

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/gf180-large.cfg" as well as variables defined in "configs/gf180.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

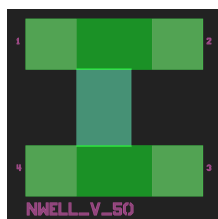
1 Resistors

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_50



The target value of this resistor is $1.3953k\Omega$

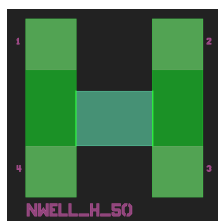
Recommended measurement current is 25uA

Expected measured voltage is 34.884mV

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_50



The target value of this resistor is $1.3953k\Omega$

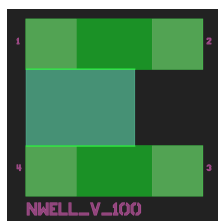
Recommended measurement current is 25uA

Expected measured voltage is 34.884mV

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_100



The target value of this resistor is 697.6744Ω

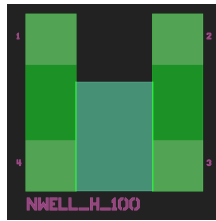
Recommended measurement current is 25uA

Expected measured voltage is 17.442mV

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_100



The target value of this resistor is 697.6744Ω

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

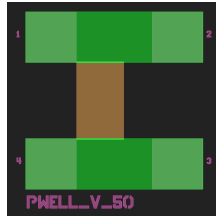
Expected measured voltage is 17.442mV

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_50



The target value of this resistor is $1.6216k\Omega$

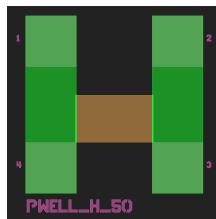
Recommended measurement current is $25\mu\text{A}$

Expected measured voltage is 40.541mV

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_50



The target value of this resistor is $1.6216k\Omega$

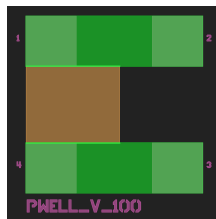
Recommended measurement current is $25\mu\text{A}$

Expected measured voltage is 40.541mV

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_100



The target value of this resistor is 810.8108Ω

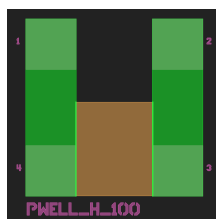
Recommended measurement current is $25\mu\text{A}$

Expected measured voltage is 20.27mV

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_100



The target value of this resistor is 810.8108Ω

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

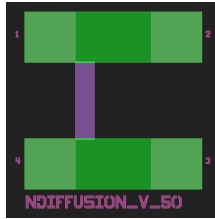
Expected measured voltage is 20.27mV

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

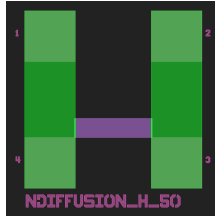
1.3 Layer: ndiffusion

1.3.1 Structure: NDIFFUSION_V_50



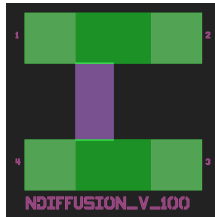
The target value of this resistor is 480.0Ω
Recommended measurement current is 25uA
Expected measured voltage is 12.0mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.3.2 Structure: NDIFFUSION_H_50



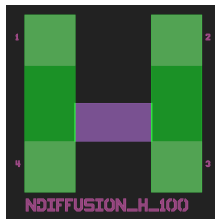
The target value of this resistor is 480.0Ω
Recommended measurement current is 25uA
Expected measured voltage is 12.0mV
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.3.3 Structure: NDIFFUSION_V_100



The target value of this resistor is 240.0Ω
Recommended measurement current is 25uA
Expected measured voltage is 6.0mV
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

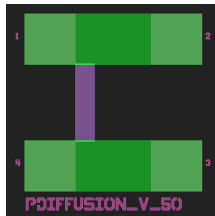
1.3.4 Structure: NDIFFUSION_H_100



The target value of this resistor is 240.0Ω
Recommended measurement current is 25uA
Expected measured voltage is 6.0mV
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

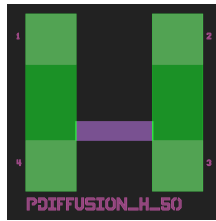
1.4 Layer: pdiffusion

1.4.1 Structure: PDIFFUSION_V_50



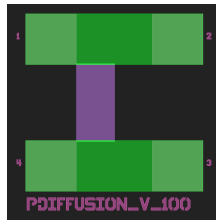
The target value of this resistor is 788.0Ω
Recommended measurement current is 25uA
Expected measured voltage is 19.7mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.4.2 Structure: PDIFFUSION_H_50



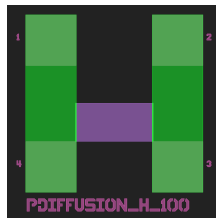
The target value of this resistor is 788.0Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 19.7mV
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.4.3 Structure: PDIFFUSION_V_100



The target value of this resistor is 394.0Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 9.85mV
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

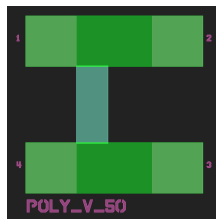
1.4.4 Structure: PDIFFUSION_H_100



The target value of this resistor is 394.0Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 9.85mV
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

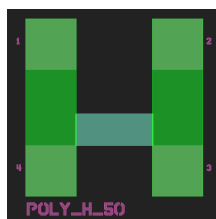
1.5 Layer: poly

1.5.1 Structure: POLY_V_50



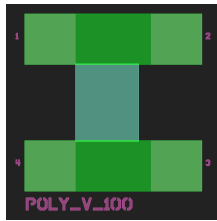
The target value of this resistor is $1.1568k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 28.92mV
The current from the current source should go from pad 2 towards pad 3
The voltage over the resistor should be measured over pad 1 and pad 4

1.5.2 Structure: POLY_H_50



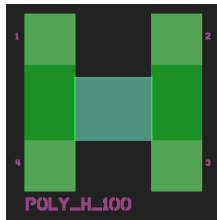
The target value of this resistor is $1.1568k\Omega$
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 28.92mV
The current from the current source should go from pad 1 towards pad 2
The voltage over the resistor should be measured over pad 4 and pad 3

1.5.3 Structure: POLY_V_100



The target value of this resistor is 578.4Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 14.46mV
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

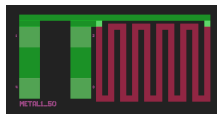
1.5.4 Structure: POLY_H_100



The target value of this resistor is 578.4Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 14.46mV
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

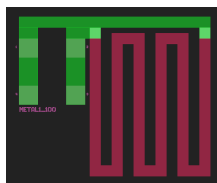
1.6 Layer: metal1

1.6.1 Structure: METAL1_50



The target value of this resistor is 56.1063Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is 1.4027mV
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

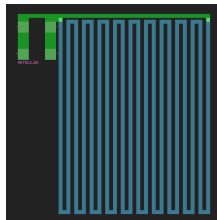
1.6.2 Structure: METAL1_100



The target value of this resistor is 20.0303Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is $500.7583\mu\text{V}$
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

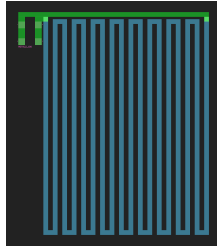
1.7 Layer: metal2

1.7.1 Structure: METAL2_50



The target value of this resistor is 11.855Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is $296.375\mu\text{V}$
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

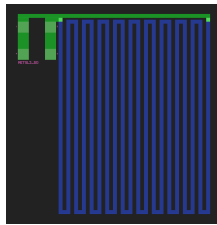
1.7.2 Structure: METAL2_100



The target value of this resistor is 5.8968Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is $147.4196\mu\text{V}$
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

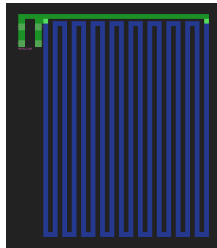
1.8 Layer: metal3

1.8.1 Structure: METAL3_50



The target value of this resistor is 11.855Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is $296.375\mu\text{V}$
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

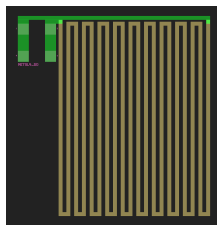
1.8.2 Structure: METAL3_100



The target value of this resistor is 5.8968Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is $147.4196\mu\text{V}$
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

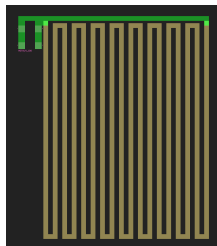
1.9 Layer: metal4

1.9.1 Structure: METAL4_50



The target value of this resistor is 11.855Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is $296.375\mu\text{V}$
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

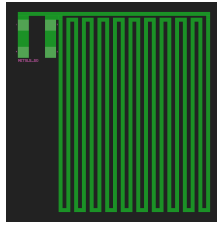
1.9.2 Structure: METAL4_100



The target value of this resistor is 5.8968Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is $147.4196\mu\text{V}$
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

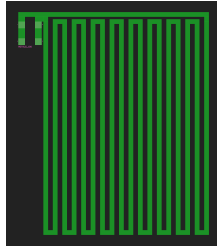
1.10 Layer: metal5

1.10.1 Structure: METAL5_50



The target value of this resistor is 11.8643Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is $296.6071\mu\text{V}$
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

1.10.2 Structure: METAL5_100



The target value of this resistor is 5.9014Ω
Recommended measurement current is $25\mu\text{A}$
Expected measured voltage is $147.5357\mu\text{V}$
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