



## 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, DO35 case with the type designations SD103A to SD103C and SOD323 case with type designations SD103AWS-V to SD103CWS-V.
- For general purpose applications.
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



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### Mechanical Data

**Case:** SOD123 Plastic case

**Weight:** approx. 10.3 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
SD103AW-V	SD103AW-V-GS18 or SD103AW-V-GS08	S6	Tape and Reel
SD103BW-V	SD103BW-V-GS18 or SD103BW-V-GS08	S7	Tape and Reel
SD103CW-V	SD103CW-V-GS18 or SD103CW-V-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	V <sub>RRM</sub>	40	V
		SD103BW-V	V <sub>RRM</sub>	30	V
		SD103CW-V	V <sub>RRM</sub>	20	V
Power dissipation (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<sub>amb</sub> = 25 °C, unless otherwise specified

Parameter	Test condition	Symbol	Value	Unit
Thermal resistance junction to ambient air		R <sub>thJA</sub>	300 <sup>1)</sup>	K/W
Junction temperature		T <sub>j</sub>	125 <sup>1)</sup>	°C
Storage temperature range		T <sub>stg</sub>	- 55 to + 150 <sup>1)</sup>	°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-V	$I_R$			5	$\mu\text{A}$
	$V_R = 20\text{ V}$	SD103BW-V	$I_R$			5	$\mu\text{A}$
	$V_R = 10\text{ V}$	SD103CW-V	$I_R$			5	$\mu\text{A}$
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	$I_F = I_R = 50\text{ mA to } 200\text{ mA}$ , recover to $0.1 I_R$		$t_{rr}$		10		ns

## Typical Characteristics

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

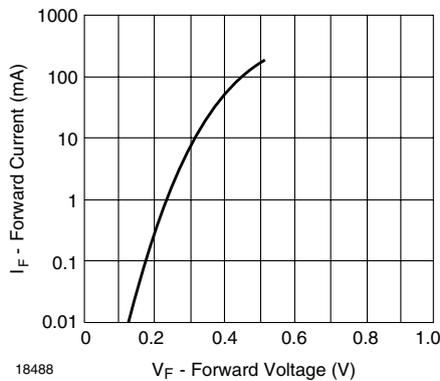


Figure 1. Typical Variation of Forward Current vs. Forward Voltage

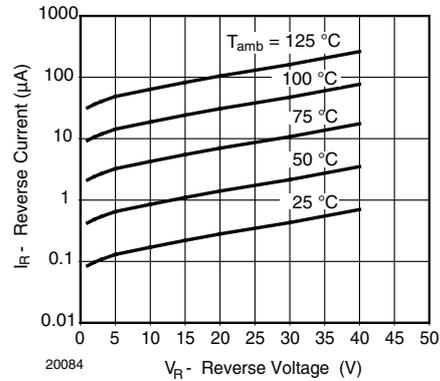


Figure 3. Typical Variation of Reverse Current at Various Temperatures

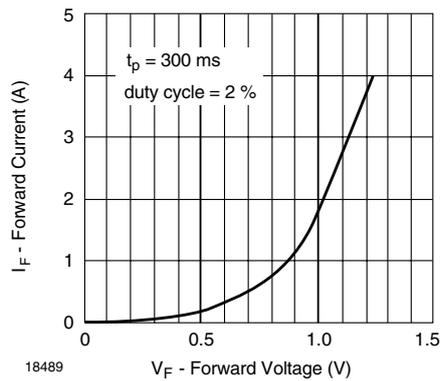


Figure 2. Typical High Current Forward Conduction Curve

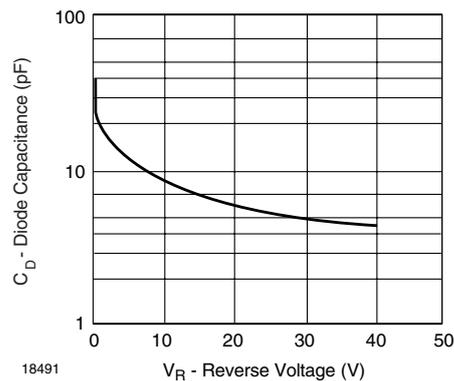


Figure 4. Typical Capacitance vs. Reverse Voltage

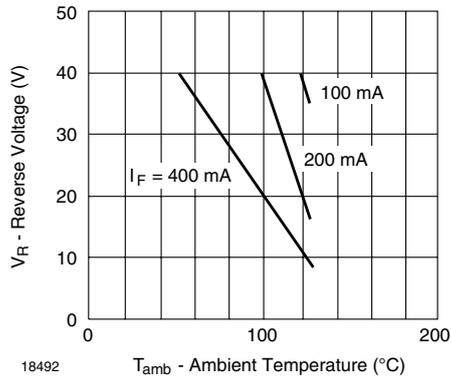
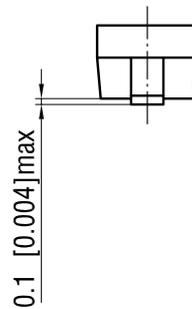
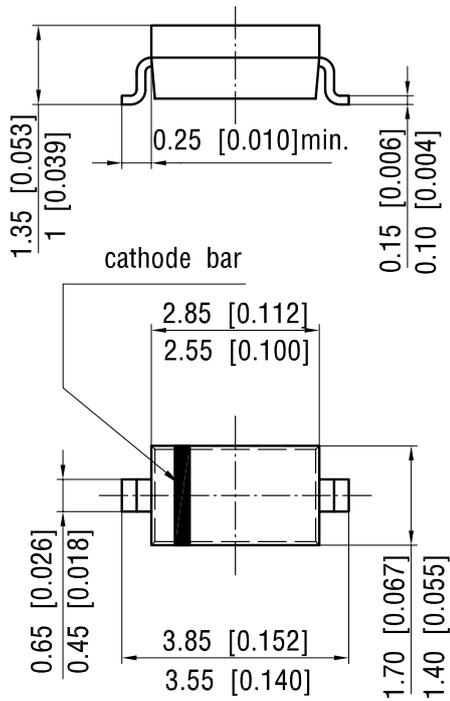
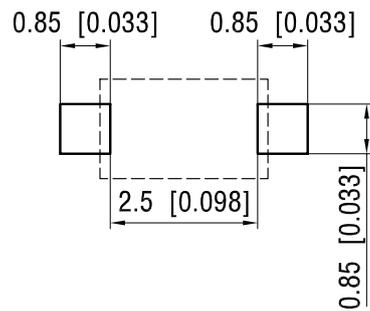


Figure 5. Blocking Voltage Deration vs. Temperature at Various Average Forward Currents

## Package Dimensions in mm (Inches): SOD123



foot print recommendation:



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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  
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