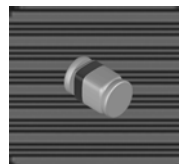


# MCL4148 / MCL4448

Fast Switching Diode

## Features

- Silicon Epitaxial Planar Diodes
- Saving space
- Hermetic sealed parts
- Fits onto SOD 323 / SOT 23 footprints
- Electrical data identical with the devices 1N4148 and 1N4448 respectively
- Micro Melf package



## Applications

- Extreme fast switches

## 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	Symbol	Value	Unit
Repetitive peak reverse voltage		$V_{RRM}$	100	V
Reverse voltage		$V_R$	75	V
Peak forward surge current	$t_p = 1 \text{ us}$	$I_{FSM}$	2	A
Repetitive peak forward current		$I_{FRM}$	450	mA
Forward current		$I_F$	200	mA
Average forward current	$V_R=0$	$I_{FAV}$	150	mA
Power dissipation		$P_V$	500	mW

## Thermal Characteristics

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

Parameter	Test Condition	Symbol	Value	Unit
Junction ambient	mounted on epoxy-glass hard tissue, Fig 5. 35 $\mu\text{m}$ copper clad, 0.9 $\text{m}^2$ copper area per electrode	$R_{\theta JA}$	500	K/W
Junction temperature		$T_J$	175	$^{\circ}\text{C}$
Storage temperature range		$T_{stg}$	-65 to +175	$^{\circ}\text{C}$

## Electrical Characteristics

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

Parameter	Test Condition	Part	Symbol	Min.	Typ.	Max.	Unit
Forward voltage	$I_F=5\text{mA}$	MCL4448	$V_F$	0.62		0.72	V
	$I_F=50\text{mA}$	MCL4148			0.86	1	
	$I_F=100\text{mA}$	MCL4448			0.93	1	
Reverse current	$V_R=20\text{V}$		$I_R$			25	nA
	$V_R=20\text{V}, T_J=150^{\circ}\text{C}$		$I_R$			50	$\mu\text{A}$
	$V_R=75\text{V}$		$I_R$			5	$\mu\text{A}$
Breakdown voltage	$I_R=100\mu\text{A}, t_p/T=0.01, t_p=0.3\text{ms}$		$V_{(BR)}$	100			V
Diode capacitance	$V_R=0, f=1\text{MHz}, V_{HF}=50\text{mV}$		$C_D$			4	pF
Rectification efficiency	$V_{HF}=2\text{V}, f=100\text{MHz}$		$\eta_r$	45			%
Reverse recovery time	$I_F=I_R=10\text{mA}, i_R=1\text{mA}$		$t_{rr}$			8	ns
	$I_F=10\text{mA}, V_R=6\text{V}, i_R=0.1 \times I_F, R_L=100\Omega$					4	

## Typical characteristics

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

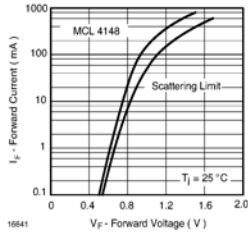


Fig. 1 Forward Current vs. Forward Voltage

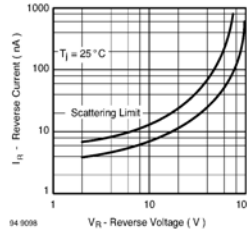


Fig. 3 Reverse Current vs. Reverse Voltage

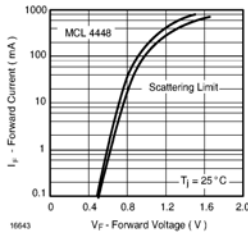


Fig. 2 Forward Current vs. Forward Voltage

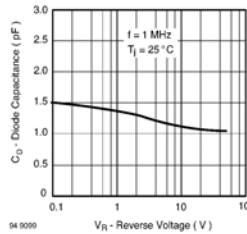


Fig. 4 Diode Capacitance vs. Reverse Voltage

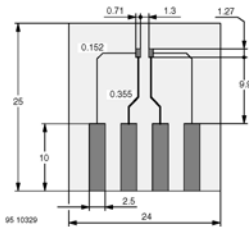


Fig. 5 Board for  $R_{\theta JA}$  definition (in mm)

## Package Dimensions in mm (inches)

