



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			$T_j$	175	°C
Storage temperature range			$T_{stg}$	-65~+175	°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



## Electrical Characteristics

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

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Forward voltage	$I_F=5\text{mA}$	LL4448	$V_F$	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	$\mu\text{A}$
	$V_R=75\text{V}$		$I_R$			5	$\mu\text{A}$
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	$V_{HF}=2\text{V}, f=100\text{MHz}$		$\eta_R$	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)**

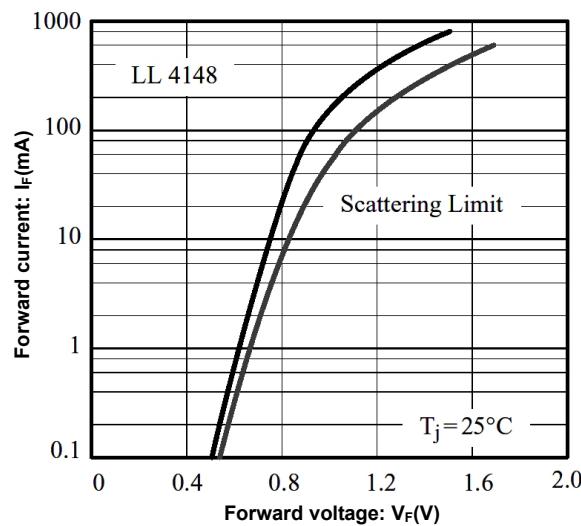


Figure 1. Forward current vs. forward voltage

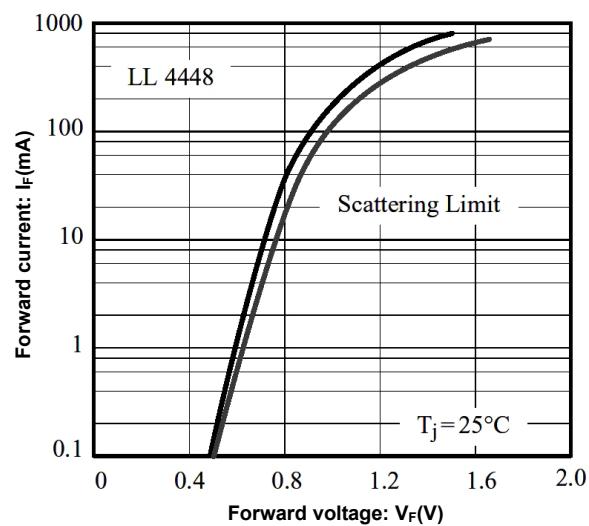


Figure 2. Forward current vs. forward voltage



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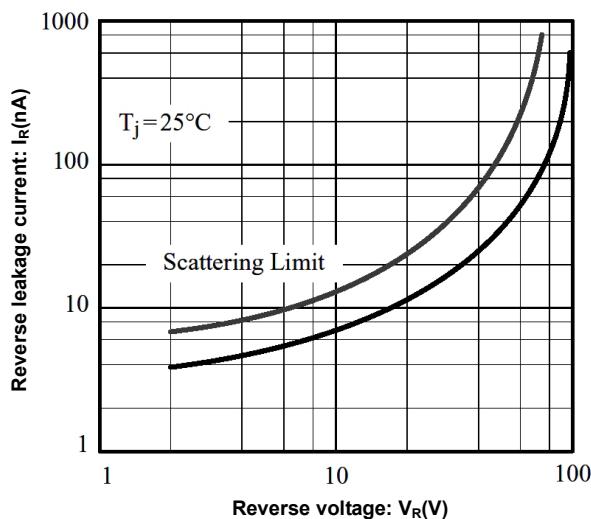


Figure 3. Reverse current vs. reverse voltage

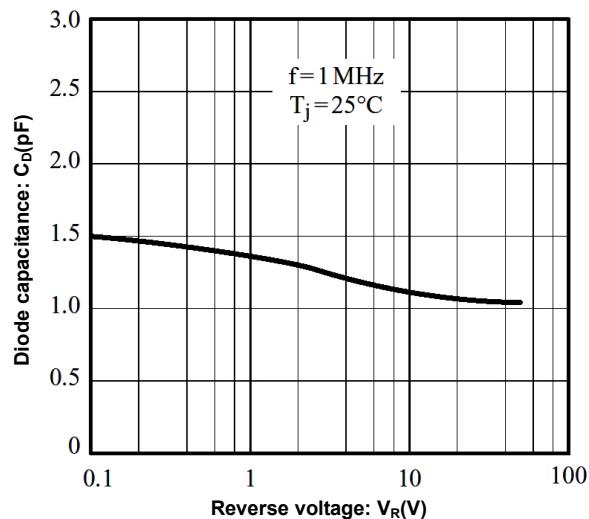
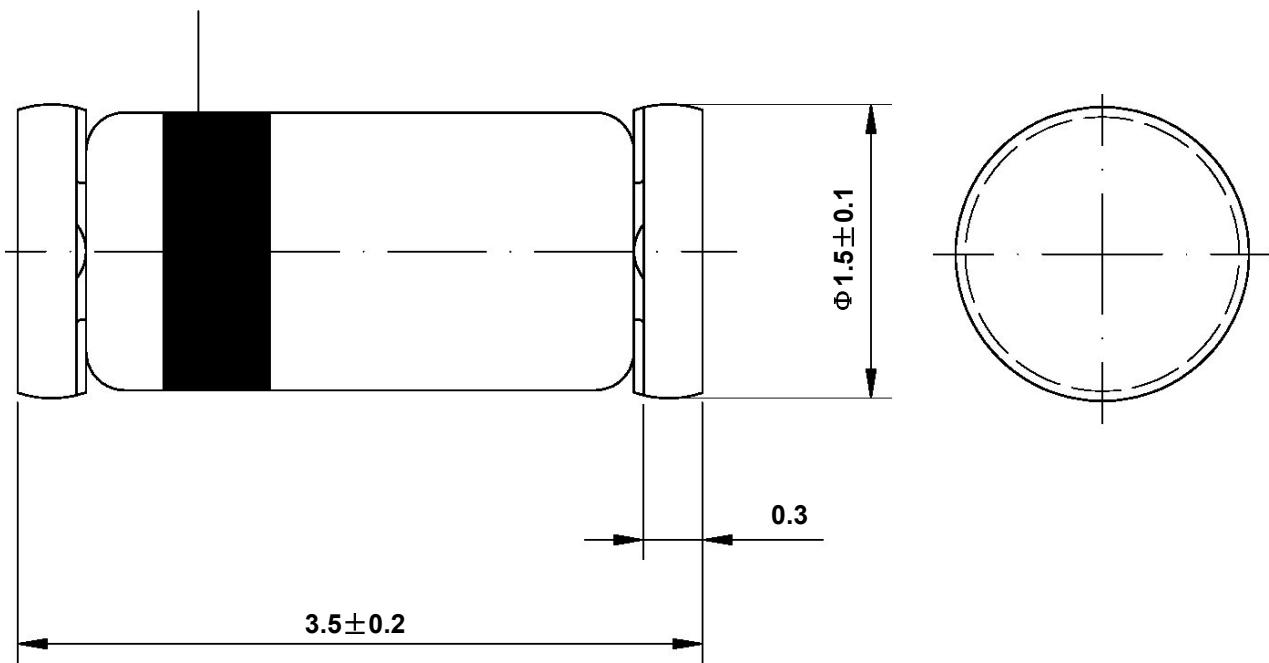


Figure 4. Diode capacitance vs. reverse voltage

## Dimensions in mm

### Cathode identification



Glass Case  
Mini Melf / SOD 80  
JEDEC DO 213 AA