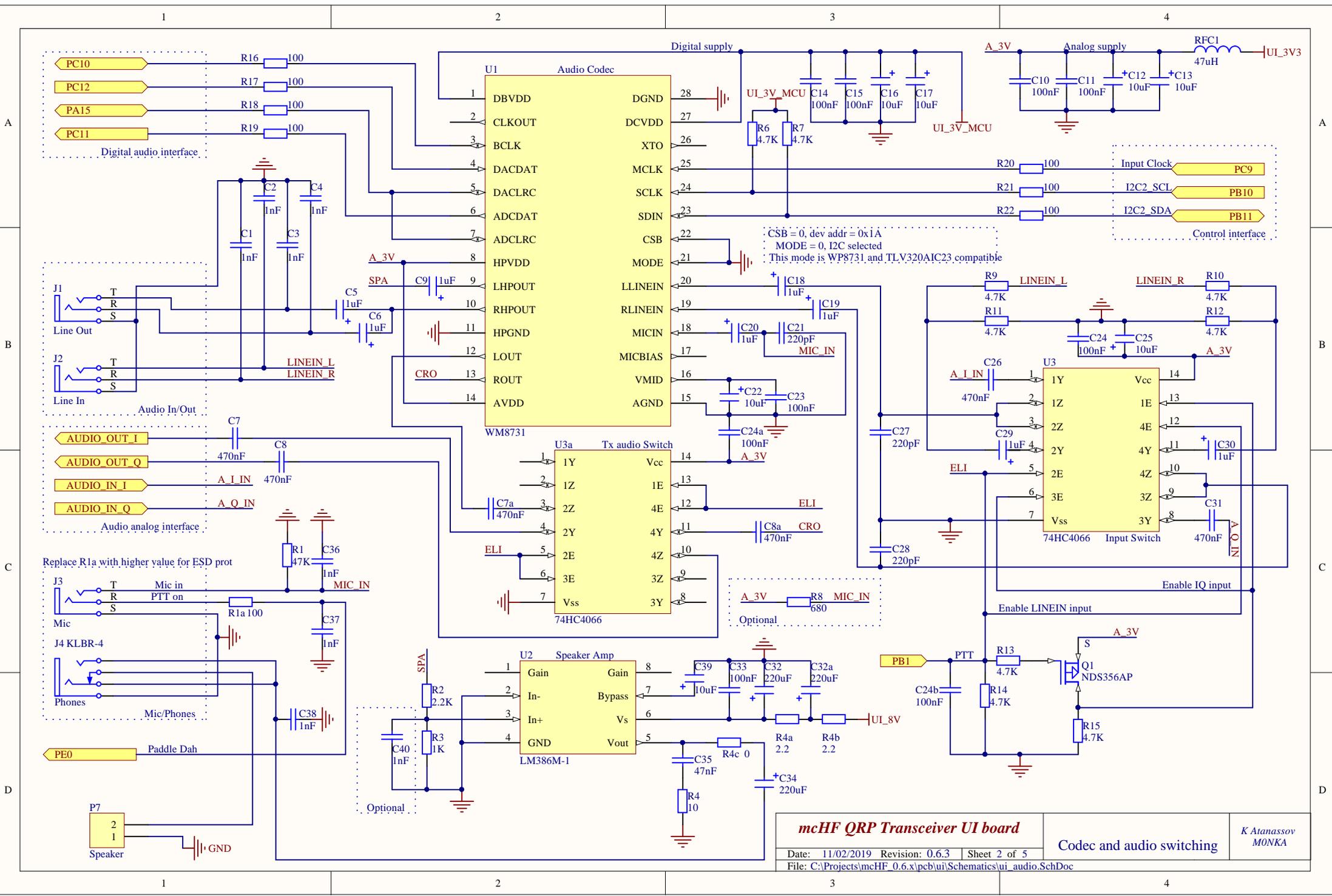
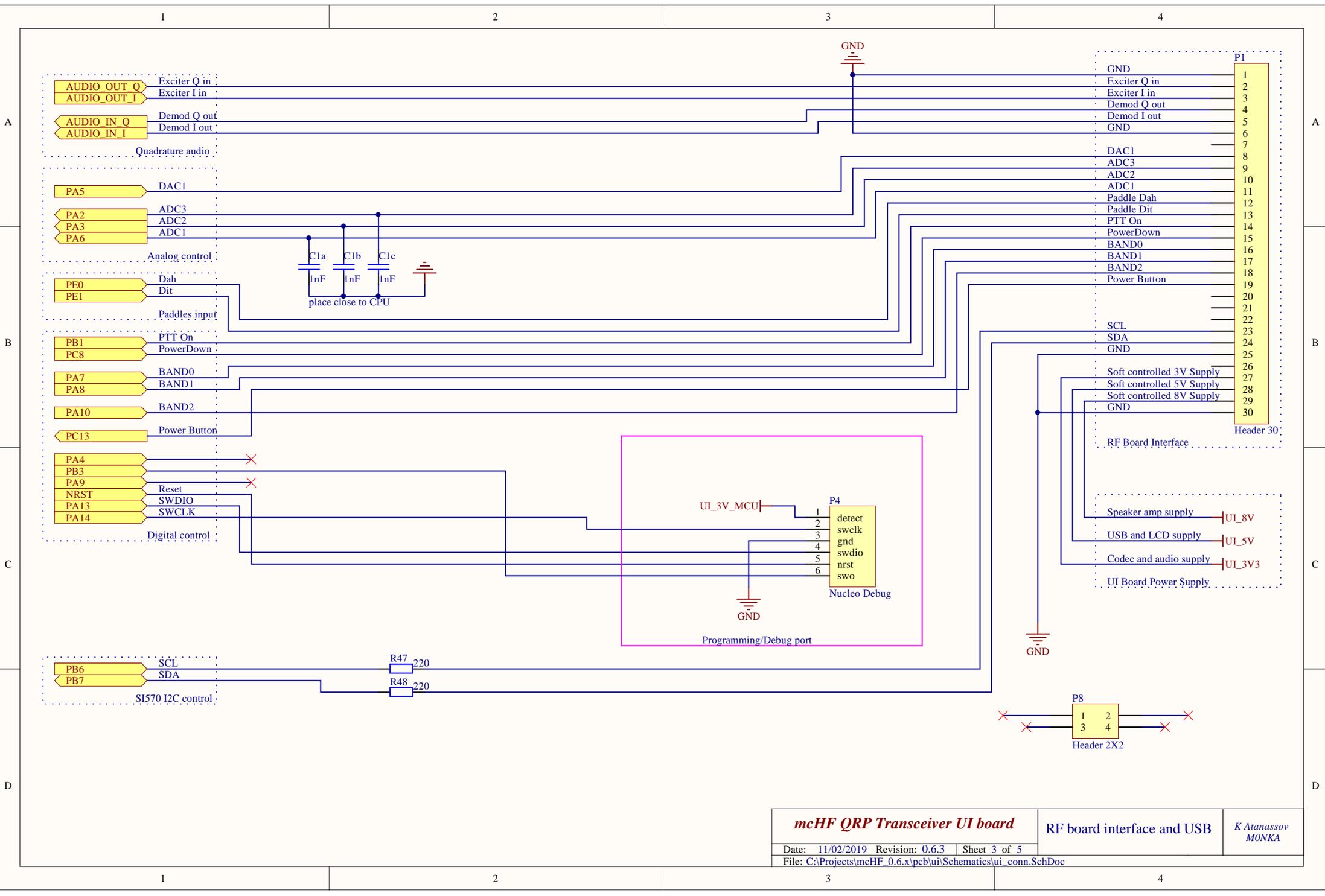
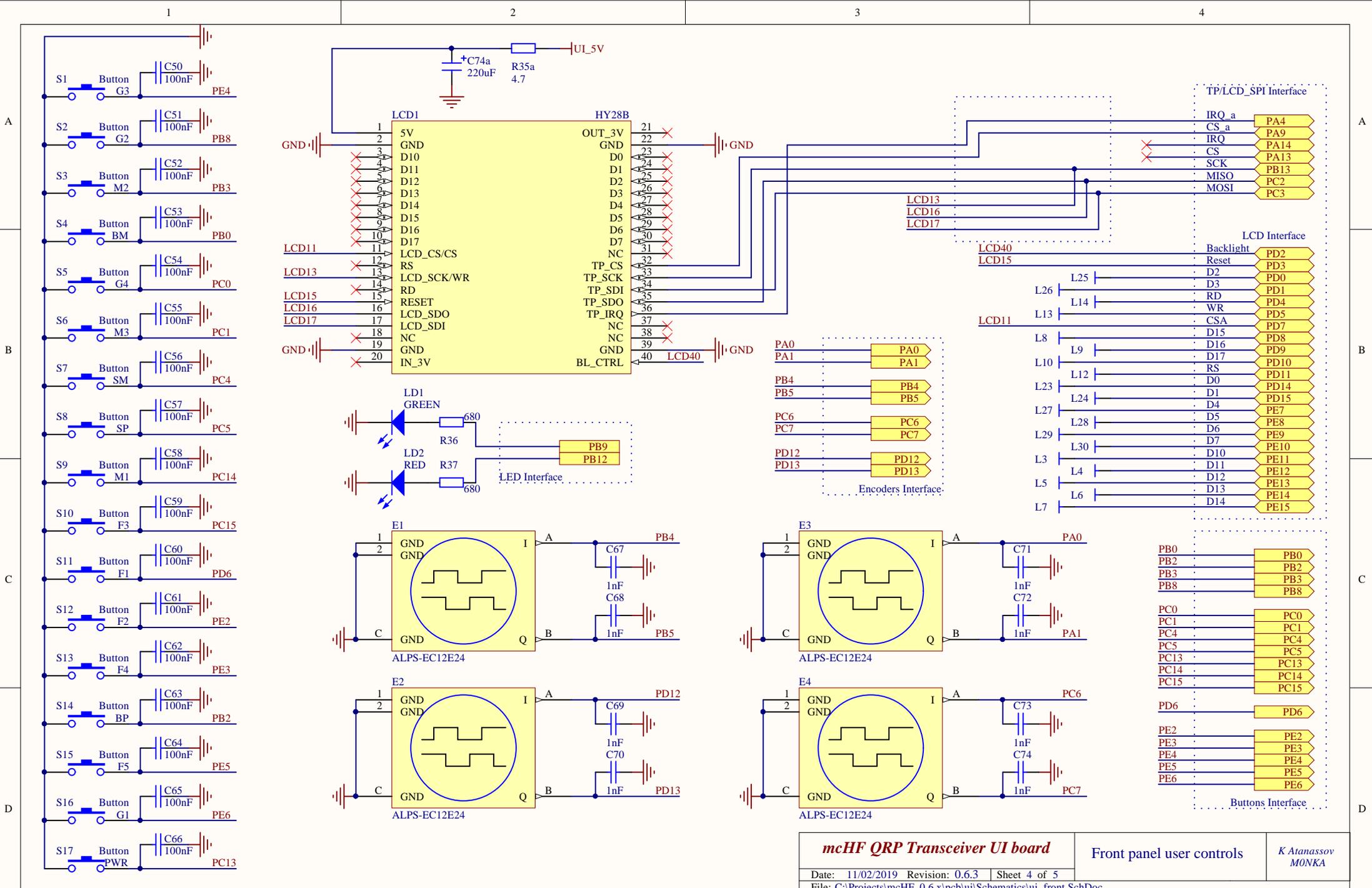


- RX Path
- TX Path
- Shared
- Control







A

A

B

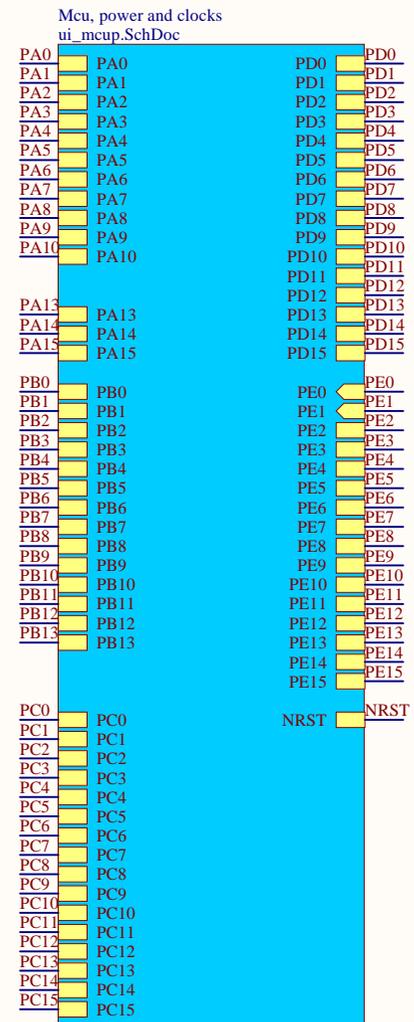
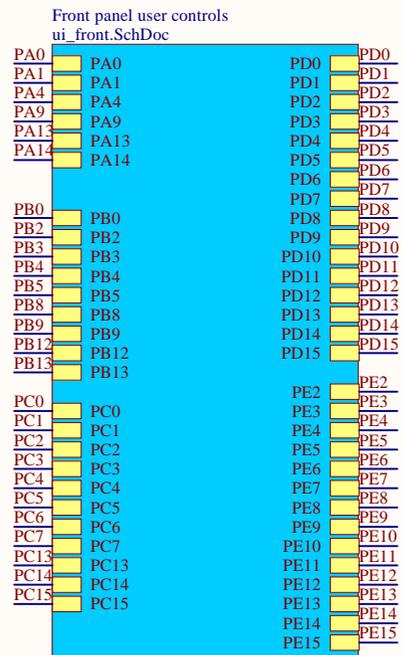
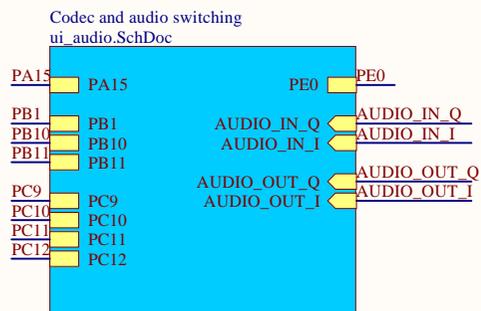
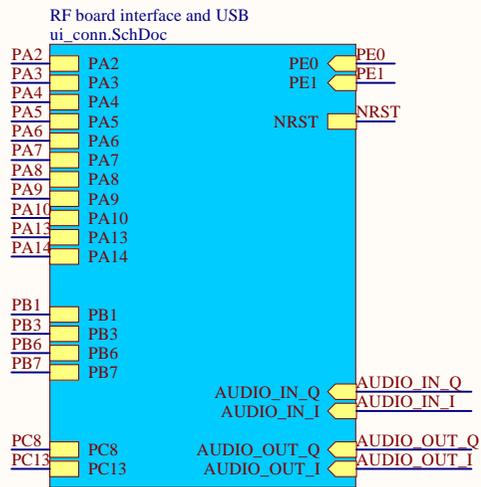
B

C

C

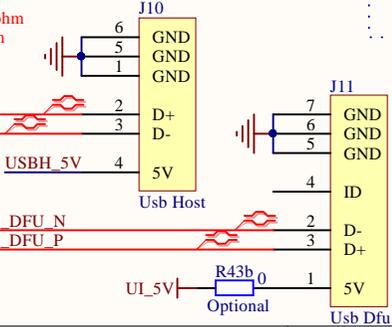
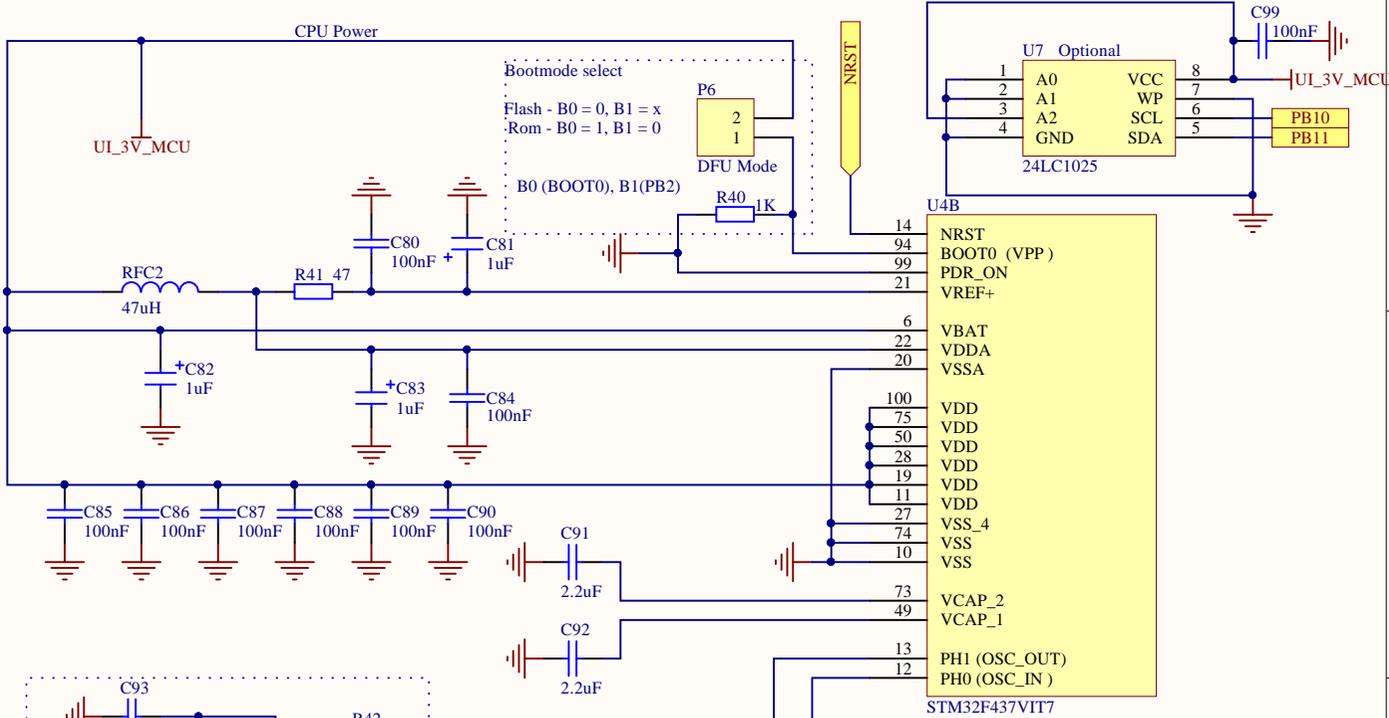
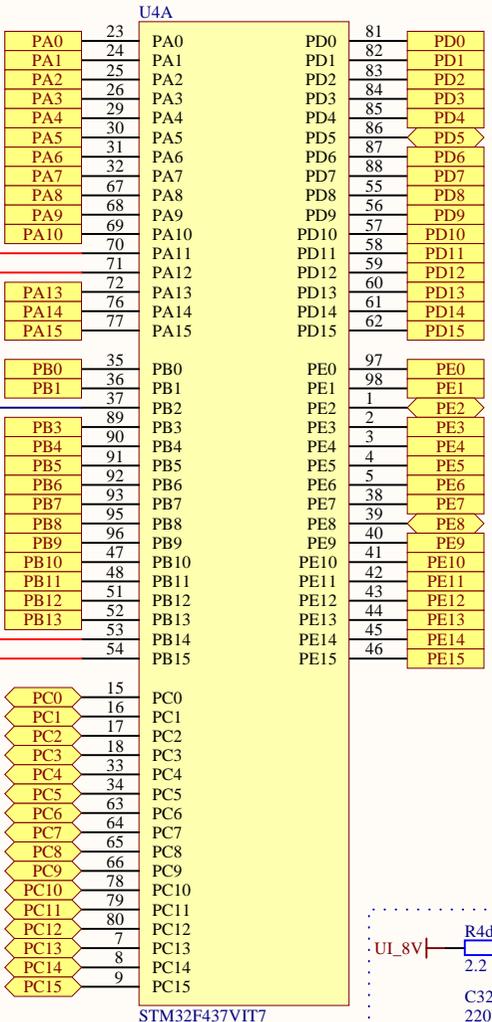
D

D



Jumper configurations

Part	Default	Optional
R43a	USB host power from RF board 5V supply(R43a on)	USB host power from separate regulator(R43a off)
R42,R43,R44	Main clock from Xtal(R44 off,R42 and R43 on)	Main clock from TCXO(R44 on,R42 and R43 off)

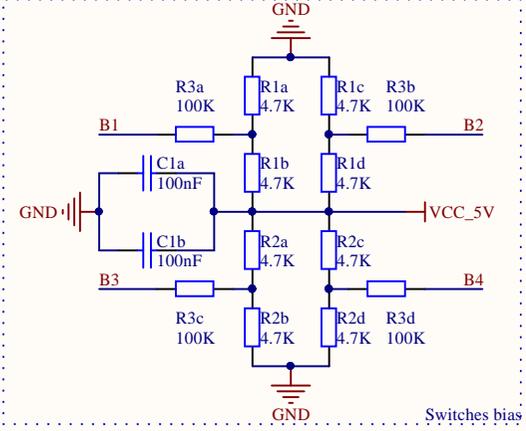
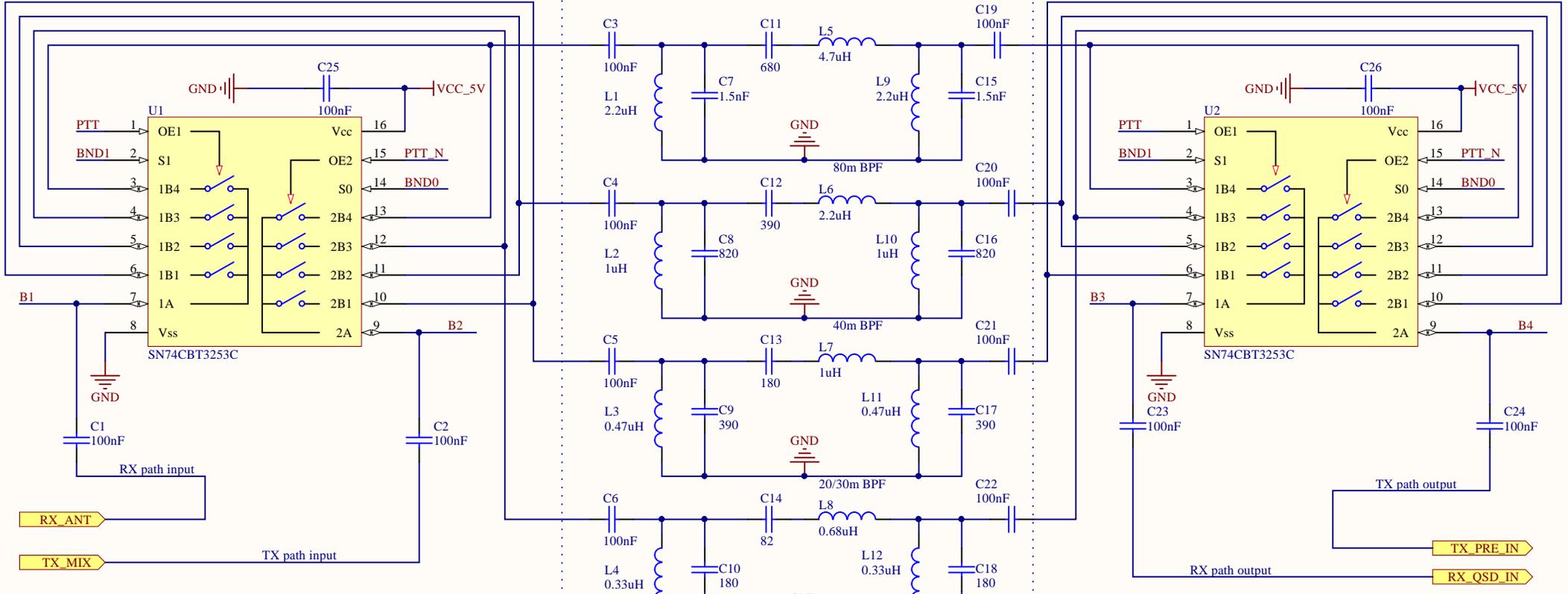


mcHF QRP Transceiver UI board

Mcu, power and clocks

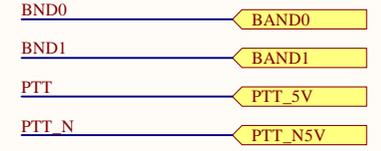
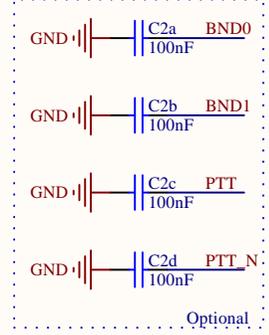
K Atanassov
MONKA

Date: 11/02/2019 Revision: 0.6.3 Sheet 5 of 5
File: C:\Projects\mcHF_0.6.x\pcb\ui\Schematics\ui_mcup.SchDoc



all filter caps 100V

MODE	OE1	OE2	S1	S0	Switches	Filter
TX	1	0	0	0	2B1	20/30m
TX	1	0	0	1	2B2	40m
TX	1	0	1	0	2B3	15-10m
TX	1	0	1	1	2B4	80m
RX	0	1	0	0	1B1	20/30m
RX	0	1	0	1	1B2	40m
RX	0	1	1	0	1B3	15-10m
RX	0	1	1	1	1B4	80m

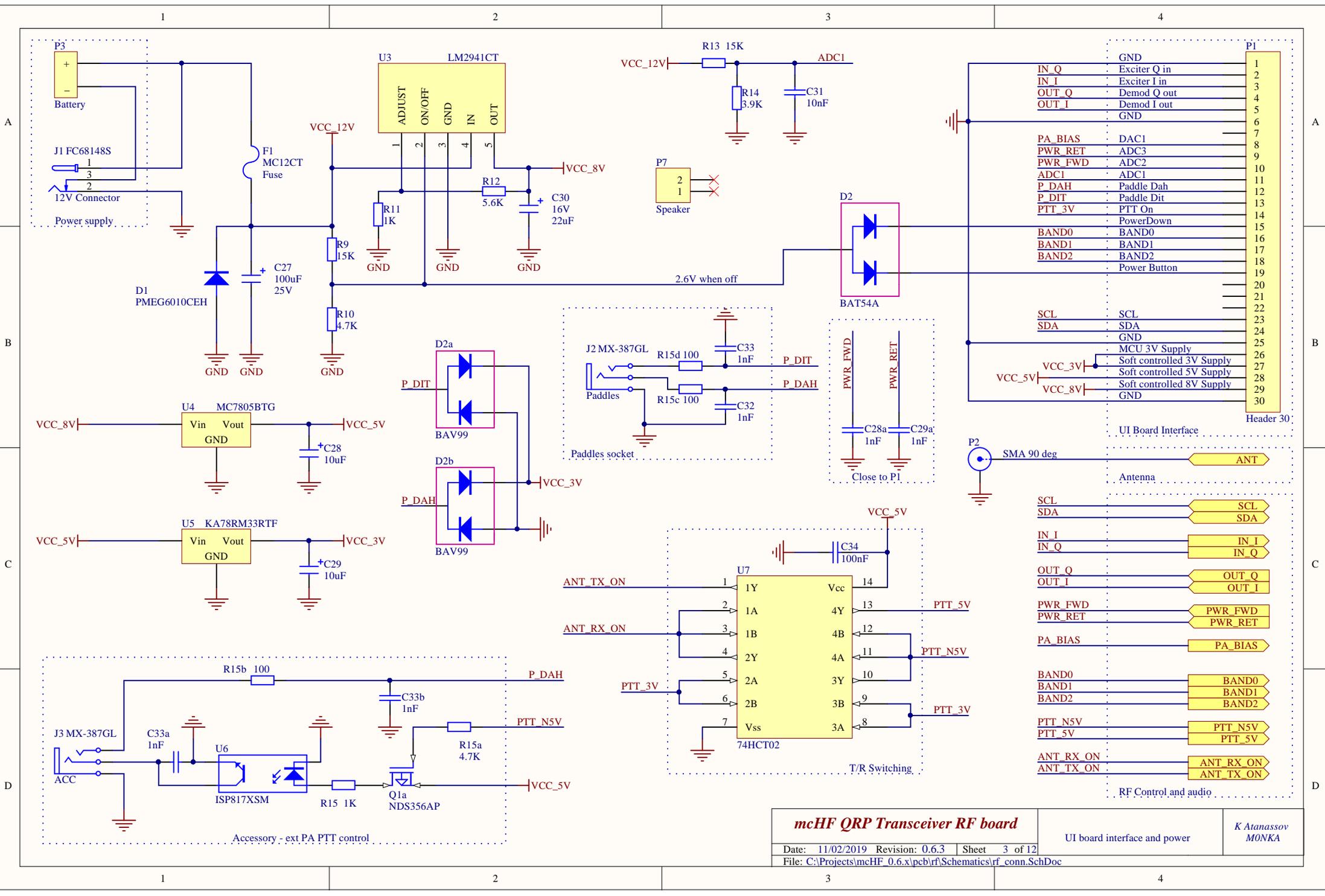


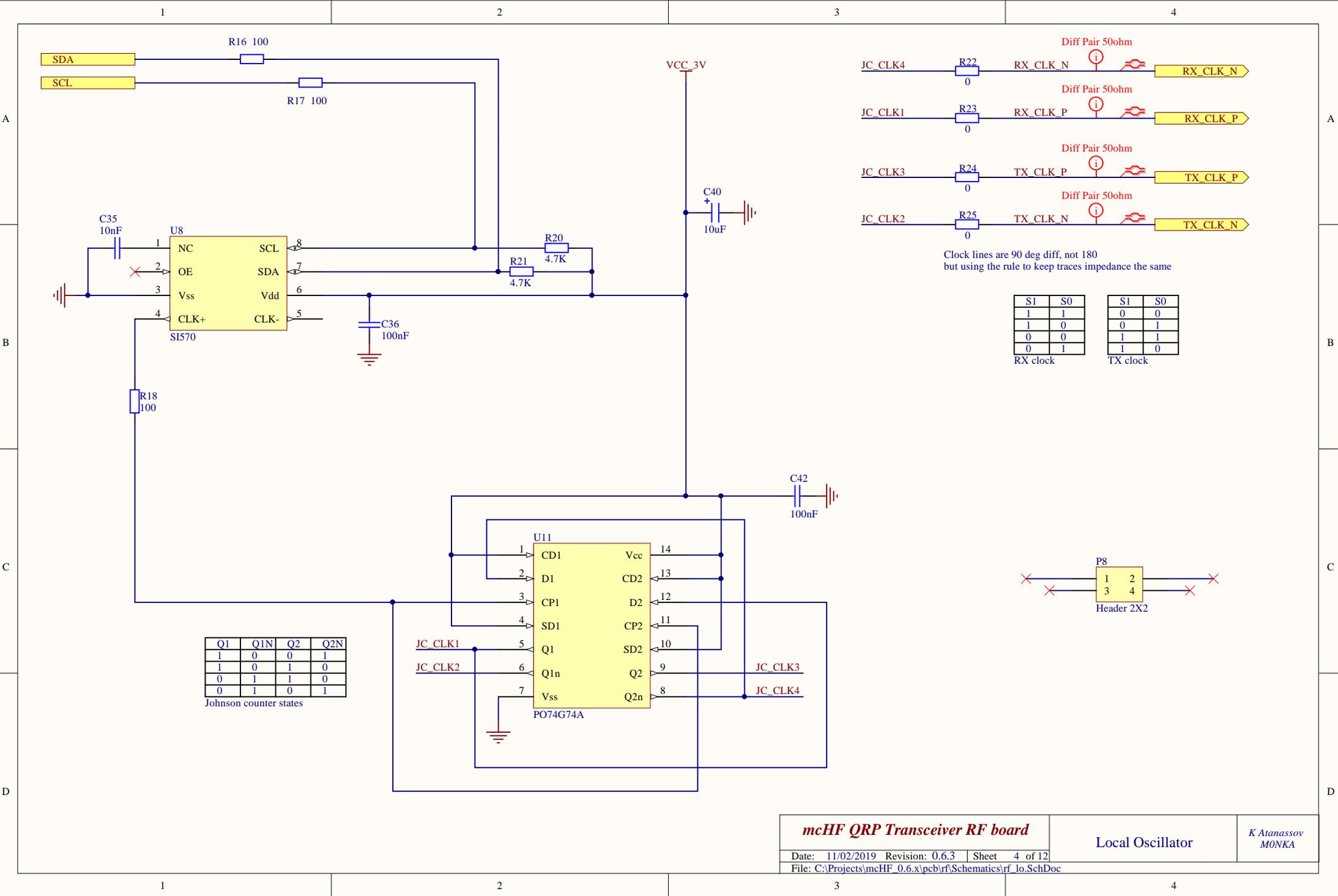
mcHF QRP Transceiver RF board

Date: 11/02/2019 Revision: 0.6.3 Sheet 2 of 12
 File: C:\Projects\mcHF_0.6.x\pcb\rf\Schematics\rf_bpf.SchDoc

Bandpass filters

*K Atanassov
MONKA*





Q1	Q1N	Q2	Q2N
1	0	0	1
1	0	1	0
0	1	1	0
0	1	0	1

Johnson counter states

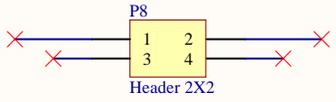
S1	S0
1	1
1	0
0	0
0	1

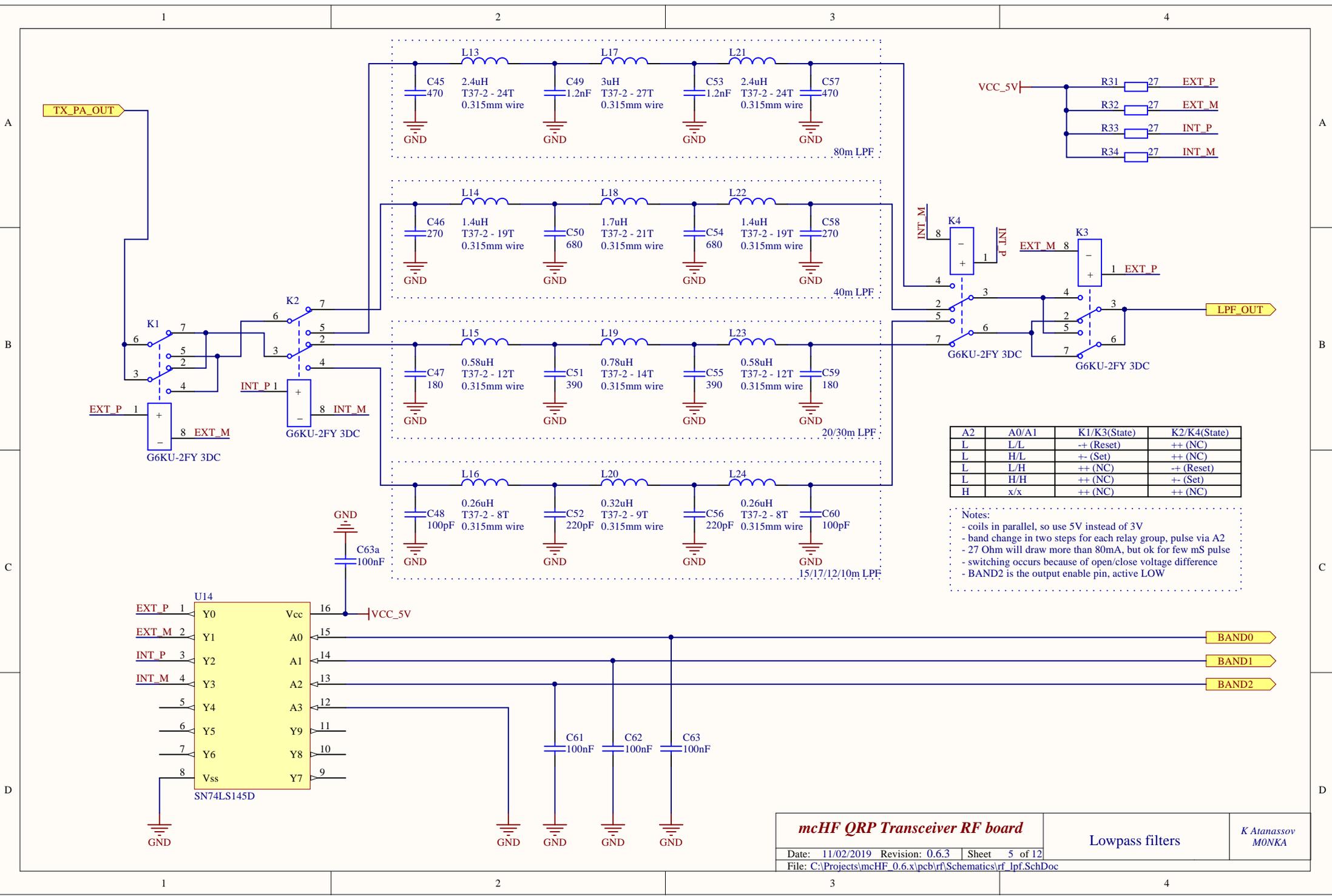
RX clock

S1	S0
0	0
0	1
1	1
1	0

TX clock

Clock lines are 90 deg diff, not 180
but using the rule to keep traces impedance the same

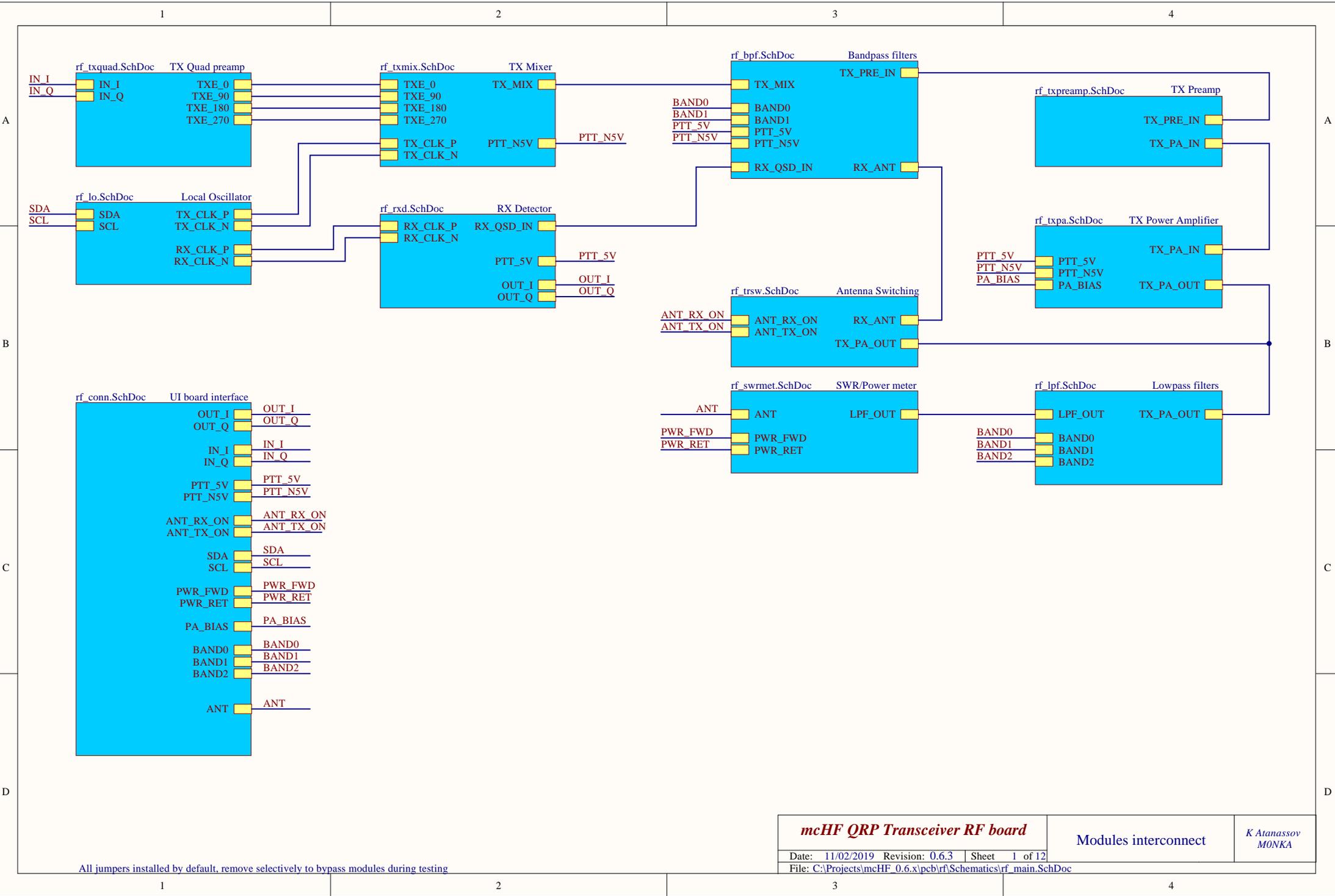




A2	A0/A1	K1/K3(State)	K2/K4(State)
L	L/L	+- (Reset)	++ (NC)
L	H/L	+- (Set)	++ (NC)
L	L/H	++ (NC)	+- (Reset)
L	H/H	++ (NC)	+- (Set)
H	x/x	++ (NC)	++ (NC)

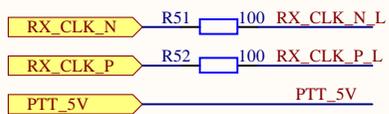
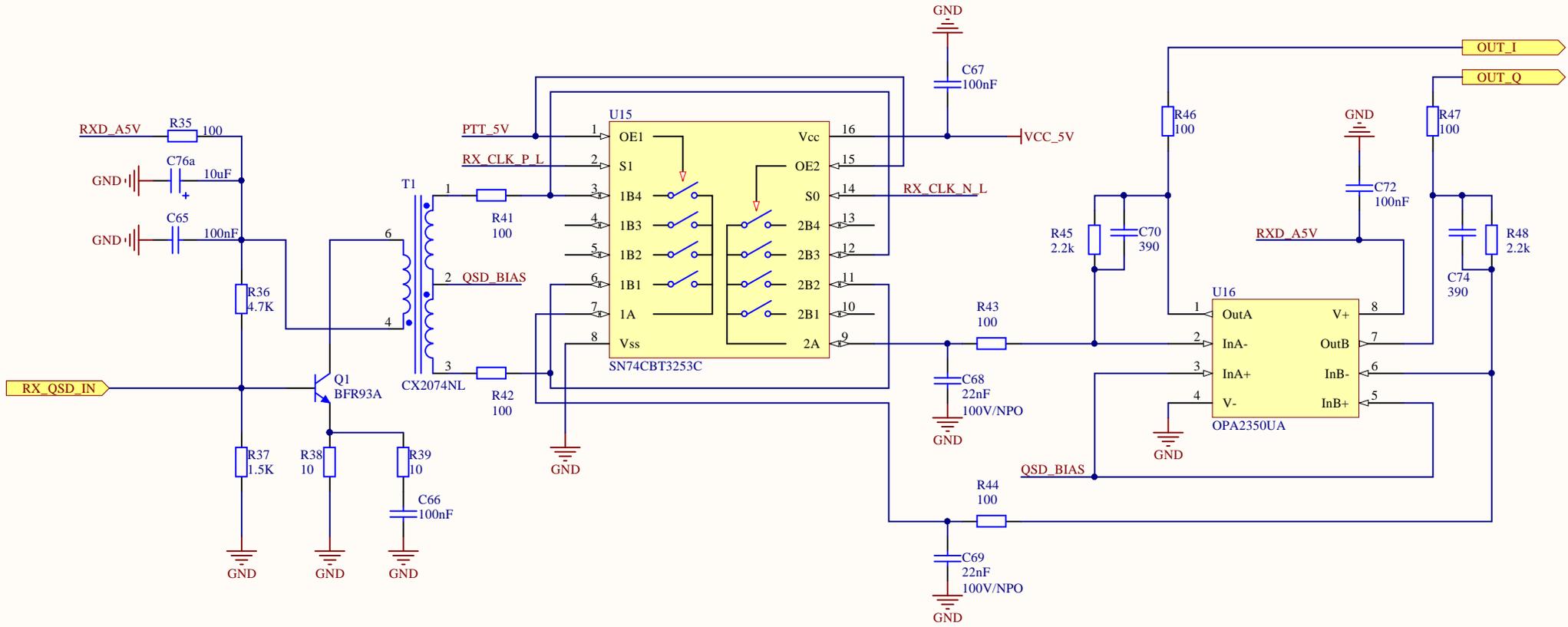
Notes:

- coils in parallel, so use 5V instead of 3V
- band change in two steps for each relay group, pulse via A2
- 27 Ohm will draw more than 80mA, but ok for few mS pulse
- switching occurs because of open/close voltage difference
- BAND2 is the output enable pin, active LOW



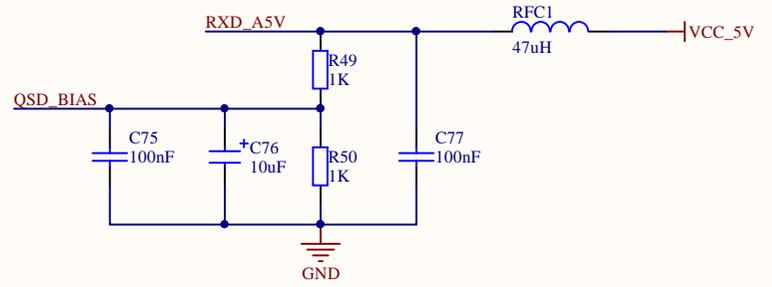
All jumpers installed by default, remove selectively to bypass modules during testing

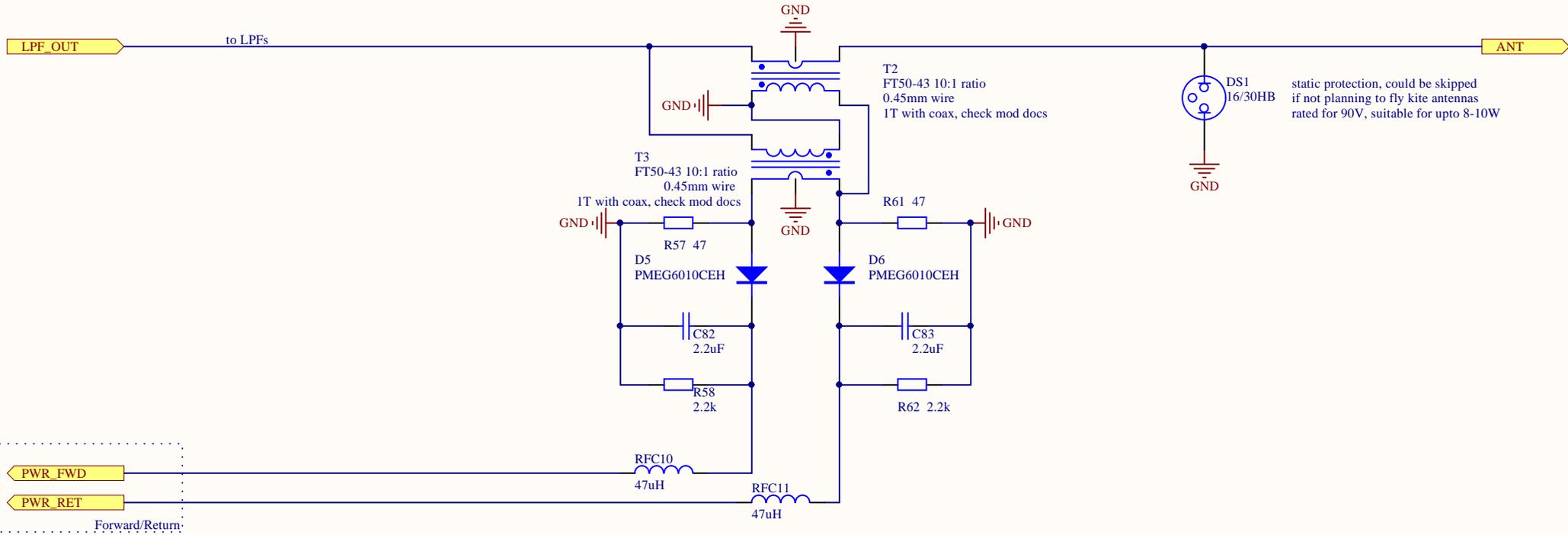
mcHF QRP Transceiver RF board			Modules interconnect	K Atanassov MONKA
Date:	11/02/2019	Revision:	0.6.3	Sheet 1 of 12
File: C:\Projects\mcHF_0.6.x\pcb\rf\Schematics\rf_main.SchDoc				

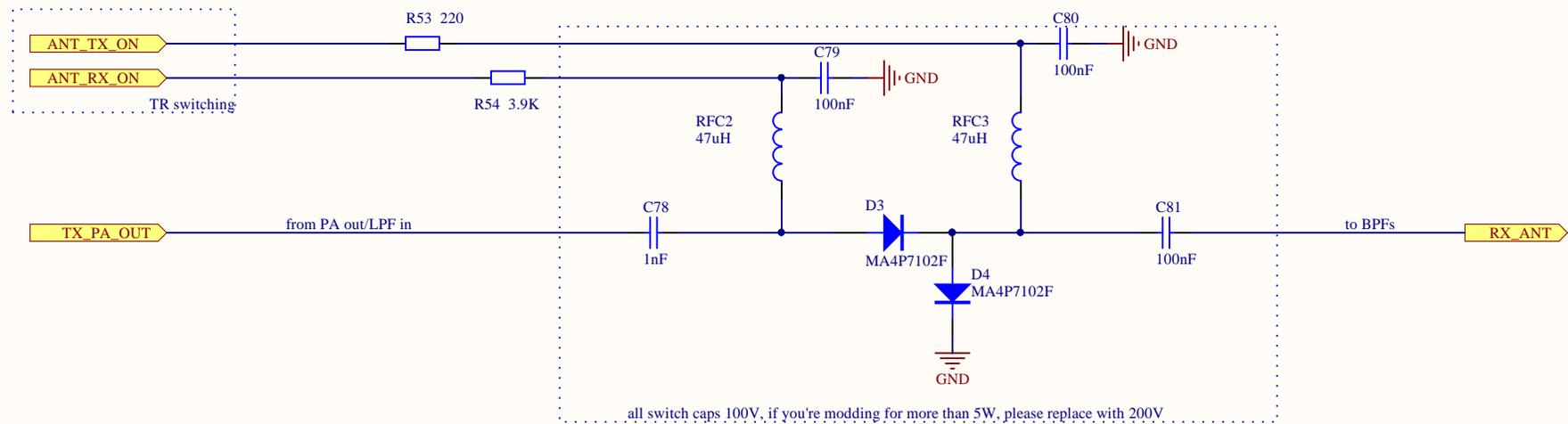


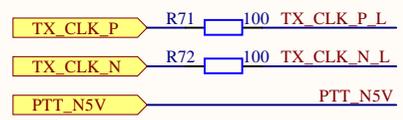
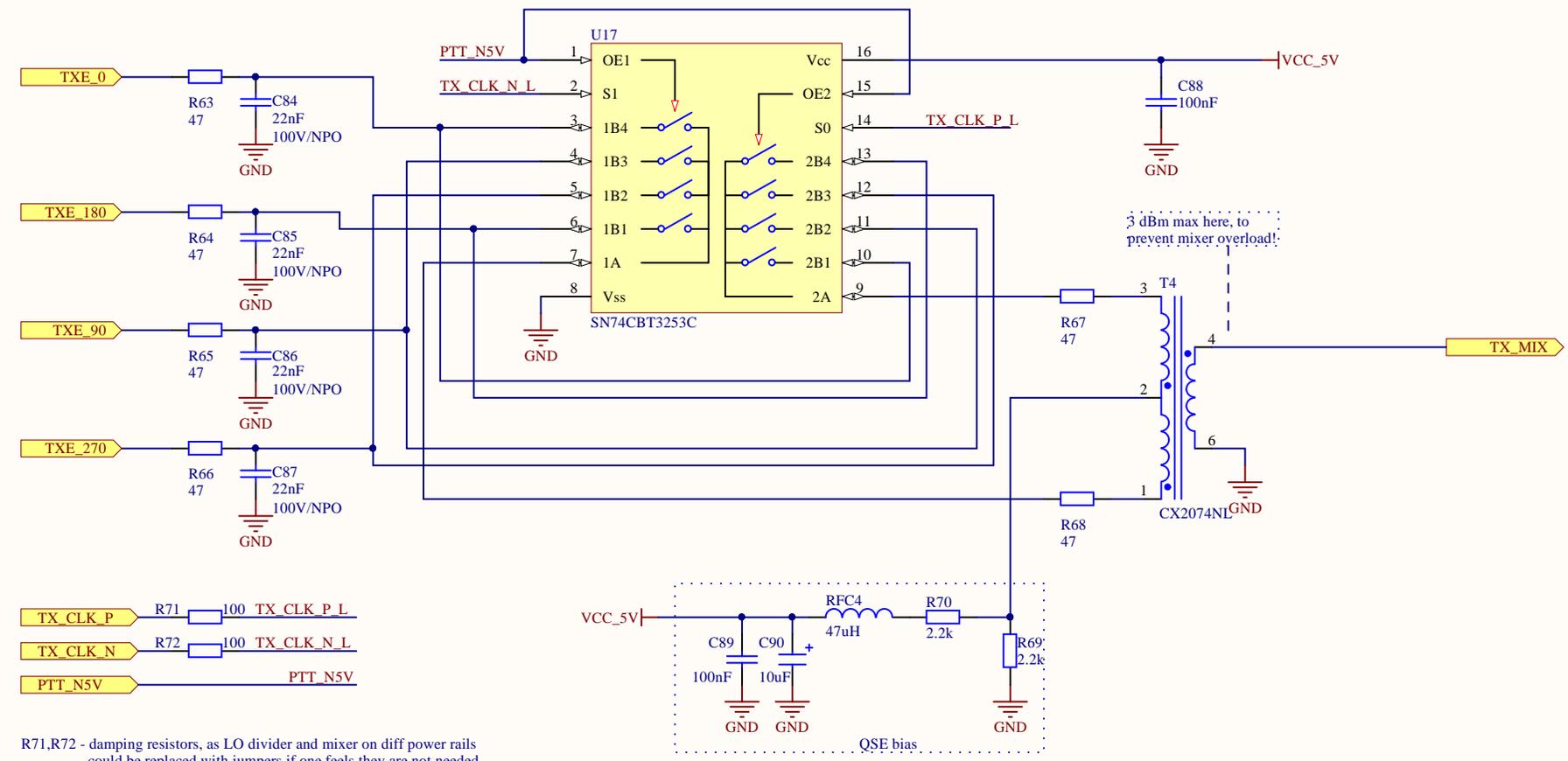
MODE	OE	S1	S0	Switches	Phases
RX	0	0	0	1B1	270
RX	0	0	1	2B2	0
RX	0	1	1	1B4	90
RX	0	1	0	2B3	180
TX	1	X	X	All Open	

R51,R52 - damping resistors, as LO divider and mixer on diff power rails could be replaced with jumpers if one feels they are not needed



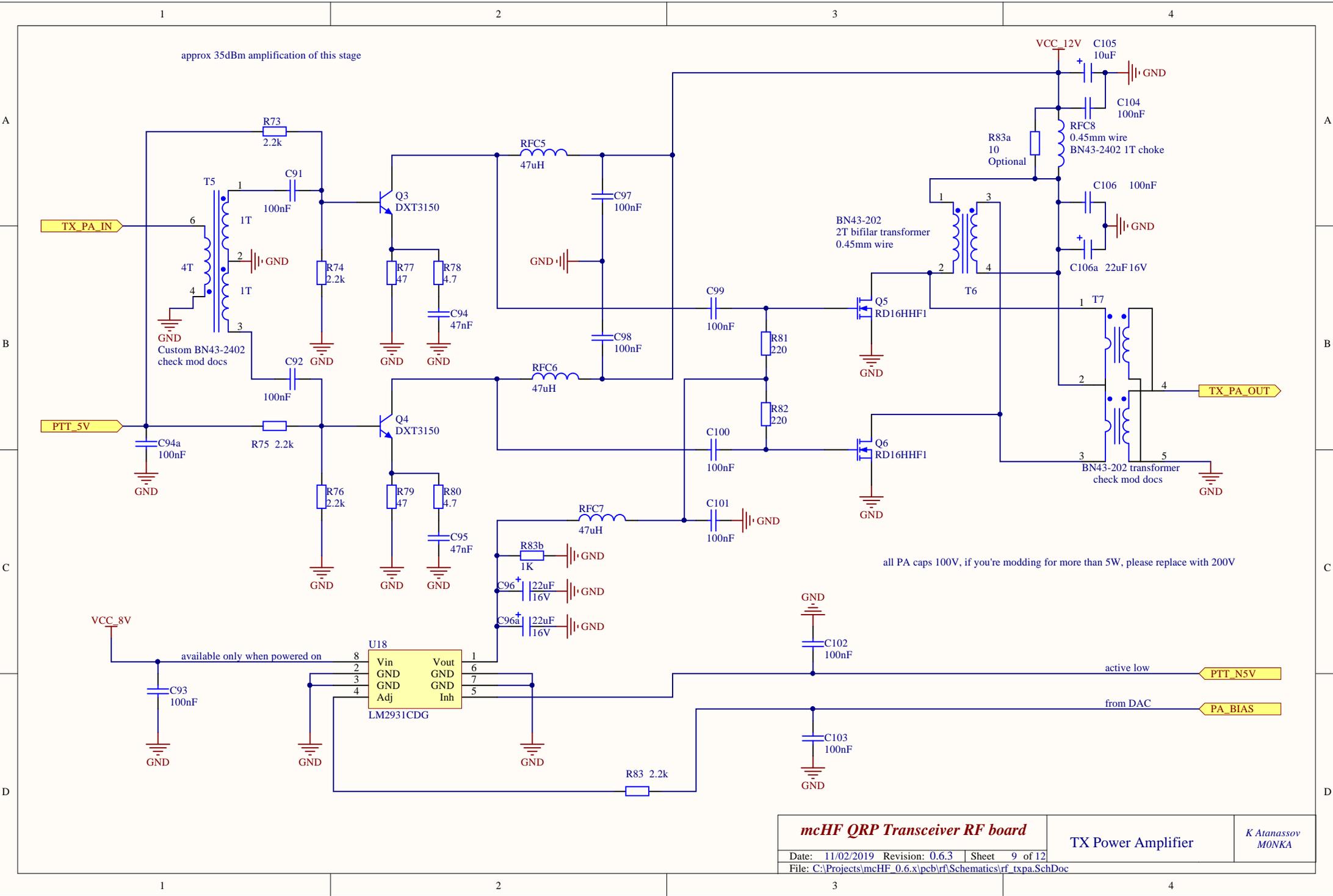






R71,R72 - damping resistors, as LO divider and mixer on diff power rails could be replaced with jumpers if one feels they are not needed

MODE	OE	S1	S0	Switches	Phases
TX	0	0	0	1B1/2B1	180/0
TX	0	0	1	2B2/1B2	90/270
TX	0	1	1	1B4/2B4	0/180
TX	0	1	0	2B3/1B3	270/90
RX	1	X	X	All Open	



1

2

3

4

A

A

B

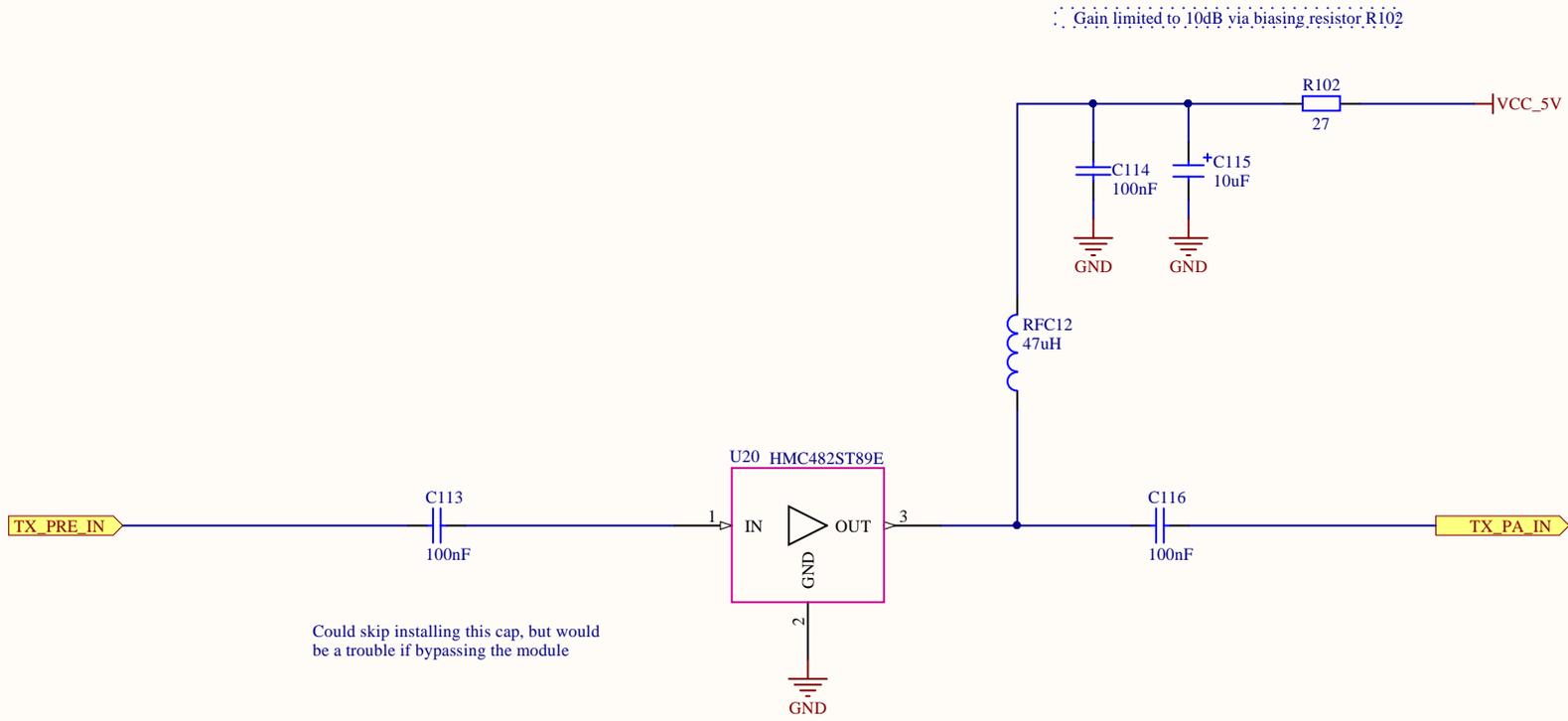
B

C

C

D

D



Could skip installing this cap, but would be a trouble if bypassing the module

Gain limited to 10dB via biasing resistor R102

1

2

3

4

