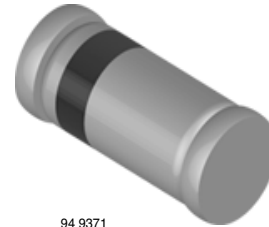


## Small Signal Schottky Diodes

### Features

- For general purpose applications
- The LL101 series is a metal-on-silicon Schottky barrier device which is protected by a PN junction guard ring.
- 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.
- Integrated protection ring against static discharge
- Low capacitance
- Low leakage current
- This diode is also available in the DO35 case with type designation SD101A, B, C and in the SOD123 case with type designation SD101AW, SD101BW, SD101CW.
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



94 9371

### Mechanical Data

**Case:** MiniMELF Glass case (SOD80)

**Weight:** approx. 31 mg

**Cathode Band Color:**Black

**Packaging Codes/Options:**

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

GS08 / 2.5 k per 7" reel (8 mm tape), 12.5 k/box

### Applications

- HF-Detector
- Protection circuit
- Diode for low currents with a low supply voltage
- Small battery charger
- Power supplies
- DC / DC converter for notebooks

### Parts Table

Part	Type differentiation	Ordering code	Remarks
LL101A	$V_R = 60\text{ V}$ , $V_F$ at $I_F$ 1 mA max. 410 mV	LL101A-GS18 or LL101A-GS08	Tape and Reel
LL101B	$V_R = 50\text{ V}$ , $V_F$ at $I_F$ 1 mA max. 400 mV	LL101B-GS18 or LL101B-GS08	Tape and Reel
LL101C	$V_R = 40\text{ V}$ , $V_F$ at $I_F$ 1 mA max. 390 mV	LL101C-GS18 or LL101C-GS08	Tape and Reel

### Absolute Maximum Ratings

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

Parameter	Test condition	Part	Symbol	Value	Unit
Peak inverse voltage		LL101A	$V_{RRM}$	60	V
		LL101B	$V_{RRM}$	50	V
		LL101C	$V_{RRM}$	40	V
Power dissipation (infinite heatsink)			$P_{tot}$	400 <sup>1)</sup>	mW
Forward continuous current			$I_F$	30	mA
Maximum single cycle surge 10 $\mu\text{s}$ square wave			$I_{FSM}$	2	A

<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
Junction temperature		T <sub>j</sub>	125	°C
Storage temperature range		T <sub>stg</sub>	- 65 to + 150	°C
Junction to ambient air	on PC board 50 mm x 50 mm x 1.6 mm	R <sub>thJA</sub>	320	K/W

## Electrical Characteristics

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

Parameter	Test condition	Part	Symbol	Min	Typ.	Max	Unit
Reverse Breakdown Voltage	I <sub>R</sub> = 10 μA	LL101A	V <sub>(BR)R</sub>	60			V
		LL101B	V <sub>(BR)R</sub>	50			V
		LL101C	V <sub>(BR)R</sub>	40			V
Leakage current	V <sub>R</sub> = 50 V	LL101A	I <sub>R</sub>			200	nA
	V <sub>R</sub> = 50V	LL101B	I <sub>R</sub>			200	nA
	V <sub>R</sub> = 50 V	LL101C	I <sub>R</sub>			200	nA
Forward voltage drop	I <sub>F</sub> = 1 mA	LL101A	V <sub>F</sub>			410	mV
		LL101B	V <sub>F</sub>			400	mV
	I <sub>F</sub> = 15 mA	LL101C	V <sub>F</sub>			390	mV
		LL101A	V <sub>F</sub>			1000	mV
		LL101B	V <sub>F</sub>			950	mV
		LL101C	V <sub>F</sub>			900	mV
Diode capacitance	V <sub>R</sub> = 0 V, f = 1 MHz	LL101A	C <sub>D</sub>			2.0	pF
		LL101B	C <sub>D</sub>			2.1	pF
		LL101C	C <sub>D</sub>			2.2	pF
Reverse recovery time	I <sub>F</sub> = I <sub>R</sub> = 5 mA, recover to 0.1 I <sub>R</sub>		t <sub>rr</sub>			1	ns

## Typical Characteristics

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

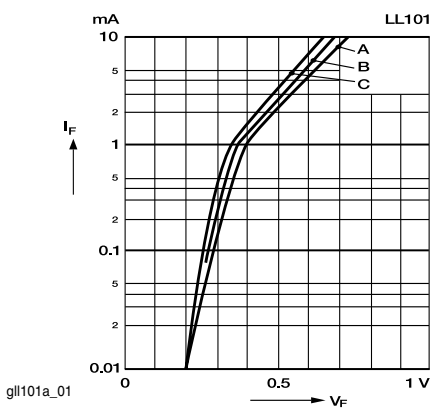


Figure 1. Typ. I<sub>F</sub> vs. V<sub>F</sub> for primary conduction through the Schottky barrier

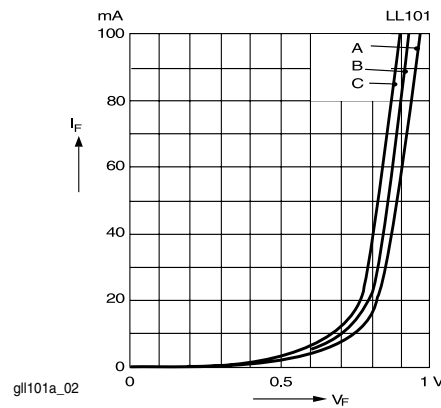


Figure 2. Typ. I<sub>F</sub> of combination Schottky barrier and PN junction guard ring

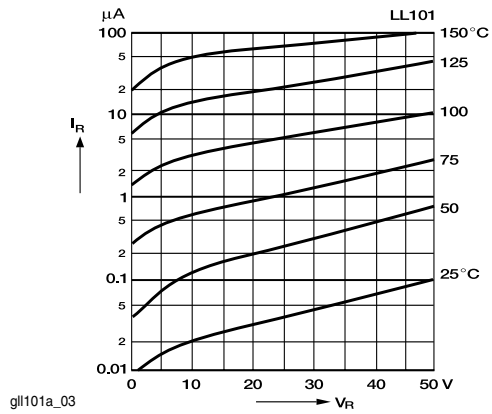


Figure 3. Typical Variation of Reverse Current at Various Temperatures

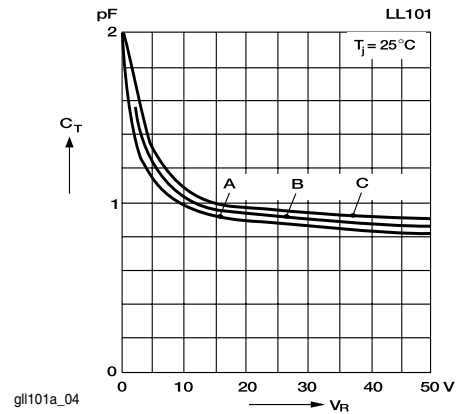
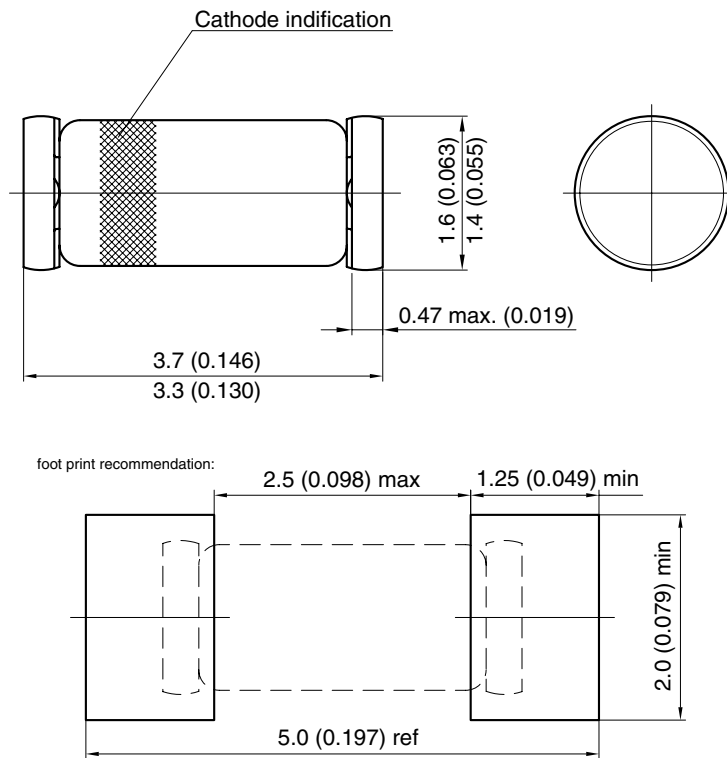


Figure 4. Typical Capacitance Curve as a Function of Reverse Voltage

## Package Dimensions in mm (Inches)



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 Rev. 7 - Date: 07.February.2005  
 96 12070

### 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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