



## 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](http://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 <sub>amb</sub> = 25 °C, unless otherwise specified) |                   |         |                  |       |      |
|---|-------------------|---------|------------------|-------|------|
| PARAMETER   | TEST CONDITION    | PART    | SYMBOL           | VALUE | UNIT |
| Repetitive peak reverse voltage   |                   | SD103AW | V <sub>RRM</sub> | 40    | V    |
|   |                   | SD103BW | V <sub>RRM</sub> | 30    | V    |
|   |                   | SD103CW | V <sub>RRM</sub> | 20    | V    |
| Forward continuous current <sup>(1)</sup>                                       |                   |         | I <sub>F</sub>   | 350   | mA   |
| Power dissipation (infinite heat sink) <sup>(1)</sup>                           |                   |         | P <sub>tot</sub> | 400   | mW   |
| Single cycle surge  | 10 μs square wave |         | I <sub>FSM</sub> | 2     | A    |

#### Note

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

| 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> | 300           | K/W  |
| Junction temperature   |                | T <sub>j</sub>    | 125           | °C   |
| Operating temperature range  |                | T <sub>op</sub>   | - 55 to + 125 | °C   |
| Storage temperature range  |                | T <sub>stg</sub>  | - 55 to + 150 | °C   |

#### Note

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



| ELECTRICAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified) |  |         |                 |      |      |      |      |
|---|--|---------|-----------------|------|------|------|------|
| PARAMETER   | TEST CONDITION   | PART    | SYMBOL          | MIN. | TYP. | MAX. | UNIT |
| Leakage current   | V <sub>R</sub> = 30 V  | SD103AW | I <sub>R</sub>  |      |      | 5    | μA   |
|   | V <sub>R</sub> = 20 V  | SD103BW | I <sub>R</sub>  |      |      | 5    | μA   |
|   | V <sub>R</sub> = 10 V  | SD103CW | I <sub>R</sub>  |      |      | 5    | μA   |
| Forward voltage drop  | I <sub>F</sub> = 20 mA   |         | V <sub>F</sub>  |      |      | 370  | mV   |
|   | I <sub>F</sub> = 200 mA  |         | V <sub>F</sub>  |      |      | 600  | mV   |
| Diode capacitance   | V <sub>R</sub> = 0 V, f = 1 MHz  |         | C <sub>D</sub>  |      | 50   |      | pF   |
| Reverse recovery time   | I <sub>F</sub> = I <sub>R</sub> = 50 mA to 200 mA, recover to 0.1 I <sub>R</sub> |         | t <sub>rr</sub> |      | 10   |      | ns   |

**TYPICAL CHARACTERISTICS** (T<sub>amb</sub> = 25 °C, unless otherwise specified)

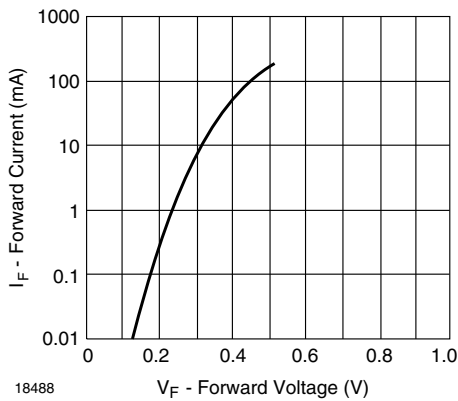


Fig. 1 - Typical Variation of Forward Current vs. Forward Voltage

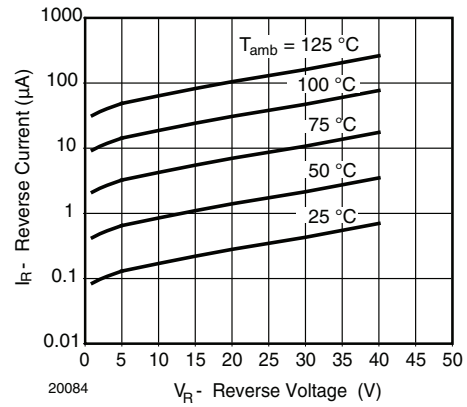


Fig. 3 - Typical Variation of Reverse Current at Various Temperatures

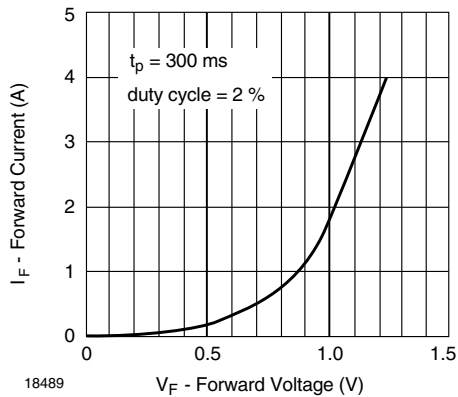


Fig. 2 - Typical High Current Forward Conduction Curve

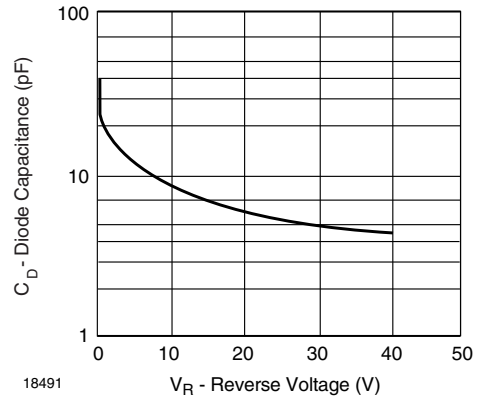


Fig. 4 - Typical Capacitance vs. Reverse Voltage

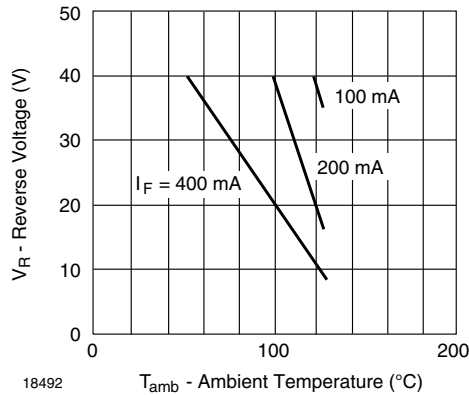
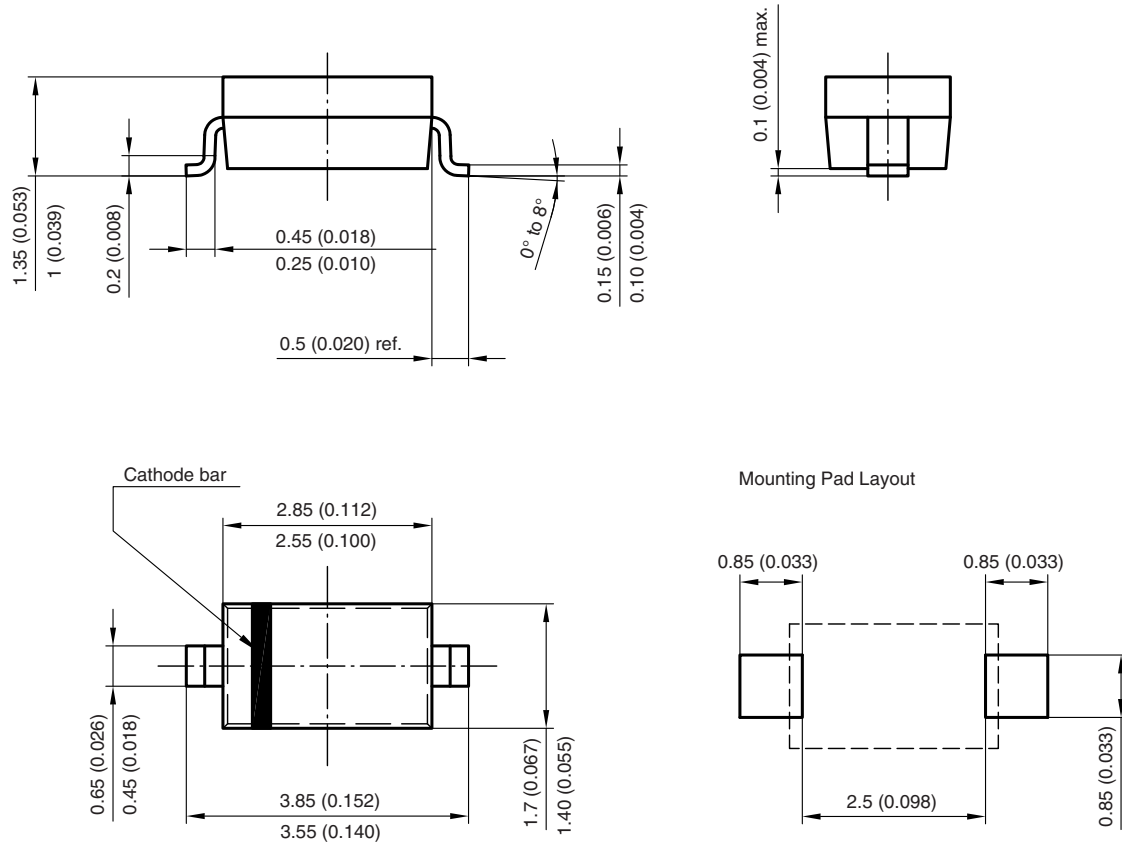


Fig. 5 - Blocking Voltage Deration vs. Temperature at Various Average Forward Currents

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



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