

MCL103A / 103B / 103C

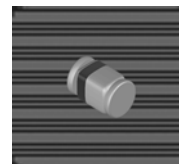
Small Signal Schottky Barrier Diodes

Features

- Integrated protection ring against static discharge
- Low capacitance
- Low leakage current
- Low forward voltage drop

Applications

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



Mechanical Data

- Case: MicroMELF Glass Case
- Weight: approx. 12.3 mg
- Cathode Band Color: Black

Absolute Maximum Ratings

($T_{amb} = 25^{\circ}\text{C}$ 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
Peak forward surge current	$t_p = 300 \mu\text{s}$, square pulse		I_{FSM}	15	A
Power dissipation	$l = 4 \text{ mm}$, $T_c = \text{constant}$		P_{tot}	400	mW

Thermal Characteristics

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

Parameter	Test Condition	Symbol	Value	Unit
Junction ambient	$l = 4 \text{ mm}$, $T_c = \text{constant}$	$R_{\theta JA}$	250	K/W
Junction temperature		T_j	125	$^{\circ}\text{C}$
Storage temperature range		T_{stg}	-65 to +150	$^{\circ}\text{C}$

Electrical Characteristics

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

Parameter	Test Condition	Part	Symbol	Min.	Typ.	Max.	Unit
Reverse breakdown voltage	$I_R = 10 \mu\text{A}$	MCL103A	$V_{(BR)R}$	40			V
		MCL103B		30			
		MCL103C		20			
Leakage current	$V_R = 30\text{V}$	MCL103A	I_R			5	μA
	$V_R = 20\text{V}$	MCL103B				5	
	$V_R = 10\text{V}$	MCL103C				5	
Forward voltage drop	$I_F = 20\text{mA}$		V_F			0.37	V
	$I_F = 200\text{mA}$					0.6	
Diode capacitance	$V_R = 0 \text{ V}$, $f = 1\text{MHz}$		C_D		50		pF
Reverse recovery time	$I_F = I_R = 50\text{mA}$ to 200mA , recover to $0.1 I_R$		t_{rr}		10		ns

Typical characteristics

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

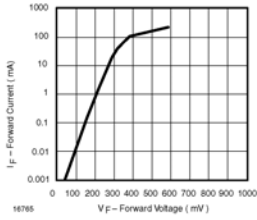


Fig. 1 Forward Current vs. Forward Voltage

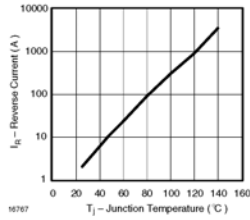


Fig. 3 Reverse Current vs. Junction Temperature

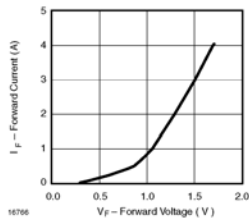


Fig. 2 Forward Current vs. Forward Voltage

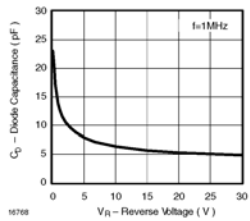


Fig. 4 Diode Capacitance vs. Reverse Voltage

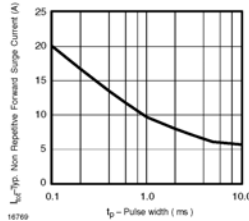


Fig. 5 Typ. Non Repetitive Forward Surge Current vs. Pulse width

Package Dimensions in mm (inches)

