



High-speed switching diode

Features

1. Saving space
2. Fits onto SOD-323/SOT-23 footprints
3. Micro Melf package



Applications

Extreme fast switches

Absolute Maximum Ratings

$T_j = 25\text{ }^{\circ}\text{C}$

Parameter	Test Conditions	Type	Symbol	Value	Unit
Repetitive peak reverse voltage			V_{RRM}	100	V
Reverse voltage			V_R	75	V
Peak forward surge current	$t_p = 1\mu\text{s}$		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
Junction temperature			T_j	175	$^{\circ}\text{C}$
Storage temperature range			T_{stg}	-65~+175	$^{\circ}\text{C}$

Stresses exceeding maximum ratings may damage the device. Maximum ratings are stress ratings only. Functional operation above the recommended operating conditions is not implied. Extended exposure to stresses above the recommended operating conditions may affect device reliability.

Excel Semiconductor



Electrical Characteristics

$T_j=25\text{ }^{\circ}\text{C}$

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Forward voltage	$I_F=5\text{mA}$	MCL4448	V_F	0.62		0.72	V
	$I_F=10\text{mA}$	MCL4148	V_F		0.86	1	V
	$I_F=100\text{mA}$	MCL4448	V_F		0.93	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	$I_R=100\mu\text{A}, t_p/T=0.01, t_p=0.3\text{ms}$		$V_{(BR)}$	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
	$I_F=10\text{mA}, V_R=6\text{V}, i_R=0.1\times I_R, R_L=100\Omega$		t_{rr}			4	ns

Characteristics ($T_j=25$

$^{\circ}\text{C}$ unless otherwise specified)

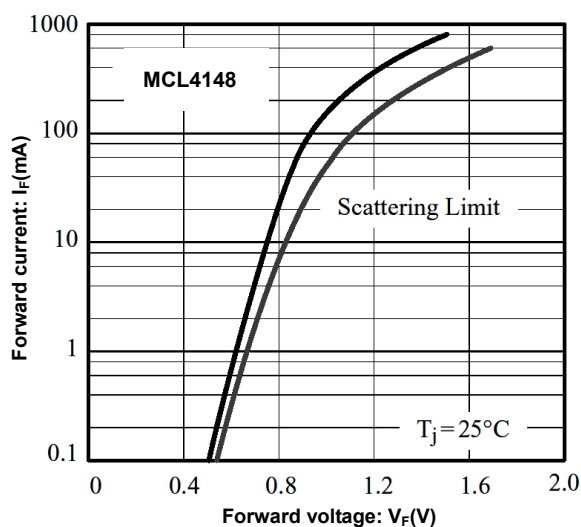


Figure 1. Forward current vs. forward voltage

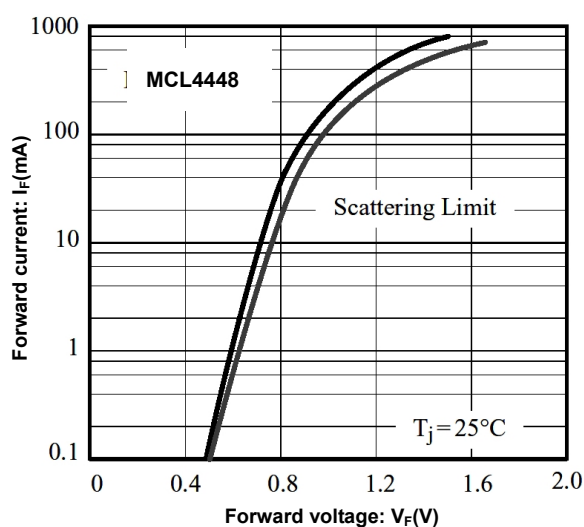


Figure 2. Forward current vs. forward voltage

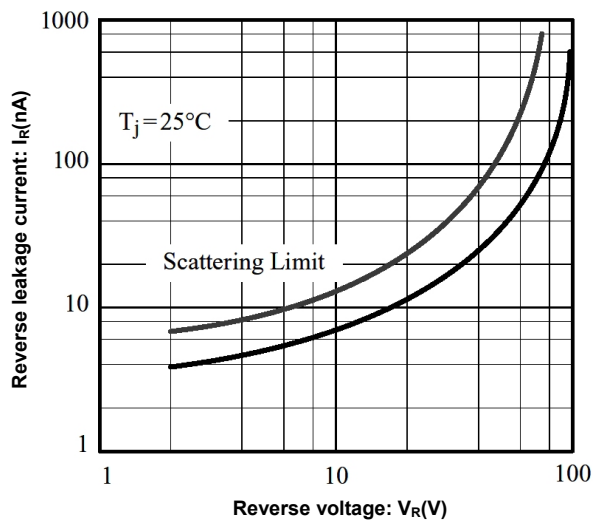


Figure 3. Reverse current vs. reverse voltage

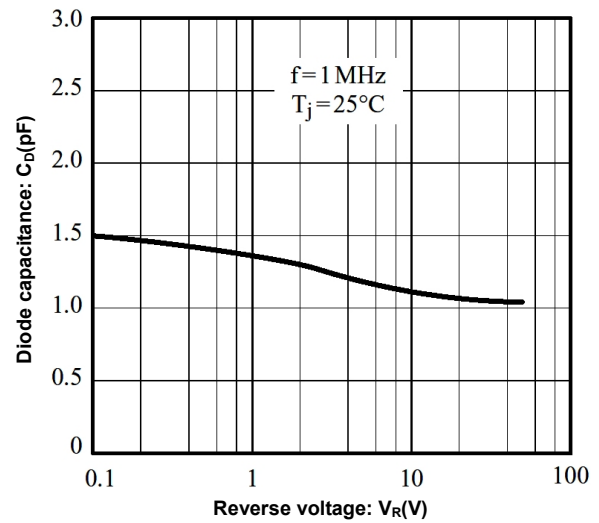
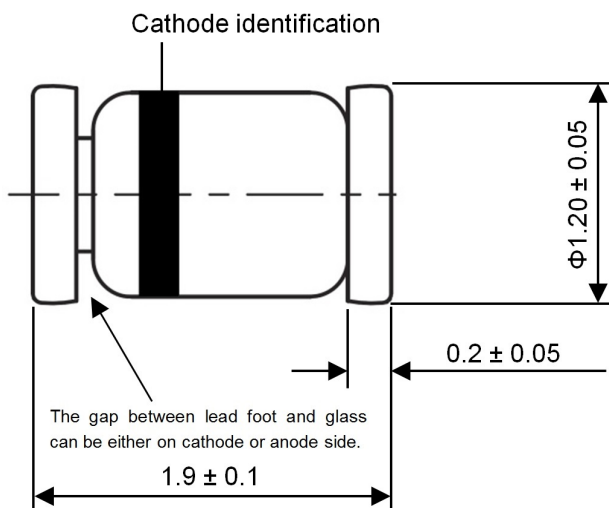
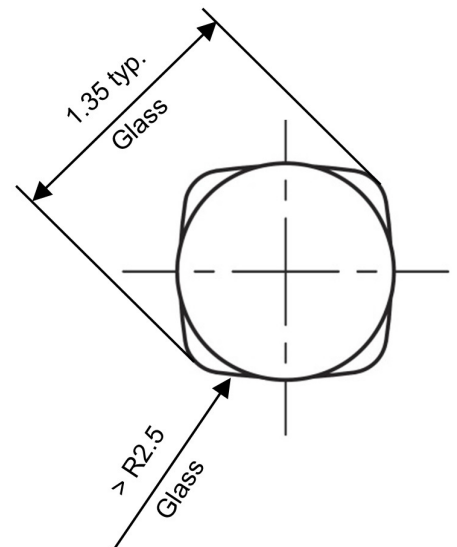


Figure 4. Diode capacitance vs. reverse voltage

Dimensions in mm



Glass Case
Micro Melf



Excel Semiconductor