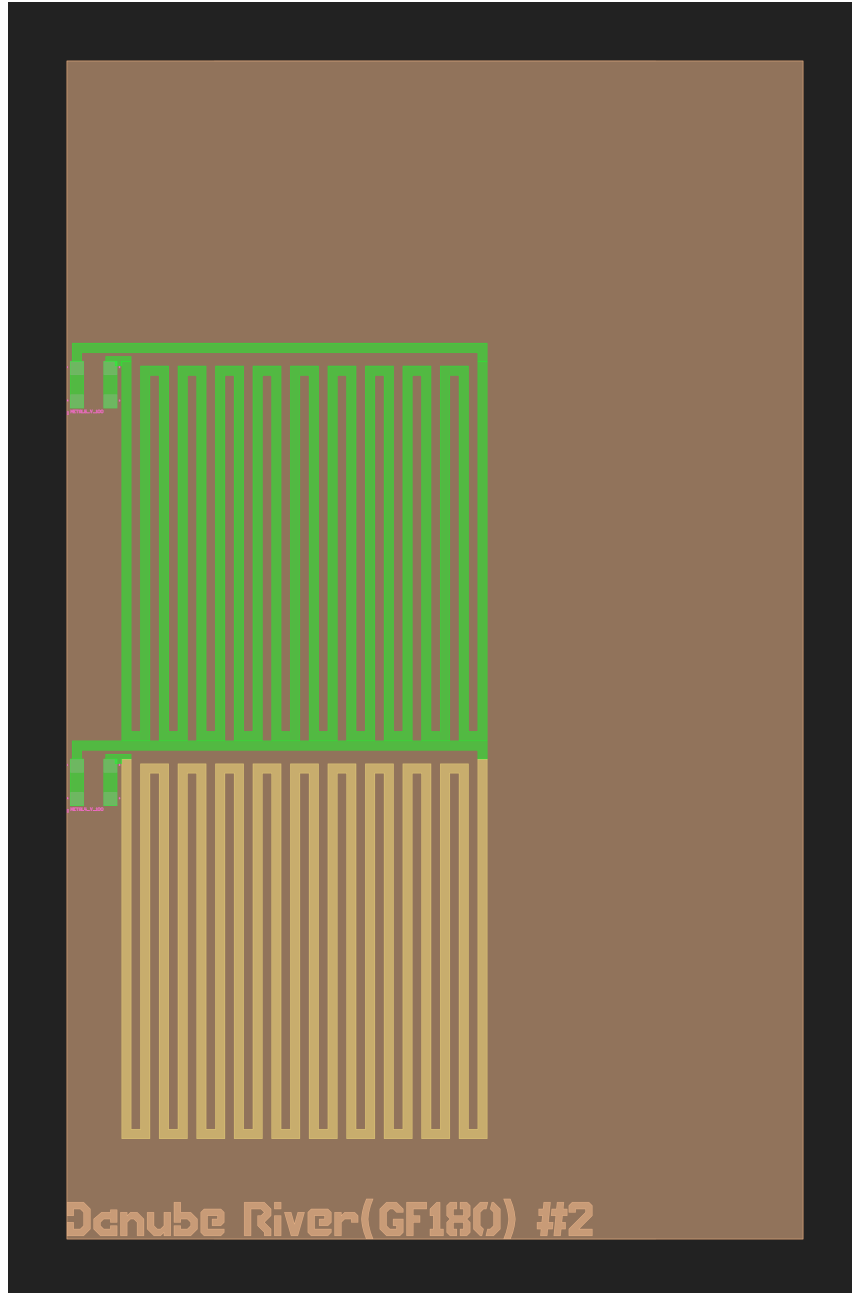


# Danube River Test Waver

by LibreSilicon

January 31, 2023

This is the automatically generated documentation and guide line for the test structures in the GDSII file, generated by this script, for the wafer titled Danube River(GF180) #2



The below structures have been generated assuming basic flags and settings for the pad and size from "configs/gf180-large.cfg" for characterizing the process "GF180" (which can be found in librepdk/technologies). 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

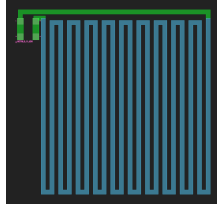
# 1 Resistors

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: metal2

### 1.1.1 Structure: METAL2\_V\_100



The target value of this resistor is  $100\Omega$

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

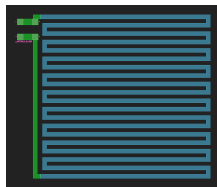
Expected measured voltage is  $2.5\text{mV}$

The X/Y-coordinates are:  $X=0, Y=0$

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

### 1.1.2 Structure: METAL2\_H\_100



The target value of this resistor is  $100\Omega$

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

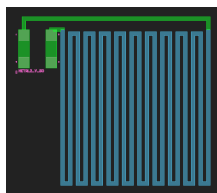
Expected measured voltage is  $2.5\text{mV}$

The X/Y-coordinates are:  $X=0, Y=0$

The current from the current source should go from pad 1 towards pad 4

The voltage over the resistor should be measured over pad 2 and pad 3

### 1.1.3 Structure: METAL2\_V\_50



The target value of this resistor is  $100\Omega$

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

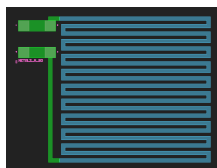
Expected measured voltage is  $2.5\text{mV}$

The X/Y-coordinates are:  $X=1298280, Y=1569480$

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

### 1.1.4 Structure: METAL2\_H\_50



The target value of this resistor is  $100\Omega$

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

Expected measured voltage is  $2.5\text{mV}$

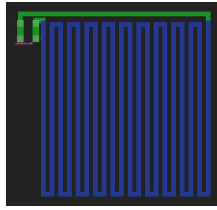
The X/Y-coordinates are:  $X=0, Y=0$

The current from the current source should go from pad 1 towards pad 4

The voltage over the resistor should be measured over pad 2 and pad 3

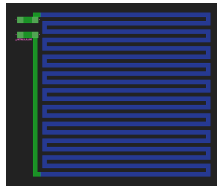
## 1.2 Layer: metal3

### 1.2.1 Structure: METAL3\_V\_100



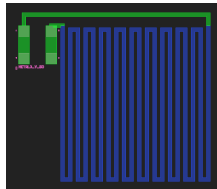
The target value of this resistor is  $100\Omega$   
Recommended measurement current is  $25\mu\text{A}$   
Expected measured voltage is  $2.5\text{mV}$   
The X/Y-coordinates are:  $X=0, Y=1188520$   
The current from the current source should go from pad 3 towards pad 4  
The voltage over the resistor should be measured over pad 2 and pad 1

### 1.2.2 Structure: METAL3\_H\_100



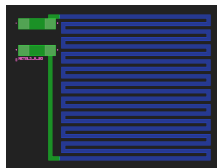
The target value of this resistor is  $100\Omega$   
Recommended measurement current is  $25\mu\text{A}$   
Expected measured voltage is  $2.5\text{mV}$   
The X/Y-coordinates are:  $X=0, Y=1092000$   
The current from the current source should go from pad 1 towards pad 4  
The voltage over the resistor should be measured over pad 2 and pad 3

### 1.2.3 Structure: METAL3\_V\_50



The target value of this resistor is  $100\Omega$   
Recommended measurement current is  $25\mu\text{A}$   
Expected measured voltage is  $2.5\text{mV}$   
The X/Y-coordinates are:  $X=0, Y=2184000$   
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

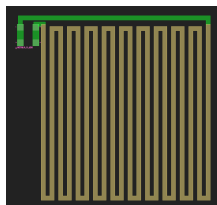
### 1.2.4 Structure: METAL3\_H\_50



The target value of this resistor is  $100\Omega$   
Recommended measurement current is  $25\mu\text{A}$   
Expected measured voltage is  $2.5\text{mV}$   
The X/Y-coordinates are:  $X=731520, Y=0$   
The current from the current source should go from pad 1 towards pad 4  
The voltage over the resistor should be measured over pad 2 and pad 3

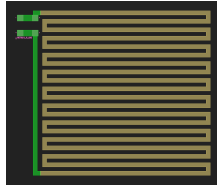
## 1.3 Layer: metal4

### 1.3.1 Structure: METAL4\_V\_100



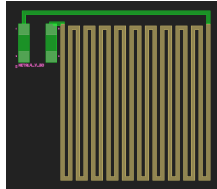
The target value of this resistor is  $100\Omega$   
Recommended measurement current is  $25\mu\text{A}$   
Expected measured voltage is  $2.5\text{mV}$   
The X/Y-coordinates are:  $X=0, Y=0$   
The current from the current source should go from pad 3 towards pad 4  
The voltage over the resistor should be measured over pad 2 and pad 1

### 1.3.2 Structure: METAL4\_H\_100



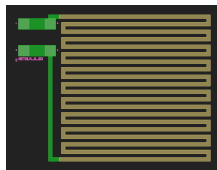
The target value of this resistor is  $100\Omega$   
Recommended measurement current is  $25\mu\text{A}$   
Expected measured voltage is  $2.5\text{mV}$   
The X/Y-coordinates are:  $X=0, Y=0$   
The current from the current source should go from pad 1 towards pad 4  
The voltage over the resistor should be measured over pad 2 and pad 3

### 1.3.3 Structure: METAL4\_V\_50



The target value of this resistor is  $100\Omega$   
Recommended measurement current is  $25\mu\text{A}$   
Expected measured voltage is  $2.5\text{mV}$   
The X/Y-coordinates are:  $X=710000, Y=2184000$   
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

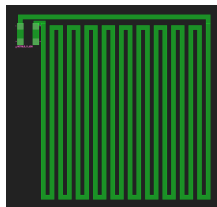
### 1.3.4 Structure: METAL4\_H\_50



The target value of this resistor is  $100\Omega$   
Recommended measurement current is  $25\mu\text{A}$   
Expected measured voltage is  $2.5\text{mV}$   
The X/Y-coordinates are:  $X=1463040, Y=0$   
The current from the current source should go from pad 1 towards pad 4  
The voltage over the resistor should be measured over pad 2 and pad 3

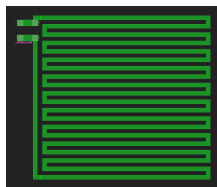
## 1.4 Layer: metal5

### 1.4.1 Structure: METAL5\_V\_100



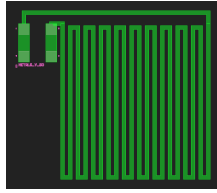
The target value of this resistor is  $100\Omega$   
Recommended measurement current is  $25\mu\text{A}$   
Expected measured voltage is  $2.5\text{mV}$   
The X/Y-coordinates are:  $X=0, Y=1188520$   
The current from the current source should go from pad 3 towards pad 4  
The voltage over the resistor should be measured over pad 2 and pad 1

### 1.4.2 Structure: METAL5\_H\_100



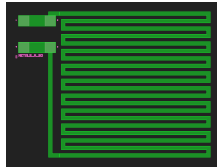
The target value of this resistor is  $100\Omega$   
Recommended measurement current is  $25\mu\text{A}$   
Expected measured voltage is  $2.5\text{mV}$   
The X/Y-coordinates are:  $X=0, Y=1092000$   
The current from the current source should go from pad 1 towards pad 4  
The voltage over the resistor should be measured over pad 2 and pad 3

#### 1.4.3 Structure: METAL5\_V\_50



The target value of this resistor is  $100\Omega$   
Recommended measurement current is  $25\mu\text{A}$   
Expected measured voltage is  $2.5\text{mV}$   
The X/Y-coordinates are:  $X=1420000, Y=2184240$   
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

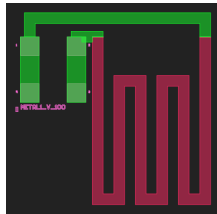
#### 1.4.4 Structure: METAL5\_H\_50



The target value of this resistor is  $100\Omega$   
Recommended measurement current is  $25\mu\text{A}$   
Expected measured voltage is  $2.5\text{mV}$   
The X/Y-coordinates are:  $X=0, Y=546000$   
The current from the current source should go from pad 1 towards pad 4  
The voltage over the resistor should be measured over pad 2 and pad 3

### 1.5 Layer: metal1

#### 1.5.1 Structure: METAL1\_V\_100



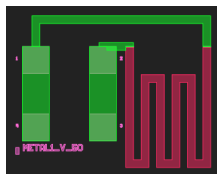
The target value of this resistor is  $100\Omega$   
Recommended measurement current is  $25\mu\text{A}$   
Expected measured voltage is  $2.5\text{mV}$   
The X/Y-coordinates are:  $X=731280, Y=681905$   
The current from the current source should go from pad 3 towards pad 4  
The voltage over the resistor should be measured over pad 2 and pad 1

#### 1.5.2 Structure: METAL1\_H\_100



The target value of this resistor is  $100\Omega$   
Recommended measurement current is  $25\mu\text{A}$   
Expected measured voltage is  $2.5\text{mV}$   
The X/Y-coordinates are:  $X=1148280, Y=839000$   
The current from the current source should go from pad 1 towards pad 4  
The voltage over the resistor should be measured over pad 2 and pad 3

#### 1.5.3 Structure: METAL1\_V\_50



The target value of this resistor is  $100\Omega$   
Recommended measurement current is  $25\mu\text{A}$   
Expected measured voltage is  $2.5\text{mV}$   
The X/Y-coordinates are:  $X=1670875, Y=866620$   
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