

## Small Signal Schottky Diodes



### MECHANICAL DATA

**Case:** MicroMELF

**Weight:** approx. 12 mg

**Cathode band color:** black

**Packaging codes/options:**

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

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

### FEATURES

- Integrated protection ring against static discharge
- Low capacitance
- Low leakage current
- Low forward voltage drop
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

### 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
MCL101A	$V_R = 60\text{ V}$ , $V_F$ at $I_F$ 1 mA max. 410 mV	MCL101A-TR3 or MCL101A-TR	Single diode	Tape and reel
MCL101B	$V_R = 50\text{ V}$ , $V_F$ at $I_F$ 1 mA max. 400 mV	MCL101B-TR3 or MCL101B-TR	Single diode	Tape and reel
MCL101C	$V_R = 40\text{ V}$ , $V_F$ at $I_F$ 1 mA max. 390 mV	MCL101C-TR3 or MCL101C-TR	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		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 ( $T_{amb} = 25\text{ }^\circ\text{C}$ , unless otherwise specified)

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Thermal resistance junction to ambient air	On PC board 50 mm x 50 mm x 1.6 mm	$R_{thJA}$	320	K/W
Junction temperature		$T_j$	125	$^\circ\text{C}$
Storage temperature range		$T_{stg}$	- 65 to + 150	$^\circ\text{C}$



ELECTRICAL CHARACTERISTICS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Reverse breakdown voltage	$I_R = 10\text{ }\mu\text{A}$	MCL101A	$V_{(BR)}$	60			V
		MCL101B	$V_{(BR)}$	50			V
		MCL101C	$V_{(BR)}$	40			V
Leakage current	$V_R = 50\text{ V}$	MCL101A	$I_R$			200	nA
	$V_R = 40\text{ V}$	MCL101B	$I_R$			200	nA
	$V_R = 30\text{ V}$	MCL101C	$I_R$			200	nA
Forward voltage drop	$I_F = 1\text{ mA}$	MCL101A	$V_F$			410	mV
		MCL101B	$V_F$			400	mV
		MCL101C	$V_F$			390	mV
	$I_F = 15\text{ mA}$	MCL101A	$V_F$			1000	mV
		MCL101B	$V_F$			950	mV
		MCL101C	$V_F$			900	mV
Diode capacitance	$V_R = 0\text{ V}, f = 1\text{ MHz}$	MCL101A	$C_D$			2	pF
		MCL101B	$C_D$			2.1	pF
		MCL101C	$C_D$			2.2	pF

**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)

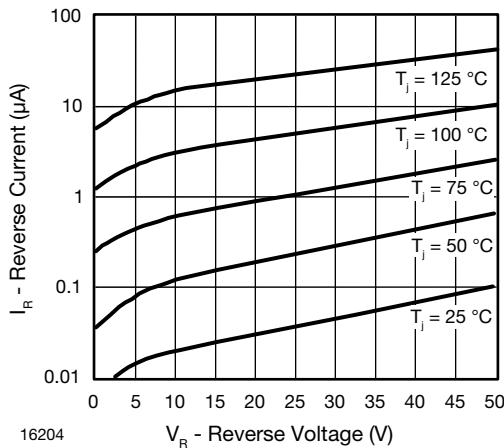


Fig. 1 - Reverse Current vs. Reverse Voltage

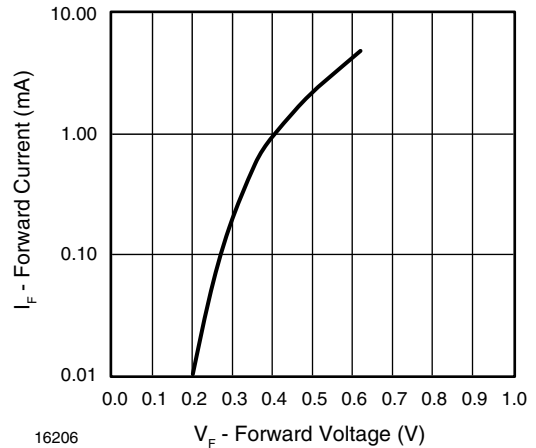


Fig. 3 - Forward Current vs. Forward Voltage

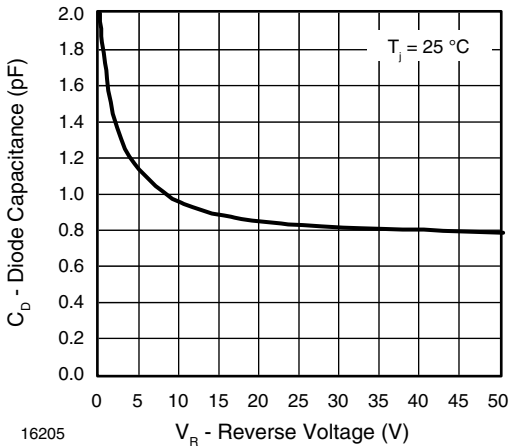
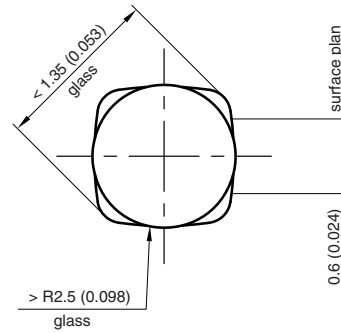
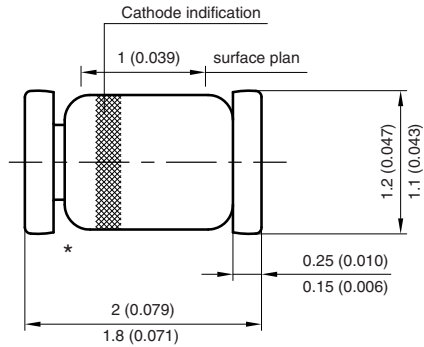


Fig. 2 - Diode Capacitance vs. Reverse Voltage

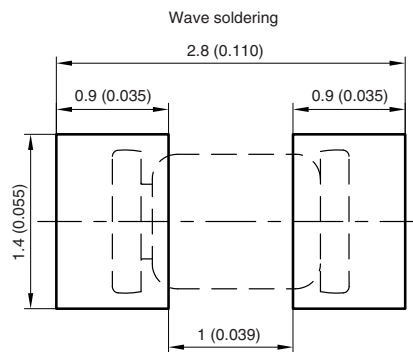
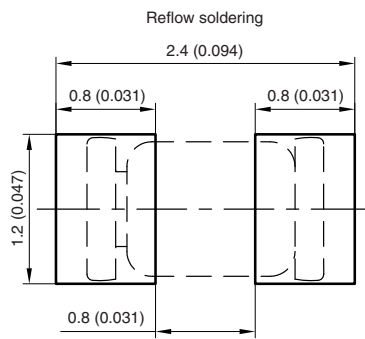


## PACKAGE DIMENSIONS in millimeters (inches): **MicromELF**



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

### Foot print recommendation:



Created - Date: 26.July.1996  
 Rev. 13 - Date: 07.June.2006  
 Document no.:6.560-5007.01-4  
 96 12072



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