

Small Signal Schottky Diodes



FEATURES

- Integrated protection ring against static discharge
- Low capacitance
- Low leakage current
- Low forward voltage drop
- Material categorization:
for definitions of compliance please see
www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE

LINKS TO ADDITIONAL RESOURCES



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

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 |

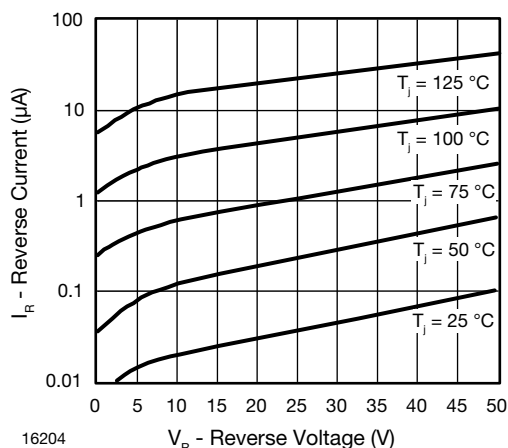
TYPICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

Fig. 1 - Reverse Current vs. Reverse Voltage

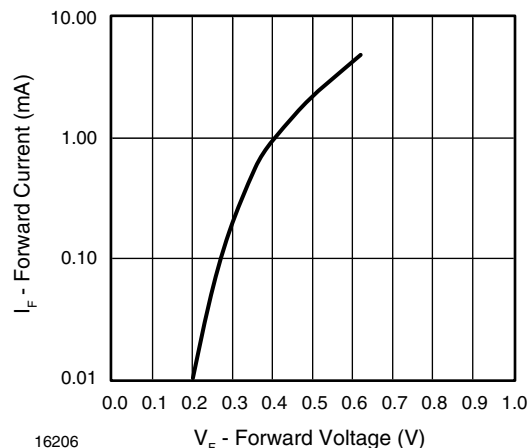


Fig. 3 - Forward Current vs. Forward Voltage

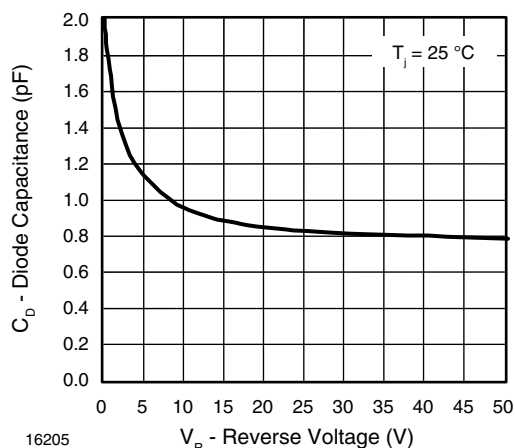
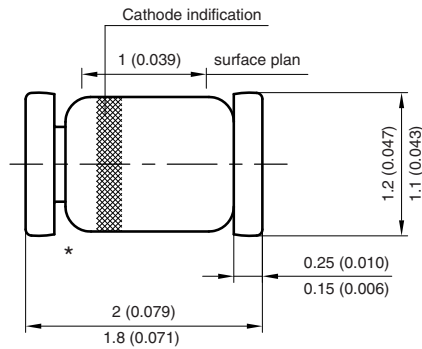


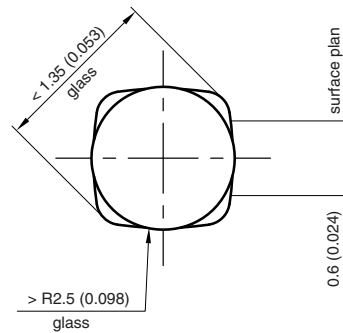
Fig. 2 - Diode Capacitance vs. Reverse Voltage



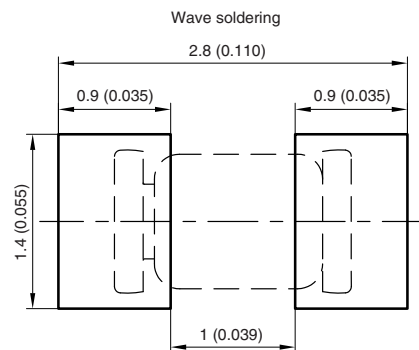
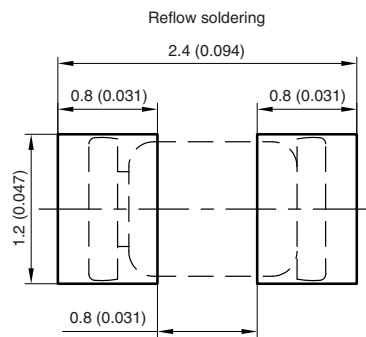
PACKAGE DIMENSIONS in millimeters (inches): **MicroMELF**



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



Foot print recommendation:



Created - Date: 26.July.1996
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96 12072



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