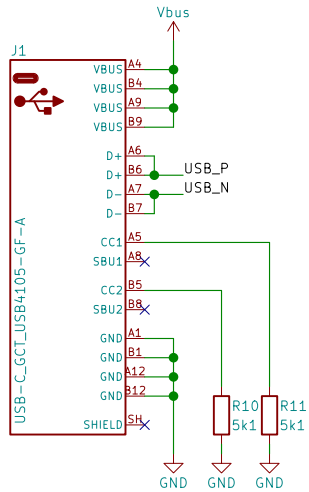


# USB connectivity

USB connectivity diagram showing a USB-A connector (J1) connected to a PCB. The connector pins are labeled A4, B4, A9, B9, A6, B6, A7, B7, A5, B5, A1, B1, A12, B12, and SH. The PCB labels are VBUS, D+, D-, CC1, SBU1, CC2, SBU2, GND, and SHIELD. The connections are as follows:

- VBUS: A4, B4, A9, B9
- D+: A6, B6
- D-: A7, B7
- CC1: A5
- SBU1: B5
- CC2: B5
- SBU2: B5
- GND: A1, B1, A12, B12
- SHIELD: SH

The PCB also has labels for USB\_P, USB\_N, and Vbus. Two resistors, R10 (5k1) and R11 (5k1), are connected between the SHIELD pin and ground.



2

3

# EZ USB FX2

U3

+3V3

R5 2k7

1 RDOY

2 RDY1

+3V3

R6 2k7

R7 2k7

15 SCL

16 SDA

+3V3

R8 2k7

R9 2k7

5 XTALIN

4 XTALOUT

44 WAKEUP

42 RST

C1 1uF

GND

14 Reserved/GND

10 AGND

6 AGND

56 GND

12 GND

26 GND

28 GND

41 GND

53 GND

3 AVCC

7 AVCC

55 VCC

11 VCC

17 VCC

27 VCC

32 VCC

43 VCC

33 PA0

34 PA1

35 PA2

36 PA3

37 PA4

38 PA5

39 PA6

40 PA7

18 PB0

19 PB1

20 PB2

21 PB3

22 PB4

23 PB5

24 PB6

25 PB7

45 PD0

46 PD1

47 PD2

48 PD3

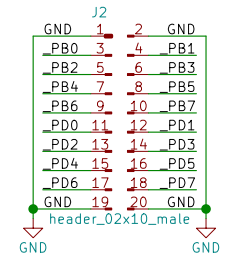
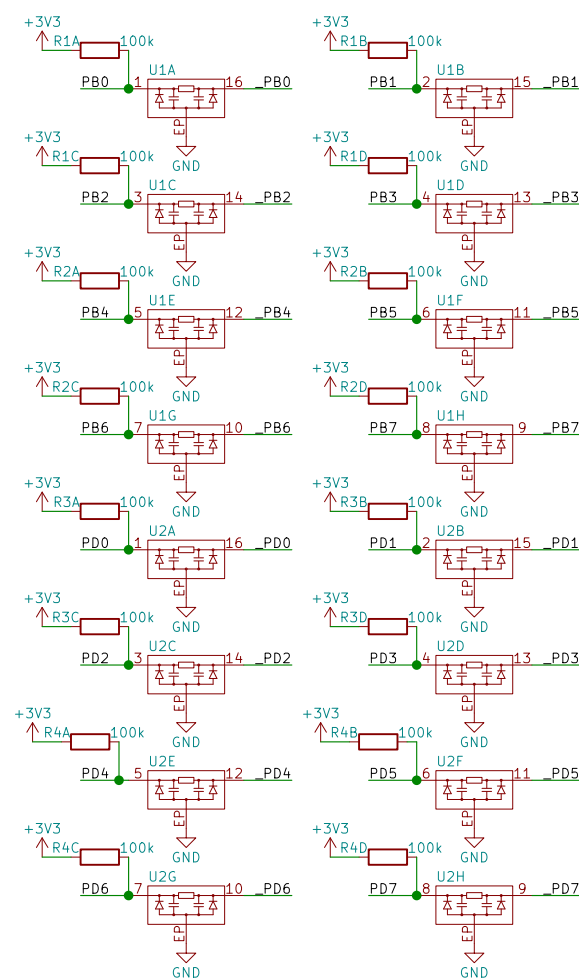
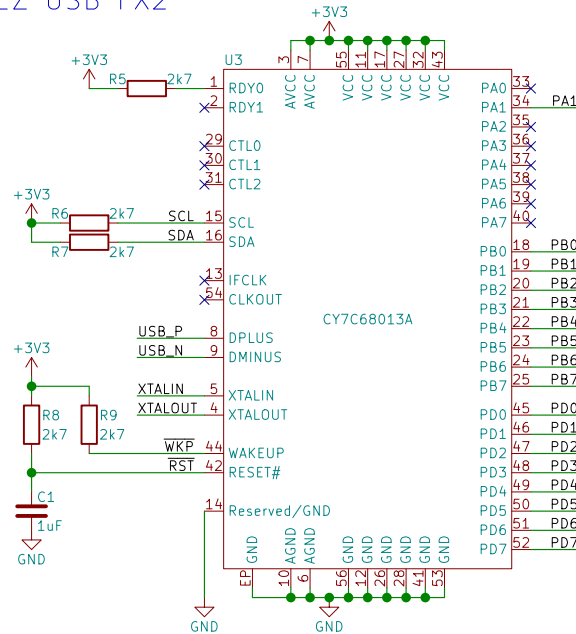
49 PD4

50 PD5

51 PD6

52 PD7

CY7C68013A



### Feedback LEDs

Feedback LEDs

LEDs: LD1 (RED), LD2 (GREEN)

Resistors: R12 (2k7), R13 (2k7)

Power: +3V3, GND

Microcontroller Pin: PA1

### EEPROM

EEPROM: U5 (24LC01)

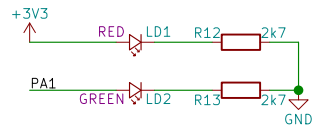
Capacitor: C12 (100nF)

Power: +3V3, GND

Microcontroller Pins: A0, A1, A2, VCC, SDA, SCL, WP

Legend:

- SDA: 1
- SCL: 2



**Crystal oscillator**

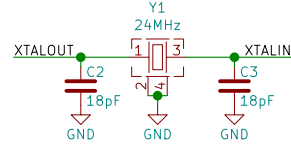
The diagram shows a crystal oscillator circuit. A 24MHz crystal (Y1) is connected between pins 1 and 3. Pin 2 is connected to ground. The output of the oscillator is taken from pin 3, labeled XTALOUT, and the input is connected to pin 1, labeled XTALIN. Both XTALOUT and XTALIN are connected to ground through 18pF capacitors (C2 and C3 respectively).

**FX2 decoupling**

The diagram shows decoupling capacitors for the FX2. It specifies 100nF for each VDD pin and 1uF for each VDDA pin. The circuit shows four 3V3 supply lines, each with a 100nF decoupling capacitor (C6, C7, C8, C9) connected to ground. Additionally, there are four 3V3 supply lines, each with a 1uF decoupling capacitor (C4, C5, C13, C14, C15, C16) connected to ground.

**Power regulation**

The diagram shows a power regulation circuit using a MIC5317 voltage regulator (U4). The input voltage (Vbus) is connected to the Vin pin (pin 1). The enable pin (EN, pin 3) is connected to ground. The output voltage (Vout) is connected to the Vout pin (pin 5). The input and output are decoupled with 1uF capacitors (C10 and C11 respectively) connected to ground. The ground connection for the regulator is pin 2.



100nF for each VDD pin + 1uF for each VDDA pin.

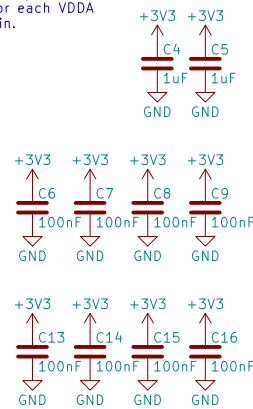
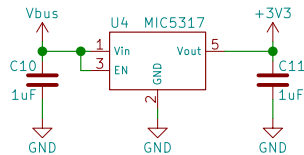
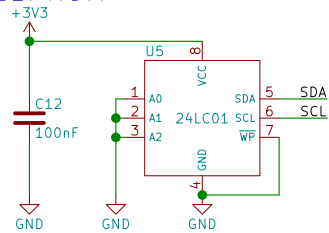


Diagram illustrating the connection of an EEPROM (U5) to a +3V3 supply and ground. The chip is a 24LC01. The connections are as follows:

- Pin 1 (A0) is connected to +3V3.
- Pin 2 (A1) is connected to GND.
- Pin 3 (A2) is connected to GND.
- Pin 4 (GND) is connected to GND.
- Pin 5 (SDA) is connected to the SDA line.
- Pin 6 (SCL) is connected to the SCL line.
- Pin 7 (WP) is connected to GND.

A 100nF capacitor (C12) is connected between +3V3 and GND.



Total current consumption is estimated at 100mA.  
The LDO can provide 150mA, and dissipate  $(0.1A \cdot (5V - 3.3V)) = 0.17W$   
 $P_{max} = (T_{max} - T_{amb}) / \theta_{ja}$   
 $\Rightarrow T_{max} = (P \cdot \theta_{ja}) + T_{amb}$   
 $\Rightarrow T_{max} = (0.17W \cdot 253^{\circ}C/W) + 25^{\circ}C = 68^{\circ}C$



Id: 1/1