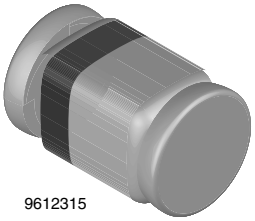
Small Signal Schottky Diodes

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



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 V	MCL103A-TR3 or MCL103A-TR	Tape and Reel
MCL103B	V_R = 30 V	MCL103B-TR3 or MCL103B-TR	Tape and Reel
MCL103C	V_R = 20 V	MCL103C-TR3 or MCL103C-TR	Tape and Reel

Absolute Maximum Ratings

T_{amb} = 25 °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 µs, square pulse		I_{FSM}	15	A
Power dissipation			P_{tot}	400	mW

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}	250	K/W
Junction temperature		T_j	125	°C
Storage temperature range		T_{stg}	- 65 to + 150	°C

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

Typical Characteristics

T_{amb} = 25 °C, unless otherwise specified

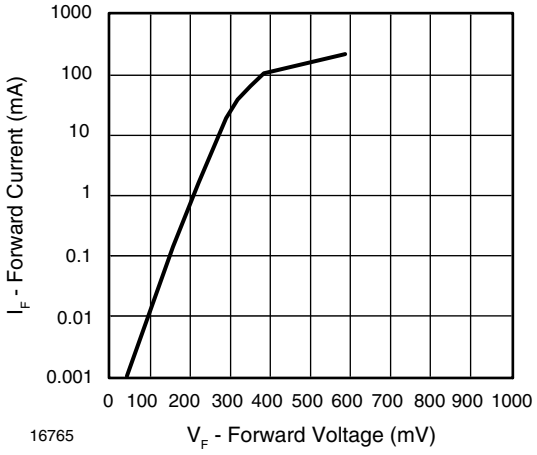


Figure 1. Forward Current vs. Forward Voltage

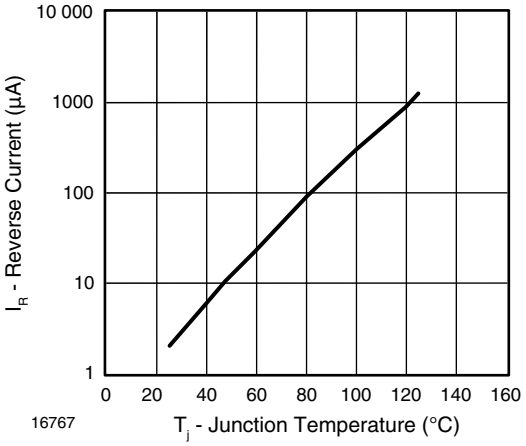


Figure 3. Reverse Current vs. Junction Temperature

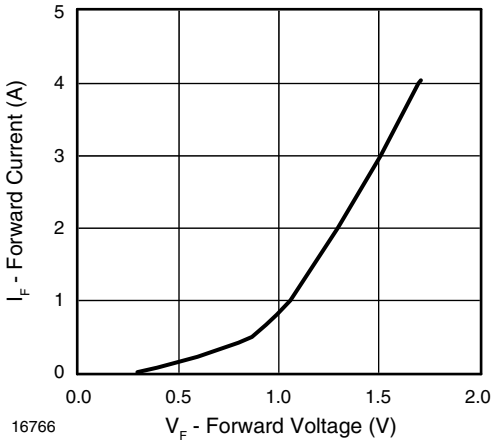


Figure 2. Forward Current vs. Forward Voltage

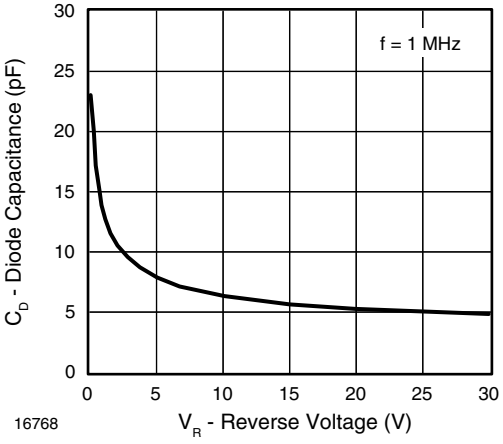


Figure 4. Diode Capacitance vs. Reverse Voltage

For technical questions within your region, please contact one of the following:
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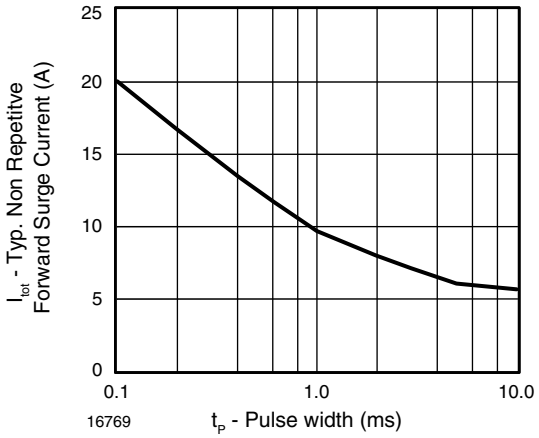
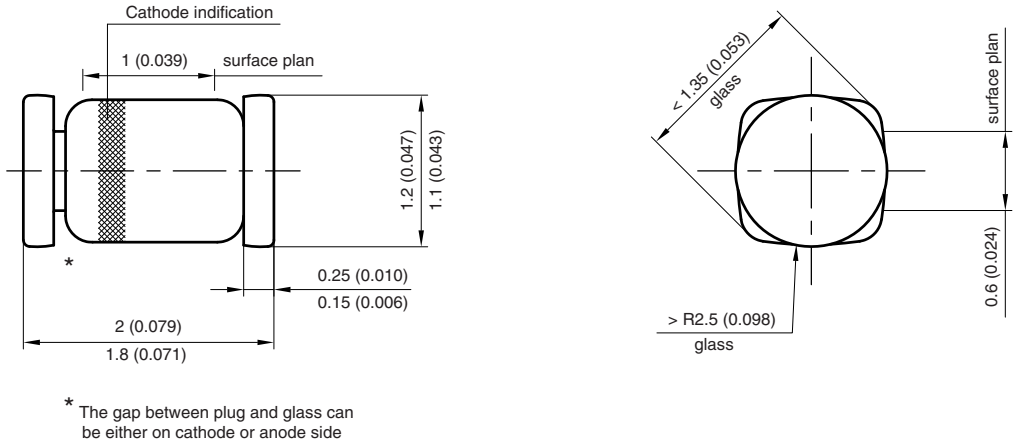


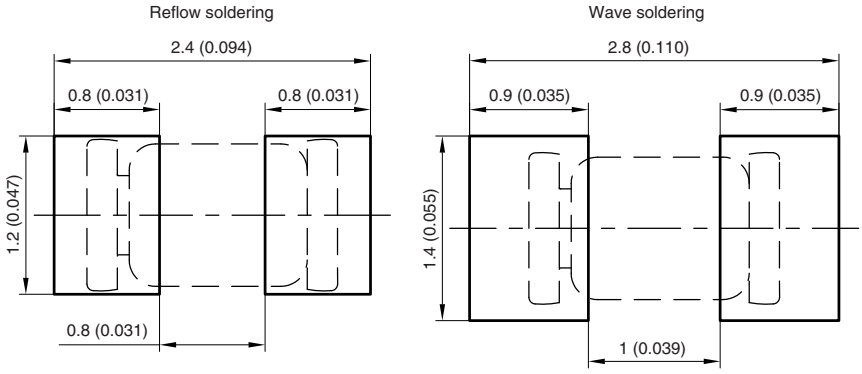
Figure 5. Typ. Non Repetitive Forward Surge Current vs. Pulse width

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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