

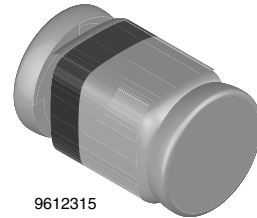
Small Signal Schottky Diodes

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	μA
	$V_R = 20\text{ V}$	MCL103B	I_R			5	μA
	$V_R = 10\text{ V}$	MCL103C	I_R			5	μA
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 $0.1 I_R$		t_{rr}		10		ns

Typical Characteristics

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

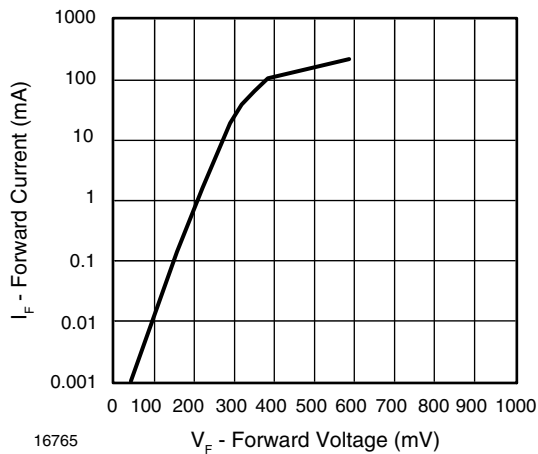


Figure 1. Forward Current vs. Forward Voltage

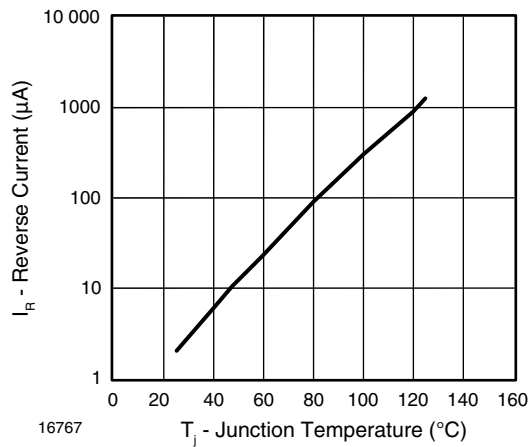


Figure 3. Reverse Current vs. Junction Temperature

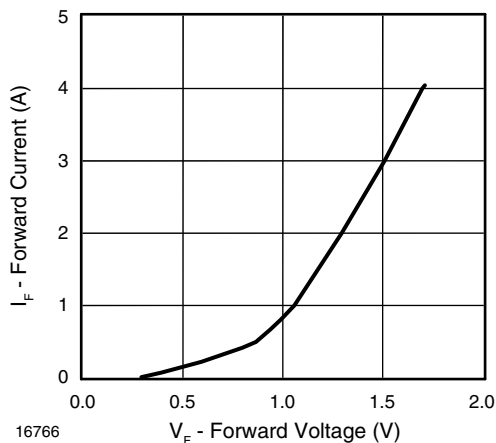


Figure 2. Forward Current vs. Forward Voltage

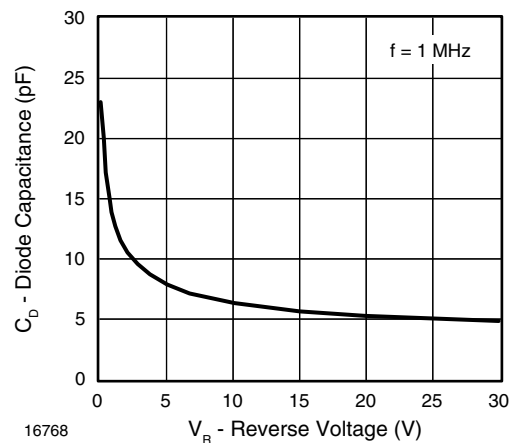


Figure 4. Diode Capacitance vs. Reverse Voltage

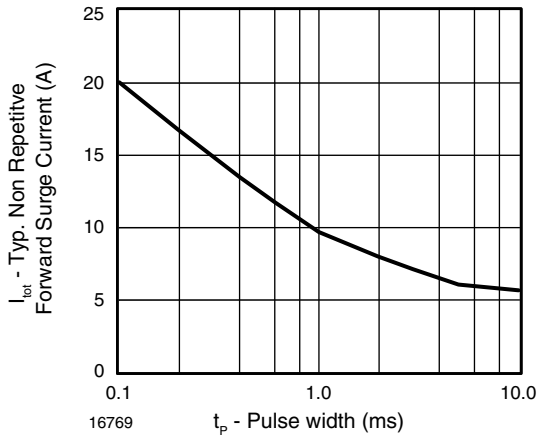
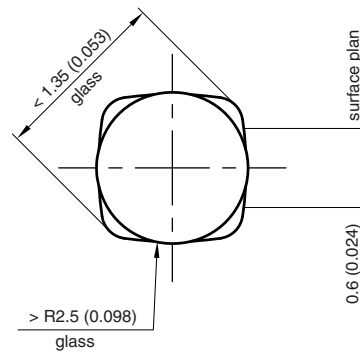
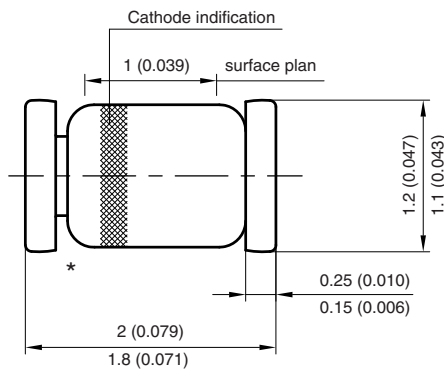


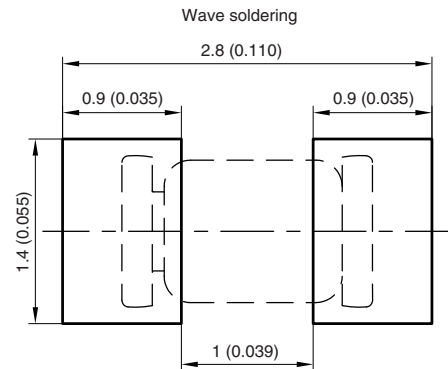
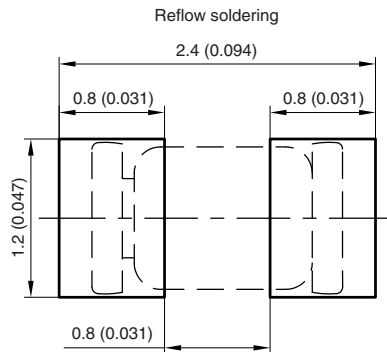
Figure 5. Typ. Non Repetitive Forward Surge Current vs. Pulse width

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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