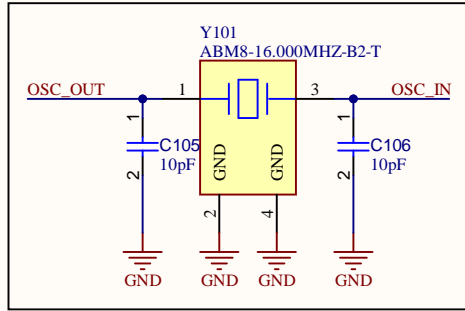
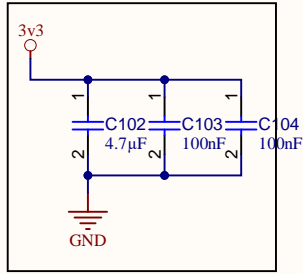


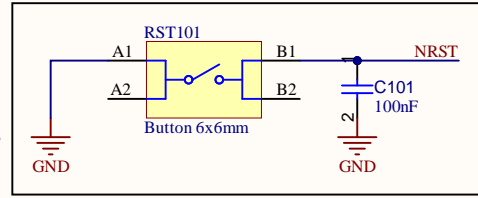
Title <b>Top Level</b>		
Size A4	Number <b>1</b>	Revision
Date: 8/19/2024	Sheet 1 of 8	
File: Top_Level.SchDoc	Drawn By: Gregory Ward	



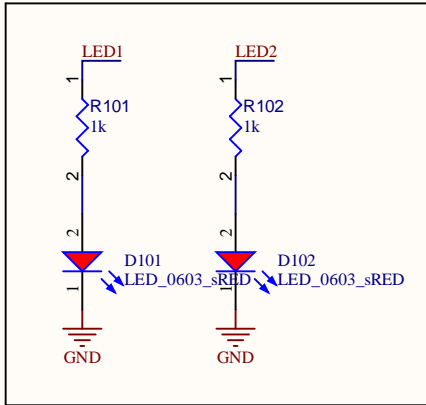
Crystal <sup>A</sup> 16 MHz



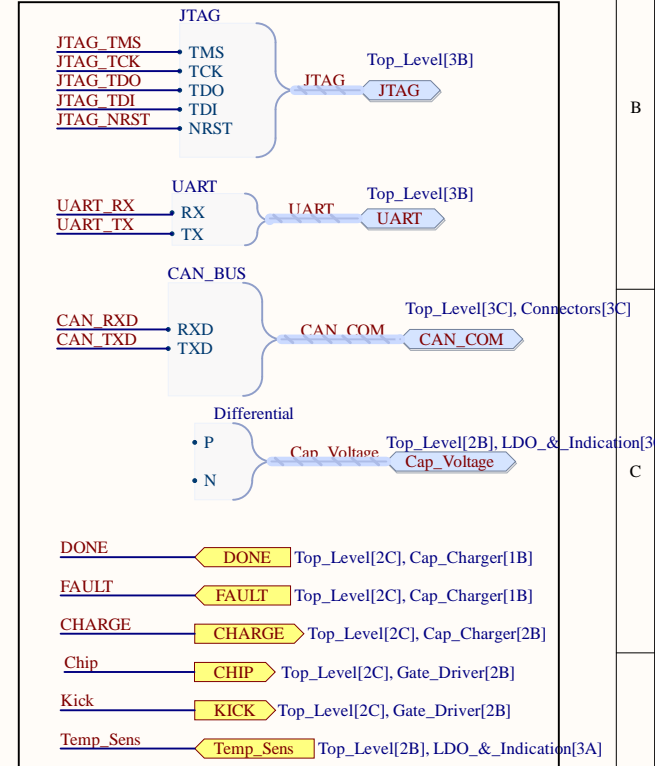
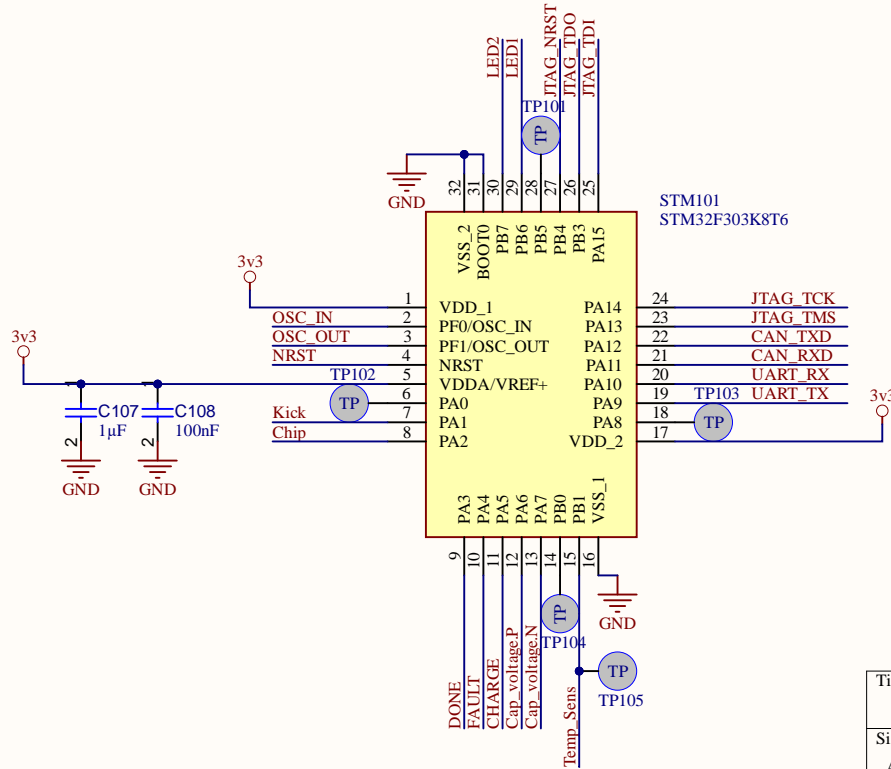
Power Supply Decoupling



Reset Button

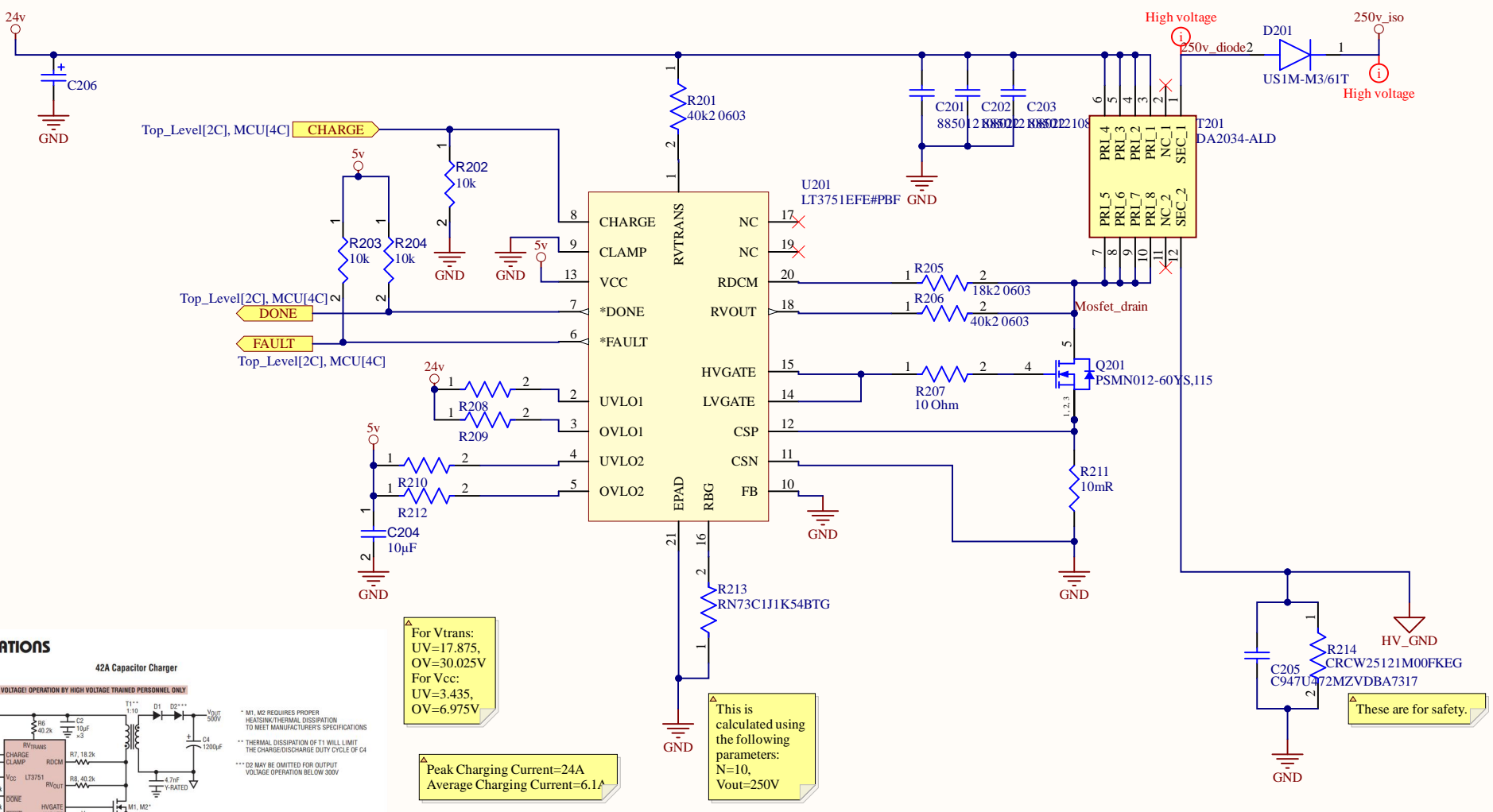


Debug LED's



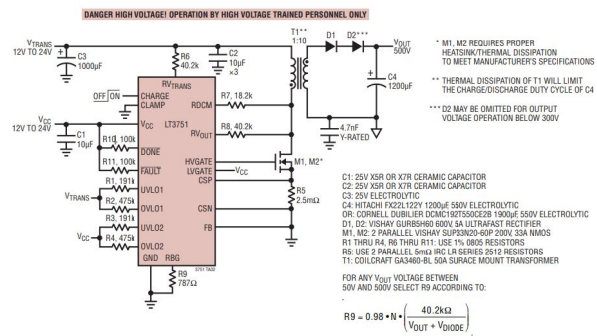
Communication Signals

Title <b>MCU</b>		
Size A4	Number <b>2</b>	Revision
Date: 8/19/2024	Sheet 2 of 8	
File: MCU.SchDoc	Drawn By: Gregory Ward	



### TYPICAL APPLICATIONS

#### 42A Capacitor Charger



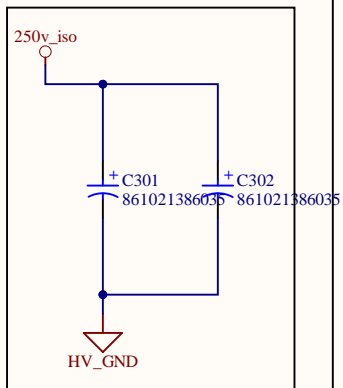
For Vtrans:  
UV=17.875V  
OV=30.025V  
For Vcc:  
UV=3.435V  
OV=6.975V

Peak Charging Current=24A  
Average Charging Current=6.1A

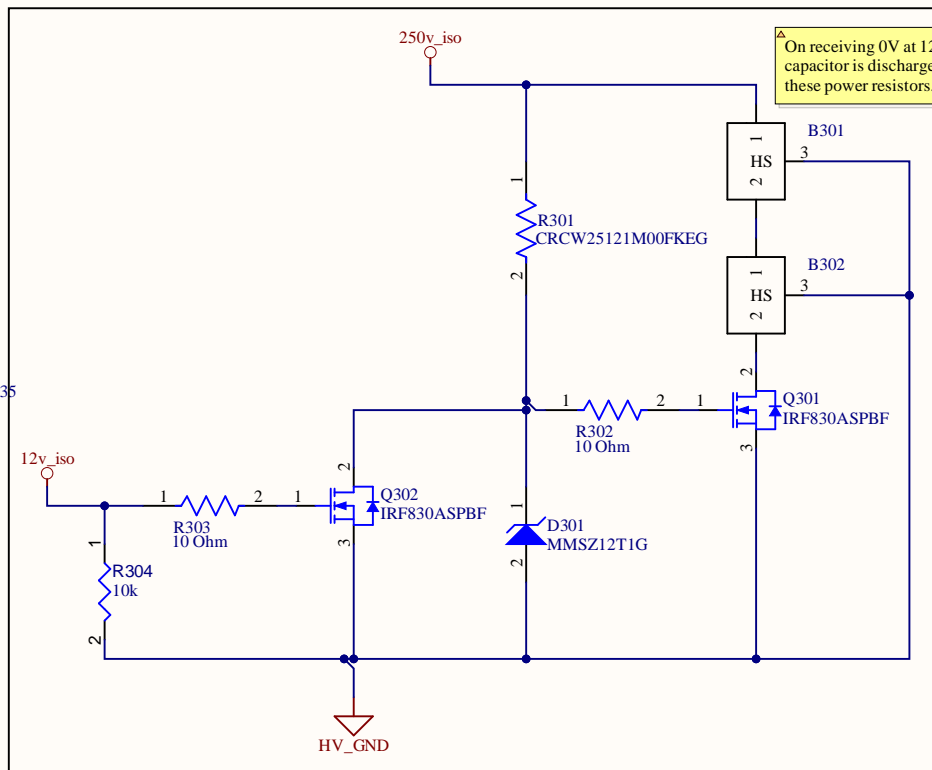
This is calculated using the following parameters:  
N=10,  
Vout=250V

These are for safety.

Title <b>Capacitor Charger</b>		
Size <b>A4</b>	Number <b>3</b>	Revision
Date: <b>8/19/2024</b>	Sheet 3 of 8	
File: <b>Cap_Charger.SchDoc</b>	Drawn By: <b>Gregory Ward</b>	

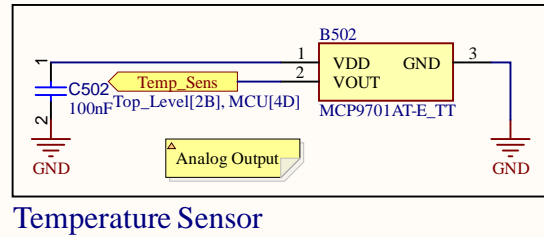
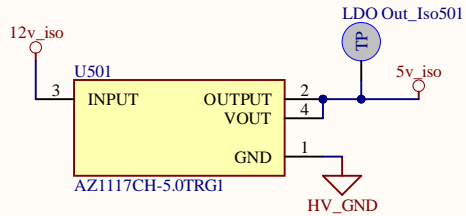


Capacitors

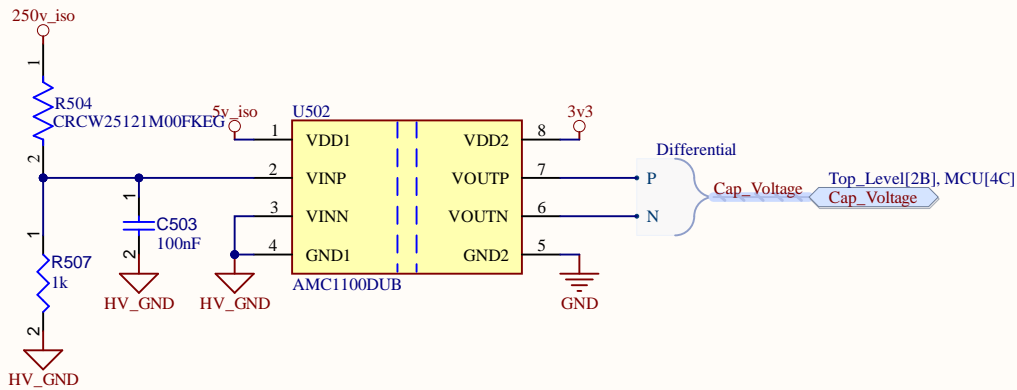
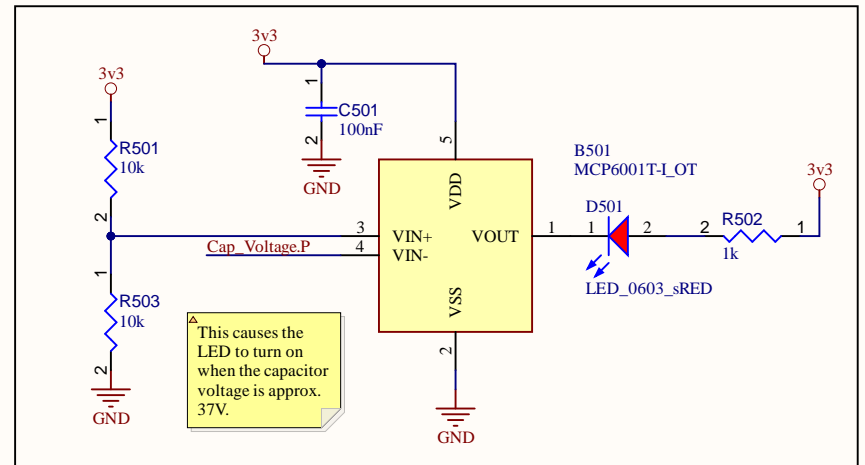


Capacitor Safety Discharging Circuit

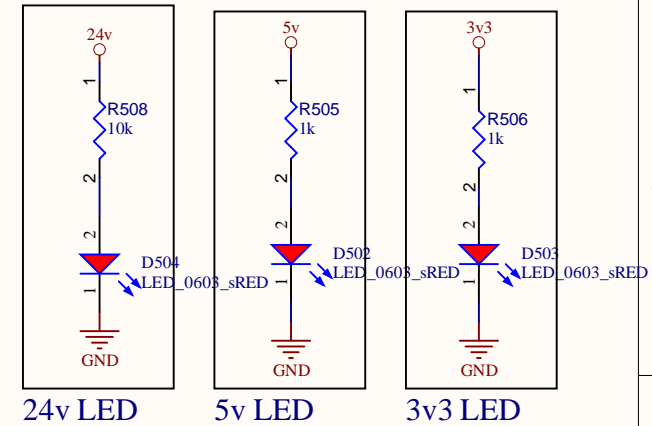
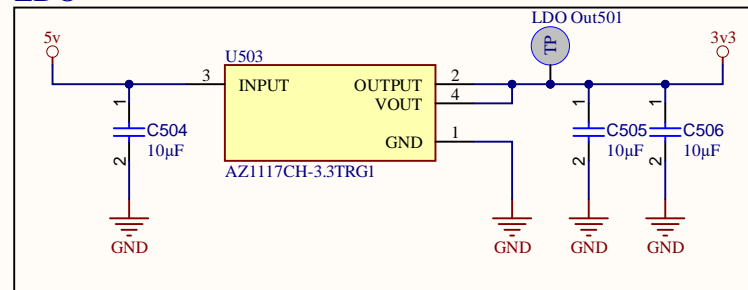
Title <b>Discharge Circuit</b>		
Size A4	Number <b>4</b>	Revision
Date: 8/19/2024	Sheet 4 of 8	
File: Discharge_Circuit.SchDoc	Drawn By: Gregory Ward	



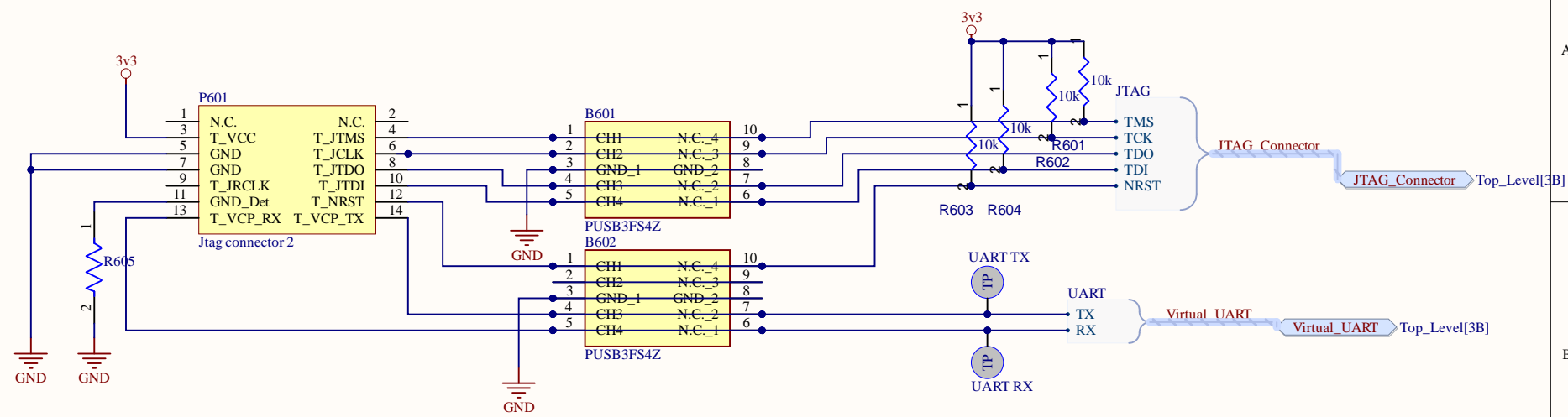
Temperature Sensor



LDO



Title		
Size	Number	Revision
A4	6	
Date:	8/19/2024	Sheet 6 of 8
File:	LDO_&_Indication.SchDoc	Drawn By: Gregory Ward



### 8.1.2 STDC14 (STM32 JTAG/SWD and VCP)

The STDC14 CN1 connector allows the connection to an STM32 target using the JTAG or SWD protocol, respecting (from pin 3 to pin 12) the ARM10 pinout (Arm Cortex debug connector). But it also advantageously provides two UART signals for the Virtual COM port. The related pinout for the STDC14 connector is listed in [Table 6](#).

**Table 6. STDC14 connector pinout CN1**

Pin No.	Description	Pin No.	Description
1	Reserved <sup>(1)</sup>	2	Reserved <sup>(1)</sup>
3	T_VCC <sup>(2)</sup>	4	TJTMS/T_SWDIO
5	GND	6	TJCLK/T_SWCLK
7	GND	8	TJTDO/T_SWO <sup>(3)</sup>
9	TJRCLK <sup>(4)</sup> /NC <sup>(5)</sup>	10	TJTDI/NC <sup>(5)</sup>
11	GNDetect <sup>(6)</sup>	12	T_NRST
13	T_VCP_RX <sup>(7)</sup>	14	T_VCP_TX <sup>(2)</sup>

1. Do not connect to the target.
2. Input for STLINK-V3SET.
3. SWO is optional, required only for Serial Wire Viewer (SWV) trace.
4. Optional loopback of T\_JCLK on the target side, required if loopback is removed on the STLINK-V3SET side.
5. NC means not required for the SWD connection.
6. Tied to GND by STLINK-V3SET firmware; may be used by the target for detection of the tool.
7. Output for STLINK-V3SET

The used connector is SAMTEC FTSH-107-01-L-DV-K-A.

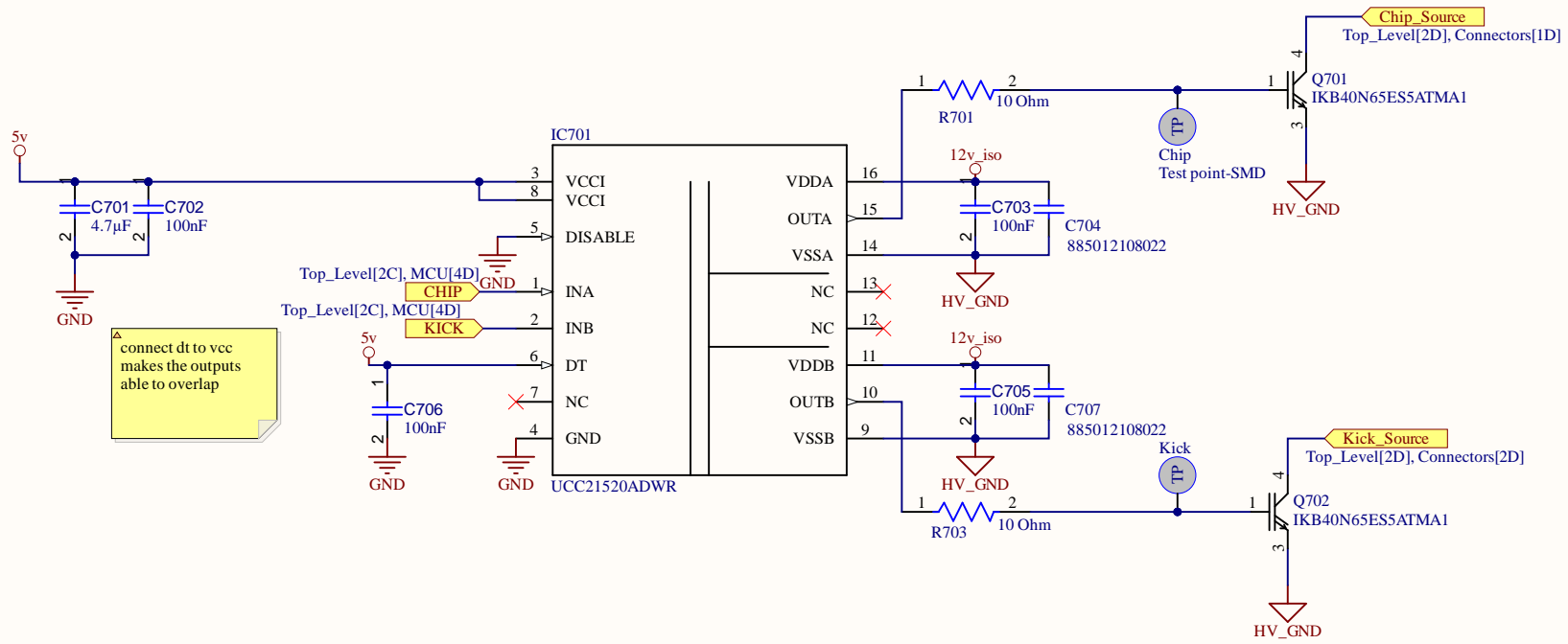
### Virtual COM port (VCP)

The serial interface VCP is directly available as a Virtual COM port of the PC, connected to STLINK-V3SET USB connector CN5. This function can be used for STM32 and STM8 microcontrollers. The signals are 3.3 V compatible and can perform from 732 bps to 16 Mbps. This function is available on MB1440 CN1 and CN3, and MB1441 CN1. T\_VCP\_RX (or RX) signal is the Rx for the target (Tx for the STLINK-V3SET), T\_VCP\_TX (or TX) signal is the Tx for the target (Rx for the STLINK-V3SET).

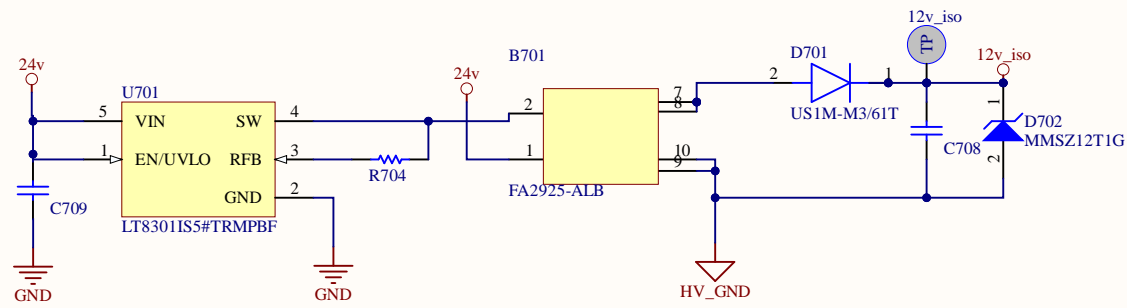
A second Virtual COM port may be activated, as detailed later in [Section 7.3.5](#) (Bridge UART).

For details regarding baud rates, refer to [Section 14.2](#).

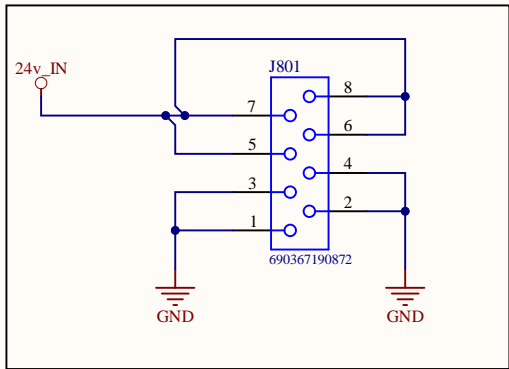
Title <b>JTAG Connector</b>		
Size A4	Number <b>7</b>	Revision
Date: 8/19/2024	Sheet 7 of 8	
File: JTAG_Connector.SchDoc	Drawn By: Gregory Ward	



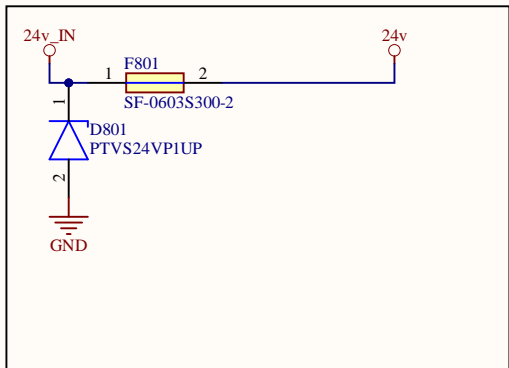
connect dt to vcc makes the outputs able to overlap



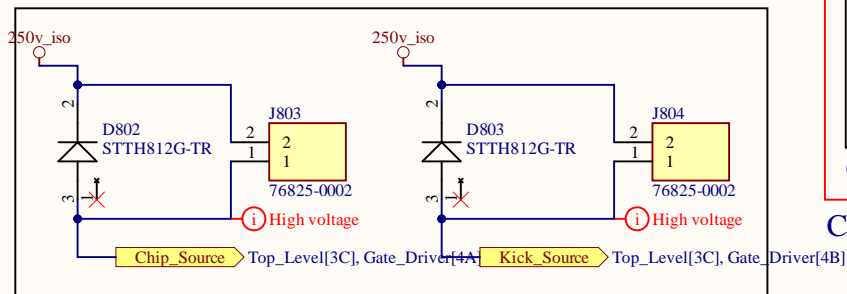
Title		
Gate Driver		
Size	Number	Revision
A4	8	
Date:	8/19/2024	Sheet 8 of 8
File:	Gate_Driver.SchDoc	Drawn By: Gregory Ward



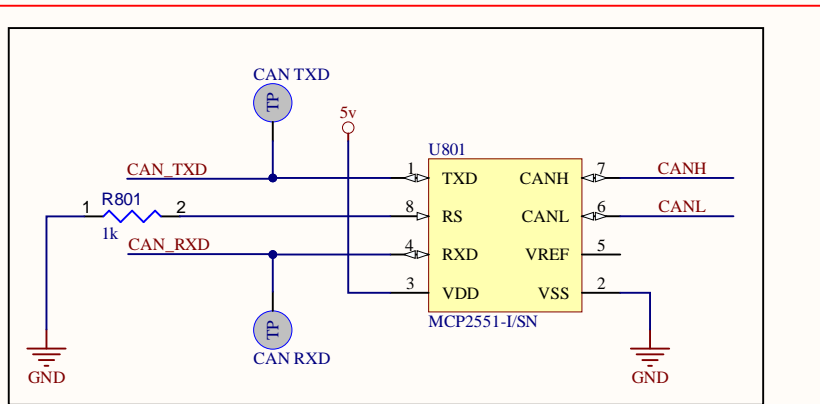
Power Connector



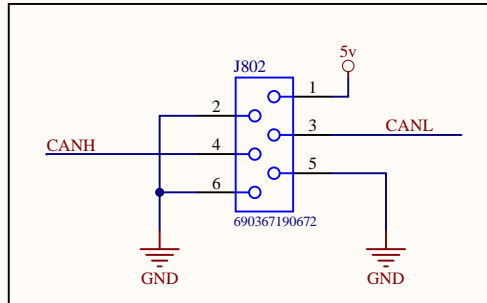
Decoupling and Back Current Protection



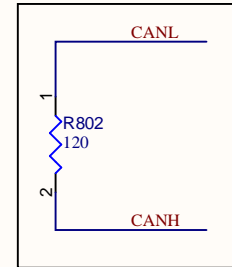
Solenoid Connectors



CAN Transceiver

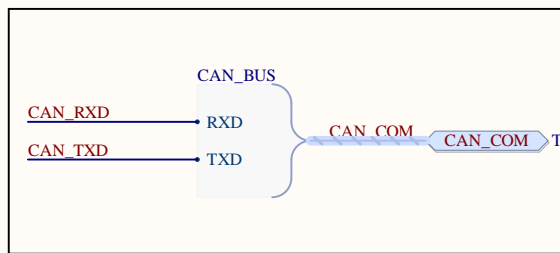


CAN Connector



Termination Resistor

Parallel termination is used here.



CAN Bus

CAN

Title <b>Connectors</b>		
Size A4	Number <b>5</b>	Revision
Date: 8/19/2024	Sheet 5 of 8	
File: Connectors.SchDoc	Drawn By: Gregory Ward	