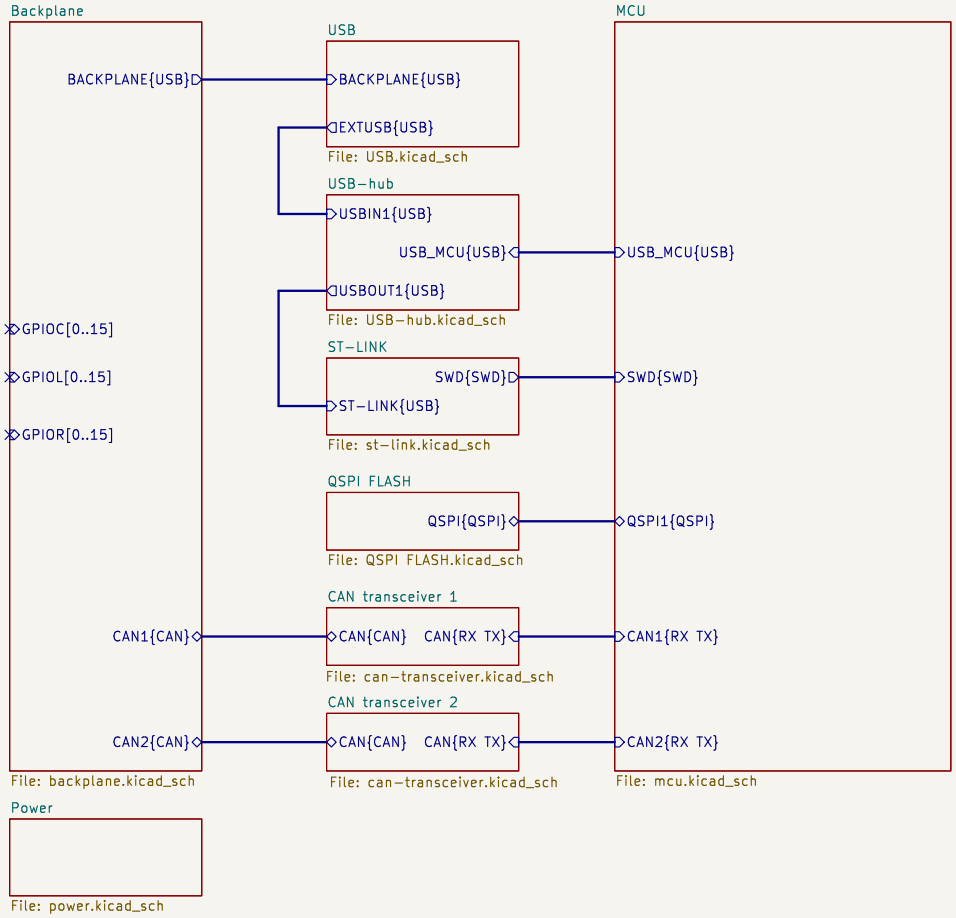
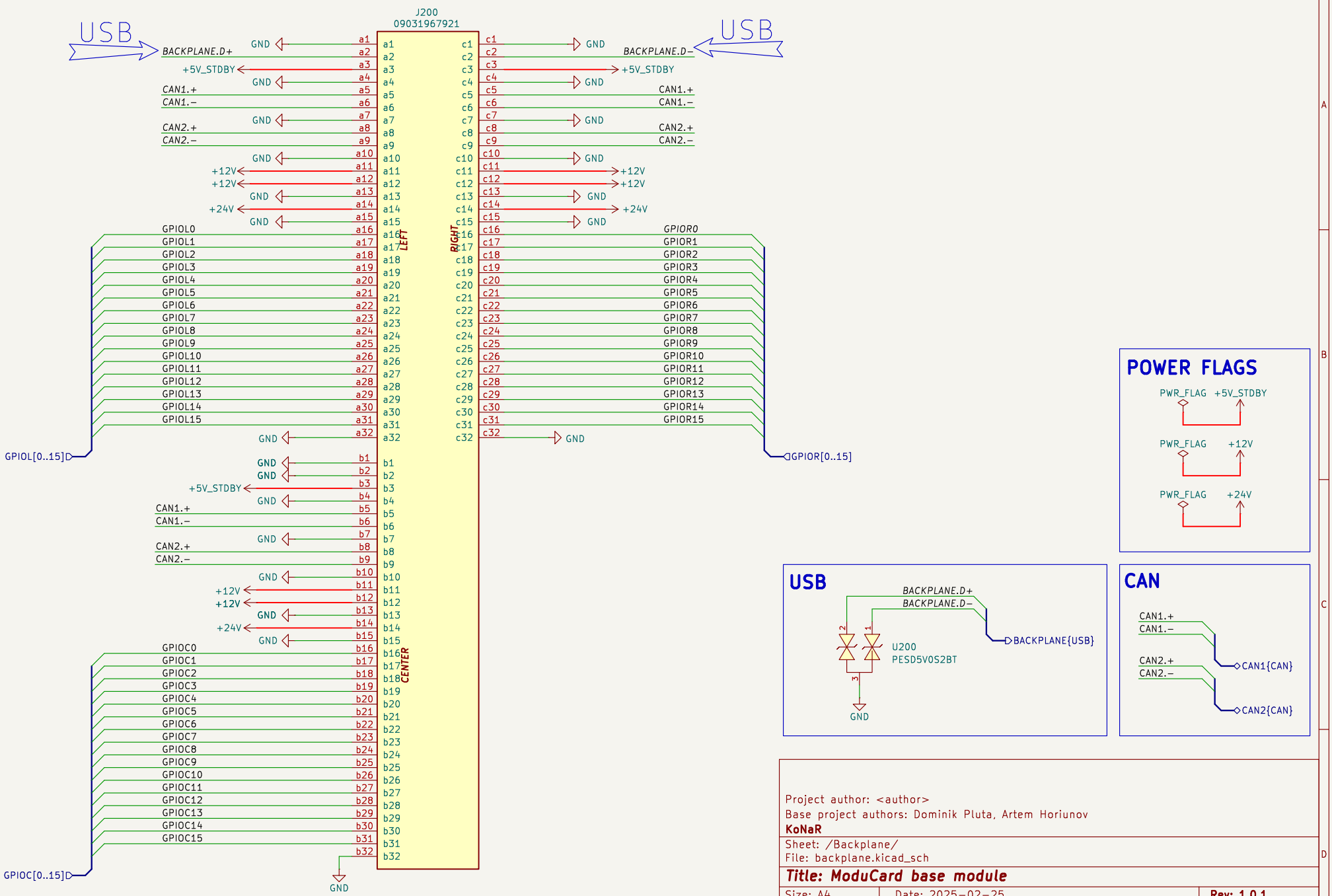


Project author: <author>
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR

Sheet: /
File: base-module.kicad_sch

Title: ModuCard base module

Size: A4	Date: 2025-02-25	**Rev: 1.0.1**
KiCad E.D.A. 8.0.9		Id: 1/10



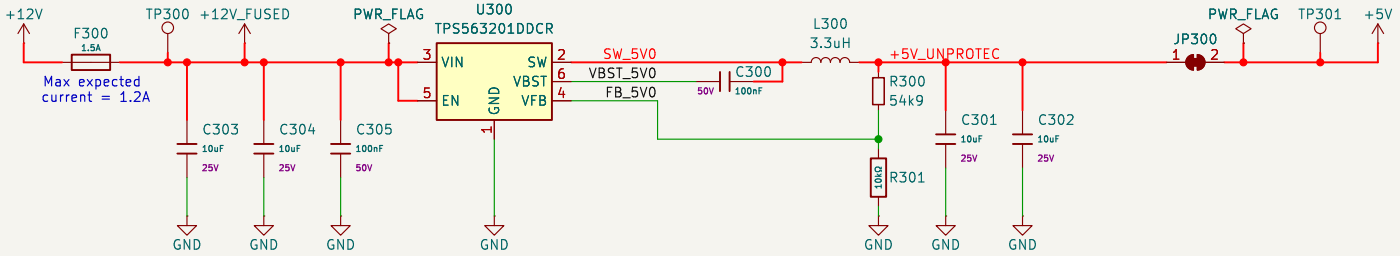
Project author: <author>
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR

Sheet: /Backplane/
File: backplane.kicad_sch

Title: ModuCard base module

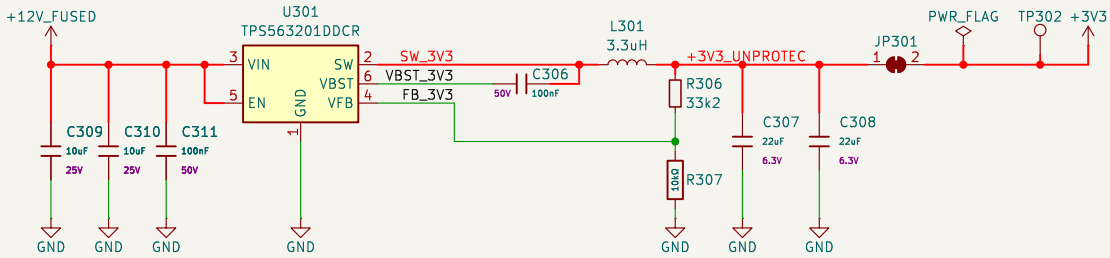
Size: A4	Date: 2025-02-25	**Rev: 1.0.1**
KiCad E.D.A. 8.0.9		Id: 2/10

5V DC/DC CONVERTER



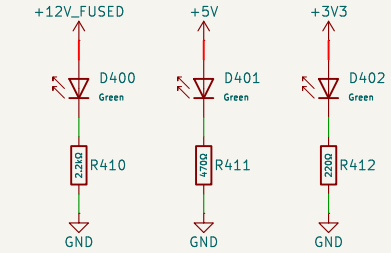
$V_{OUT} = 0.765*(1+R300/R301)$
$V_{OUT} = 0.765*(1+54k9/10k) = 4.96V$

3V3 DC/DC CONVERTER



$V_{OUT} = 0.765*(1+R302/R307)$
$V_{OUT} = 0.765*(1+33k2/10k) = 3.3V$

POWER INDICATOR LEDs



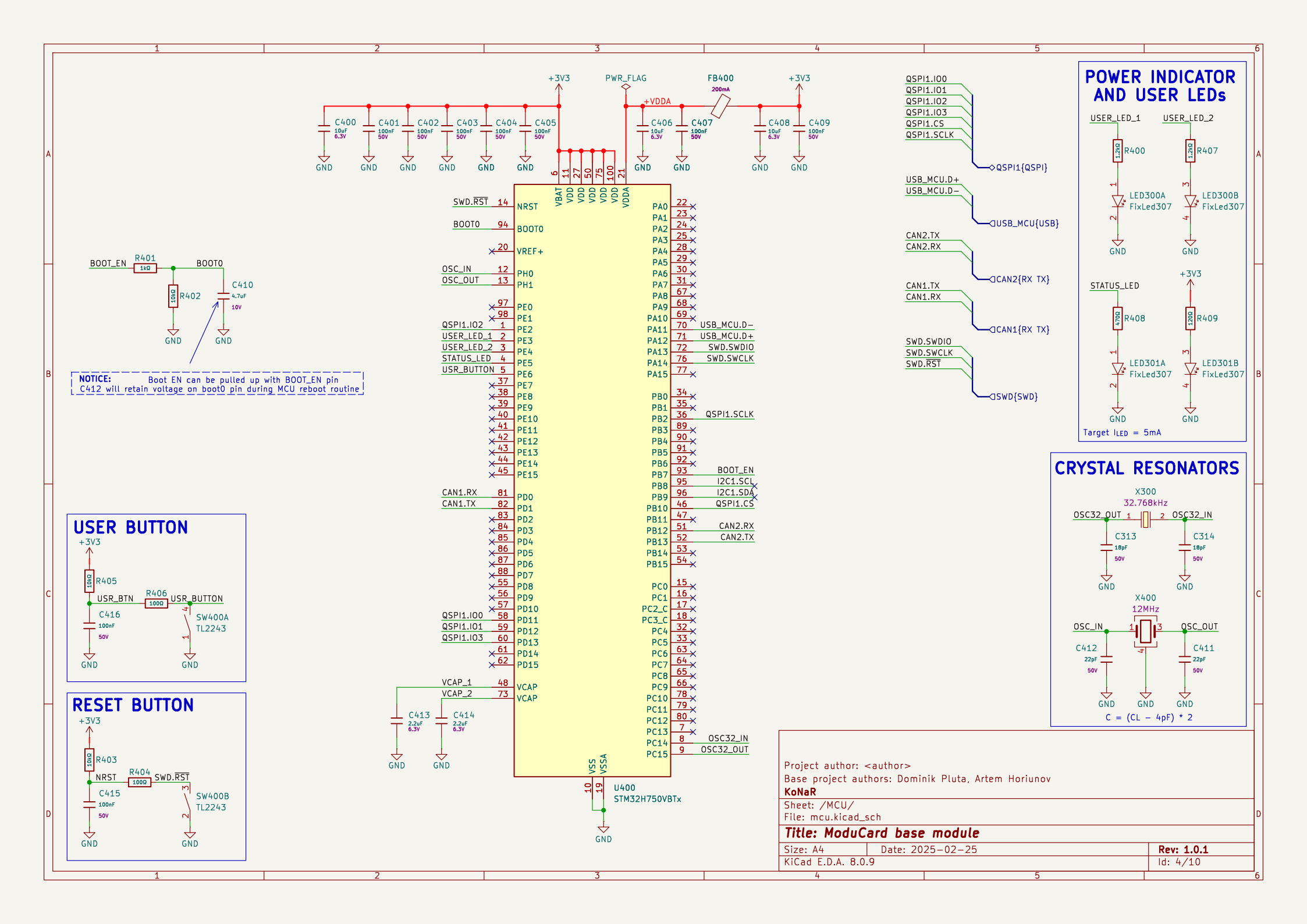
Target I_{LED} = 5mA

Project author: <author>
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR

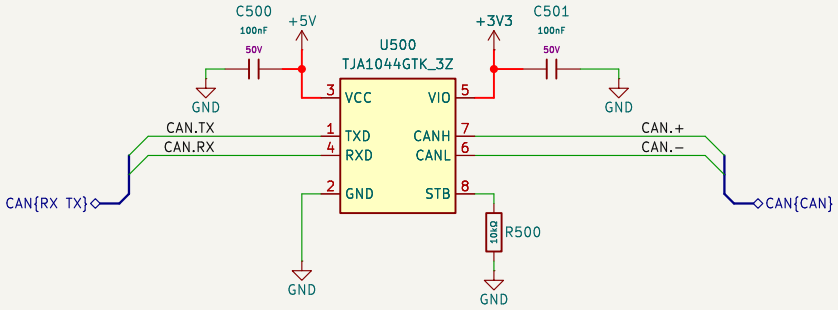
Sheet: /Power/
File: power.kicad_sch

Title: ModuCard base module

Size: A4	Date: 2025-02-25	**Rev: 1.0.1**
KiCad E.D.A. 8.0.9		Id: 3/10


+3V3
PWR_FLAG
FB400
200mA
+VDDA
C400 10uF 6.3V
C401 100nF 50V
C402 100nF 50V
C403 100nF 50V
C404 100nF 50V
C405 100nF 50V
C406 10uF 6.3V
C407 100nF 50V
C408 10uF 6.3V
C409 100nF 50V
GND
VBAT
VDD
VDDA
VSS
VSSA
U400
STM32H750VBTx
NRST
BOOT0
VREF+
VCAP
PH0
PH1
PA0
PA1
PA2
PA3
PA4
PA5
PA6
PA7
PA8
PA9
PA10
PA11
PA12
PA13
PA14
PA15
PB0
PB1
PB2
PB3
PB4
PB5
PB6
PB7
PB8
PB9
PB10
PB11
PB12
PB13
PB14
PB15
PC0
PC1
PC2_C
PC3_C
PC4
PC5
PC6
PC7
PC8
PC9
PC10
PC11
PC12
PC13
PC14
PC15
PE0
PE1
PE2
PE3
PE4
PE5
PE6
PE7
PE8
PE9
PE10
PE11
PE12
PE13
PE14
PE15
PD0
PD1
PD2
PD3
PD4
PD5
PD6
PD7
PD8
PD9
PD10
PD11
PD12
PD13
PD14
PD15
SWD.RST
BOOT0
OSC_IN
OSC_OUT
QSPI1.IO2
USER_LED_1
USER_LED_2
STATUS_LED
USR_BUTTON
CAN1.RX
CAN1.TX
QSPI1.IO0
QSPI1.IO1
QSPI1.IO3
VCAP_1
VCAP_2
C413 2.2uF 6.3V
C414 2.2uF 6.3V
USB_MCU.D−
USB_MCU.D+
SWD.SWDIO
SWD.SWCLK
QSPI1.SCLK
BOOT_EN
I2C1.SCL
I2C1.SDA
QSPI1.CS
CAN2.RX
CAN2.TX
OSC32_IN
OSC32_OUT
QSPI1.IO0
QSPI1.IO1
QSPI1.IO2
QSPI1.IO3
QSPI1.CS
QSPI1.SCLK
QSPI1{QSPI}
USB_MCU.D+
USB_MCU.D−
USB_MCU{USB}
CAN2.TX
CAN2.RX
CAN2{RX TX}
CAN1.TX
CAN1.RX
CAN1{RX TX}
SWD.SWDIO
SWD.SWCLK
SWD.RST
SWD{SWD}
BOOT_EN
R401 1kΩ
R402 10kΩ
C410 4.7uF 10V
NOTICE: Boot EN can be pulled up with BOOT_EN pin
C412 will retain voltage on boot0 pin during MCU reboot routine
USER BUTTON
R405 10kΩ
R406 100Ω
C416 100nF 50V
SW400A TL2243
USR_BTN
USR_BUTTON
RESET BUTTON
R403 10kΩ
R404 100Ω
C415 100nF 50V
SW400B TL2243
NRST
SWD.RST
POWER INDICATOR AND USER LEDs
USER_LED_1
USER_LED_2
R400 1.2kΩ
R407 1.2kΩ
LED300A FixLed307
LED300B FixLed307
STATUS_LED
R408 470Ω
R409 120Ω
LED301A FixLed307
LED301B FixLed307
Target ILED = 5mA
CRYSTAL RESONATORS
X300
32.768kHz
C313 18pF 50V
C314 18pF 50V
X400
12MHz
C412 22pF 50V
C411 22pF 50V
C = (CL − 4pF) * 2
Project author: <author>
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR
Sheet: /MCU/
File: mcu.kicad_sch
Title: ModuCard base module
Size: A4
Date: 2025-02-25
Rev: 1.0.1
KiCad E.D.A. 8.0.9
Id: 4/10

CAN TRANSCEIVER



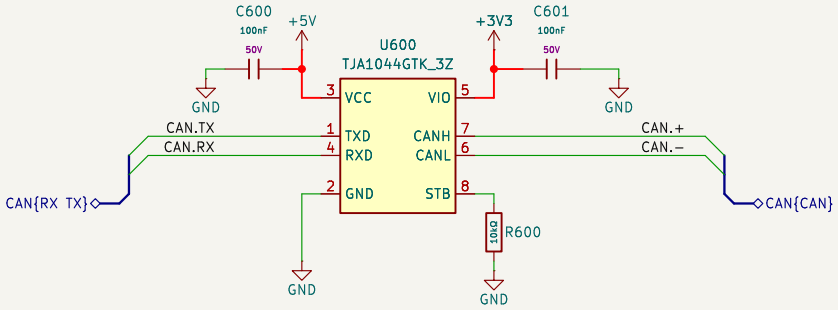
Project author: <author>
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR

Sheet: /CAN transceiver 1/
File: can-transceiver.kicad_sch

Title: ModuCard base module

Size: A4	Date: 2025-02-25	**Rev: 1.0.1**
KiCad E.D.A. 8.0.9		Id: 5/10

CAN TRANSCEIVER

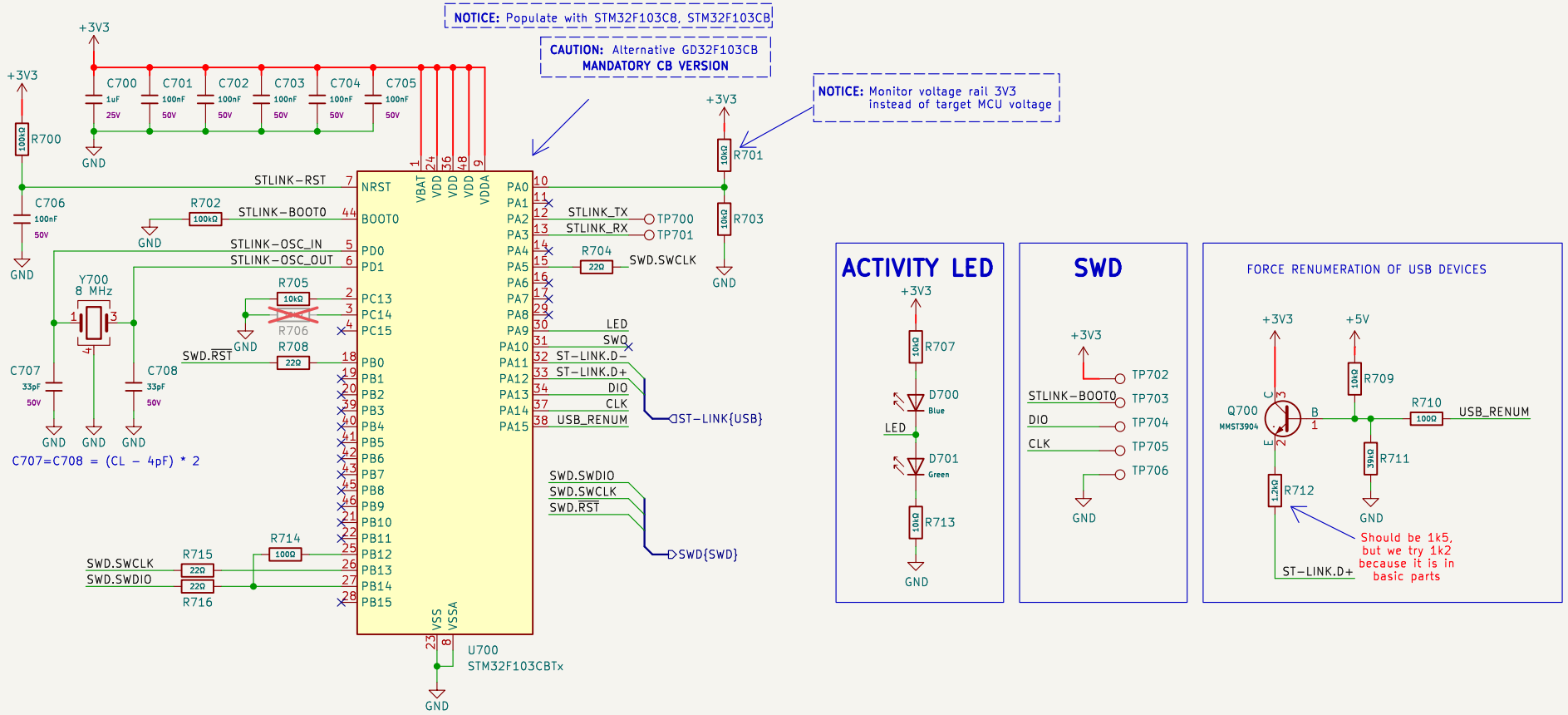


Project author: <author>
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR

Sheet: /CAN transceiver 2/
File: can-transceiver.kicad_sch

Title: ModuCard base module

Size: A4	Date: 2025-02-25	**Rev: 1.0.1**
KiCad E.D.A. 8.0.9		Id: 6/10



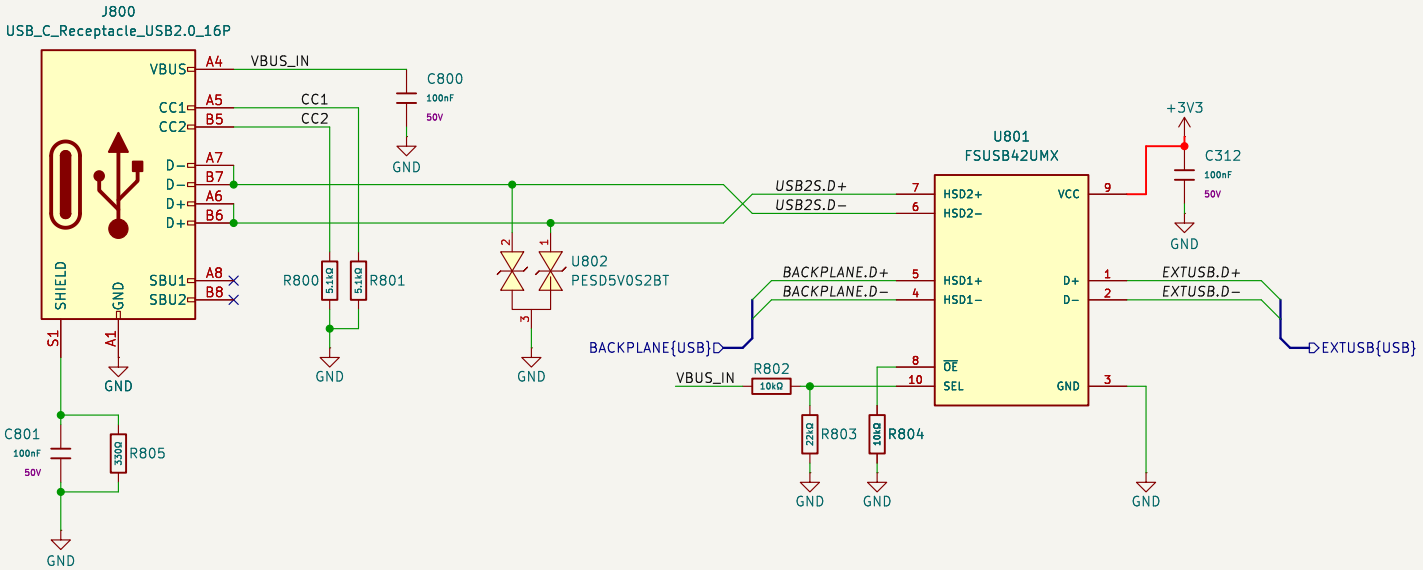
Credit to:
https://github.com/lbthomsen/st-link/tree/master
https://stm32world.com/wiki/DIY_STM32_Programmer_(ST-Link/V2-1)
for providing amazing reverse engeenering of ST-link

Project author: <author>
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR

Sheet: /ST-LINK/
File: st-link.kicad_sch

Title: ModuCard base module

Size: A4	Date: 2025-02-25	**Rev: 1.0.1**
KiCad E.D.A. 8.0.9		Id: 7/10

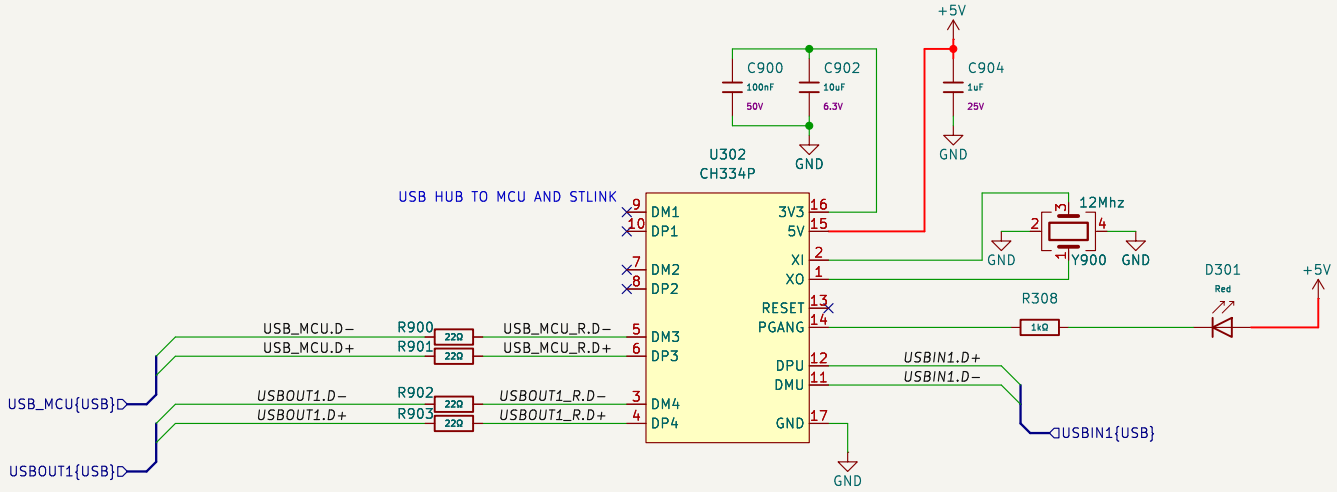


Project author: <author>
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR

Sheet: /USB/
File: USB.kicad_sch

Title: ModuCard base module

Size: A4	Date: 2025-02-25	**Rev: 1.0.1**
KiCad E.D.A. 8.0.9		Id: 8/10

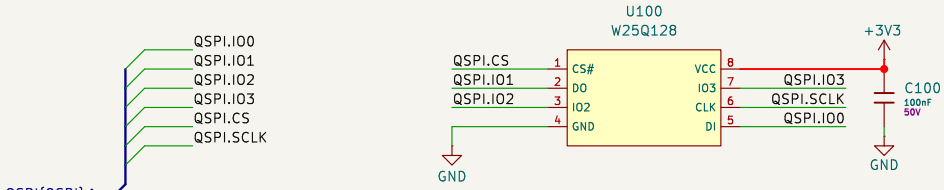


Project author: <author>
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR

Sheet: /USB−hub/
File: USB−hub.kicad_sch

Title: ModuCard base module

Size: A4	Date: 2025−02−25	**Rev: 1.0.1**
KiCad E.D.A. 8.0.9		Id: 9/10



Project author: <author>
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR

Sheet: /QSPI FLASH/
File: QSPI FLASH.kicad_sch

Title: ModuCard base module

Size: A4	Date: 2025-02-25	**Rev: 1.0.1**
KiCad E.D.A. 8.0.9		Id: 10/10