

Vishay Semiconductors

Small Signal Schottky Diode



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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





 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 (DO-204AH) case with type designation SD101A, SD101B, SD101C and in the SOD-123 case with type designation SD101AW, SD101BW, SD101CW
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

APPLICATIONS

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

PARTS TABLE					
PART	TYPE DIFFERENTIATION	ORDERING CODE	CIRCUIT CONFIGURATION	REMARKS	
LL101A	$V_R = 60 \text{ V}, V_F \text{ at } I_F = 1 \text{ mA max. } 410 \text{ mV}$	LL101A-GS18 or LL101A-GS08	Single	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	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	Tape and reel	

ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT	
		LL101A	V_{RRM}	60	V	
Reverse voltage		LL101B	V_{RRM}	50	V	
		LL101C	V_{RRM}	40	V	
Power dissipation (infinite heatsink) (1)			P _{tot}	400	mW	
Forward continuous current			I _F	30	mA	
Maximum single cycle surge 10 µs square wave			I _{FSM}	2	A	

Note

⁽¹⁾ Valid provided that electrodes are kept at ambient temperature



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THERMAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT		
Junction temperature		Tj	125	°C		
Storage temperature range		T _{stg}	-65 to +150	°C		
Thermal resistance 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
		LL101A	V _(BR)	60			V
Reverse Breakdown Voltage	I _R = 10 μA	LL101B	V _(BR)	50			V
	· ·	LL101C	V _(BR)	40			V
	V _R = 50 V	LL101A	I _R			200	nA
Leakage current	V _R = 40 V	LL101B	I _R			200	nA
	V _R = 30 V	LL101C	I _R			200	nA
	I _F = 1 mA	LL101A	V _F			0.410	V
	I _F = 1 mA	LL101B	V _F			0.400	V
Converd veltage dues	I _F = 1 mA	LL101C	V _F			0.390	V
Forward voltage drop	I _F = 15 mA	LL101A	V _F			1000	mV
		LL101B	V _F			950	mV
		LL101C	V _F			900	mV
	V _R = 0 V, f = 1 MHz	LL101A	C _D			2.0	рF
Diode capacitance	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)

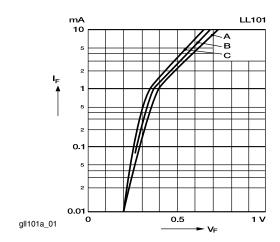


Fig. 1 - Typ. I_F vs. V_F for Primary Conduction through the Schottky Barrier

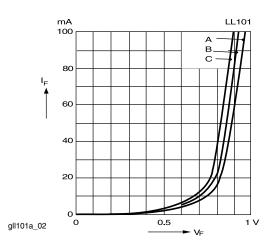
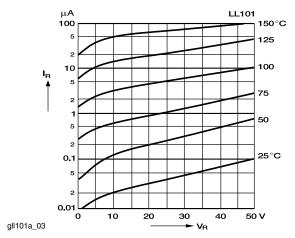
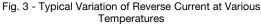


Fig. 2 - Typ. I_{F} of Combination Schottky Barrier and PN Junction Guard Ring

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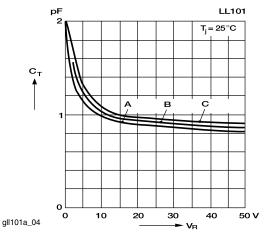
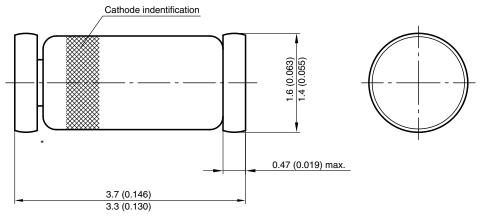
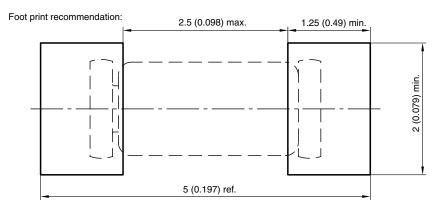


Fig. 4 - Typical Capacitance Curve as a Function of Reverse Voltage

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



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



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