High-speed switching diode

Features

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

Applications

Extreme fast switches

Construction

Silicon epitaxial planar

Absolute Maximum Ratings

$T_j=25℃$

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	$t_p=1\mu s$		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	℃
Storage temperature range			T_{stg}	-65~+175	℃

Maximum Thermal Resistance

$T_j=25℃$

Parameter	Test Conditions	Symbol	Value	Unit
Junction ambient	on PC board 50mm×50mm×1.6mm	R_{thJA}	500	K/W

Electrical Characteristics

T_j=25℃

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Forward voltage	I_F=5mA	MCL4448	V_F	0.62		0.72	V
	I_F=10mA	MCL4148	V_F		0.86	1	V
	I_F=100mA	MCL4448	V_F		0.93	1	V
Reverse current	V_R=20V		I_R			25	nA
	V_R=20V, T_j=150℃		I_R			50	μA
	V_R=75V		I_R			5	μA
Breakdown voltage	I_R=100μA,t_p/T=0.01,t_p=0.3ms		$V_{(BR)}$	100			V
Diode capacitance	V_R=0, f=1MHz, V_{HF}=50mV		C_D			4	pF
Rectification efficiency	V_{HF}=2V, f=100MHz		η_R	45			%
Reverse recovery time	I_F= I_R=10mA, i_R=1mA		t_{rr}			8	ns
	I_F=10mA, V_R=6V, i_R=0.1×I_R, R_L=100Ω		t_{rr}			4	ns

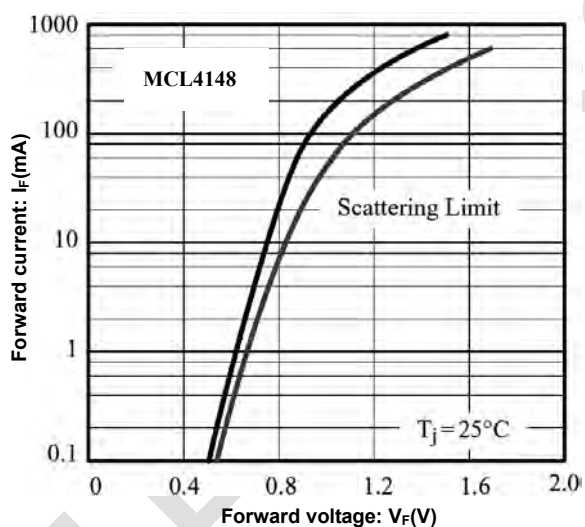## Characteristics (T_j=25℃ unless otherwise specified)

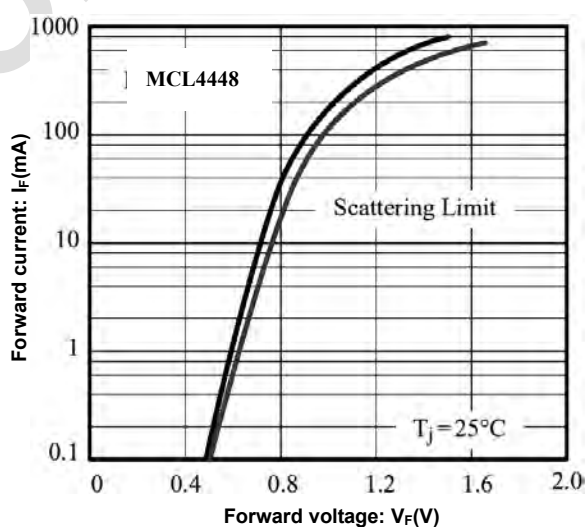Figure 1. Forward current vs. forward voltage
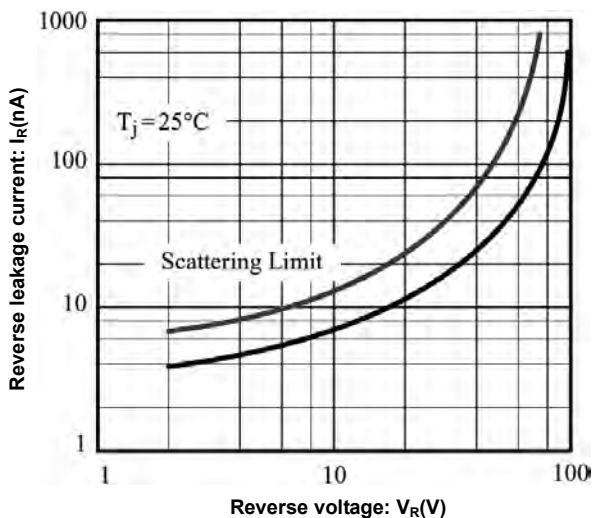

Figure 2. Forward current vs. forward voltage

Figure 3. Reverse current vs. reverse voltage
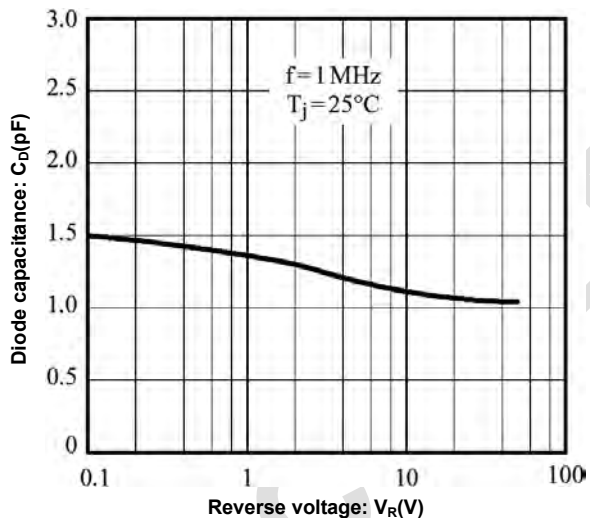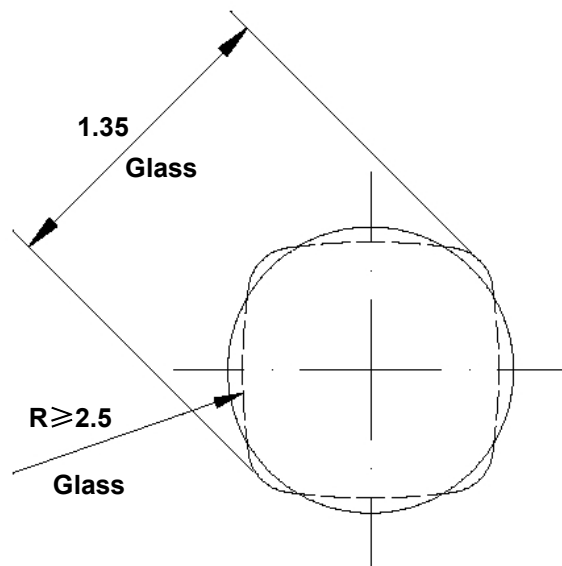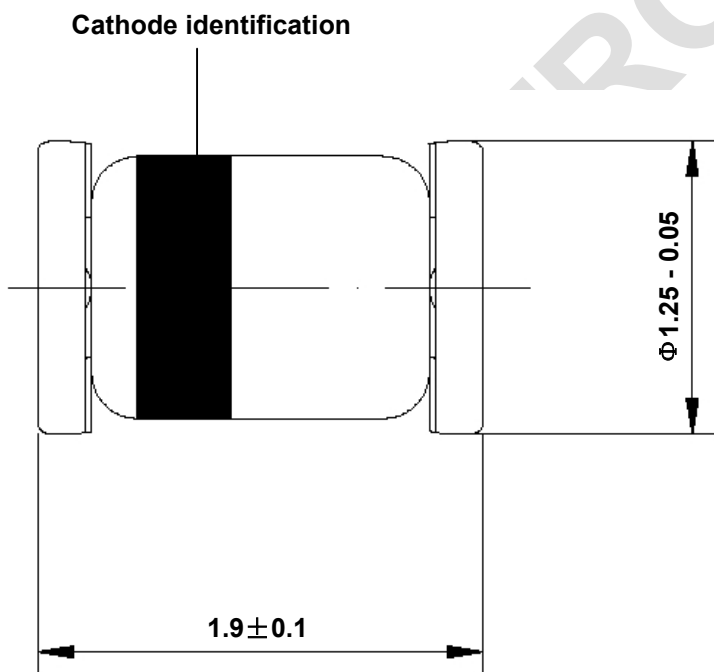
Figure 4. Diode capacitance vs. reverse voltage

Dimensions in mm

Cathode identification

$\Phi 1.25 - 0.05$

1.9 ± 0.1

Glass Case
Micro Melf

1.35
Glass

R $\geqslant$ 2.5
Glass