

## Small Signal Schottky Diode



### MECHANICAL DATA

**Case:** MiniMELF SOD-80

**Weight:** approx. 31 mg

**Cathode band color:** black

**Packaging codes/options:**

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

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

### 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 DO-35 case with type designation SD101A, B, C and in the SOD-123 case with type designation SD101AW-V, SD101BW-V, SD101CW-V
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



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COMPLIANT

### 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	INTERNAL CONSTRUCTION	REMARKS
LL101A	$V_R = 60\text{ V}$ , $V_F$ at $I_F = 1\text{ mA}$ max. 410 mV	LL101A-GS18 or LL101A-GS08	Single diode	Tape and reel
LL101B	$V_R = 50\text{ V}$ , $V_F$ at $I_F = 1\text{ mA}$ max. 400 mV	LL101B-GS18 or LL101B-GS08	Single diode	Tape and reel
LL101C	$V_R = 40\text{ V}$ , $V_F$ at $I_F = 1\text{ mA}$ max. 390 mV	LL101C-GS18 or LL101C-GS08	Single diode	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		LL101A	$V_{RRM}$	60	V
		LL101B	$V_{RRM}$	50	V
		LL101C	$V_{RRM}$	40	V
Power dissipation (infinite heatsink) <sup>(1)</sup>			$P_{tot}$	400	mW
Forward continuous current			$I_F$	30	mA
Maximum single cycle surge 10 $\mu\text{s}$ square wave			$I_{FSM}$	2	A

#### Note

<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
Thermal resistance 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)</sub>	60			V
		LL101B	V <sub>(BR)</sub>	50			V
		LL101C	V <sub>(BR)</sub>	40			V
Leakage current	V <sub>R</sub> = 50 V	LL101A	I <sub>R</sub>			200	nA
	V <sub>R</sub> = 40 V	LL101B	I <sub>R</sub>			200	nA
	V <sub>R</sub> = 30 V	LL101C	I <sub>R</sub>			200	nA
Forward voltage drop	I <sub>F</sub> = 1 mA	LL101A	V <sub>F</sub>			0.410	V
	I <sub>F</sub> = 1 mA	LL101B	V <sub>F</sub>			0.400	V
	I <sub>F</sub> = 1 mA	LL101C	V <sub>F</sub>			0.390	V
	I <sub>F</sub> = 15 mA	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)

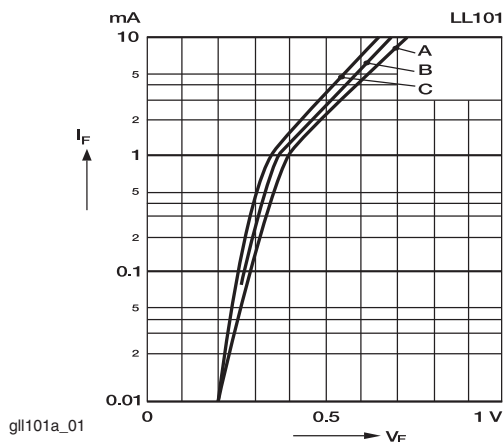


Fig. 1 - Typ. I<sub>F</sub> vs. V<sub>F</sub> for Primary Conduction through the Schottky Barrier

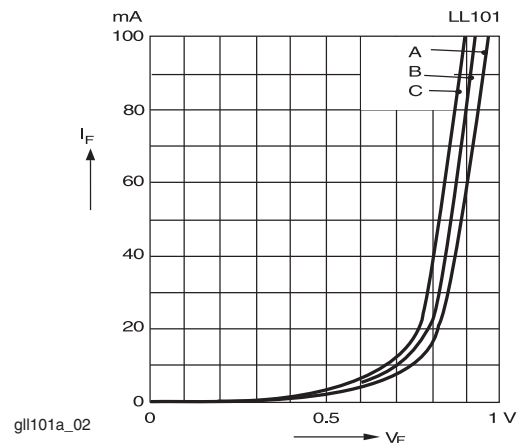


Fig. 2 - Typ. I<sub>F</sub> of Combination Schottky Barrier and PN Junction Guard Ring

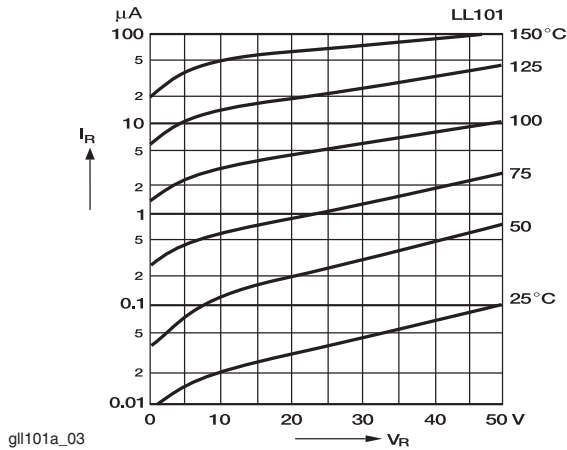


Fig. 3 - Typical Variation of Reverse Current at Various Temperatures

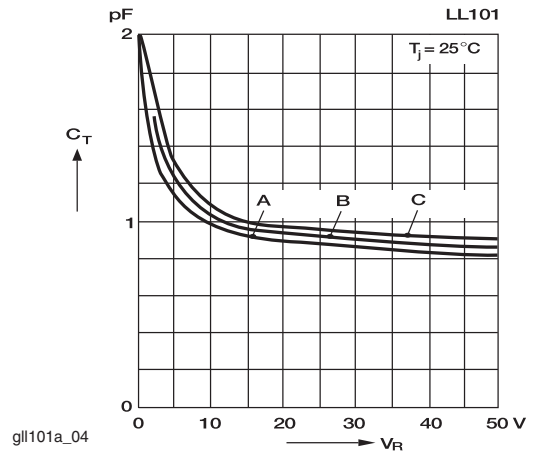
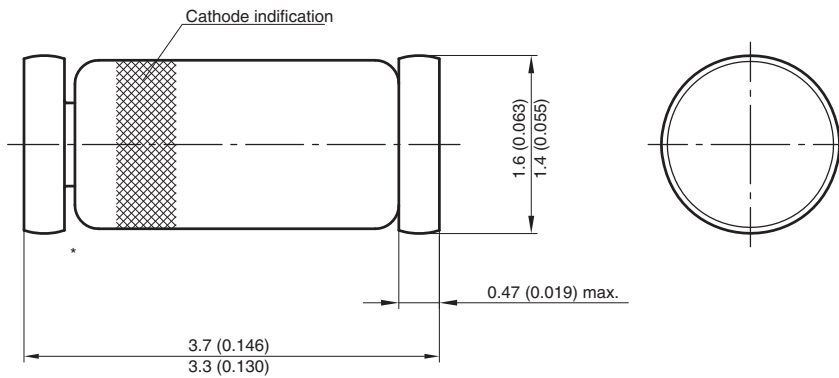


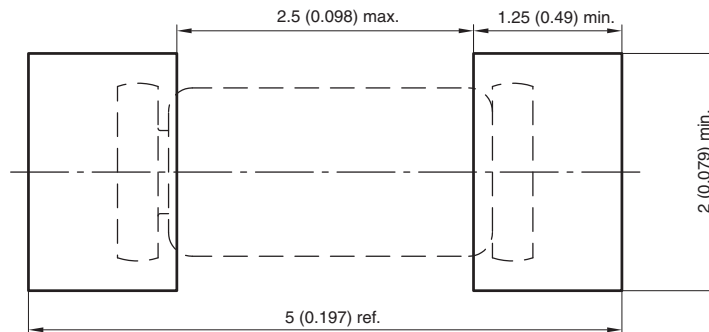
Fig. 4 - Typical Capacitance Curve as a Function of Reverse Voltage

### PACKAGE DIMENSIONS in millimeters (inches): MiniMELF SOD-80



\* The gap between plug and glass can be either on cathode or anode side

Foot print recommendation:



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