

MCL4148

Silicon Epitaxial Planar Switching Diode

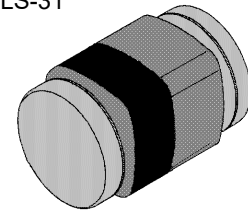
Features

- Saving space
- Hermetic sealed parts
- Fits onto SOD 323 / SOT 23 footprints
- Electrical data identical with the device 1N4148

Applications

Extreme fast switches

LS-31



Glass Case MicroMELF

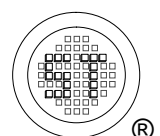
Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Peak Reverse Voltage	V_{RM}	100	V
Reverse Voltage	V_R	75	V
Average Rectified Forward Current	$I_{F(AV)}$	200	mA
Repetitive Peak Forward Current	I_{FRM}	450	mA
Non-repetitive Peak Forward Surge Current	I_{FSM}	0.5 1 4	A
		at $t = 1$ s	
		at $t = 1$ ms	
		at $t = 1$ μs	
Power Dissipation	P_{tot}	500	mW
Junction Temperature	T_j	175	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 65 to + 175	$^\circ\text{C}$

Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Max.	Unit
Thermal Resistance Junction to Ambient ¹⁾	$R_{\theta JA}$	300	$^\circ\text{C}/\text{W}$

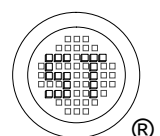
¹⁾ Valid provided that electrodes are kept at ambient temperature.



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Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Min.	Max.	Unit
Reverse Breakdown Voltage at $I_R = 100 \mu\text{A}$	$V_{(BR)R}$	100	-	V
Forward Voltage at $I_F = 50 \text{ mA}$	V_F	-	1	V
Leakage Current at $V_R = 20 \text{ V}$ at $V_R = 75 \text{ V}$ at $V_R = 20 \text{ V}, T_j = 150^\circ\text{C}$	I_R I_R I_R	- - -	25 5 50	nA μA μA
Capacitance at $V_R = 0, f = 1 \text{ MHz}$	C_{tot}	-	4	pF
Voltage Rise when Switching ON tested with 50 mA Forward Pulses $t_p = 0.1 \text{ s}$, Rise Time < 30 ns, $f_p = 5$ to 100 KHz	V_{fr}	-	2.5	V
Reverse Recovery Time at $I_F = 10 \text{ mA}$, $I_{\text{rr}} = 0.1 \times I_R$, $V_R = 6 \text{ V}$, $R_L = 100 \Omega$	t_{rr}	-	4	ns
Rectification Efficiency at $f = 100 \text{ MHz}$, $V_{\text{RF}} = 2 \text{ V}$	η_V	0.45	-	-



Electrical Characteristics Curves

Fig 1. Forward Characteristics

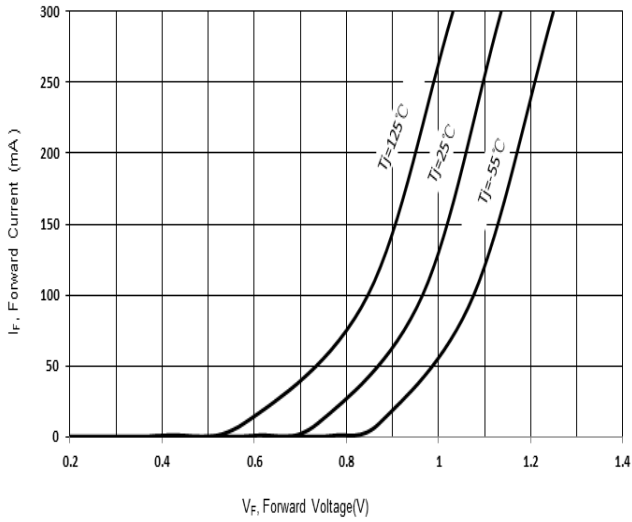


Fig 2. Reverse Characteristics

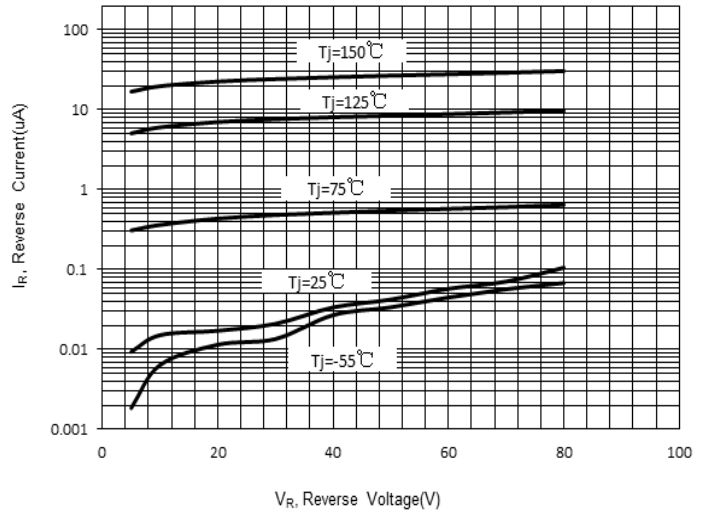


Fig 3. Junction Capacitance

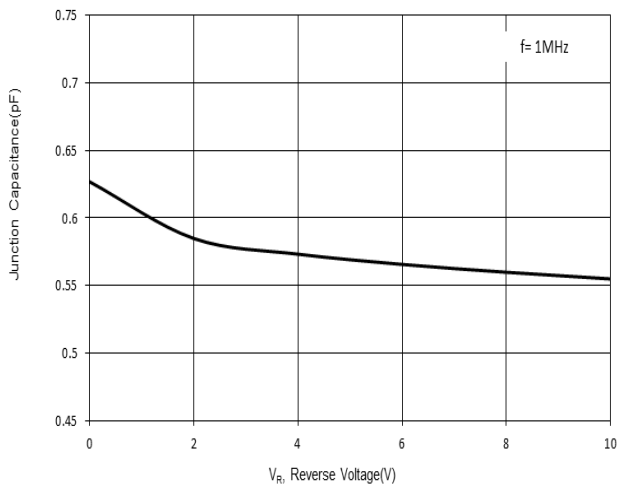
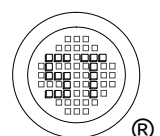
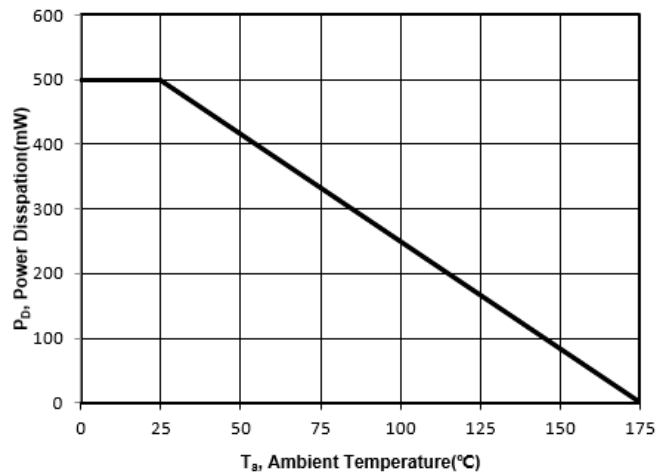


Fig 4. Power Derating Curves



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LS-31 Package Outline (Dimensions in millimeters)

