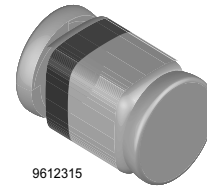


## Small Signal Schottky Diodes

### Features

- Integrated protection ring against static discharge
- Low capacitance
- Low leakage current
- Low forward voltage drop
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



9612315

### Applications

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

### Mechanical Data

**Case:** MicroMELF Glass case

**Weight:** approx. 12 mg

**Cathode Band Color:** Black

**Packaging Codes/Options:**

TR3 / 10 k per 13" reel (8 mm tape), 10 k/box

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

### Parts Table

Part	Type differentiation	Ordering code	Remarks
MCL101A	$V_R = 60\text{ V}$ , $V_F$ at $I_F$ 1 mA max. 410 mV	MCL101A-TR3 or MCL101A-TR	Tape and Reel
MCL101B	$V_R = 50\text{ V}$ , $V_F$ at $I_F$ 1 mA max. 400 mV	MCL101B-TR3 or MCL101B-TR	Tape and Reel
MCL101C	$V_R = 40\text{ V}$ , $V_F$ at $I_F$ 1 mA max. 390 mV	MCL101C-TR3 or MCL101C-TR	Tape and Reel

### Absolute Maximum Ratings

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

Parameter	Test condition	Part	Symbol	Value	Unit
Reverse voltage		MCL101A	$V_R$	60	V
		MCL101B	$V_R$	50	V
		MCL101C	$V_R$	40	V
Peak forward surge current	$t_p = 10\text{ }\mu\text{s}$		$I_{FSM}$	2	A
Repetitive peak forward current			$I_{FRM}$	150	mA
Forward continuous current			$I_F$	30	mA

## Thermal Characteristics

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

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

## 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	MCL101A	V <sub>(BR)R</sub>	60			V
		MCL101B	V <sub>(BR)R</sub>	50			V
		MCL101C	V <sub>(BR)R</sub>	40			V
Leakage current	V <sub>R</sub> = 50 V	MCL101A	I <sub>R</sub>			200	nA
	V <sub>R</sub> = 40 V	MCL101B	I <sub>R</sub>			200	nA
	V <sub>R</sub> = 30 V	MCL101C	I <sub>R</sub>			200	nA
Forward voltage drop	I <sub>F</sub> = 1 mA	MCL101A	V <sub>F</sub>			410	mV
		MCL101B	V <sub>F</sub>			400	mV
		MCL101C	V <sub>F</sub>			390	mV
	I <sub>F</sub> = 15 mA	MCL101A	V <sub>F</sub>			1000	mV
		MCL101B	V <sub>F</sub>			950	mV
		MCL101C	V <sub>F</sub>			900	mV
Diode capacitance	V <sub>R</sub> = 0 V, f = 1 MHz	MCL101A	C <sub>D</sub>			2.0	pF
		MCL101B	C <sub>D</sub>			2.1	pF
		MCL101C	C <sub>D</sub>			2.2	pF

## Typical Characteristics

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

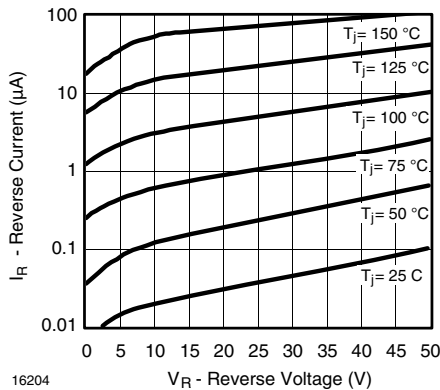


Figure 1. Reverse Current vs. Reverse Voltage

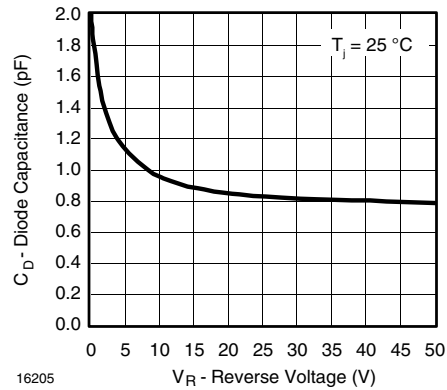


Figure 2. Diode Capacitance vs. Reverse Voltage

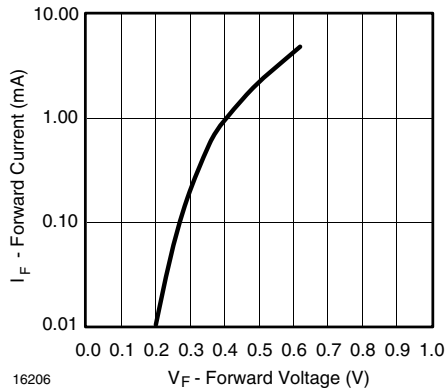
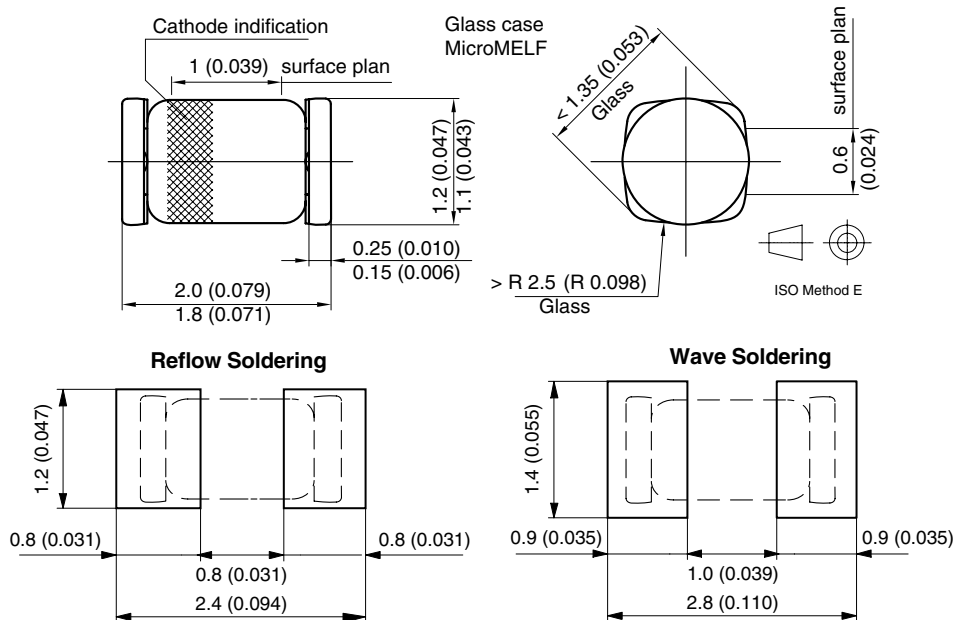


Figure 3. Forward Current vs. Forward Voltage

## Package Dimensions in mm (Inches)



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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.

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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