SD103AWS-V/103BWS-V/103CWS-V



Vishay Semiconductors

Small Signal Schottky Diodes

Features

- 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 Mini-MELF case with the type designations LL103A to LL103C, DO35 case with the type designations SD103A to SD103C and SOD123 case with type designations SD103AW-V to SD103CW-V
- · 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
- · For general purpose applications
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



Mechanical Data

Case: SOD323 Plastic case Weight: approx. 4.3 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 | Type Marking | Remarks |
|------------|------------------------------------|--------------|---------------|
| SD103AWS-V | SD103AWS-V-GS18 or SD103AWS-V-GS08 | S6 | Tape and Reel |
| SD103BWS-V | SD103BWS-V-GS18 or SD103BWS-V-GS08 | S7 | Tape and Reel |
| SD103CWS-V | SD103CWS-V-GS18 or SD103CWS-V-GS08 | S8 | Tape and Reel |

Absolute Maximum Ratings

T_{amb} = 25 °C, unless otherwise specified

| unb · | <u>'</u> | | | | |
|----------------------|-------------------|------------|------------------|-------------------|------|
| Parameter | Test condition | Part | Symbol | Value | Unit |
| Peak reverse voltage | | SD103AWS-V | V_{RRM} | 40 | V |
| | | SD103BWS-V | V _{RRM} | 30 | V |
| | | SD103CWS-V | V _{RRM} | 20 | V |
| Power dissipation | | | P _{tot} | 200 ¹⁾ | mW |
| Single cycle surge | 10 μs square wave | | I _{FSM} | 2 | Α |

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 | | R_{thJA} | 500 ¹⁾ | K/W | |
| Junction temperature | | T _j | 125 ¹⁾ | °C | |
| Storage temperature range | | T _{stg} | - 55 to + 150 ¹⁾ | °C | |

¹⁾ Valid provided that electrodes are kept at ambient temperature

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Electrical Characteristics

T_{amb} = 25 °C, unless otherwise specified

| Parameter | Test condition | Part | Symbol | Min | Тур. | Max | Unit |
|-----------------------|---|------------|-----------------|-----|------|-----|------|
| Leakage current | V _R = 30 V | SD103AWS-V | I _R | | | 5 | μΑ |
| | V _R = 20 V | SD103BWS-V | I _R | | | 5 | μΑ |
| | V _R = 10 V | SD103CWS-V | I _R | | | 5 | μΑ |
| Forward voltage drop | I _F = 20 mA | | V _F | | | 370 | mV |
| | I _F = 200 mA | | V _F | | | 600 | mV |
| Diode capacitance | $V_R = 0 V, f = 1 MHz$ | | C _D | | 50 | | pF |
| Reverse recovery time | $I_F = I_R = 50 \text{ mA to } 200 \text{ mA},$ recover to 0.1 I_R | | t _{rr} | | 10 | | ns |

Typical Characteristics

 T_{amb} = 25 °C unless otherwise specified

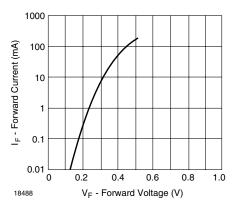


Figure 1. Typical Variation of Forward Current vs. Forward Voltage

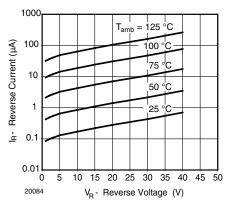


Figure 3. Typical Variation of Reverse Current at Various Temperatures

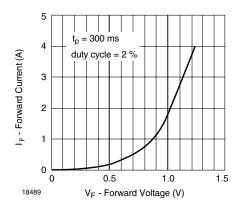


Figure 2. Typical High Current Forward Conduction Curve

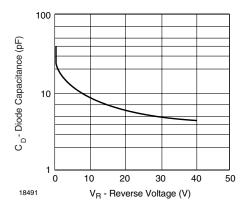


Figure 4. Diode Capacitance vs. Reverse Voltage

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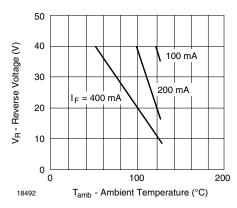
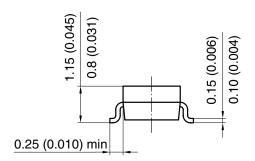
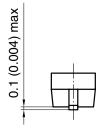
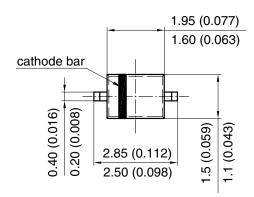


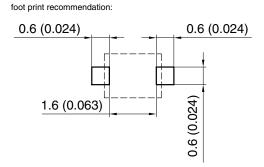
Figure 5. Blocking Voltage Deration vs. Temperature at Various Average Forward Currents

Package Dimensions in mm (Inches): SOD323









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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.

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Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany

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