



Small Signal Schottky Diodes



MECHANICAL DATA

Case: SOD-123

Weight: approx. 10.3 mg

Cathode band color: black

Packaging codes/options:

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

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

FEATURES

- The low forward voltage drop and fast switching make it ideal for protection of MOS devices, steering, biasing, and coupling diodes for fast switching and low logic level applications
- Other applications are click suppression, efficient full wave bridges in telephone subsets, and blocking diodes in rechargeable low voltage battery systems
- The SD103 series is a metal-on-silicon Schottky barrier device which is protected by a PN junction guardring
- For general purpose applications
- AEC-Q101 qualified
- 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 | INTERNAL CONSTRUCTION | TYPE MARKING | REMARKS |
| SD103AW | SD103AW-E3-08 or SD103AW-E3-18 | Single diode | S6 | Tape and reel |
| | SD103AW-HE3-08 or SD103AW-HE3-18 | | | |
| SD103BW | SD103BW-E3-08 or SD103BW-E3-18 | Single diode | S7 | |
| | SD103BW-HE3-08 or SD103BW-HE3-18 | | | |
| SD103CW | SD103CW-E3-08 or SD103CW-E3-18 | Single diode | S8 | |
| | SD103CW-HE3-08 or SD103CW-HE3-18 | | | |

| ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified) | | | | | |
|---|-------------------|---------|------------------|-------|------|
| PARAMETER | TEST CONDITION | PART | SYMBOL | VALUE | UNIT |
| Repetitive peak reverse voltage | | SD103AW | V _{RRM} | 40 | V |
| | | SD103BW | V _{RRM} | 30 | V |
| | | SD103CW | V _{RRM} | 20 | V |
| Forward continuous current ⁽¹⁾ | | | I _F | 350 | mA |
| Power dissipation (infinite heat sink) ⁽¹⁾ | | | P _{tot} | 400 | mW |
| Single cycle surge | 10 μs square wave | | I _{FSM} | 2 | A |

Note

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

| THERMAL CHARACTERISTICS (T _{amb} = 25 °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 | °C |
| Operating temperature range | | T _{op} | - 55 to + 125 | °C |
| Storage temperature range | | T _{stg} | - 55 to + 150 | °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 | PART | SYMBOL | MIN. | TYP. | MAX. | UNIT |
| Leakage current | $V_R = 30\text{ V}$ | SD103AW | I_R | | | 5 | μA |
| | $V_R = 20\text{ V}$ | SD103BW | I_R | | | 5 | μA |
| | $V_R = 10\text{ V}$ | SD103CW | I_R | | | 5 | μA |
| Forward voltage drop | $I_F = 20\text{ mA}$ | | V_F | | | 370 | mV |
| | $I_F = 200\text{ mA}$ | | V_F | | | 600 | mV |
| Diode capacitance | $V_R = 0\text{ V}, f = 1\text{ MHz}$ | | C_D | | 50 | | pF |
| Reverse recovery time | $I_F = I_R = 50\text{ mA}$ to 200 mA , recover to $0.1 I_R$ | | t_{rr} | | 10 | | ns |

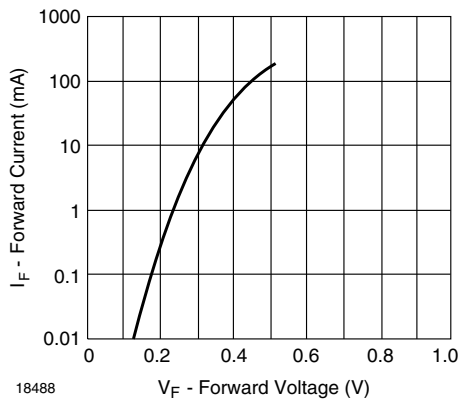
TYPICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)


Fig. 1 - Typical Variation of Forward Current vs. Forward Voltage

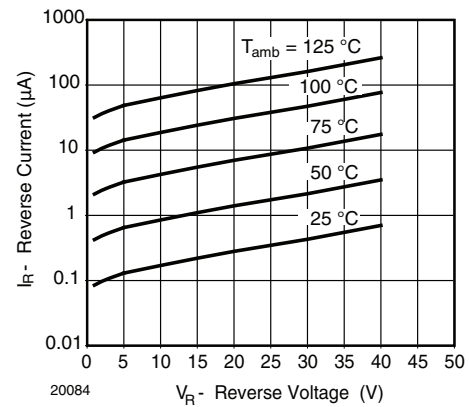


Fig. 3 - Typical Variation of Reverse Current at Various Temperatures

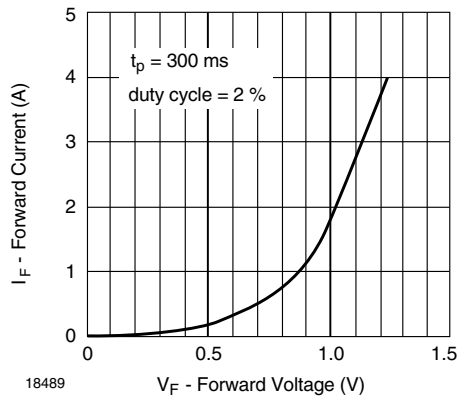


Fig. 2 - Typical High Current Forward Conduction Curve

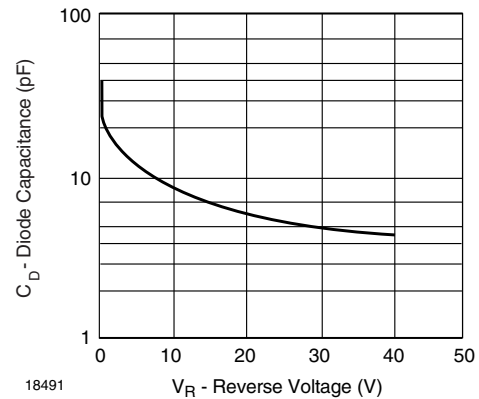


Fig. 4 - Typical Capacitance vs. Reverse Voltage

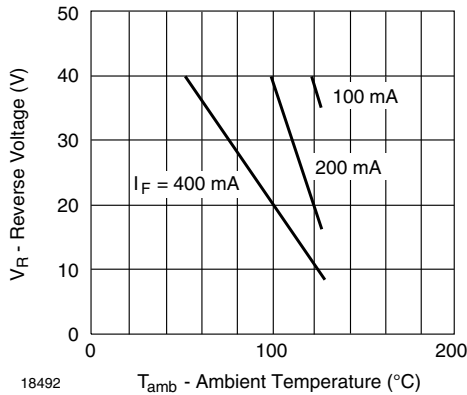
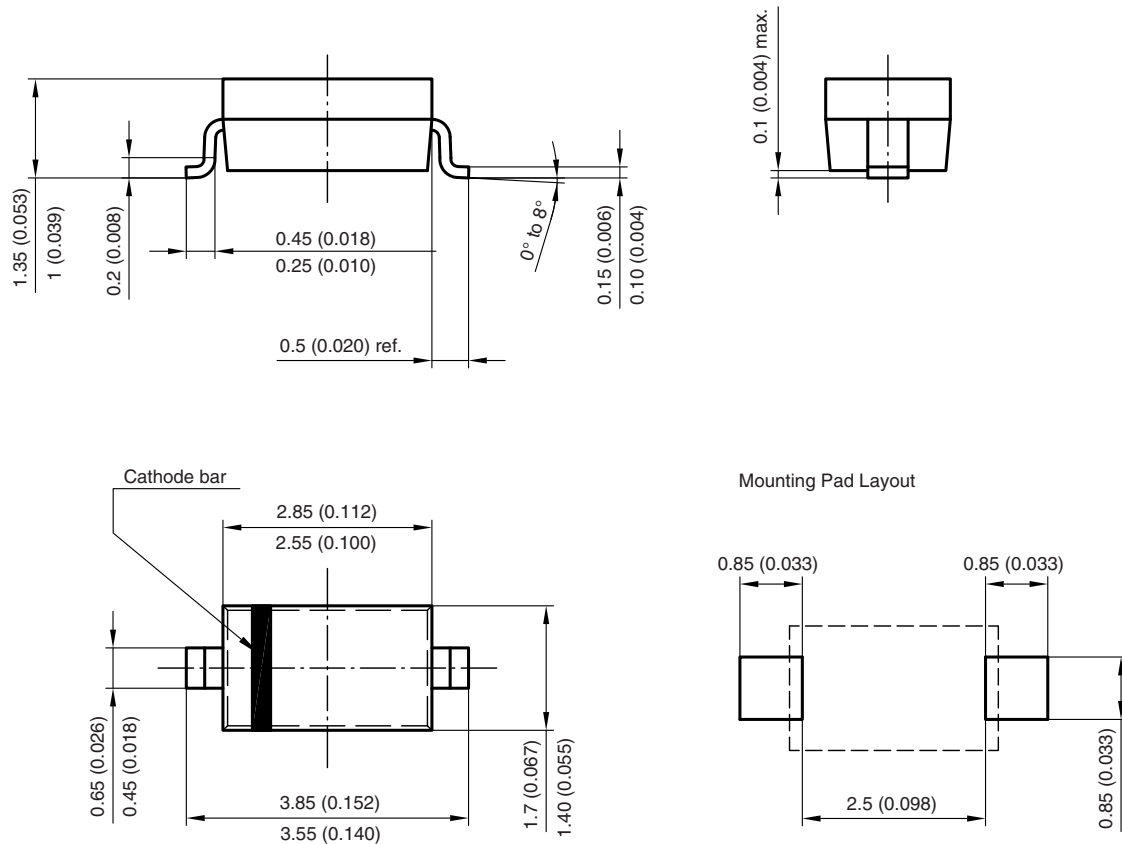


Fig. 5 - Blocking Voltage Deration vs. Temperature at Various Average Forward Currents

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



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