

Small Signal Schottky Diode


DESIGN SUPPORT TOOLS
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3D
Models
Available

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 mm tape), 15K/box

FEATURES

- For general purpose applications
- This diode features very low turn-on voltage and fast switching
- This device is protected by a PN junction guard ring against excessive voltage, such as electrostatic discharges
- 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


RoHS
COMPLIANT

PARTS TABLE

| PART | ORDERING CODE | CIRCUIT CONFIGURATION | TYPE MARKING | REMARKS |
|--------|--------------------------------|-----------------------|--------------|---------------|
| BAT46W | BAT46W-E3-08 or BAT46W-E3-18 | Single | L6 | Tape and reel |
| | BAT46W-HE3-08 or BAT46W-HE3-18 | | | |

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

| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
|--|--|-----------|-------|------|
| Repetitive peak reverse voltage | | V_{RRM} | 100 | V |
| Forward continuous current ⁽¹⁾ | | I_F | 150 | mA |
| Repetitive peak forward current ⁽¹⁾ | $t_p < 1\text{ s}, \delta < 0.5$ | I_{FRM} | 350 | mA |
| Surge forward current ⁽¹⁾ | $t_p < 10\text{ ms}$ | I_{FSM} | 750 | mA |
| Power dissipation ⁽¹⁾ | $T_{amb} = 65\text{ }^{\circ}\text{C}$ | P_{tot} | 150 | mW |

Note
⁽¹⁾ Valid provided that electrodes 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 ⁽¹⁾ | | R_{thJA} | 300 | K/W |
| Junction temperature | | T_j | 125 | $^{\circ}\text{C}$ |
| Operating temperature range | | T_{op} | -55 to +125 | $^{\circ}\text{C}$ |
| Storage temperature range | | T_{stg} | -55 to +150 | $^{\circ}\text{C}$ |

Note
⁽¹⁾ Valid provided that electrodes are kept at ambient temperature



| ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | | | |
|--|--|------------|------|------|------|---------------|
| PARAMETER | TEST CONDITION | SYMBOL | MIN. | TYP. | MAX. | UNIT |
| Reverse breakdown voltage | $I_R = 100\text{ }\mu\text{A}$ (pulsed) | $V_{(BR)}$ | 100 | | | V |
| Leakage current ⁽¹⁾ | $V_R = 1.5\text{ V}$ | I_R | | | 0.5 | μA |
| | $V_R = 1.5\text{ V}, T_j = 60\text{ }^{\circ}\text{C}$ | I_R | | | 5 | μA |
| | $V_R = 10\text{ V}$ | I_R | | | 0.8 | μA |
| | $V_R = 10\text{ V}, T_j = 60\text{ }^{\circ}\text{C}$ | I_R | | | 7.5 | μA |
| | $V_R = 50\text{ V}$ | I_R | | | 2 | μA |
| | $V_R = 50\text{ V}, T_j = 60\text{ }^{\circ}\text{C}$ | I_R | | | 15 | μA |
| | $V_R = 75\text{ V}$ | I_R | | | 5 | μA |
| Forward voltage ⁽¹⁾ | $I_F = 0.1\text{ mA}$ | V_F | | | 250 | mV |
| | $I_F = 10\text{ mA}$ | V_F | | | 450 | mV |
| | $I_F = 250\text{ mA}$ | V_F | | | 1000 | mV |
| Diode capacitance | $V_R = 0\text{ V}, f = 1\text{ MHz}$ | C_D | | 10 | | pF |
| | $V_R = 1\text{ V}, f = 1\text{ MHz}$ | C_D | | 6 | | pF |

Note

⁽¹⁾ Pulse test; $t_p \leq 300\text{ }\mu\text{s}$, $\delta < 2\%$

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

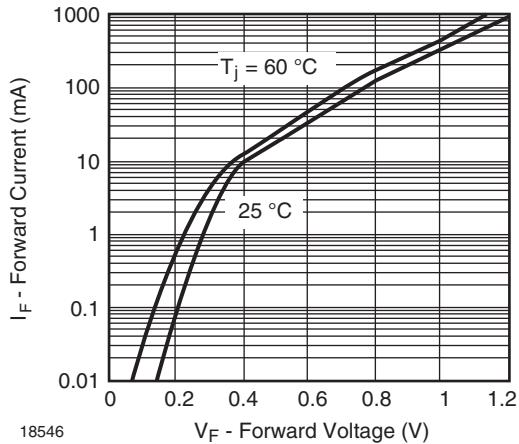


Fig. 1 - Typical Instantaneous Forward Characteristics

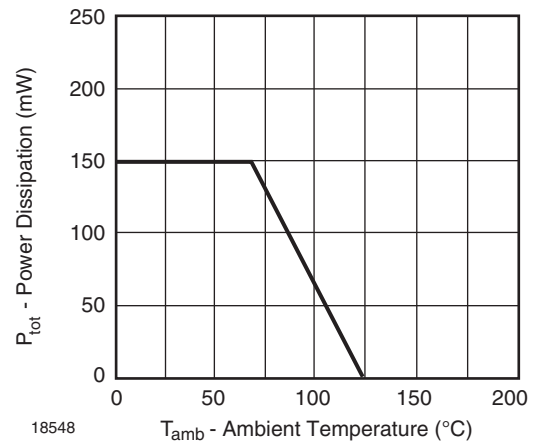


Fig. 3 - Admissible Power Dissipation vs. Ambient Temperature

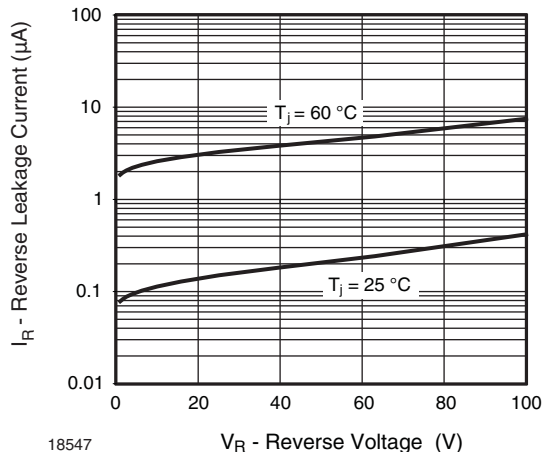
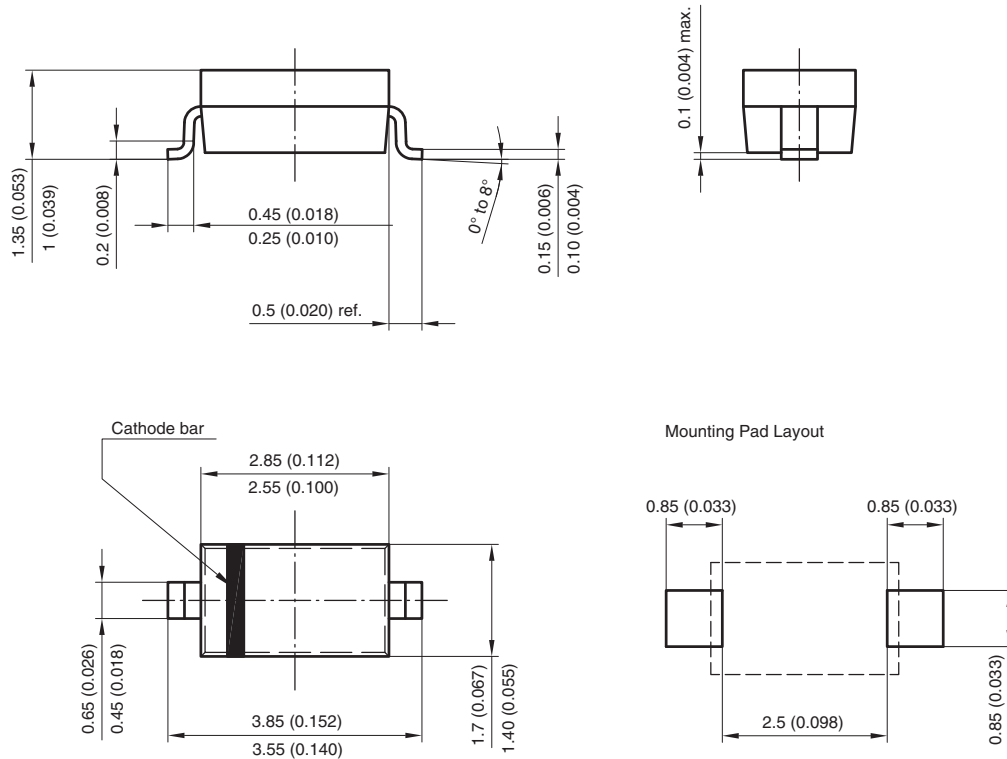


Fig. 2 - Typical Reverse Characteristics



PACKAGE DIMENSIONS in millimeters (inches): SOD-123



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