



LL4148/LL4448

High-speed switching diode



Features

1. Small surface mounting type
2. High reliability
3. High speed ($t_{rr} \leq 4$ ns)

Applications

Extreme fast switches

Construction

Silicon epitaxial planar

Absolute Maximum Ratings

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

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}	500	mA
Forward current			I_F	300	mA
Average forward current	$V_R = 0$		I_{FAV}	150	mA
Power dissipation			P_V	500	mW
Junction temperature			T_j	-65~+175	$^\circ\text{C}$
Storage temperature range			T_{stg}	-65~+175	$^\circ\text{C}$

Maximum Thermal Resistance

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

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



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Electrical Characteristics

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

Parameter	Test Conditions	Type	Sym bol	Min	Typ	Max	Unit
Forward voltage	$I_F=5\text{mA}$	LL4148	V_F	0.62		0.72	V
	$I_F=10\text{mA}$	LL4148	V_F		0.86	1	V
	$I_F=100\text{mA}$	LL4448	V_F		0.93	1	V
Reverse current	$V_R=20\text{V}$		I_R			25	nA
	$V_R=20\text{V}, T_j=150^\circ\text{C}$		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)

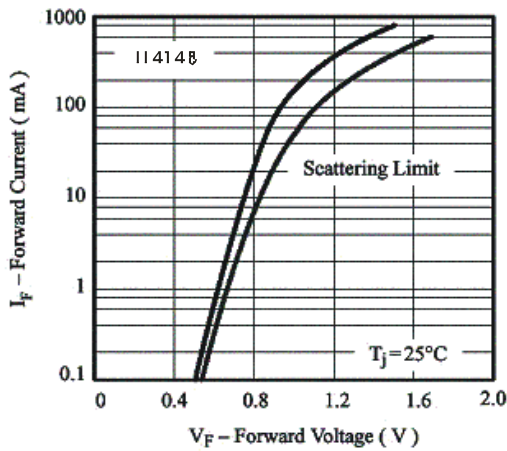


Figure 1. Forward Current vs. Forward Voltage

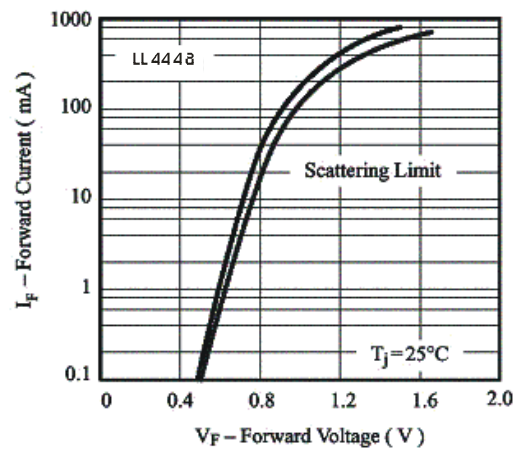


Figure 2. Forward Current vs. Forward Voltage



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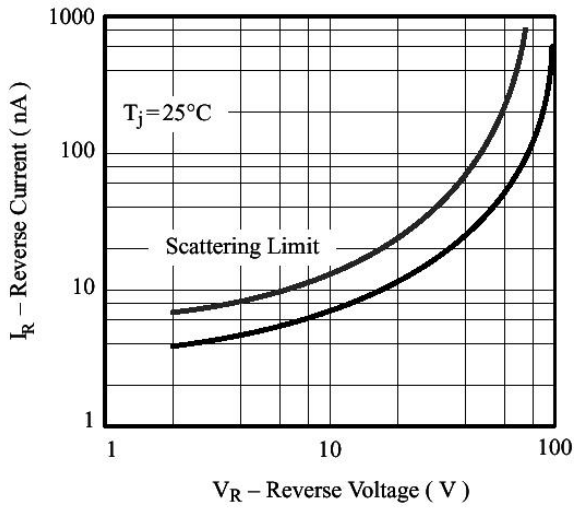


Figure 3. Reverse Current vs. Reverse Voltage

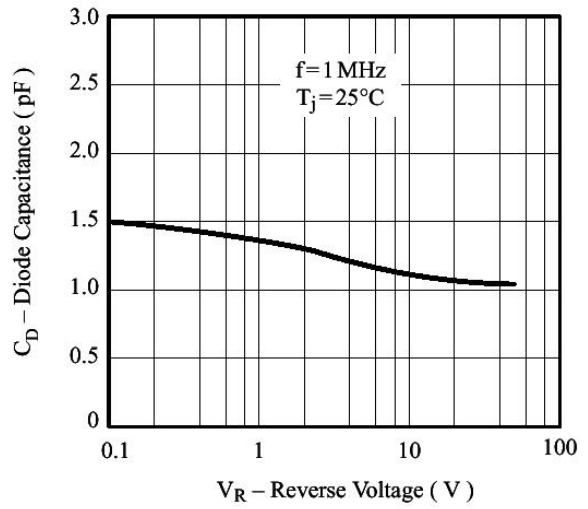
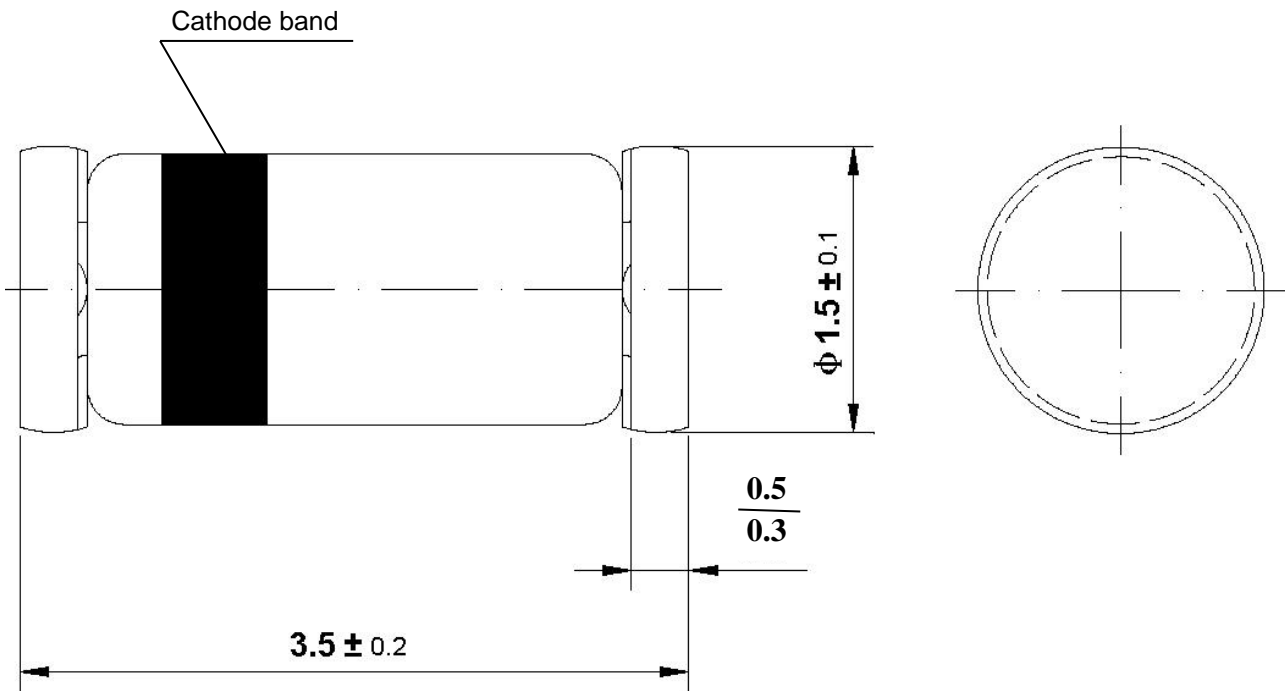


Figure 4. Diode Capacitance vs. Reverse Voltage

Dimensions in mm



Glass Case
Mini Melf / LL-34