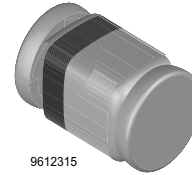


Small Signal Fast Switching Diodes

Features

- Silicon Epitaxial Planar Diodes
- Saving space
- Hermetic sealed parts
- Fits onto SOD323 / SOT23 footprints
- Electrical data identical with the devices 1N4148 and 1N4448 respectively
- Micro Melf package
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



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Applications

- Extreme fast switches

Mechanical Data

Case: MicroMELF Glass case

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
MCL4148	$V_{RRM} = 100\text{ V}$, V_F at $I_F 50\text{ mA} = 1\text{ V}$	MCL4148-TR3 or MCL4148-TR	Tape and Reel
MCL4448	$V_{RRM} = 100\text{ V}$, V_F at $I_F 100\text{ mA} = 1\text{ V}$	MCL4448-TR3 or MCL4448-TR	Tape and Reel

Absolute Maximum Ratings

$T_{amb} = 25\text{ }^\circ\text{C}$, 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	$t_p = 1\text{ }\mu\text{s}$	I_{FSM}	2	A
Repetitive peak forward current		I_{FRM}	450	mA
Forward continuous current		I_F	200	mA
Average forward current	$V_R = 0$	I_{FAV}	150	mA
Power dissipation		P_{tot}	500	mW

Thermal Characteristics

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

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

Electrical Characteristics

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

Parameter	Test condition	Part	Symbol	Min	Typ.	Max	Unit
Forward voltage	$I_F = 5\text{ mA}$	MCL4448	V_F	620		720	mV
	$I_F = 50\text{ mA}$	MCL4148	V_F		860	1000	mV
	$I_F = 100\text{ mA}$	MCL4448	V_F		930	1000	mV
Reverse current	$V_R = 20\text{ V}$		I_R			25	nA
	$V_R = 20\text{ V}, T_j = 150\text{ }^{\circ}\text{C}$		I_R			50	μA
	$V_R = 75\text{ V}$		I_R			5	μA
Breakdown voltage	$I_R = 100\text{ }\mu\text{A}, t_p/T = 0.01, t_p = 0.3\text{ ms}$		$V_{(BR)}$	100			V
Diode capacitance	$V_R = 0, f = 1\text{ MHz}, V_{HF} = 50\text{ mV}$		C_D			4	pF
Rectification efficiency	$V_{HF} = 2\text{ V}, f = 100\text{ MHz}$		η_r	45			%
Reverse recovery time	$I_F = I_R = 10\text{ mA}, I_R = 1\text{ mA}$		t_{rr}			8	ns
	$I_F = 10\text{ mA}, V_R = 6\text{ V}, i_R = 0.1 \times I_R, R_L = 100\text{ }\Omega$		t_{rr}			4	ns

Typical Characteristics

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

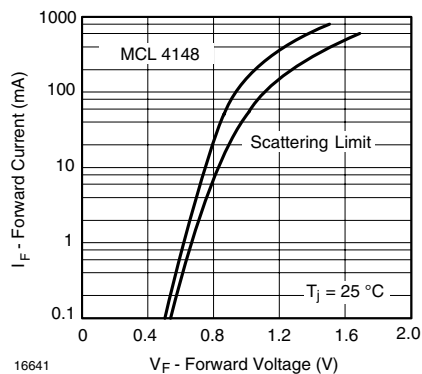


Figure 1. Forward Current vs. Forward Voltage

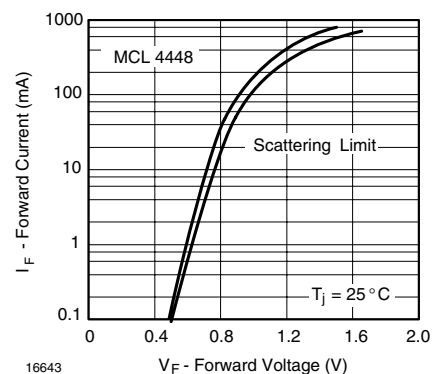


Figure 2. Forward Current vs. Forward Voltage

MCL4148 / MCL4448

Vishay Semiconductors



Package Dimensions in mm (Inches)

