



## Small Signal Schottky Diodes



**DESIGN SUPPORT TOOLS** click logo to get started



### 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             | CIRCUIT CONFIGURATION | REMARKS       |
| MCL101A     | $V_R = 60\text{ V}$ , $V_F$ at $I_F$ 1 mA max. 410 mV | MCL101A-TR3 or MCL101A-TR | Single                | 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                | 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                | 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<br>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 <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)</sub> | 60   |      |      | V    |
|   |                                 | MCL101B | V <sub>(BR)</sub> | 50   |      |      | V    |
|   |                                 | MCL101C | V <sub>(BR)</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    | 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)

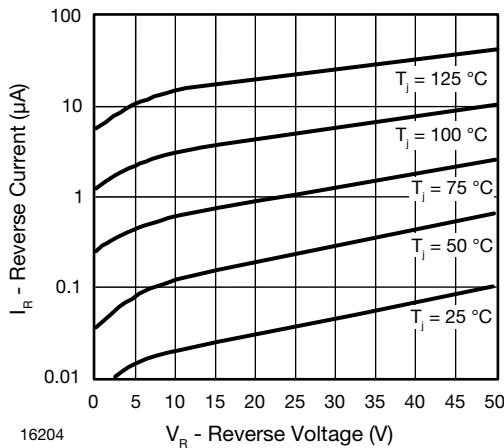


Fig. 1 - Reverse Current vs. Reverse Voltage

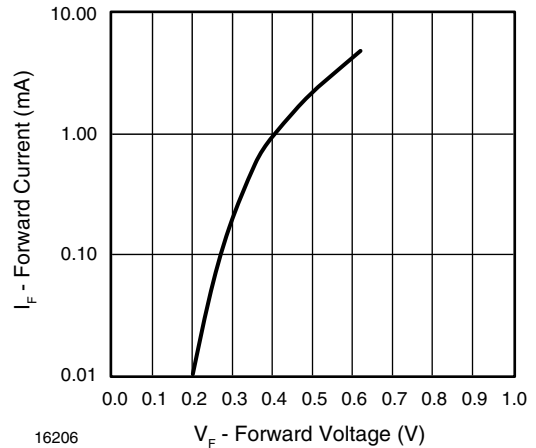


Fig. 3 - Forward Current vs. Forward Voltage

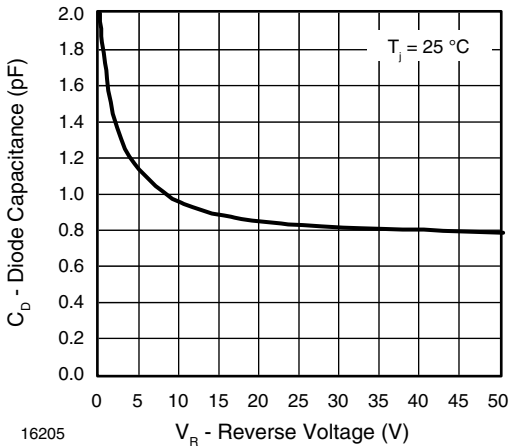
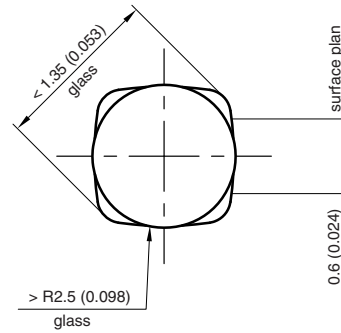
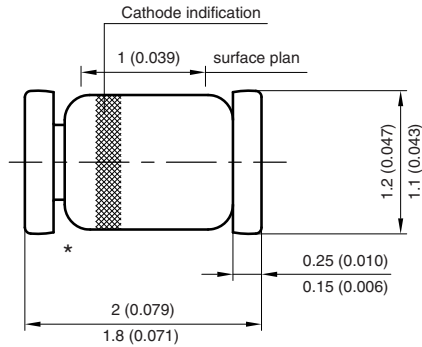


Fig. 2 - Diode Capacitance vs. Reverse Voltage

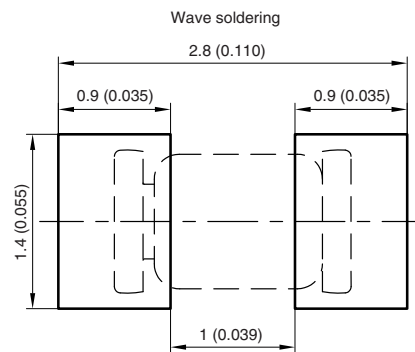
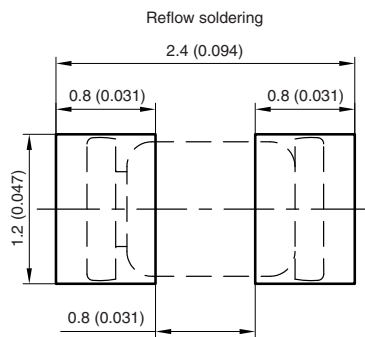


## PACKAGE DIMENSIONS in millimeters (inches): **MicromELF**



\* 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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