USB power supply and voltage regulation

J1
Micro-USB B

VBUS
D+ D+
D- D-
ID

Shield GND

GND

D1
D_Schottky

VIN

SW2
SPDT

U3
MCP1825S
VI VO
GND

VCC

C3
4.7uF

C4
4.7uF

D4
LED_RED

R4
200R
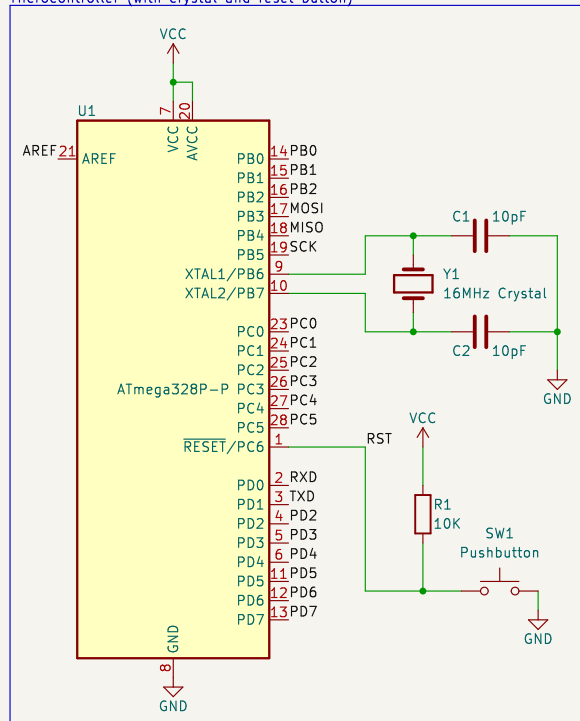
GND
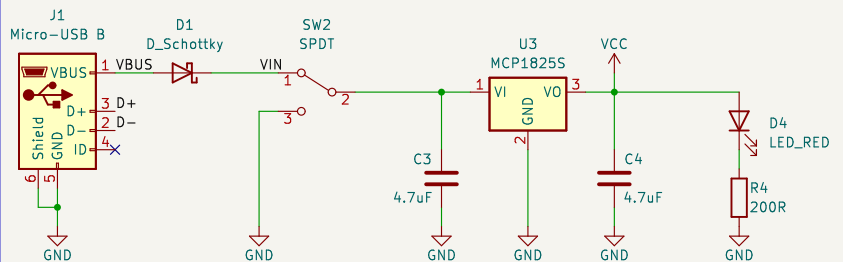
Note: the MCP1825S supplies a 3.3V output voltage

USB-to-serial conversion

VCC

SW3
SPDT

GND

C5 1uF

GND

U2
MCP2221A-I/ST
RST VDD VUSB
SDA
SCL
URx TXD
UTx RXD
GP0
GP1
GP2
GP3
D+ D+
D- D-
VSS

GND

D2
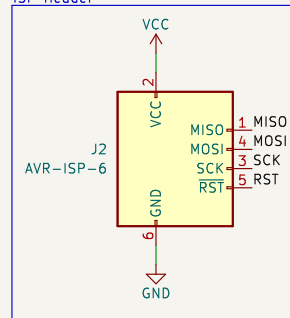LED_YLW

D3
LED_YLW

R2
200R

R3
200R

VCC
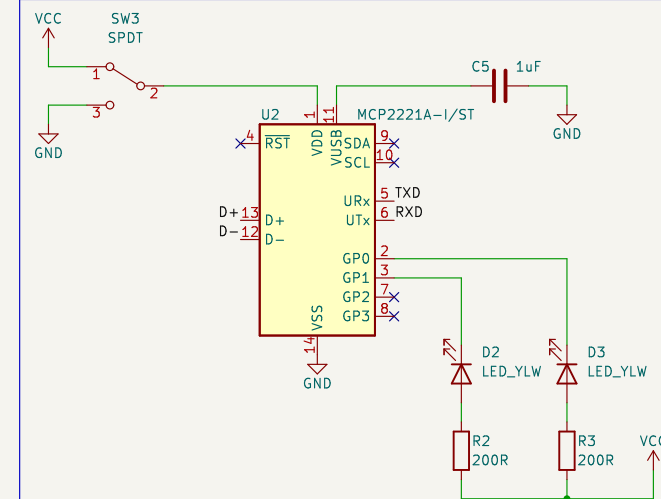
Note: GP0 indicates activity on RX, GP1 indicates activity on TX.
These are active low, hence the LEDs' connection to VCC.

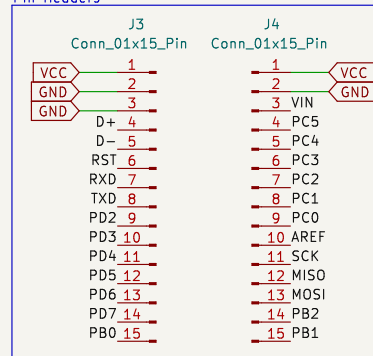## Microcontroller (with crystal and reset button)

VCC

U1

AREF AREF
VCC
AVCC
PB0
PB1
PB2
PB3
PB4
PB5
XTAL1/PB6
XTAL2/PB7

ATmega328P-P

PC0
PC1
PC2
PC3
PC4
PC5
RESET/PC6

PD0 RXD
PD1 TXD
PD2
PD3
PD4
PD5
PD6
PD7

GND

C1 10pF

Y1
16MHz Crystal

C2 10pF

GND

RST

VCC

R1
10K

SW1
Pushbutton

GND

ISP Header

VCC

J2
AVR-ISP-6

VCC
MISO MISO
MOSI MOSI
SCK   SCK
RST   RST

GND

GND

Pin Headers

J3
Conn_01x15_Pin

VCC 1
GND 2
GND 3
D+   4
D-   5
RST 6
RXD 7
TXD 8
PD2 9
PD3 10
PD4 11
PD5 12
PD6 13
PD7 14
PB0 15

J4
Conn_01x15_Pin

1 VCC
2 GND
3 VIN
4 PC5
5 PC4
6 PC3
7 PC2
8 PC1
9 PC0
10 AREF
11 SCK
12 MISO
13 MOSI
14 PB2
15 PB1

Sheet: /
File: devboard.kicad_sch

Title: ATmega328P Development Board

Size: A4   Date: Rev:
KiCad E.D.A. eeschema 7.0.7   Id: 1/1