

MCL4148-TR Datasheet

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DiGi Electronics Part Number	MCL4148-TR-DG
Manufacturer	Vishay General Semiconductor - Diodes Division
Manufacturer Product Number	MCL4148-TR
Description	DIODE GP 75V 150MA MICROMELF
Detailed Description	Diode 75 V 150mA Surface Mount MicroMELF

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Purchase and inquiry

Manufacturer Product Number:

MCL4148-TR

Series:

-

Technology:

Standard

Current - Average Rectified (Io):

150mA

Speed:

Small Signal \leq 200mA (Io), Any Speed

Current - Reverse Leakage @ Vr:

5 μ A @ 75 V

Grade:

Automotive

Mounting Type:

Surface Mount

Supplier Device Package:

MicroMELF

Base Product Number:

MCL4148

Manufacturer:

Vishay General Semiconductor - Diodes Division

Product Status:

Active

Voltage - DC Reverse (Vr) (Max):

75 V

Voltage - Forward (Vf) (Max) @ If:

1 V @ 50 mA

Reverse Recovery Time (trr):

8 ns

Capacitance @ Vr, F:

4pF @ 0V, 1MHz

Qualification:

AEC-Q101

Package / Case:

2-SMD, No Lead

Operating Temperature - Junction:

-65°C ~ 175°C

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.10.0070

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99


www.vishay.com
MCL4148, MCL4448

Vishay Semiconductors

Small Signal Fast Switching Diodes



FEATURES

- Silicon epitaxial planar diode
- Saving space
- Hermetic sealed parts
- Fits onto SOD-323 / SOT-23 footprints
- Electrical data identical with the devices 1N4148 and 1N4448 respectively
- MicroMELF package
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
 COMPLIANT
 HALOGEN
FREE

LINKS TO ADDITIONAL RESOURCES



APPLICATIONS

- Extreme fast switches

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

PARTS TABLE				
PART	TYPE DIFFERENTIATION	ORDERING CODE	CIRCUIT CONFIGURATION	REMARKS
MCL4148	$V_{RRM} = 100\text{ V}$, V_F at $I_F 50\text{ mA} = 1\text{ V}$	MCL4148-TR3 or MCL4148-TR	Single	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	Single	Tape and reel

ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25\text{ }^\circ\text{C}$, unless otherwise specified)					
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT	
Reverse voltage		V_R	75	V	
Repetitive peak reverse voltage		V_{RRM}	100	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	$V_R = 0\text{ V}$	$I_{F(AV)}$	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	
Thermal resistance 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	SYMBOL	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	$I_F = 5\text{ mA}$	MCL4448	V_F	0.620		0.720	V
	$I_F = 50\text{ mA}$	MCL4148	V_F		0.860	1	V
	$I_F = 100\text{ mA}$	MCL4448	V_F		0.930	1	V
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	$V_R = 0\text{ V}, f = 1\text{ MHz}, V_{HF} = 50\text{ mV}$		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	

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

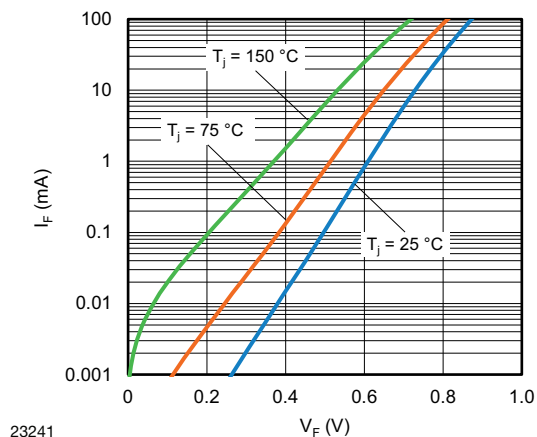


Fig. 1 - Forward Current vs. Forward Voltage

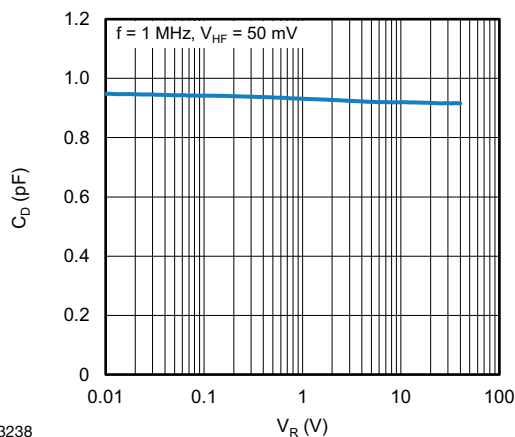


Fig. 3 - Typical Capacitance vs. Reverse Voltage

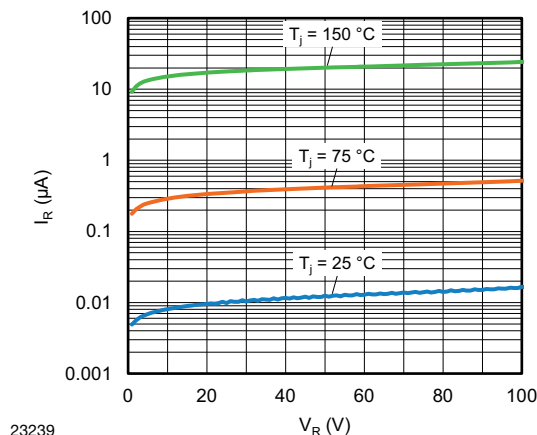


Fig. 2 - Typical Reverse Leakage Current vs. Reverse Voltage

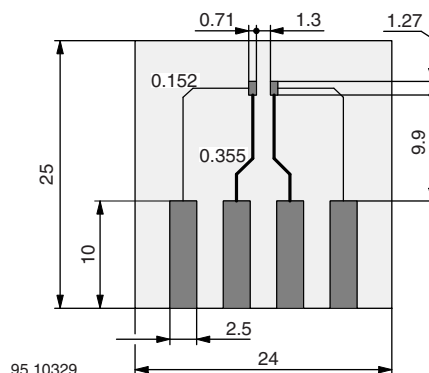


Fig. 4 - Board for R_{thJA} definition (in mm)

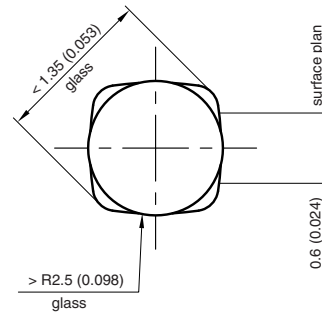
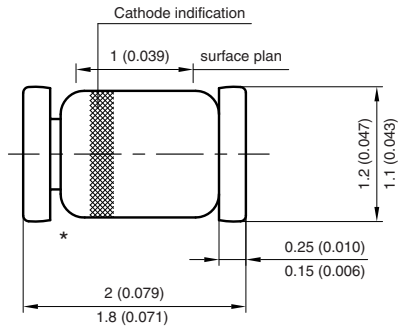


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MCL4148, MCL4448

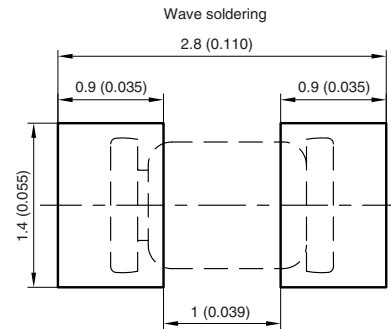
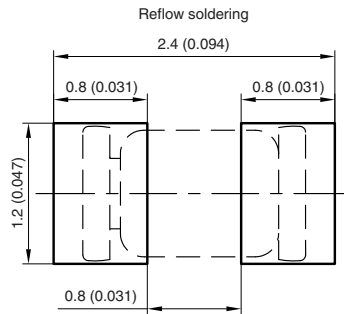
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PACKAGE DIMENSIONS in millimeters (inches): **MicroMELF**



* The gap between plug and glass can be either on cathode or anode side

Foot print recommendation:



Created - Date: 26.July.1996
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 96 12072



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