## 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

Pb

e2

RoHS COMPLIANT

HALOGEN FREE

### LINKS TO ADDITIONAL RESOURCES

3D Models | Marking | Parametric Search | Order Samples

### 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 V, $V_F$ at $I_F$ 1 mA max. 410 mV | MCL101A-TR3 or MCL101A-TR | Single | Tape and reel |
| MCL101B | $V_R$ = 50 V, $V_F$ at $I_F$ 1 mA max. 400 mV | MCL101B-TR3 or MCL101B-TR | Single | Tape and reel |
| MCL101C | $V_R$ = 40 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 °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 µs | | $I_{FSM}$ | 2 | A |
| Repetitive peak forward current | | | $I_{FRM}$ | 150 | mA |
| Forward continuous current | | | $I_F$ | 30 | mA |

**THERMAL CHARACTERISTICS** ($T_{amb}$ = 25 °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 | °C |
| Storage temperature range | | $T_{stg}$ | -65 to +150 | °C |



For technical questions, contact: DiodesAmericas@vishay.com

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

## TYPICAL CHARACTERISTICS ($T_{amb}$ = 25 °C, unless otherwise specified)

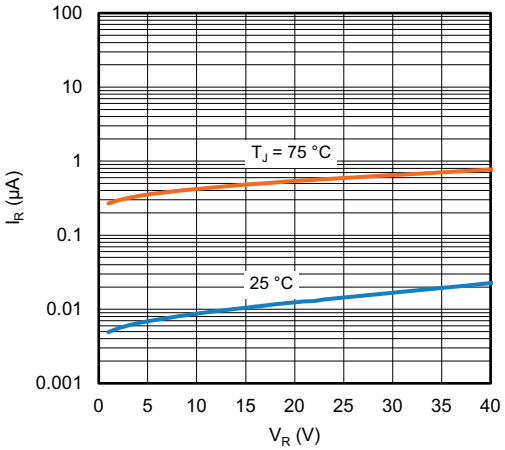



Fig. 1 - Typical Reverse Leakage Current vs. Reverse Voltage

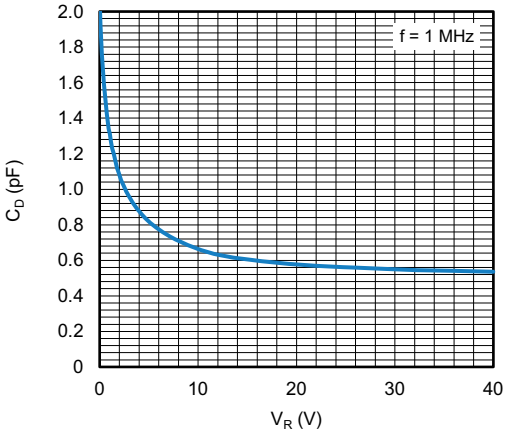



Fig. 3 - Typical Capacitance vs. Reverse Voltage

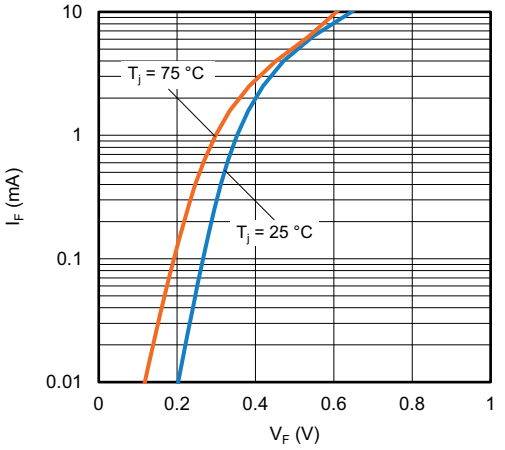
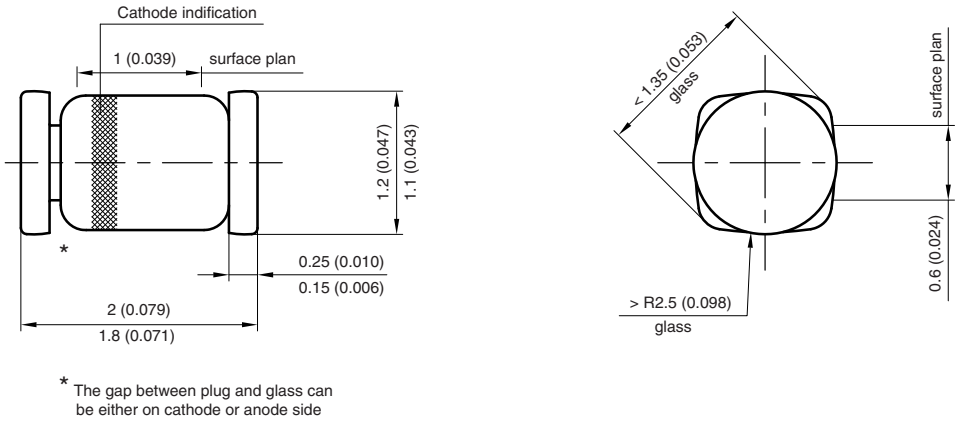



Fig. 2 - Typical Forward Current vs. Forward Voltage

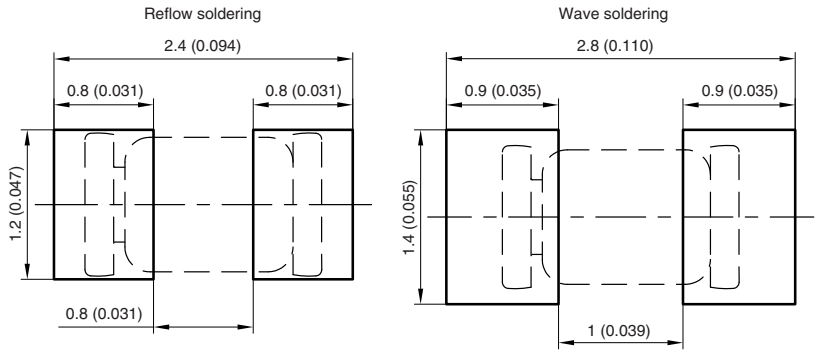

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**PACKAGE DIMENSIONS** in millimeters (inches): **MicroMELF**




* 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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