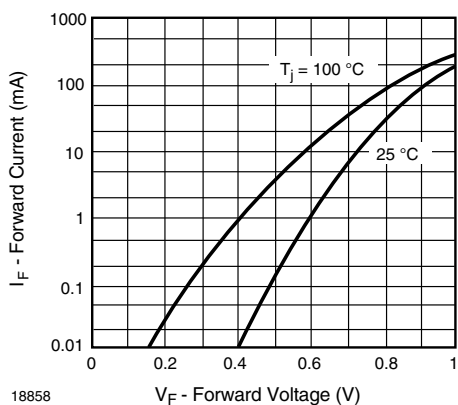


Fig. 1 - Forward Current vs. Forward Voltage

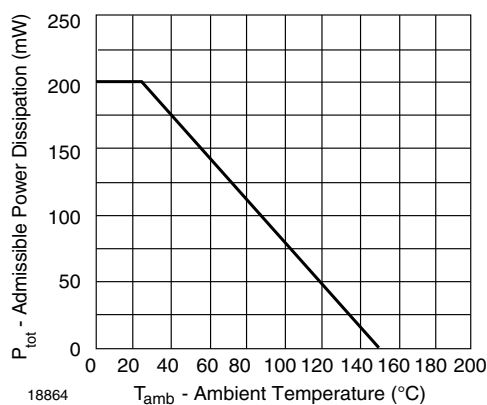


Fig. 3 - Admissible Power Dissipation vs. Ambient Temperature

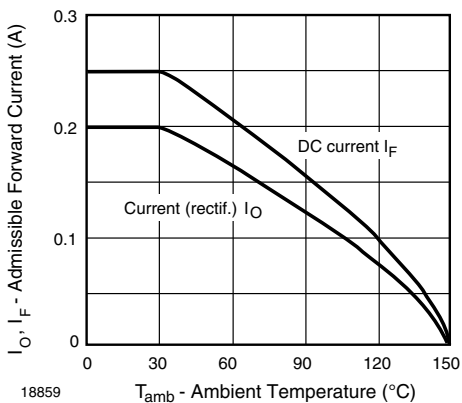


Fig. 2 - Admissible Forward Current vs. Ambient Temperature

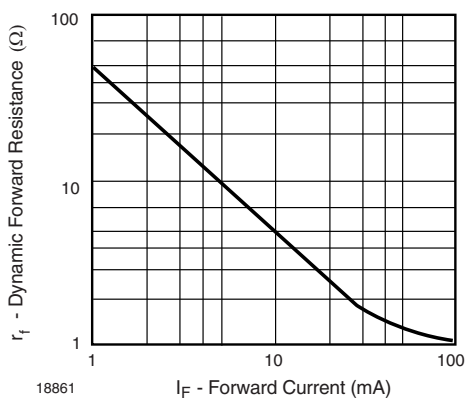


Fig. 4 - Dynamic Forward Resistance vs. Forward Current

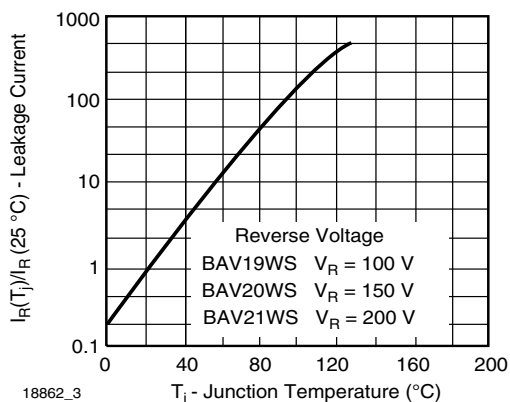


Fig. 5 - Leakage Current vs. Junction Temperature

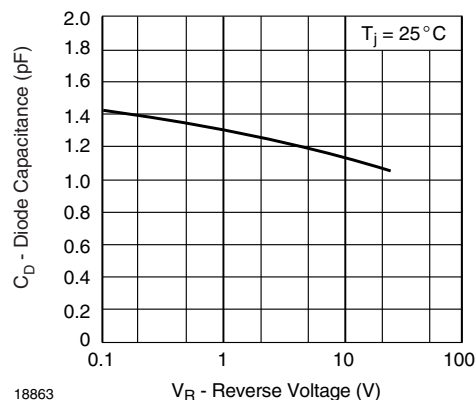
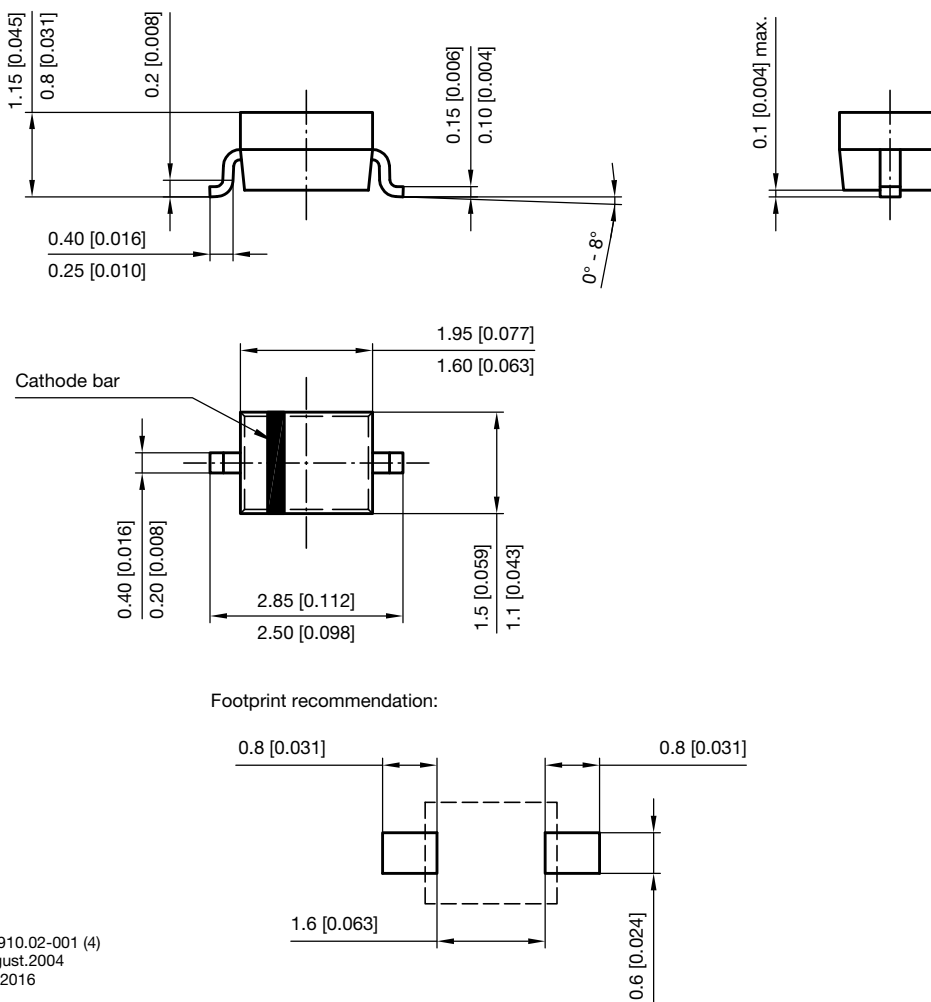


Fig. 6 - Capacitance vs. Reverse Voltage

## PACKAGE DIMENSIONS in millimeters (inches): SOD-323



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17443



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