MCL103A, MCL103B, MCL103C

Vishay Semiconductors

Small Signal Schottky Diodes



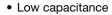
MECHANICAL DATA

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

FEATURES

Integrated protection ring against static discharge



· Low leakage current

Low forward voltage drop

AEC-Q101 qualified

 Material categorization: For definitions of compliance please see <u>www.vishay.com/doc?99912</u>

Ph



ROHS COMPLIANT HALOGEN

FREE

APPLICATIONS

- IHF-detector
- Protection circuit
- · Small battery charger
- AC-DC/DC-DC converter for notebooks

PARTS TABLE						
PART	TYPE DIFFERENTATION	YPE DIFFERENTATION ORDERING CODE INTERNAL CONSTRUCTION		REMARKS		
MCL103A	V _R = 40 V	MCL103A-TR3 or MCL103A-TR	Single diode	Tape and reel		
MCL103B	V _R = 30 V	MCL103B-TR3 or MCL103B-TR	Single diode	Tape and reel		
MCL103C	V _R = 20 V	MCL103C-TR3 or MCL103C-TR	Single diode	Tape and reel		

ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT		
		MCL103A	V _R	40	V		
Reverse voltage		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	А		
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		Tj	125	°C		
Storage temperature range		T _{stg}	- 65 to + 150	°C		



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ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)							
PARAMETER	TEST CONDITION	SYMBOL	SYMBOL	MIN.	TYP.	MAX.	UNIT
	Ι _R = 10 μΑ	MCL103A	V _(BR)	40			V
Reverse breakdown voltage		MCL103B	V _(BR)	30			V
		MCL103C	V _(BR)	20			V
	V _R = 30 V	MCL103A	I _R			5	μA
Leakage current	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
Forward voltage drop	I _F = 200 mA		V _F			600	mV
Diode capacitance	V _R = 0 V, f = 1 MHz		C _D		50		pF
Reverse recovery time	$I_F = I_R = 50$ mA to 200 mA, recovery to 0.1 I_R		t _{rr}		10		ns

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

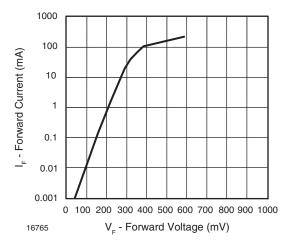


Fig. 1 - Forward Current vs. Forward Voltage

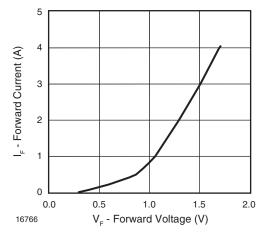


Fig. 2 - Forward Current vs. Forward Voltage

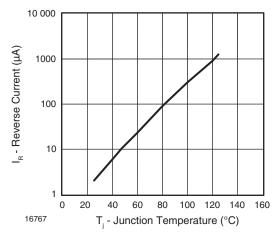


Fig. 3 - Reverse Current vs. Junction Temperature

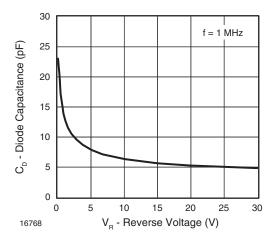


Fig. 4 - Diode Capacitance vs. Reverse Voltage

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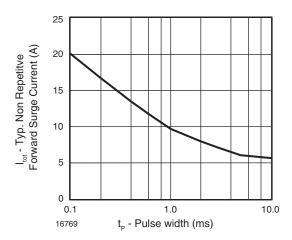
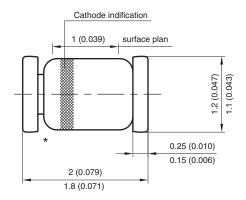
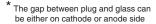
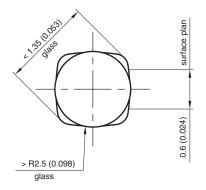


Fig. 5 - Typical Non-Repetitive Forward Surge Current vs. Pulse Width

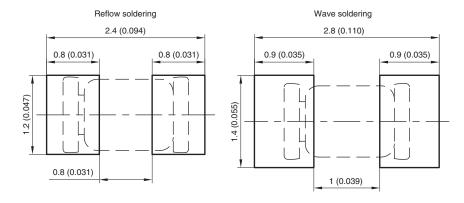
PACKAGE DIMENSIONS in millimeters (inches): MicroMELF







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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