

REVISION	DESCRIPTION	DATE	APPROVED

Root

RELEASED

SCHEMATIC STATUS: **RELEASED**

VARIANT:

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2	<div>BLOCK DIAGRAM</div> <div>File: [02] - BLOCK DIAGRAM.kicad_sch</div>
3	MCU Driver
4	USB TO UART Driver
5	USB OTG Port
6	+3.3VDC LDO Reg
7	2/0 Uni-Dir Isolator
8	4 x 1/1 Bi-Dir Isolator
9	I2C Bus Isolator
10	+5V DC/DC Conv.

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12	CAN Driver
13	DALI Driver
14	LIN Driver
15	10Hz Astable Osc.
16	4 x Line LED Indicator
17	+5VDC Buck Reg.
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TEMPLATE NOTES

Set Project Parameters

- 1- Go to View -> Pge Preview Setting
- 2- Set Parameters based on the following Info
- COMMENT 1: Project Version
- COMMENT 2: Document Status
- COMMENT 3: Doc. Approval Eng.
- COMMENT 4: BOM Ref. DOC.
- COMMENT 5: PCB Ref. DOC.
- COMMENT 6: GBR Ref. DOC.
- COMMENT 7: ASM Ref. DOC.
- COMMENT 8: Variant Name
- COMMENT 9: Revision Description

Symbols and Lables

Mark Not Fitted Components as --> **DNF**
Differential Signal Example
Net Class Example

SCHEMATIC STATUS:

- DRAFT - Very Early Stage of Schematic
- PRELIMINARY - Close to Final Schematic
- CHECKED - There Should Not Be Any Mistakes
- RELEASED - A Board with This Schematic Has Been Produced

DESIGN CONSIDERATION

INFO:

Example text for
informational design
notes.

CAUTIONARY:

Example text for
cautionary design
notes.

DESIGN NOTE:

Example text for
critical design
notes.

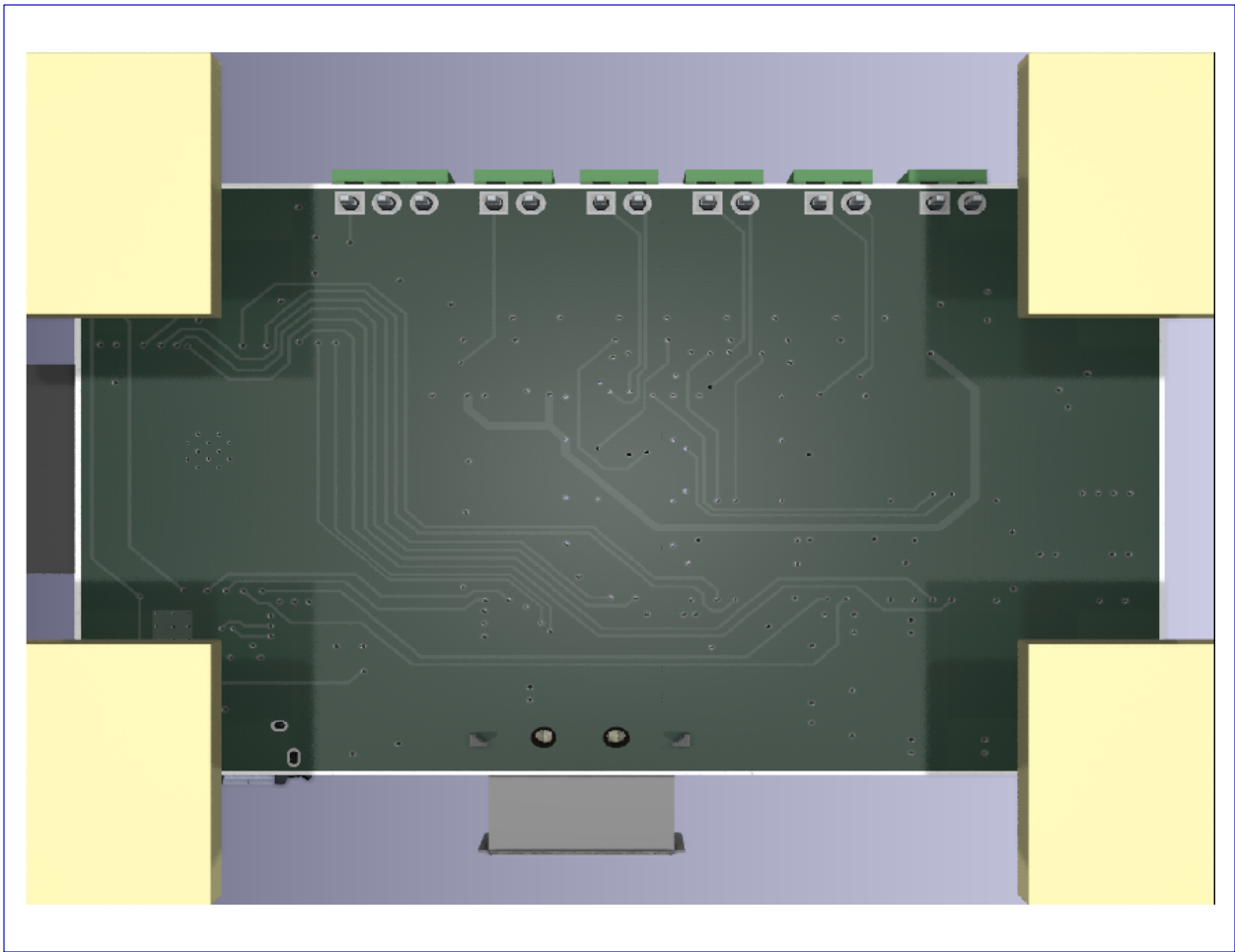
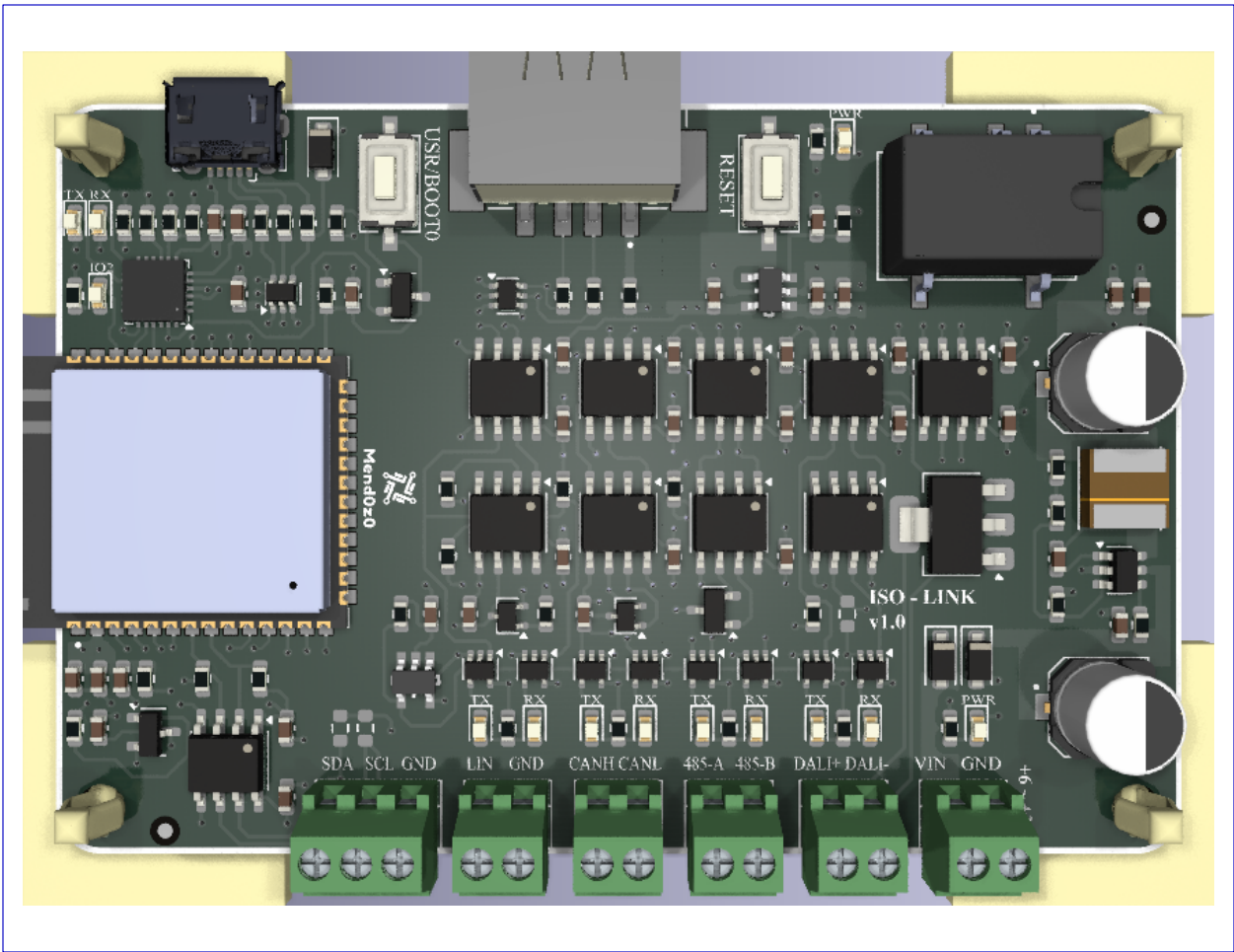
LAYOUT NOTE:

Example text for
critical layout
guidelines.

3D Preview TOP

3D Preview BOTTOM

Board Statistics
Stackup Info



SHOULD BE ADDED
AFTER RELEASE

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DSN: Siavash Taher Parvar				
CHK: Siavash Taher Parvar				
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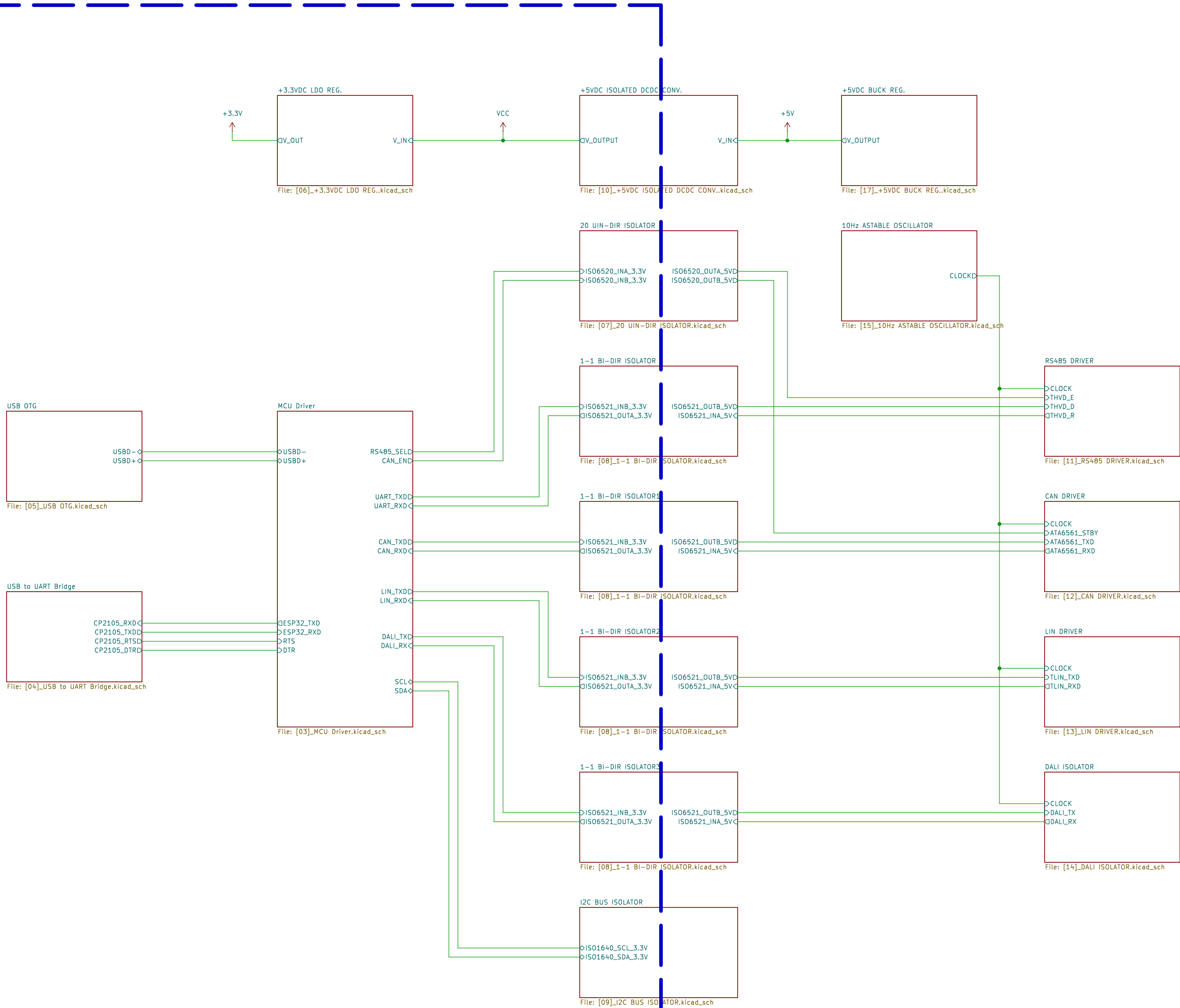
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BLOCK DIAGRAM

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CLEAN SIDE

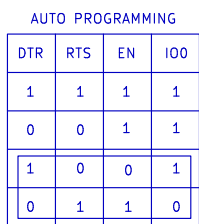



IT DOESN'T SUPPORT CANFD!!!

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MCU Driver

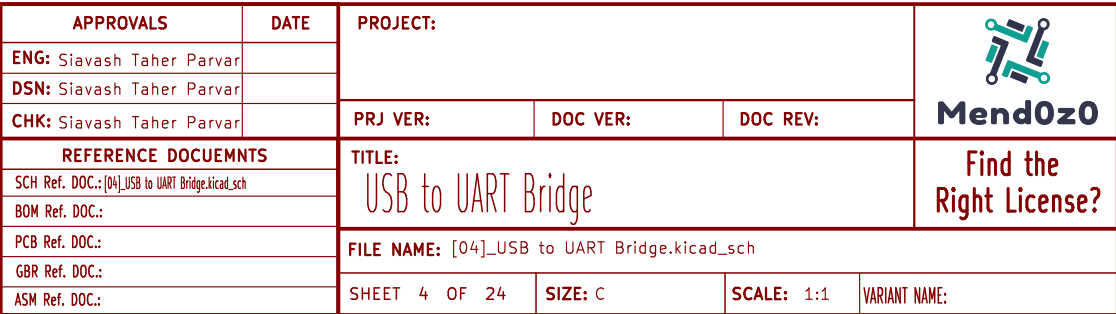
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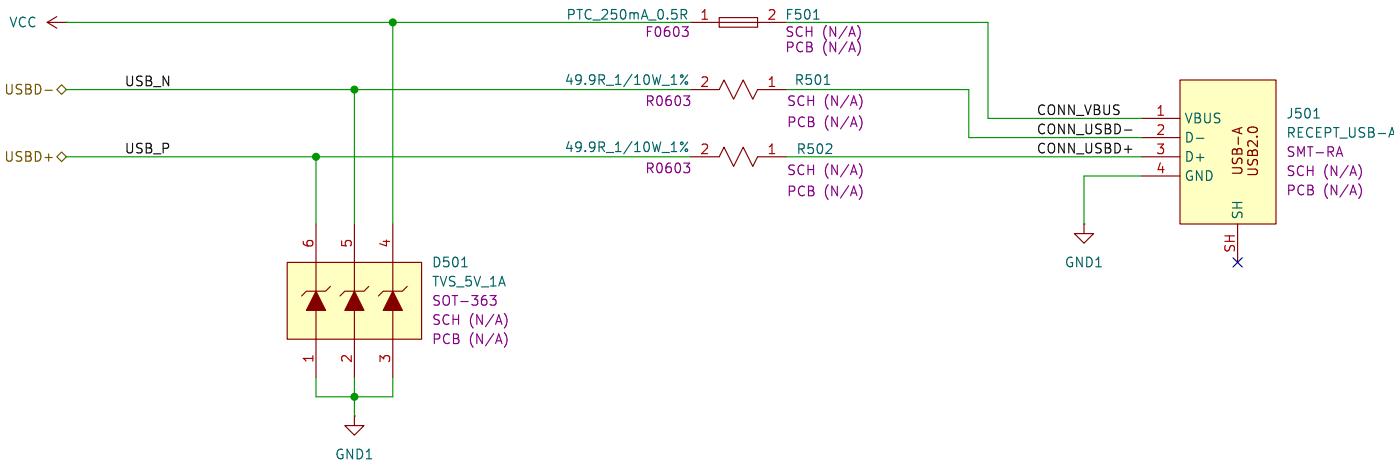
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USB OTG

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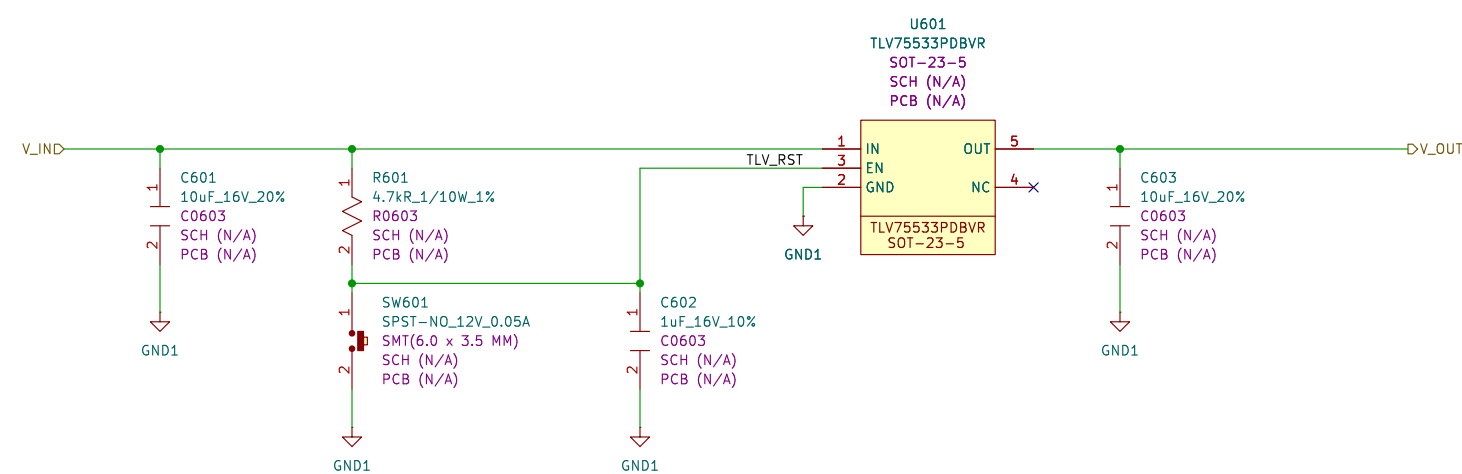
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+3.3VDC LDO REG.

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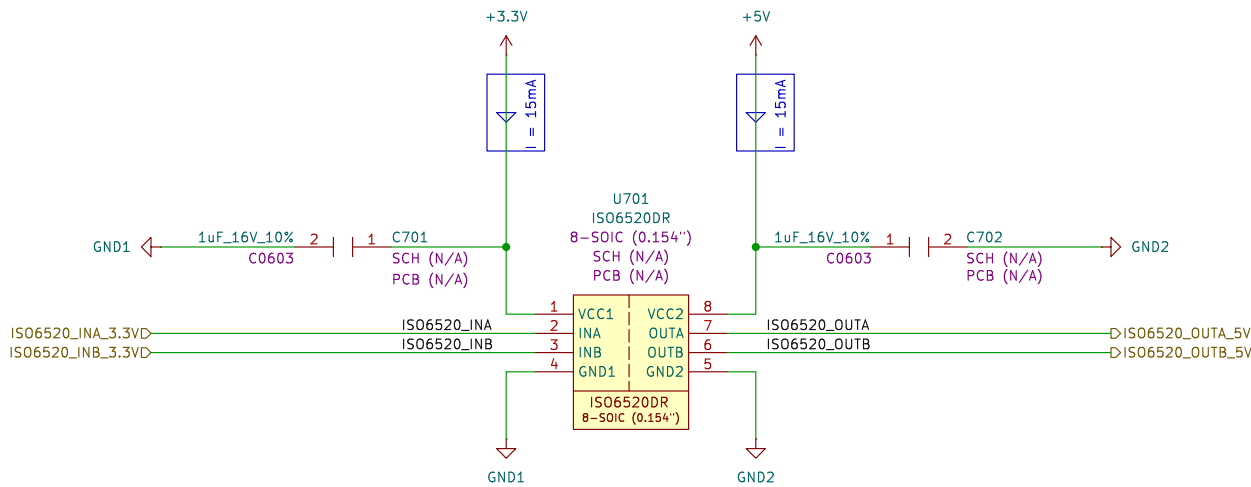



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20 UIN-DIR ISOLATOR

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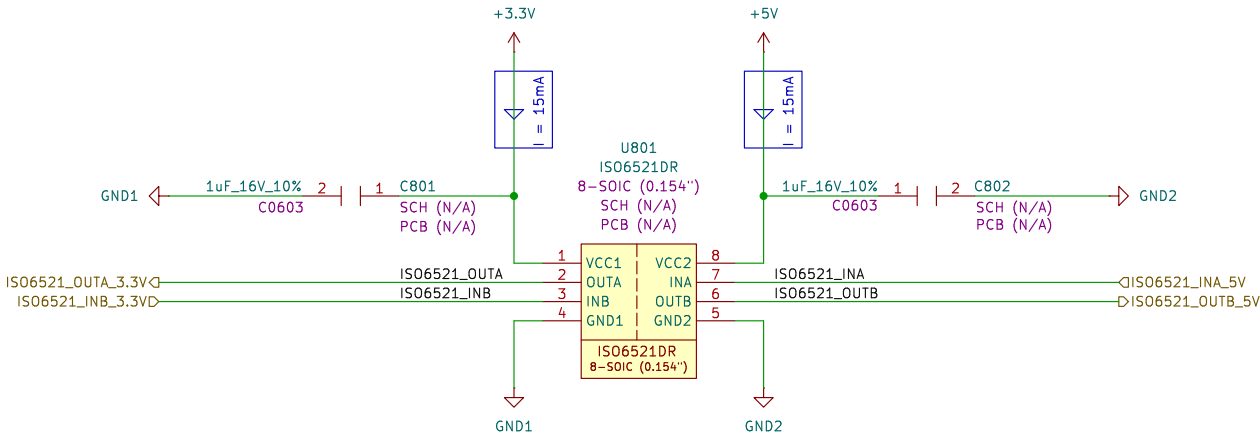
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1-1 BI-DIR ISOLATOR

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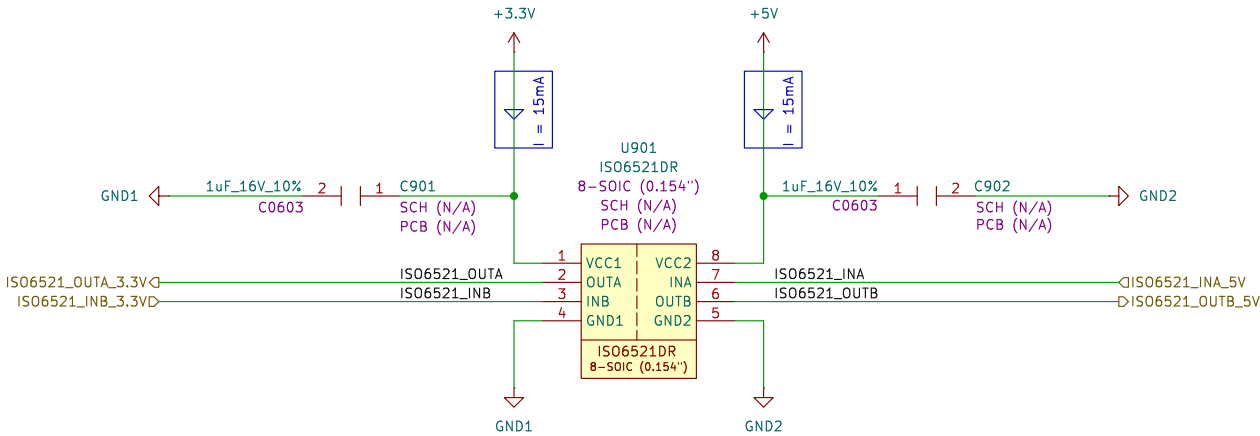
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1-1 BI-DIR ISOLATOR1

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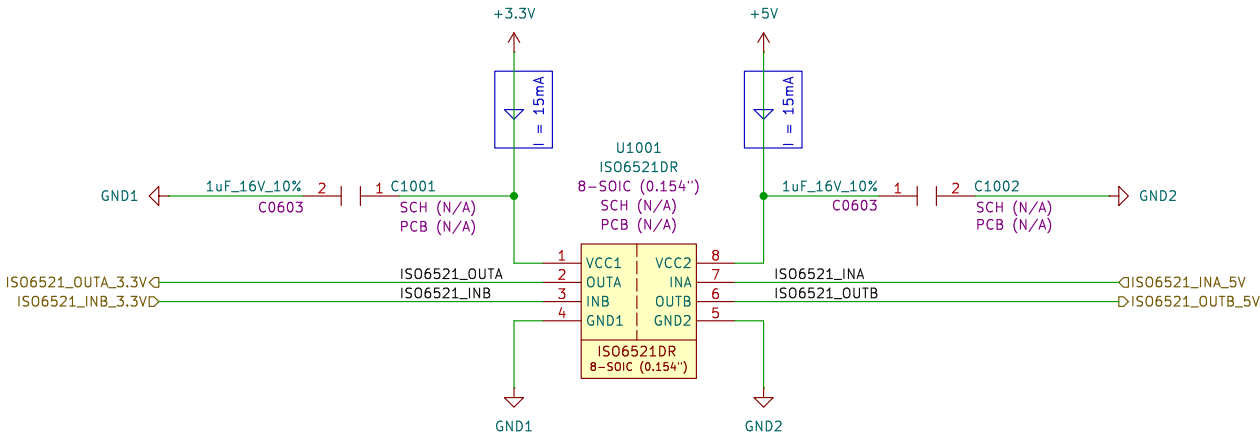
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1-1 BI-DIR ISOLATOR2

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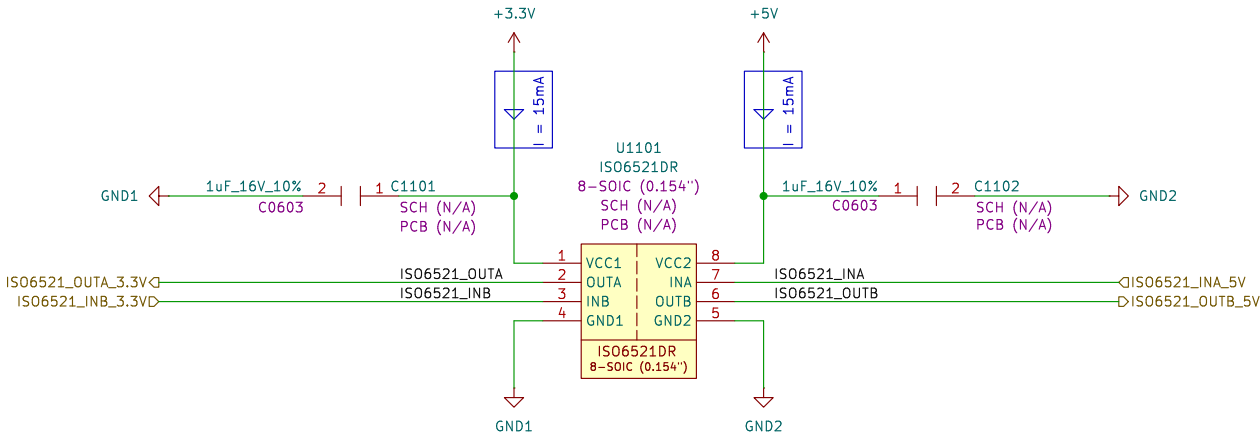
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1-1 BI-DIR ISOLATOR3

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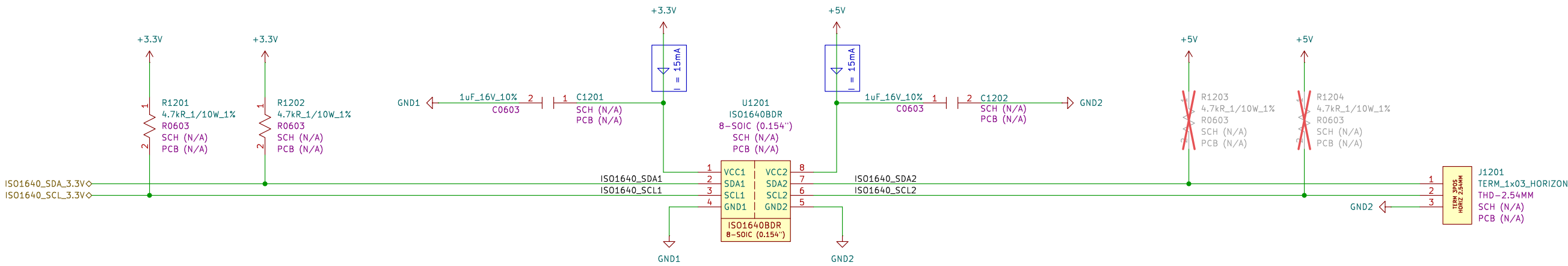
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I2C BUS ISOLATOR

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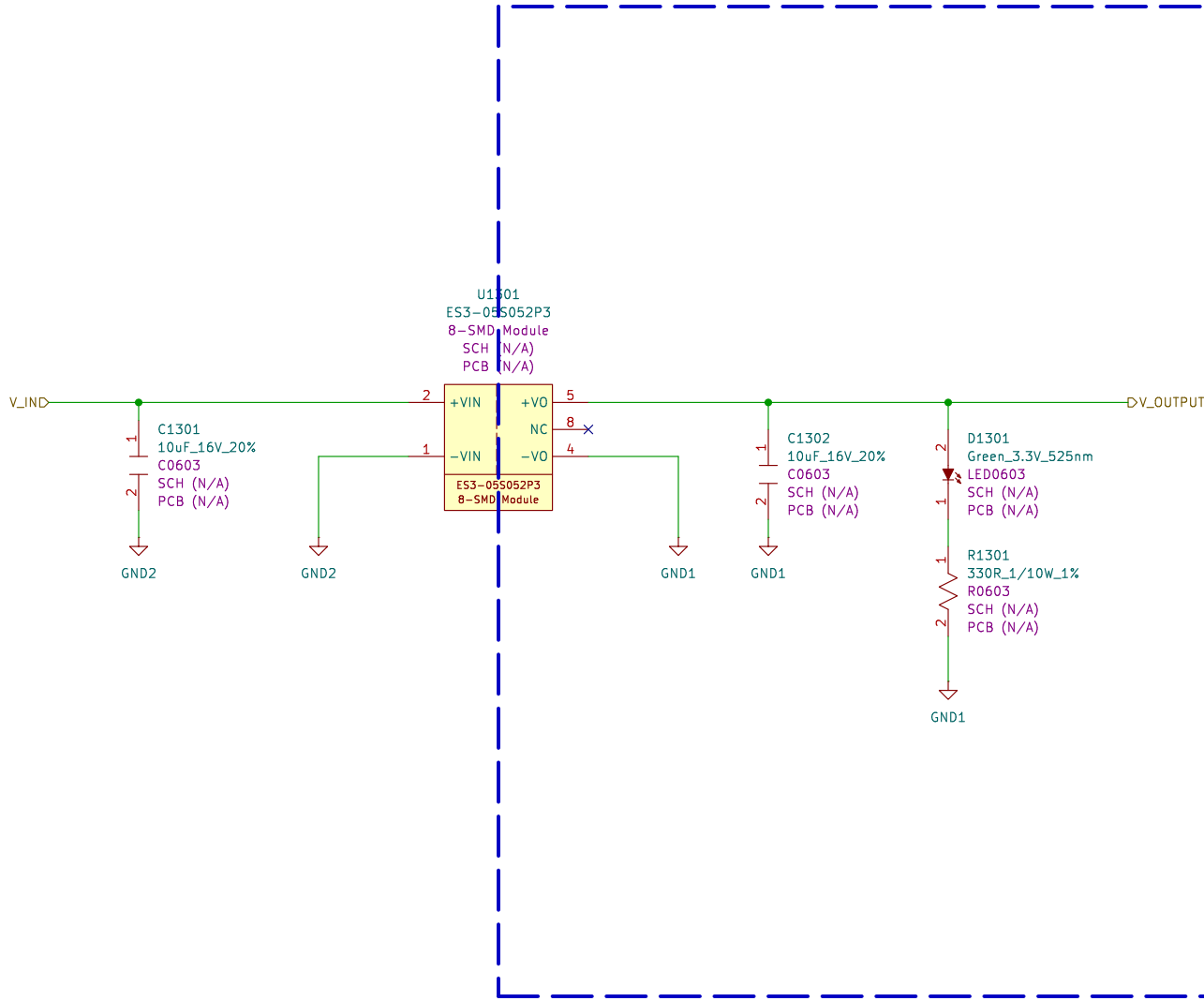
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+5VDC ISOLATED DCDC CONV.

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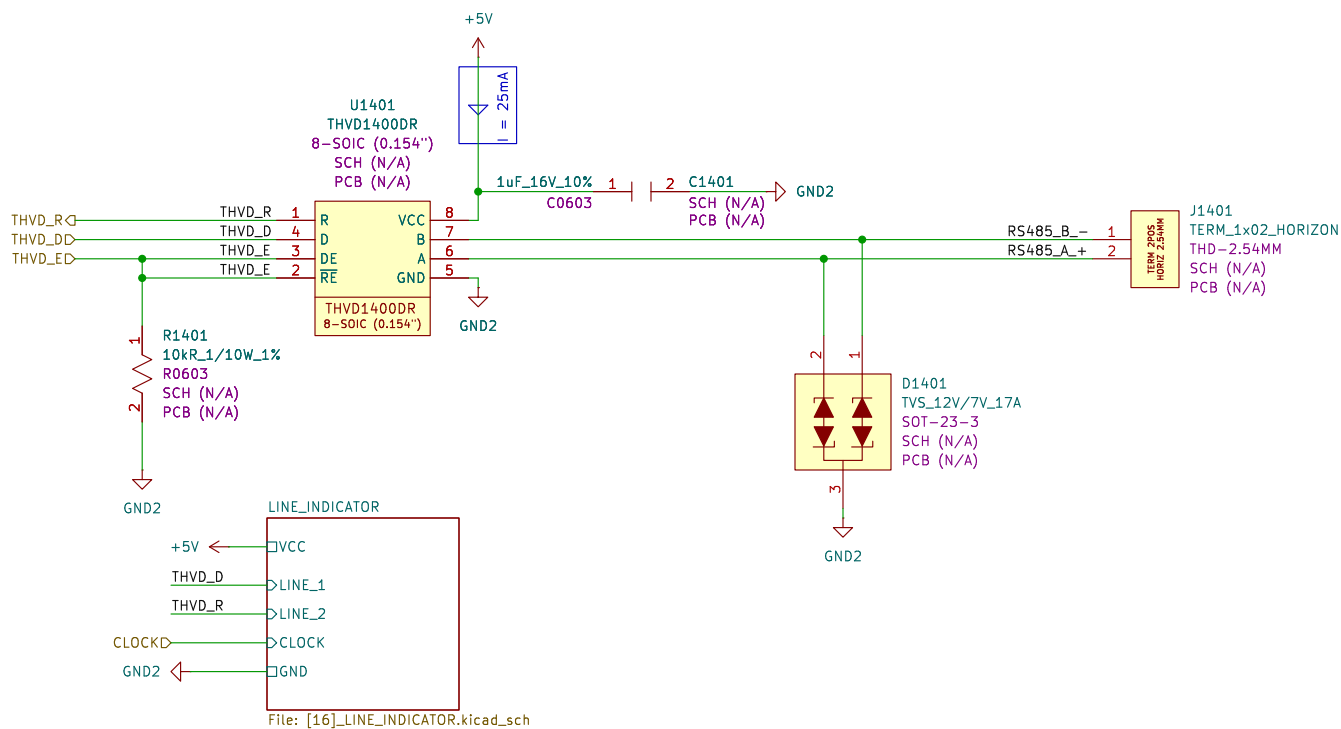



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RS485 DRIVER

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3 4 5 6 7 8

CAN DRIVED

RELEASED

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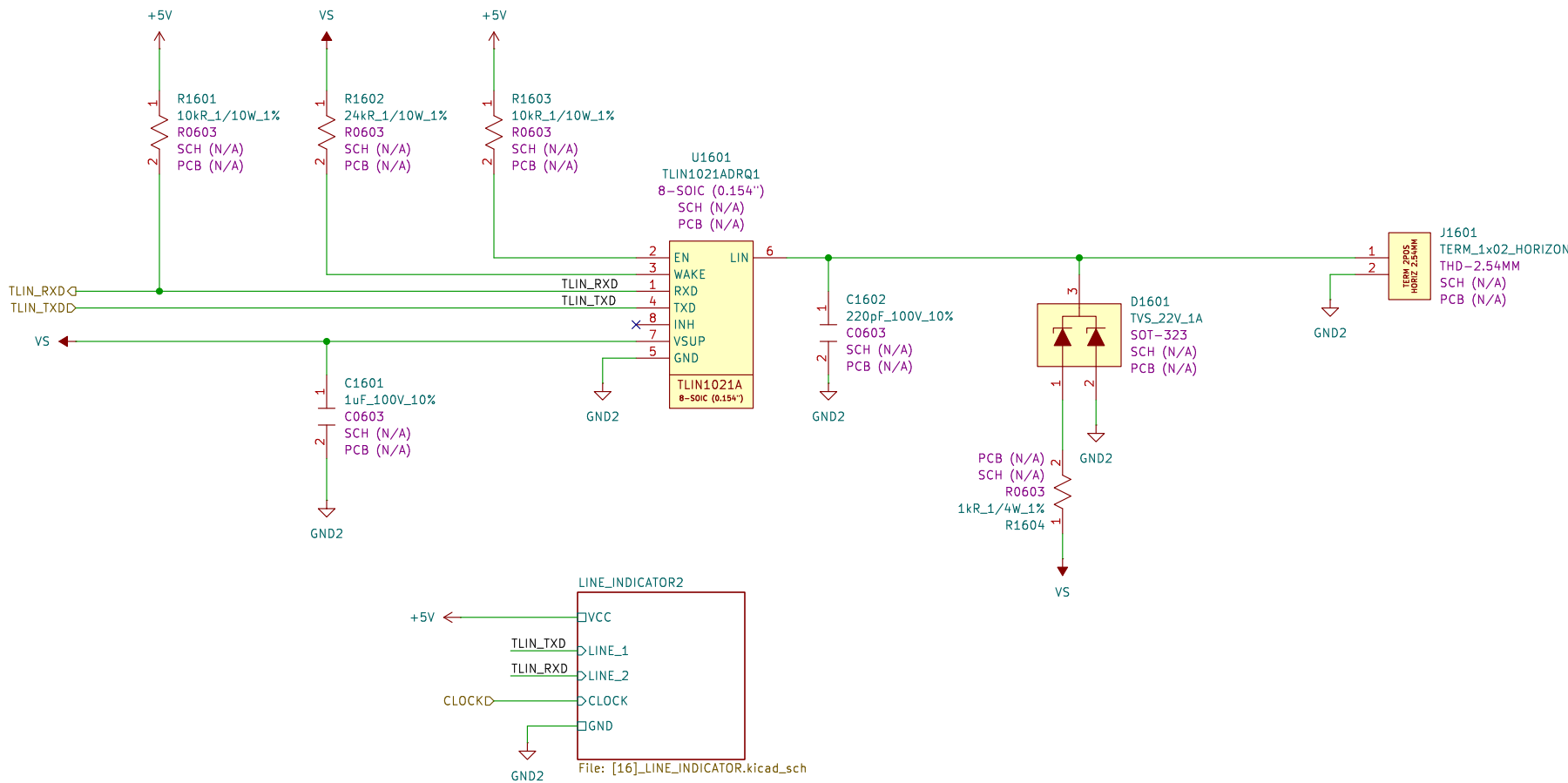
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LIN DRIVER

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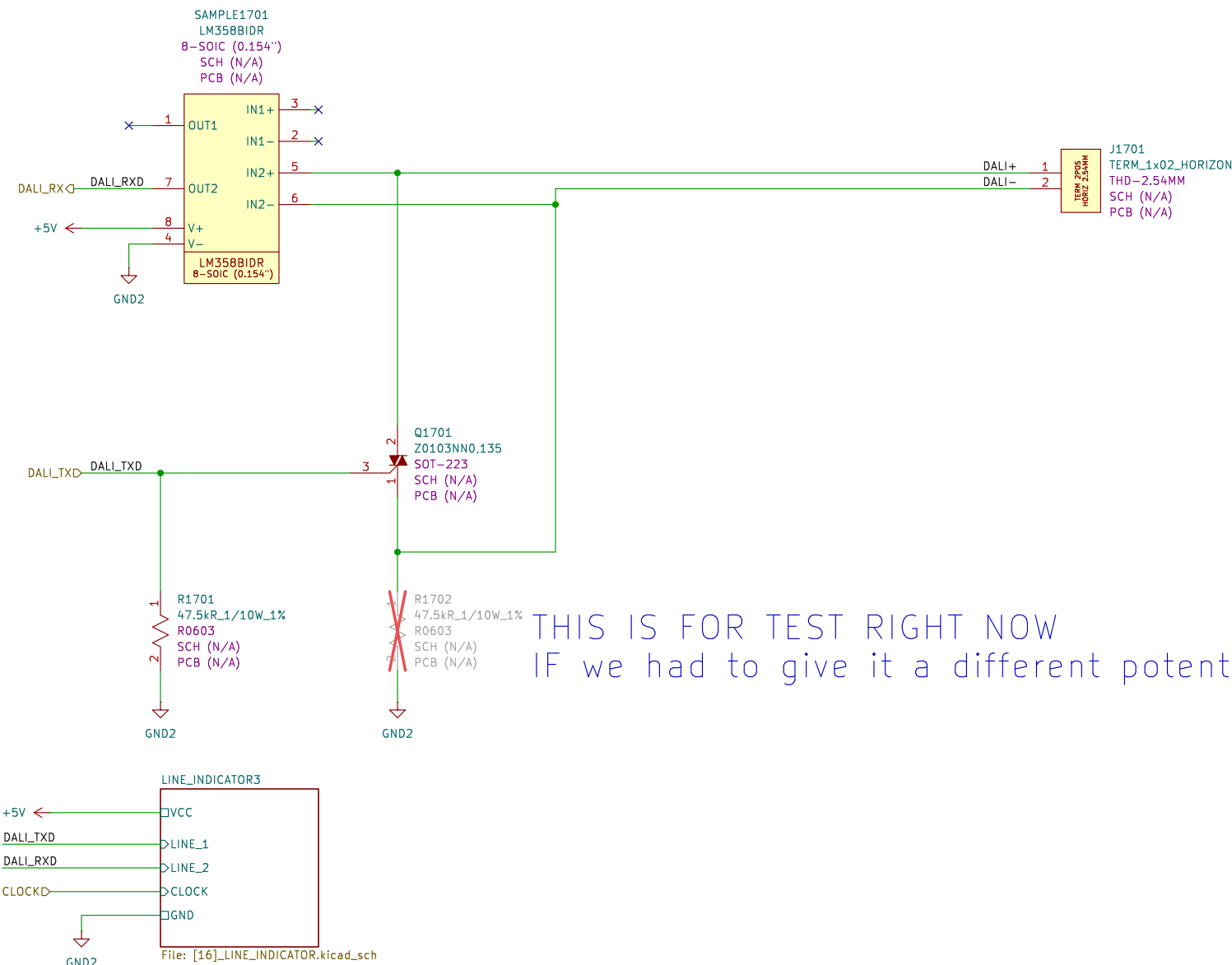


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DALI ISOLATOR

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DALI SPEC.

IEC60929

- Short specification
- Maximum 64 individual addressable ballasts within one system
- The ballast can not act as a master controller
- Multiple ballast groups
- Bi-phase coding for error detection (see E.4.3.6, Pulse diagram)
- Asynchronous start-stop transmission protocol
- Low information rate: 1 200 bit/s
- Allowed cable voltage drop: 2 V
- No ground-loops because of isolation in the ballast

The tolerance at all mentioned timing specifications in this document shall be $\pm 10\%$ if minimum/maximum are not specified.

Impedance control terminals (see Figure E.1): $R_{in} \geq 8\text{ k}\Omega$ static at typical high input voltage
 $C_{in} \leq 1\text{ nF}$
 $L_{in} \leq 1\text{ mH}$

The robustness can be increased with the optional implementation of:

- polarity insensitive interface input;
- overvoltage protection for accidental mains voltage between the control wires.

Transmission characteristics

The transmission rate, expressed in bandwidth, is specified with 1 200 Hz for the forward channel and for the backward channel.


All specified voltage and current levels refer to the terminals of the electronic ballast.

Voltage rating (IEC60929)

In general, the interface voltage is high if there is no communication (idle state).
The slopes of the received and transmitted data signal shall be $10\text{ }\mu\text{s} \leq t_{fall} \leq 100\text{ }\mu\text{s}$ and $10\text{ }\mu\text{s} \leq t_{rise} \leq 100\text{ }\mu\text{s}$ at the ballast terminals of the digital interface.
The voltage range shall be between 9.5 V and 22.5 V for "high level" and between -6.5 V and +6.5 V for "low level" respectively. Between 6.5 V and 9.5 V, the level is undefined.

Current rating (IEC60929)

In non-active state, the sink current of the ballast shall not exceed 2 mA at $\leq 22.5\text{ V}$ because of the actual maximum number of ballasts per control unit. This shall be guaranteed by each ballast manufacturer.
The ballast shall be able to sink at least 250 mA at $\leq 4.5\text{ V}$ at active state. The ballast shall keep the interface voltage lower than 4.5 V.
The interface power supply shall limit the supply current to max. 250 mA under all circumstances. This current limiter circuit has to react faster than 10 μs .
The interface specification at the ballast terminals shall be:
- active state: low voltage level $\leq 4.5\text{ V}$; high current level $\leq 250\text{ mA}$ (lim. by the power supply);
- non-active state: high voltage level $\leq 22.5\text{ V}$, low voltage level $\leq 6.5\text{ V}$; high current $\leq 2\text{ mA}$.

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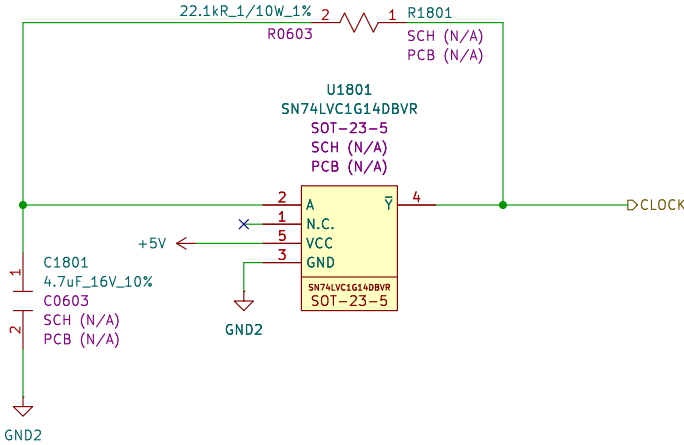
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10Hz ASTABLE OSCILLATOR

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expecting around 10Hz output
formula is a simple RC charge curve in considering the schmit triger lvl



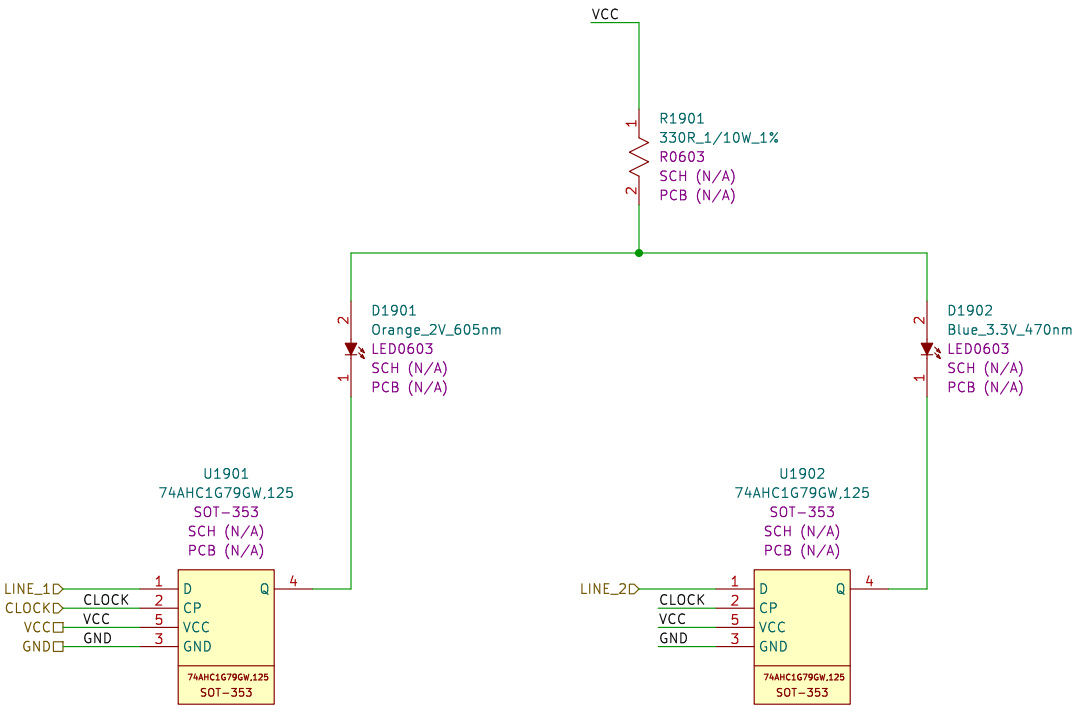
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LINE_INDICATOR

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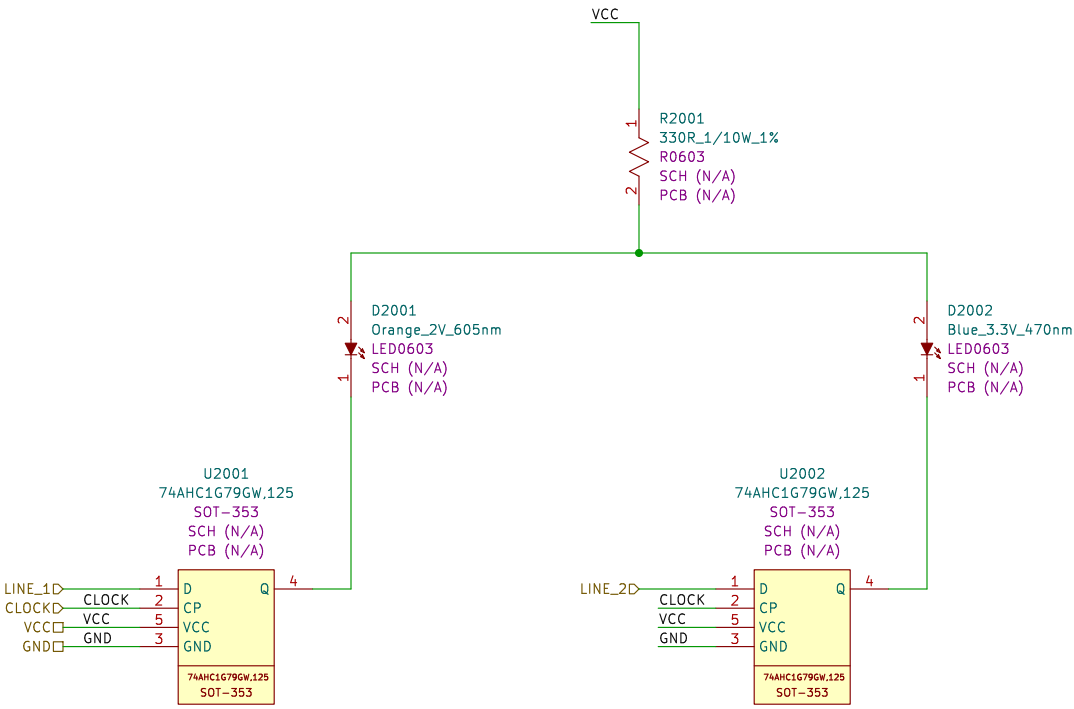
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LINE_INDICATOR1

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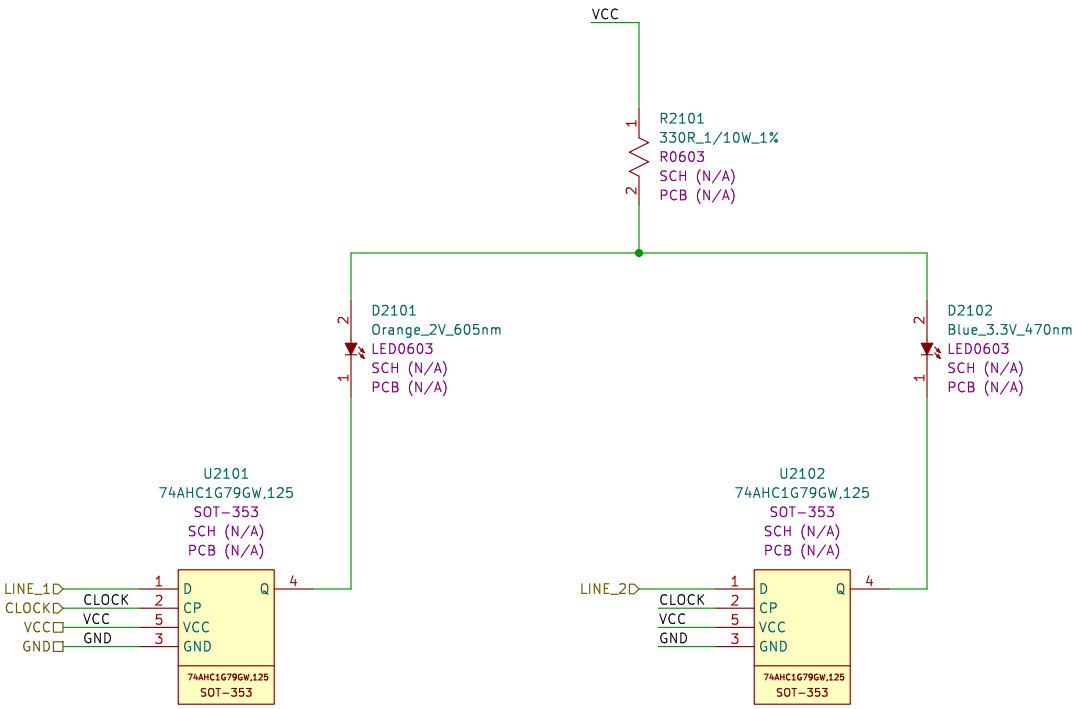
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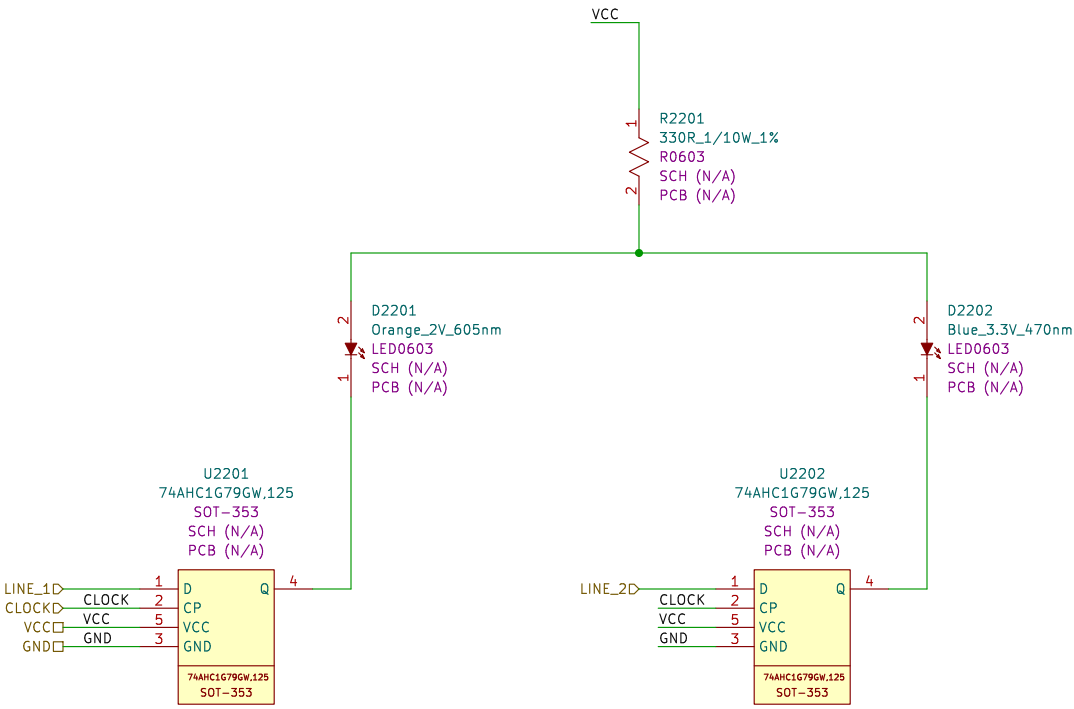
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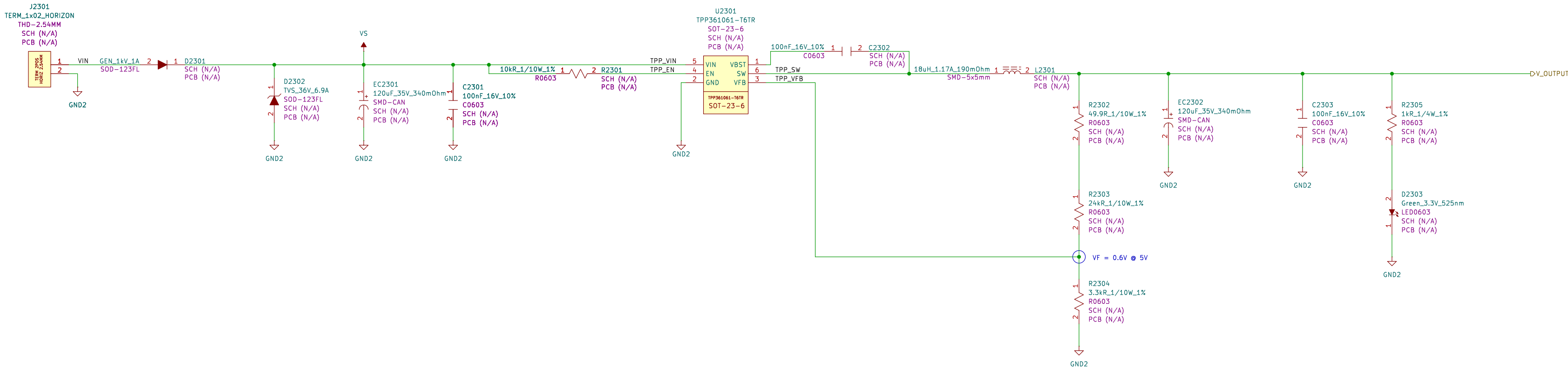
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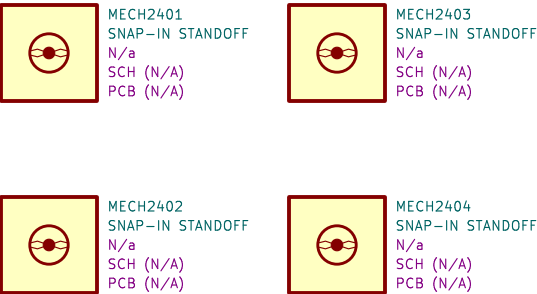
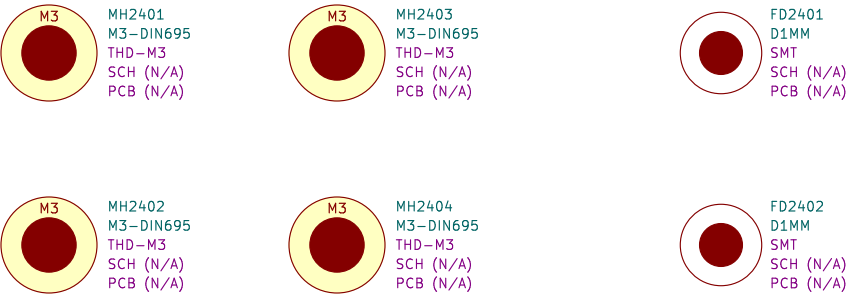
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