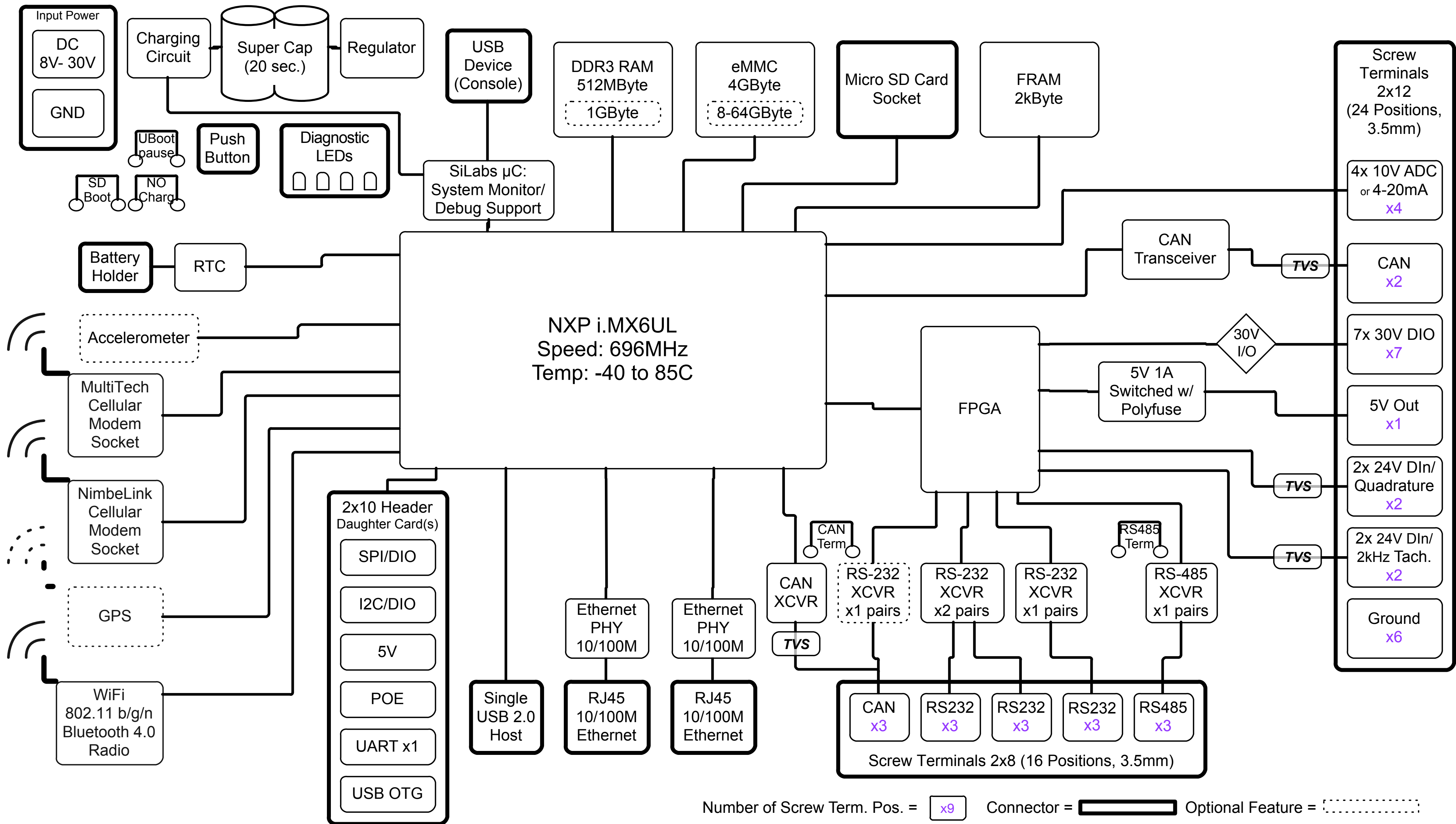


TS-7180 Rev A



Standard Options

XOPP1
ASSEMBLY_OPTIONS

PCB_7180_A
PCB_99

Option 1 TS-7180-SMW1I

NXP i.MX6UL 695MHz ARM A7, 512MB DDR3, 4GB eMMC, MultiTech, NimbeLink/Xbee, 2 CAN, 3 RS-232, TS-SILO, WiFi/Bluetooth w/Chip,FRAM (-40 to 85C)

Option 2 TS-7180-SRW9I

NXP i.MX6UL 695MHz ARM A7, 1GB DDR3, 4GB eMMC, MultiTech, NimbeLink/Xbee, 2 CAN, 3 RS-232, TS-SILO, WiFi/Bluetooth w/Chip,FRAM, Gyro, GPS (-40 to 85C)

Optional Components/Features Summary

All Parts are Industrial Temp

TS-SILO Option

Included on ALL Standard Options

ADD: C98, C99

NimbeLink Option

Included on ALL Standard Options

ADD: CN5, C95, D6, U29 and U31

GPS Option

Included only on xxx9x Standard Option

ADD: K4 & CN4

WiFi/Bluetooth Option w/ Chip Antenna

U.FL available on request

Included on ALL Standard Options

ADD: K2 (chip antenna)

(alternate: U.FL antenna connector)

MultiTech Option

Included on ALL Standard Options

ADD: CN6, C96, U29, U31 and U39

Gyro Option:

Included only on xxx9x Standard Option

ADD: U34

FRAM Option:

Included on ALL standard Options

ADD: U35

1 GByte RAM Option

Included only on xxx9x Standard Option

REMOVE: U23 4Gbit Die

ADD: U23 8Gbit Die

2nd CAN Option

Included on ALL Standard Options

ADD: U5, TVS17, R140, R141, RN21, C161, C141

REMOVE: R197, R198

4th RS-232 Option

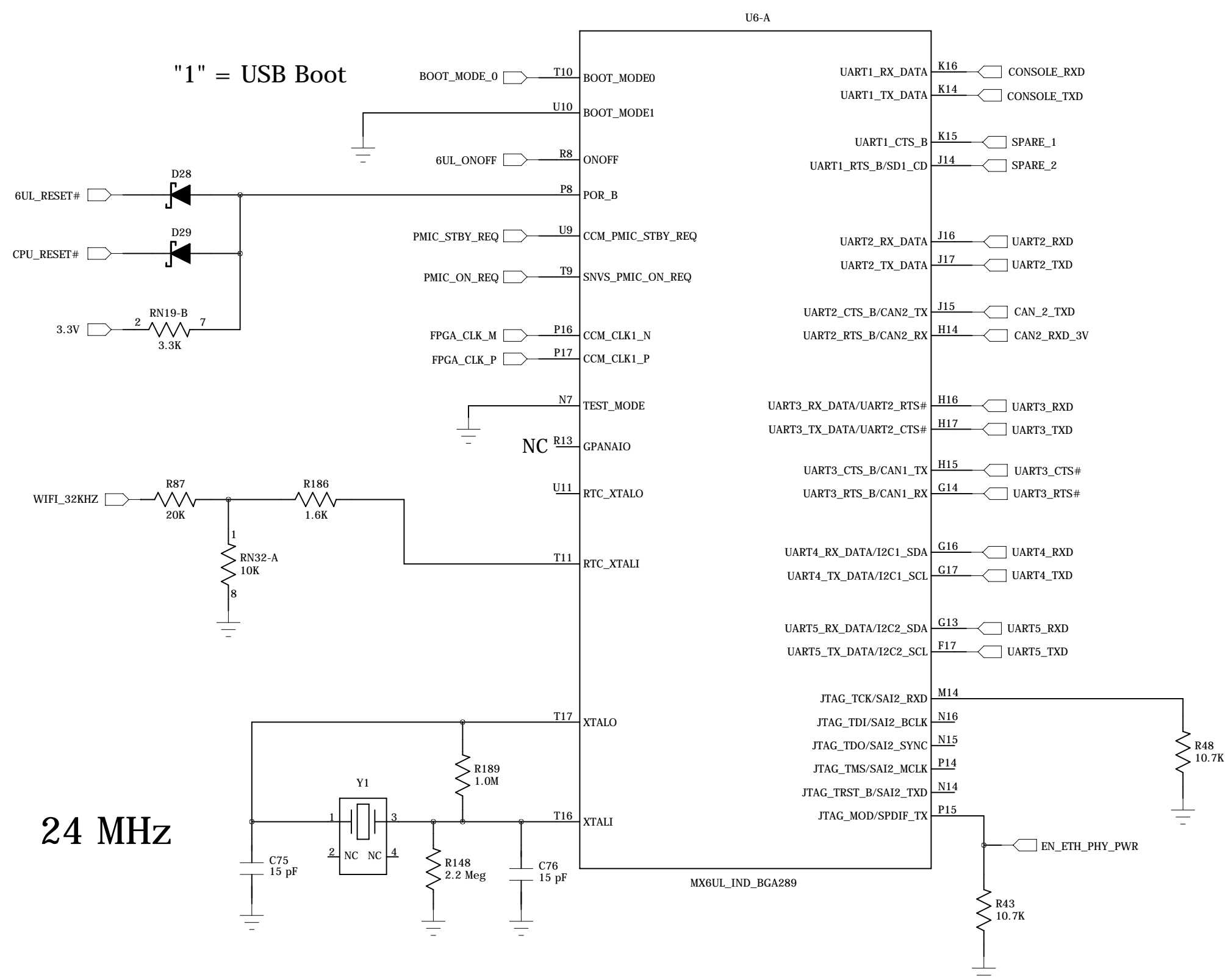
NOT Included on any Standard Options

ADD: R197, R198

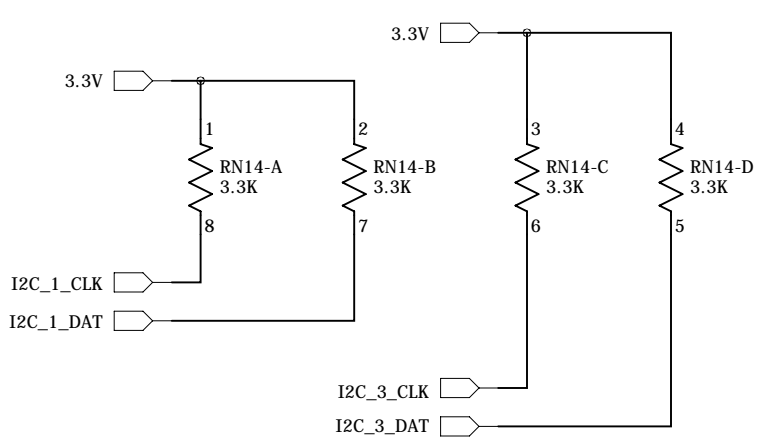
REMOVE: U5, TVS17, R140, R141, RN21, C161, C141

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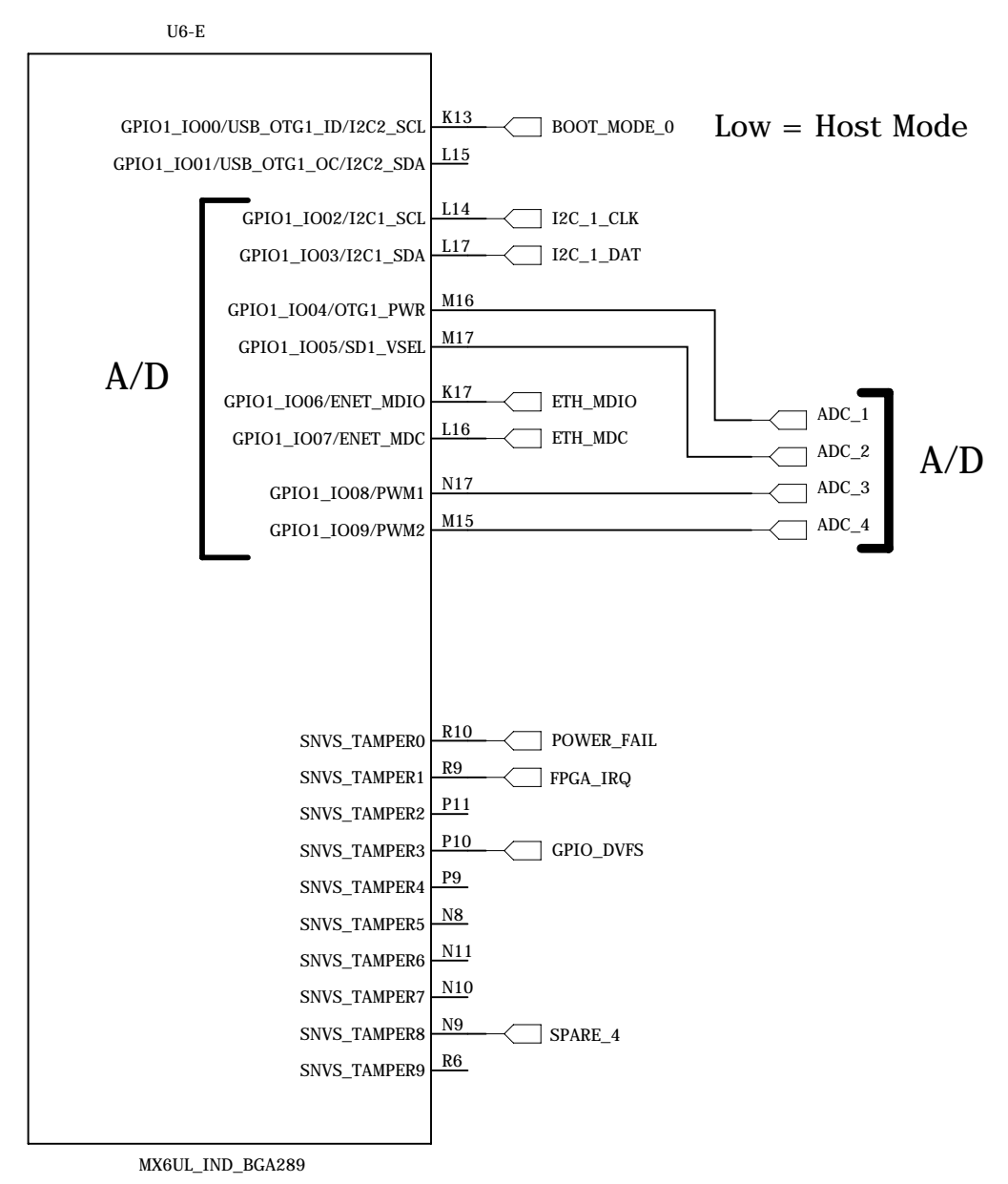
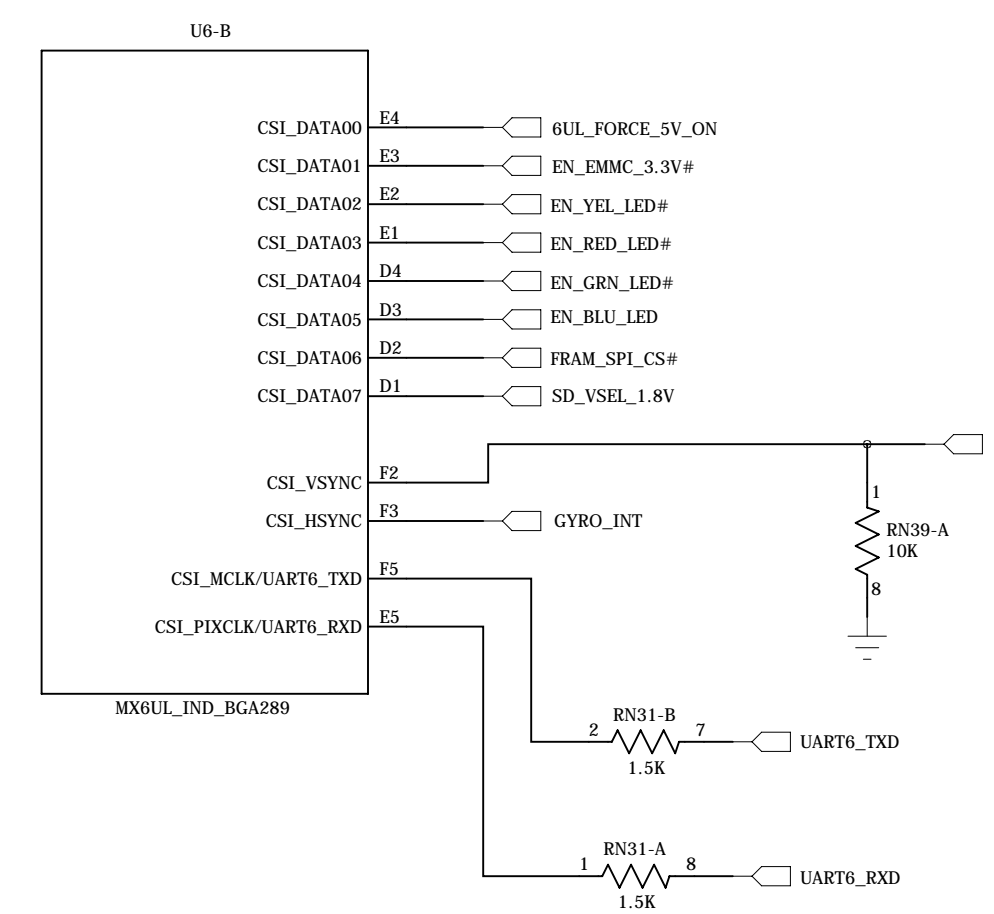
6UL UART and Control



I2C PU Res.

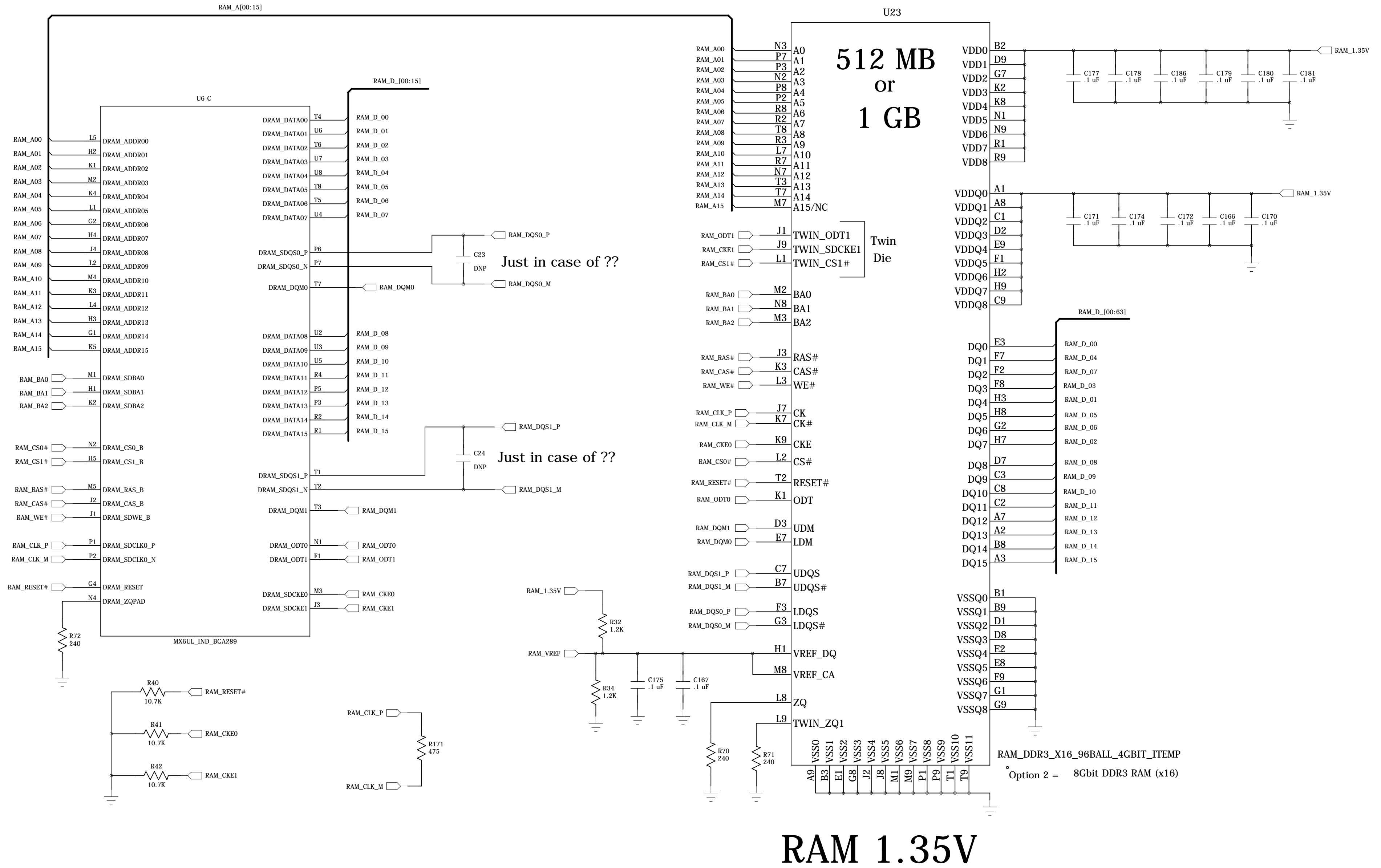


6UL DIO/Camera

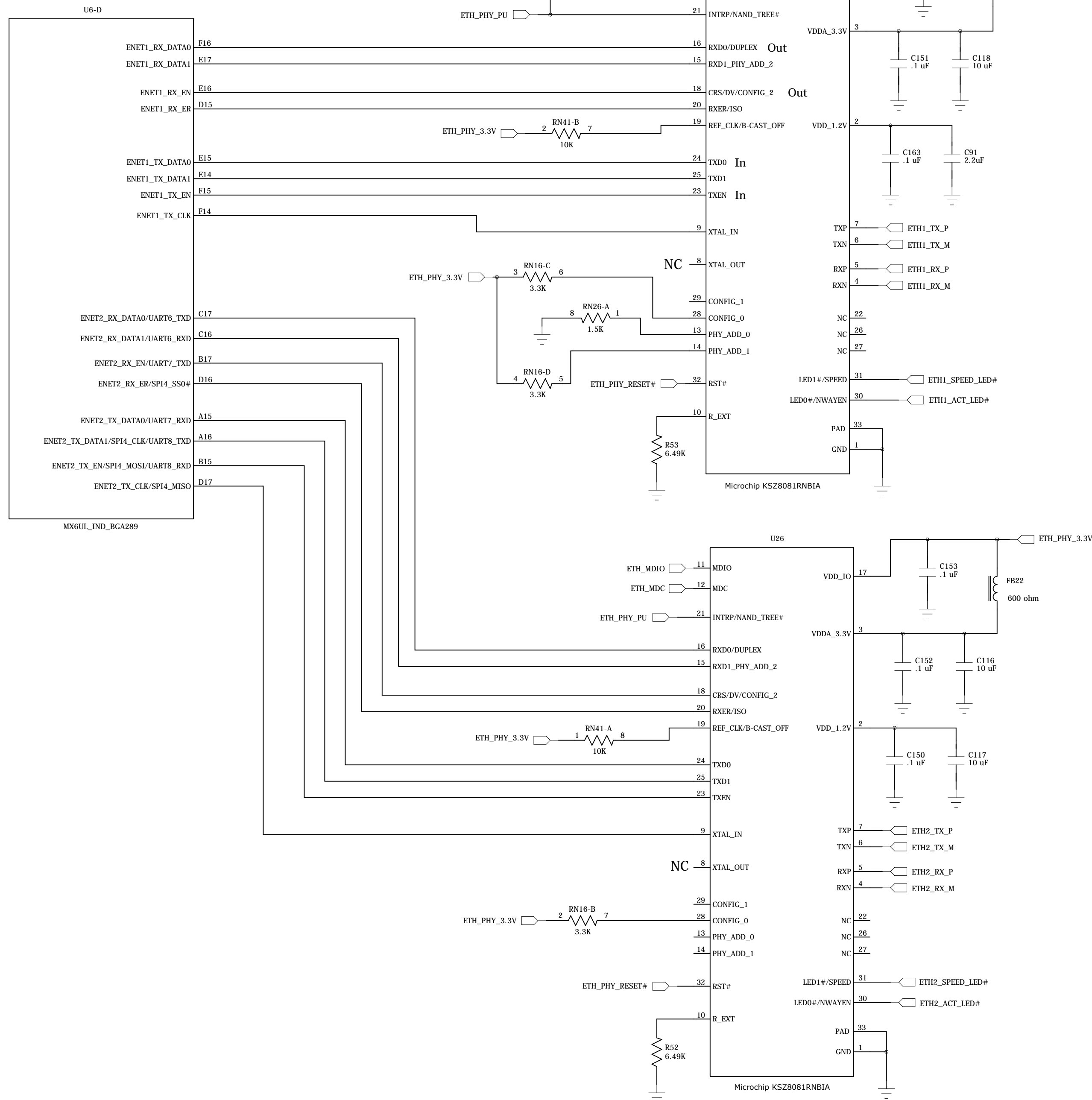


6UL RAM Interface

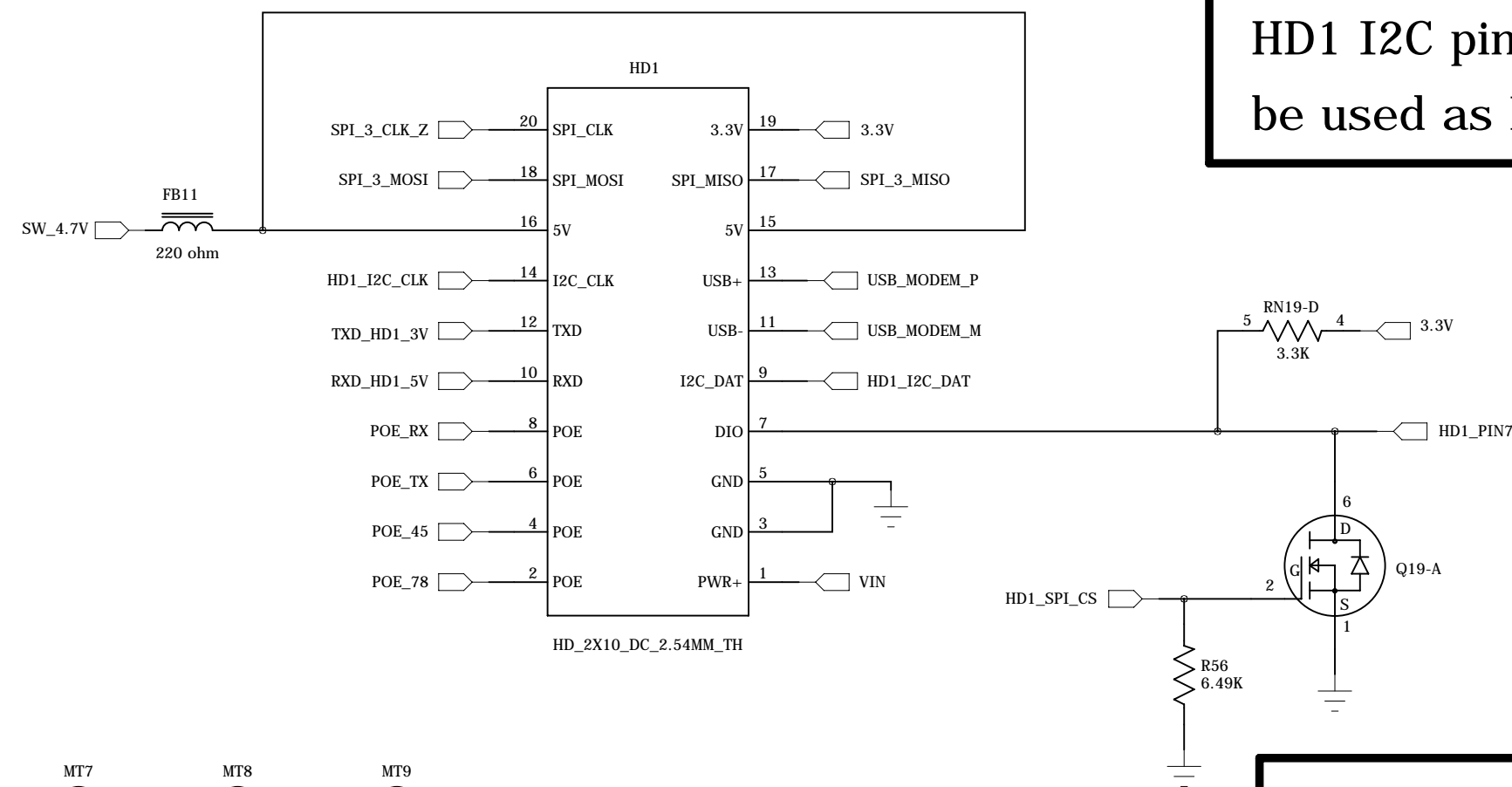
DDR3 RAM



6UL Ethernet

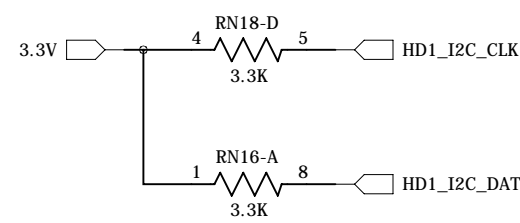
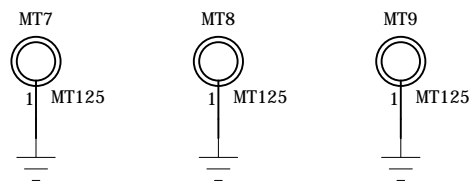


Daughter Card Interface

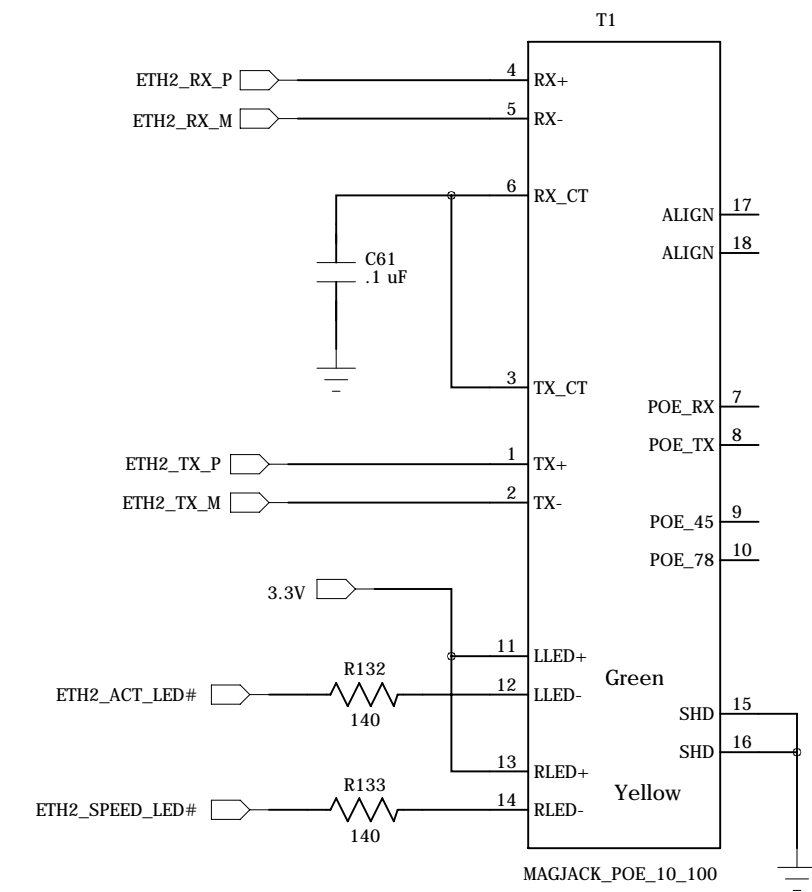


HD1 I2C pins can be used as DIO

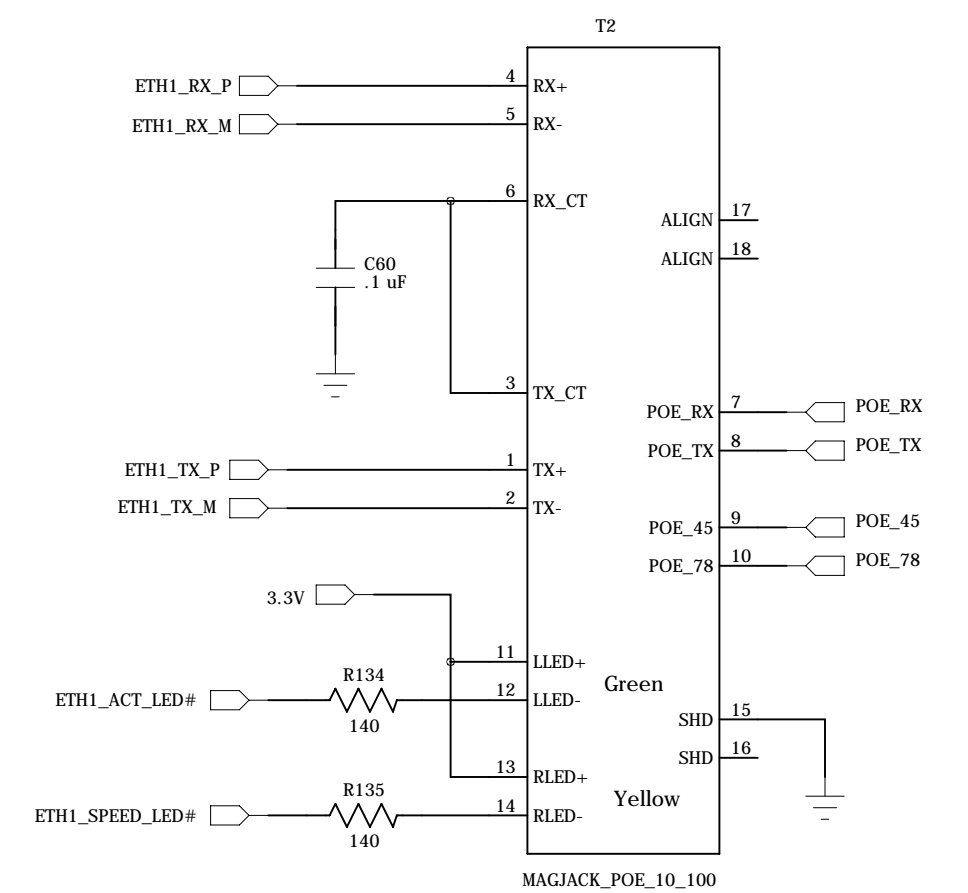
HD1_PIN7 is 5V tolerant



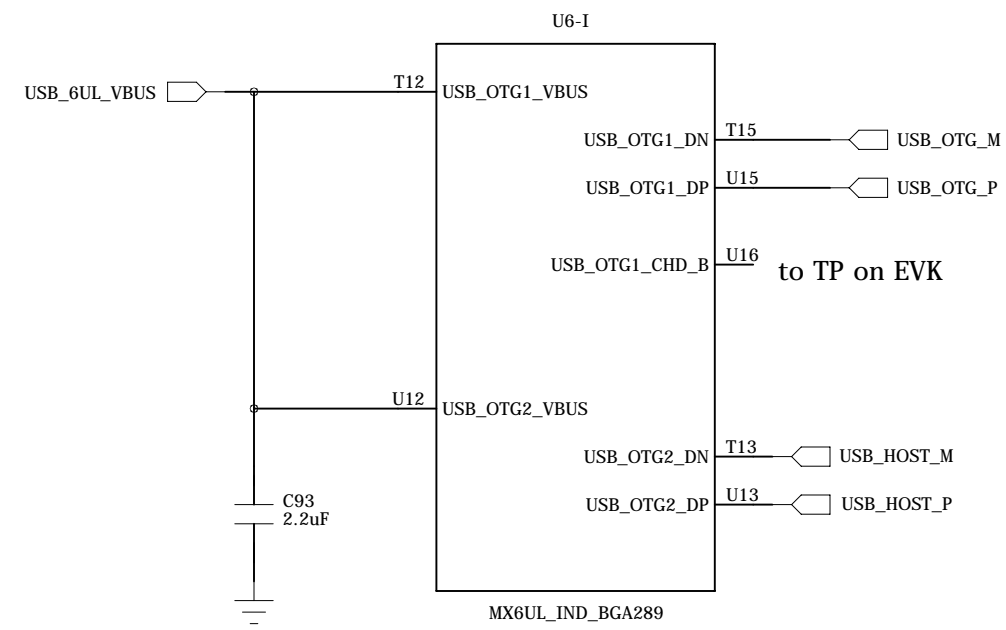
10/100 MagJack



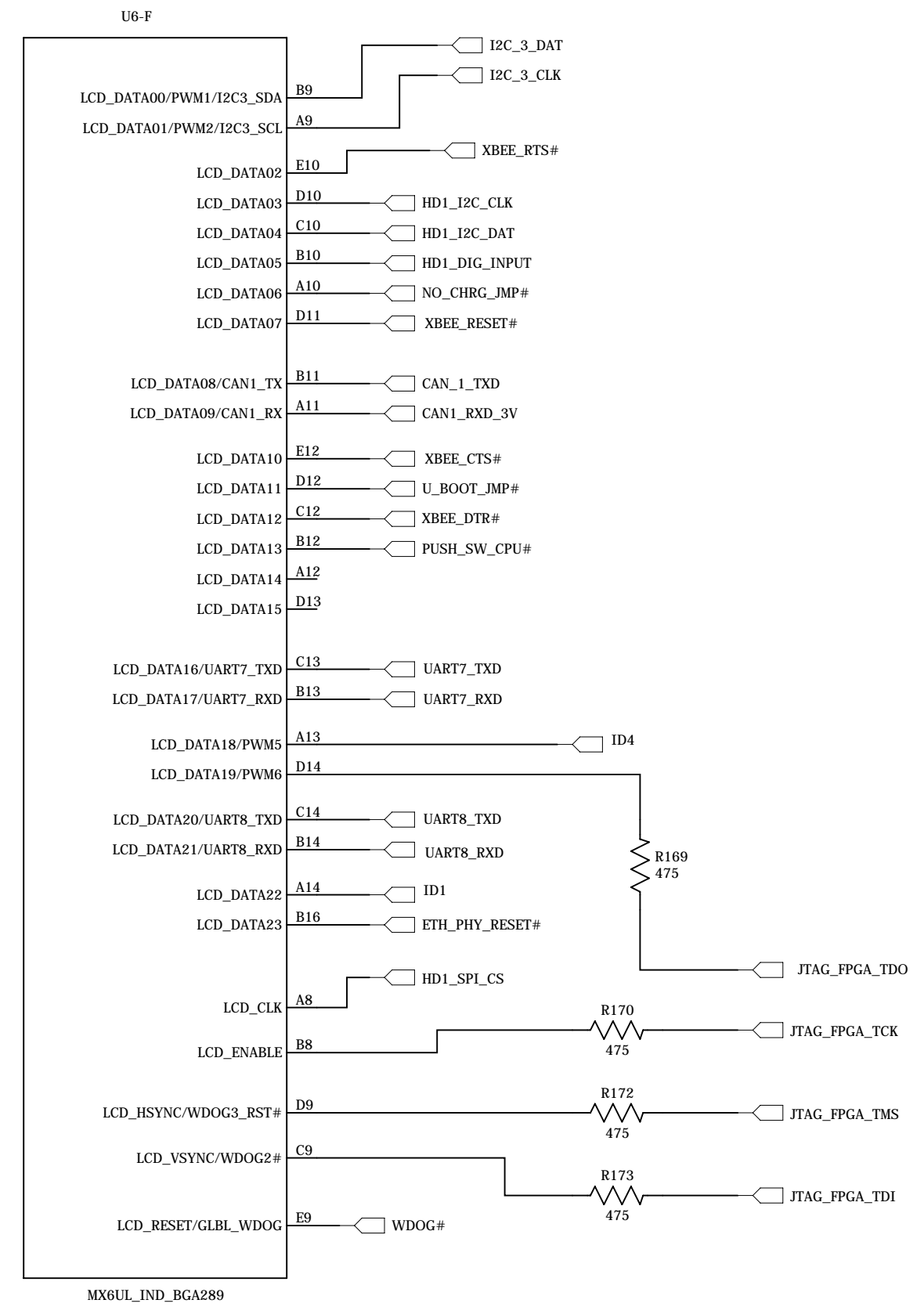
10/100 MagJack



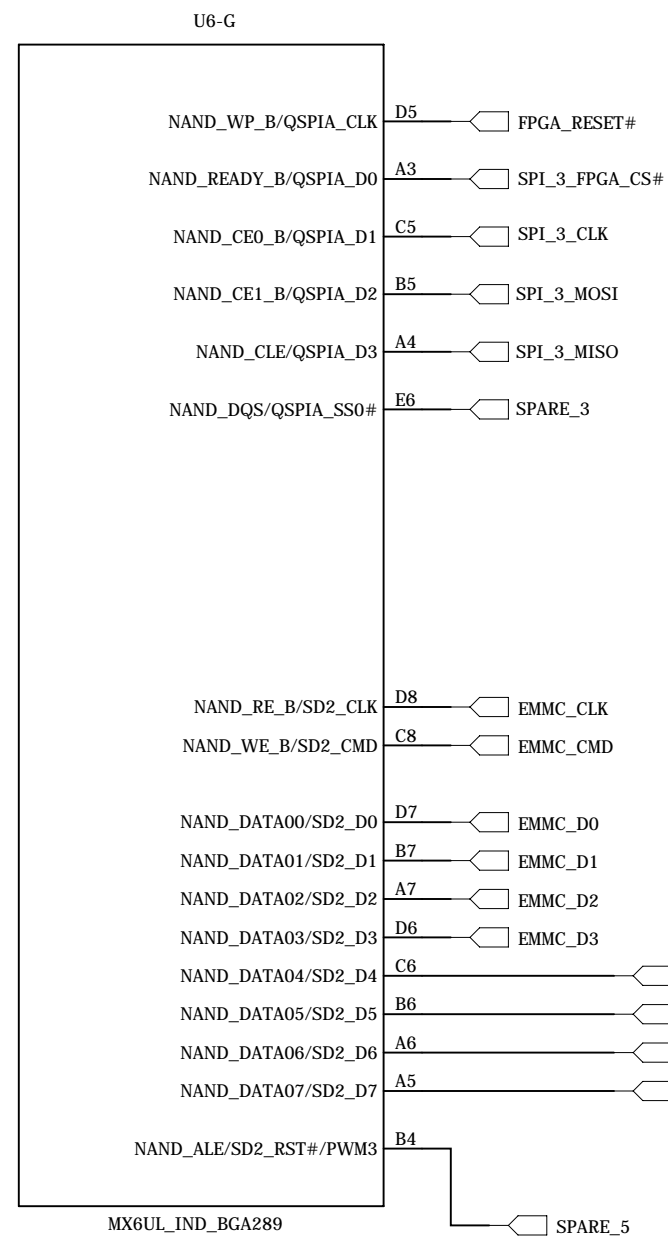
6UL USB Ports



6UL LCD

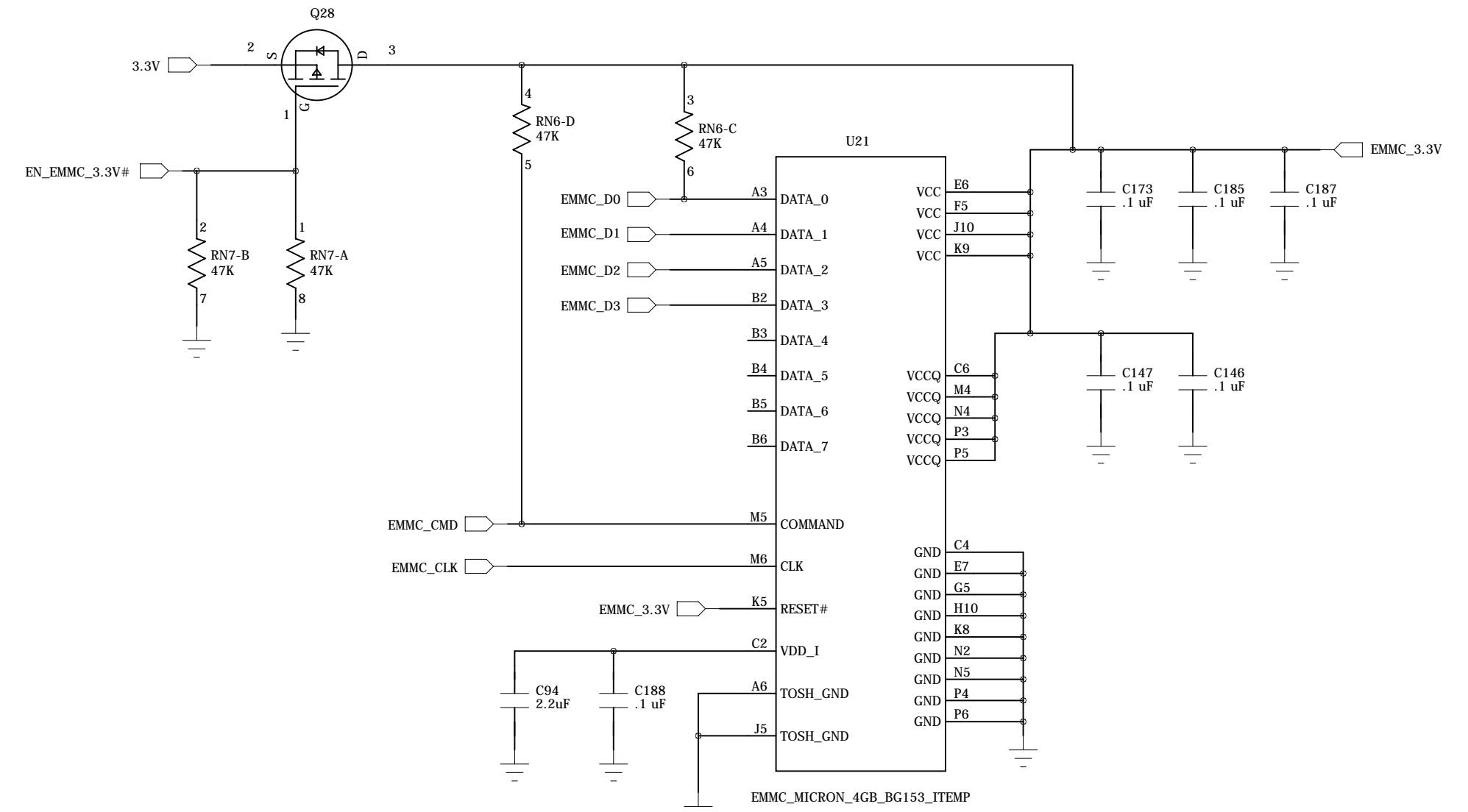


6UL Flash



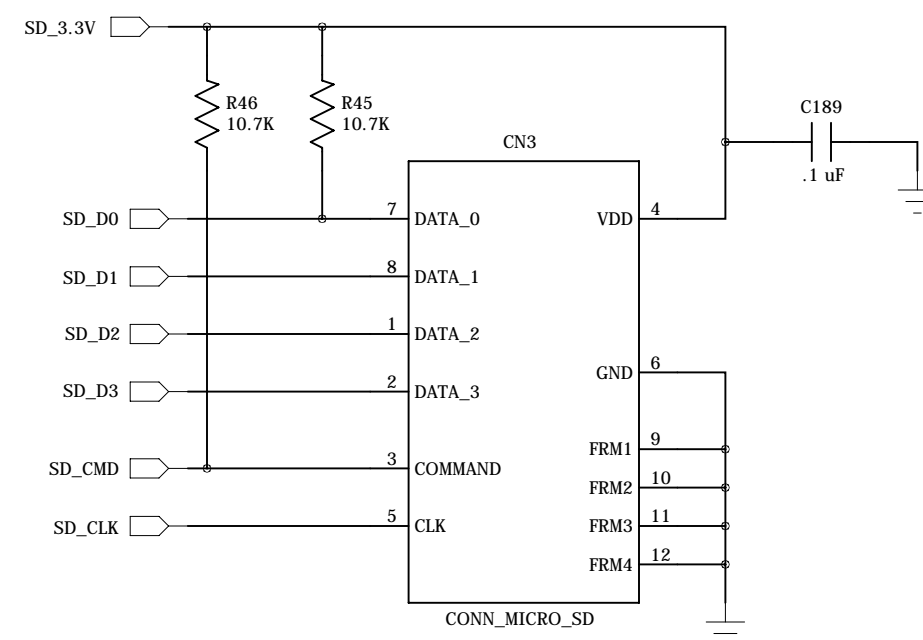
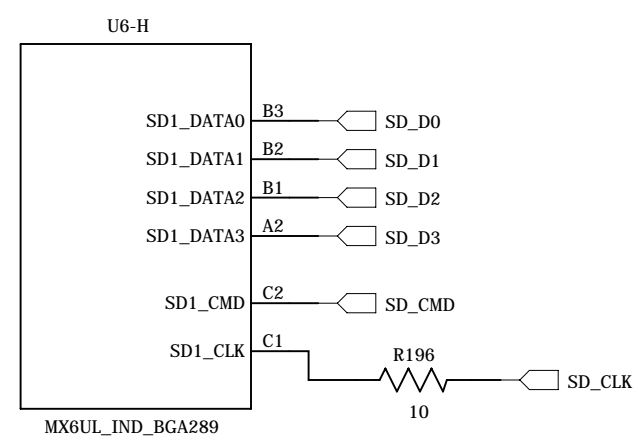
To
WiFi

eMMC 4GB - 64GB

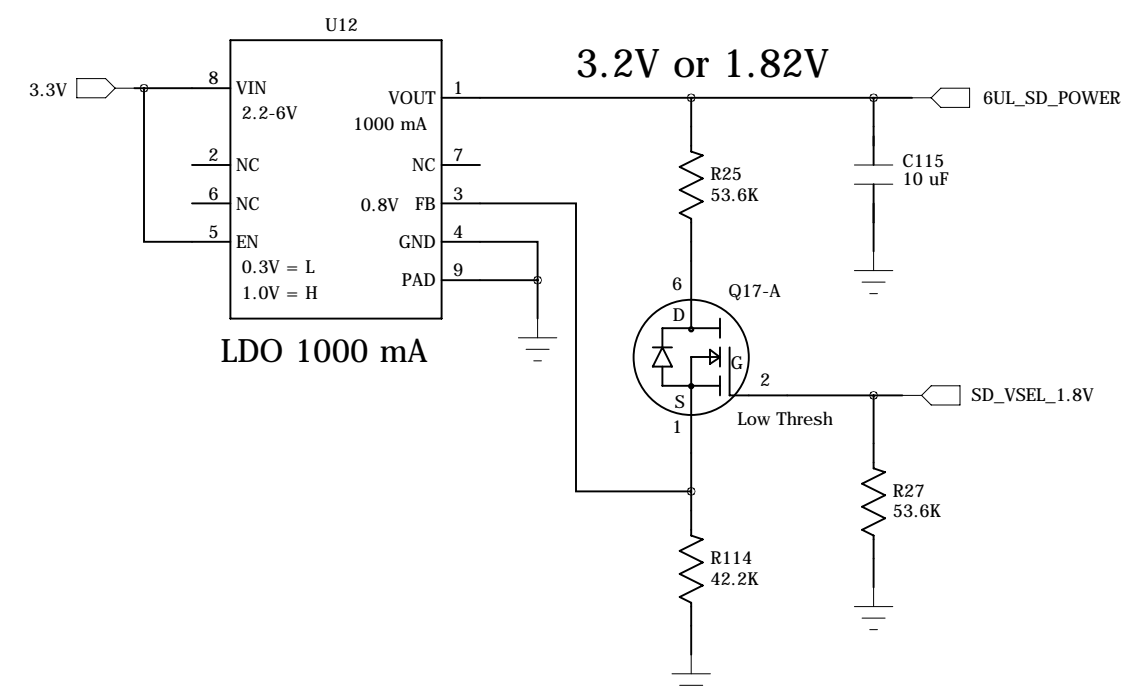


Micro SD Card Socket

6UL SDIO

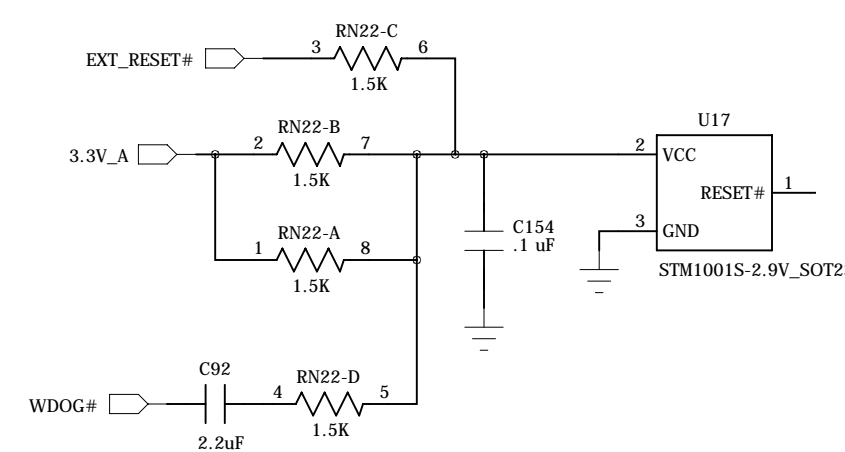


SD Card 1A Reg 1.8V or 3.2V



3.3V 2A Reg #1

SW_4.7V --> 3.3V



3.3V is shutdown if EXT_RESET# or WDOG# is asserted, or 3.3V_A is too low

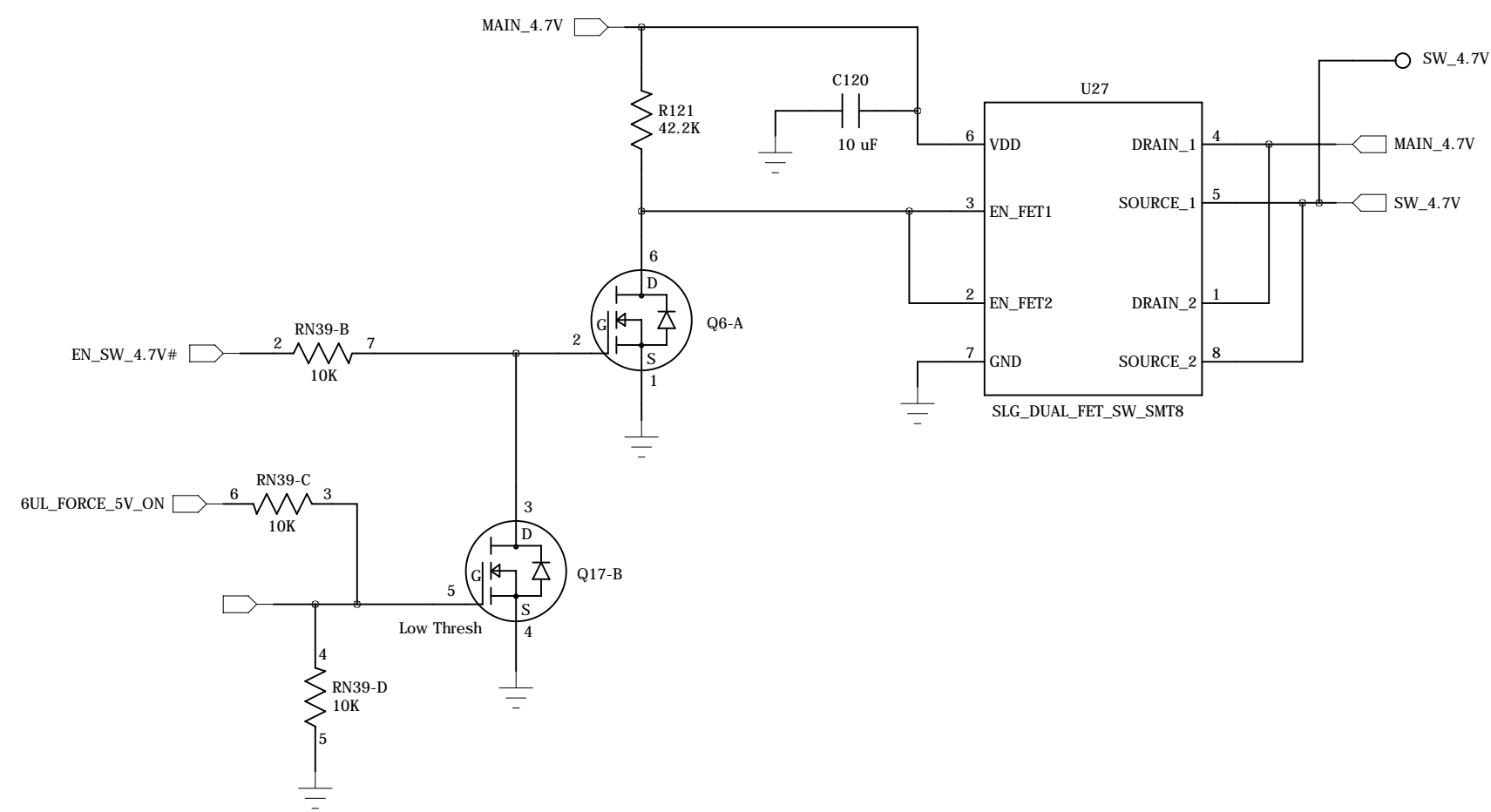
CPU Core 1A Reg #2

SW_4.7V --> VDD_6UL_CORE

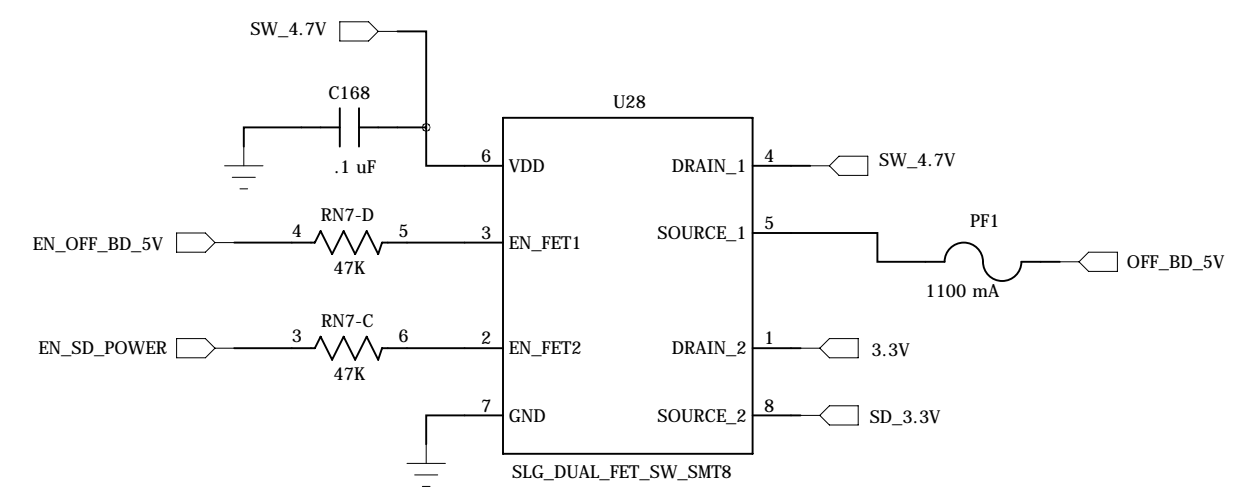
RAM 1.35V 1A Reg #2

SW_4.7V --> RAM_1.35V

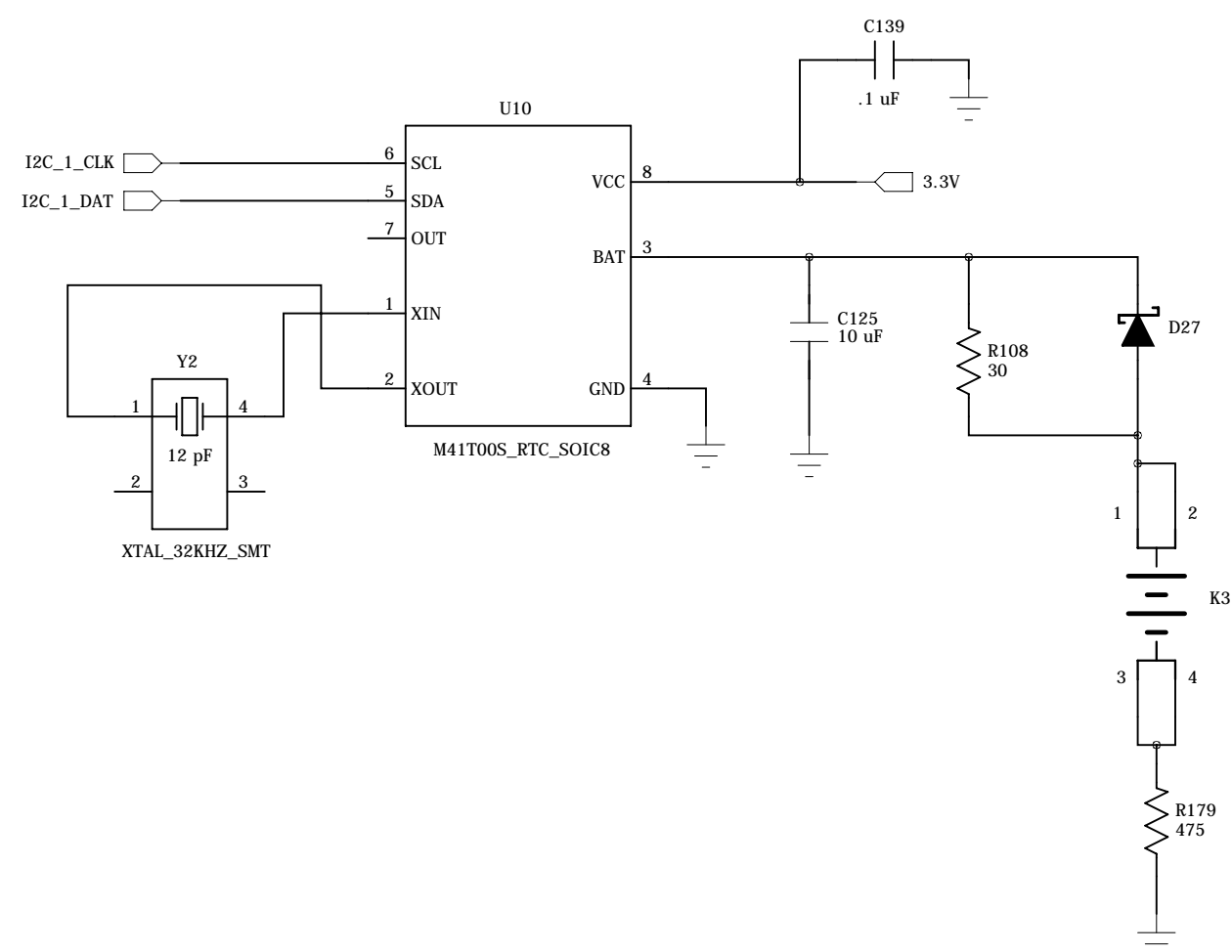
Main 5V Power Sw.



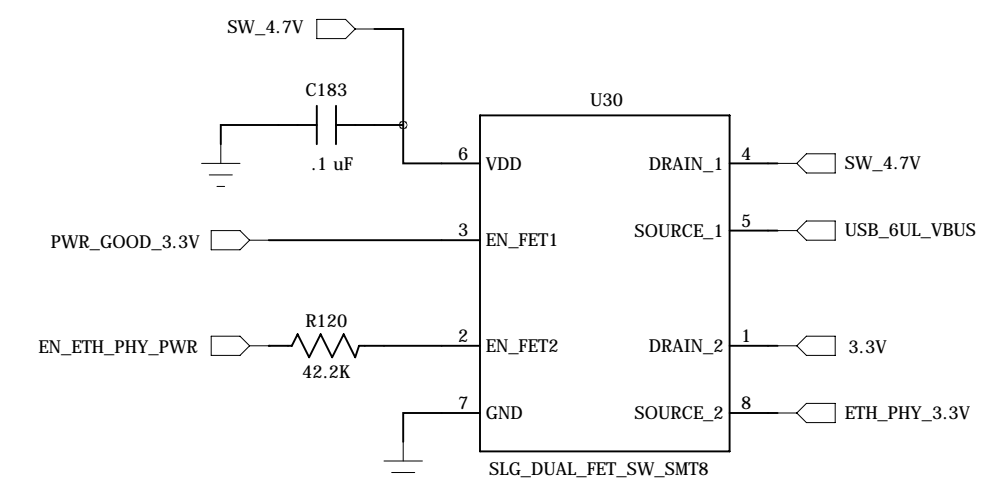
Off Board 5V sw. and SD Card Power Sw.



ST Micro RTC

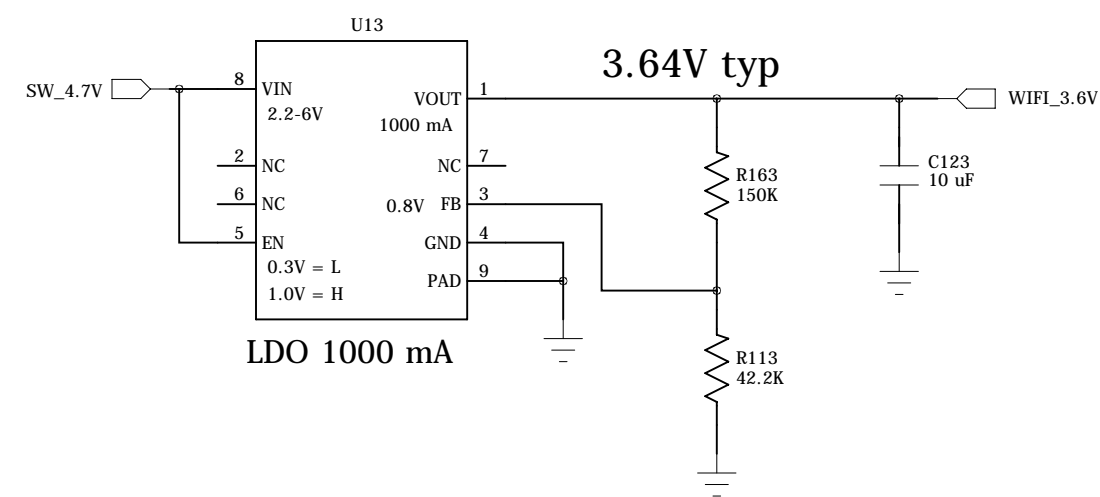


USB VBus and Eth Power Sw.

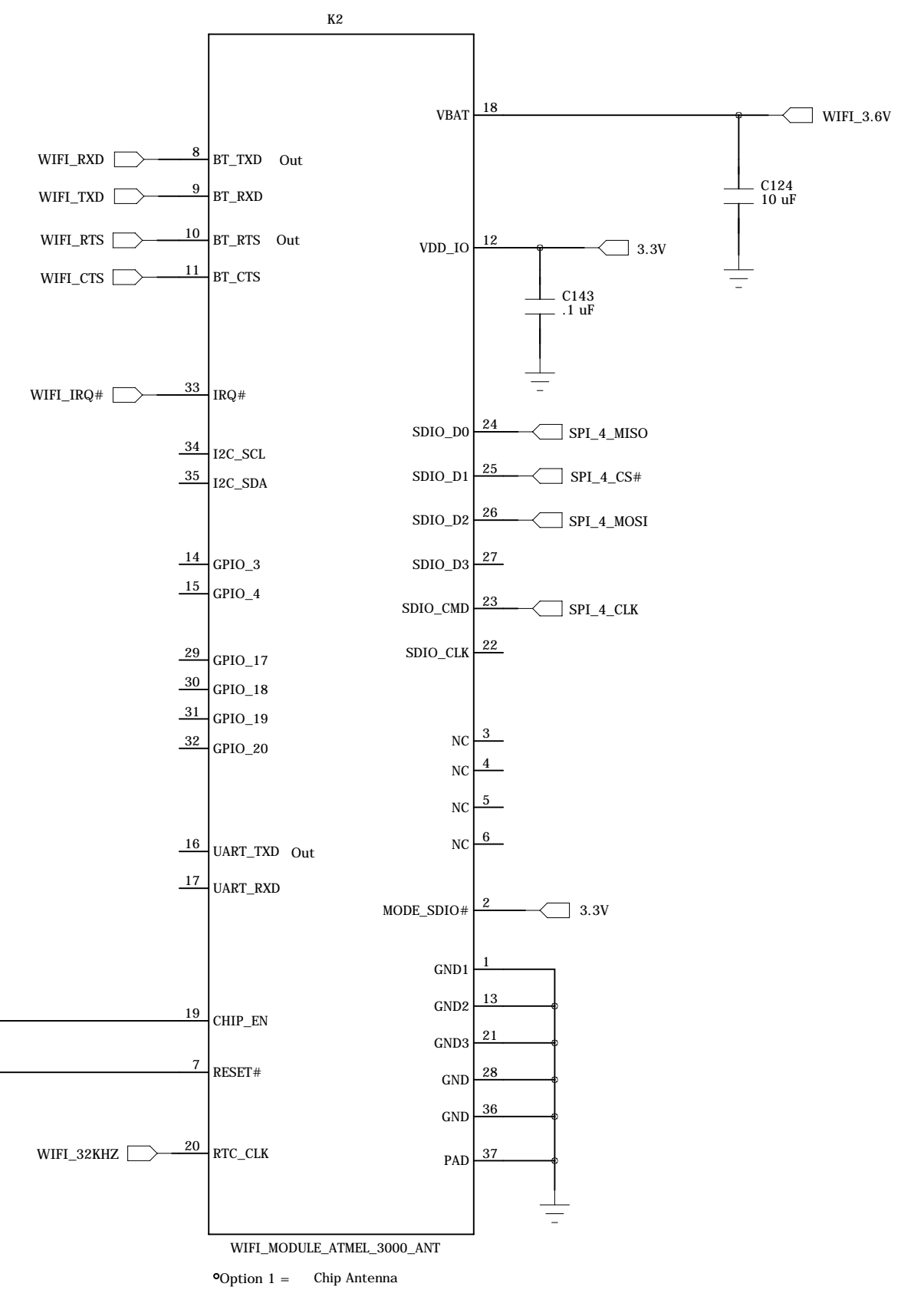


WiFi

WiFi 3.6V Regulator

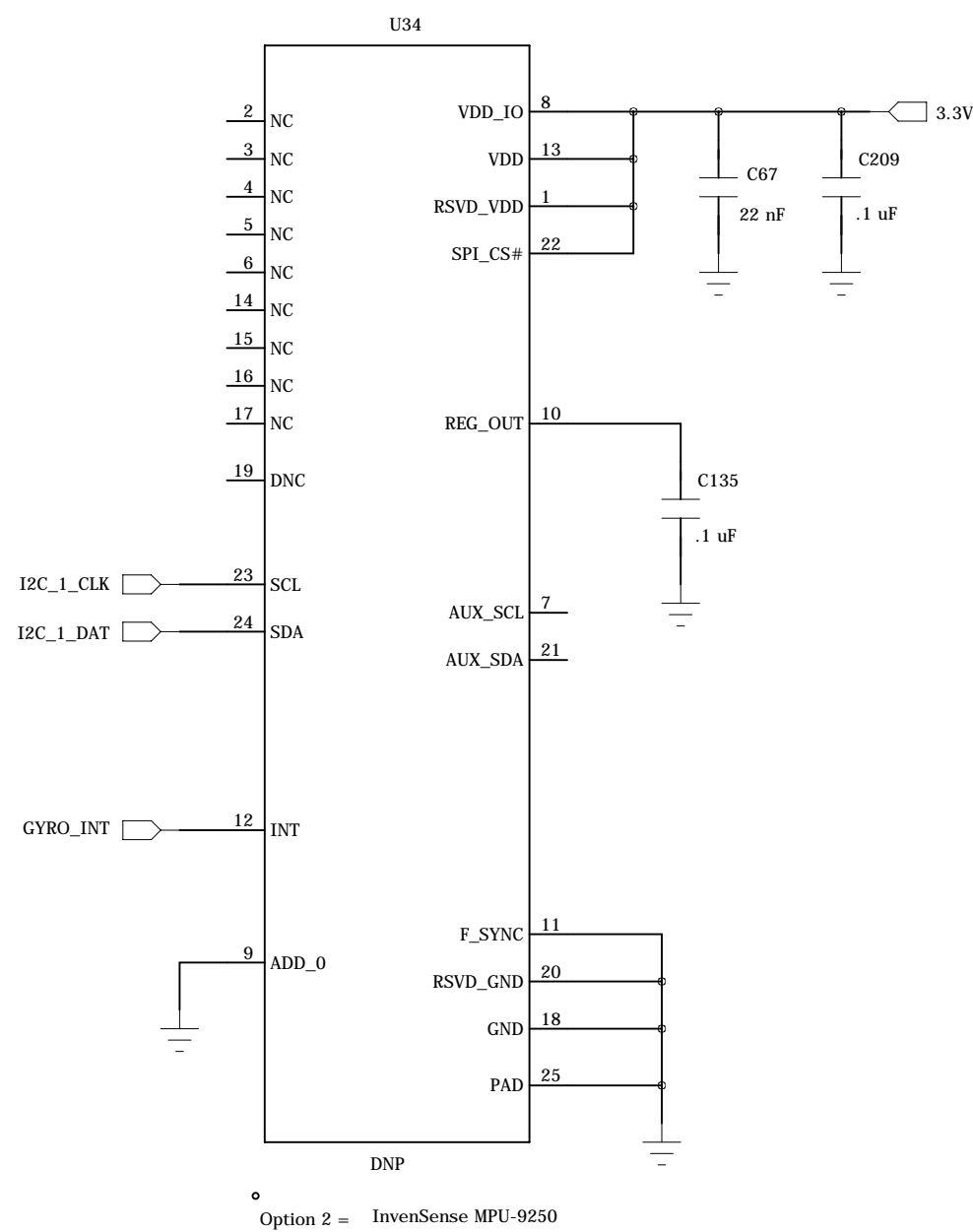


WiFi / Bluetooth Radio Module



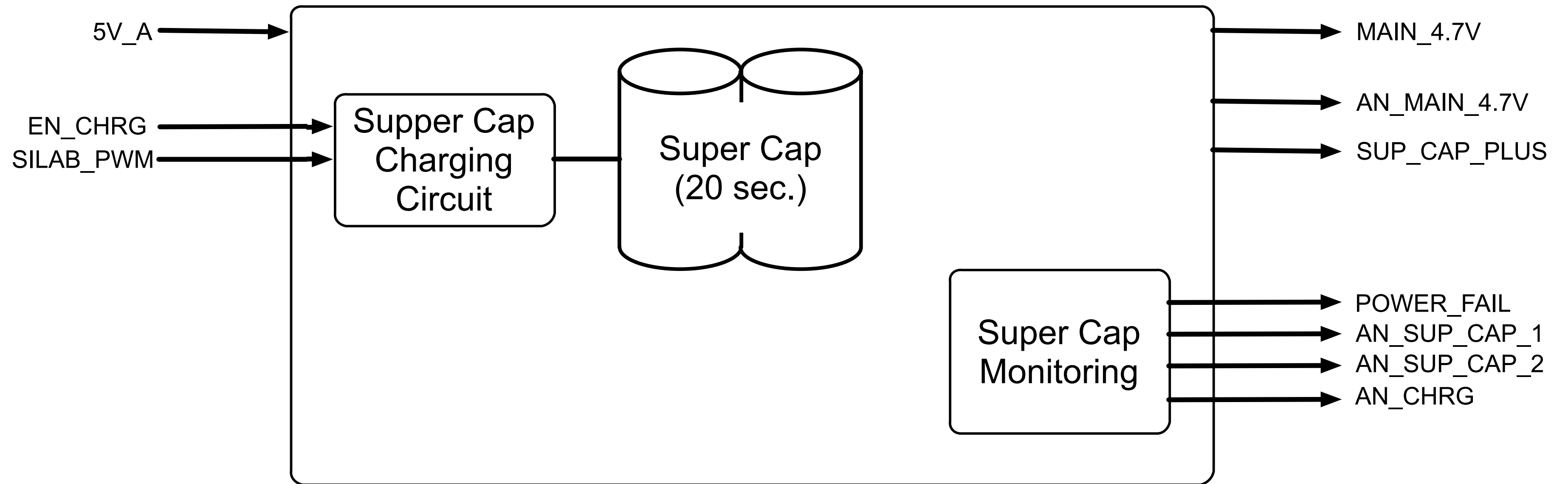
Gyro-Accelerometer

Included only on xxx9x Standard Option



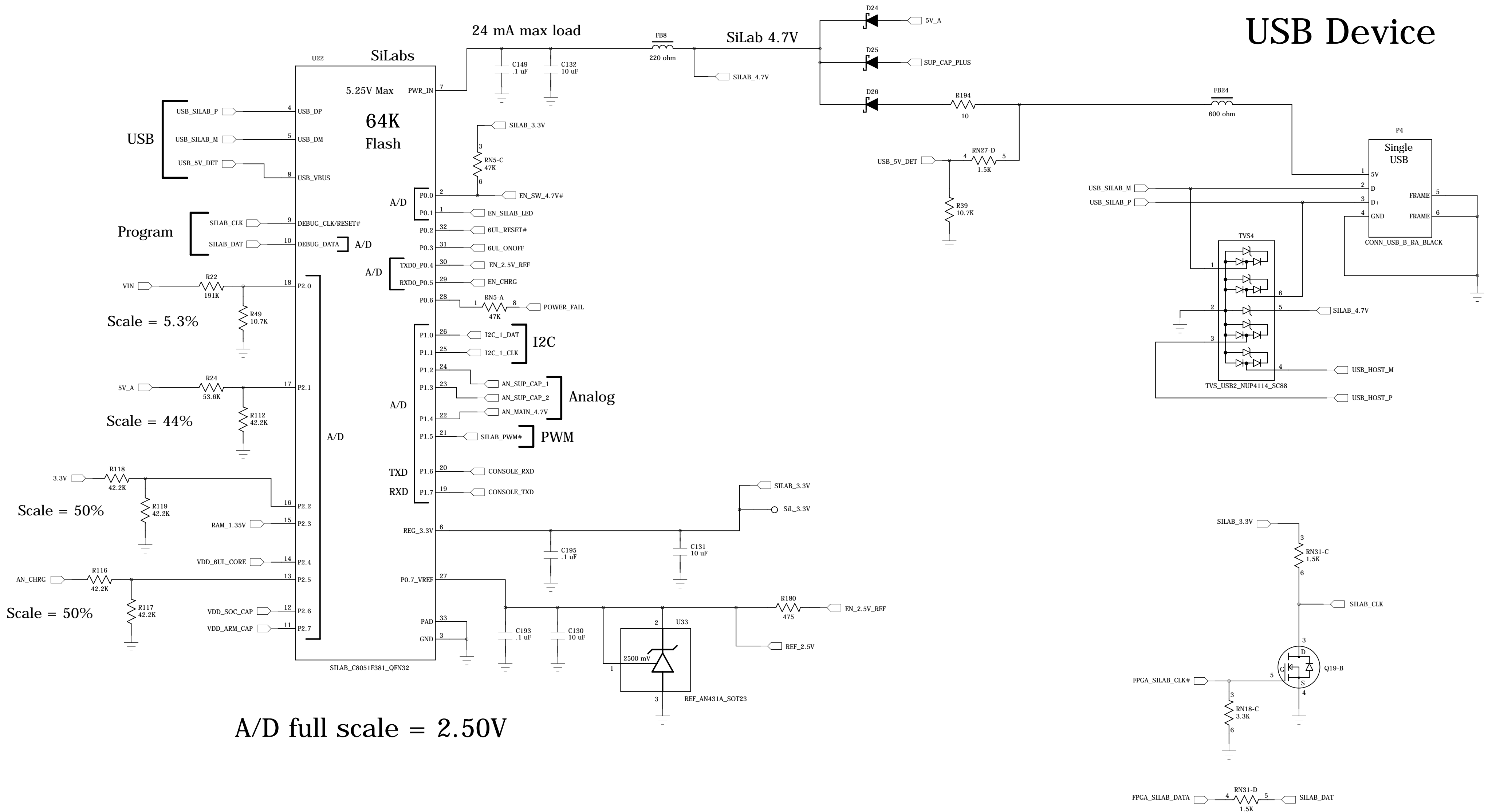
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SuperCap 20 Second Power Hold



20 seconds assumes 1 watt load
25F SuperCaps charged to 4.8V
Functions down to SuperCap = 3.8V

USB Device Port and SiLab uC



MACH XO2 FPGA

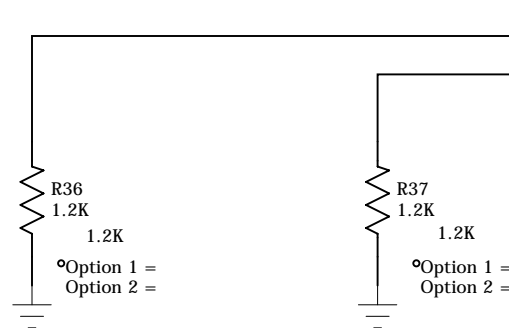
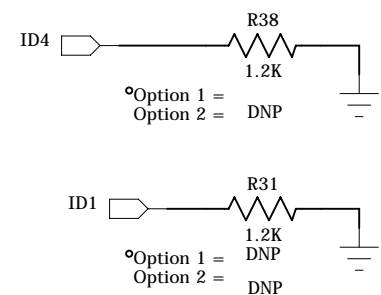
FPGA required for:

- Auto-485 for one UART
- MUX for UARTs
- Two Tachometers
- One Quadrature detector
- Additional I/O

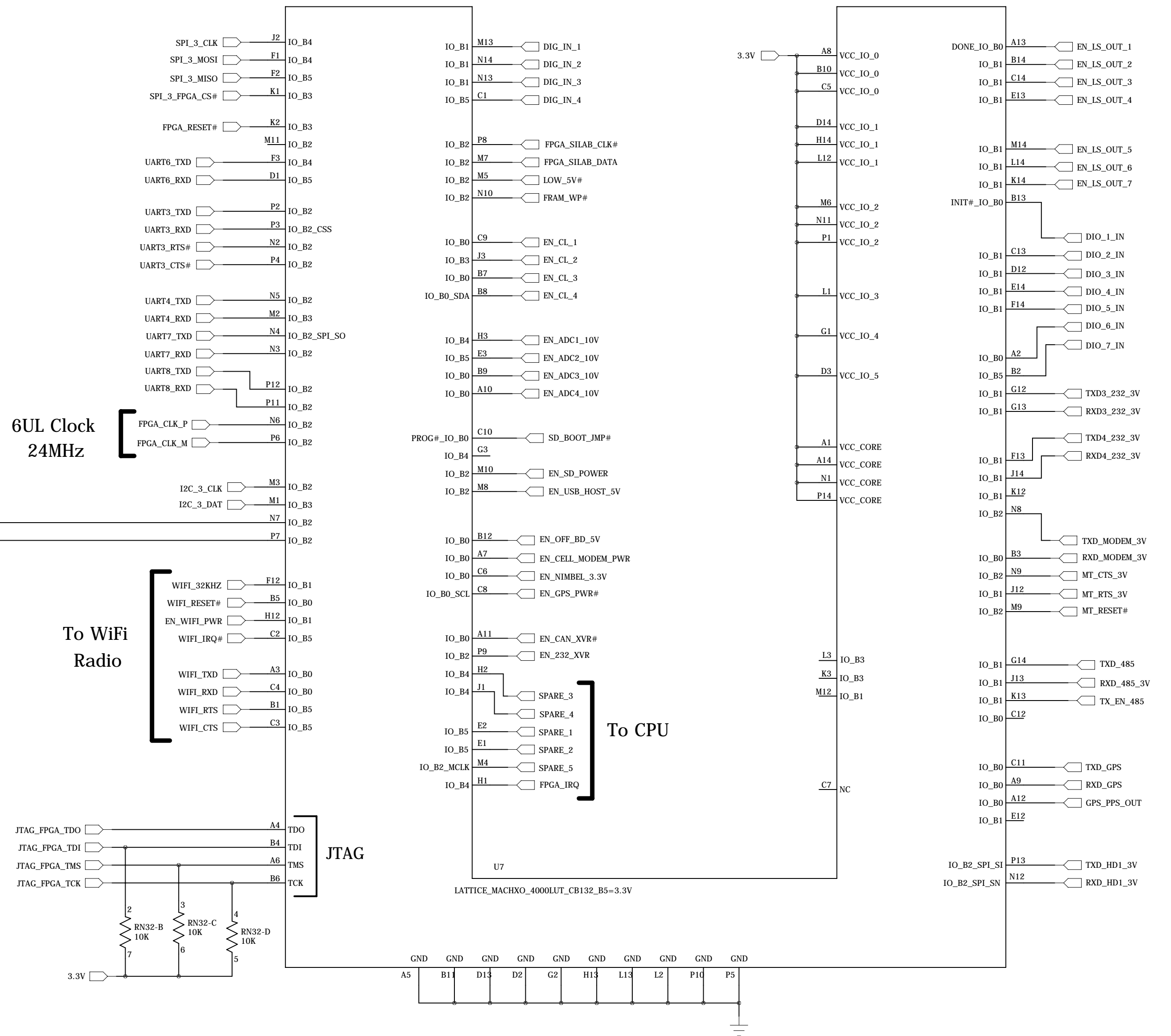
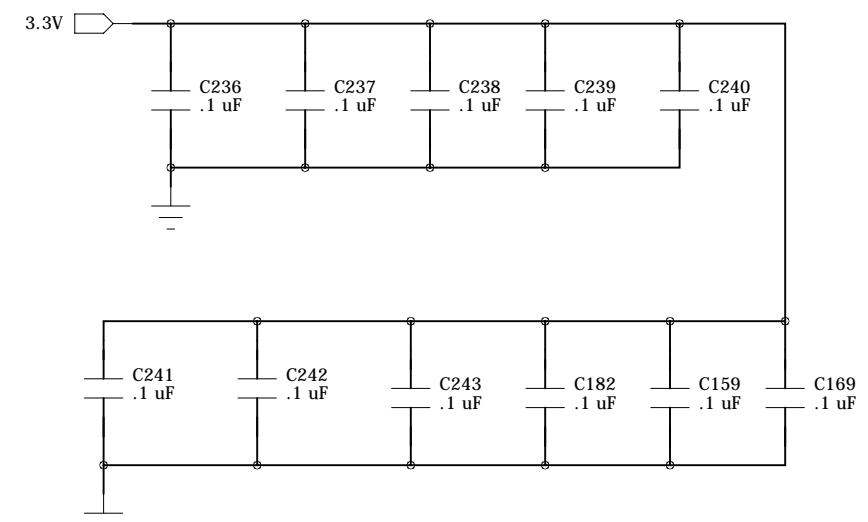
Resistor Strapping Table

0 = POP, 1 = DNP

R38	R37	R36	R31	
0	0	0	1	TS-7180-SMW1I
1	0	0	1	TS-7180-SRW9I



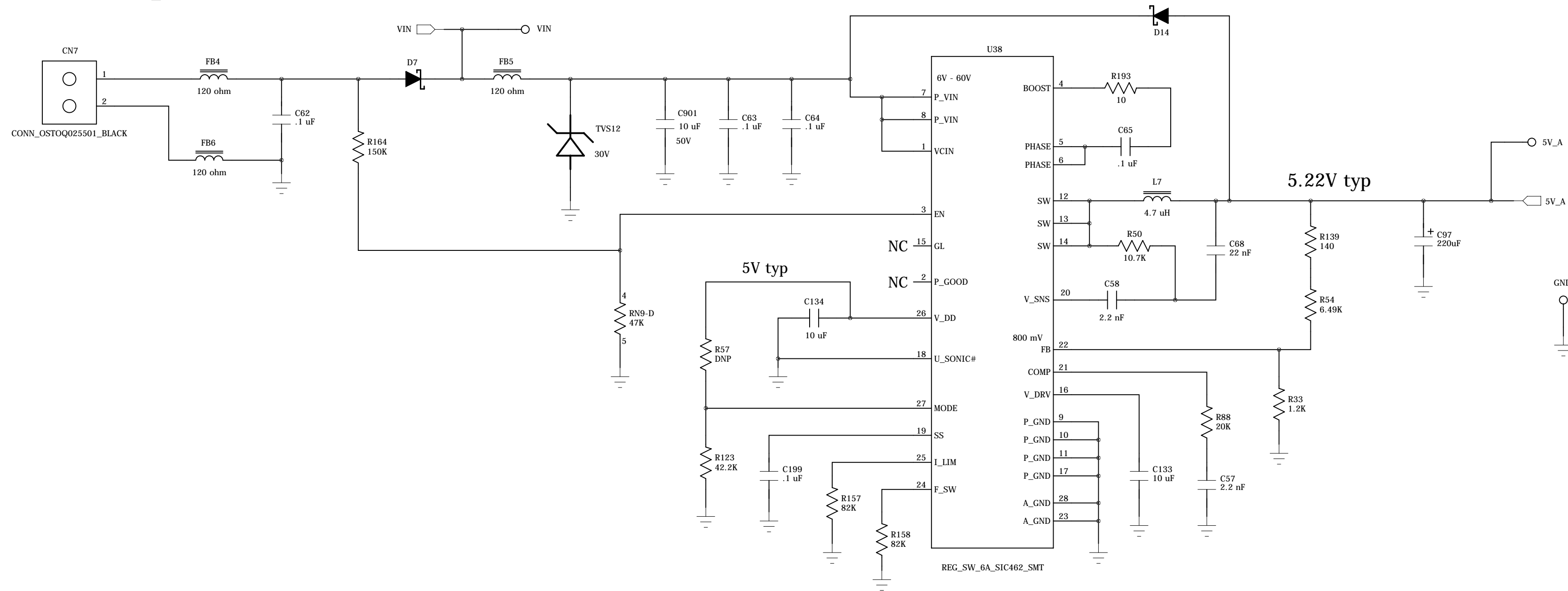
FPGA bypass Caps



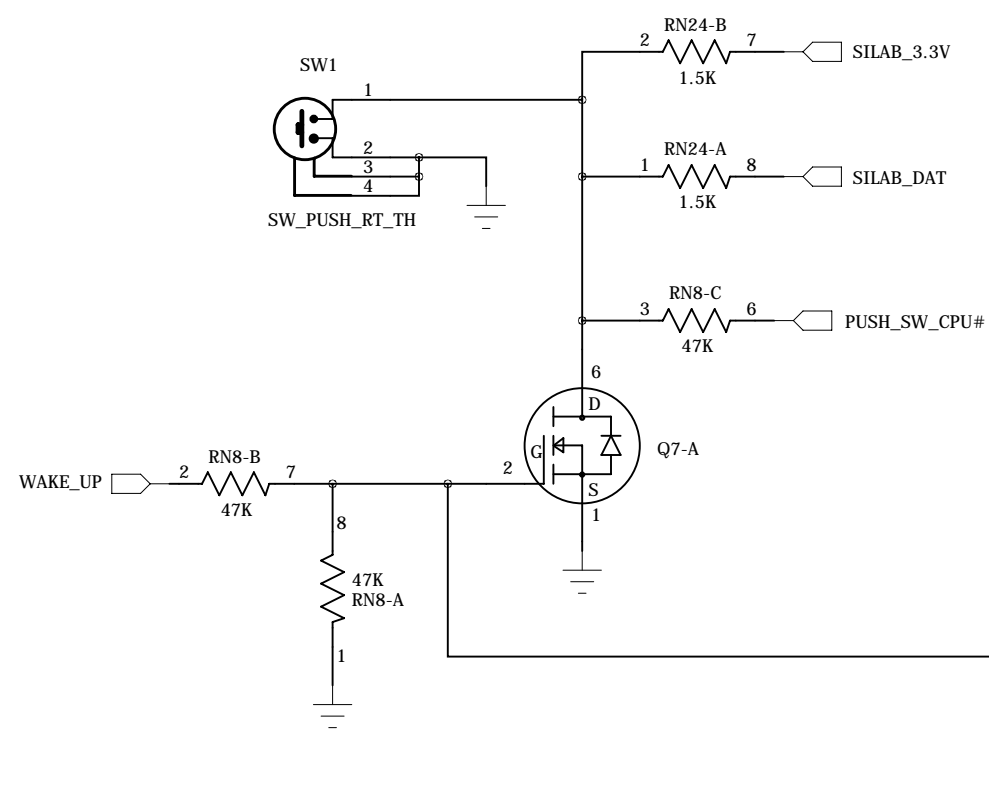
Vishay SiC462 6A Regulator

8-30 VDC

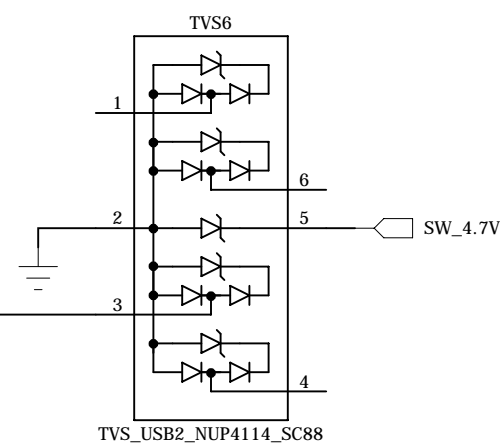
Power Input



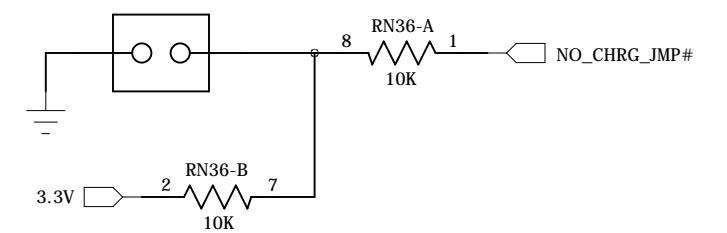
Push Switch



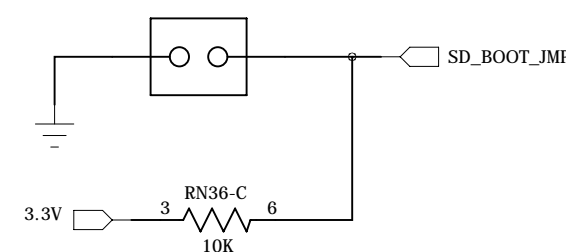
TVS



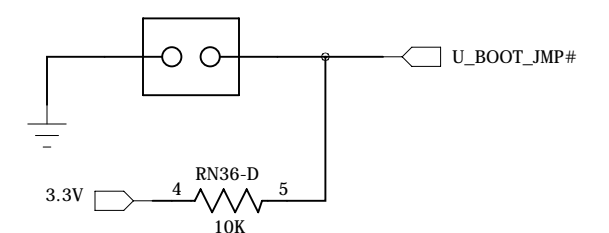
No Chrg Jumper



Boot to SD

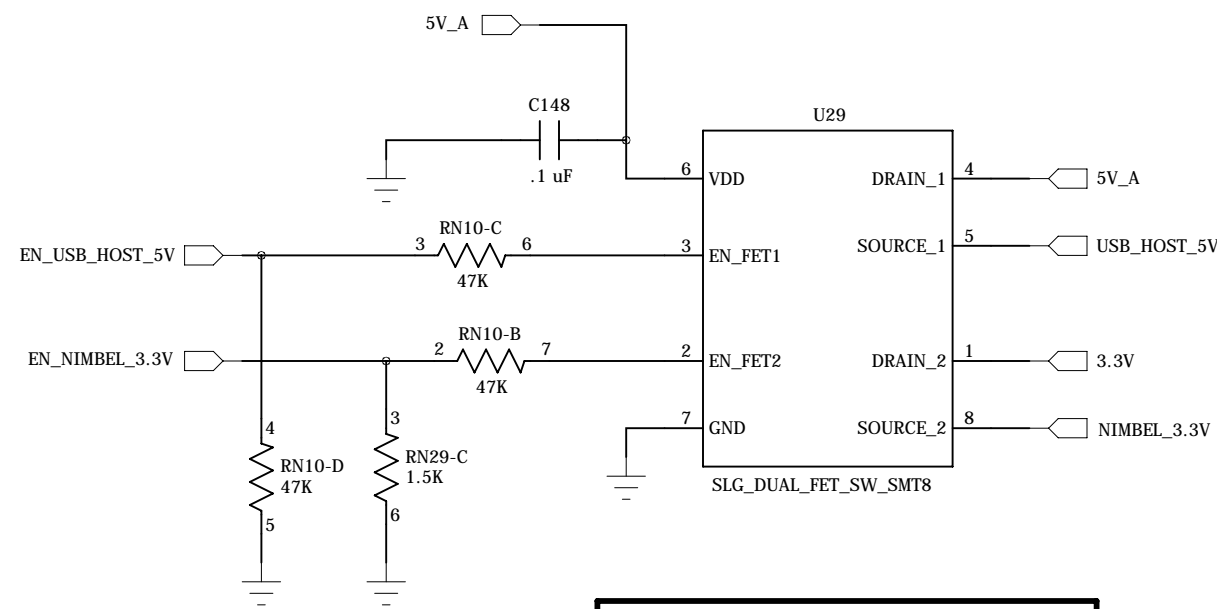


U-Boot Stop



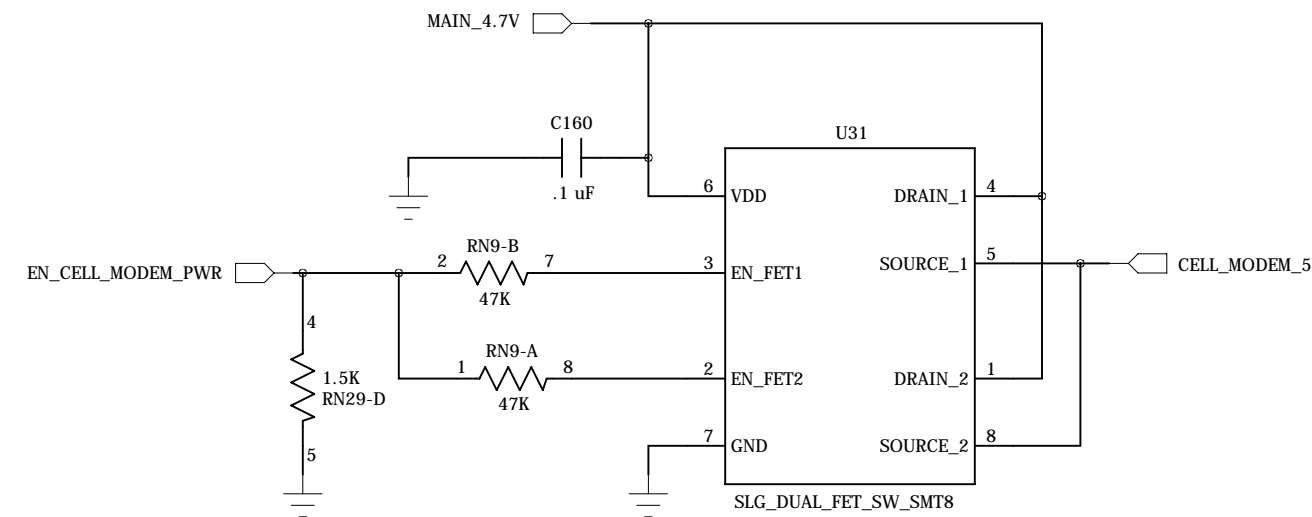
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USB and NimbeLink Switched Power

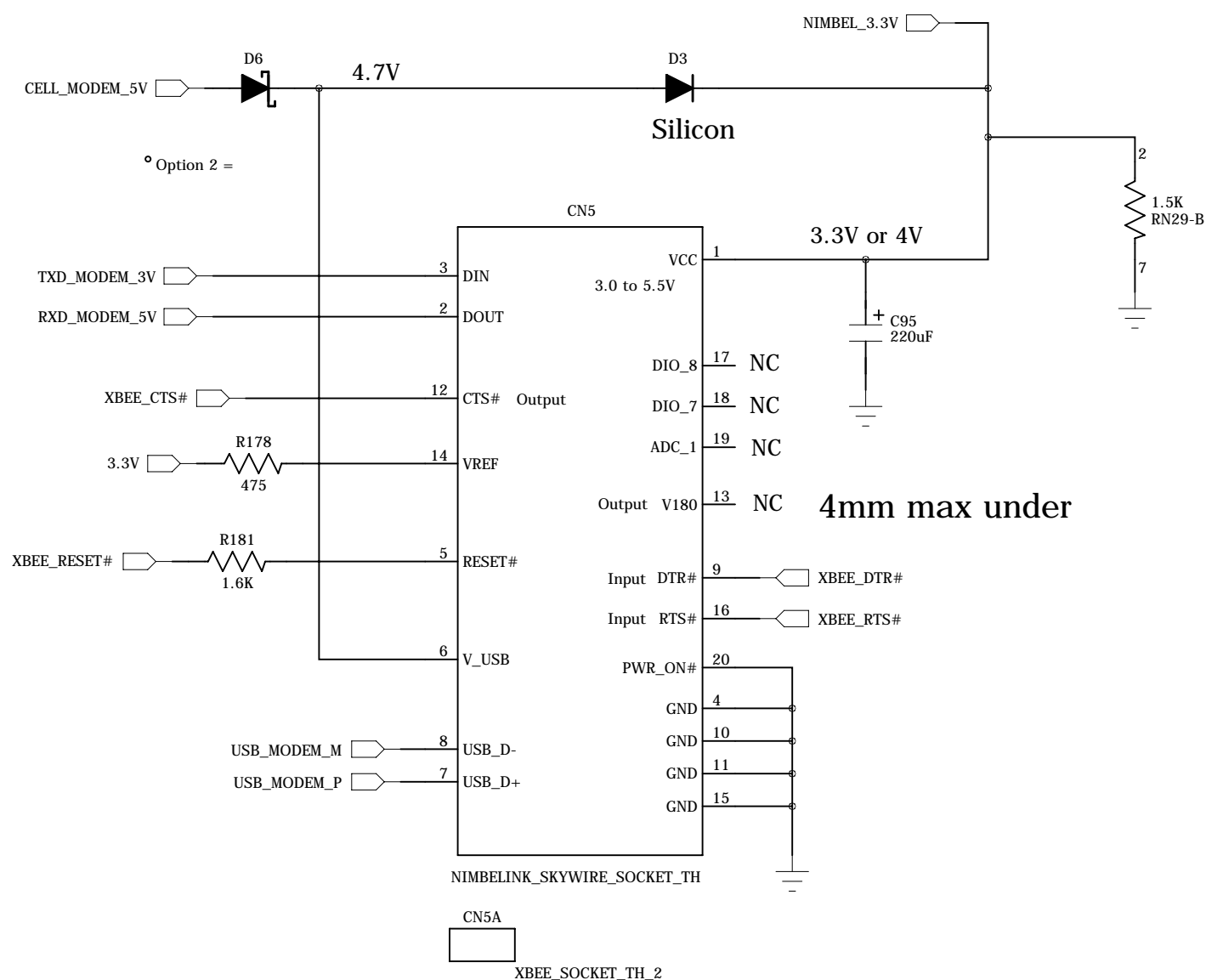


Rise time of both outputs
measured at ~1V/ms

3G Modem Switched Power



NimbeLink Modem Socket



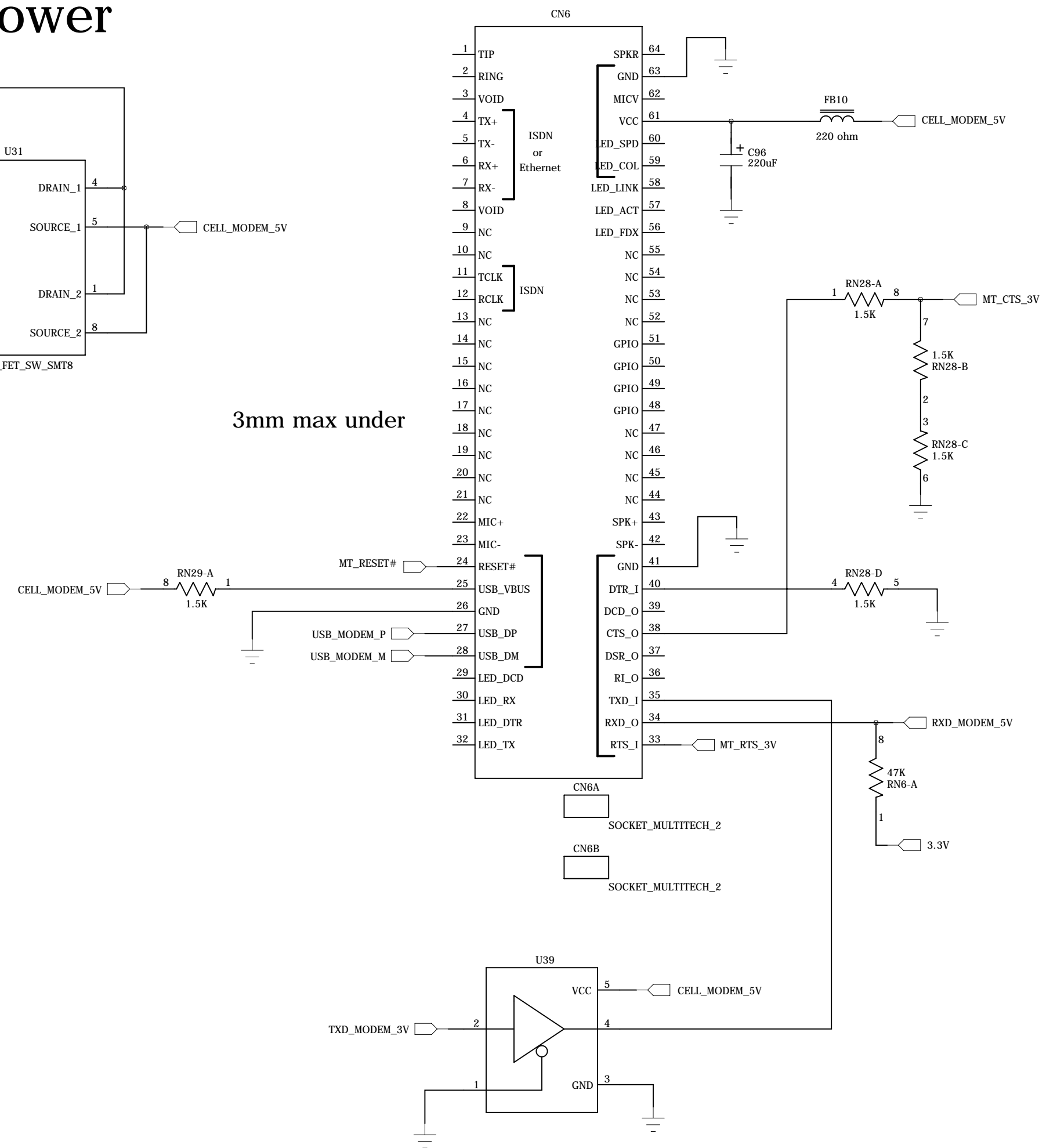
4mm max under

Multitech Modems

Inputs (TXD) are always TTL compatible
Outputs (RXD) swing CMOS levels
This means 0-5V if 5V powered

DTR and RTS are active low true Inputs

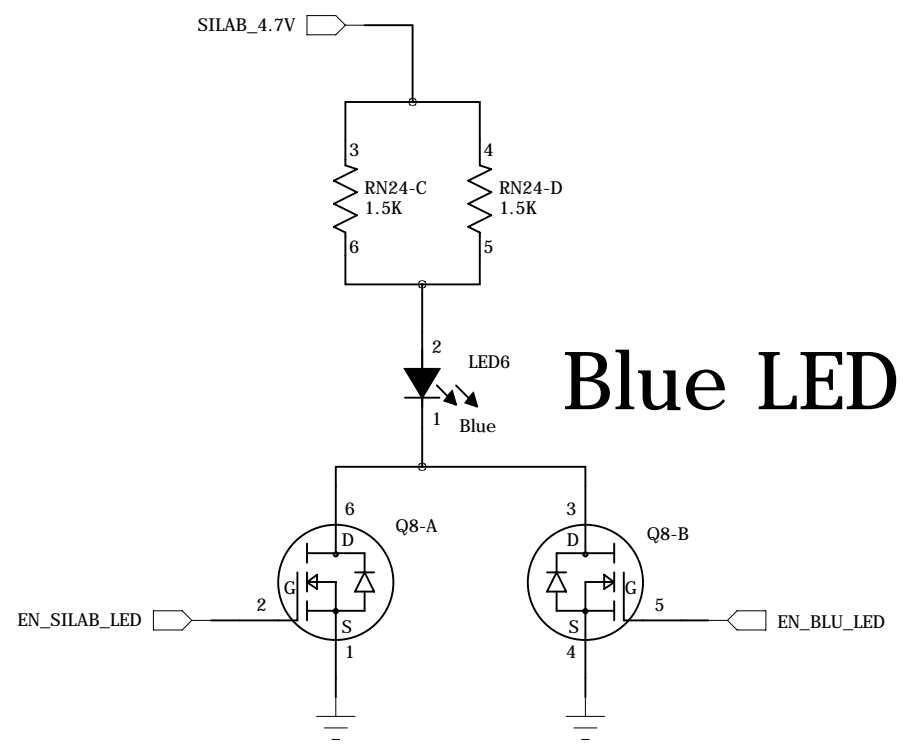
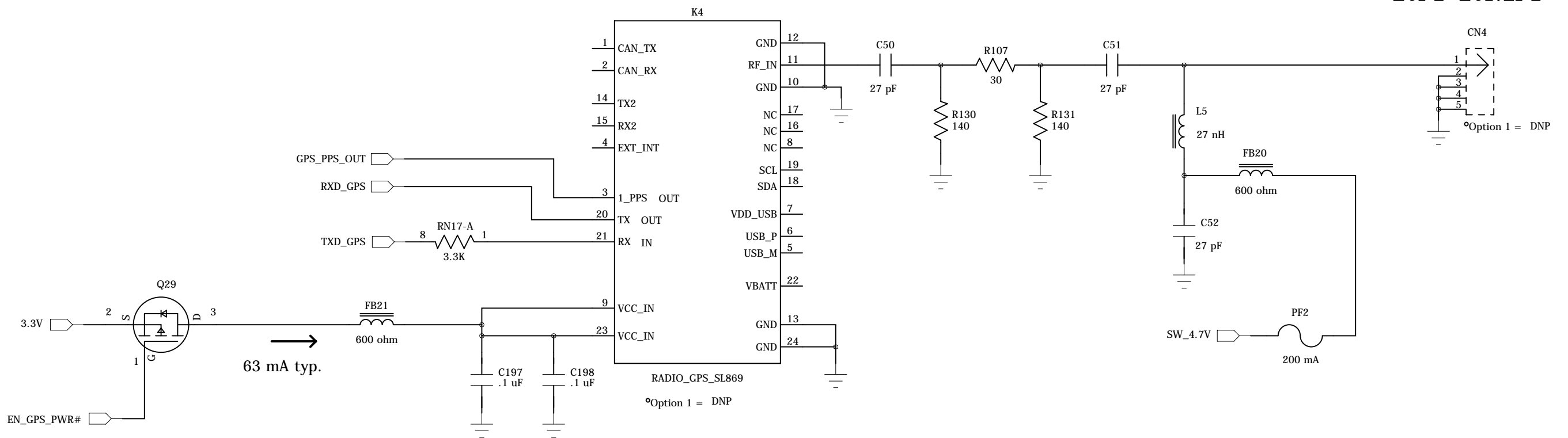
MultiTech Socket



3mm max under

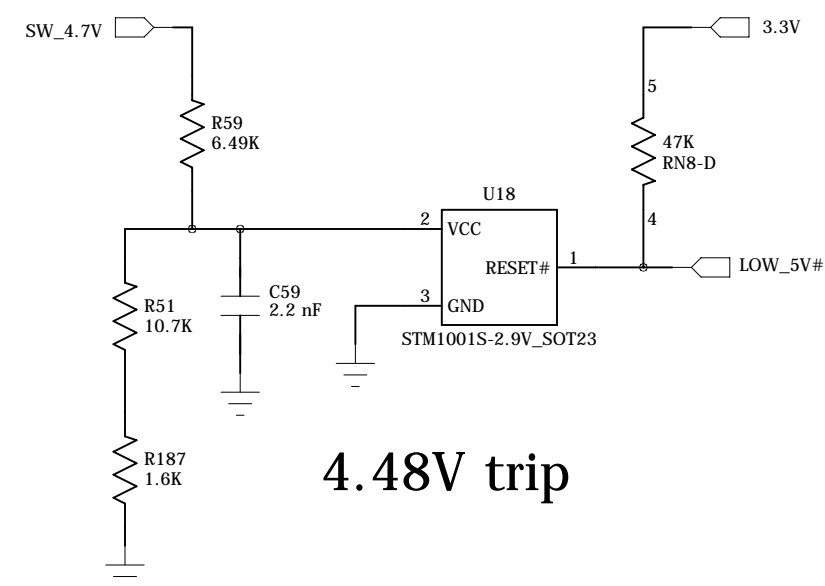
Telit SL869 GPS Radio

RF Conn.
RA RMA



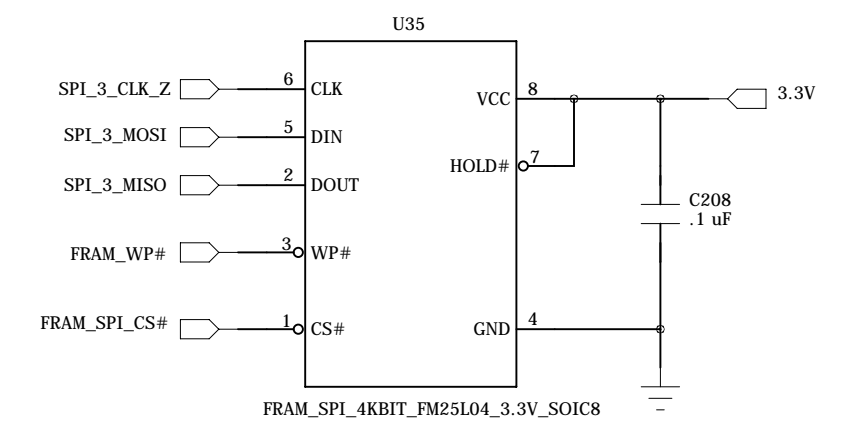
Blue LED

FRAM Protect



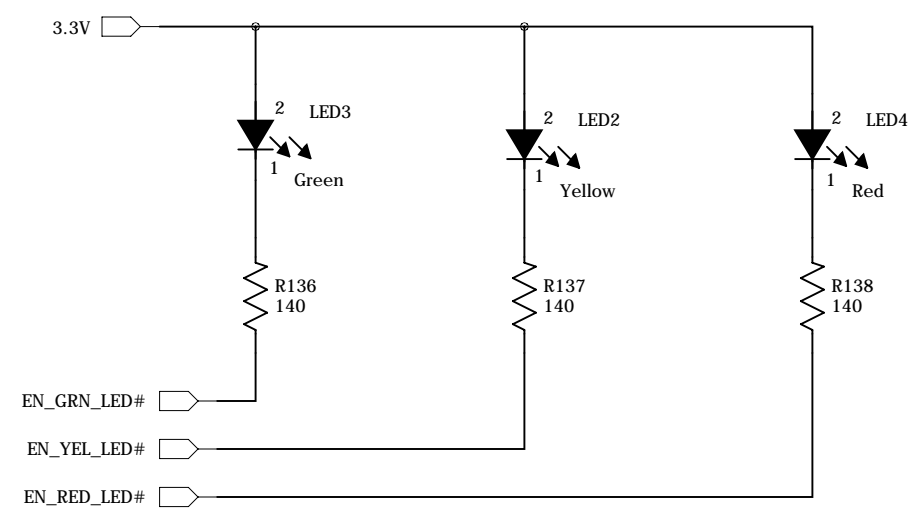
4.48V trip

FRAM Memory



2K Bytes

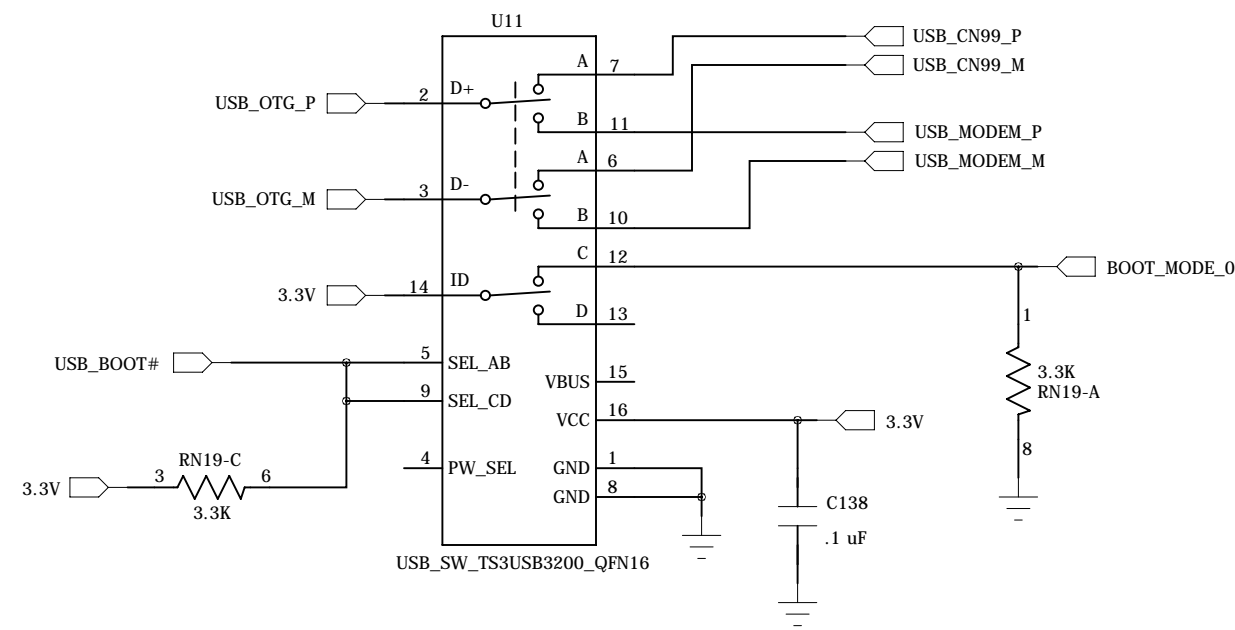
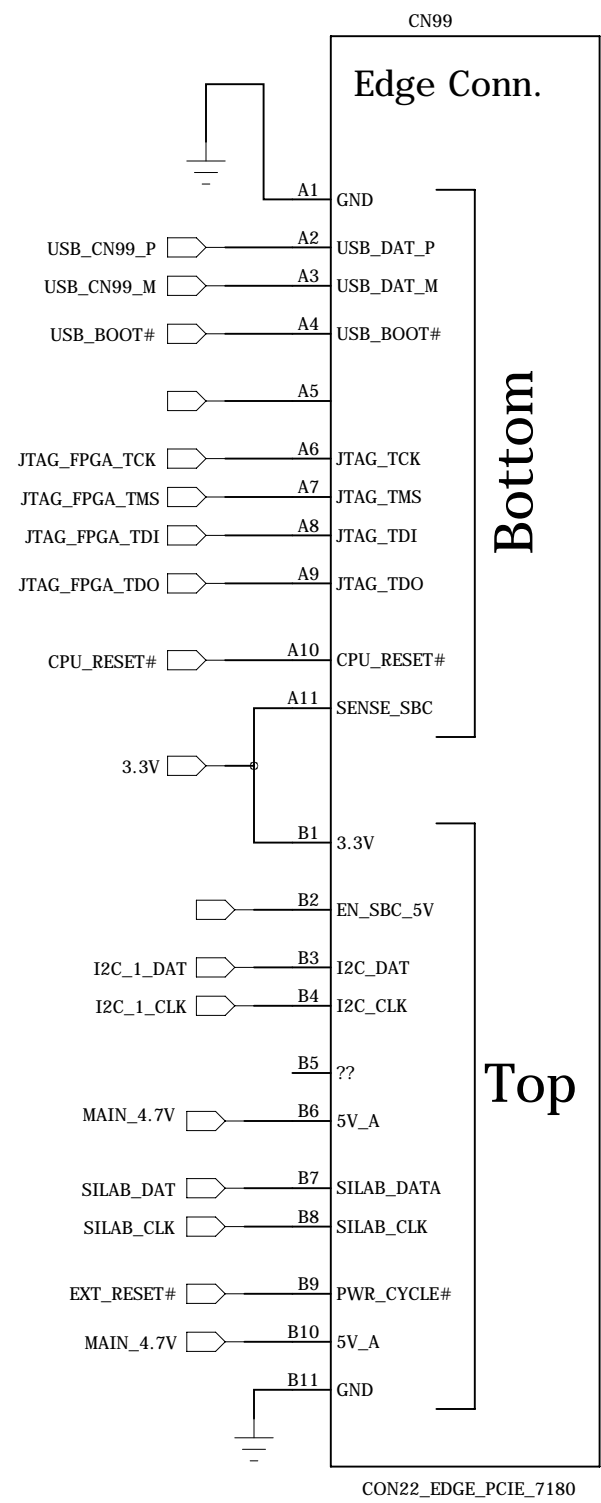
SMT RA LEDs



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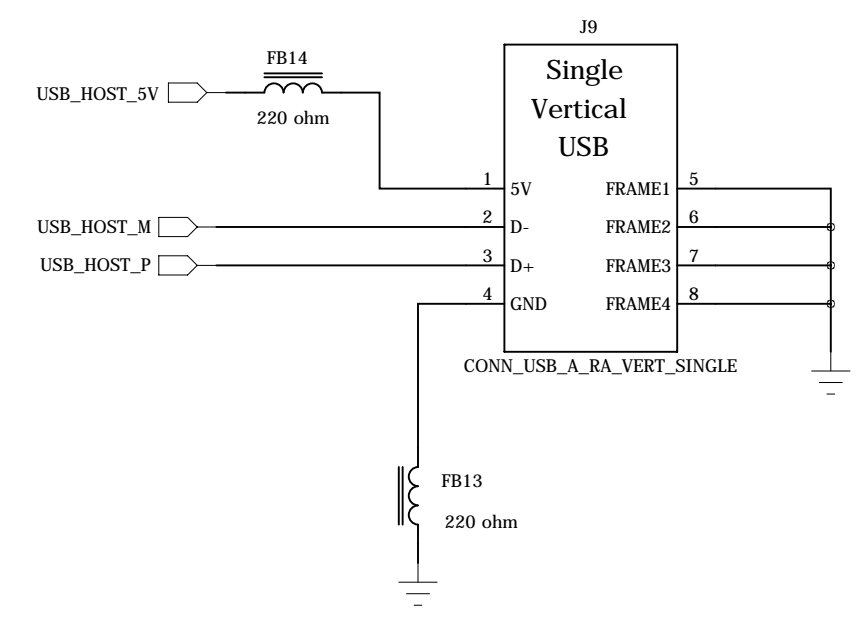
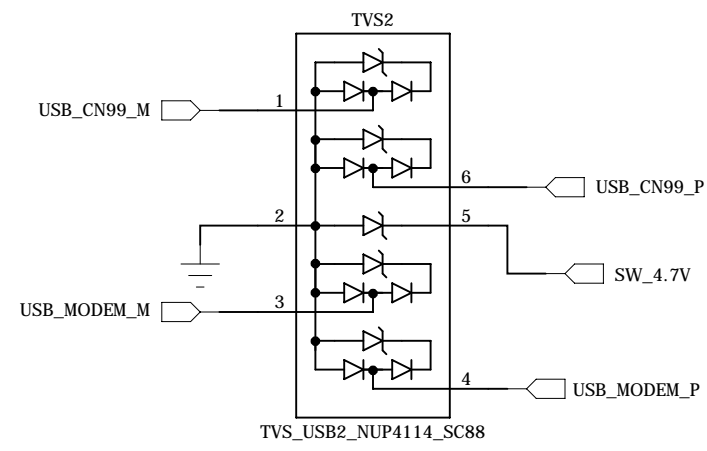
CN99 Factory Test

USB OTG MUX To Modem or CN99



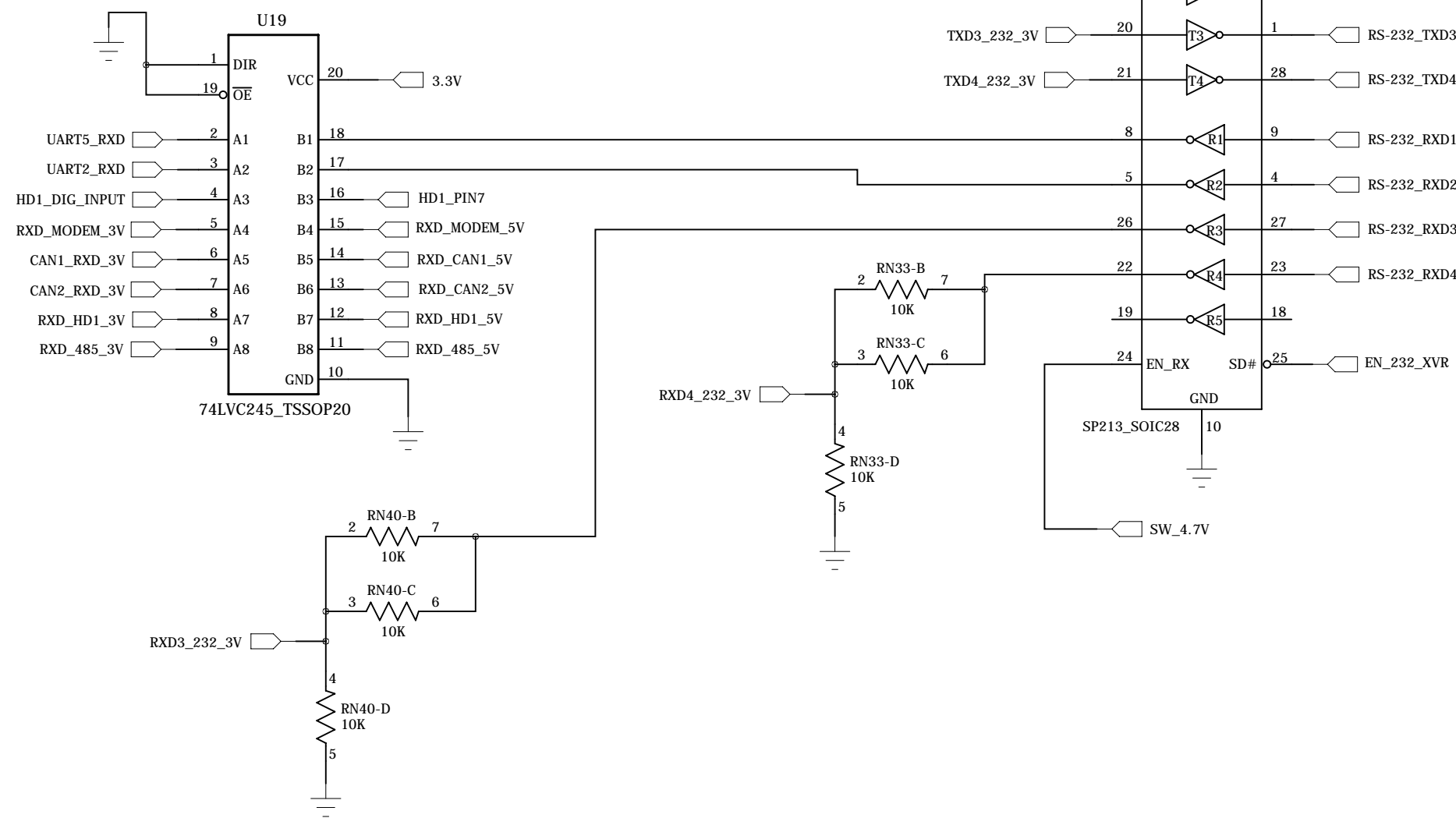
Single Host USB

OTG TVS

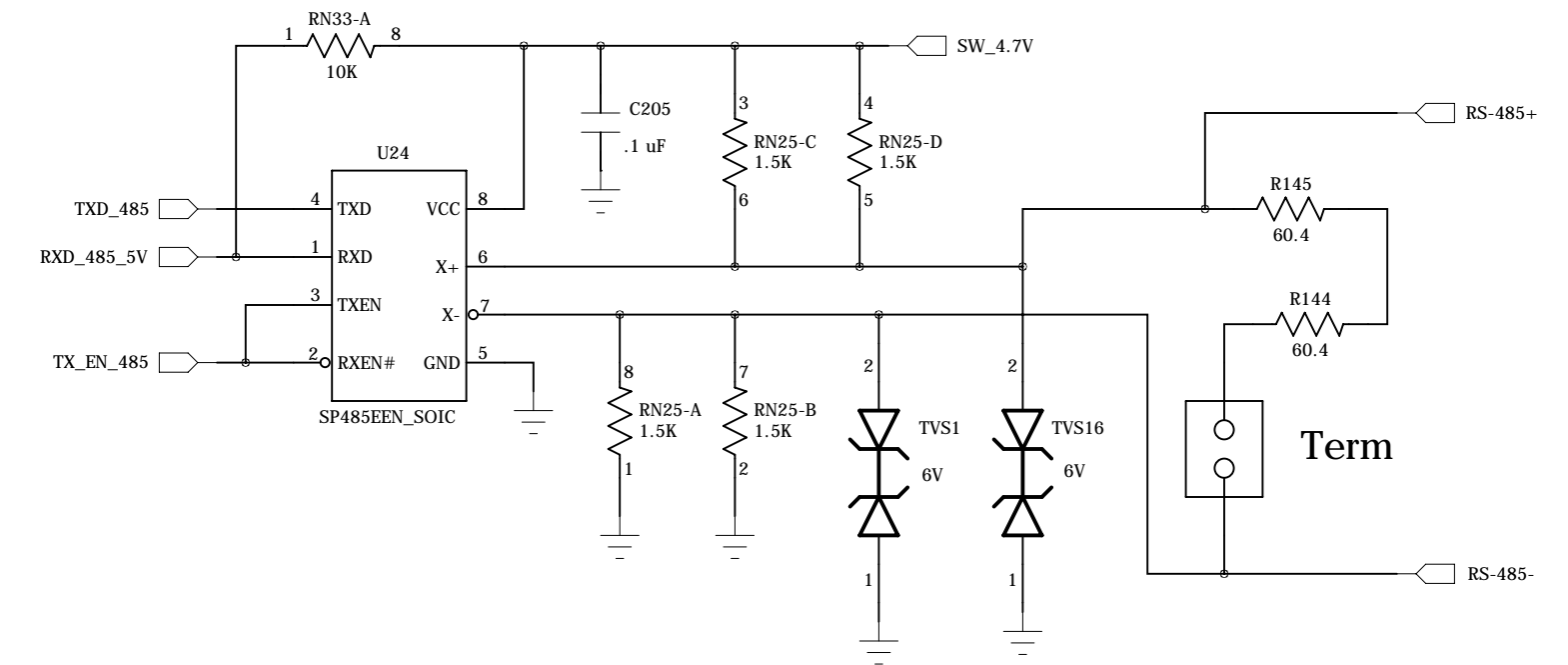


RS-232 Transceiver

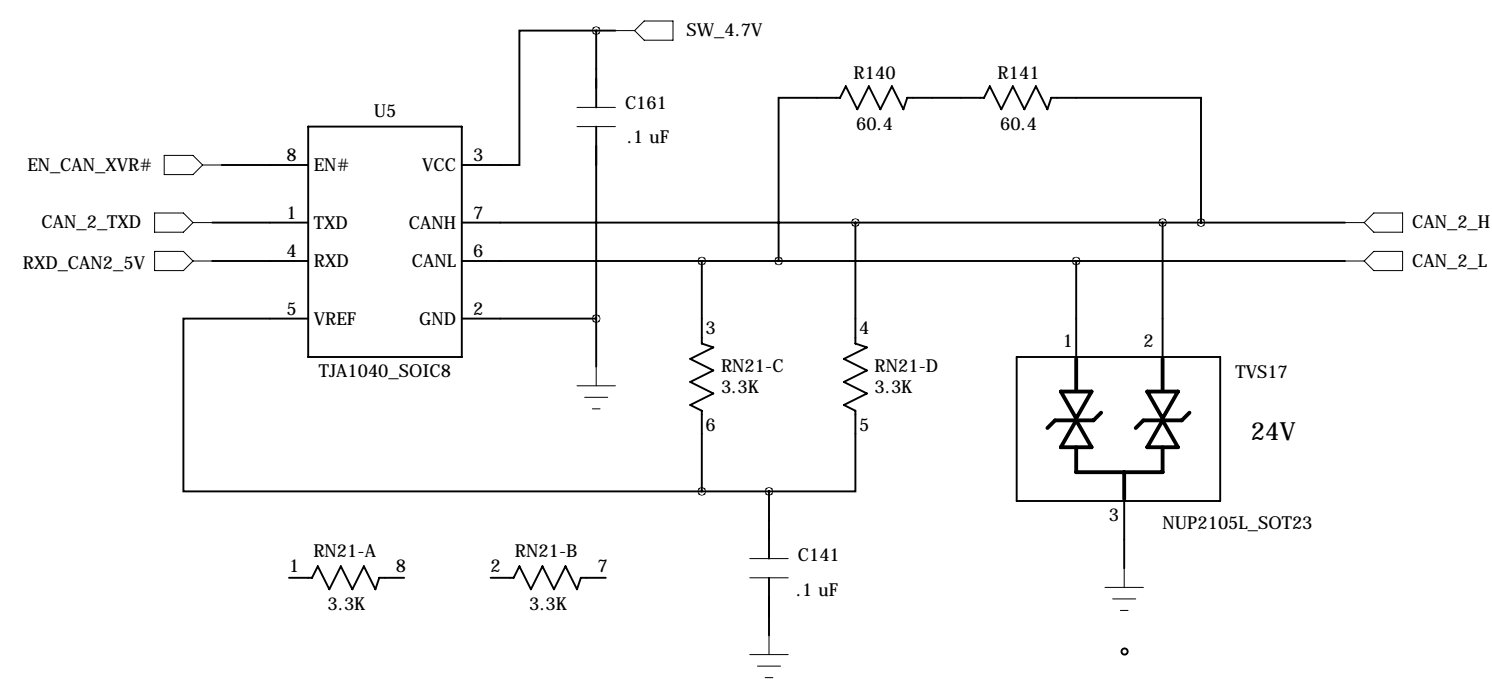
3.3V <-- 5V
Level shifter



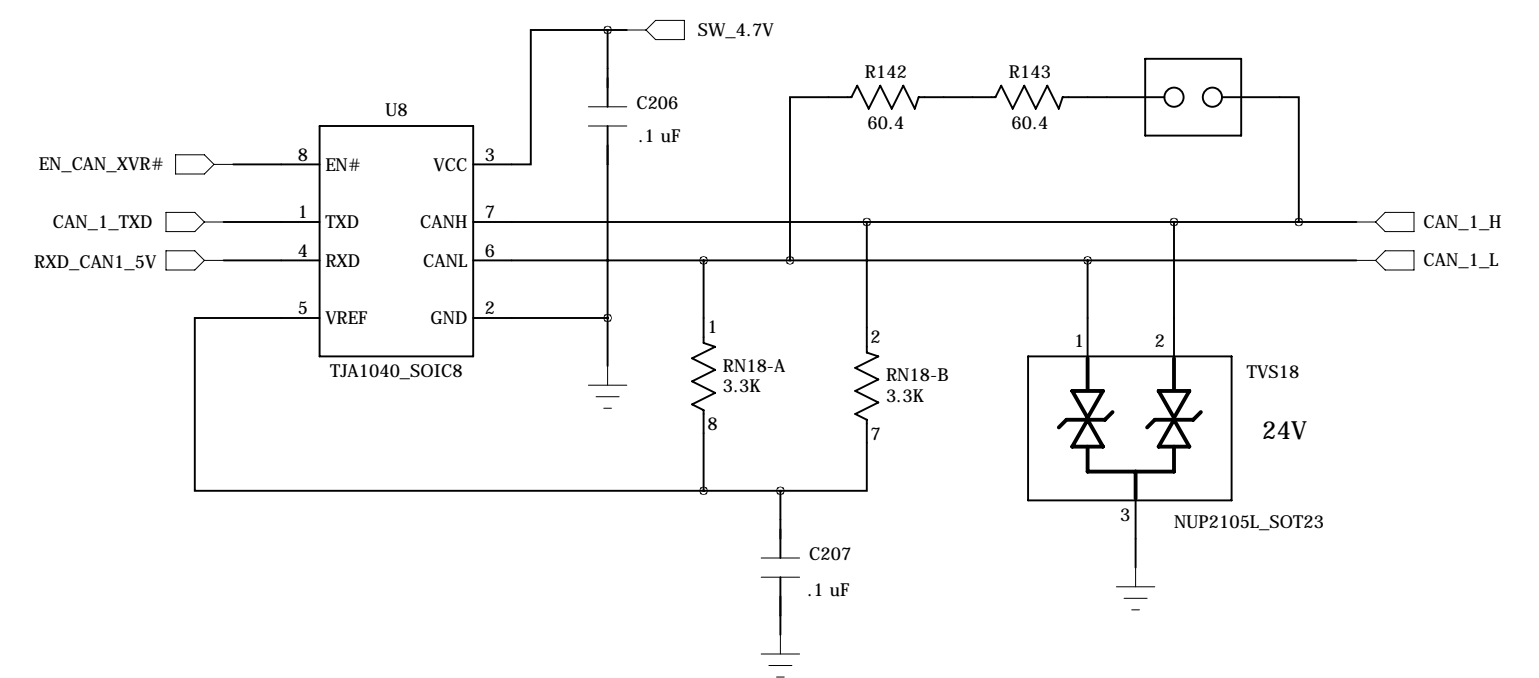
RS-485 Driver



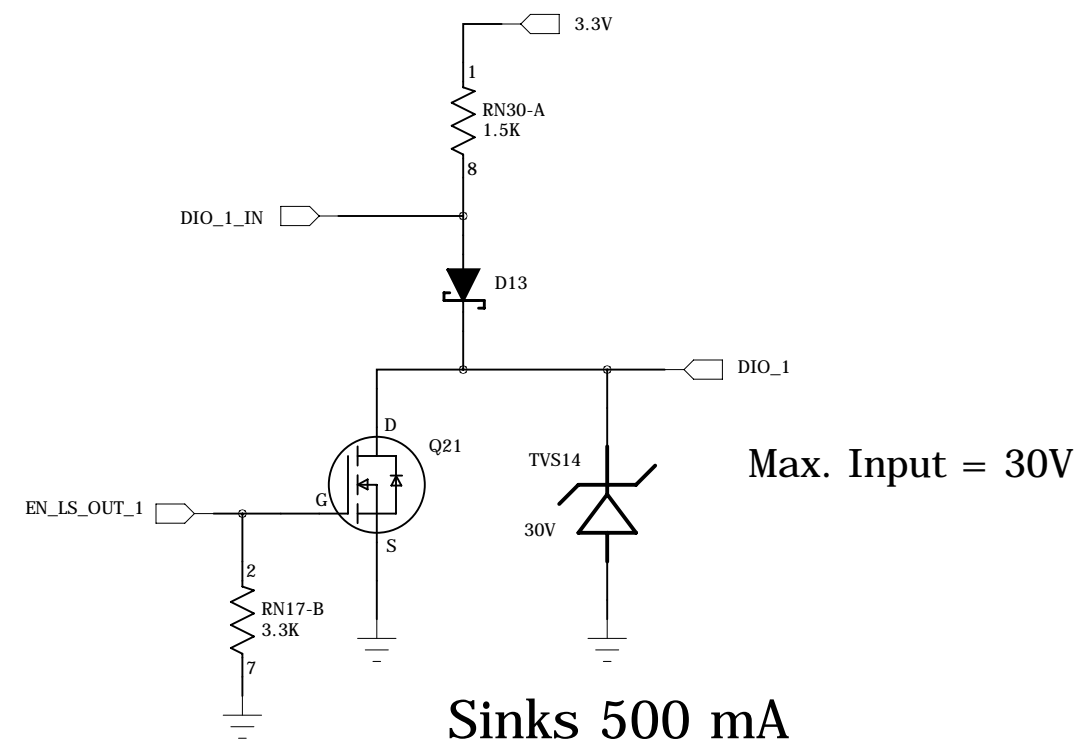
CAN2 Transceiver



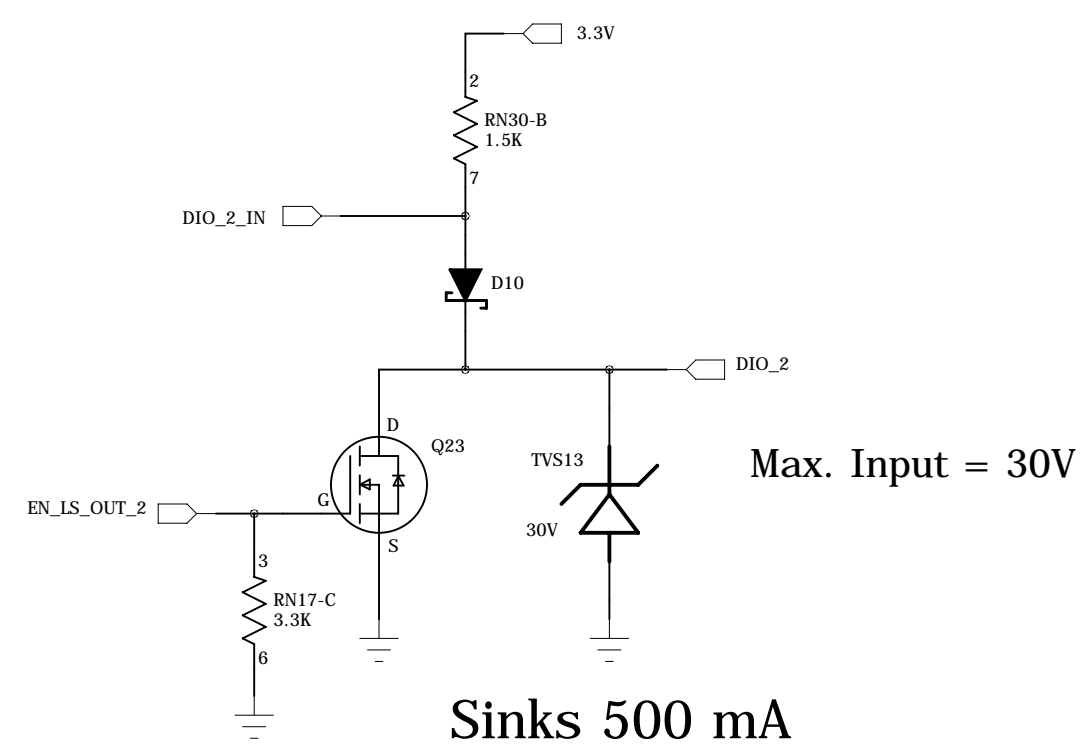
CAN1 Transceiver



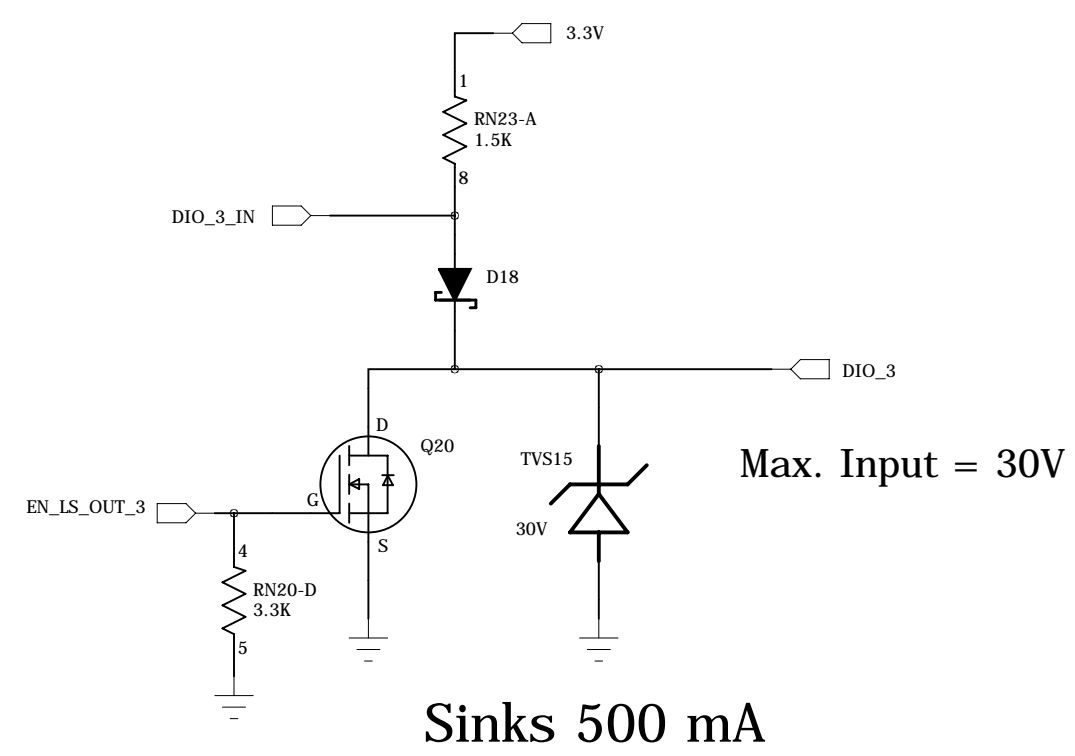
DIO_1



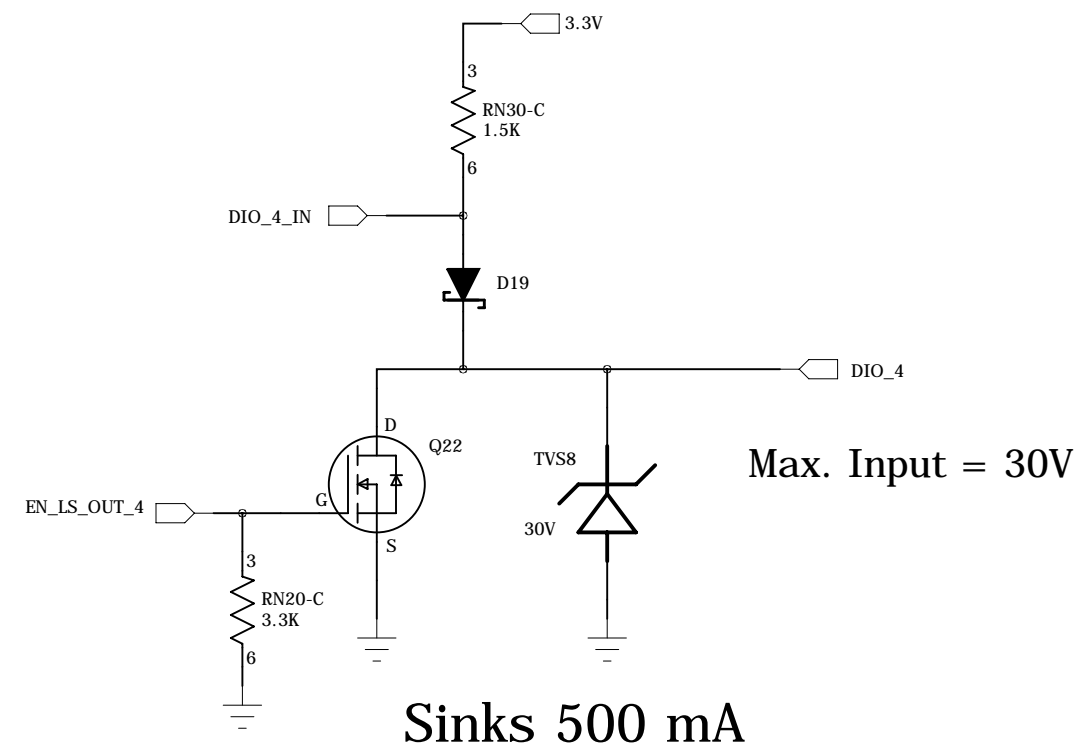
DIO_2



DIO_3

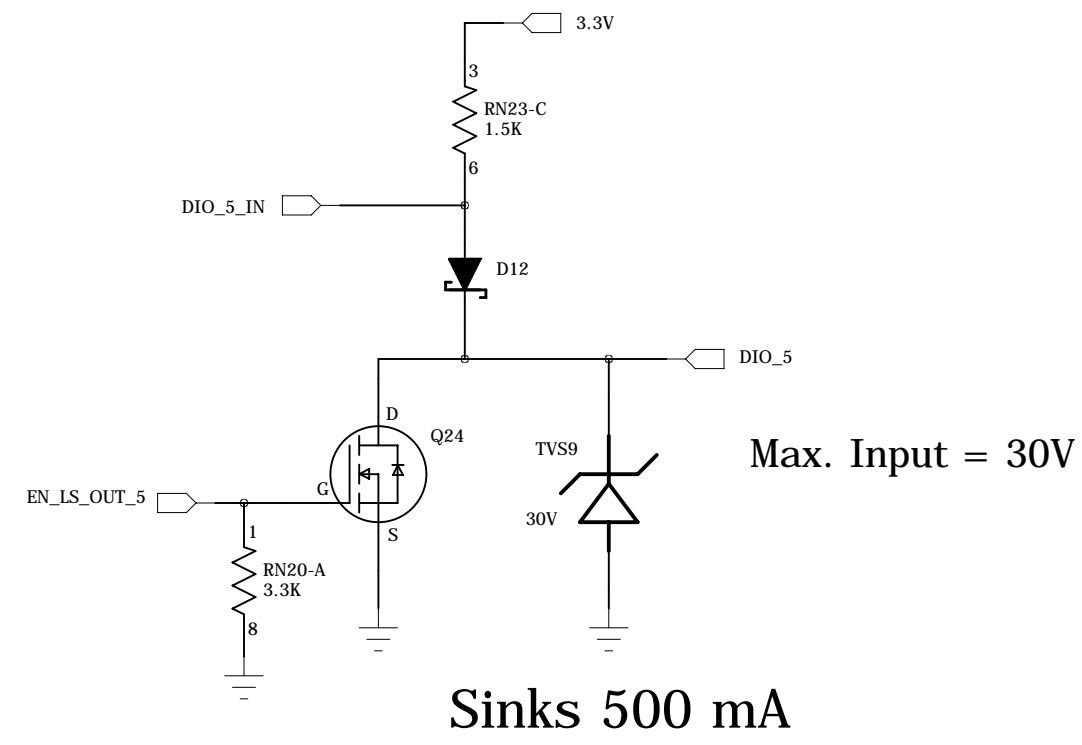


DIO_4

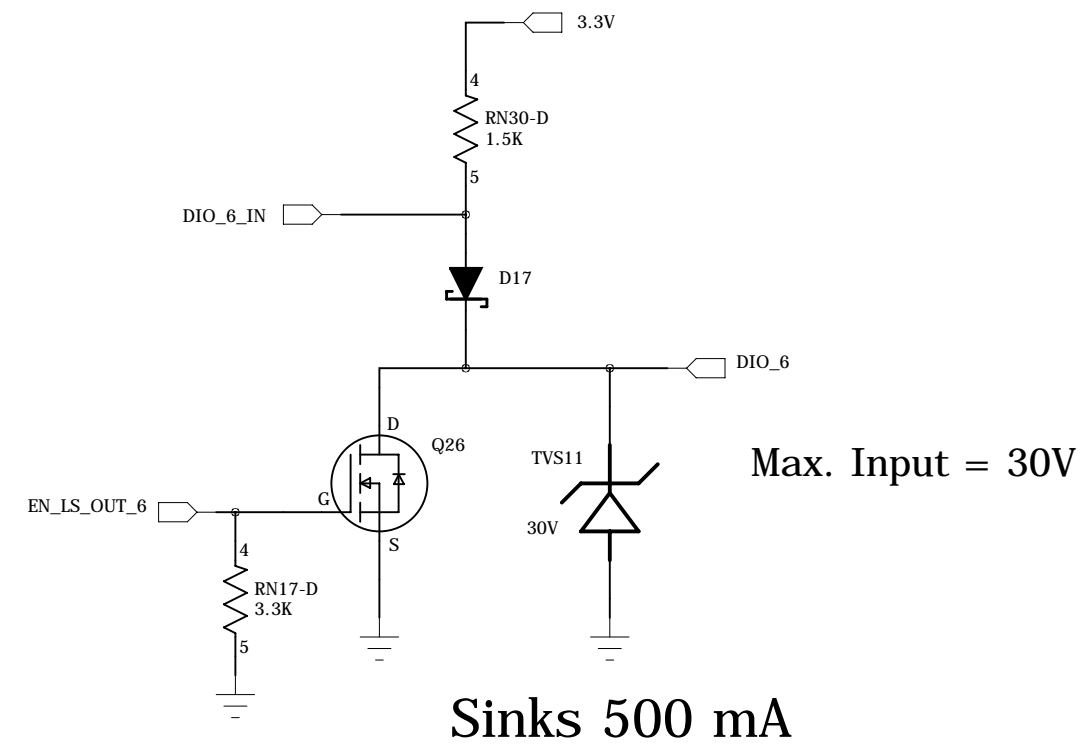


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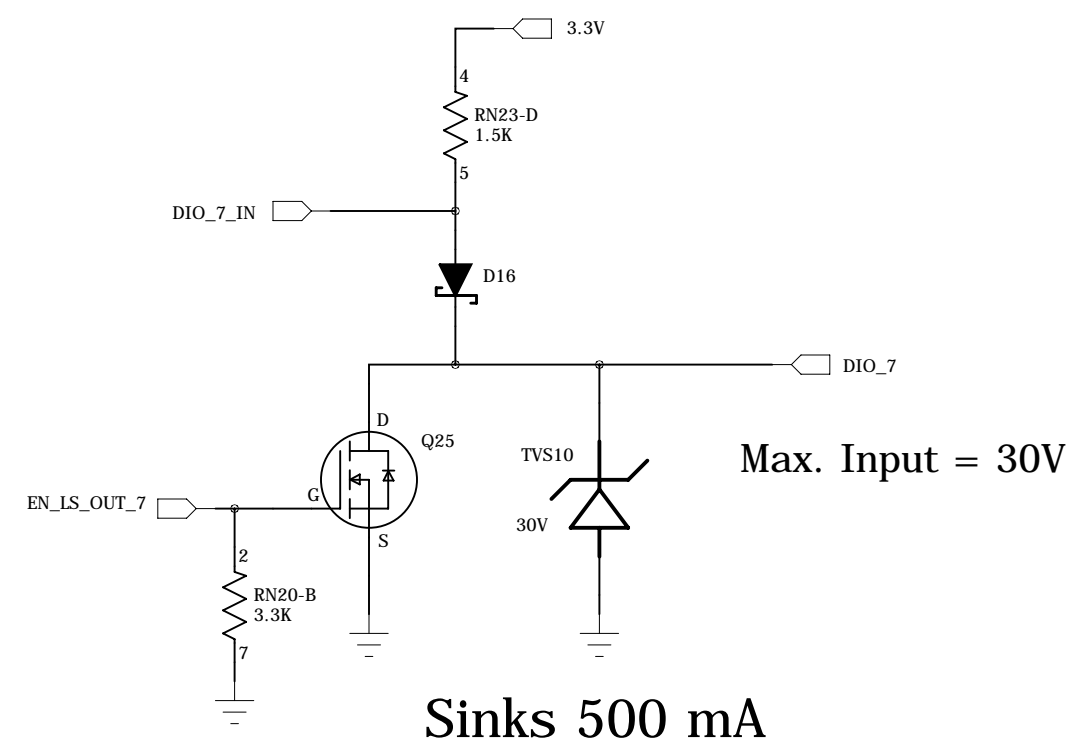
DIO_5



DIO_6



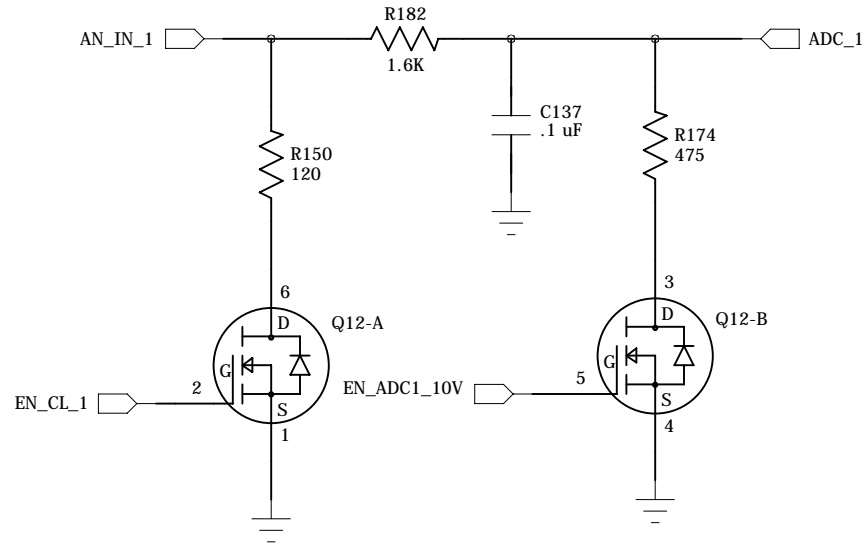
DIO_7



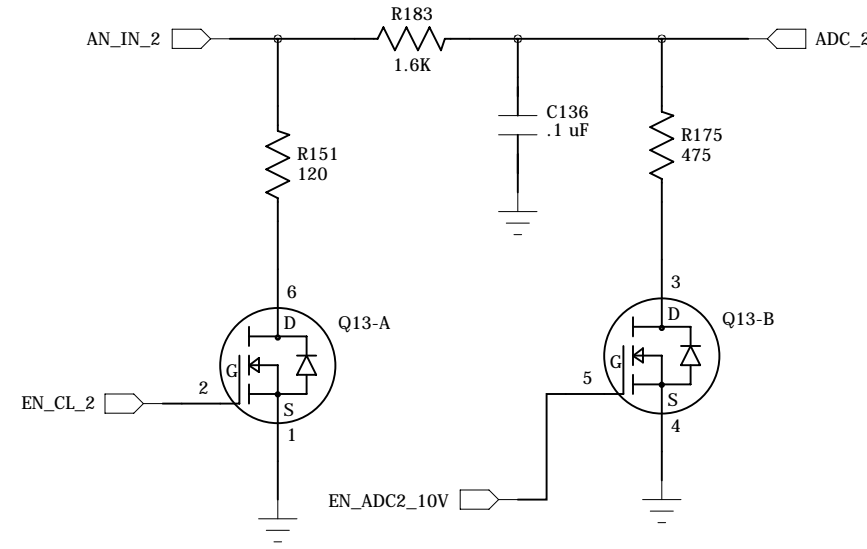
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Analog Inputs

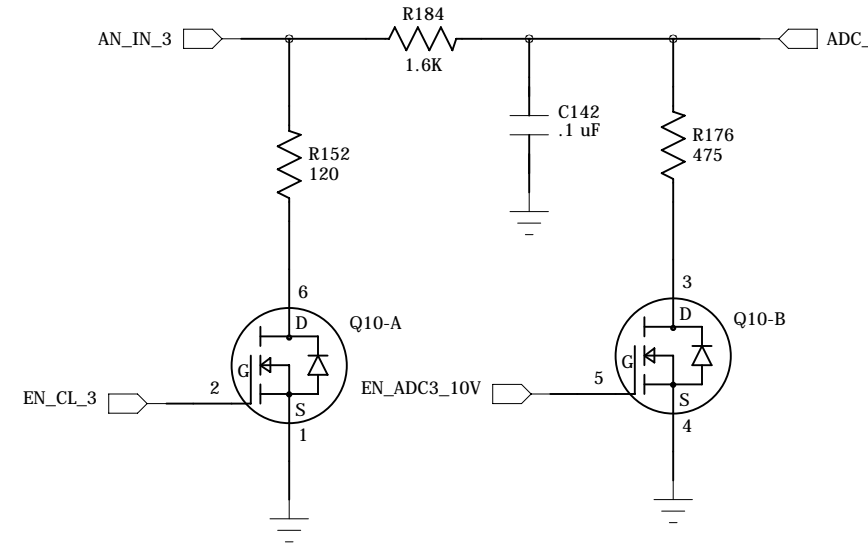
0-10.9V
or 0-20.8 mA



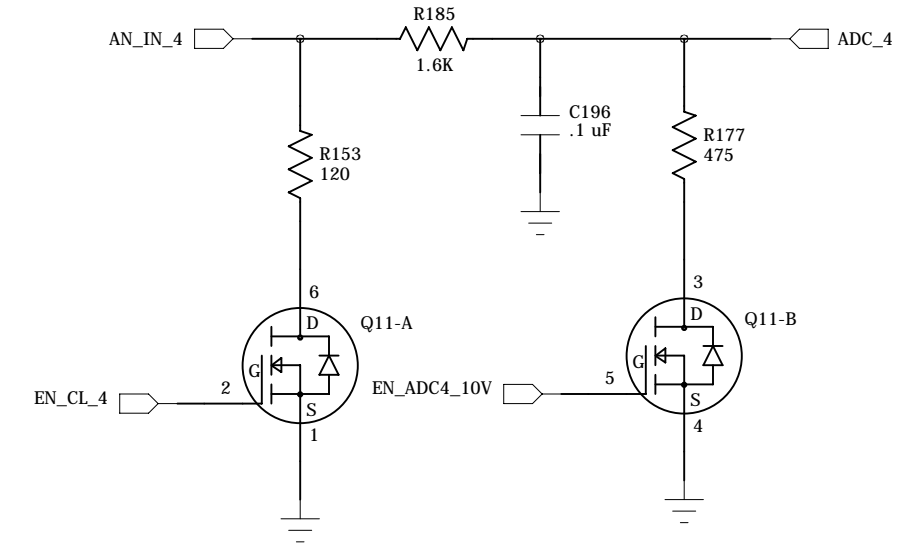
0-10.9V
or 0-20.8 mA



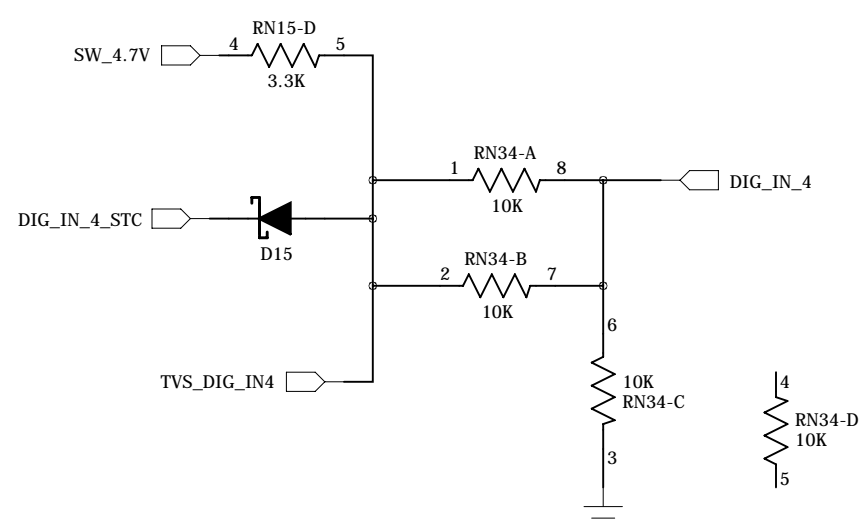
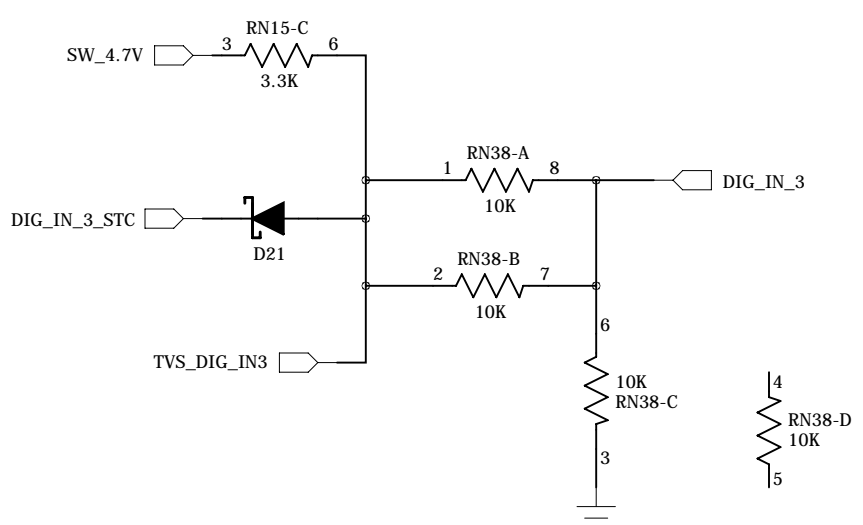
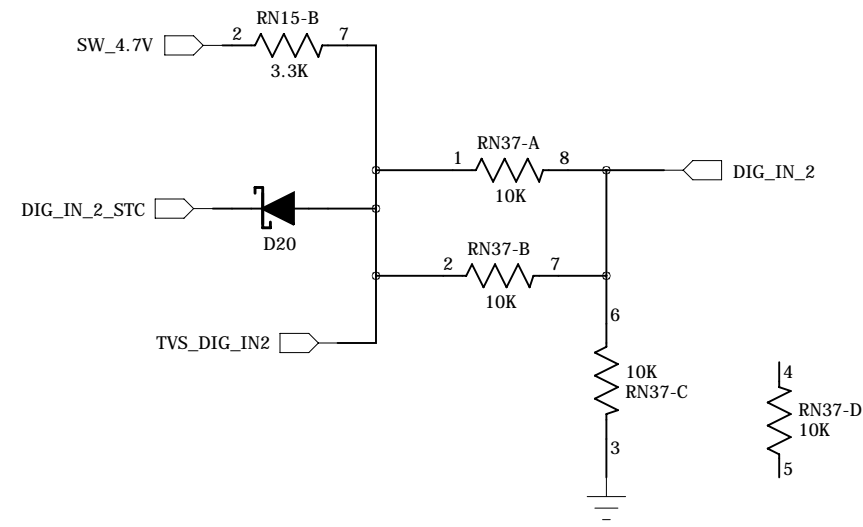
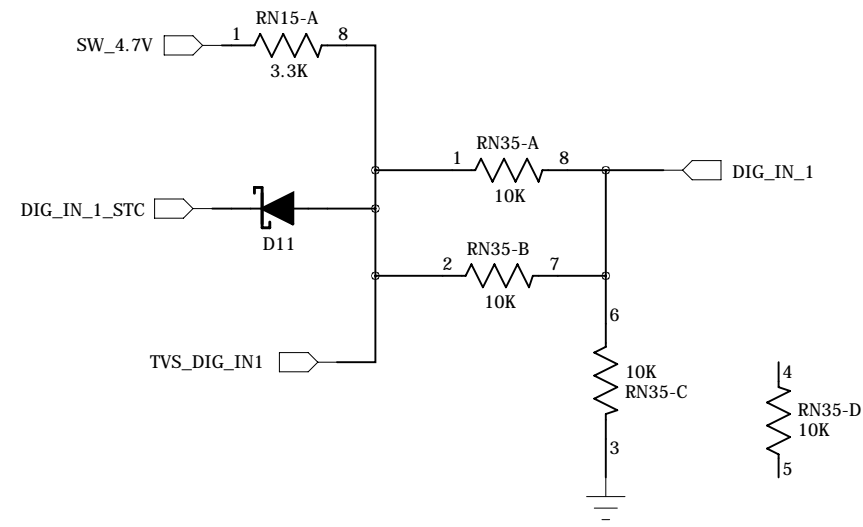
0-10.9V
or 0-20.8 mA



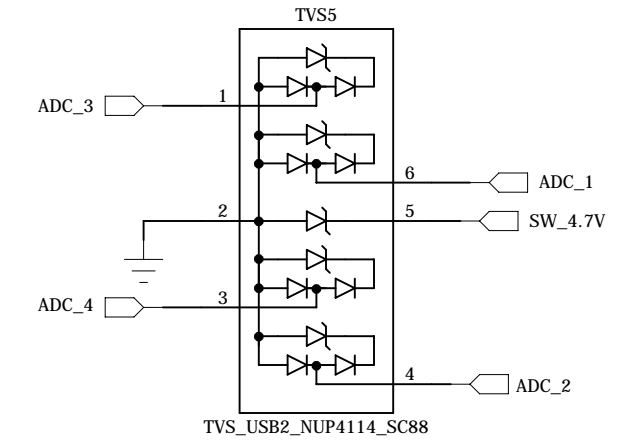
0-10.9V
or 0-20.8 mA



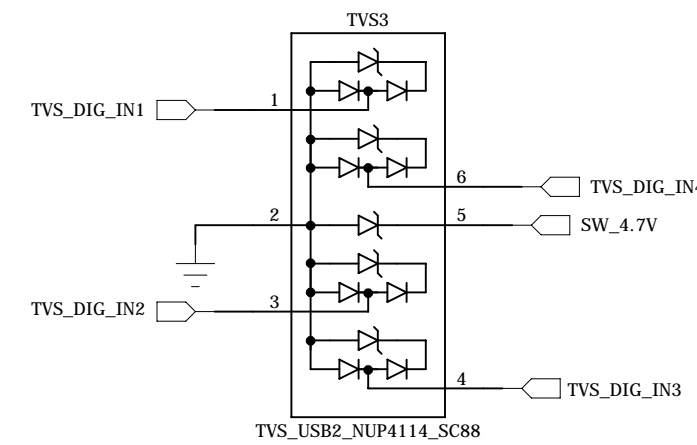
Dig Inputs



ADC TVS

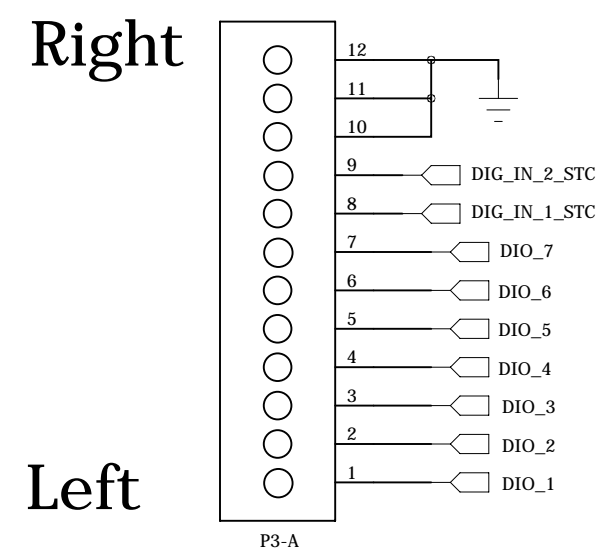


Dig IN TVS

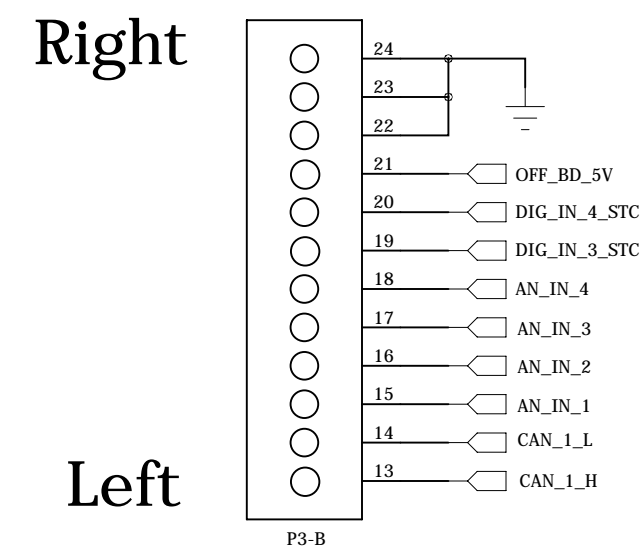


2 x 12 Screw Term. Positions

Top Row

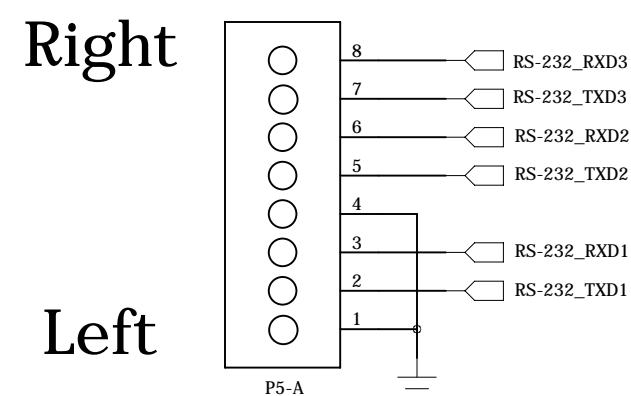


Bottom Row

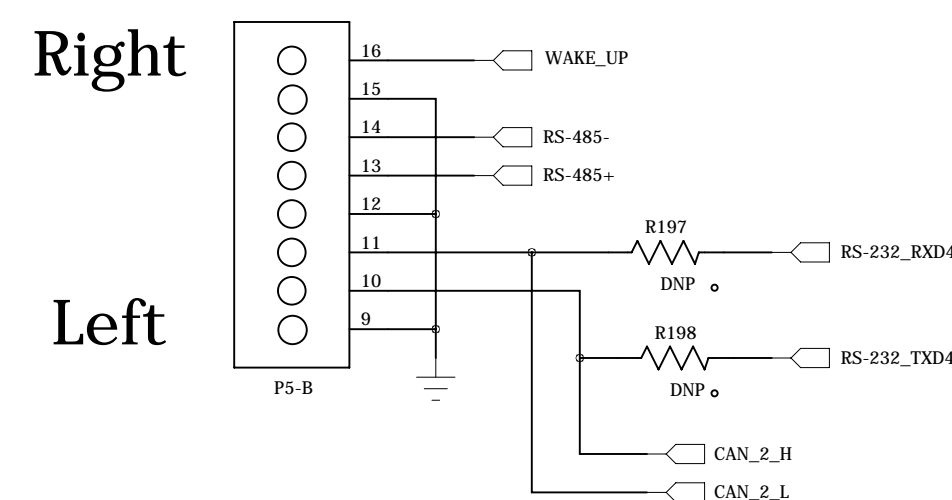


2 x 8 Screw Term.

Top Row



Bottom Row



When 10 ohm resistors populated
CAN parts depopulated