

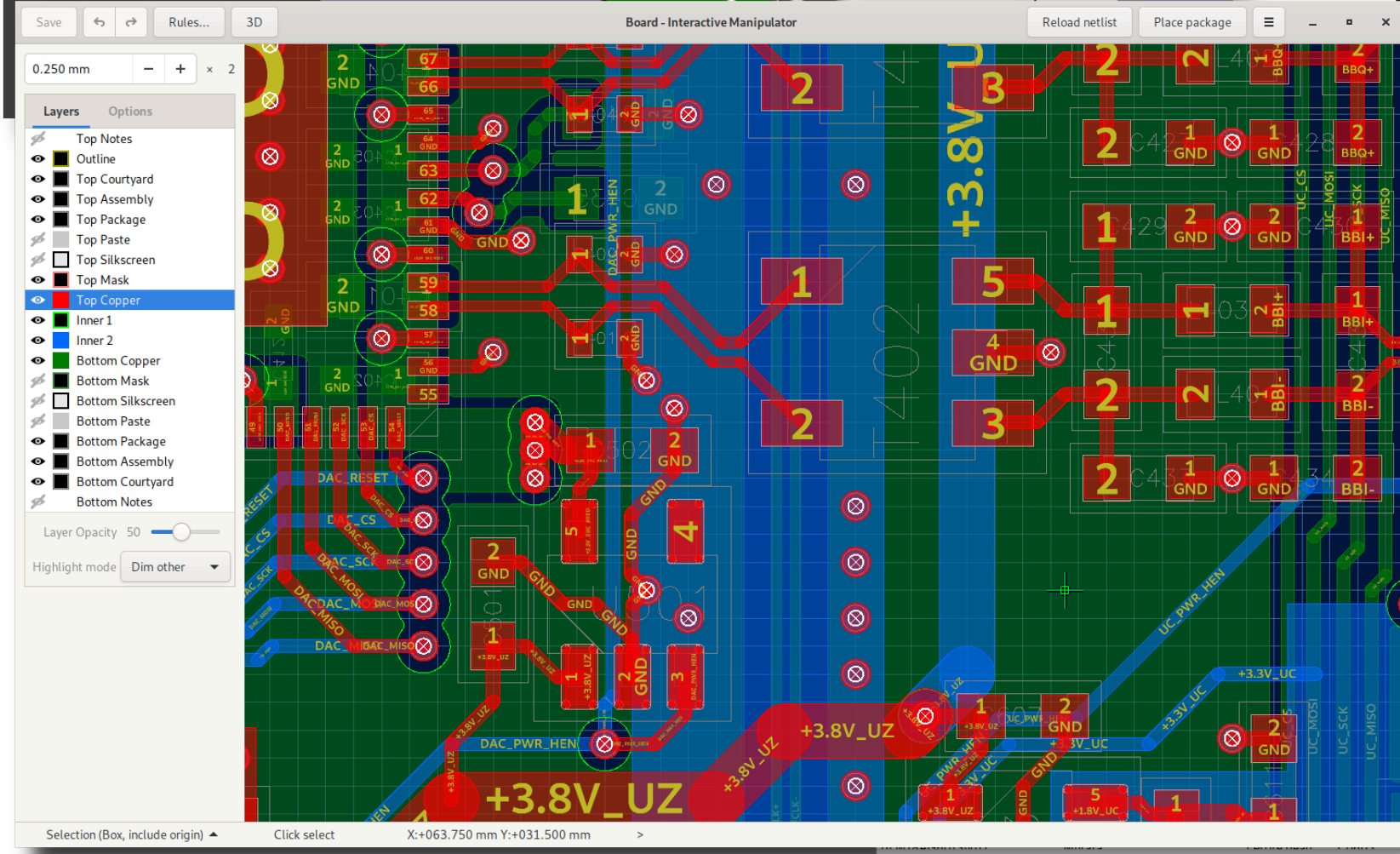
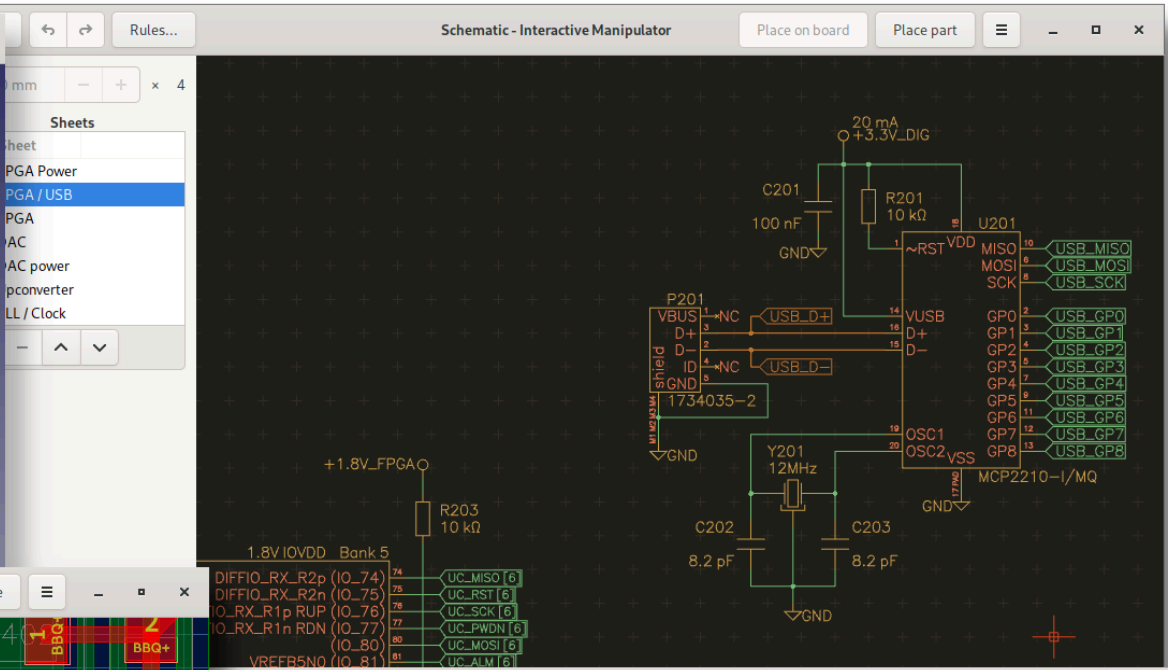
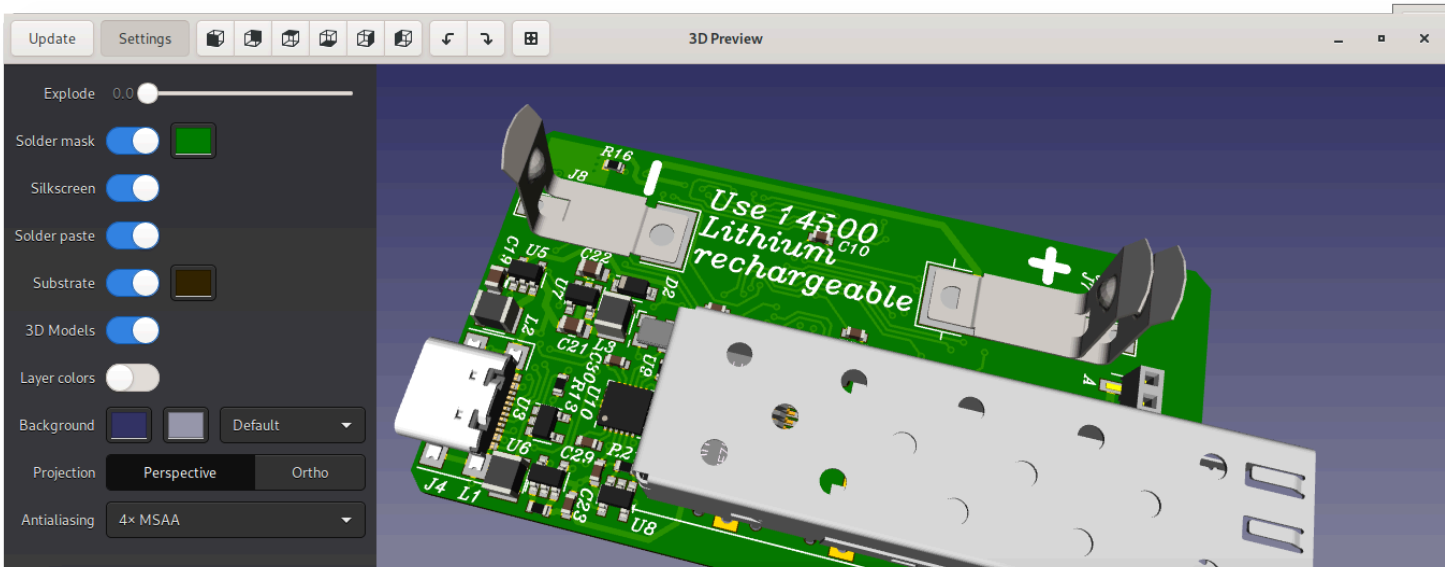


Horizon EDA
a free EDA package

past, present and future

Lukas

FOSDEM 2025



Pool manager

/home/lukas/code/horizon-pool

Settings Git Param: Capacitors Param: Inductors Param: Resistors

Preview Info

MPN ADRF6780 Manufacturer Analog Devices Value ADRF6780

Description 5.9 GHz - 23.6 GHz Upcon... Datasheet <http://www.analog.com/datasheet/ADRF6780.pdf> Entity ADRF6780ACPZN-R7

Orderable MPNs ADRF6780ACPZN ADRF6780ACPZN-R7 ADRF6780ACPZN-R2

Gate ADRF67... Symbol ADRF67... Package QFN-32 (Primary)

| Tags | Path |
|--------------------|----------|
| 23-turn passiv... | ...point |
| fuse-holder | ...json |
| tp | ...json |
| light-pipe me... | ...json |
| green led | ...json |
| connector usb | ...json |
| connector usb | ...json |
| dac ic | ...json |
| ic pll | ...json |
| ic rf | ...json |
| switch | ...json |
| dc/dc ic regula... | ...json |
| dc/dc ic regula... | ...json |
| battery ic | ...json |
| audio filter ic... | ...json |
| avr mcu | ...json |
| avr mcu | ...json |
| diode sma | ...json |
| dual npn sot... | ...json |
| dual pnp sot... | ...json |

BBIP

BBIN

BBQP

BBQN

IFIP

IFIN

LOIP

LOIN

SCLK

SDIN

SDTO

~SEN

PWDN

~RST

~ALM

AGND

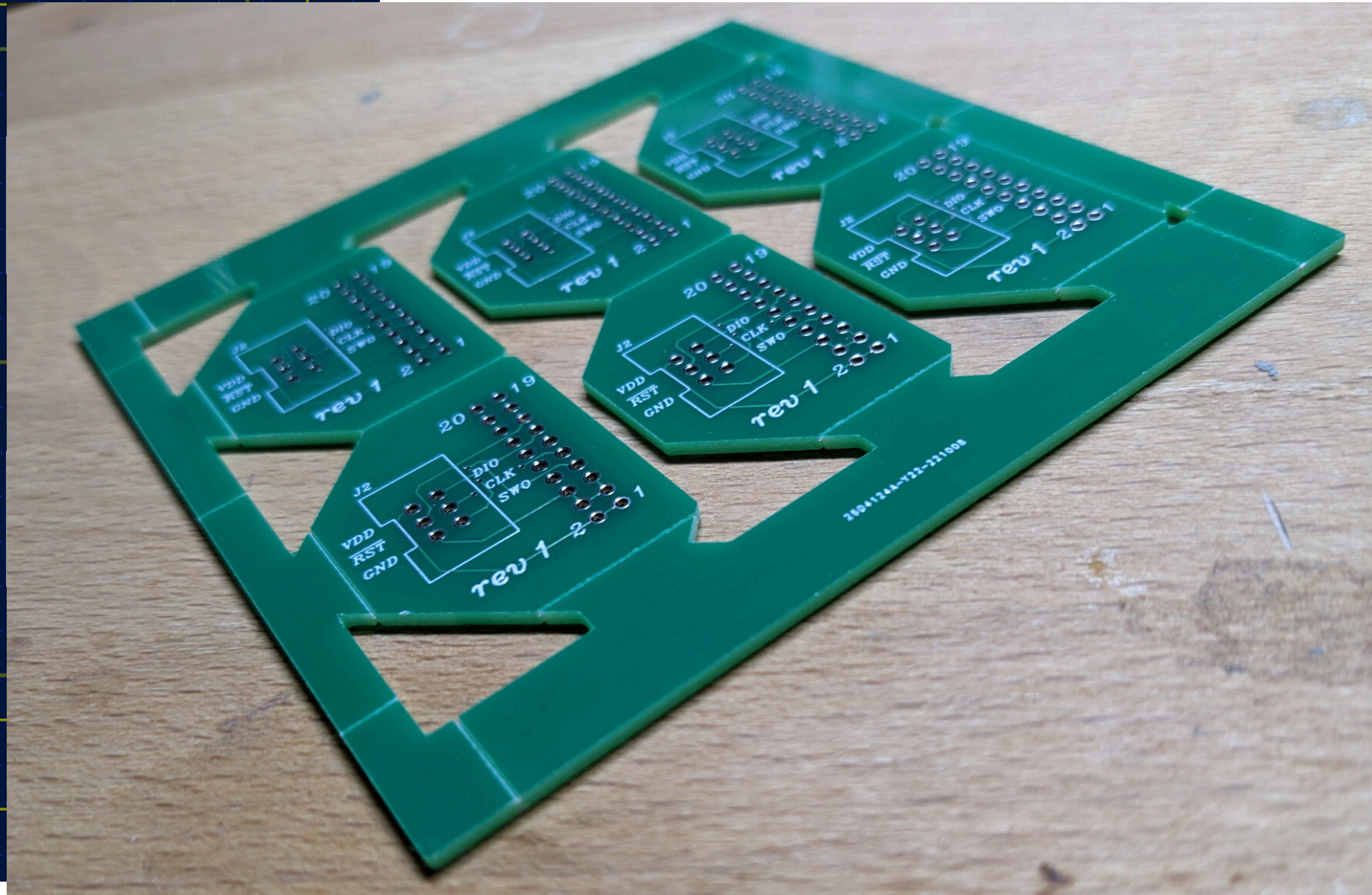
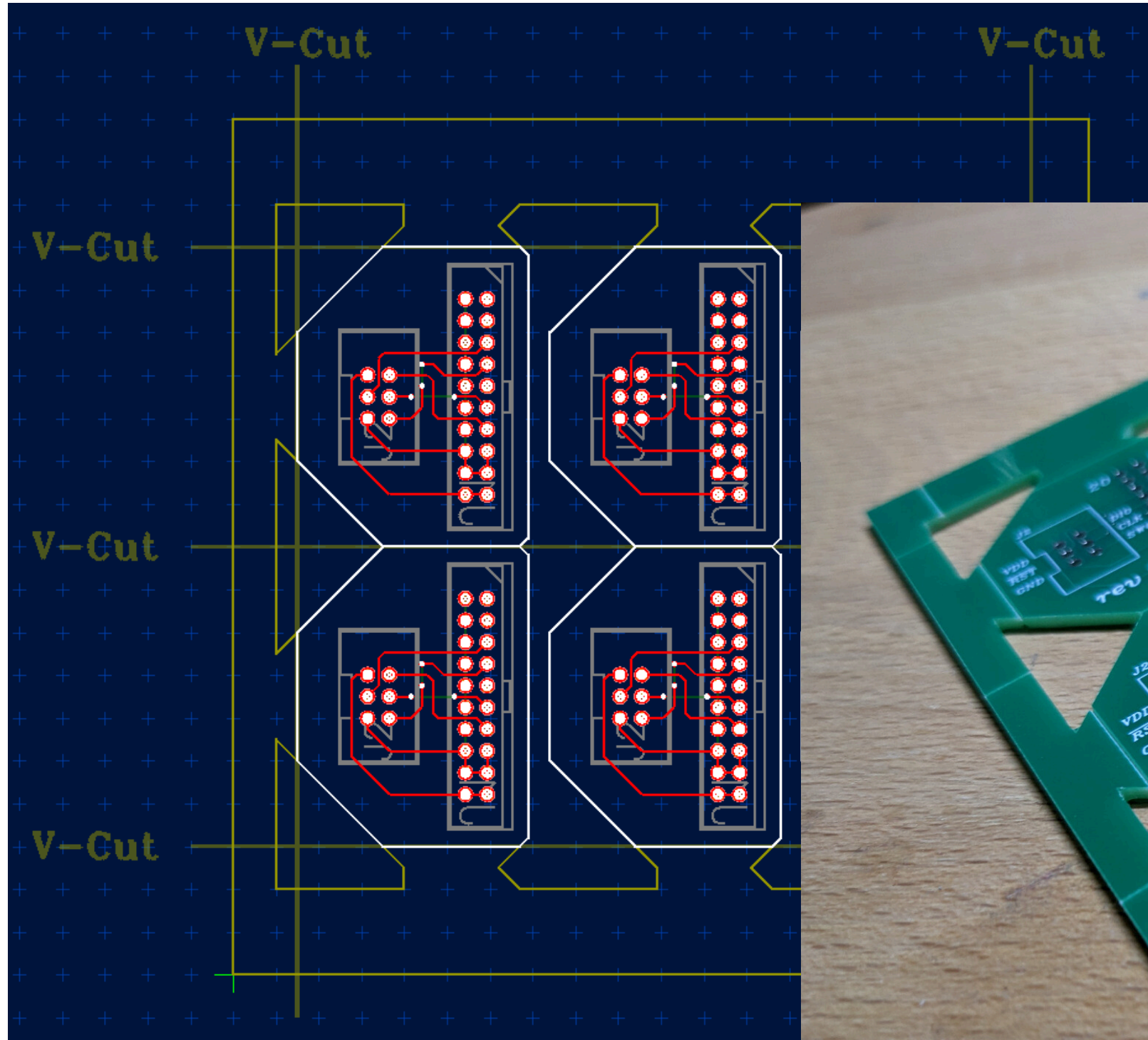
\$REFDES

\$RD

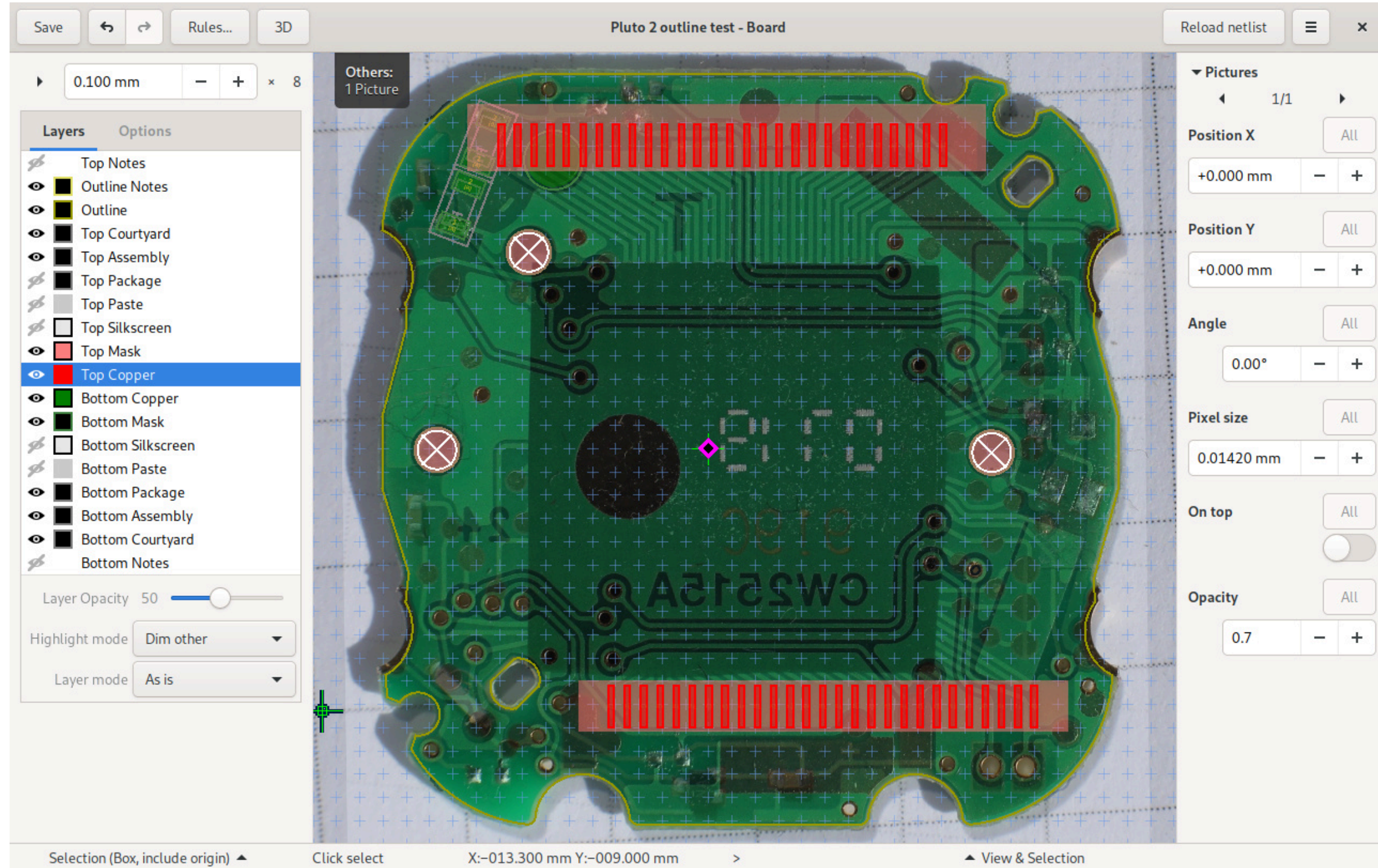
\$VALUE

PAD

Panelisation (2020)



Picture import (2020)



PR review bot (2020)



github-actions bot commented on Jan 15, 2024

This review is brought to you by the Horizon EDA Poolbot commit [33131f8](#).

Items in this PR

| State | Type | Name | Checks | Version | Filename |
|-------|---------|--------------|--------|---------|--|
| New | Entity | MC3635 | ✓ Pass | 0 ✓ | entities/ic/manufacturer/memsic/MC3635.json |
| New | Package | MC3635_MEM_M | ✓ Pass | 0 ✓ | packages/manufacturer/memsic/MC3635_MEM_M/package.json |
| New | Part | MC3635 | ✓ Pass | 0 ✓ | parts/ic/manufacturer/memsic/MC3635.json |
| New | Symbol | MC3635 | ✓ Pass | 0 ✓ | symbols/ic/manufacturer/memsic/MC3635.json |
| New | Unit | MC3635 | ✓ Pass | 0 ✓ | units/ic/manufacturer/memsic/MC3635.json |

Parts overview (excluding derived)

Bold items are from this PR

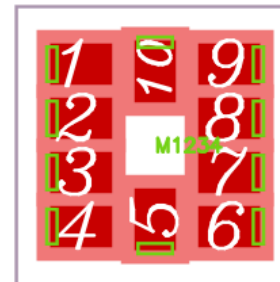
- **Part MC3635**
 - **Package MC3635_MEM_M**
 - Padstack SMD rectangular
 - **Entity MC3635**
 - **Unit MC3635**
 - **Symbol MC3635**

Packages

MC3635_MEM_M

| Attribute | Value |
|--------------|------------------------|
| Manufacturer | MEMSIC (1 other parts) |
| Tags | Iga mc3635 smd |

- ✓ Package checks passed
- ✓ Clearance checks passed

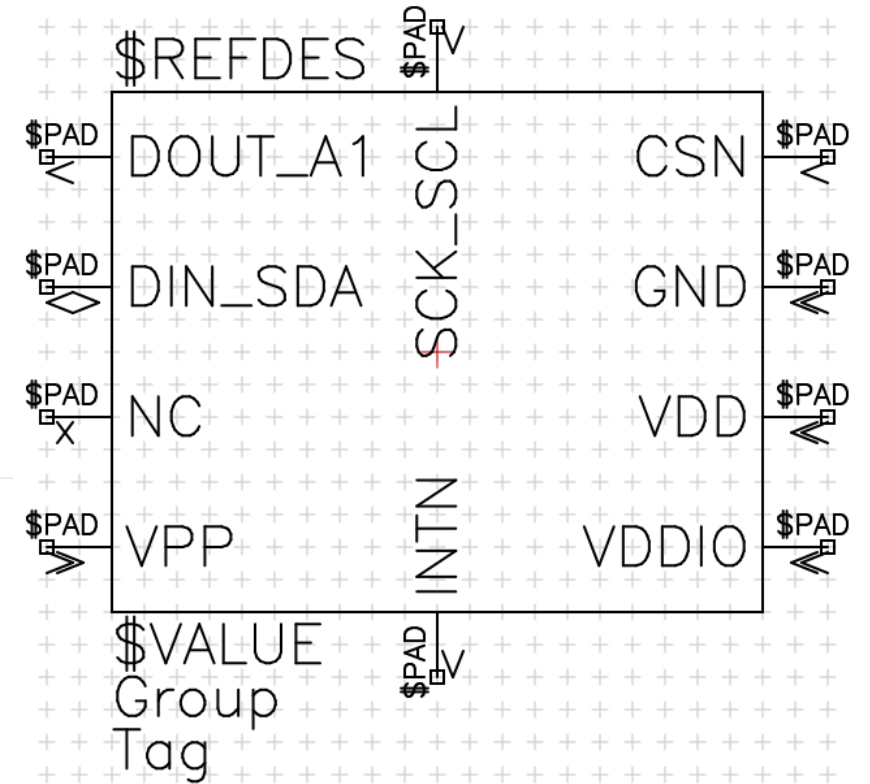


M1234

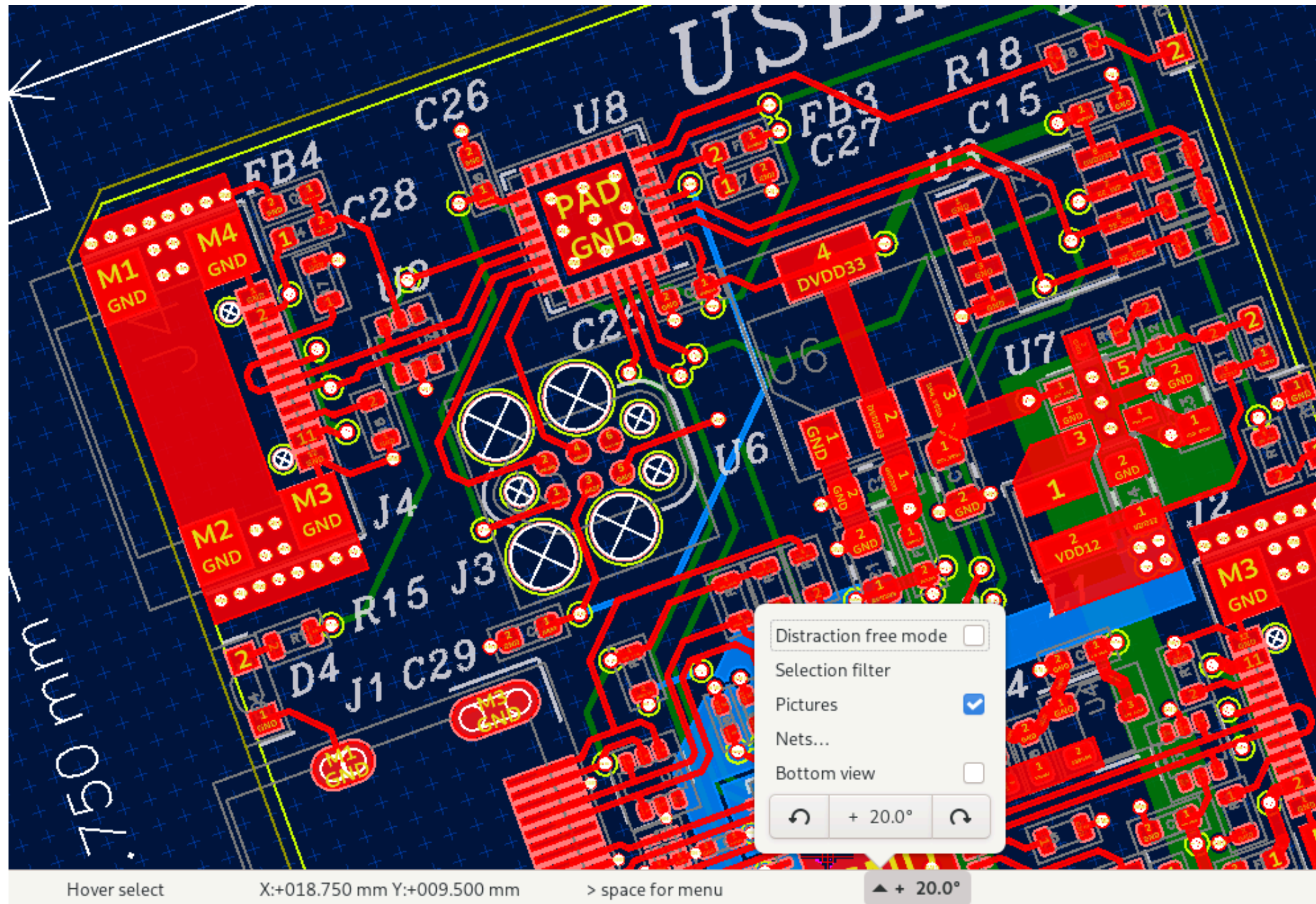
Symbol: MC3635

✓ Checks passed

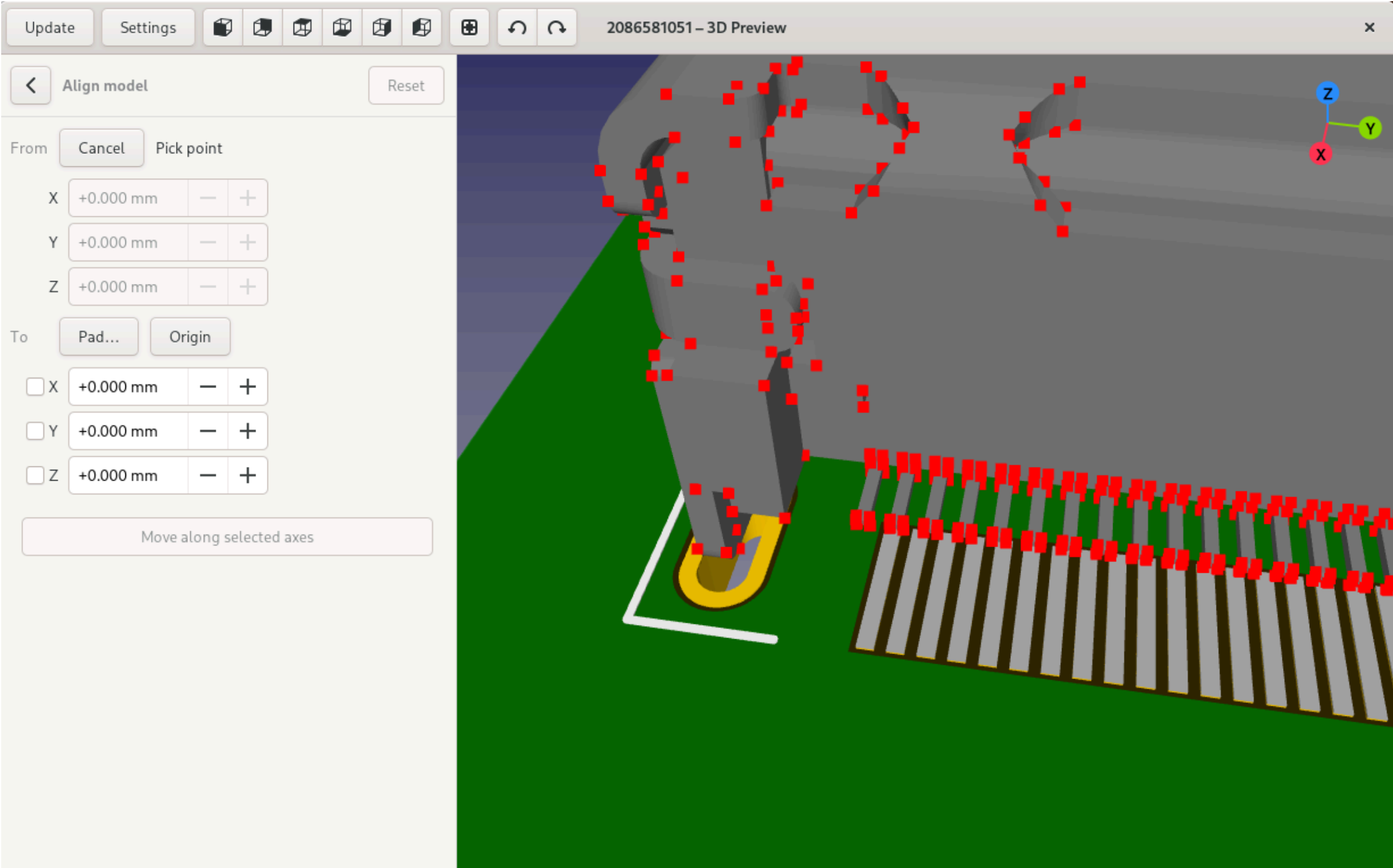
- Is box symbol



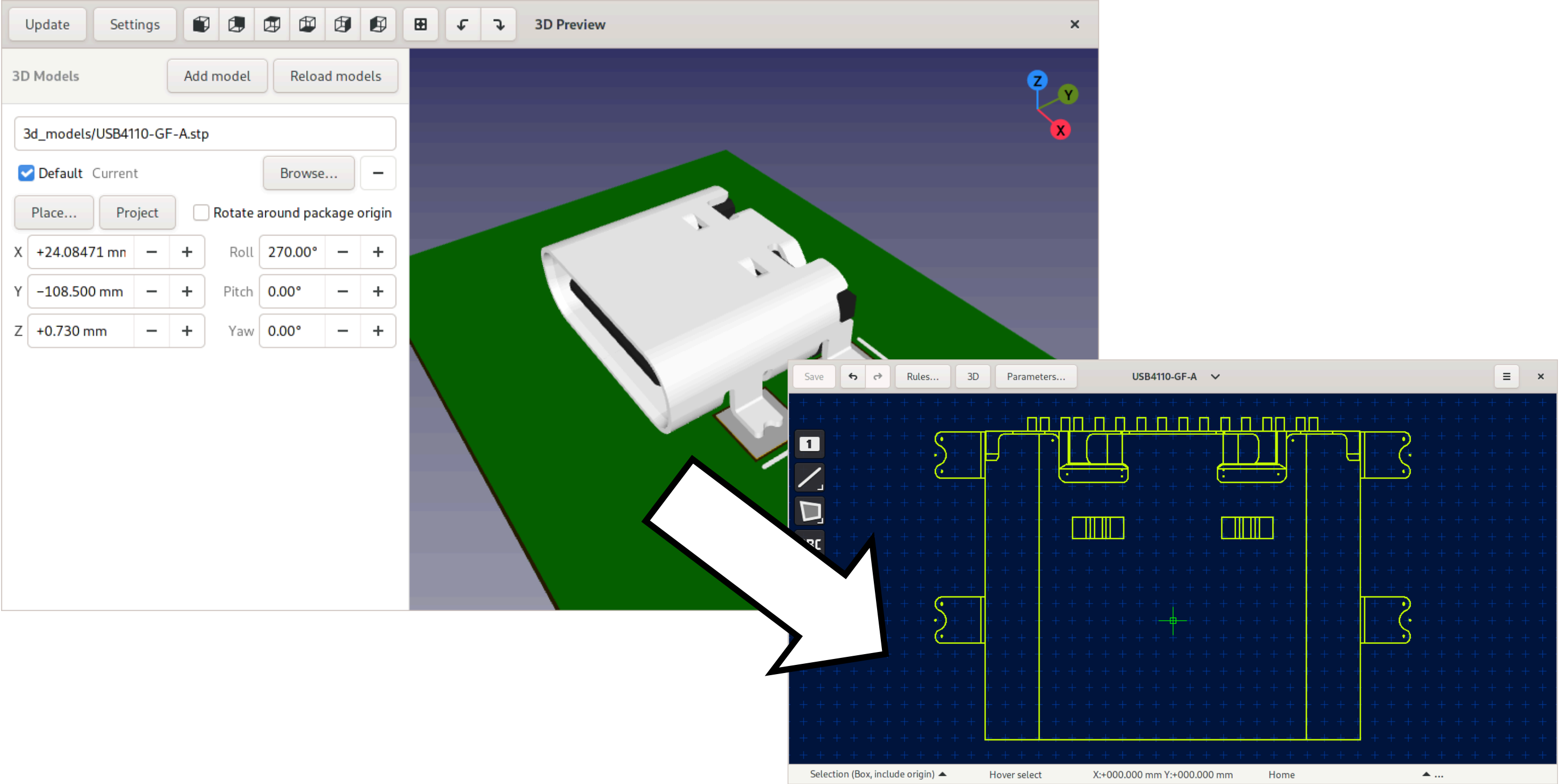
Canvas rotation (2021)



3D Model alignment (2021)



3D Model projection (2021)



Digi-Key stock information (2021)

| MPN | Manufacturer | Package | Value | Tolerance | Power rating | Digi-Key Stock |
|--------------|--------------|---------|-----------------|-----------|--------------|----------------|
| ERJ-2GEJ472 | Panasonic | R0402 | 4.70 k Ω | 5 % | 0.1 W | 0 |
| ERJ-2RHD4701 | Panasonic | R0402 | 4.70 k Ω | 0.5 % | 0.063 W | 0 |
| ERJ-2RKF4701 | Panasonic | R0402 | 4.70 k Ω | 1 % | 0.1 W | 3,599,331 |

[4.7 kOhms \$\pm\$ 1% 0.1W, 1/10W ...](#)

[P4.70KLCT-ND](#)

Cut Tape (CT)

1 €0.080

10 €0.021

100 €0.008

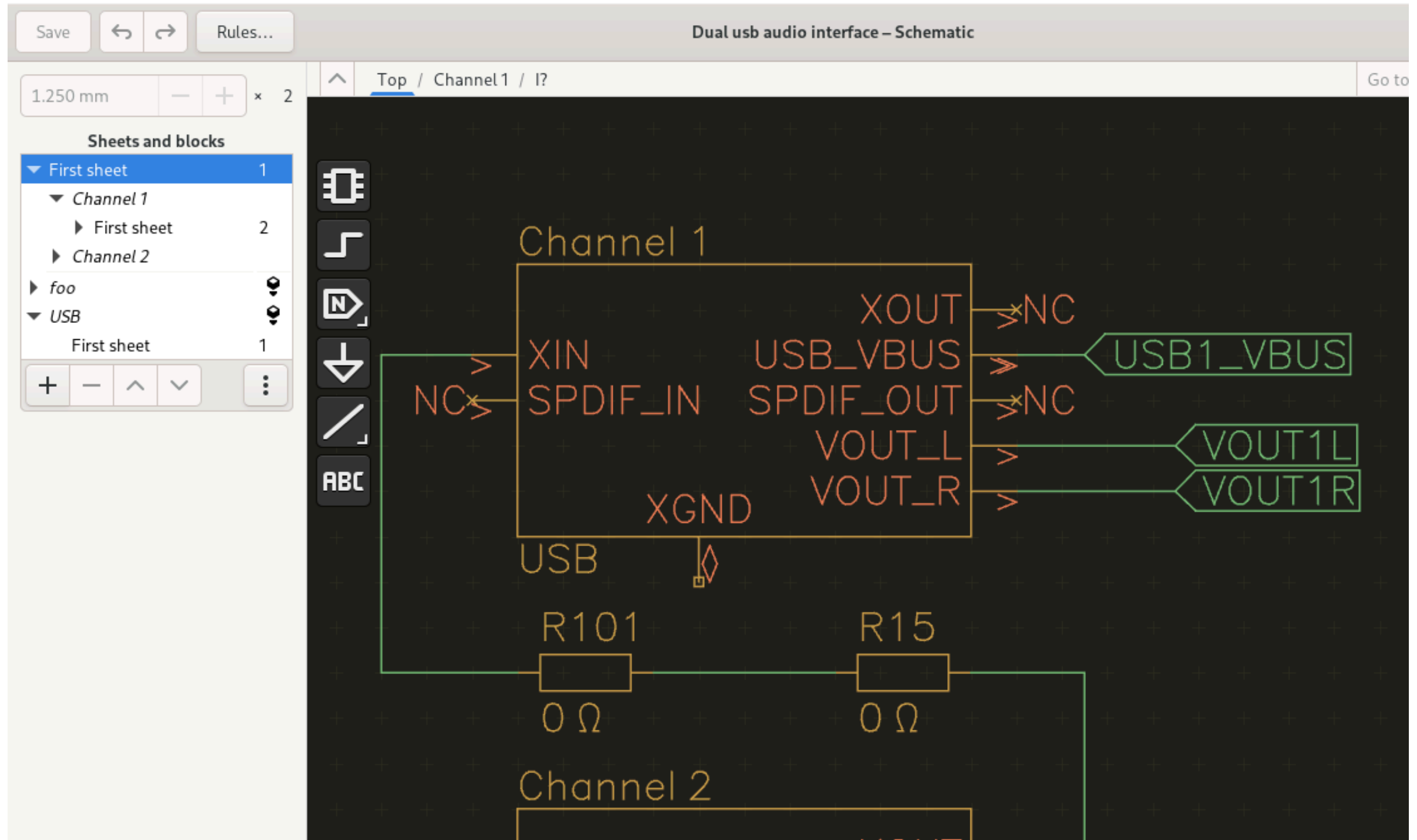
Information provided by the [Digi-Key API](#)

3 Results Digi-Key

Load

0 from cache, fetching 4/4, 982 queries remaining

Hierarchical schematics (2022)



ODB++ output (2022)



HOME FREE DOWNLOADS WHY ODB++DESIGN RESOURCES PARTNERS



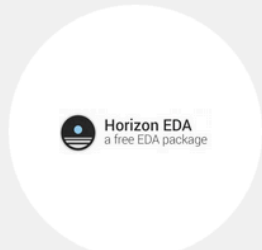
GenISys GmbH



GigaVis



HDL Works



Horizon EDA

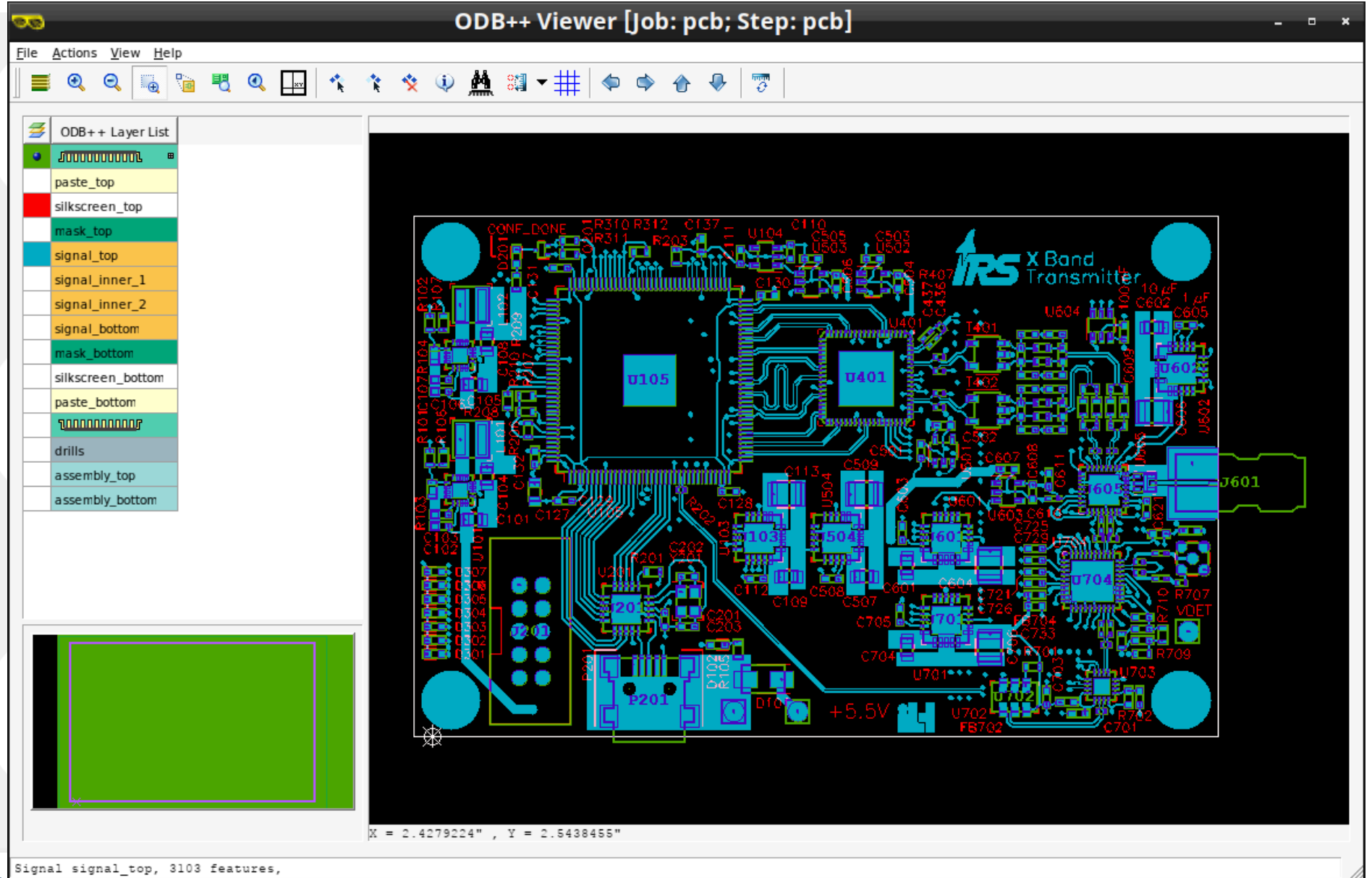
Horizon EDA is a free and open source PCB design application that supports ODB++ output.



iTAC Software AG



JTAC Technologies



Blind and buried vias (2023)

Run checks ▾ Apply rules Rules Checks

Copper clearance
Clearance Copper - Other
Clearance Copper - Keepout
Same net clearance
Clearance Silkscreen - Exposed copper
Track width
Hole size
Vias
Via definitions
Planes
Thermals
Diffpair
Parameters

− +

| Layer | μVia 5-6 | μVia 1-2 | Thru |
|------------------------|--------------------|--------------------|--------------------|
| Top Copper | | Yellow | Yellow |
| Top Copper (substrate) | Green | Green Yellow Green | Green Yellow Green |
| Inner 1 | | Yellow | Yellow |
| Inner 1 (substrate) | Green | Green | Green Yellow Green |
| Inner 2 | | Blue | Yellow |
| Inner 2 (substrate) | Green | Green | Green Yellow Green |
| Inner 3 | | Blue | Yellow |
| Inner 3 (substrate) | Green | Green | Green Yellow Green |
| Inner 4 | Yellow | Blue | Yellow |
| Inner 4 (substrate) | Green Yellow Green | Green | Green Yellow Green |
| Bottom Copper | Yellow | Blue | Yellow |

Name: μVia 1-2

Padstack: Circular via

Span: ■ Top Copper ▾
■ Inner 1 ▾

Add parameter



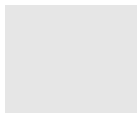


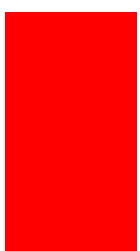
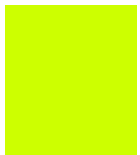
Hole diameter: +0.200 mm − + −

Via diameter: +0.400 mm − + −

User layers (2024)

Cancel Edit Stackup OK

Inner Layers - +

| | | | | | | | |
|---|-----------------------------------|------------------|--|----------------|----------------|----------------|----------------|
|  | Top Package | | | | | | |
|  | Top Paste | | | | | | + |
|  | Top Silkscreen | | | | | | + |
|  | Top Mask | | | | | | + |
|  | <input type="text" value="Flex"/> | Type | <input type="text" value="Flex area"/> | ∨ | ∧ | + | - |
|  | Top Copper | Height | <input type="text" value="0.035 mm"/> | - | + | + | |
| | | Substrate height | <input type="text" value="1.600 mm"/> | - | + | | |
|  | Inner 1 | Height | <input type="text" value="0.035 mm"/> | - | + | + | |

Undo/redo selection (2024)

The image shows a software interface for selection tools. At the top left, there are two buttons: a left-pointing arrow (undo) and a right-pointing arrow (redo). To their right is a checkbox labeled "Sticky selection" which is currently unchecked. Below these are three rows of tool options:

- Tool:** Three buttons labeled "Box", "Lasso", and "Paint". The "Box" button is highlighted with a darker background.
- Qualifier:** Four buttons labeled "Auto", "Include origin", "Touch box", and "Include box". The "Include origin" button is highlighted with a dashed border.
- Modifier (Ctrl):** Three buttons labeled "Toggles", "Adds", and "Removes". The "Toggles" button is highlighted with a darker background.

At the bottom of the interface, there is a status bar with three items:

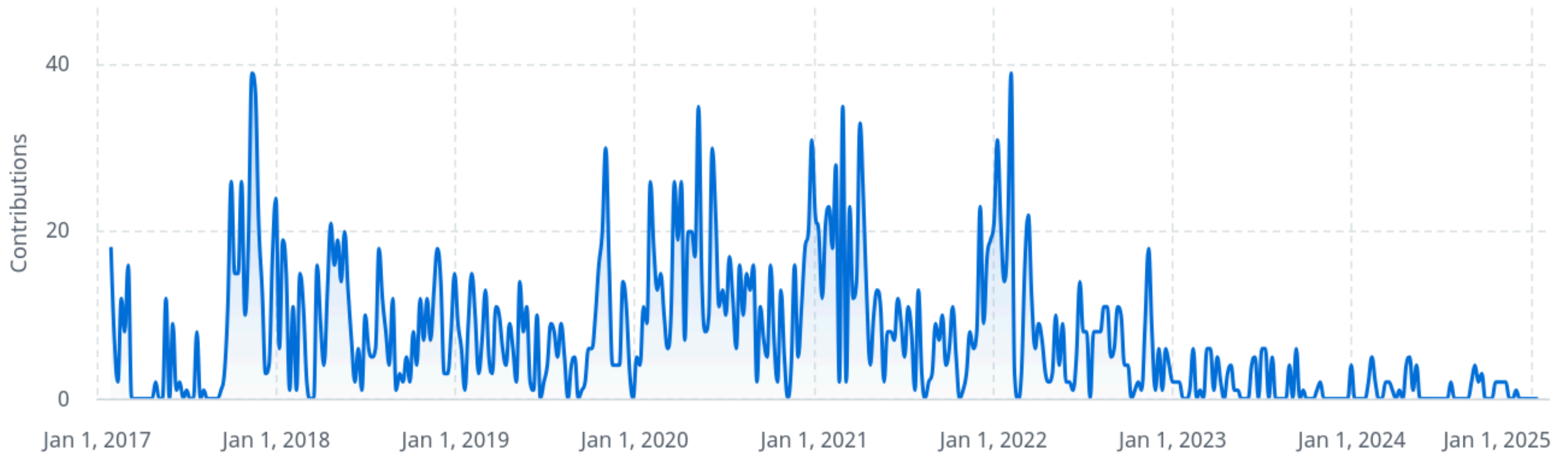
- A grey button labeled "Selection (Box, include origin, toggle) ▲".
- The text "Hover select".
- The text "X:-034.000".

Present

Commits over time



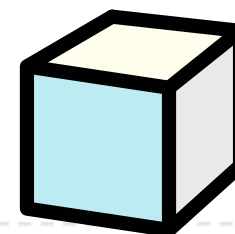
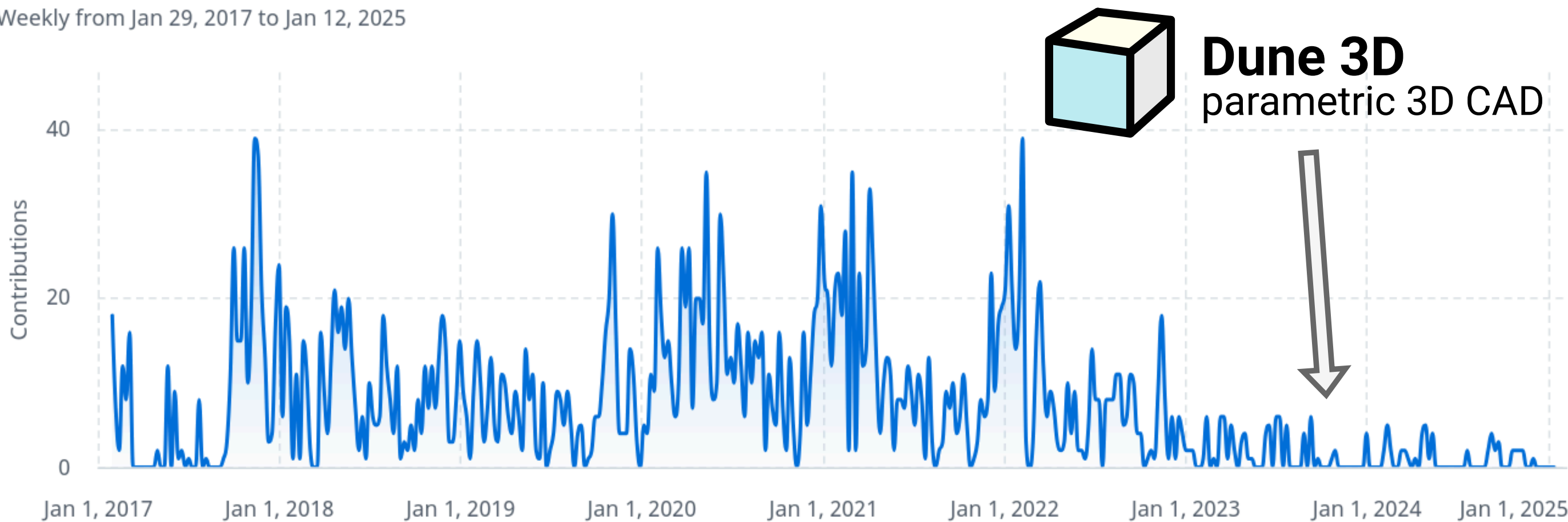
Weekly from Jan 29, 2017 to Jan 12, 2025



Commits over time

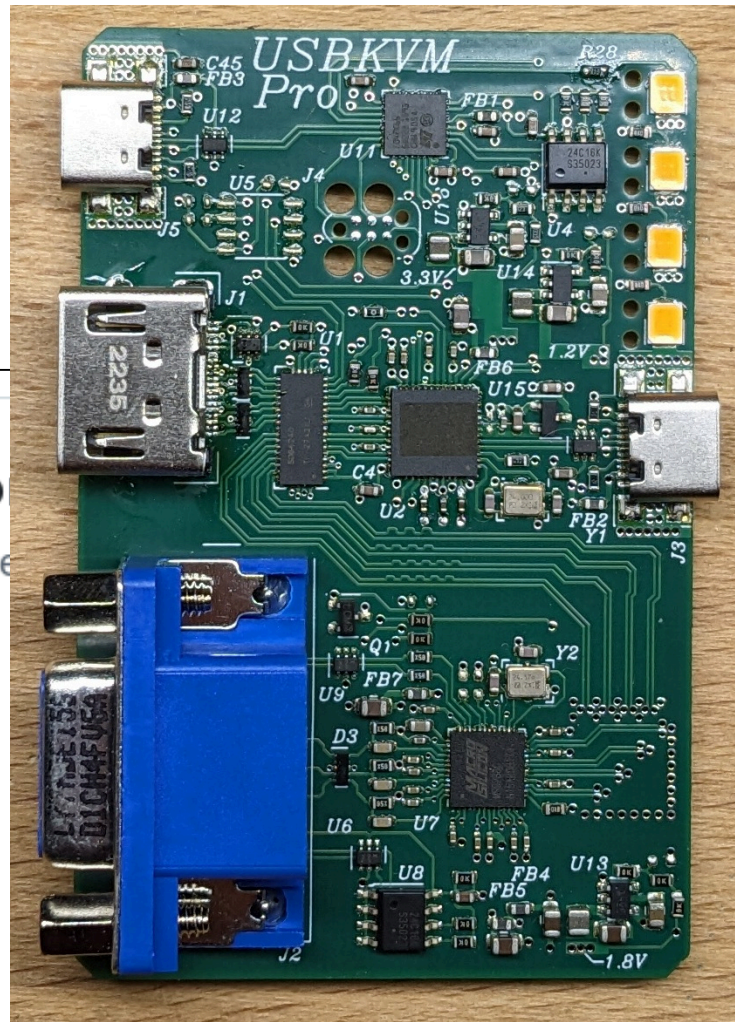
Weekly from Jan 29, 2017 to Jan 12, 2025

...



Dune 3D
parametric 3D CAD



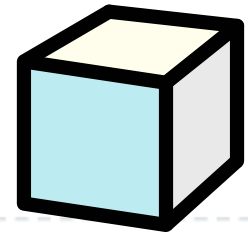


Co
Wee

Contributions

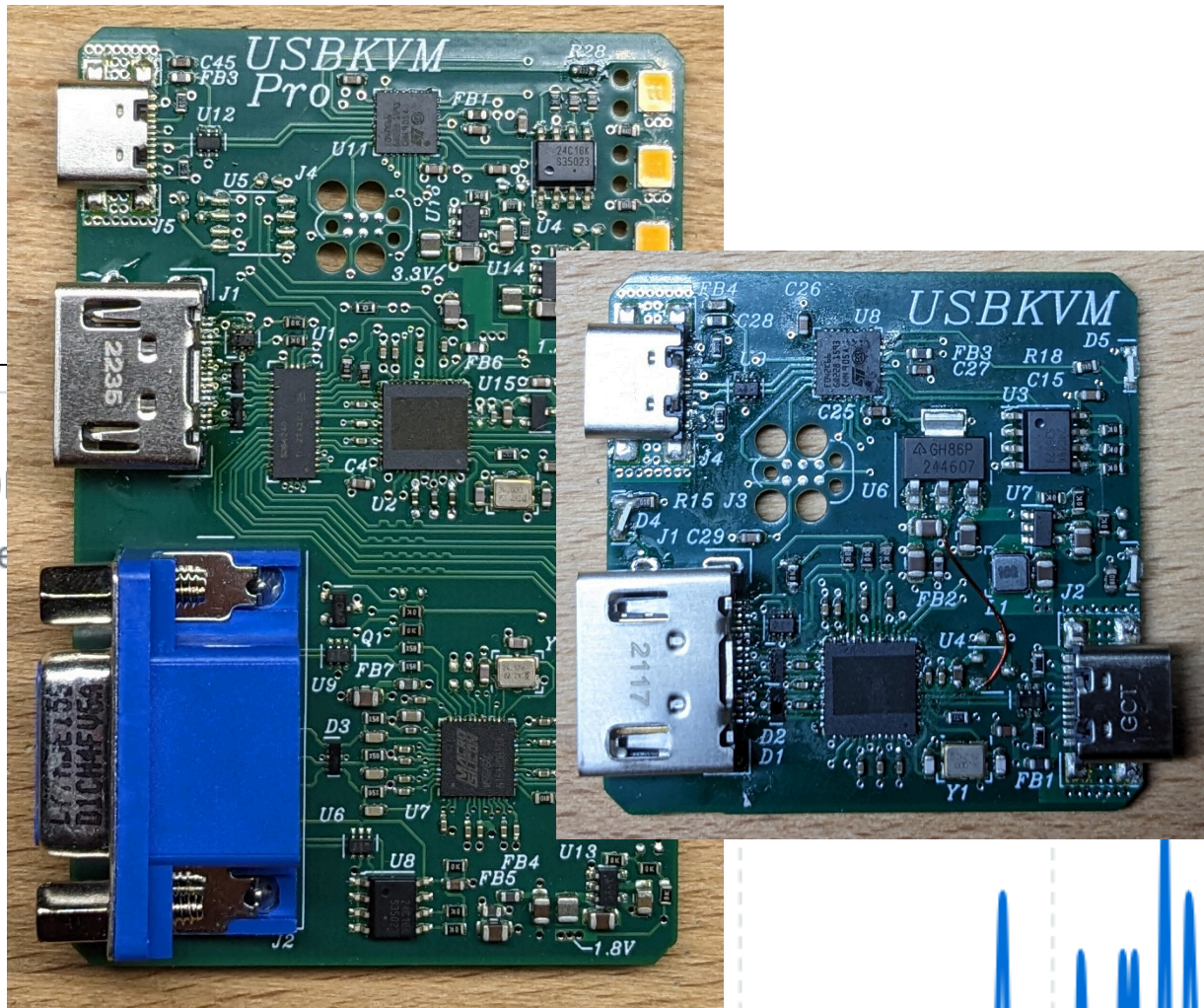
20
0

Jan 1, 2017 Jan 1, 2018 Jan 1, 2019 Jan 1, 2020 Jan 1, 2021 Jan 1, 2022 Jan 1, 2023 Jan 1, 2024 Jan 1, 2025



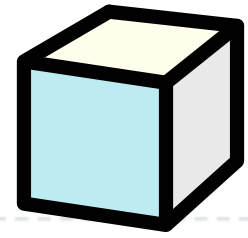
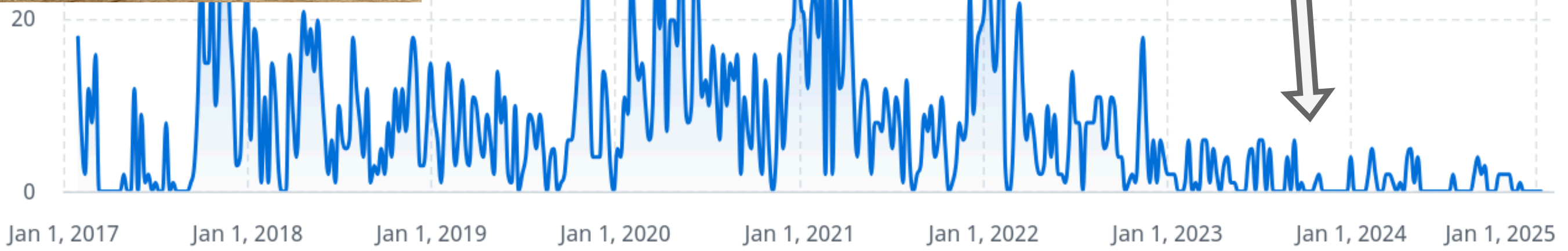
Dune 3D
parametric 3D CAD





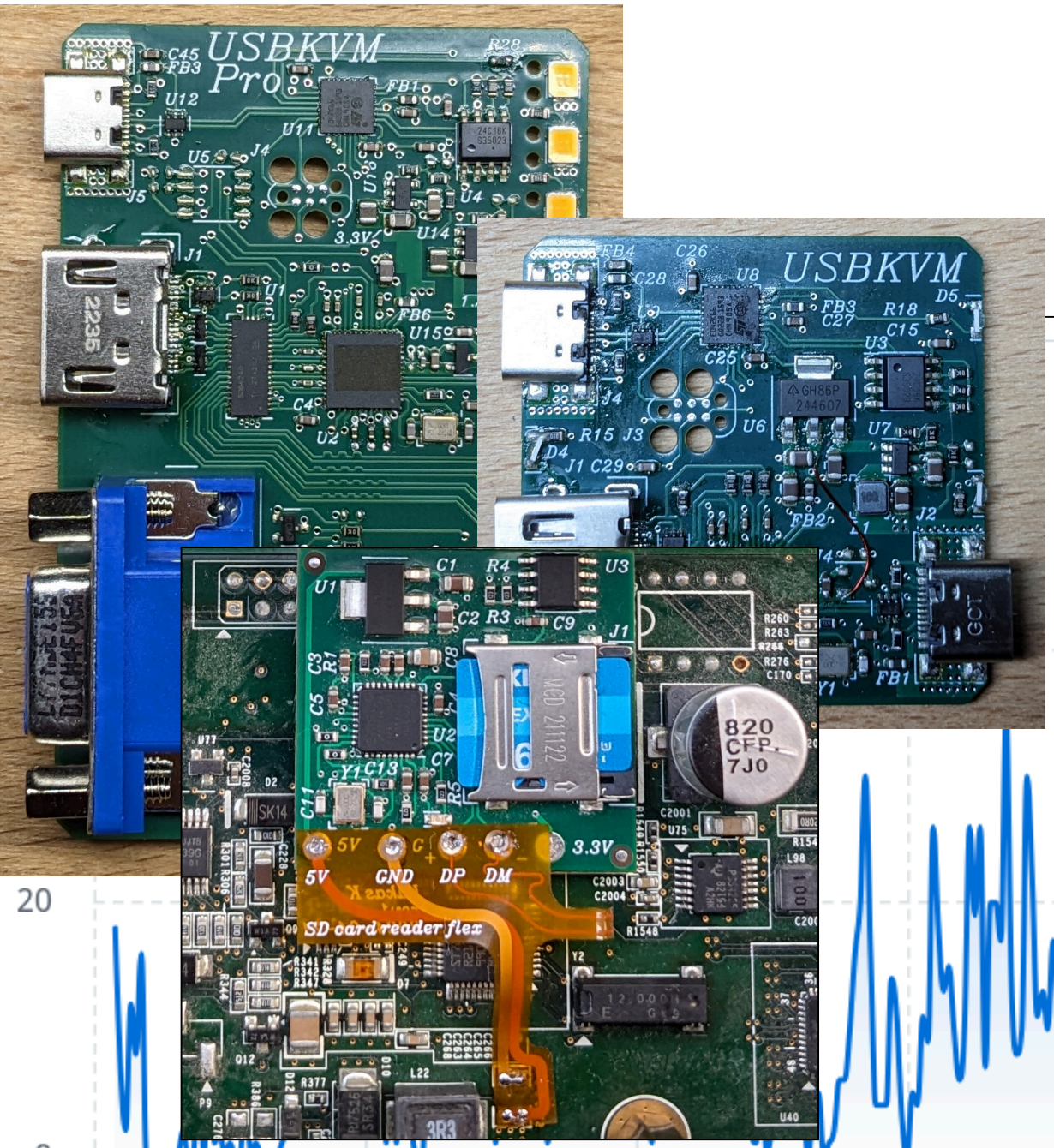
Co
Wee

Contributions



Dune 3D
parametric 3D CAD



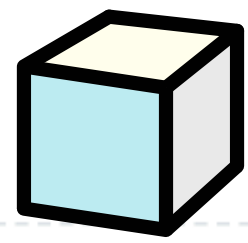


Co
Wee

Contributions

20
0

Jan 1, 2017 Jan 1, 2018 Jan 1, 2019 Jan 1, 2020 Jan 1, 2021 Jan 1, 2022 Jan 1, 2023 Jan 1, 2024 Jan 1, 2025



Dune 3D
parametric 3D CAD





horizon-eda / horizon-pool

🔍 Type / to search

<> Code

🕒 Issues 7

🔗 **Pull requests** 129

💬 Discussions

▶ Actions

Filters ▾

🔍 is:pr is:open

🏷️ Labels

🔗 **129 Open** ✓ 200 Closed

Author ▾

Label ▾

Projects ▾

M

🔗 **Add 3x resistor packages** ✓ bot: pass

#344 opened on Feb 15, 2024 by LHSmicus

🔗 **LED lib changes** ✓ bot: pass

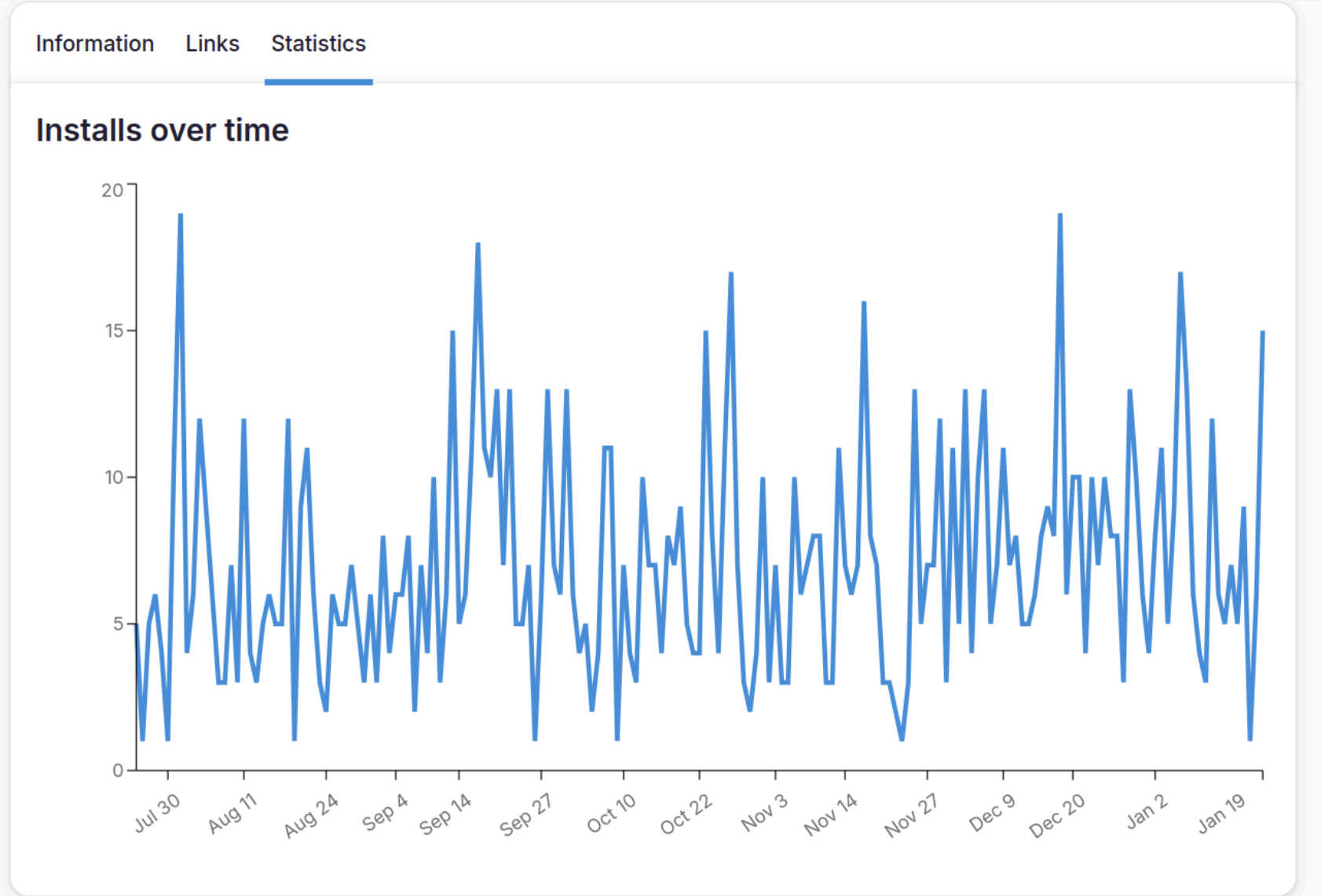
#343 opened on Feb 12, 2024 by LHSmicus

🔗 **BAT54W schottky diode** ✓ bot: pass

#340 opened on Dec 1, 2023 by LHSmicus

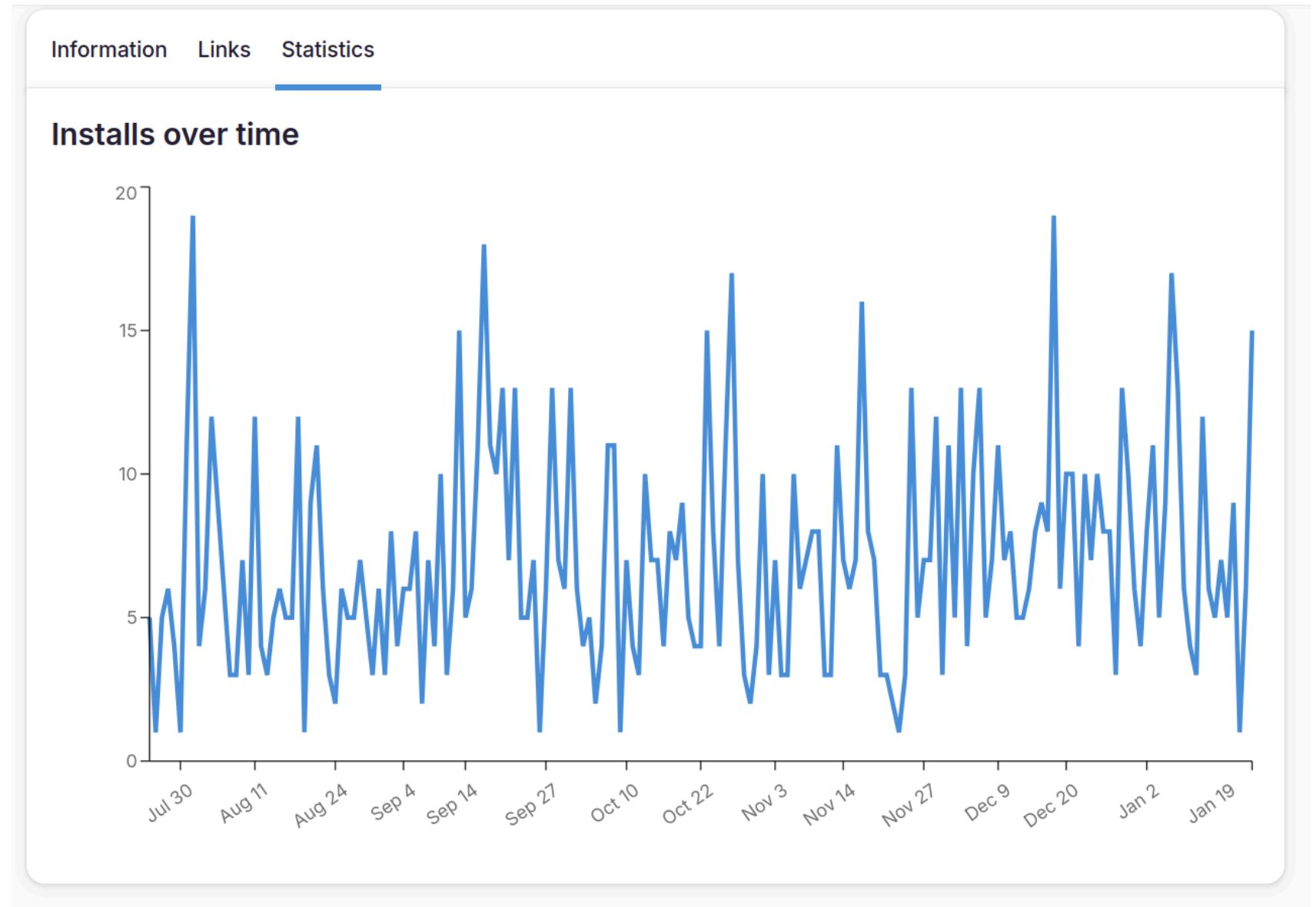
How many people are using
Horizon EDA?

How many people are using Horizon EDA?



How many people are using Horizon EDA?

best guess:
> 10 Users
< 100



Future

Gtk 4?

~~Gtk 4?~~

~~Gtk 4?~~

faster rendering

~~Gtk 4?~~

faster rendering

hierarchical bus ports

~~Gtk 4?~~

faster rendering

hierarchical bus ports

quality of life improvements

~~Gtk 4?~~

faster rendering

hierarchical bus ports

quality of life improvements

new release

That's it

horizon-eda.org

Net coloring (2020)

The image displays a PCB layout with various nets color-coded. A dialog box titled "Nets" is open, showing a list of nets filtered by "mdi". The nets are color-coded: red for +1.0V_ETH and yellow for other MDI signals.

| Net | Net class | Airwires |
|--------|-----------|---------------------------------------|
| MDI_0P | 100diff | <input checked="" type="checkbox"/> 0 |
| MDI_3P | 100diff | <input checked="" type="checkbox"/> 0 |
| MDI_0N | 100diff | <input checked="" type="checkbox"/> 0 |
| MDI_3N | 100diff | <input checked="" type="checkbox"/> 1 |
| MDI_2N | 100diff | <input checked="" type="checkbox"/> 1 |
| MDI_2P | 100diff | <input checked="" type="checkbox"/> 1 |
| MDI_1N | 100diff | <input checked="" type="checkbox"/> 1 |
| MDI_1P | 100diff | <input checked="" type="checkbox"/> 1 |

Parametric data in schematic (2021)

Part Browser

| Manufacturer | Package | Value | Voltage rating | Type | Tolerance |
|--------------|---------|-----------|----------------|---------|-----------|
| Panasonic | C0402 | N/A | N/A | N/A | N/A |
| Rubycon | C0603 | 100.00 fF | 1 V | B | 1 % |
| Samsung | C0805 | 200.00 fF | 2.5 V | COG/NPO | 2 % |
| TDK | C1206 | 300.00 fF | 4 V | COH | 5 % |
| Taiyo Yuden | C1210 | 400.00 fF | 6.3 V | CH | 10 % |

MPN C1005JB1A475K050BC Manufacturer TDK Value 4.7 μ F
 Description Ceramic Capacitor 4.7 μ F 10 V X5R Datasheet https://product.tdk.com/info/..._et/C1005JB1A475K050BC.pdf Entity Capacitor

Gate Two-te... Symbol Capacitor Package C0402 (Primary)

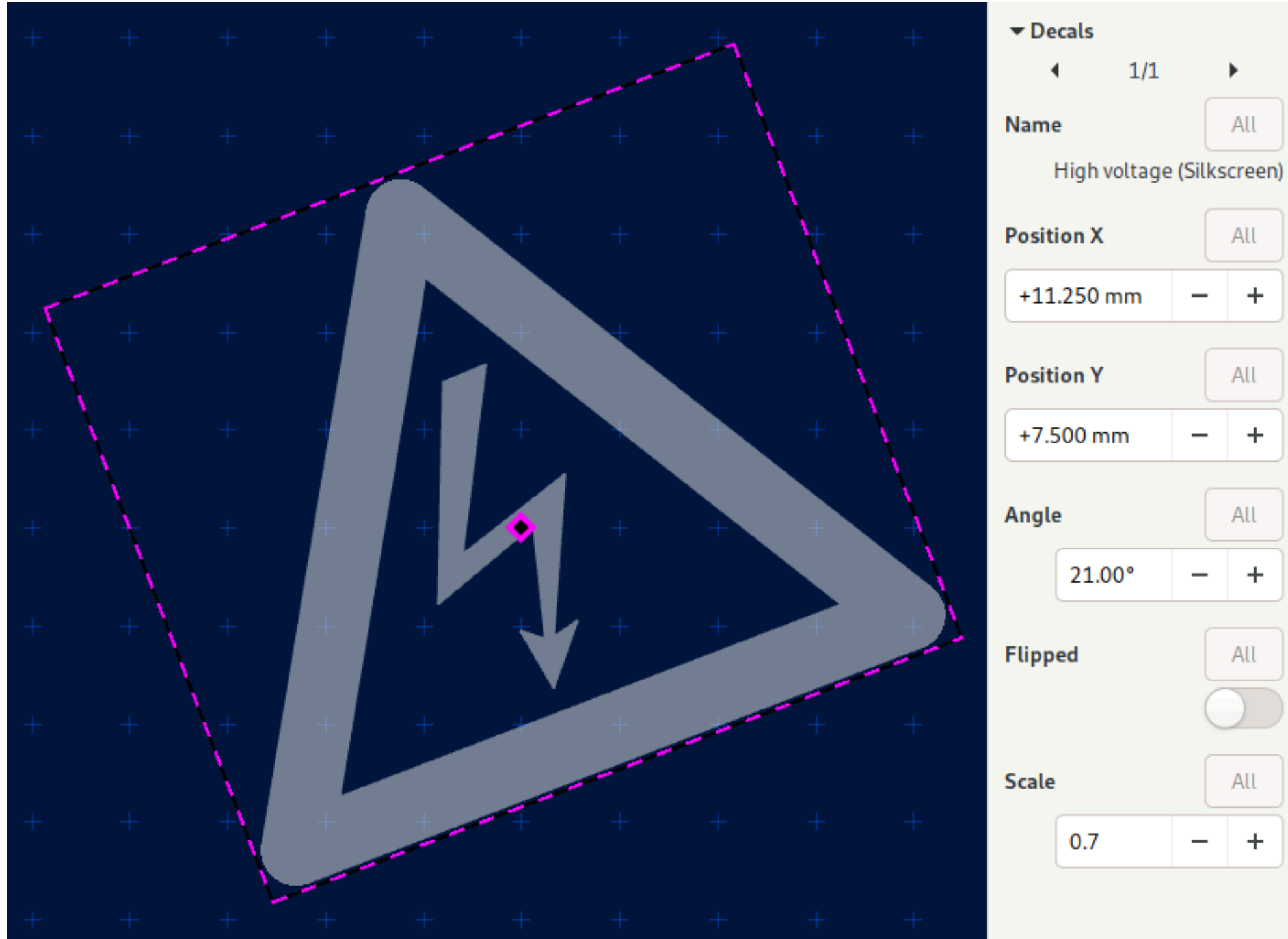
| MPN | Manufacturer | Package | Value | Voltage rating | Type | Tolerance | Digi-Key Stock |
|---------------------|--------------|---------|--------------|----------------|---------|-----------|----------------|
| C1005JB0J475K050BC | TDK | C0402 | 4.70 μ F | 6.3 V | X5R | 10 % | Not loaded |
| C1005JB0J475M050BC | TDK | C0402 | 4.70 μ F | 6.3 V | X5R | 20 % | Not loaded |
| C1005JB1A155K050BC | TDK | C0402 | 1.50 μ F | 10 V | X5R | 10 % | Not loaded |
| C1005JB1A155M050BC | TDK | C0402 | 1.50 μ F | 10 V | X5R | 20 % | Not loaded |
| C1005JB1A225K050BC | TDK | C0402 | 2.20 μ F | 10 V | X5R | 10 % | Not loaded |
| C1005JB1A225M050BC | TDK | C0402 | 2.20 μ F | 10 V | X5R | 20 % | Not loaded |
| C1005JB1A335K050BC | TDK | C0402 | 3.30 μ F | 10 V | X5R | 10 % | Not loaded |
| C1005JB1A335M050BC | TDK | C0402 | 3.30 μ F | 10 V | X5R | 20 % | Not loaded |
| C1005JB1A475K050BC | TDK | C0402 | 4.70 μ F | 10 V | X5R | 10 % | Not loaded |
| C1005JB1A475M050BC | TDK | C0402 | 4.70 μ F | 10 V | X5R | 20 % | Not loaded |
| C1005JB1C155K050BC | TDK | C0402 | 1.50 μ F | 16 V | X5R | 10 % | Not loaded |
| C1005JB1C155M050BC | TDK | C0402 | 1.50 μ F | 16 V | X5R | 20 % | Not loaded |
| C1005JB1C225K050BC | TDK | C0402 | 2.20 μ F | 16 V | X5R | 10 % | Not loaded |
| C1005JB1C225M050BC | TDK | C0402 | 2.20 μ F | 16 V | X5R | 20 % | Not loaded |
| C1005JB1E155K050BC | TDK | C0402 | 1.50 μ F | 25 V | X5R | 10 % | Not loaded |
| C1005JB1E155M050BC | TDK | C0402 | 1.50 μ F | 25 V | X5R | 20 % | Not loaded |
| C1005JB1E225K050BC | TDK | C0402 | 2.20 μ F | 25 V | X5R | 10 % | Not loaded |
| C1005JB1E225M050BC | TDK | C0402 | 2.20 μ F | 25 V | X5R | 20 % | Not loaded |
| C1005JB1V155K050BC | TDK | C0402 | 1.50 μ F | 35 V | X5R | 10 % | Not loaded |
| C1005JB1V155M050BC | TDK | C0402 | 1.50 μ F | 35 V | X5R | 20 % | Not loaded |
| C1005JB1V225K050BC | TDK | C0402 | 2.20 μ F | 35 V | X5R | 10 % | Not loaded |
| C1005JB1V225M050BC | TDK | C0402 | 2.20 μ F | 35 V | X5R | 20 % | Not loaded |
| C1005NP01H010C050BA | TDK | C0402 | 1.00 pF | 50 V | COG/NPO | 20 % | Not loaded |
| C1005NP01H020C050BA | TDK | C0402 | 2.00 pF | 50 V | COG/NPO | 20 % | Not loaded |
| C1005NP01H030C050BA | TDK | C0402 | 3.00 pF | 50 V | COG/NPO | 20 % | Not loaded |
| C1005NP01H040C050BA | TDK | C0402 | 4.00 pF | 50 V | COG/NPO | 20 % | Not loaded |
| C1005NP01H050C050BA | TDK | C0402 | 5.00 pF | 50 V | COG/NPO | 20 % | Not loaded |
| C1005NP01H060D050BA | TDK | C0402 | 6.00 pF | 50 V | COG/NPO | 20 % | Not loaded |
| C1005NP01H070D050BA | TDK | C0402 | 7.00 pF | 50 V | COG/NPO | 20 % | Not loaded |
| C1005NP01H080D050BA | TDK | C0402 | 8.00 pF | 50 V | COG/NPO | 20 % | Not loaded |
| C1005NP01H090D050BA | TDK | C0402 | 9.00 pF | 50 V | COG/NPO | 20 % | Not loaded |
| C1005NP01H100D050BA | TDK | C0402 | 10.00 pF | 50 V | COG/NPO | 20 % | Not loaded |
| C1005NP01H101J050BA | TDK | C0402 | 100.00 pF | 50 V | COG/NPO | 5 % | Not loaded |
| C1005NP01H102J050BA | TDK | C0402 | 1.00 nF | 50 V | COG/NPO | 5 % | Not loaded |
| C1005NP01H150J050BA | TDK | C0402 | 15.00 pF | 50 V | COG/NPO | 5 % | Not loaded |
| C1005NP01H151J050BA | TDK | C0402 | 150.00 pF | 50 V | COG/NPO | 5 % | Not loaded |
| C1005NP01H220J050BA | TDK | C0402 | 22.00 pF | 50 V | COG/NPO | 5 % | Not loaded |

Edit custom value

| Insert | Edit | Preview |
|-------------------------|-------------------------|---------|
| Value > | <code>\${value}</code> | 100 pF |
| MPN > | <code>\${p:wvdc}</code> | 50 V |
| Manufacturer > | <code>\${p:type}</code> | COG/NPO |
| Description > | <code>\${pkg}</code> | C0402 |
| Package > | | |
| Param: Tolerance > | | |
| Param: Type > | | |
| Param: Value > | | |
| Param: Voltage rating > | | |

Schematic Symbol: C? 100 pF 50 V COG/NPO C0402

Decals (2020)



▼ Decals

◀ 1/1 ▶

Name
High voltage (Silkscreen)

Position X
 - +

Position Y
 - +

Angle
 - +

Flipped

Scale
 - +