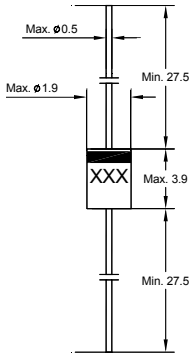
1N4148

Silicon Epitaxial Planar Switching Diode

Applications

• High-speed switching

This diode is also available in MiniMELF case with the type designation LL4148



Glass Case DO-35
Dimensions in mm

Absolute Maximum Ratings (T_a = 25 °C)

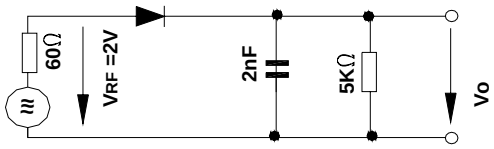
Parameter		Symbol	Value	Unit
Peak Reverse Voltage		V_{RM}	100	V
Reverse Voltage		V_R	75	V
Average Rectified Forward Current		$I_{F(AV)}$	200	mA
Non-repetitive Peak Forward Surge Current	at t = 1 s at t = 1 ms at t = 1 µs	I_{FSM}	0.5 1 4	A
Power Dissipation		P_{tot}	500 [1)]	mW
Junction Temperature		T_j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

[1)] Valid provided that leads at a distance of 8 mm from case are kept at ambient temperature.

Characteristics at T_a = 25 °C

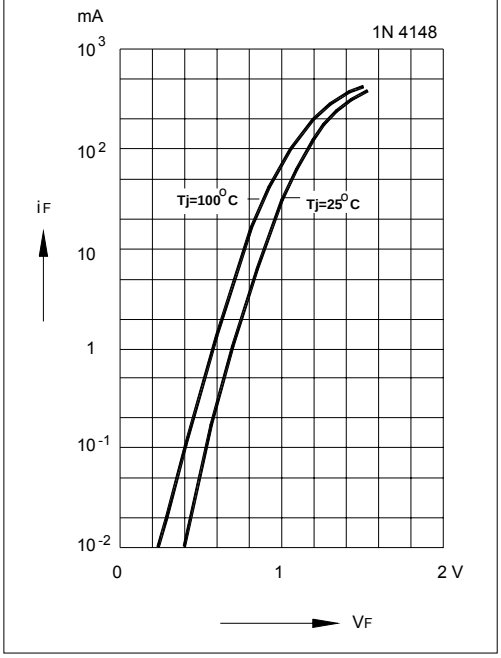
Parameter	Symbol	Min.	Max.	Unit
Forward Voltage at I_F = 10 mA	V_F	-	1	V
Leakage Current at V_R = 20 V at V_R = 75 V at V_R = 20 V, T_j = 150 °C	 I_R I_R I_R	 - - -	 25 5 50	 nA µA µA
Reverse Breakdown Voltage at I_R = 100 µA at I_R = 5 µA	 $V_{(BR)R}$ $V_{(BR)R}$	 100 75	 - -	 V V
Capacitance at V_R = 0, f = 1 MHz	C_{tot}	-	4	pF
Voltage Rise when Switching ON tested with 50 mA Forward Pulses tp = 0.1 s, Rise Time < 30 ns, fp = 5 to 100 KHz	V_{fr}	-	2.5	V
Reverse Recovery Time at I_F = 10 mA to I_R = 1 mA, V_R = 6 V, R_L = 100 Ω	t_{rr}	-	4	ns
Thermal Resistance Junction to Ambient Air	R_{thA}	-	0.35 [1]	K/mW
Rectification Efficiency at f = 100 MHz, V_{RF} = 2 V	η_V	0.45	-	-

[1] Valid provided that leads at a distance of 8 mm from case are kept at ambient temperature.

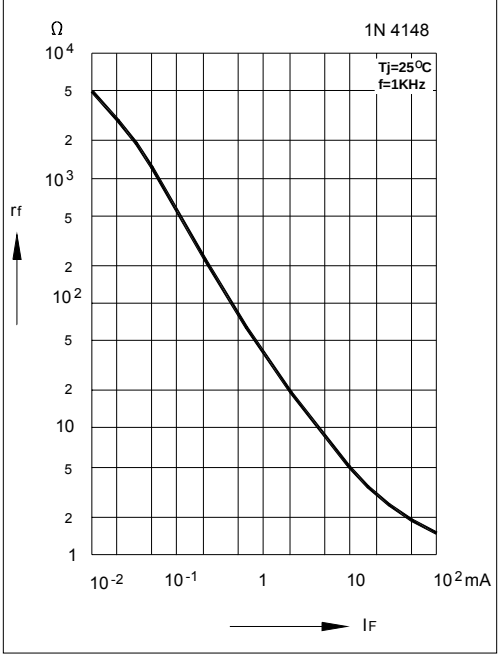


Rectification Efficiency Measurement Circuit

Forward characteristics

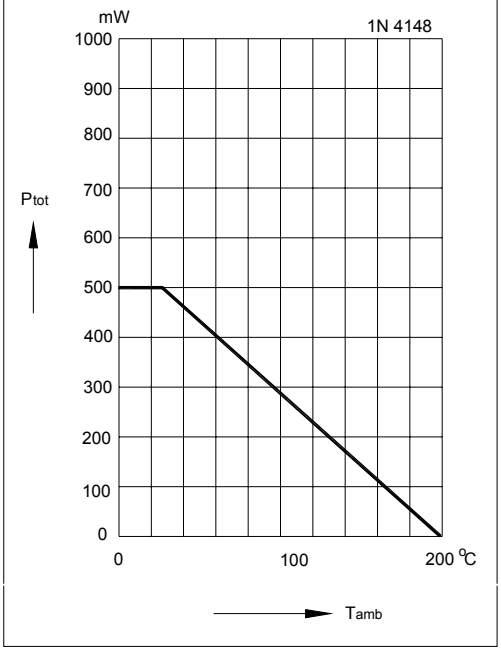


Dynamic forward resistance versus forward current

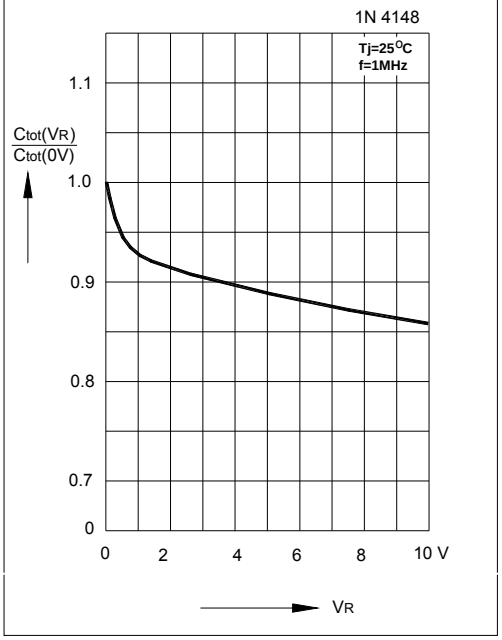


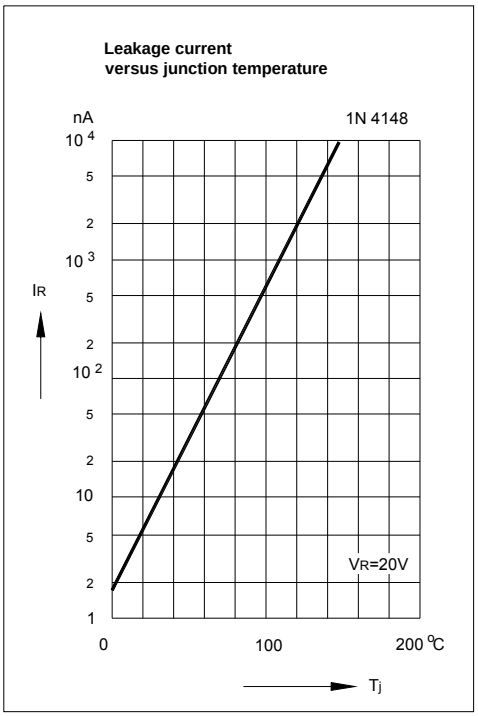
Admissible power dissipation versus ambient temperature

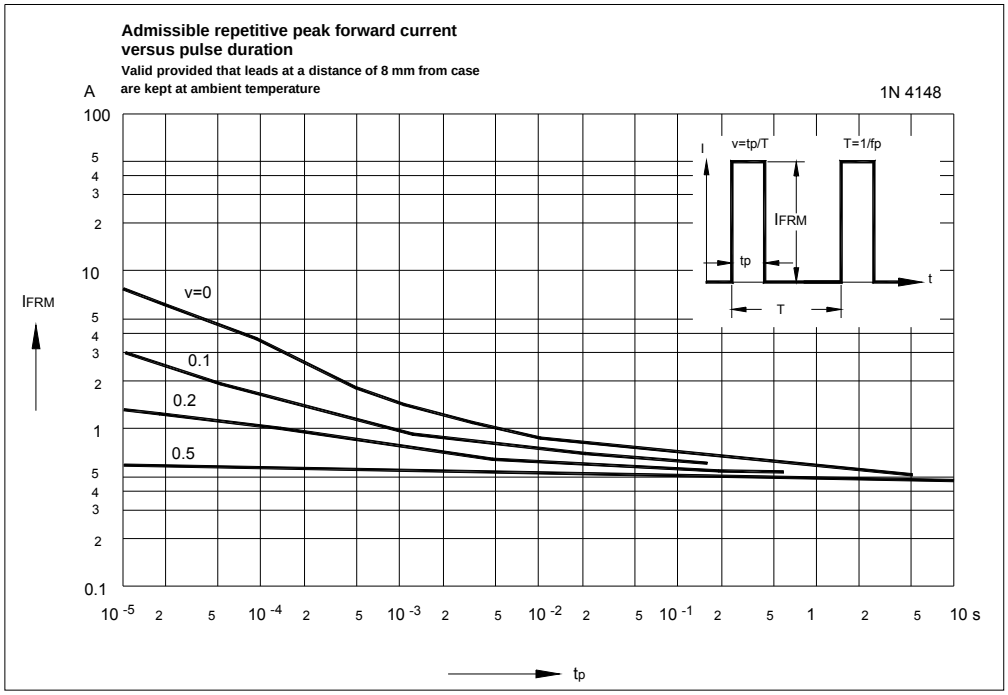
Valid provided that leads at a distance of 8 mm from case are kept at ambient temperature



Relative capacitance versus reverse voltage




Leakage current
versus junction temperature
nA
1N 4148
10^4
5
2
10^3
5
2
10^2
5
2
10
5
2
1
I_R
V_R=20V
0
100
200 °C
T_j


Admissible repetitive peak forward current
versus pulse duration
Valid provided that leads at a distance of 8 mm from case
are kept at ambient temperature
A
1N 4148
100
5
4
3
2
10
5
4
3
2
1
5
4
3
2
0.1
I_{FRM}
v=0
0.1
0.2
0.5
I
v=tp/T
T=1/fp
I_{FRM}
tp
t
T
10^{-5} 2 5 10^{-4} 2 5 10^{-3} 2 5 10^{-2} 2 5 10^{-1} 2 5 1 2 5 10 s
t_p