



**THE DATASHEET OF
MCL101B-TR3**





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



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 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)

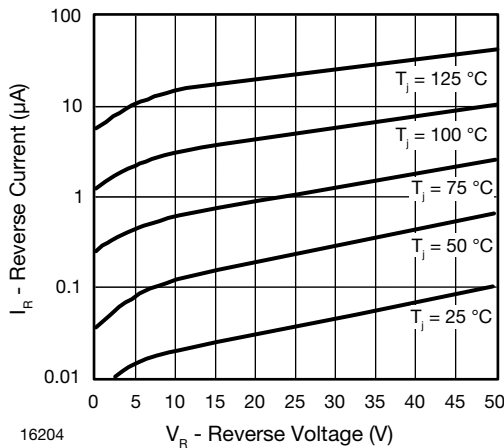


Fig. 1 - Reverse Current vs. Reverse Voltage

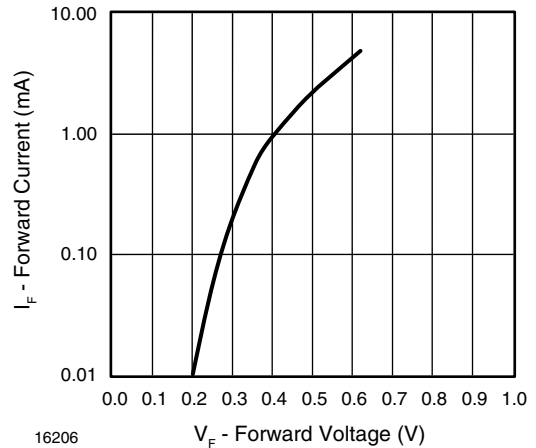


Fig. 3 - Forward Current vs. Forward Voltage

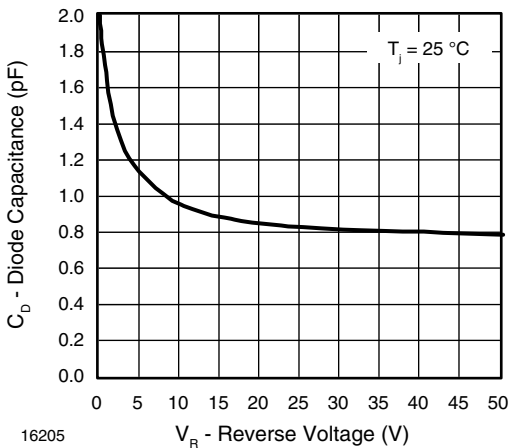
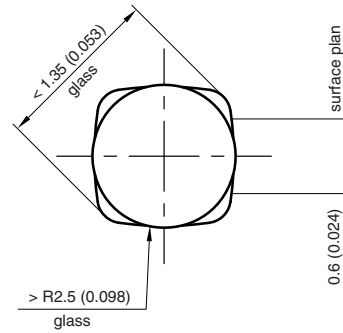
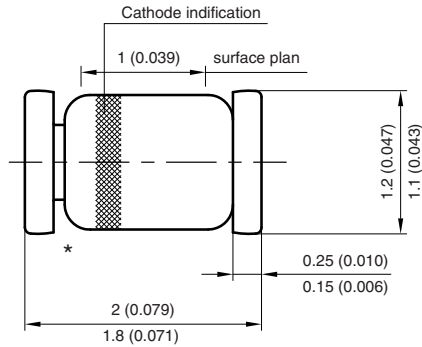


Fig. 2 - Diode Capacitance vs. Reverse Voltage

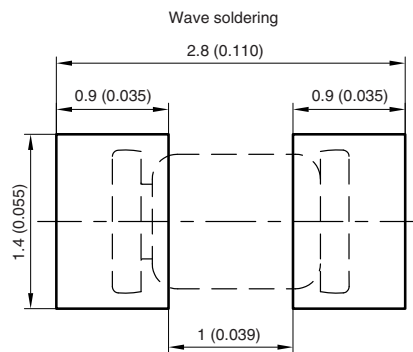
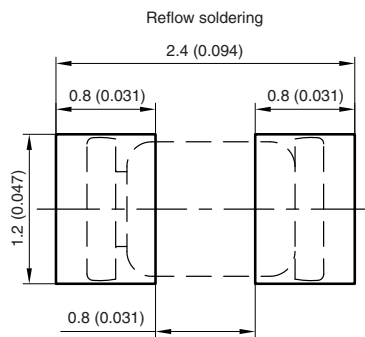


PACKAGE DIMENSIONS in millimeters (inches): **MicromELF**



* 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
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 96 12072



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