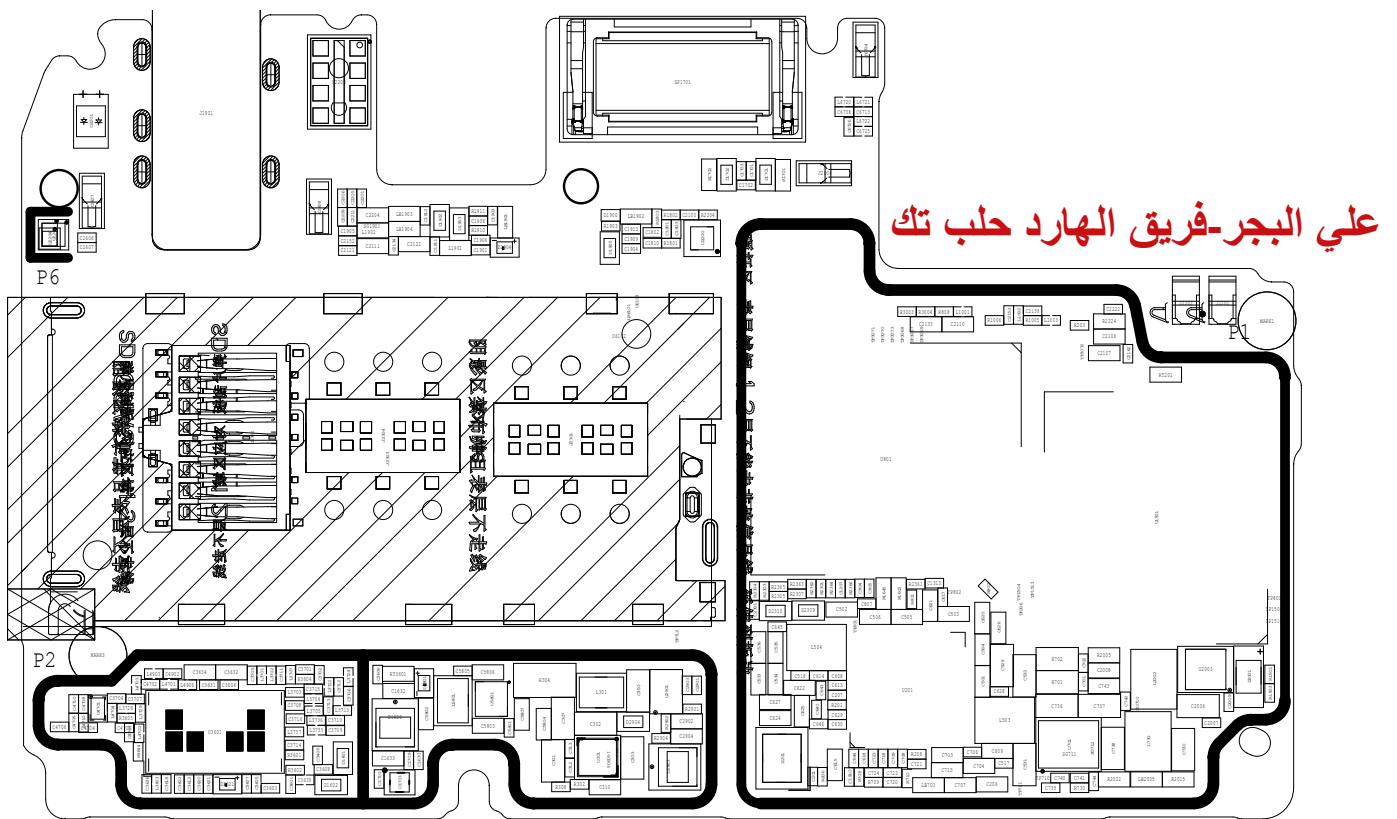
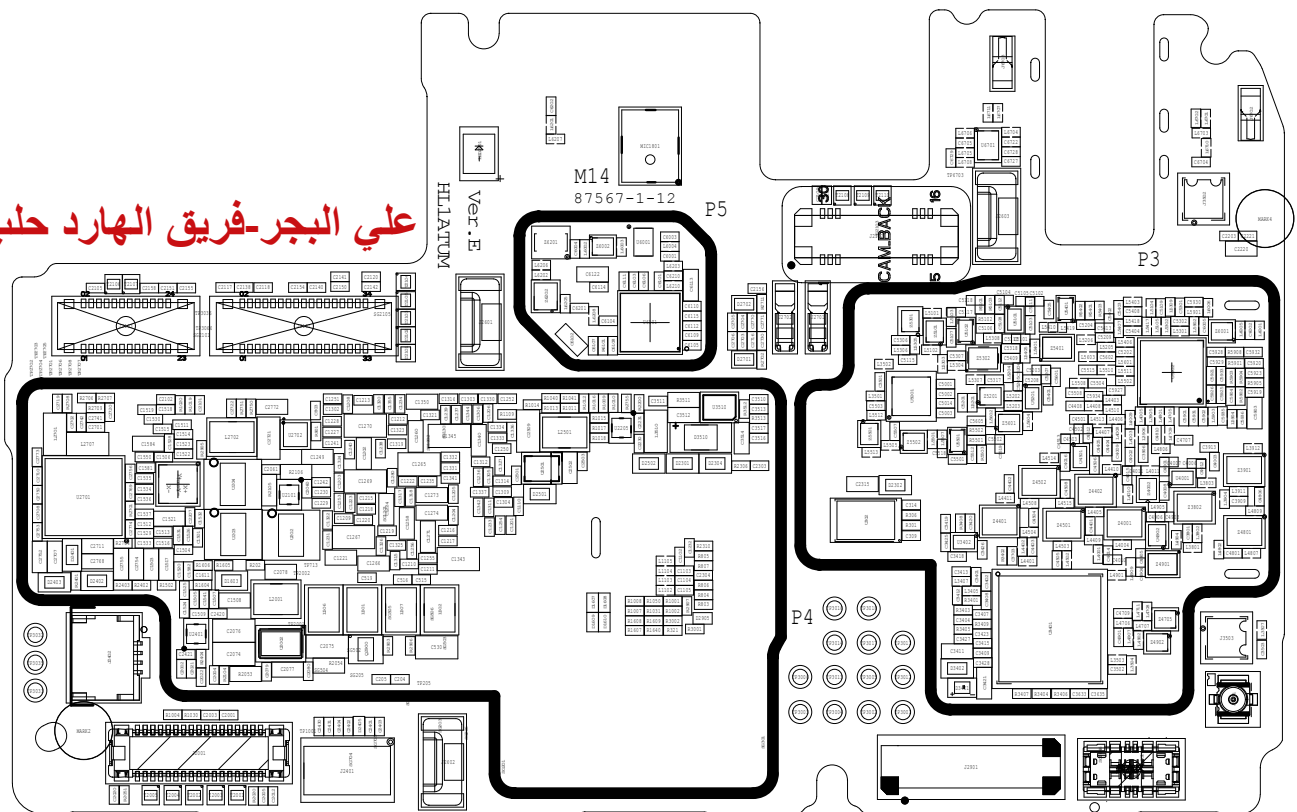


87567_1_12M14_Assembly_TOP



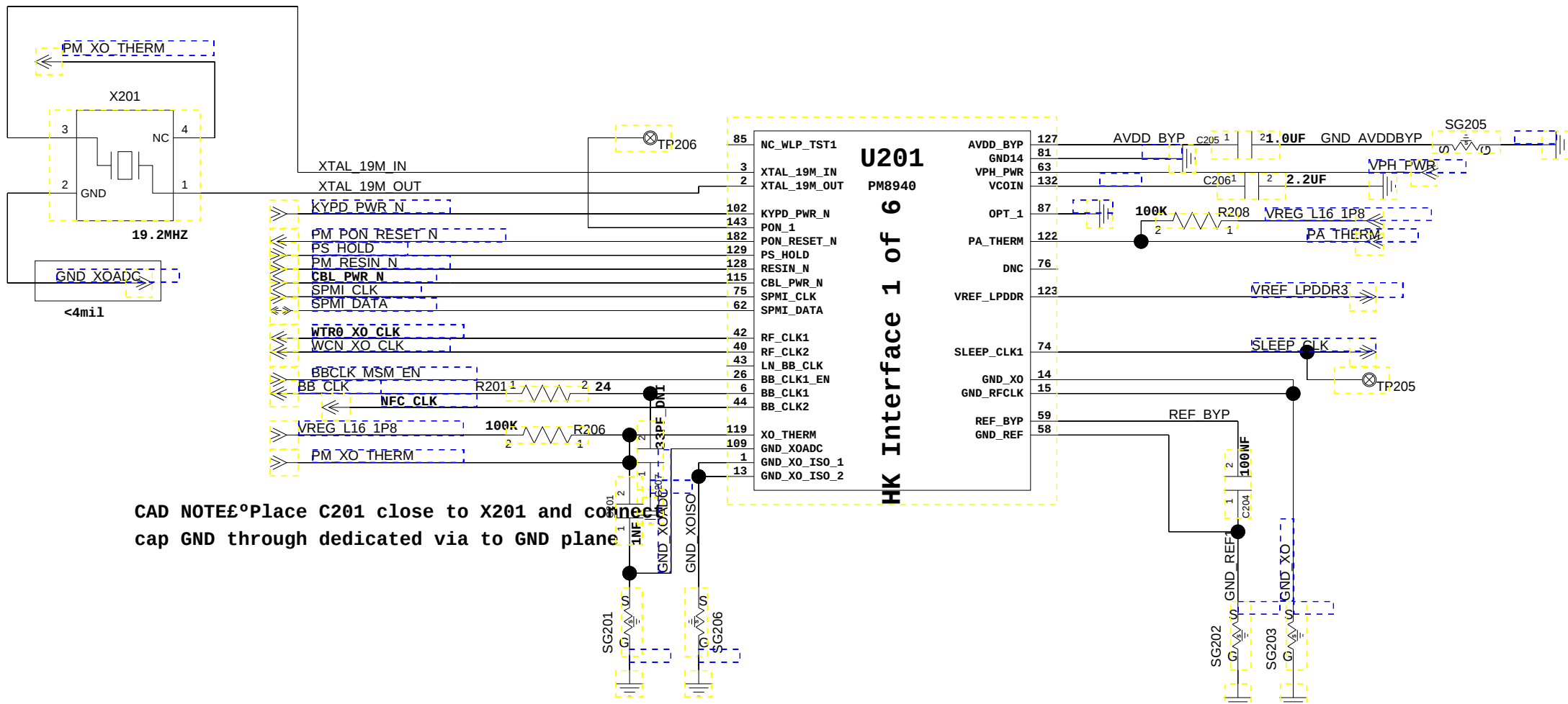
علي البحر-فريق الهارد حلب تك



AP SCHEMETIC

1. Contents	31.RF Interface	59.GPS
2. PM8940 Control	32.RESERVED	60.WIFI/BT BB
3. PMI8952 Charge	33.Main Antenna Switcher	61.WIFI/BT RF
4. PMI8952 Power	34.RESERVED	62.Reserved
5. PM8940 SMPS	35.RESERVED	63.NFC
6. PM8940 LDO	36.RESERVED	64.RESERVED
7. PM8940 CODEC	37.QFE2320(MMPA)	65.RESERVED
8. MSM8940 Control	38.Circuit of MMPA	66.ANT Match
9. MSM8940 EBI	39.TRX_B1	67.MAIN ANT Tuner
10. MSM8940 GPIO	40.TRX_B8	68.DRX ANT Tuner
11. MSM8940 MIPI	41.TRX_B5	69.Reserved
12. MSM8940 Power1	42.TRX_B3/GSM1900	
13. MSM8940 Power2	43.RESERVED	
14. MSM8940 GND	44.RESERVED	
15. eMMC and LPDDR3	45.DRX LNA B3/B26	
16. Battery/USB IF.	46.RESERVED	
17. Speaker	47.TRX_B41	
18. MIC	48.RESERVED	
19. Earphone	49.RESERVED	
20. LCD/CTP IF.	50.RESERVED	
21. Camera IF.	51.DRX LNA B41/B1	
22. Sensor	52.DRX_B1/B3/B26	
23. SIM/TF IF.	53.RESERVED	
24. Sidekey	54.DRX_B41	
25. Reserved (CTP IF.)	55.DRX_ANT_SWITCH	
26. Test Points	56.WTR4905	
27. NFC (PN548)	57.RESERVED	
28. Fingerprint Module IF.	58.ET_APT	
29. Shielding		
30. Sub PCB IF.		

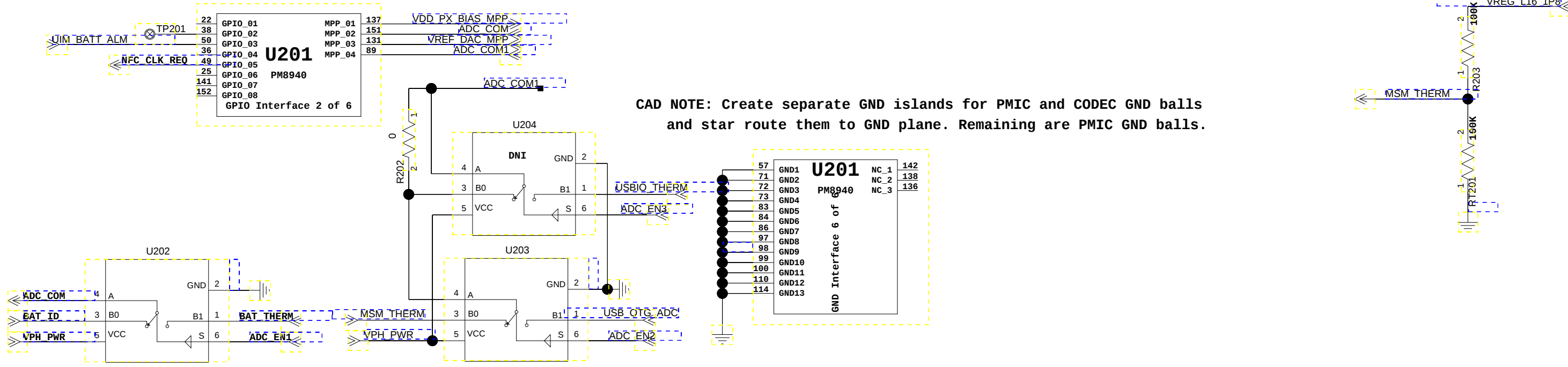
2. PM8940 Control



CAD NOTE: Place C201 close to X201 and connect cap GND through dedicated via to GND plane

Do not share GND_XO_ISO with other grounds

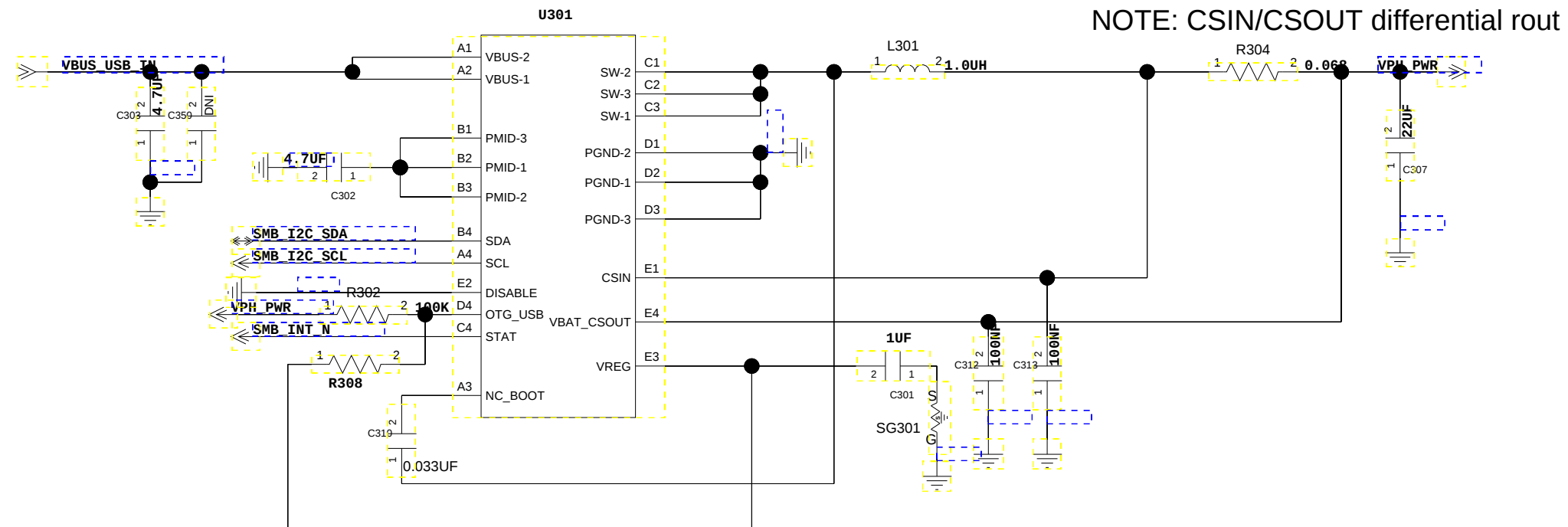
Place RT201 in a thermally quiet area.



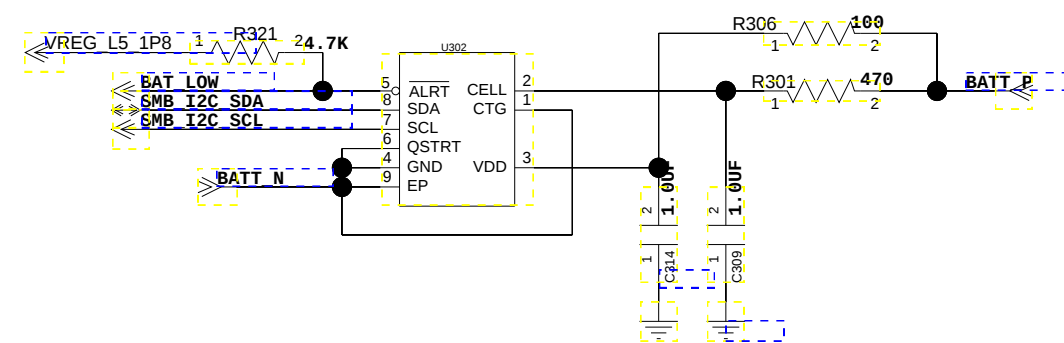
CAD NOTE: Create separate GND islands for PMIC and CODEC GND balls and star route them to GND plane. Remaining are PMIC GND balls.

3. Charge

Charger



GAUGE

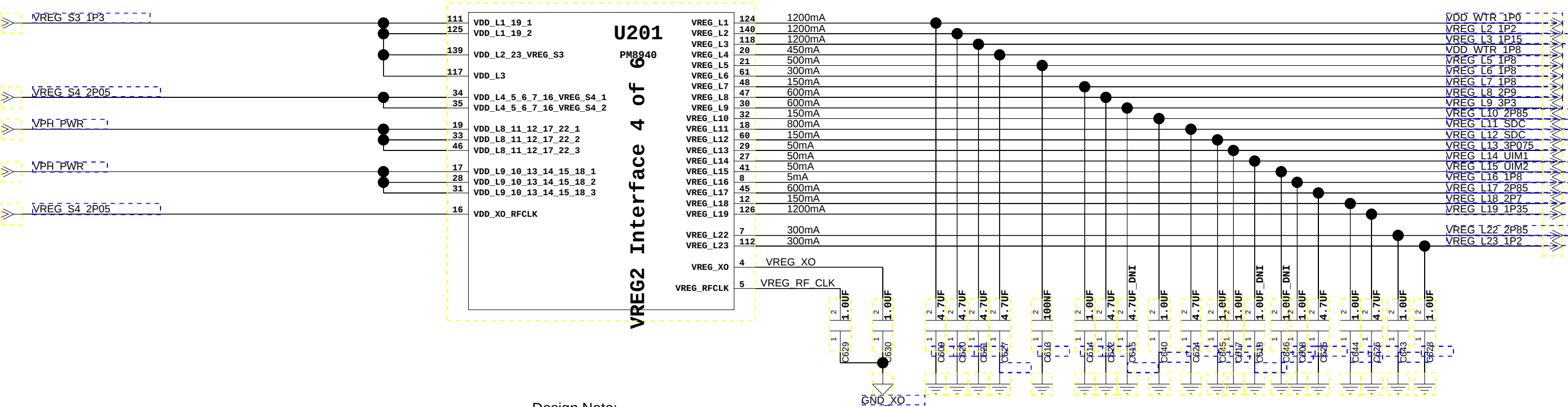


	1	2	3	4	5	6
A						
B						
C						
D						

4. PMI8952 Power



6. PM8940 LDO

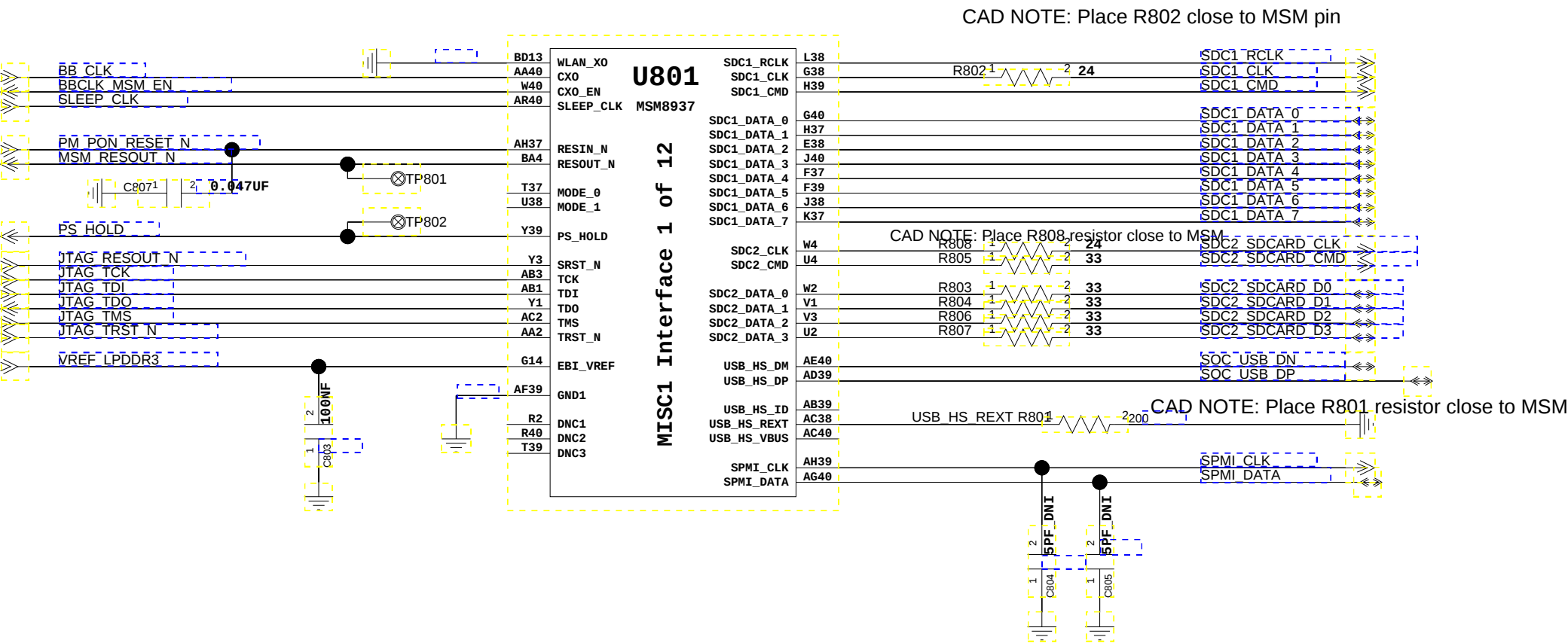


Design Note:

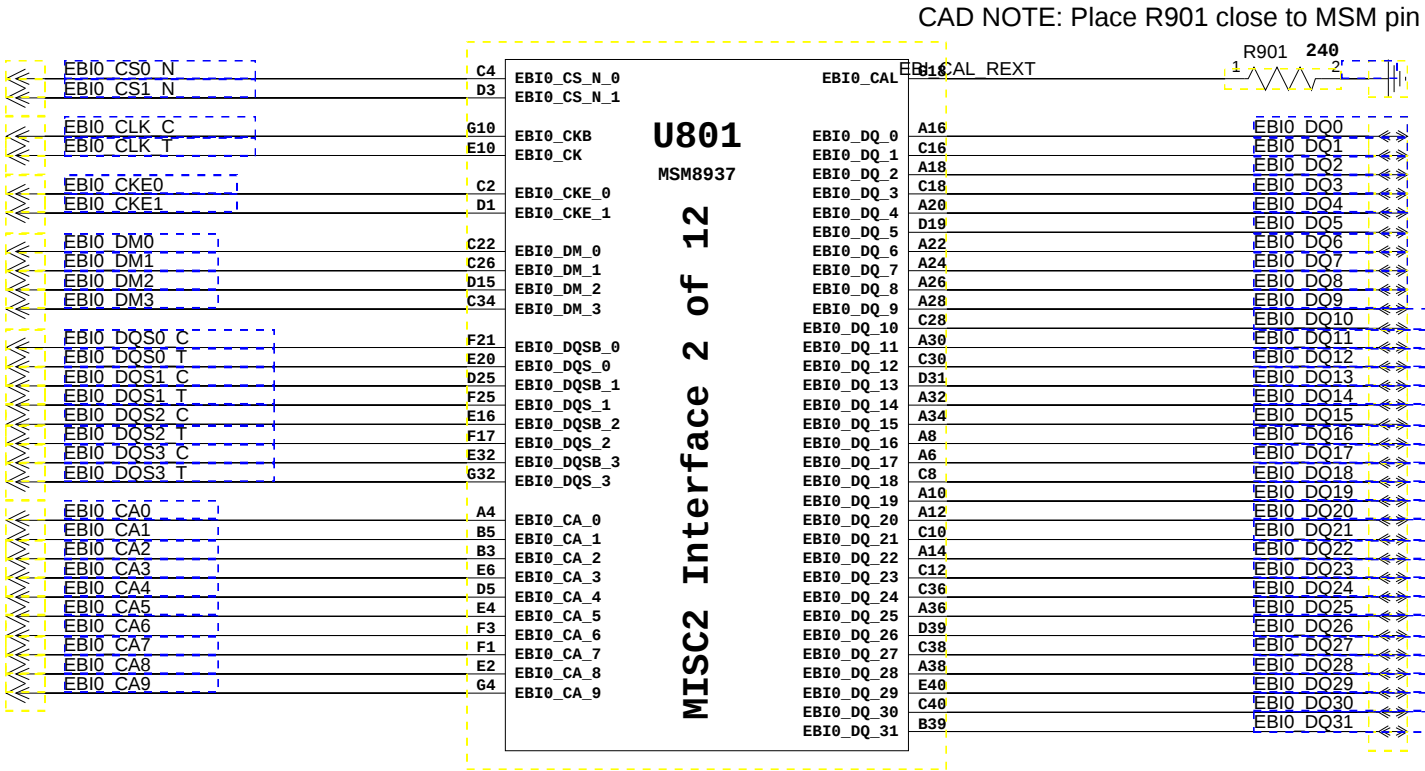
PSEUDO CAPLESS LDOs:
L4*, L6, L8*, L9*, L10, L11*, L12, L14, L15, L17*, L18, L22, L23
L4*, L8*, L9*, L11*, L17*, still need validation as Pseudo-capless
L5, L7, L13, L16 have internal PMIC Loads and require local CAPs.

7. PM8940 CODEC

8. MSM8917 Control



9. MSM8917 EBI

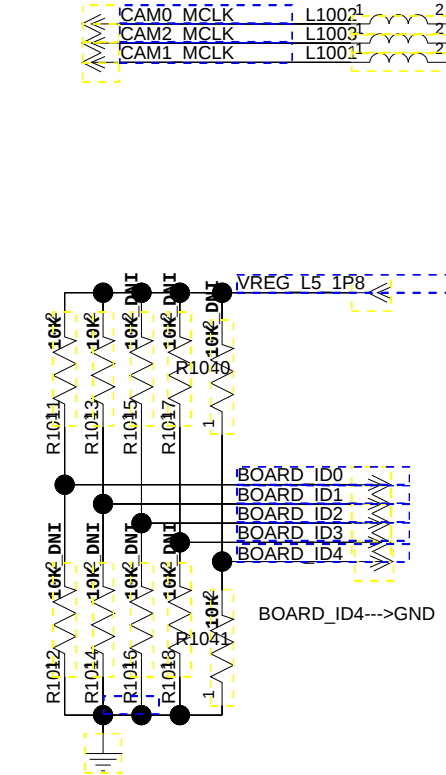


10. MSM8917 GPIO

**BOM Notes:

TRT_AL00/AL10/TL10: MSM8940-1 39200783
TRT_LX1/LX2/LX3: MSM8940-3 39200813

DESIGN NOTE
LCD TE0 is not used in this RAMLESS LCD,
only backup for other LCD



**BOM Notes

MainBoard ID	R1011	R1012	R1013	R1014	R1015	R1016	R1017	R1018
TRT-AL00 V3	SMT	DNI	DNI	SMT	DNI	DNI	DNI	DNI
TRT-TL10	SMT	DNI	DNI	SMT	DNI	DNI	SMT	DNI
TRT-LX1	SMT	DNI	DNI	SMT	SMT	DNI	DNI	SMT
TRT-LX2	SMT	DNI	DNI	SMT	SMT	DNI	DNI	DNI
TRT-LX3	SMT	DNI	DNI	SMT	SMT	DNI	SMT	DNI
TRT-L53	SMT	DNI	DNI	DNI	SMT	DNI	SMT	DNI
TRT-AL00 V4	SMT	DNI	DNI	DNI	DNI	DNI	DNI	DNI
TRT-AL00 VN1-MP	SMT	DNI	SMT	DNI	DNI	DNI	DNI	DNI
TRT-A1	SMT	DNI	SMT	DNI	DNI	DNI	SMT	DNI

TRT-AL00 and TRT-AL00A use the same board ID

U801
MSM8937
GPIO1 Interface 3 of 12

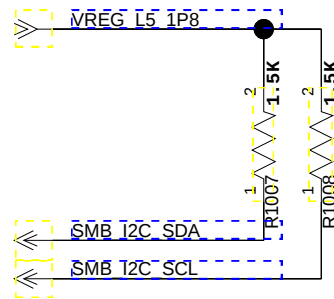
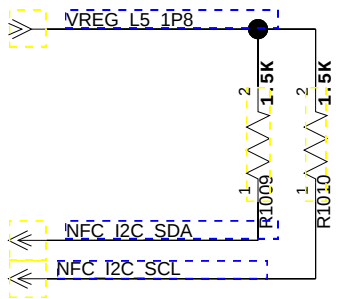
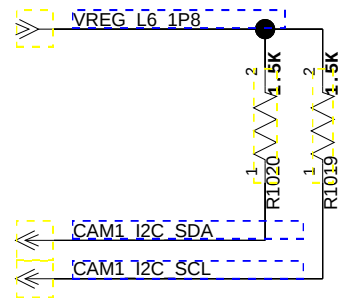
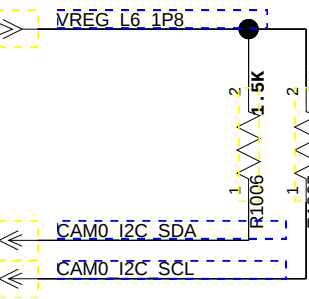
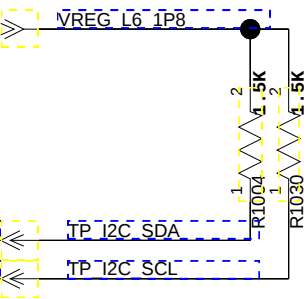
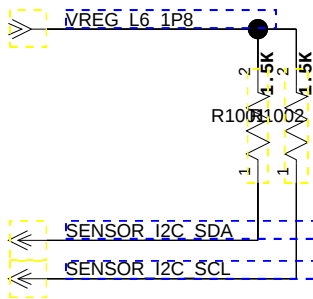
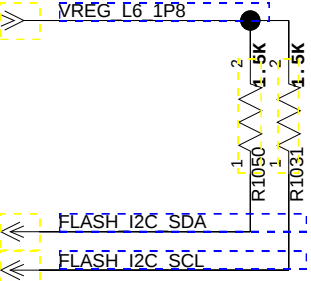
GPIO_0	P39	FORCE_USB_BOOT
GPIO_1	H7	MCAM2_RST_N
GPIO_2	J4	MCAM_ID2
GPIO_3	H3	SCAM_RST_N
GPIO_4	M37	SCAM_ID
GPIO_5	K39	ACCL_INT1_N
GPIO_6	M39	SAR_INT
GPIO_7	N38	SCAM_PWDN
GPIO_8	P37	BAT_LOW
GPIO_9	R36	OTG_DET
GPIO_10	AM39	DISCHG_EN
GPIO_11	L40	LCD_ID1
GPIO_12	AB35	UIM_BATT_ALM
GPIO_13	H5	ADC_EN3
GPIO_14	AE38	UIM1_DATA
GPIO_15	AD37	UIM1_CLK
GPIO_16	AF37	UIM1_RESET
GPIO_17	AG38	SD_SIM_DET
GPIO_18	AL40	UIM2_DATA
GPIO_19	AJ40	UIM2_CLK
GPIO_20	AK39	UIM2_RESET
GPIO_21	AJ38	SD_SIM_DET
GPIO_22	U40	LCD_ID0
GPIO_23	V39	LCD_RST_N
GPIO_24	V37	SMB_INT_N
GPIO_25	W38	VIB_EN
GPIO_26	N40	
GPIO_27	R38	TP_RST_N
GPIO_28	BE12	TP_INT_N
GPIO_29	BD11	
GPIO_30	BF13	SD_SIM_DET
GPIO_31	B612	FPG_RST
GPIO_32	B618	CDC_PDM_CLK
GPIO_33	BF19	CDC_PDM_SYNC
GPIO_34	B616	CDC_PDM_TX
GPIO_35	BF17	CDC_PDM_RX0
GPIO_36	BE18	CDC_PDM_RX1

TP1001
SD_BOOT2 When use, short to BOARD ID1P8

CDC_PDM_RX2	BE20	
WCSS_BT_SSBI	BD05	
WCSS_WLAN_DATA_2	BC4	
WCSS_WLAN_DATA_1	BE4	
WCSS_WLAN_DATA_0	BD3	
WCSS_WLAN_SET	BE4	
WCSS_WLAN_CLK	BE2	
WCSS_FM_SSBI	BF3	
WCSS_FM_SDI	BD1	
WCSS_BT_CTRL	BB3	
WCSS_BT_DAT_STB	BC2	
FPG_SPI_MOSI	BC22	
FPG_SPI_MISO	BC18	
FPG_SPI_CS	BB19	
FPG_SPI_CLK	BC20	
BOARD_ID0	BB17	
KEY_VOL_UP_N	BC16	
BOARD_ID4	Y5	
NFC_ESE_PWR_REQ	BE16	
M2S_2_SCK	BD17	
M2S_2_WS	BD19	
BOARD_ID2	BD21	
BOARD_ID3	BE20	
ALS_PS_EN	BE22	
RFFE1_CLK	BC40	
RFFE1_DATA	BD39	
GRFC_14	AW40	
GRFC_1	AV39	
GRFC_2	AR38	
GRFC_3	BB39	
GRFC_4	AU38	
GRFC_5	BE40	
	BF39	
	AT37	

U801
MSM8937
GPIO2 Interface 4 of 12

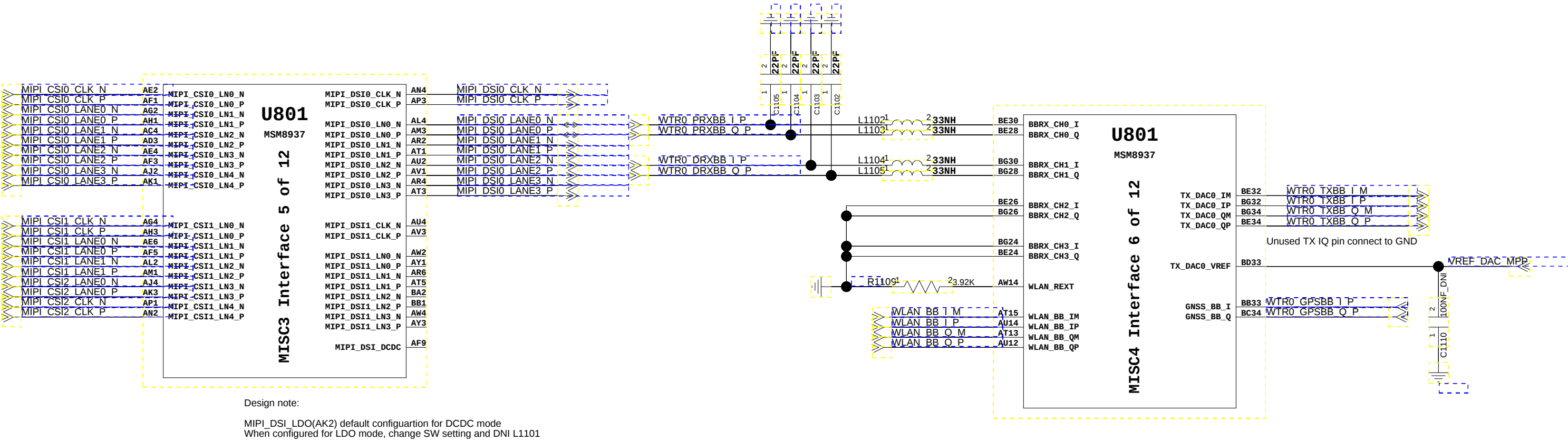
GPIO_74	BC38	GRFC_6
GPIO_75	BE38	GRFC_7
GPIO_76	AV37	GRFC_8
GPIO_77	AW38	GRFC_9
GPIO_78	AY37	GRFC_10
GPIO_79	BA38	GRFC_11
GPIO_80	BG38	GRFC_12
GPIO_81	BC36	GRFC_13
GPIO_82	BB37	EXT_GPS_LNA_EN
GPIO_83	AW36	GSM_TX_PHASE
GPIO_84	BD37	RFFE5_CLK
GPIO_85	BE36	RFFE5_DATA
GPIO_86	BF37	
GPIO_87	BG36	
GPIO_88	AP37	LCD_BIAS_P_EN
GPIO_89	BC10	
GPIO_90	BC12	USB_INT
GPIO_91	AY39	LCD_BIAS_N_EN
GPIO_92	BE10	
GPIO_93	BC8	ADC_EN2
GPIO_94	BD9	NFC_WAKE_DLOAD
GPIO_95	M35	MCAM_ID1
GPIO_96	P35	ADC_EN1
GPIO_97	N36	FPG_ID
GPIO_98		
GPIO_99		
GPIO_100		
GPIO_101		
GPIO_102		
GPIO_103		
GPIO_104		
GPIO_105		
GPIO_106		
GPIO_107		
GPIO_108		
GPIO_109		



BOOT_CFG [3:1]	
0b000	SDC1->SDC2->USB2.0
0b010	SDC1
0b100	SDC2->SDC1

GPIO PIN	BOOT CONFIG
GPIO_3	BOOT_CONFIG[0]/WDOG_DISABLE
GPIO_111	BOOT_CONFIG[1]
GPIO_112	BOOT_CONFIG[2]
GPIO_88	BOOT_CONFIG[3]

11. MSM8917 MIPI



A



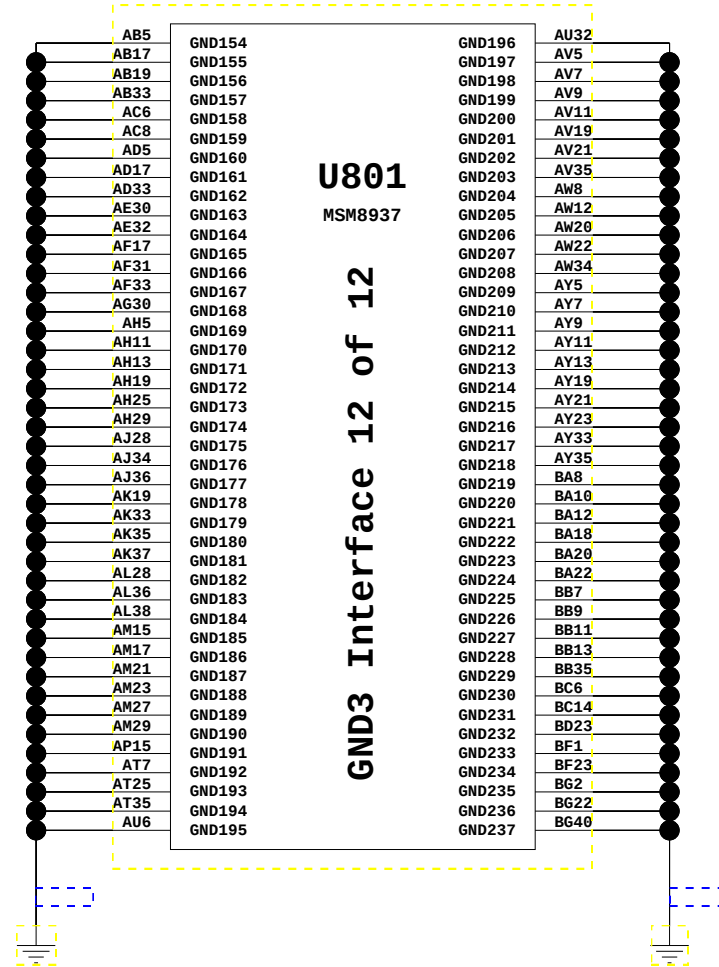
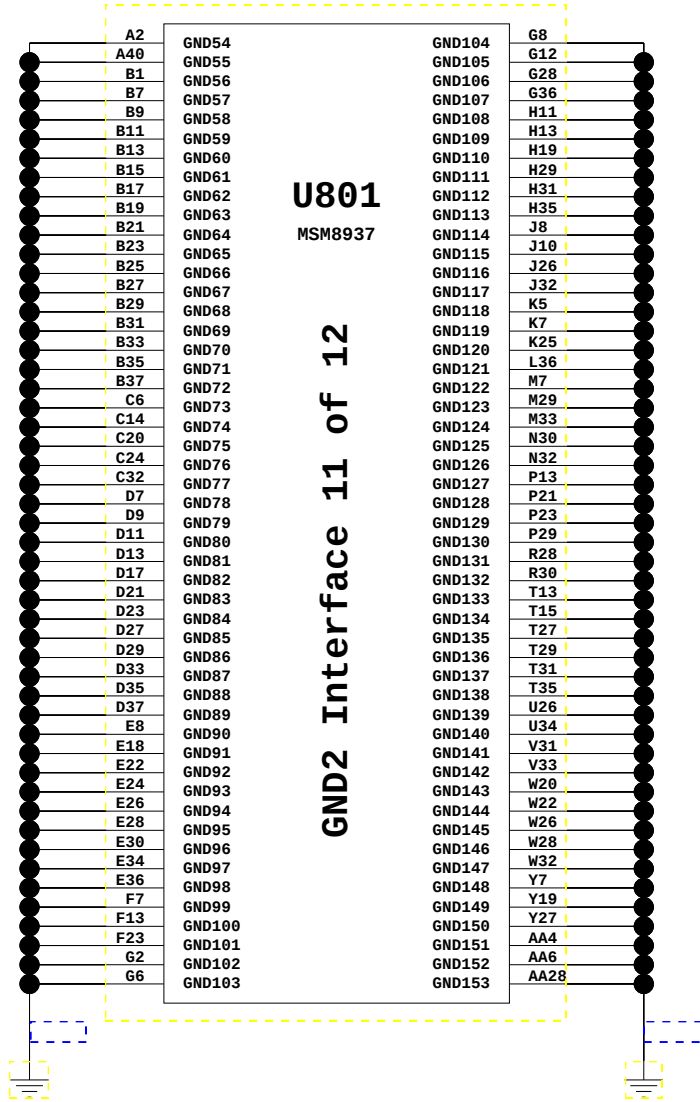
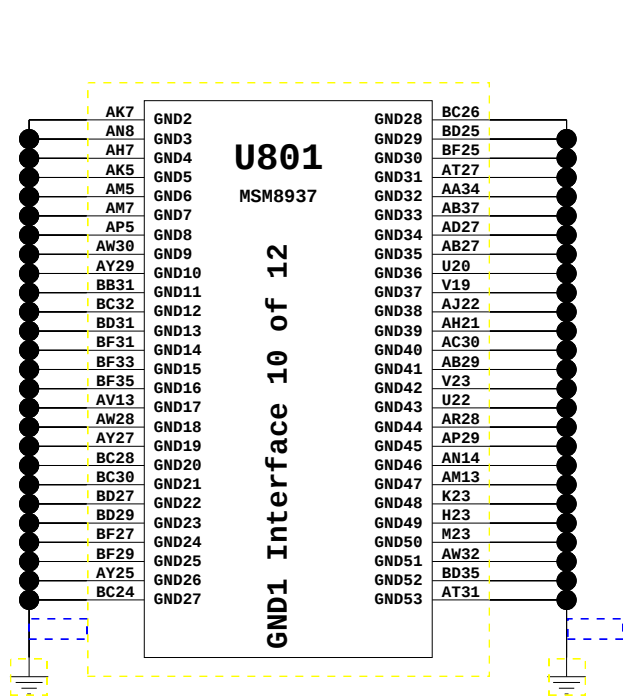
D

A



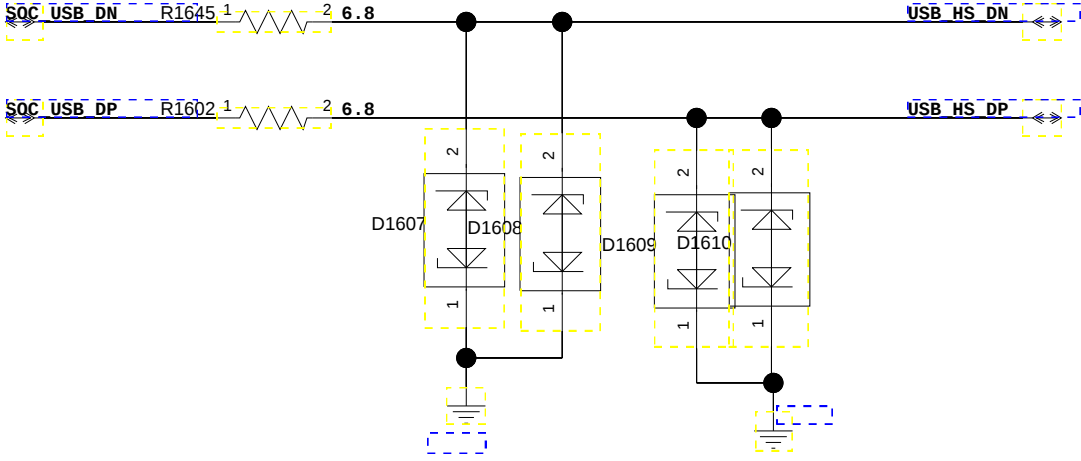
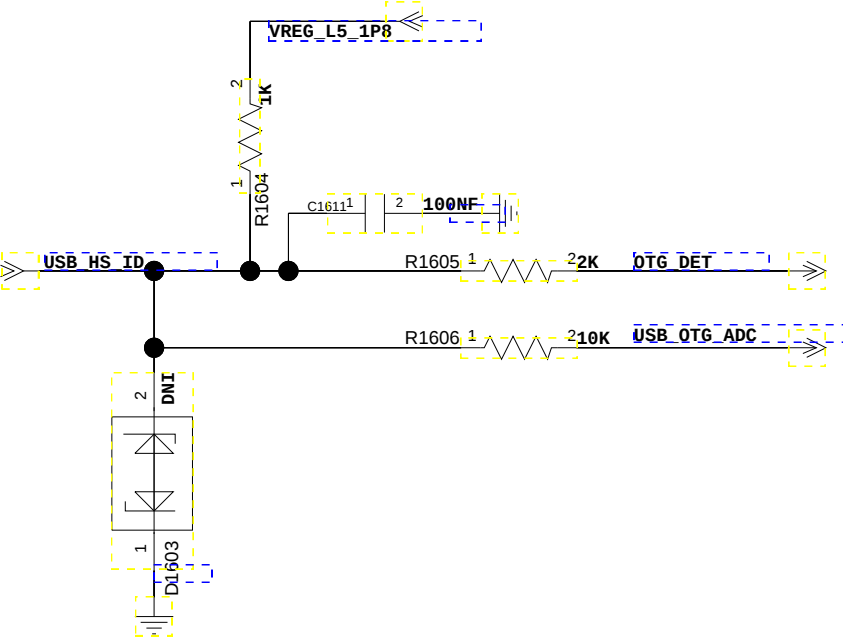
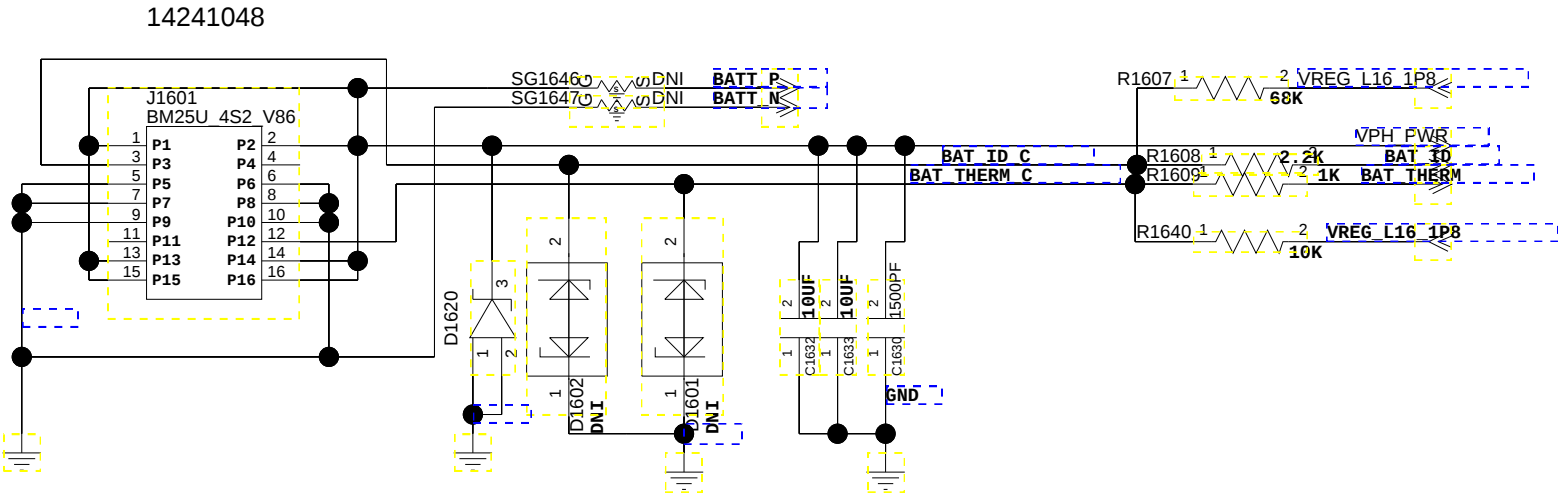
C

14. MSM8917 GND



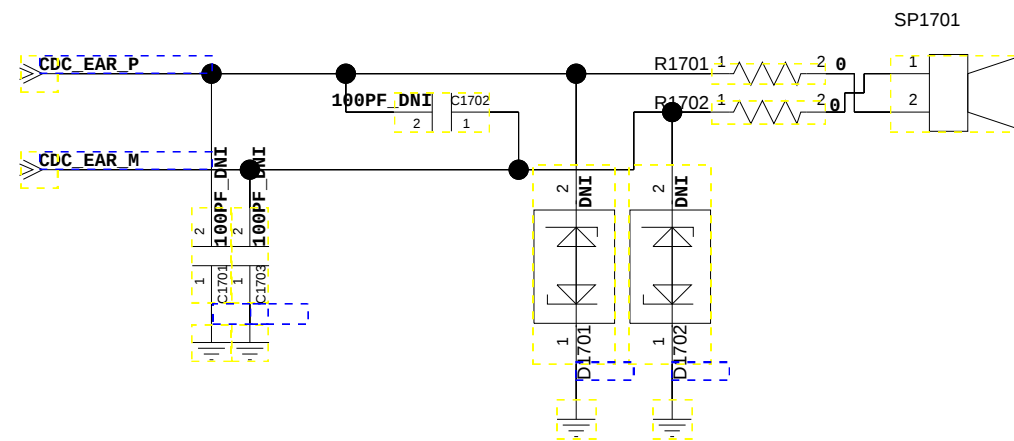
16. Battery/USB IF.

Battery Conector

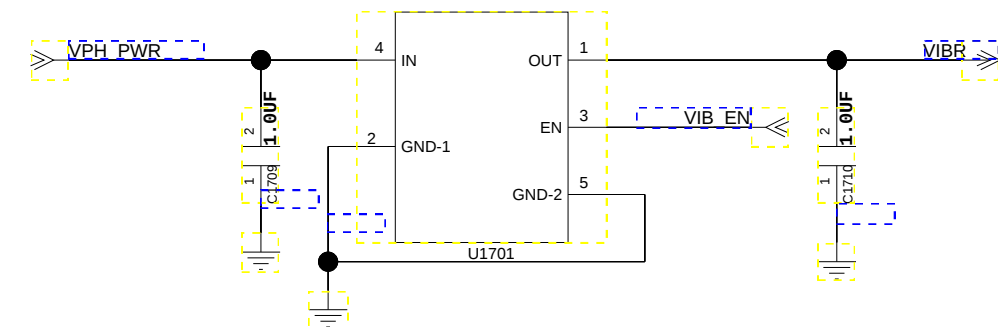


17. Receiver/SPK/Vibrator

Receiver

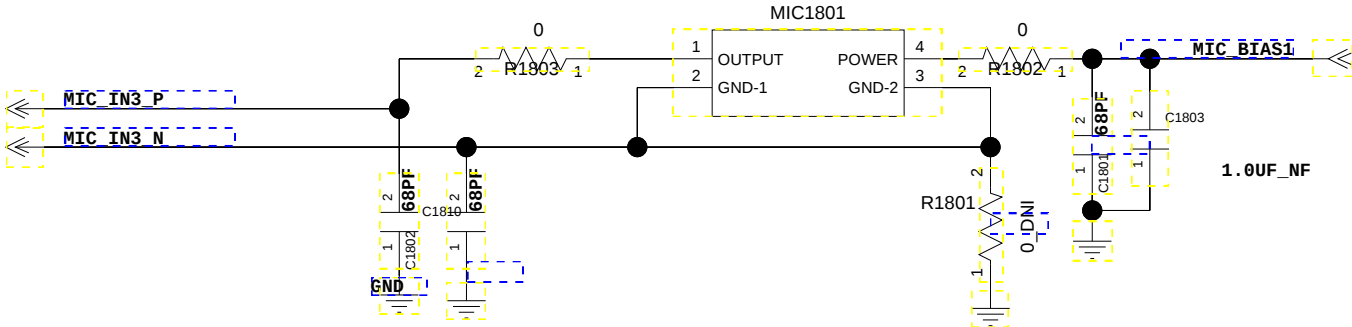


Vibrator



18. MIC

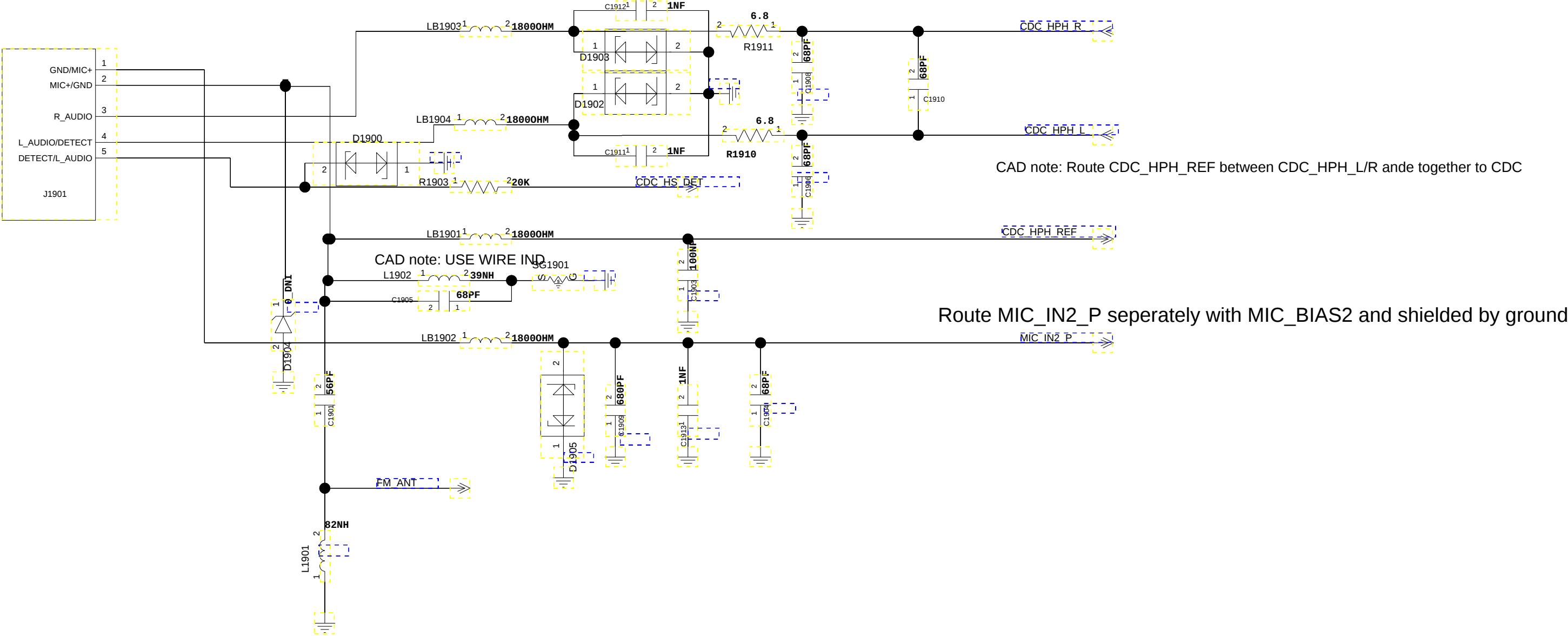
Secondary Mic



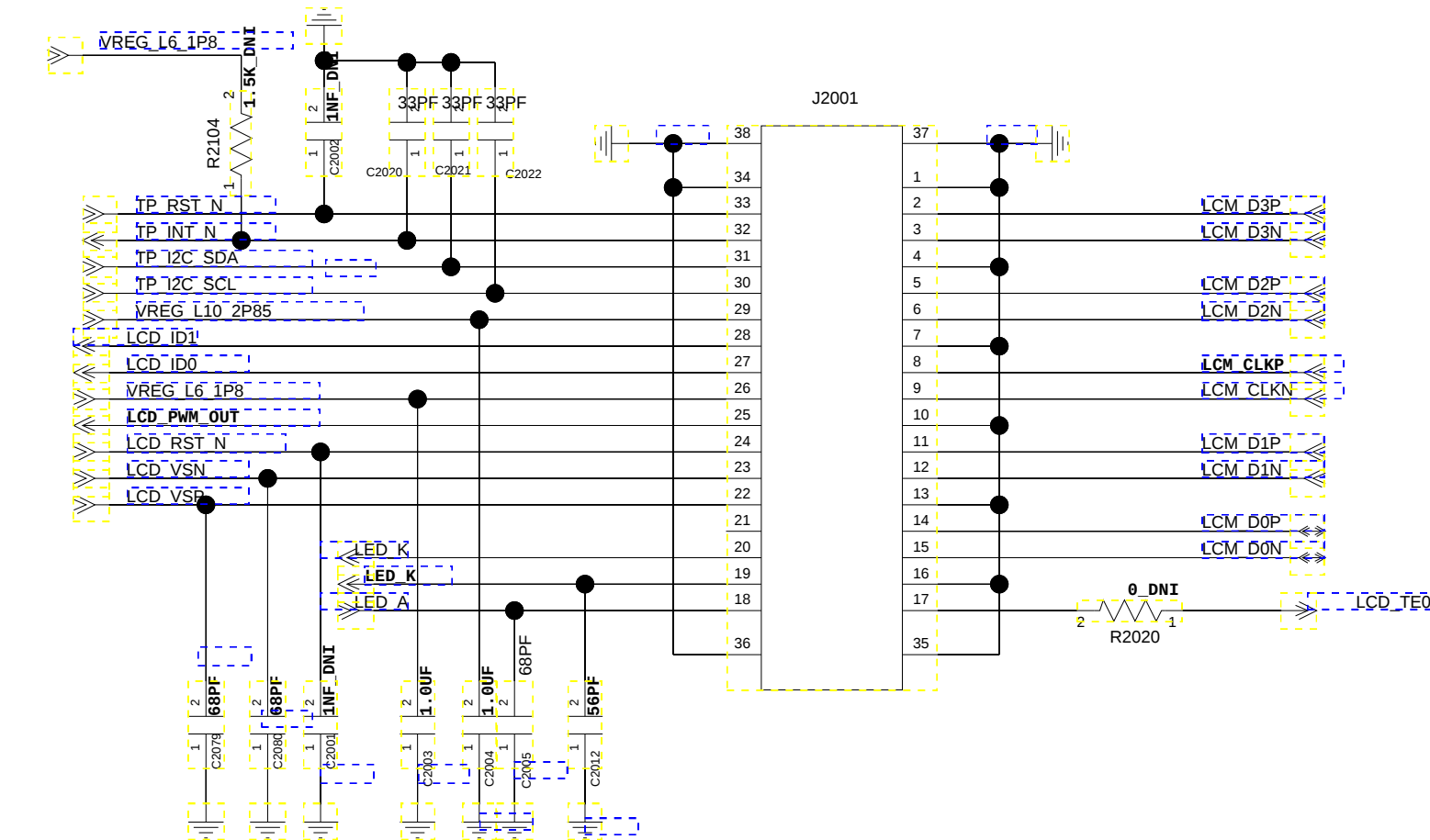
CAD NOTE:
route with differential pair to the CODEC

19. Earphone

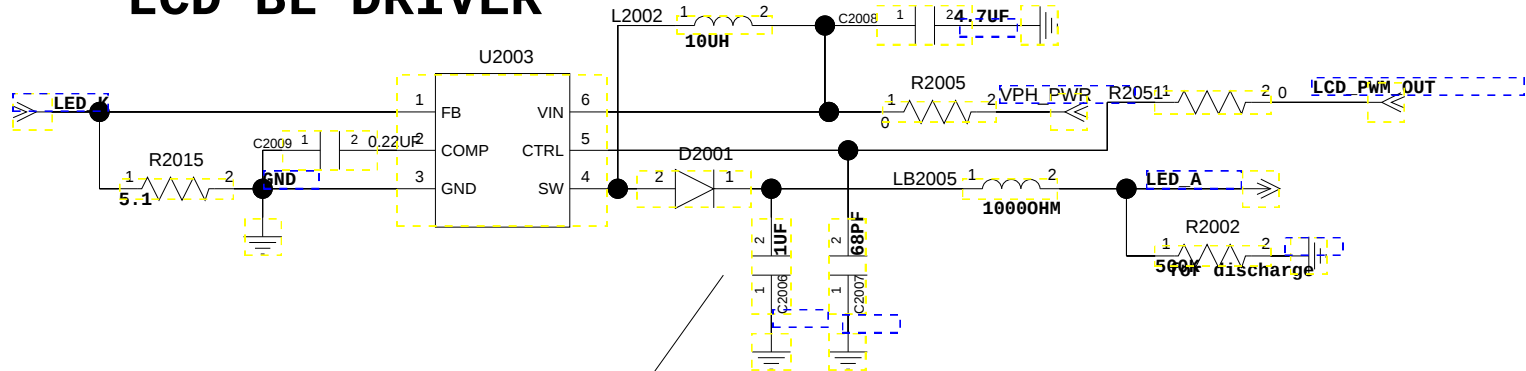
Earphone



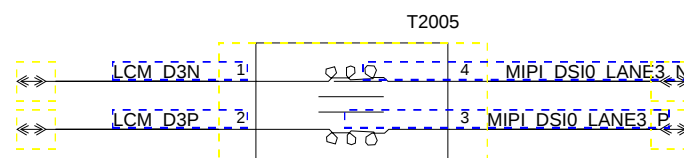
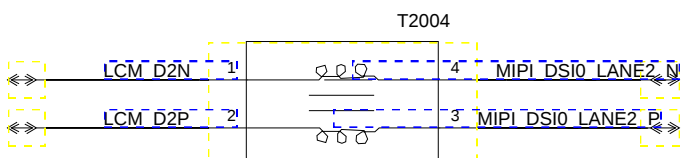
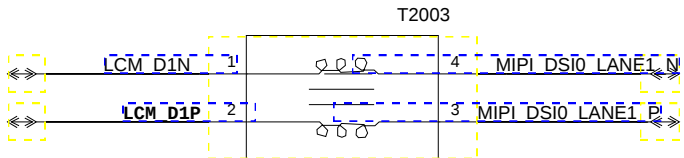
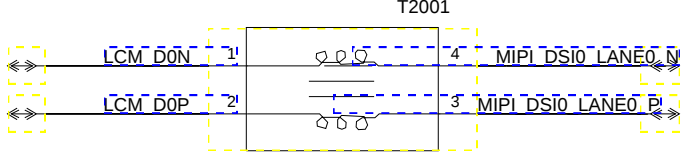
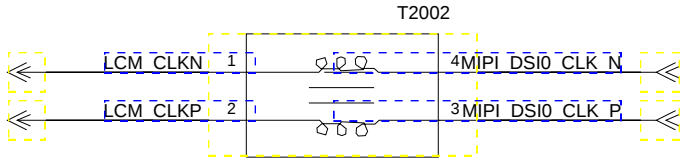
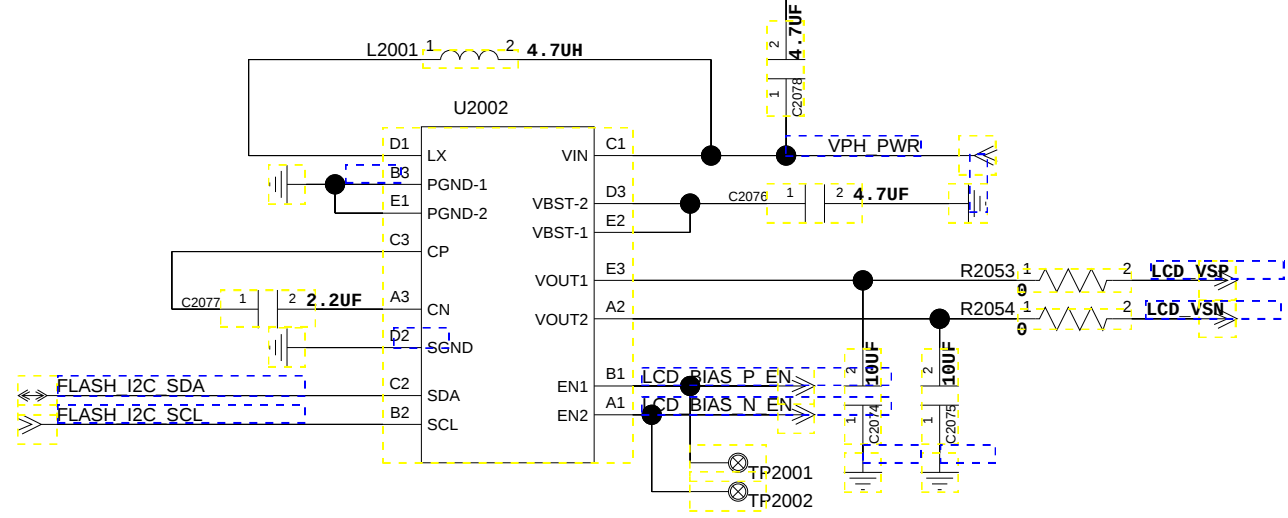
20. LCD/CTP IF.



LCD BL DRIVER

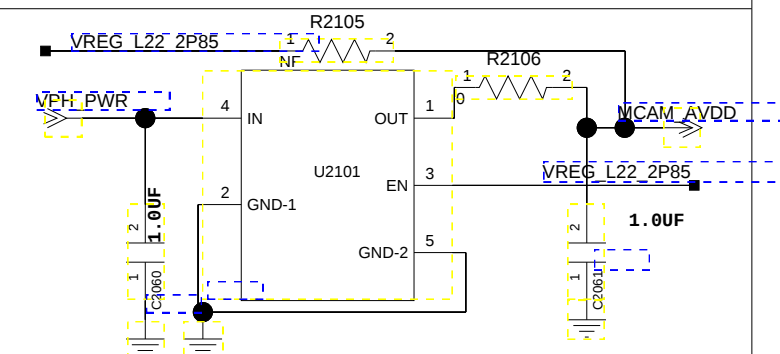
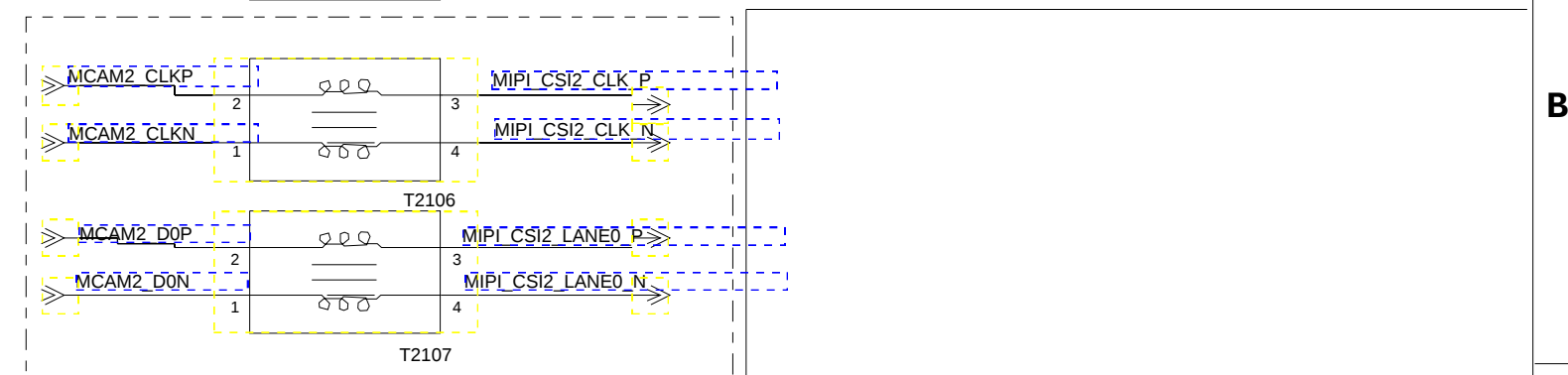
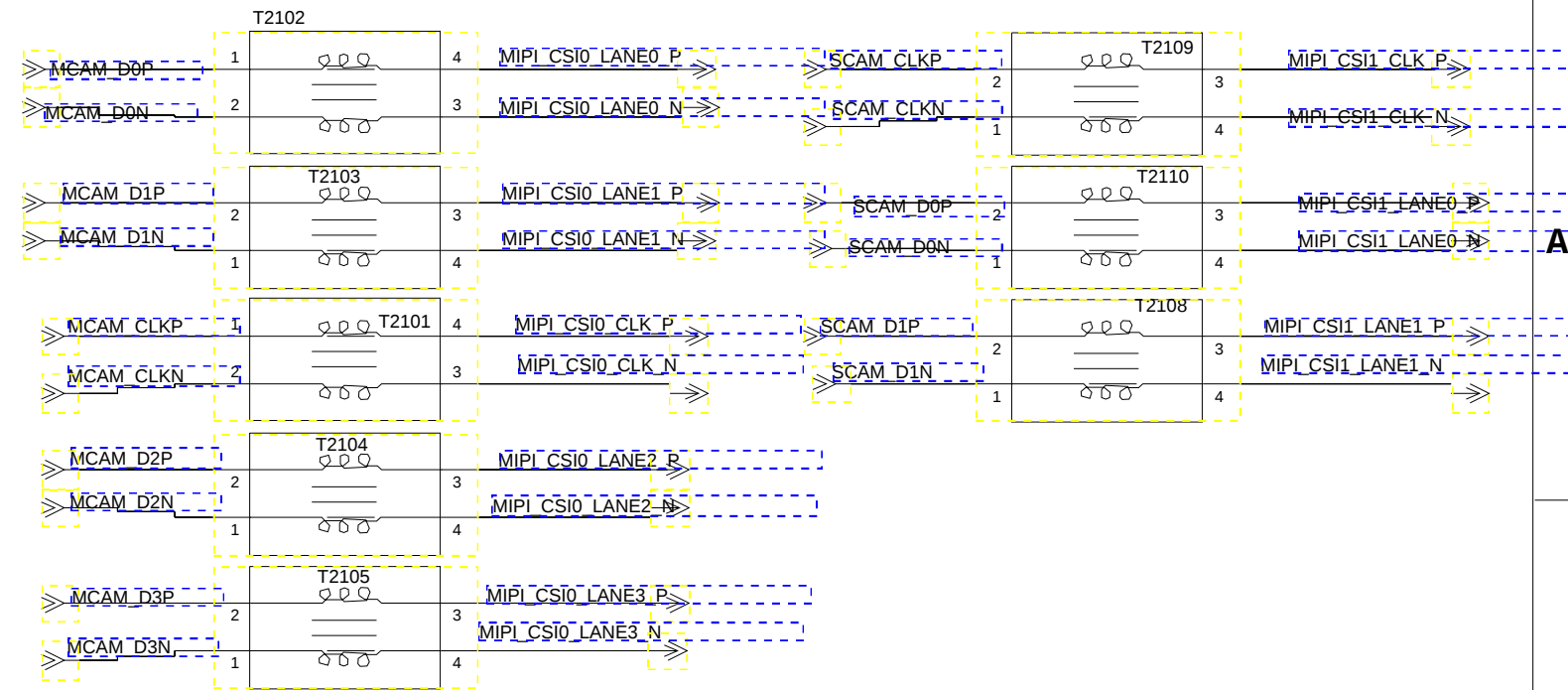
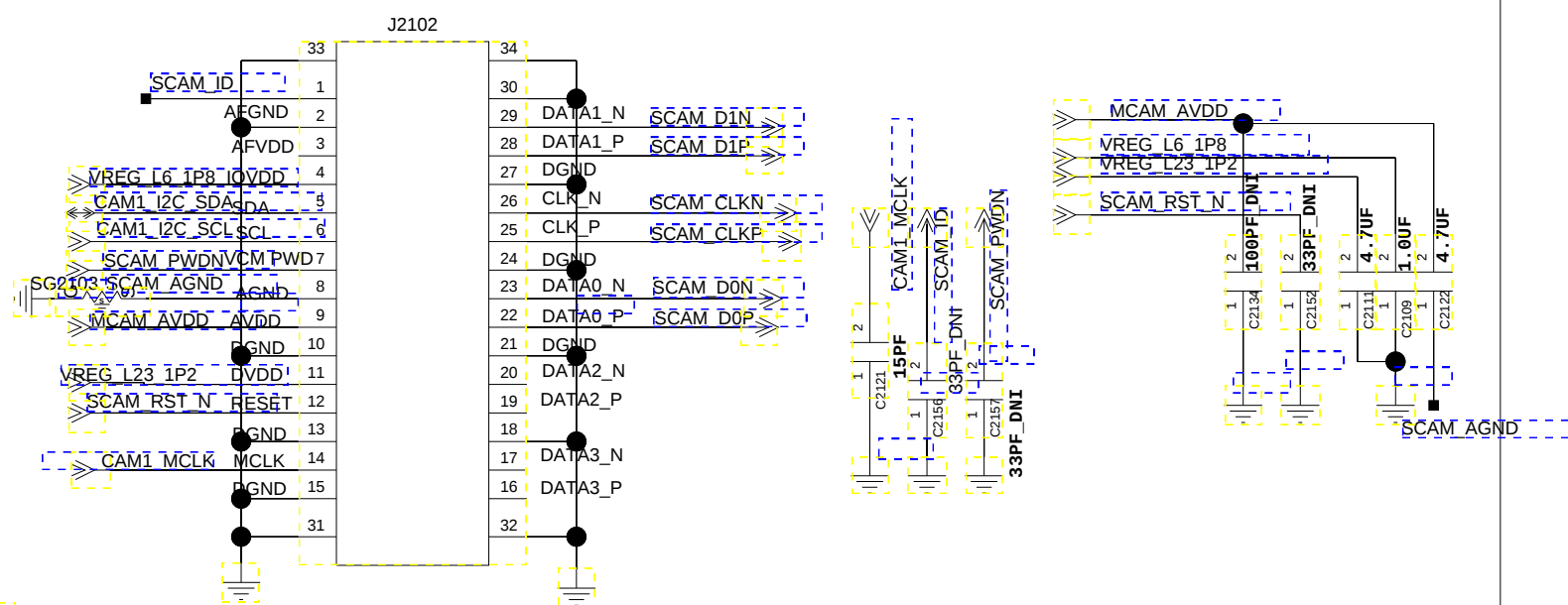
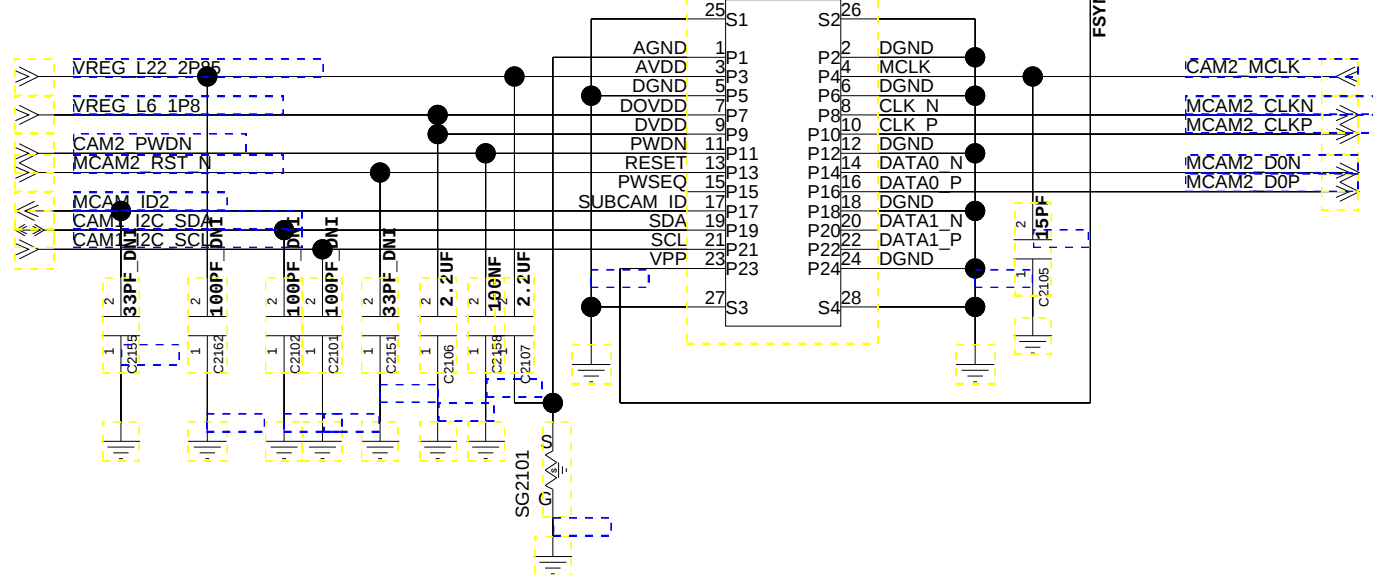
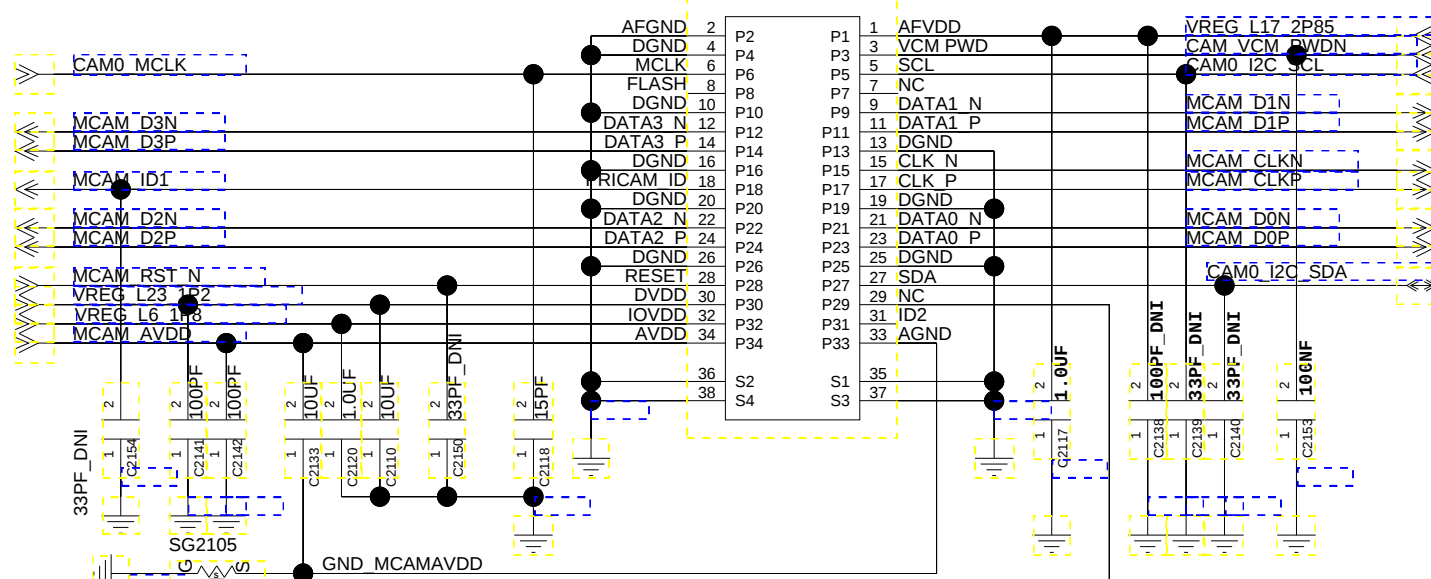


LCD POS/NEG Voltage Driver



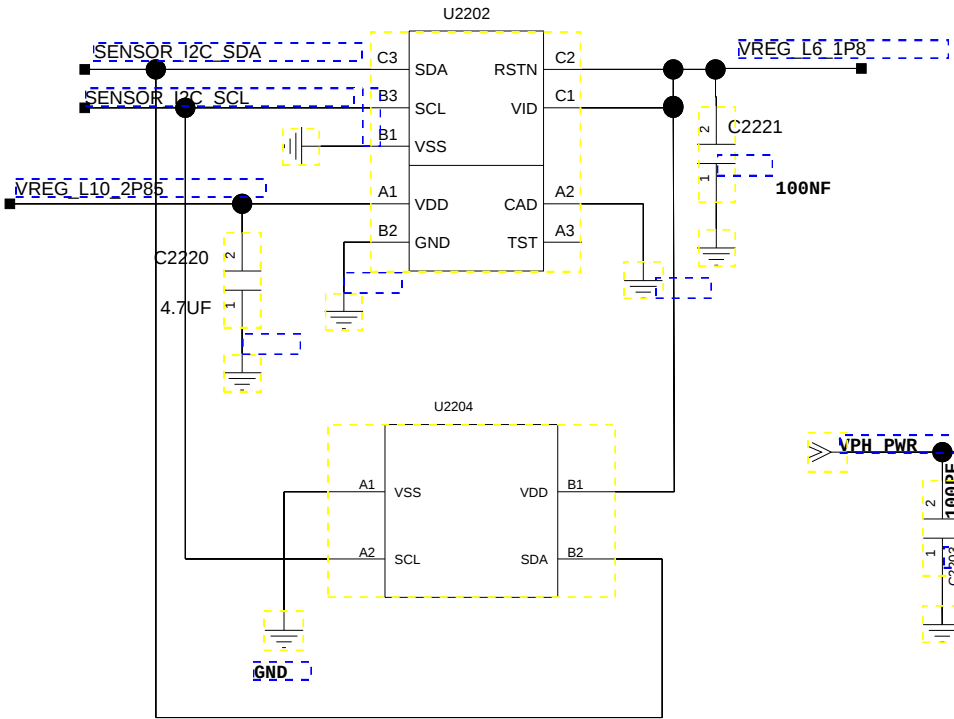
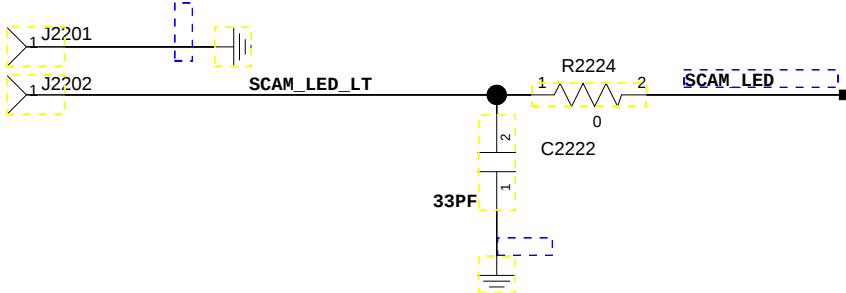
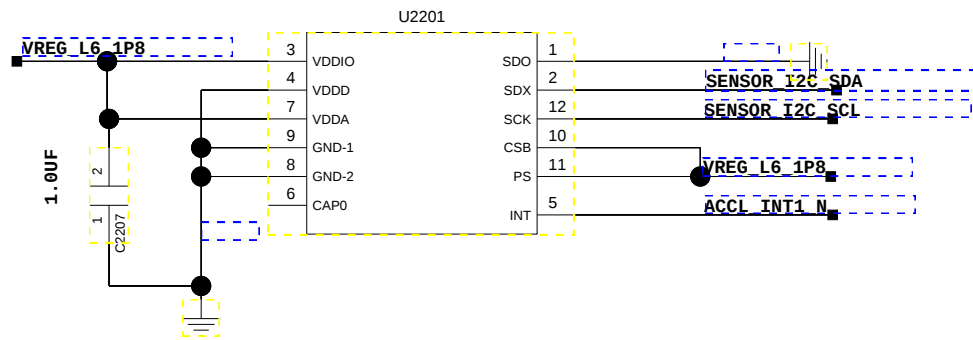
CAP tolerance above 50V!!!

21. Camera IF.

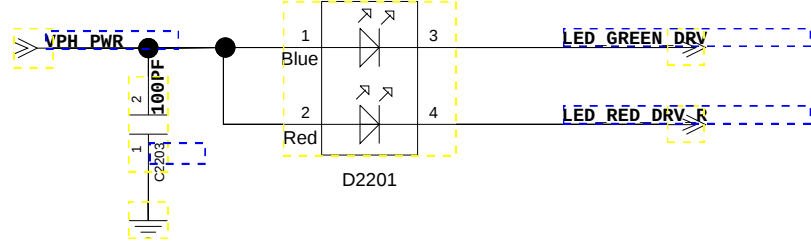


22. Sensor

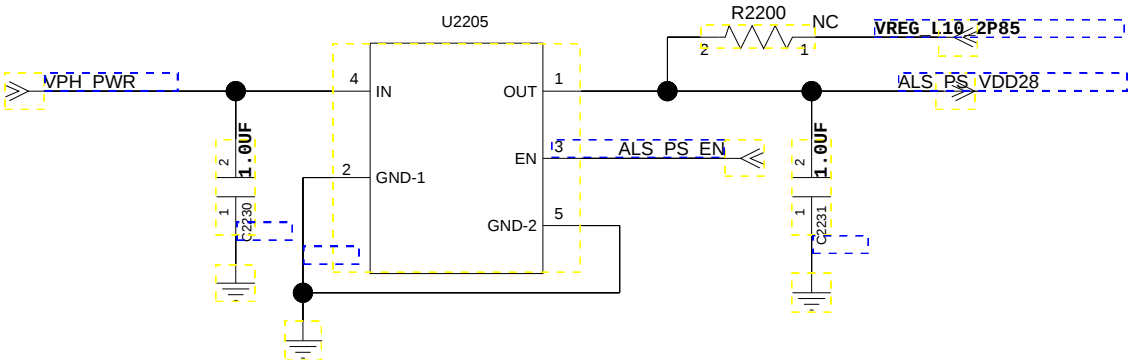
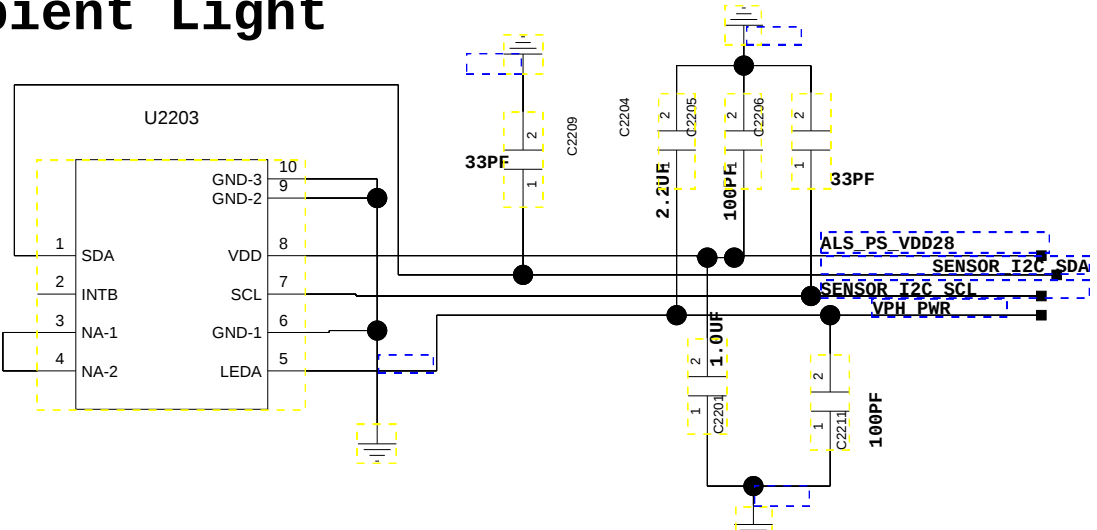
Accelerometer



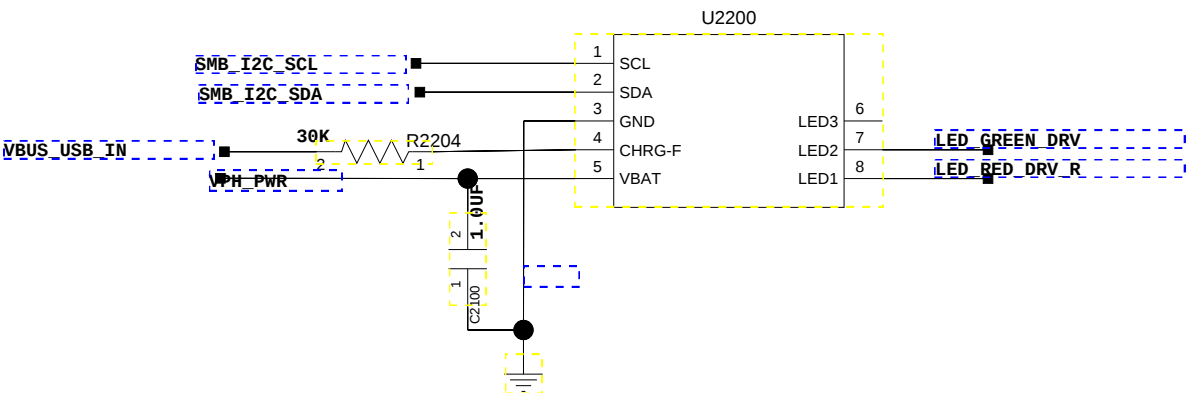
Status indicator



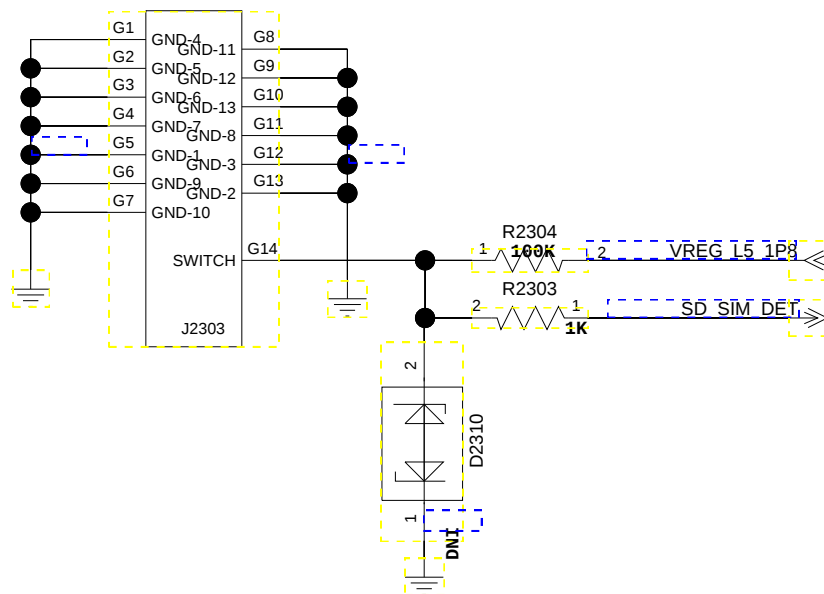
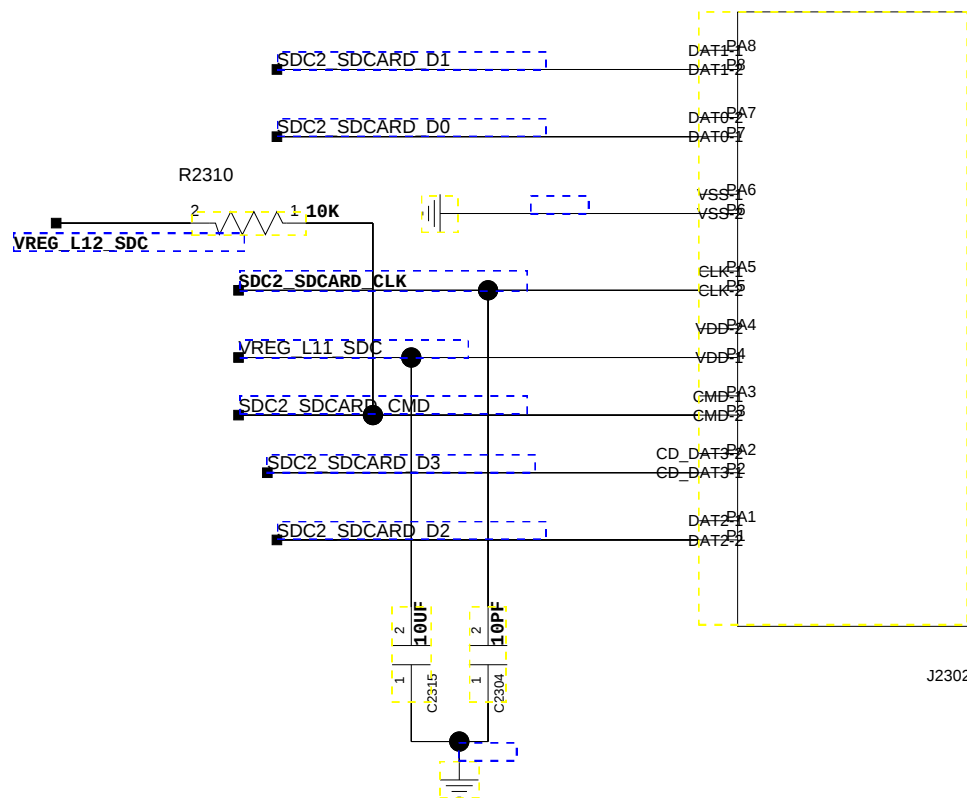
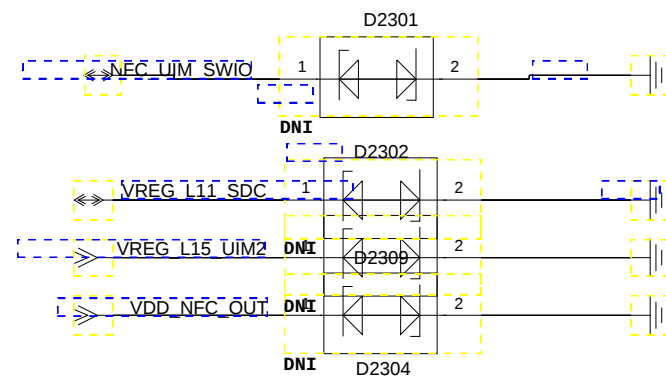
Ambient Light



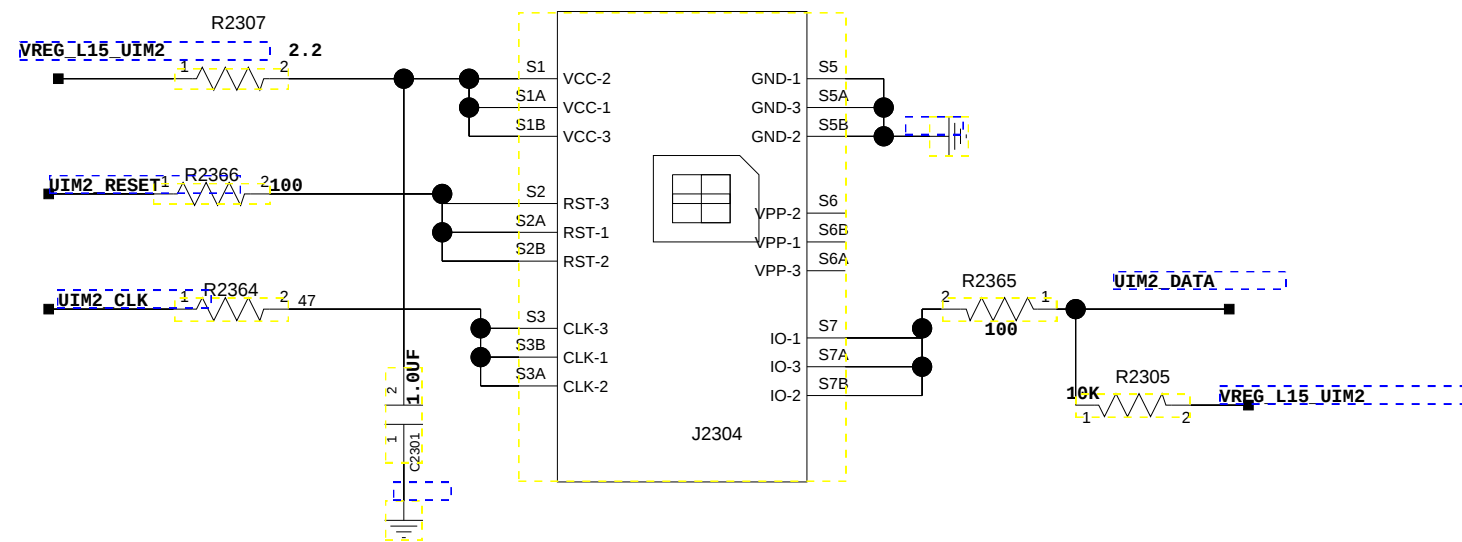
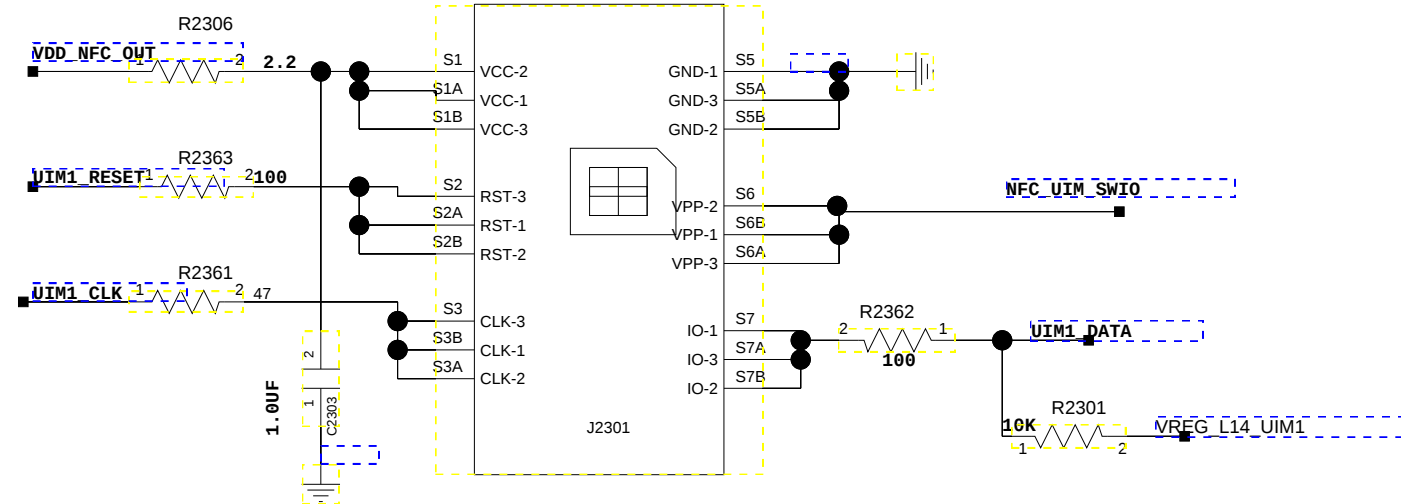
Status indicator



23. SIM/TF IF.

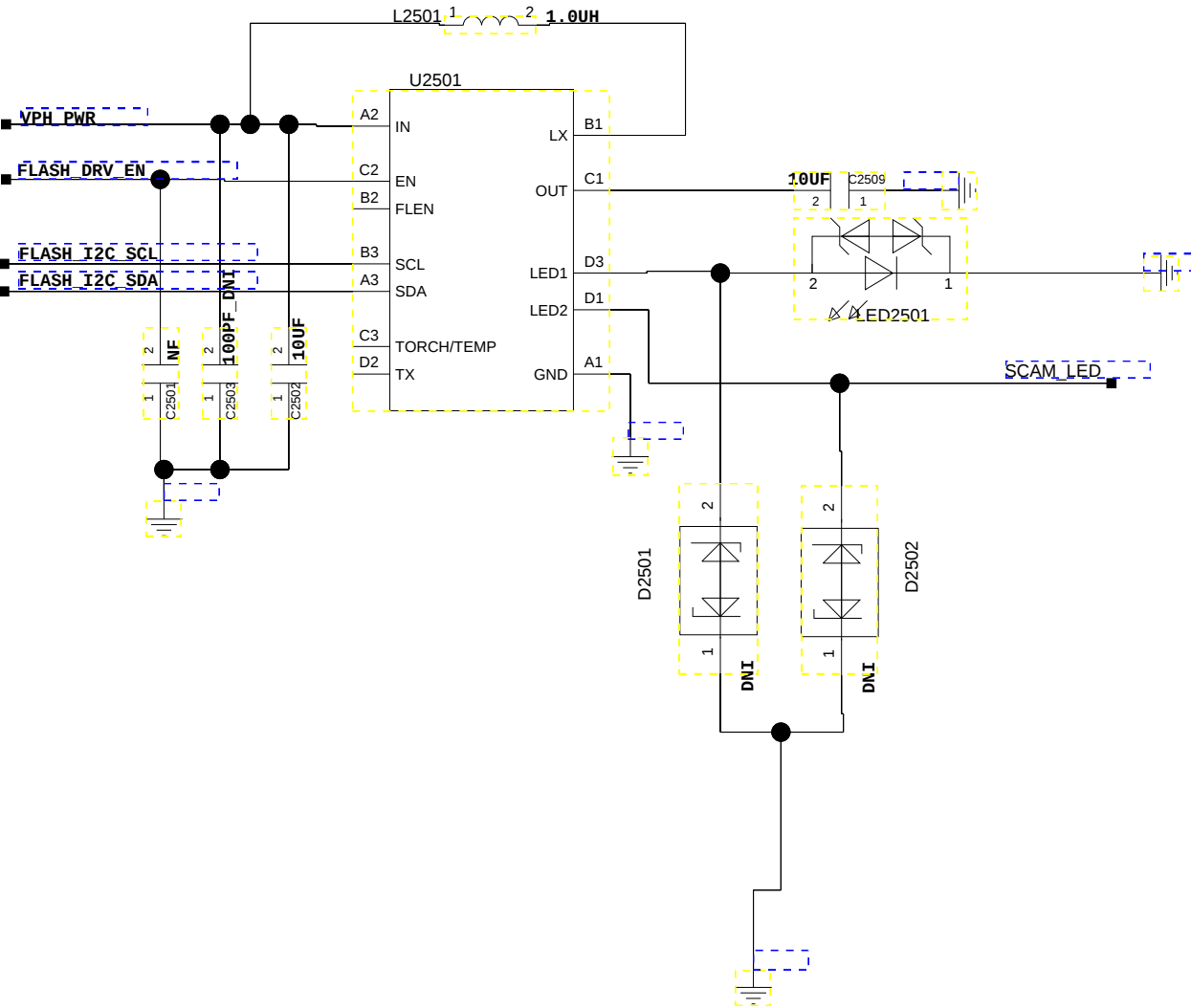


Nano SIM Card 1 TDL/UL/TDS/WCDMA/CDMA/GSM



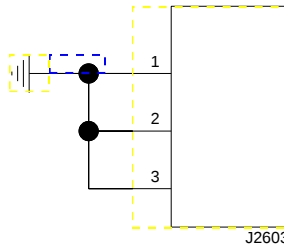
24. Sidekey

25. Flash

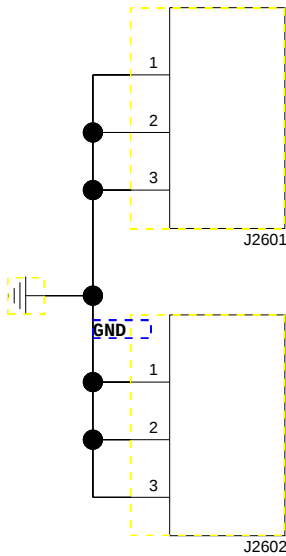


26. Shielding

Sub camera BTB bracket

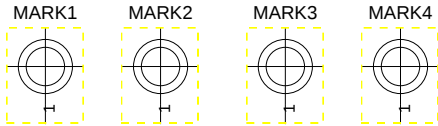


Shielding

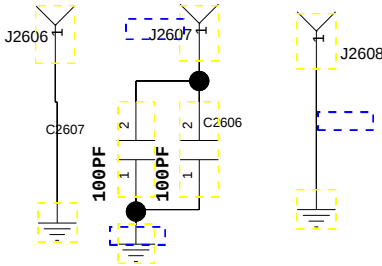


GND springs

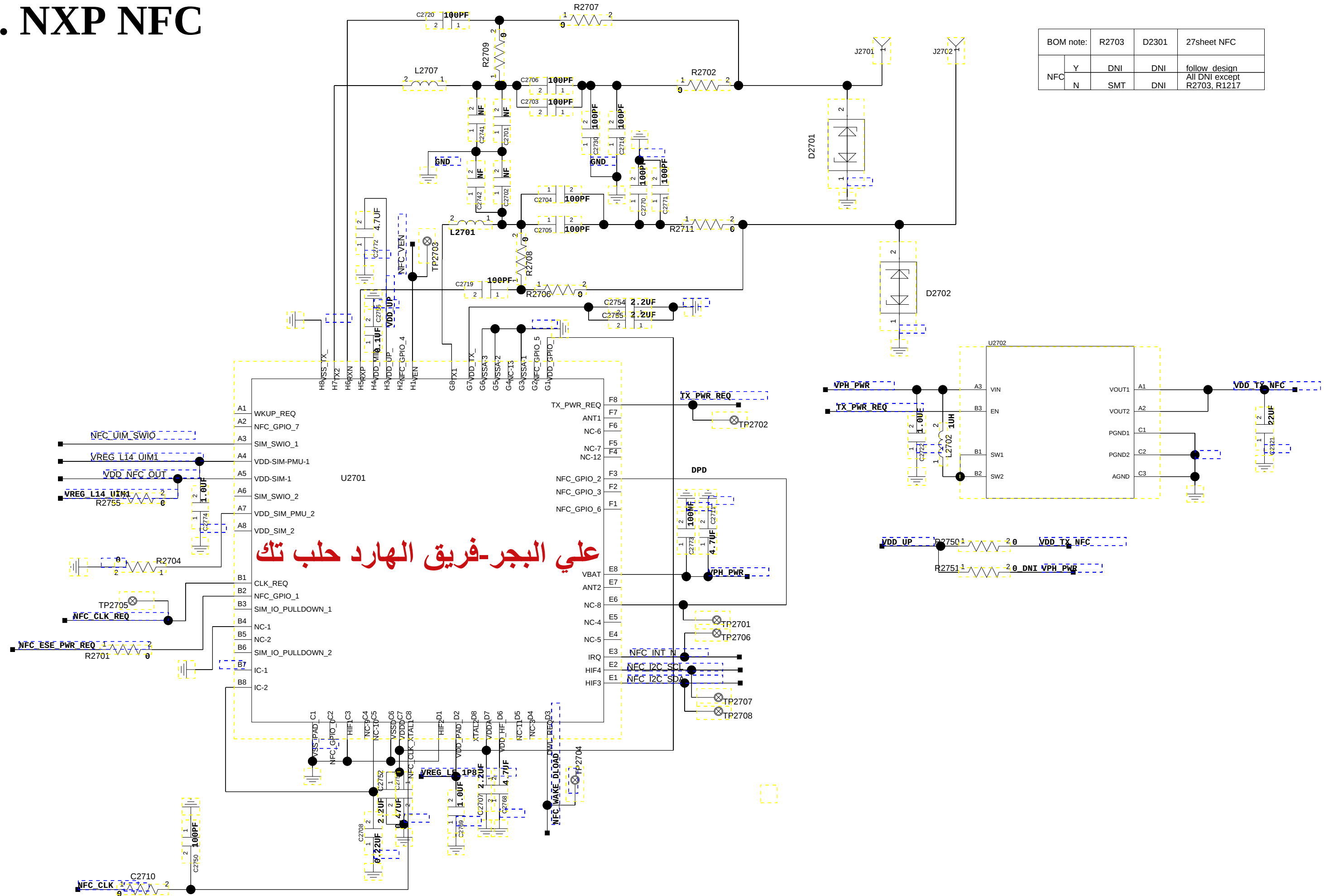
MARK POINT



HOLE



27. NXP NFC

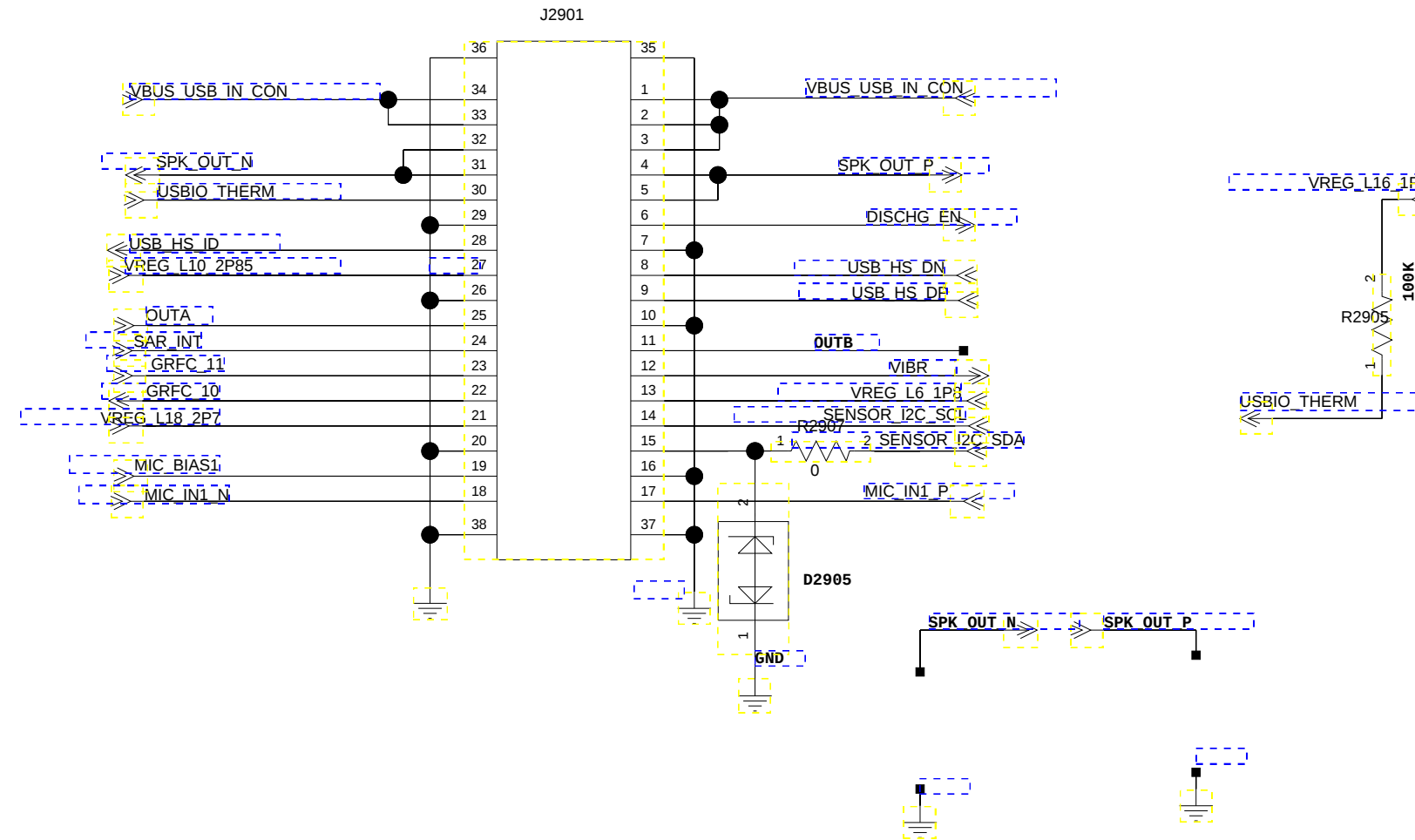


BOM note:		R2703	D2301	27sheet NFC
NFC	Y	DNI	DNI	follow design
	N	SMT	DNI	All DNI except R2703, R1217

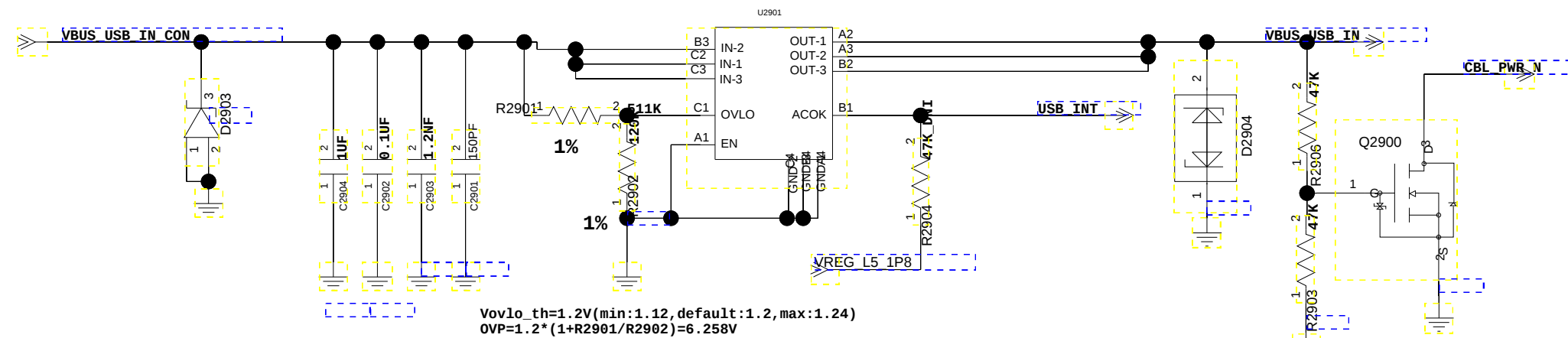
28. DPS_ALS					
1	2	3	4	5	6
A					
B					
C					
D					
1	2	3		5	6

29. Sub FPC IF

Main FPC BTB

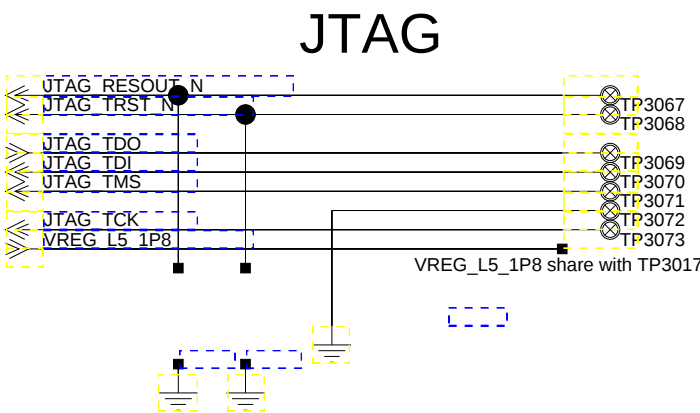
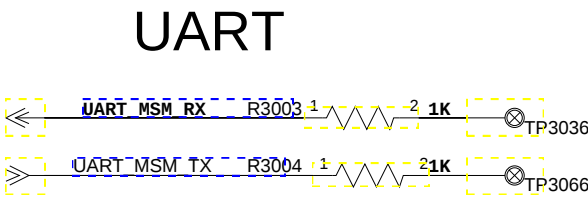
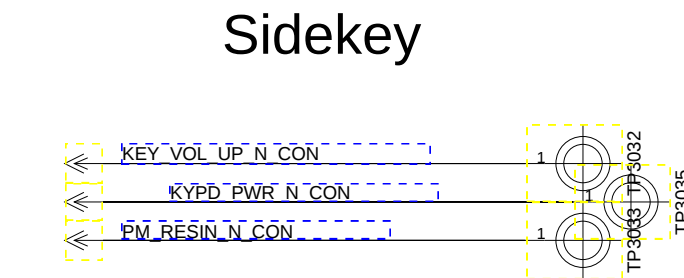
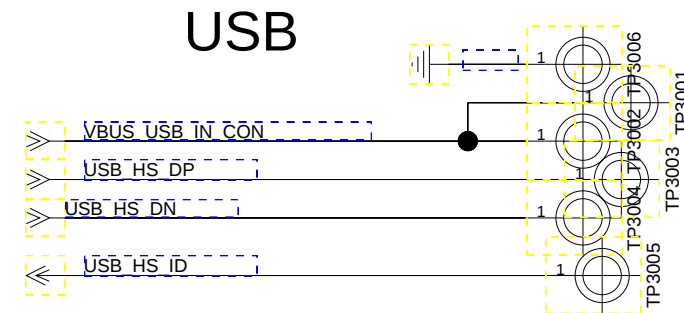
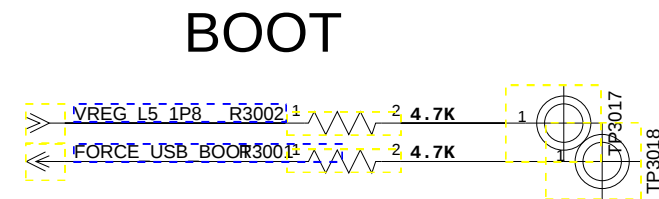
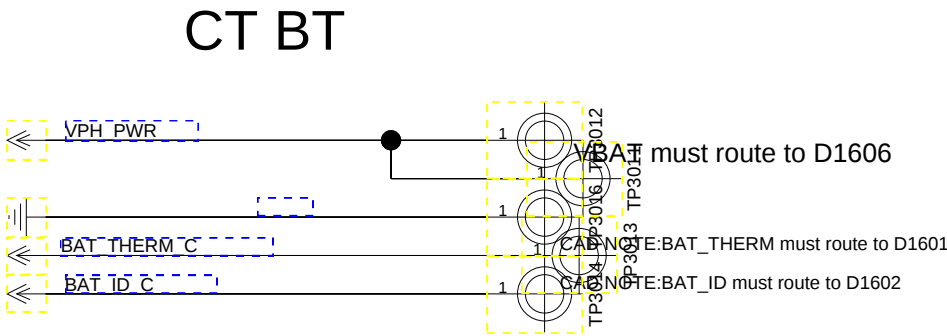


Plase close to J2901 placement



Vovlo_th=1.2V(min:1.12,default:1.2,max:1.24)
OVP=1.2*(1+R2901/R2902)=6.258V

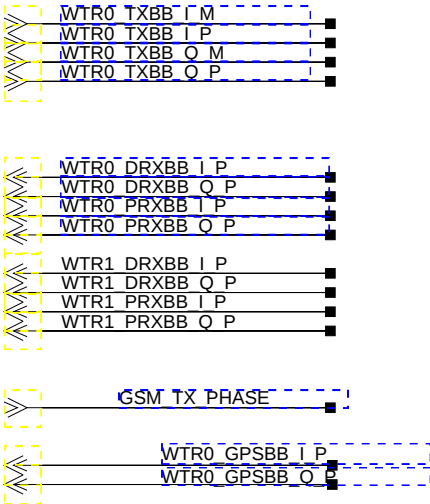
30. Test Points.



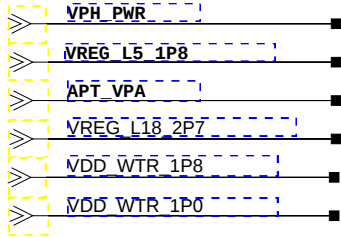
31.RF Interface

- 32_RF Transceiver0
- 33_APT Power
- 34_Reserved
- 35_TRX B12/17/20/28 PRX_B34
- 36_MMMB PA SKY77643
- 37_TRX B1/2/3/4/5/7/8
- 38_TX MATCHING CIRCUIT of B38/40/41
- 39_PRX B39/41/38/G850/900/1800/1900
- 40_TXM SKY77916
- 41_DIV_ANT1_SWITCH
- 42_DRX B1/4_2/3_5/20_7_8/12/17_28
- 43_DRX B39/41/38/40
- 44_DPDT
- 45_DIV_ANT1_TUNER
- 46_ANTENNA MATCH
- 47_Reserved
- 48_Reserved
- 49_Reserved
- 50. backup
- 51. backup
- 52. backup
- 53_Reserved
- 54_Reserved
- 55_Reserved
- 56_Reserved
- 57_Reserved
- 58_Reserved
- 59_Reserved
- 60_Reserved
- 61_Reserved
- 62_Reserved
- 63_Reserved
- 64_Reserved
- 65_Reserved
- 66_Reserved
- 67_WIFI/GPS ANTENNA MATCH
- 68_Reserved

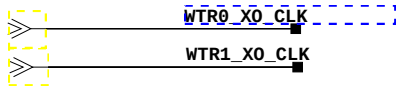
WTR2965 RF Interface



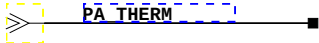
Power



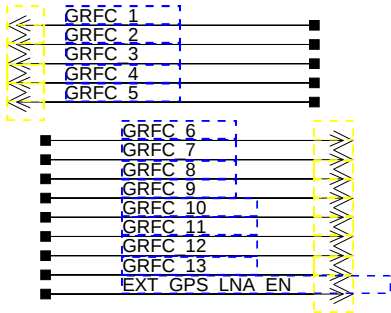
CLOCK



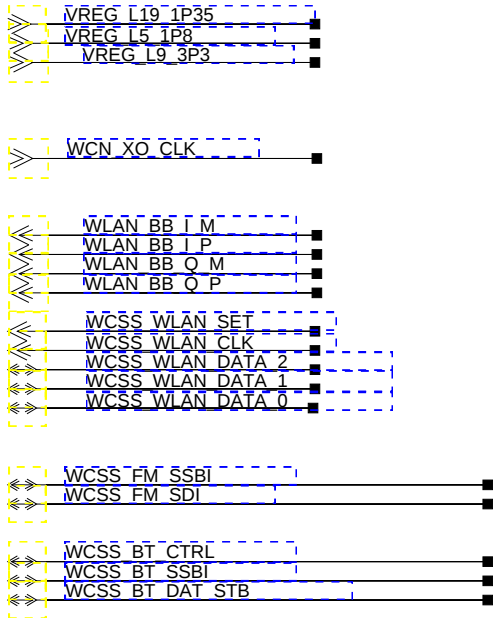
PA temperature



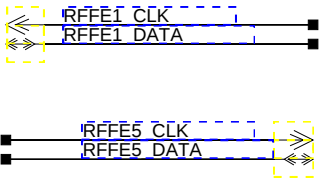
GPIO Interface



WCN3615 Interface



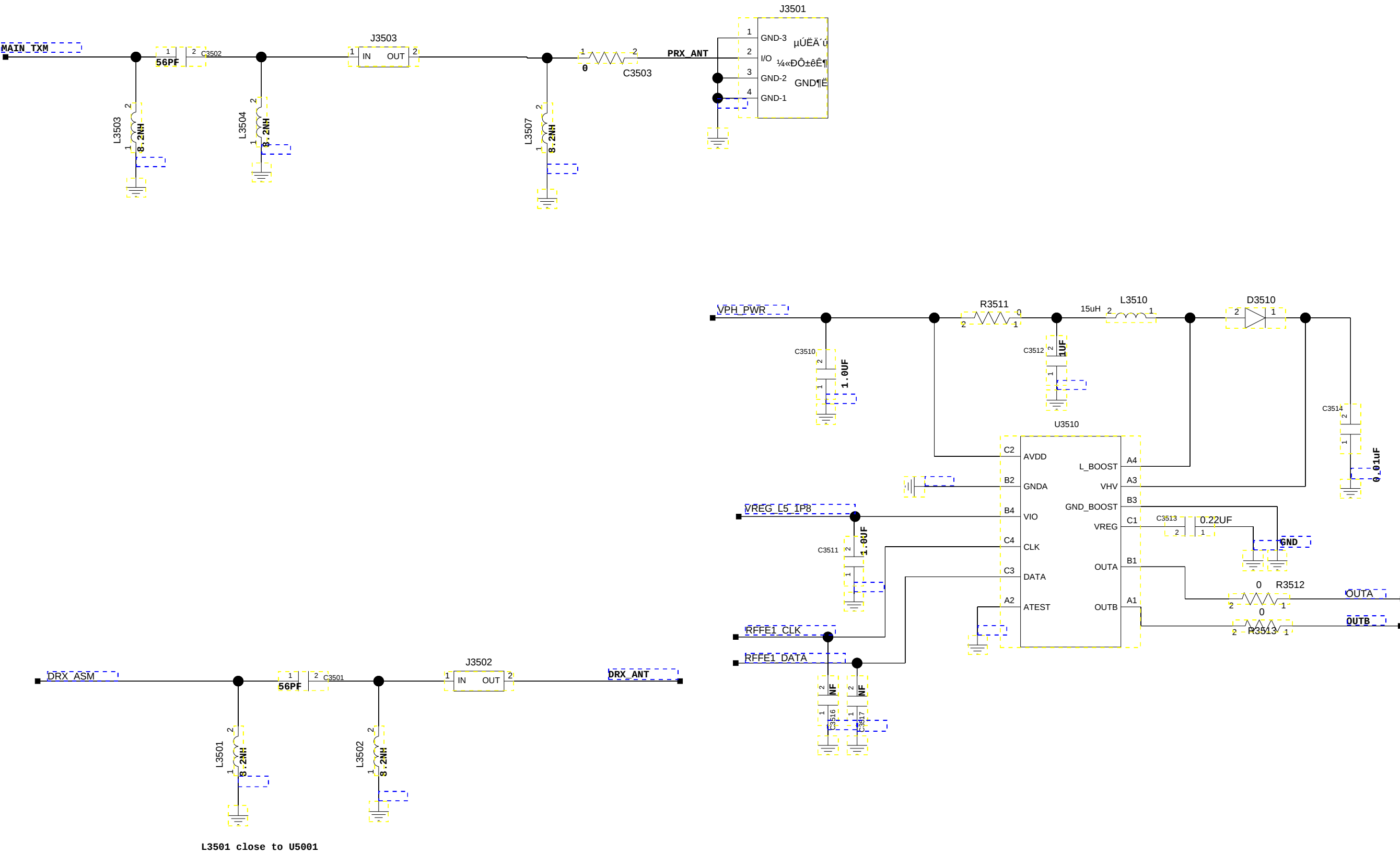
MIPI Interface



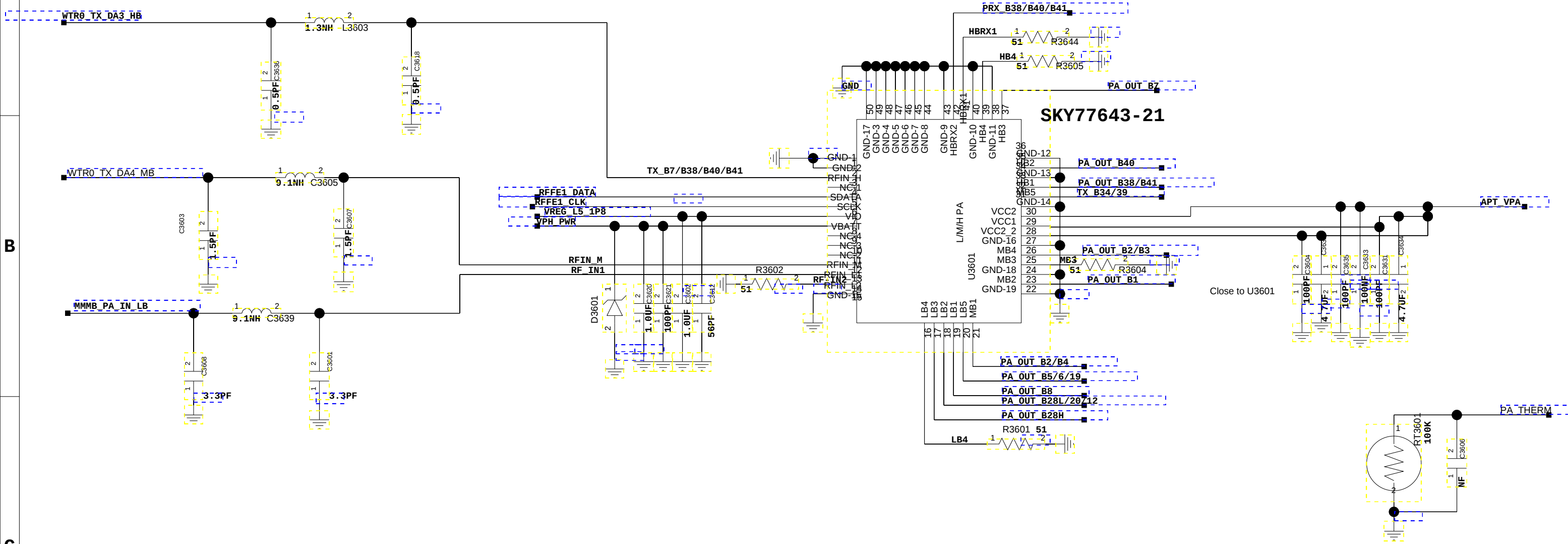
	1	2	3	4	5	6
A	32_Reserved					
B						
C						
D						
	1	2	3		5	6

	1	2	3	4	5	6
A	33.Reserved					
B						
C						
D						

35_RF SWITCH

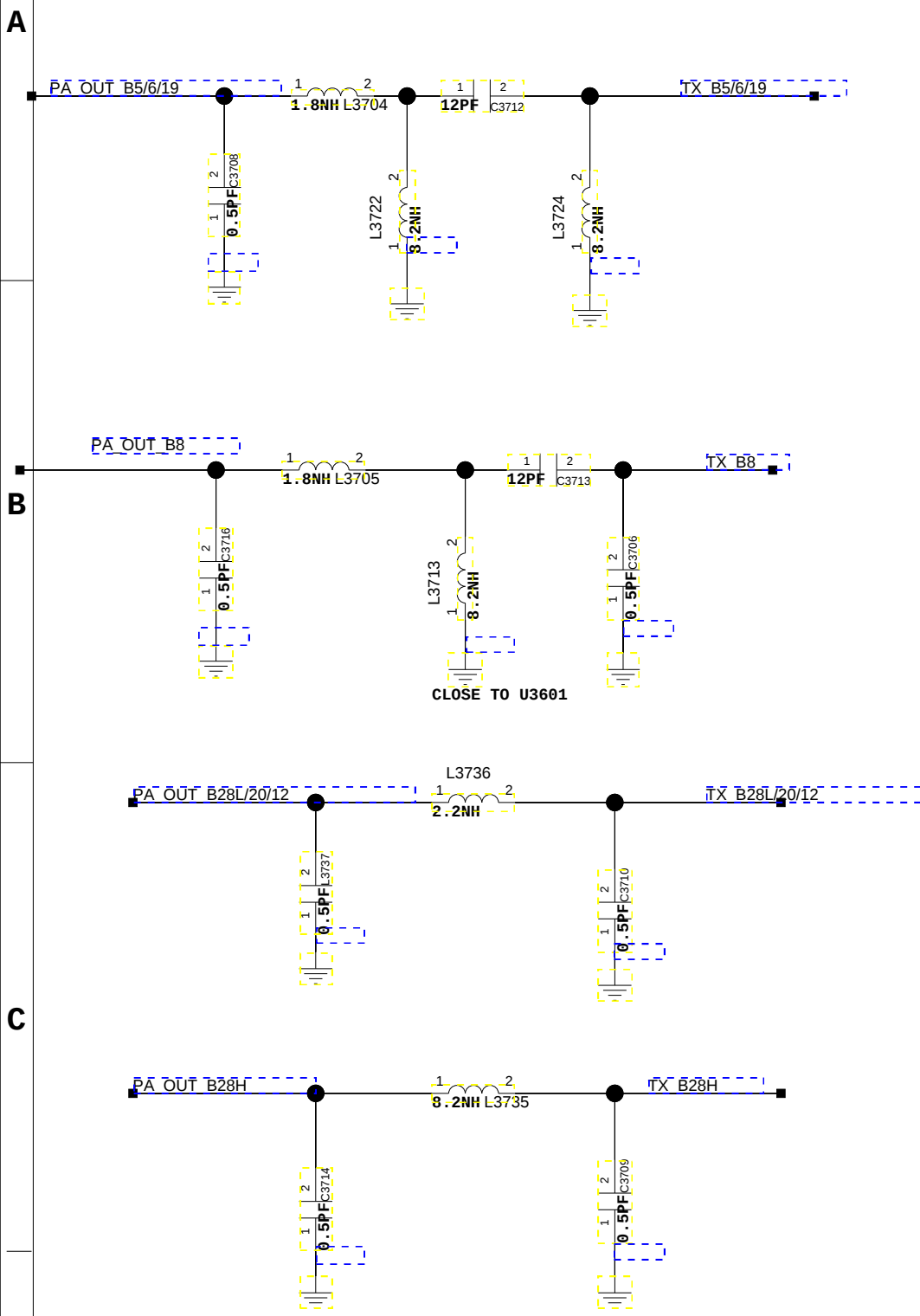


36_MMPA

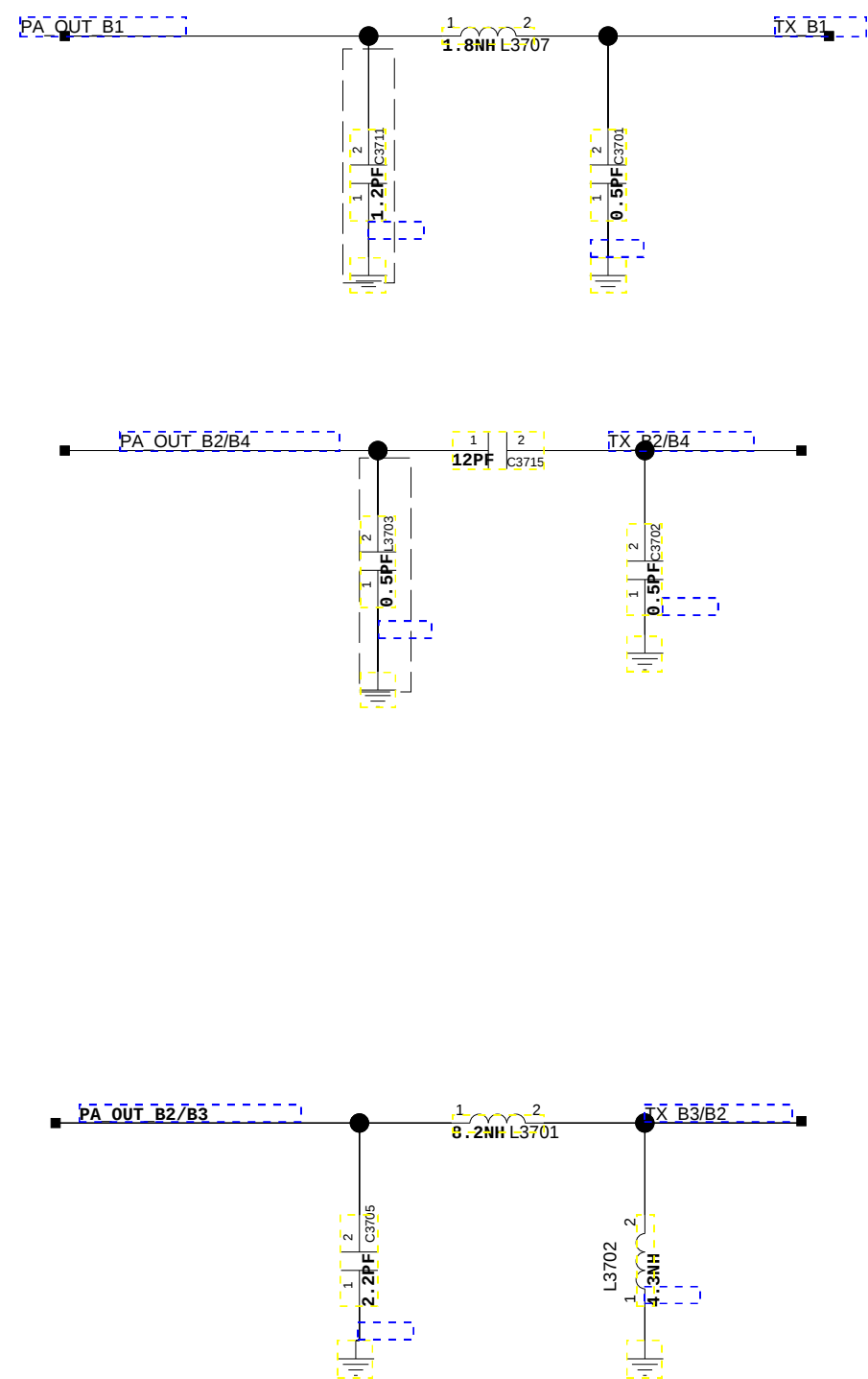


37_MATCHING_CIRCUIT_of_MMMBPA

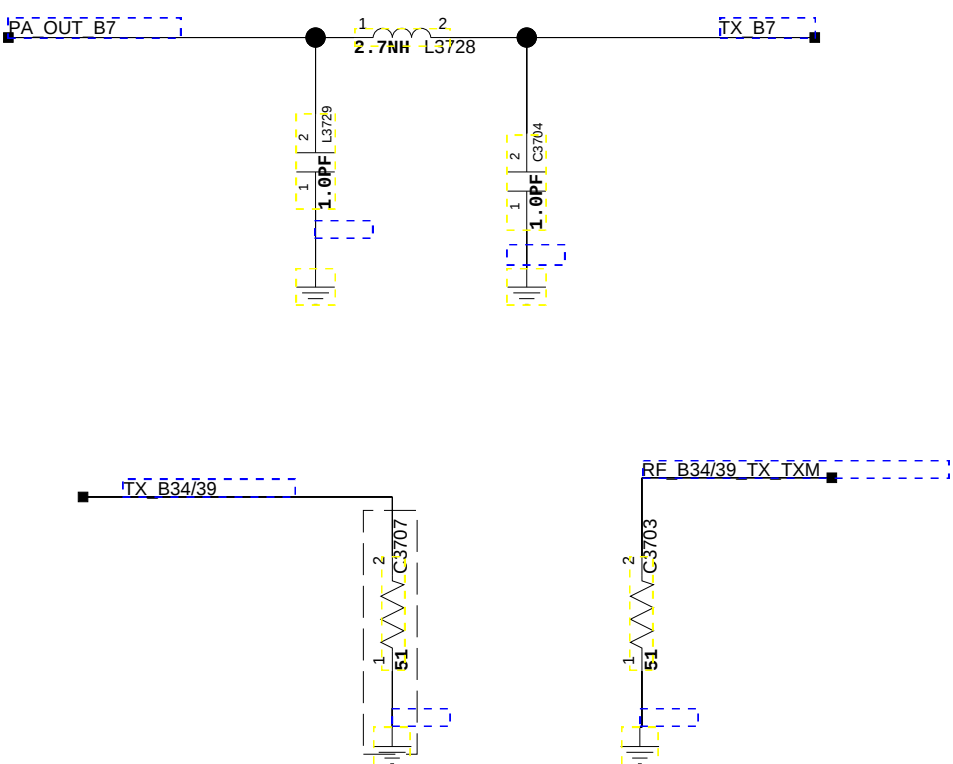
Close to MMMB PA



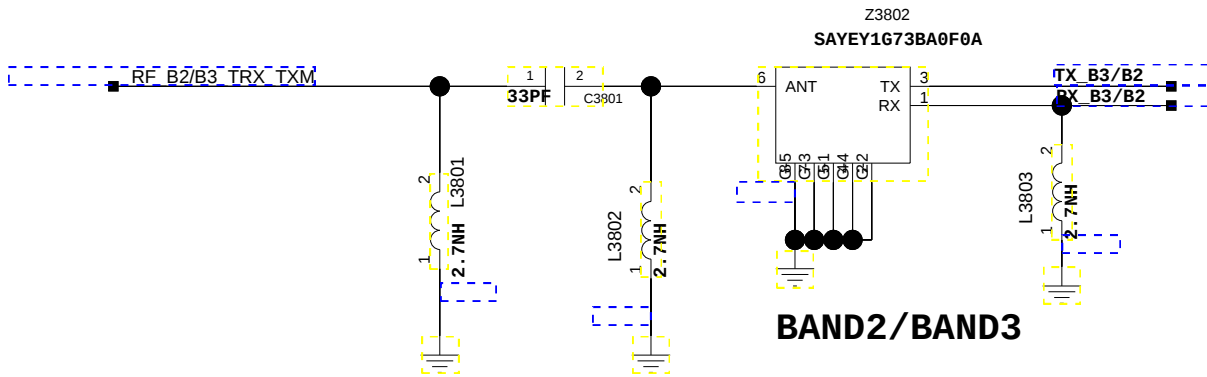
Close to MMMB PA



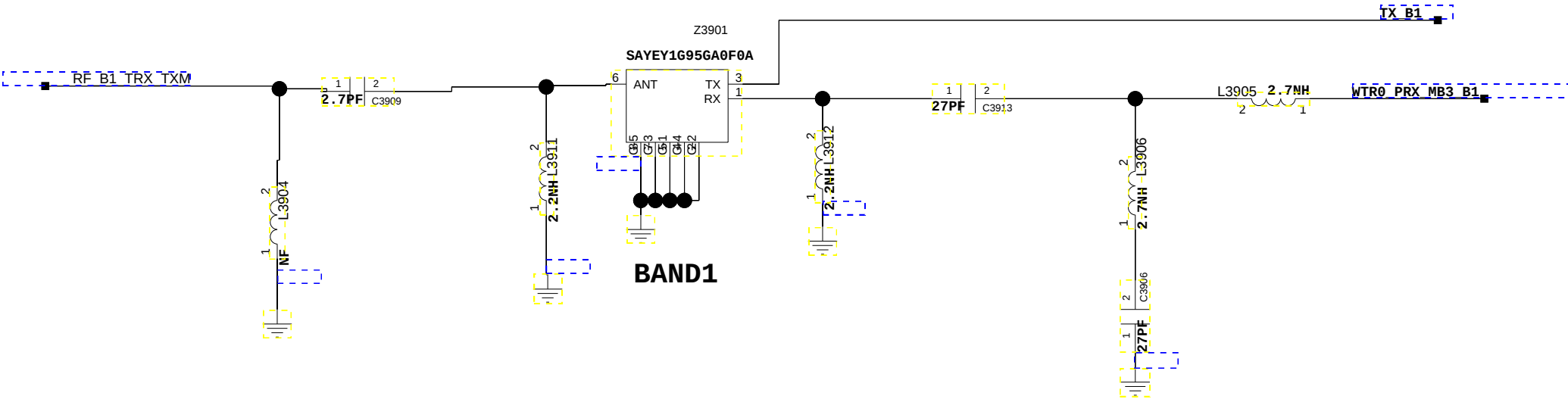
Close to MMMB PA



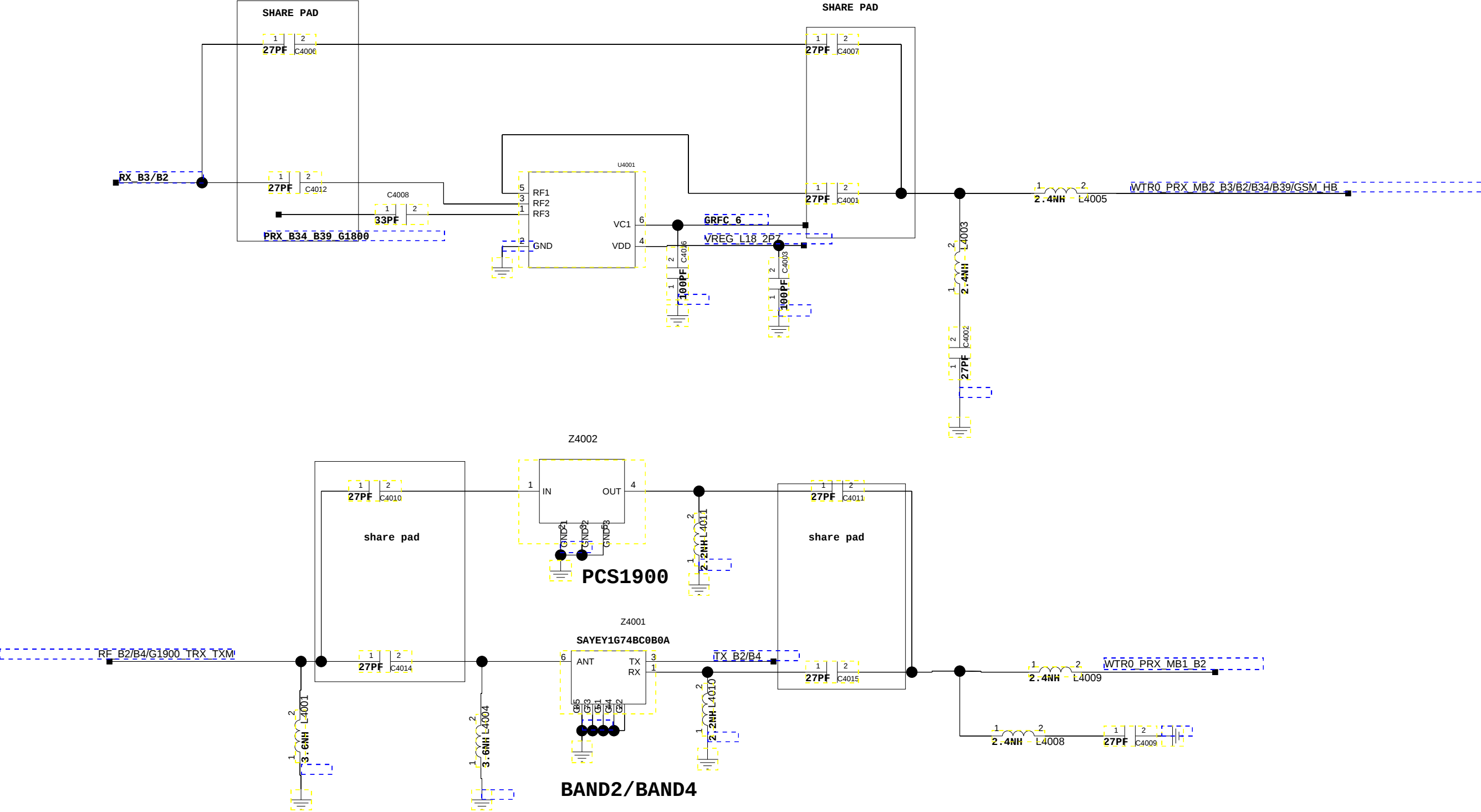
38_Reserved



39_TRX B1TRX



40_TRX_B2

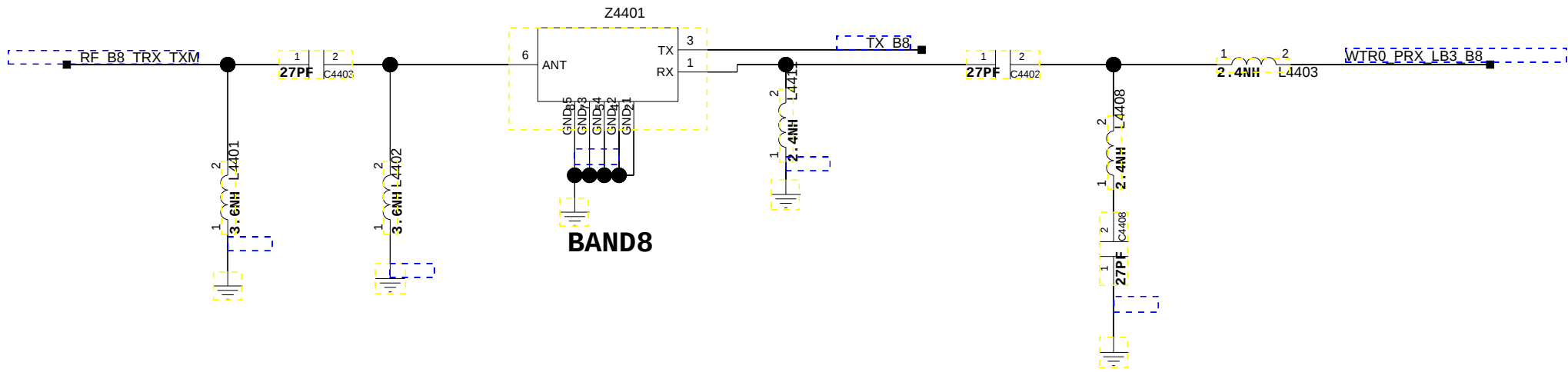
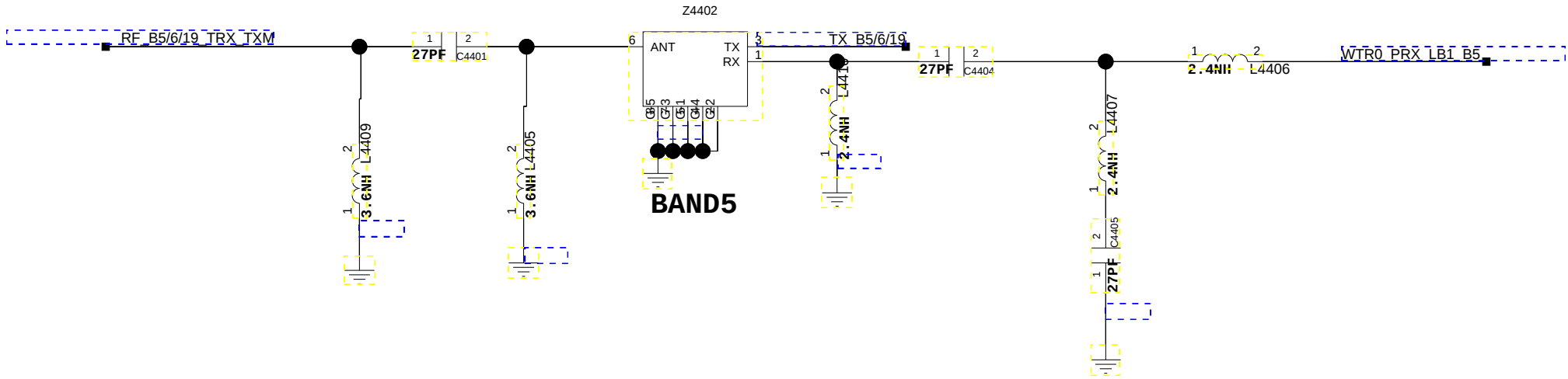


41_Reserved					
1	2	3	4	5	6
A					
B					
C					
D					
1	2	3		5	6

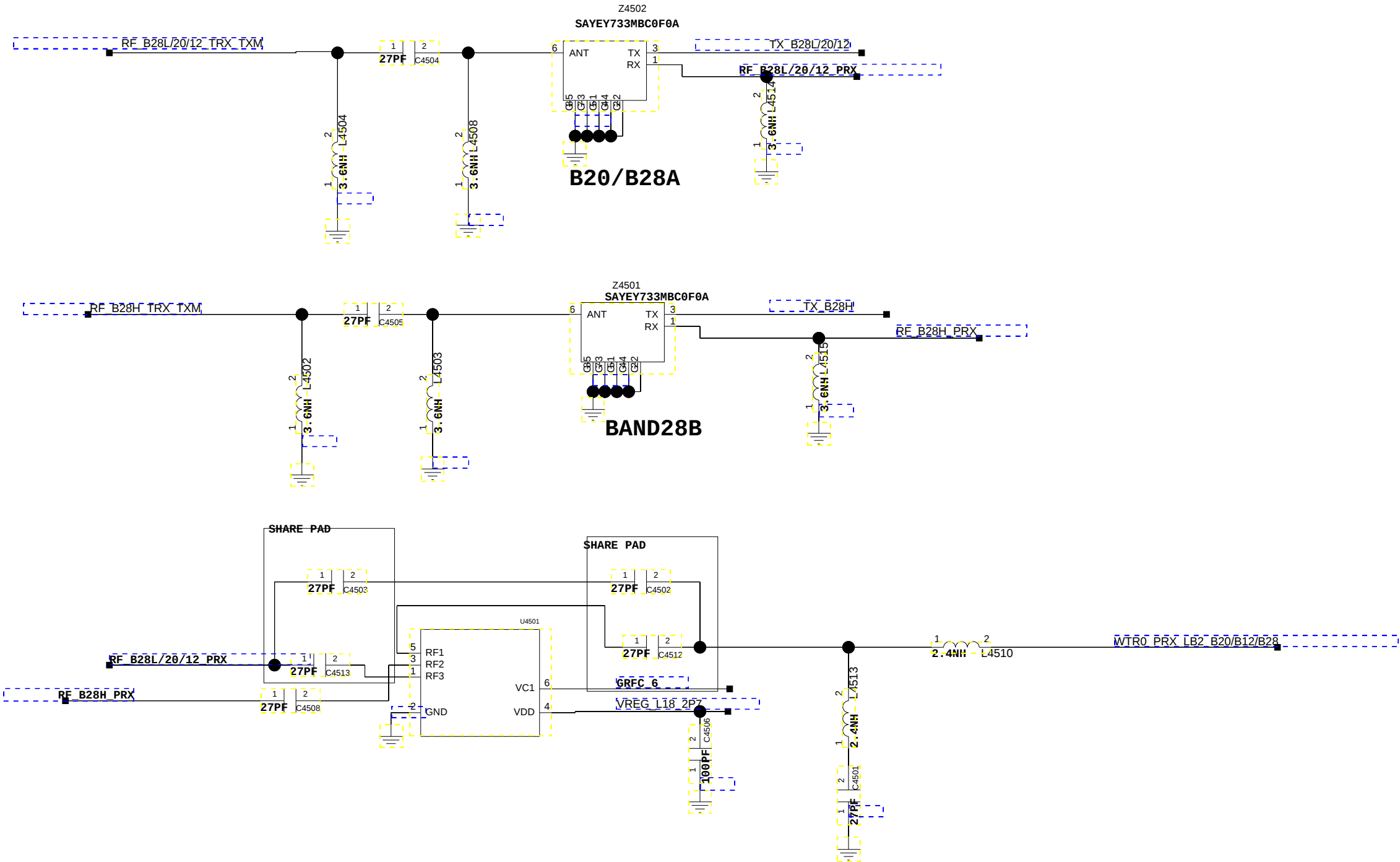
42_Reserved					
1	2	3	4	5	6
A					
B					
C					
D					
1	2	3		5	6

43_Reserved					
1	2	3	4	5	6
A					
B					
C					
D					
1	2	3		5	6

44_TRX_B5/8

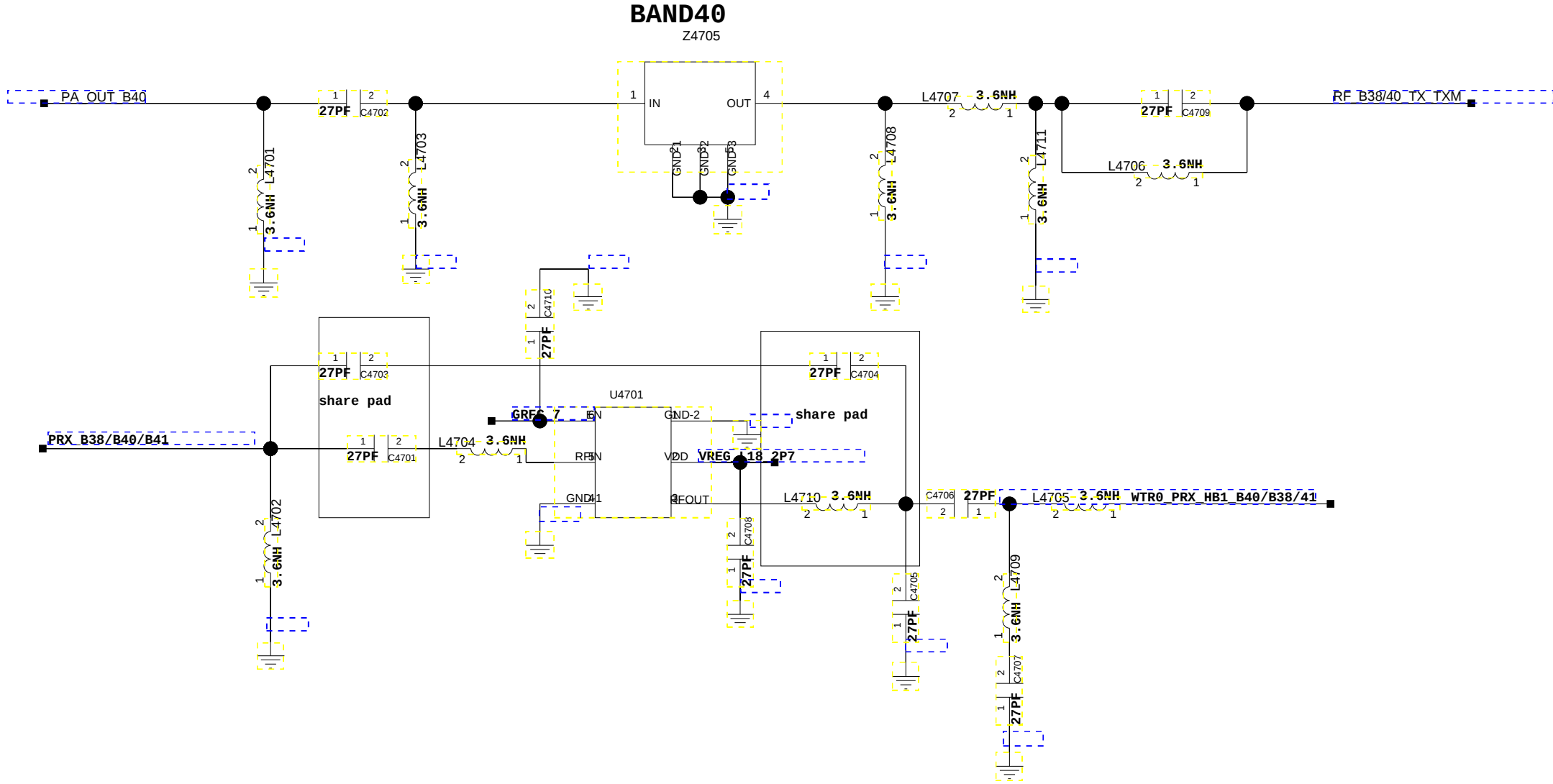


45 TRX B20/28

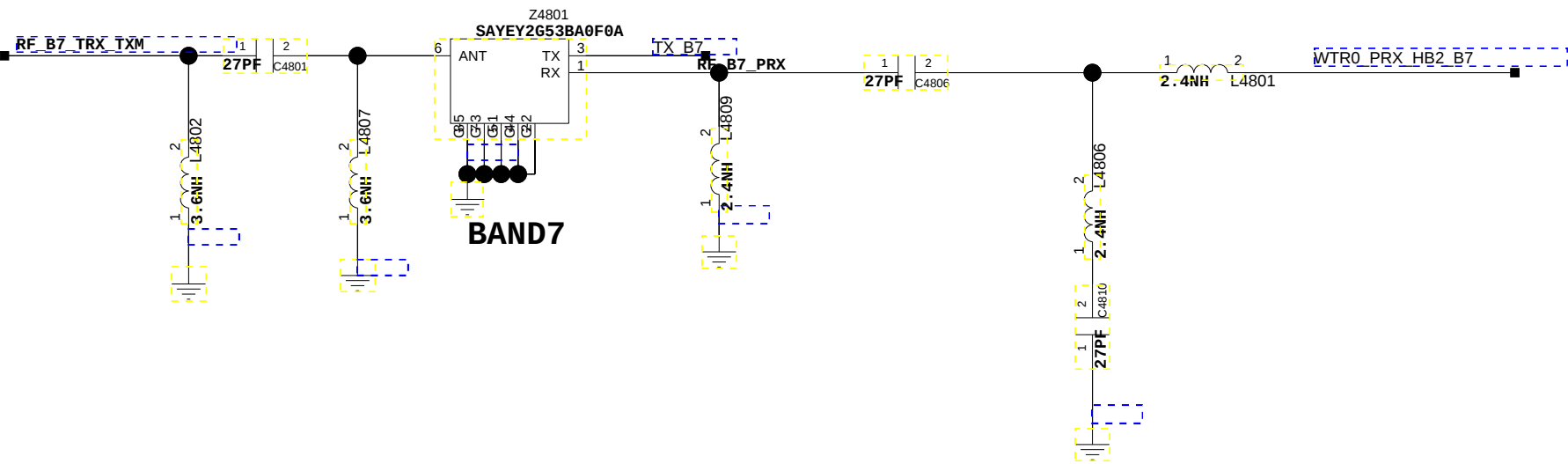


46_TRX_B34/B39					
1	2	3	4	5	6
A					
B					
C					
D					
1	2	3		5	6

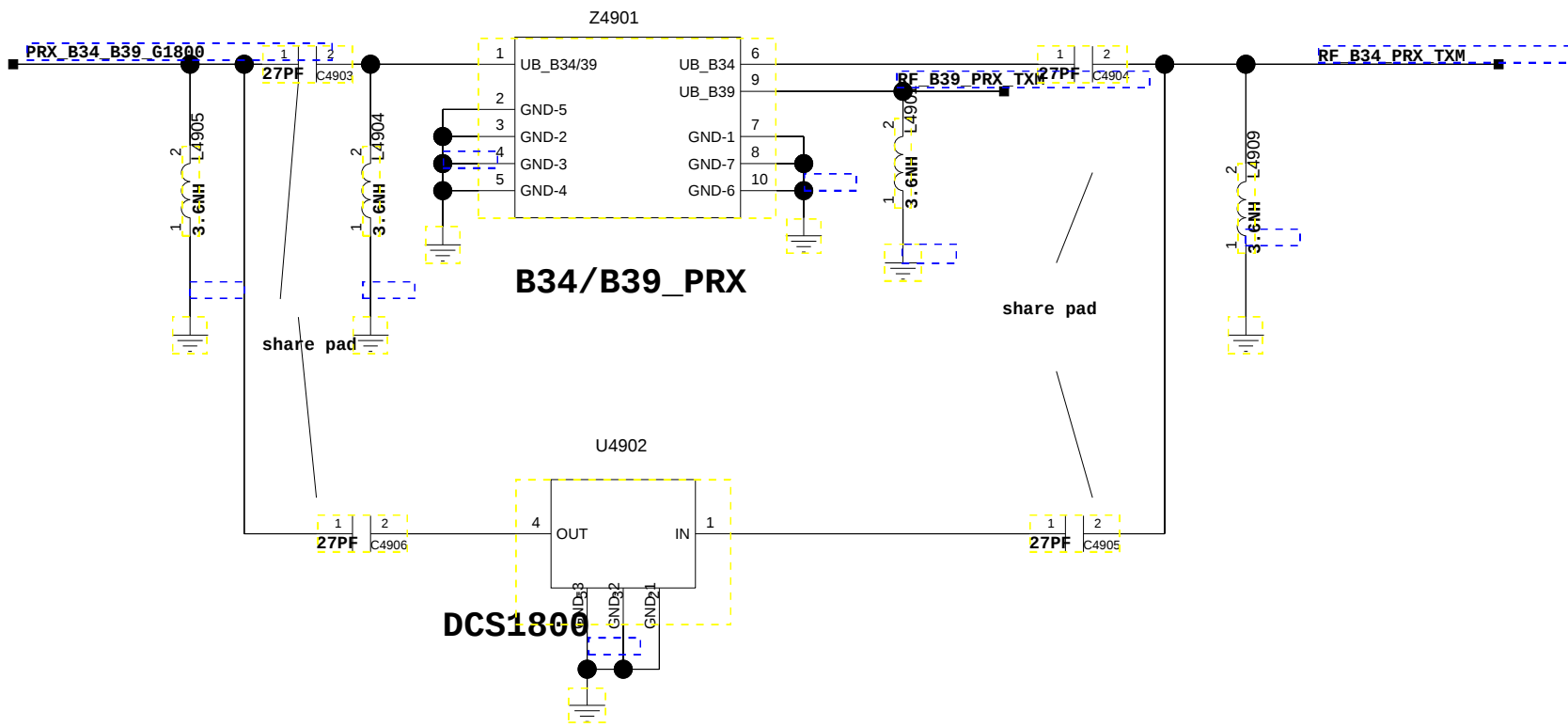
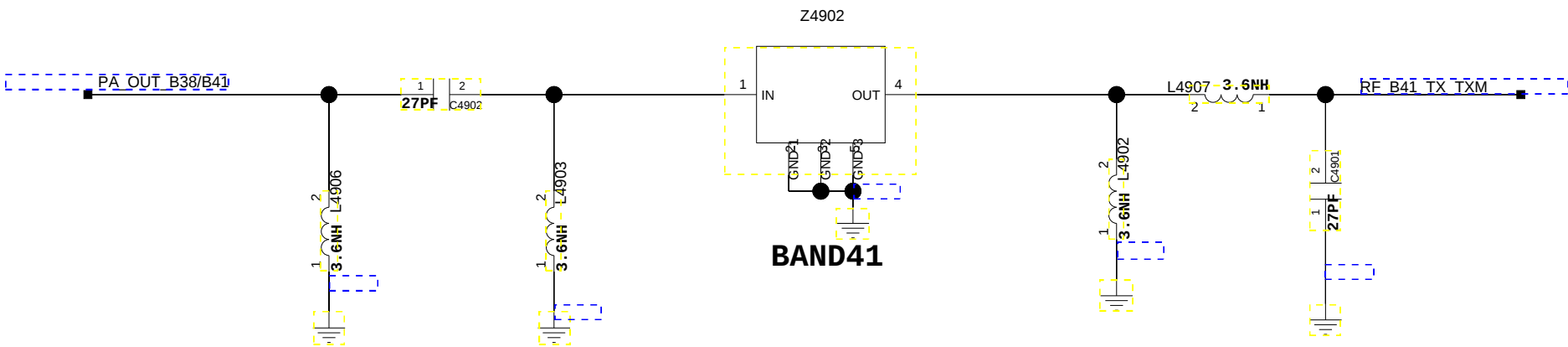
47_TRX_40&PRX_B38/B41



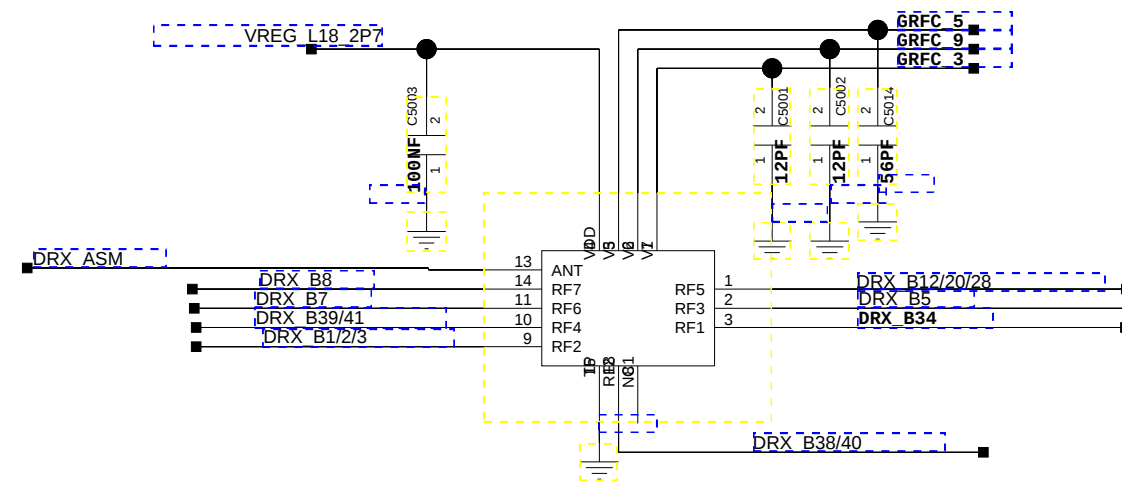
48_TRX_B7



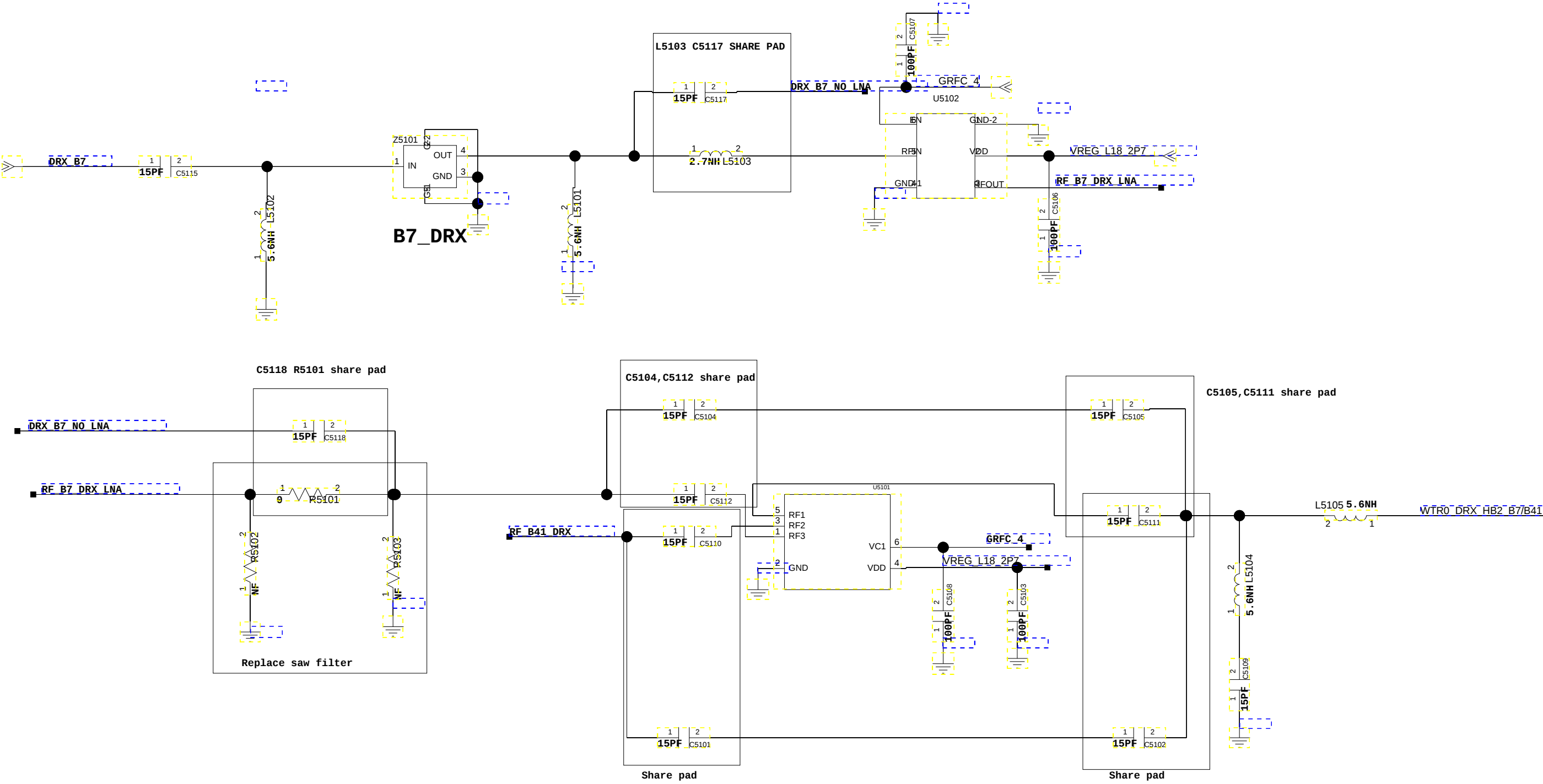
49_TRX_B38/B41&PRX_B34/B39



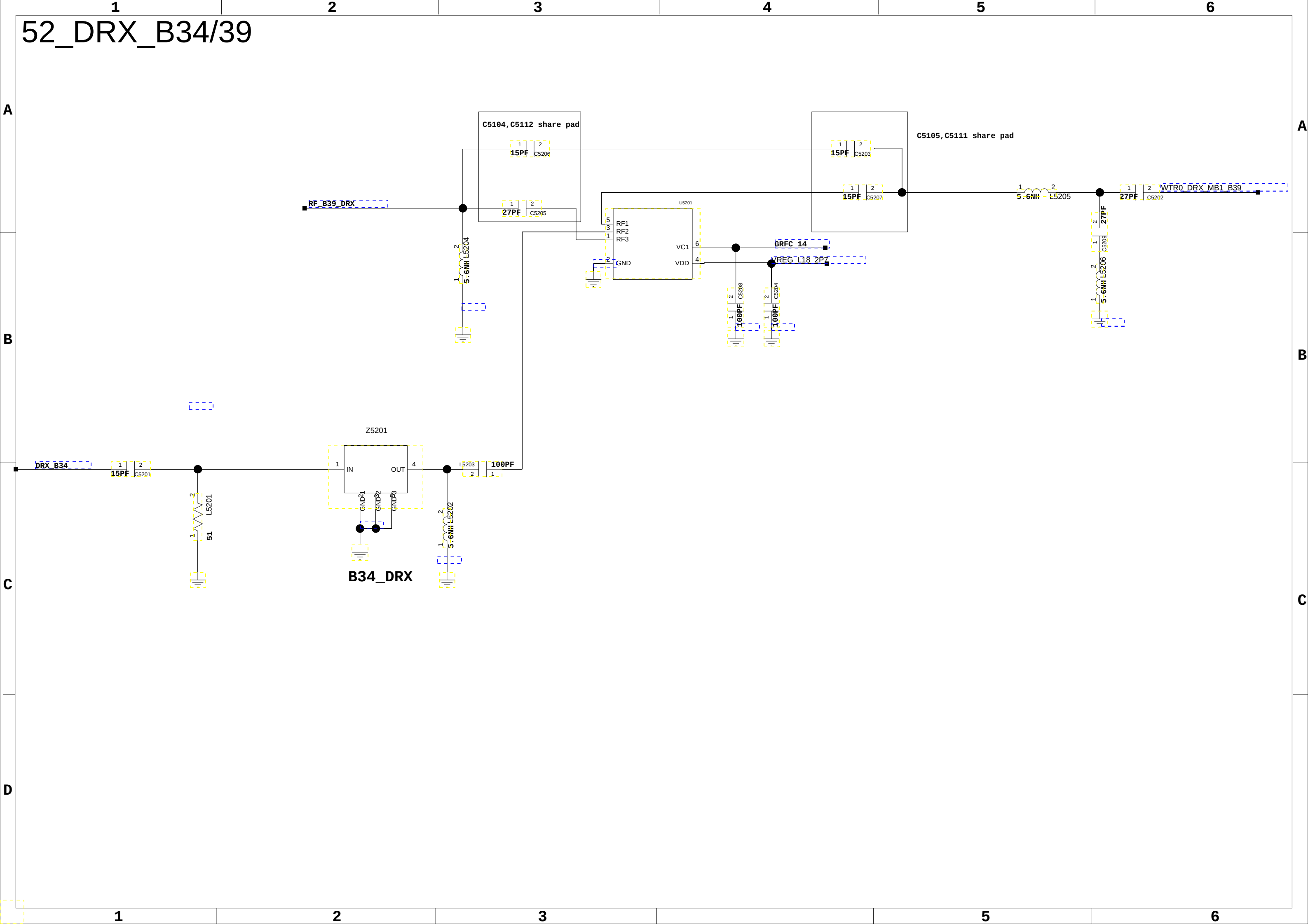
50_Diversity_ASM



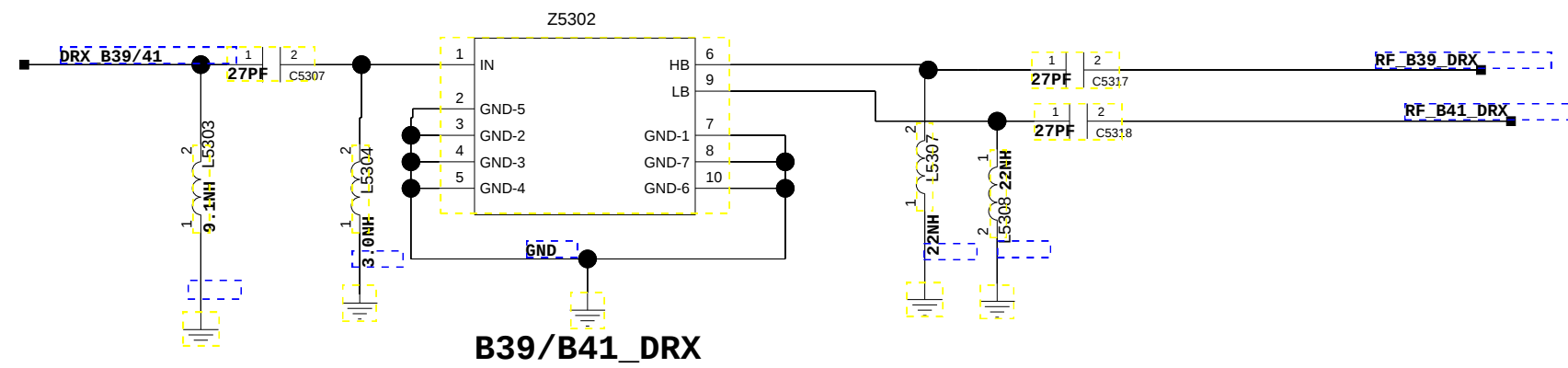
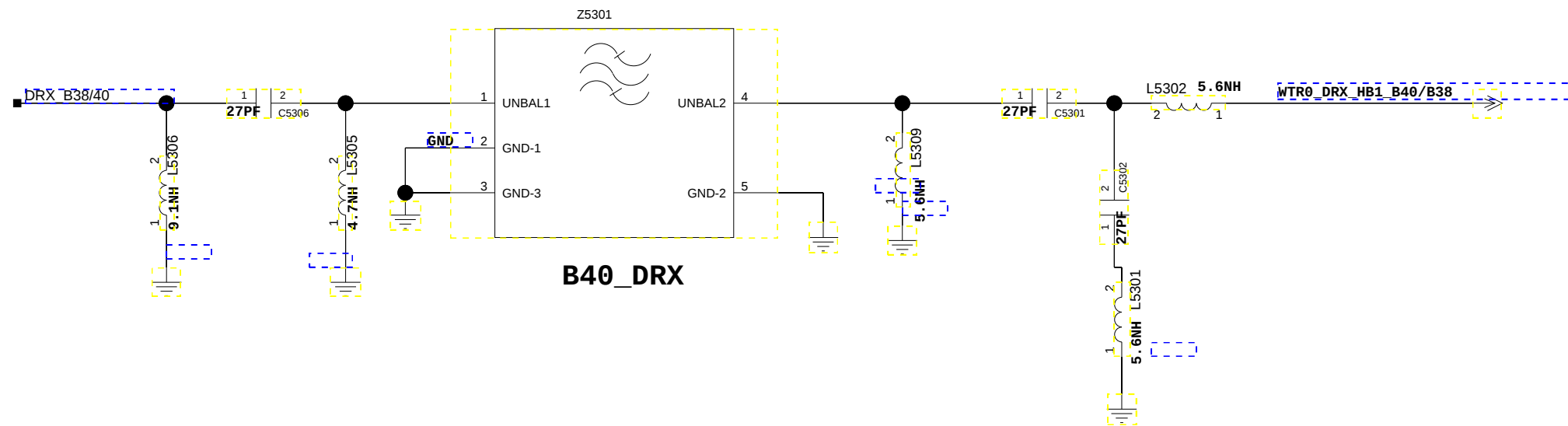
51_DRX_B7



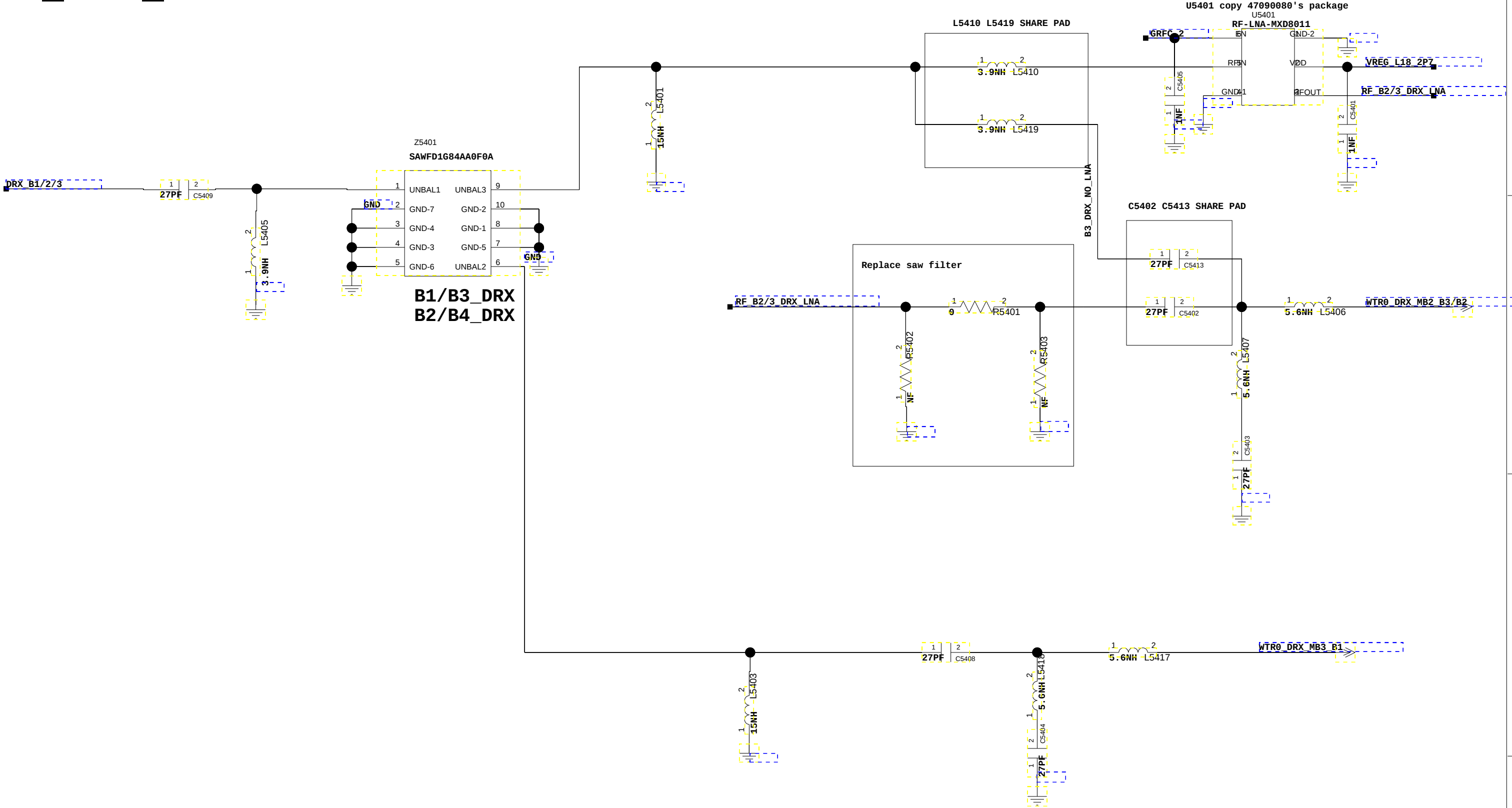
52_DRX_B34/39



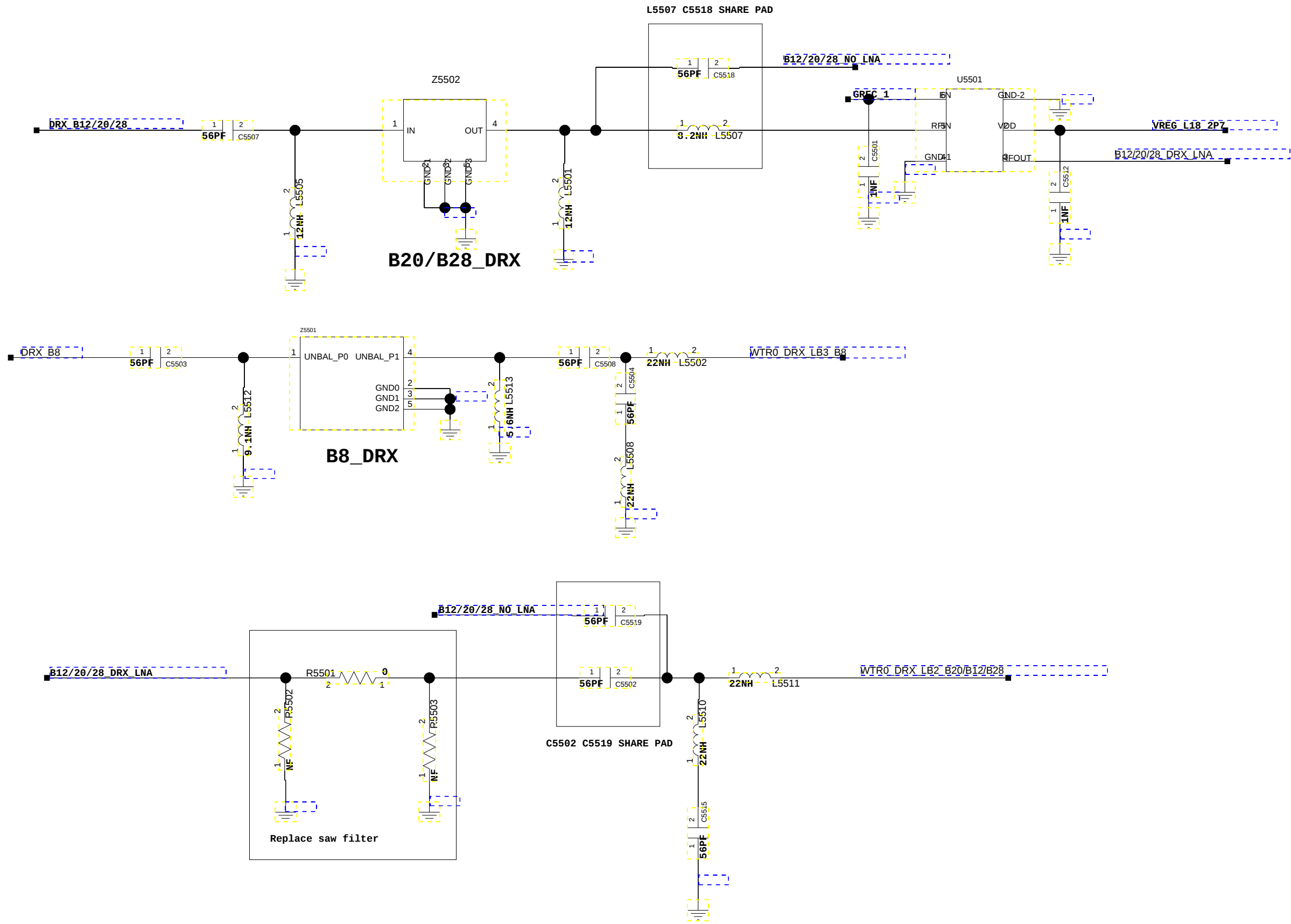
53_DRX_B38/39/40/41



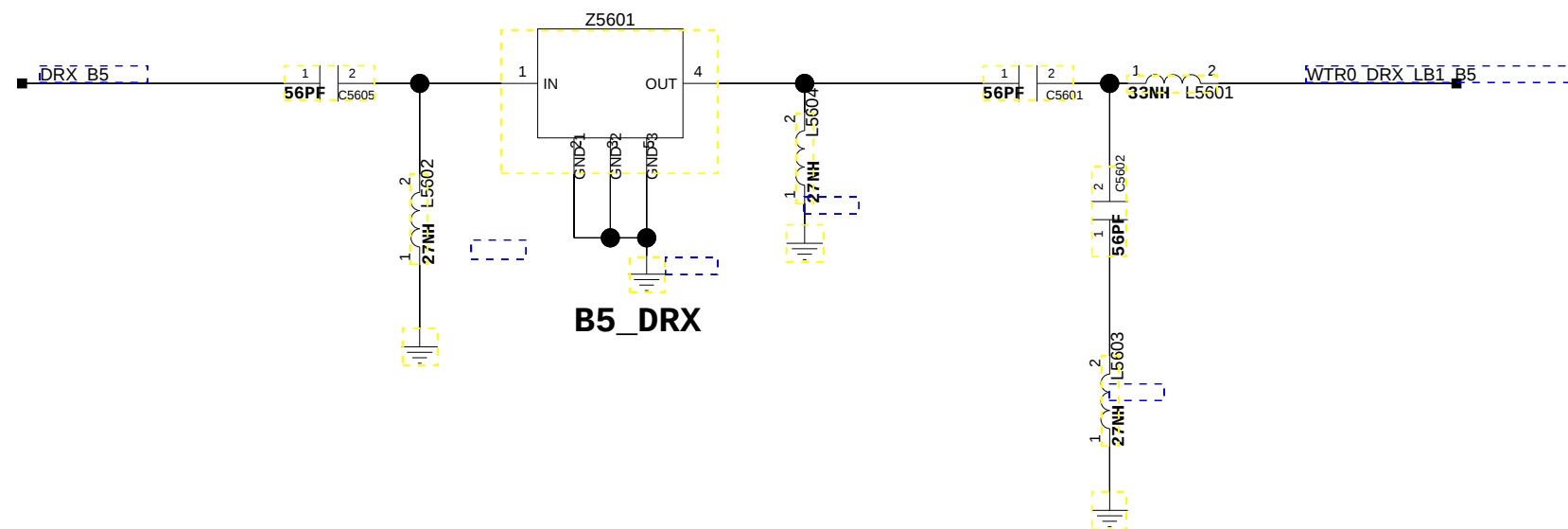
54_DRX_B1/2/3/4



55_DRX_B28/20/12/8

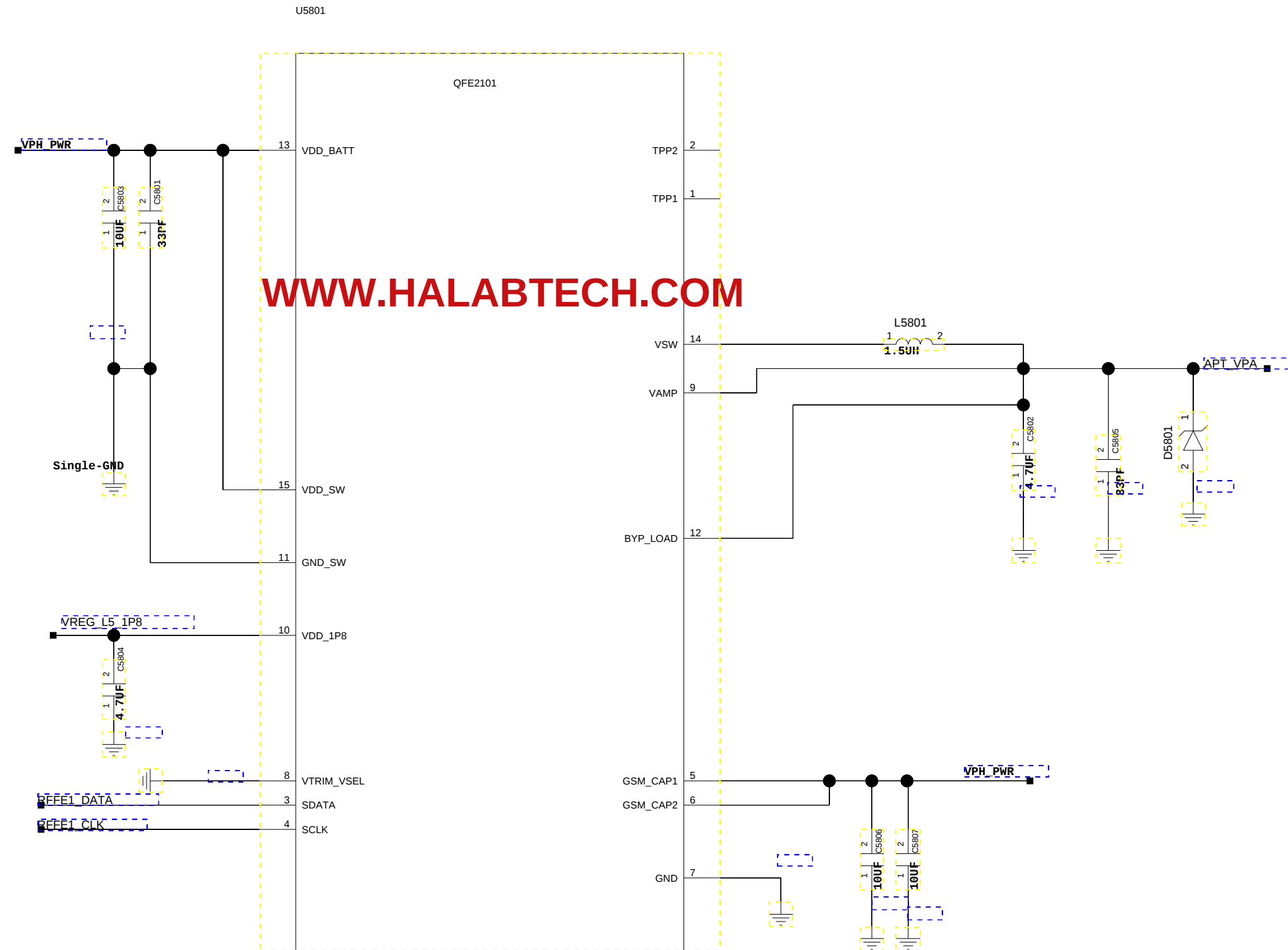


56_DRX_B5

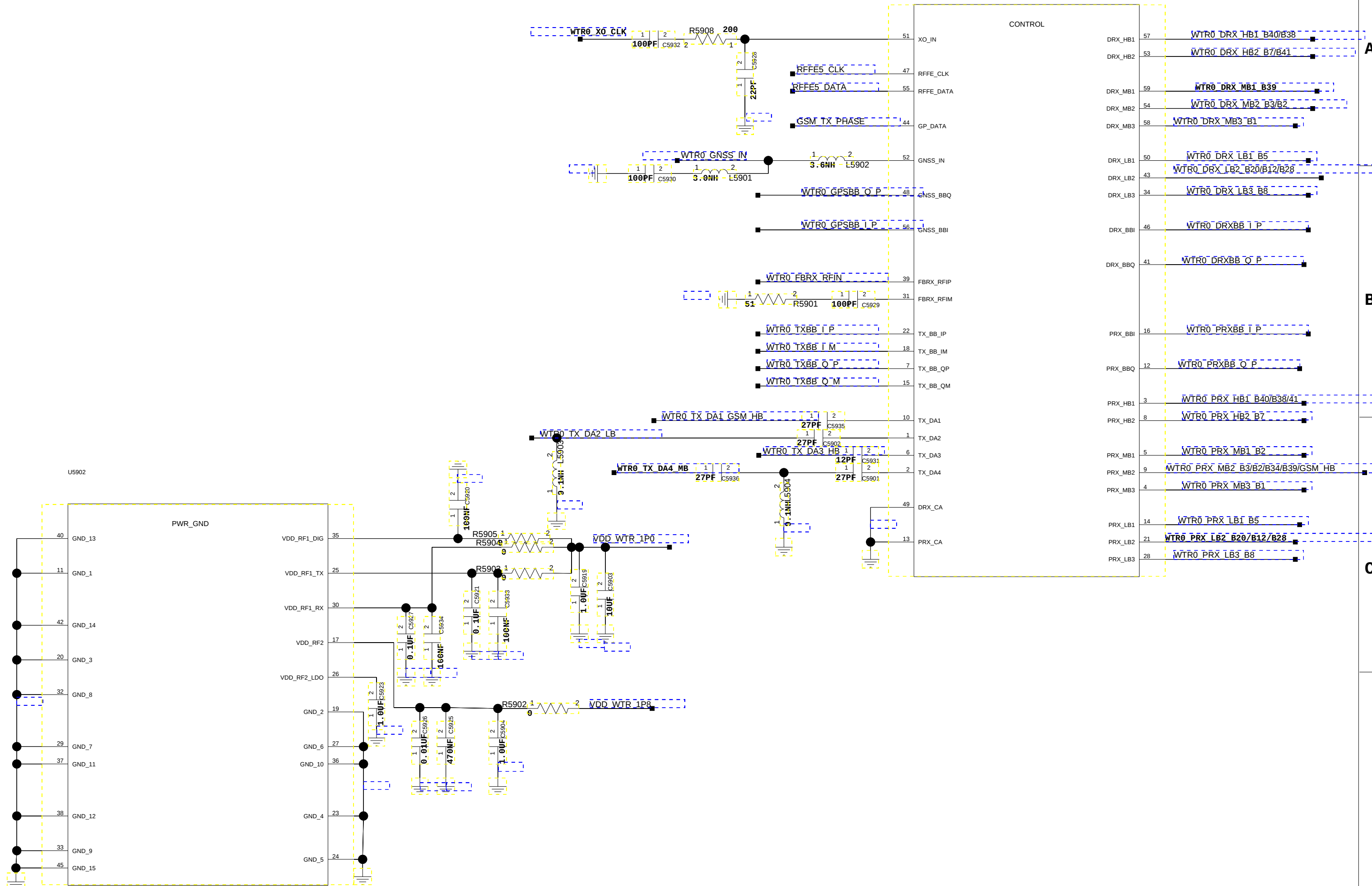


1	2	3	4	5	6
57_Reserved					
A					A
B					B
C					C
D					

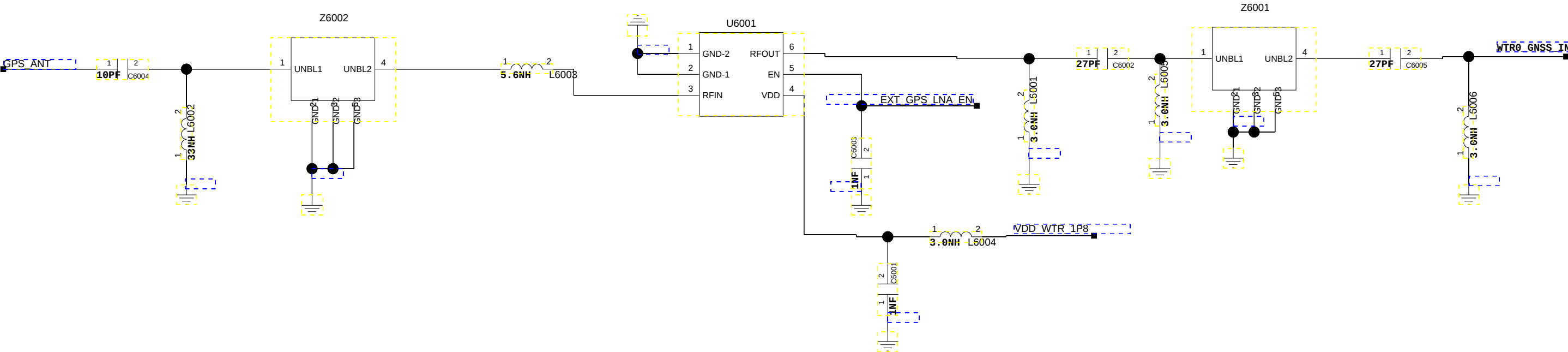
58.ET APT



59.WTR2965



60_GPS



61_WCN3615 BB

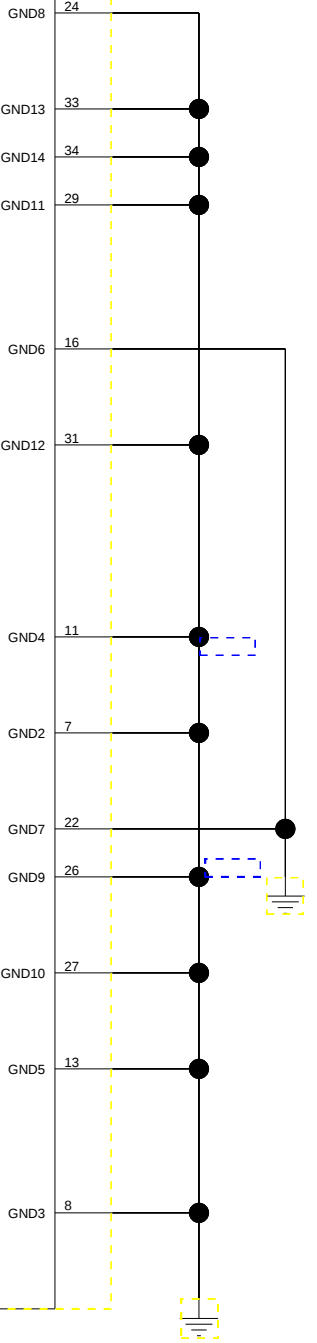
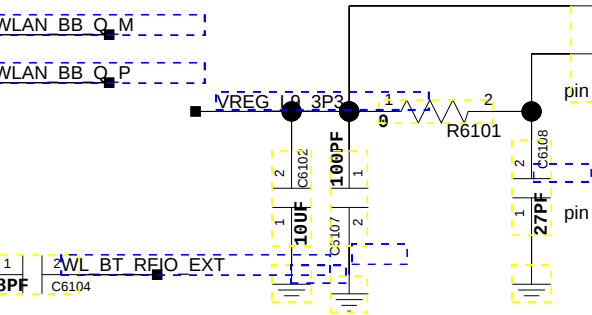
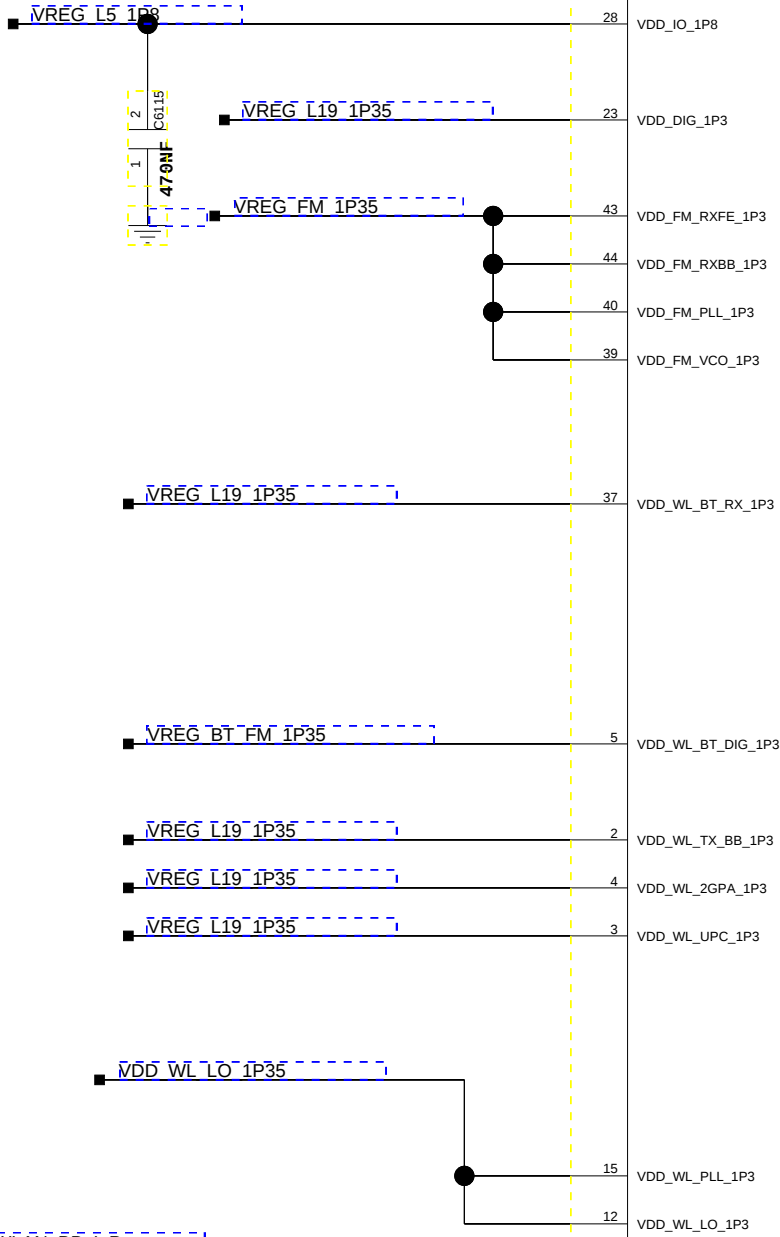
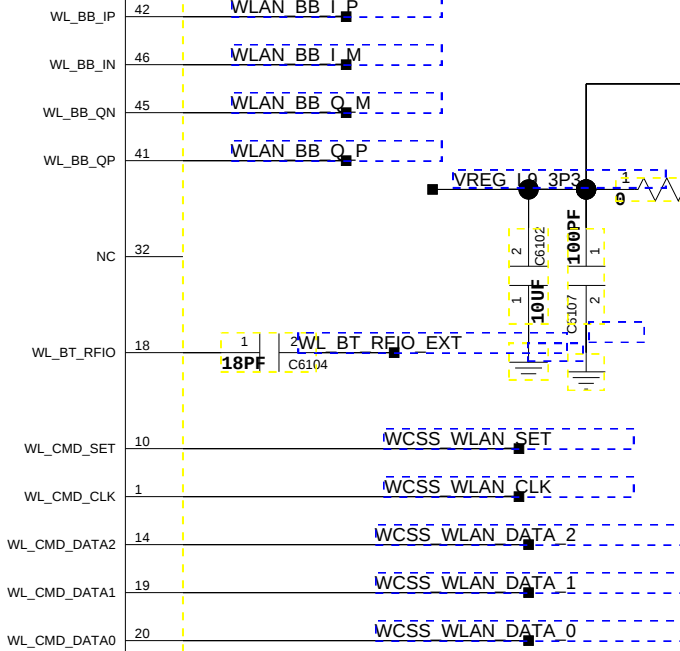
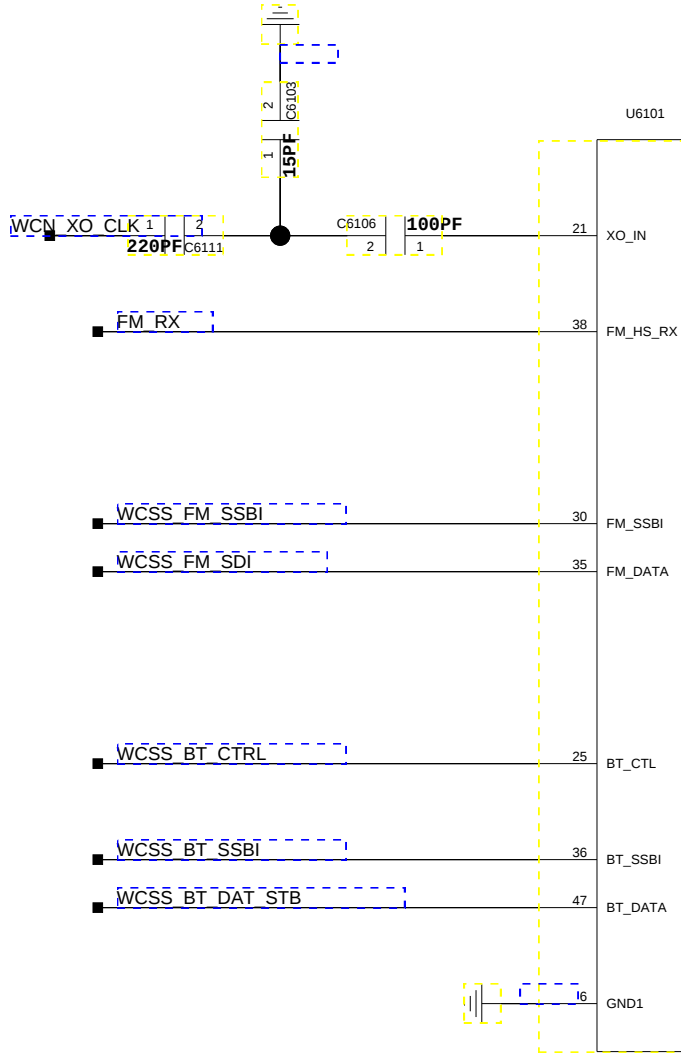
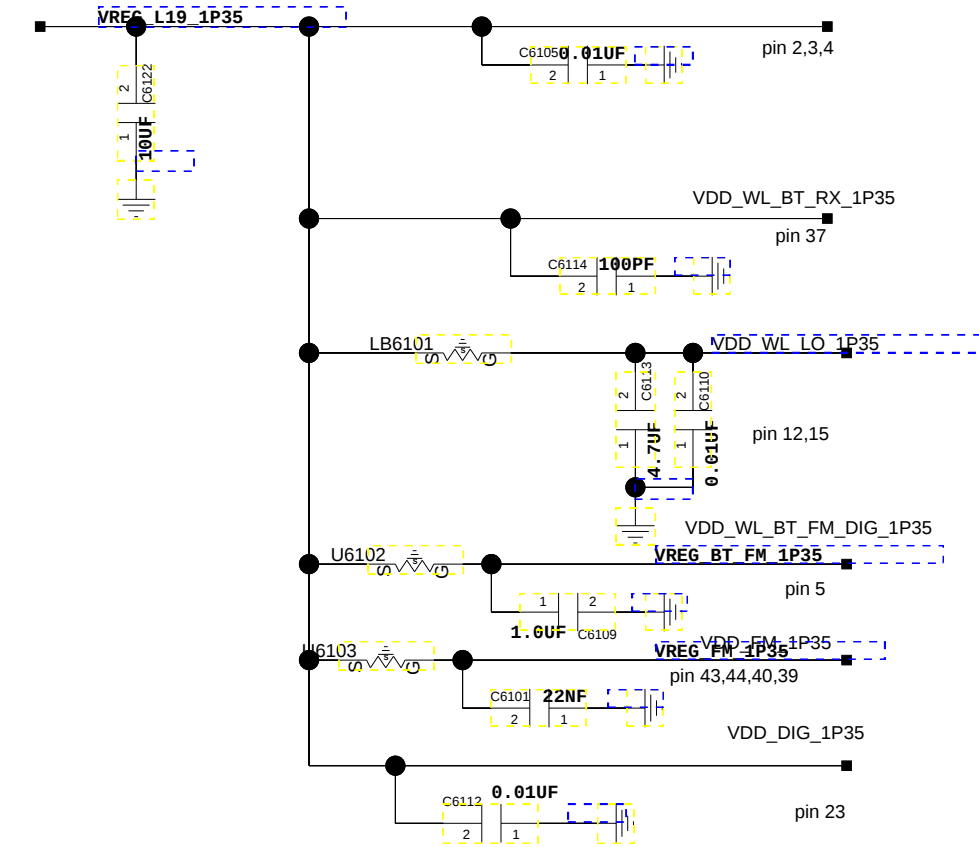
VDD_WL_TXBB_1P35/VDD_WL_PA_1P35/VDD_WL_UPC_1P35

A

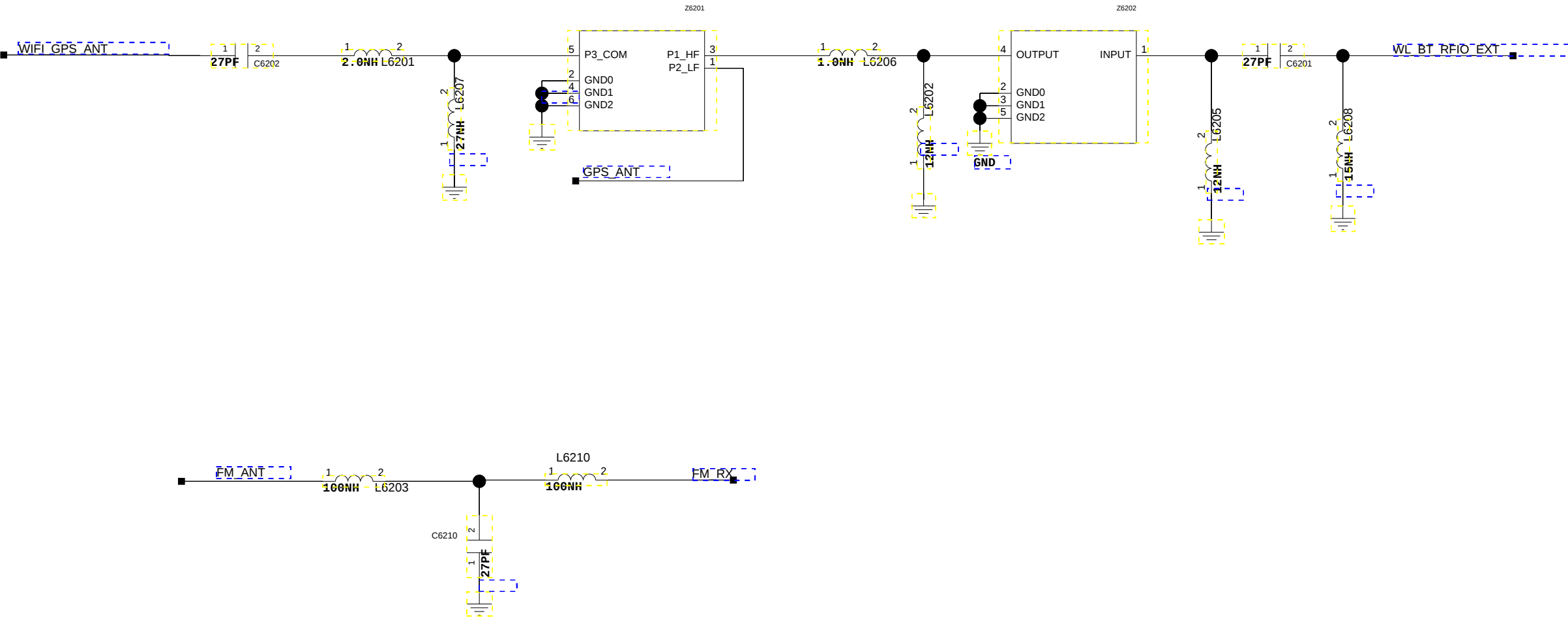
B

C

D



62_WCN3615 RF



	1	2	3	4	5	6
A	65.Reserved					
B						
C						
D						

1

2

3

4

5

6

66 ANT TUNER

A

A

B

B

C

C

D

1

2

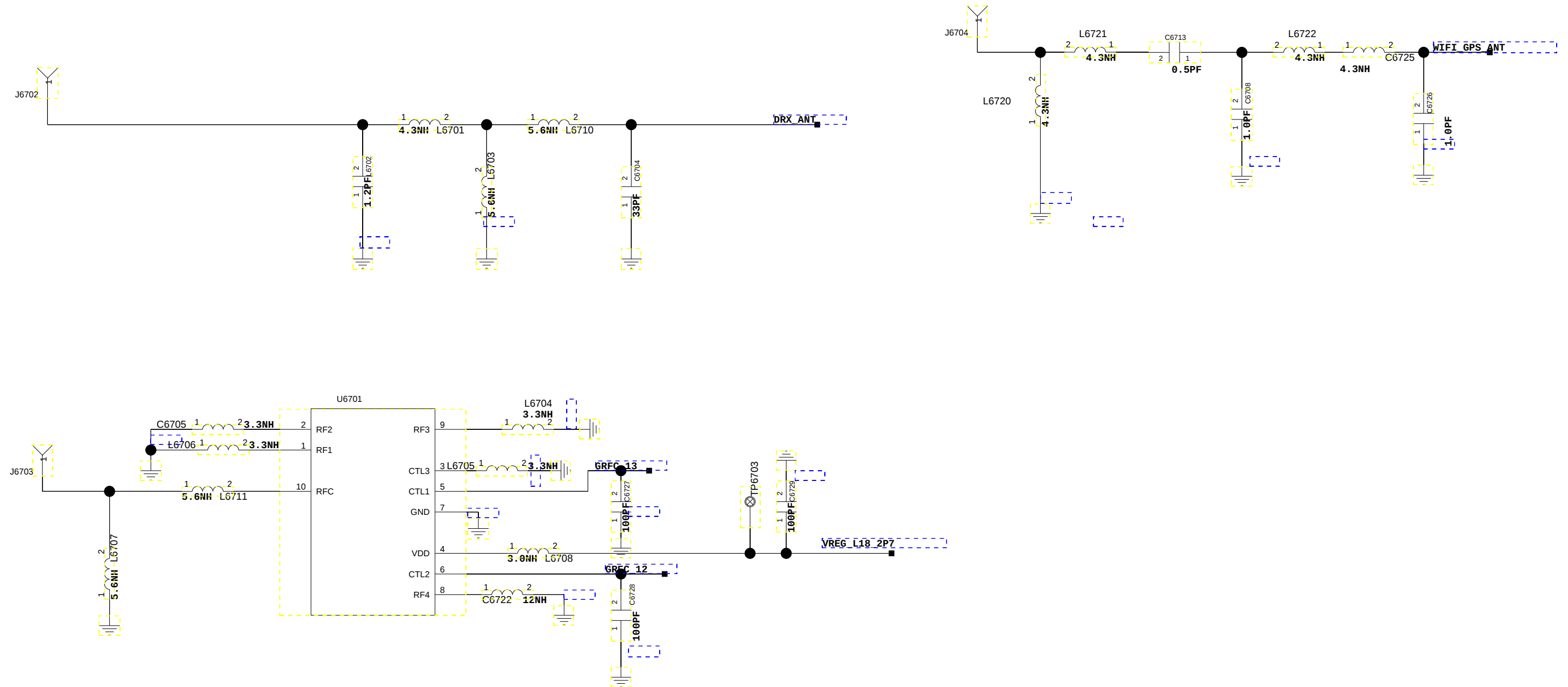
3

5

6

67.ANTENNA MATCH

DIV Ant



	1	2	3	4	5	6
A	69.Reserved					
B						
C						
D						
	1	2	3		5	6

	1	2	3	4	5	6
A	69.Reserved					
B						
C						
D						
	1	2	3		5	6