

TODO:

Add fiducials. Oops!

Try bottom entry LCD connector
turn encoder on its side
smaller GPS antenna

Power cutoff circuit
fix charge voltage divider thing
see if you can bring half-vcc to one of the microcontroller ADCs
do I like using half-vcc, or just putting voltage dividers all over the place?
The mic preamp outputs a bias voltage, okay for external mic, how about for the mems mic?
I really need to characterize the antialiasing filters - DONE: 3db cutoff is 15-16kHz!
adjust charge circuit resistors to make sense (current limit, charge rate, etc.)
Consider changing freq synth topology, maybe PLL with div2 I/Q splitter?
detect charger type (usb type) and adjust charge current appropriately?
A few parts are too close together
Should I consider 0402s?
IN_AMP_ENABLE Doesn't make it to the MCU!!!! GAH!
Doesn't there need to be a half-vcc bias on the mic filter out?
Did I forget to route the external mic out to the microcontroller? (to detect button presses?) :/
Is the mems mic okay with a bias from the preamp? Maybe not. Put cap inline?
No bias on external mic. Really? :/
Look into AD9958?
We probably want the AMP power line to come from the battery, not from 3v3

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.

DONE:

Later?:

Add test points to relevant 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 comparator to freq ref output? (or use one with square output)

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

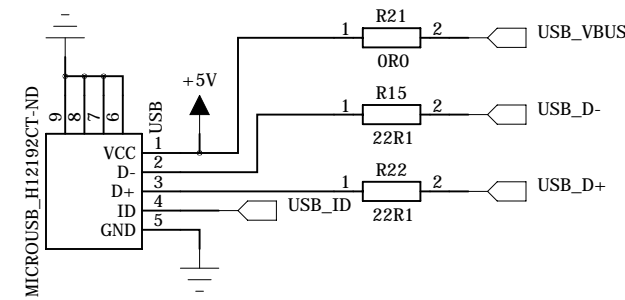
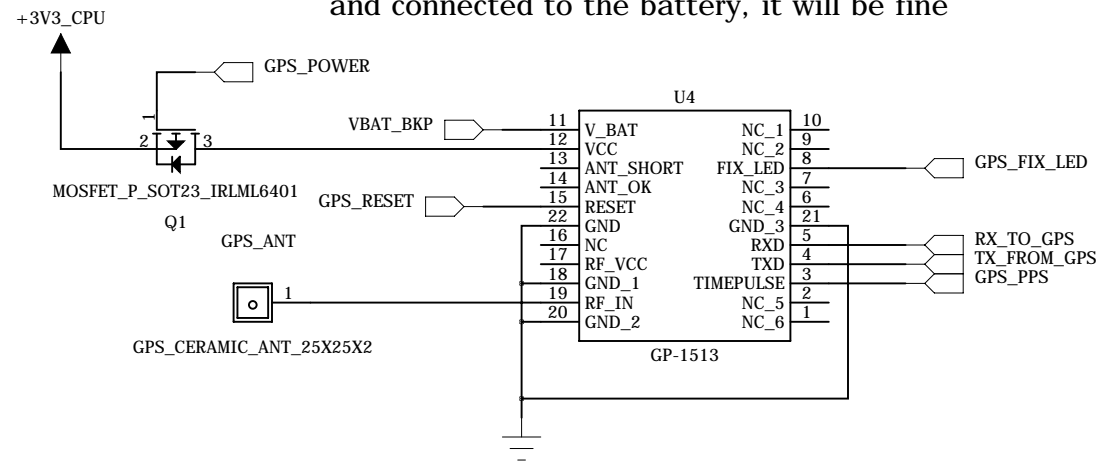
Look into magnetic encoder

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

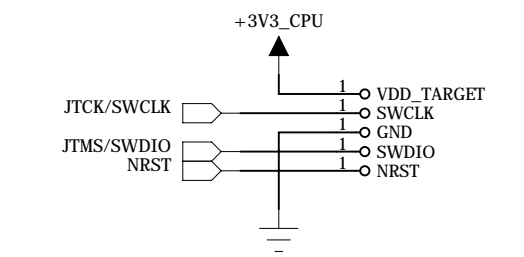
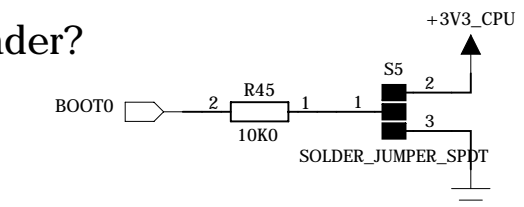
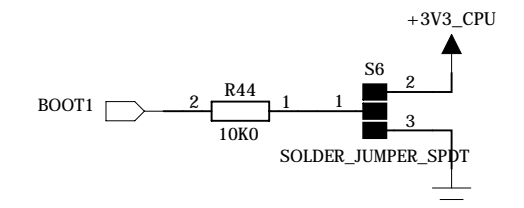
parallel display conflicts with DAC on most parts (unless you go to 144pins or more)
so should I add a dac/codec or bag the parallel display for now?
bag it for now.

GPS Interface

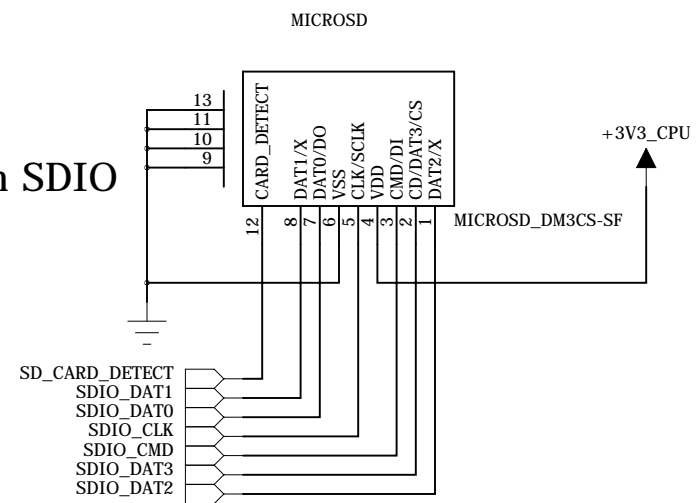
Vbat is for backup battery, but since the 3v3 reg is always on and connected to the battery, it will be fine



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



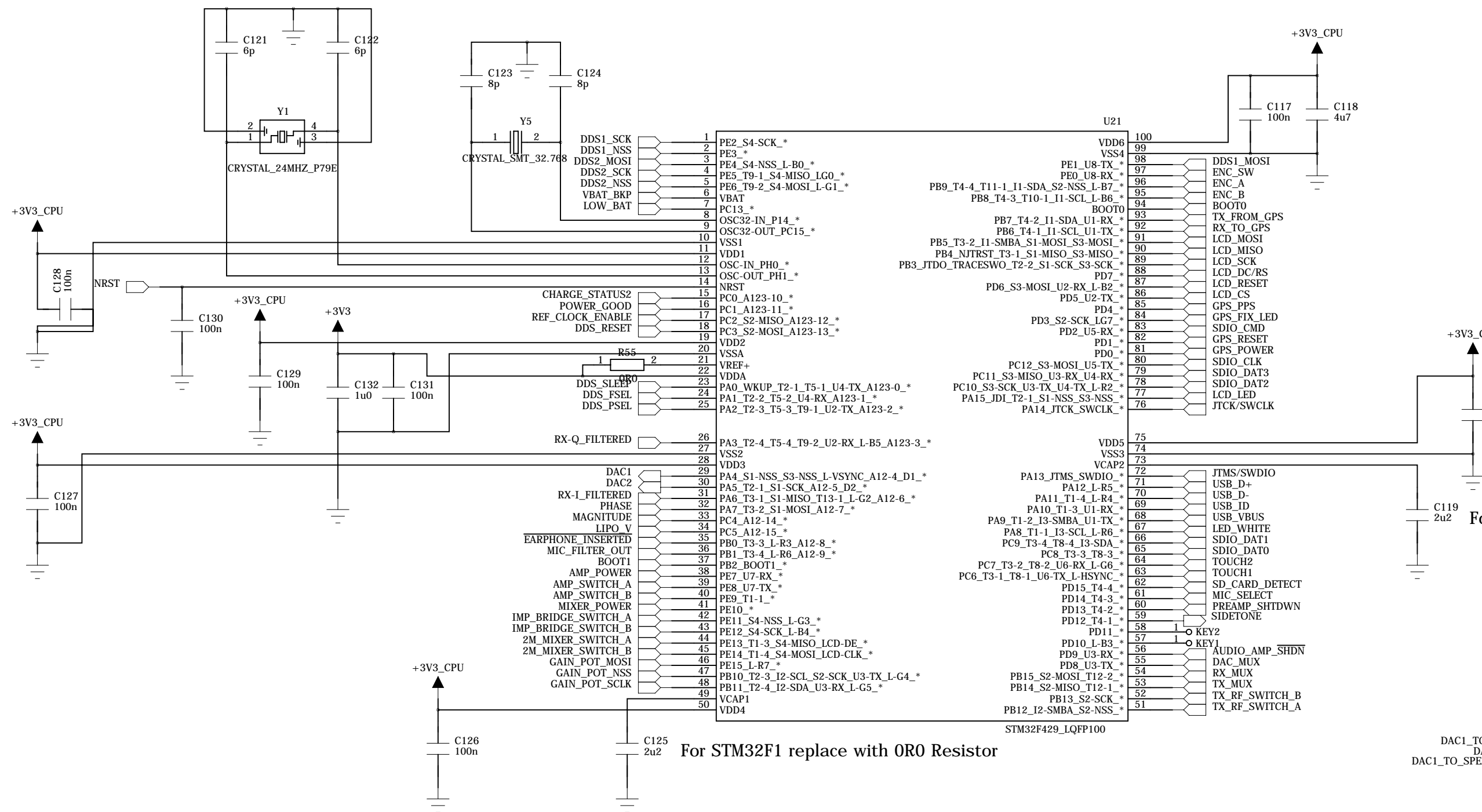
Change for use with SDIO



Recommended bypass capacitance for these things?

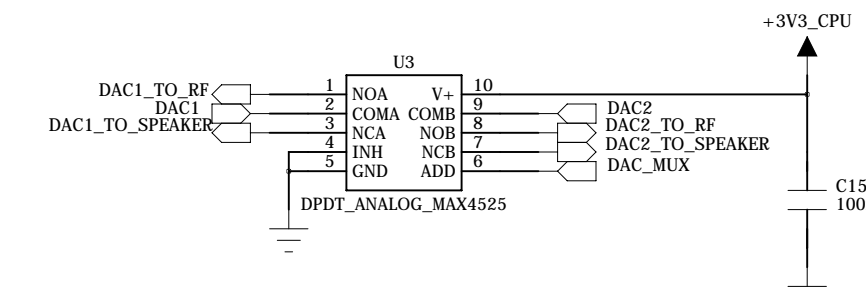
SPI1 is the fastest. Do I want that for the LCD? or for the SD Card?
Also, what DMA channels are needed in what priority?

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

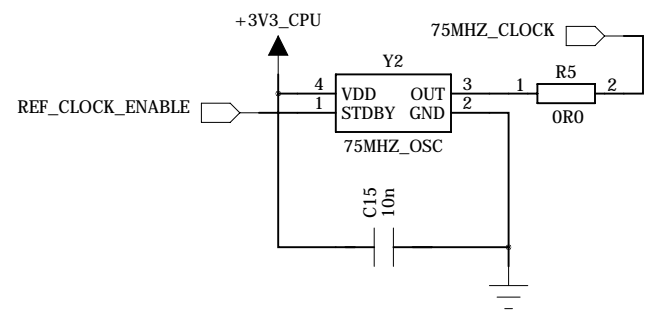


For STM32F1 replace with 0R0 Resistor

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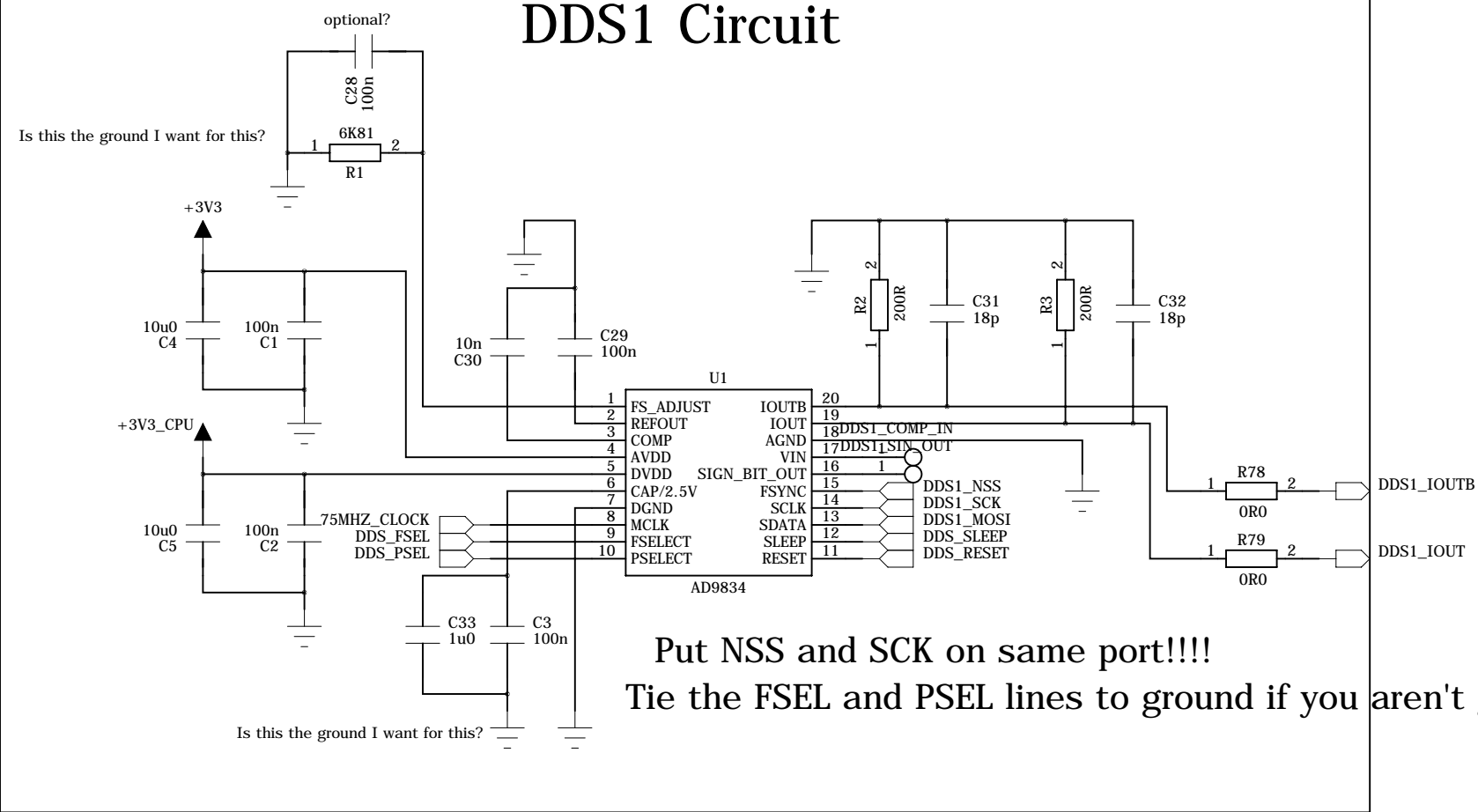


75 Mhz Clock Circuit

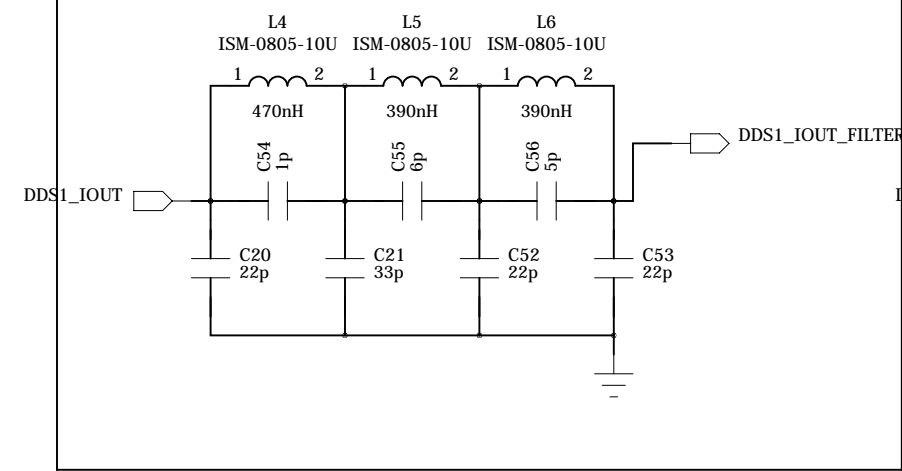


These have similar enough topologize that I can just populate them differently
See previous revs for other values Which?

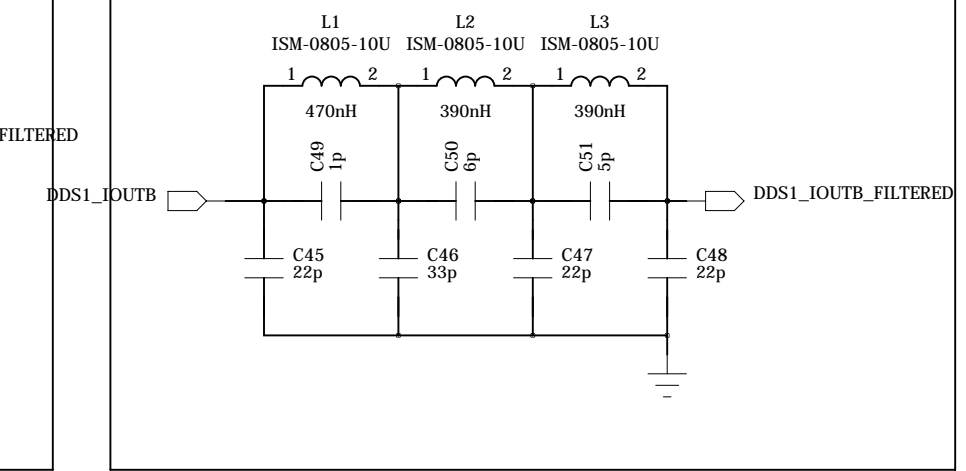
DDS1 Circuit



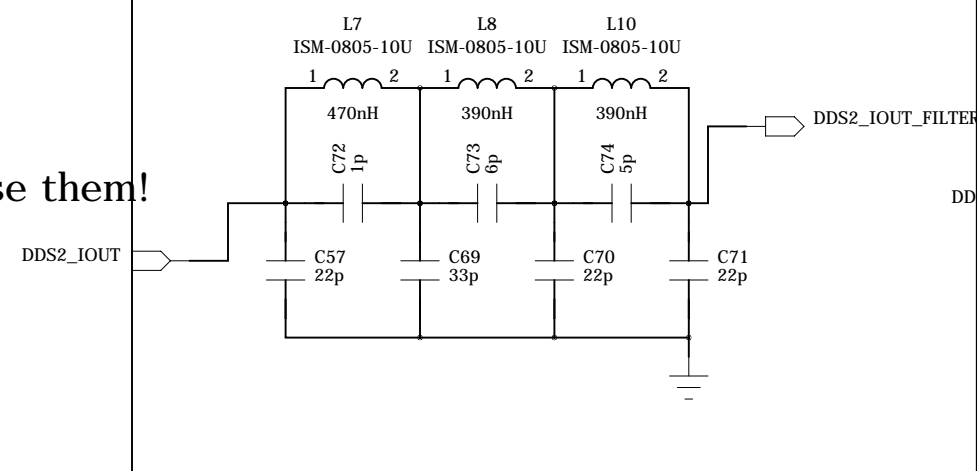
70 Mhz LPF



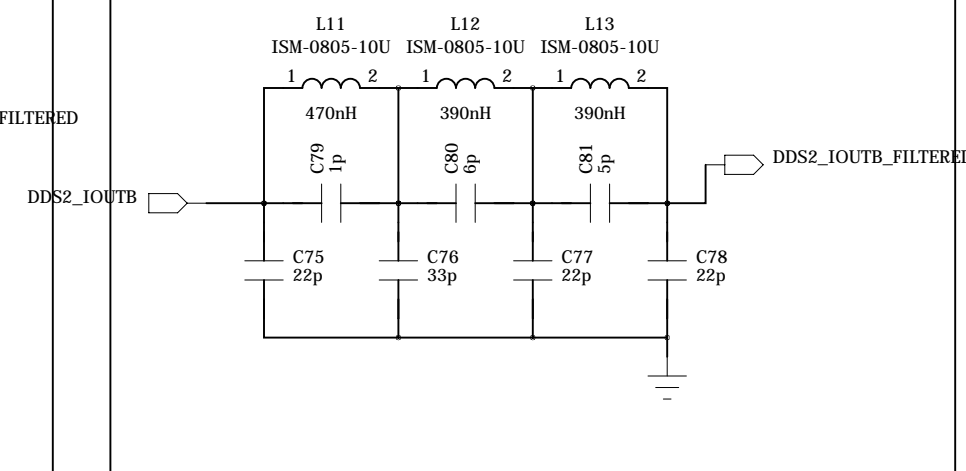
70 Mhz LPF



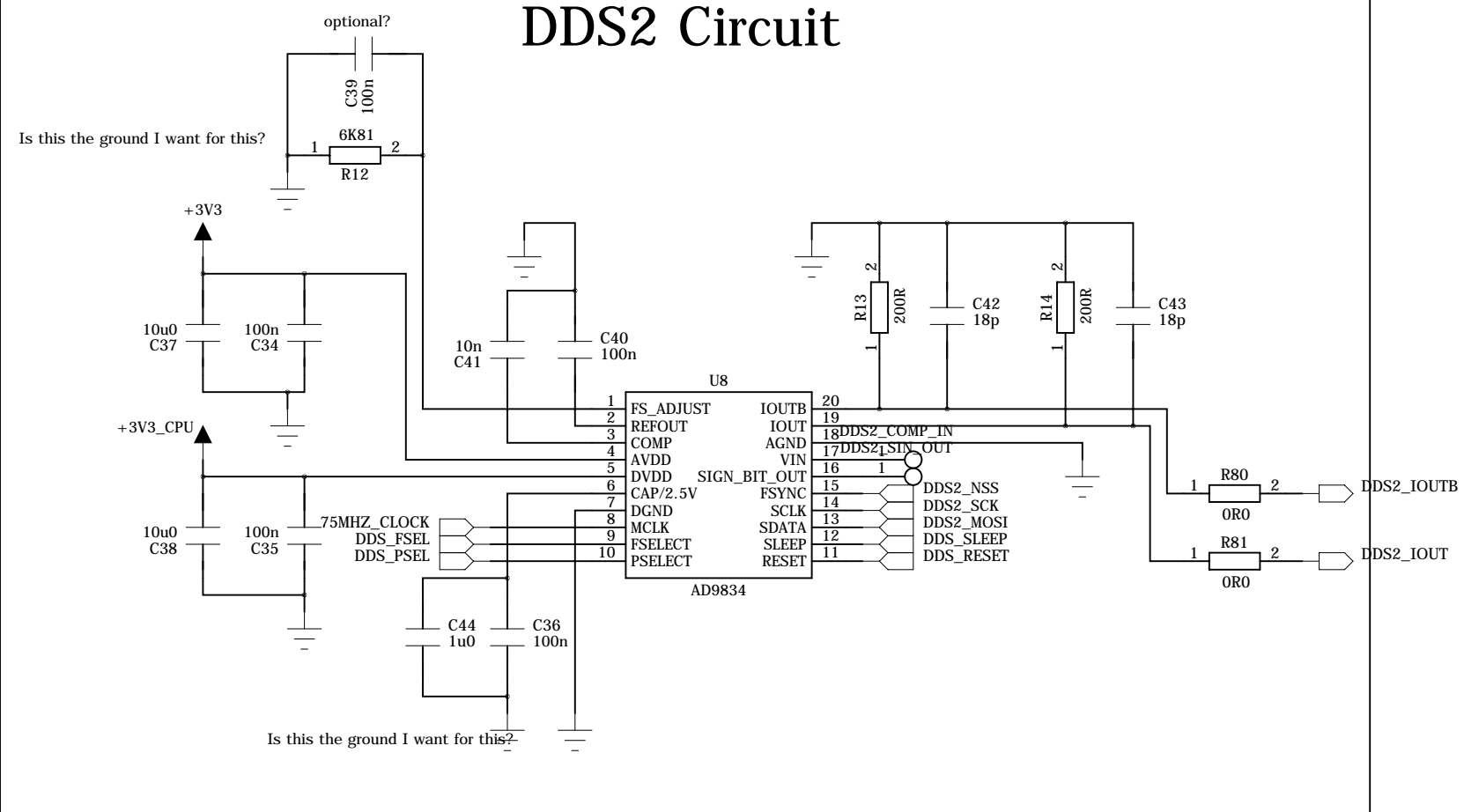
70 Mhz LPF



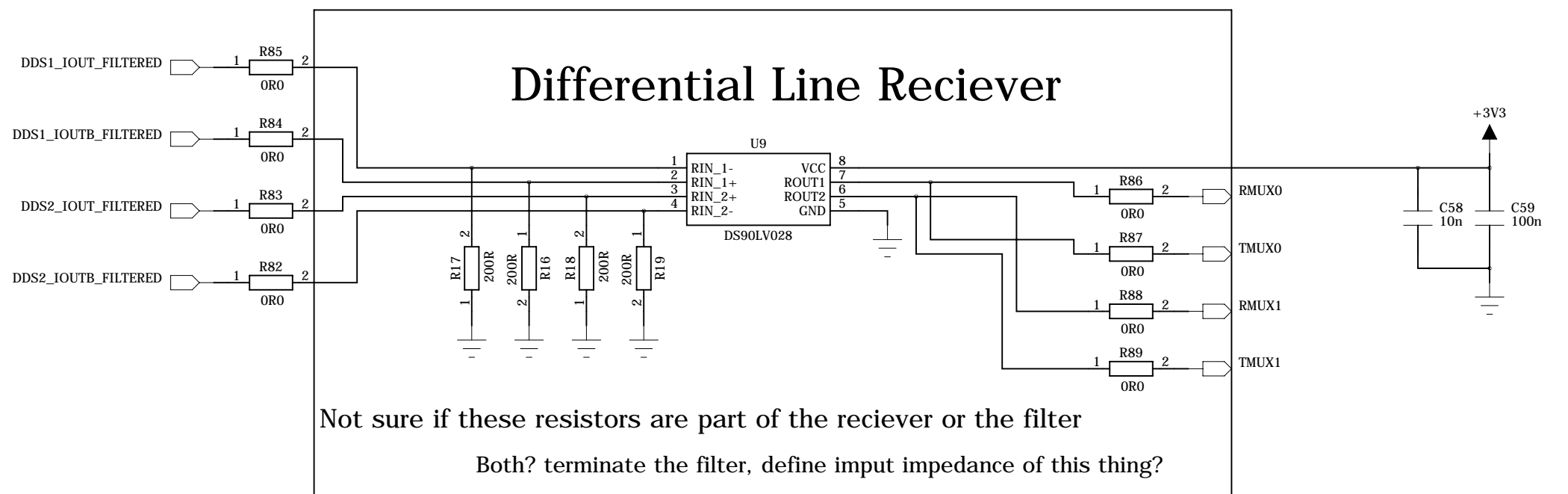
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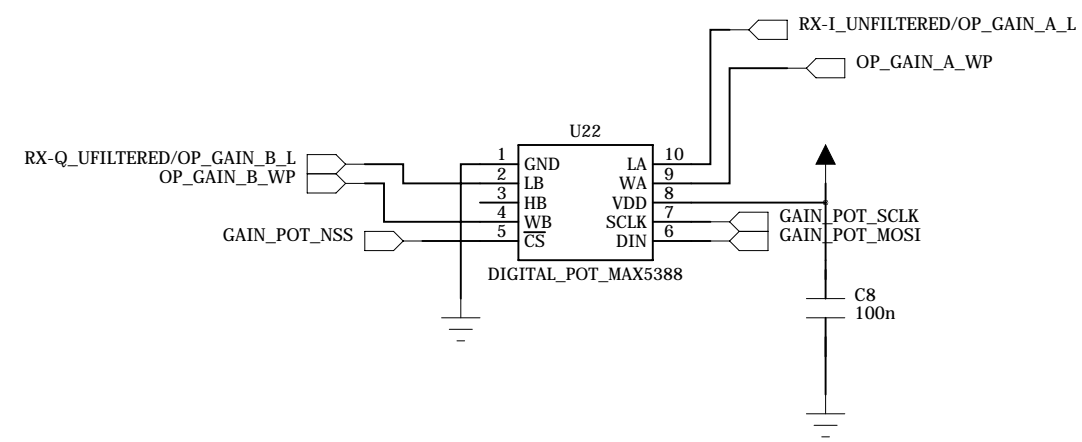


DDS2 Circuit

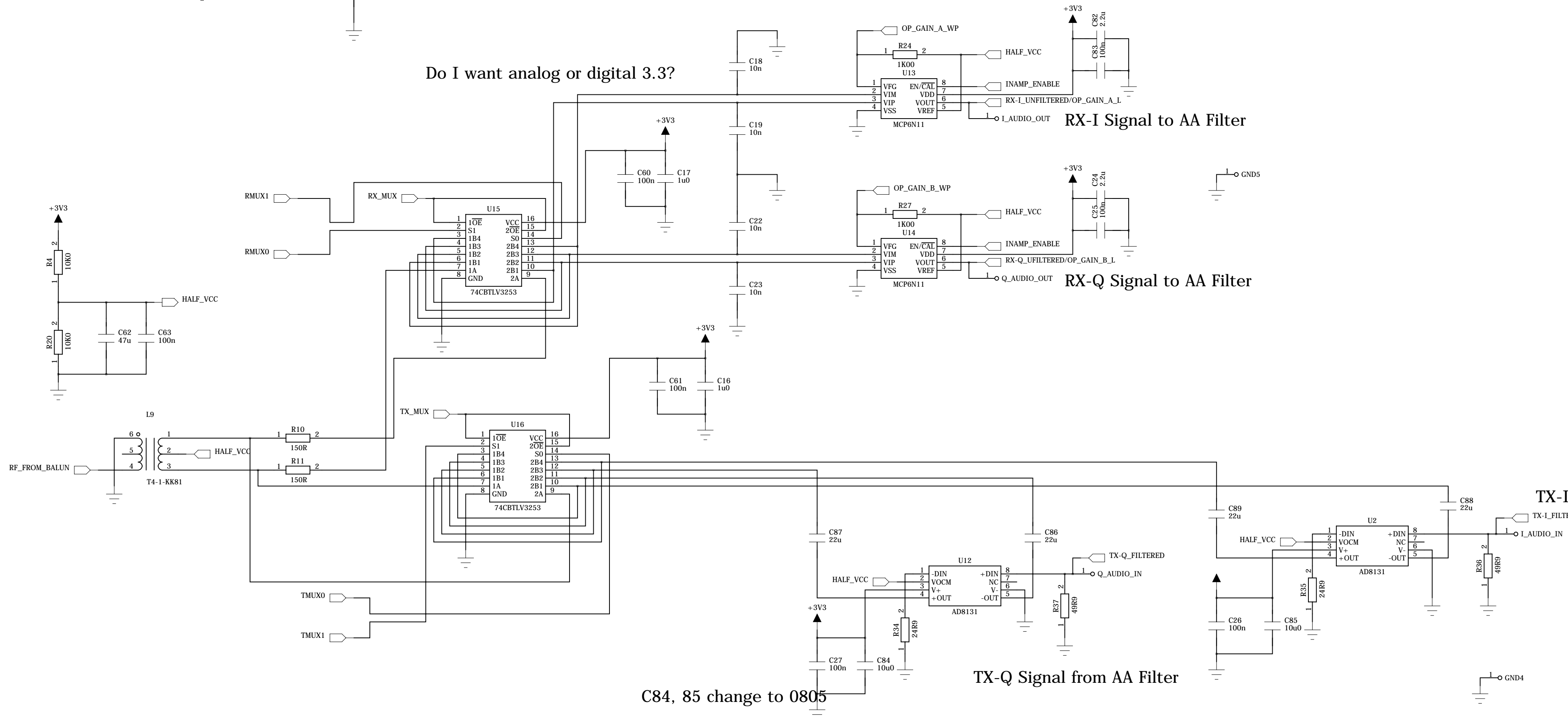


Differential Line Reciever



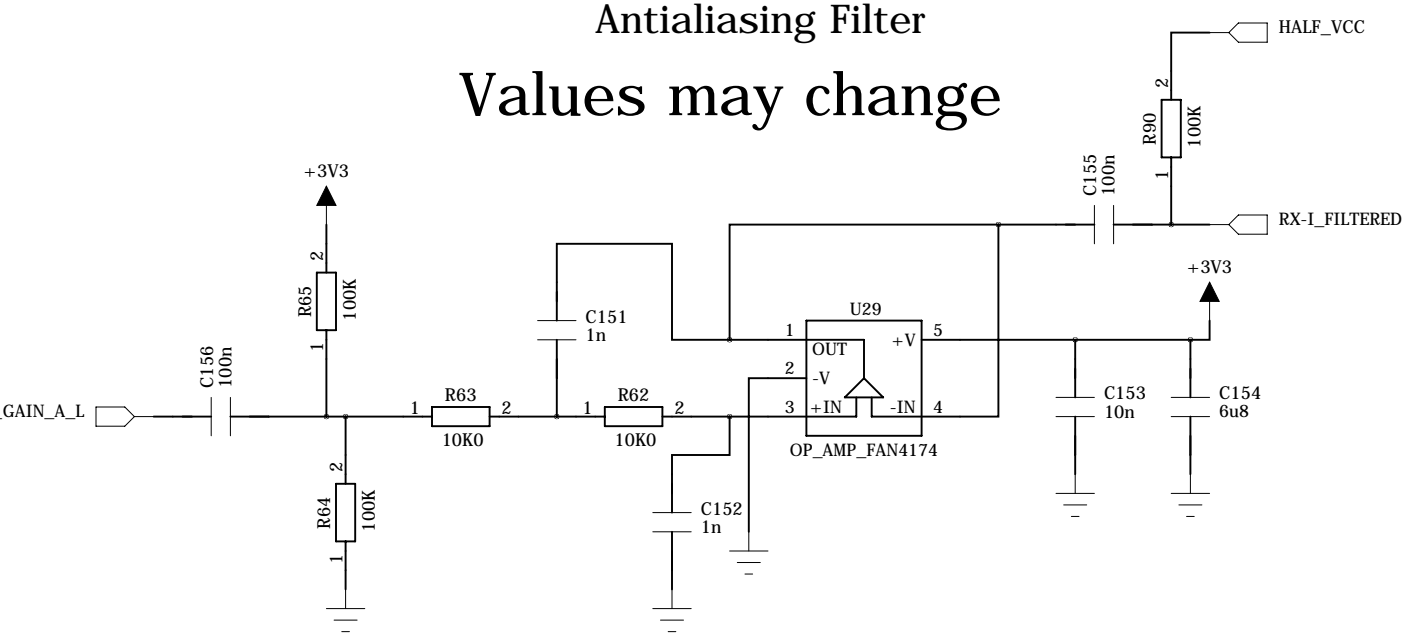


Do I want analog or digital 3.3?

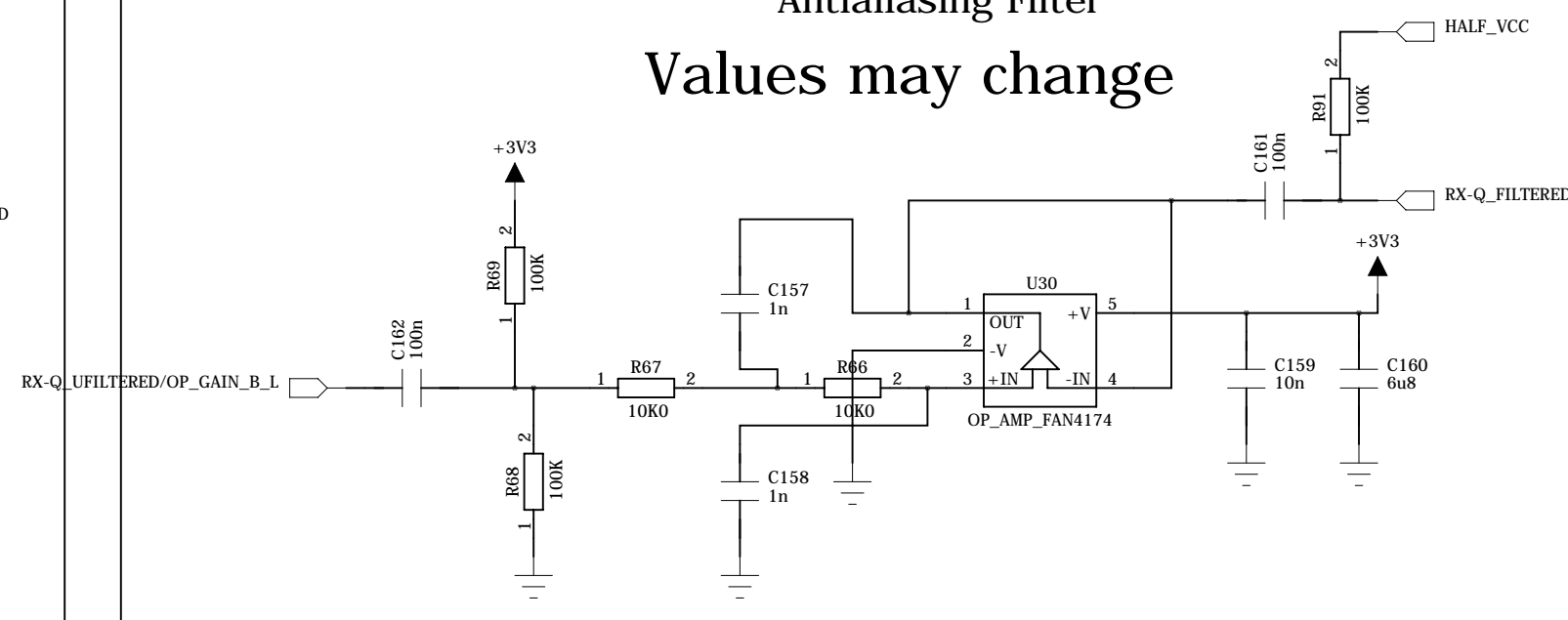


C84, 85 change to 0805

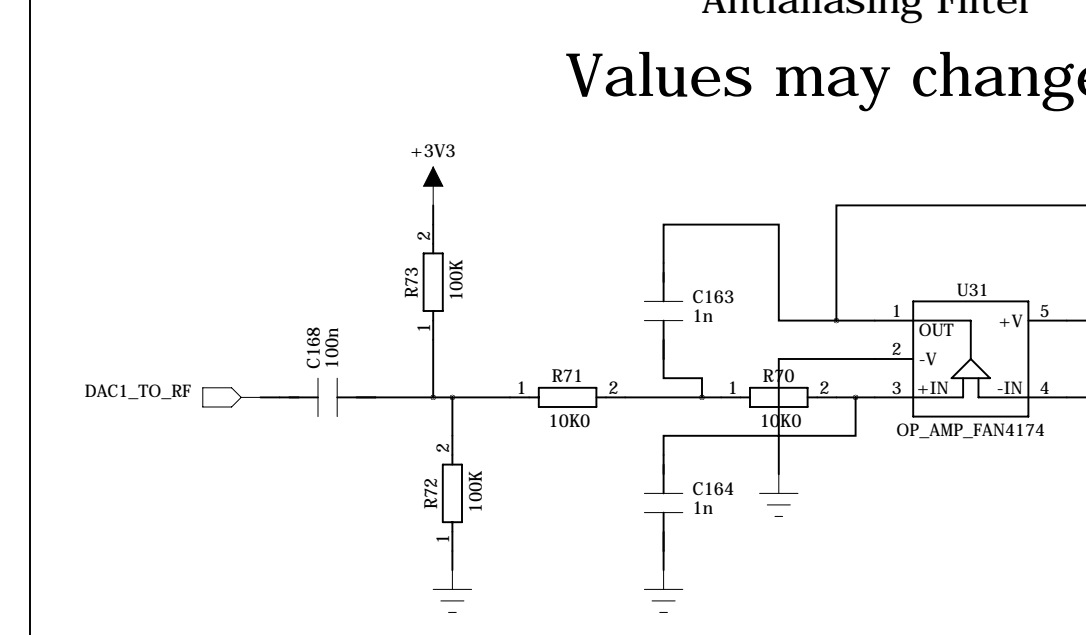
Antialiasing Filter
Values may change



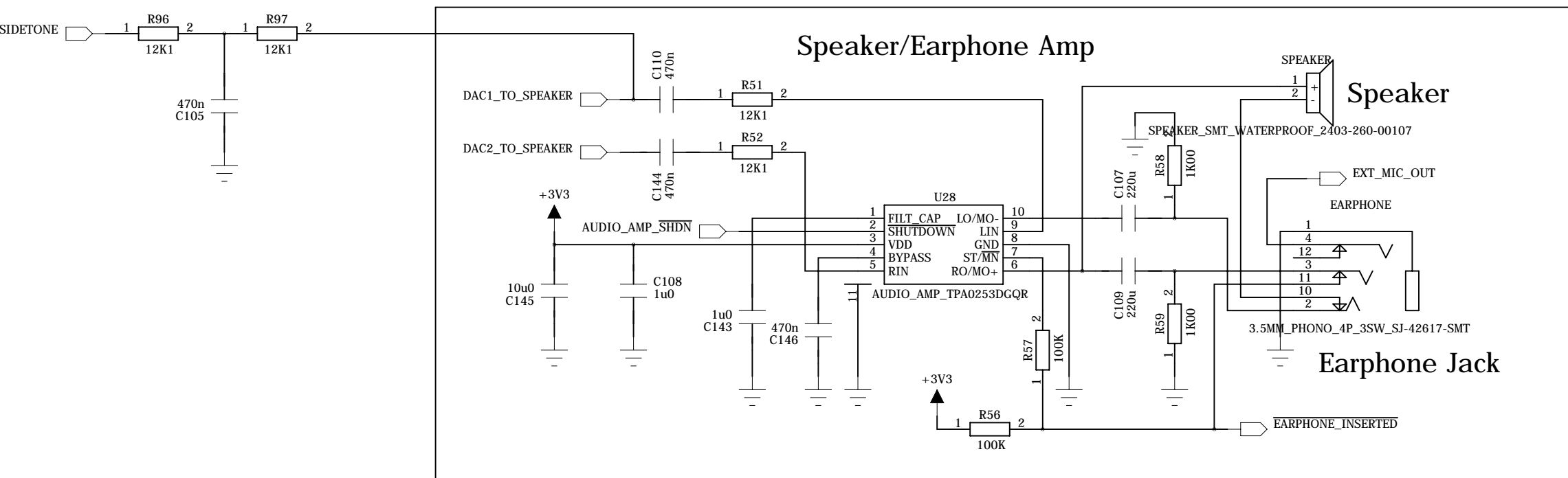
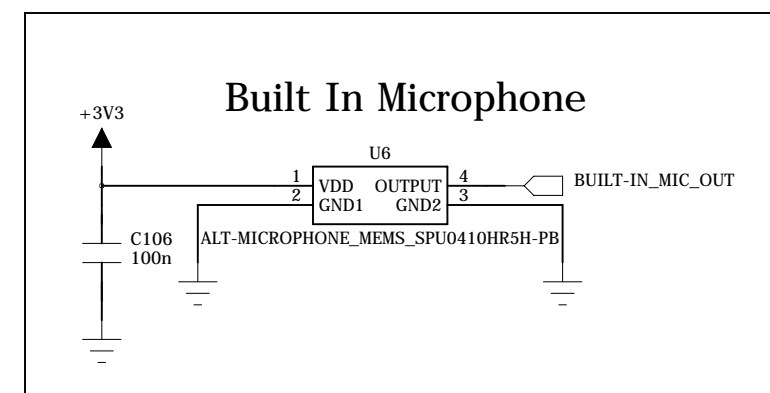
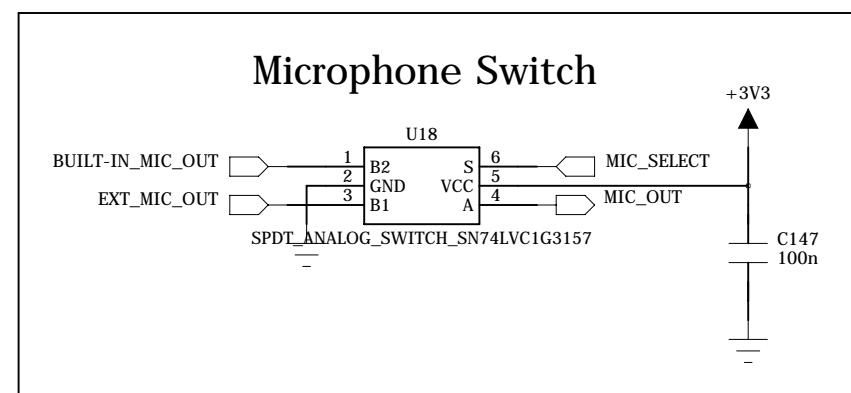
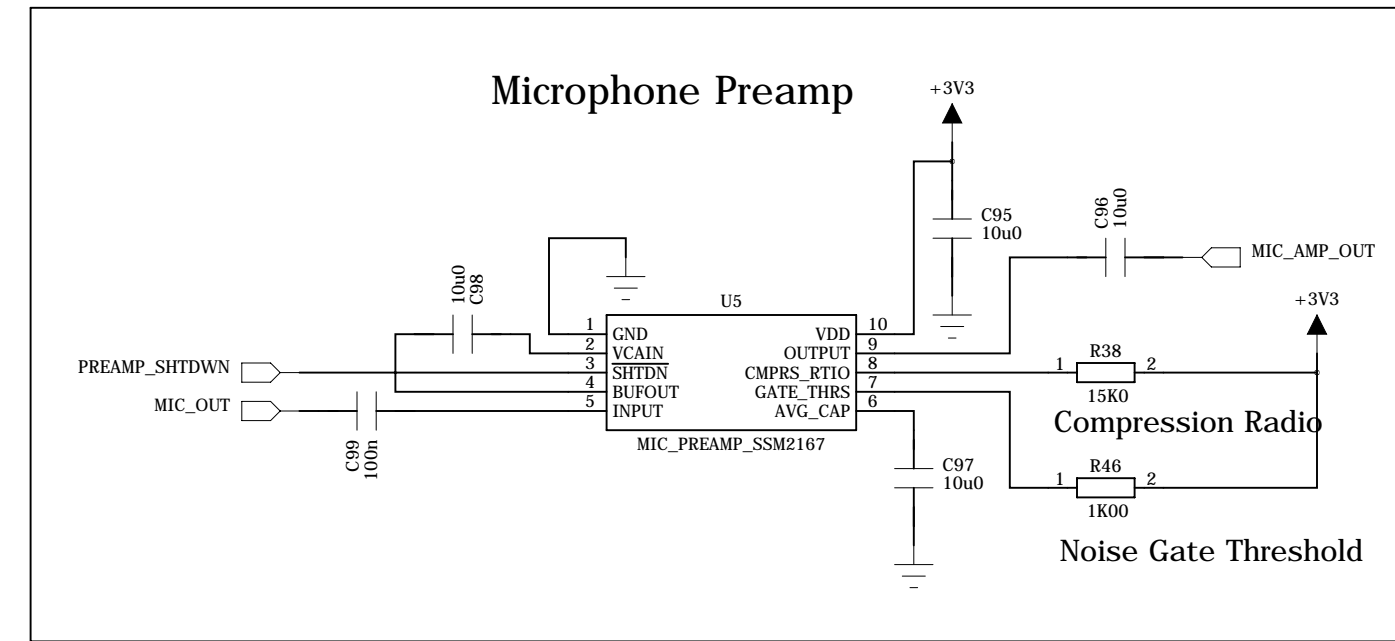
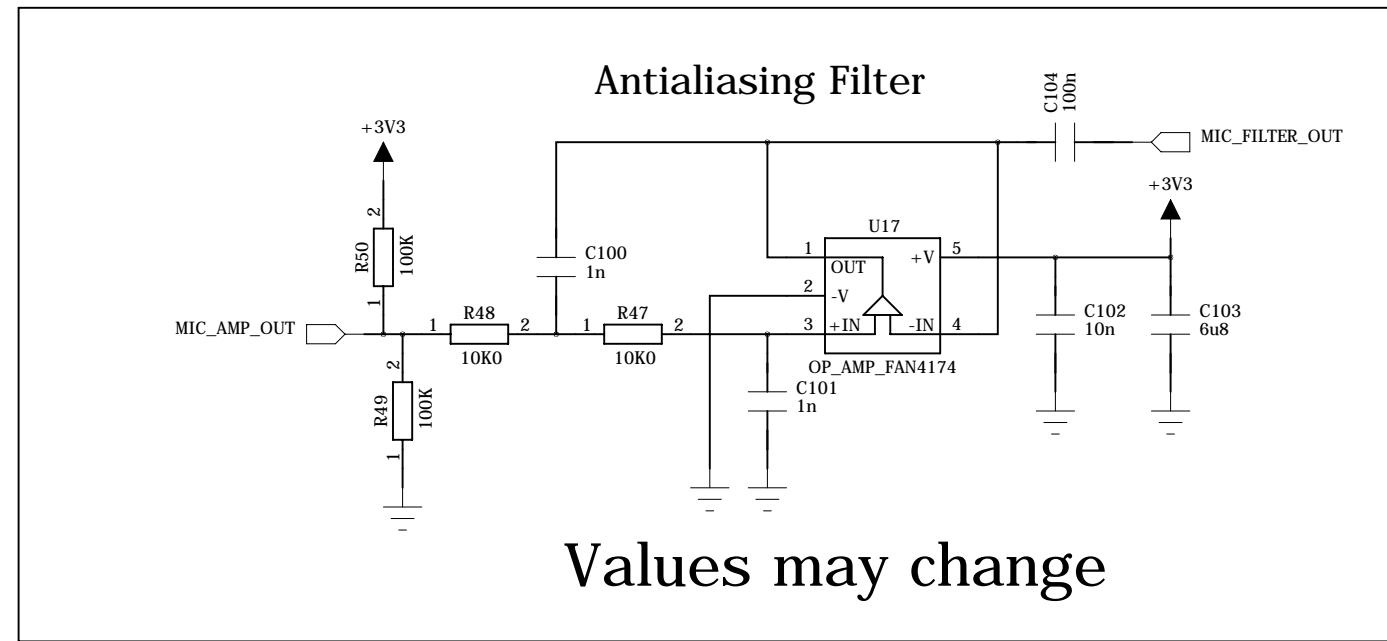
Antialiasing Filter
Values may change

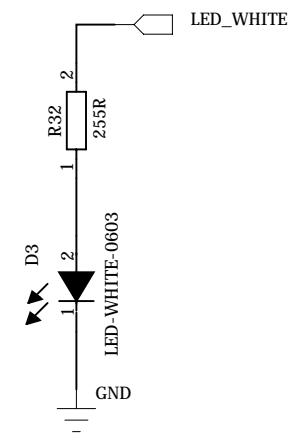
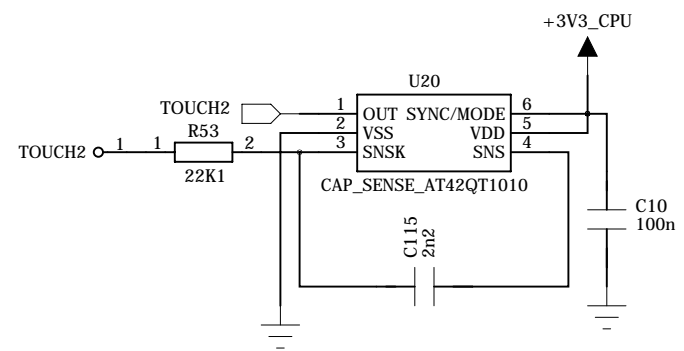
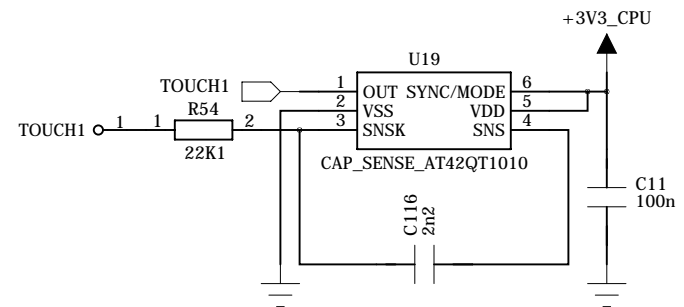
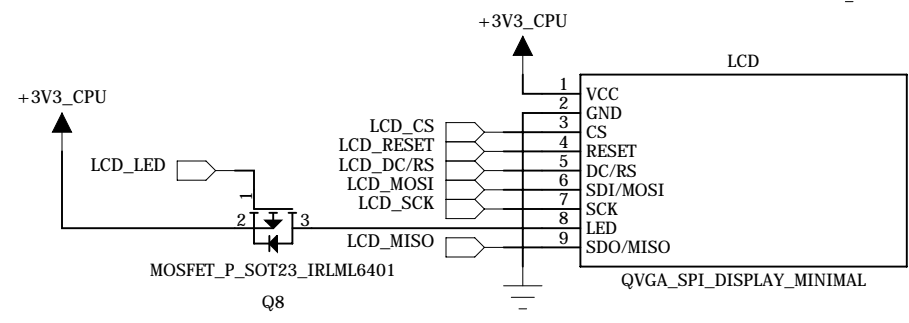
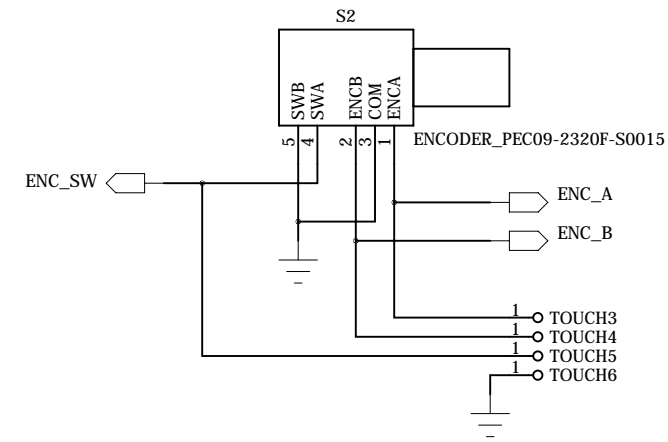


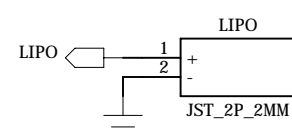
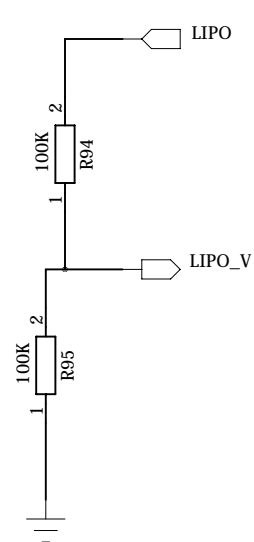
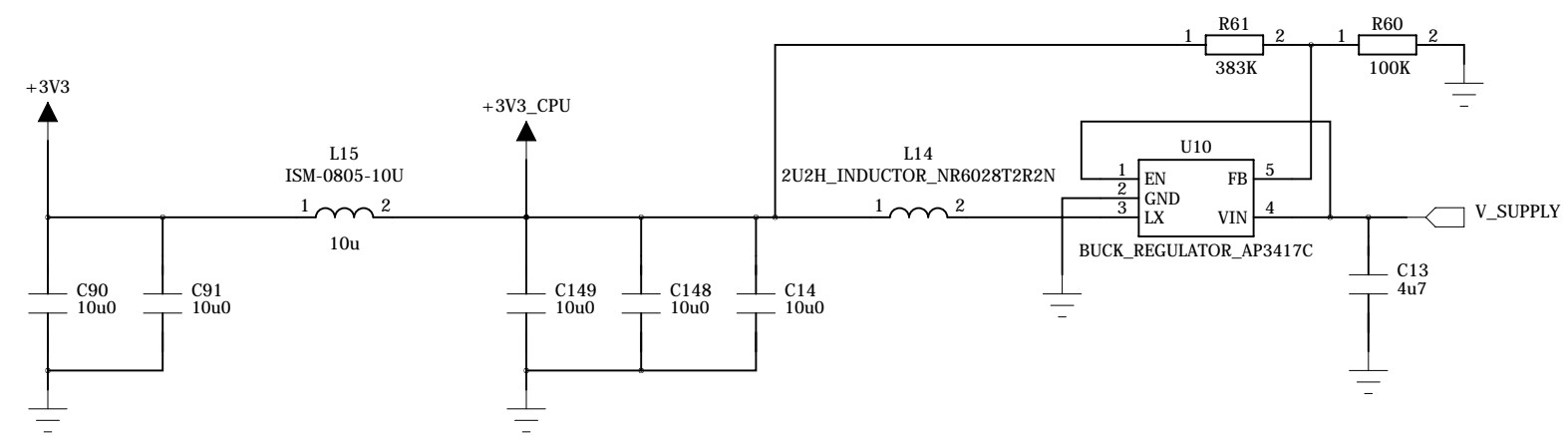
Antialiasing Filter
Values may change



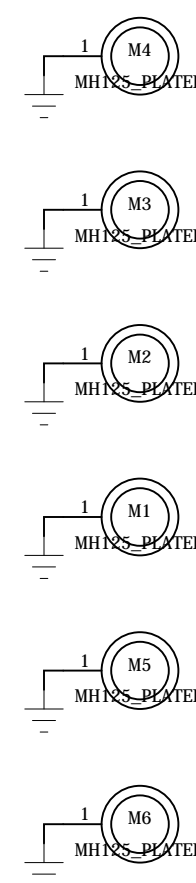
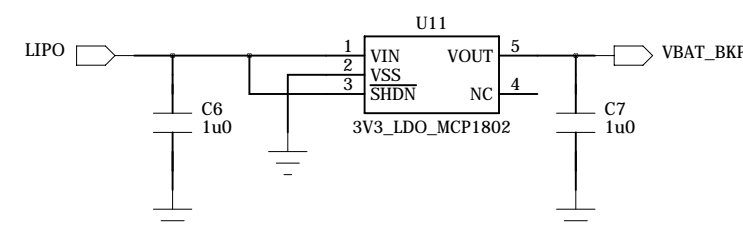
Are those 100n Capacitors going to kill my LF response? :0



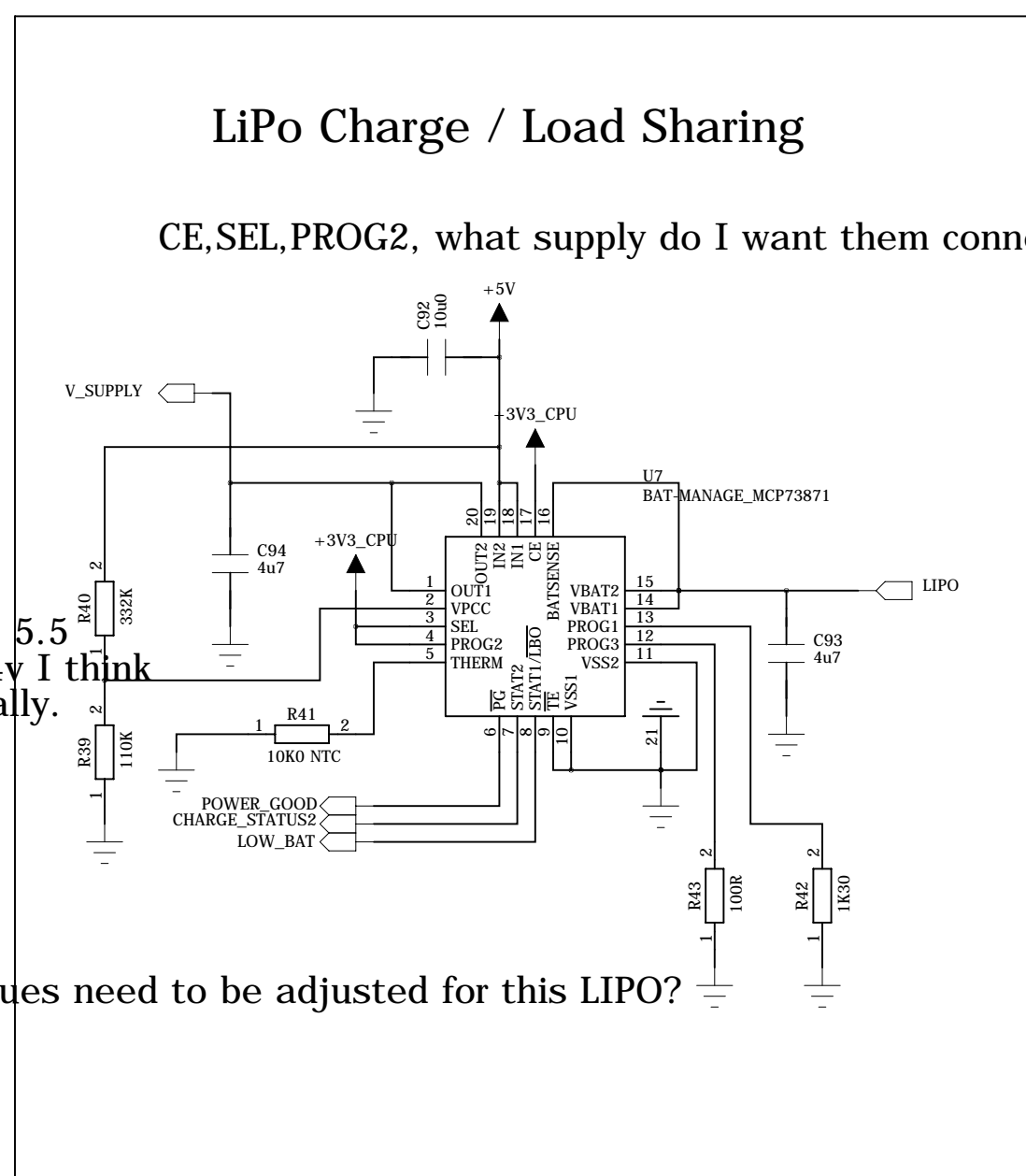




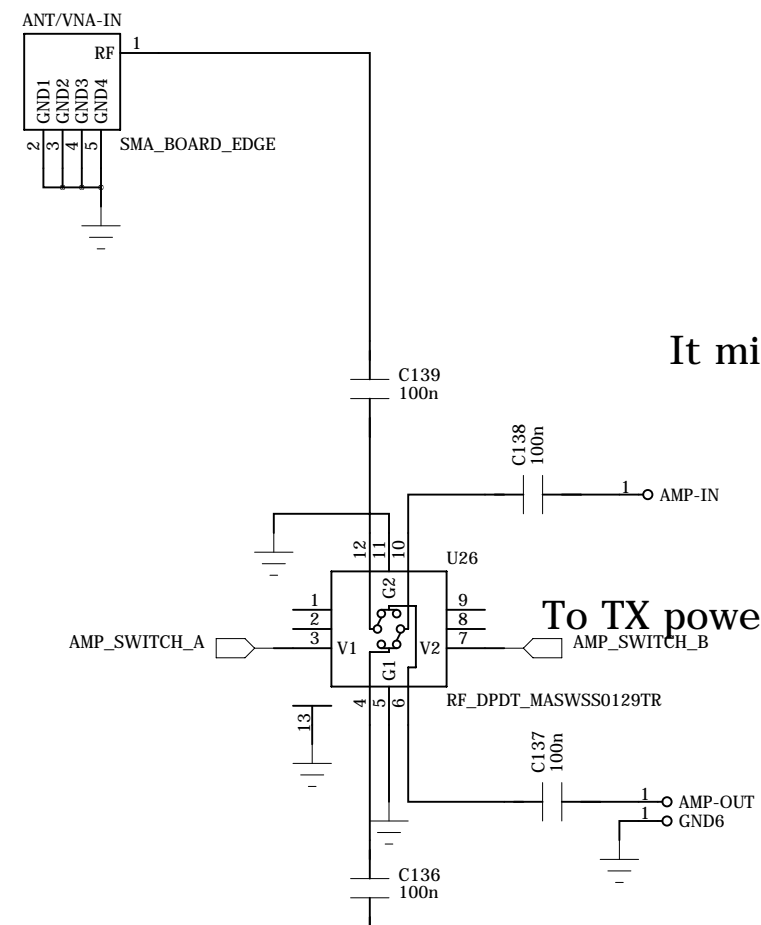
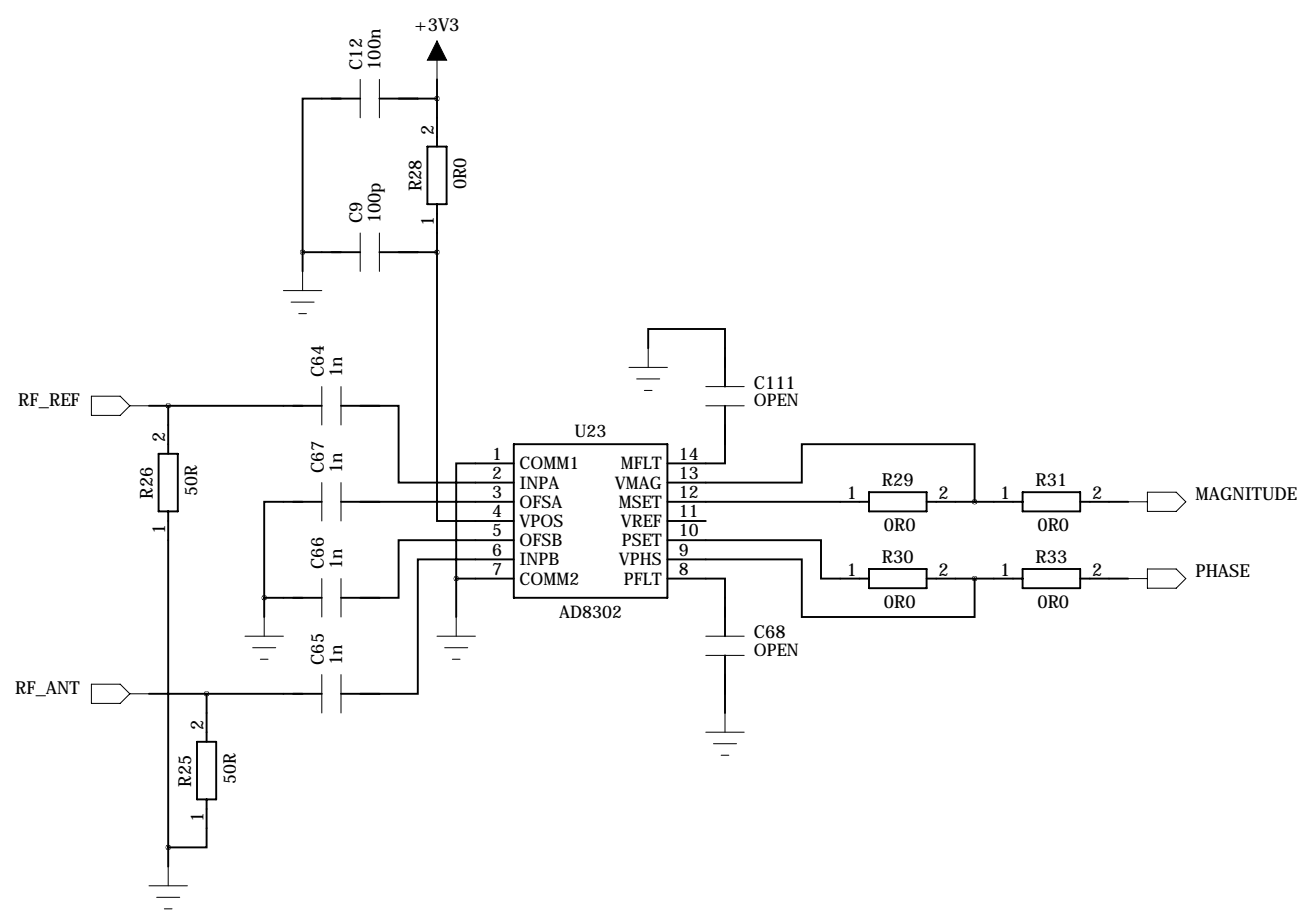
VBackup Supply



Open results in any voltage being okay. I'd like it to be something like 4.3 or 4.4v I think
 So the solar charge feature can work, and USB will charge normally.

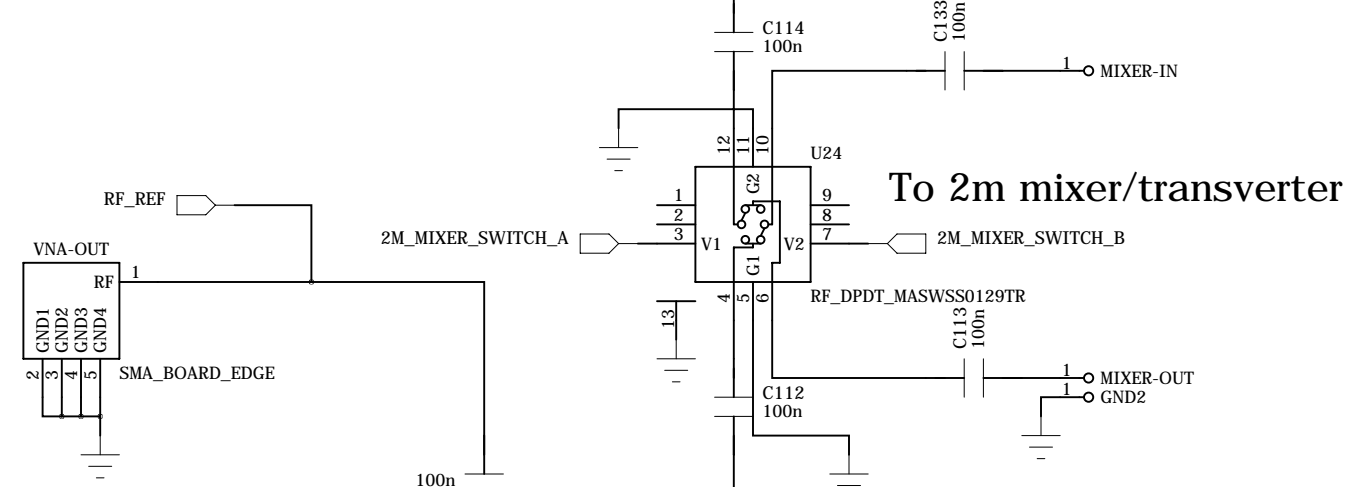
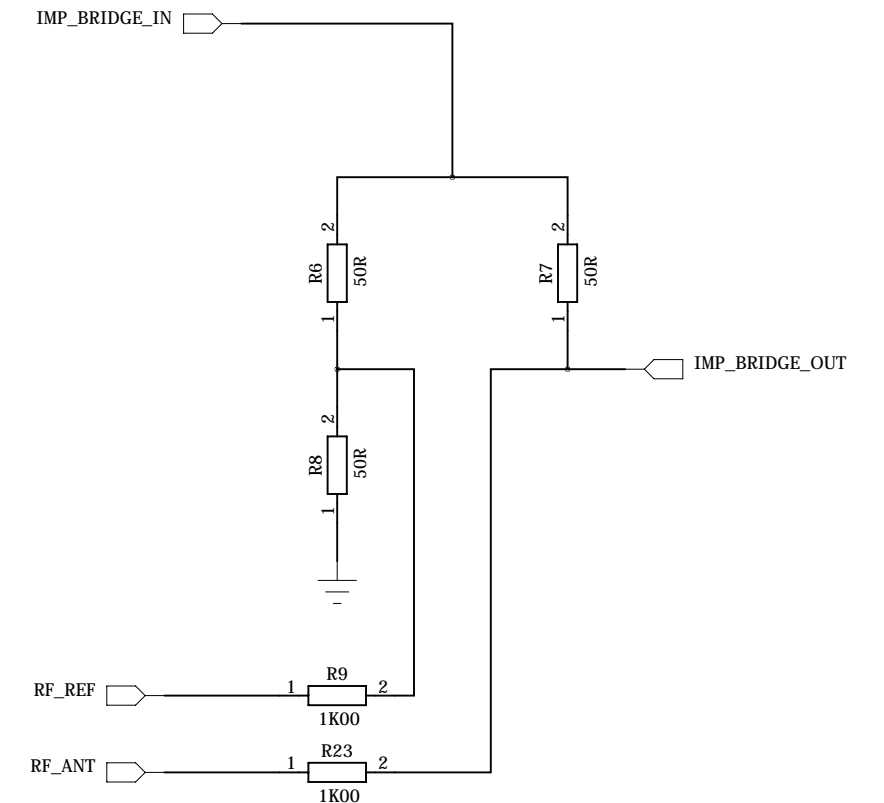
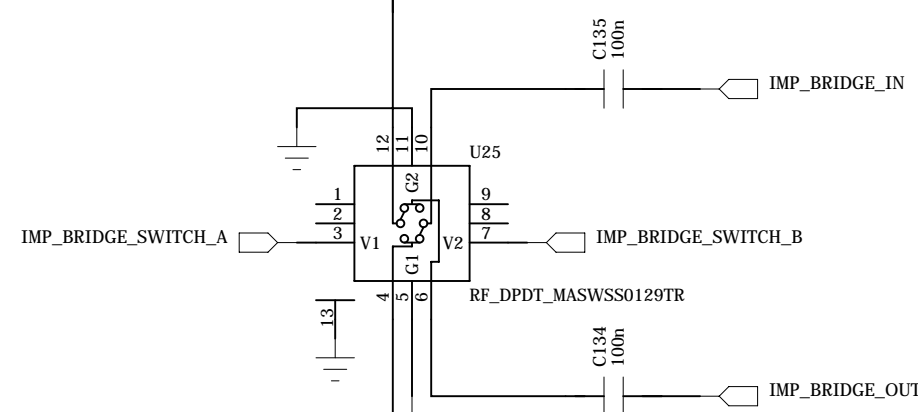
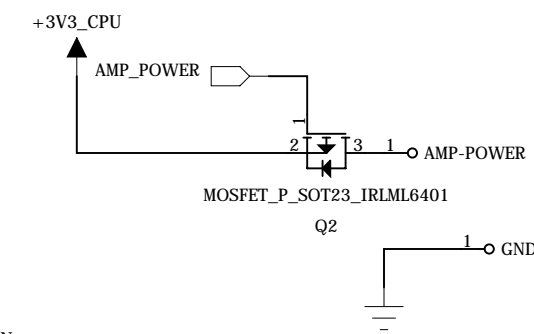


Do the values need to be adjusted for this LIPO?

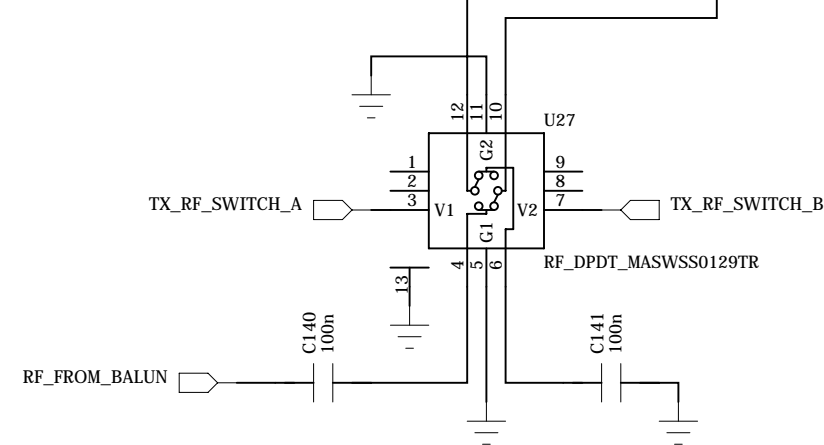
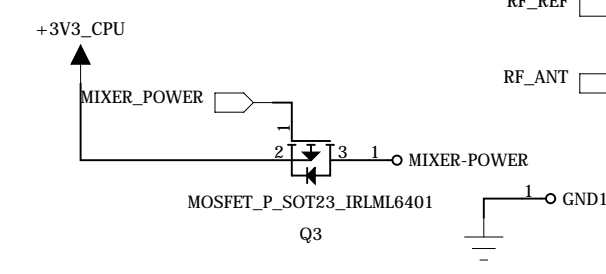


It might make sense to put an inverter rather than run both lines to the micro

To TX power amp (warning! about 1W max for this switch)



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