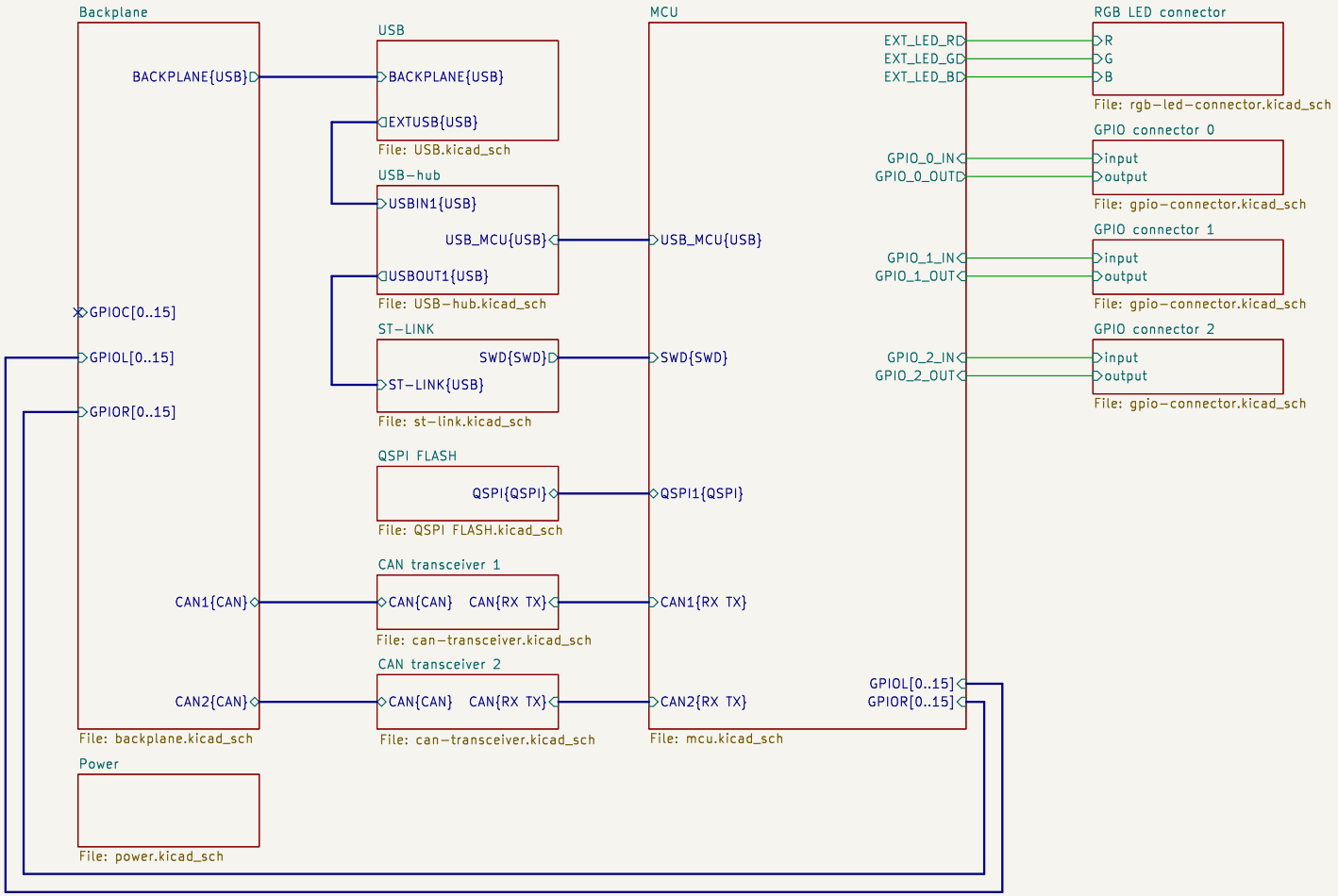
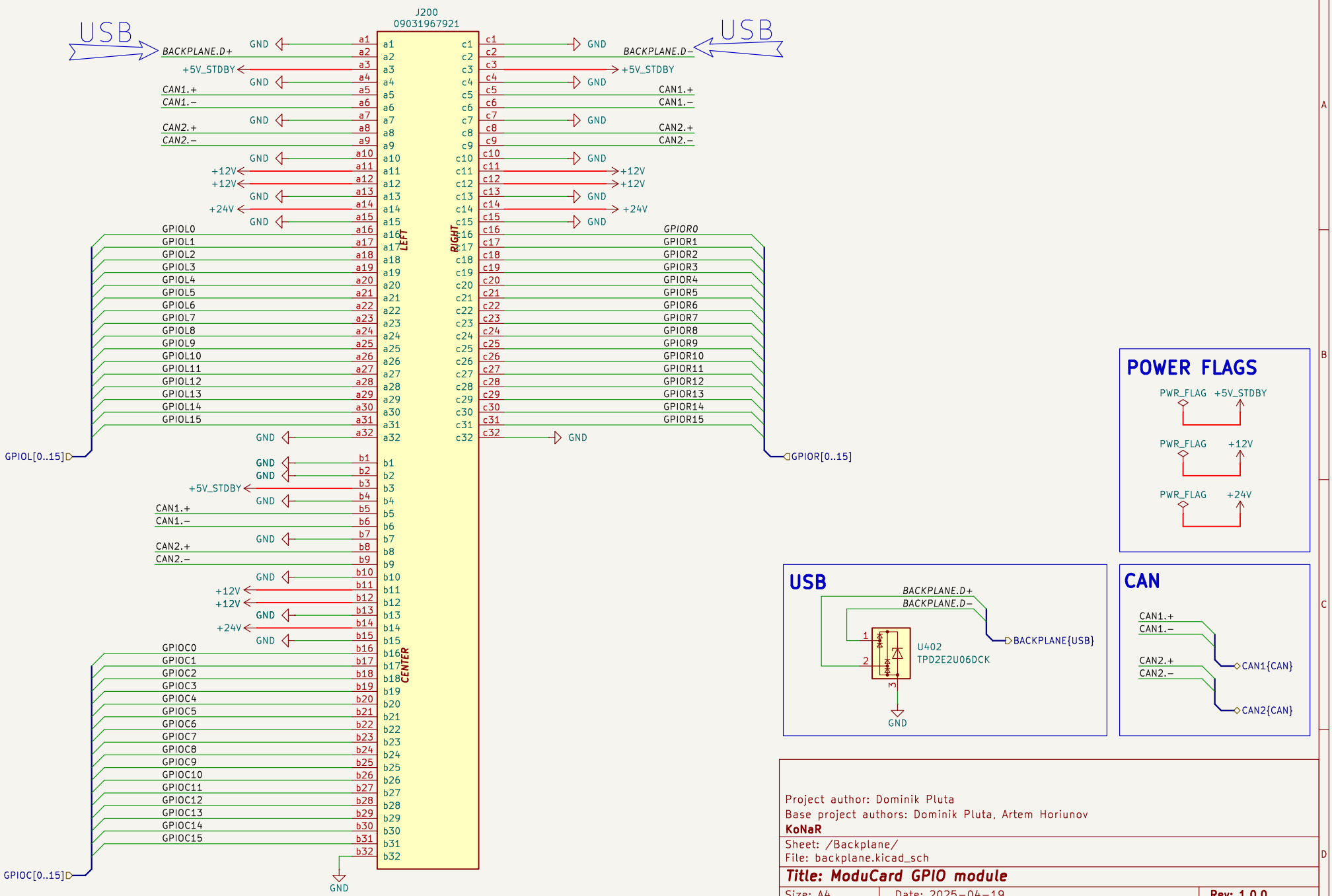


Project author: Dominik Pluta
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR

Sheet: /
File: gpio-module.kicad_sch

Title: ModuCard GPIO module

Size: A4	Date: 2025-04-19	**Rev: 1.0.0**
KiCad E.D.A. 9.0.2		Id: 1/20



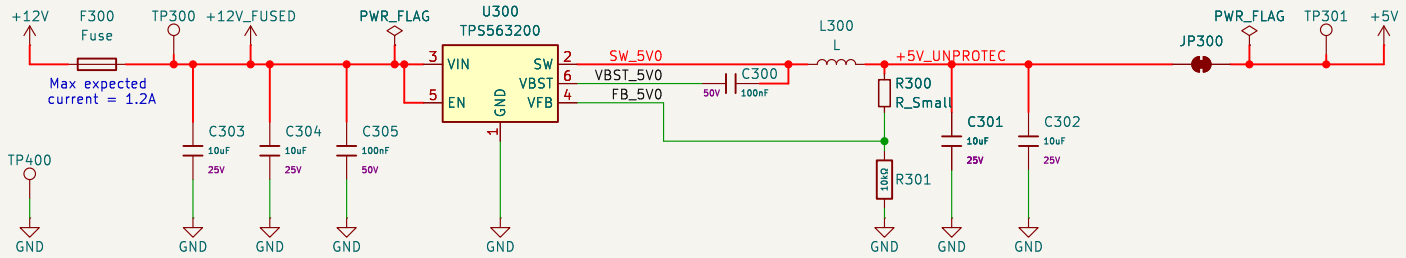
Project author: Dominik Pluta
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR

Sheet: /Backplane/
File: backplane.kicad_sch

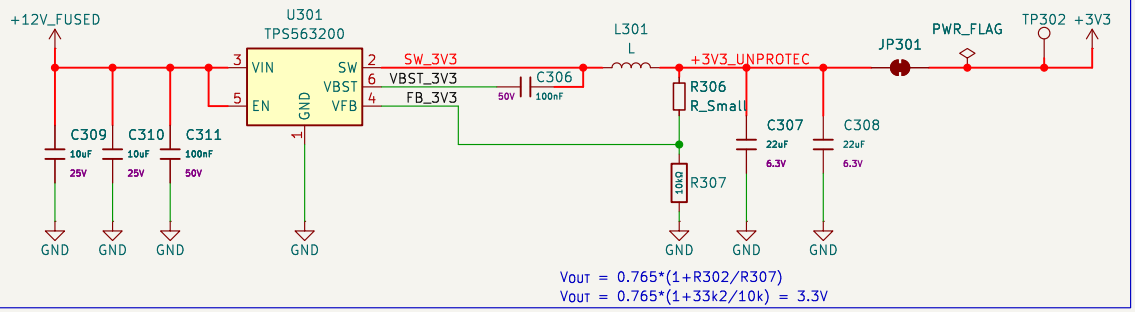
Title: ModuCard GPIO module

Size: A4	Date: 2025-04-19	**Rev: 1.0.0**
KiCad E.D.A. 9.0.2		Id: 2/20

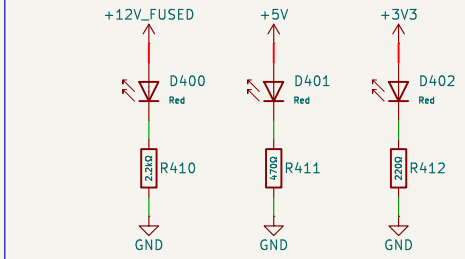
5V DC/DC CONVERTER

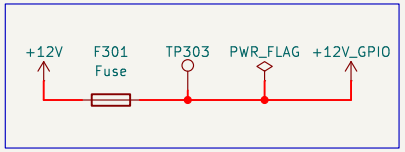


3V3 DC/DC CONVERTER



POWER INDICATOR LEDs



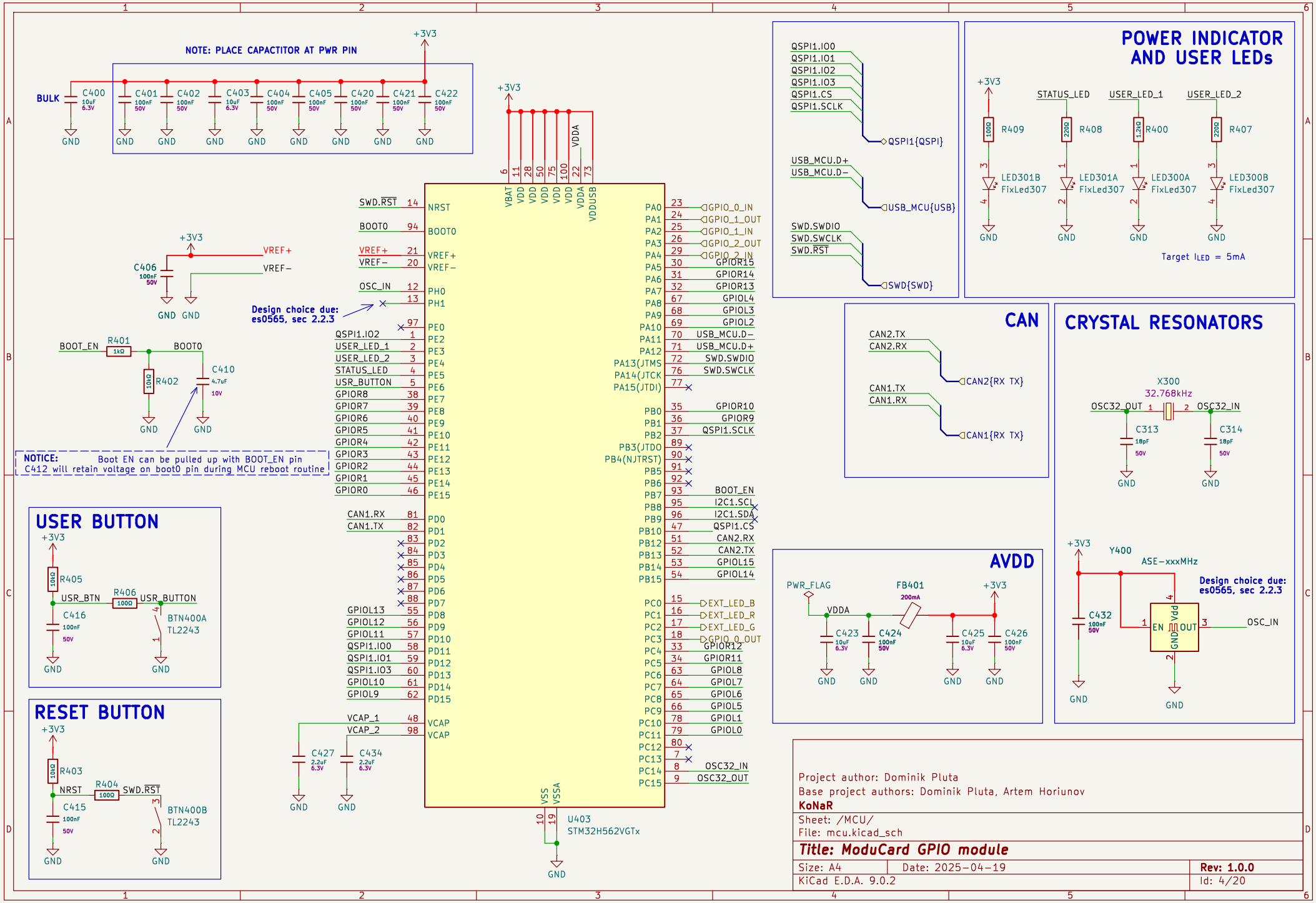


Project author: Dominik Pluta
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR

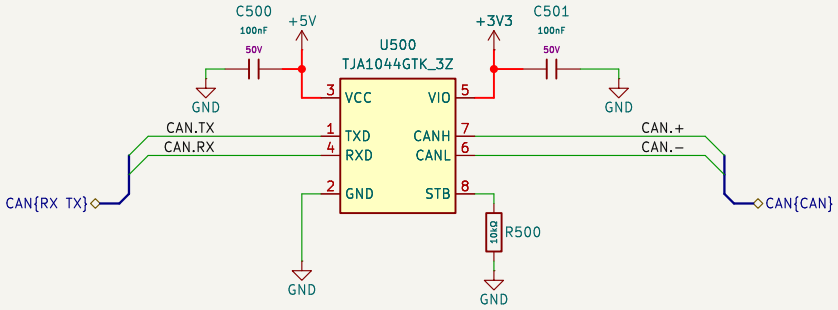
Sheet: /Power/
File: power.kicad_sch

Title: ModuCard GPIO module

Size: A4	Date: 2025-04-19	**Rev: 1.0.0**
KiCad E.D.A. 9.0.2		Id: 3/20


NOTE: PLACE CAPACTITOR AT PWR PIN
BULK
C400 10uF 6.3V
C401 100nF 50V
C402 100nF 50V
C403 10uF 6.3V
C404 100nF 50V
C405 100nF 50V
C420 100nF 50V
C421 100nF 50V
C422 100nF 50V
+3V3
GND
C406 100nF 50V
VREF+
VREF−
Design choice due: es0565, sec 2.2.3
BOOT_EN
R401 1kΩ
BOOT0
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
USR_BTN
R406 100Ω
USR_BUTTON
C416 100nF 50V
BTN400A TL2243
RESET BUTTON
R403 10kΩ
NRST
R404 100Ω
SWD.RST
C415 100nF 50V
BTN400B TL2243
U403
STM32H562VGTx
VBAT VDD VDD VDD VDD VDD VDDA VDDUSB
VSS VSSA
SWD.RST 14 NRST
BOOT0 94 BOOT0
VREF+ 21 VREF+
VREF− 20 VREF−
OSC_IN 12 PH0
13 PH1
97 PE0
QSPI1.IO2 1 PE2
USER_LED_1 2 PE3
USER_LED_2 3 PE4
STATUS_LED 4 PE5
USR_BUTTON 5 PE6
GPIOR8 38 PE7
GPIOR7 39 PE8
GPIOR6 40 PE9
GPIOR5 41 PE10
GPIOR4 42 PE11
GPIOR3 43 PE12
GPIOR2 44 PE13
GPIOR1 45 PE14
GPIOR0 46 PE15
CAN1.RX 81 PD0
CAN1.TX 82 PD1
83 PD2
84 PD3
85 PD4
86 PD5
87 PD6
88 PD7
GPIOL13 55 PD8
GPIOL12 56 PD9
GPIOL11 57 PD10
QSPI1.IO0 58 PD11
QSPI1.IO1 59 PD12
QSPI1.IO3 60 PD13
GPIOL10 61 PD14
GPIOL9 62 PD15
VCAP_1 48 VCAP
VCAP_2 98 VCAP
C427 2.2uF 6.3V
C434 2.2uF 6.3V
PA0 23 GPIO_0_IN
PA1 24 GPIO_1_OUT
PA2 25 GPIO_1_IN
PA3 26 GPIO_2_OUT
PA4 29 GPIO_2_IN
PA5 30 GPIOR15
PA6 31 GPIOR14
PA7 32 GPIOR13
PA8 67 GPIOL4
PA9 68 GPIOL3
PA10 69 GPIOL2
PA11 70 USB_MCU.D−
PA12 71 USB_MCU.D+
PA13(JTMS 72 SWD.SWDIO
PA14(JTCK 76 SWD.SWCLK
PA15(JTDI) 77
PB0 35 GPIOR10
PB1 36 GPIOR9
PB2 37 QSPI1.SCLK
PB3(JTDO 89
PB4(NJTRST) 90
PB5 91
PB6 92
PB7 93 BOOT_EN
PB8 95 I2C1.SCL
PB9 96 I2C1.SDA
PB10 47 QSPI1.CS
PB12 51 CAN2.RX
PB13 52 CAN2.TX
PB14 53 GPIOL15
PB15 54 GPIOL14
PC0 15 EXT_LED_B
PC1 16 EXT_LED_R
PC2 17 EXT_LED_G
PC3 18 GPIO_0_OUT
PC4 33 GPIOR12
PC5 34 GPIOR11
PC6 63 GPIOL8
PC7 64 GPIOL7
PC8 65 GPIOL6
PC9 66 GPIOL5
PC10 78 GPIOL1
PC11 79 GPIOL0
PC12 80
PC13 7
PC14 8 OSC32_IN
PC15 9 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}
SWD.SWDIO
SWD.SWCLK
SWD.RST
SWD{SWD}
POWER INDICATOR AND USER LEDs
STATUS_LED
USER_LED_1
USER_LED_2
R409 100Ω
R408 220Ω
R400 1.2kΩ
R407 220Ω
LED301B FixLed307
LED301A FixLed307
LED300A FixLed307
LED300B FixLed307
Target ILED = 5mA
CAN
CAN2.TX
CAN2.RX
CAN2{RX TX}
CAN1.TX
CAN1.RX
CAN1{RX TX}
CRYSTAL RESONATORS
X300
32.768kHz
OSC32_OUT
OSC32_IN
C313 18pF 50V
C314 18pF 50V
Y400
ASE−xxxMHz
Design choice due: es0565, sec 2.2.3
C432 100nF 50V
EN
Vdd
GND
OUT
OSC_IN
AVDD
PWR_FLAG
FB401 200mA
VDDA
C423 10uF 6.3V
C424 100nF 50V
C425 10uF 6.3V
C426 100nF 50V
Project author: Dominik Pluta
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR
Sheet: /MCU/
File: mcu.kicad_sch
Title: ModuCard GPIO module
Size: A4
Date: 2025−04−19
Rev: 1.0.0
KiCad E.D.A. 9.0.2
Id: 4/20

CAN TRANSCEIVER



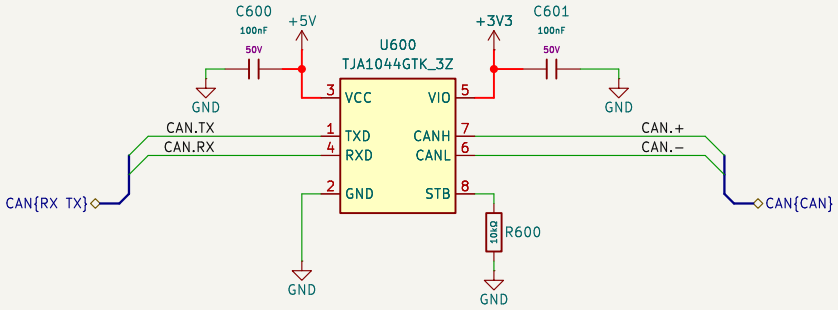
Project author: Dominik Pluta
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR

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

Title: ModuCard GPIO module

Size: A4	Date: 2025-04-19	**Rev: 1.0.0**
KiCad E.D.A. 9.0.2		Id: 5/20

CAN TRANSCEIVER

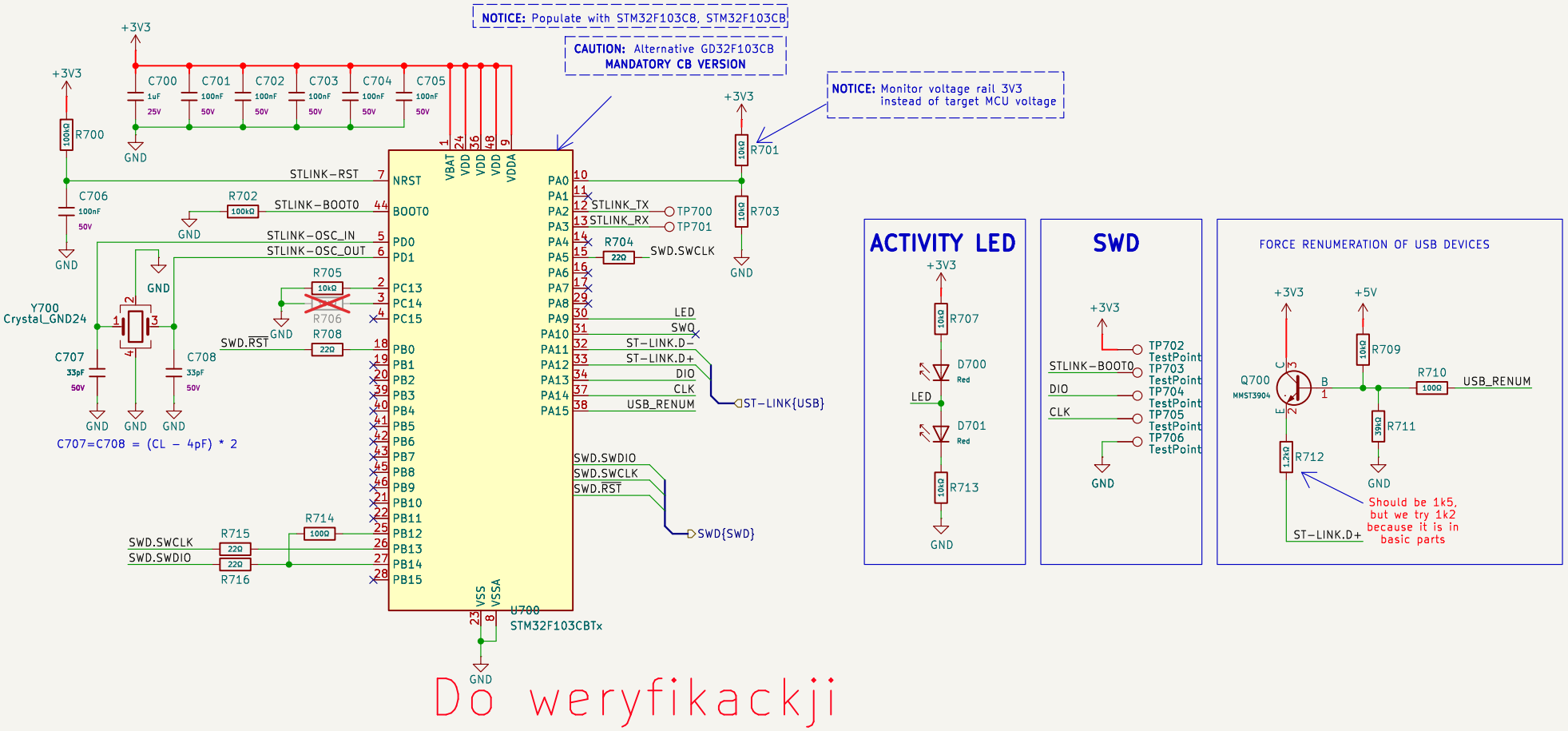


Project author: Dominik Pluta
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR

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

Title: ModuCard GPIO module

Size: A4	Date: 2025-04-19	**Rev: 1.0.0**
KiCad E.D.A. 9.0.2		Id: 6/20



Do weryfikackji

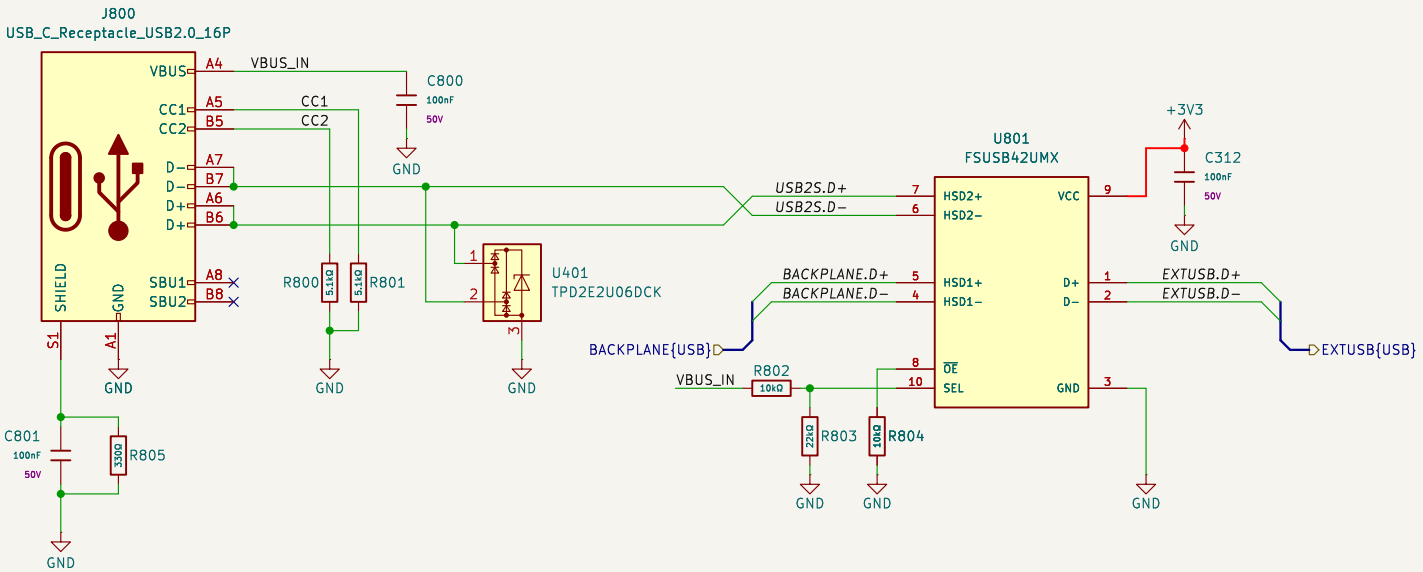
Credit to:
https://github.com/lbthomsen/st-link/tree/master
https://stm32world.com/wiki/DIY_STM32_Programmer_(ST-Link/V2-1)
for providing amazing reverse engeenering of ST-link

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

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

Title: ModuCard GPIO module

Size: A4	Date: 2025-04-19	**Rev: 1.0.0**
KiCad E.D.A. 9.0.2		Id: 7/20

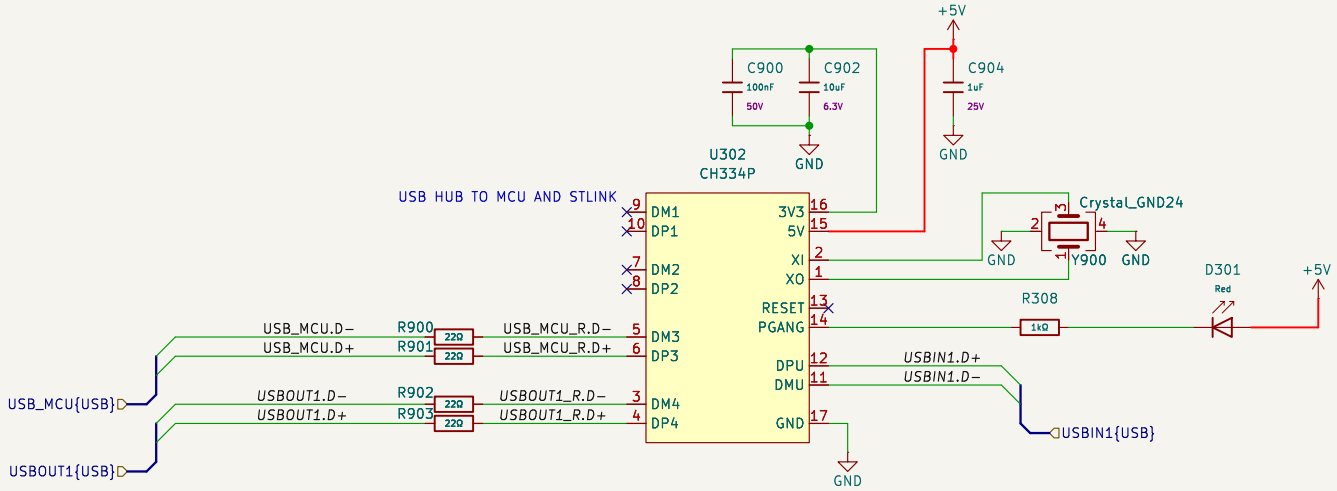


Project author: Dominik Pluta
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR

Sheet: /USB/
File: USB.kicad_sch

Title: ModuCard GPIO module

Size: A4	Date: 2025-04-19	**Rev: 1.0.0**
KiCad E.D.A. 9.0.2		Id: 8/20

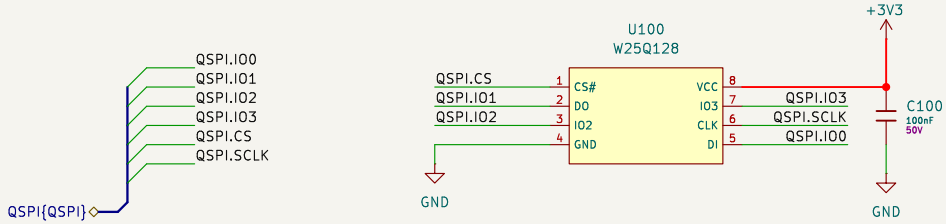


Project author: Dominik Pluta
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR

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

Title: ModuCard GPIO module

Size: A4	Date: 2025−04−19	**Rev: 1.0.0**
KiCad E.D.A. 9.0.2		Id: 9/20

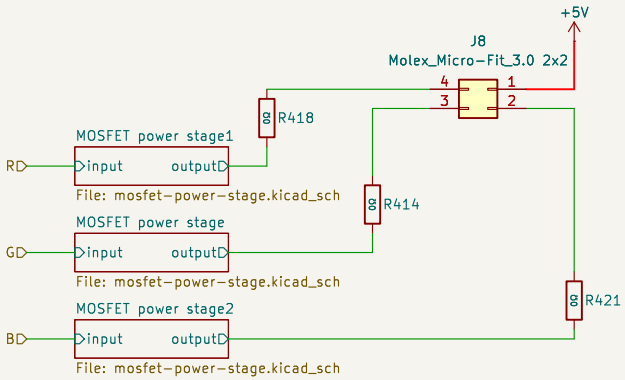


Project author: Dominik Pluta
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR

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

Title: ModuCard GPIO module

Size: A4	Date: 2025-04-19	**Rev: 1.0.0**
KiCad E.D.A. 9.0.2		Id: 10/20

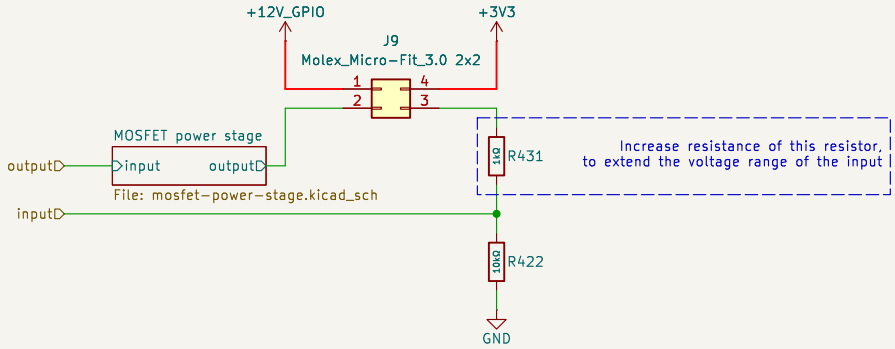


Project author: Dominik Pluta
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR

Sheet: /RGB LED connector/
File: rgb-led-connector.kicad_sch

Title: ModuCard GPIO module

Size: A4	Date: 2025-04-19	**Rev: 1.0.0**
KiCad E.D.A. 9.0.2		Id: 11/20

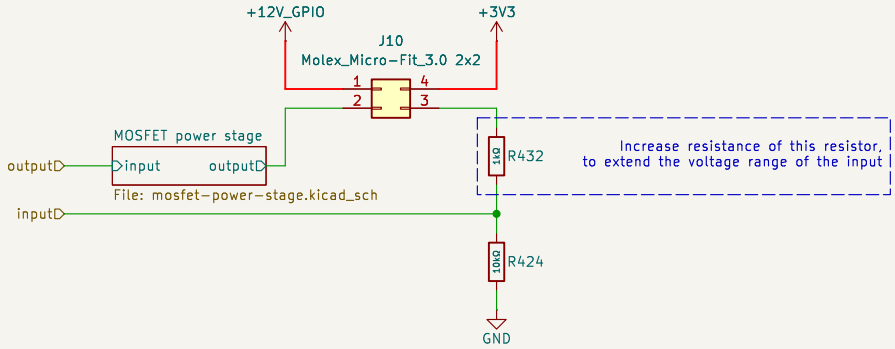


Project author: Dominik Pluta
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR

Sheet: /GPIO connector 0/
File: gpio-connector.kicad_sch

Title: ModuCard GPIO module

Size: A4	Date: 2025-04-19	**Rev: 1.0.0**
KiCad E.D.A. 9.0.2		Id: 15/20

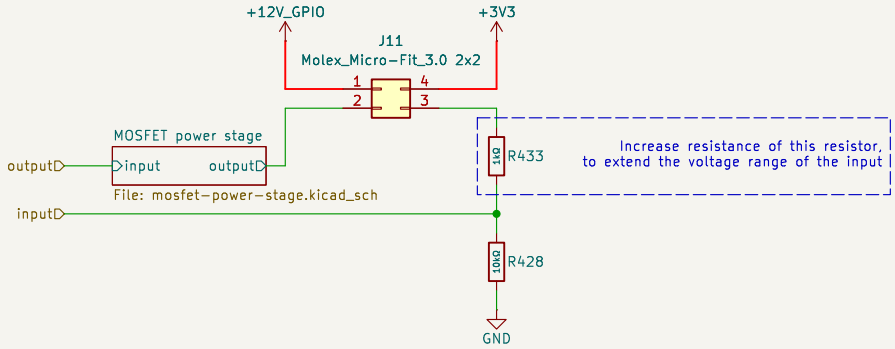


Project author: Dominik Pluta
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR

Sheet: /GPIO connector 1/
File: gpio-connector.kicad_sch

Title: ModuCard GPIO module

Size: A4	Date: 2025-04-19	**Rev: 1.0.0**
KiCad E.D.A. 9.0.2		Id: 16/20

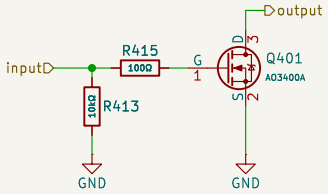


Project author: Dominik Pluta
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR

Sheet: /GPIO connector 2/
File: gpio-connector.kicad_sch

Title: ModuCard GPIO module

Size: A4	Date: 2025-04-19	**Rev: 1.0.0**
KiCad E.D.A. 9.0.2		Id: 19/20

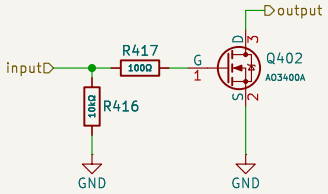


Project author: Dominik Pluta
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR

Sheet: /RGB LED connector/MOSFET power stage/
File: mosfet-power-stage.kicad_sch

Title: ModuCard GPIO module

Size: A4	Date: 2025-04-19	**Rev: 1.0.0**
KiCad E.D.A. 9.0.2		Id: 12/20

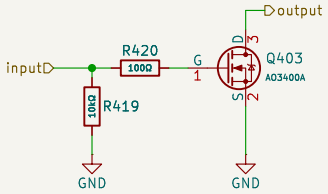


Project author: Dominik Pluta
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR

Sheet: /RGB LED connector/MOSFET power stage1/
File: mosfet-power-stage.kicad_sch

Title: ModuCard GPIO module

Size: A4	Date: 2025-04-19	**Rev: 1.0.0**
KiCad E.D.A. 9.0.2		Id: 13/20

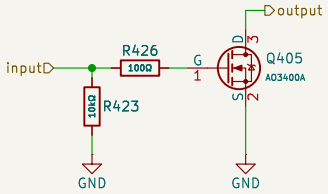


Project author: Dominik Pluta
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR

Sheet: /RGB LED connector/MOSFET power stage2/
File: mosfet-power-stage.kicad_sch

Title: ModuCard GPIO module

Size: A4	Date: 2025-04-19	**Rev: 1.0.0**
KiCad E.D.A. 9.0.2		Id: 14/20

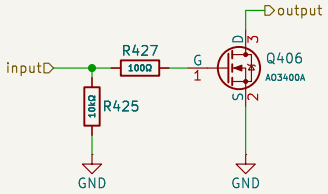


Project author: Dominik Pluta
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR

Sheet: /GPIO connector 0/MOSFET power stage/
File: mosfet-power-stage.kicad_sch

Title: ModuCard GPIO module

Size: A4	Date: 2025-04-19	**Rev: 1.0.0**
KiCad E.D.A. 9.0.2		Id: 17/20

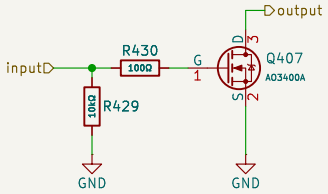


Project author: Dominik Pluta
Base project authors: Dominik Pluta, Artem Horiunov
KoNaR

Sheet: /GPIO connector 1/MOSFET power stage/
File: mosfet-power-stage.kicad_sch

Title: ModuCard GPIO module

Size: A4	Date: 2025-04-19	**Rev: 1.0.0**
KiCad E.D.A. 9.0.2		Id: 18/20



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

Sheet: /GPIO connector 2/MOSFET power stage/
File: mosfet-power-stage.kicad_sch

Title: ModuCard GPIO module

Size: A4	Date: 2025-04-19	**Rev: 1.0.0**
KiCad E.D.A. 9.0.2		Id: 20/20