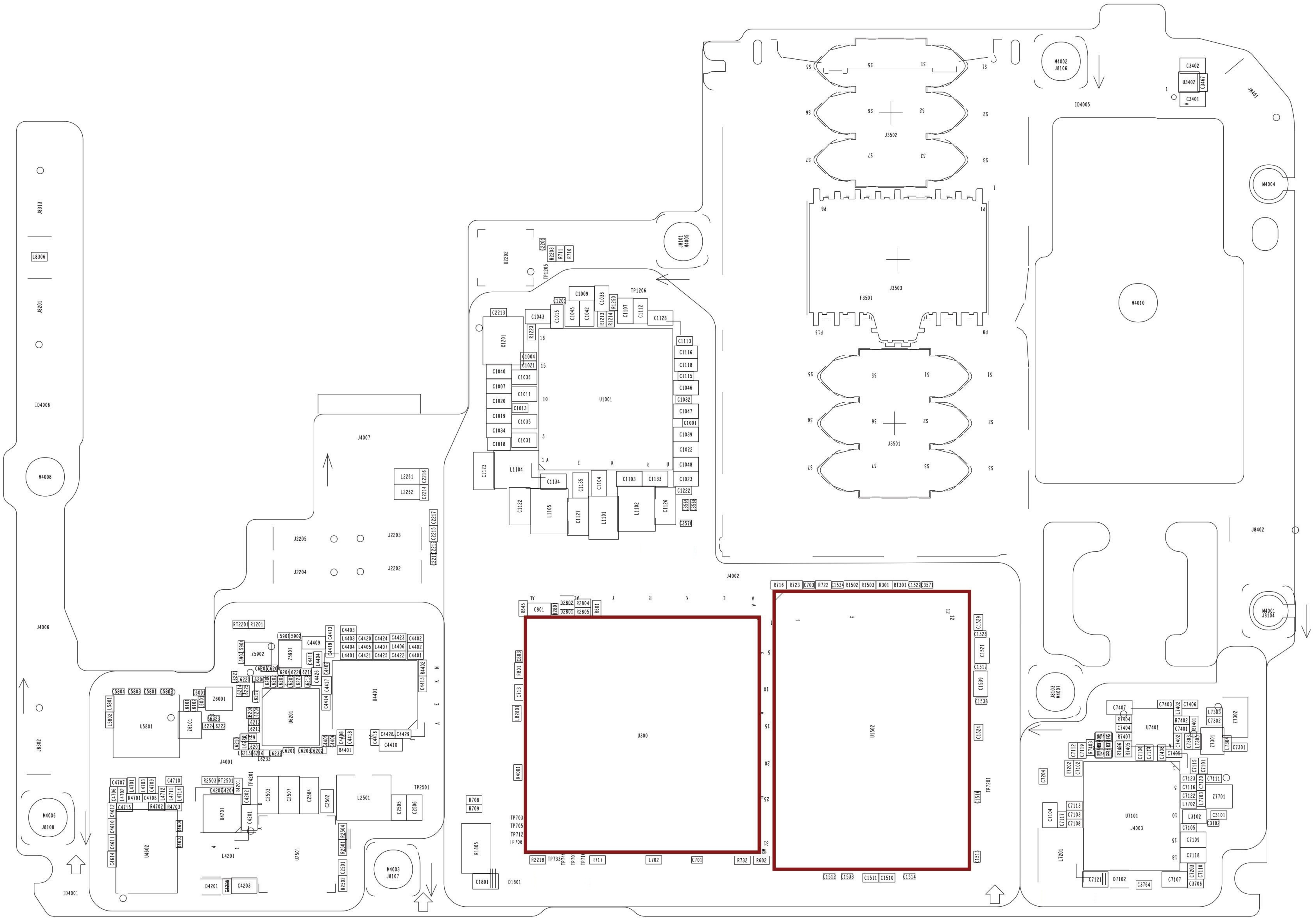
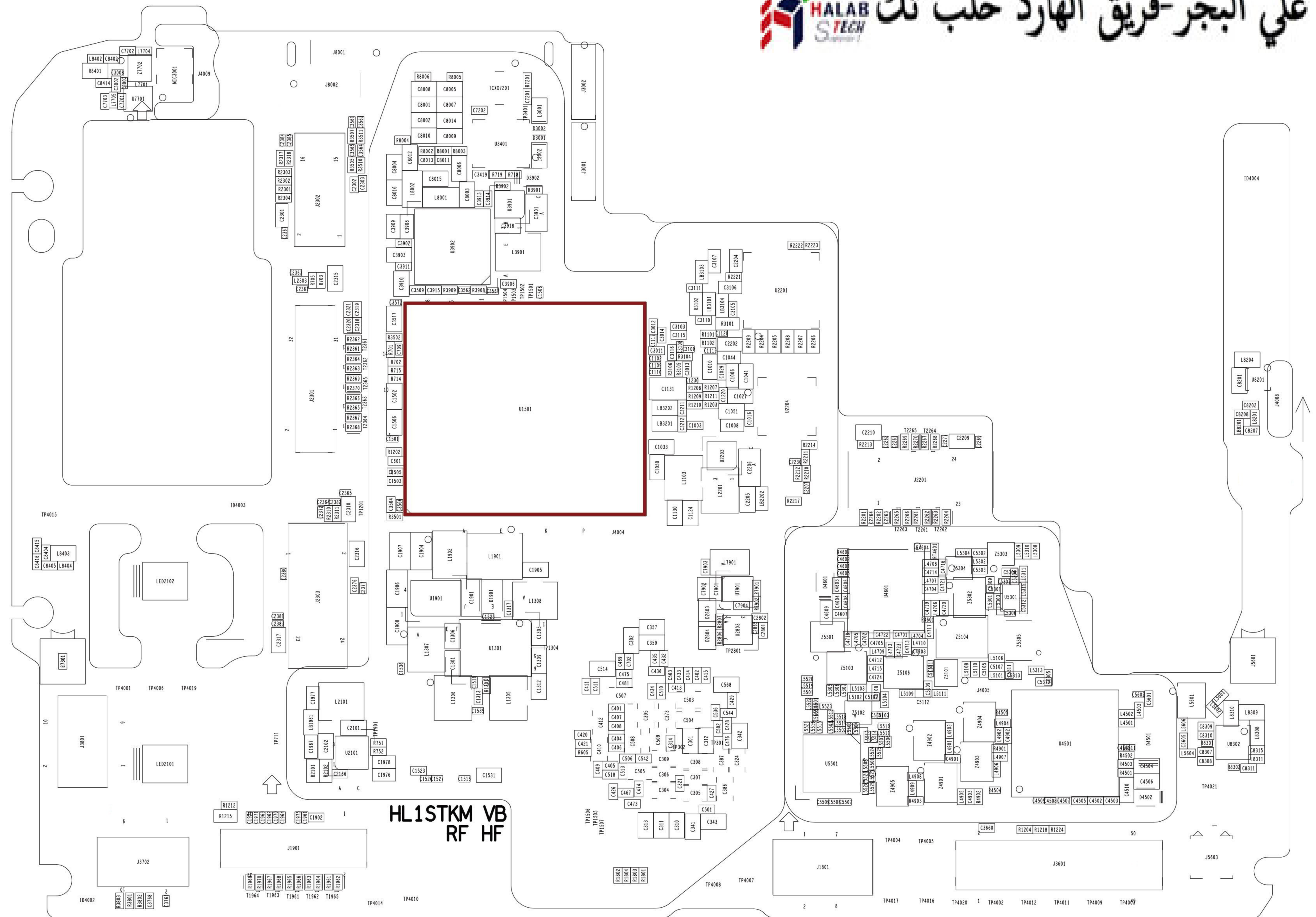


HUAWEI Y9 PRIME 2019 STK-L21



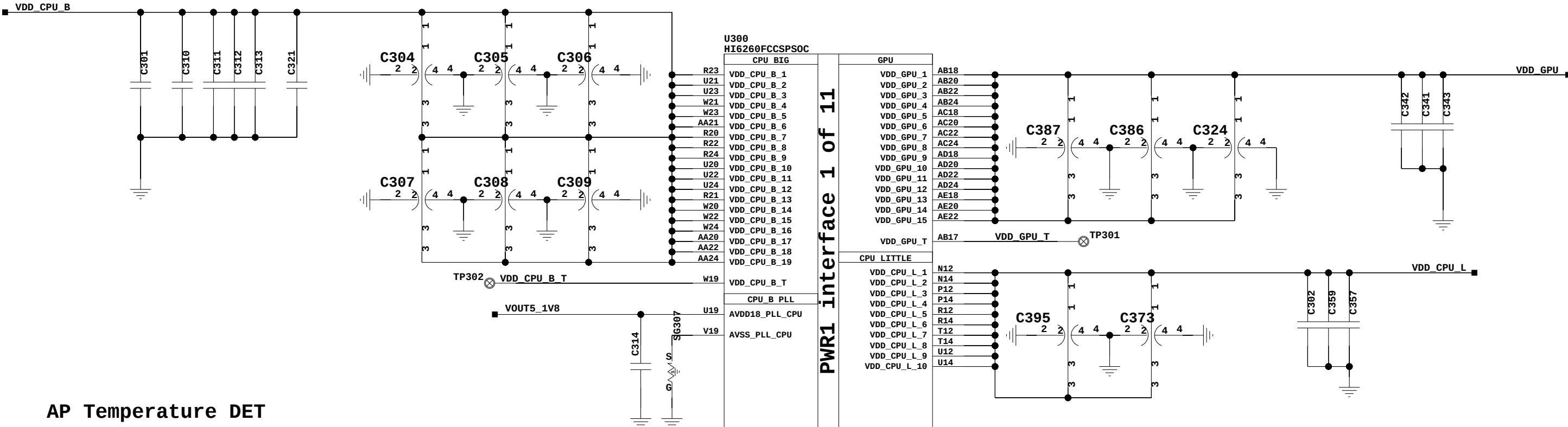
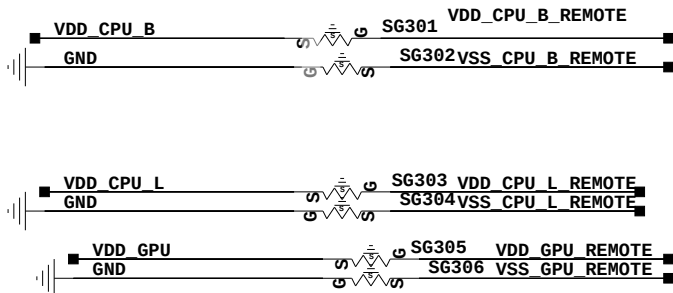
علي البجر فريق الهارد حلب تك 



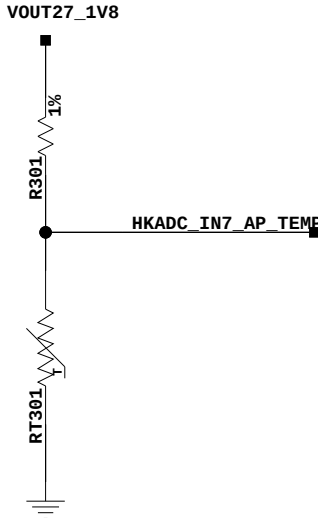
	1	2	3	4	5	6
A	Baseband Schematic			MODEM Schematic		
	1. Contents		31. Headphone			
	2. Block Diagramm		32. Smart PA	41. Interface	79. ANT Tuner controller	
	3. SOC PWR1		33. Smart PA Reserved	42. RF PMU	80. ANT NFC	
	4. SOC PWR2		34. X-sensor	43. RF PMU Reserved	81. ANT GND	
	5. SOC PWR3		35. SIM SDcard	44. RFIC0 6353	82. ANT DIV feed	
	6. SOC HS Interface		36. FPC Interface 1	45. PA0 TXM	83. ANT DIV Tuner	
	7. SOC GPIO Interface		37. FPC Interface 2	46. PA1 MMBPA	84. ANT GPS WIFI	
	8. SOC RF Interface		38. LED/Key	47. PA2 TX Loadpull	85. ANT MIMO	
	9. SOC GND		39. NFC BB	48. PA3 reserved		
B	10. PMU LDO		40. Test Points/Shields	49. TRX LB 1		
	11. PMU BUCK_CODEC			50. TRX LB 2 Reserved		
	12. PMU Digital			51. TRX MB 1		
	13. HI6422			52. TRX HB 2 Reserved		
	14. Hi6422 Reserved			53. TRX HB 1		
	15. EMMC/DDR			54. TRX HB 2 Reserved		
	16. UFS/DDR Reserved			55. PRX LNA Module		
	17. External Codec Reseved			56. MAIN DPDT		
	18. Battery			57. MAIN DPDT Reserved		
	19. TP/LCD			58. DRX Switch		
C	20. TP/LCD Reserved			59. DRX LB		
	21. Flash/CAM LDO			60. DRX MB		
	22. Front Camera/MIPI SW			61. DRX HB		
	23. Main Camera			62. DRX LNA Module		
	24. CAM Reserved			71. NC POWER		
	25. Scharger			72. NC BB Miami		
	26. Direct Charger Reserved			73. NC 2G/5G/GPS		
	27. Wireless Charger Reserved			74. NC FE WIFI 5G 599		
	28. USB Interface			77. NC GPS		
	29. USB Interface Reserved					
D	30. MIC/RCV					
	1	2	3	4	5	6

	1	2	3	4	5	6
A	2.Block Diagram					
B						
C						
D						
	1	2	3	4	5	6

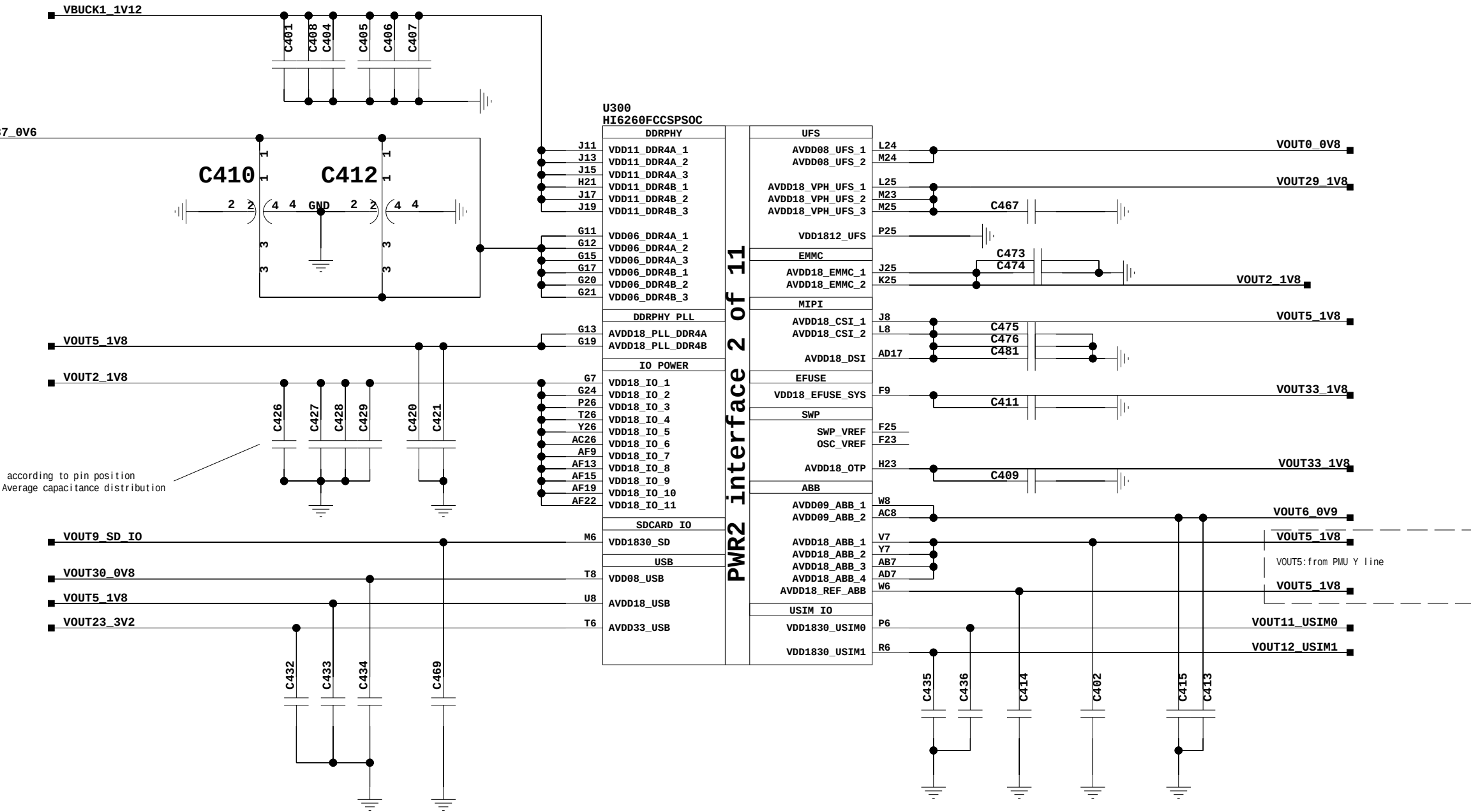
3.SOC PWR1



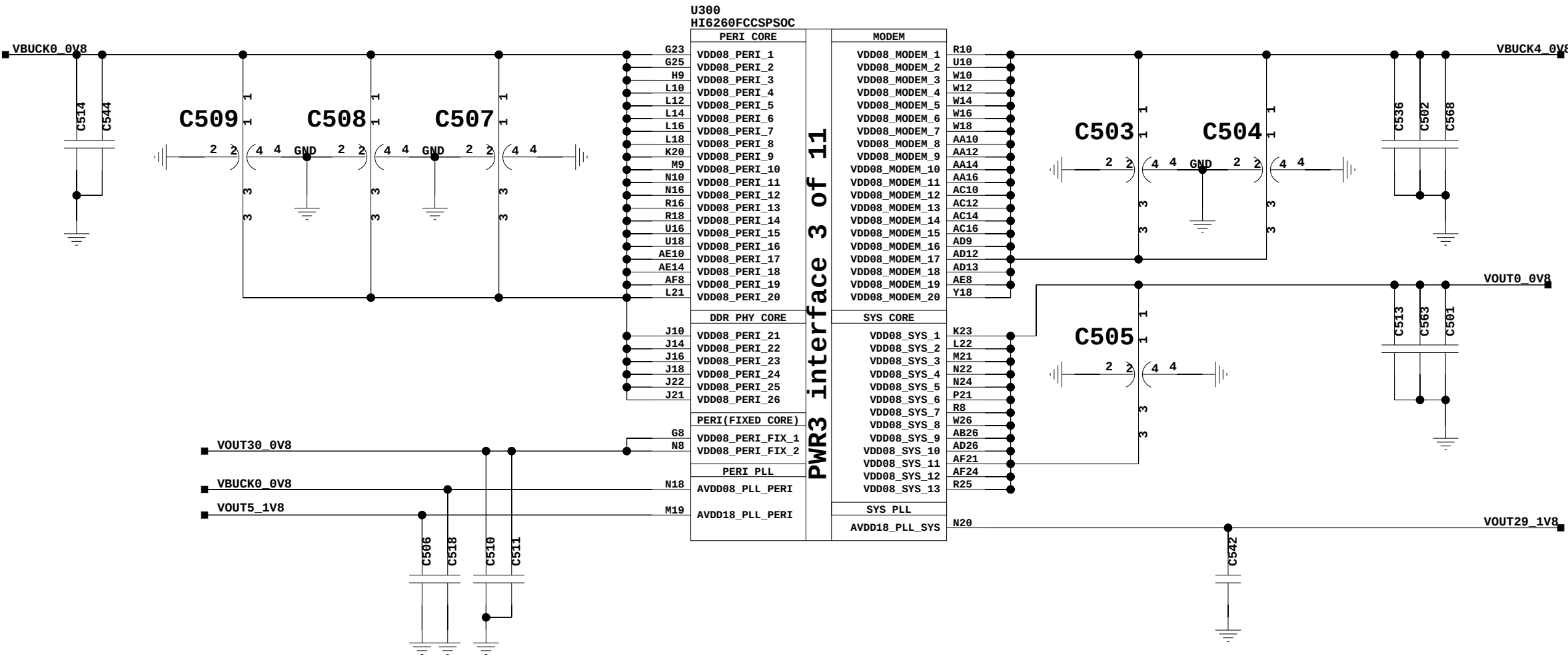
AP Temperature DET



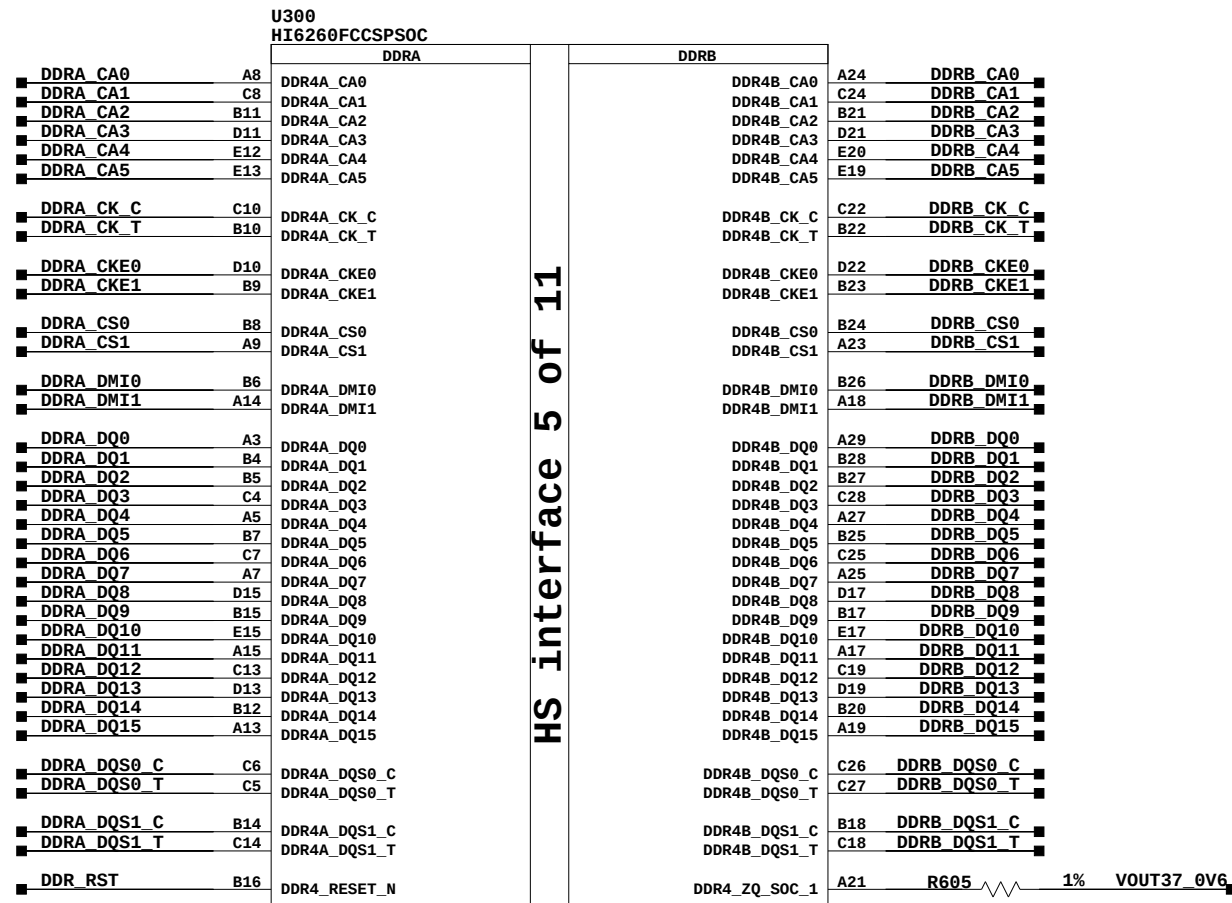
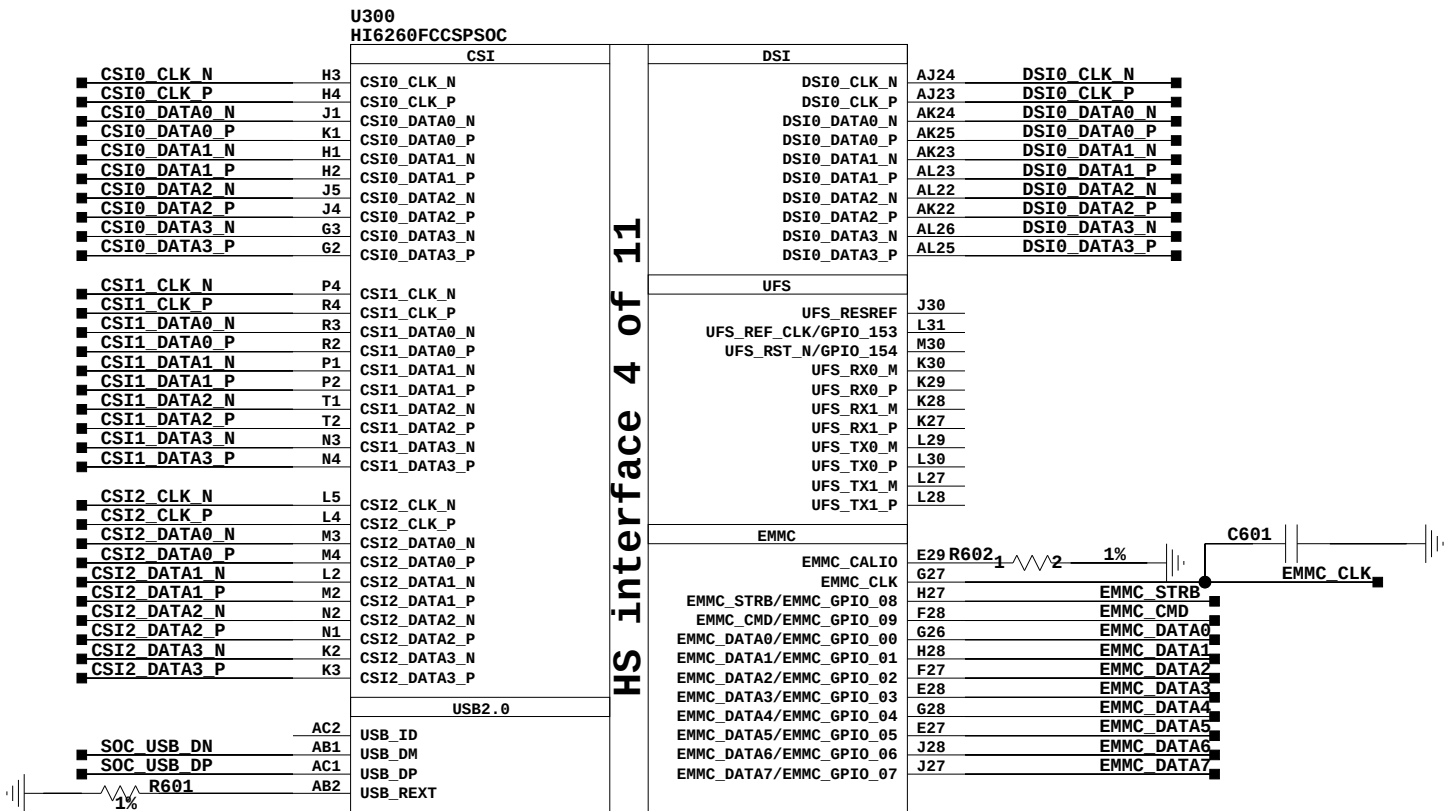
4.SOC PWR2



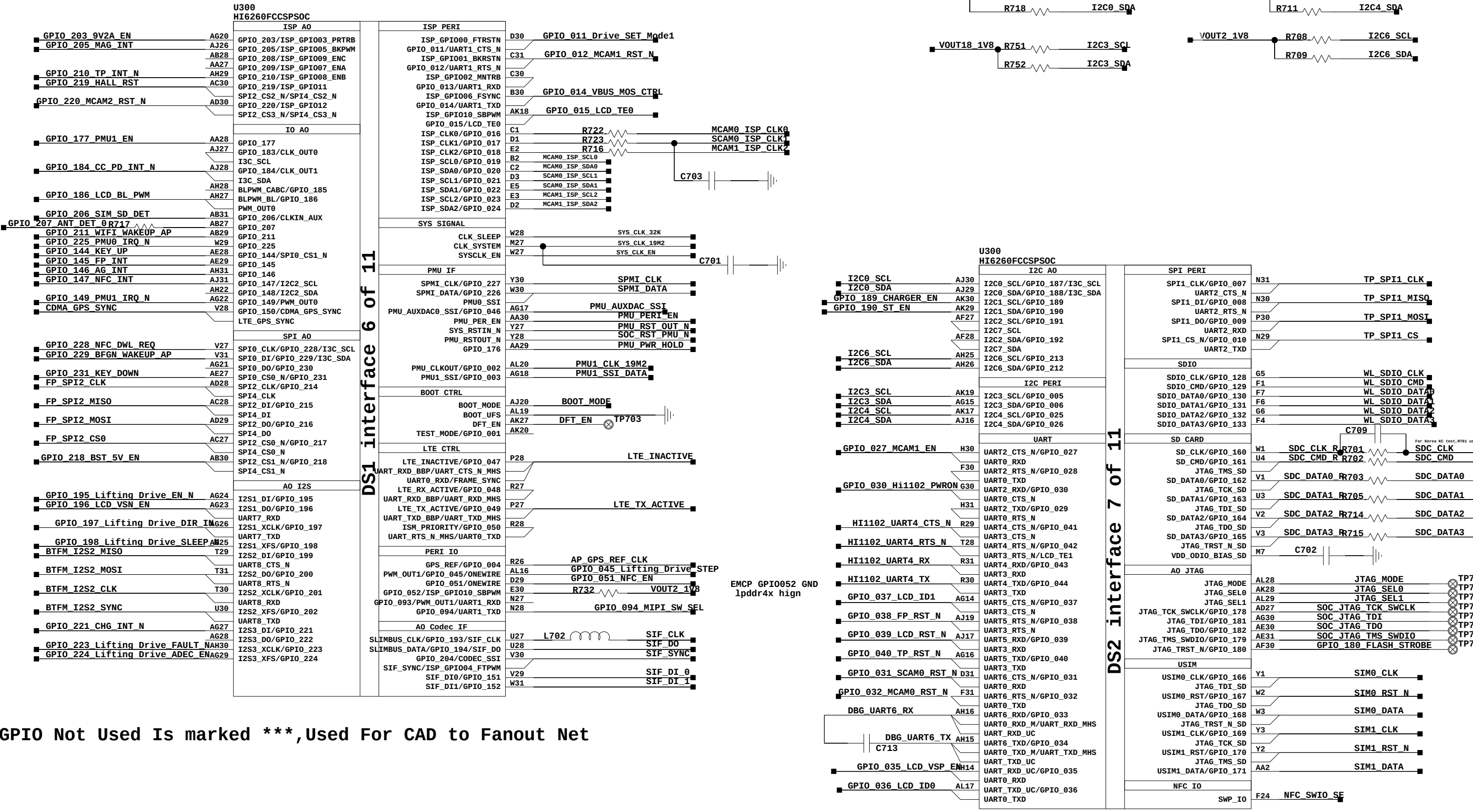
5.SOC PWR3



6.SOC HS Interface



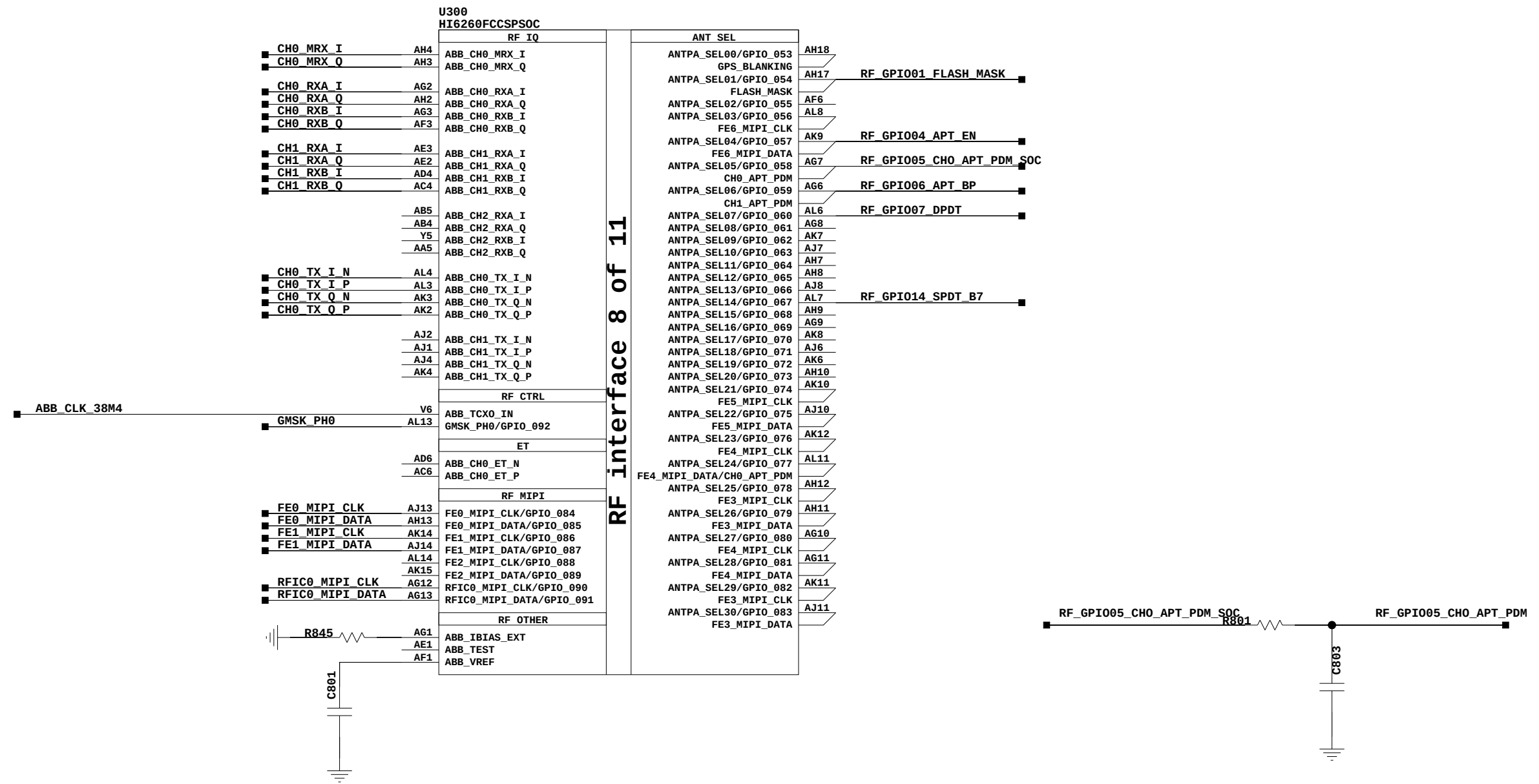
7.SOC GPIO Interface



GPIO Not Used Is marked ***,Used For CAD to Fanout Net

8.SOC RF Interface

RF IO Not Used Is marked ***,Used For CAD to Fanout Net



9.SOC GND

U300
HI6260FCCSPSOC

U7 AVSS_ABB_1
W5 AVSS_ABB_2
Y4 AVSS_ABB_3
Y6 AVSS_ABB_4
AA4 AVSS_ABB_5
AA6 AVSS_ABB_6
AA8 AVSS_ABB_7
AB3 AVSS_ABB_8
AB6 AVSS_ABB_9
AC3 AVSS_ABB_10
AC5 AVSS_ABB_11
AD3 AVSS_ABB_12
AD5 AVSS_ABB_13
AK1 AVSS_ABB_14
AE4 AVSS_ABB_15
AE5 AVSS_ABB_16
AE6 AVSS_ABB_17
AF4 AVSS_ABB_18
AF5 AVSS_ABB_19
AG4 AVSS_ABB_20
AH5 AVSS_ABB_21
AJ3 AVSS_ABB_22
AJ5 AVSS_ABB_23
AL1 AVSS_ABB_24
AL2 AVSS_ABB_25

A1 VSS_1
A2 VSS_2
A11 VSS_3
A30 VSS_4
A31 VSS_5
B1 VSS_6
B3 VSS_7
B13 VSS_8
B19 VSS_9
B29 VSS_10
B31 VSS_11
C3 VSS_12
C9 VSS_13
C16 VSS_14

VSS_15
VSS_16
VSS_17
VSS_18
VSS_19
VSS_20
VSS_21
VSS_22
VSS_23
VSS_24
VSS_25
VSS_26
VSS_27
VSS_28
VSS_29
VSS_30
VSS_31
VSS_32
VSS_33
VSS_34
VSS_35
VSS_36
VSS_37
VSS_38
VSS_39
VSS_40
VSS_41
VSS_42
VSS_43
VSS_44
VSS_45
VSS_46
VSS_47
VSS_48
VSS_49
VSS_50
VSS_51
VSS_52
VSS_53
VSS_54

D20
D24
D25
D27
D28
E4
E7
E9
E10
E11
E14
E16
E18
E21
E22
E23
E25
E26
F2
F8
F10
F11
F13
AA31
F15
F17
F19
F20
F22
F26
G1
G4
G10
G16
G18
G22
G29
H5
H6
H7

GND1 interface 9 of 11

U300
HI6260FCCSPSOC

J2 VSS_55
J7 VSS_56
J12 VSS_57
J20 VSS_58
P23 VSS_59
K4 VSS_60
K6 VSS_61
K7 VSS_62
K9 VSS_63
K11 VSS_64
K13 VSS_65
K15 VSS_66
K17 VSS_67
K19 VSS_68
K21 VSS_69
K26 VSS_70
K31 VSS_71
L7 VSS_72
L23 VSS_73
M1 VSS_74
M11 VSS_75
M13 VSS_76
M15 VSS_77
M17 VSS_78
M20 VSS_79
M26 VSS_80
M28 VSS_81
N5 VSS_82
N7 VSS_83
N11 VSS_84
N21 VSS_85
M8 VSS_86
N26 VSS_87
P5 VSS_88
P7 VSS_89
P9 VSS_90
P11 VSS_91
P13 VSS_92
P15 VSS_93
P17 VSS_94

VSS_95
VSS_96
VSS_97
VSS_98
VSS_99
VSS_100
VSS_101
VSS_102
VSS_103
VSS_104
VSS_105
VSS_106
VSS_107
VSS_108
VSS_109
VSS_110
VSS_111
VSS_112
VSS_113
VSS_114
VSS_115
VSS_116
VSS_117
VSS_118
VSS_119
VSS_120
VSS_121
VSS_122
VSS_123
VSS_124
VSS_125
VSS_126
VSS_127
VSS_128
VSS_129
VSS_130
VSS_131
VSS_132
VSS_133
VSS_134

R13
AF26
AA25
T4
T5
T9
T11
T13
T15
T17
T19
T21
T23
U26
U2
U5
U11
U13
V5
U25
V9
V11
V13
V15
V17
V21
V23
V26
W4
T25
C23
Y9
Y11
Y13
Y15
Y17
Y19
Y21
Y23
AA3

GND2 interface 10 of 11

U300
HI6260FCCSPSOC

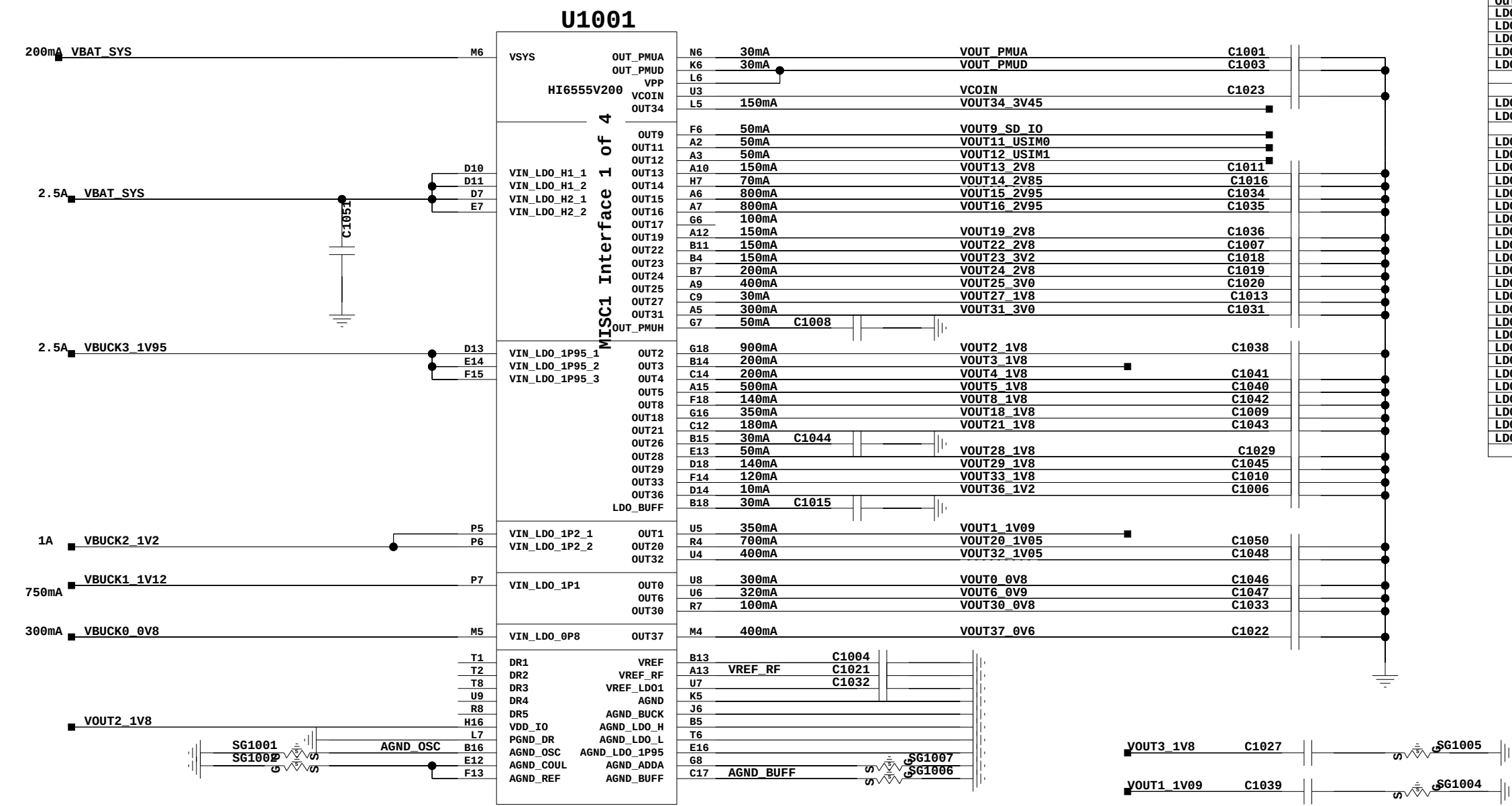
AB19 VSS_135
AB21 VSS_136
AB23 VSS_137
AK16 VSS_138
AC17 VSS_139
AC19 VSS_140
AC21 VSS_141
AC23 VSS_142
AC25 VSS_143
AD2 VSS_144
AD11 VSS_145
AD15 VSS_146
AD19 VSS_147
AD21 VSS_148
AD23 VSS_149
AE7 VSS_150
AE16 VSS_151
AE24 VSS_152
AE25 VSS_153
AE26 VSS_154
C29 VSS_155
G14 VSS_156
AF7 VSS_157
AF11 VSS_158
AF12 VSS_159
AF14 VSS_160
AF16 VSS_161
AF17 VSS_162
AF18 VSS_163
AG19 VSS_164
AH19 VSS_165
AH20 VSS_166
AH23 VSS_167
AJ21 VSS_168
AJ25 VSS_169
AD31 VSS_170
AK5 VSS_171
AK13 VSS_172
AK21 VSS_173

VSS_174
VSS_175
VSS_176
VSS_177
VSS_178
VSS_179
VSS_180
VSS_181
VSS_182
VSS_183
VSS_184
VSS_185
VSS_186
VSS_187
VSS_188
VSS_189
VSS_190
VSS_191
VSS_192
VSS_193
VSS_194
VSS_195
VSS_196
VSS_197
VSS_198
VSS_199
VSS_200
VSS_201
VSS_202
VSS_203
VSS_204
VSS_205
VSS_206
VSS_207
VSS_208
VSS_209
VSS_210

AK26
AK31
AG5
AG31
AL10
J23
AL30
AL31
AF23
T20
T22
V20
V22
Y20
Y22
Y25
AA18
D8
D12
H26
H29
R7
R11
AB13
AB15
D7
H25
V25
D6
AB11
D6
H22
P20
AB9
D4
H10
P19
AA26

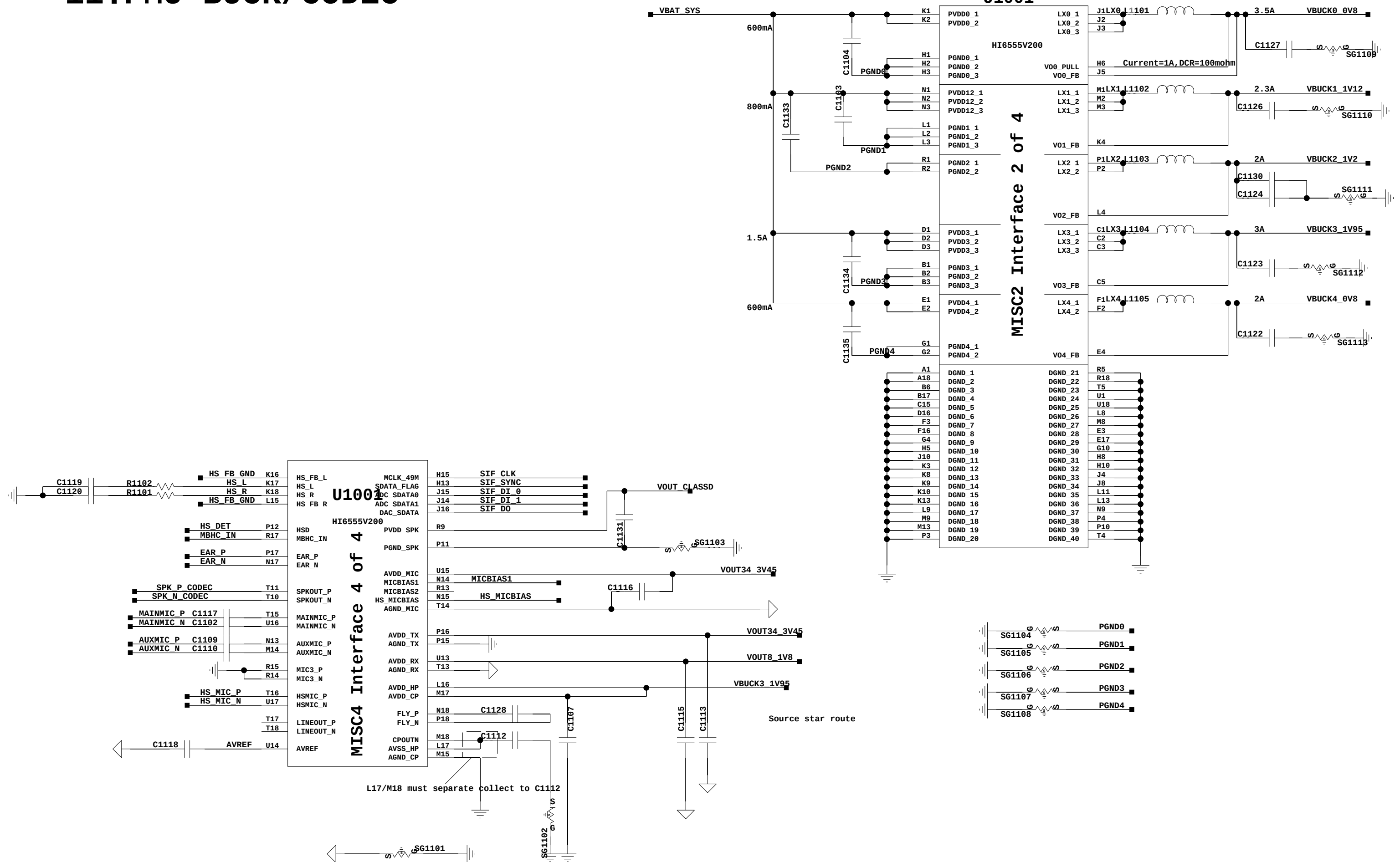
GND3 interface 11 of 11

10 . PMU LDO

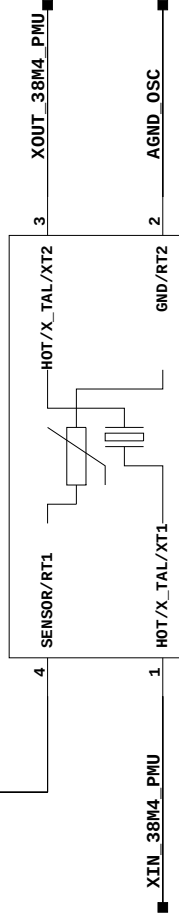
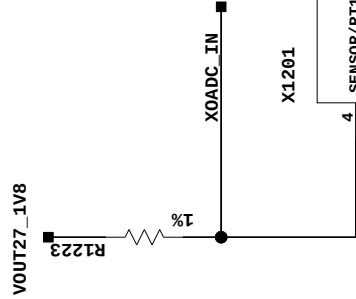
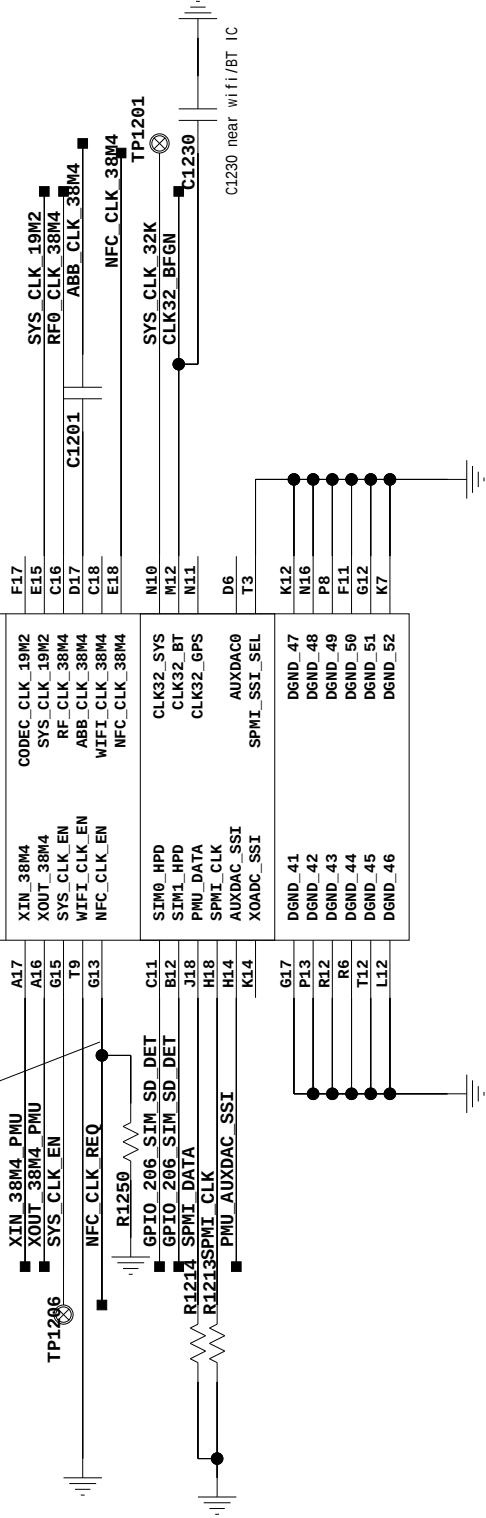
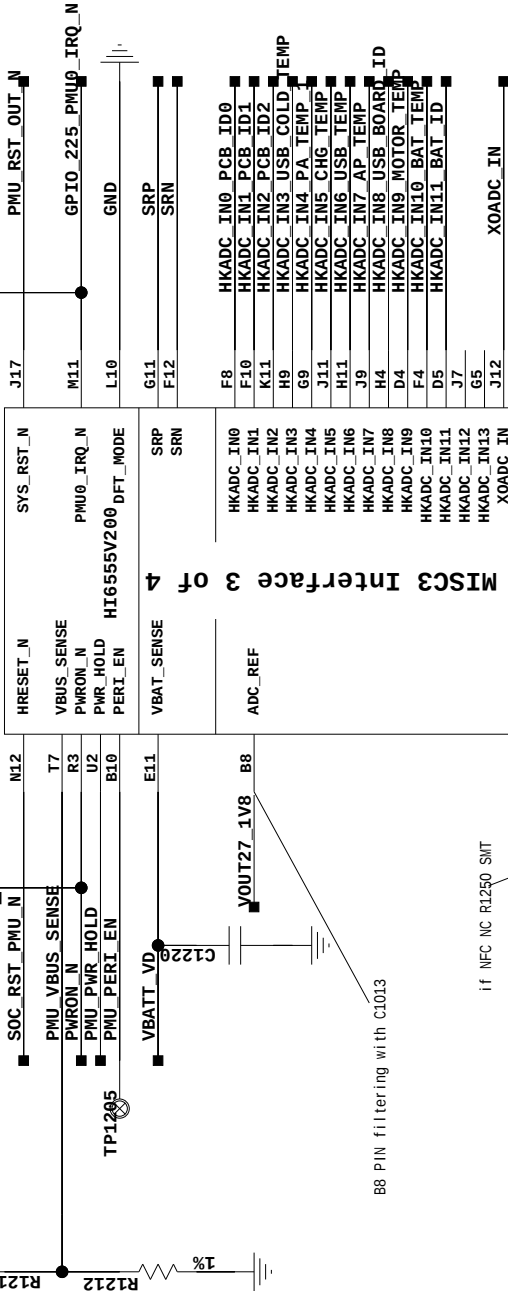
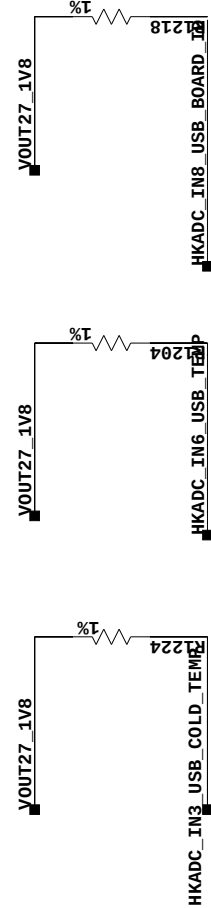
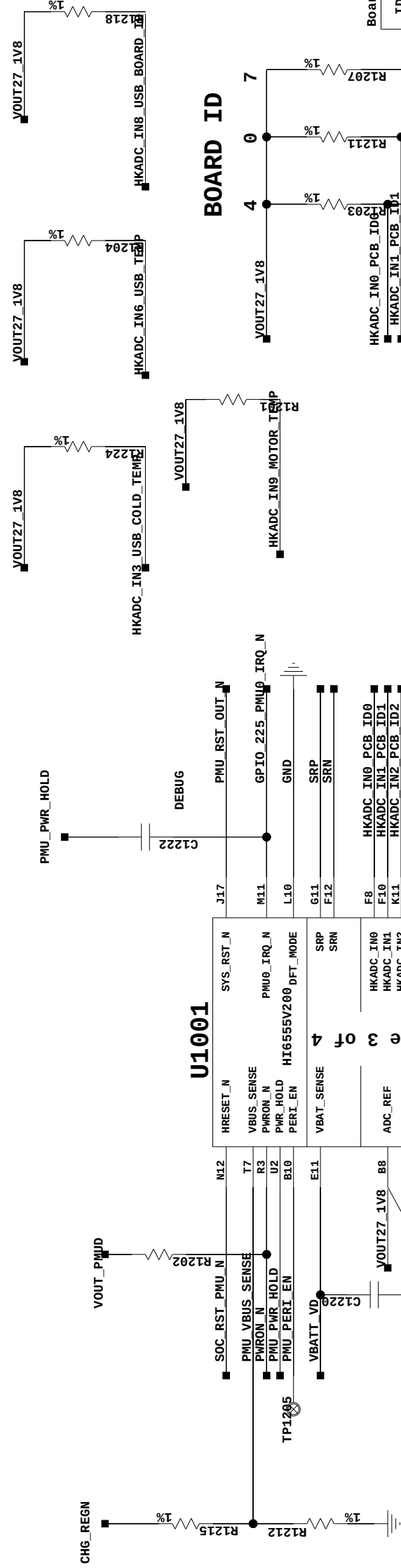


Output	default	current	TYP voltage	function
LD01	OFF	350	1.09	RFIC0 AVDD
LD02	ON	900	1.8	PMU dig/RFIC/SOC1V8IO/64031V8/LPDDR4X VDD/UFS
LD03	OFF	200	1.8	RFIC0 AVDD2
LD04	OFF	200	1.8	LCD1V8 IO/TP1V8 IO
LD05	ON	500	1.8	PHY ANA/ABB AVDD1V8
LD08	OFF	140	1.8	6403ANALOG/CLASSD1V8
LD09	OFF	50	1.8/2.95	SD IO
LD011	OFF	50	1.8	SIM0
LD012	OFF	50	1.8	SIM1
LD013	OFF	150	2.85	S camera analog
LD014	OFF	70	2.85	RF FEM/AUXDAC
LD015	ON	800	2.95	EMMC/UFS VDD
LD016	OFF	800	2.95	SD card
LD017	OFF	100	2.8	LCD TP VCI
LD018	ON	350	1.8	fp/SENSOR IO FP AVDD/CON IO/NFC IO
LD019	OFF	300	2.8	M camera anlog
LD020	OFF	400	1.11	M Camera Core
LD021	OFF	180	1.8	Camera io
LD022	OFF	150	2.8	Back Camera Analog
LD023	ON	150	3.2	HKADC
LD024	ON	200	2.8	X Sensor AVDD
LD025	OFF	400	3.0	Camera VCM/mipi switch
LD026	ON	30	1.35	38.4 AVDD
LD027	ON	50	1.8	HKADC
LD028	OFF	50	1.8	RF MIPI I/O
LD029	ON	140	1.8	UFS PHY/SYS CLK BUF
LD030				
LD031	OFF	300	3.0	Vibrator
LD032	OFF	400	1.1	S Camera Core
LD033	OFF	120	1.8	EFUSE
LD034	ON	150	3.45	CODEC RCV/MICBIAS

11.PMU BUCK/CODEC



12. PMU Digital



Mode	boardID	R1207	R1208	R1211	R1209	R1203	R1210
L21A/L01A	7700	30K	100K	NC	0	NC	0K
L21AME	7701	30K	100K	NC	0	150K	V3
L22B	7702	30K	100K	NC	0	100K	30K
L23B/L03B	7703	30K	100K	NC	0	200K	100K
L21A/L01A	7704	30K	100K	NC	0	150K	121K
L21AME/BME	7708	30K	100K	NC	0	20K	150K

	R1218	Code	Value
STK-L21A	L01A/L21AME/L21B	1406	
	STK-L23B/L03B/L22B	7092138	150k
	STK-AL00/T100	07092918	100k
	Reserved	07091302	51k
	Reserved	07091408	68k
STK-L22B	Reserved	07091299	30k
	Reserved	07091172	22k
	Reserved	TBD	TBD

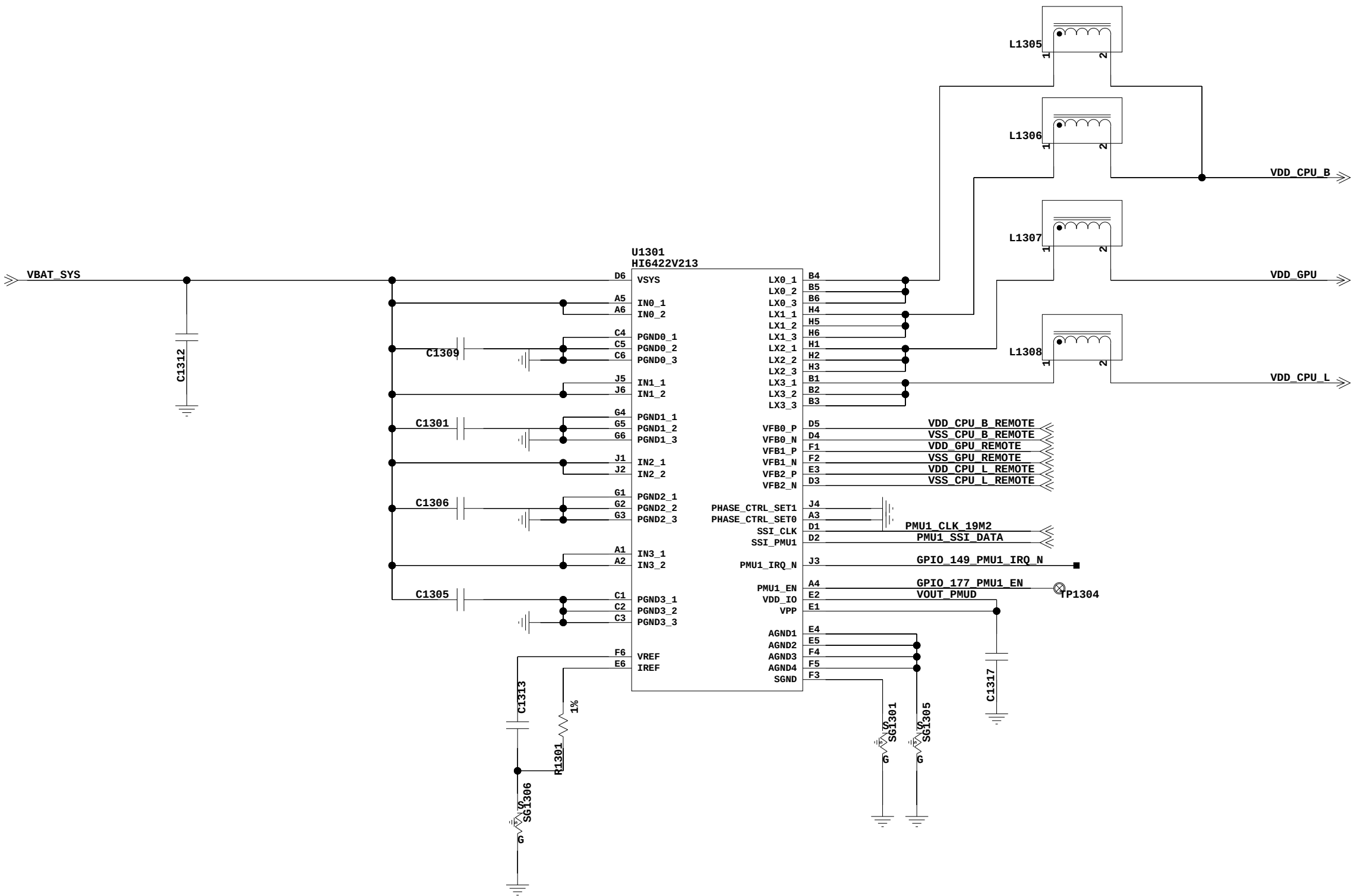
Board ID Resistor Set

ID	UP RES	DOWN RES
0	NC	0K
1	150K	22K
2	100K	30K
3	200K	100K
4	150K	121K
5	121K	150K
6	51K	100K
7	30K	100K
8	20K	150K
9	150K	NC

Resistor Code

0K	07092922
20K	07092448
22K	07091172
30K	07091299
51K	07091302
100K	07092918
121K	07091176
150K	07092138
200K	07091406

13.Hi6422



14. Hi6422 Reserved

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

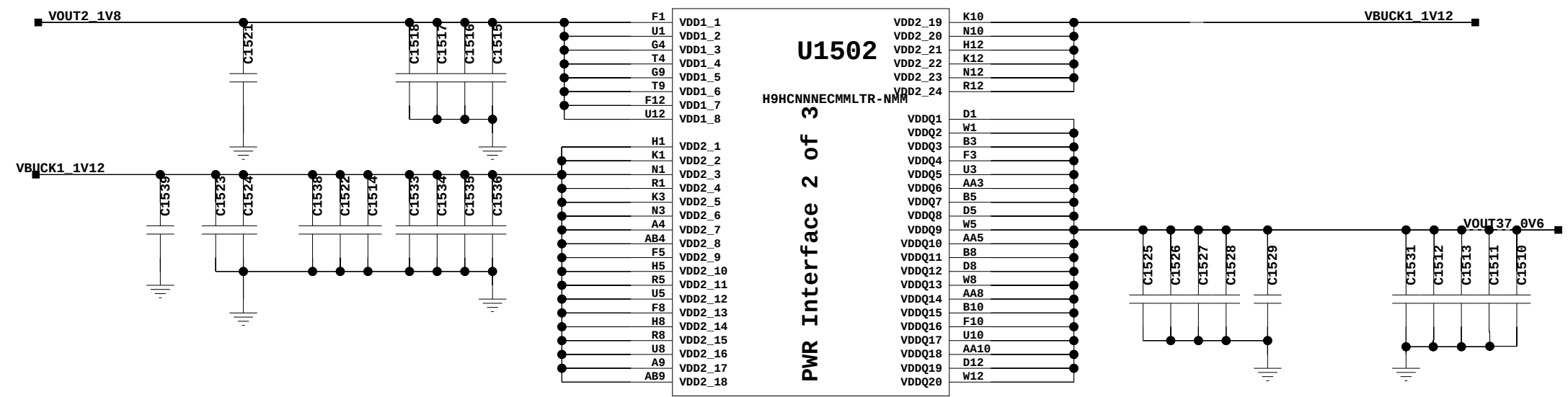
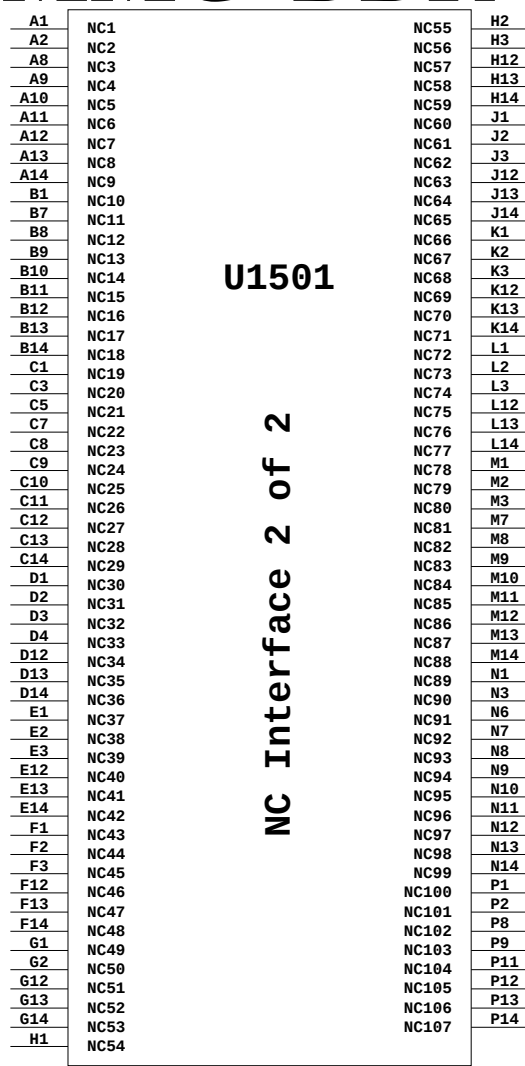
15. EMMC DDR

A

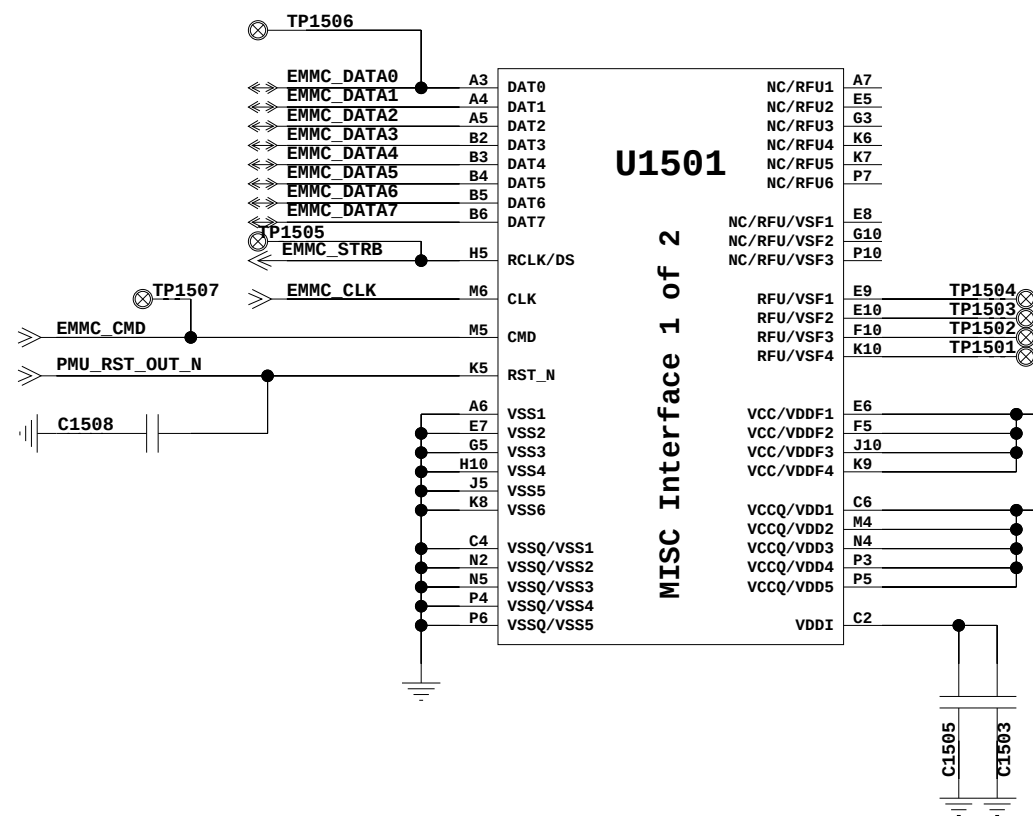
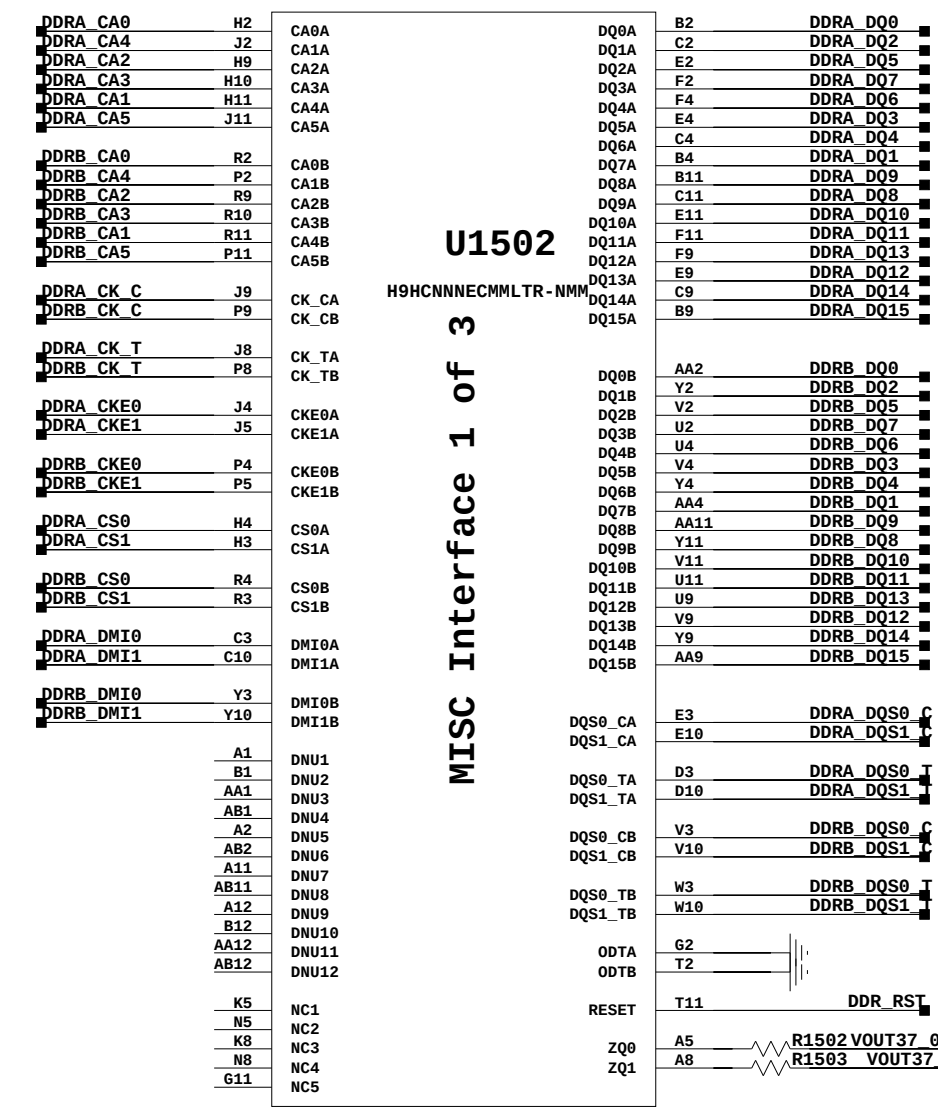
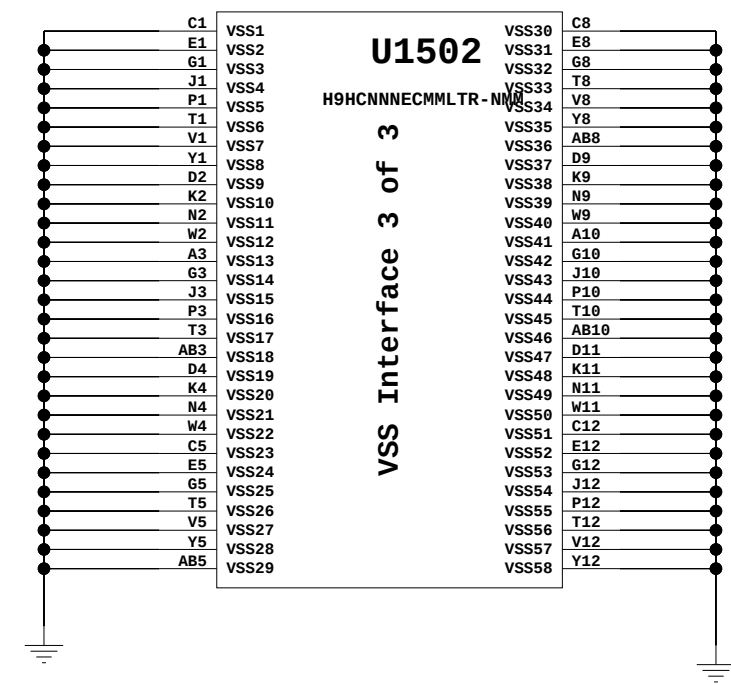
B

C

D



DDR	EMMC
4G--40020556	64G---40061006
6G--40020570	128G--40061007



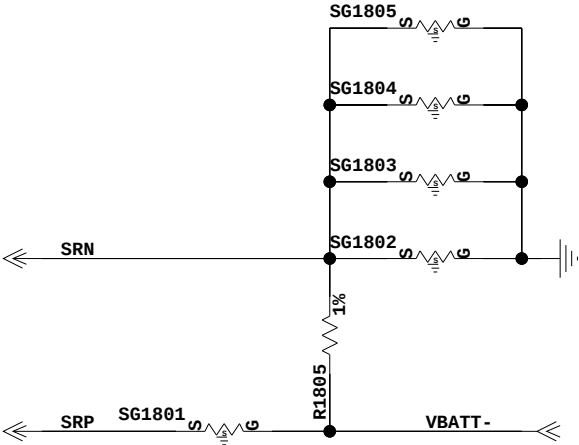
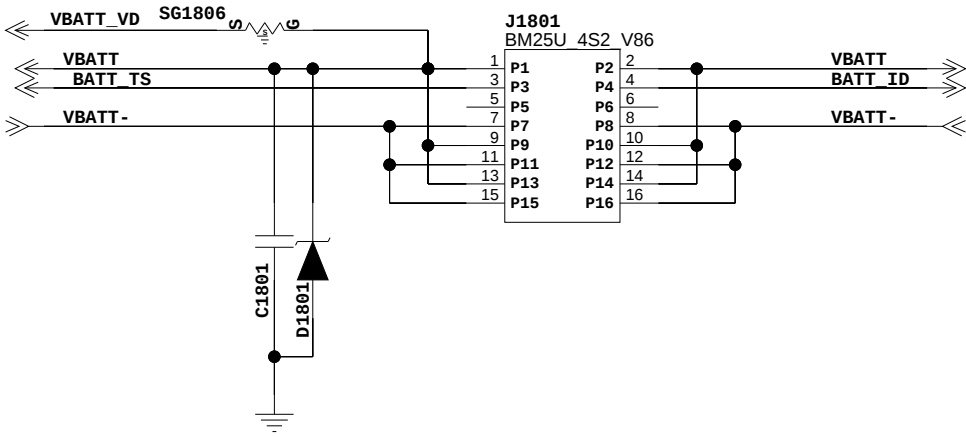
1	2	3	4	5	6	
16. UFS/DDR Reserved						
A						A
B						B
C						C
D						D
1	2	3	4	5	6	

17. External Codec Reserved

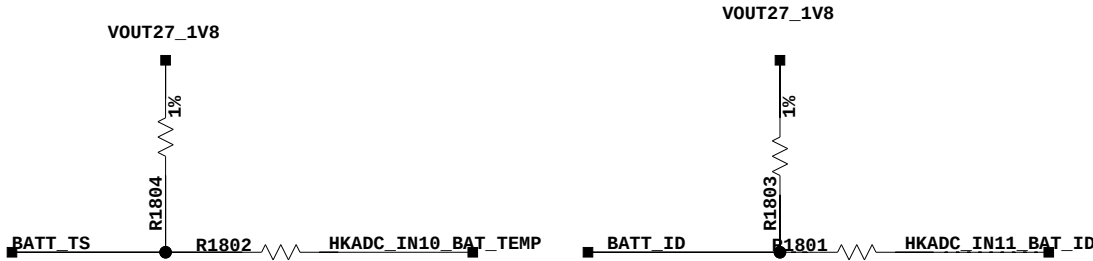
17_External Codec Reserved

18. Battery & Fuel guage

Battery Connector



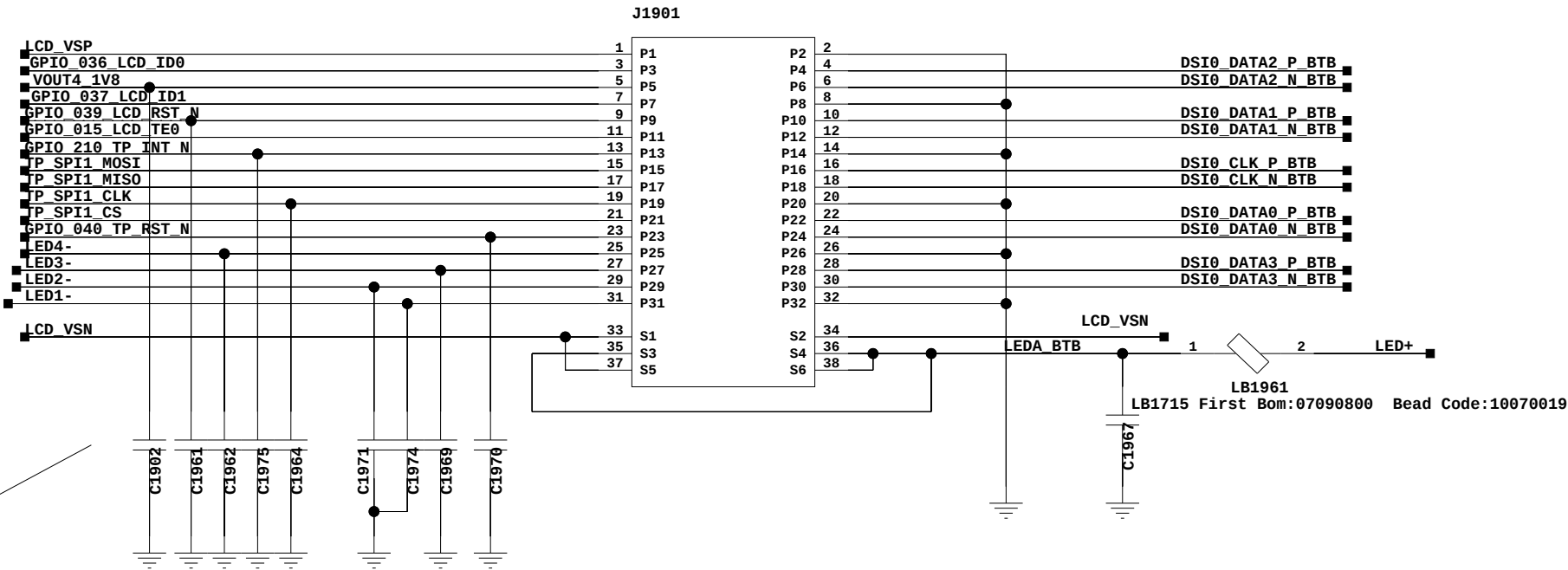
CAD note:1.Trace for 6A
2.Differential trace



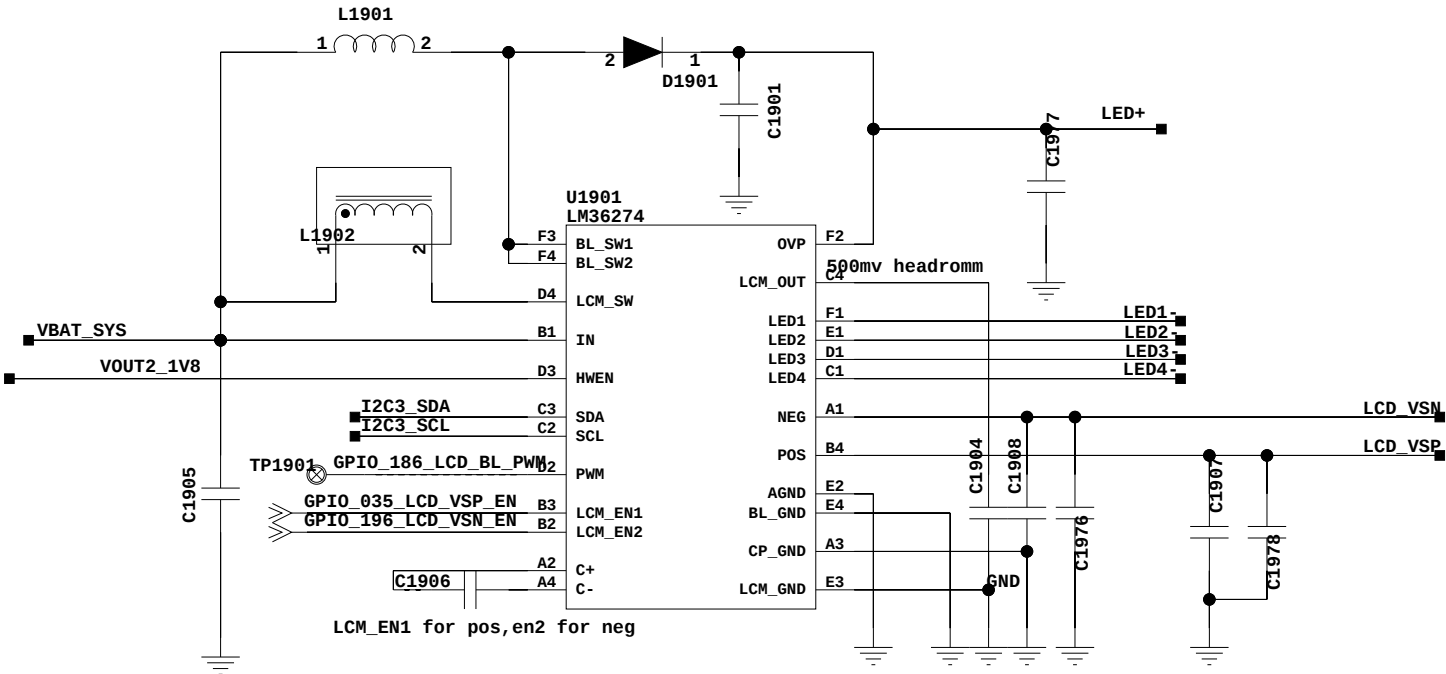
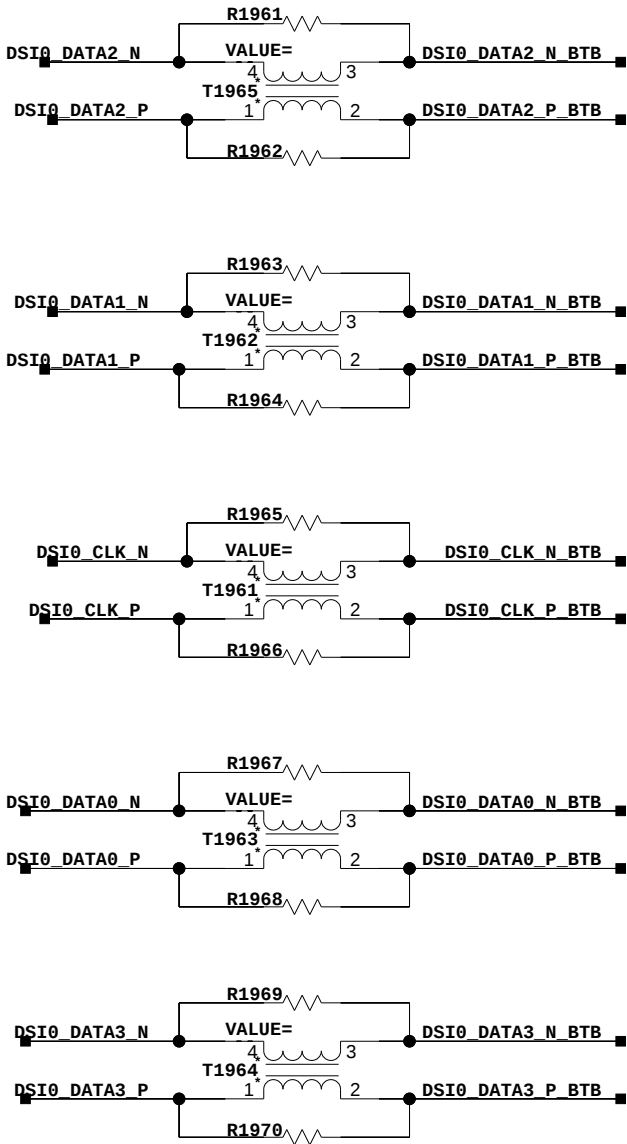
Battery Temperature

Battery ID

19. LCD and TP INTERFACE



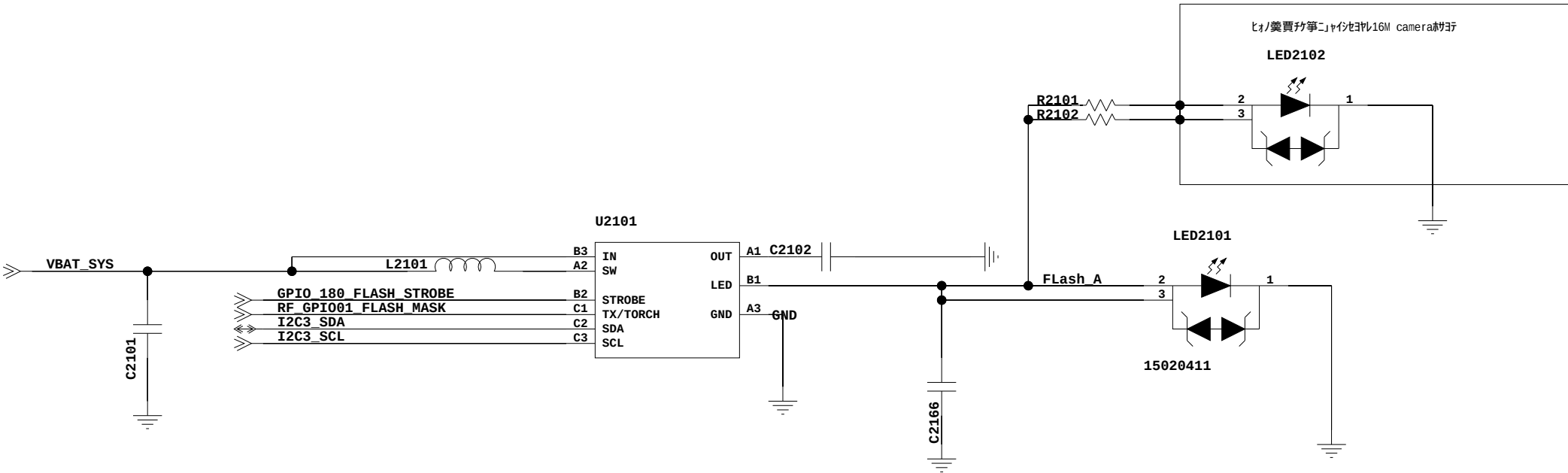
C1902 need to confirm any capacitance on the LCD module



20. TP/LCD Reserved

	1	2	3	4	5	6
A						
B						
C						
D						

21. Flash/CAM LDO



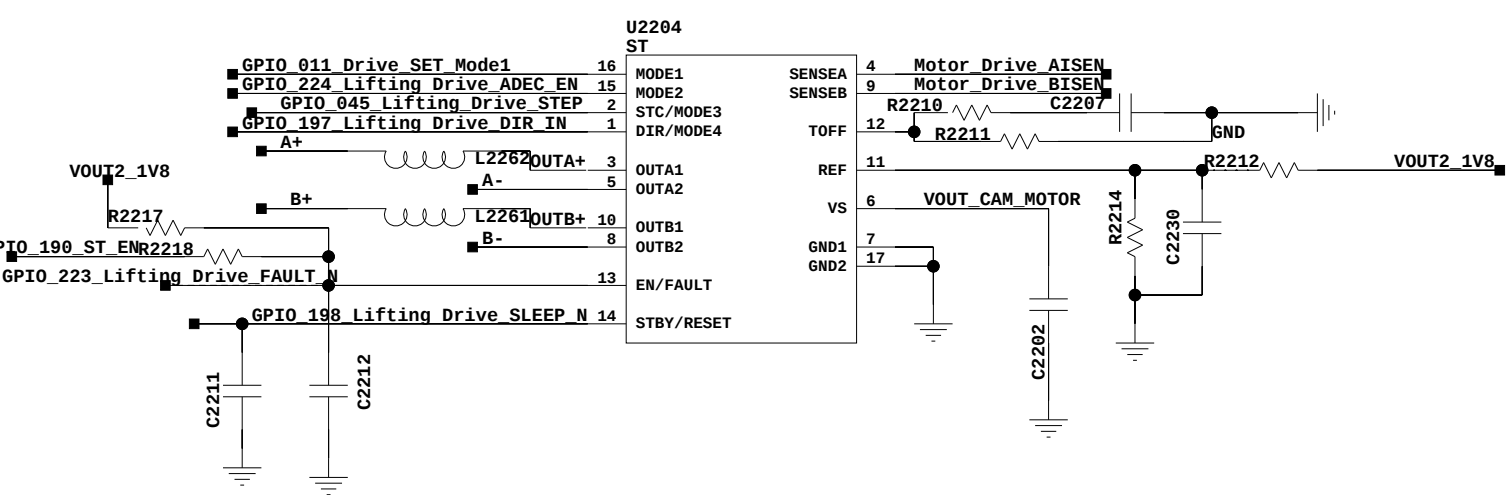
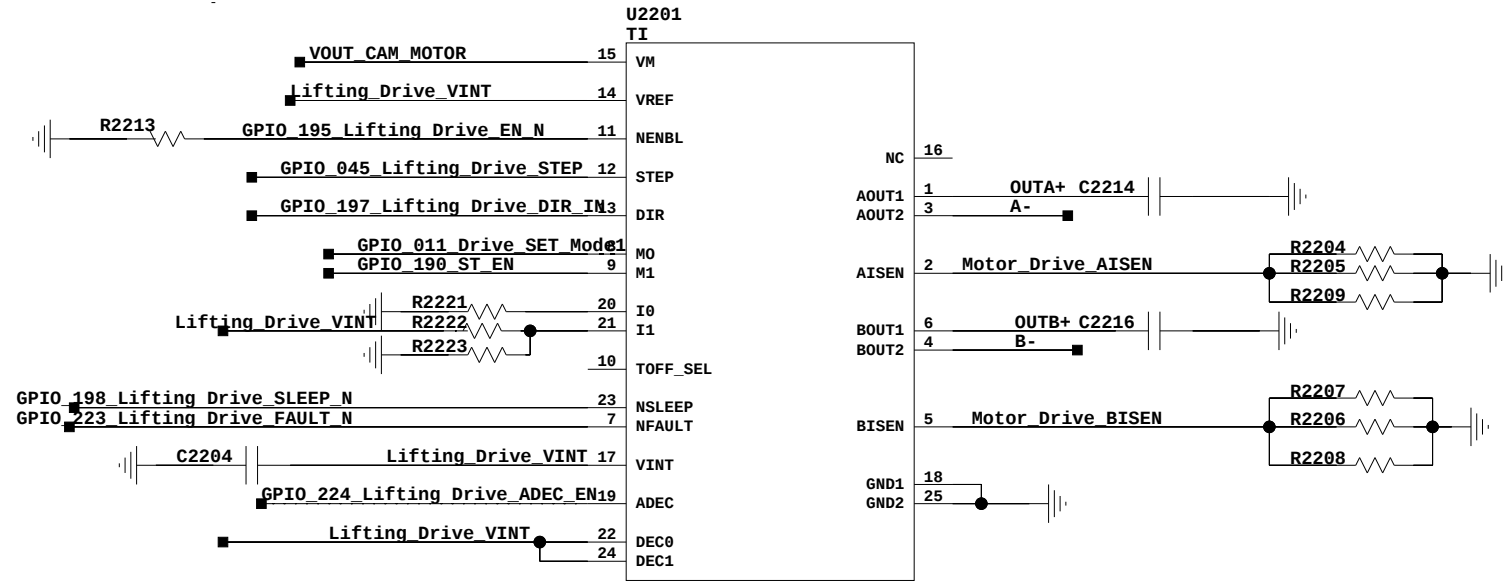
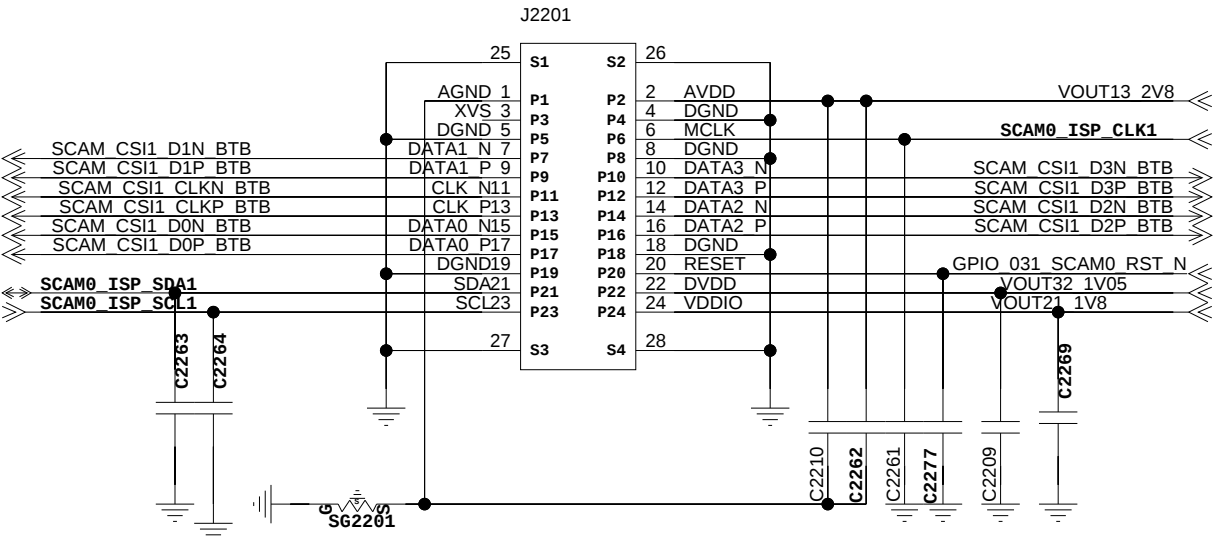
	2 camera	3 camera
LED2102, R2101, R2102	SMT	DNI
LED2101	DNI	SMT

22. Front Camera/MIPI SW

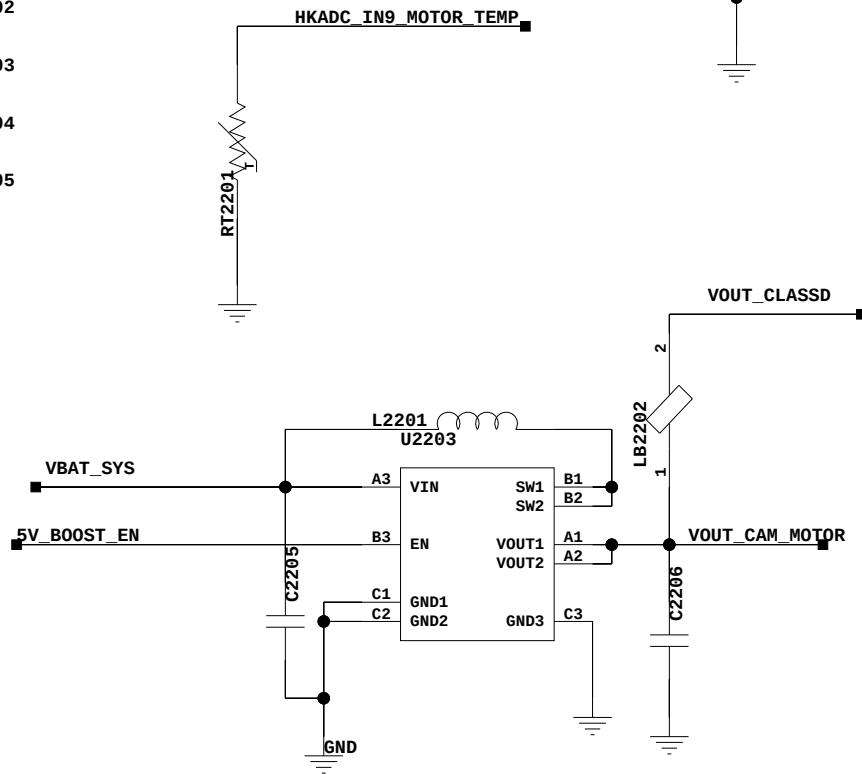
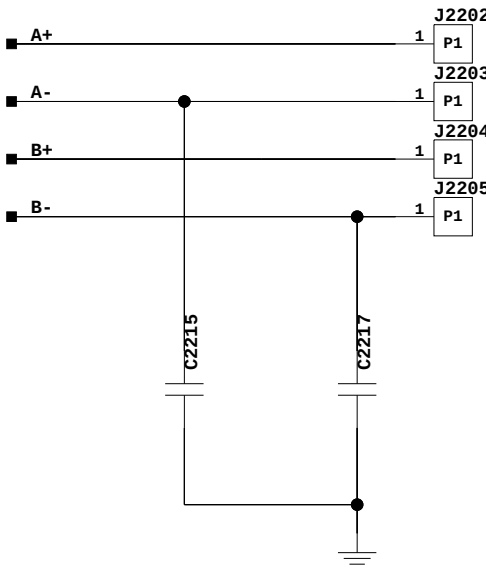
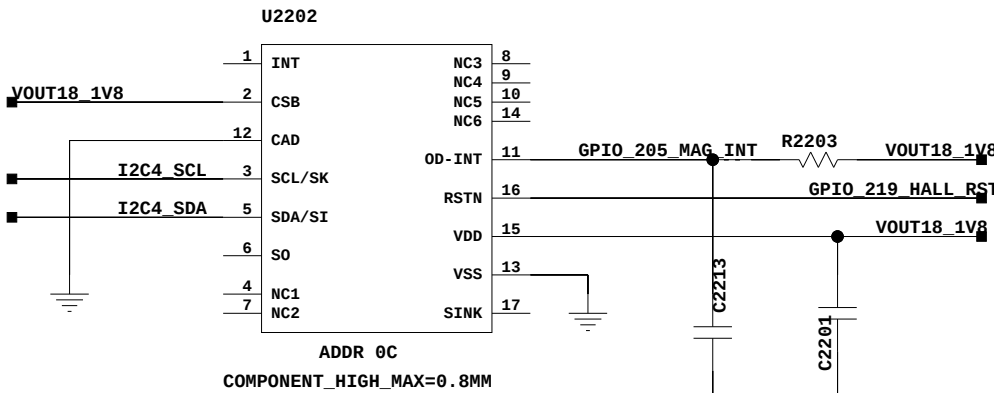
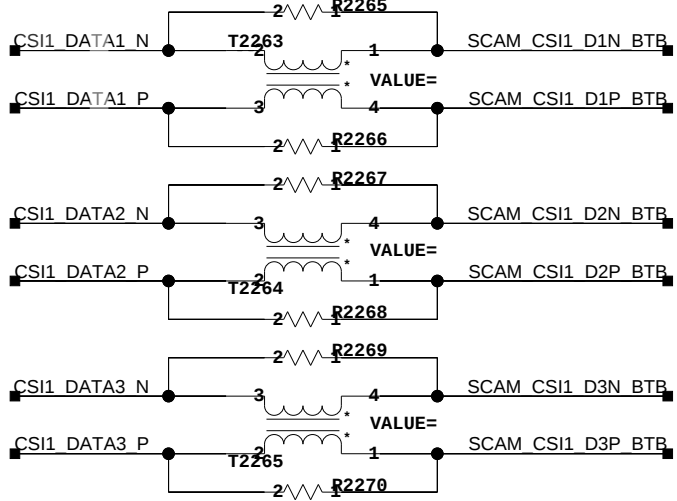
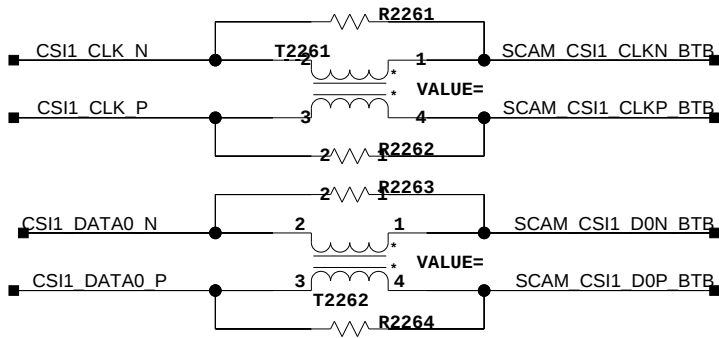
Front SUB Camera

16M Sub 23060300

Max Mated High=0.8mm



	ST-U2204	TI-U2201
C2211, C2212, C2207, C2230, R2210, R2211, R2212, R2214	SMT	DNI
R2213 R2218R2209 R2208	SMT	DNI
C2204 R2222	DNI	SMT



24. CAM Reserved

1

2

3

4

5

6

A

A

B

B

C

C

D

D

1

2

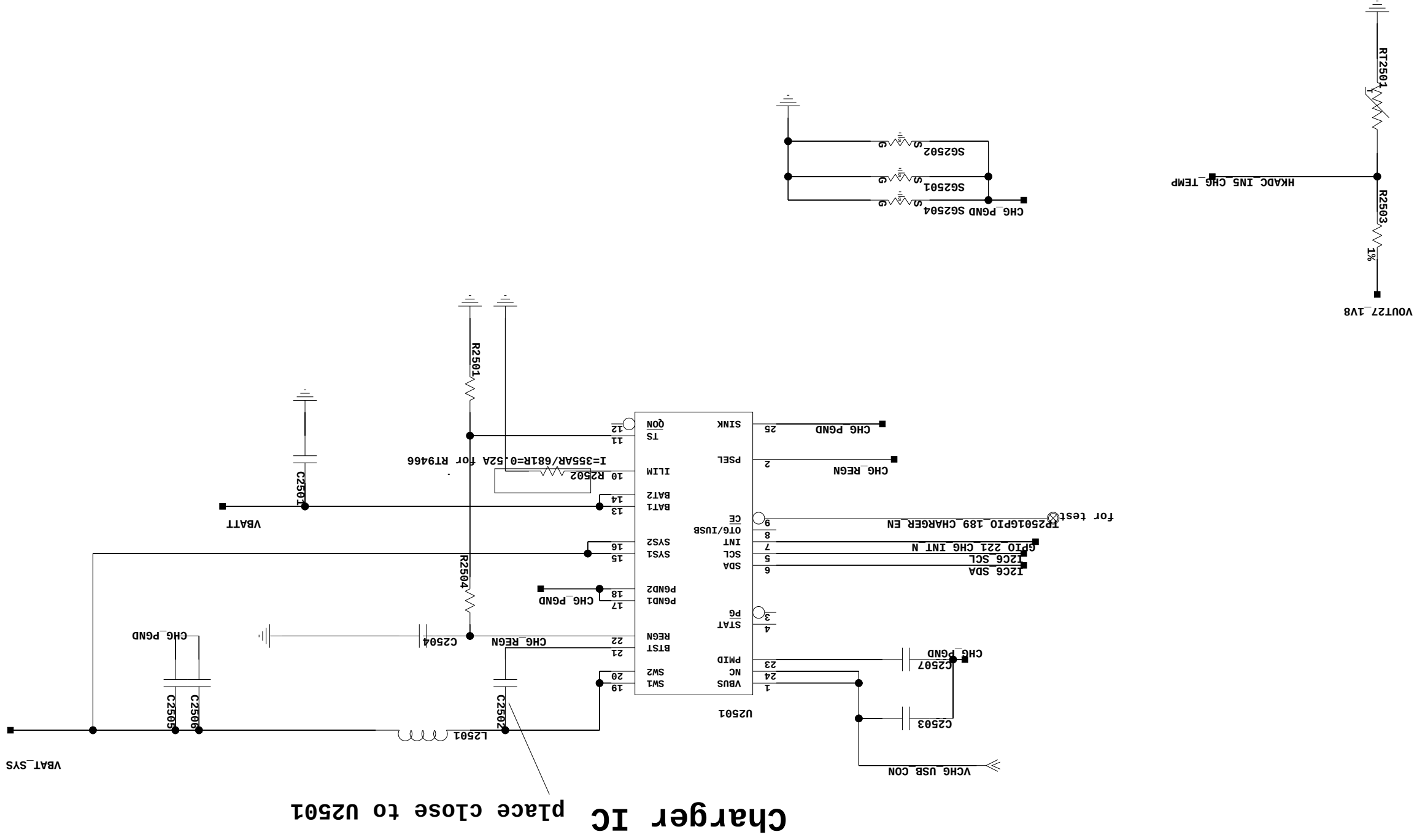
3

4

5

6

25. Charge Management

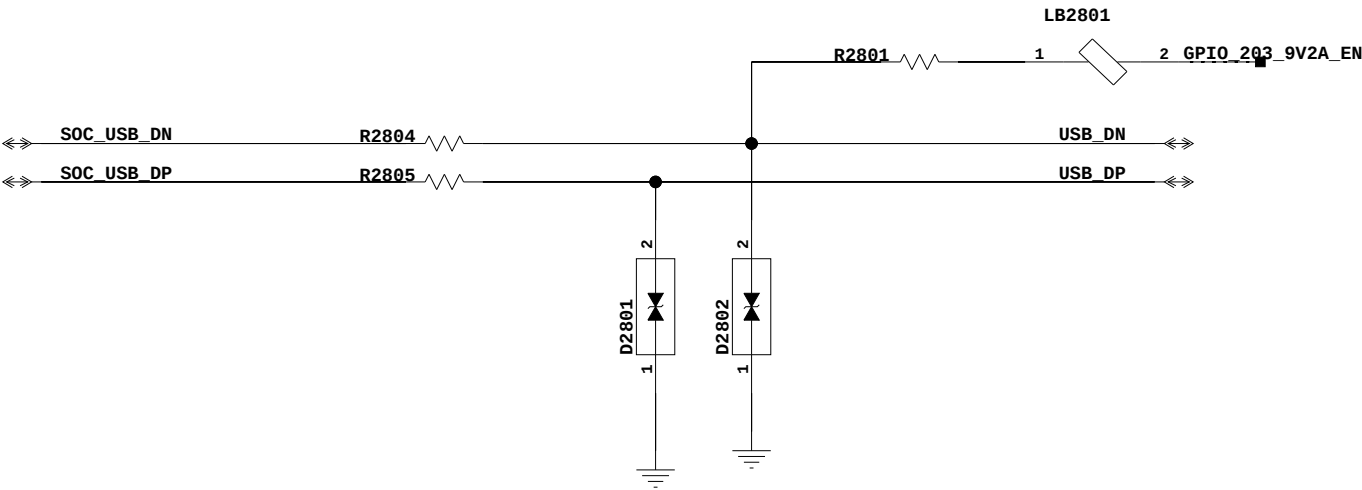


26. Direct Charger Reserved

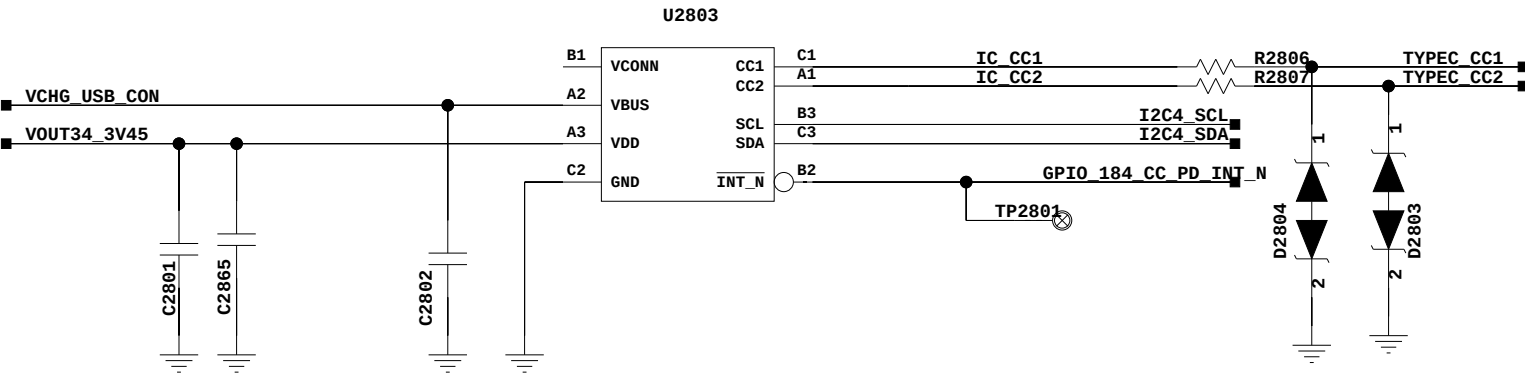
1	2	3	4	5	6	
27. Wireless Charger Reserved						
A						A
B						B
C						C
D						
1	2	3	4	5	6	

A						A
B						B
C						C
D						

28. USB Interface



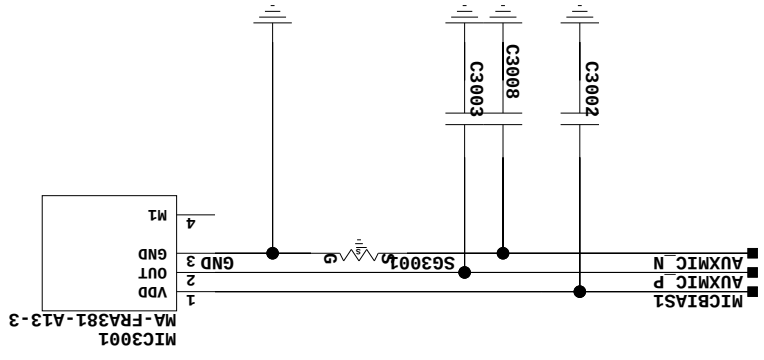
PD



29. USB Interface Reserved

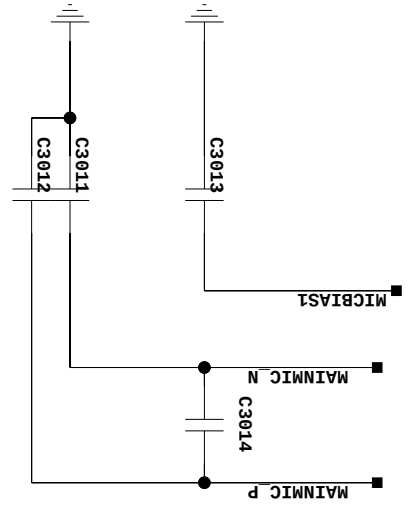
30. MIC/RCV

Second MIC

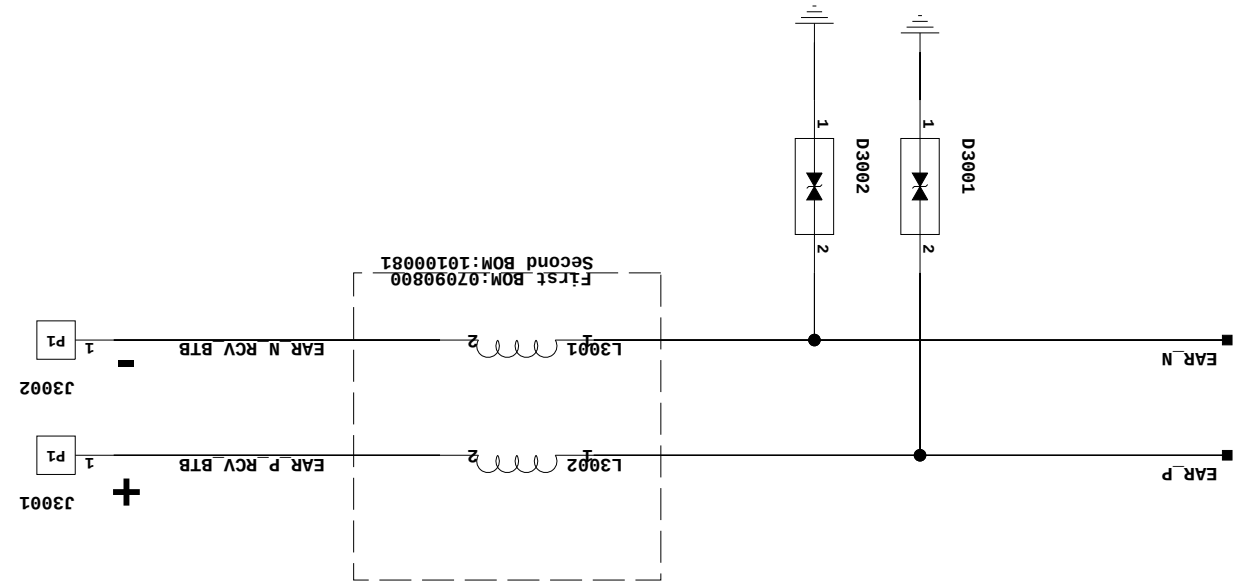


CAD note: 1, MIC need differential trace
2, MIC GND pad need use cycle via to GND net.

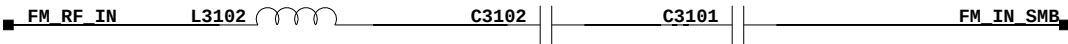
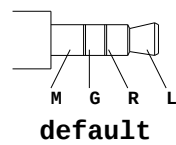
near PMU to placement



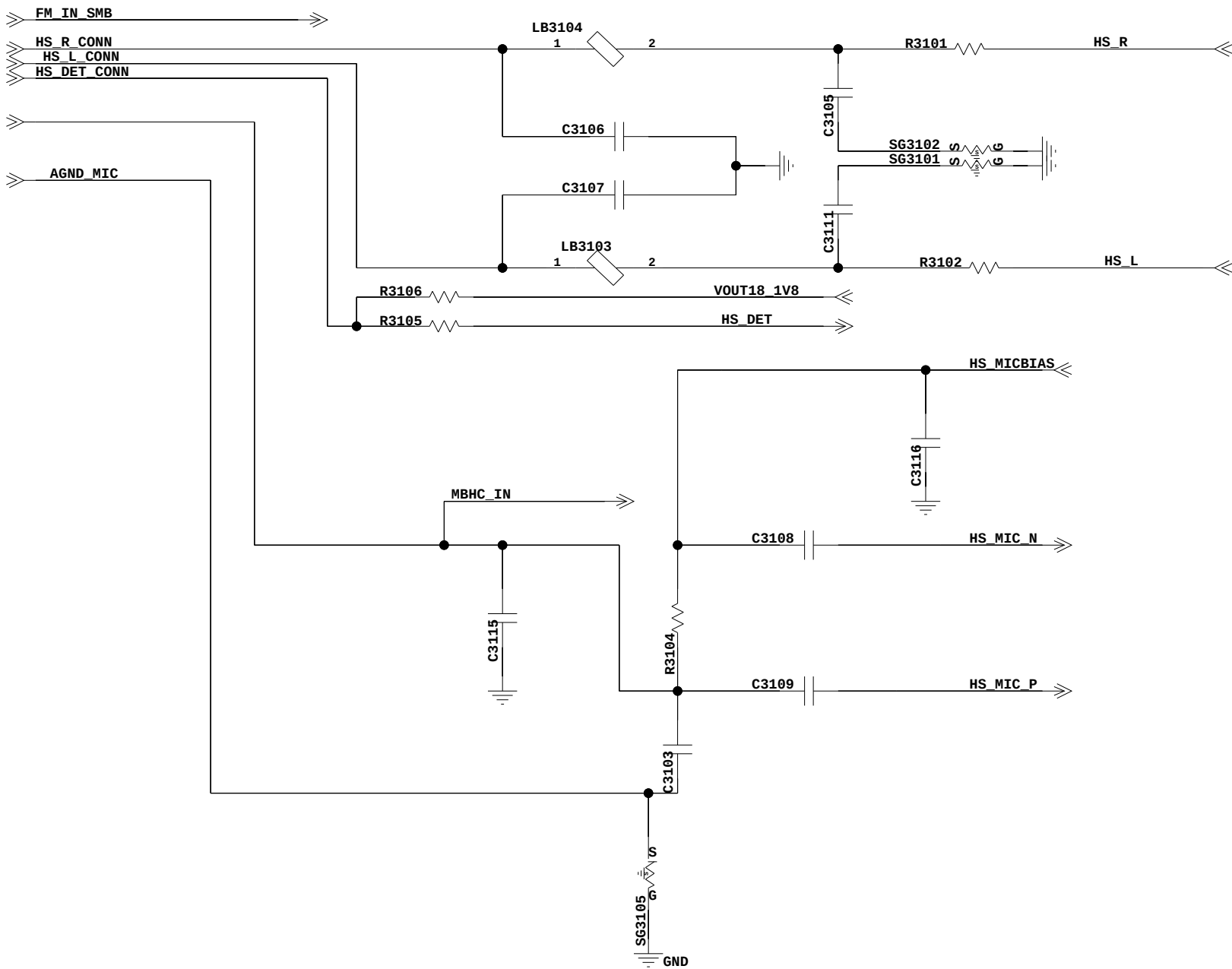
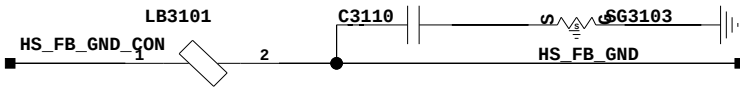
RCV



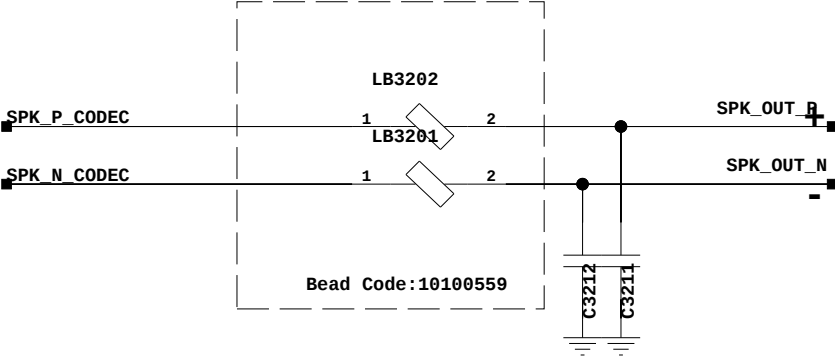
31. Headphone



CLOSE TO Hi1102 IC



32. Smart_PA



1

2

3

4

5

6

33. Smart_PA Reserved

A

B

B

C

C

D

D

1

2

3

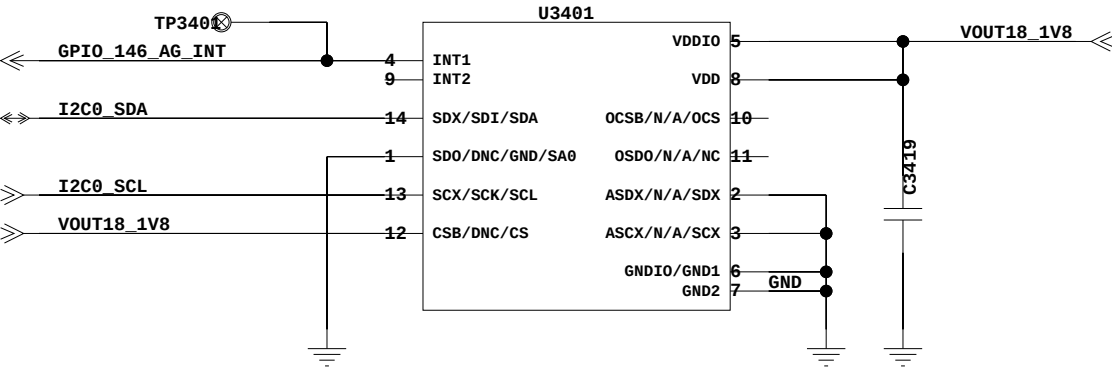
4

5

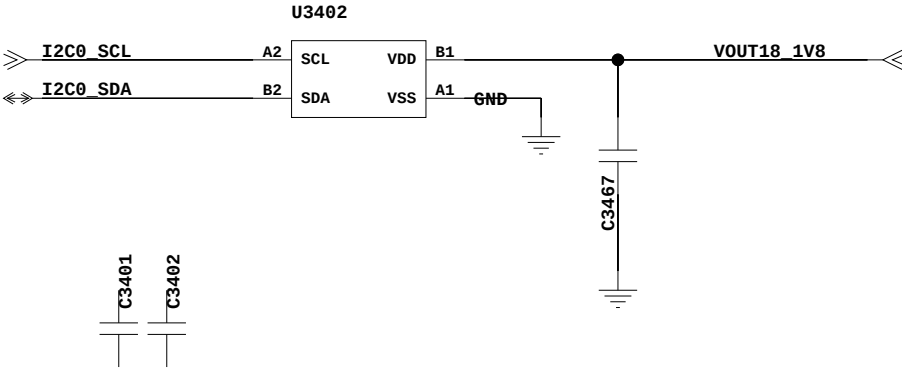
6

34. X-Sensor

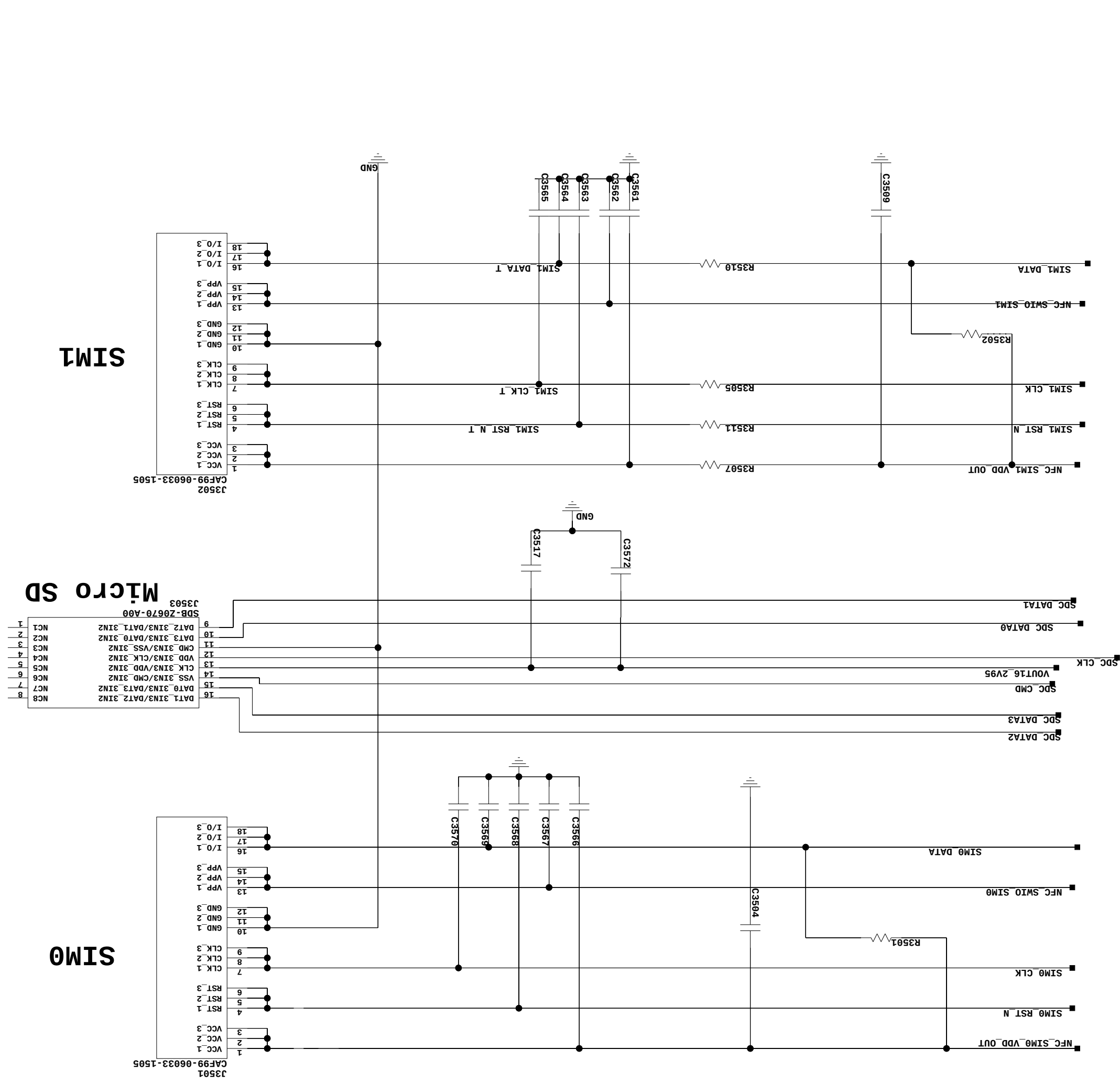
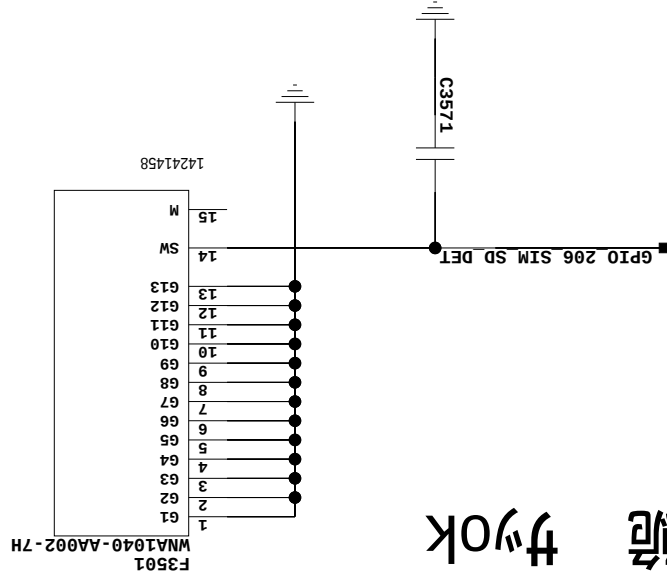
Accelerometer and Gyroscope 6-AXIS SENSOR



Compass

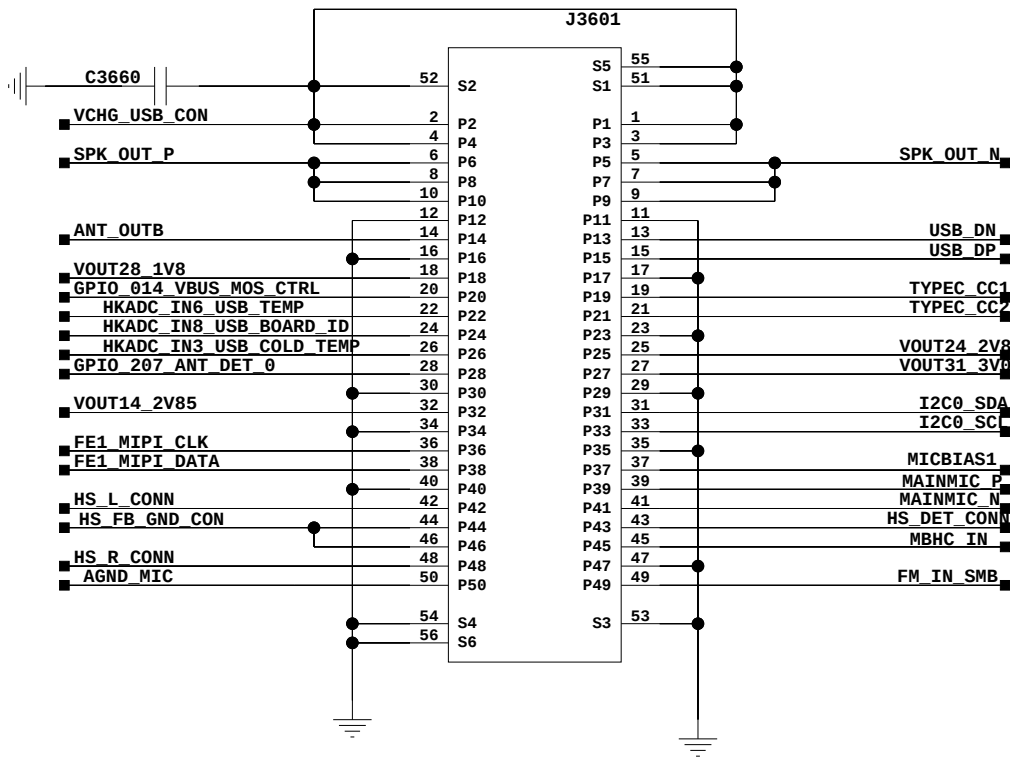


35. SIM/USD Card



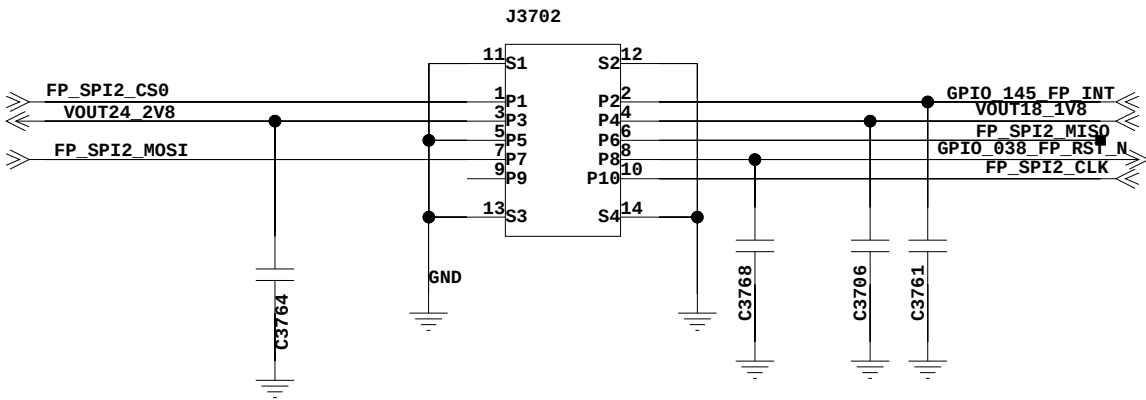
36. FPC Interface 1

Main FPC BTB



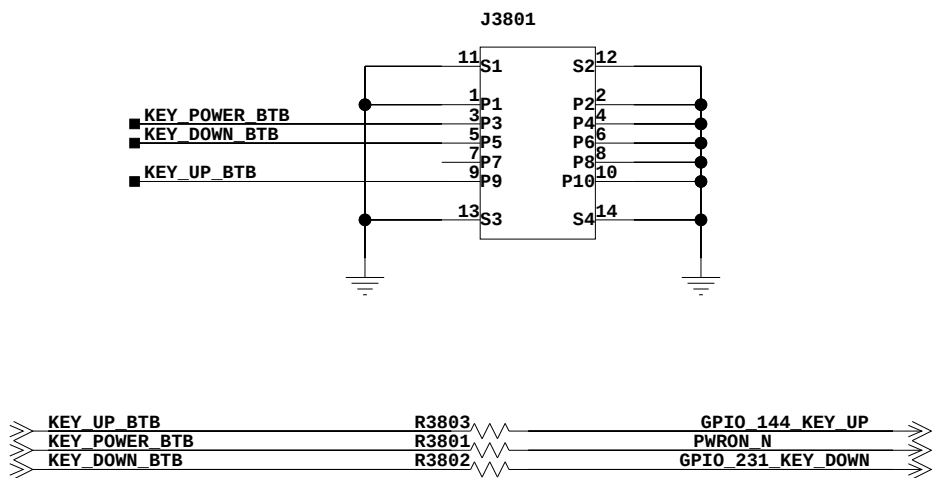
37. FPC Interface 2

FingerPrint ZIF



38. LED/Key

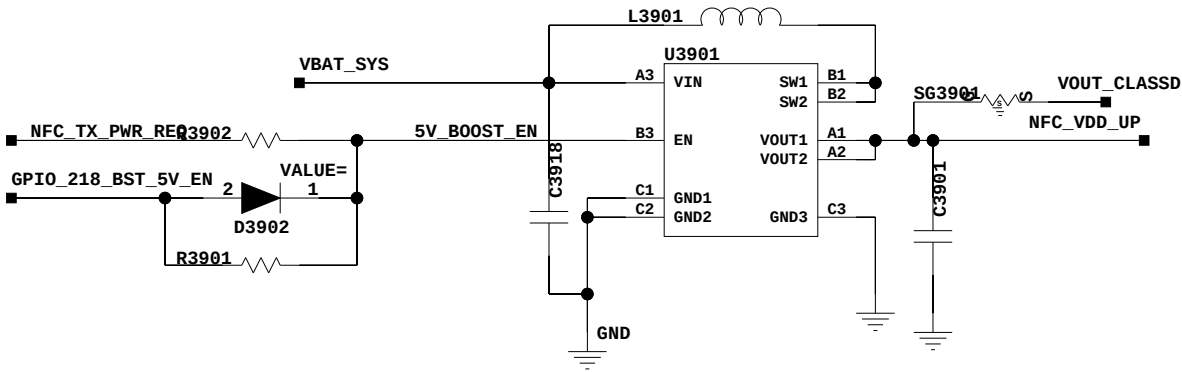
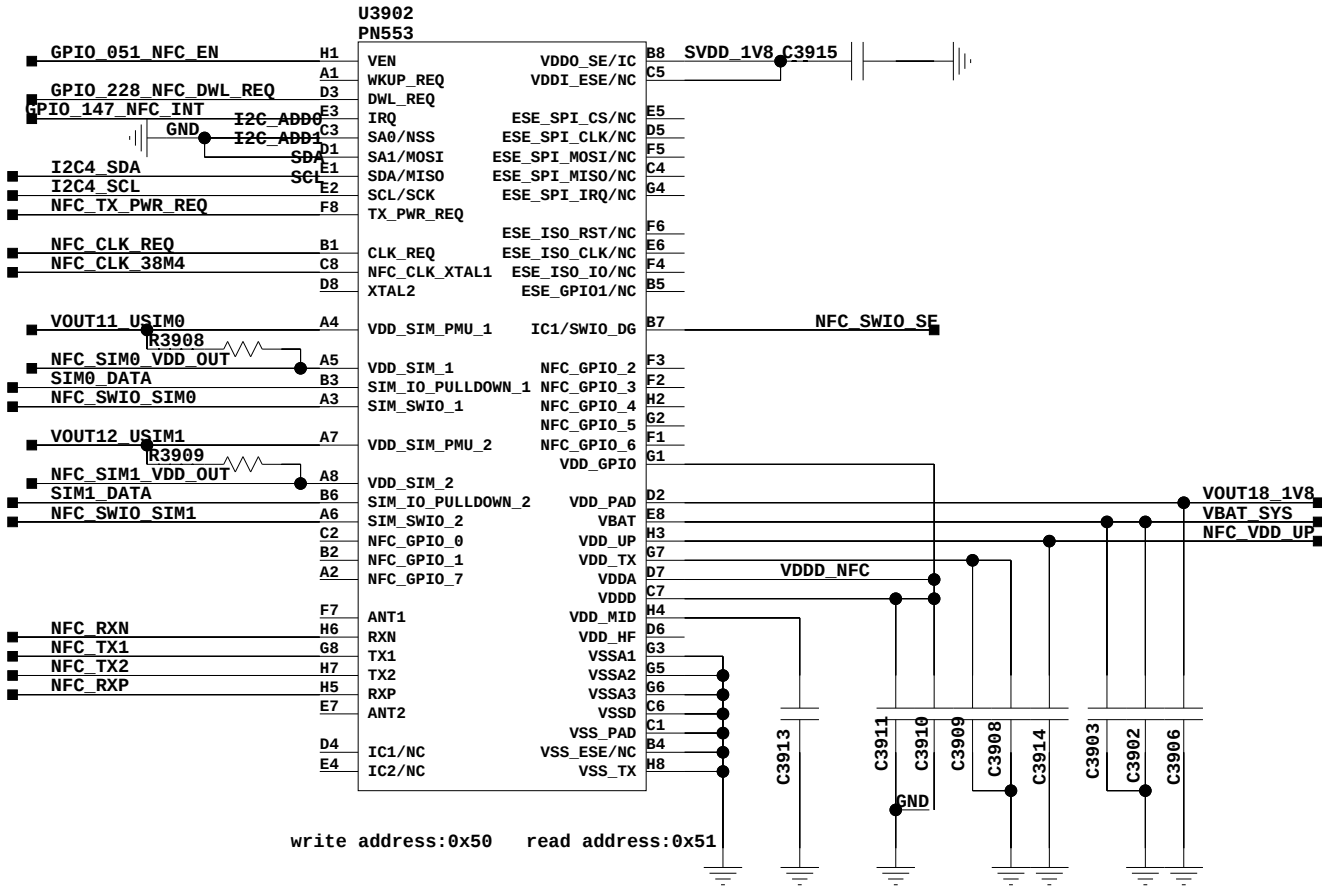
KEY BTB



イ「ミミ-レナ」ヤモ 范銆 夕ソIセ猪 ャキタヨケフ

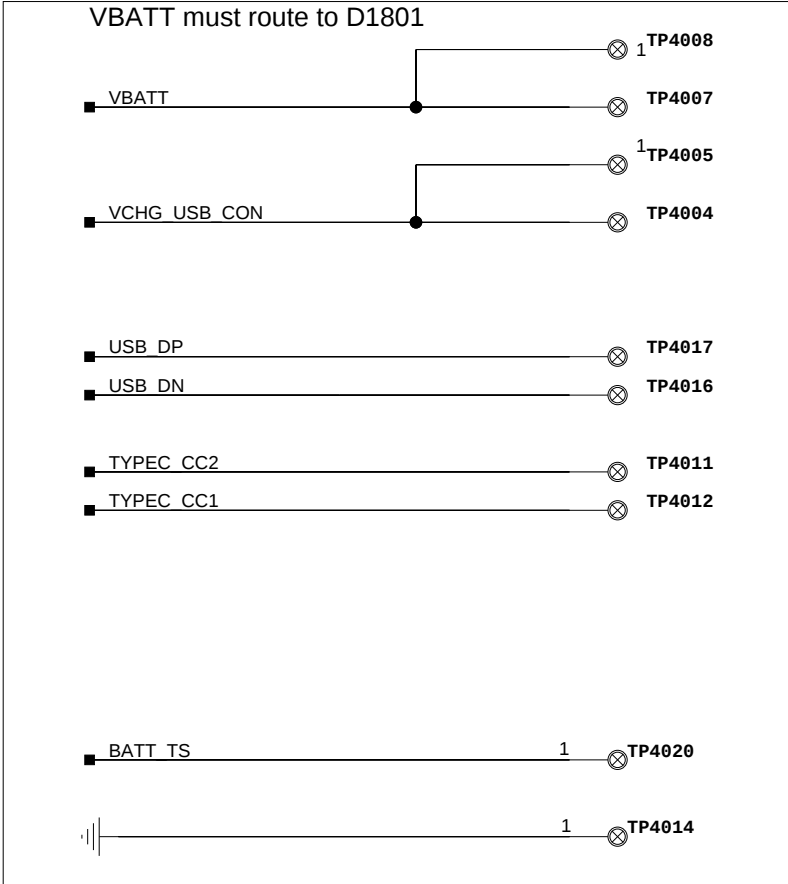
39. NFC_BB

page		With NFC	No NFC
page12	R1250	DNI	SMT
page39	R3908	DNI	SMT
	R3909	DNI	SMT
	R3902	SMT	DNI
	D3902	SMT	DNI
	R3901	DNI	SMT
	C3902	SMT	DNI
	U3902	SMT	DNI
	C3903	SMT	DNI
	C3906,C3908	SMT	DNI
	C3909,C3910	SMT	DNI
	C3911	SMT	DNI
	C3913,C3914,C3915	SMT	DNI
	U3901	39111034	39110908

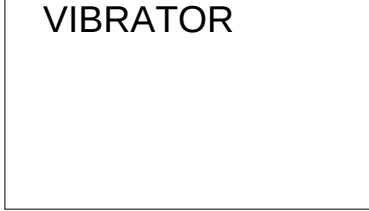
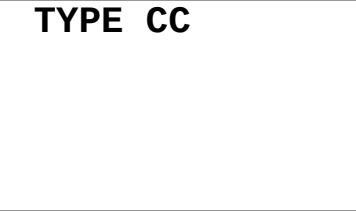
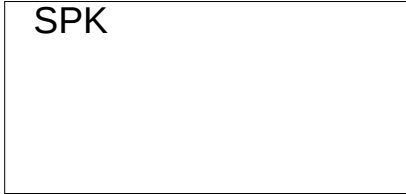
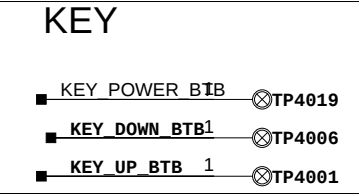
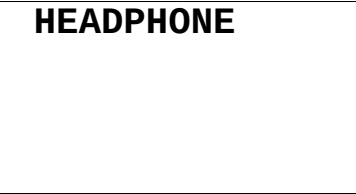
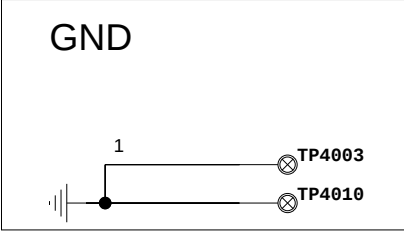
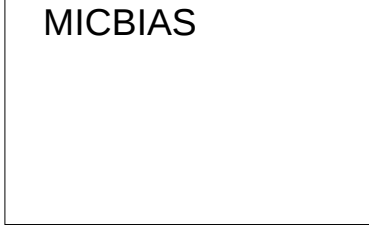
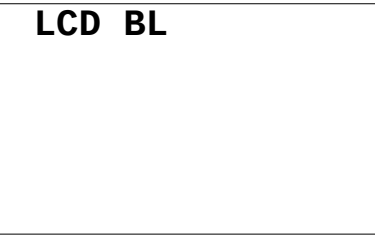


40. Test Points/Shields

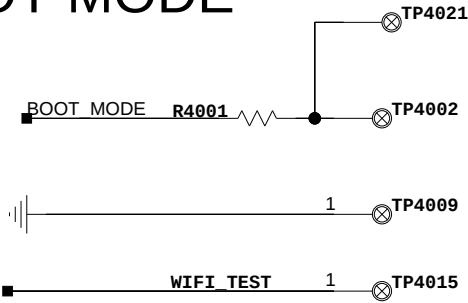
CBT/PT



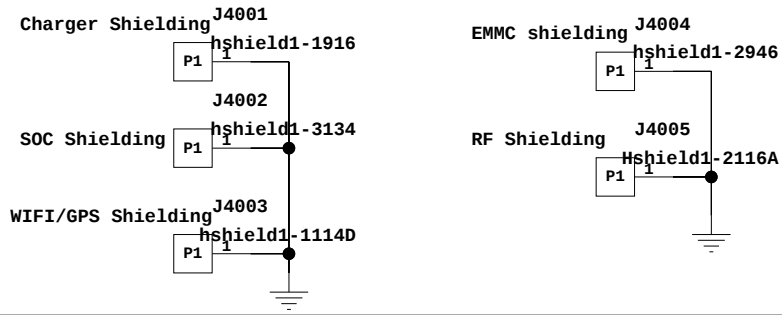
FUNCTION TEST



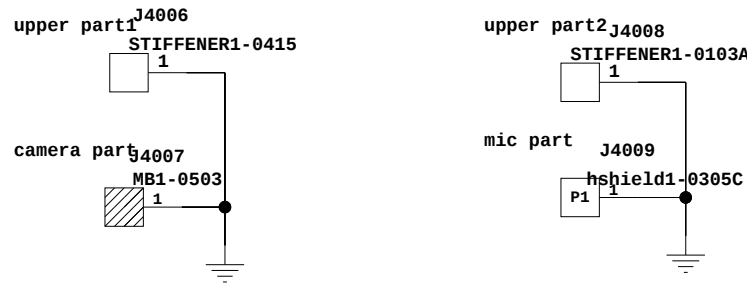
BOOT MODE



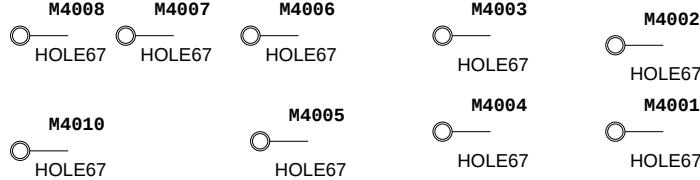
Shielding



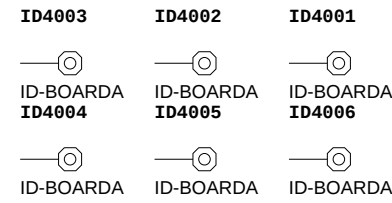
GND springs



HOLE

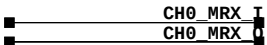
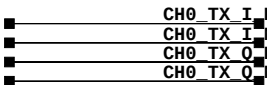
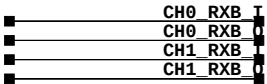
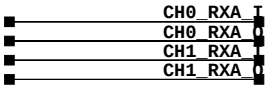


MARK POINT

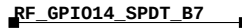
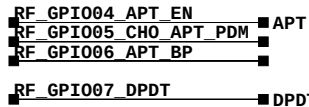


41 Interface

RFIC IQ



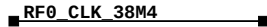
GPIO Interface



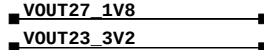
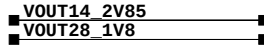
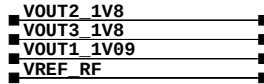
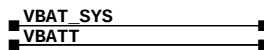
ANT Interface



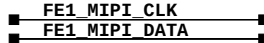
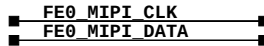
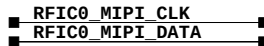
CLK



POWER



MIPI Interface



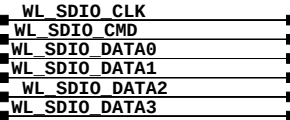
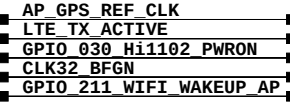
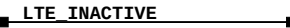
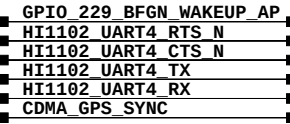
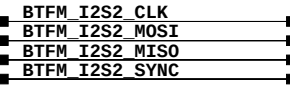
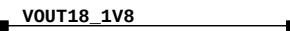
GSM



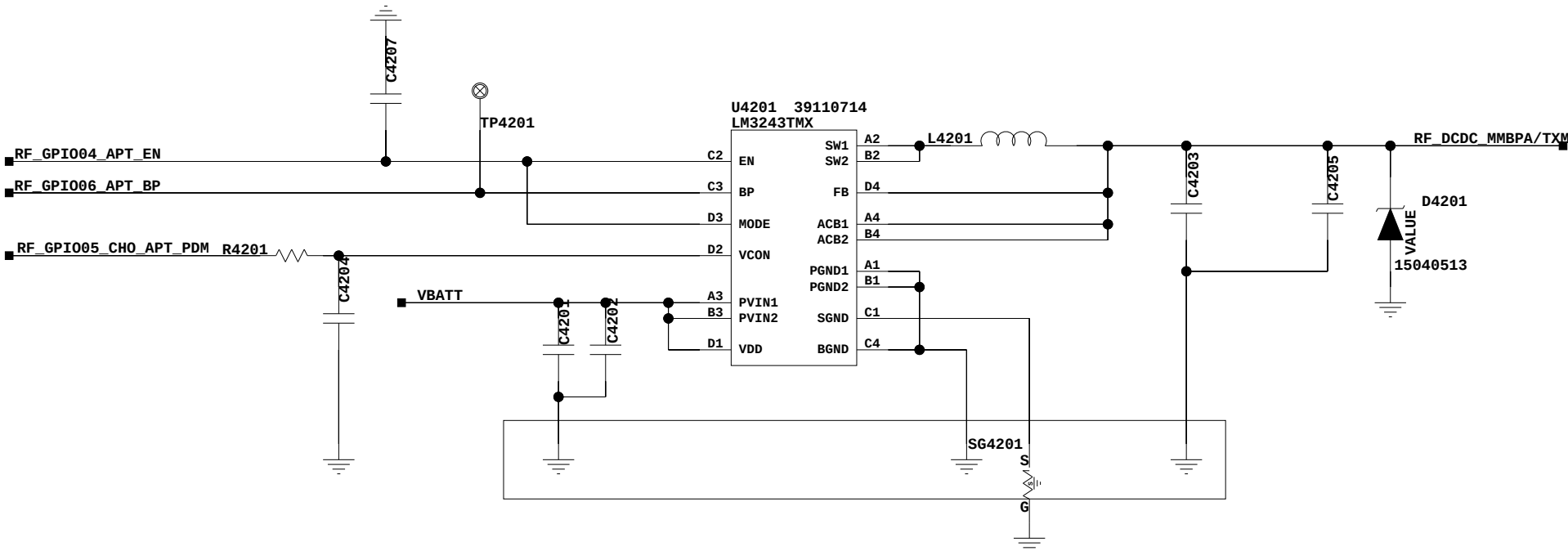
HKADC



NC Interface



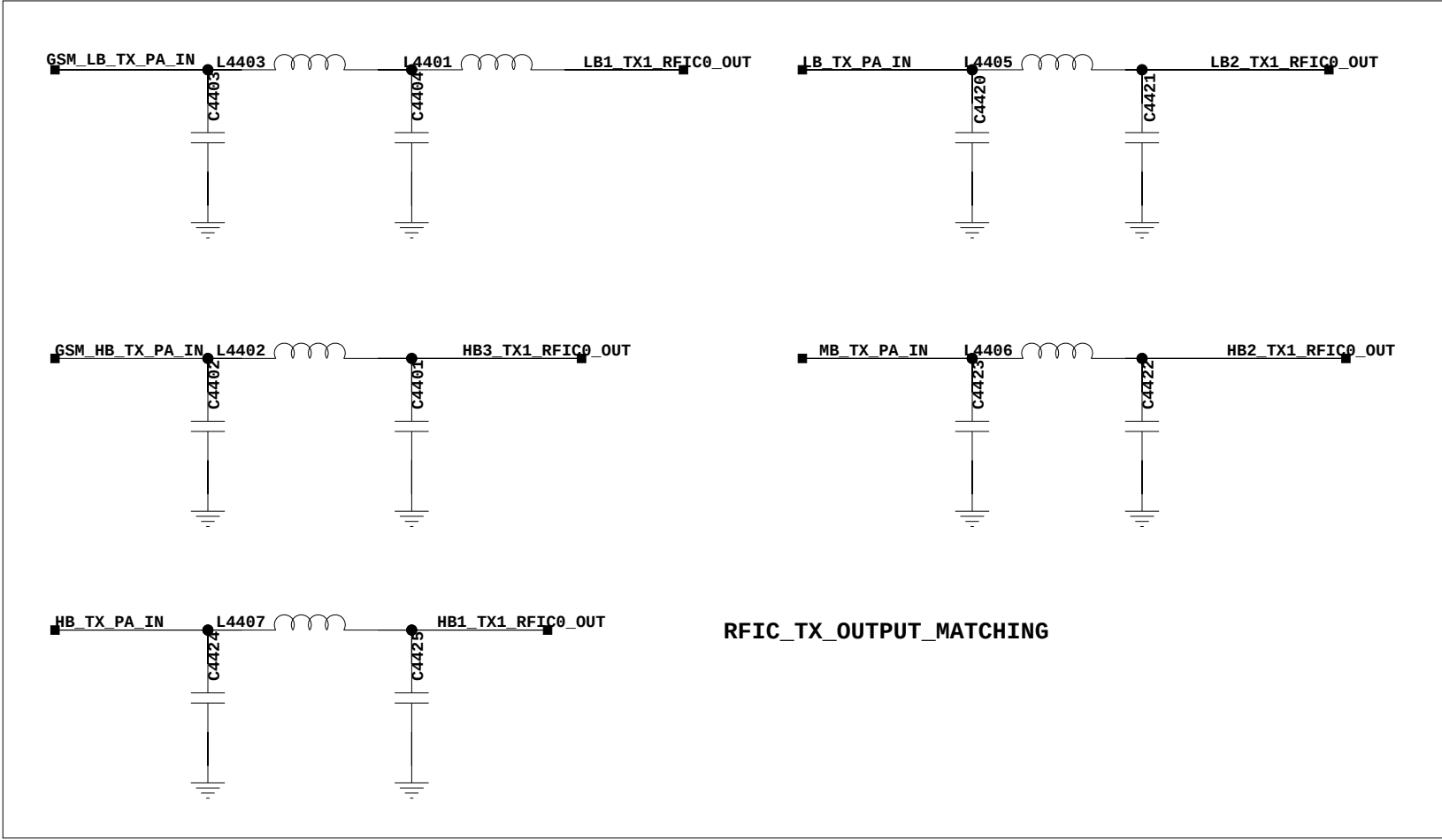
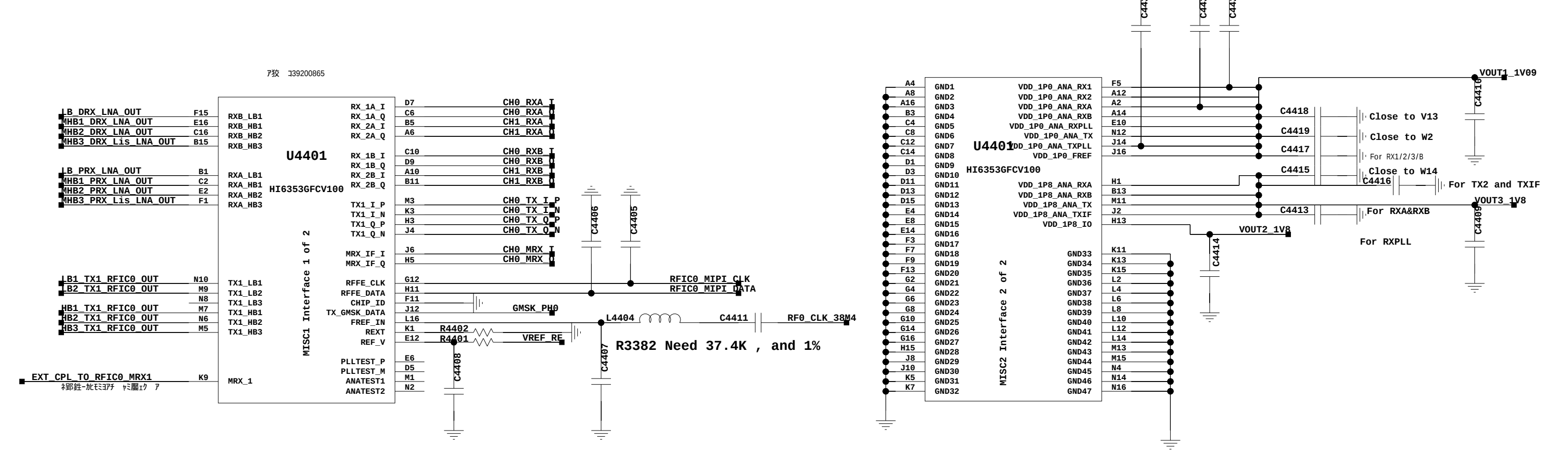
42 RF_PMU



- 1. DCDCコンバータIC、電圧レギュレータ、電圧監視IC
- 2. インプット、出力、出力電圧、出力電流、出力電圧、出力電流、出力電圧、出力電流
- 3. インプット、出力、出力電圧、出力電流、出力電圧、出力電流、出力電圧、出力電流
- 4. インパルス、出力、出力電圧、出力電流、出力電圧、出力電流、出力電圧、出力電流
- 5. インパルス、出力、出力電圧、出力電流、出力電圧、出力電流、出力電圧、出力電流

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

44.RFIC0_Hi6353

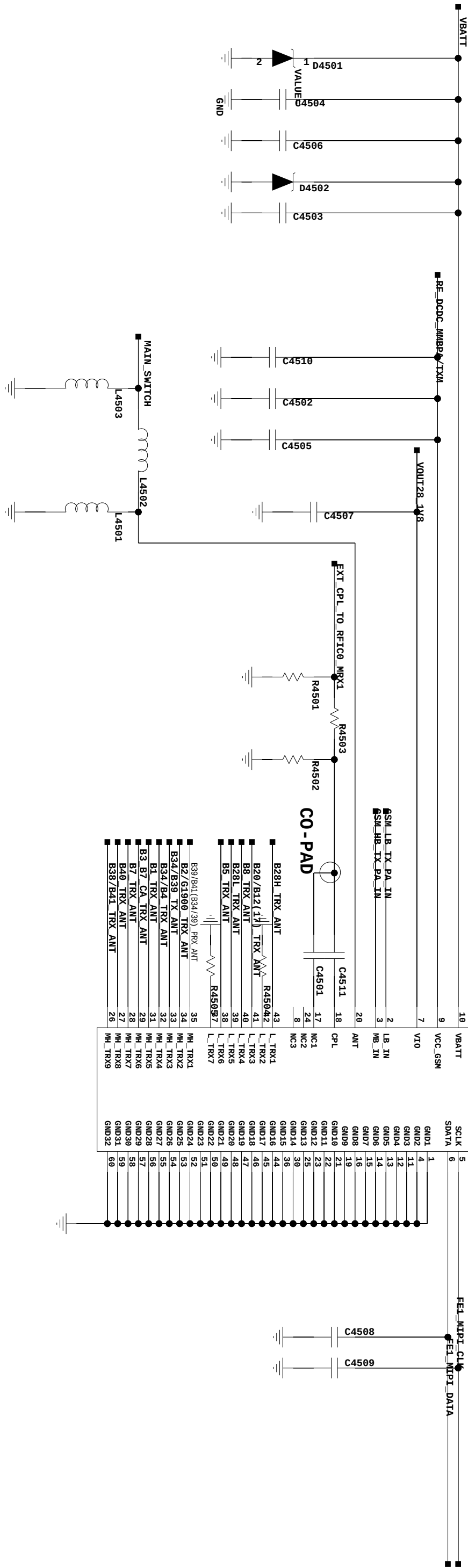


45 PA0_TXM

TXM PROTECT GUI YI HUA

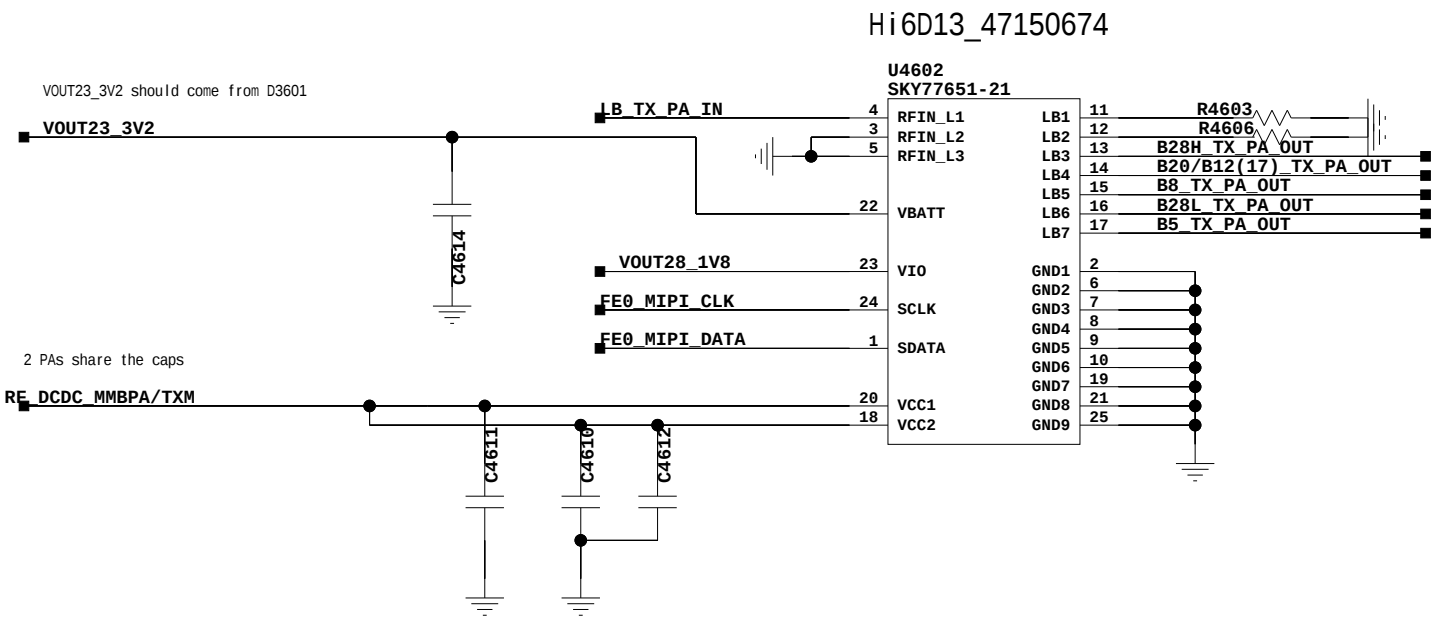
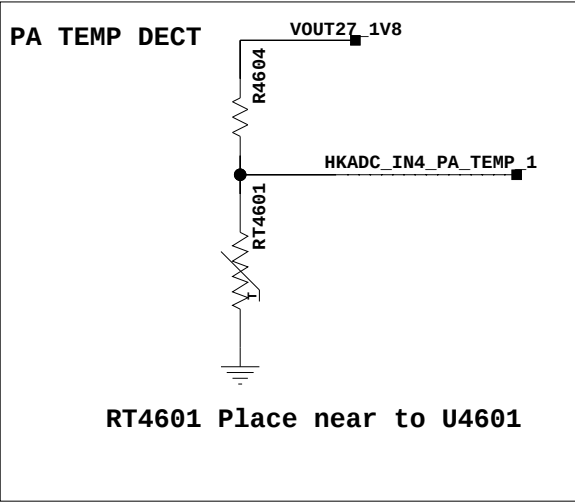
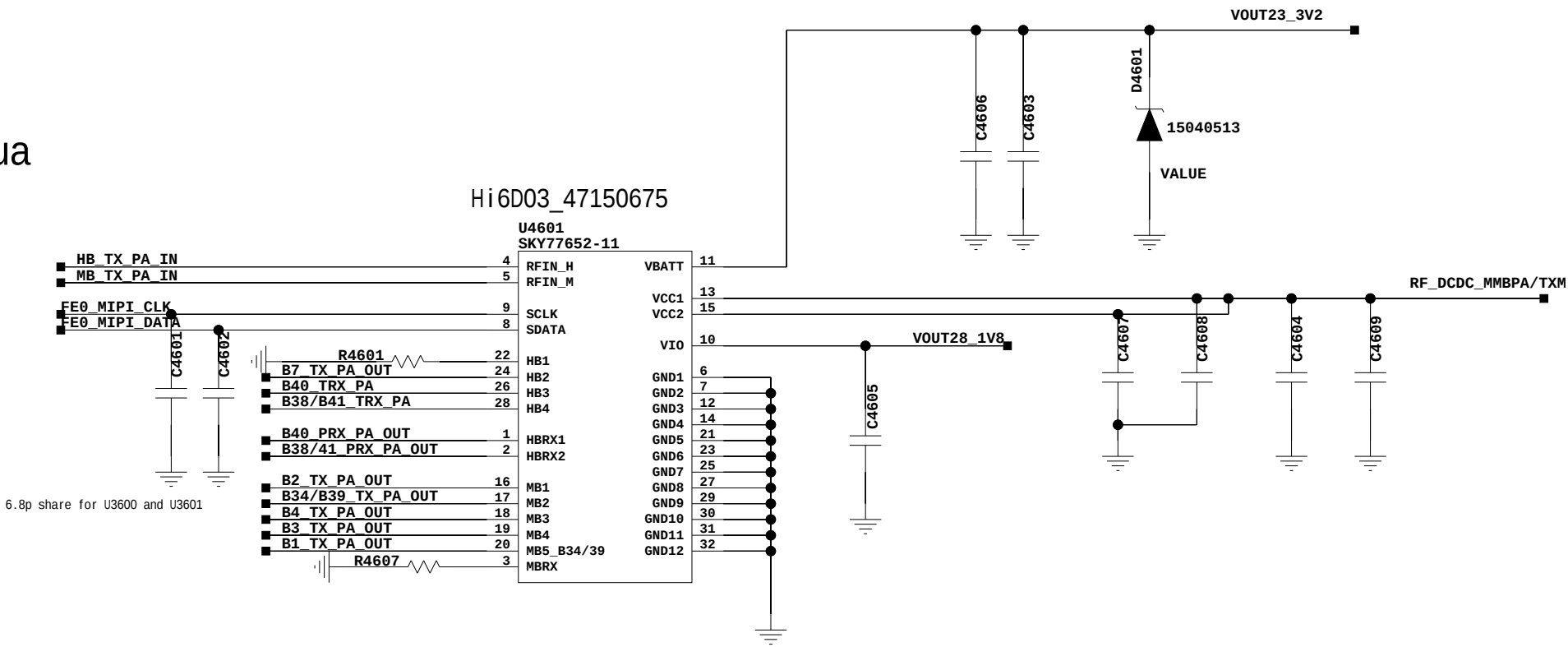
HI6D21 47150693

U4501

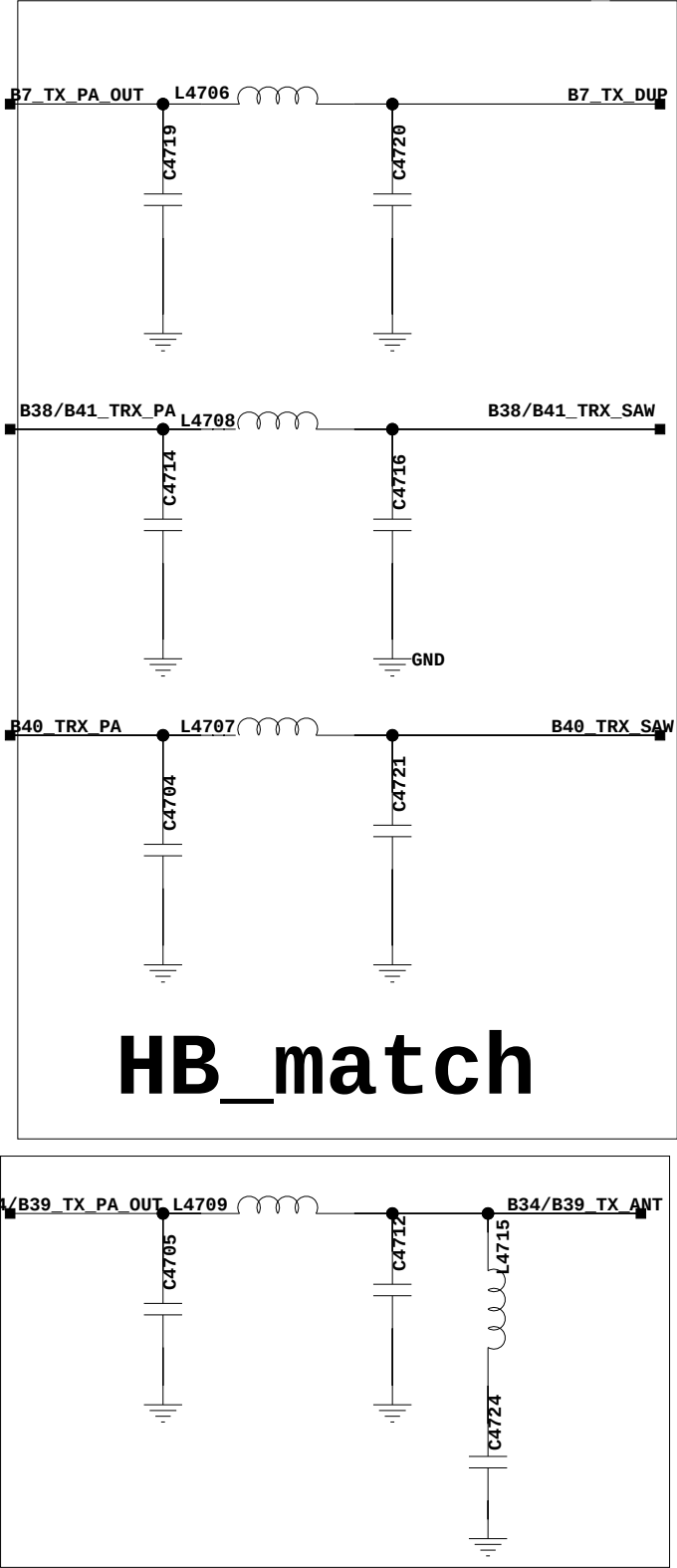
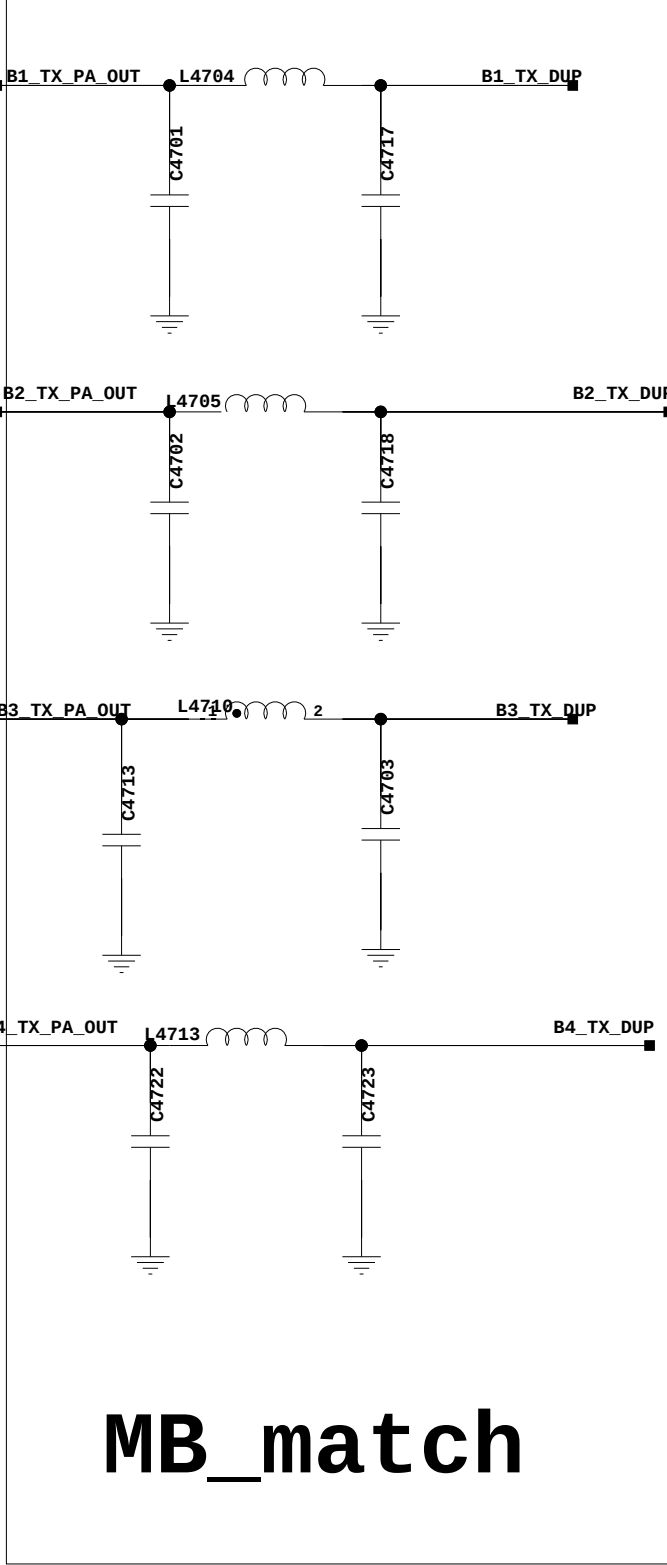
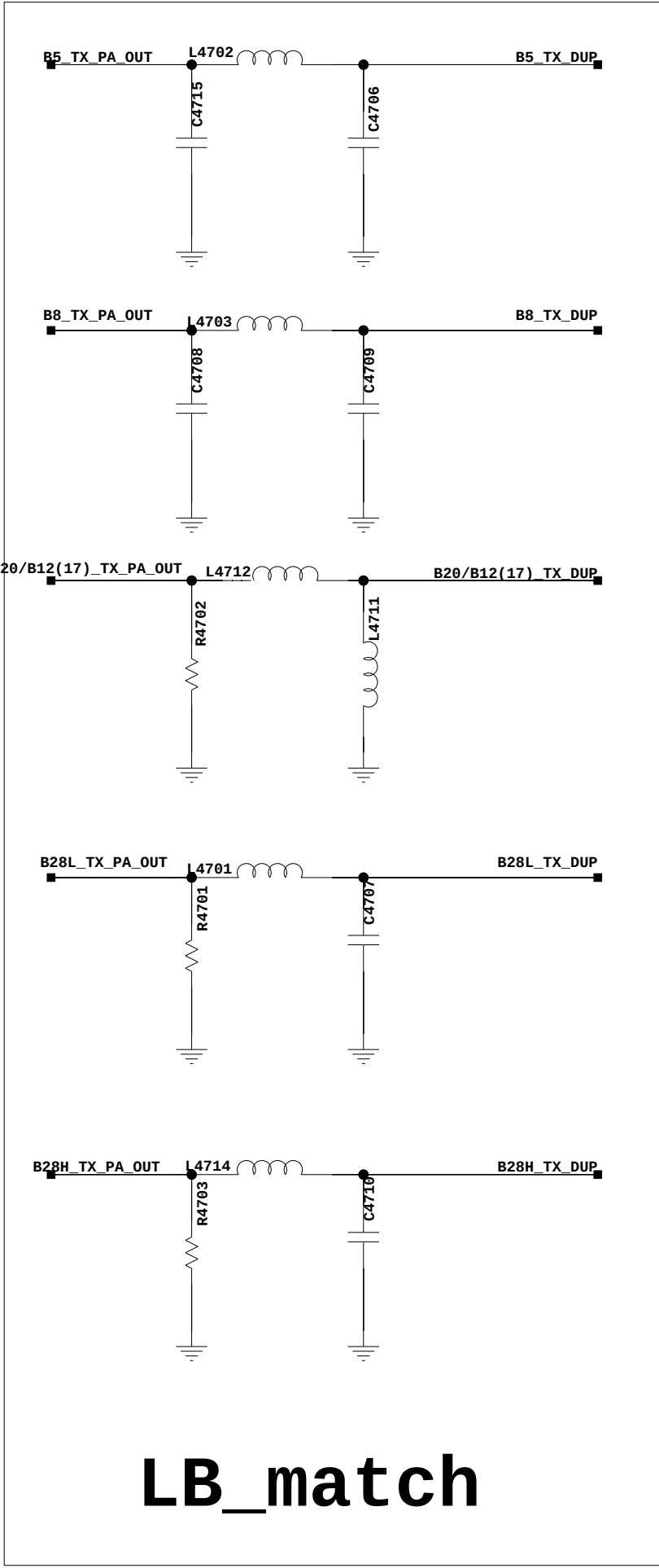


46 PA1_MMBPA

MMMBPA protect gui yi hua

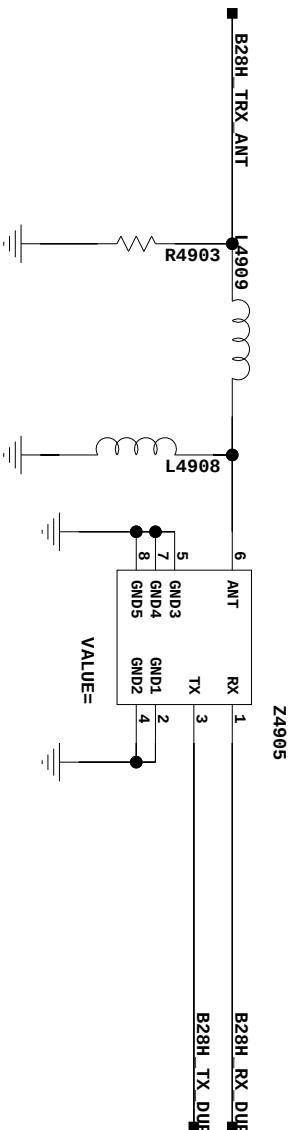
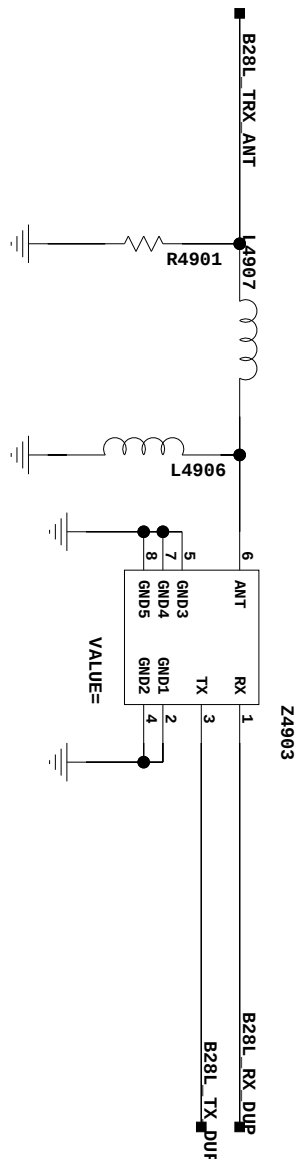
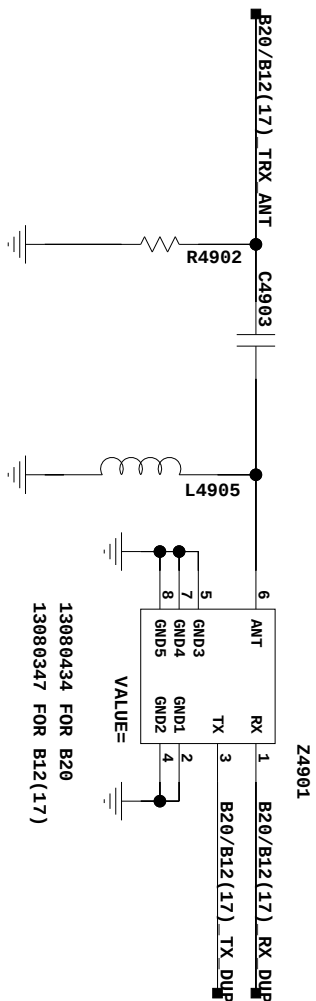
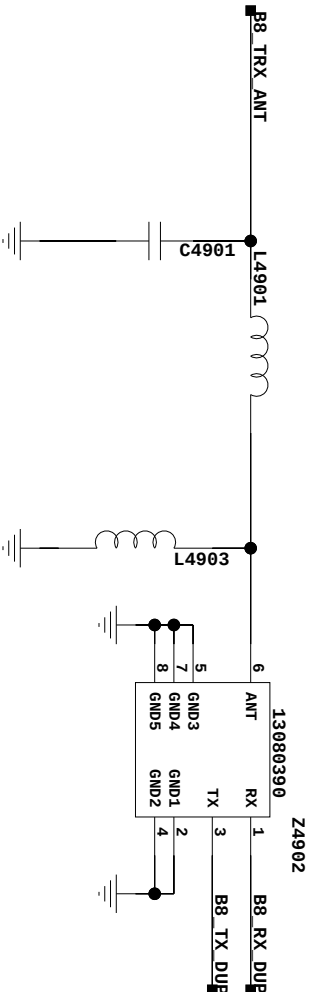
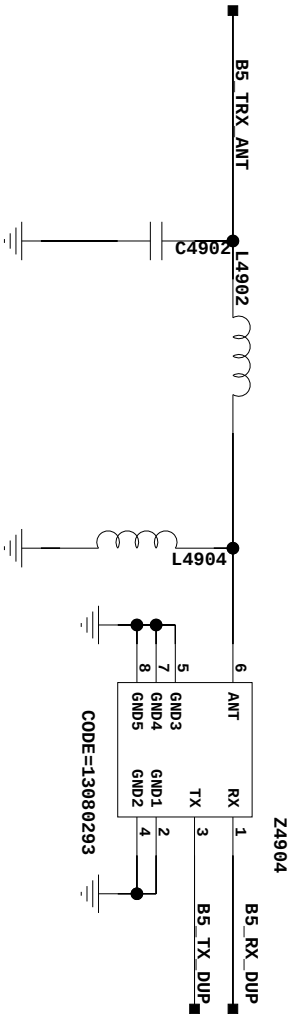


47 PA2_TX_Loadpull



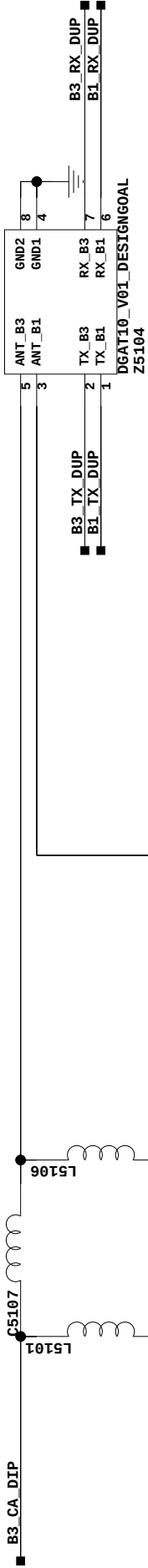
48 PA3_Reserved					
1	2	3	4	5	6
A					
B					
C					
D					
1	2	3	4	5	6

49 TRX_LB_1

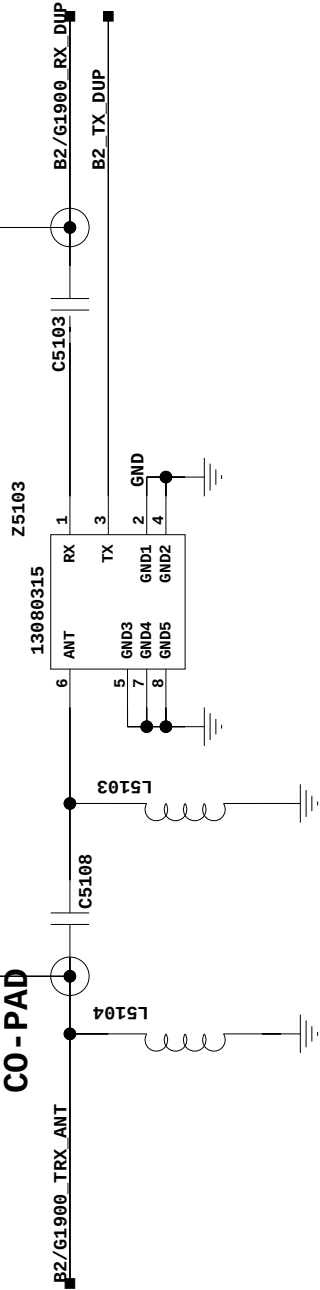
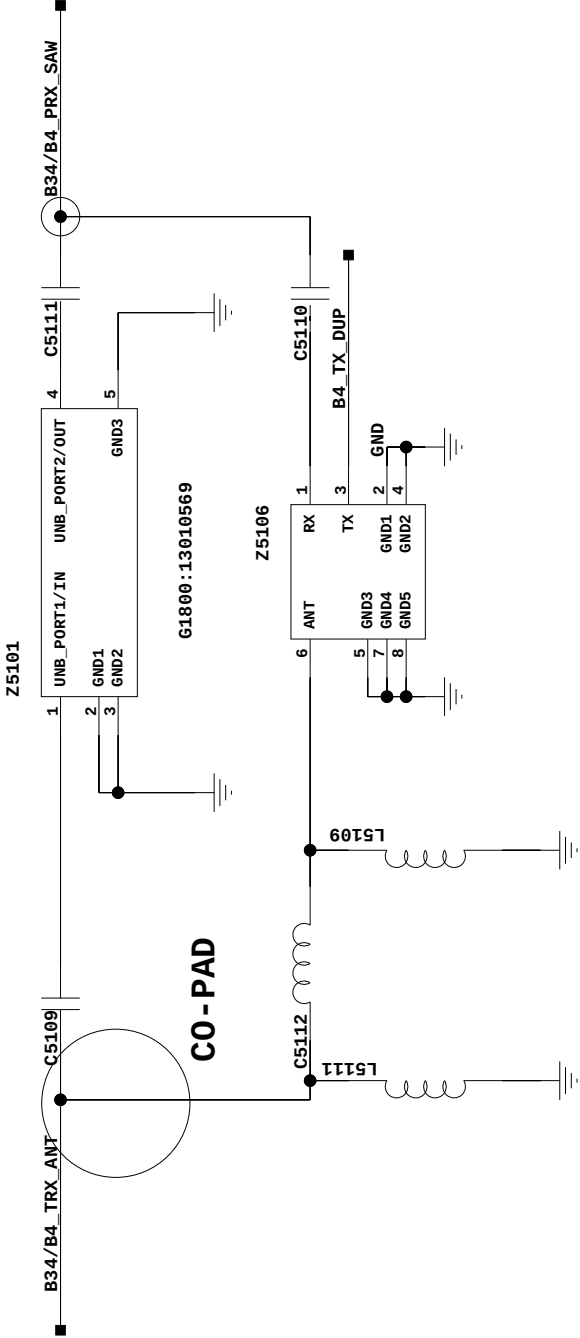
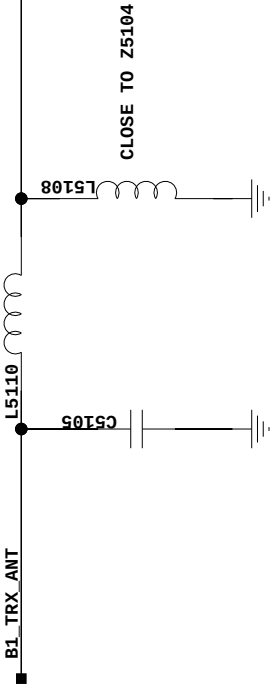


50 TRX_LB_2_Reserved					
1	2	3	4	5	6
A					A
B					B
C					C
D					D
1	2	3	4	5	6

51 TRX_MB_1



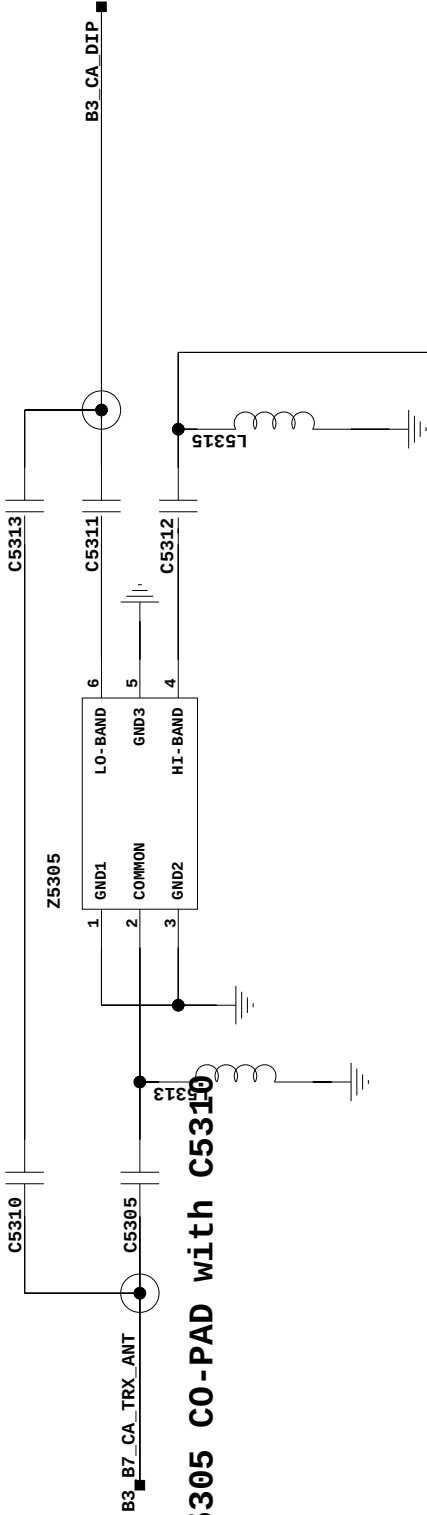
QUP:13080479
DUP:13080502



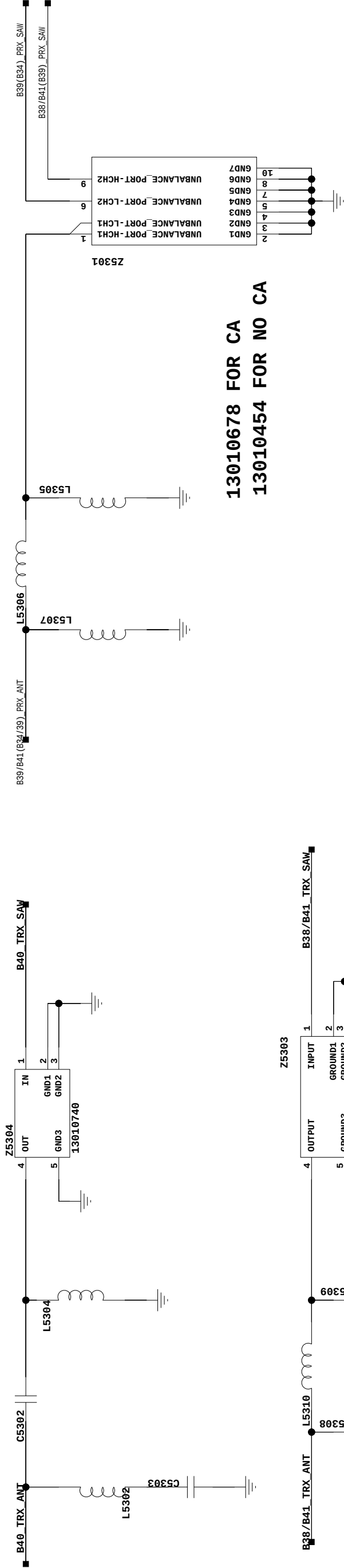
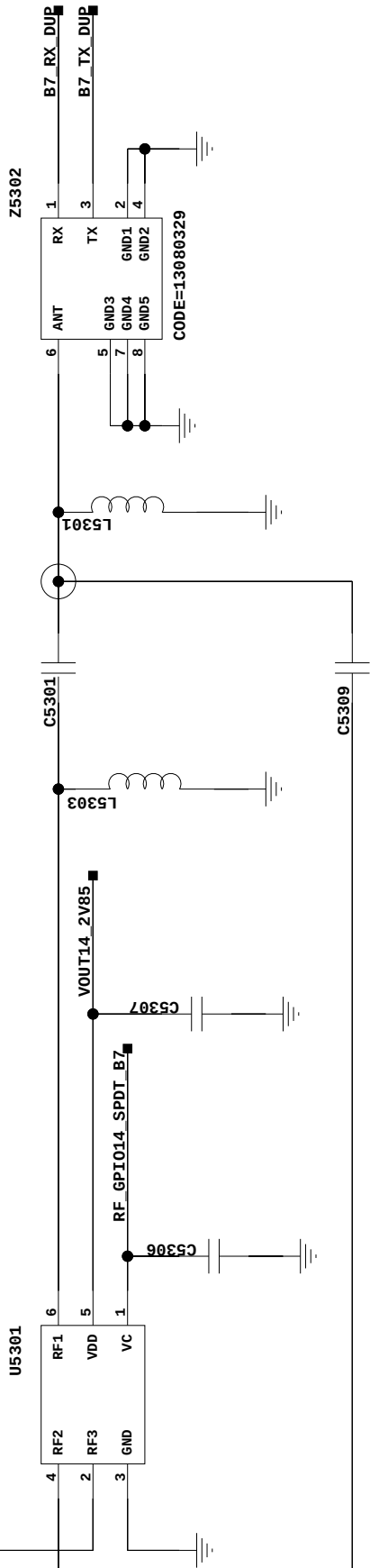
52 TRX_MB_2_Reserved					
1	2	3	4	5	6
A					
B					
C					
D					
1	2	3	4	5	6

53 TRX_HB_1

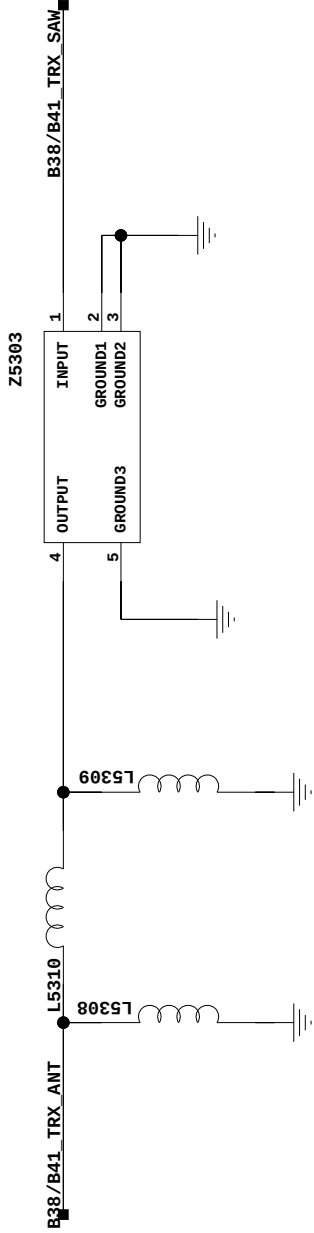
C5513 CO-PAD with C5311



C5305 CO-PAD with C5315

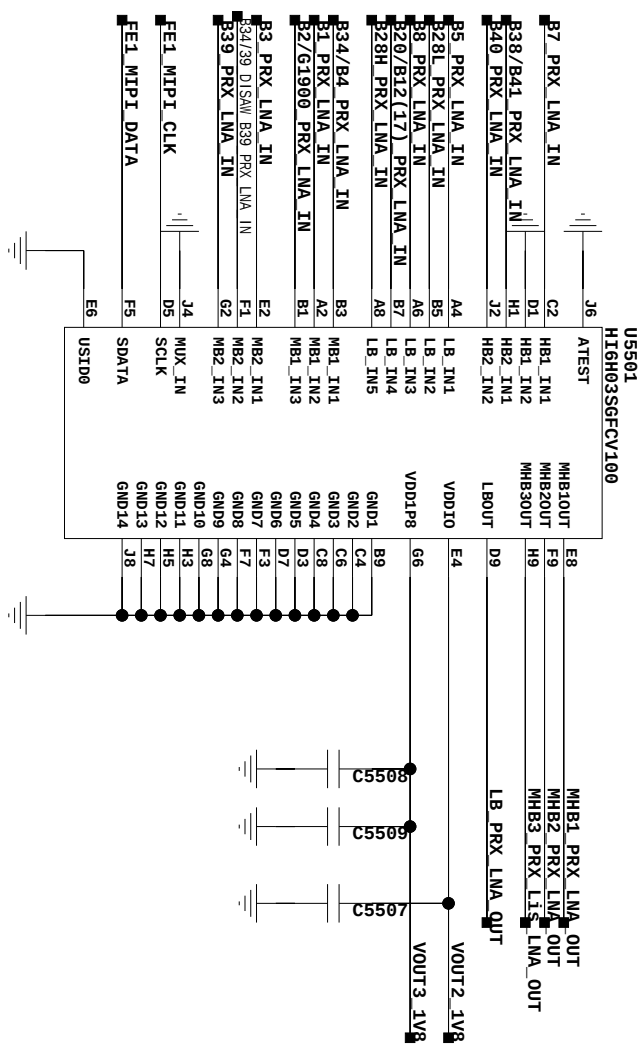
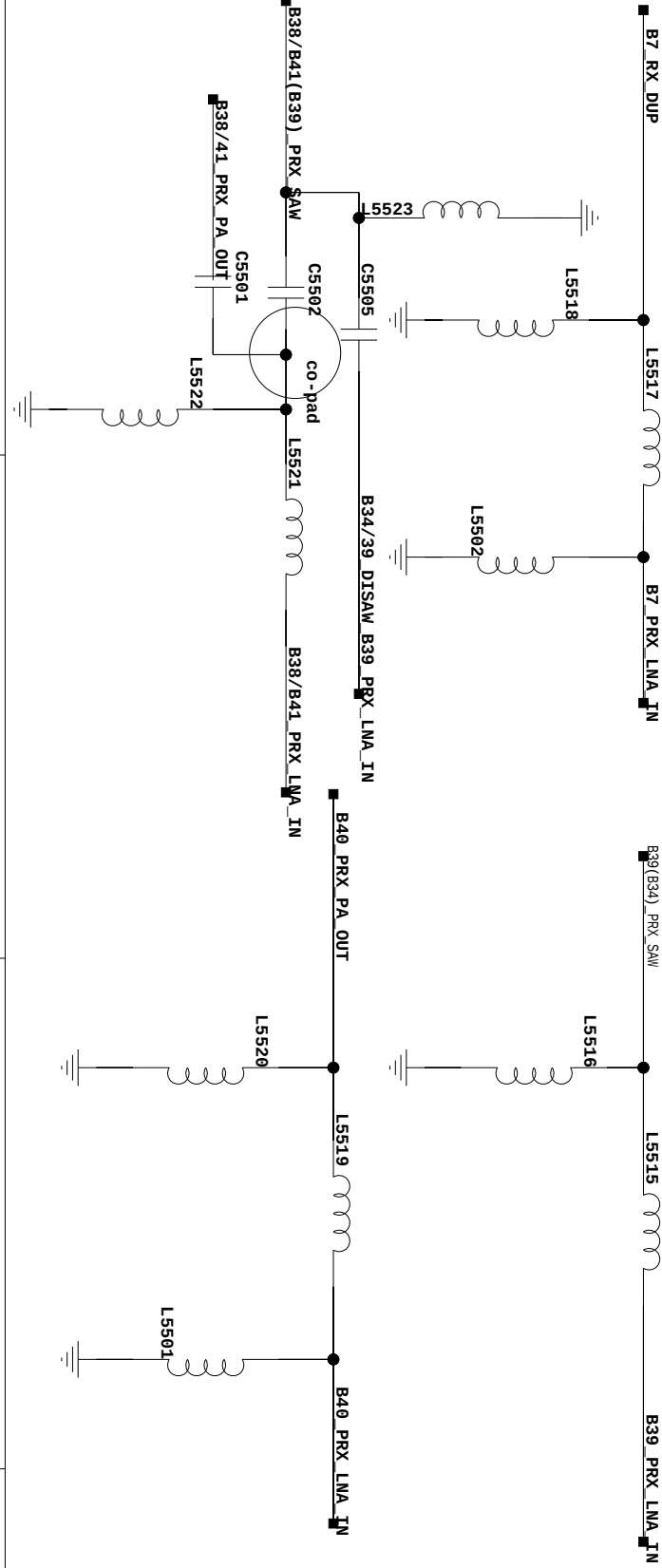
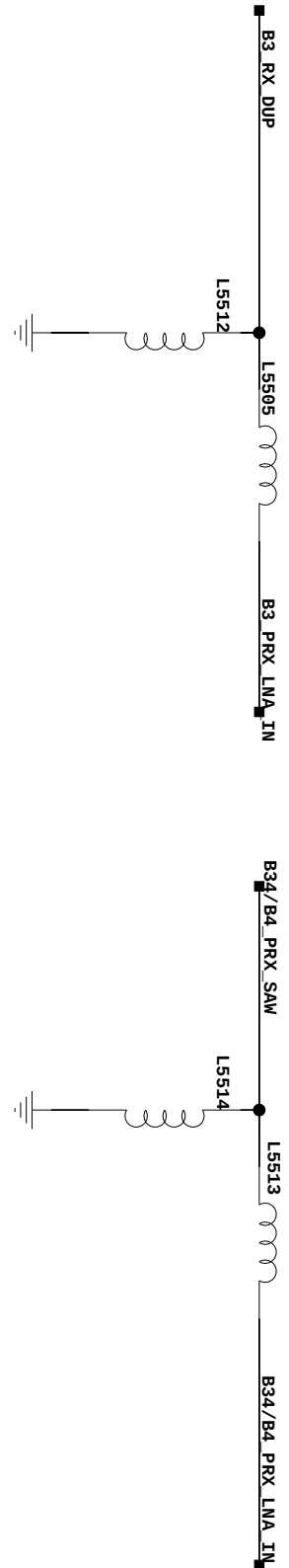
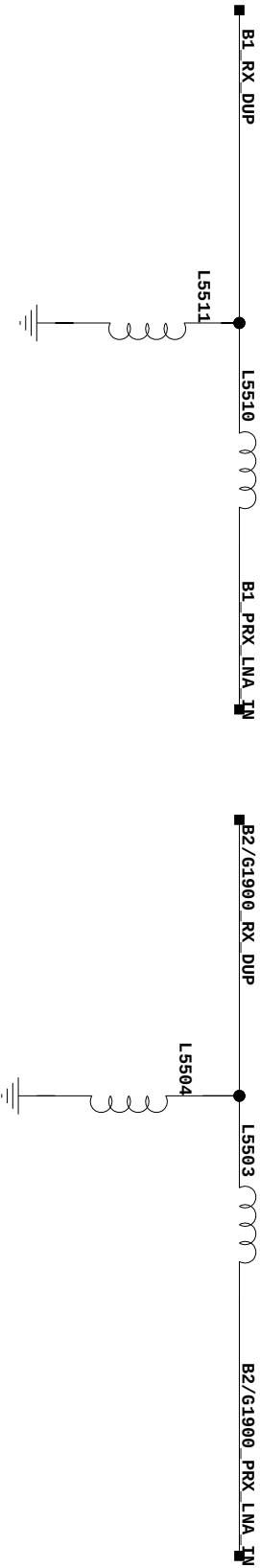


13010678 FOR CA
13010454 FOR NO CA

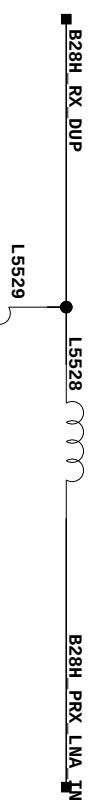


54 TRX_HB_2_Reserved					
1	2	3	4	5	6
A					A
B					B
C					C
D					D
1	2	3	4	5	6

55 PRX_LNA_Module

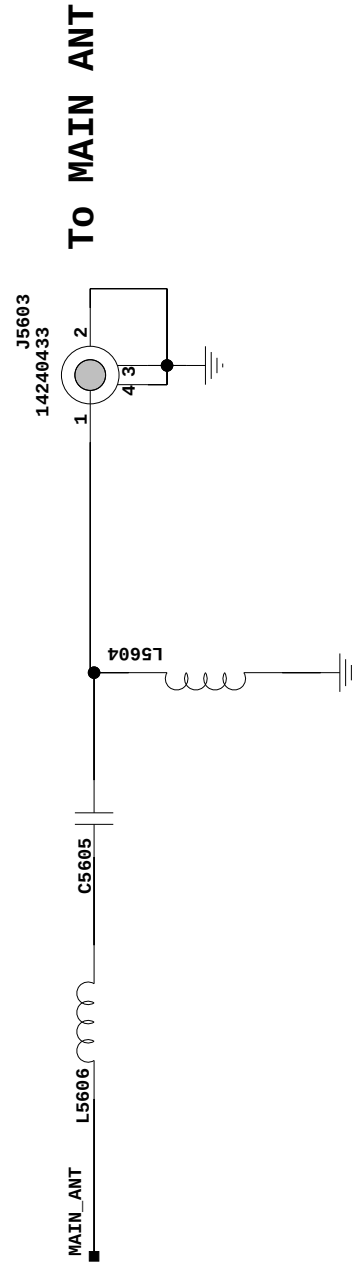
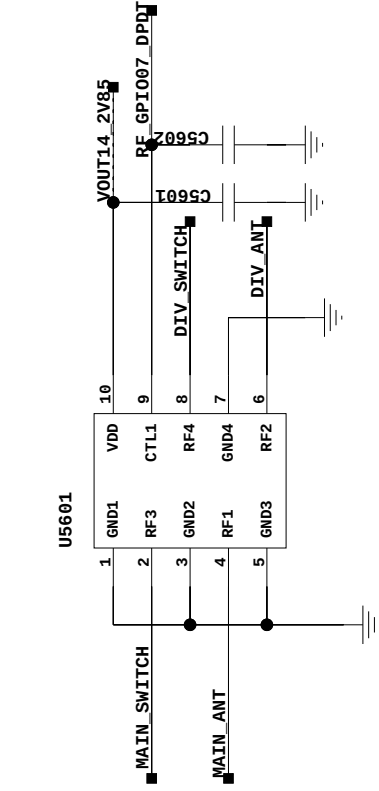


The Inputport unused should be connected to GND!

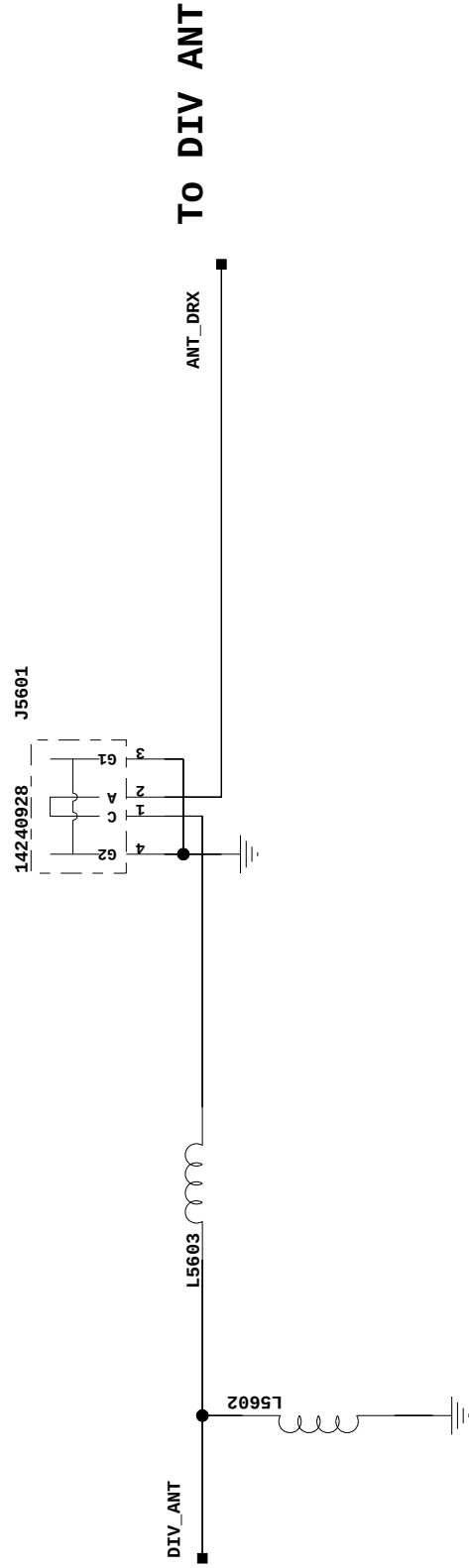


6H03 Frequency Range	
LB_IN1	B5
LB_IN2	703-894MHZ
LB_IN3	B8
LB_IN4/5	717-821MHZ
MB1_IN1	1805-2200MHZ B40
MB1_IN2/3E-MB2_IN1/3	1805-2200MHZ
HB1/2_IN1	B41/38/7
HB1/2_IN2	2300-2690MHZ

56 MAIN_DPD.T

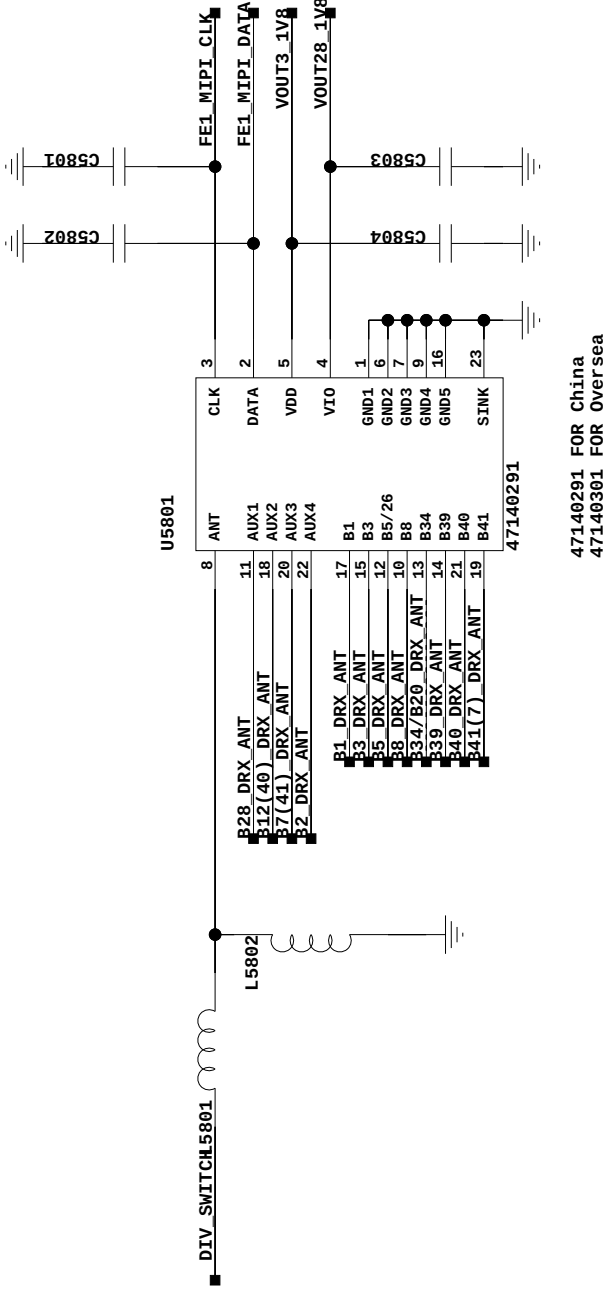


SKY13699-21 Truth Table	
CTRL1	State
0	RF1-RF3, RF2-RF4
1	RF1-RF4, RF2-RF3

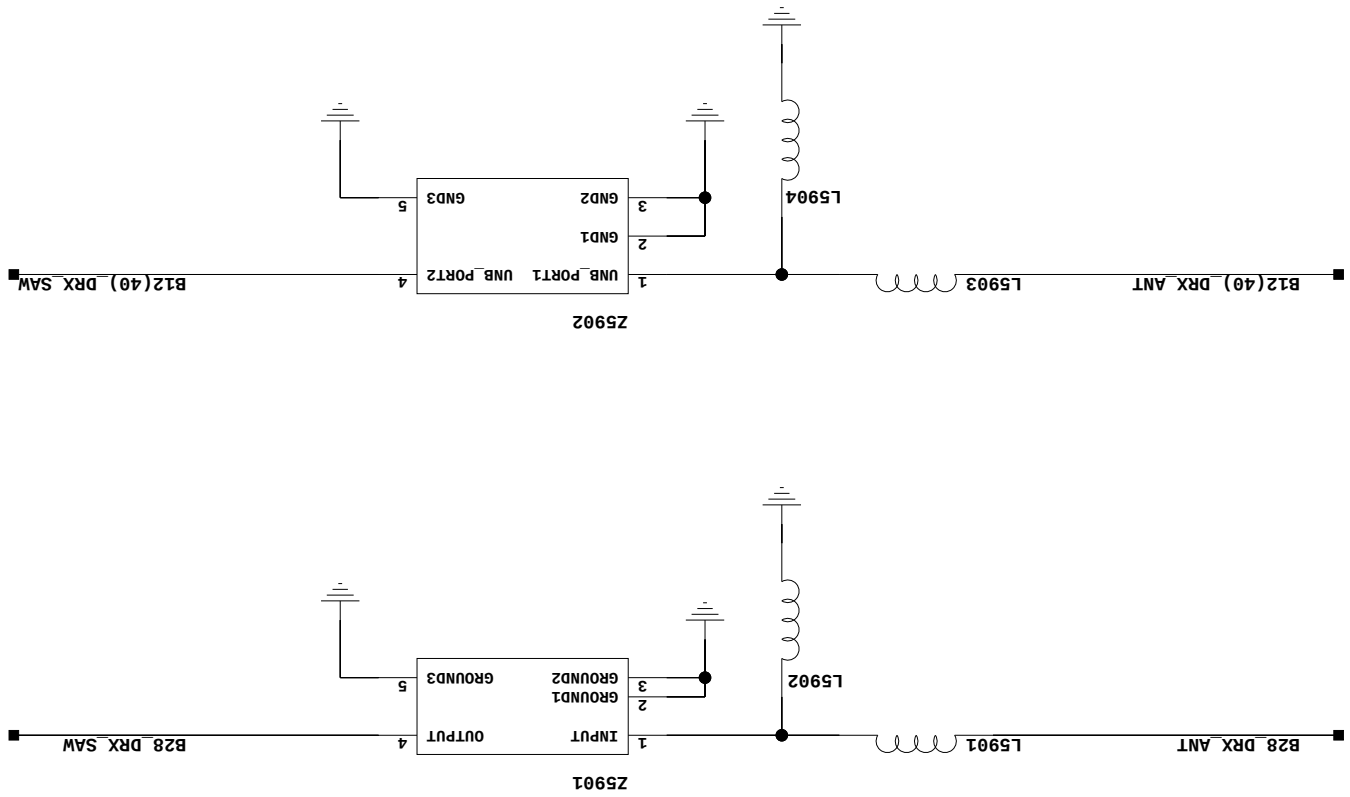


1						2						3						4						5						6																	
57 MAIN_DPDT_Reseverd																																															
A																																				A											
B																																										B					
C																																										C					
D																										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

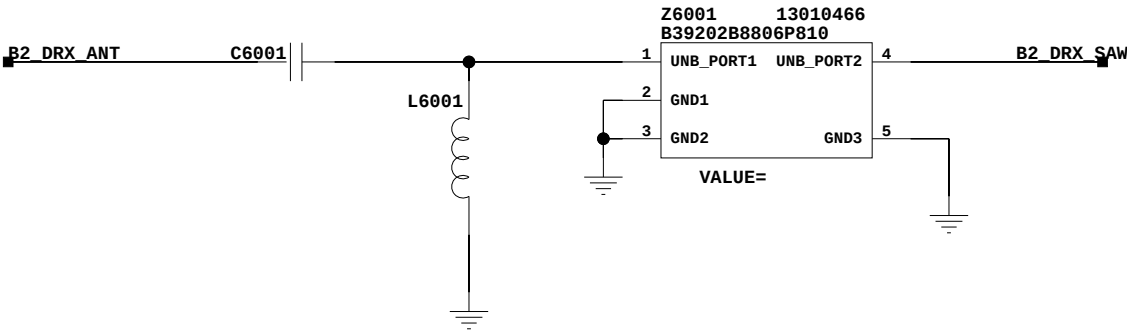
58 DRX_Switch



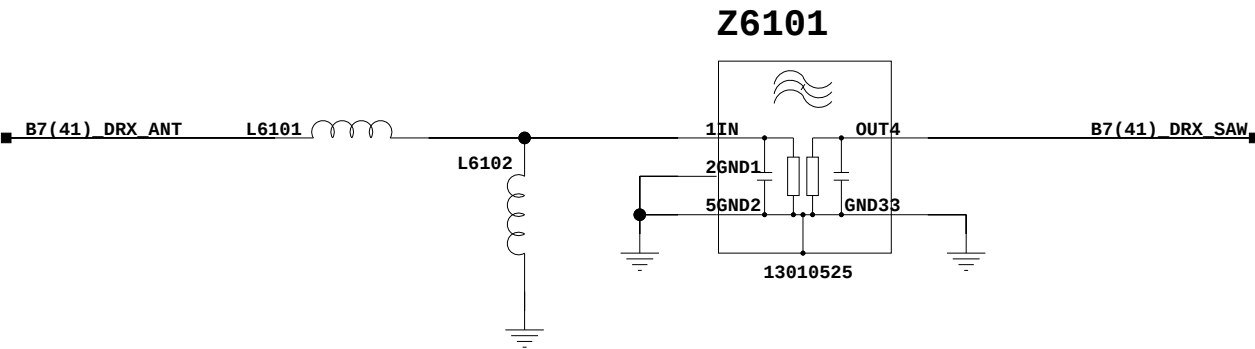
59 DRX_LB



60 DRX_MB

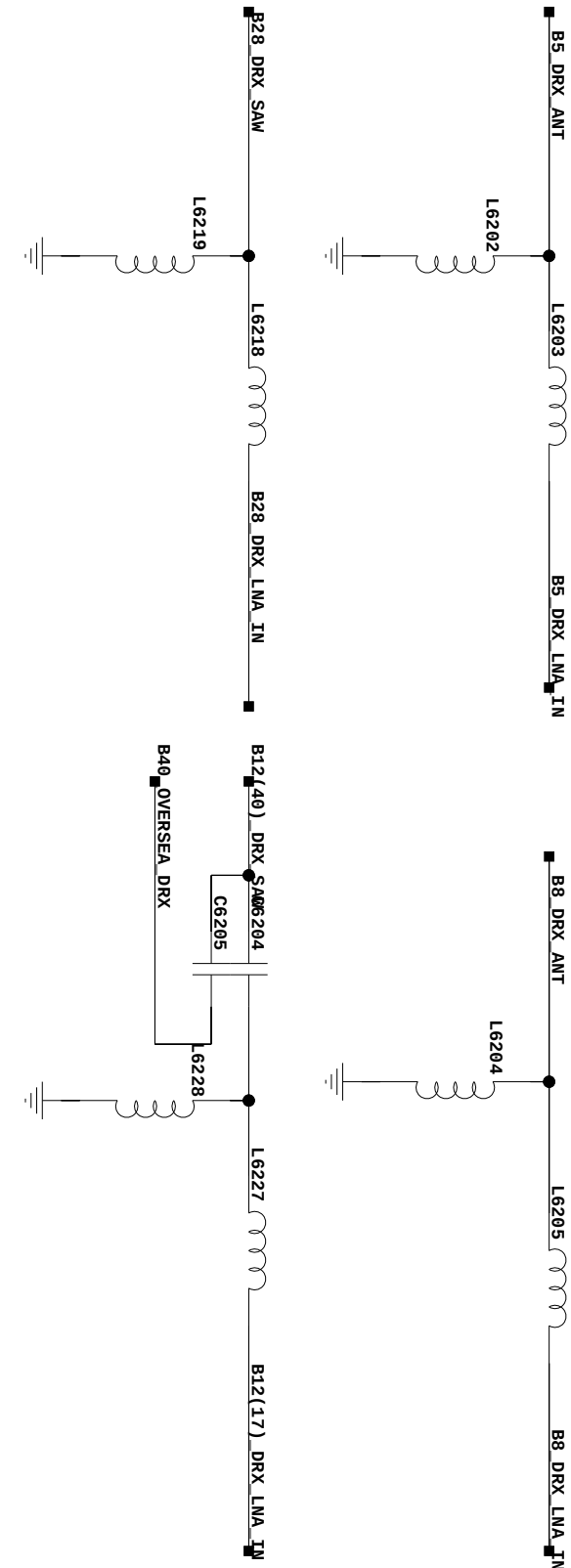


61 DRX_HB

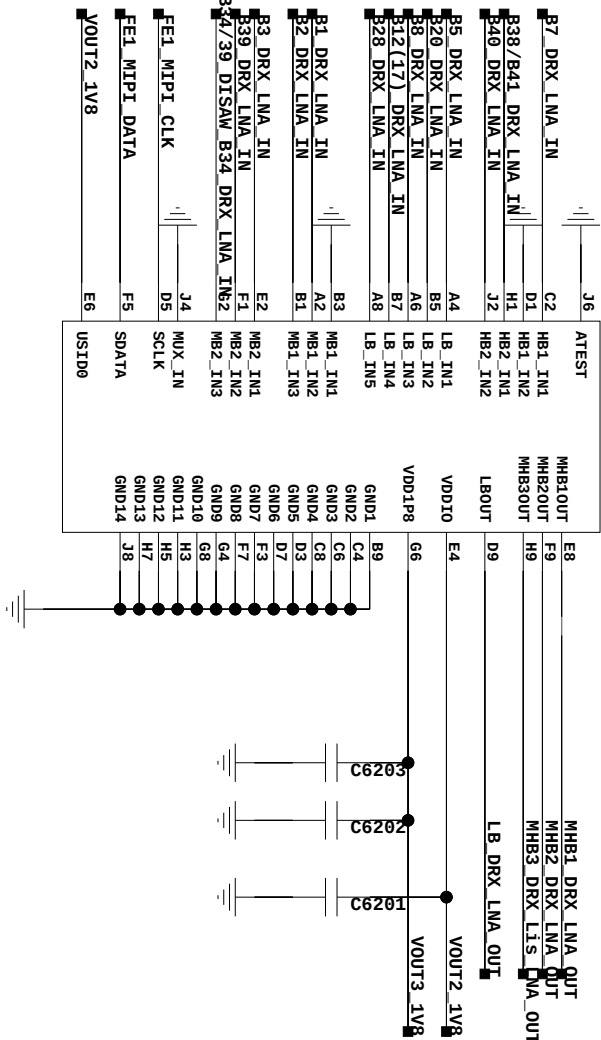


13010525 FOR B7
13010677 FOR B41

62 DRX_LNA_Module



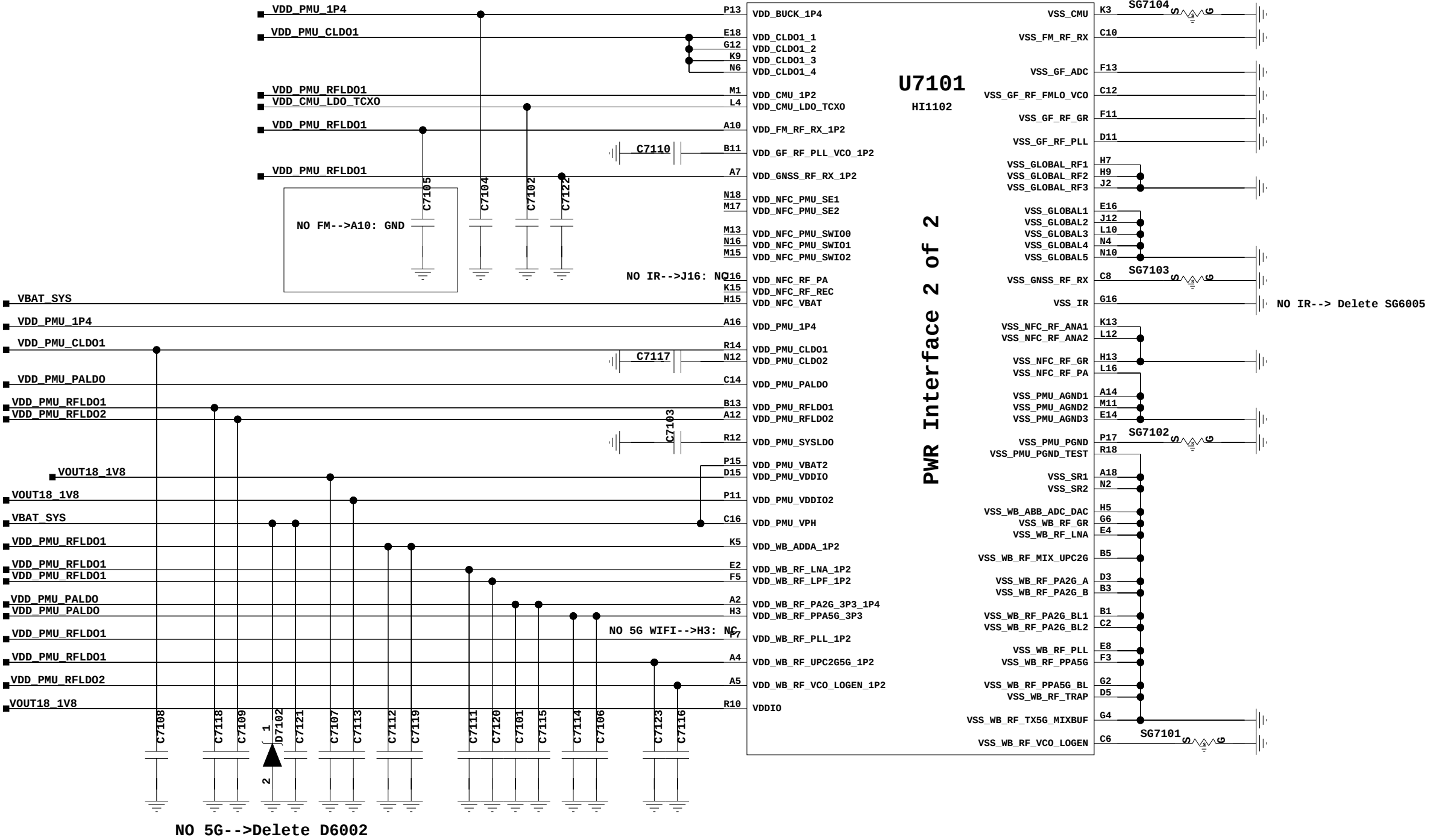
The Inputport unused should be connected to GND!



6H03 Frequency Range

LB_IN1	B5
LB_IN2	703-894MHZ
LB_IN3	B8
LB_IN4/5	717-821MHZ
MB1_IN1	1805-2200MHZ B40
MB1_IN2/3E-MB2_IN1/3	1805-2200MHZ
HB1/2_IN1	B41/38/7
HB1/2_IN2	2300-2690MHZ

71 NC_POWER



Add by Hisilicon for debug

VOUT18_1V8

VBAT_SYS

Boston,Miami: VOUT2->VOUT18_1V8

Chicago,Dallas: VOUT2

R6082;C6083:Æ%Ì"Ê×ÎîÄ¿ÊÖÖÆ±£ÁÔ£¬×îÖÖ¹éµµÊ±£%µô,Ö±Á¬£»·ÇÆ%Ì"Ê×ÎîÄ¿Ö±Á¬

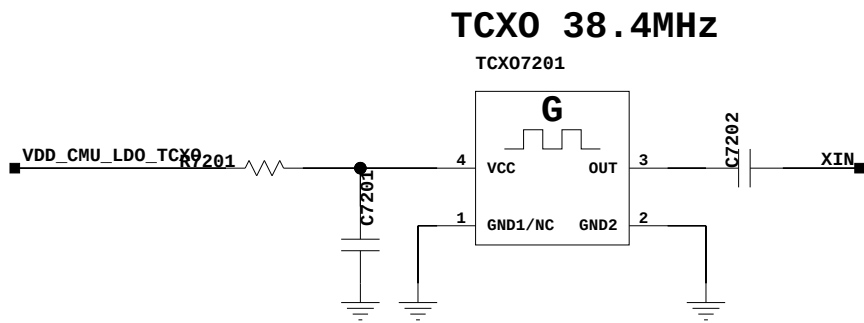
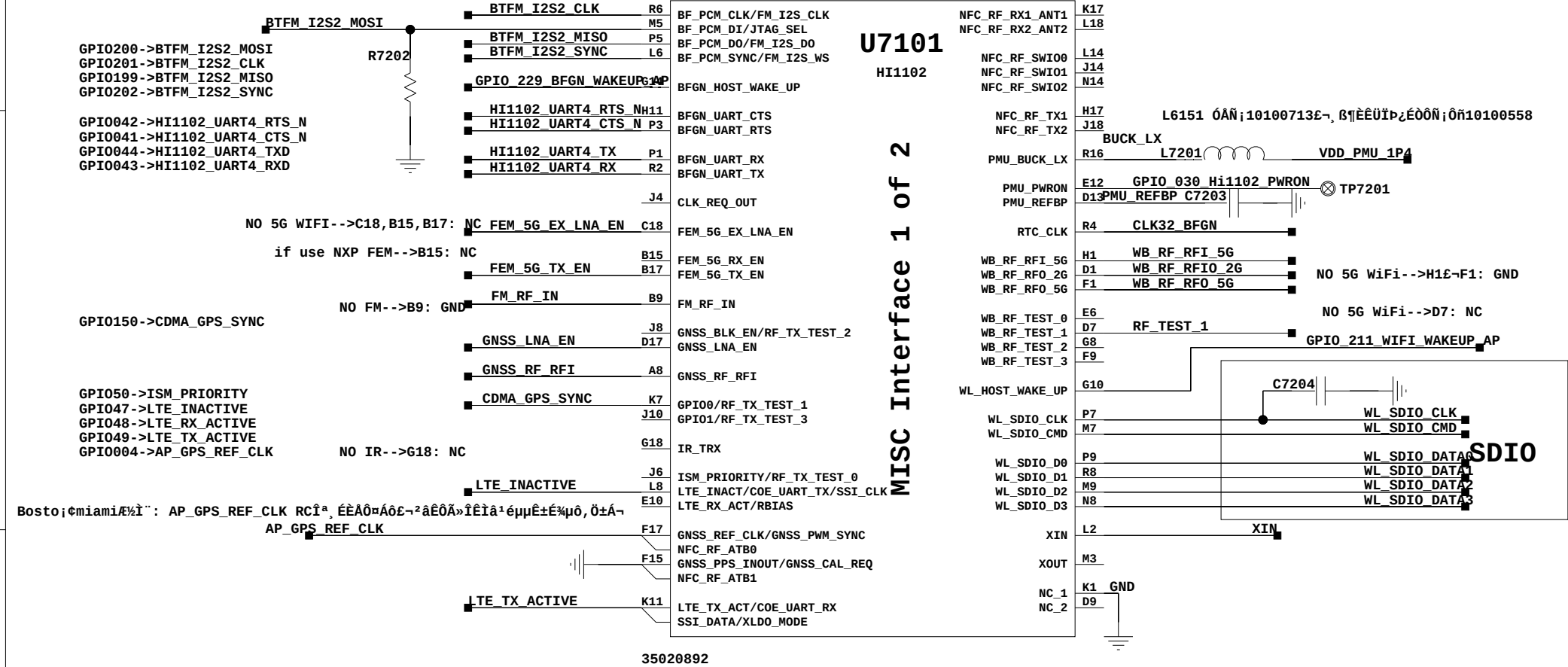
72 NC_BB_Miami

A

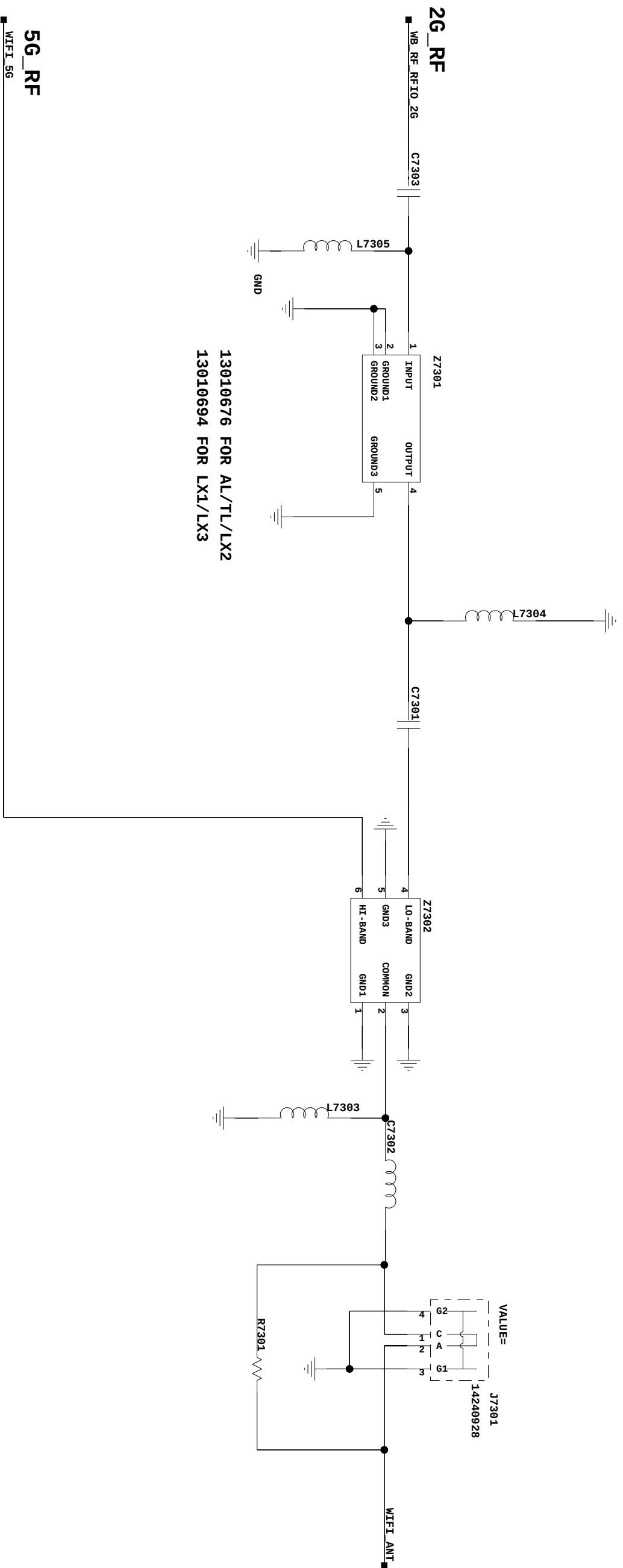
B

C

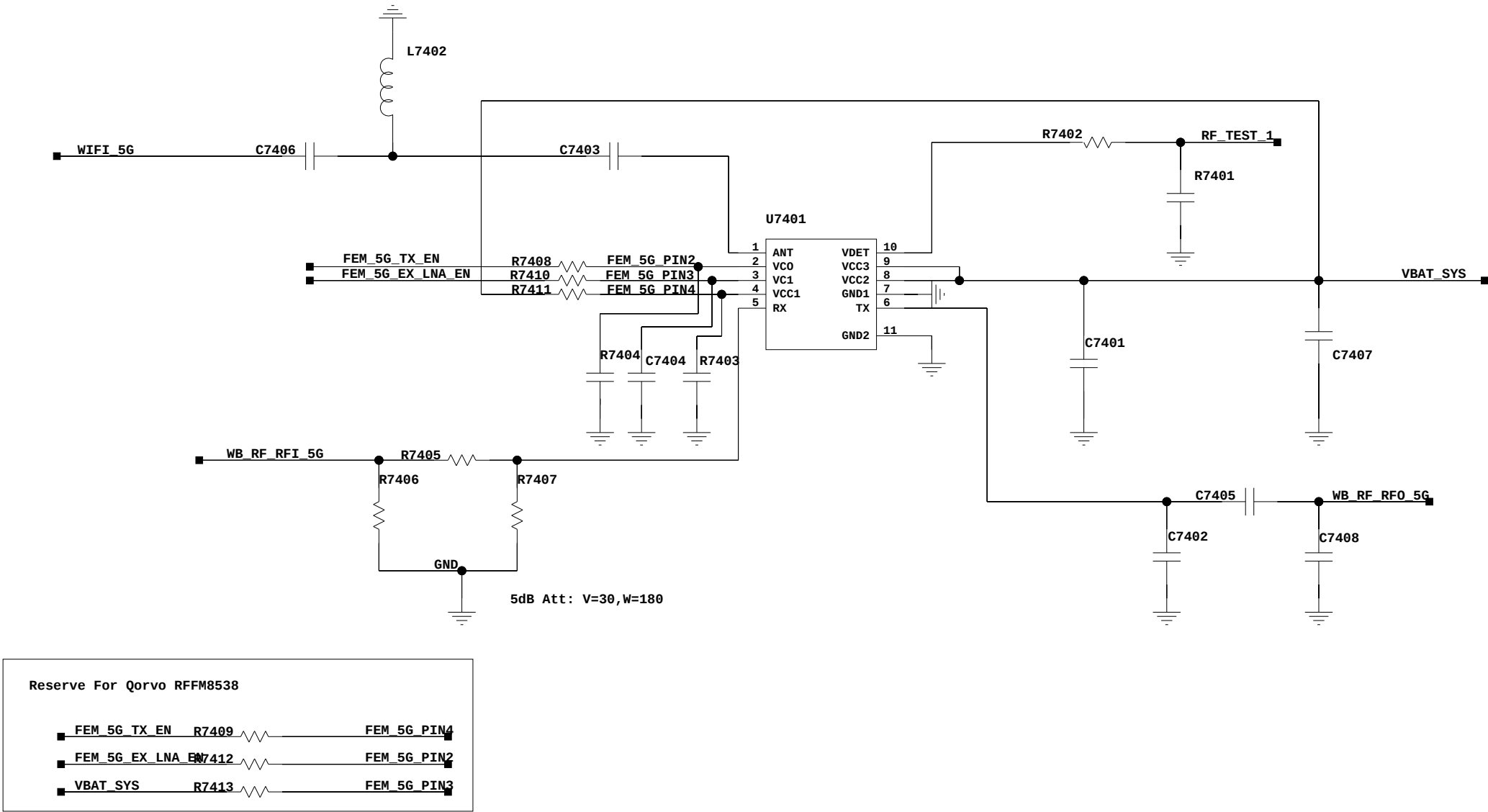
D



73 NC_2G/5G/GPS

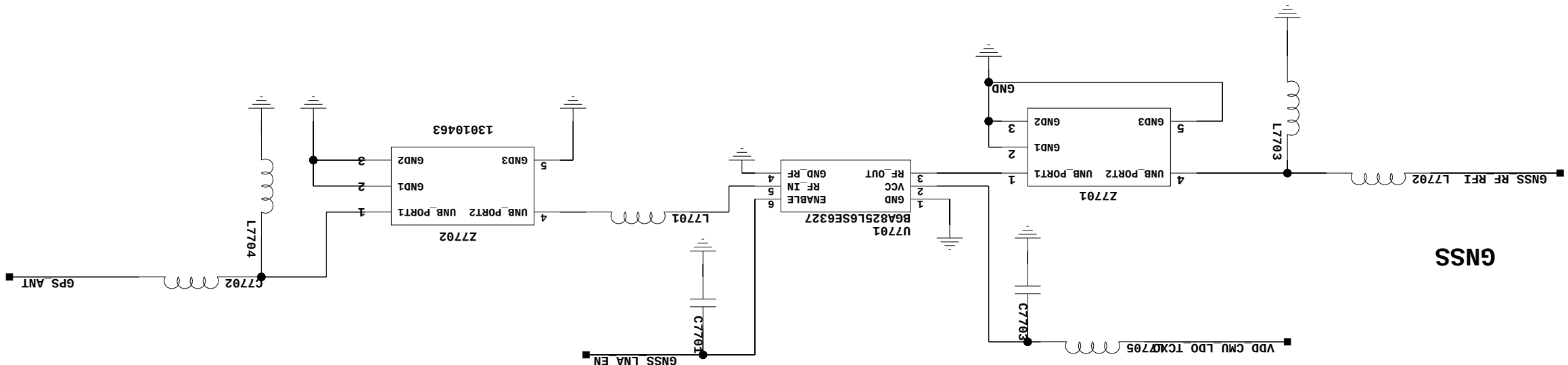


74 NC_FE_WIFI_5G_599

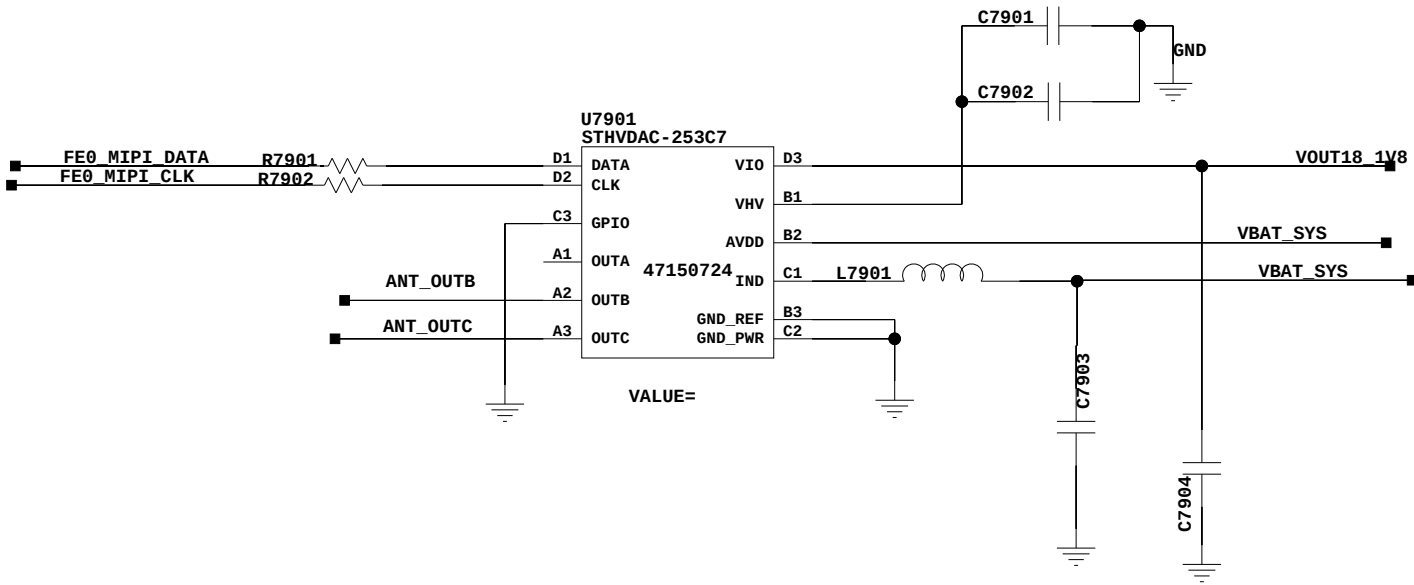


The type and specification of the components refer to the BOM

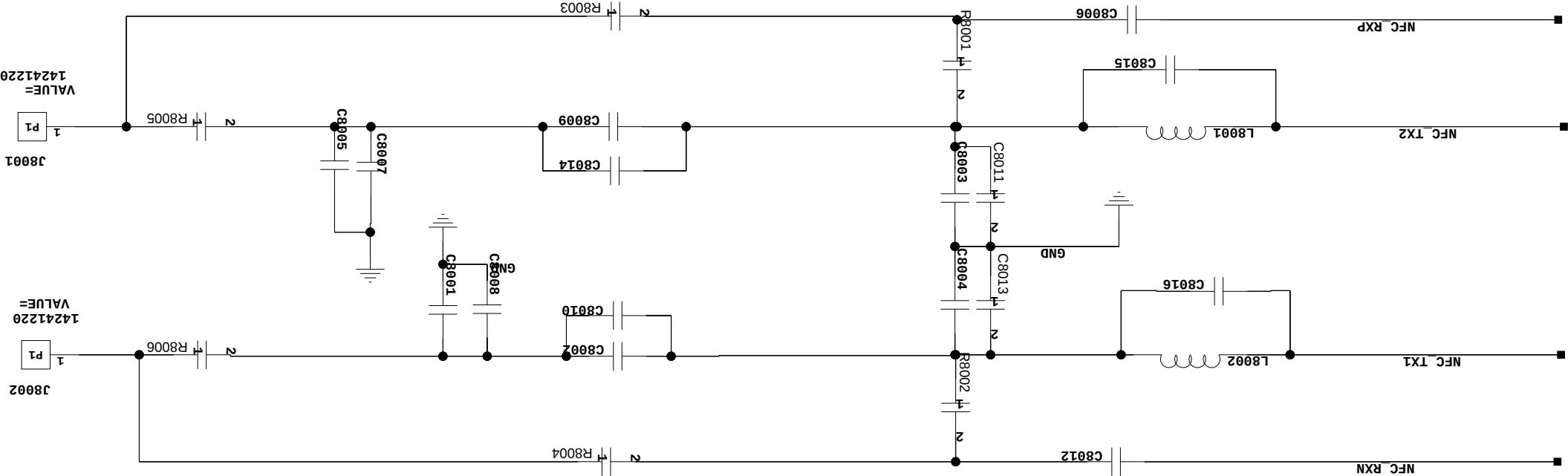
77 NC_GPS



79.ANT_Tuner_controller



80. ANT_NFC



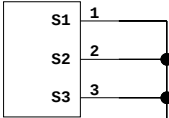
The type and specification of the components refer to the BOM

81.ANT_GND

div-gnd

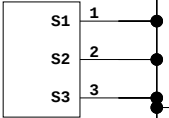
Wifi ground-1

J8108



51628444

J8101

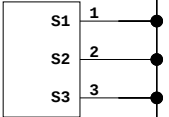


51628444



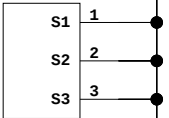
GND

J8103



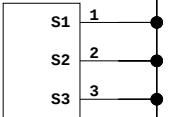
51628444

J8104



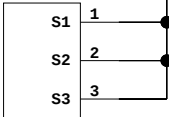
51628444

J8106



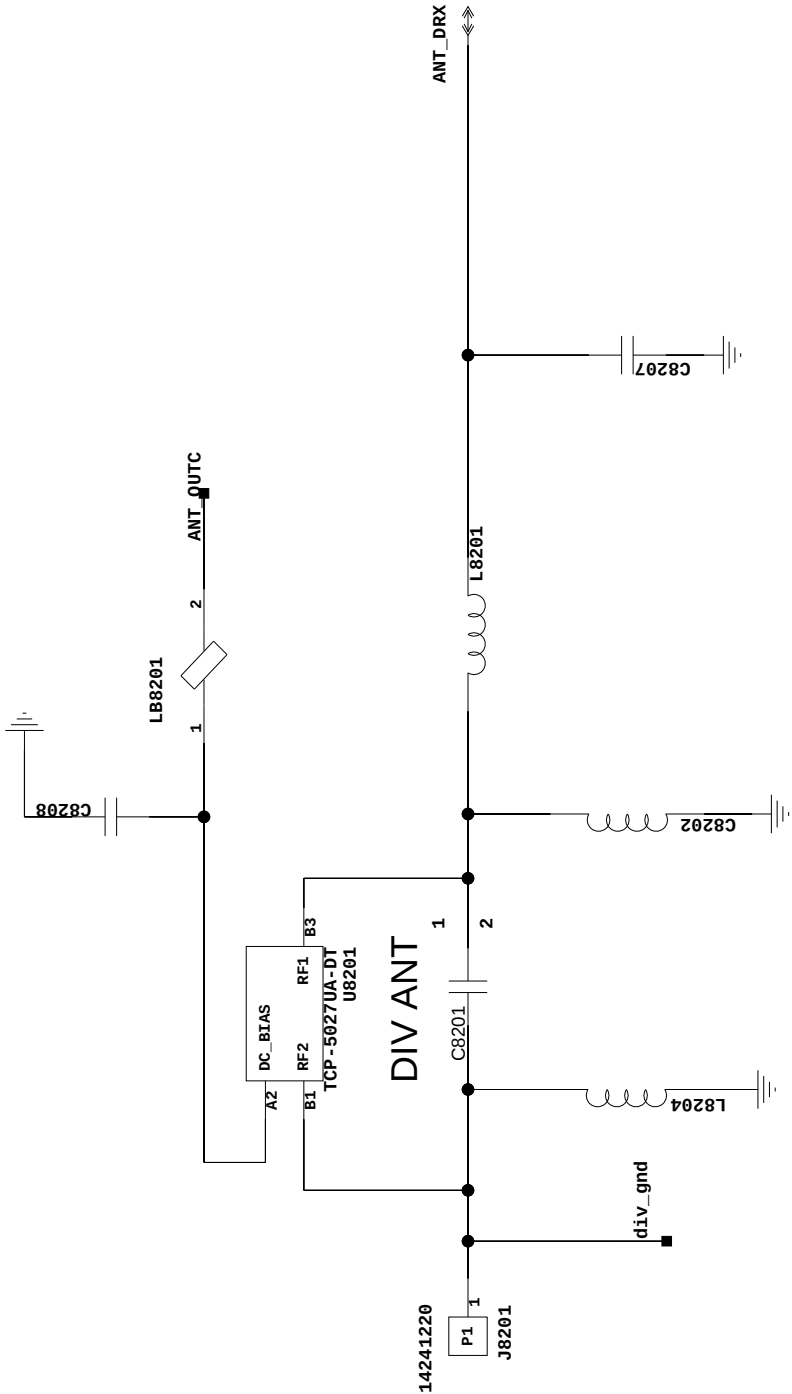
51628444

J8107



51628444

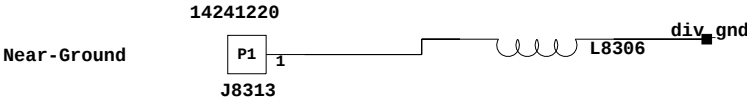
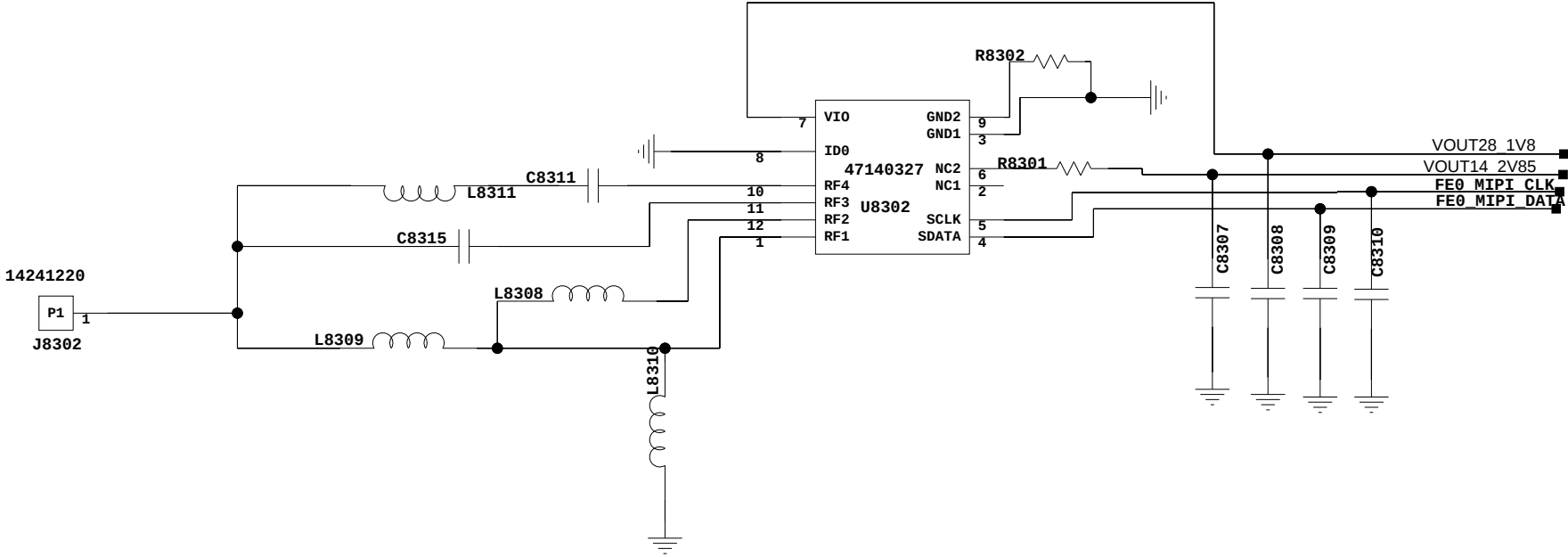
82.ANT_DIV_feed



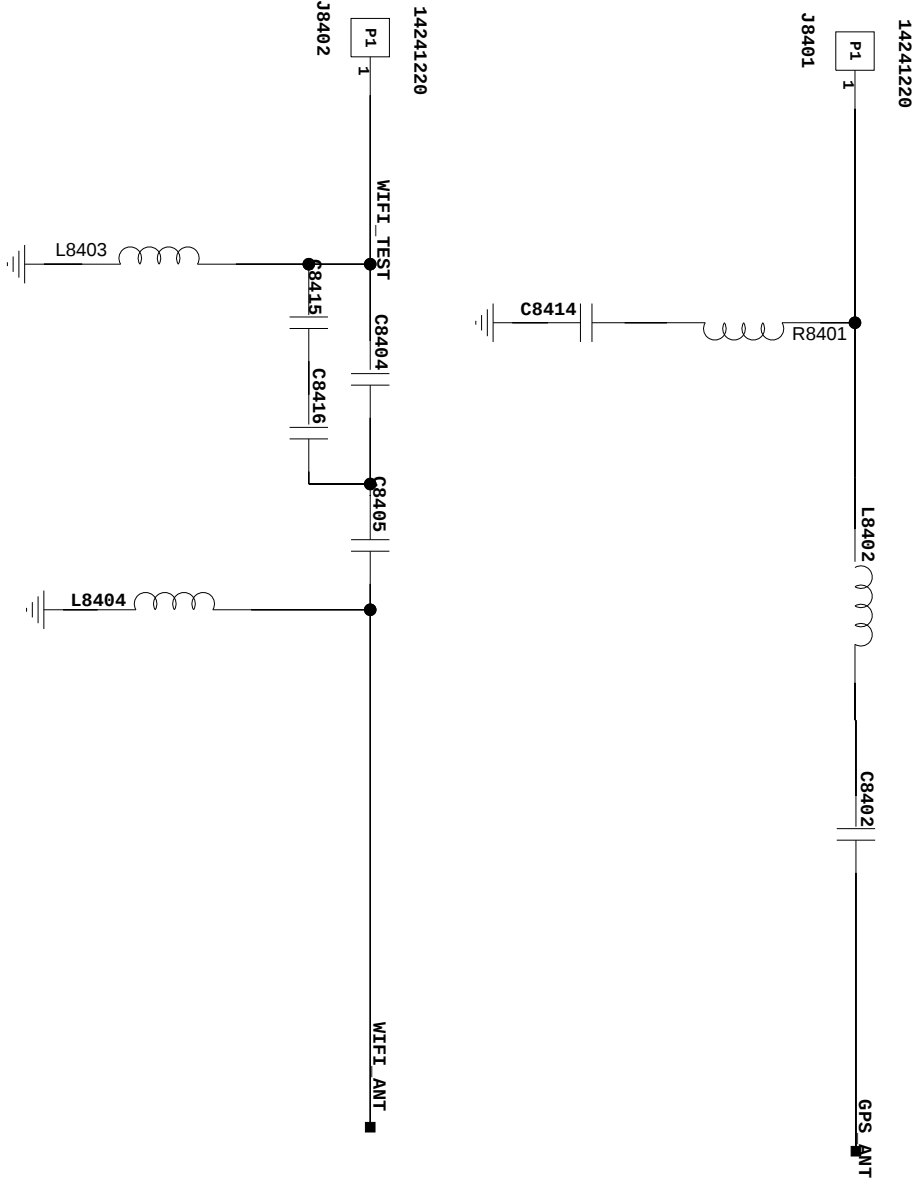
83.ANT_DIV_tuner

USID Setting Table(Register:0X1F D3:D0)

USID	PIN	BIAS	Condition	USID			
				D3	D2	D1	D0
GND				0	1	1	0
Open				0	1	1	1
VIO				1	0	0	1



84.ANT_GPS_WIFI



85.ANT_MIMO					
1	2	3	4	5	6
A					A
B					B
C					C
D					D
1	2	3	4	5	6