Made with :love: in Austin, TX. What starts here changes the world.
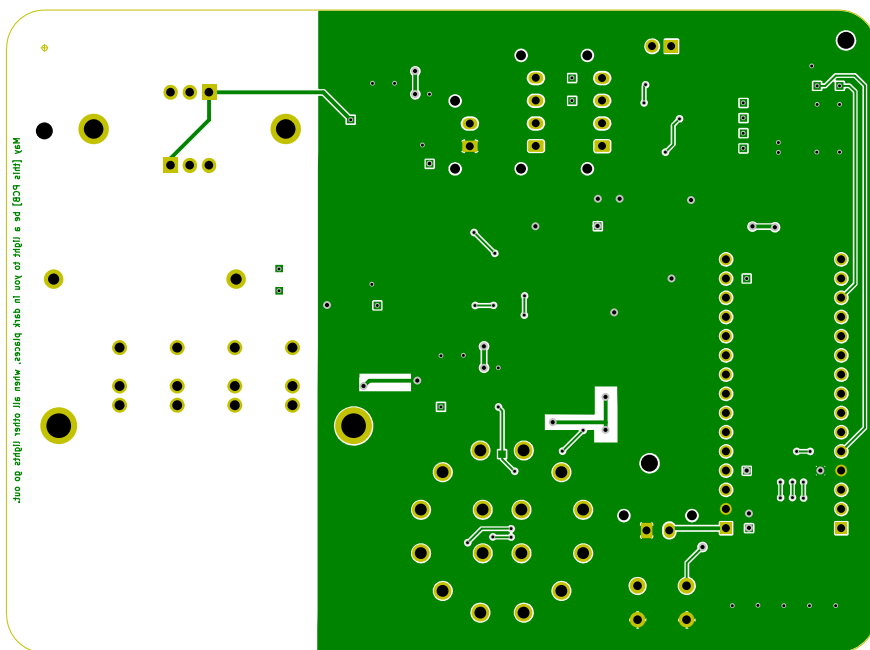
Youssef Elsherif
Gary Hallock
Matthew Yu
Longhorn Racing Solar

Sheet:
File: IV Curve Tracer.kicad_pcb

Title: PV Curve Tracer

| Size: A4 | Date: 2022-02-11 | **Rev: 1.2.0** |
| KiCad E.D.A. kicad (6.0.1) | | Id: 1/1 |

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Gary Hallock
Matthew Yu
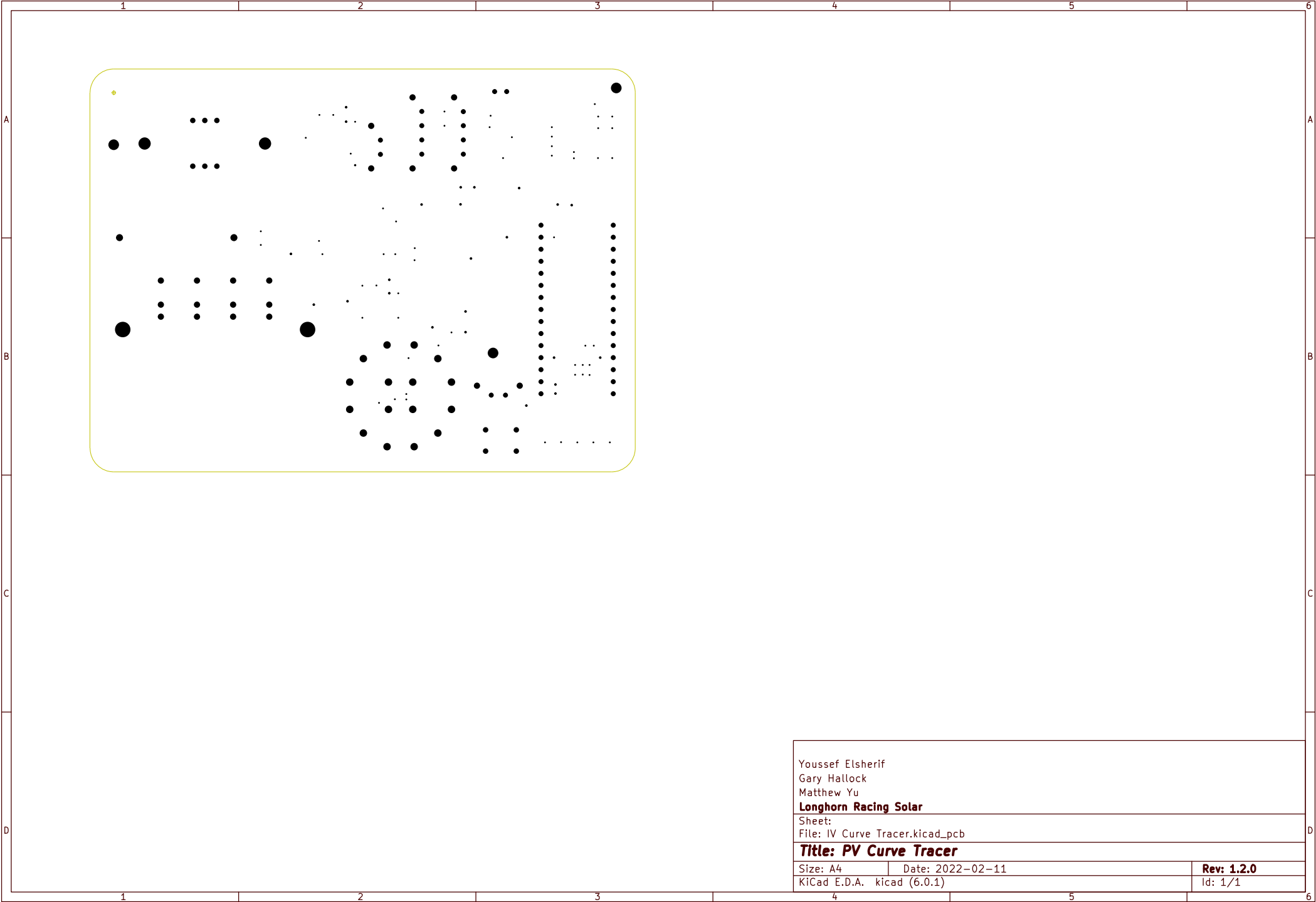**Longhorn Racing Solar**

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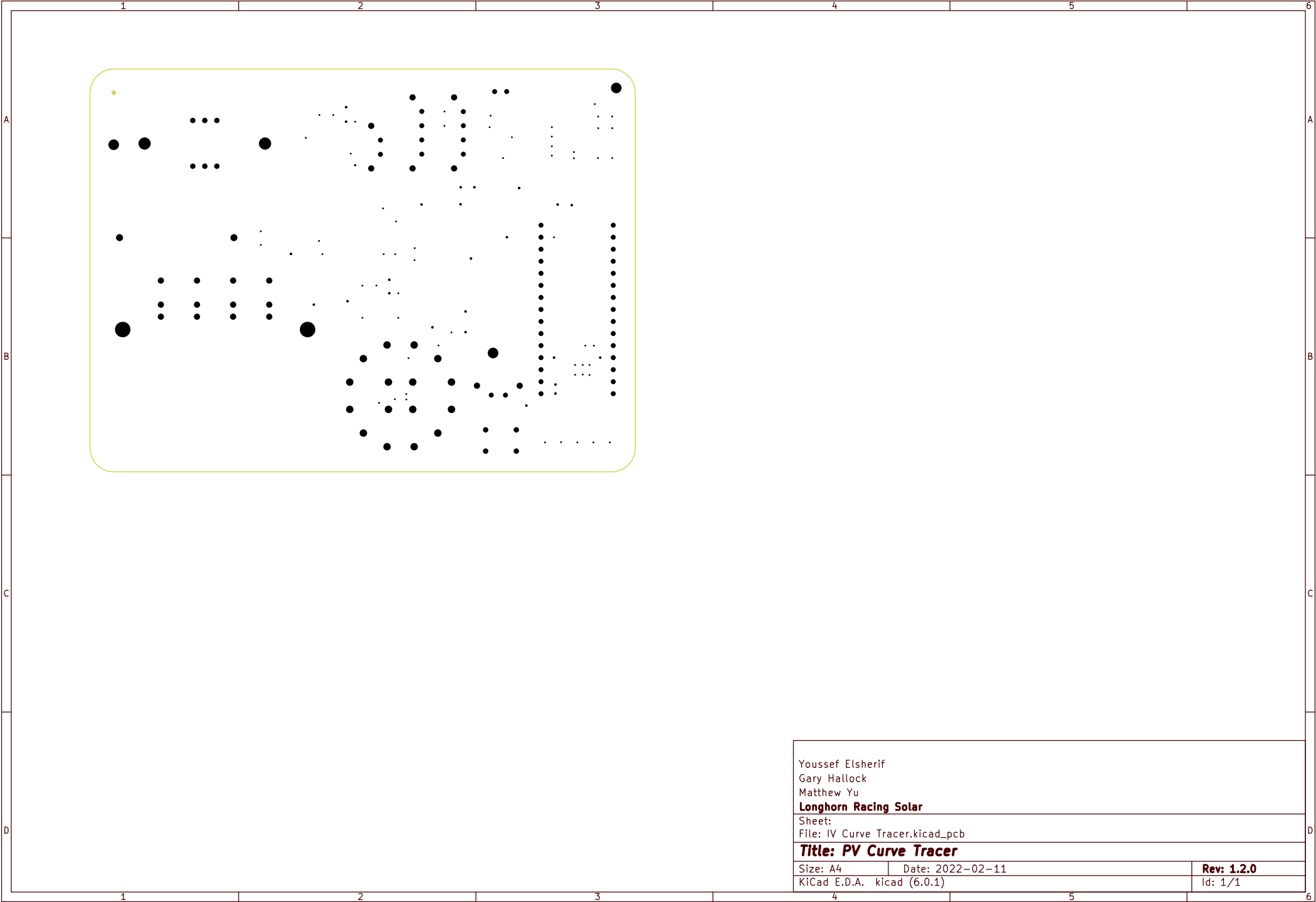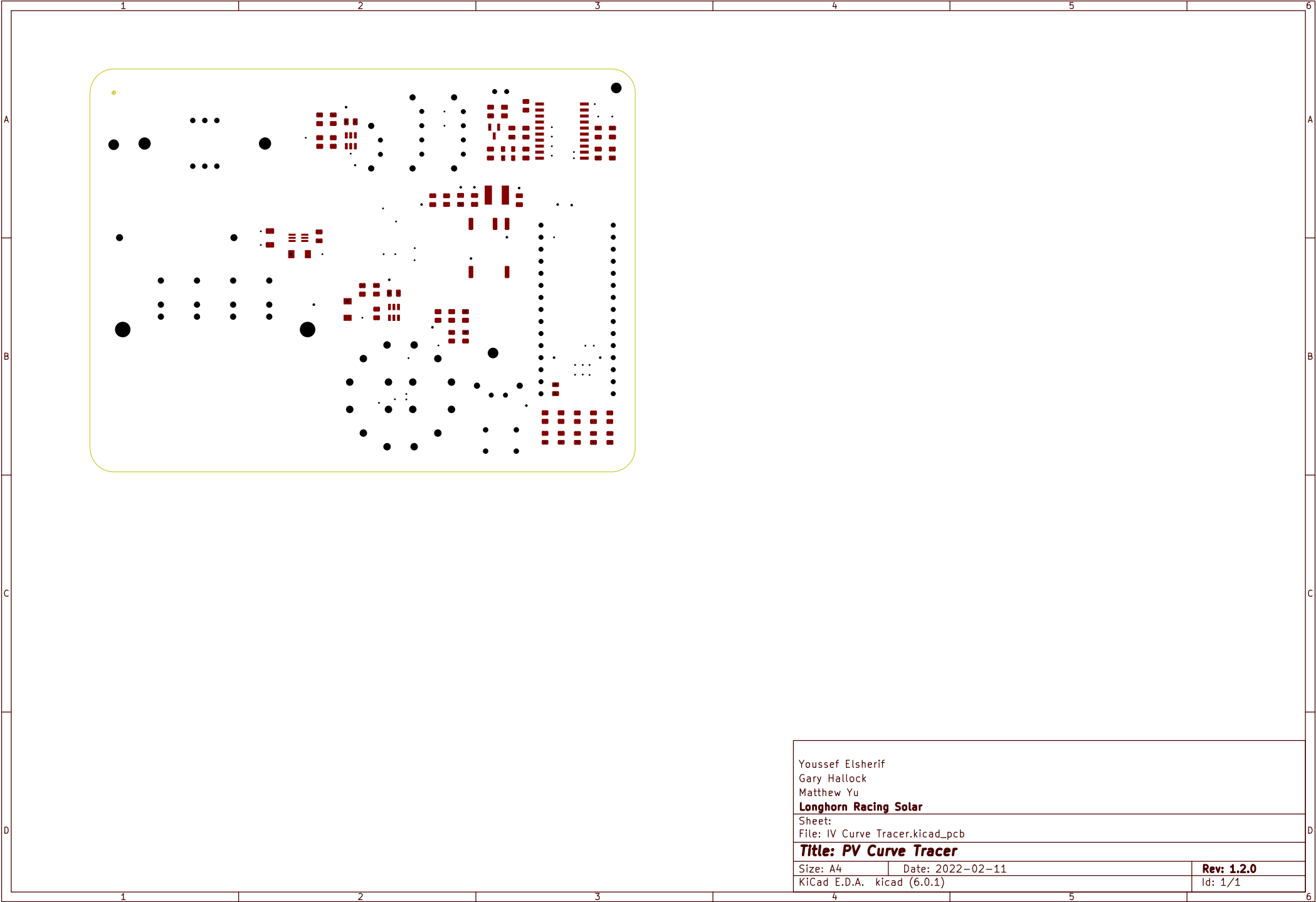**Longhorn Racing Solar**

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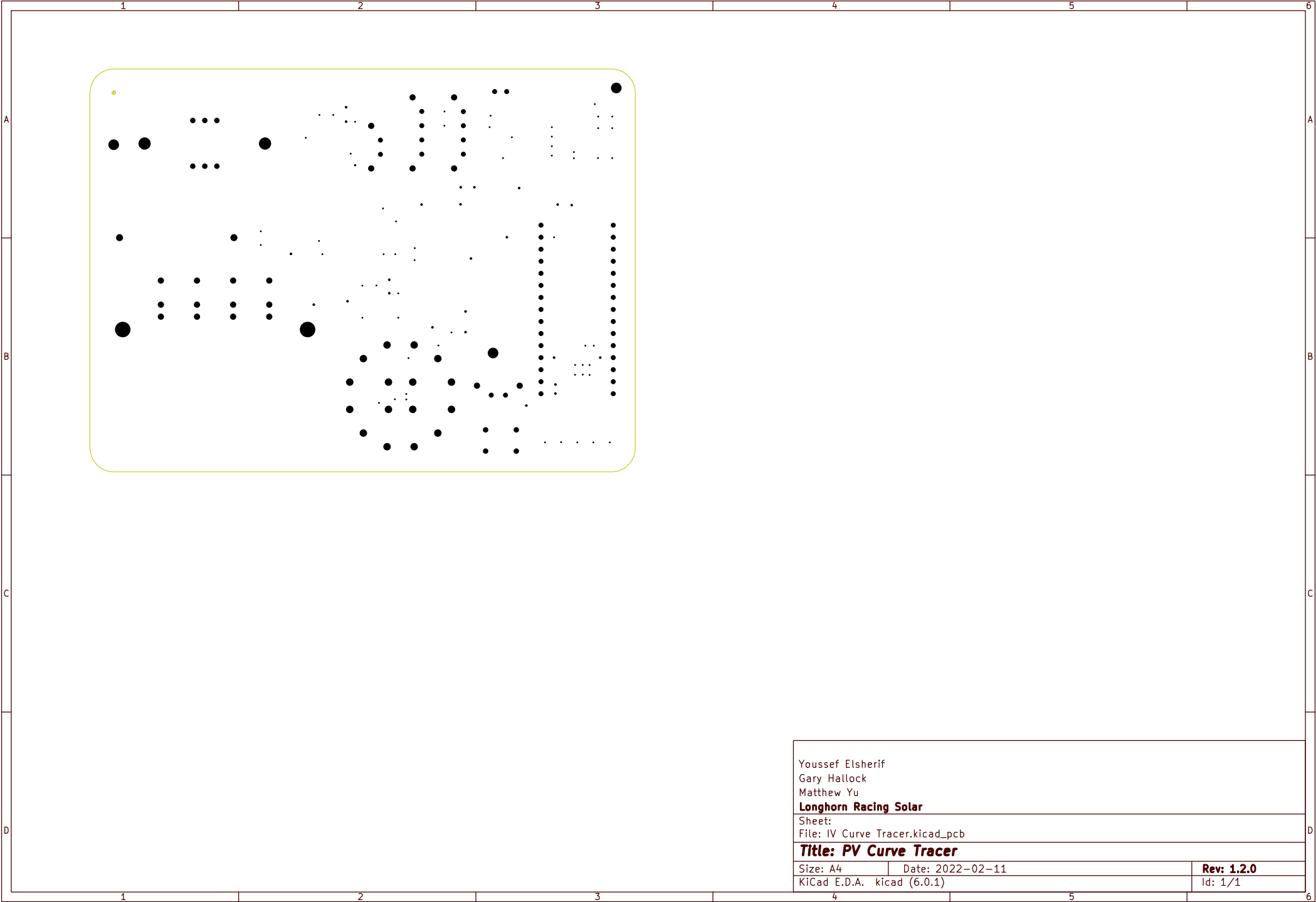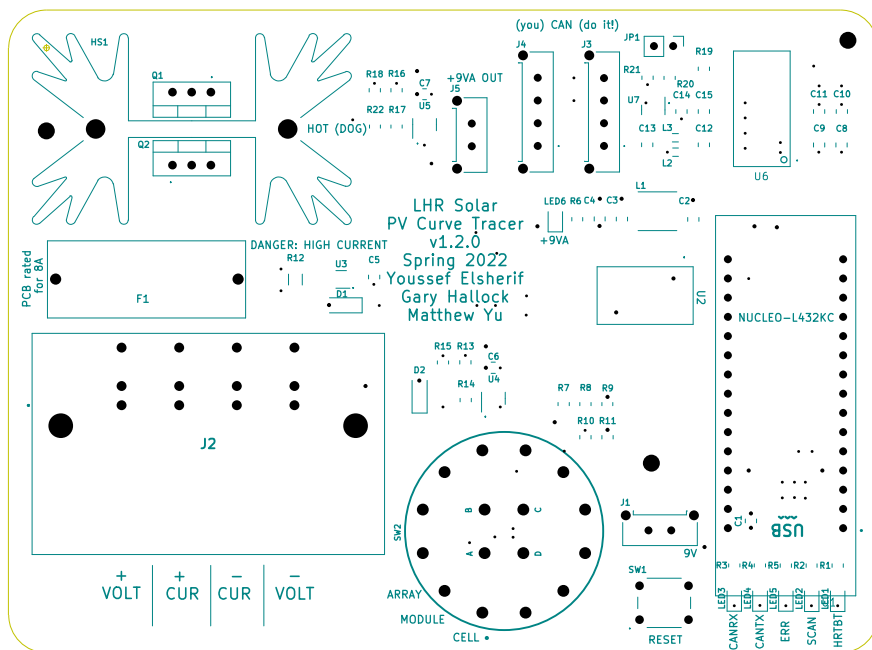File: IV Curve Tracer.kicad_pcb
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LHR Solar
PV Curve Tracer
v1.2.0
Spring 2022
Youssef Elsherif
Gary Hallock
Matthew Yu

(you) CAN (do it!)

HOT (DOG)

HS1
Q1
Q2

DANGER: HIGH CURRENT

PCB rated for 8A

F1

J2

+
VOLT

+
CUR

−
CUR

−
VOLT

R18 R16
R22 R17
C7
U5
+9VA OUT
J5

J4
J3
JP1
R21
U7
C13 L3
L2
C14 C15
C12
R19
R20

C11 C10
C9 C8
U6

LED6 R6 C4 C3
+9VA
C2
L1

R12
U3
C5
D1
U2

R15 R13
D2
R14
U4
C6

R7 R8 R9
R10 R11

SW2

A
B
C
D

ARRAY
MODULE
CELL

J1
9V

SW1
RESET

NUCLEO-L432KC

USB

R3
R4
R5
R2
R1
LED3 LED4 LED5 LED2 LED1

CANRX CANTX ERR SCAN HRTBT

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Gary Hallock
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TP20
CANL
TP19
CANH

TP17 ISO_GNDIN
TP16 ISO_VIN
TP18 ISO_GNDOUT
TP15 ISO_VOUT

TP12
GATE

TP14 TP13
CANRX CANTX

DAC CONTROL
TP11

TP5
+9VA

ARR_CURRENT+
TP6
TP7
ARR_CURRENT−

TP8
ARR_CURRENT

TP3
+3V3

TP10
ARR_VOLTAGE

TP9
VOLTAGE_SENSE

TP2
+5V

TP4
GND

TP1
+9V

Magic
GND
More Magic

Remember
02.19.79

Contact: matthewjkyu@gmail.com

Youssef Elsherif
Gary Hallock
Matthew Yu

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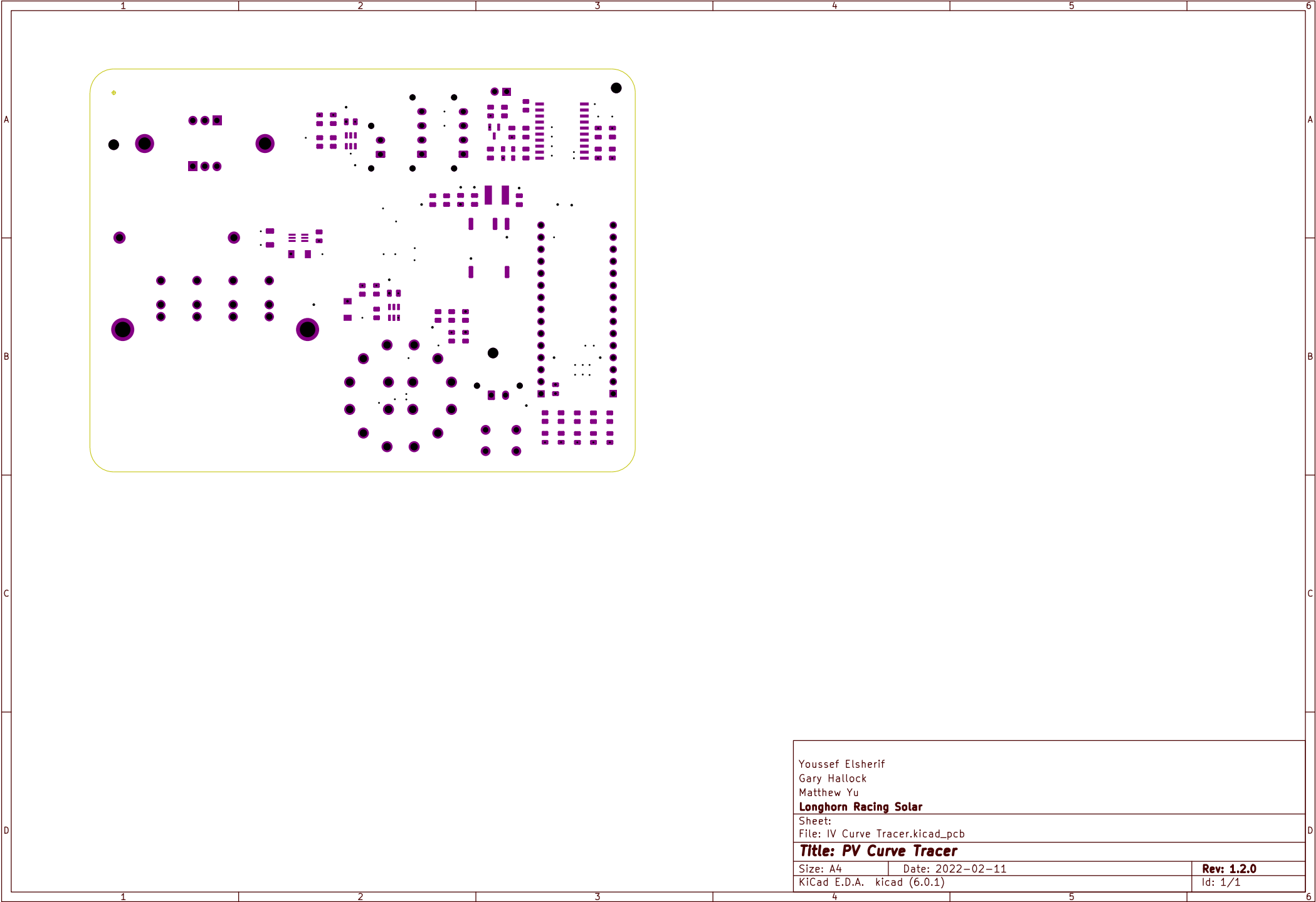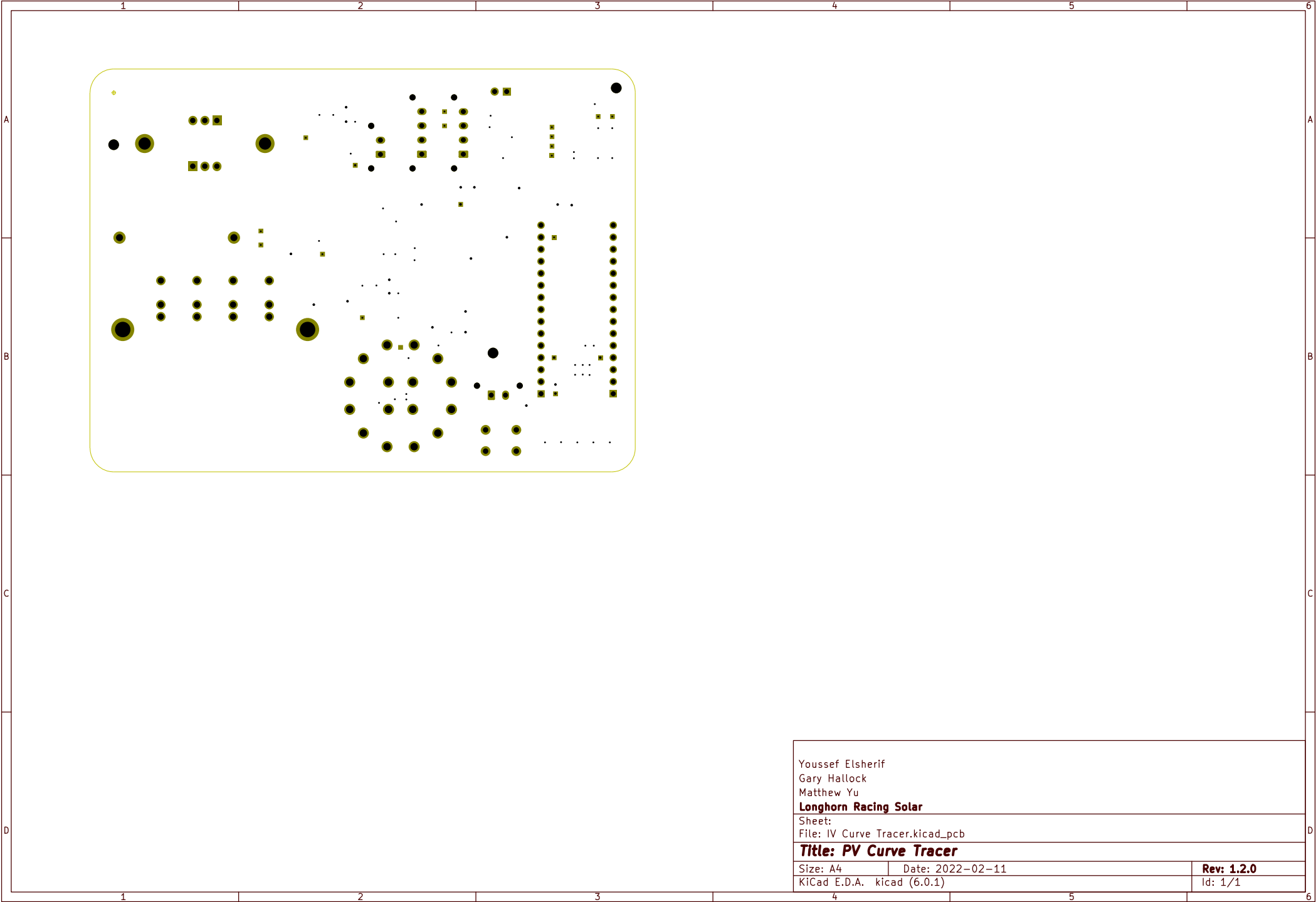**Longhorn Racing Solar**
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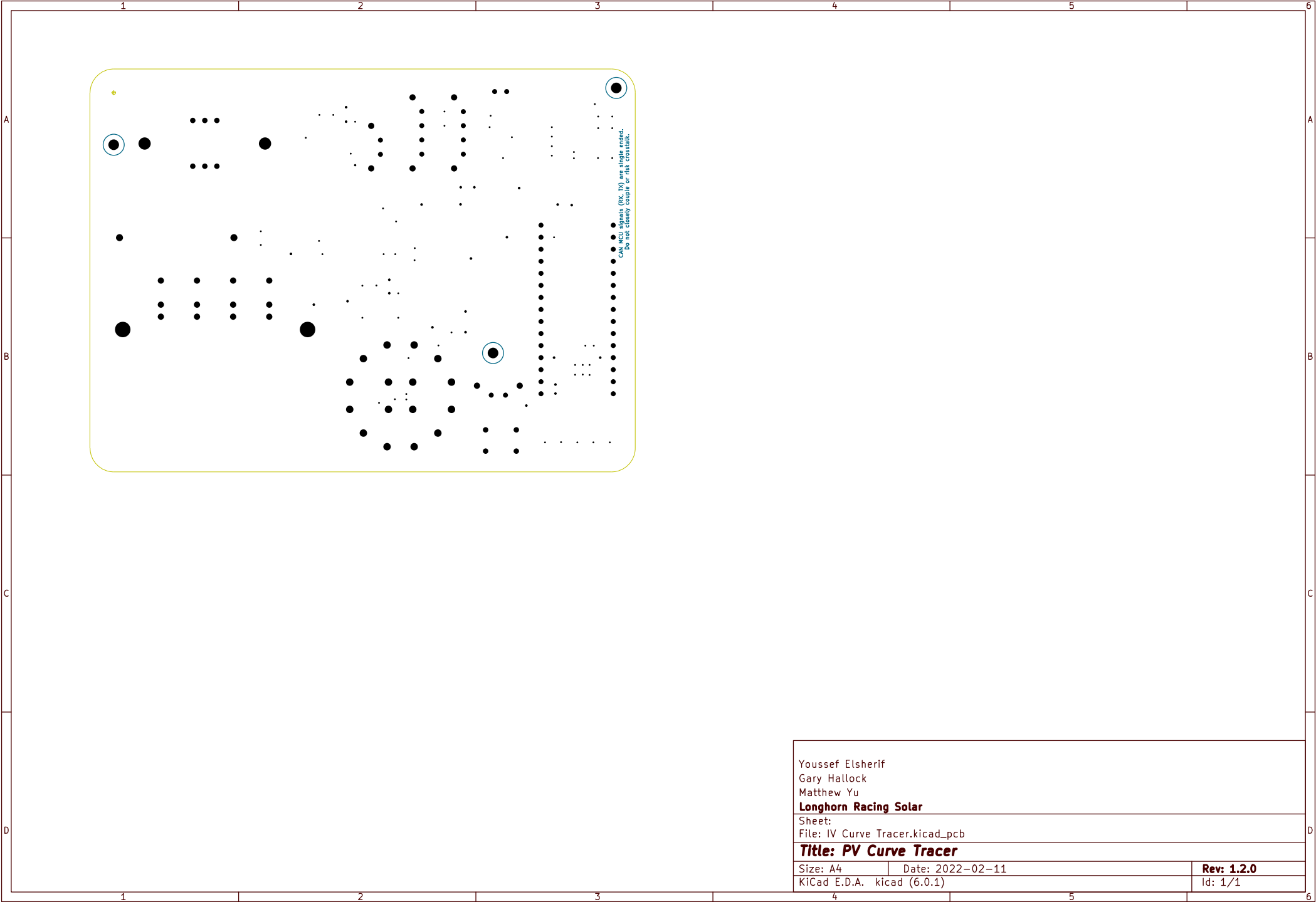
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CAN MCU signals (RX, TX) are single ended.
Do not closely couple or risk crosstalk.

Title: PV Curve Tracer

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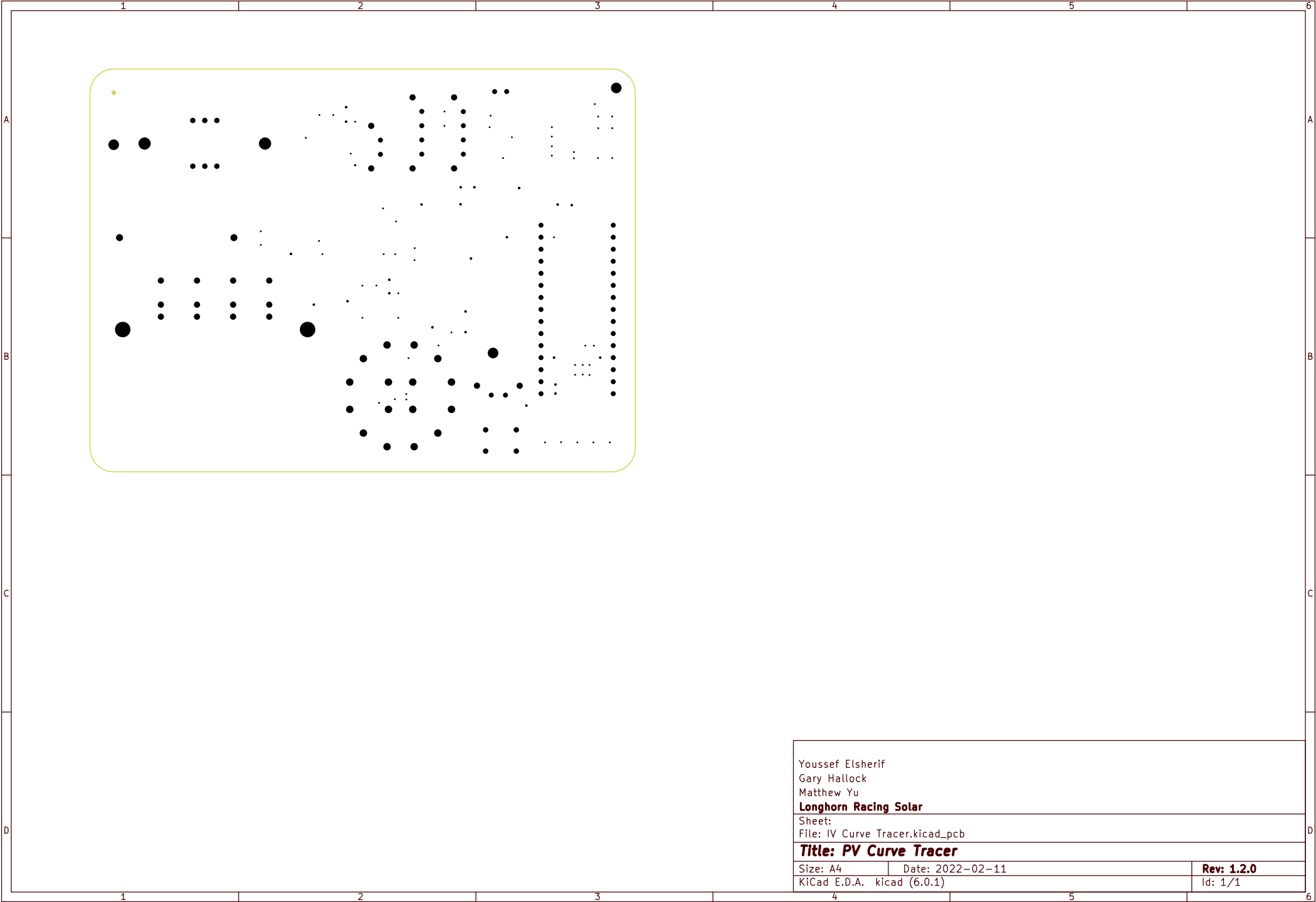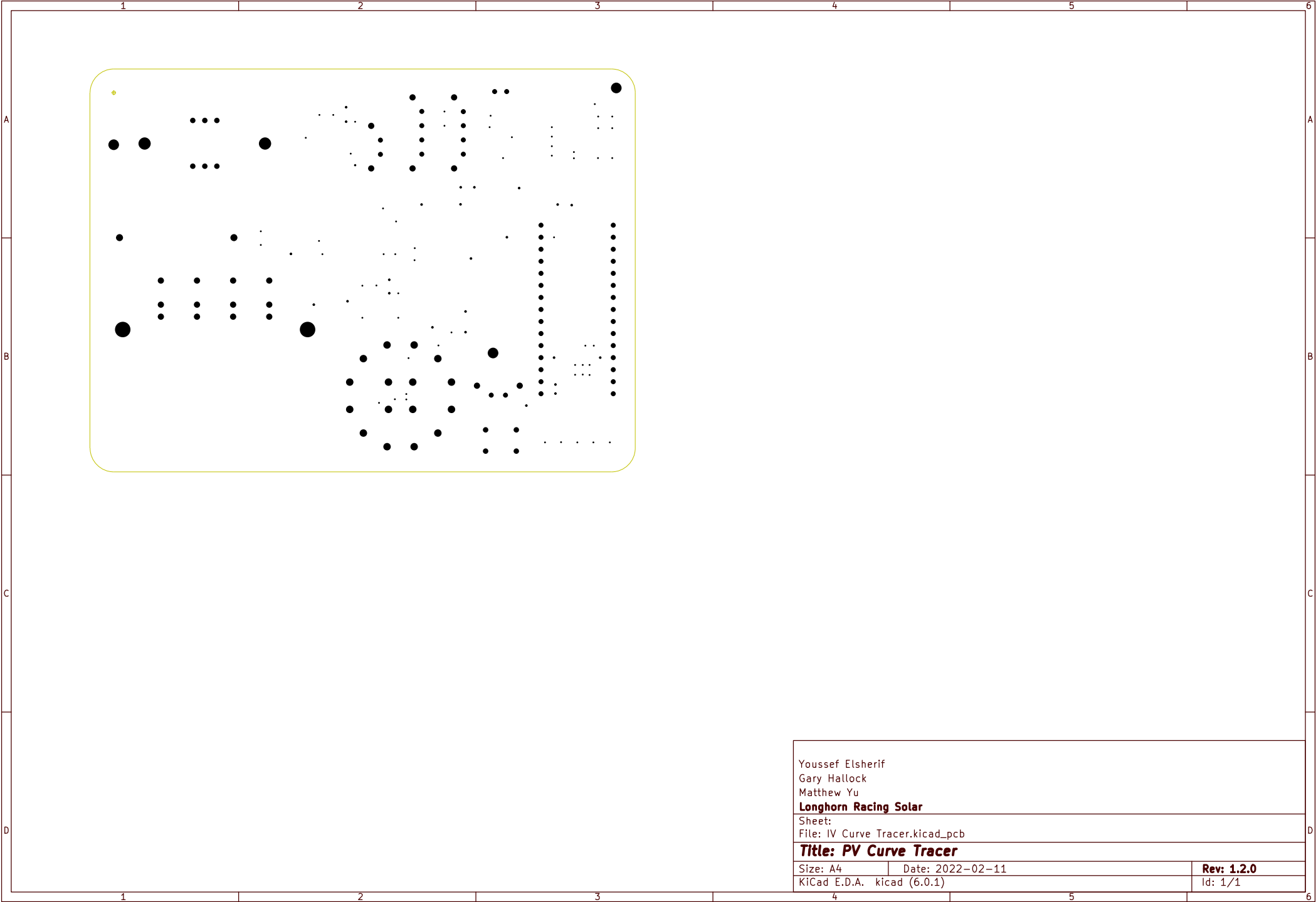**Longhorn Racing Solar**

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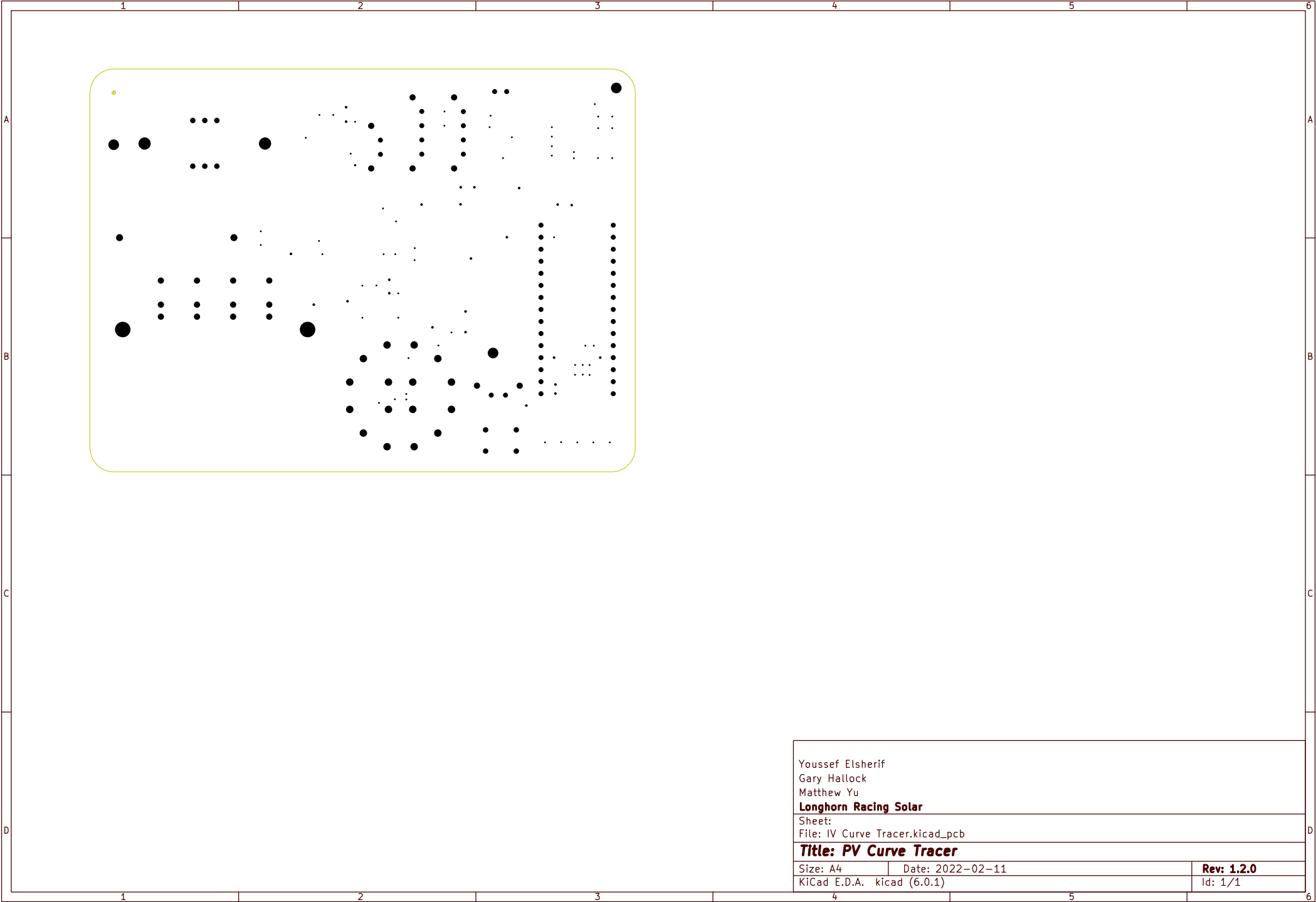**Longhorn Racing Solar**

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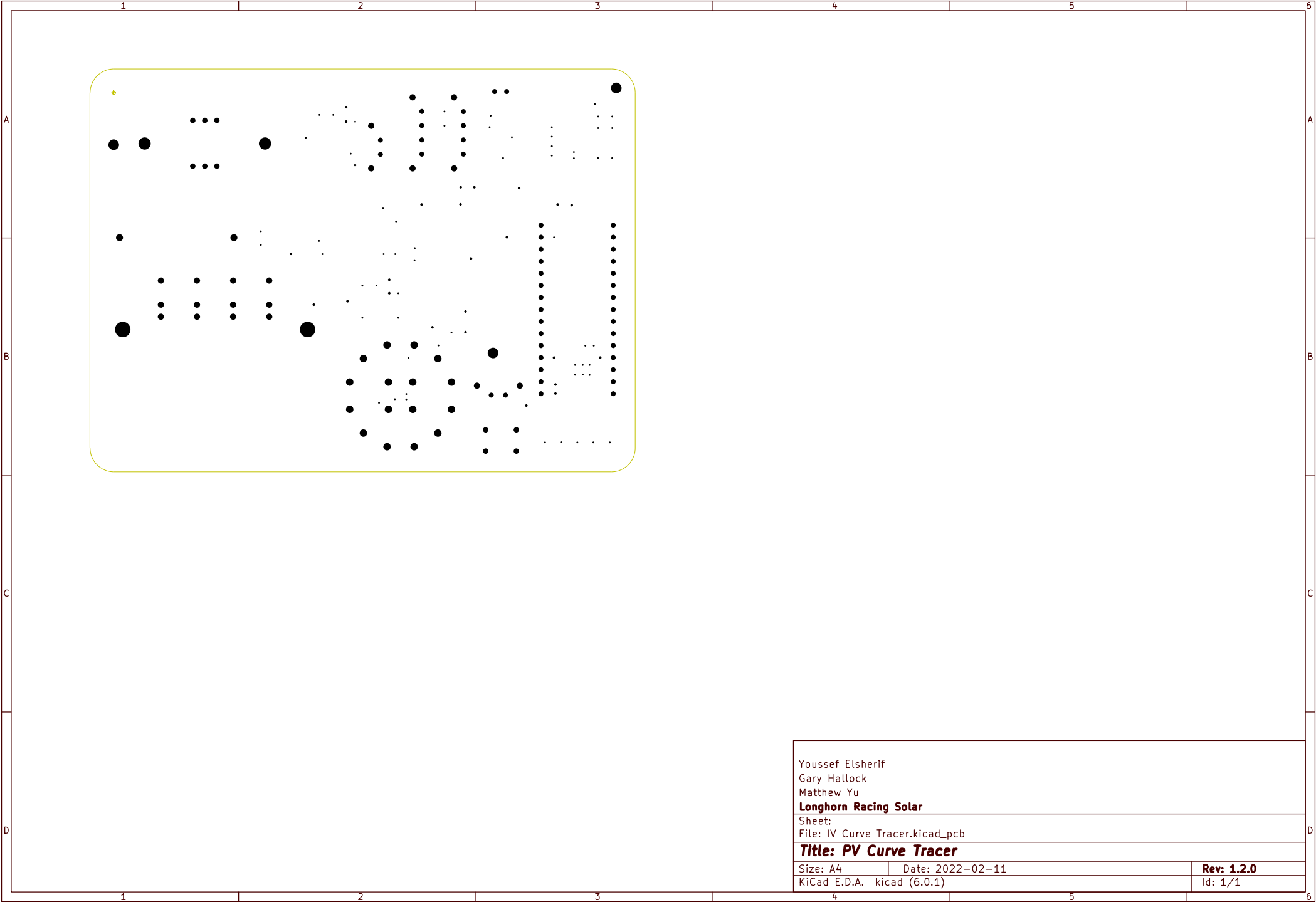**Title: PV Curve Tracer**

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Title: PV Curve Tracer

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KiCad E.D.A. kicad (6.0.1)		Id: 1/1

IRF100P218XKMA1

IRF100P218XKMA1

Heatsink

MountingHole

MountingHole

ADM3055E

MountingHole

Jumper

100nF

MAX40075

9VA Supply

CAN_Out

60.4

0

100nF

220nF   10nF

1.8kOhm

6.8uH

L1

9V (Green)

330

2.2uF

4.7uF

4.7uF

MCU_Nucleo_L432KC

INA210

R12
2m

3.3V Zener

100nF

D1

ISO1_PDS1

Fuse

D2

3.3V Zener

100nF

MAX40075

220

100k

1k

J2

A20303RNCG

MountingHole

9V Supply

100nF

SW1

CAN_Rx (Blue)
CAN_Tx (Blue)
Error (Amber)
Scanning (Blue)
Heartbeat (Blue)

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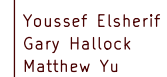Size: A4   Date: 2022-02-11   Rev: 1.2.0
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TP20
CAN_9
CAN_H

TP17
TP14TP13
CAN_CAN_Tx

Gate Voltage
TP12

TP6
CAN_ISO_Gndin
TP16
CAN_ISO_Vin
CAN_ISO_GndOut
CAN_ISO_Vout

Pre Gate Voltage
TP11

TP5
9VA

TP6
Pre Array Current+
TP8
Pre Array Current −
Array Current

3V3
TP3

Array Voltage
TP10

Pre Array Voltage
TP9

5V
TP2

GND
TP4

9V
TP1

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