

Danube River Test Waver

by LibreSilicon

October 4, 2022

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/default.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

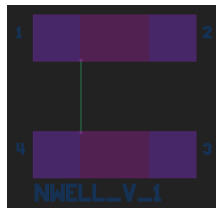
1 Resistors

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 $57.0k\Omega$

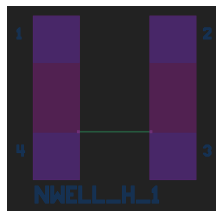
Recommended measurement current is 25uA

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 $57.0k\Omega$

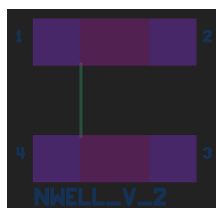
Recommended measurement current is 25uA

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 $28.5k\Omega$

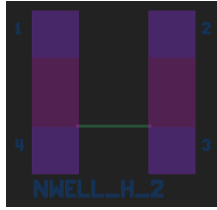
Recommended measurement current is 25uA

Expected measured voltage is 712.5mV

The current from the current source should go from pad 2 towards pad 3

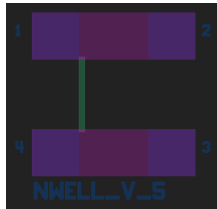
The voltage over the resistor should be measured over pad 1 and pad 4

1.1.4 Structure: NWELL_H_2



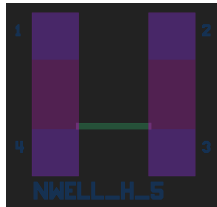
The target value of this resistor is $28.5k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 712.5mV
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.1.5 Structure: NWELL_V_5



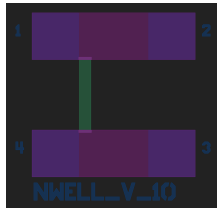
The target value of this resistor is $11.4k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 285.0mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.1.6 Structure: NWELL_H_5



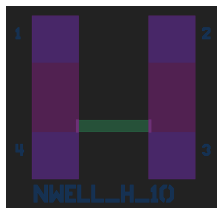
The target value of this resistor is $11.4k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 285.0mV
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.1.7 Structure: NWELL_V_10



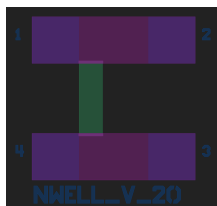
The target value of this resistor is $5.7k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 142.5mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.1.8 Structure: NWELL_H_10



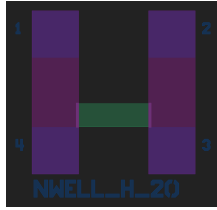
The target value of this resistor is $5.7k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 142.5mV
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.1.9 Structure: NWELL_V_20



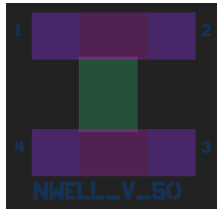
The target value of this resistor is $2.85k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 71.25mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.1.10 Structure: NWELL_H_20



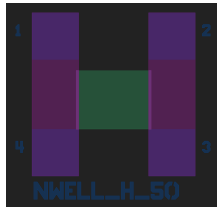
The target value of this resistor is $2.85k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 71.25mV
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.1.11 Structure: NWELL_V_50



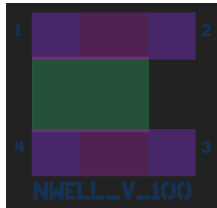
The target value of this resistor is $1.14k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 28.5mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.1.12 Structure: NWELL_H_50



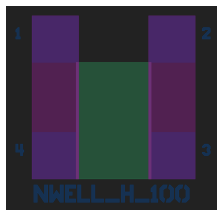
The target value of this resistor is $1.14k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 28.5mV
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.1.13 Structure: NWELL_V_100



The target value of this resistor is 570.0Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 14.25mV
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

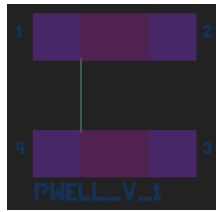
1.1.14 Structure: NWELL_H_100



The target value of this resistor is 570.0Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 14.25mV
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 $217.8571k\Omega$

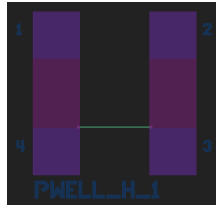
Recommended measurement current is 25uA

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 $217.8571k\Omega$

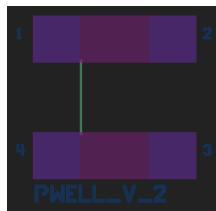
Recommended measurement current is 25uA

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 $108.9286k\Omega$

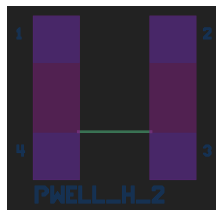
Recommended measurement current is 25uA

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 $108.9286k\Omega$

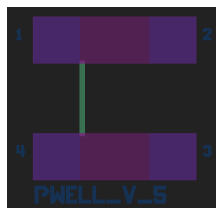
Recommended measurement current is 25uA

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 $43.5714k\Omega$

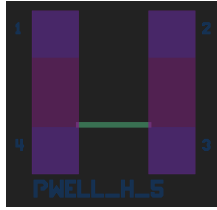
Recommended measurement current is 25uA

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 $43.5714k\Omega$

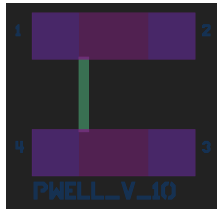
Recommended measurement current is $25\mu A$

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 $21.7857k\Omega$

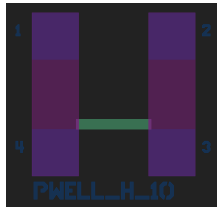
Recommended measurement current is $25\mu A$

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 $21.7857k\Omega$

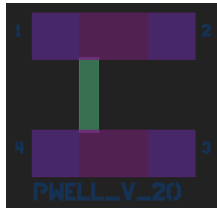
Recommended measurement current is $25\mu A$

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 $10.8929k\Omega$

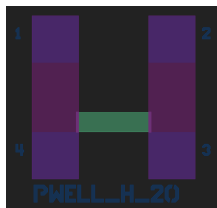
Recommended measurement current is $25\mu A$

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

1.2.11 Structure: PWELL_V_50



The target value of this resistor is $4.3571k\Omega$

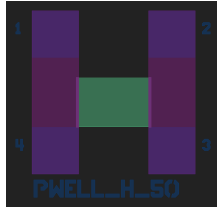
Recommended measurement current is $25\mu A$

Expected measured voltage is $108.929mV$

The current from the current source should go from pad 2 towards pad 3

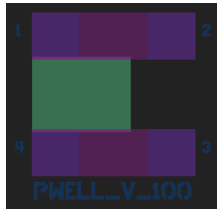
The voltage over the resistor should be measured over pad 1 and pad 4

1.2.12 Structure: PWELL_H_50



The target value of this resistor is $4.3571k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $108.929mV$
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

1.2.13 Structure: PWELL_V_100



The target value of this resistor is $2.1786k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $54.464mV$
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

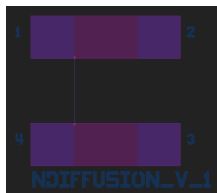
1.2.14 Structure: PWELL_H_100



The target value of this resistor is $2.1786k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $54.464mV$
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



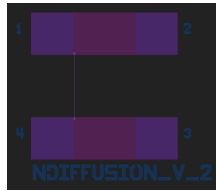
The target value of this resistor is $48.0k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $1.2V$
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.3.2 Structure: NDIFFUSION_H_1



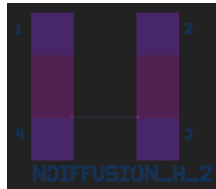
The target value of this resistor is $48.0k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $1.2V$
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.3.3 Structure: NDIFFUSION_V_2



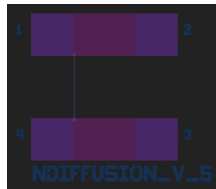
The target value of this resistor is $24.0k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 600.0mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.3.4 Structure: NDIFFUSION_H_2



The target value of this resistor is $24.0k\Omega$
Recommended measurement current is $25\mu\text{A}$
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



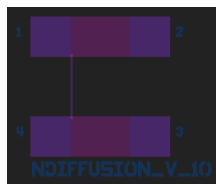
The target value of this resistor is $9.6k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 240.0mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.3.6 Structure: NDIFFUSION_H_5



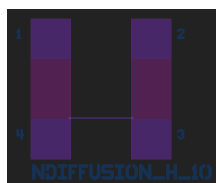
The target value of this resistor is $9.6k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 240.0mV
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

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



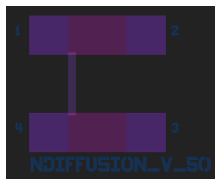
The target value of this resistor is $2.4k\Omega$
Recommended measurement current is 25uA
Expected measured voltage is 60.0mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.3.10 Structure: NDIFFUSION_H_20



The target value of this resistor is $2.4k\Omega$
Recommended measurement current is 25uA
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

1.3.11 Structure: NDIFFUSION_V_50



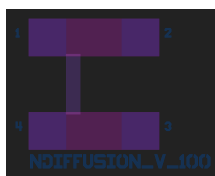
The target value of this resistor is 960.0 Ω
Recommended measurement current is 25uA
Expected measured voltage is 24.0mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.3.12 Structure: NDIFFUSION_H_50



The target value of this resistor is 960.0 Ω
Recommended measurement current is 25uA
Expected measured voltage is 24.0mV
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

1.3.13 Structure: NDIFFUSION_V_100



The target value of this resistor is 480.0 Ω
Recommended measurement current is 25uA
Expected measured voltage is 12.0mV
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

1.3.14 Structure: NDIFFUSION_H_100



The target value of this resistor is 480.0 Ω
Recommended measurement current is 25uA
Expected measured voltage is 12.0mV
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

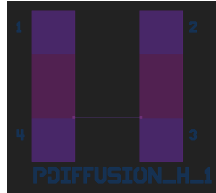
1.4 Layer: pdiffusion

1.4.1 Structure: PDIFFUSION_V_1



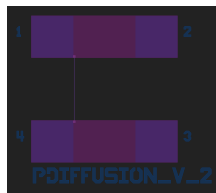
The target value of this resistor is $78.8k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 1.97V
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.4.2 Structure: PDIFFUSION_H_1



The target value of this resistor is $78.8k\Omega$
Recommended measurement current is $25\mu\text{A}$
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



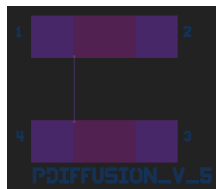
The target value of this resistor is $39.4k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 985.0mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.4.4 Structure: PDIFFUSION_H_2



The target value of this resistor is $39.4k\Omega$
Recommended measurement current is $25\mu\text{A}$
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



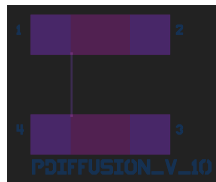
The target value of this resistor is $15.76k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 394.0mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.4.6 Structure: PDIFFUSION_H_5



The target value of this resistor is $15.76k\Omega$
Recommended measurement current is $25\mu A$
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



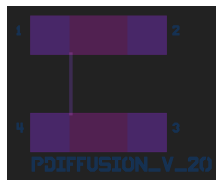
The target value of this resistor is $7.88k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $197.0mV$
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.4.8 Structure: PDIFFUSION_H_10



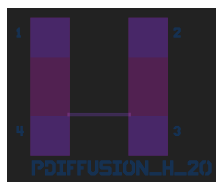
The target value of this resistor is $7.88k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $197.0mV$
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.4.9 Structure: PDIFFUSION_V_20



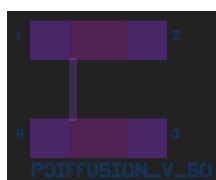
The target value of this resistor is $3.94k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $98.5mV$
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.4.10 Structure: PDIFFUSION_H_20



The target value of this resistor is $3.94k\Omega$
Recommended measurement current is $25\mu A$
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

1.4.11 Structure: PDIFFUSION_V_50



The target value of this resistor is $1.576k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $39.4mV$
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

1.4.12 Structure: PDIFFUSION_H_50



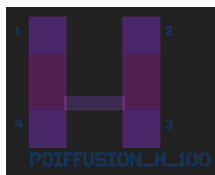
The target value of this resistor is $1.576k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $39.4mV$
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.4.13 Structure: PDIFFUSION_V_100



The target value of this resistor is 788.0Ω
Recommended measurement current is $25\mu A$
Expected measured voltage is $19.7mV$
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

1.4.14 Structure: PDIFFUSION_H_100



The target value of this resistor is 788.0Ω
Recommended measurement current is $25\mu A$
Expected measured voltage is $19.7mV$
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

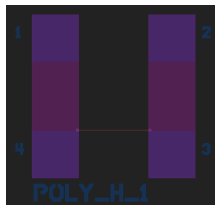
1.5 Layer: poly

1.5.1 Structure: POLY_V_1



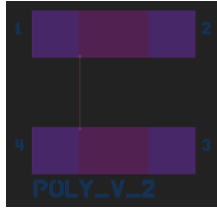
The target value of this resistor is $19.28k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $482.0mV$
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.5.2 Structure: POLY_H_1



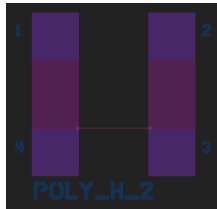
The target value of this resistor is $19.28k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $482.0mV$
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.5.3 Structure: POLY_V_2



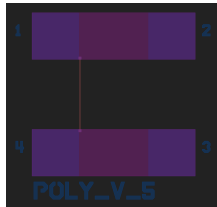
The target value of this resistor is $9.64k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $241.0mV$
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.5.4 Structure: POLY_H_2



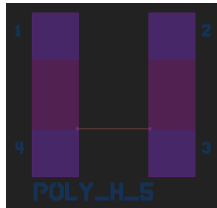
The target value of this resistor is $9.64k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $241.0mV$
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.5.5 Structure: POLY_V_5



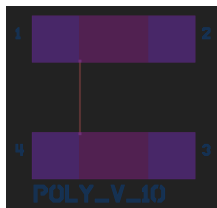
The target value of this resistor is $3.856k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $96.4mV$
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.5.6 Structure: POLY_H_5



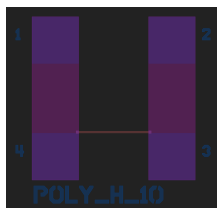
The target value of this resistor is $3.856k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $96.4mV$
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.5.7 Structure: POLY_V_10



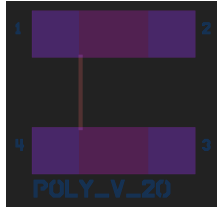
The target value of this resistor is $1.928k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $48.2mV$
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.5.8 Structure: POLY_H_10



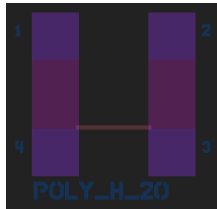
The target value of this resistor is $1.928k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $48.2mV$
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.5.9 Structure: POLY_V_20



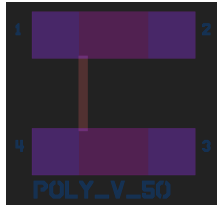
The target value of this resistor is 964.0Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 24.1mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.5.10 Structure: POLY_H_20



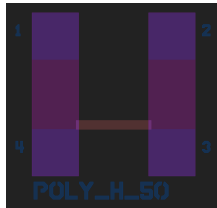
The target value of this resistor is 964.0Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 24.1mV
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.5.11 Structure: POLY_V_50



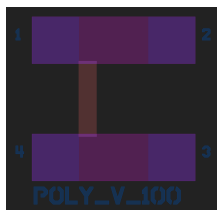
The target value of this resistor is 385.6Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 9.64mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.5.12 Structure: POLY_H_50



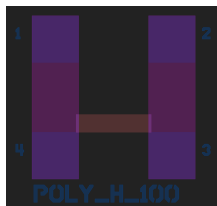
The target value of this resistor is 385.6Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 9.64mV
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.5.13 Structure: POLY_V_100



The target value of this resistor is 192.8Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 4.82mV
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

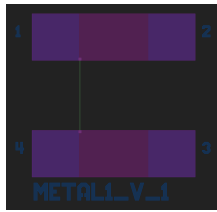
1.5.14 Structure: POLY_H_100



The target value of this resistor is 192.8Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 4.82mV
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

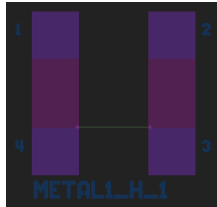
Recommended measurement current is $25\mu\text{A}$

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

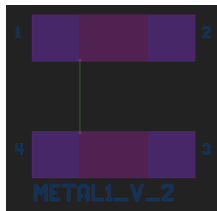
Recommended measurement current is $25\mu\text{A}$

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

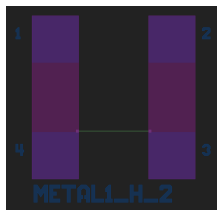
Recommended measurement current is $25\mu\text{A}$

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

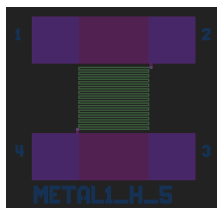
Recommended measurement current is $25\mu\text{A}$

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 $2.4403k\Omega$

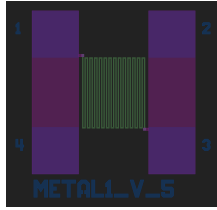
Recommended measurement current is $25\mu\text{A}$

Expected measured voltage is 61.0078mV

The current from the current source should go from pad 1 towards pad 3

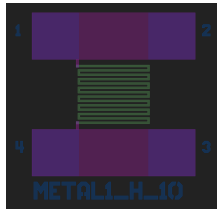
The voltage over the resistor should be measured over pad 2 and pad 4

1.6.6 Structure: METAL1_V_5



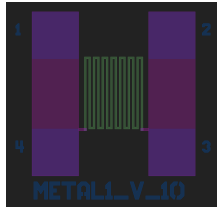
The target value of this resistor is $2.4403k\Omega$
Recommended measurement current is $25\mu A$
Expected measured voltage is $61.0078mV$
The current from the current source should go from pad 4 towards pad 2
The voltage over the resistor should be measured over pad 1 and pad 3

1.6.7 Structure: METAL1_H_10



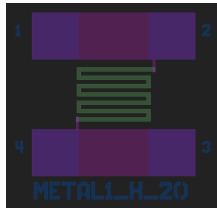
The target value of this resistor is 634.9101Ω
Recommended measurement current is $25\mu A$
Expected measured voltage is $15.8728mV$
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.6.8 Structure: METAL1_V_10



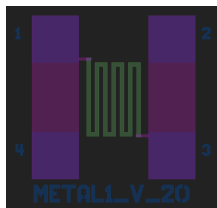
The target value of this resistor is 634.9101Ω
Recommended measurement current is $25\mu A$
Expected measured voltage is $15.8728mV$
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.6.9 Structure: METAL1_H_20



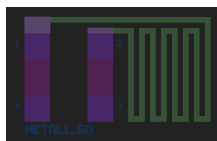
The target value of this resistor is 160.2334Ω
Recommended measurement current is $25\mu A$
Expected measured voltage is $4.0058mV$
The current from the current source should go from pad 1 towards pad 3
The voltage over the resistor should be measured over pad 2 and pad 4

1.6.10 Structure: METAL1_V_20



The target value of this resistor is 160.2334Ω
Recommended measurement current is $25\mu A$
Expected measured voltage is $4.0058mV$
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

1.6.11 Structure: METAL1_50



The target value of this resistor is 71.8125Ω
Recommended measurement current is $25\mu A$
Expected measured voltage is $1.7953mV$
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

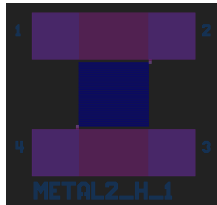
1.6.12 Structure: METAL1_100



The target value of this resistor is 33.3944Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is $834.8612\mu\text{V}$
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

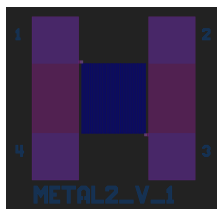
1.7 Layer: metal2

1.7.1 Structure: METAL2_H_1



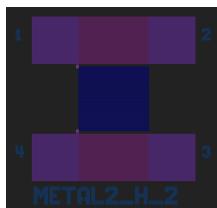
The target value of this resistor is $5.3037k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 132.5929mV
The current from the current source should go from pad 1 towards pad 3
The voltage over the resistor should be measured over pad 2 and pad 4

1.7.2 Structure: METAL2_V_1



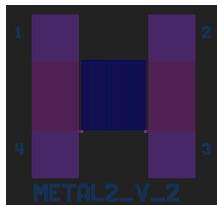
The target value of this resistor is $5.3037k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 132.5929mV
The current from the current source should go from pad 4 towards pad 2
The voltage over the resistor should be measured over pad 1 and pad 3

1.7.3 Structure: METAL2_H_2



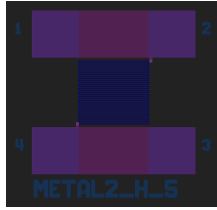
The target value of this resistor is $1.7679k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 44.1982mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.7.4 Structure: METAL2_V_2



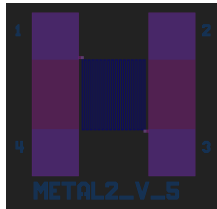
The target value of this resistor is $1.7679k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 44.1982mV
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.7.5 Structure: METAL2_H_5



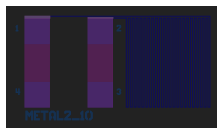
The target value of this resistor is 353.6Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 8.84mV
The current from the current source should go from pad 1 towards pad 3
The voltage over the resistor should be measured over pad 2 and pad 4

1.7.6 Structure: METAL2_V_5



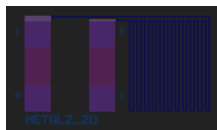
The target value of this resistor is 353.6Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 8.84mV
The current from the current source should go from pad 4 towards pad 2
The voltage over the resistor should be measured over pad 1 and pad 3

1.7.7 Structure: METAL2_10



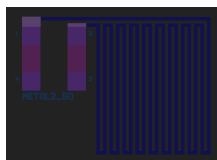
The target value of this resistor is 235.7214Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 5.893mV
The current from the current source should go from pad 3 towards pad 4
The voltage over the resistor should be measured over pad 2 and pad 1

1.7.8 Structure: METAL2_20



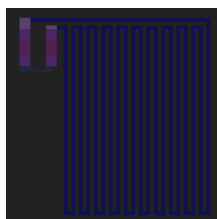
The target value of this resistor is 59.2071Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 1.4802mV
The current from the current source should go from pad 3 towards pad 4
The voltage over the resistor should be measured over pad 2 and pad 1

1.7.9 Structure: METAL2_50



The target value of this resistor is 19.6171Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is $490.4286\mu\text{V}$
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

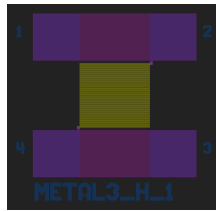
1.7.10 Structure: METAL2_100



The target value of this resistor is 11.875Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is $296.875\mu\text{V}$
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

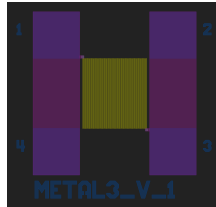
1.8 Layer: metal3

1.8.1 Structure: METAL3_H_1



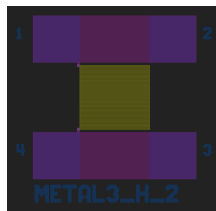
The target value of this resistor is $5.3037k\Omega$
Recommended measurement current is 25uA
Expected measured voltage is 132.5929mV
The current from the current source should go from pad 1 towards pad 3
The voltage over the resistor should be measured over pad 2 and pad 4

1.8.2 Structure: METAL3_V_1



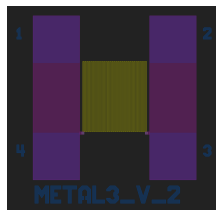
The target value of this resistor is $5.3037k\Omega$
Recommended measurement current is 25uA
Expected measured voltage is 132.5929mV
The current from the current source should go from pad 4 towards pad 2
The voltage over the resistor should be measured over pad 1 and pad 3

1.8.3 Structure: METAL3_H_2



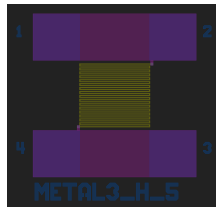
The target value of this resistor is $1.7679k\Omega$
Recommended measurement current is 25uA
Expected measured voltage is 44.1982mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.8.4 Structure: METAL3_V_2



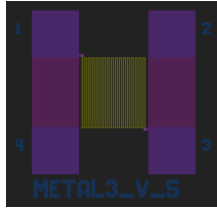
The target value of this resistor is $1.7679k\Omega$
Recommended measurement current is 25uA
Expected measured voltage is 44.1982mV
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.8.5 Structure: METAL3_H_5



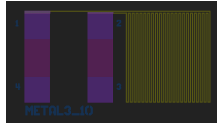
The target value of this resistor is 353.6Ω
Recommended measurement current is 25uA
Expected measured voltage is 8.84mV
The current from the current source should go from pad 1 towards pad 3
The voltage over the resistor should be measured over pad 2 and pad 4

1.8.6 Structure: METAL3_V_5



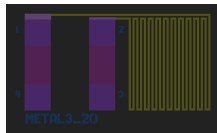
The target value of this resistor is 353.6Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 8.84mV
The current from the current source should go from pad 4 towards pad 2
The voltage over the resistor should be measured over pad 1 and pad 3

1.8.7 Structure: METAL3_10



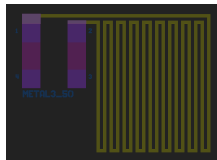
The target value of this resistor is 235.7214Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 5.893mV
The current from the current source should go from pad 3 towards pad 4
The voltage over the resistor should be measured over pad 2 and pad 1

1.8.8 Structure: METAL3_20



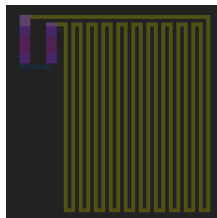
The target value of this resistor is 59.2071Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 1.4802mV
The current from the current source should go from pad 3 towards pad 4
The voltage over the resistor should be measured over pad 2 and pad 1

1.8.9 Structure: METAL3_50



The target value of this resistor is 19.6171Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is $490.4286\mu\text{V}$
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

1.8.10 Structure: METAL3_100

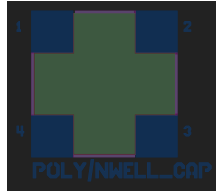


The target value of this resistor is 11.875Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is $296.875\mu\text{V}$
The current from the current source should go from pad 3 towards pad 4
The voltage over the resistor should be measured over pad 2 and pad 1

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



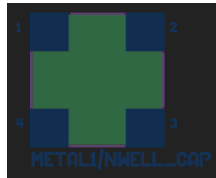
The target value of this capacitor is

2.2 Capacitor POLY/PWELL_CAP



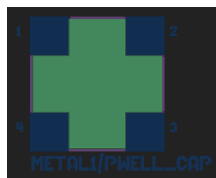
The target value of this capacitor is

2.3 Capacitor METAL1/NWELL_CAP



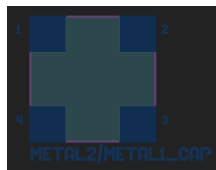
The target value of this capacitor is

2.4 Capacitor METAL1/PWELL_CAP



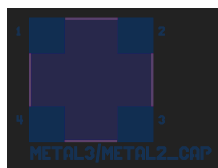
The target value of this capacitor is

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