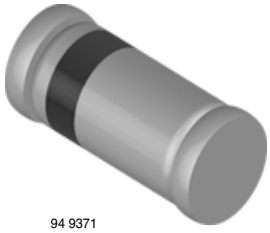
Small Signal Schottky Diodes

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



Applications

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

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

Parts Table

Part	Type differentiation	Ordering code	Remarks
LL101A	V_R = 60 V, V_F at I_F 1 mA max. 410 mV	LL101A-GS18 or LL101A-GS08	Tape and Reel
LL101B	V_R = 50 V, V_F at I_F 1 mA max. 400 mV	LL101B-GS18 or LL101B-GS08	Tape and Reel
LL101C	V_R = 40 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 °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[1)]	mW
Forward continuous current			I_F	30	mA
Maximum single cycle surge 10 µs square wave			I_{FSM}	2	A

[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
Junction temperature		T_j	125	°C
Storage temperature range		T_{stg}	- 65 to + 150	°C
Junction to ambient air	on PC board 50 mm x 50 mm x 1.6 mm	R_{thJA}	320	K/W

Electrical Characteristics

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

Parameter	Test condition	Part	Symbol	Min	Typ.	Max	Unit
Reverse Breakdown Voltage	I_R = 10 µA	LL101A	$V_{(BR)R}$	60			V
		LL101B	$V_{(BR)R}$	50			V
		LL101C	$V_{(BR)R}$	40			V
Leakage current	V_R = 50 V	LL101A	I_R			200	nA
	V_R = 50V	LL101B	I_R			200	nA
	V_R = 50 V	LL101C	I_R			200	nA
Forward voltage drop	I_F = 1 mA	LL101A	V_F			410	mV
	I_F = 1mA	LL101B	V_F			400	mV
	I_F = 1 mA	LL101C	V_F			390	mV
	I_F = 15 mA	LL101A	V_F			1000	mV
		LL101B	V_F			950	mV
		LL101C	V_F			900	mV
Diode capacitance	V_R = 0 V, f = 1 MHz	LL101A	C_D			2.0	pF
	V_R = 0 V, f = 1 MHz	LL101B	C_D			2.1	pF
		LL101C	C_D			2.2	pF
Reverse recovery time	I_F = I_R = 5 mA, recover to 0.1 I_R		t_{rr}			1	ns

Typical Characteristics

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

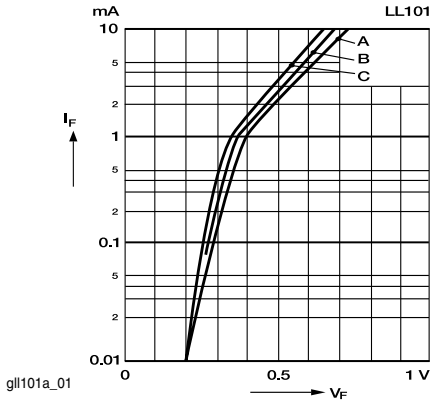


Figure 1. Typ. I_F vs. V_F for primary conduction through the Schottky barrier

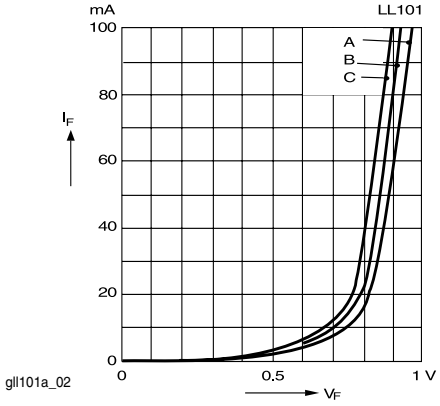


Figure 2. Typ. I_F of combination Schottky barrrier and PN junction guard ring

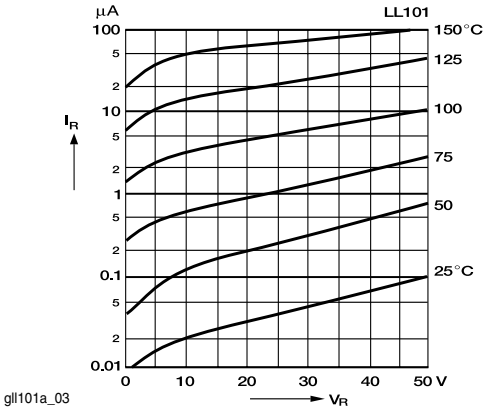


Figure 3. Typical Variation of Reverse Current at Various Temperatures

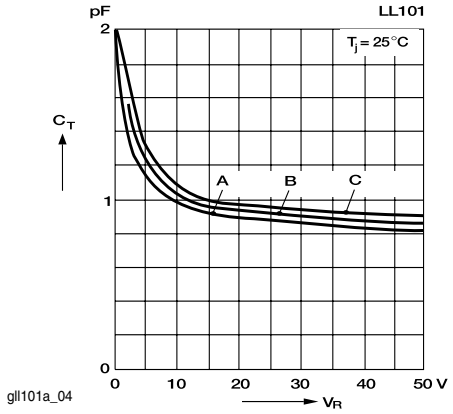
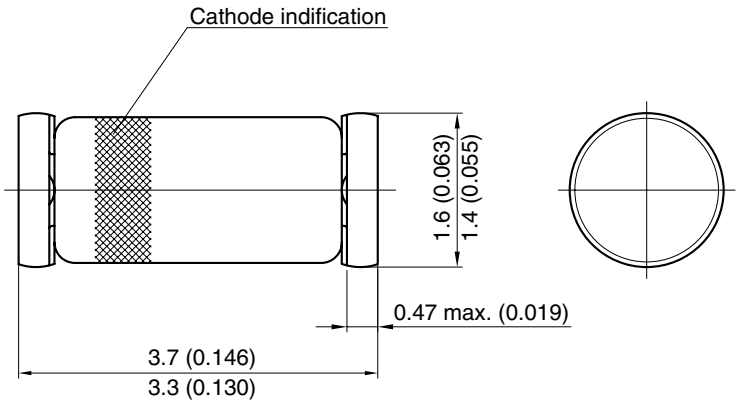
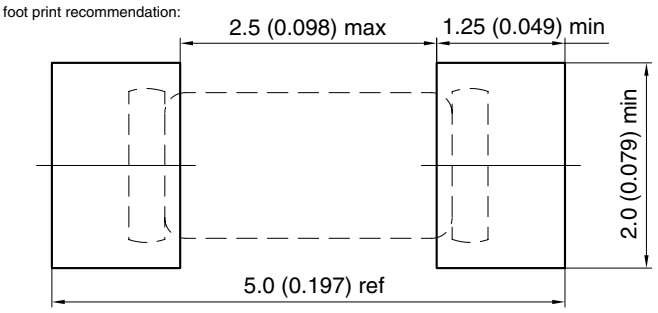


Figure 4. Typical Capacitance Curve as a Function of Reverse Voltage

Package Dimensions in mm (Inches)





Document no.: 6.560-5005.01-4
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.

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

Notice

Specifications of the products displayed herein are subject to change without notice. Vishay Intertechnology, Inc., or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Vishay's terms and conditions of sale for such products, Vishay assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of Vishay products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Vishay for any damages resulting from such improper use or sale.