

Danube River Test Waver

by LibreSilicon

January 7, 2023

This is the automatically generated documentation and guide line for the test structures in the GDSII file, generated by this script.

This is phase two of the reverse engineering/verification of the manufacturing process.

The structures have been generated assuming basic flags and settings for the pad and size from "configs/sky130.cfg" as well as variables defined in "configs/sky130.py".

Those values need to be verified by checking under the microscope, whether the defects have gone away and measuring what the difference between predicted values and measured values is

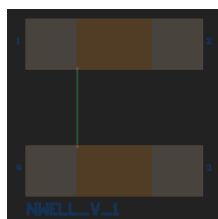
1 Resistors

All the resistor structures for the various available layers, as defined in the configuration are being shown below. They are being measured with a 4 probe station, by applying a constant current over two of the probes, and then measuring the voltage over the other two.

This is called a Kelvin structure.

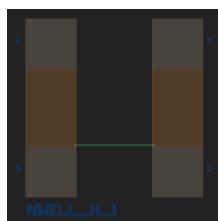
1.1 Layer: nwell

1.1.1 Structure: NWELL_V_1



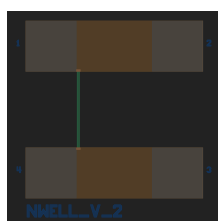
The target value of this resistor is $57.0k\Omega$
Recommended measurement current is 25uA
Expected measured voltage is 1.425V
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.1.2 Structure: NWELL_H_1



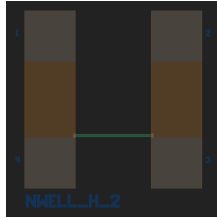
The target value of this resistor is $57.0k\Omega$
Recommended measurement current is 25uA
Expected measured voltage is 1.425V
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.1.3 Structure: NWELL_V_2



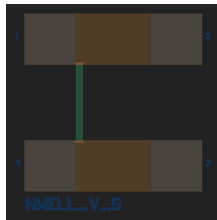
The target value of this resistor is $28.5k\Omega$
Recommended measurement current is 25uA
Expected measured voltage is 712.5mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.1.4 Structure: NWELL_H_2



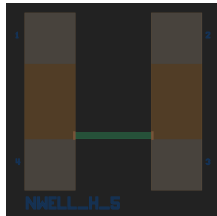
The target value of this resistor is $28.5k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $712.5mV$
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.1.5 Structure: NWELL_V_5



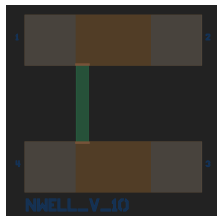
The target value of this resistor is $11.4k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $285.0mV$
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.1.6 Structure: NWELL_H_5



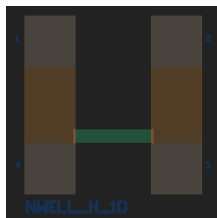
The target value of this resistor is $11.4k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $285.0mV$
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.1.7 Structure: NWELL_V_10



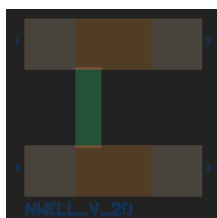
The target value of this resistor is $5.7k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $142.5mV$
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.1.8 Structure: NWELL_H_10



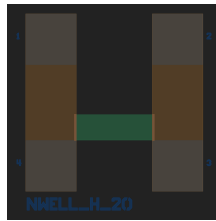
The target value of this resistor is $5.7k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $142.5mV$
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.1.9 Structure: NWELL_V_20



The target value of this resistor is $2.85k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $71.25mV$
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

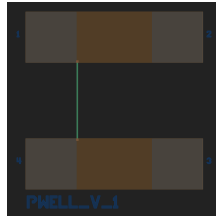
1.1.10 Structure: NWELL_H_20



The target value of this resistor is $2.85k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $71.25mV$
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

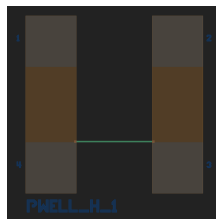
1.2 Layer: pwell

1.2.1 Structure: PWELL_V_1



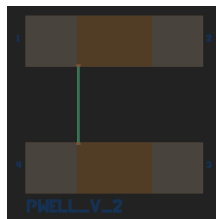
The target value of this resistor is $217.8571k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $5.4464V$
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.2.2 Structure: PWELL_H_1



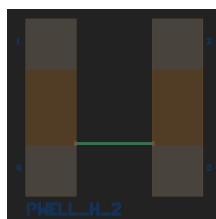
The target value of this resistor is $217.8571k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $5.4464V$
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.2.3 Structure: PWELL_V_2



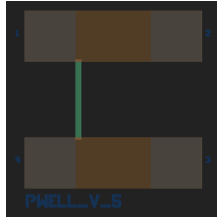
The target value of this resistor is $108.9286k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $2.7232V$
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.2.4 Structure: PWELL_H_2



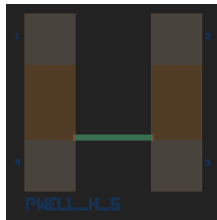
The target value of this resistor is $108.9286k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $2.7232V$
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.2.5 Structure: PWELL_V_5



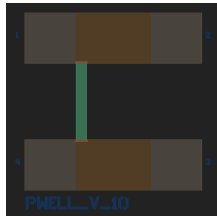
The target value of this resistor is $43.5714k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $1.0893V$
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.2.6 Structure: PWELL_H_5



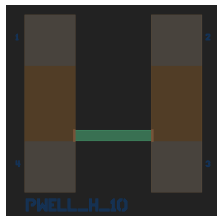
The target value of this resistor is $43.5714k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $1.0893V$
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.2.7 Structure: PWELL_V_10



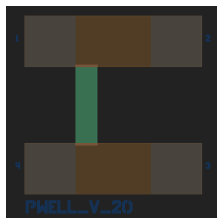
The target value of this resistor is $21.7857k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $544.643mV$
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.2.8 Structure: PWELL_H_10



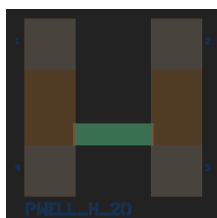
The target value of this resistor is $21.7857k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $544.643mV$
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.2.9 Structure: PWELL_V_20



The target value of this resistor is $10.8929k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $272.321mV$
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.2.10 Structure: PWELL_H_20



The target value of this resistor is $10.8929k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $272.321mV$
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

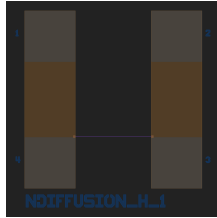
1.3 Layer: ndiffusion

1.3.1 Structure: NDIFFUSION_V_1



The target value of this resistor is $48.0k\Omega$
Recommended measurement current is 25uA
Expected measured voltage is 1.2V
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.3.2 Structure: NDIFFUSION_H_1



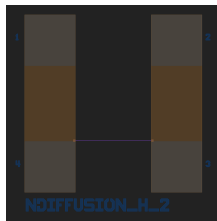
The target value of this resistor is $48.0k\Omega$
Recommended measurement current is 25uA
Expected measured voltage is 1.2V
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.3.3 Structure: NDIFFUSION_V_2



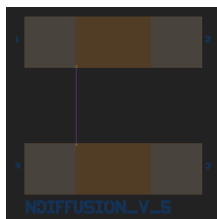
The target value of this resistor is $24.0k\Omega$
Recommended measurement current is 25uA
Expected measured voltage is 600.0mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.3.4 Structure: NDIFFUSION_H_2



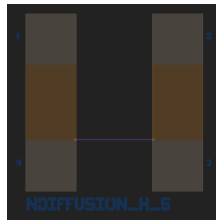
The target value of this resistor is $24.0k\Omega$
Recommended measurement current is 25uA
Expected measured voltage is 600.0mV
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.3.5 Structure: NDIFFUSION_V_5



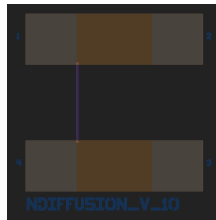
The target value of this resistor is $9.6k\Omega$
Recommended measurement current is 25uA
Expected measured voltage is 240.0mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.3.6 Structure: NDIFFUSION_H_5



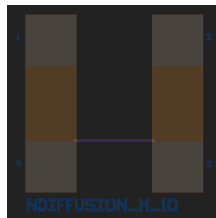
The target value of this resistor is $9.6k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 240.0mV
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.3.7 Structure: NDIFFUSION_V_10



The target value of this resistor is $4.8k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 120.0mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.3.8 Structure: NDIFFUSION_H_10



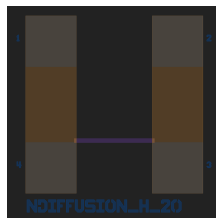
The target value of this resistor is $4.8k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 120.0mV
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.3.9 Structure: NDIFFUSION_V_20



The target value of this resistor is $2.4k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 60.0mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.3.10 Structure: NDIFFUSION_H_20



The target value of this resistor is $2.4k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 60.0mV
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

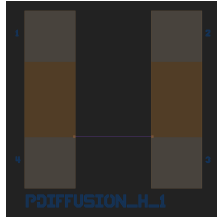
1.4 Layer: pdiffusion

1.4.1 Structure: PDIFFUSION_V_1



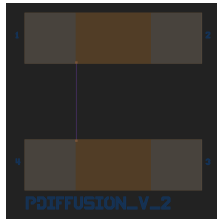
The target value of this resistor is $78.8k\Omega$
Recommended measurement current is 25uA
Expected measured voltage is 1.97V
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.4.2 Structure: PDIFFUSION_H_1



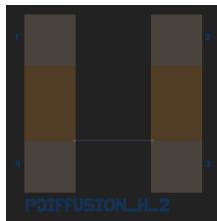
The target value of this resistor is $78.8k\Omega$
Recommended measurement current is 25uA
Expected measured voltage is 1.97V
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.4.3 Structure: PDIFFUSION_V_2



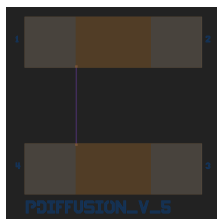
The target value of this resistor is $39.4k\Omega$
Recommended measurement current is 25uA
Expected measured voltage is 985.0mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.4.4 Structure: PDIFFUSION_H_2



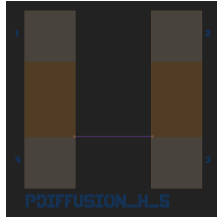
The target value of this resistor is $39.4k\Omega$
Recommended measurement current is 25uA
Expected measured voltage is 985.0mV
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.4.5 Structure: PDIFFUSION_V_5



The target value of this resistor is $15.76k\Omega$
Recommended measurement current is 25uA
Expected measured voltage is 394.0mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.4.6 Structure: PDIFFUSION_H_5



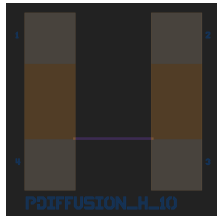
The target value of this resistor is $15.76k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 394.0mV
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.4.7 Structure: PDIFFUSION_V_10



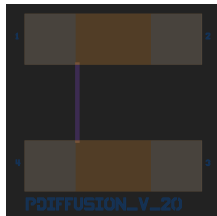
The target value of this resistor is $7.88k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 197.0mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.4.8 Structure: PDIFFUSION_H_10



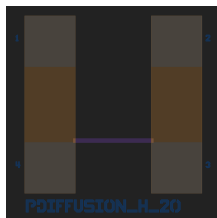
The target value of this resistor is $7.88k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 197.0mV
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.4.9 Structure: PDIFFUSION_V_20



The target value of this resistor is $3.94k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 98.5mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.4.10 Structure: PDIFFUSION_H_20



The target value of this resistor is $3.94k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 98.5mV
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

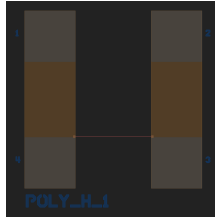
1.5 Layer: poly

1.5.1 Structure: POLY_V_1



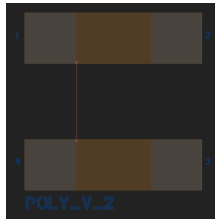
The target value of this resistor is $19.28k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $482.0mV$
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.5.2 Structure: POLY_H_1



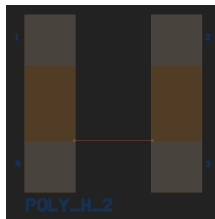
The target value of this resistor is $19.28k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $482.0mV$
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.5.3 Structure: POLY_V_2



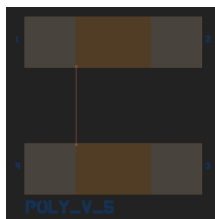
The target value of this resistor is $9.64k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $241.0mV$
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.5.4 Structure: POLY_H_2



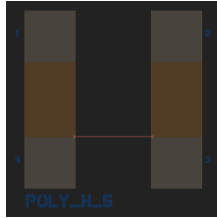
The target value of this resistor is $9.64k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $241.0mV$
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.5.5 Structure: POLY_V_5



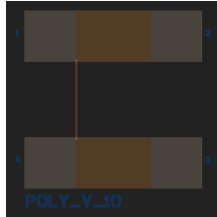
The target value of this resistor is $3.856k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $96.4mV$
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.5.6 Structure: POLY_H_5



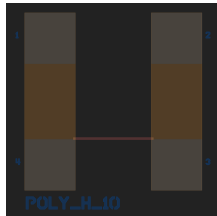
The target value of this resistor is $3.856k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $96.4mV$
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.5.7 Structure: POLY_V_10



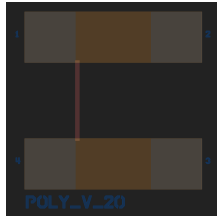
The target value of this resistor is $1.928k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $48.2mV$
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.5.8 Structure: POLY_H_10



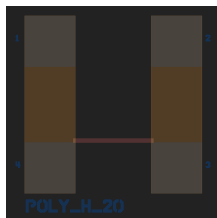
The target value of this resistor is $1.928k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $48.2mV$
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.5.9 Structure: POLY_V_20



The target value of this resistor is 964.0Ω
Recommended measurement current is $25\mu A$
Expected measured voltage is $24.1mV$
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

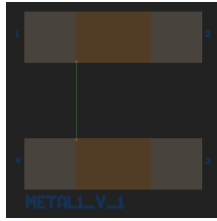
1.5.10 Structure: POLY_H_20



The target value of this resistor is 964.0Ω
Recommended measurement current is $25\mu A$
Expected measured voltage is $24.1mV$
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

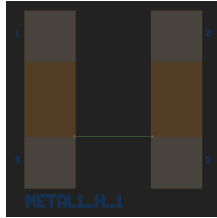
1.6 Layer: metal1

1.6.1 Structure: METAL1_V_1



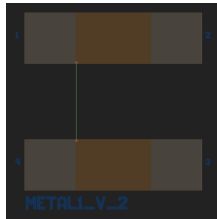
The target value of this resistor is 451.7647Ω
Recommended measurement current is 25uA
Expected measured voltage is 11.294mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.6.2 Structure: METAL1_H_1



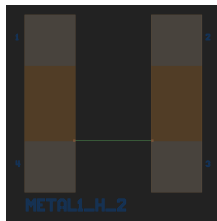
The target value of this resistor is 451.7647Ω
Recommended measurement current is 25uA
Expected measured voltage is 11.294mV
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.6.3 Structure: METAL1_V_2



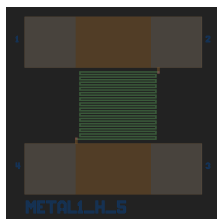
The target value of this resistor is 225.8824Ω
Recommended measurement current is 25uA
Expected measured voltage is 5.647mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.6.4 Structure: METAL1_H_2



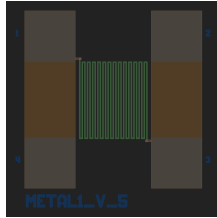
The target value of this resistor is 225.8824Ω
Recommended measurement current is 25uA
Expected measured voltage is 5.647mV
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.6.5 Structure: METAL1_H_5



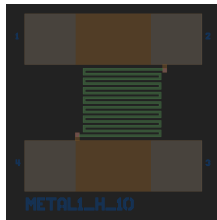
The target value of this resistor is $2.4421k\Omega$
Recommended measurement current is 25uA
Expected measured voltage is 61.053mV
The current from the current source should go from pad 1 towards pad 3
The voltage over the resistor should be measured over pad 2 and pad 4

1.6.6 Structure: METAL1_V_5



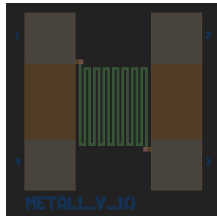
The target value of this resistor is $2.4421k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $61.053mV$
The current from the current source should go from pad 4 towards pad 2
The voltage over the resistor should be measured over pad 1 and pad 3

1.6.7 Structure: METAL1_H_10



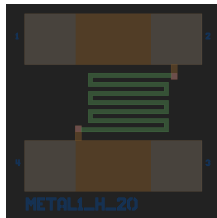
The target value of this resistor is 678.1741Ω
Recommended measurement current is $25\mu A$
Expected measured voltage is $16.9544mV$
The current from the current source should go from pad 1 towards pad 3
The voltage over the resistor should be measured over pad 2 and pad 4

1.6.8 Structure: METAL1_V_10



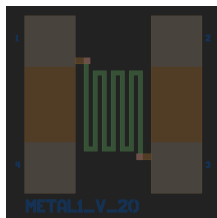
The target value of this resistor is 678.1741Ω
Recommended measurement current is $25\mu A$
Expected measured voltage is $16.9544mV$
The current from the current source should go from pad 4 towards pad 2
The voltage over the resistor should be measured over pad 1 and pad 3

1.6.9 Structure: METAL1_H_20



The target value of this resistor is 160.6852Ω
Recommended measurement current is $25\mu A$
Expected measured voltage is $4.0171mV$
The current from the current source should go from pad 1 towards pad 3
The voltage over the resistor should be measured over pad 2 and pad 4

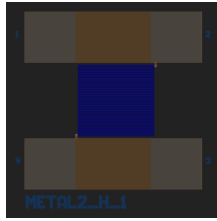
1.6.10 Structure: METAL1_V_20



The target value of this resistor is 160.6852Ω
Recommended measurement current is $25\mu A$
Expected measured voltage is $4.0171mV$
The current from the current source should go from pad 4 towards pad 2
The voltage over the resistor should be measured over pad 1 and pad 3

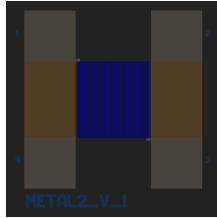
1.7 Layer: metal2

1.7.1 Structure: METAL2_H_1



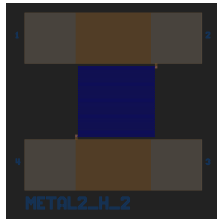
The target value of this resistor is $5.4109k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $135.2732mV$
The current from the current source should go from pad 1 towards pad 3
The voltage over the resistor should be measured over pad 2 and pad 4

1.7.2 Structure: METAL2_V_1



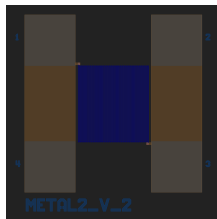
The target value of this resistor is $5.4109k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $135.2732mV$
The current from the current source should go from pad 4 towards pad 2
The voltage over the resistor should be measured over pad 1 and pad 3

1.7.3 Structure: METAL2_H_2



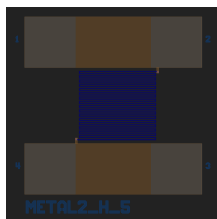
The target value of this resistor is $1.7949k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $44.8719mV$
The current from the current source should go from pad 1 towards pad 3
The voltage over the resistor should be measured over pad 2 and pad 4

1.7.4 Structure: METAL2_V_2



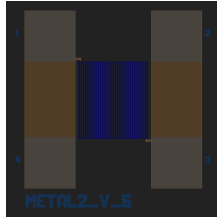
The target value of this resistor is $1.7949k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $44.8719mV$
The current from the current source should go from pad 4 towards pad 2
The voltage over the resistor should be measured over pad 1 and pad 3

1.7.5 Structure: METAL2_H_5



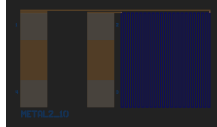
The target value of this resistor is 353.8143Ω
Recommended measurement current is $25\mu A$
Expected measured voltage is $8.8454mV$
The current from the current source should go from pad 1 towards pad 3
The voltage over the resistor should be measured over pad 2 and pad 4

1.7.6 Structure: METAL2_V_5



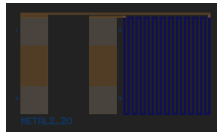
The target value of this resistor is 353.8143Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 8.8454mV
The current from the current source should go from pad 4 towards pad 2
The voltage over the resistor should be measured over pad 1 and pad 3

1.7.7 Structure: METAL2_10



The target value of this resistor is 235.8286Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 5.8957mV
The current from the current source should go from pad 3 towards pad 4
The voltage over the resistor should be measured over pad 2 and pad 1

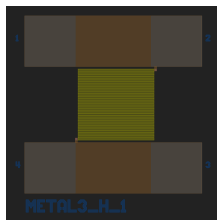
1.7.8 Structure: METAL2_20



The target value of this resistor is 59.2607Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 1.4815mV
The current from the current source should go from pad 3 towards pad 4
The voltage over the resistor should be measured over pad 2 and pad 1

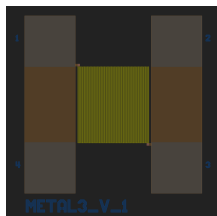
1.8 Layer: metal3

1.8.1 Structure: METAL3_H_1



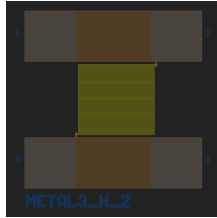
The target value of this resistor is $5.4109k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 135.2732mV
The current from the current source should go from pad 1 towards pad 3
The voltage over the resistor should be measured over pad 2 and pad 4

1.8.2 Structure: METAL3_V_1



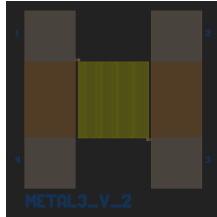
The target value of this resistor is $5.4109k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 135.2732mV
The current from the current source should go from pad 4 towards pad 2
The voltage over the resistor should be measured over pad 1 and pad 3

1.8.3 Structure: METAL3_H_2



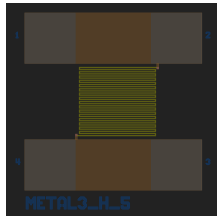
The target value of this resistor is $1.7949k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $44.8719mV$
The current from the current source should go from pad 1 towards pad 3
The voltage over the resistor should be measured over pad 2 and pad 4

1.8.4 Structure: METAL3_V_2



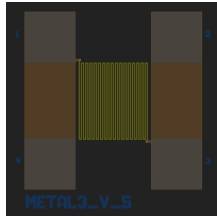
The target value of this resistor is $1.7949k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $44.8719mV$
The current from the current source should go from pad 4 towards pad 2
The voltage over the resistor should be measured over pad 1 and pad 3

1.8.5 Structure: METAL3_H_5



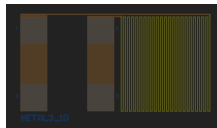
The target value of this resistor is 353.8143Ω
Recommended measurement current is $25\mu A$
Expected measured voltage is $8.8454mV$
The current from the current source should go from pad 1 towards pad 3
The voltage over the resistor should be measured over pad 2 and pad 4

1.8.6 Structure: METAL3_V_5



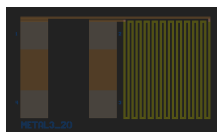
The target value of this resistor is 353.8143Ω
Recommended measurement current is $25\mu A$
Expected measured voltage is $8.8454mV$
The current from the current source should go from pad 4 towards pad 2
The voltage over the resistor should be measured over pad 1 and pad 3

1.8.7 Structure: METAL3_10



The target value of this resistor is 235.8286Ω
Recommended measurement current is $25\mu A$
Expected measured voltage is $5.8957mV$
The current from the current source should go from pad 3 towards pad 4
The voltage over the resistor should be measured over pad 2 and pad 1

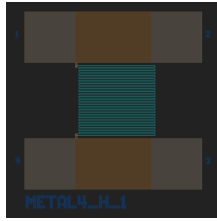
1.8.8 Structure: METAL3_20



The target value of this resistor is 59.2607Ω
Recommended measurement current is $25\mu A$
Expected measured voltage is $1.4815mV$
The current from the current source should go from pad 3 towards pad 4
The voltage over the resistor should be measured over pad 2 and pad 1

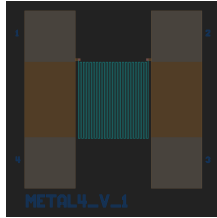
1.9 Layer: metal4

1.9.1 Structure: METAL4_H_1



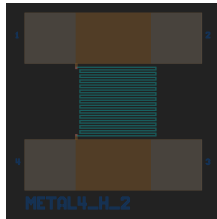
The target value of this resistor is 344.7293Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 8.6182mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.9.2 Structure: METAL4_V_1



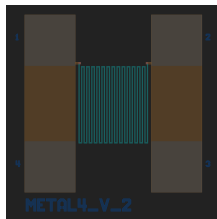
The target value of this resistor is 344.7293Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 8.6182mV
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.9.3 Structure: METAL4_H_2



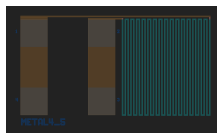
The target value of this resistor is 109.7189Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 2.743mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.9.4 Structure: METAL4_V_2



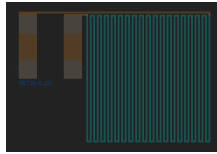
The target value of this resistor is 109.7189Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 2.743mV
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.9.5 Structure: METAL4_5



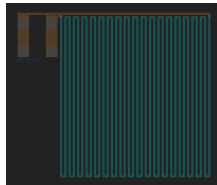
The target value of this resistor is 50.2294Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 1.2557mV
The current from the current source should go from pad 3 towards pad 4
The voltage over the resistor should be measured over pad 2 and pad 1

1.9.6 Structure: METAL4_10



The target value of this resistor is 28.1666Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is $704.1644\mu\text{V}$
The current from the current source should go from pad 3 towards pad 4
The voltage over the resistor should be measured over pad 2 and pad 1

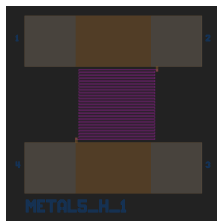
1.9.7 Structure: METAL4_20



The target value of this resistor is 14.2191Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is $355.4767\mu\text{V}$
The current from the current source should go from pad 3 towards pad 4
The voltage over the resistor should be measured over pad 2 and pad 1

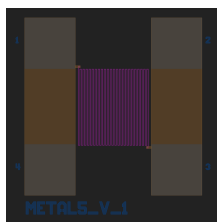
1.10 Layer: metal5

1.10.1 Structure: METAL5_H_1



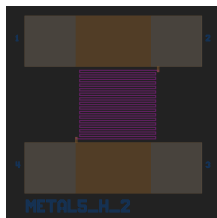
The target value of this resistor is 441.8627Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 11.0466mV
The current from the current source should go from pad 1 towards pad 3
The voltage over the resistor should be measured over pad 2 and pad 4

1.10.2 Structure: METAL5_V_1



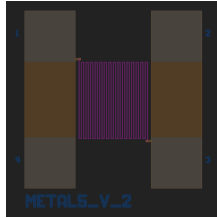
The target value of this resistor is 441.8627Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 11.0466mV
The current from the current source should go from pad 4 towards pad 2
The voltage over the resistor should be measured over pad 1 and pad 3

1.10.3 Structure: METAL5_H_2



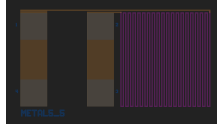
The target value of this resistor is 145.7783Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 3.6445mV
The current from the current source should go from pad 1 towards pad 3
The voltage over the resistor should be measured over pad 2 and pad 4

1.10.4 Structure: METAL5_V_2



The target value of this resistor is 145.7783Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 3.6445mV
The current from the current source should go from pad 4 towards pad 2
The voltage over the resistor should be measured over pad 1 and pad 3

1.10.5 Structure: METAL5_5



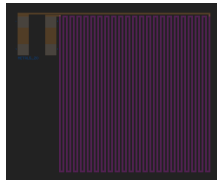
The target value of this resistor is 71.44Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 1.786mV
The current from the current source should go from pad 3 towards pad 4
The voltage over the resistor should be measured over pad 2 and pad 1

1.10.6 Structure: METAL5_10



The target value of this resistor is 72.4176Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 1.8104mV
The current from the current source should go from pad 3 towards pad 4
The voltage over the resistor should be measured over pad 2 and pad 1

1.10.7 Structure: METAL5_20

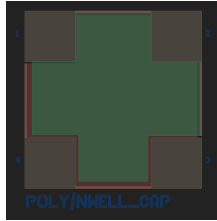


The target value of this resistor is 20.6988Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is $517.47\mu\text{V}$
The current from the current source should go from pad 3 towards pad 4
The voltage over the resistor should be measured over pad 2 and pad 1

2 Capacitors

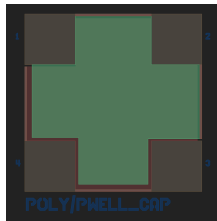
All the capacitors structures for the various available layer pairs, as defined in the configuration are being shown below. They are being measured with a 4 probe station, by applying a constant current over two of the probes. This is called a Kelvin structure.

2.1 Capacitor POLY/NWELL_CAP



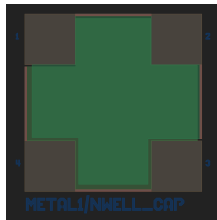
The target value of this capacitor is

2.2 Capacitor POLY/PWELL_CAP



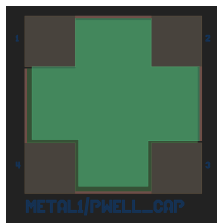
The target value of this capacitor is

2.3 Capacitor METAL1/NWELL_CAP



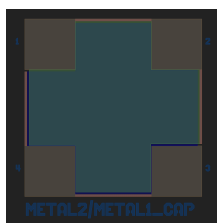
The target value of this capacitor is

2.4 Capacitor METAL1/PWELL_CAP



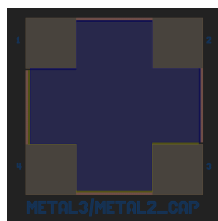
The target value of this capacitor is

2.5 Capacitor METAL2/METAL1_CAP



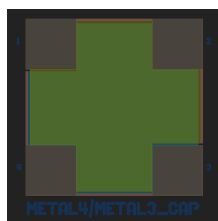
The target value of this capacitor is

2.6 Capacitor METAL3/METAL2_CAP



The target value of this capacitor is

2.7 Capacitor METAL4/METAL3_CAP



The target value of this capacitor is