

# TODO:

Add fiducials. Oops!

## NOTES:

Analog dies at about 2.3v  
Digital also dies at about 2.4v, but the display becomes very dark at  
Looks like life is pretty good at 2.9v.

Change all those caps in the VNA section from 8pf to 100nf or bigger?

Add sidetone generation ability

Add extra GPIO holes near morse code paddles (for mechanical paddles)

change DDS control lines so they are on the same port

Some of the ADC lines are going to need to be biased I think.... right??

replace 0.1" jumpers with something smaller, like 0R resistors

Add voltage divider from battery to MCU

Add choke between 3v3 and 3v3CPU

4 layer board. one ground plane (maybe use board layers for sheilding?)

Components on both sides probably

Add a way to switch the DAC outputs between the TX and the earphones (or something)

add antialiasing filters to ADC and DACs

change to switching regulator?

Add earphone amp and mic amp

# DONE:

Add battery connector

Add RF switching to Mag/Phase IC

Add whetstone bridge for above

## Add GPS and gps antenna

Add battery charge circuit

Consider switching to that frequency generator part that everyone else uses with 4x divider?

It's called the Si750. It consumes 120mA!!! No way!

change over to new MicroSD slot

RTC crystal

Add capacitive keyer

Change over to new MCU Even if I don't go with a parallel display, I'm likely to need more pins

parallel display conflicts with DAC on most parts (unless you go to 144pins or more)

so should I add a dac/codec or bag the parallel display for now?

bag it for now.

connect the PSEL and FSEL lines of the DDSs

Add small regulator for the battery backup circuits on the MCU and GPS

Add digital pots to IN-AMPs

Add second input OR output for S12 analysis

# Later?:

Add test points to relevent locations

Add ability to turn off subsystems (like RF)

Change over to new LCD

Add some kind of RF out amplifier?

antenna tuner?

Look into variable band pass filters (switched cap)

multitap inductor?

## Add light sensor for backlight, you know?

Clean up schematic (to resemble block diagram)

rename pins and stuff

Change frequency antialiasing filters

Add temperature sensor near freq reference

add second freq ref?

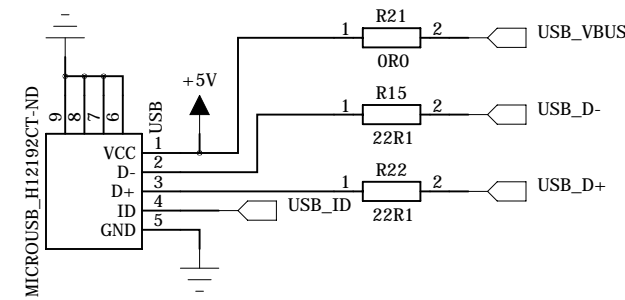
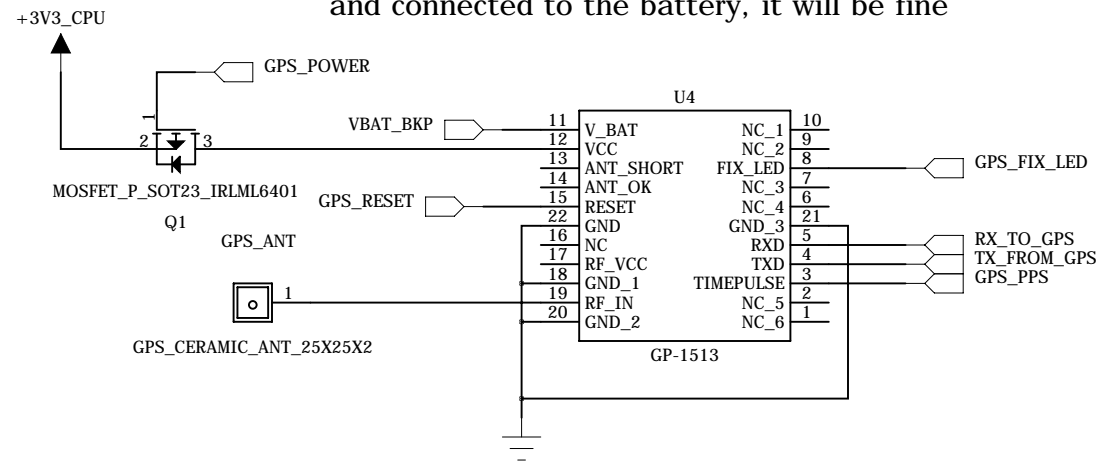
add comparitor to freq ref output? (or use one with square output)

consider a mixer to enable 2m (or other) freq operation

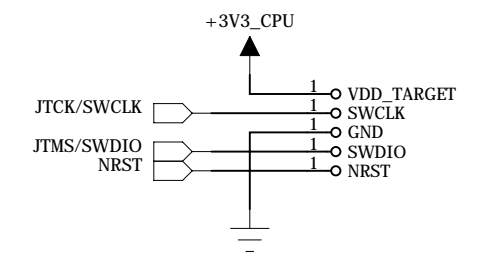
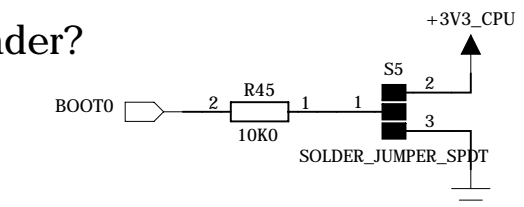
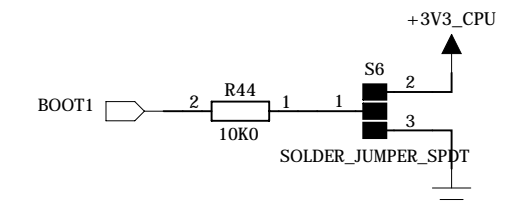
Look into magnetic encoder

# GPS Interface

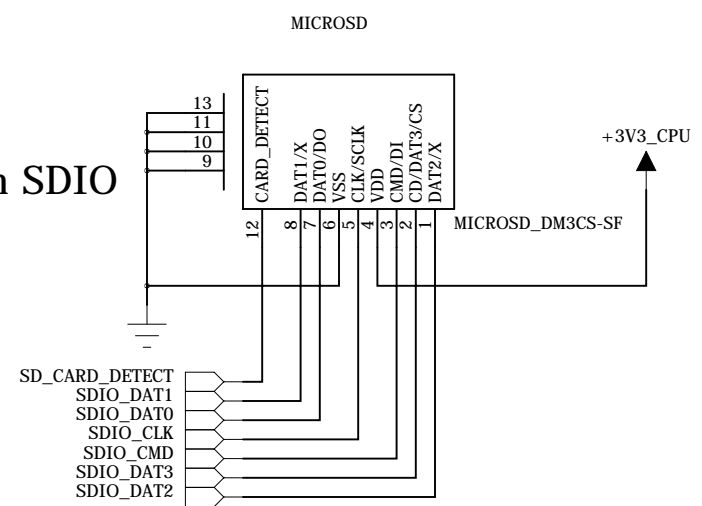
Vbat is for backup battery, but since the 3v3 reg is always on and connected to the battery, it will be fine



Looks like both FS and HS are built in. Which is faster, which works with the boot loader?



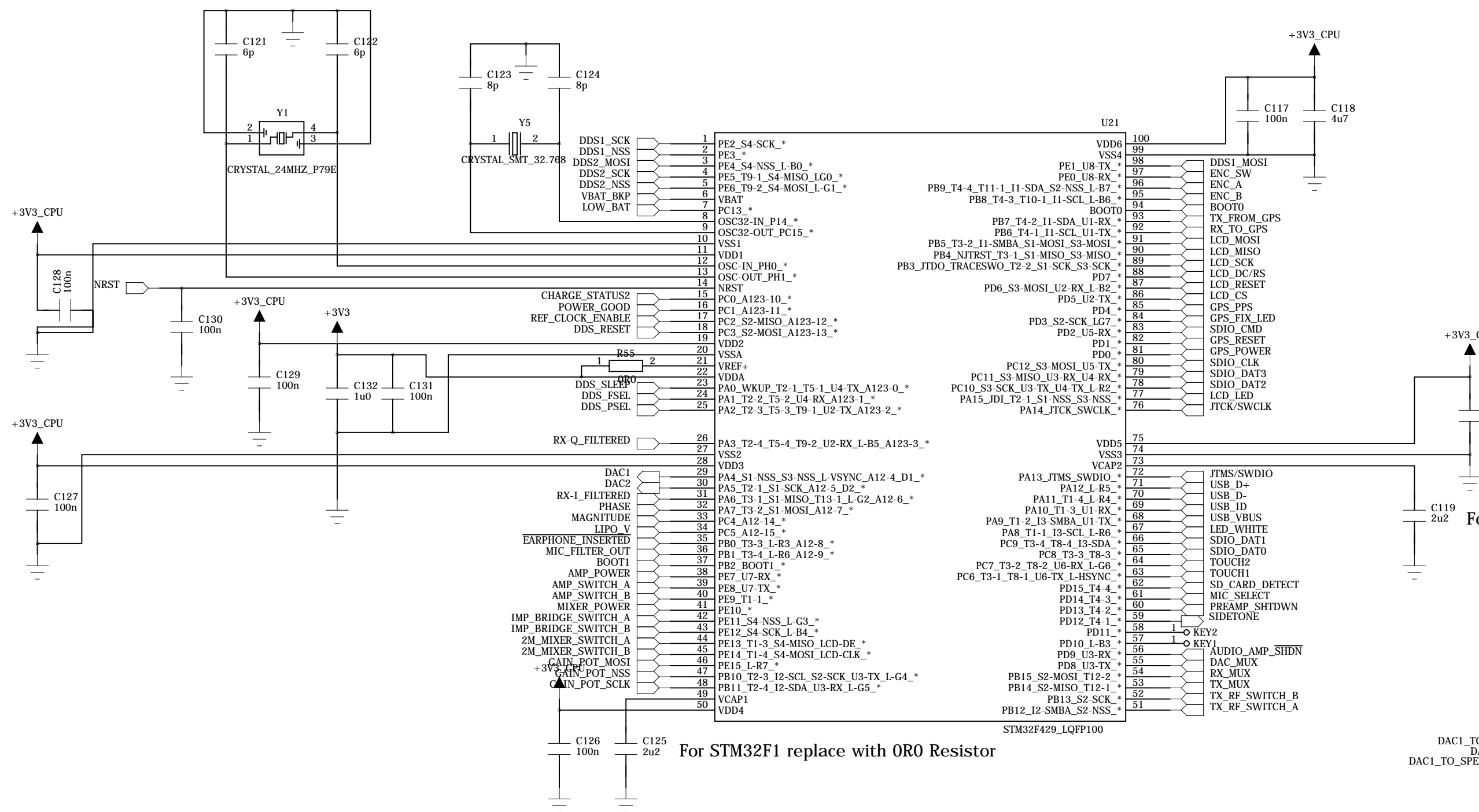
Change for use with SDIO



Recommended bypass capacitance for these things?

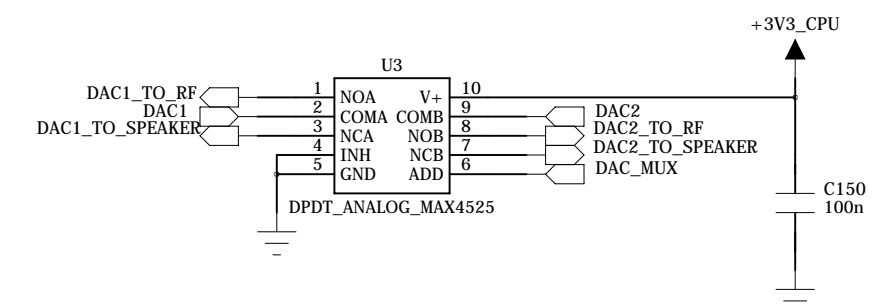
SPI1 is the fastest. Do I want that for the LCD? or for the SD Card?  
Also, what DMA channels are needed in what priority?

Looks like there is hardware support for the SD Card, where is it conected?

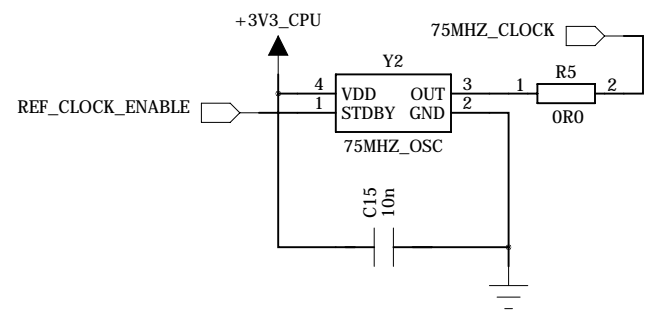


For STM32F1 replace with 0R0 Resistor

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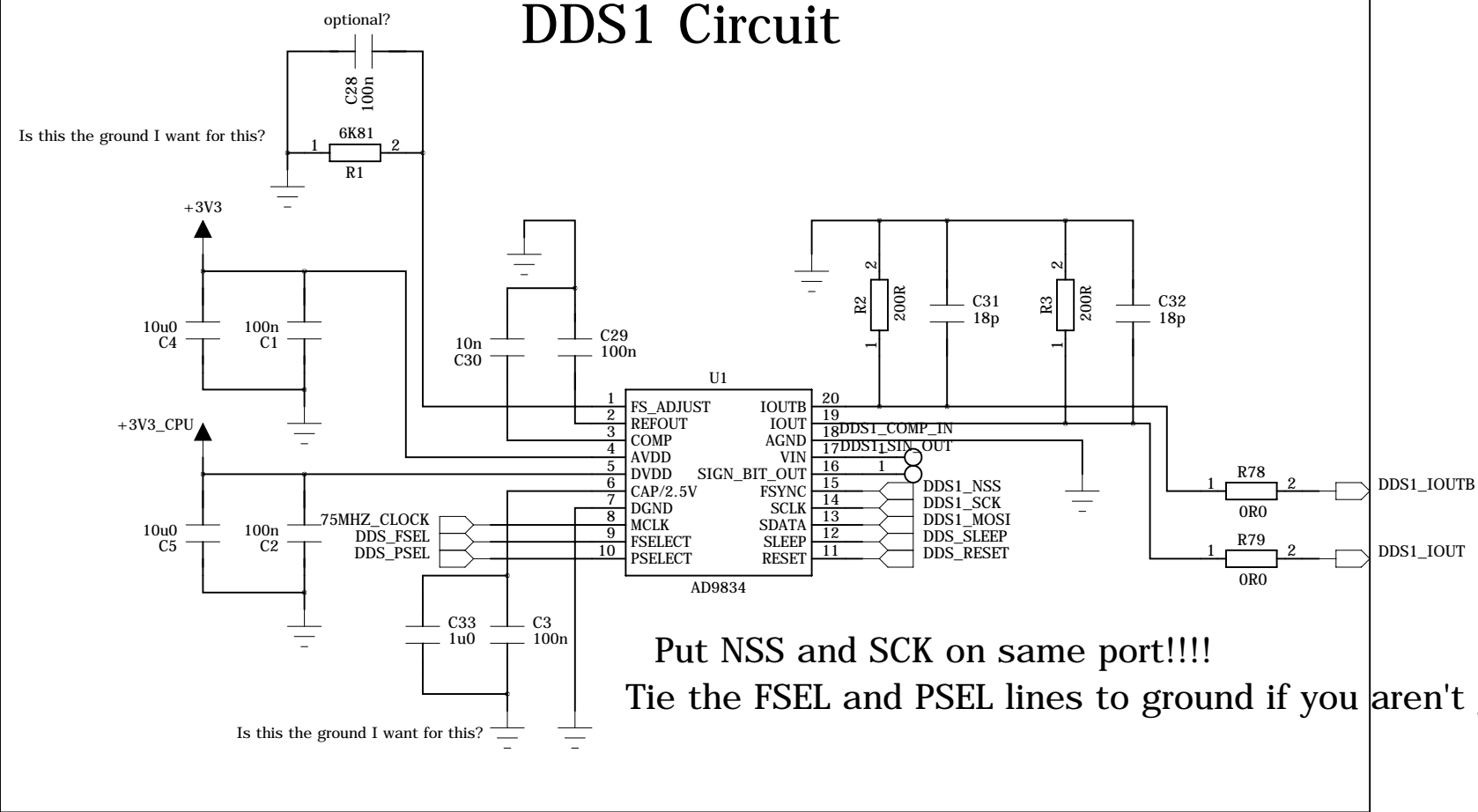


# 75 Mhz Clock Circuit

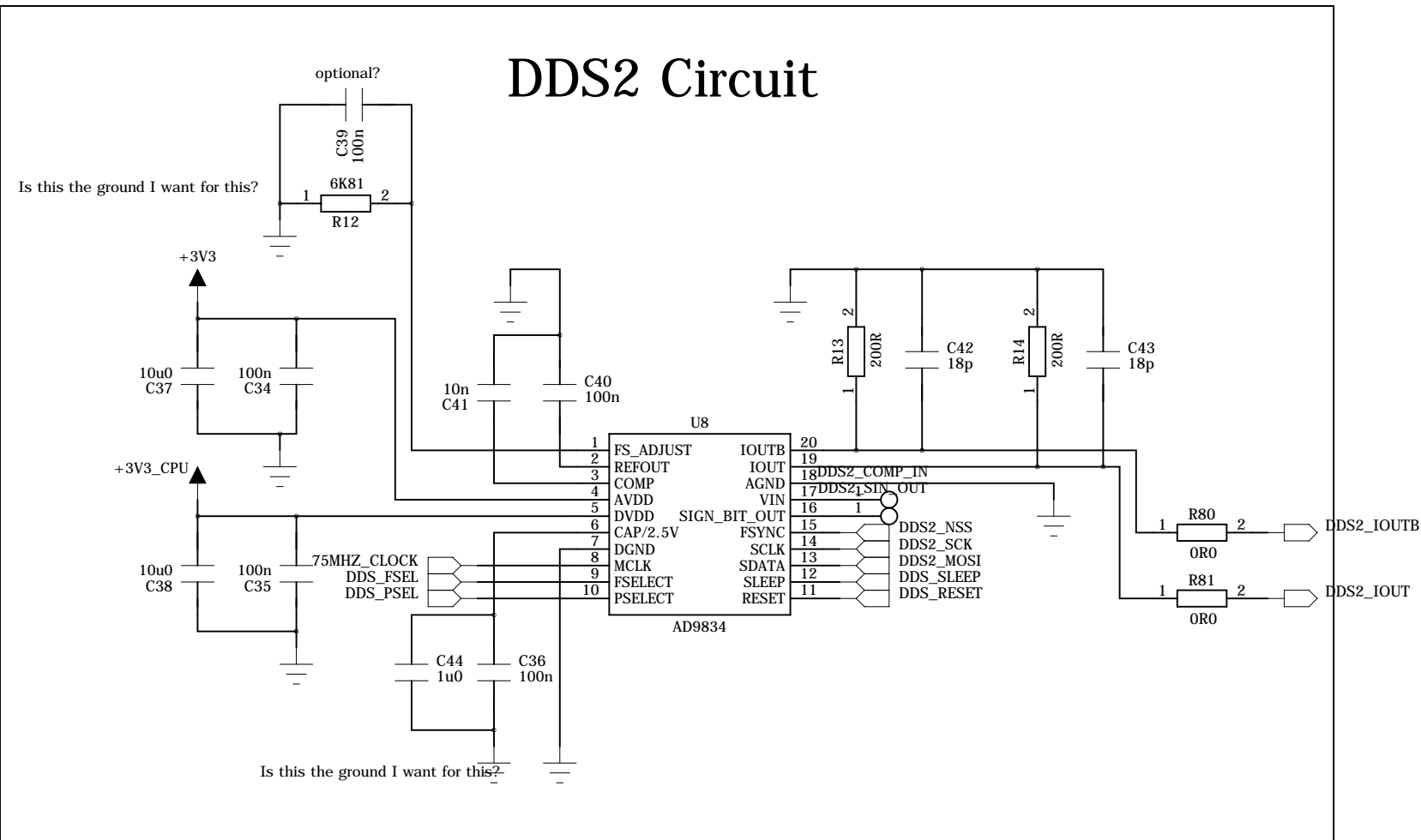


These have similar enough topologize that I can just populate them differently  
See previous revs for other values Which?

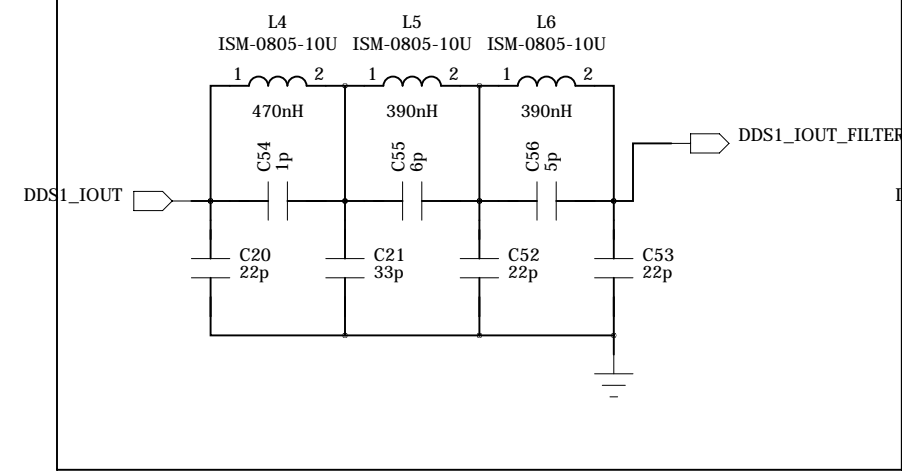
# DDS1 Circuit



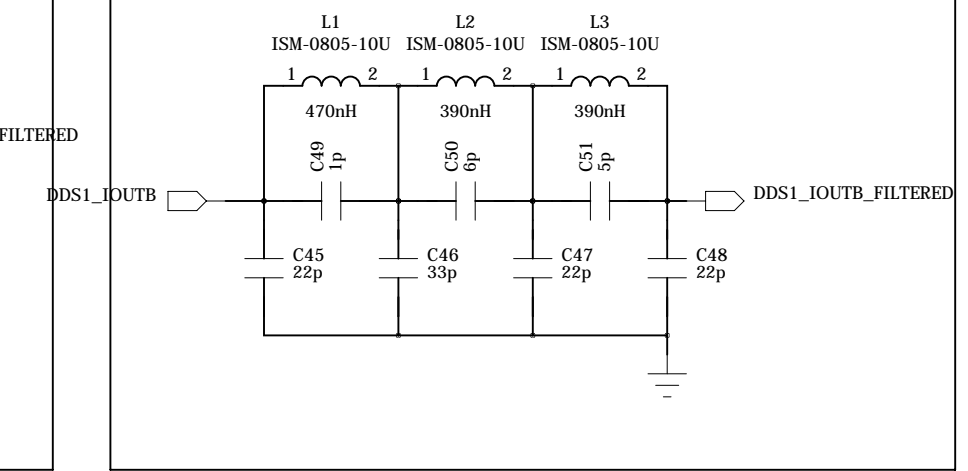
# DDS2 Circuit



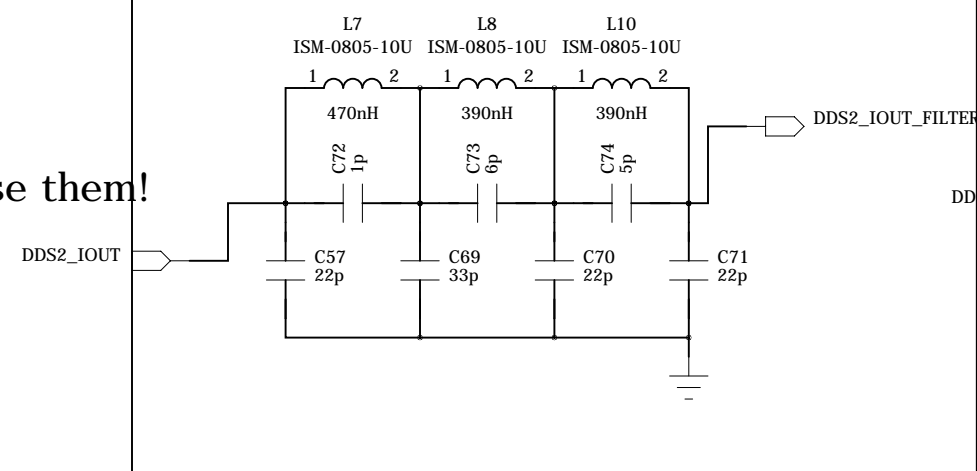
# 70 Mhz LPF



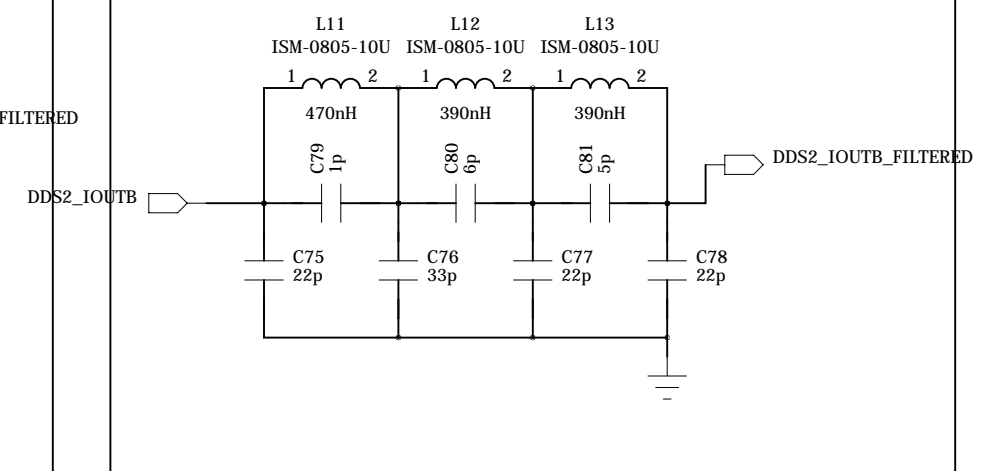
# 70 Mhz LPF



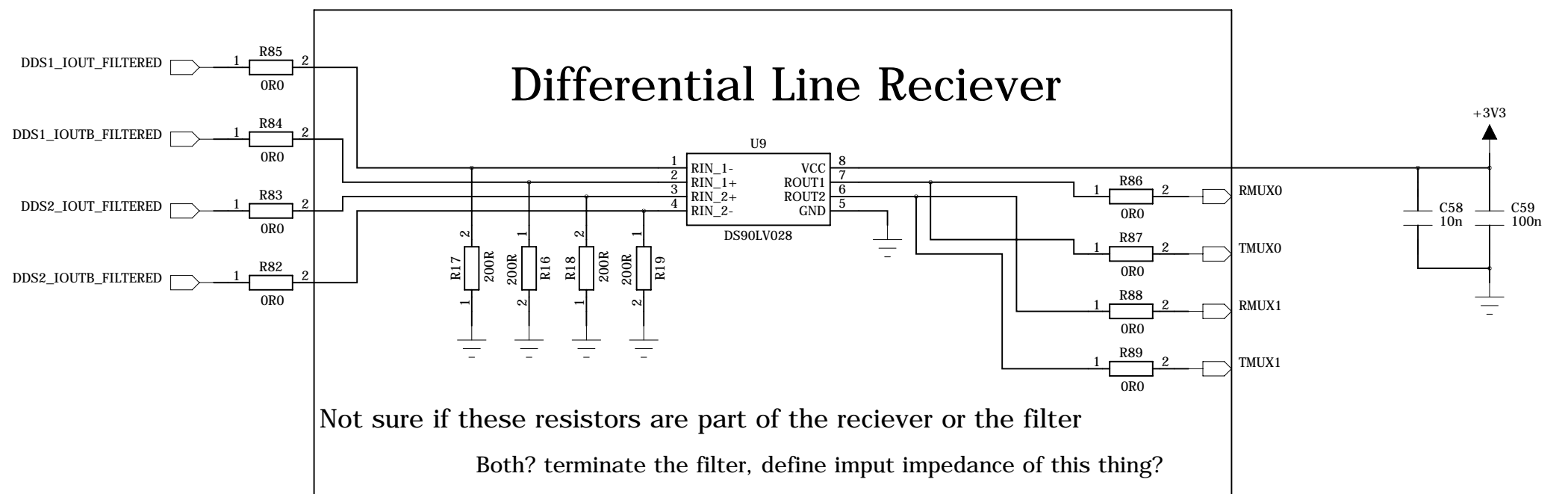
# 70 Mhz LPF

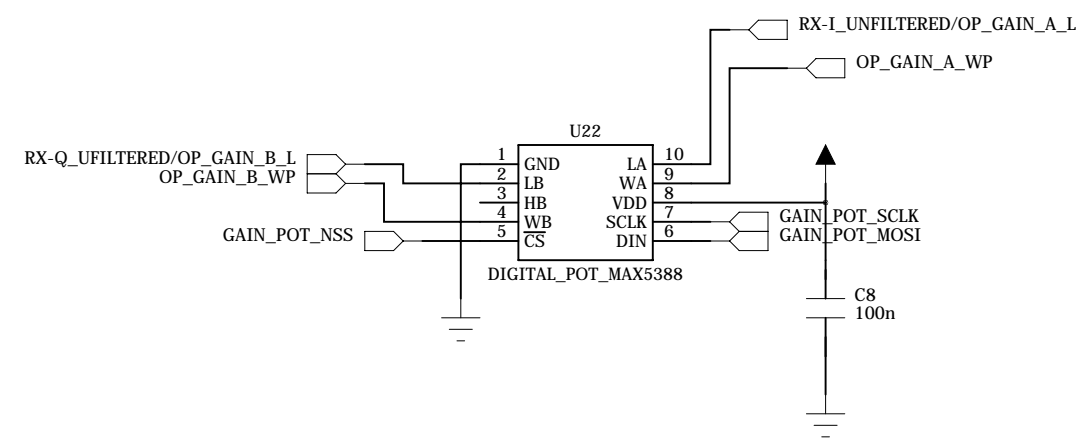


# 70 Mhz LPF

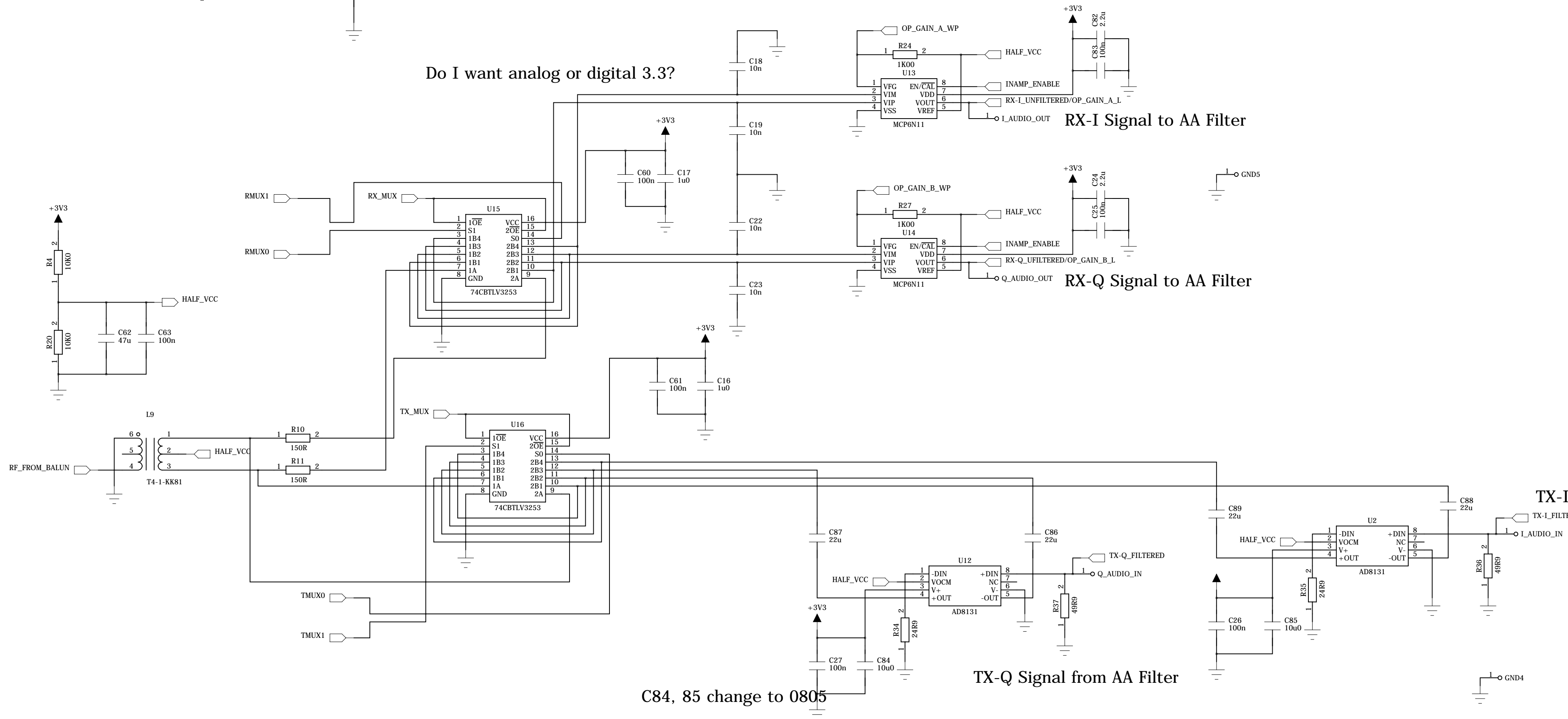


# Differential Line Reciever

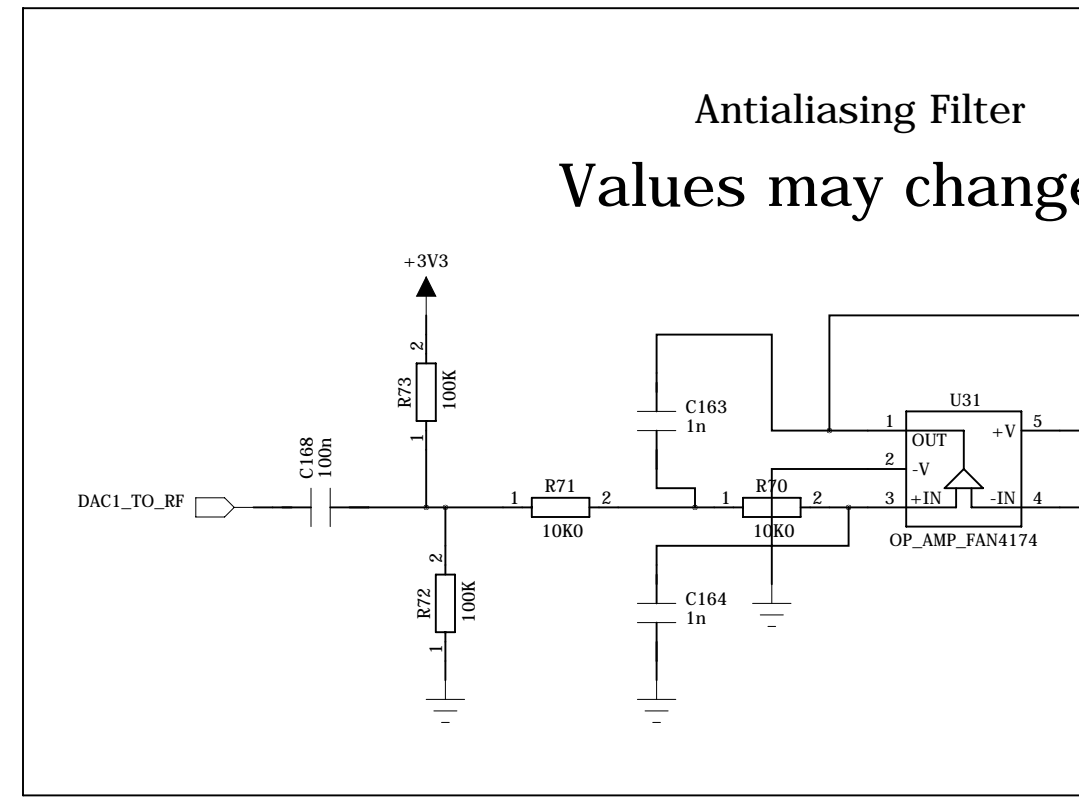
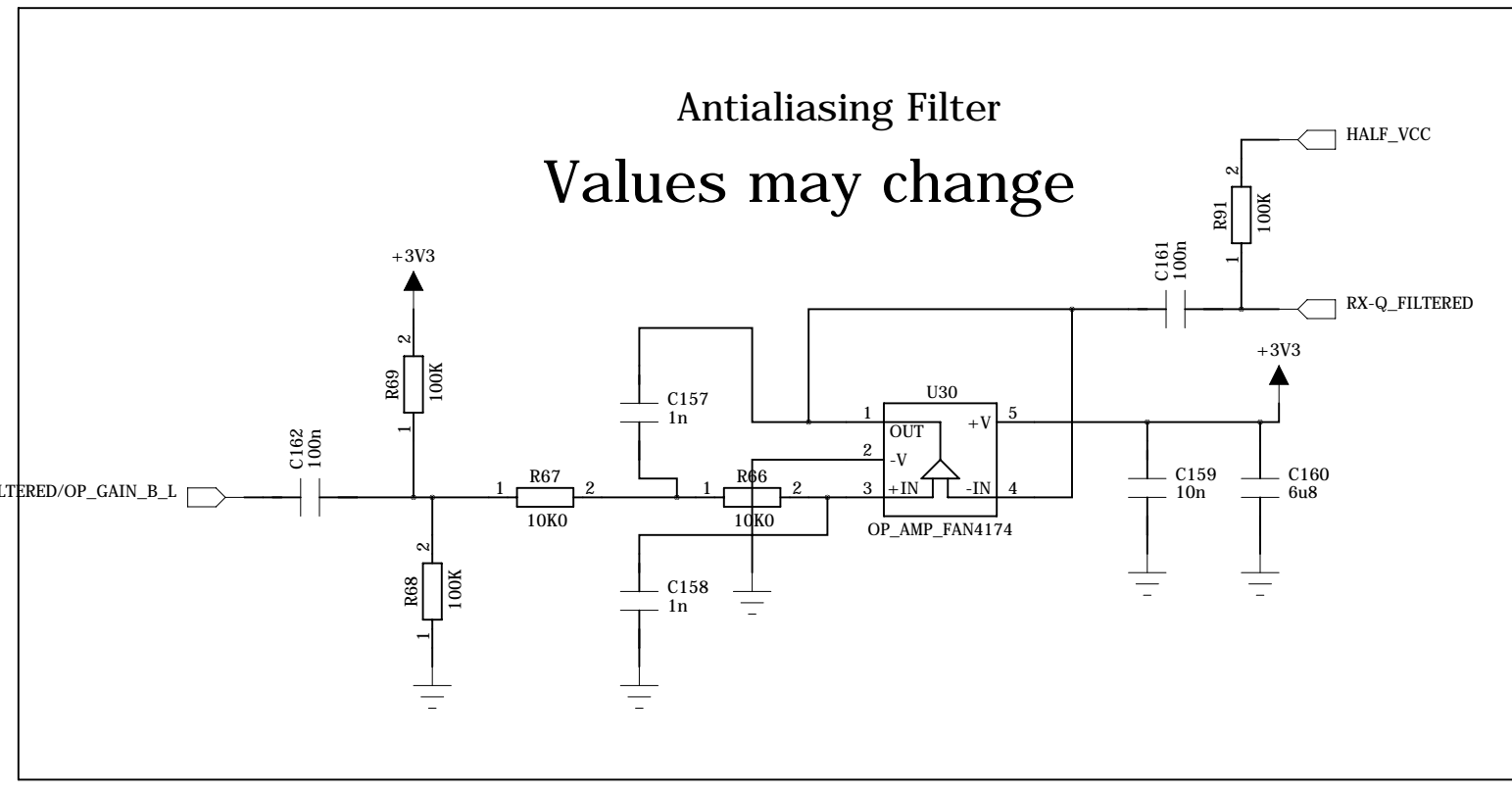
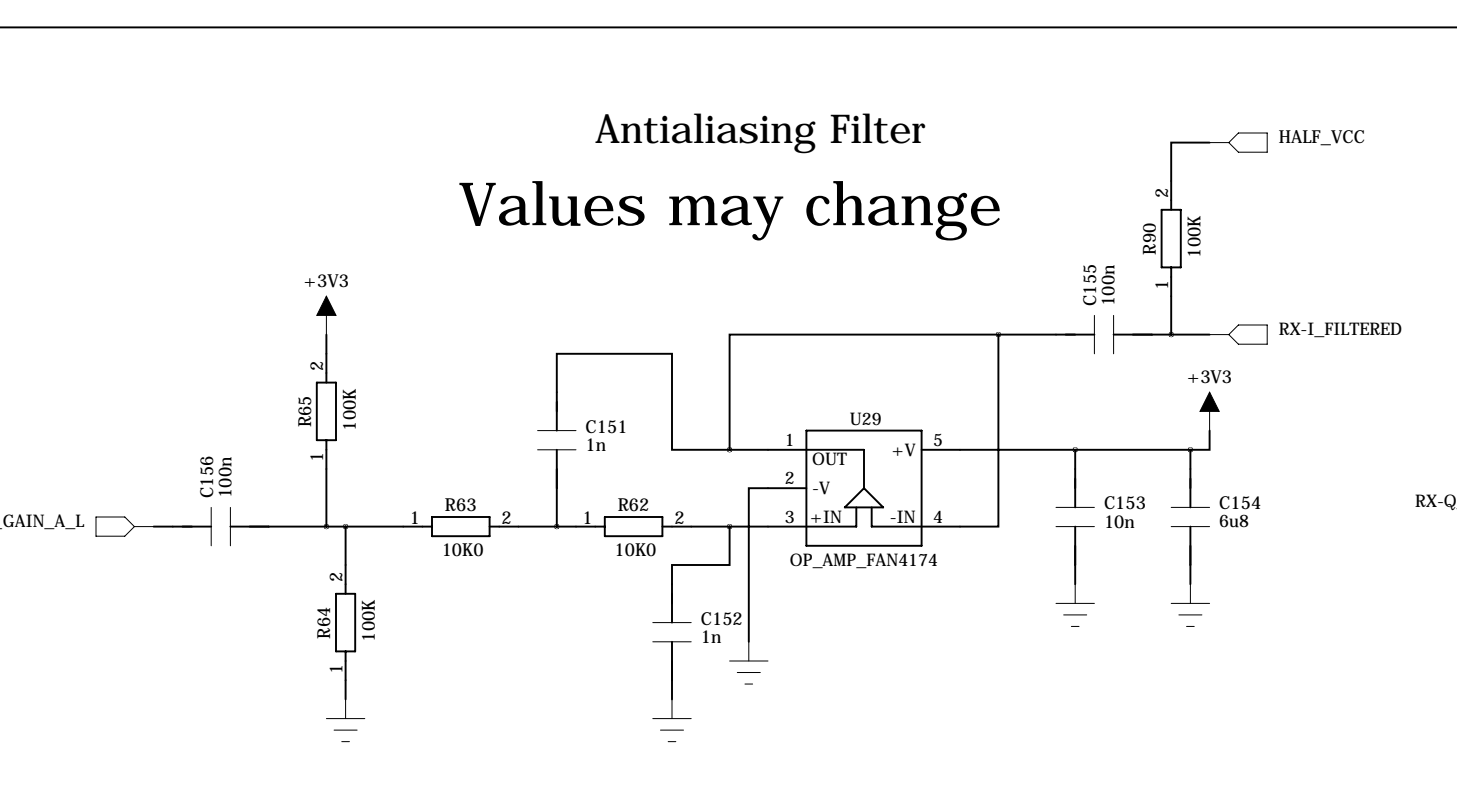




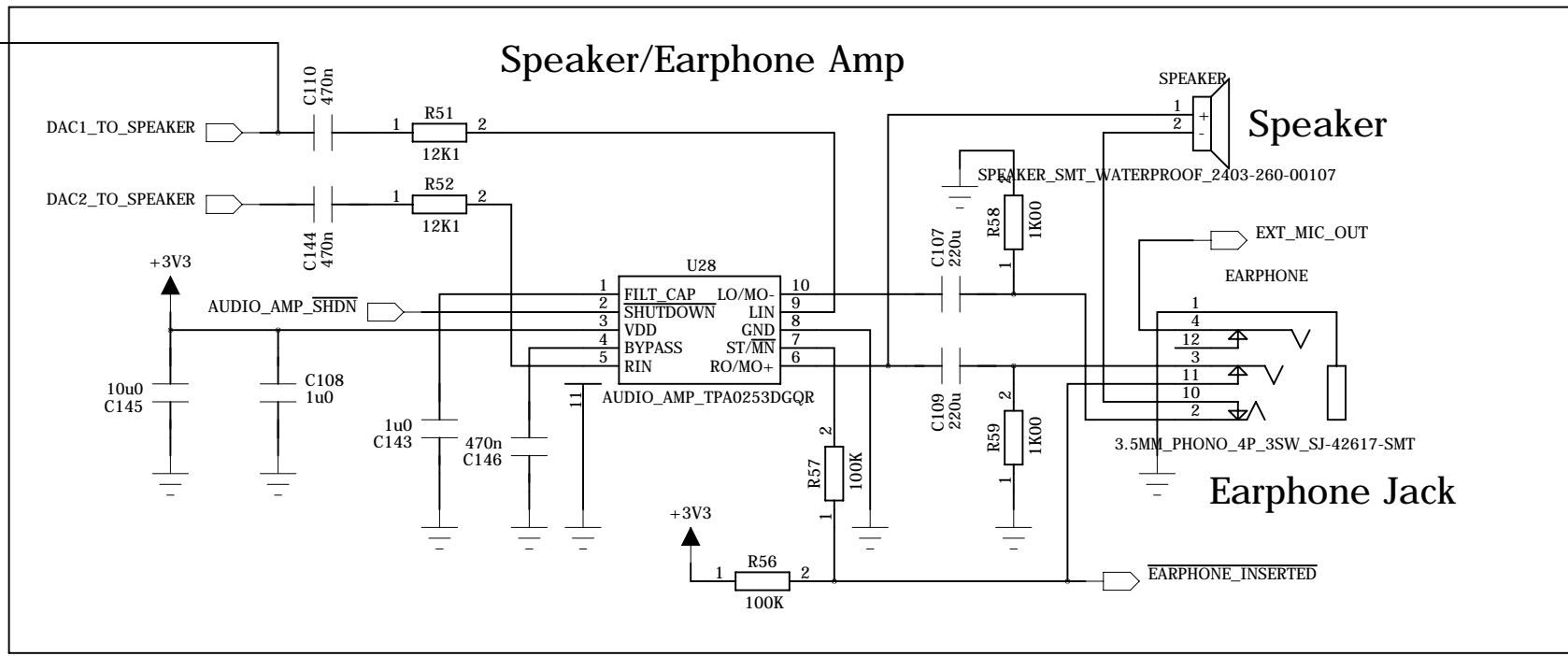
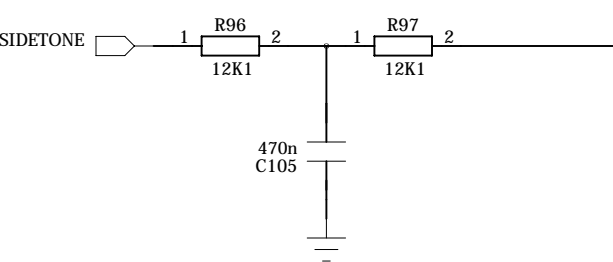
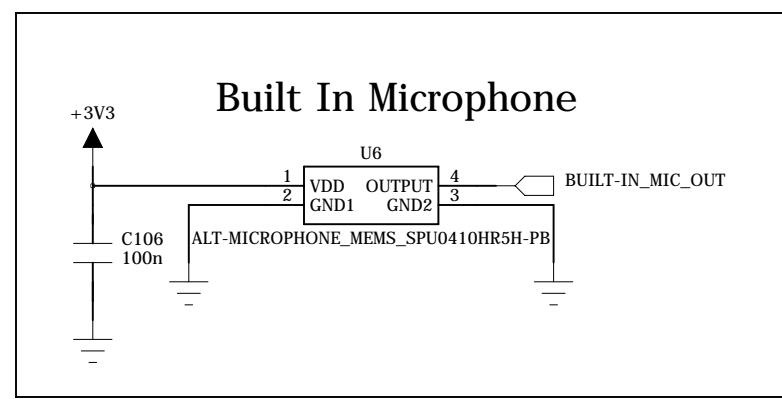
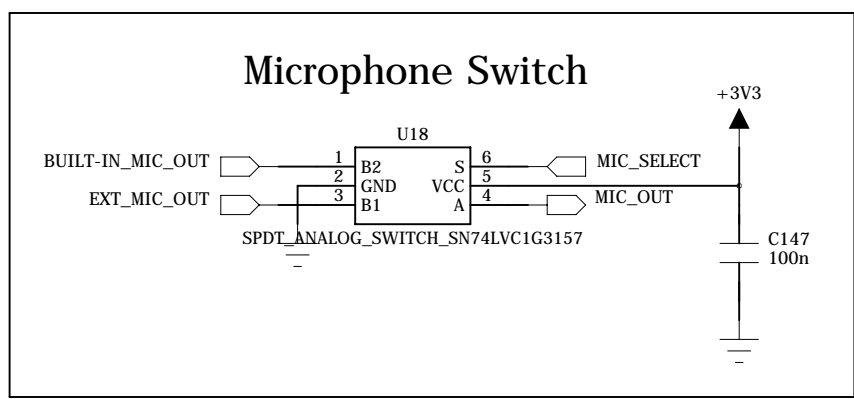
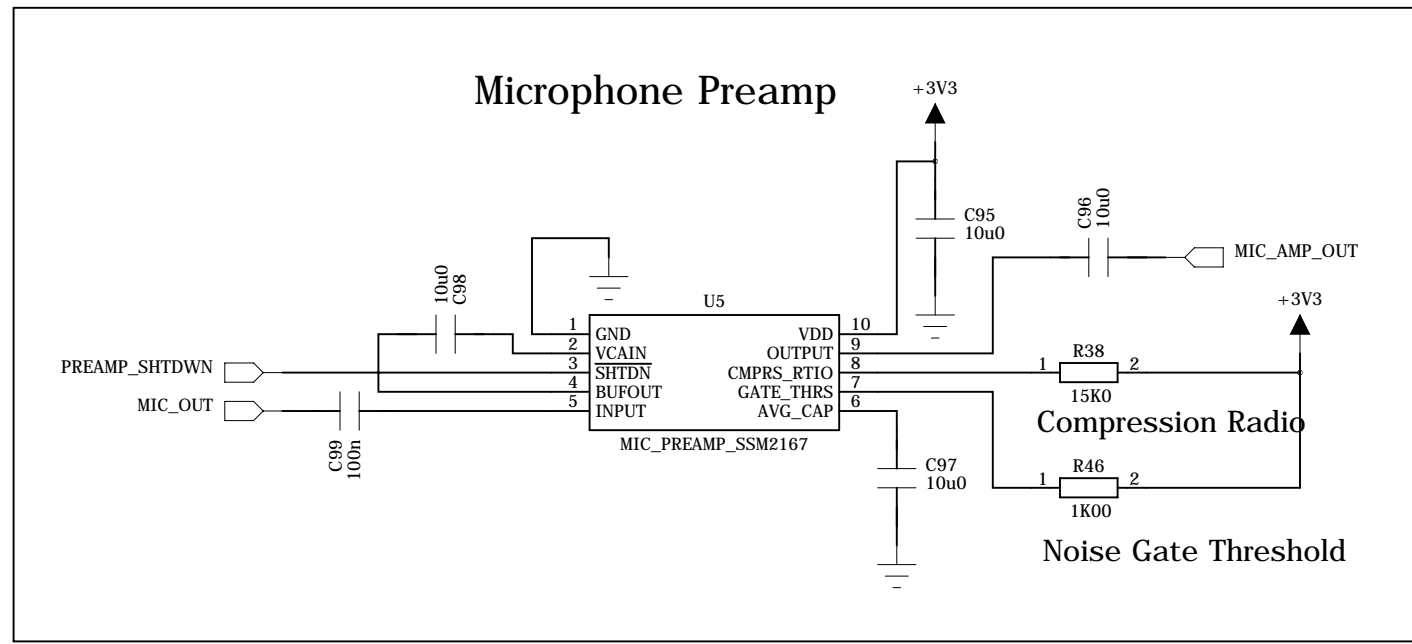
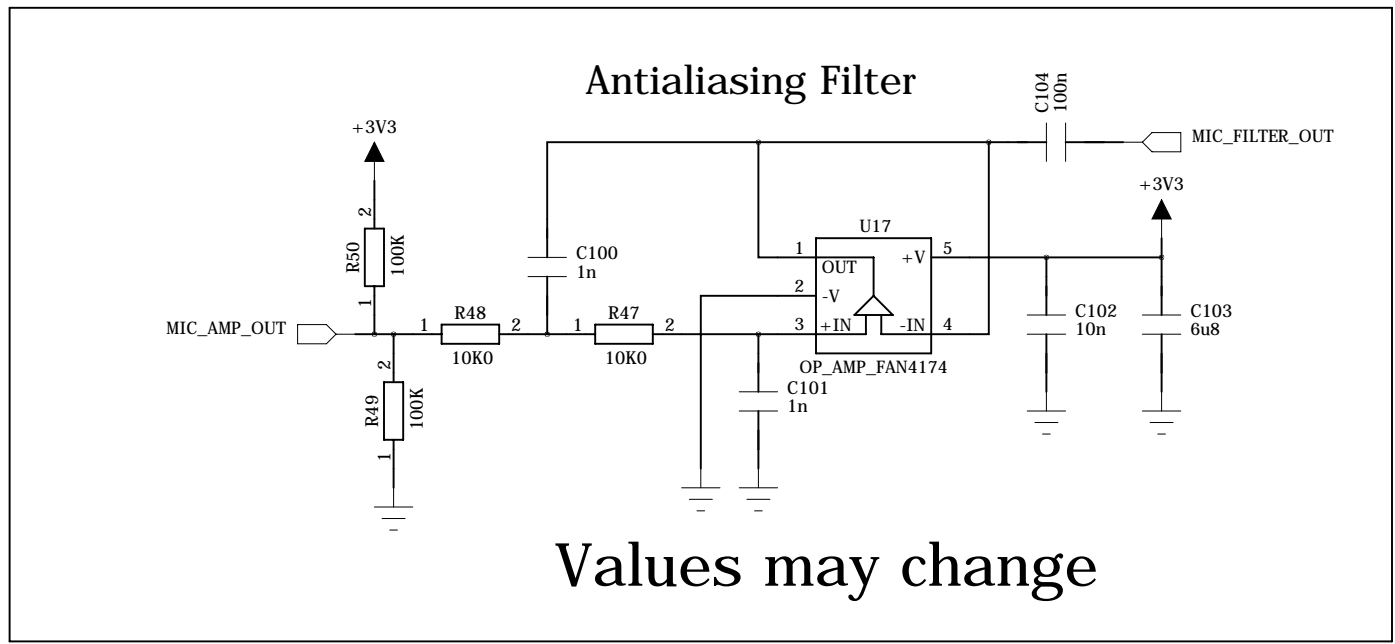
Do I want analog or digital 3.3?

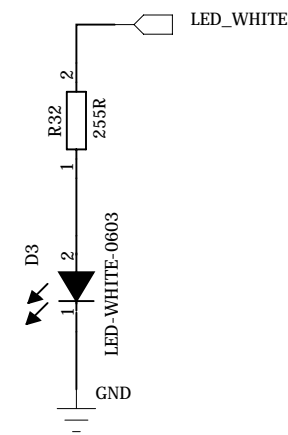
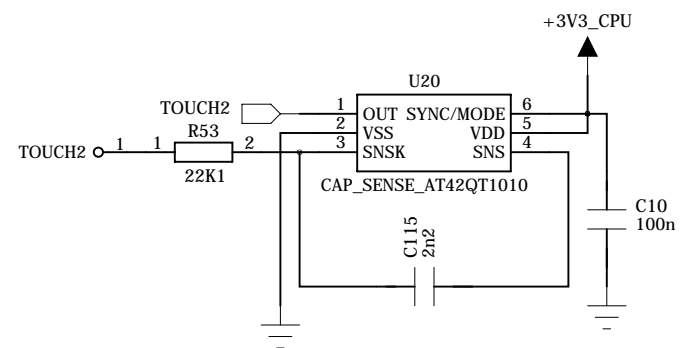
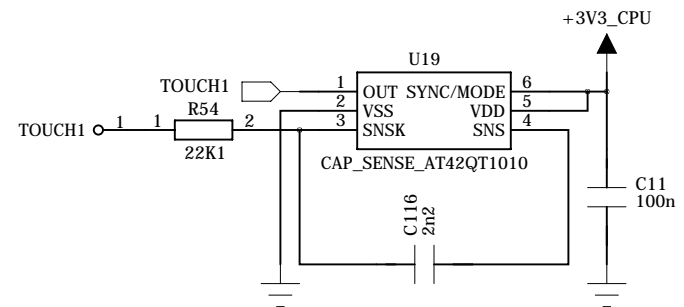
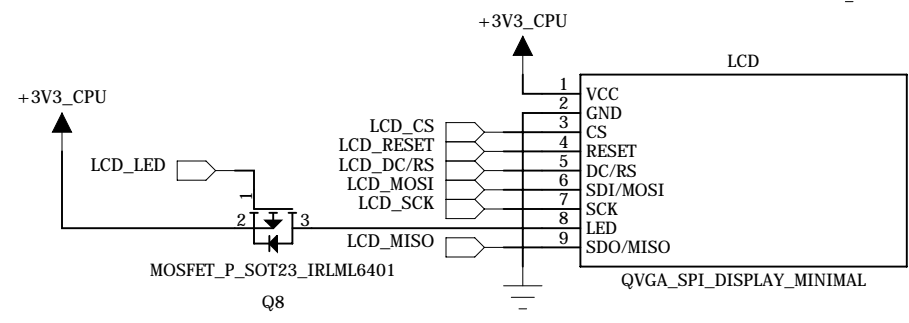
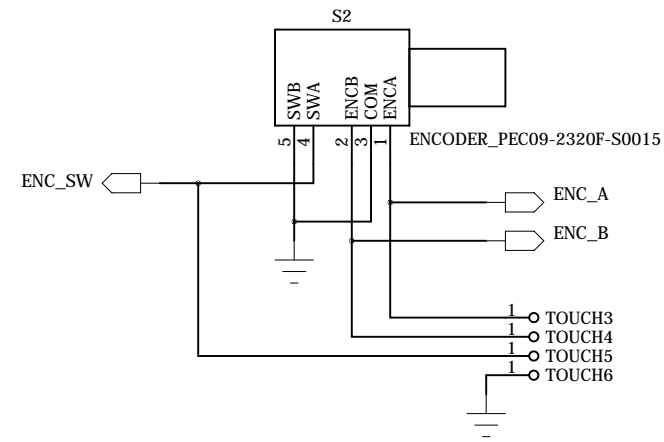


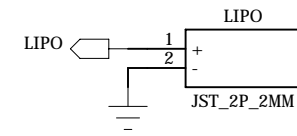
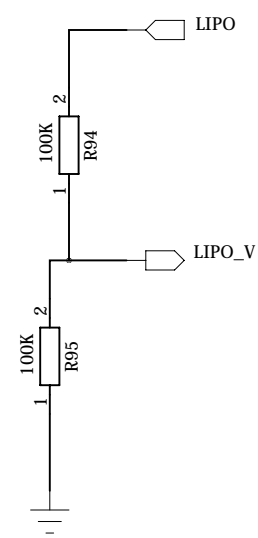
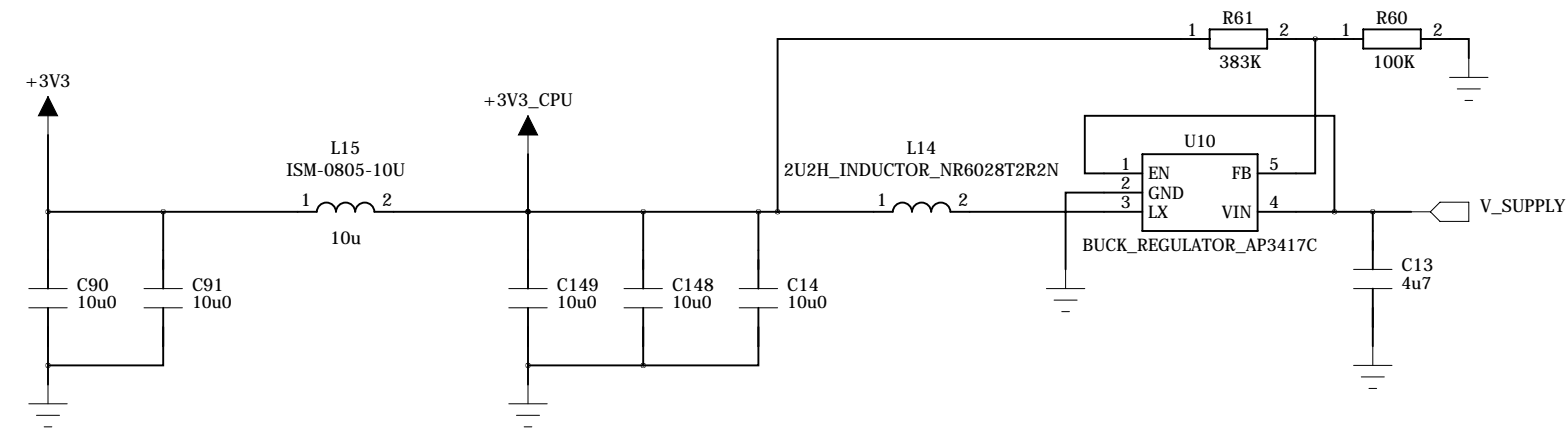
C84, 85 change to 0805



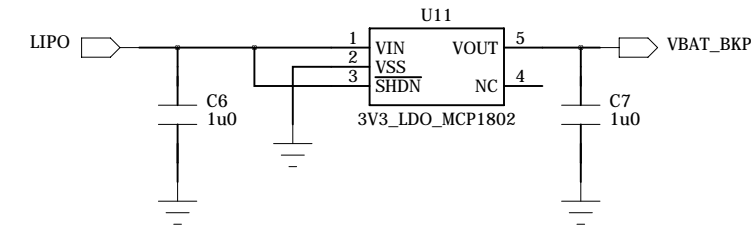
Are those 100n Capacitors going to kill my LF response? :0





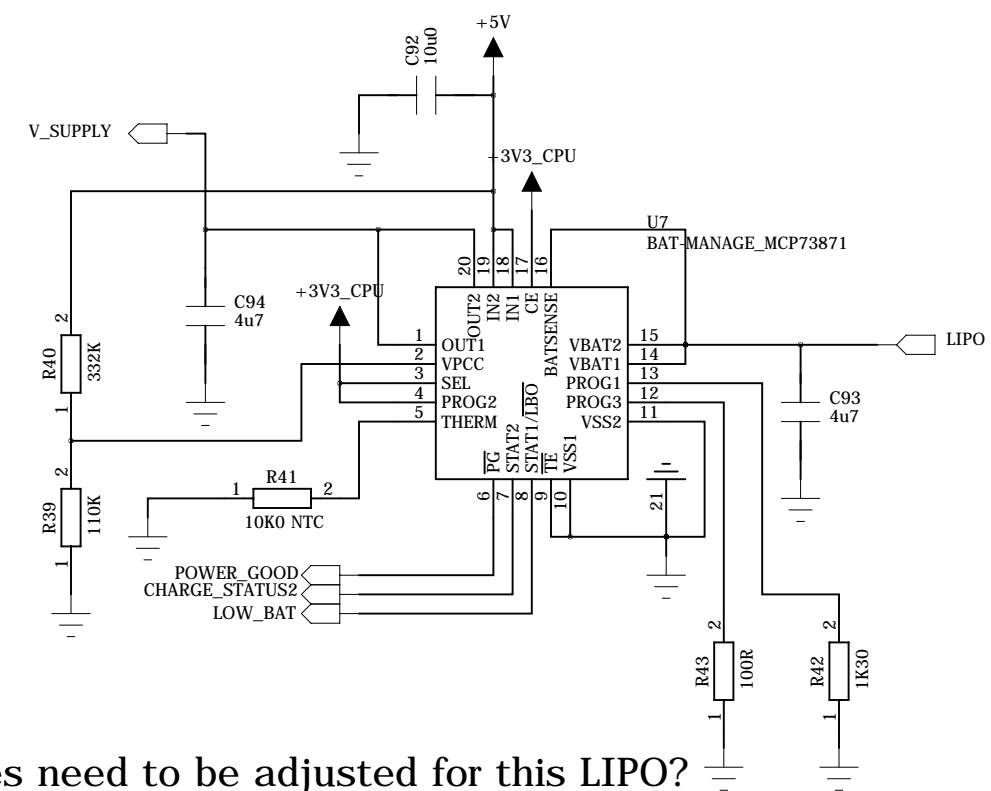


### VBackup Supply

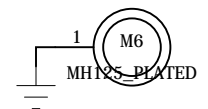
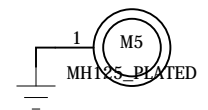
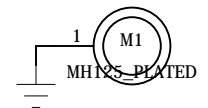
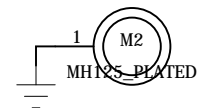
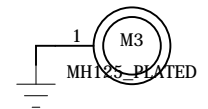
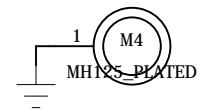


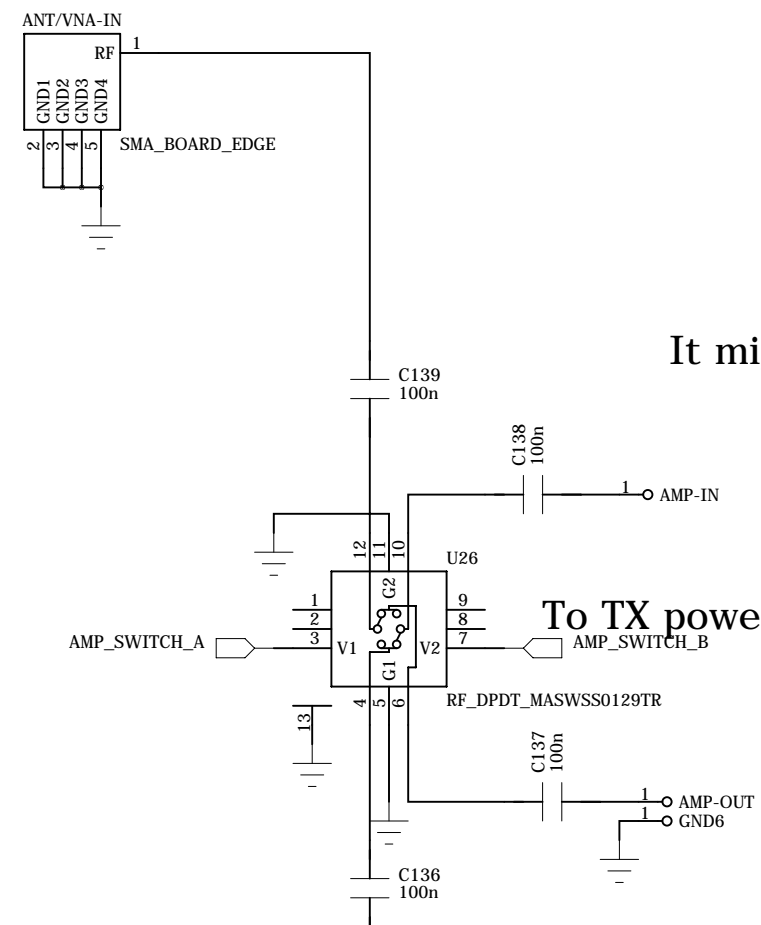
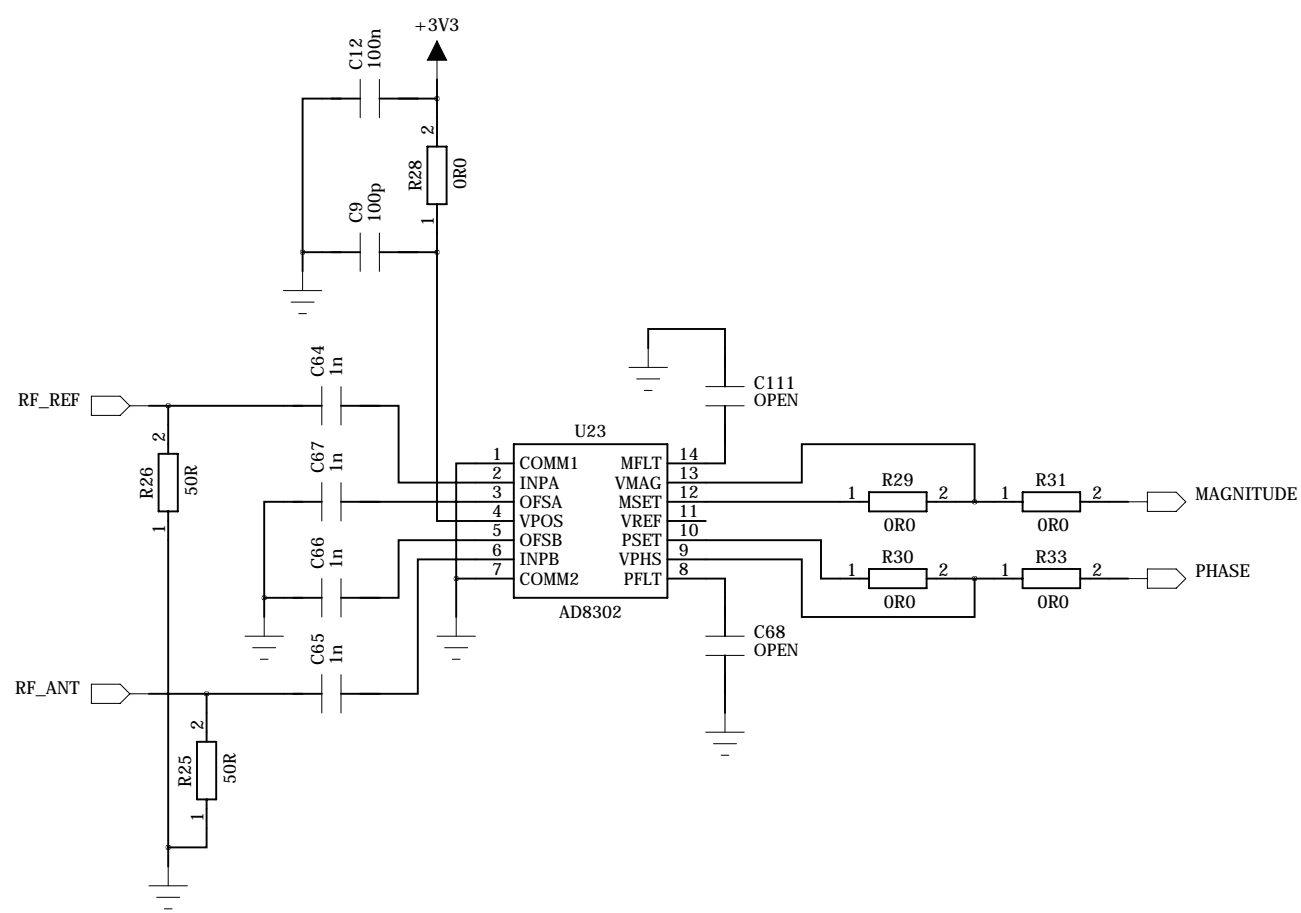
## LiPo Charge / Load Sharing

CE,SEL,PROG2, what supply do I want them connected to?

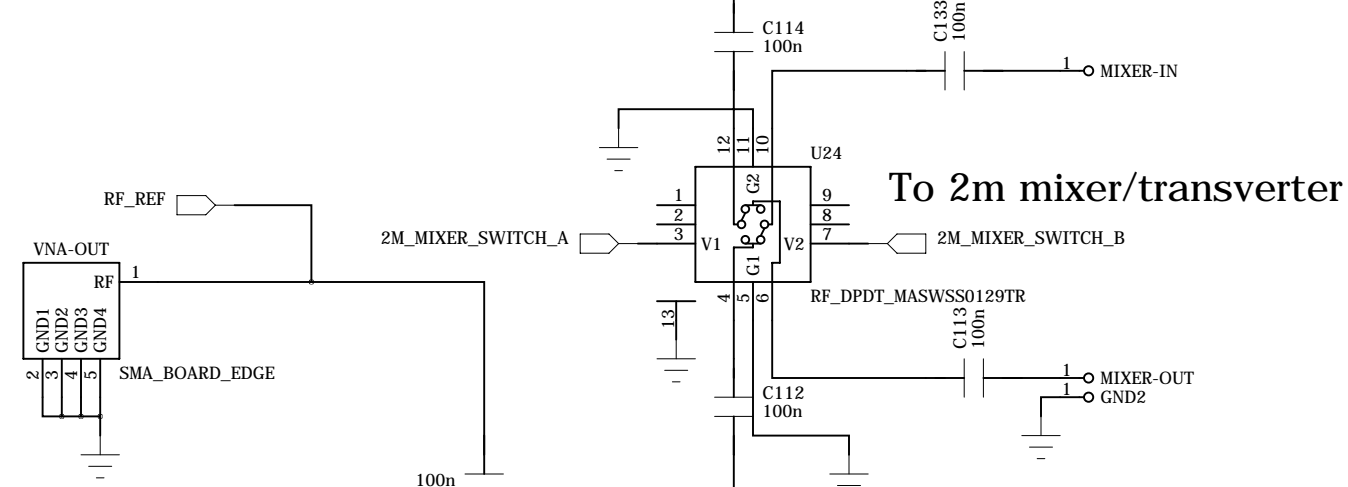
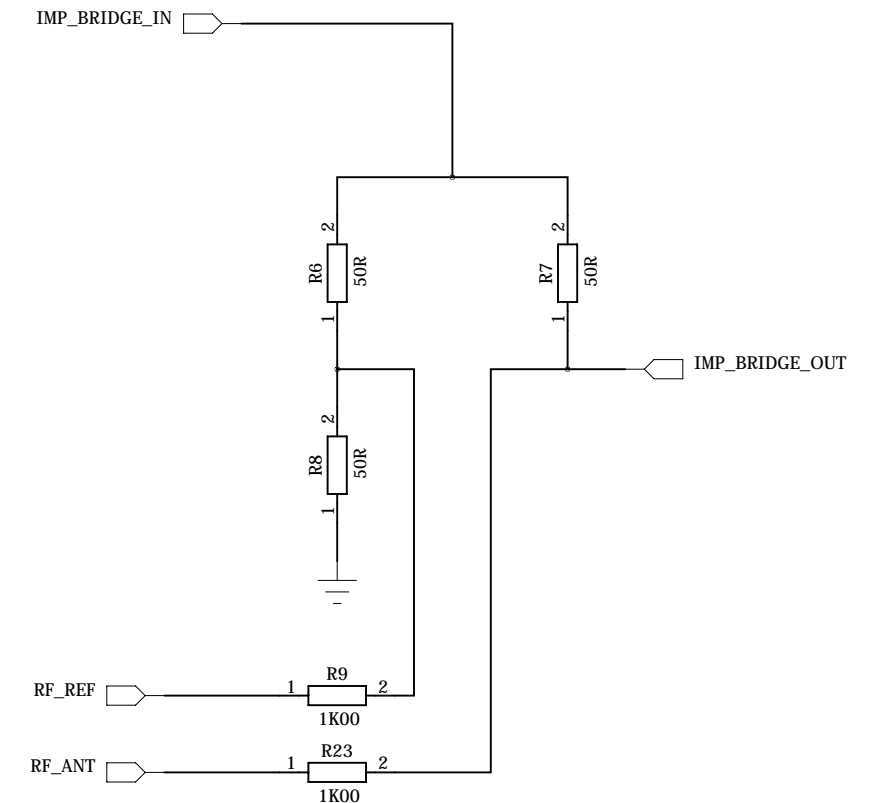
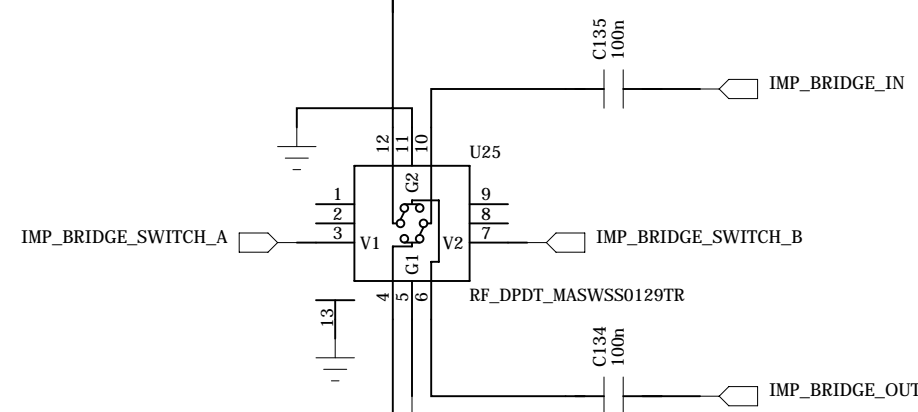
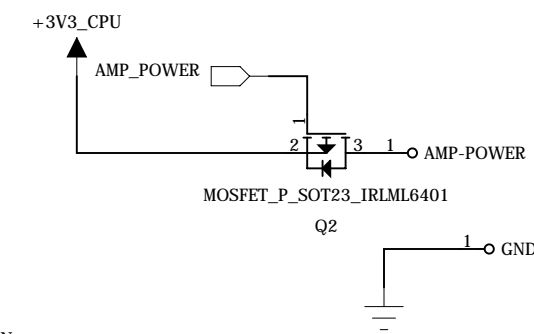


Do the values need to be adjusted for this LIPO?

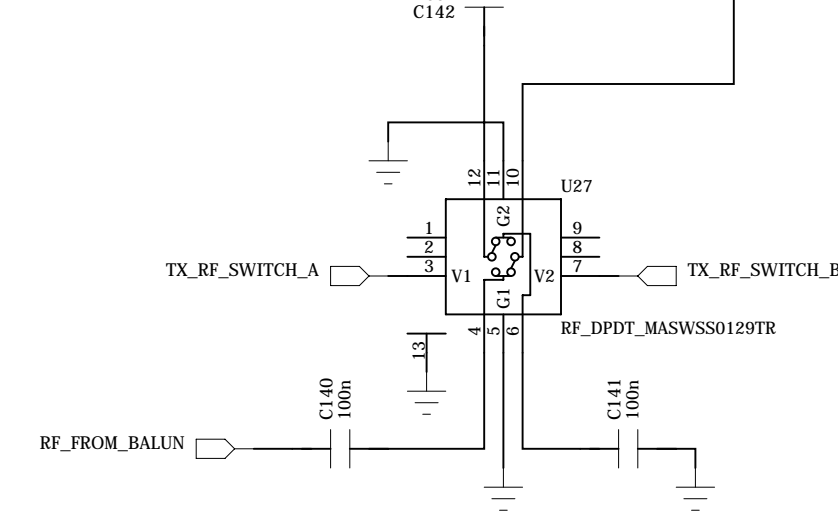
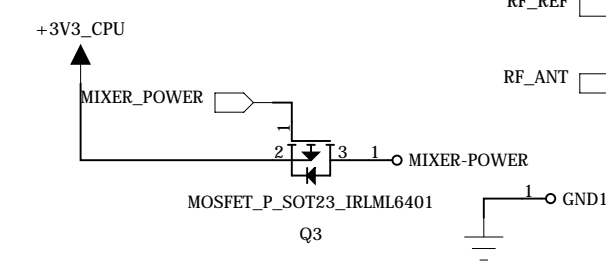




It might make sense to put an inverter rather than run both lines to the micro



To 2m mixer/transverter



Termination of VNA IN / IMP Bridge RF-REF grounding?

I think all of these need to be changed to something way bigger, like 0.1uF