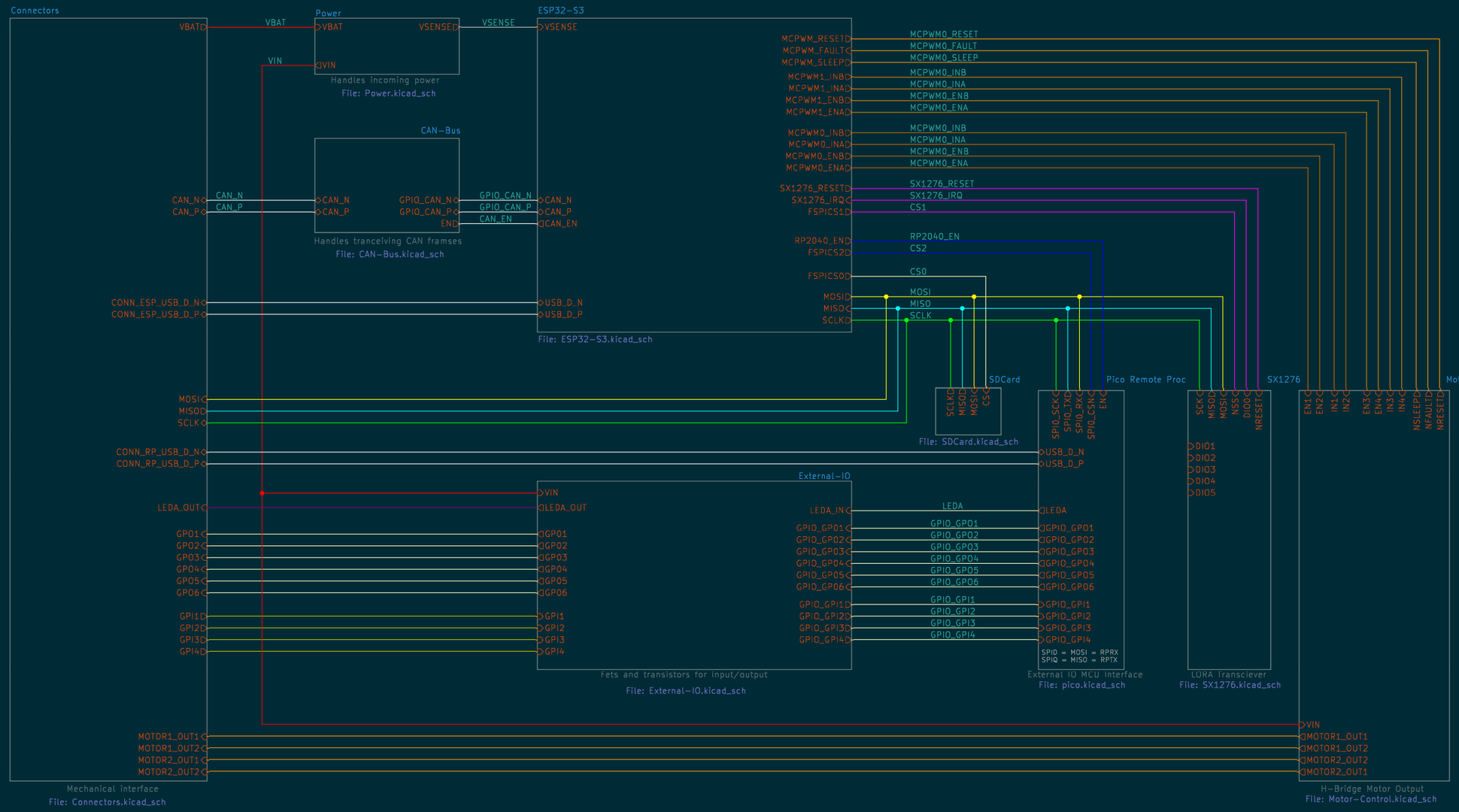


https://github.com/miata-bot/can-link

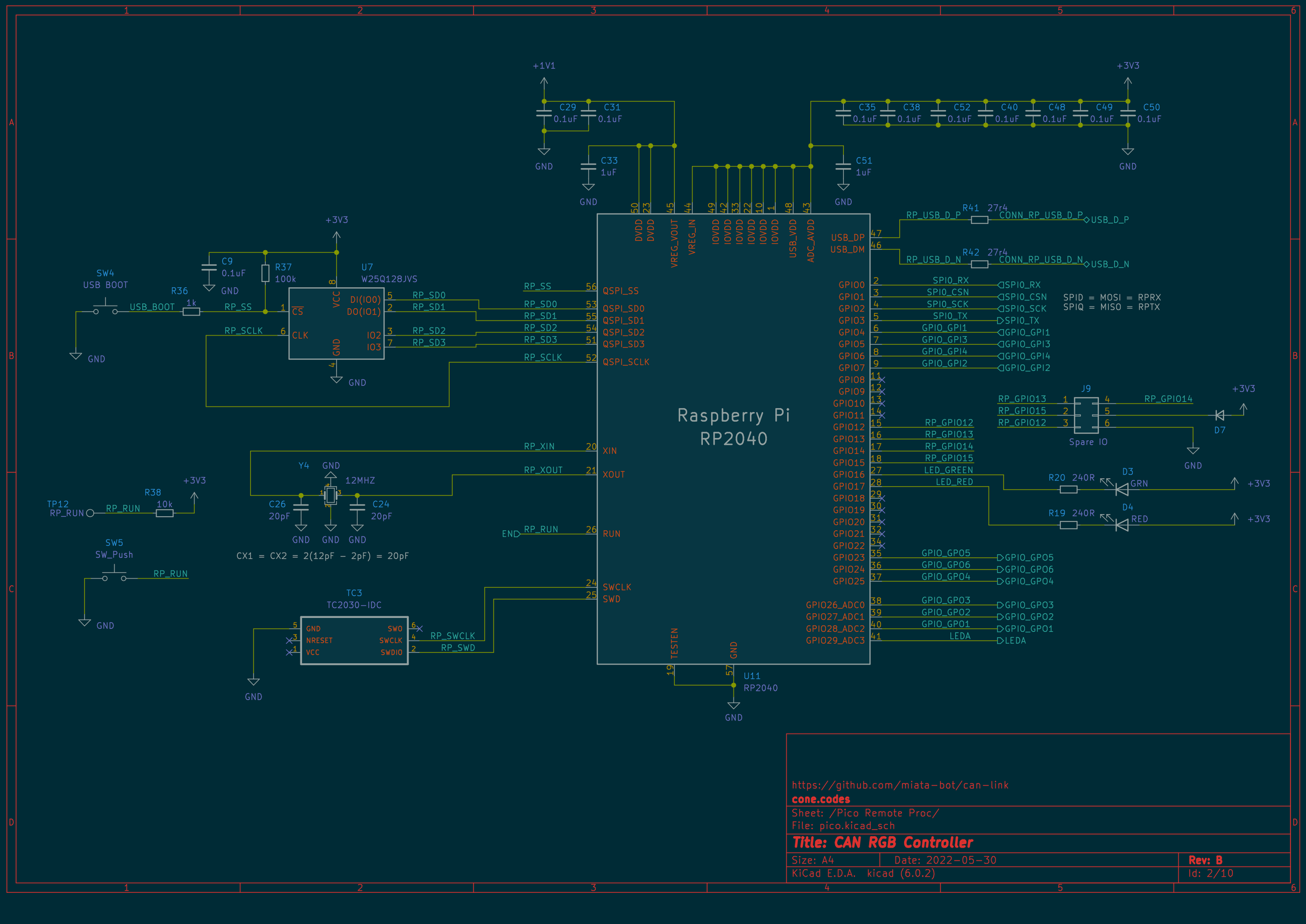
cone.codes

Sheet: /

File: RGB-controller.kicad_sch

Title: CAN RGB Controller

Size: A3	Date: 2022-05-30	**Rev: B**
KiCad E.D.A. kicad (6.0.2)		Id: 1/10



https://github.com/miata-bot/can-link

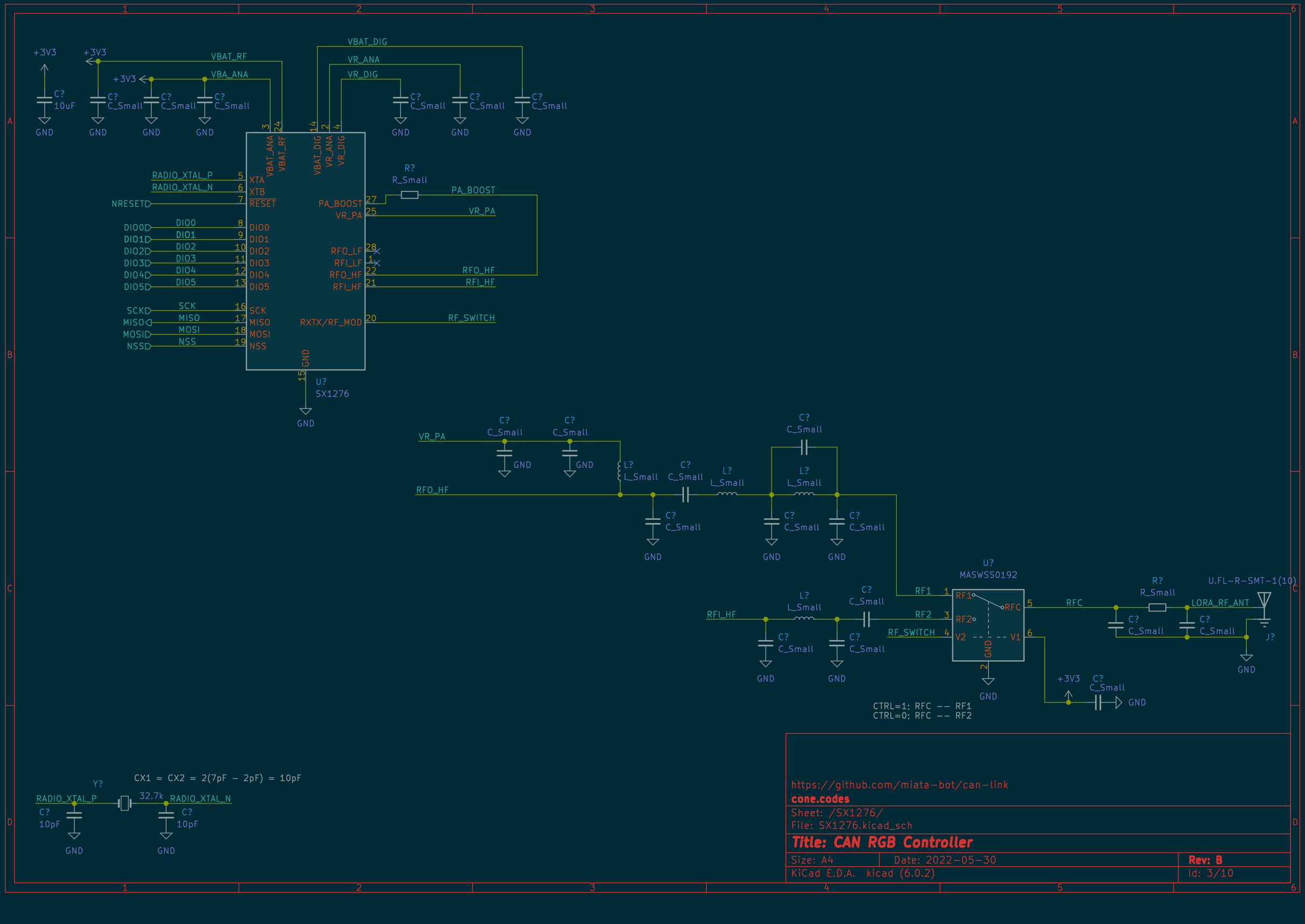
cone.codes

Sheet: /Pico Remote Proc/

File: pico.kicad_sch

Title: CAN RGB Controller

Size: A4	Date: 2022-05-30	**Rev: B**
KiCad E.D.A. kicad (6.0.2)		Id: 2/10


+3V3
C?
10uF
GND
+3V3
VBAT_RF
C?
C_Small
GND
+3V3
VBA_ANA
C?
C_Small
GND
C?
C_Small
GND
VBAT_DIG
VR_ANA
VR_DIG
C?
C_Small
GND
C?
C_Small
GND
C?
C_Small
GND
3
24
14
2
4
VBAT_ANA
VBAT_RF
VBAT_DIG
VR_ANA
VR_DIG
RADIO_XTAL_P
RADIO_XTAL_N
NRESET
DIO0
DIO1
DIO2
DIO3
DIO4
DIO5
SCK
MISO
MOSI
NSS
5
6
7
8
9
10
11
12
13
16
17
18
19
XTA
XTB
RESET
DIO0
DIO1
DIO2
DIO3
DIO4
DIO5
SCK
MISO
MOSI
NSS
R?
R_Small
PA_BOOST
VR_PA
RFO_LF
RFI_LF
RFO_HF
RFI_HF
RXTX/RF_MOD
27
25
28
1
22
21
20
PA_BOOST
VR_PA
RFO_HF
RFI_HF
RF_SWITCH
GND
15
U?
SX1276
GND
VR_PA
C?
C_Small
C?
C_Small
GND
GND
L?
L_Small
C?
C_Small
L?
L_Small
C?
C_Small
L?
L_Small
C?
C_Small
C?
C_Small
C?
C_Small
GND
GND
GND
GND
U?
MASWSS0192
RFI_HF
L?
L_Small
C?
C_Small
C?
C_Small
C?
C_Small
GND
GND
GND
RF1
RF2
RF_SWITCH
RFC
V1
V2
GND
1
3
4
5
6
2
RFC
R?
R_Small
LORA_RF_ANT
U.FL-R-SMT-1(10)
C?
C_Small
C?
C_Small
J?
GND
+3V3
C?
C_Small
GND
CTRL=1; RFC -- RF1
CTRL=0; RFC -- RF2
Y?
CX1 = CX2 = 2(7pF - 2pF) = 10pF
RADIO_XTAL_P
32.7k
RADIO_XTAL_N
C?
10pF
C?
10pF
GND
GND
https://github.com/miata-bot/can-link
cone.codes
Sheet: /SX1276/
File: SX1276.kicad_sch
Title: CAN RGB Controller
Size: A4
Date: 2022-05-30
Rev: B
KiCad E.D.A. kicad (6.0.2)
Id: 3/10

U4
ESP32-S3R2
ESP32-S3

+3V3
TP2
CHIP_PU
R4
10k
CHIP_PU
LNA_IN
XTAL_P
XTAL_N
RTC_XTAL_P
RTC_XTAL_N
MTCK
MTDO
MTDI
MTMS
U0RXD
U0TXD
R6499R
SPICLK_P
SPICLK_N
SPIHD
SPIWP
SPICS0
SPICS1
SPICLK
SPIQ
SPID

VDDA1 55 VDDA
VDDA2 56 VDDA
VDD_SPI 29 VDDSPI
VDD3P3 3 VDD3V3
VDD3P3_CPU 46 VDDCPU
VDD3P3_RTC 20 VDDRTC +3V3
C7 0.1uF
C8 0.1uF
+3V3
C10 0.1uF
C11 1uF
C12 10uF
C14 0.1uF
C16 10uF
C13 1uF
C15 10uF
+3V3
GND

GPIO00 5
GPIO01 6
GPIO02 7
GPIO03 8
GPIO04 9
GPIO05 10
GPIO06 11
GPIO07 12
GPIO08 13
GPIO09 14 FSPICS1 FSPICS1
GPIO010 15
GPIO011 16
GPIO012 17
GPIO013 18 GPIO13 FSPICS2 FSPICS2
GPIO014 19 GPIO14 RP_RUN RP2040_EN
GPIO017 23 GPIO_CAN_N CAN_N
GPIO018 24 GPIO_CAN_P CAN_P
GPIO019 25 GPIO_USB_D_N R16 0R USB_D_N USB_D_N
GPIO020 26 GPIO_USB_D_P R17 0R USB_D_P USB_D_P
GPIO021 27 GPIO21 GPIO_CAN_EN CAN_EN
GPIO033 38
GPIO034 39 GPIO34 FSPICS0 FSPICS0
GPIO035 40 GPIO35 FSPID MOSI
GPIO036 41 GPIO36 FSPICLK SCLK
GPIO037 42 GPIO37 FSPIQ MISO
GPIO038 43 GPIO38 VSENSE VSENSE
GPIO045 51
GPIO046 52
GND 57 GND

SPID = MOSI
SPIQ = MISO

GPIO4 MCPWM0_ENA MCPWM1_ENA
GPIO6 MCPWM0_ENB MCPWM1_ENB
GPIO8 MCPWM0_INA MCPWM1_INA
GPIO11 MCPWM0_INB MCPWM1_INB
GPIO3
GPIO5 MCPWM_RESET
GPIO7 MCPWM_FAULT
GPIO10 MCPWM_SLEEP

GPIO12 SX1276_IRQ
SX1276_RESET

PROGRAMMING AND DEBUG CONNECTORS

TC2
TC2030-IDC
CHIP_PU RTS 6 SWO GND 5 GND
U0RXD TXD 4 SWCLK NRESET 3 RXD U0TXD
GPIO0 CTS 2 SWDIO VCC 1

TC4
TC2030-IDC
GND
MTDO 6 TDO GND 5
MTCK 4 TCK TDI 3 MTDI
MTMS 2 TMS VCC 1

FSPID TP5 MOSI
FSPIQ TP6 MISO
FSPICLK TP8 SCLK
FSPICS0 TP9 CS0
FSPICS1 TP10 CS1
FSPICS2 TP11 CS2

JTAG
J8
1 MTCK
2 MTDO
3 MTMS
4 MTDI
5 GND

CONSOLE
J6
1 GND
2 RXD
3 TXD
4
5 CTS
6 RTS

RF ANTENNA

only r22 or r28 should be installed at a time

L3
2nH
LNA_IN
C17
4.6pF
C20
4pF
RF_ANT
L4
2.2nH
C21
2pF
R22 0R
AE2
PCB_ANT
GND GND GND GND

R28 0R
RF_ANT
RF_ANT_EXT
J7
U.FL-R-SMT-1(10)
GND

FLASH

C4
0.1uF
R15
100k
VDDSPI
U5
W25Q128JVS
SPICS0
SPICLK
VCC 8
CS 1
CLK 6
GND 4
DI(IO0) 5 SPID
DO(IO1) 2 SPIQ
IO2 3 SPIWP
IO3 7 SPIHD
GND

CLOCKS

Y2
40MHZ
XTAL_P
XTAL_N
C18
16pF
C22
16pF
CX1 = CX2 = 2(10pF - 2pF) = 16pF

Y3
32.7k
RTC_XTAL_P
RTC_XTAL_N
C19
10pF
C23
10pF
CX1 = CX2 = 2(7pF - 2pF) = 10pF

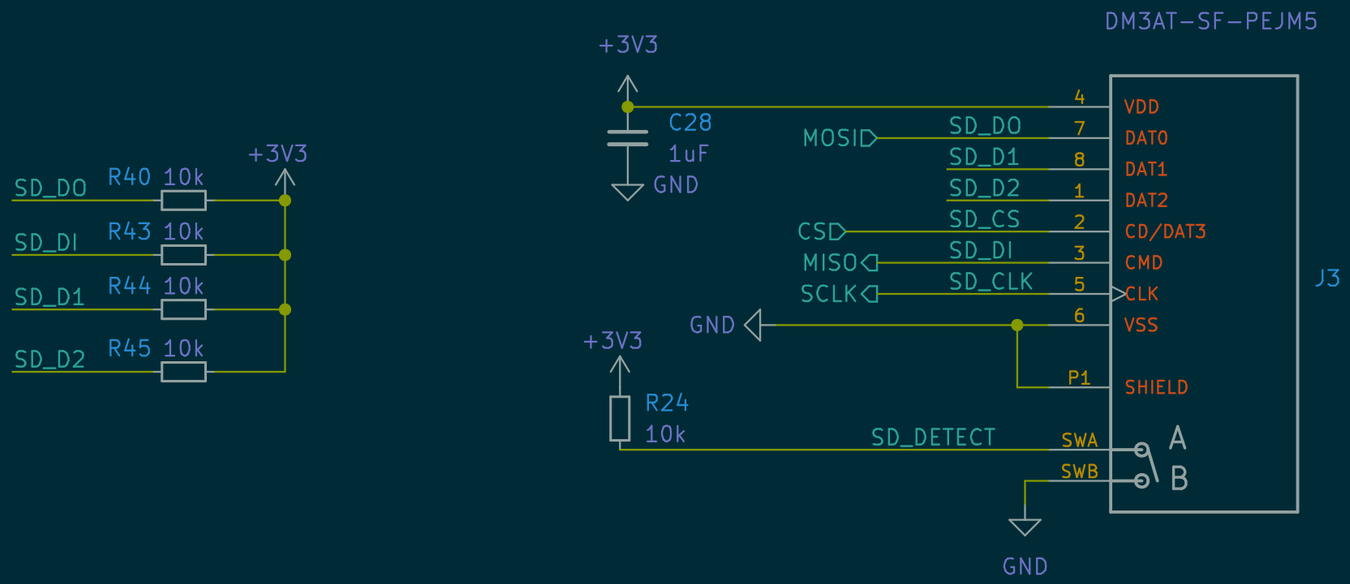
BOOTSTRAP PINS

SW2
SW_Push
C37
1uF
CHIP_PU
GND

SW3
SW_Push
R25
10k
GPIO0
GPIO0_BOOTSTRAP
R26
10k
GPIO45
GPIO45_BOOTSTRAP
R27
10k
GPIO46
GPIO46_BOOTSTRAP
GND

https://github.com/miata-bot/can-link
cone.codes

Sheet: /ESP32-S3/		
File: ESP32-S3.kicad_sch		
Title: CAN RGB Controller		
Size: A4	Date: 2022-05-30	**Rev: B**
KiCad E.D.A. kicad (6.0.2)		Id: 4/10



https://github.com/miata-bot/can-link

cone.codes

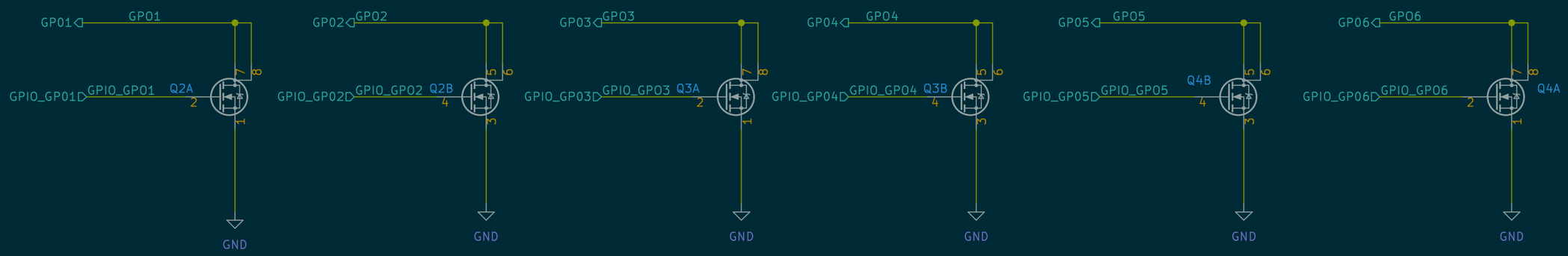
Sheet: /SDCard/

File: SDCard.kicad_sch

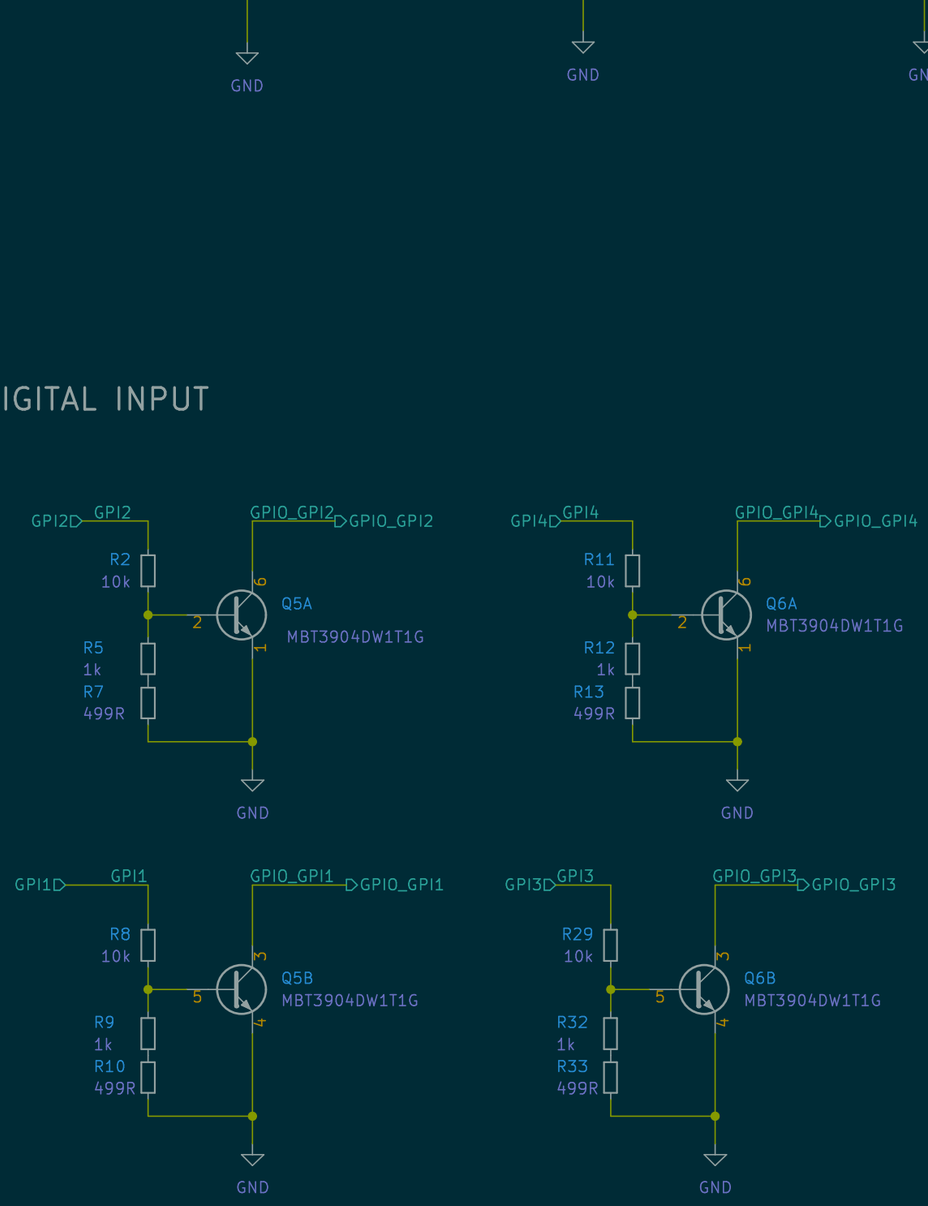
Title: CAN RGB Controller

Size: A5	Date: 2022-05-30	**Rev: B**
KiCad E.D.A. kicad (6.0.2)		Id: 5/10

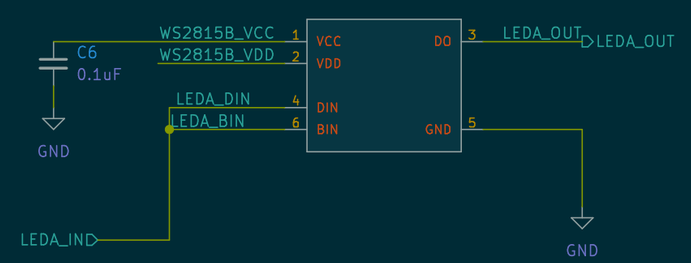
RGB PWM LED CONTROL

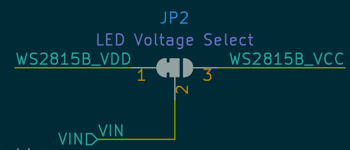


DIGITAL INPUT



INDIVIDUALLY ADDRESSABLE LED CONTROL





Unsure if supply voltage should go
to VCC or VDD. Datasheet says VDD but
that doesn't make a ton of sense to me.
If this part doesn't work, bridge the other half

https://github.com/miata-bot/can-link

cone.codes

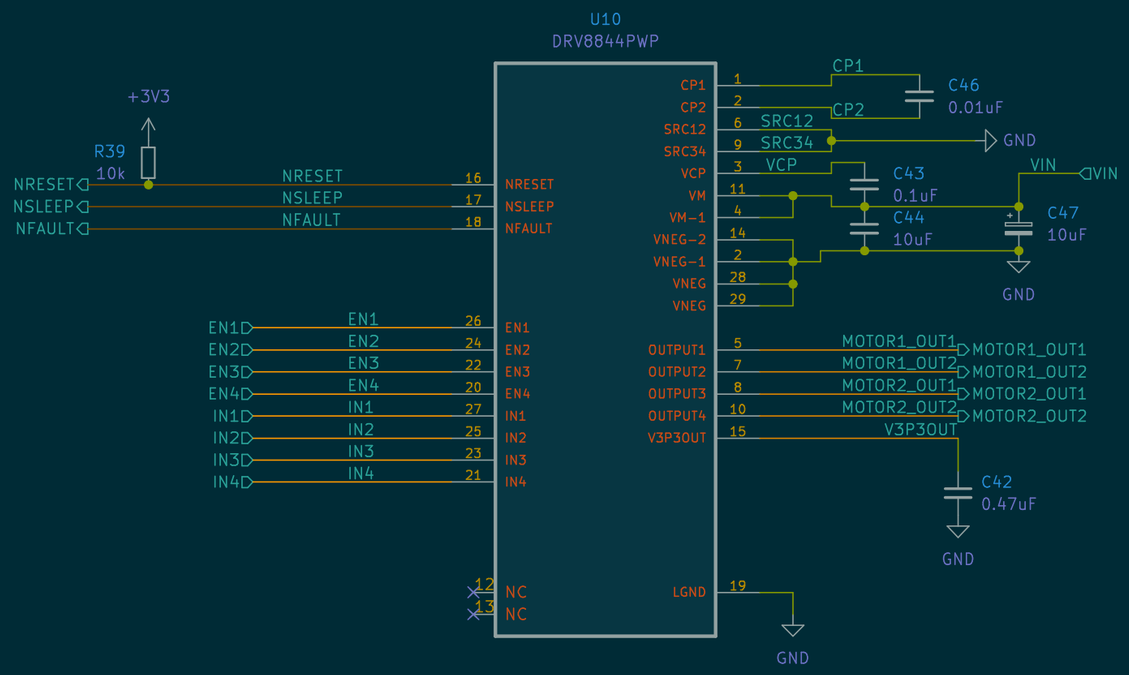
Sheet: /External-IO/

File: External-IO.kicad_sch

Title: CAN RGB Controller

Size: A4	Date: 2022-05-30	**Rev: B**
KiCad E.D.A. kicad (6.0.2)		Id: 6/10

MOTOR DRIVER



https://github.com/miata-bot/can-link

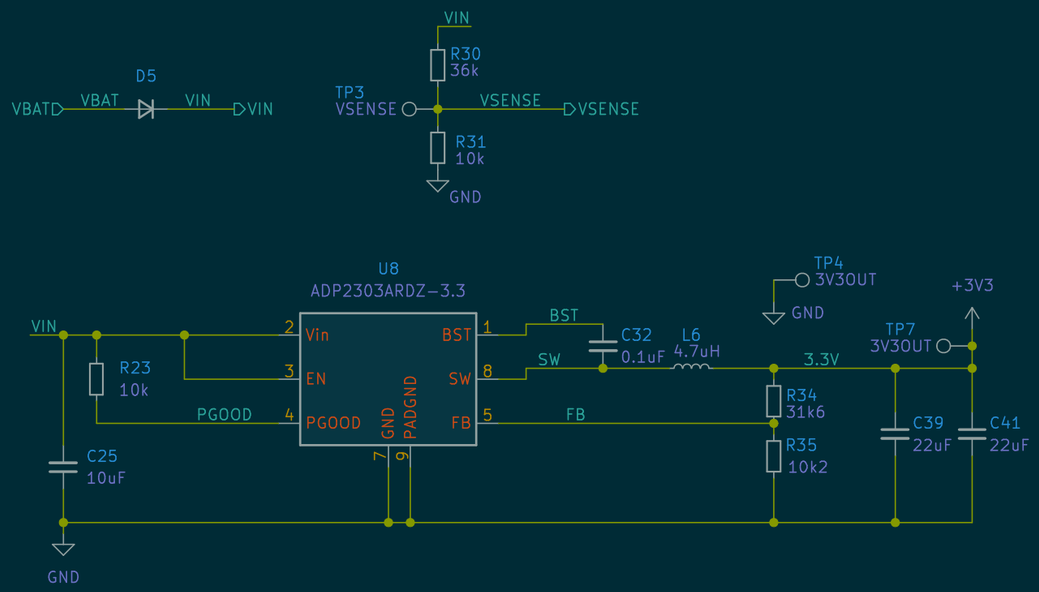
cone.codes

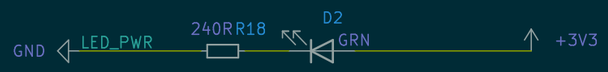
Sheet: /Motor-Control/
File: Motor-Control.kicad_sch

Title: CAN RGB Controller

Size: A4	Date: 2022-05-30	**Rev: B**
KiCad E.D.A. kicad (6.0.2)		Id: 7/10

BUCK CONVERTER





https://github.com/miata-bot/can-link

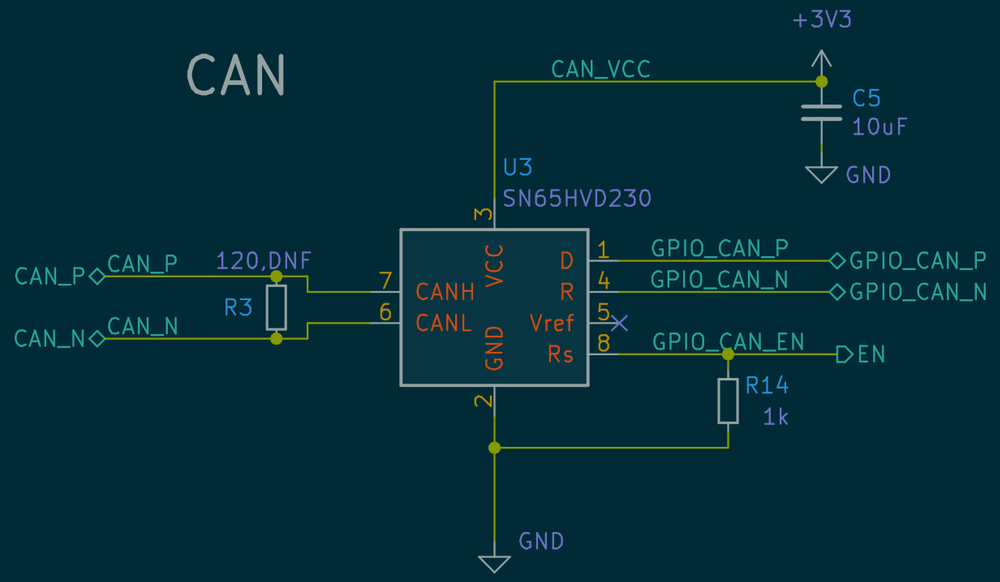
cone.codes

Sheet: /Power/
File: Power.kicad_sch

Title: CAN RGB Controller

Size: A4	Date: 2022-05-30	**Rev: B**
KiCad E.D.A. kicad (6.0.2)		Id: 8/10

CAN



https://github.com/miata-bot/can-link

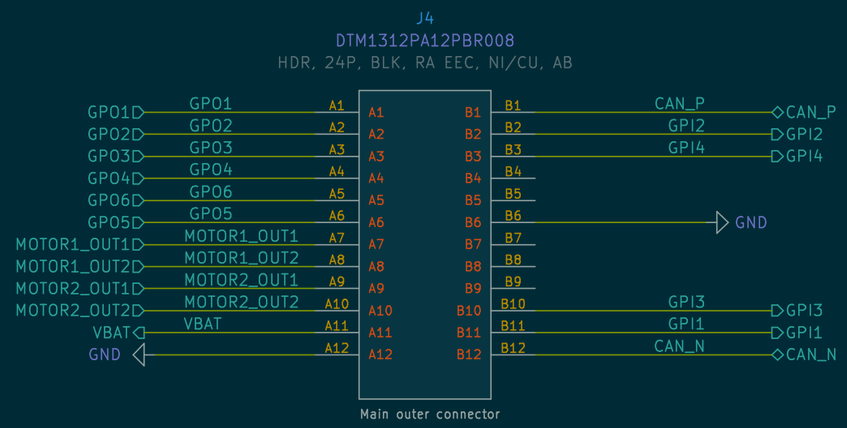
cone.codes

Sheet: /CAN-Bus/
File: CAN-Bus.kicad_sch

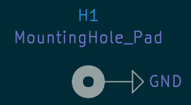
Title: CAN RGB Controller

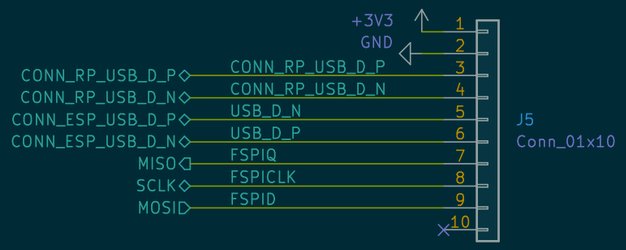
Size: A5	Date: 2022-05-30	**Rev: B**
KiCad E.D.A. kicad (6.0.2)		Id: 9/10

CONNECTORS



LEDA_OUT





https://github.com/miata-bot/can-link

cone.codes

Sheet: /Connectors/
File: Connectors.kicad_sch

Title: CAN RGB Controller

Size: A4	Date: 2022-05-30	**Rev: B**
KiCad E.D.A. kicad (6.0.2)		Id: 10/10