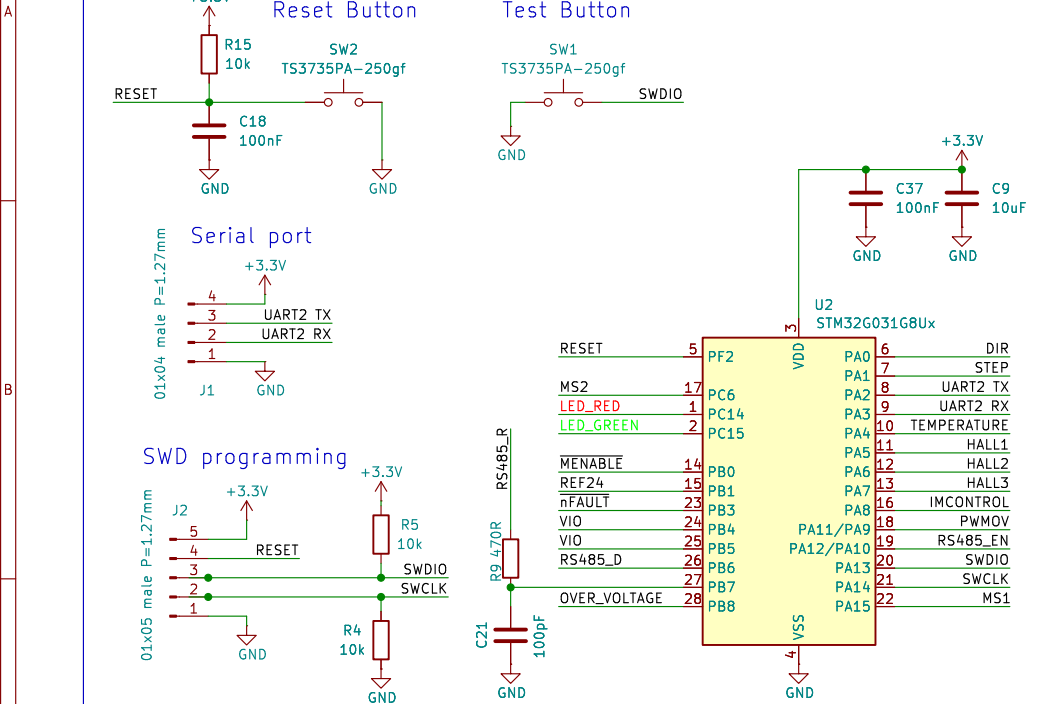


1	2	3	4	5	6	7	8
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Overvoltage Detection

The diagram illustrates an overvoltage detection circuit. The input signal, labeled 'OVER_VOLTAGE', is connected to a 10k resistor (R23) and a 1.5k resistor (R8). The output of R8 is connected to the non-inverting input (pin 5) of the LM321 op-amp (U3). The inverting input (pin 4) is connected to a 10k resistor (R25) and a 1uF capacitor (C28). The output of the op-amp (pin 1) is connected to a 470R resistor (R7) and a 100pF capacitor (C30). The output of R7 is connected to a +5V supply. The output of the op-amp (pin 1) is also connected to a +24V supply through a 18k resistor (R27). The output of the +24V supply is connected to a 1.5k resistor (R26) and a 100nF capacitor (C36). The output of R26 is connected to a REF24 pin.

Hall Sensors

The diagram shows three AH49HSC Hall sensors connected to a +3.3V supply and ground. Each sensor's VCC pin is connected to +3.3V, its GND pin to ground, and its VOUT pin to a common output line. Each output line is bypassed with a 1nF capacitor (C17, C20, C23) to ground. The output lines are labeled HALL1, HALL2, and HALL3.

RS485 Transceiver

The diagram illustrates the wiring for an RS485 Transceiver (U10, 74VHC1T3088E). The IC is configured as follows:

- Pin 1 (RO):** Connected to RS485_R.
- Pin 2 (RE):** Connected to RS485_D.
- Pin 3 (DE):** Connected to RS485_D.
- Pin 4 (DI):** Connected to RS485_D.
- Pin 5 (GND):** Connected to GND.
- Pin 6 (A):** Connected to RS485_A.
- Pin 7 (B):** Connected to RS485_B.
- Pin 8 (VCC):** Connected to +5V.

Additional components and connections include:

- Capacitor C35 (10uF):** Connected between +5V and GND.
- Resistor R13 (10k):** Connected between RS485_EN and GND.
- Resistor R17 (10k):** Connected between RS485_A and +5V.
- Resistor R2 (10k):** Connected between RS485_B and GND.

Input Power and RS485 Connector

The diagram illustrates the wiring for a 6-pin connector labeled J4. The pins are numbered 1 through 6. Pin 1 is connected to GND. Pin 2 is connected to +24V. Pin 3 is connected to GND. Pin 4 is connected to RS485_A. Pin 5 is connected to RS485_B. Pin 6 is connected to GND. The RS485_A and RS485_B lines are shown as a twisted pair. The input power is provided by pins 1, 2, and 3. The RS485 interface is provided by pins 4, 5, and 6.

Pin	Signal
1	GND
2	+24V
3	GND
4	RS485_A
5	RS485_B
6	GND

Input power

RS485 interface

ATD5833 Motor Driver

**+24V stepper driver supply decoupling caps:
Place close to the sgtepper motor driver chip**

Cutoff frequency: 1592 Hz

MS1 and MS2 pins: step resolution

MS2	MS1	Step resolution
0	0	Full step
0	1	1/2
1	0	1/4
1	1	1/16

R3 and R1: Max current setting resistors:

$$ITRIP_{max} = VREF / (8 * RSENSE)$$

$$2.5 / (8 * 0.15) = 2.08A$$

The maximum voltage on the SENSEx pin cannot exceed 0.32V
 $2.08 * 0.15 = 0.312$ (We are ok, not exceeded)

Motor Connections

Voltage Regulator

The diagram shows a voltage regulator circuit. A yellow rectangular component labeled 'U11' and 'ME6211C33M5' is the central element. It has five pins: Pin 1 (VIN) is connected to a +5V input source. Pin 3 (CE) is connected to the same +5V source. Pin 5 (VOUT) is connected to a +3.3V output terminal. Pin 2 (VSS) is connected to a ground symbol labeled 'GND'. A capacitor labeled 'C5' with a value of '10uF' is connected between the +3.3V output terminal and the VSS pin (Pin 2).

Status LEDs

Temperature Monitoring

The diagram shows a circuit for temperature monitoring. A green line labeled "TEMPERATURE" enters from the left and connects to a green node. This node is connected to a resistor labeled "R29 4.7k" in series with a +3.3V supply. The other end of R29 is connected to a green node, which is also connected to a capacitor labeled "C41 100nF" in series with a GND connection. The output of the capacitor is connected to a thermistor labeled "TH1 100k 1% NTC". The thermistor is represented by a rectangle with a diagonal line through it, and a small circle with a cross inside. The thermistor is connected to a green node, which is also connected to a GND connection.

ESD Discharge Points

The diagram illustrates a circuit for ESD discharge points. A horizontal green line represents the signal path. Below this line, there are 12 nodes, each connected to ground (GND) through a 220pF capacitor. The capacitors are labeled C24, C25, C26, C27, C29, C31, C32, and C33. A ground symbol is shown at the bottom left, indicating the connection to ground.

Servo motor stepper – Schematic top level

Sheet: /index/schTop/
File: schTop.kicad_sch

Title: Servo motor stepper M3 – Schematic top level

Size: A3	Date: 2025-05-21	Rev: 1.2
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