



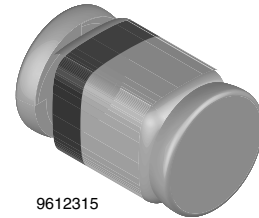
## Small Signal Schottky Diodes

### Features

- Integrated protection ring against static discharge
- Low capacitance
- Low leakage current
- Low forward voltage drop
- AEC-Q101 qualified
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition



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



9612315

### Applications

- IHF-Detector
- Protection circuit
- Small battery charger
- AC-DC/DC-DC converters

### Mechanical Data

**Case:** MicroMELF

**Weight:** approx. 12 mg

**Cathode band color:** black

**Packaging codes/options:**

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

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

### Parts Table

Part	Type differentiation	Ordering code	Remarks
MCL103A	$V_R = 40\text{ V}$	MCL103A-TR3 or MCL103A-TR	Tape and Reel
MCL103B	$V_R = 30\text{ V}$	MCL103B-TR3 or MCL103B-TR	Tape and Reel
MCL103C	$V_R = 20\text{ V}$	MCL103C-TR3 or MCL103C-TR	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		MCL103A	$V_R$	40	V
		MCL103B	$V_R$	30	V
		MCL103C	$V_R$	20	V
Forward continuous current			$I_F$	200	mA
Peak forward surge current	$t_p = 300\text{ }\mu\text{s}$ , square pulse		$I_{FSM}$	15	A
Power dissipation			$P_{tot}$	400	mW

### 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	$R_{thJA}$	250	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	$I_R = 10\text{ }\mu\text{A}$	MCL103A	$V_{(BR)}$	40			V
		MCL103B	$V_{(BR)}$	30			V
		MCL103C	$V_{(BR)}$	20			V
Leakage current	$V_R = 30\text{ V}$	MCL103A	$I_R$			5	$\mu\text{A}$
	$V_R = 20\text{ V}$	MCL103B	$I_R$			5	$\mu\text{A}$
	$V_R = 10\text{ V}$	MCL103C	$I_R$			5	$\mu\text{A}$
Forward voltage drop	$I_F = 20\text{ mA}$		$V_F$			370	mV
	$I_F = 200\text{ mA}$		$V_F$			600	mV
Diode capacitance	$V_R = 0\text{ V}$ , $f = 1\text{ MHz}$		$C_D$		50		pF
Reverse recovery time	$I_F = I_R = 50\text{ to }200\text{ mA}$ , recover to $0.1\text{ }I_R$		$t_{rr}$		10		ns

## Typical Characteristics

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

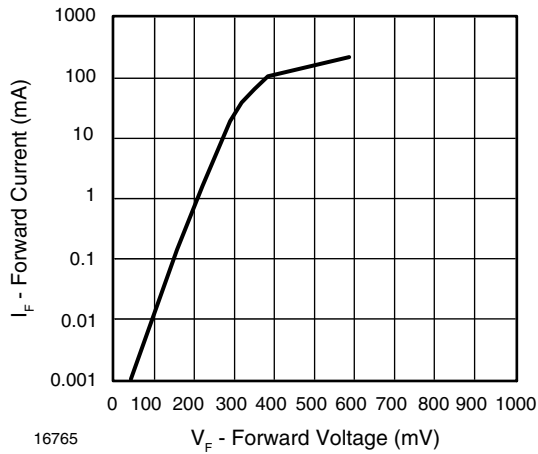


Figure 1. Forward Current vs. Forward Voltage

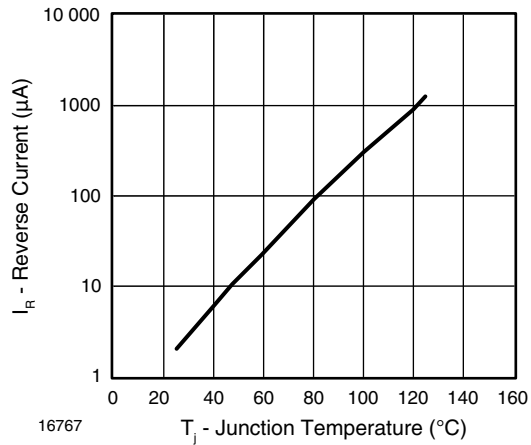


Figure 3. Reverse Current vs. Junction Temperature

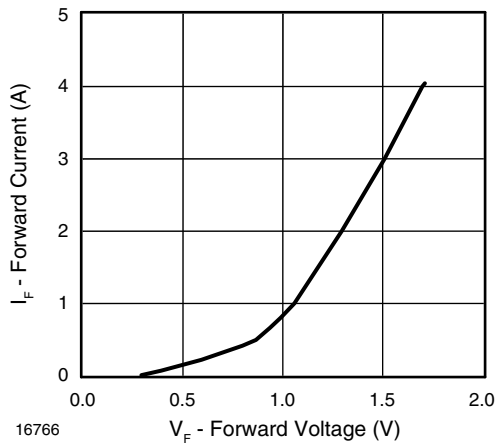


Figure 2. Forward Current vs. Forward Voltage

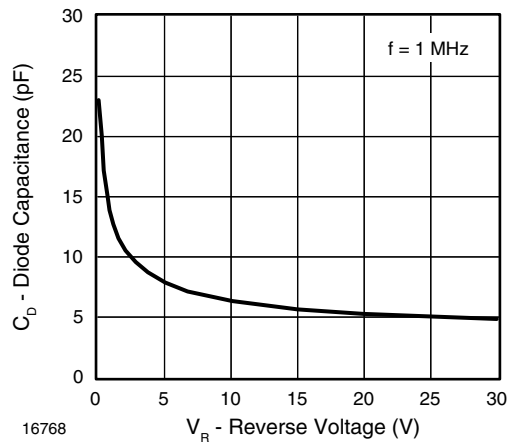


Figure 4. Diode Capacitance vs. Reverse Voltage

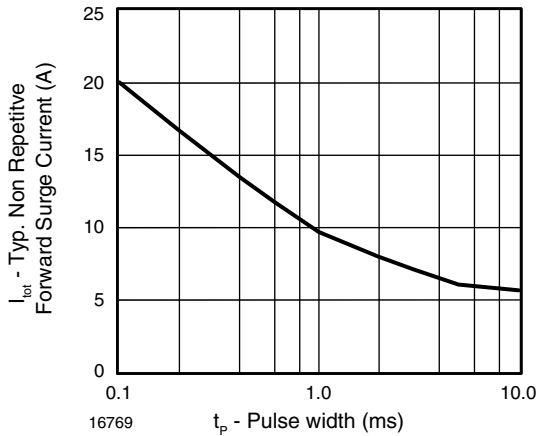
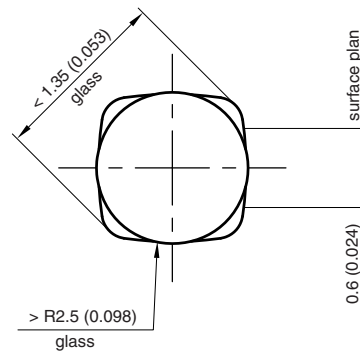
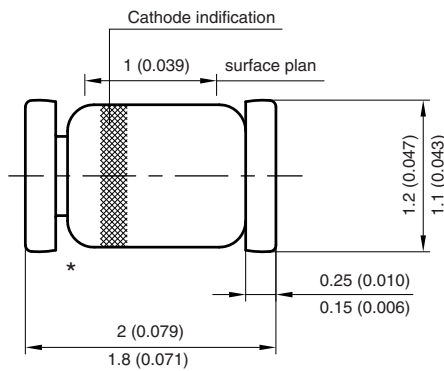


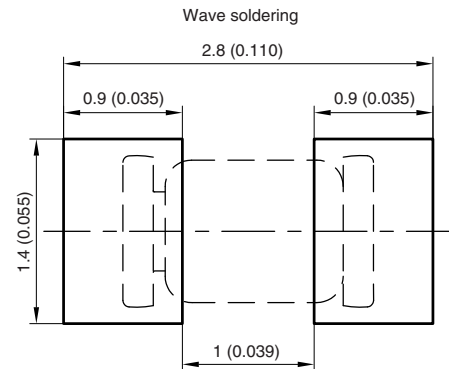
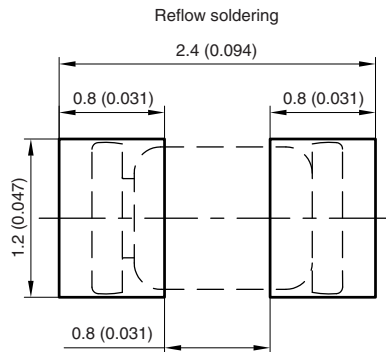
Figure 5. Typ. Non Repetitive Forward Surge Current vs. Pulse width

## Package Dimensions in millimeters (inches): MicromELF



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

Foot print recommendation:



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 Document no.:6.560-5007.01-4  
 96 12072



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