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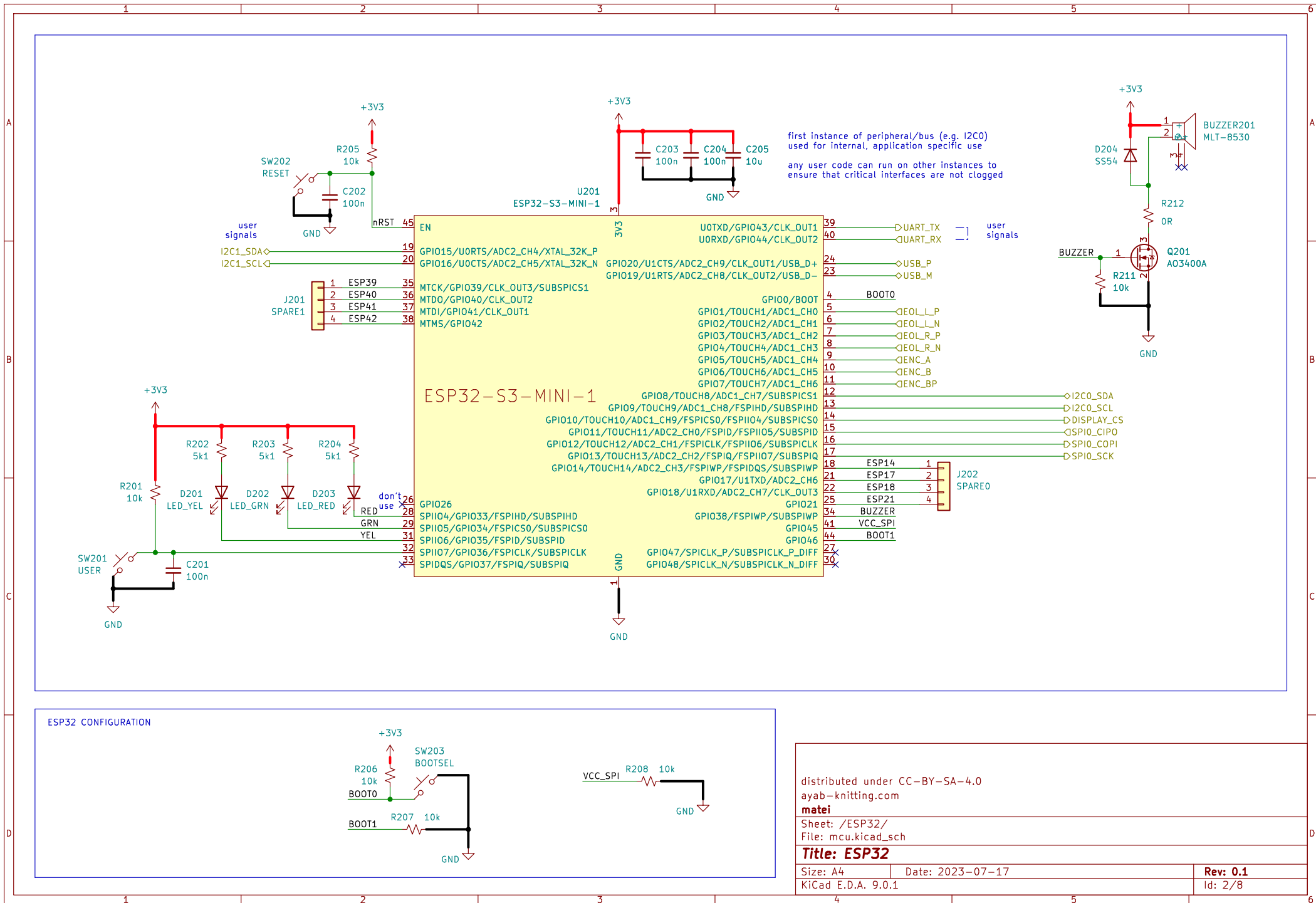


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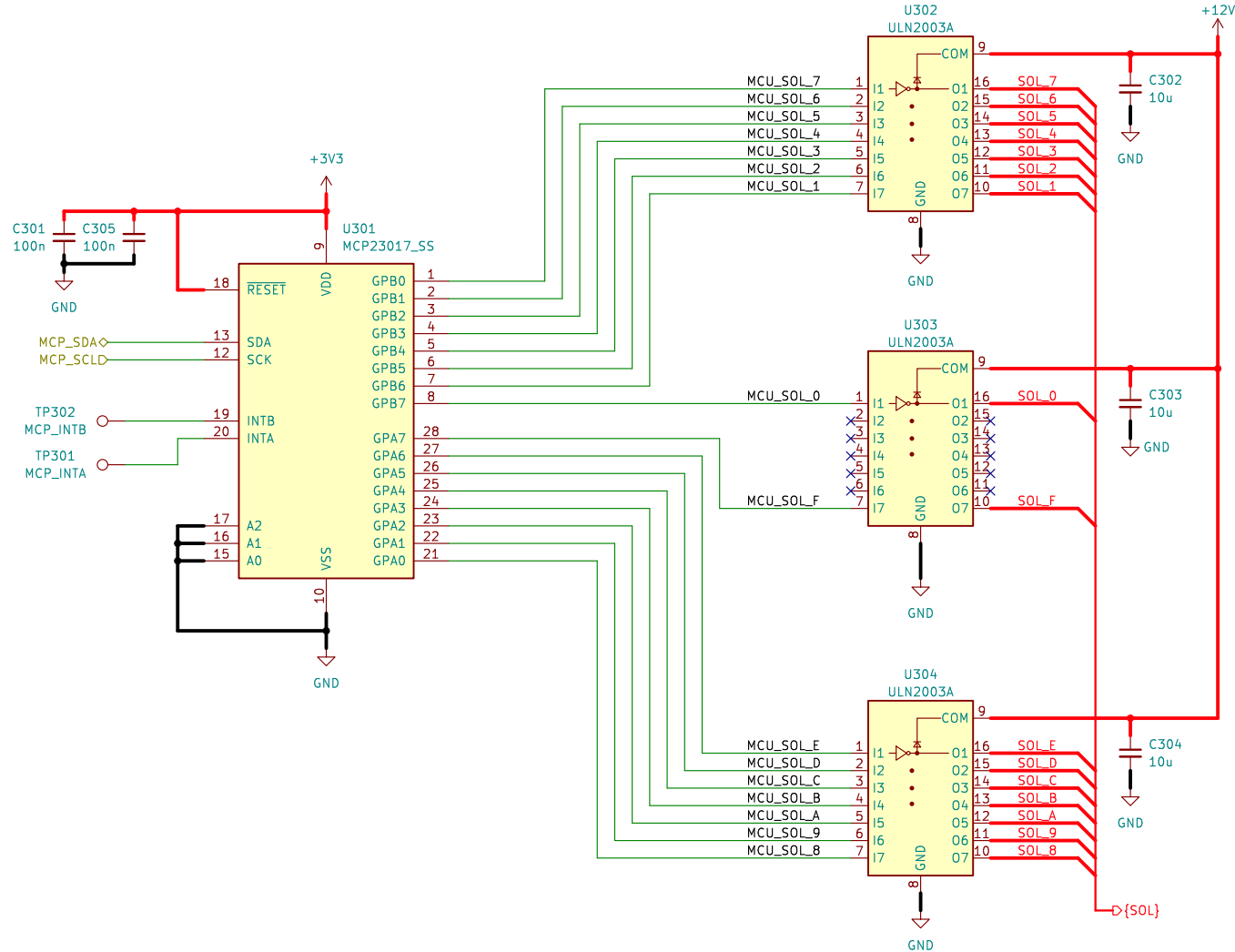
Title: AYAB-ESP32 overview

Size: A4 Date: 2023-07-17
 KiCad E.D.A. 9.0.1

Rev: 0.1
 Id: 1/8



SOLENOID DRIVERS



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Sheet: /SOLENOID DRIVERS/

File: solenoids.kicad_sch

Title: SOLENOID DRIVERS

Size: A4

Date: 2023-07-17

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Rev: 0.1

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[illegible]

not Z5U type

C614 3n3

+12V

U601 XL1509

FB

EN

VOUT

GND

R606 1k

R608 3k3

PWR

L601 47uH

D605 S554

C612 220u

C616 10u

C618 10u

C620 10u

TP602 5V

PWR_FLAG

R611 0R

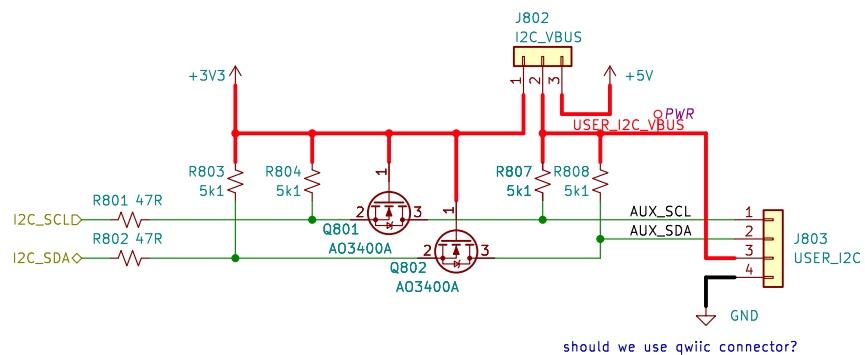
5V

GND

$V_{out} = 1.23 \cdot (R2/R1 + 1)$
 due to BOM simplification this comes out 5.25V
 but this is OK for parts used (SN74LVC4245)

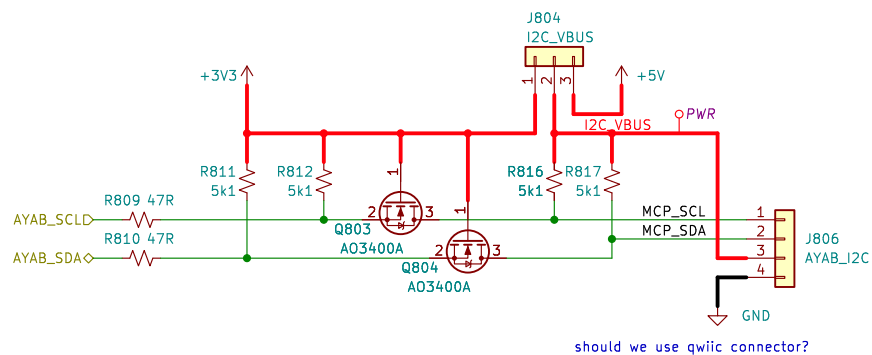
Rev: 0.1
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The diagram illustrates an auxiliary expansion circuit. It features two AO3400A transistors, Q801 and Q802, configured as level shifters. The input signals I2C_SCLD and I2C_SDA are connected to the bases of Q801 and Q802, respectively, through 47k resistors (R801, R802). The emitters of both transistors are connected to ground. The collectors are connected to the AUX_SCL and AUX_SDA lines of the J803 connector through 5k1 resistors (R803, R804 for Q801; R807, R808 for Q802). A +3V3 supply is connected to the bases of the transistors. The I2C_VBUS signal is connected to the J803 connector pin 1 through a 5k1 resistor (R807). A +5V supply is connected to the J803 connector pin 2 through a 5k1 resistor (R808). A note at the bottom asks: "should we use qwiic connector?".



should we use qwiic connector?

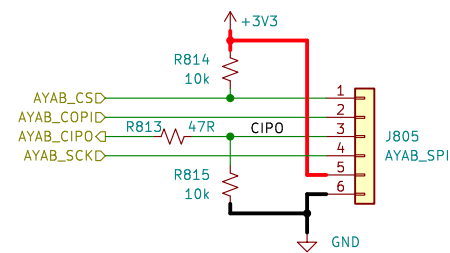
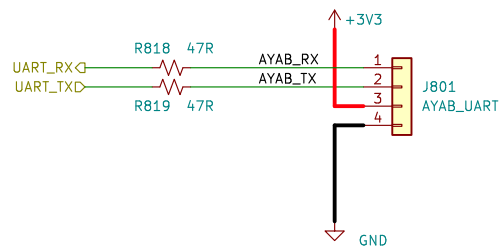
The diagram illustrates the external control circuit for an MCP module. It features two NPN transistors, Q803 and Q804, both labeled AO3400A, which serve as level shifters or buffers. The base of Q803 is connected to the +3V3 supply through resistor R811 (5k1). Its emitter is grounded, and its collector is connected to the AYAB_SCL input pin through resistor R809 (47R). Similarly, the base of Q804 is connected to the +3V3 supply through resistor R812 (5k1), its emitter is grounded, and its collector is connected to the AYAB_SDA input pin through resistor R810 (47R). The output pins of the MCP module are MCP_SCL and MCP_SDA. These are connected to the I2C_VBUS signal line via resistors R816 (5k1) and R817 (5k1) respectively. The I2C_VBUS signal line is also connected to the J804 connector, which provides a +5V supply. A power source PWR is indicated at the end of the I2C_VBUS line. The J806 connector, labeled AYAB_I2C, has four pins: pin 1 is connected to GND, pin 2 is connected to MCP_SCL, pin 3 is connected to MCP_SDA, and pin 4 is connected to GND. A note at the bottom asks "should we use qwiic connector?".



should we use qwiic connector?

AYAB UART debug port

The diagram illustrates the wiring for the AYAB UART debug port. It shows the connection between the UART_RX and UART_TX pins of the microcontroller and the AYAB_UART header (J801). The RX line is connected to pin 1 of the header through a 47R resistor (R818). The TX line is connected to pin 2 of the header through a 47R resistor (R819). The header is also connected to a +3V3 power supply and a GND ground.



Id: 8/8