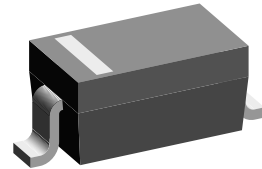


## Small Signal Schottky Diodes

### 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 guard ring.
- This diode is also available in the MiniMELF case with the type designations LL103A to LL103C, DO-35 case with the type designations SD103A to SD103C and SOD-323 case with type designations SD103AWS to SD103CWS.
- For general purpose applications.
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



17431

### Mechanical Data

**Case:** SOD-123 Plastic case

**Weight:** approx. 9.3 mg

**Packaging Codes/Options:**

GS18 / 10 k per 13" reel (8 mm tape), 10 k/box

GS08 / 3 k per 7" reel (8 mm tape), 15 k/box

### Parts Table

| Part    | Ordering code                | Marking | Remarks       |
|---------|------------------------------|---------|---------------|
| SD103AW | SD103AW-GS18 or SD103AW-GS08 | S6      | Tape and Reel |
| SD103BW | SD103BW-GS18 or SD103BW-GS08 | S7      | Tape and Reel |
| SD103CW | SD103CW-GS18 or SD103CW-GS08 | S8      | Tape and Reel |

### Absolute Maximum Ratings

T<sub>amb</sub> = 25 °C, unless otherwise specified

| Parameter                                 | Test condition    | Part    | Symbol           | Value             | Unit |
|-------------------------------------------|-------------------|---------|------------------|-------------------|------|
| Peak reverse voltage                      |                   | SD103AW | V <sub>RRM</sub> | 40                | V    |
|                                           |                   | SD103BW | V <sub>RRM</sub> | 30                | V    |
|                                           |                   | SD103CW | V <sub>RRM</sub> | 20                | V    |
| Power dissipation<br>(Infinite heat sink) |                   |         | P <sub>tot</sub> | 400 <sup>1)</sup> | mW   |
| Single cycle surge                        | 10 μs square wave |         | I <sub>FSM</sub> | 2                 | A    |

## Thermal Characteristics

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

| Parameter                                  | Test condition | Symbol     | Value                       | Unit                 |
|--------------------------------------------|----------------|------------|-----------------------------|----------------------|
| Thermal resistance junction to ambient air |                | $R_{thJA}$ | 300 <sup>1)</sup>           | $^{\circ}\text{C/W}$ |
| Junction temperature                       |                | $T_j$      | 125 <sup>1)</sup>           | $^{\circ}\text{C}$   |
| Storage temperature range                  |                | $T_S$      | - 55 to + 150 <sup>1)</sup> | $^{\circ}\text{C}$   |

<sup>1)</sup> 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    | $\mu\text{A}$ |
|                       | $V_R = 20\text{ V}$                                                            | SD103BW | $I_R$     |     |      | 5    | $\mu\text{A}$ |
|                       | $V_R = 10\text{ V}$                                                            | SD103CW | $I_R$     |     |      | 5    | $\mu\text{A}$ |
| Forward voltage drop  | $I_F = 20\text{ mA}$                                                           |         | $V_F$     |     |      | 0.37 | V             |
|                       | $I_F = 200\text{ mA}$                                                          |         | $V_F$     |     |      | 0.6  | V             |
| Diode capacitance     | $V_R = 0\text{ V}$ , $f = 1\text{ MHz}$                                        |         | $C_{tot}$ |     | 50   |      | pF            |
| Reverse recovery time | $I_F = I_R = 50\text{ mA}$ to $200\text{ mA}$ ,<br>recover to $0.1\text{ }I_R$ |         | $t_{rr}$  |     | 10   |      | ns            |

## Typical Characteristics ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)

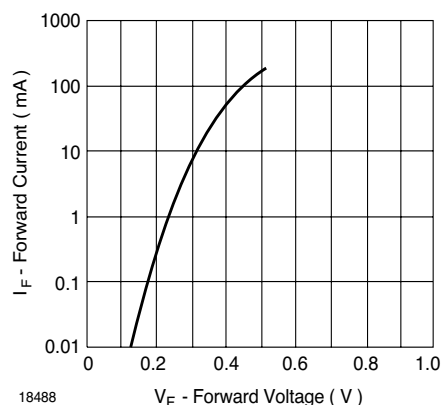


Figure 1. Typical Variation of Forward Current vs. Forward Voltage

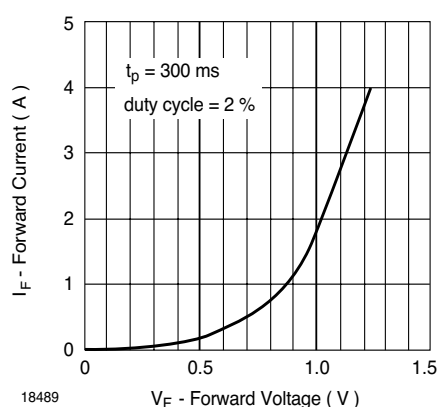


Figure 2. Typical High Current Forward Conduction Curve

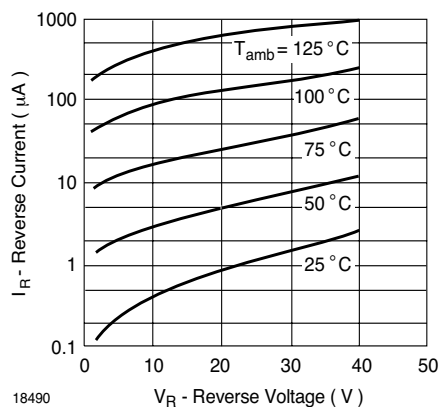


Figure 3. Typical Variation of Reverse Current at Various Temperatures

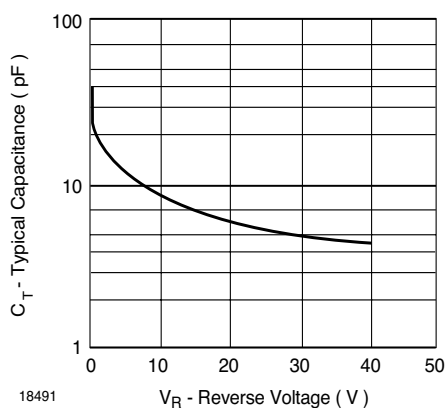


Figure 4. Typical Capacitance vs. Reverse Voltage

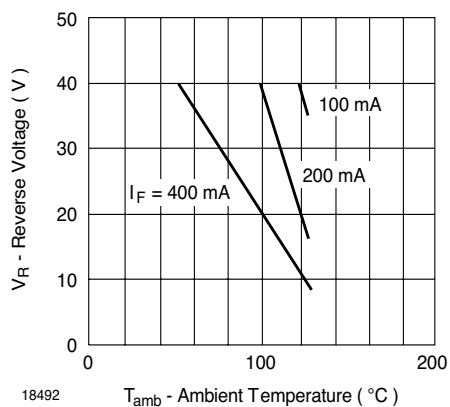
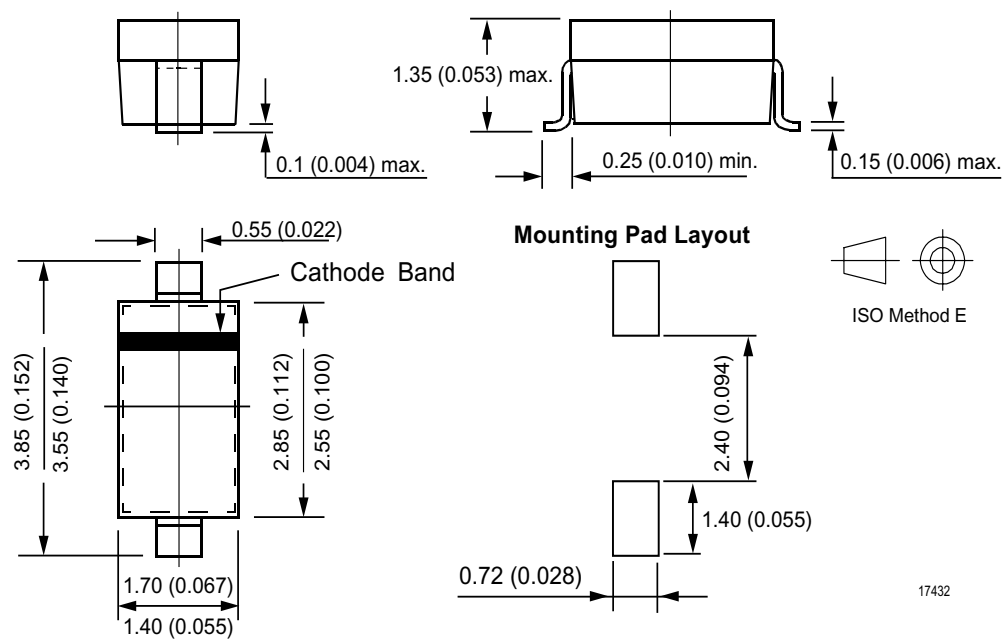


Figure 5. Blocking Voltage Deration vs. Temperature at Various Average Forward Currents

## Package Dimensions in mm (Inches)





## Ozone Depleting Substances Policy Statement

It is the policy of Vishay Semiconductor GmbH to

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

Vishay Semiconductor GmbH has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

Vishay Semiconductor GmbH can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

We reserve the right to make changes to improve technical design  
and may do so without further notice.

Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer. Should the buyer use Vishay Semiconductors products for any unintended or unauthorized application, the buyer shall indemnify Vishay Semiconductors against all claims, costs, damages, and expenses, arising out of, directly or indirectly, any claim of personal damage, injury or death associated with such unintended or unauthorized use.

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