



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

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 _R = 100 V | BAV19W-E3-08 or BAV19W-E3-18 | A8 | Single diode | Tape and reel |
| | | BAV19W-HE3-08 or BAV19W-HE3-18 | | | |
| BAV20W | V _R = 150 V | BAV20W-E3-08 or BAV20W-E3-18 | A9 | Single diode | Tape and reel |
| | | BAV20W-HE3-08 or BAV20W-HE3-18 | | | |
| BAV21W | V _R = 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 _{amb} = 25 °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 ⁽¹⁾ | | | I _F | 250 | mA |
| Rectified current (average) half wave rectification with resist. load ⁽¹⁾ | | | I _{F(AV)} | 200 | mA |
| Repetitive peak forward current ⁽¹⁾ | f ≥ 50 Hz, θ = 180° | | I _{FRM} | 625 | mA |
| Surge forward current | t < 1 s, T _j = 25 °C | | I _{FSM} | 1 | A |
| Power dissipation ⁽¹⁾ | | | P _{tot} | 410 | mW |

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

Note

⁽¹⁾ Valid provided that leads are kept at ambient temperature



| 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 |
| 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 | μA |
| | $V_R = 150\text{ V}$ | BAV20W | I_R | | | 100 | nA |
| | $V_R = 150\text{ V}, T_j = 100\text{ }^{\circ}\text{C}$ | BAV20W | I_R | | | 15 | μA |
| | $V_R = 200\text{ V}$ | BAV21W | I_R | | | 100 | nA |
| | $V_R = 200\text{ V}, T_j = 100\text{ }^{\circ}\text{C}$ | BAV21W | I_R | | | 15 | μA |
| Dynamic forward resistance | $I_F = 10\text{ mA}$ | | r_f | | 5 | | Ω |
| Diode capacitance | $V_R = 0, f = 1\text{ MHz}$ | | C_D | | 1.5 | | pF |
| Reverse recovery time | $I_F = 30\text{ mA}, I_R = 30\text{ mA},$ $i_R = 3\text{ mA}, R_L = 100\text{ }\Omega$ | | t_{rr} | | | 50 | ns |

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

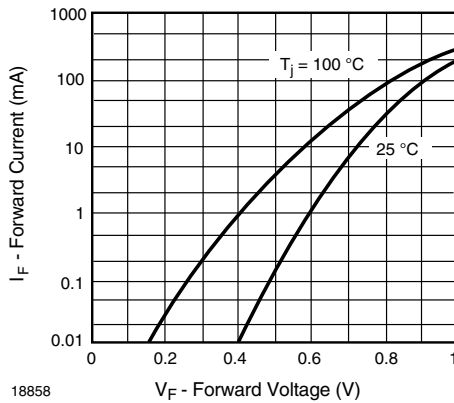


Fig. 1 - Forward Current vs. Forward Voltage

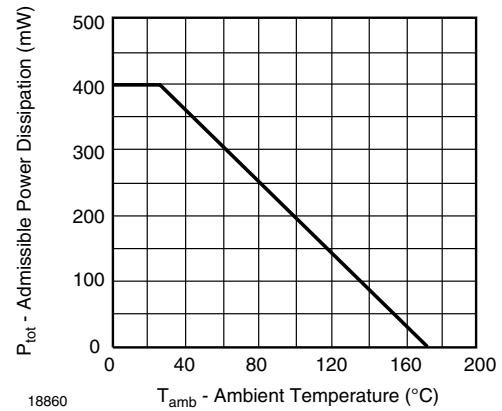


Fig. 3 - Admissible Power Dissipation vs. Ambient Temperature

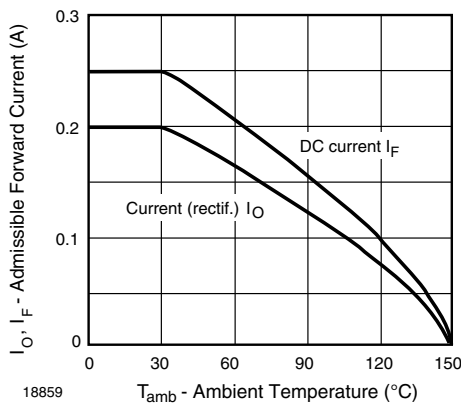


Fig. 2 - Admissible Forward Current vs. Ambient Temperature

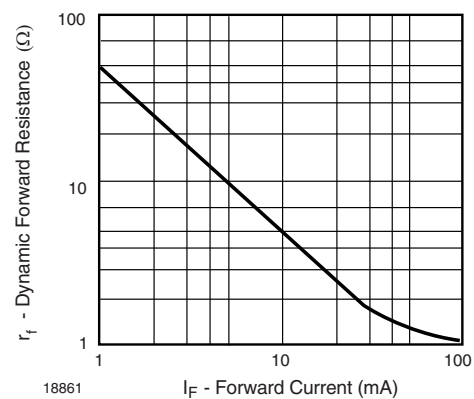


Fig. 4 - Dynamic Forward Resistance vs. Forward Current

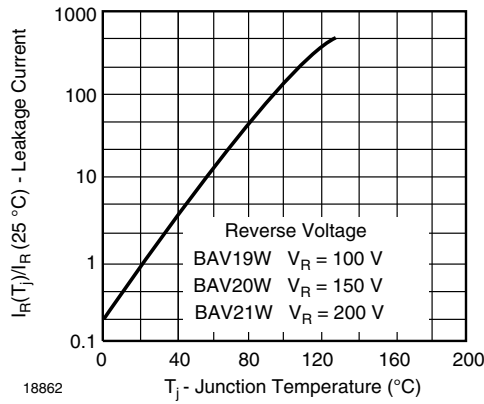


Fig. 5 - Leakage Current vs. Junction Temperature

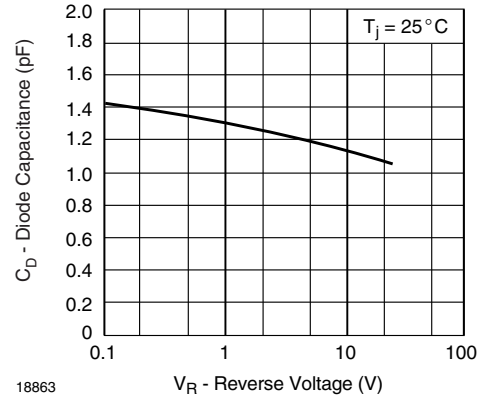


Fig. 6 - Capacitance vs. Reverse Voltage

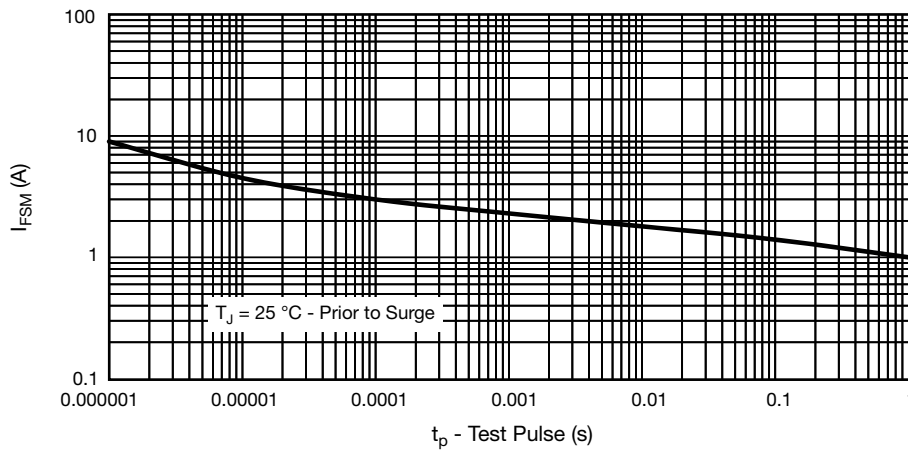
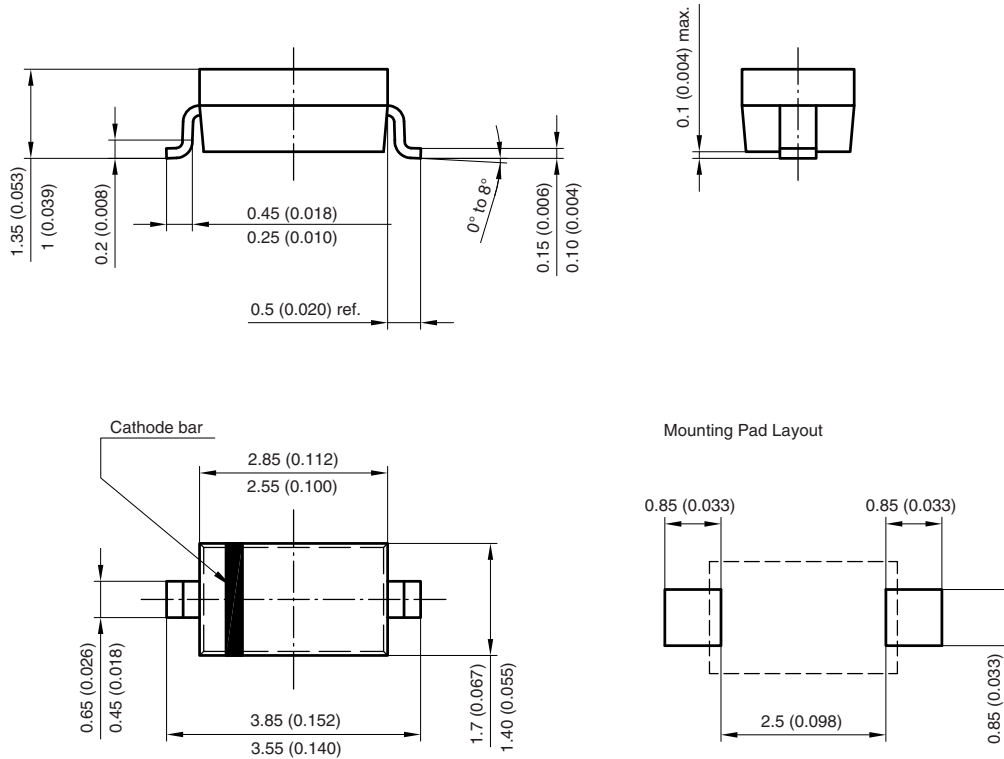


Fig. 7 - Non-Repetitive Peak Forward Current vs. Pulse Duration
Maximum Admissible Values of Square Pulse



PACKAGE DIMENSIONS in millimeters (inches): SOD-123



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