


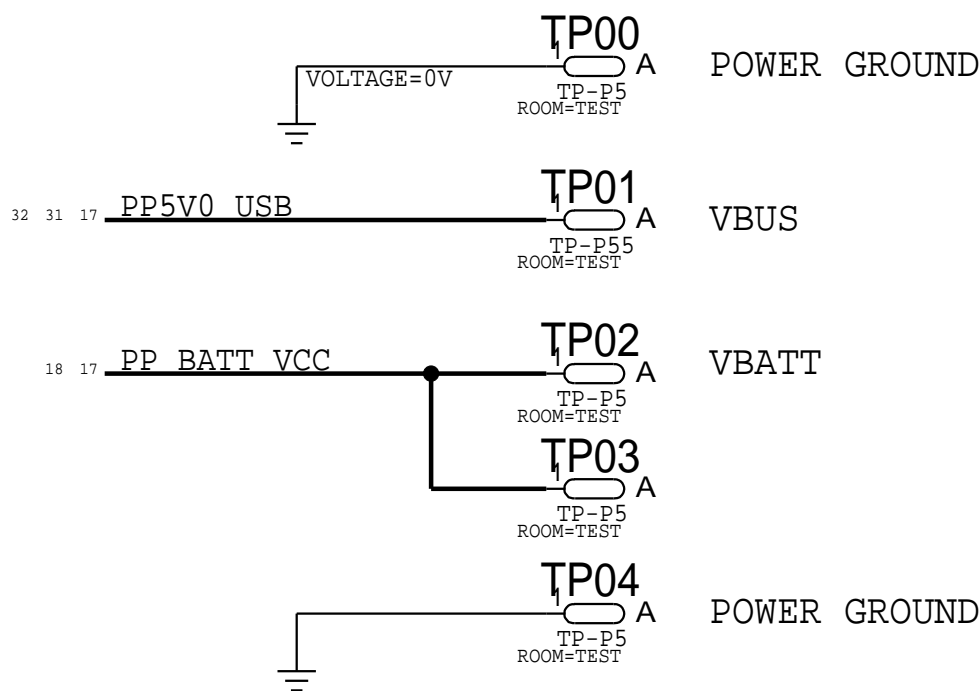




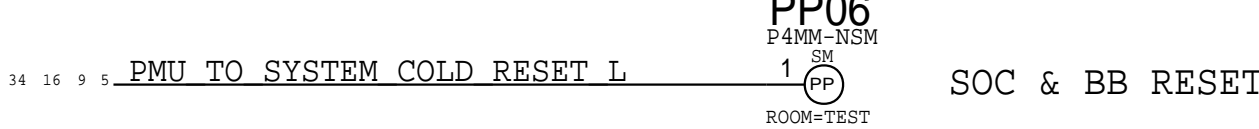
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TESTPOINTS

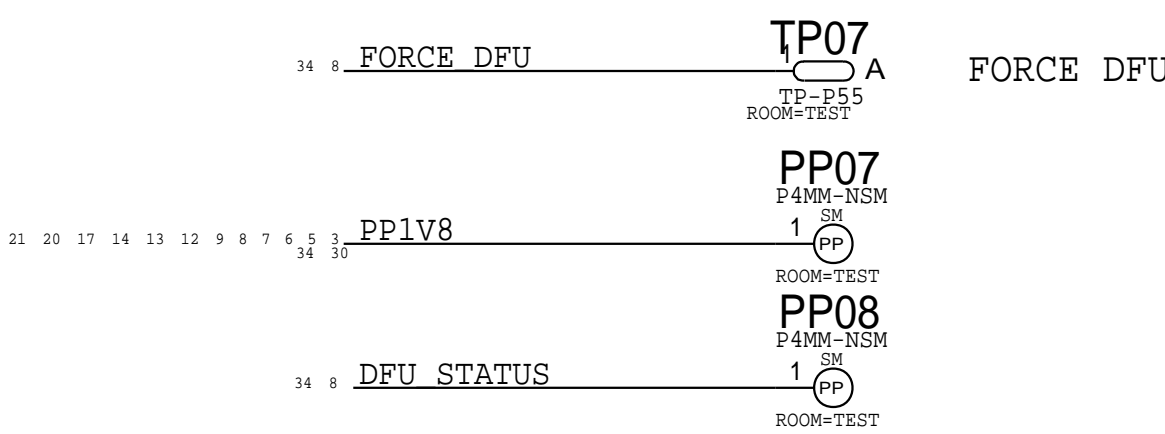
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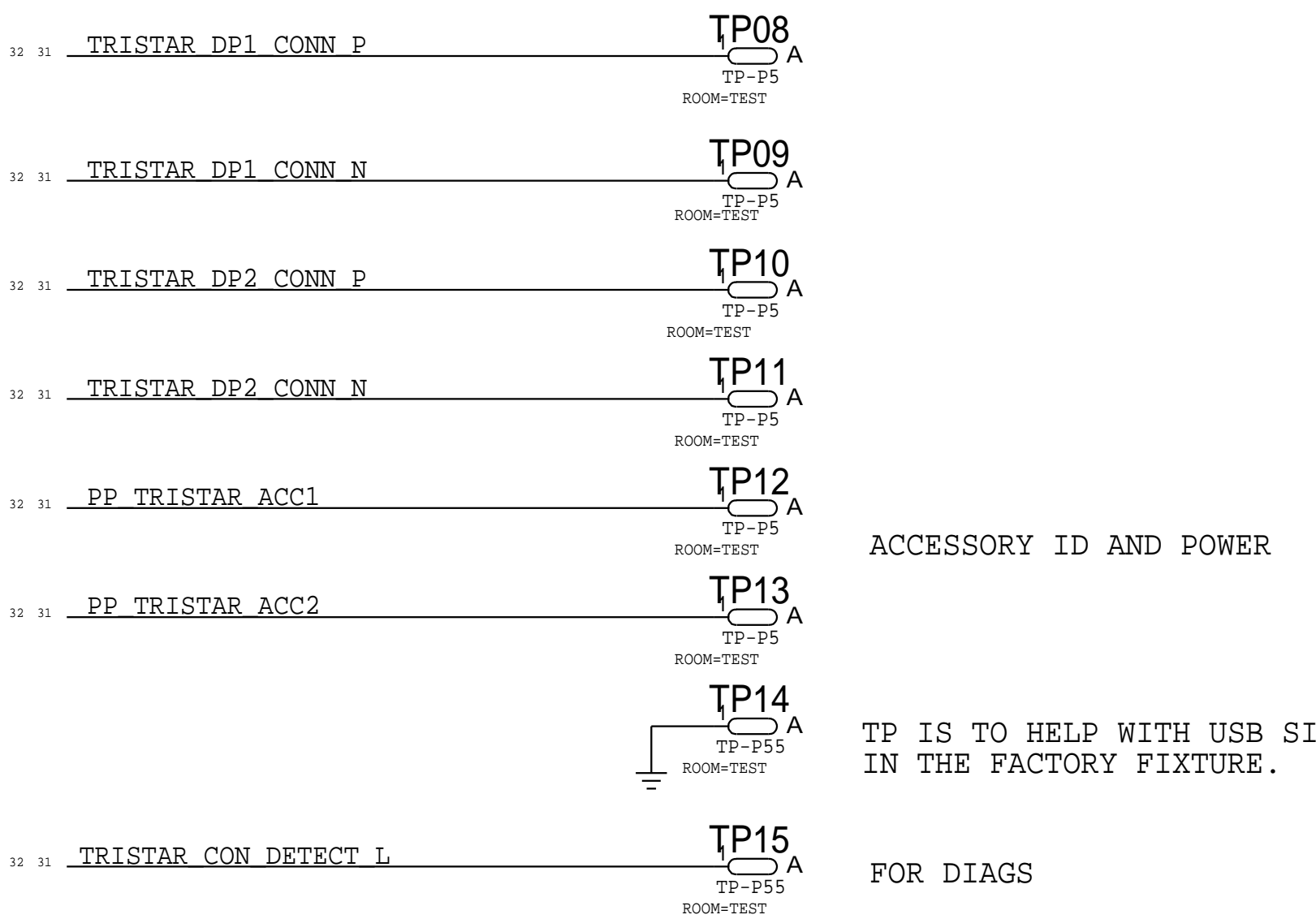
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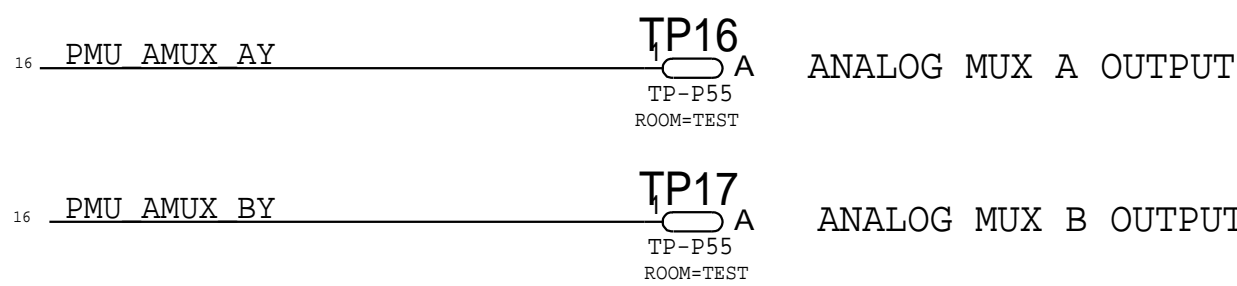
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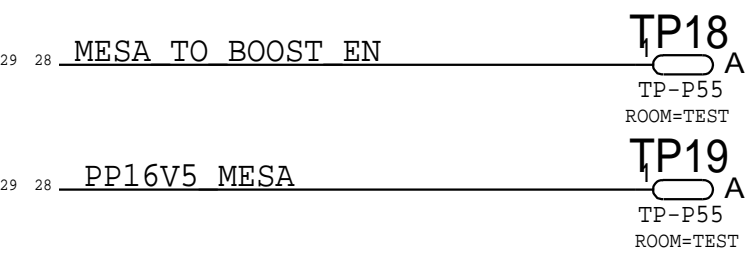
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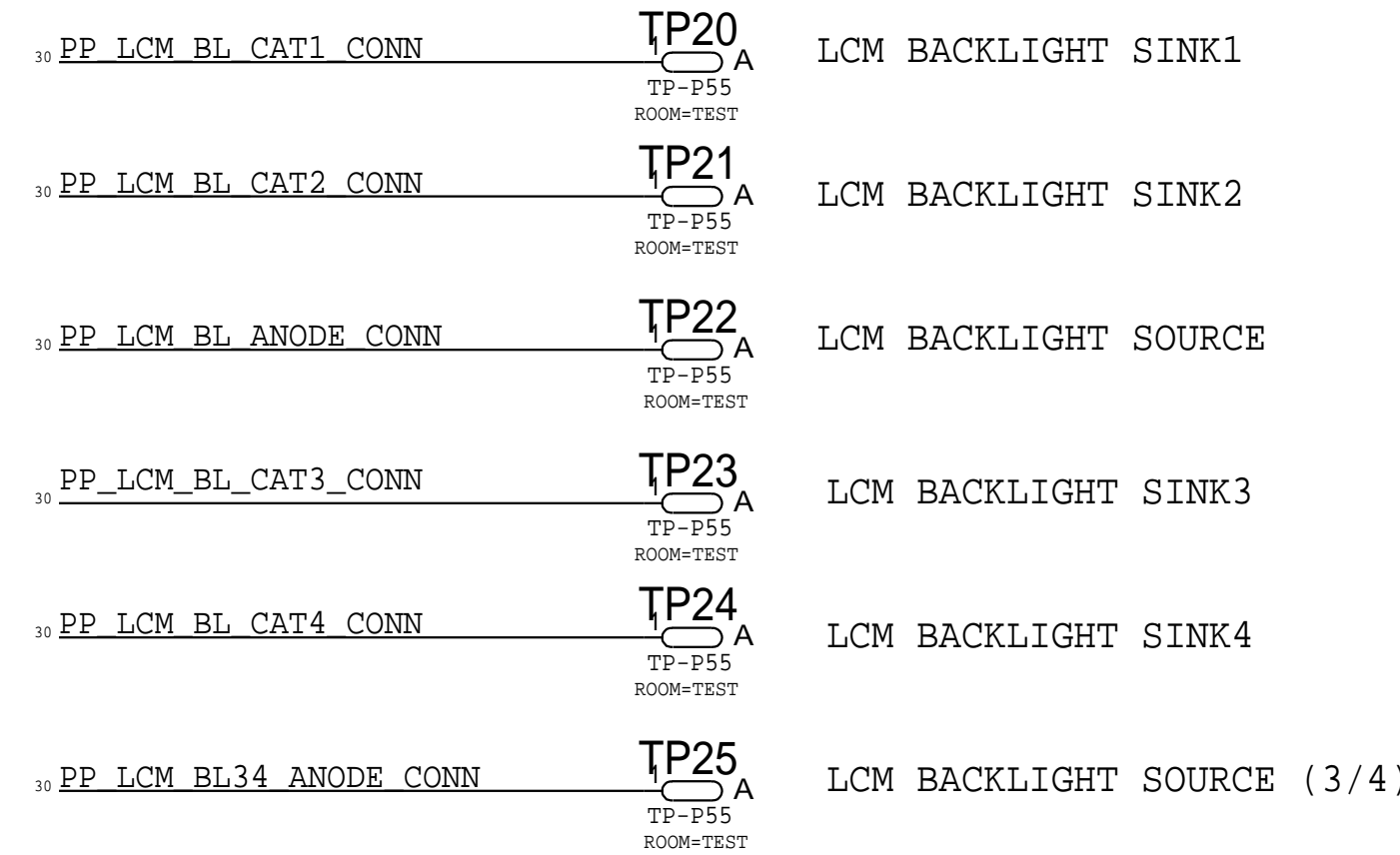
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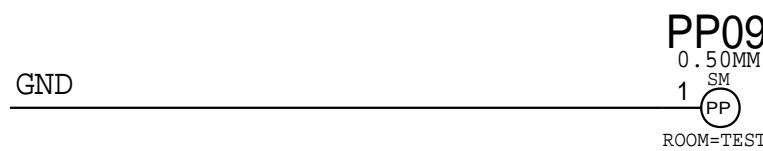
MOJAVE



LCM



UAT GND Ring Opening



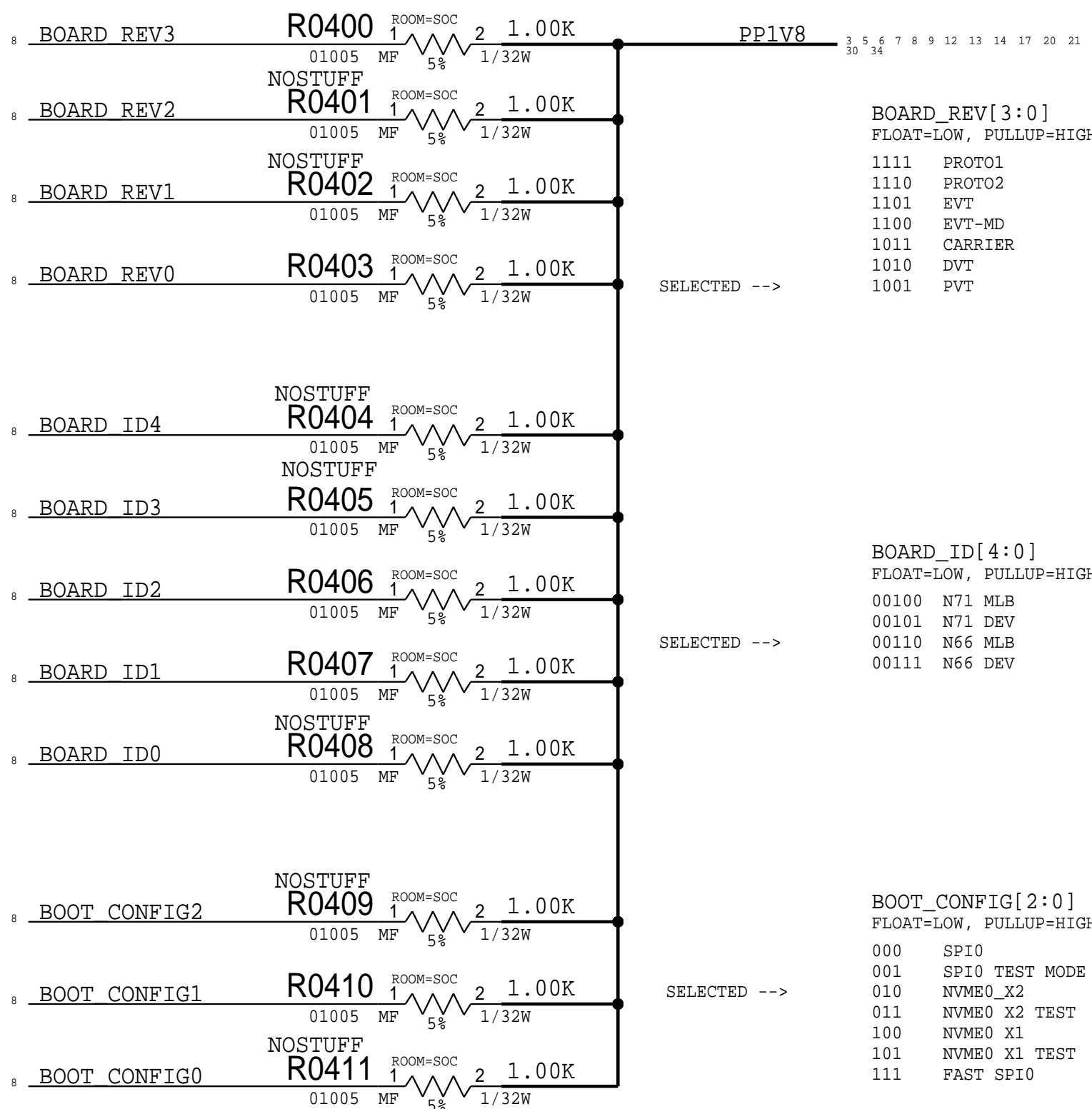
N66 I2C DEVICE MAP

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	CHESTNUT	0100111X	0X27	0X4E
	BACKLIGHT 1	1100011X	0X62	0XC4
I2C1	TIGRIS	1110101X	0X75	0XEA
	ARC DRIVER	1000001X	0X41	0X82
	SPEAKER AMP	1000000X	0X40	0X80
	TRISTAR	0011010X	0X1A	0X34
I2C2	ALS	0101001X	0X29	0X52
	DISP EEPROM	1010001X	0X51	0XA2
	BACKLIGHT 2	1100011X	0X62	0XC4
OWL	UNUSED	N/A	N/A	N/A
ISP I2C0	REAR CAM	TBD	TBD	TBD
	LED DRIVER	1100011X	0X63	0XC6
ISP I2C1	FRONT CAM	0010000X	0X10	0X20
TOUCH I2C	MESON	1000000X	0x40	0x80
	MAMBA	1100000X	0x60	0xc0
	DOPPLER	1011000X	0x58	0xB0
SEP I2C	SEP EEPROM	1010001X	0x51	0xA2

BOOTSTRAPPING:BOARD REV

BOARD ID

BOOT CONFIG



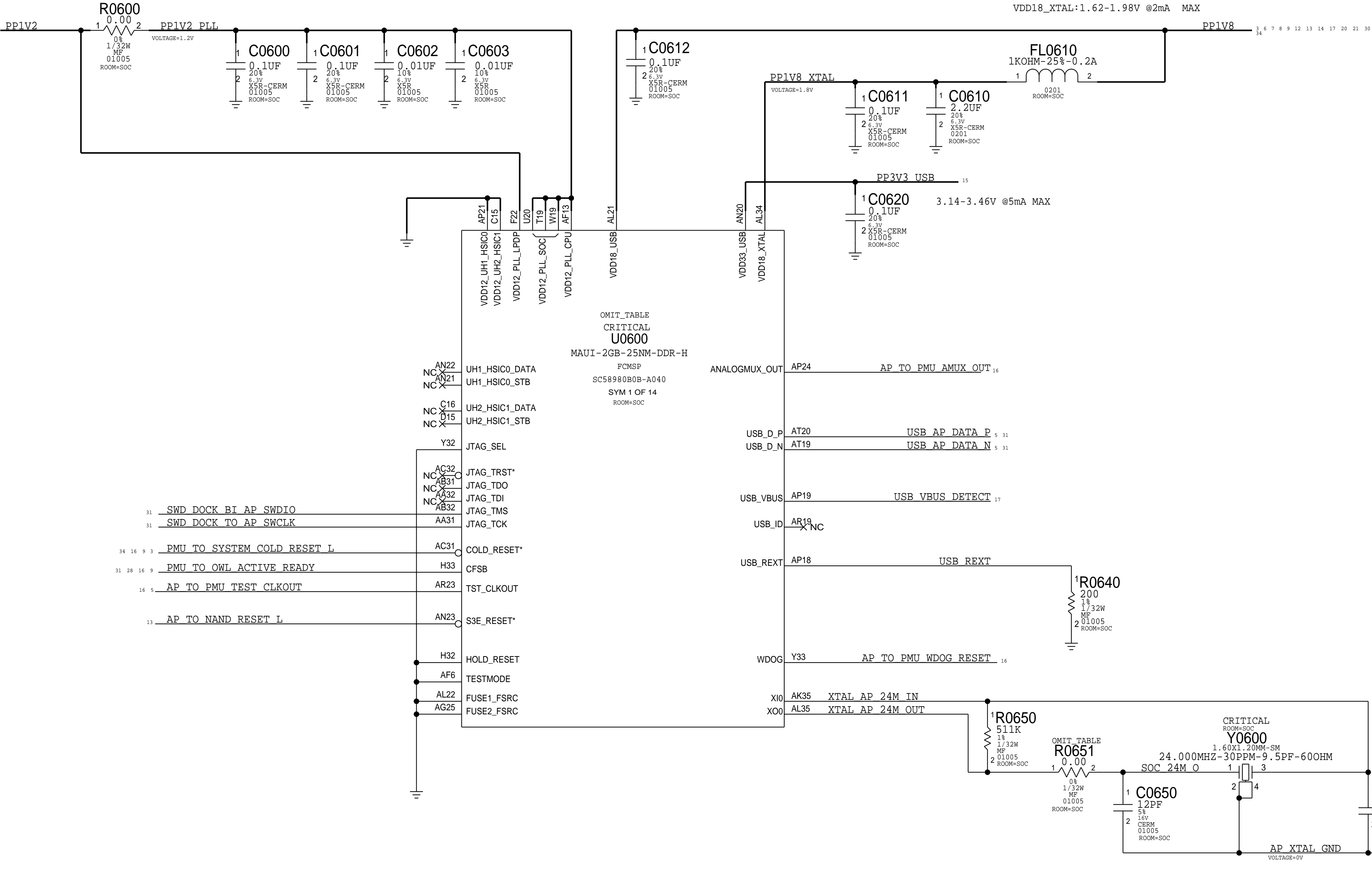
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	REVISION	A.0.0	D
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MAUI - USB, JTAG, XTAL


VDD12\_PLL\_LPDP:1.14-1.26V @2mA MAX  
VDD12\_PLL\_SOC: 1.14-1.26V @12mA MAX  
VDD12\_PLL\_CPU: 1.14-1.26V @2mA MAX

VDD18\_USB: 1.71-1.89V @20mA MAX  
VDD18\_XTAL:1.62-1.98V @2mA MAX



PROBE POINTS

31	5	USB AP DATA P	1	SM	PP0600	P3MM-NSM ROOM=SOC
31	5	USB AP DATA N	1	SM	PP0601	P3MM-NSM ROOM=SOC
16	5	AP TO PMU TEST CLKOUT	1	SM	PP0610	P3MM-NSM ROOM=SOC

SYNC_MASTER=N71_SINGLE_BRD		SYNC_DATE=05/29/2014	
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SOC: JTAG, USB, XTAL			
 Apple Inc.		DRAWING NUMBER	051-00094
		REVISION	A.0.0
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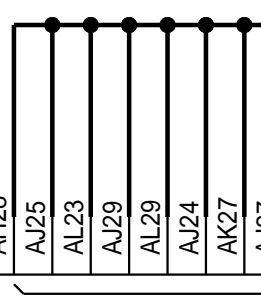
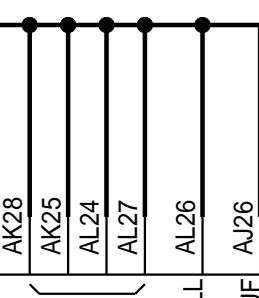
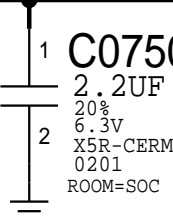
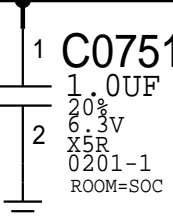
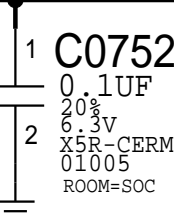
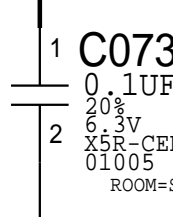
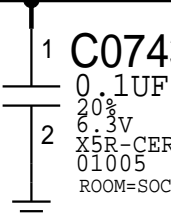
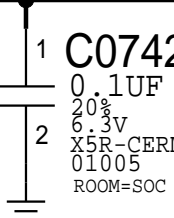
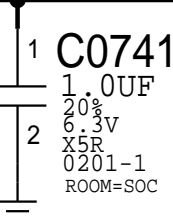
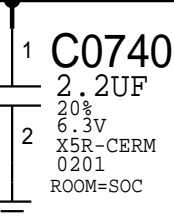
MAUI - PCIE INTERFACES

VDD12\_PCIE\_REFBUF:1.08-1.26V @50mA MAX  
VDD12\_PCIE\_TXPLL: 1.08-1.32V @10mA MAX  
VDD12\_PCIE: 1.14-1.26V @115mA MAX

VDD085\_PCIE:0.802-TBDV @TBDmA MAX

PP\_FIXED

PP1V2



PCIE\_EXT\_C AP29

PCIE\_EXT\_C

OMIT\_TABLE  
CRITICAL  
U0600  
MAUI-2GB-25NM-DDR-H  
FCMSP  
SC58980B0B-A040  
SYM 2 OF 14  
ROOM=SOC

PCIE\_REF\_CLK0\_P AN35  
PCIE\_REF\_CLK0\_N AP35

PCIE AP TO NAND REFCLK\_P<sub>13</sub>  
PCIE AP TO NAND REFCLK\_N<sub>13</sub>

PCIE\_REF\_CLK1\_P AN34  
PCIE\_REF\_CLK1\_N AP34

PCIE AP TO WLAN REFCLK\_P<sub>34</sub>  
PCIE AP TO WLAN REFCLK\_N<sub>34</sub>

PCIE\_REF\_CLK2\_P AM32  
PCIE\_REF\_CLK2\_N AN32

PCIE AP TO BB REFCLK\_P<sub>34</sub>  
PCIE AP TO BB REFCLK\_N<sub>34</sub>

PCIE\_REF\_CLK3\_P AM31  
PCIE\_REF\_CLK3\_N AN31

PCIE AP TO BB REFCLK\_P<sub>34</sub>  
PCIE AP TO BB REFCLK\_N<sub>34</sub>

PCIE\_CLKREQ0 AT11  
PCIE\_CLKREQ1 AP12  
PCIE\_CLKREQ2 AR12  
PCIE\_CLKREQ3 AT12

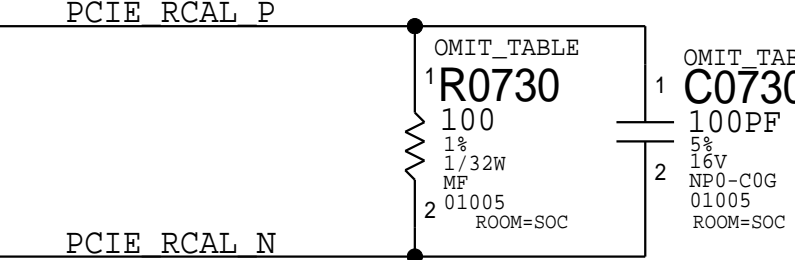
PCIE NAND TO AP CLKREQ\_L<sub>13</sub>  
PCIE WLAN TO AP CLKREQ\_L<sub>34</sub>  
PCIE BB BI AP CLKREQ\_L<sub>34</sub>

PCIE\_PERST0 AR10  
PCIE\_PERST1 AT10  
PCIE\_PERST2 AP11  
PCIE\_PERST3 AR11

PCIE AP TO NAND RESET\_L<sub>13</sub>  
PCIE AP TO WLAN RESET\_L<sub>34</sub>  
PCIE AP TO BB RESET\_L<sub>34</sub>

PCIE\_EXT\_REF\_CLK\_P AR33  
PCIE\_EXT\_REF\_CLK\_N AT33


PCIE\_RX\_TX\_BYPASS\_CLK\_P AT29  
PCIE\_RX\_TX\_BYPASS\_CLK\_N AR29



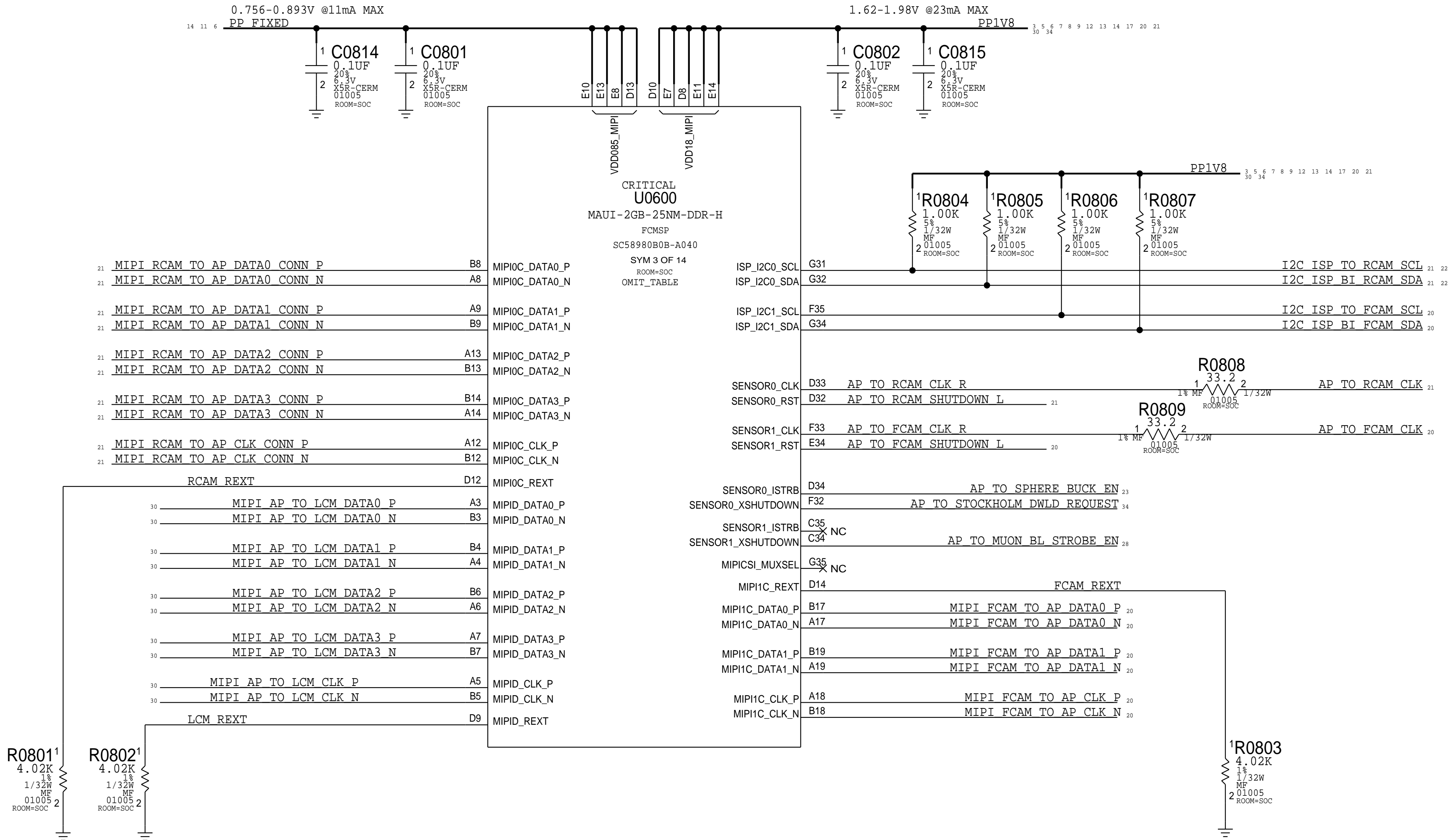
PROBE POINTS

PCIE RX CAPS ARE PLACED CLOSER TO TX DRIVERS  
PROBE POINTS ADDED FOR MEASUREMENTS AT RX DRIVER

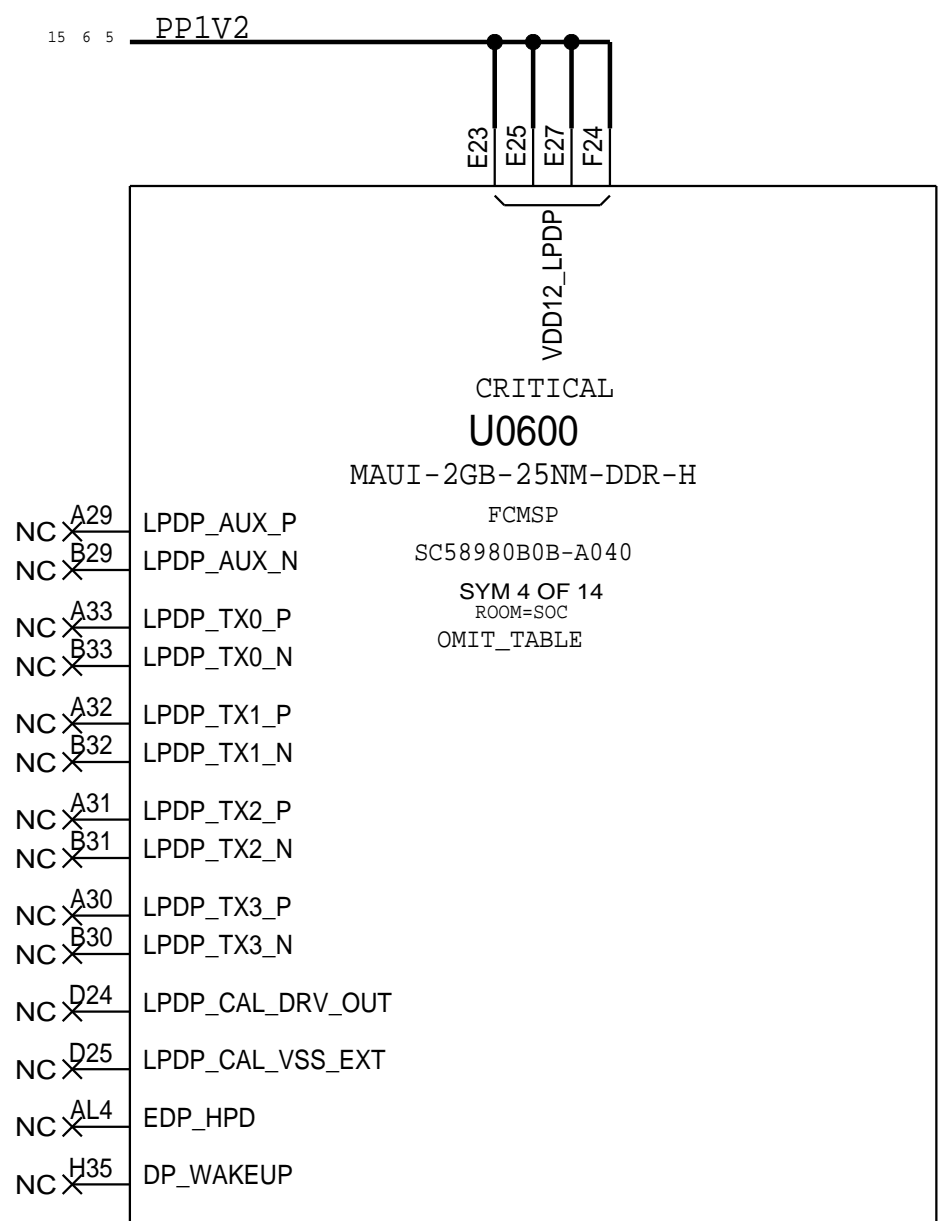
PCIE\_BB\_TO\_AP\_RXD\_C\_P 1 SH PP PP0706  
PCIE\_BB\_TO\_AP\_RXD\_C\_N 1 SH PP PP0707


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		BRANCH	
		PAGE	7 OF 49
		SHEET	6 OF 60

MAUI - CAMERA & DISPLAY INTERFACES



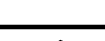
NOTE:VDD12\_LPDP SHOULD BE POWERED  
EVEN WHEN LPDP IS NOT USED



SYNC_MASTER=N71_SINGLE_BRD		SYNC_DATE=05/29/2014		
PAGE TITLE				
SOC:CAMERA & DISPLAY				
 Apple Inc.	DRAWING NUMBER		051-00094	SIZE
	REVISION		A.0.0	
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	PAGE		8 OF 49	
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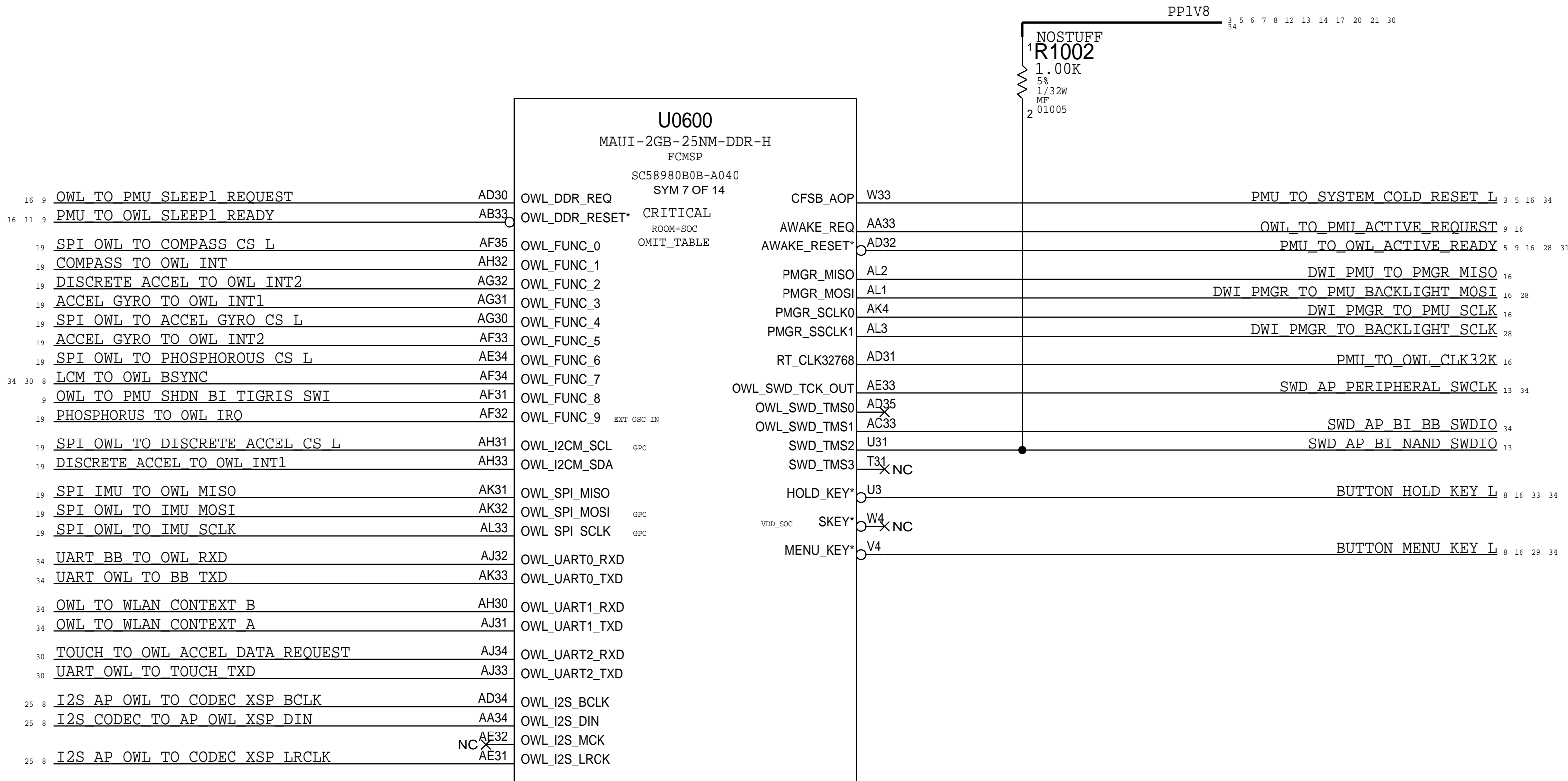
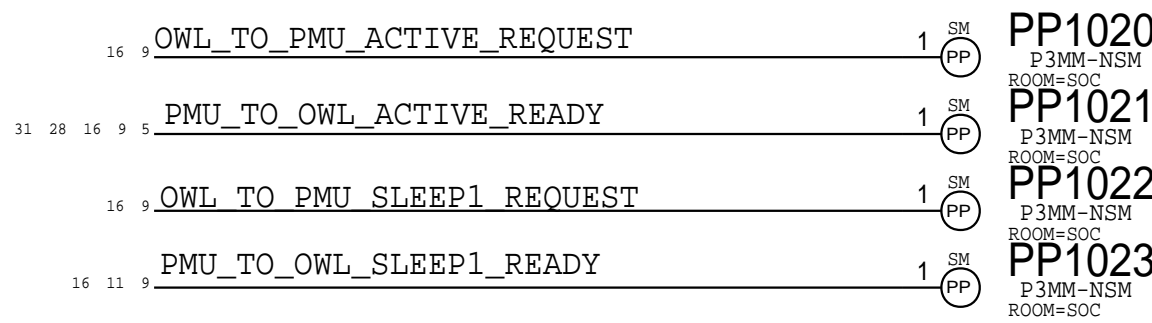
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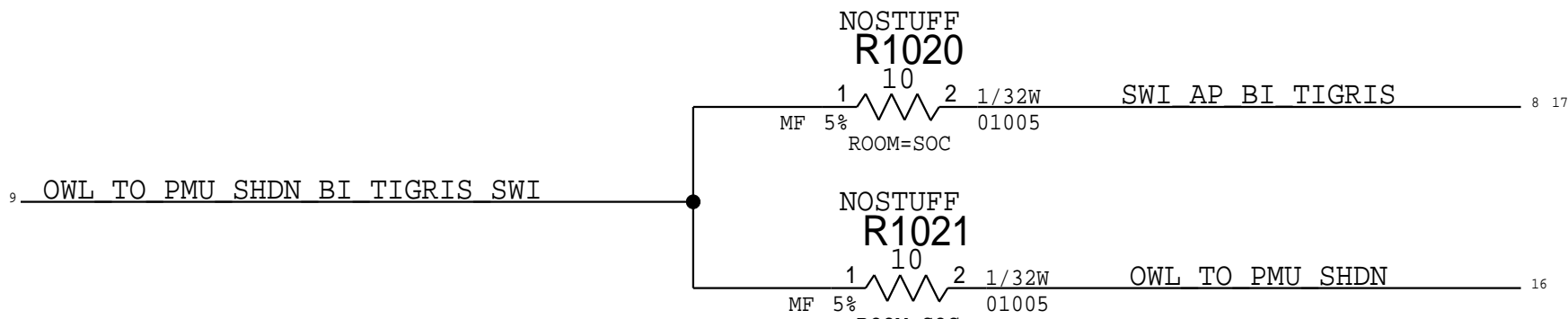


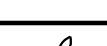
MAUI - OWL

POWER STATE CONTROL PROBE POINTS

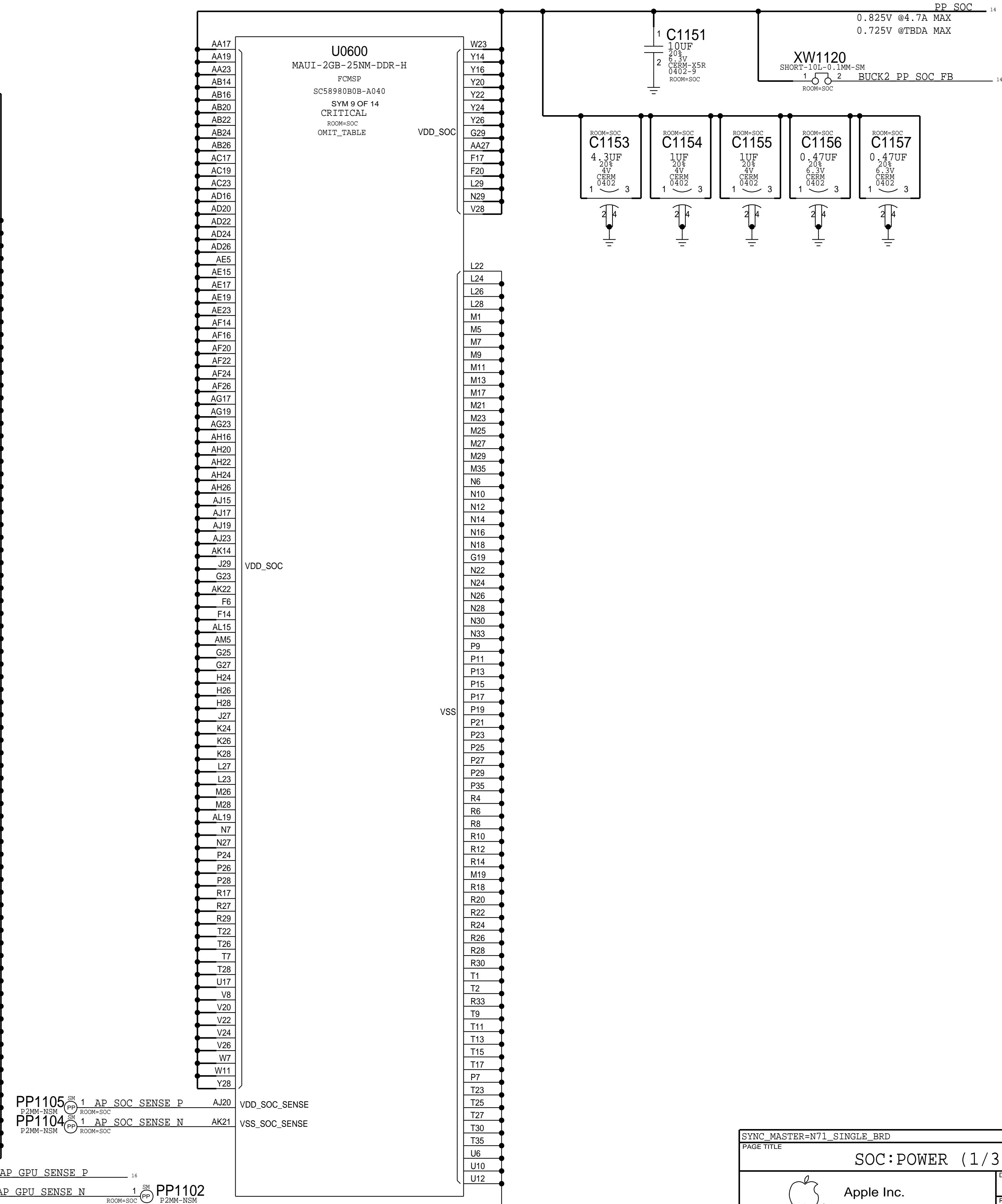
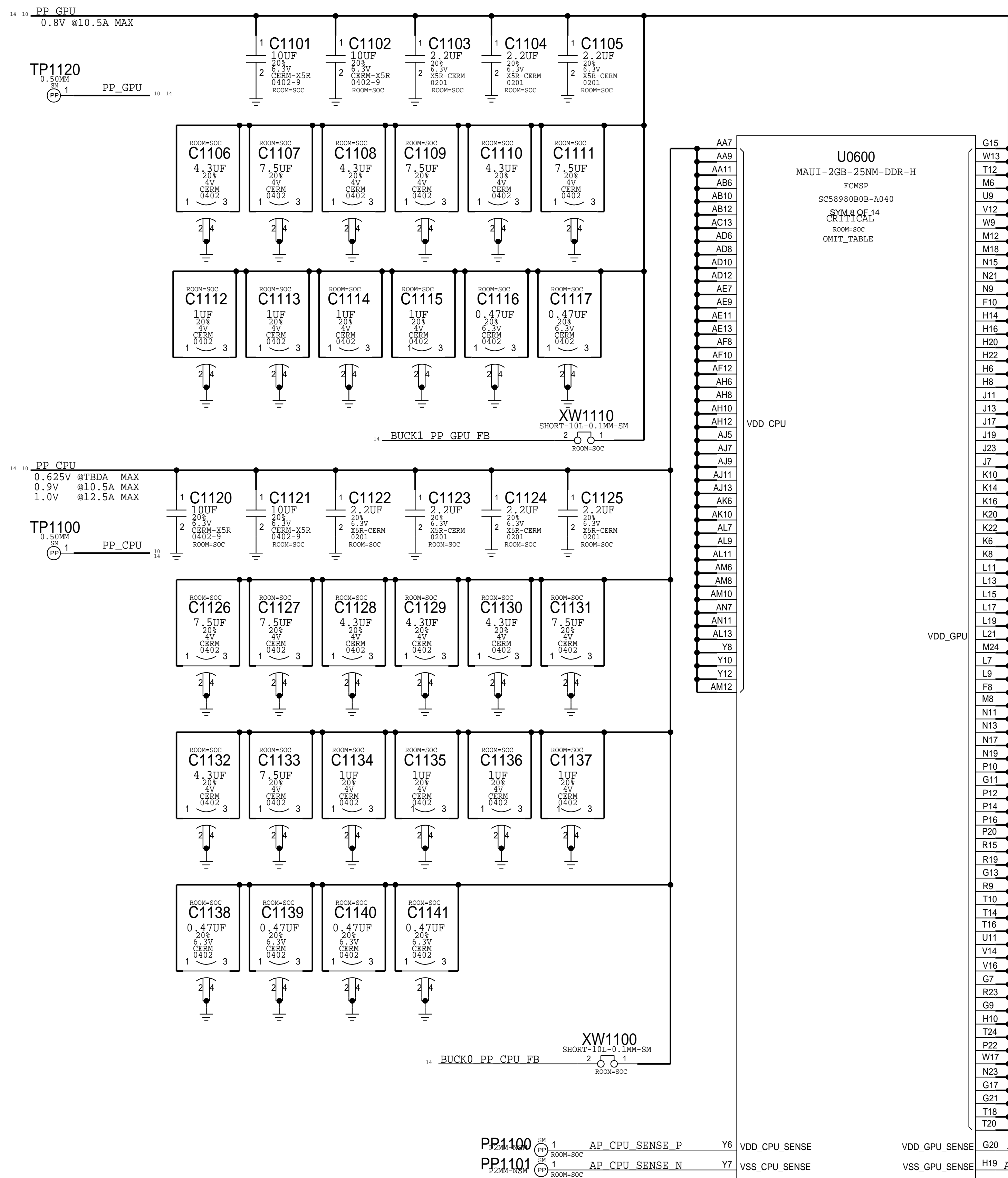


OWL SYSTEM SHUTDOWN OPTION




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	SHEET	9 OF 60	

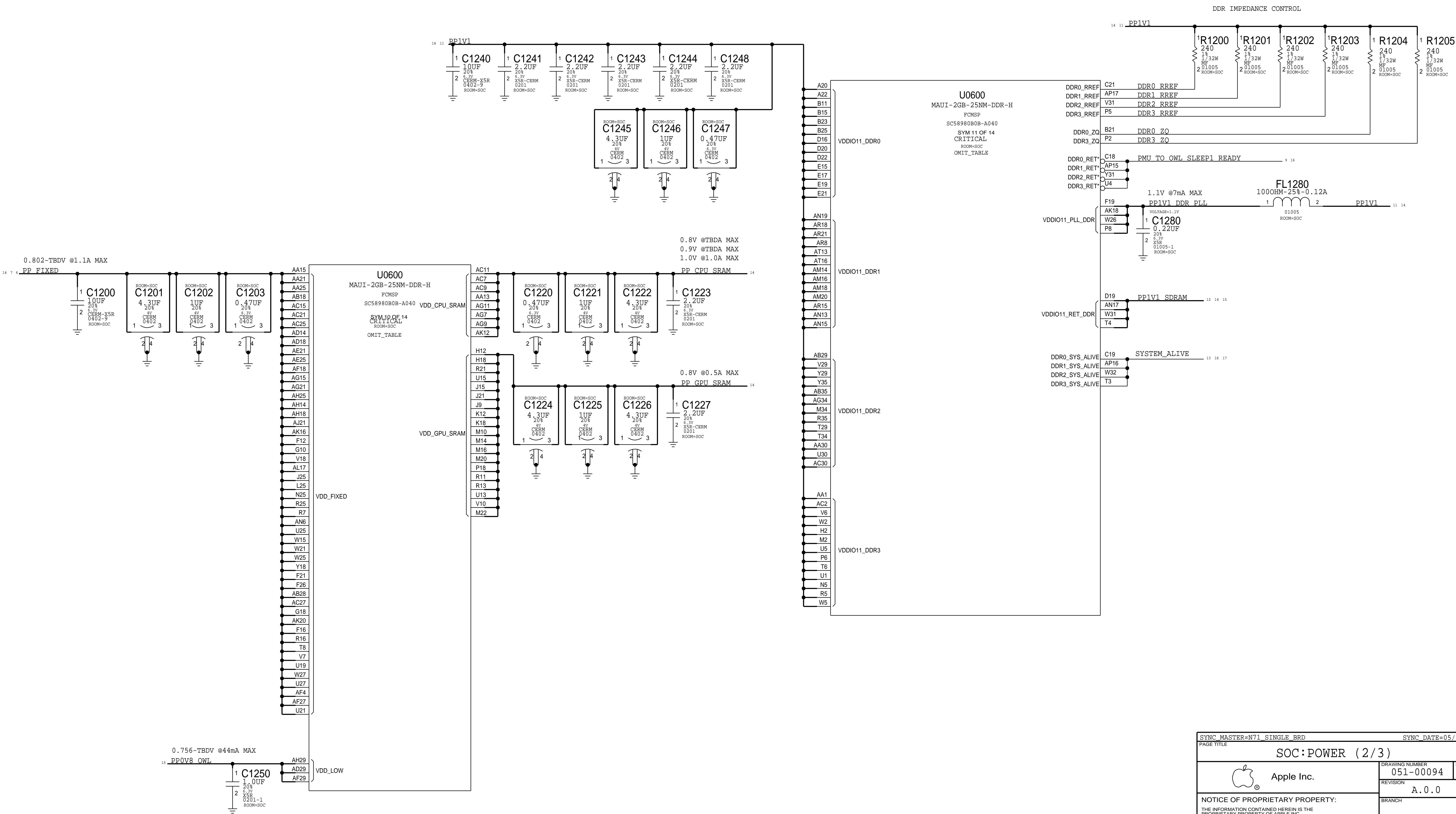
## MAUI - CPU, GPU & SOC RAILS

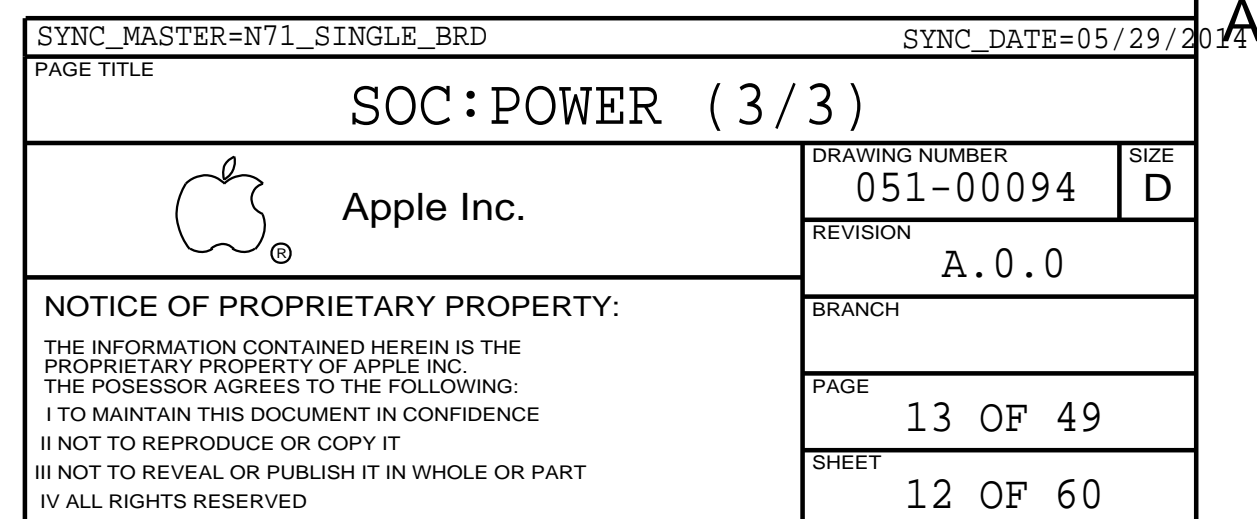
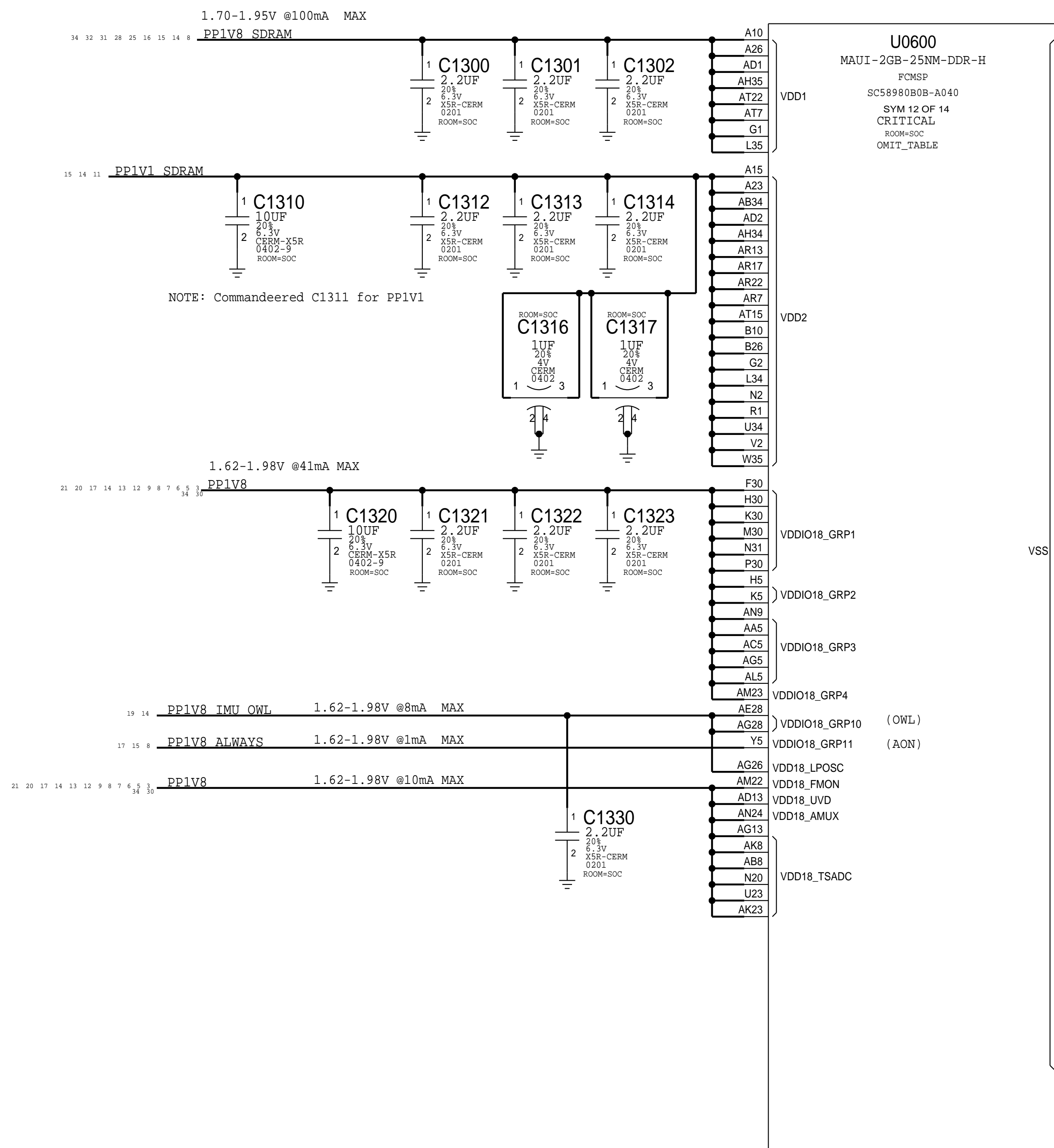


NOTE: AP\_GPU\_SENSE\_P probe location @ R2205.2

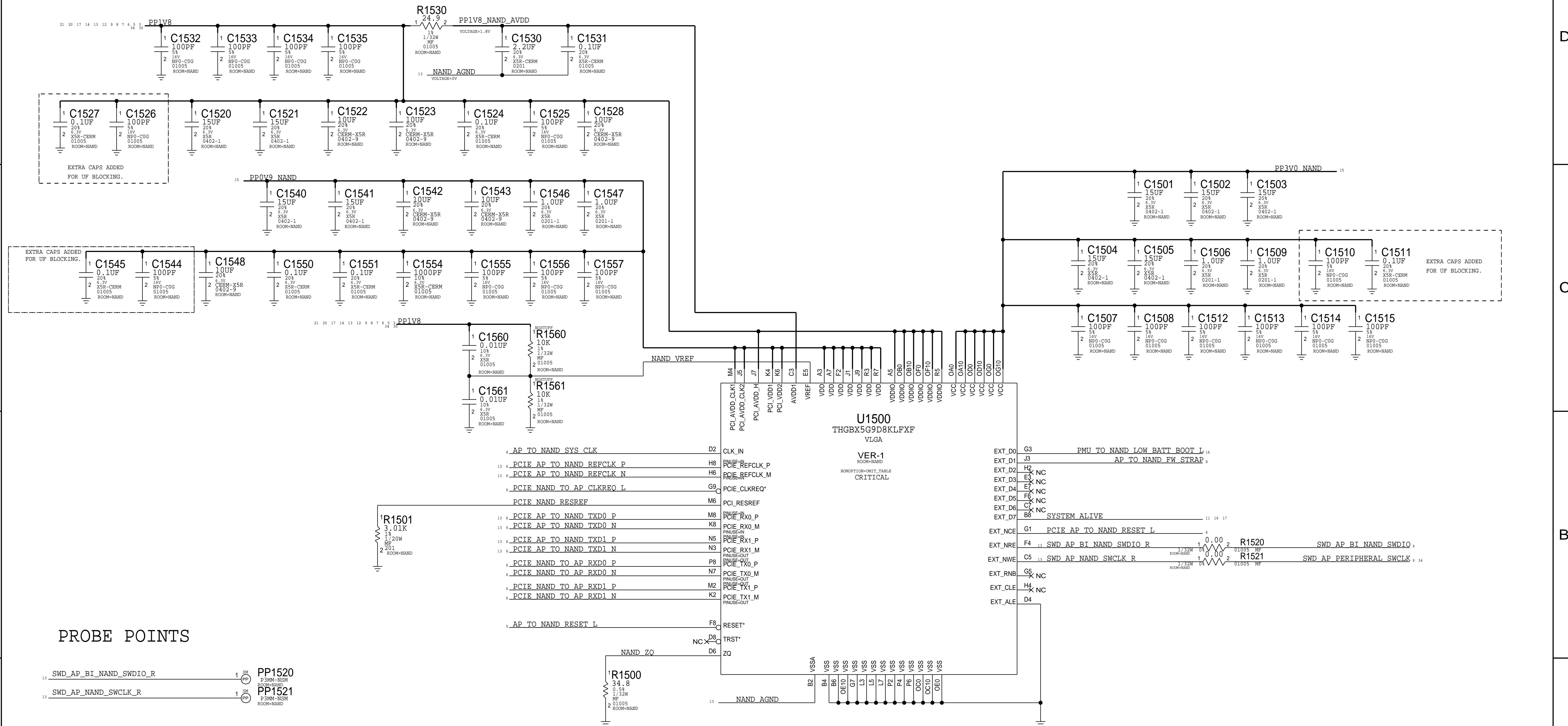
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SOC:POWER (1/3)			
 Apple Inc.	DRAWING NUMBER		SIZE
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MAUI - POWER SUPPLIES



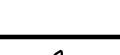


# S3E NAND

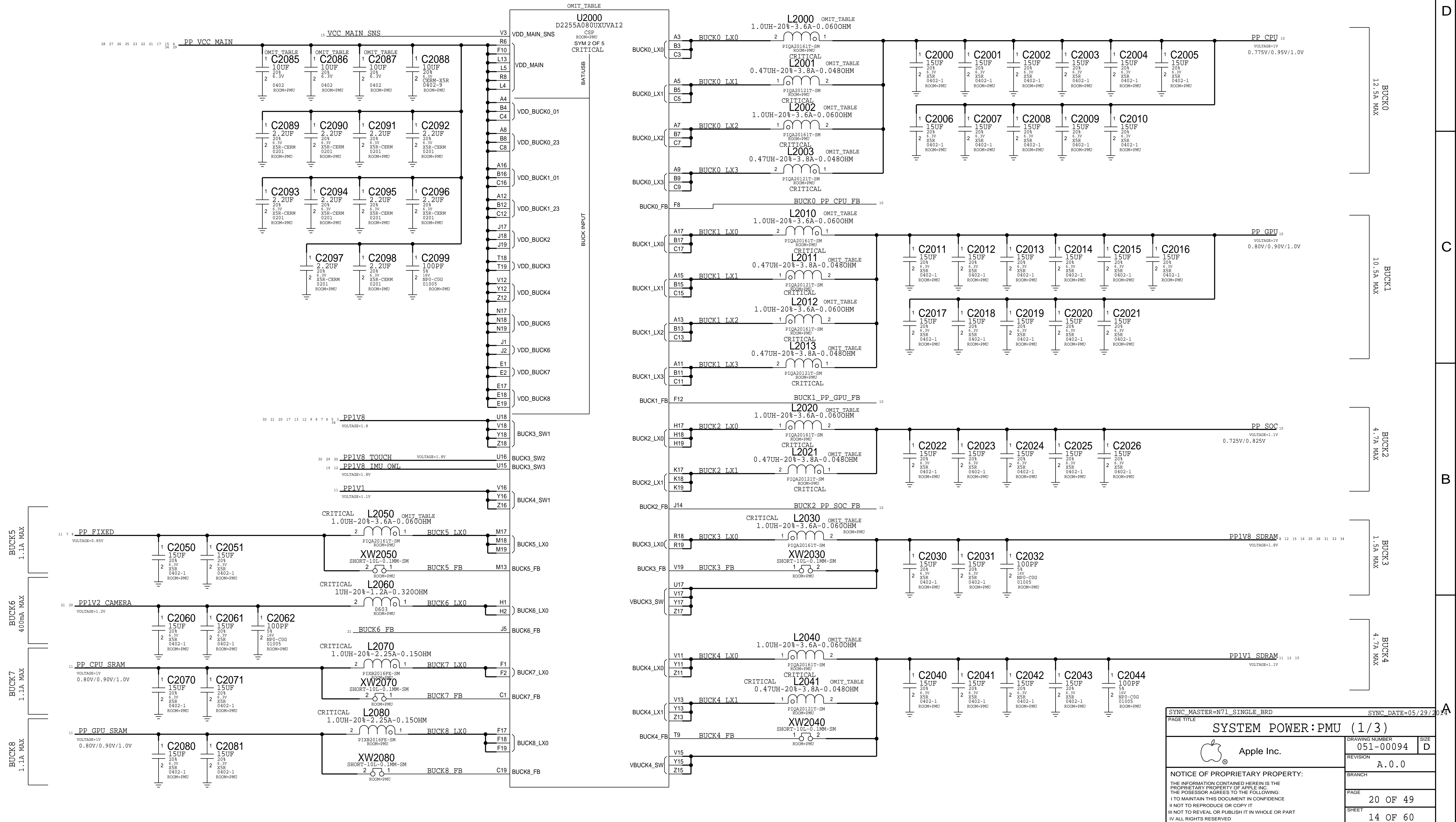


## PROBE POINTS

13	SWD_AP_BI_NAND_SWDIO_R	1	SM	PP1520
13	SWD_AP_NAND_SWCLK_R	1	SM	PP1521
6	PCIE_AP_TO_NAND_REFCLK_P	1	SM	PP1500
6	PCIE_AP_TO_NAND_REFCLK_N	1	SM	PP1501
6	PCIE_AP_TO_NAND_TXD0_P	1	SM	PP1502
6	PCIE_AP_TO_NAND_TXD0_N	1	SM	PP1503
6	PCIE_AP_TO_NAND_TXD1_P	1	SM	PP1504
6	PCIE_AP_TO_NAND_TXD1_N	1	SM	PP1505

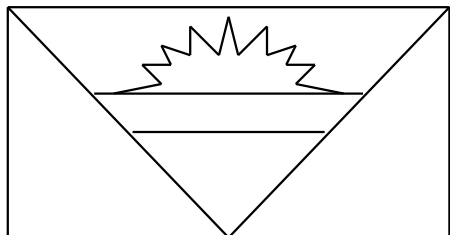
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A stylized drawing of a flag. The top half is a white triangle containing a black sun with jagged rays. The bottom half is a black triangle containing two horizontal white stripes.



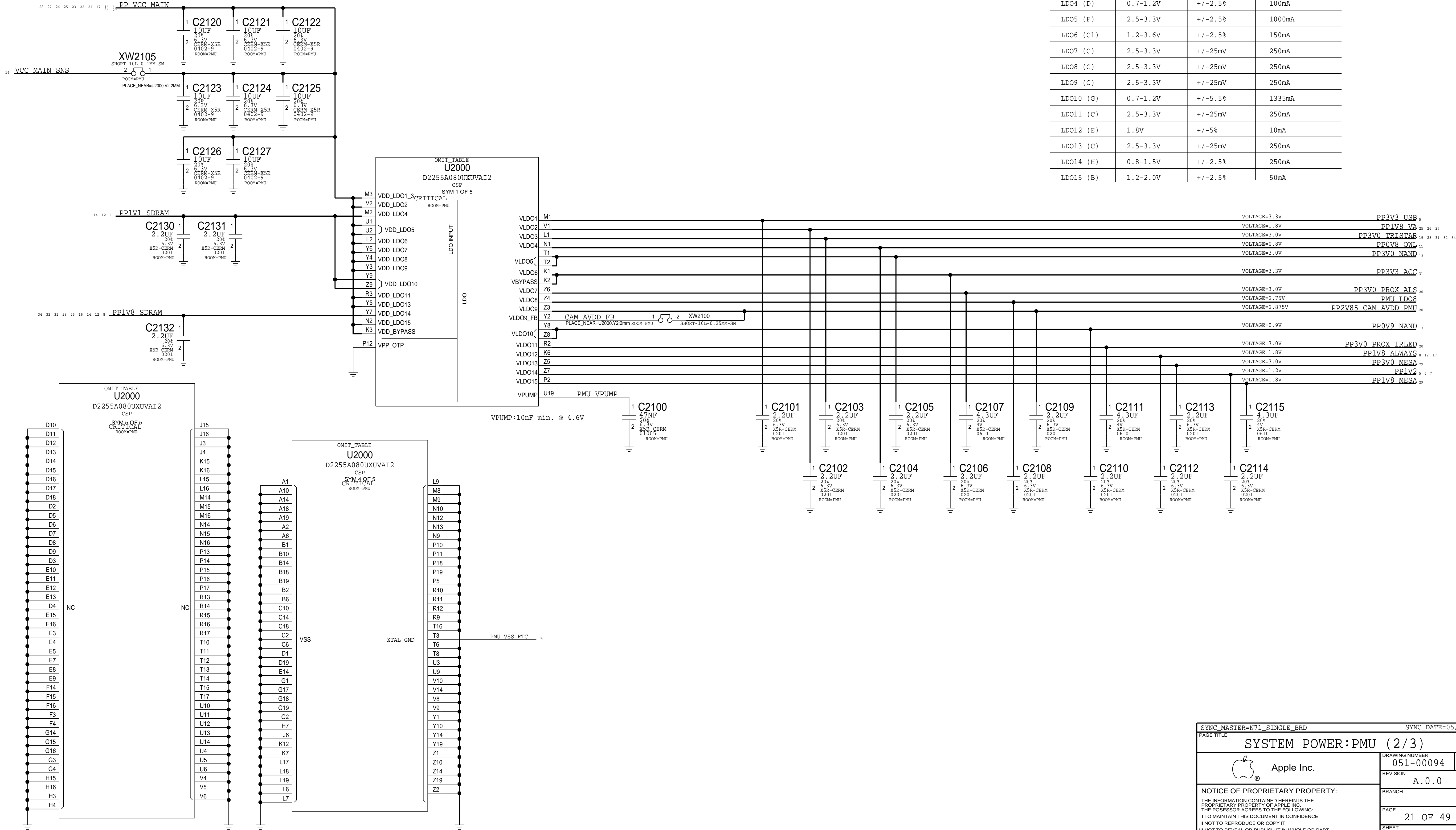


ANTIGUA PMU - LDOs

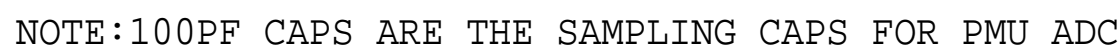



ANTIGUA LDO SPECS

LDO#	ADJ. RANGE	ACCURACY	MAX. CURRENT
LDO1 (A)	2.5-3.3V	+/-1.4%	50mA
LDO2 (B)	1.2-2.0V	+/-2.5%	50mA
LDO3 (A)	2.5-3.3V	+/-1.4%	50mA
LDO4 (D)	0.7-1.2V	+/-2.5%	100mA
LDO5 (F)	2.5-3.3V	+/-2.5%	1000mA
LDO6 (C1)	1.2-3.6V	+/-2.5%	150mA
LDO7 (C)	2.5-3.3V	+/-25mV	250mA
LDO8 (C)	2.5-3.3V	+/-25mV	250mA
LDO9 (C)	2.5-3.3V	+/-25mV	250mA
LDO10 (G)	0.7-1.2V	+/-5.5%	1335mA
LDO11 (C)	2.5-3.3V	+/-25mV	250mA
LDO12 (E)	1.8V	+/-5%	10mA
LDO13 (C)	2.5-3.3V	+/-25mV	250mA
LDO14 (H)	0.8-1.5V	+/-2.5%	250mA
LDO15 (B)	1.2-2.0V	+/-2.5%	50mA



NOTE (1):INPUT PULL-DOWN 100-300k  
NOTE (2):INPUT PULL-DOWN 1M  
NOTE (3):INPUT PULL-UP OR DOWN 100k-300k  
NOTE (4):OUTPUT OPEN-DRAIN, REQUIRES PULL-UP



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PAGE		22 OF 49	
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## D

C

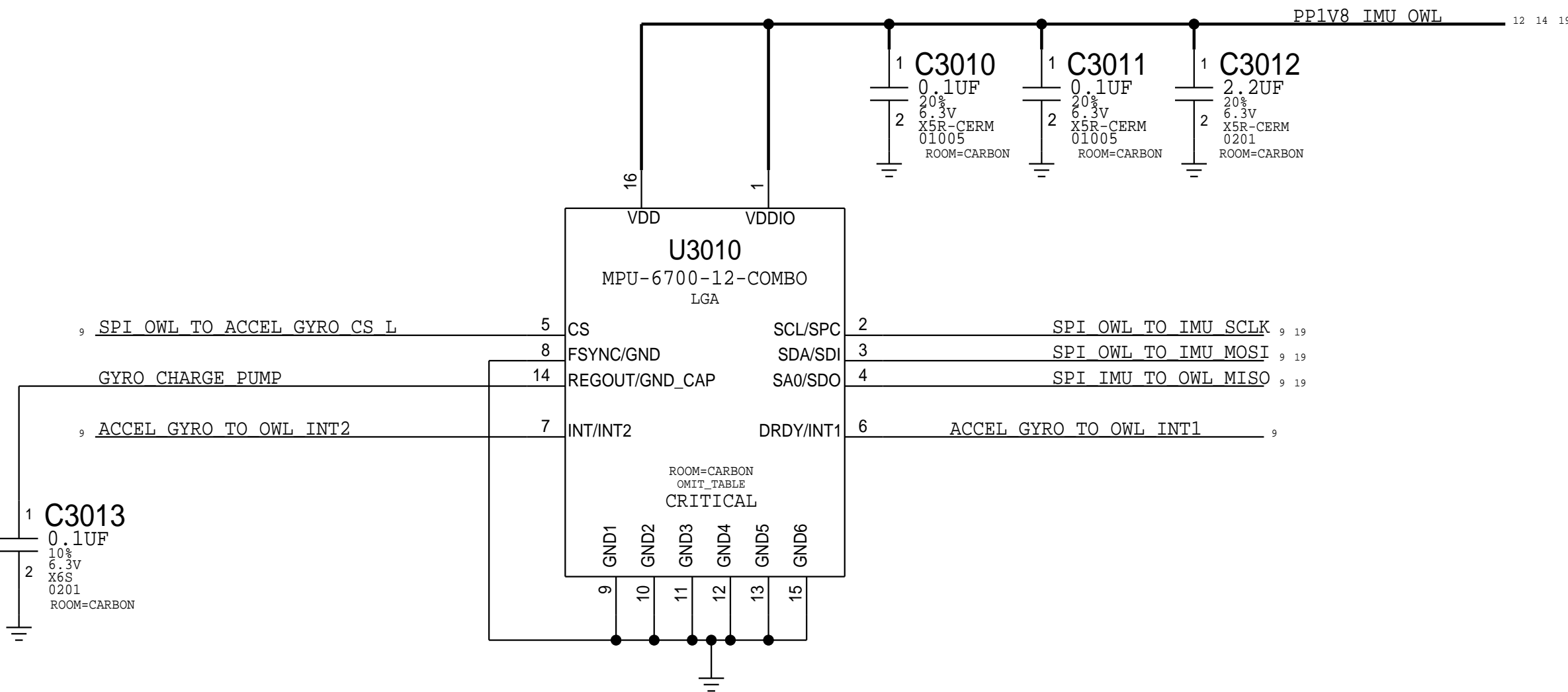


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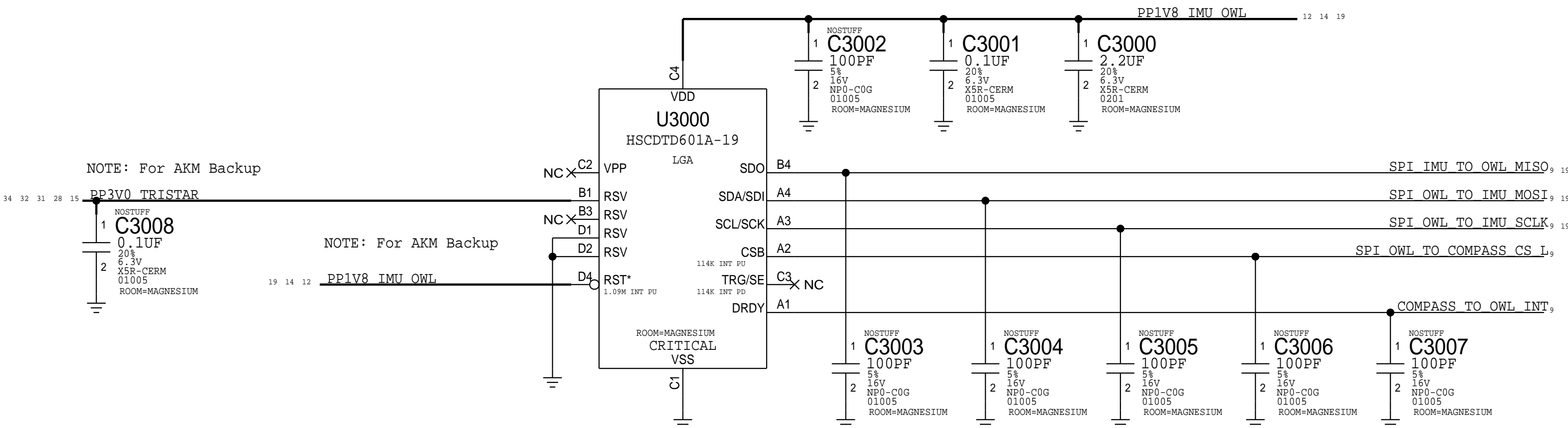
CARBON - ACCEL & GYRO

INVENSENSE, MPU-6700 (APN 338S00017): C3013=0.1UF  
INVENSENSE, MPU-6800 (APN 338S00087): C3013=0.1UF



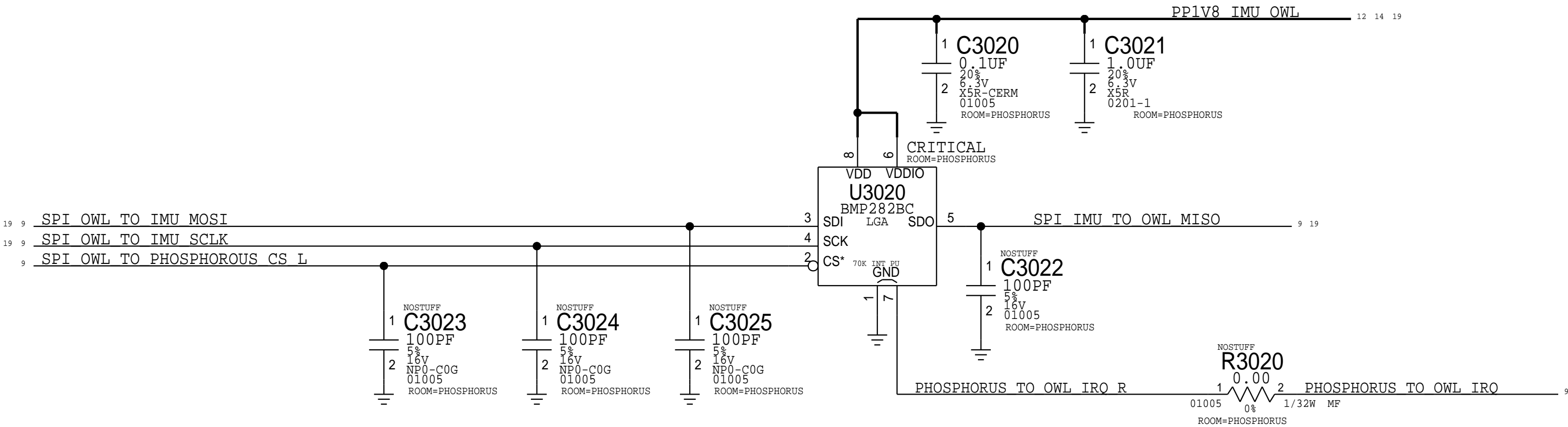
MAGNESIUM - COMPASS

APN:338S00084



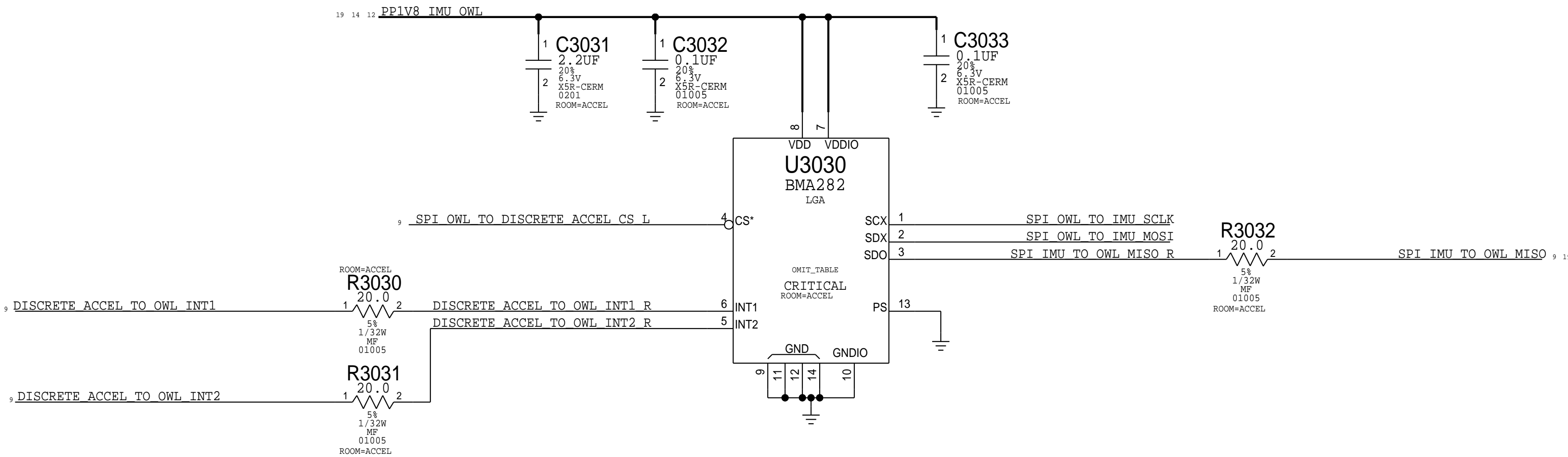
PHOSPHOROUS


BOSCH (APN:338S00044)



DISCRETE ACCEL

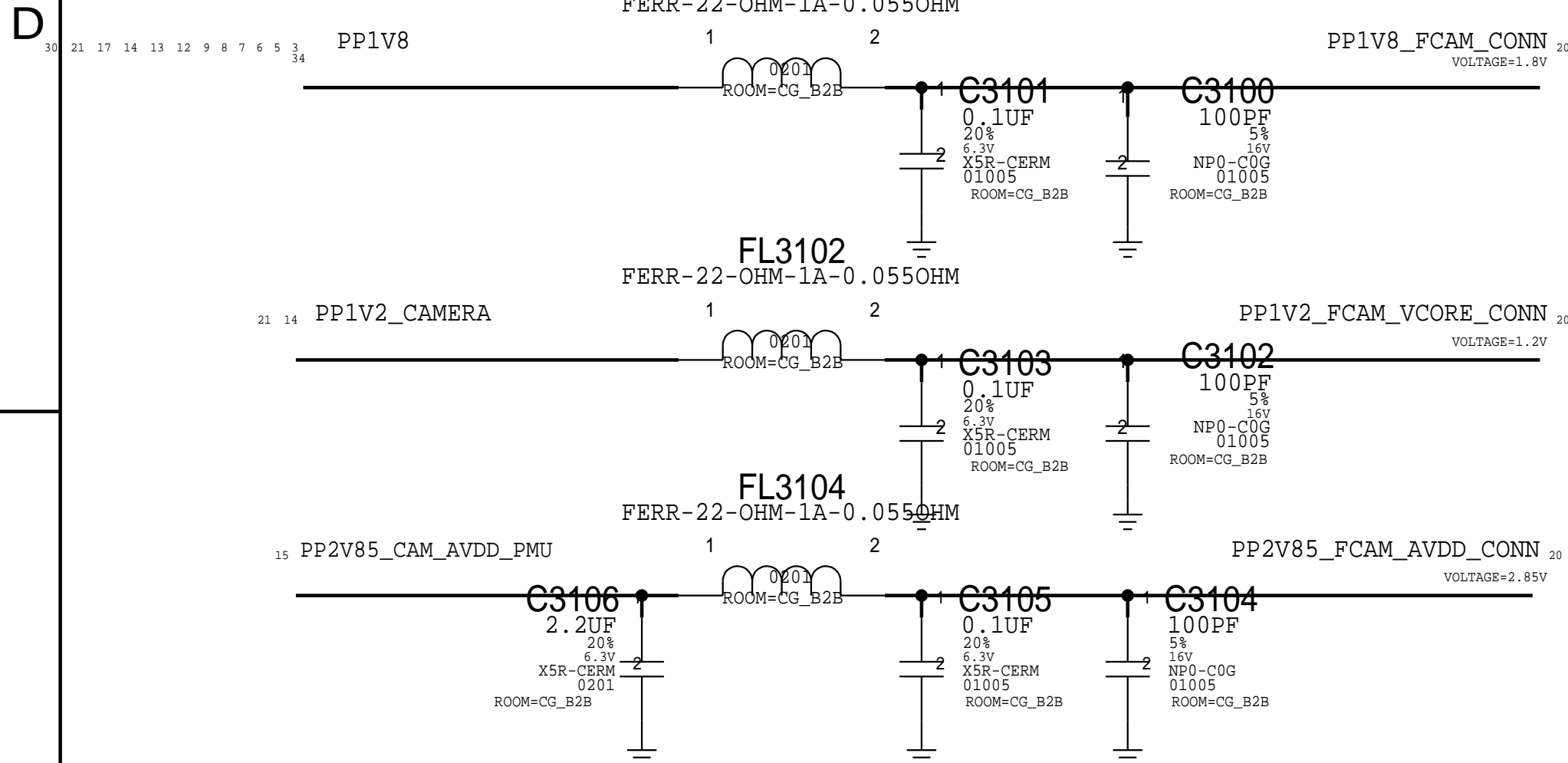
BOSCH APN 338S1163  
NO-STUFF for Invensense DOE



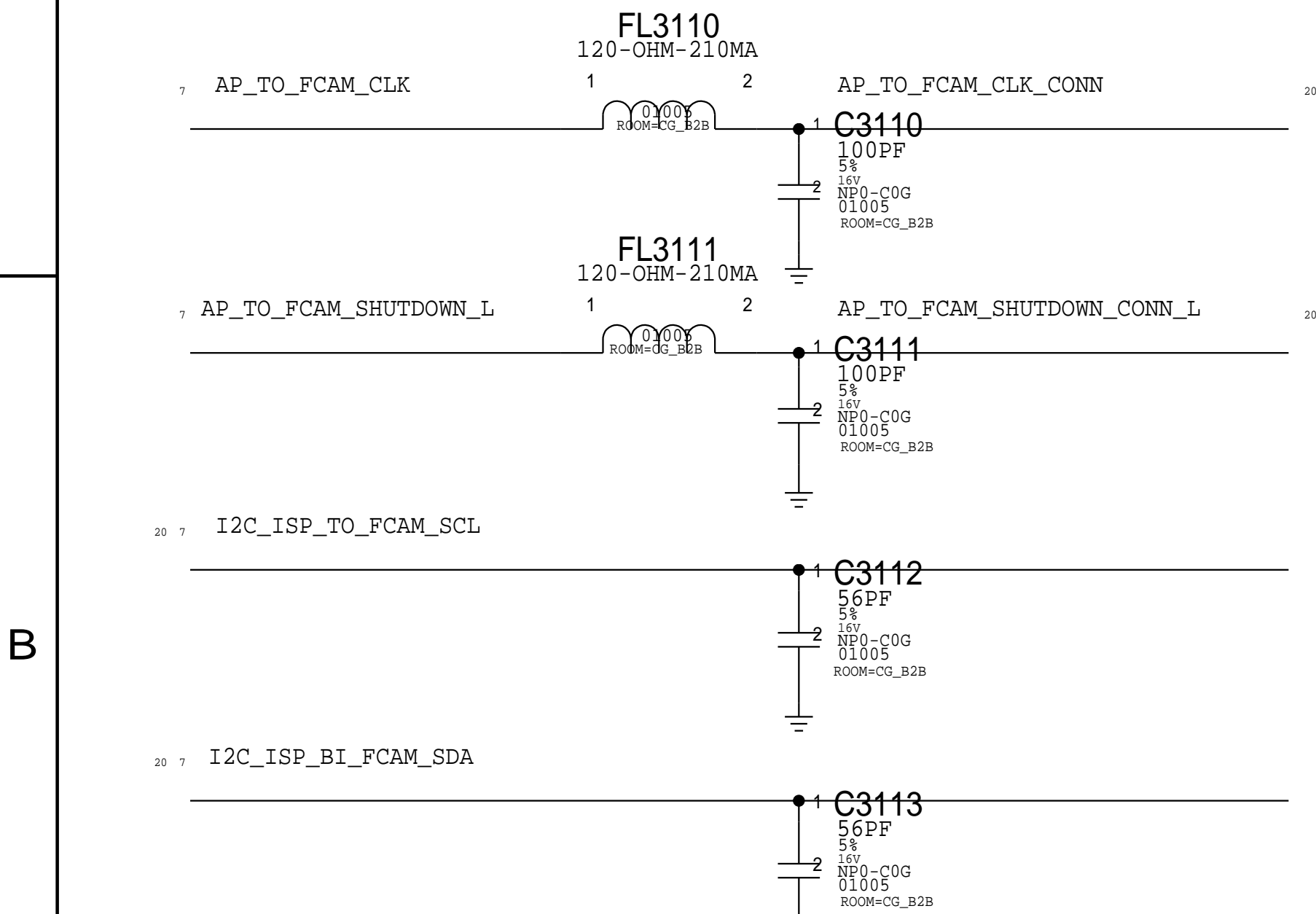
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FRONT CAMERA FLEX

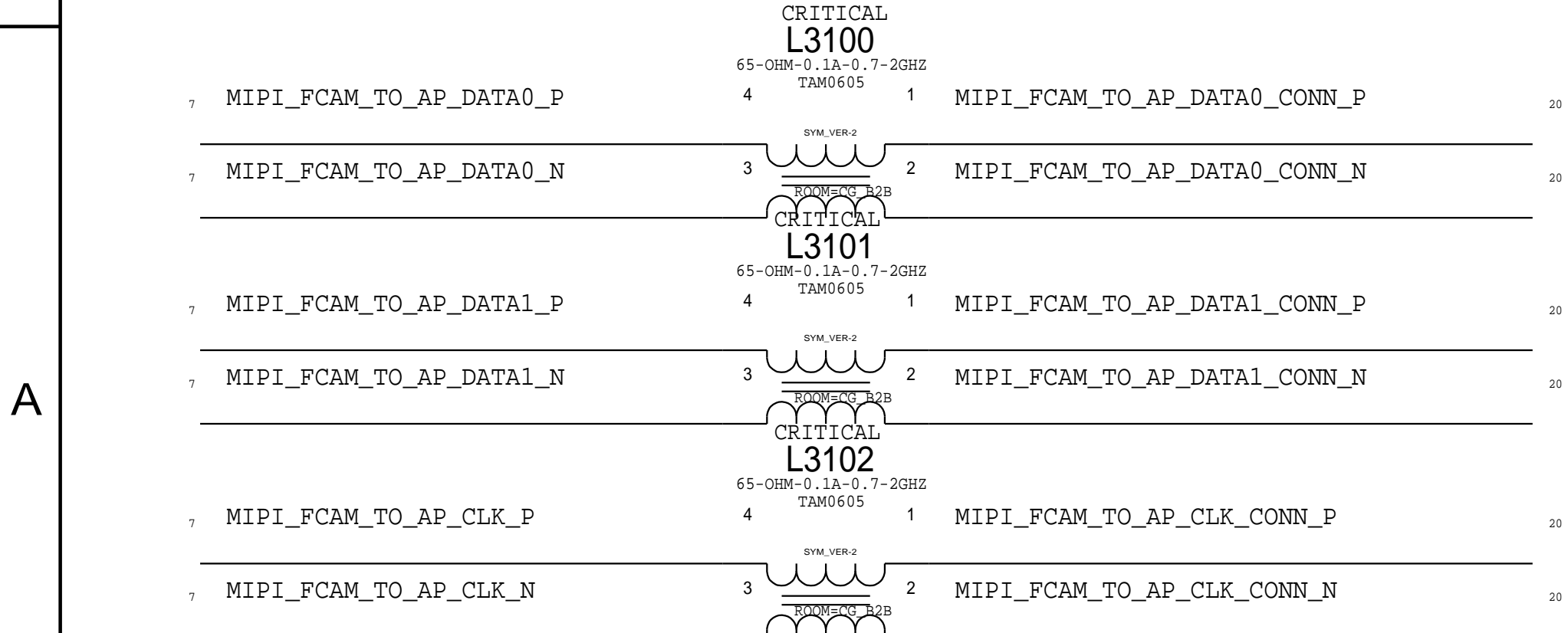
CAMERA POWER



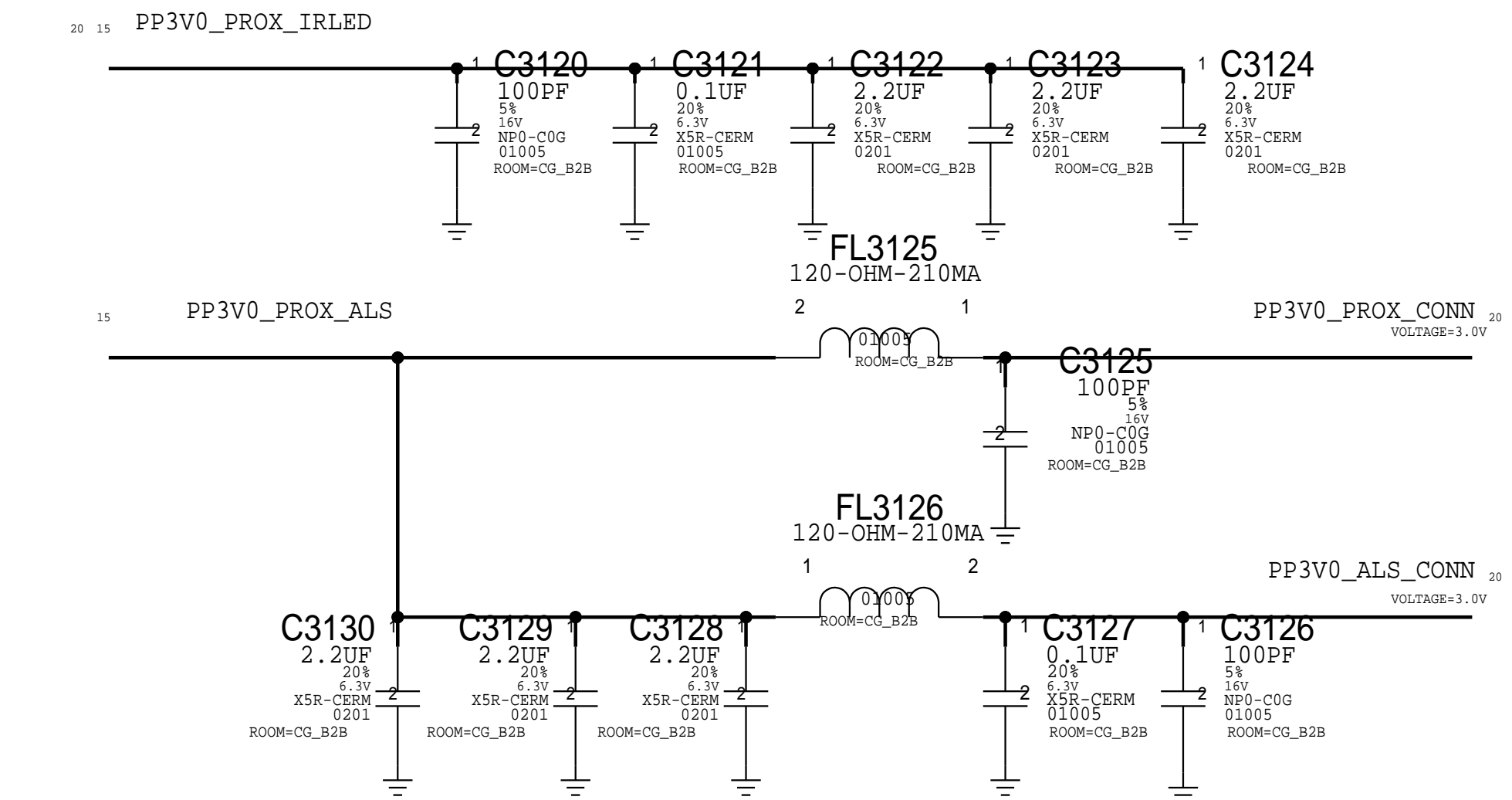
CAMERA I/O



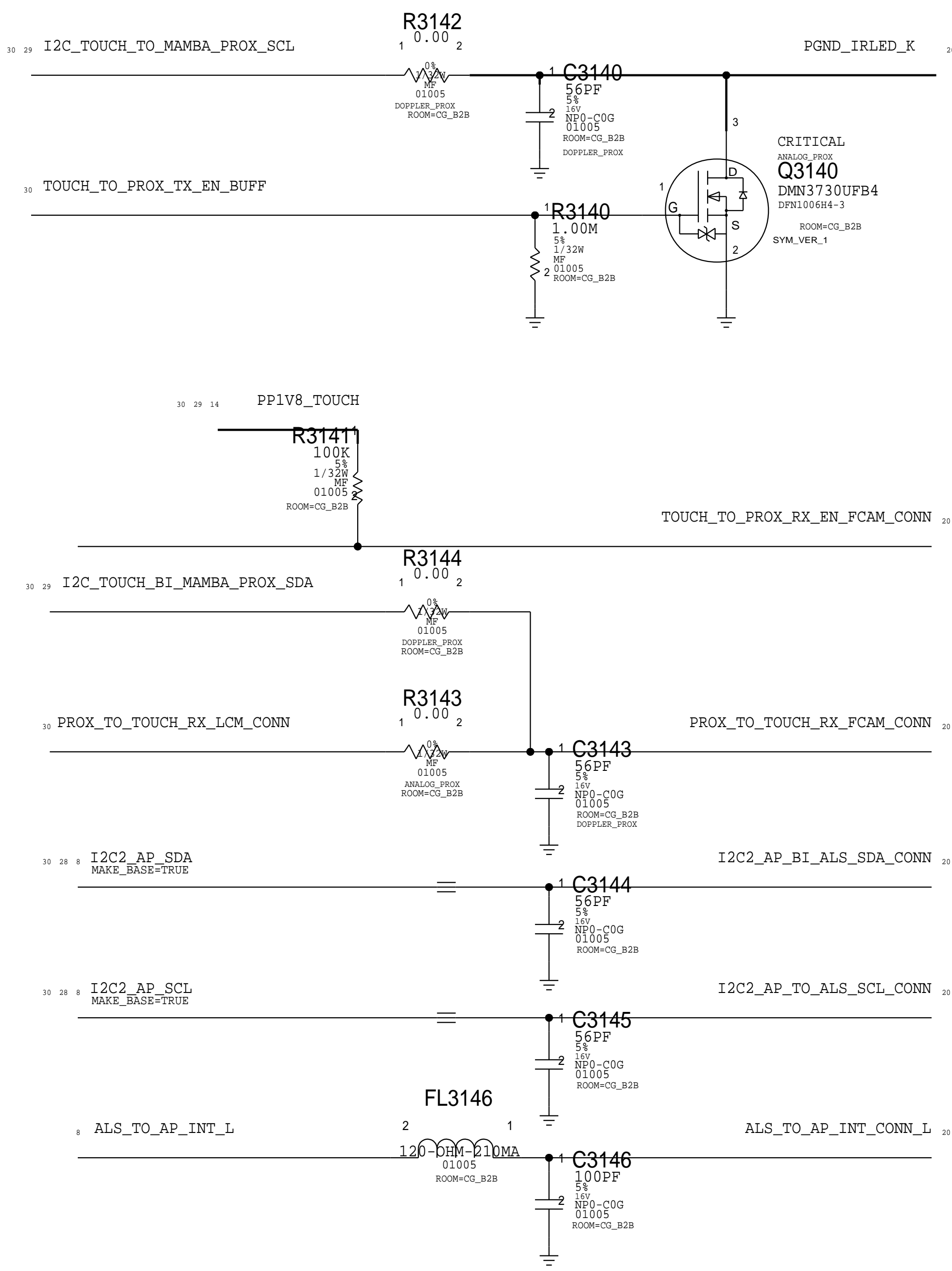
CAMERA MIPI



PROX & ALS POWER

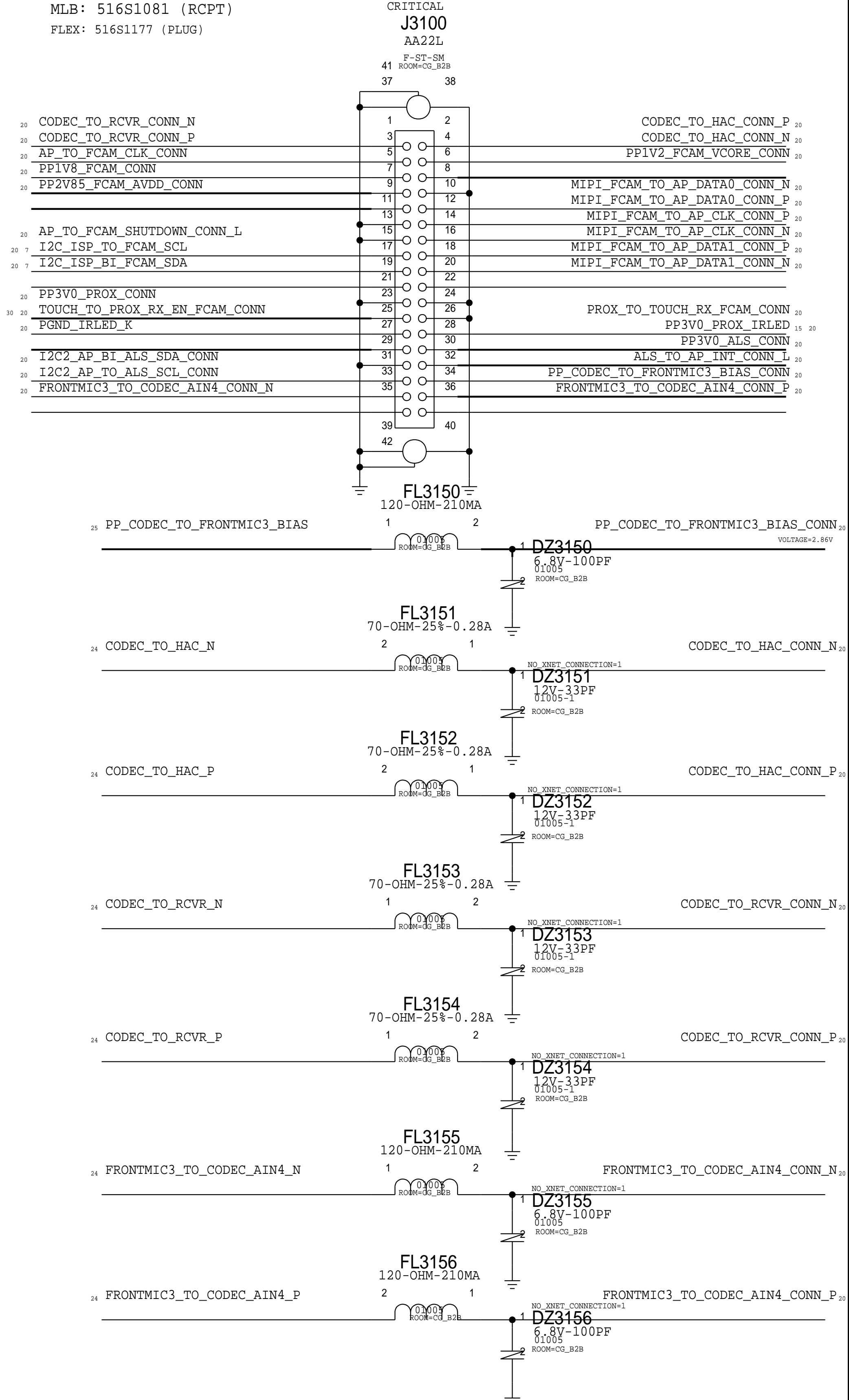


PROX & ALS INTERFACE



FCAM CONNECTOR

MLB: 516S1081 (RCPT)  
FLEX: 516S1177 (PLUG)

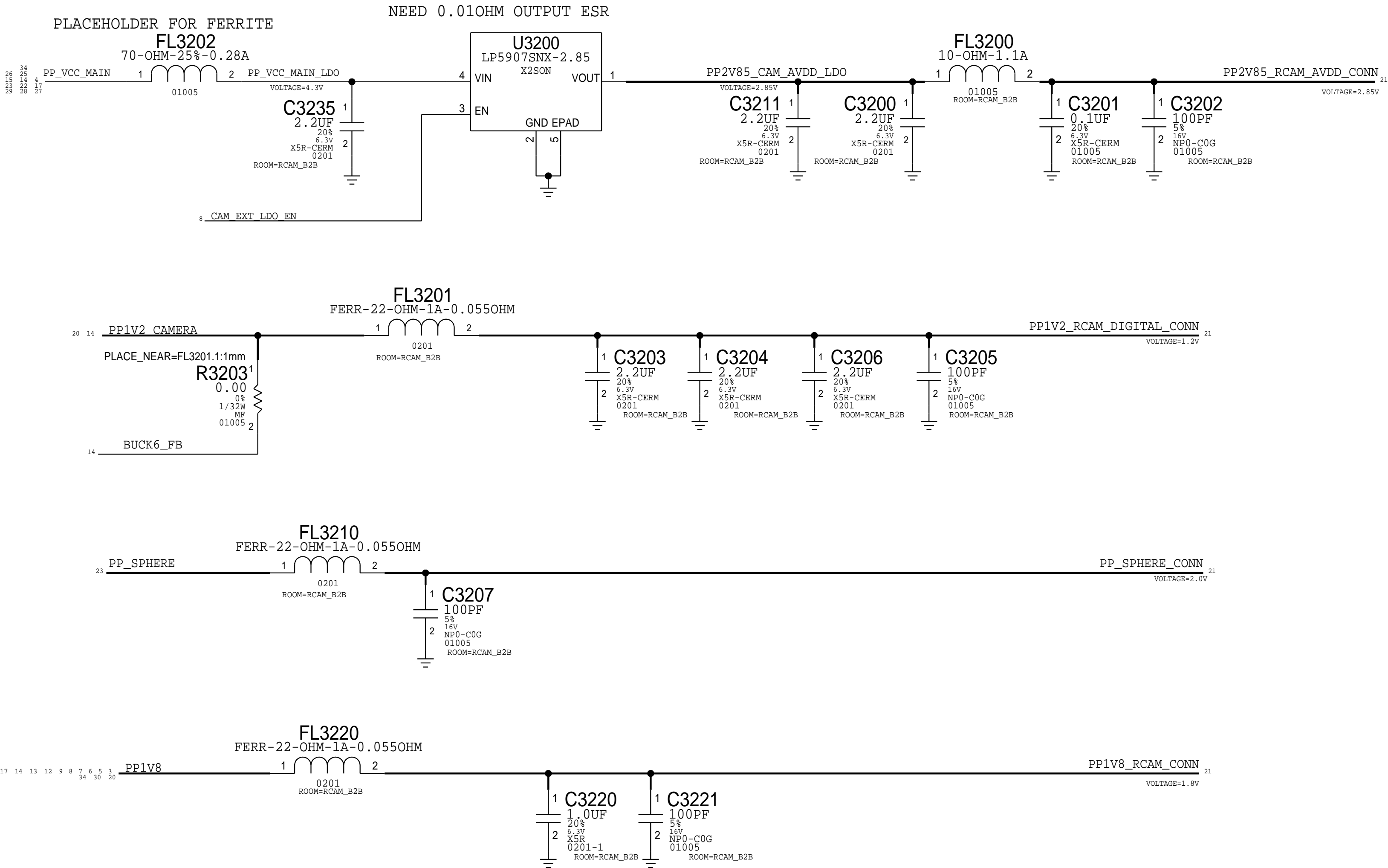


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REAR CAMERA FLEX

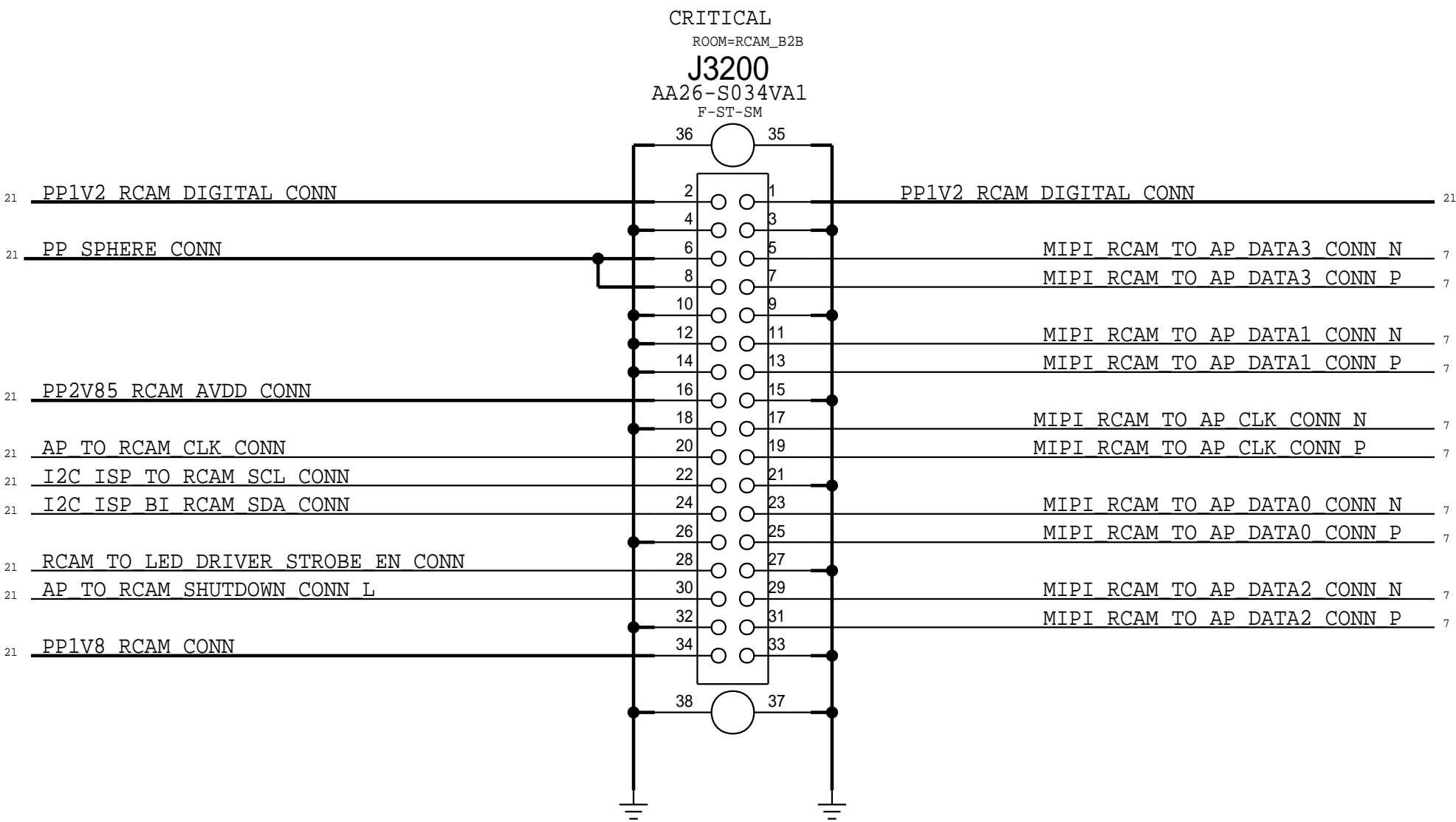
CAMERA POWER/MAMBA LDO



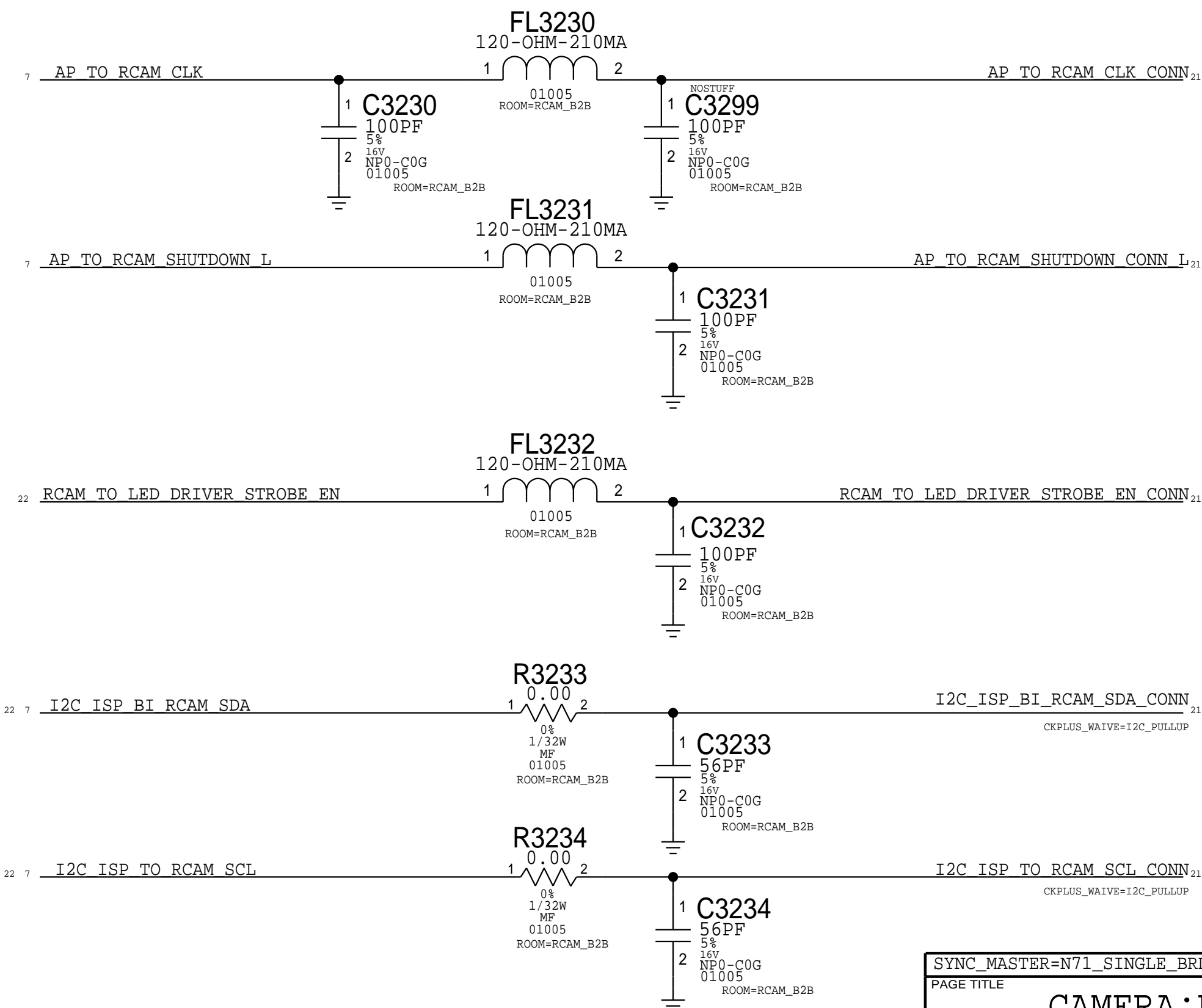
RCAM CONNECTOR


MLB: 516S00043 (RCPT)

FLEX: 516S00042 (PLUG)



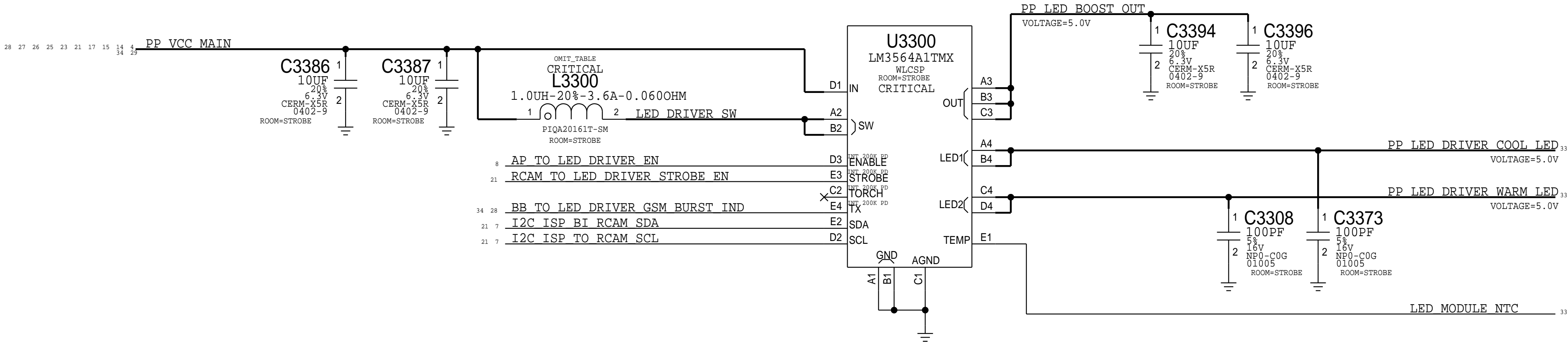
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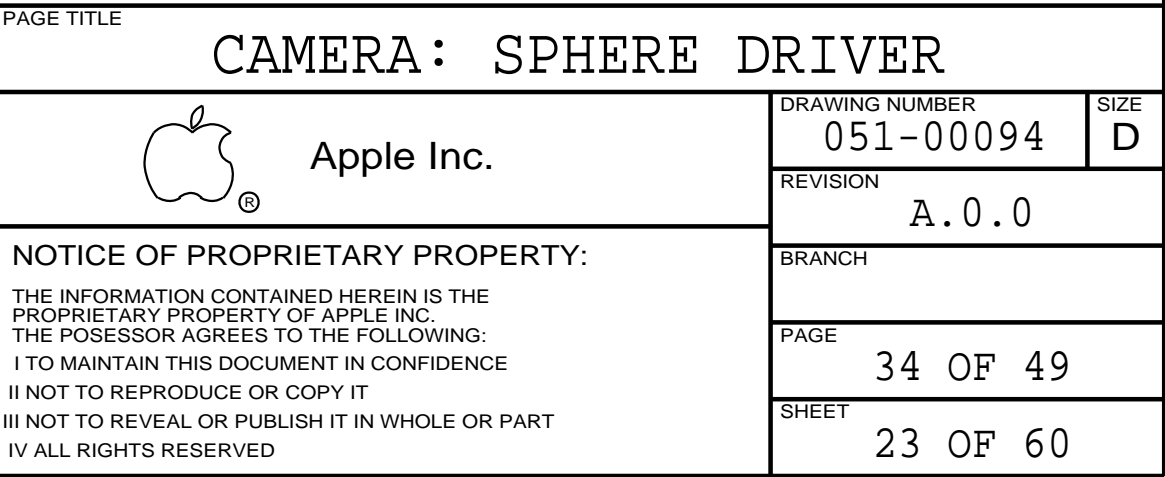
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# DUAL LED STROBE DRIVER

APN: 353S3899



APN: 353S00584



## D



B

A


## D



C

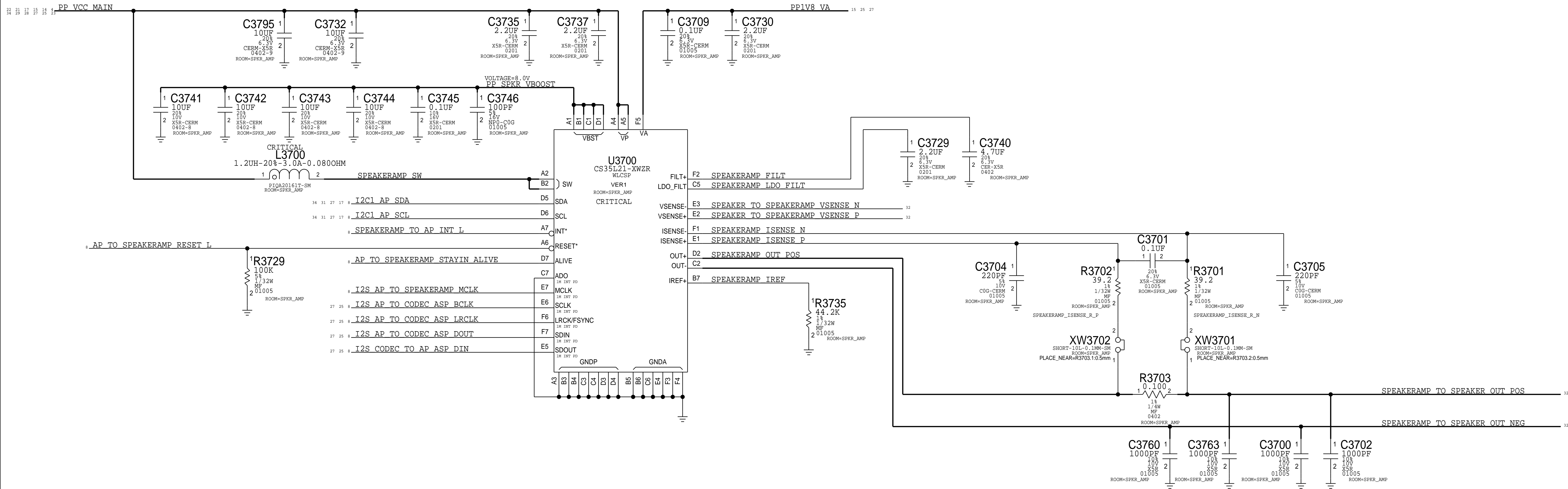
# B


A

SYNC_MASTER=N71_SINGLE_BRD		SYNC_DATE=05/29/2014	
PAGE TITLE			
AUDIO: CALTRA CODEC (2/2)			
 Apple Inc.		DRAWING NUMBER	SIZE
		051-00094	D
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		A.0.0	
		BRANCH	
		PAGE	36 OF 49
		SHEET	25 OF 60

# SPEAKER AMPLIFIER

APN: 338S1285  
I2C ADDRESS: 1000000

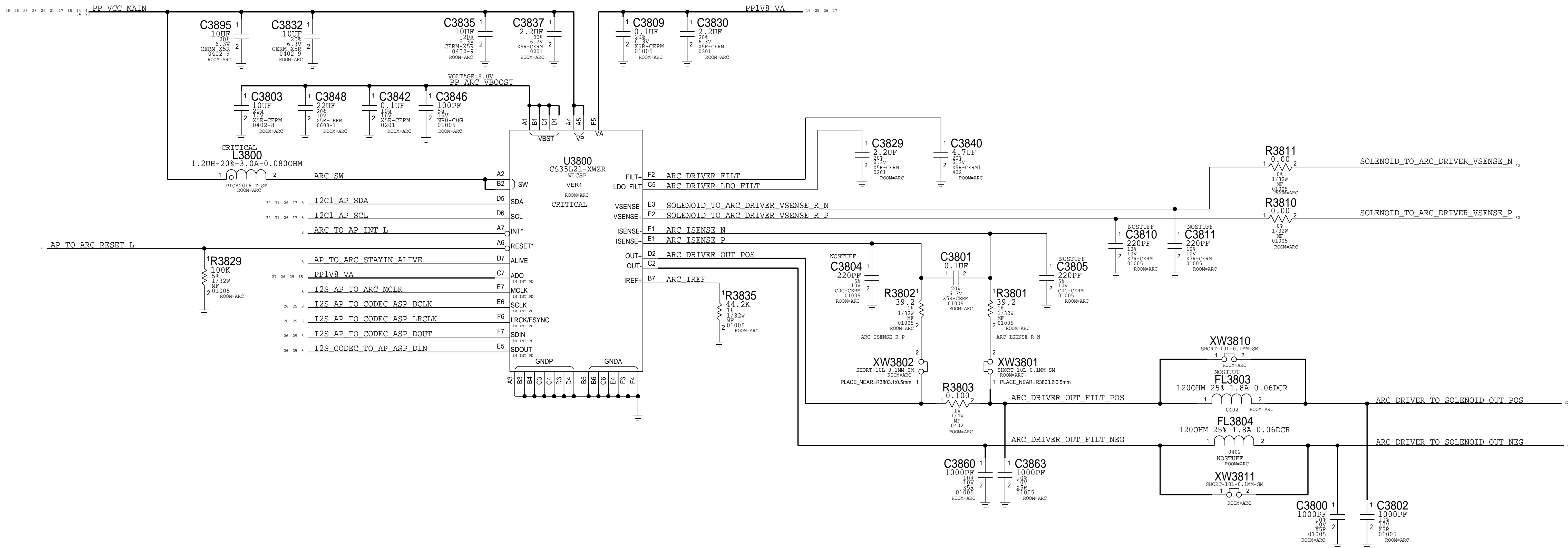



SYNC_MASTER=N71_SINGLE_BRD		SYNC_DATE=05/29/2014	
PAGE TITLE			
AUDIO:SPEAKER DRIVER			
 Apple Inc.	DRAWING NUMBER	051-00094	SIZE D
	REVISION	A.0.0	
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		PAGE	37 OF 49
		SHEET	26 OF 60



# ARC DRIVER

APN: 338S1285  
I2C ADDRESS: 1000001



PAGE TITLE		
AUDIO:ARC DRIVER		
 Apple Inc.	DRAWING NUMBER	051-00094
	REVISION	A.0.0
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	PAGE	38 OF 49
	SHEET	27 OF 60

## D



## C



# B

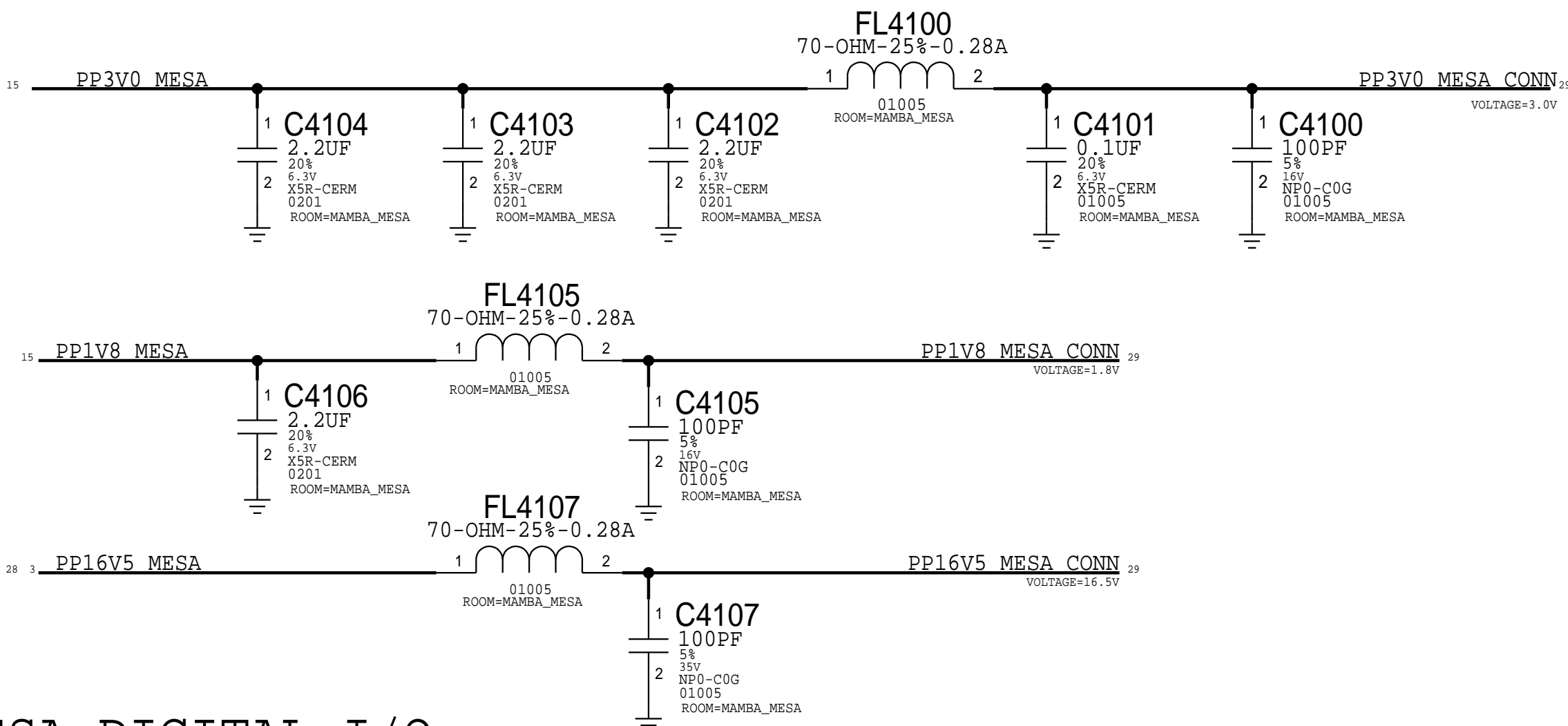


MAMBA & MESA FLEX

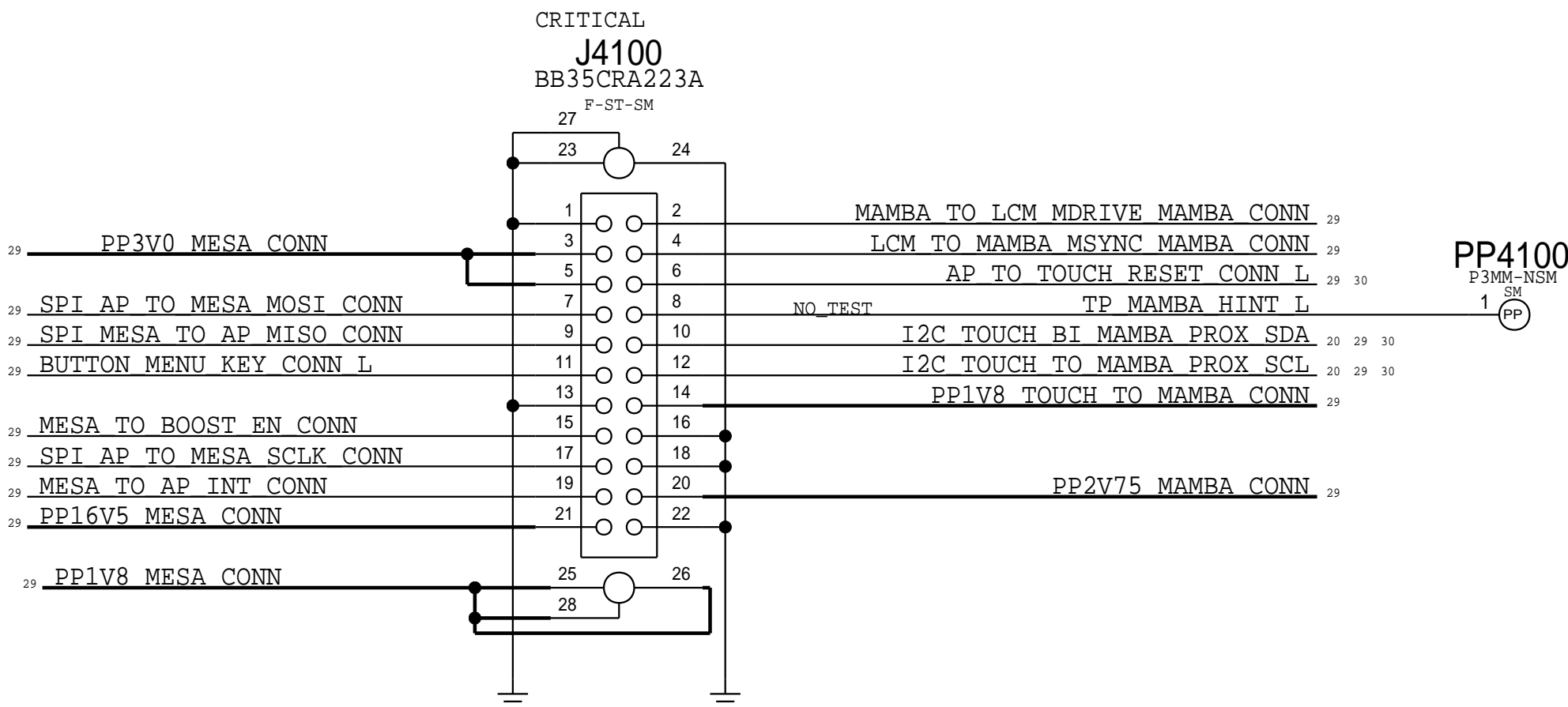
ORB & MESA CONNECTOR

MLB: 516S00056 (RCPT)

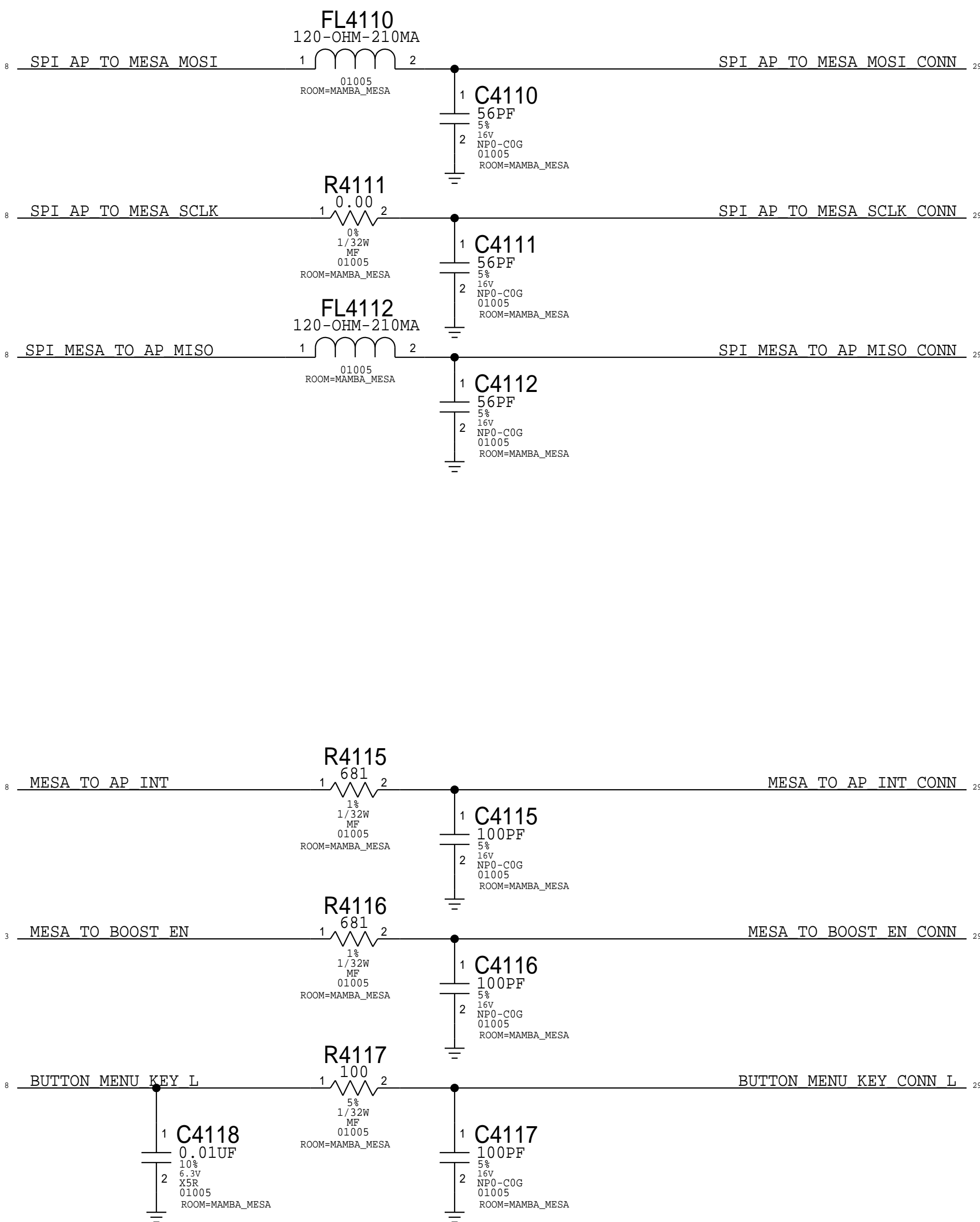
MESA POWER



MAMBA POWER

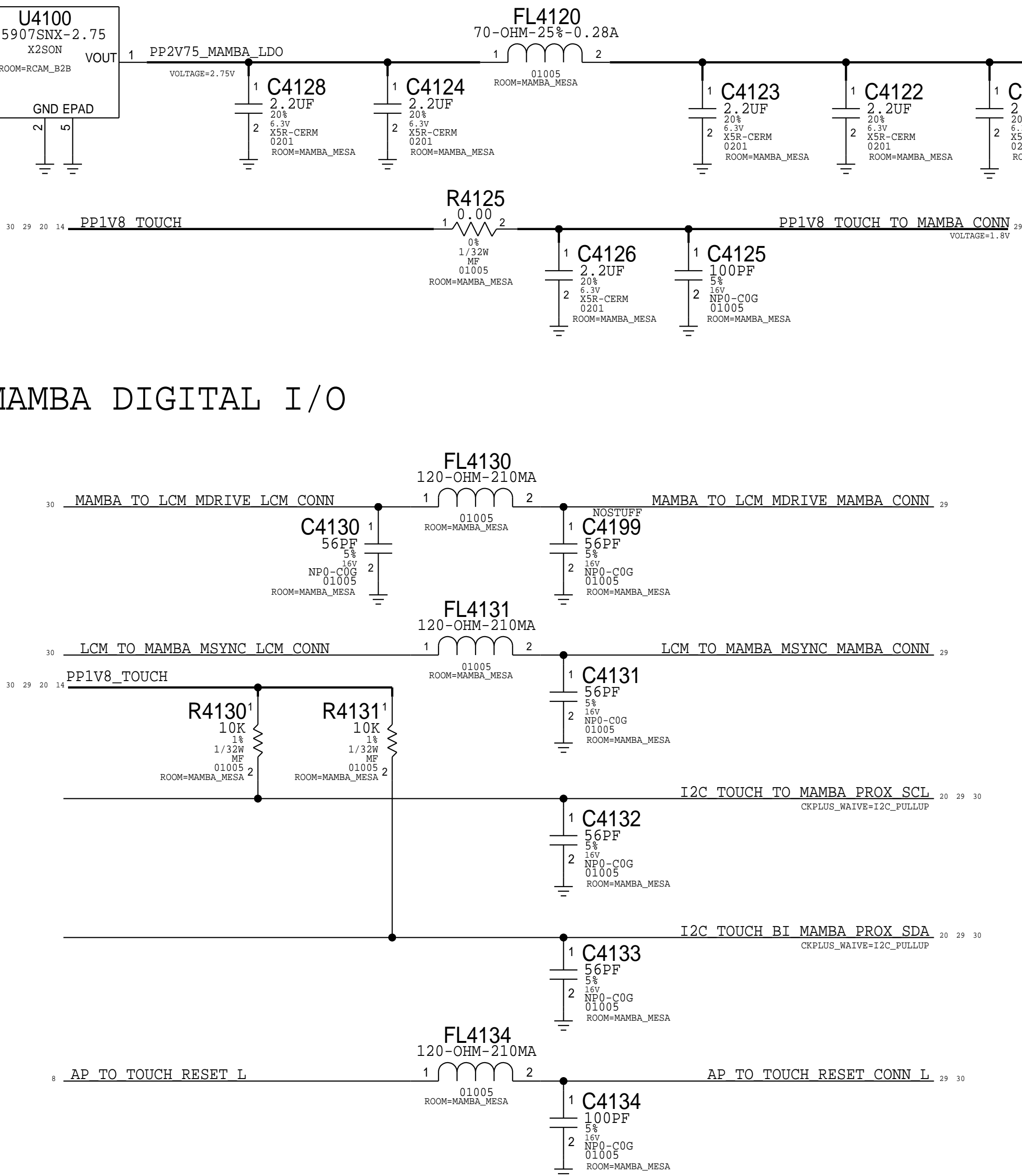


MESA DIGITAL I/O




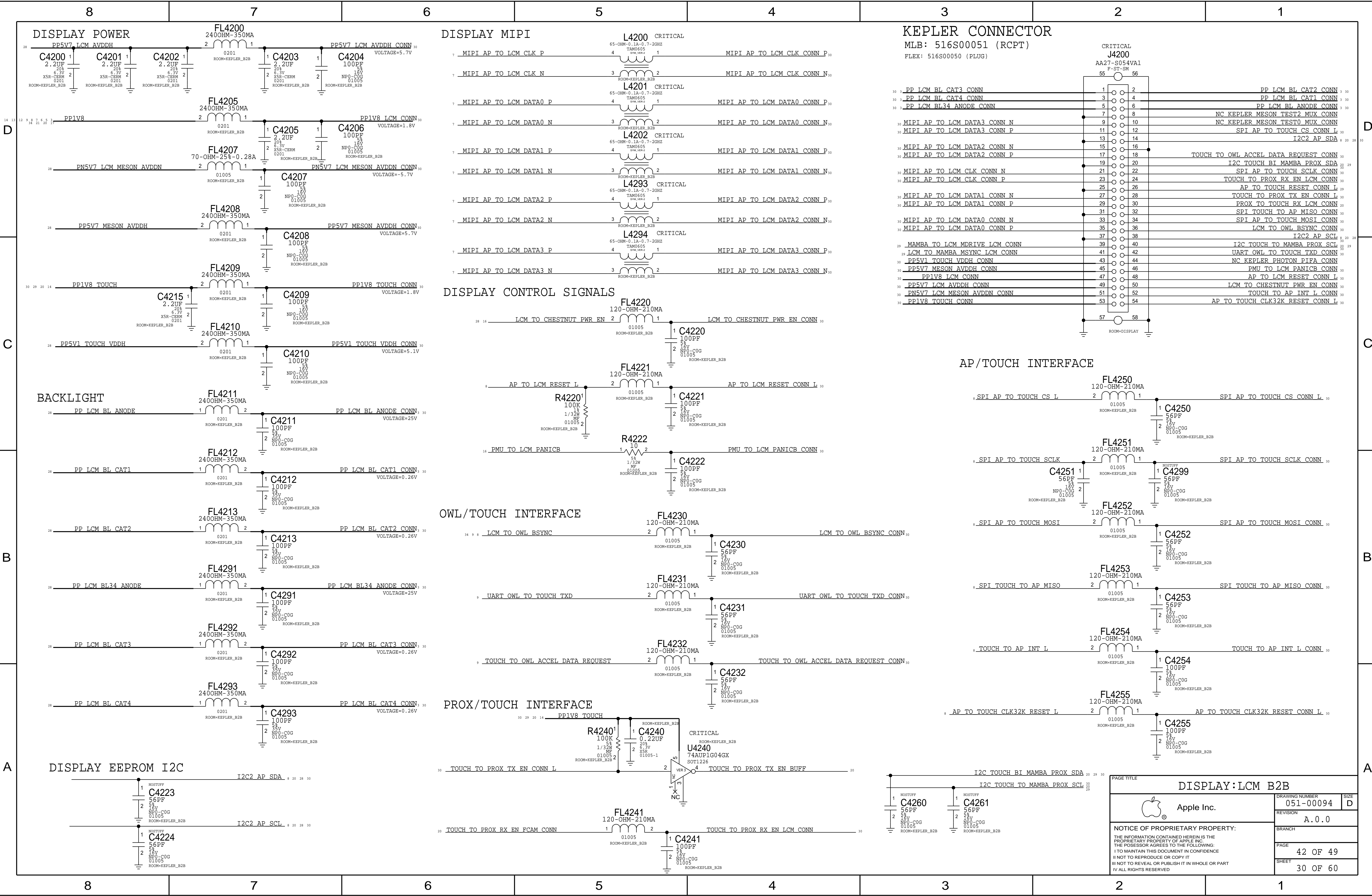
NOTE: OUTPUT IMPEDANCE MUST BE >0.005-OHM  
IN ORDER TO MEET CAP ESR REQUIREMENT PER LDO SPEC.

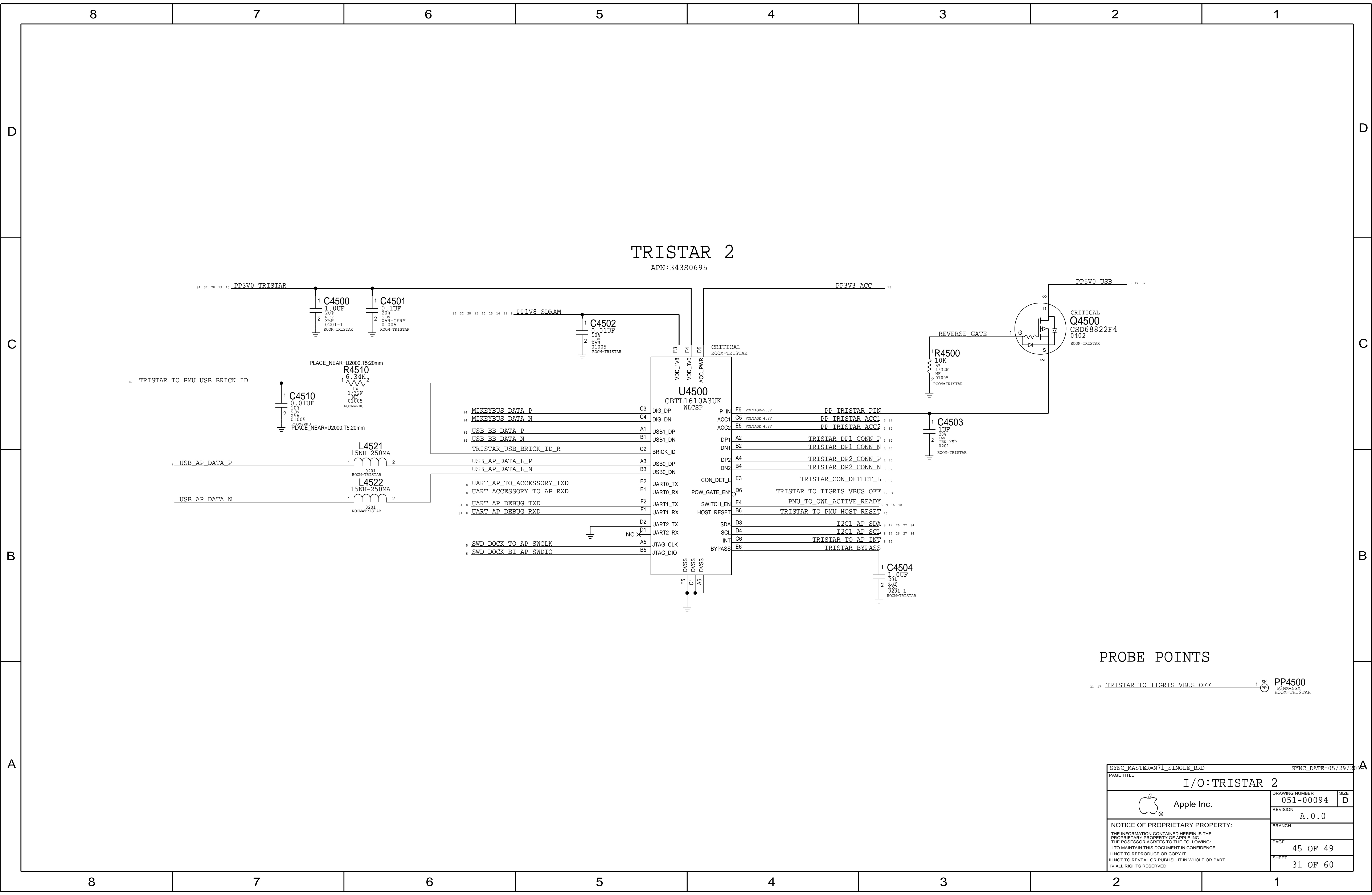
MAMBA DIGITAL I/O



NOTE:MAMBA I2C PULL-UPS TO PP1V8 TOUCH INSIDE KEPLER  
ADDING R4130, R4131 AS OPTION FOR TWEAKING VALUE

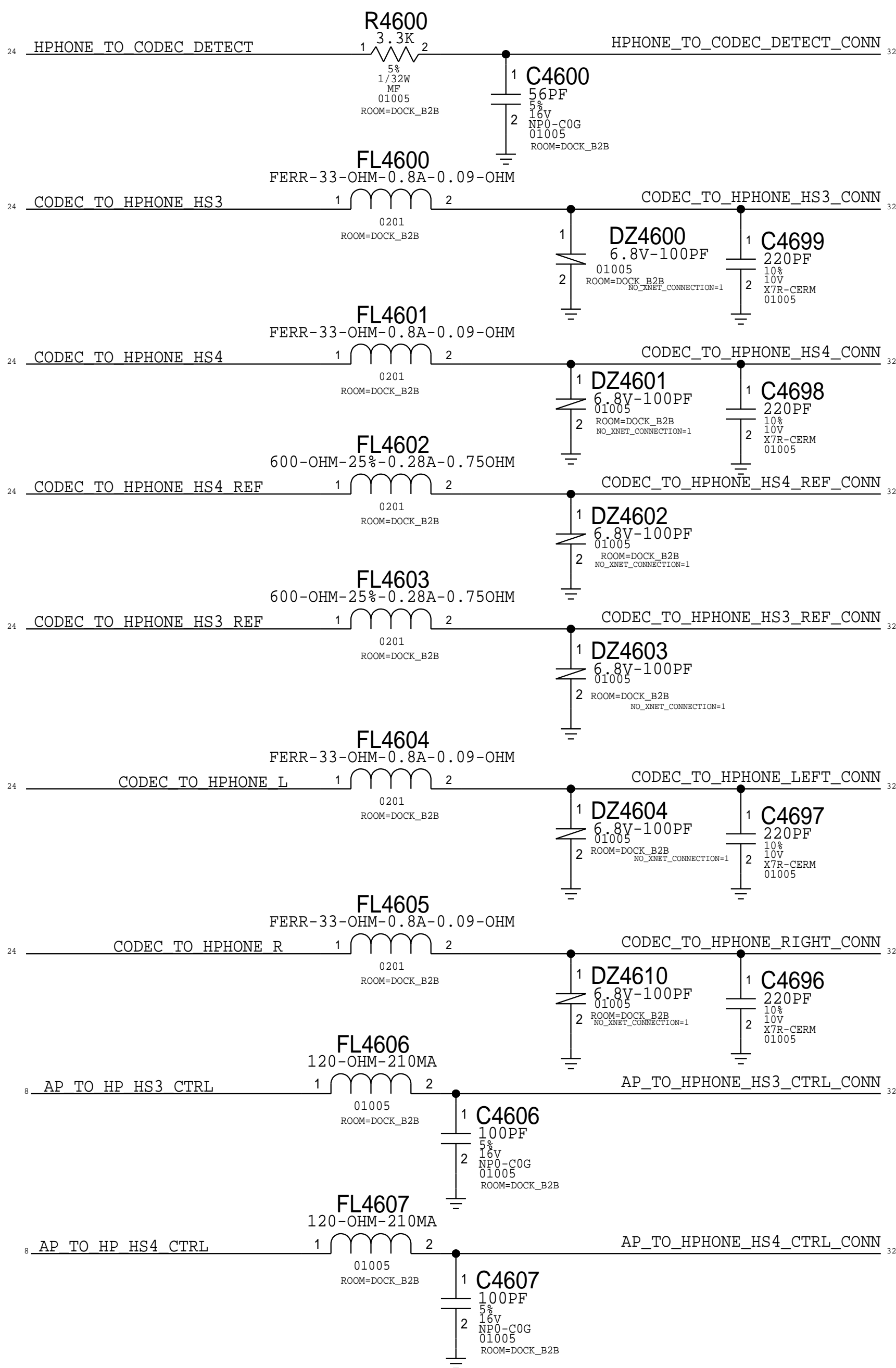
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PAGE TITLE			
TOUCH:ORB & MESA B2B			
 Apple Inc.	DRAWING NUMBER 051-00094		D SIZE
	REVISION A.0.0		
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		PAGE 41 OF 49	
		SHEET 29 OF 60	



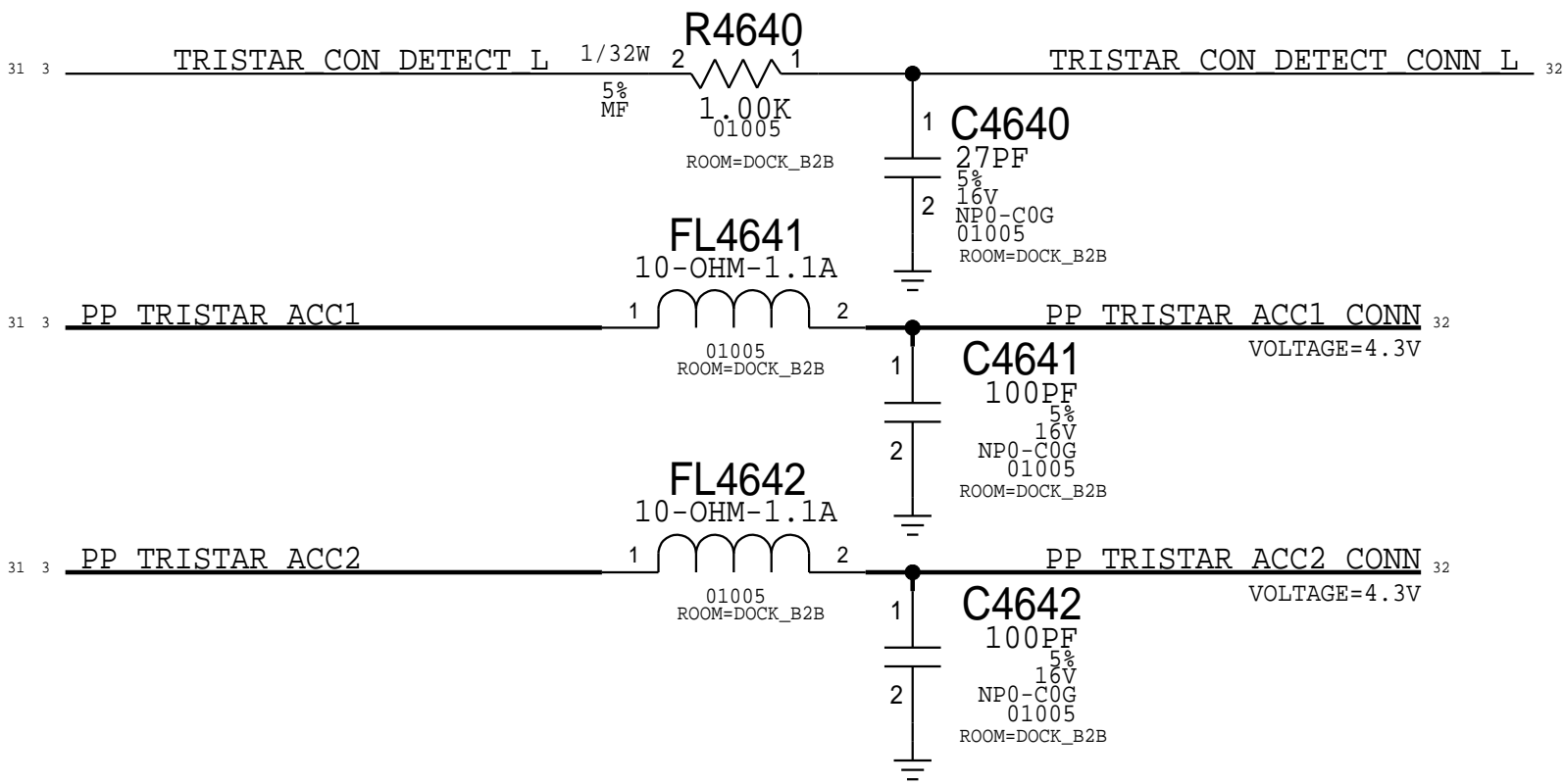




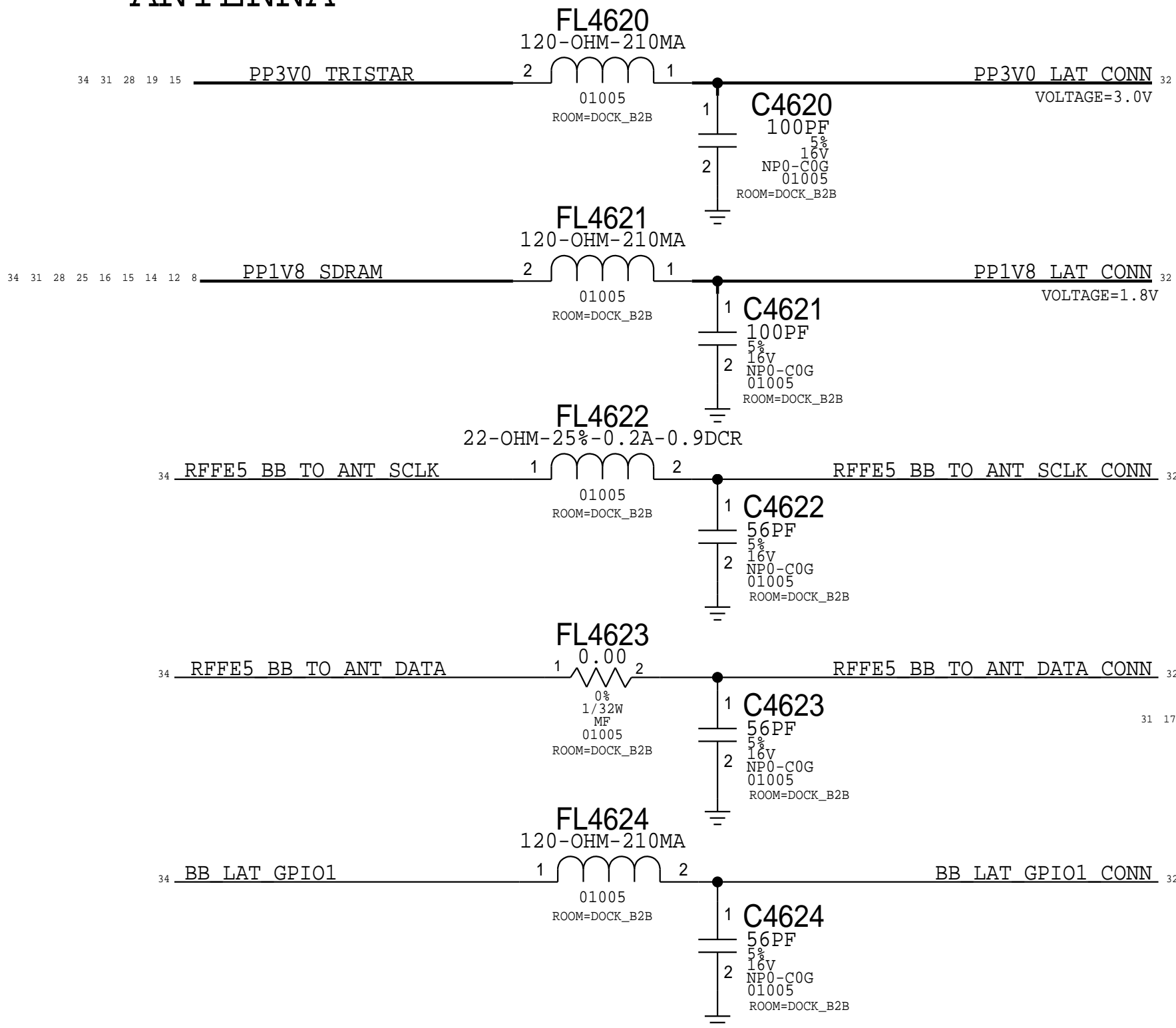
DOCK FLEX CONNECTOR  
AUDIO JACK



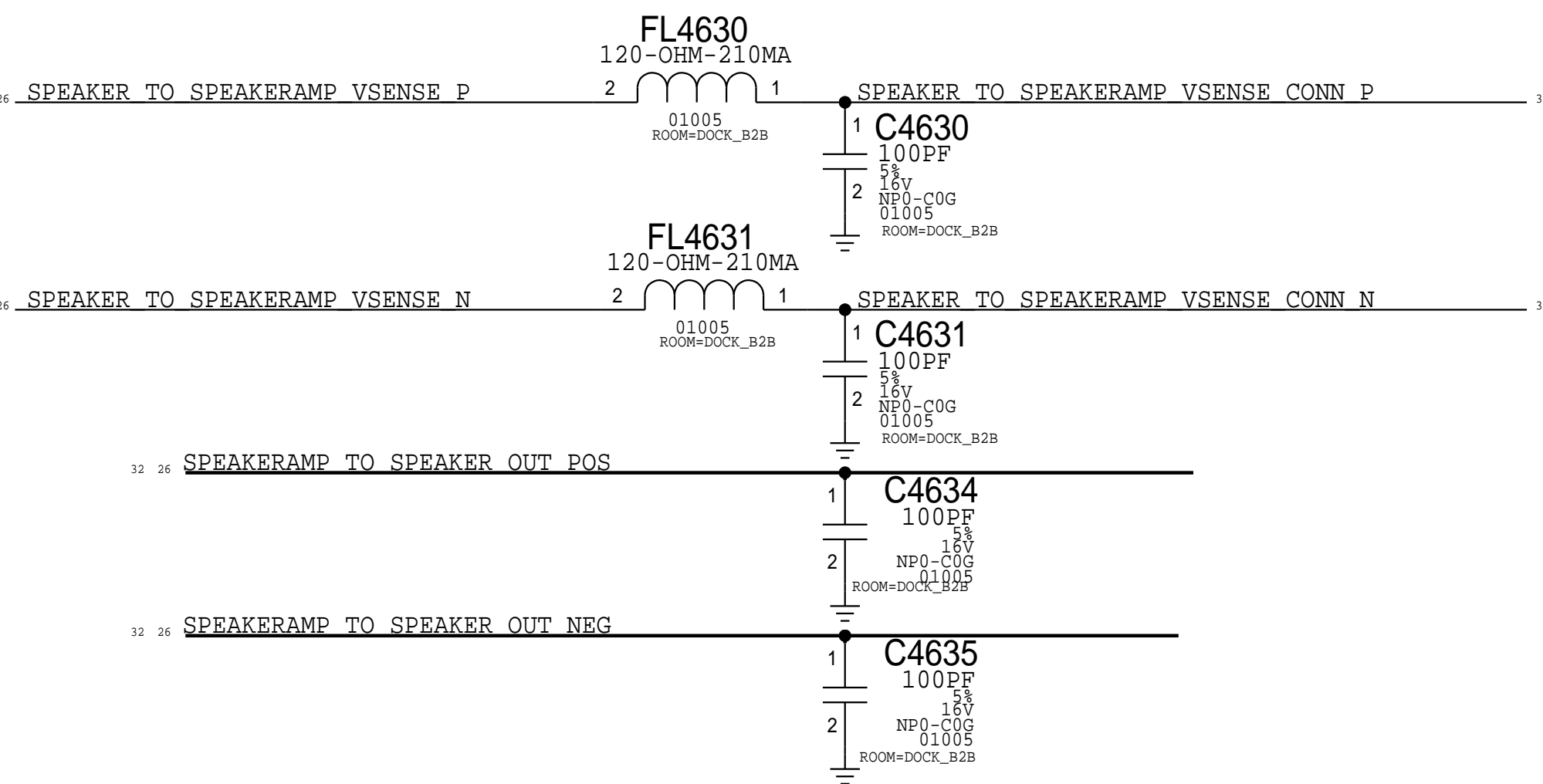
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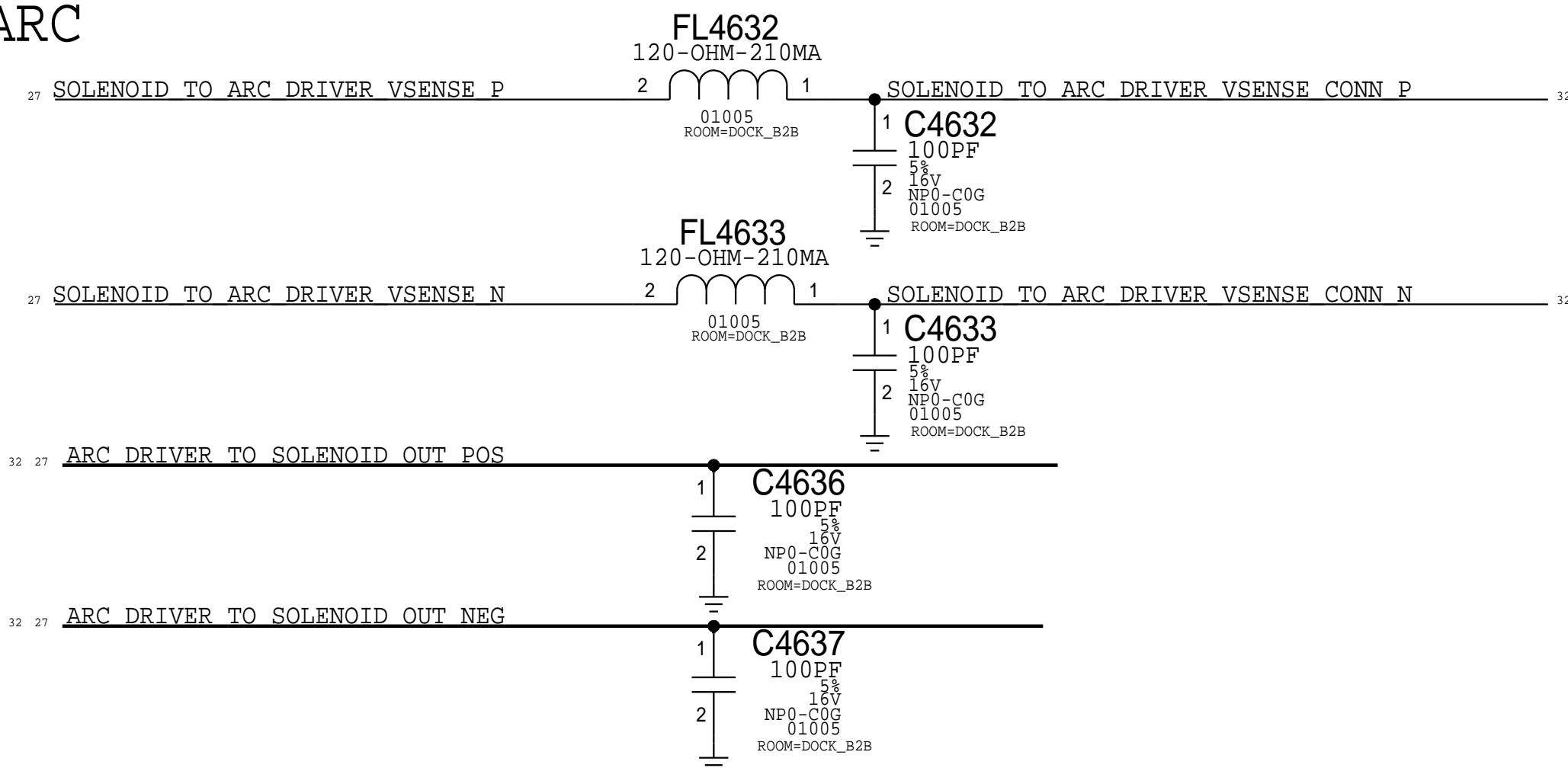
ANTENNA



SPEAKER



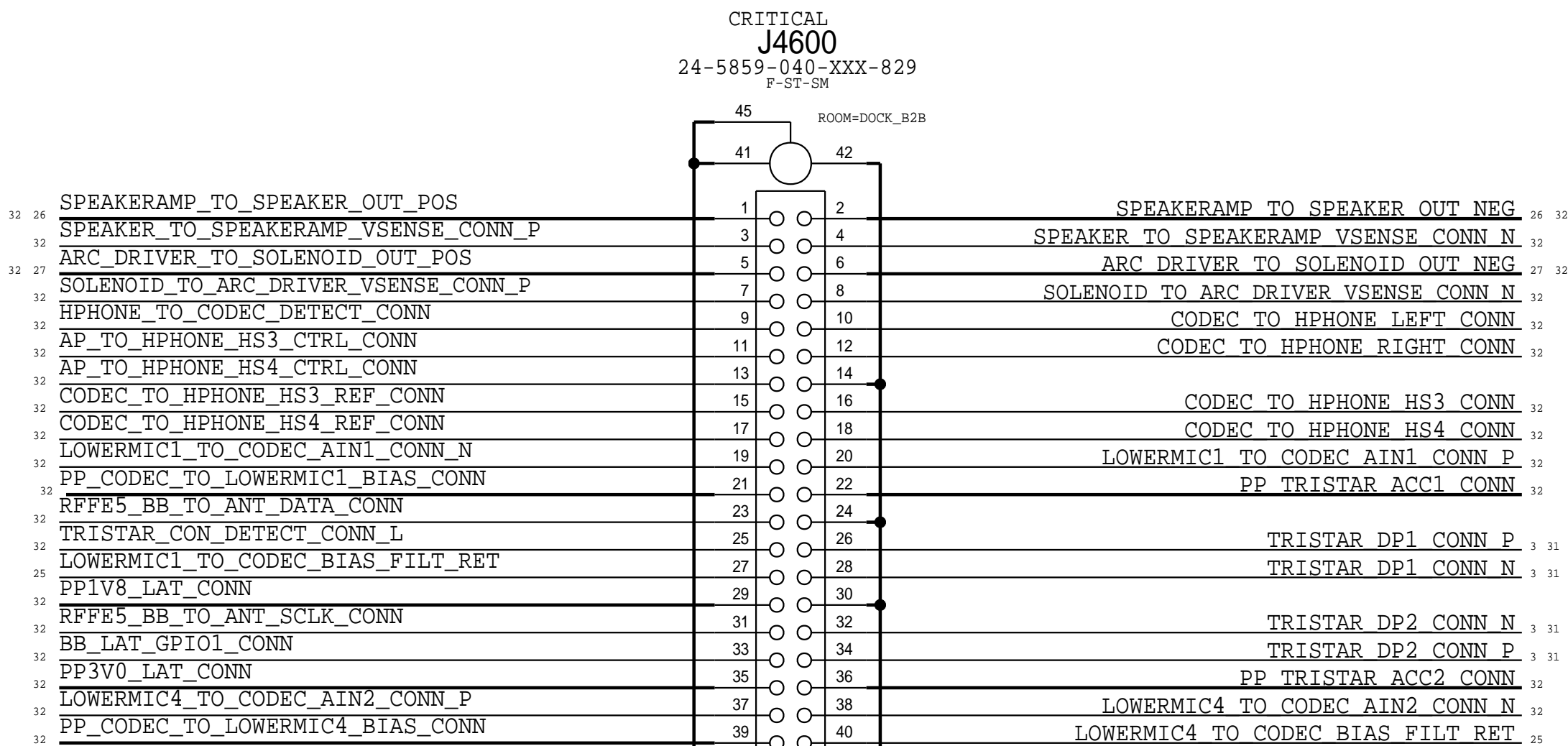
ARC



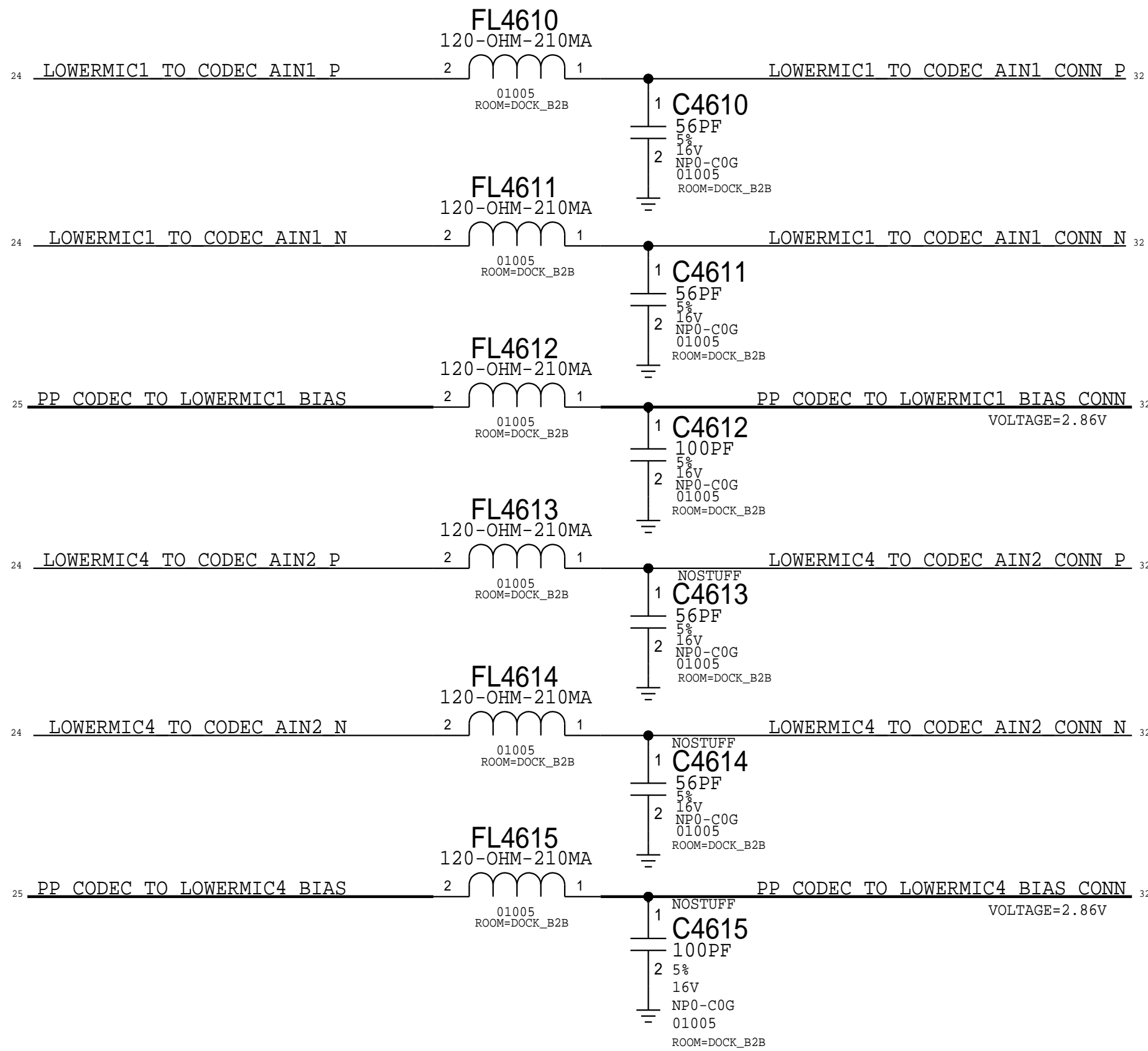
DOCK FLEX CONNECTOR

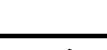
MLB: 516S00033 (RCPT)

FLEX: 516S00034 (PLUG)



LOWER MIC1/4



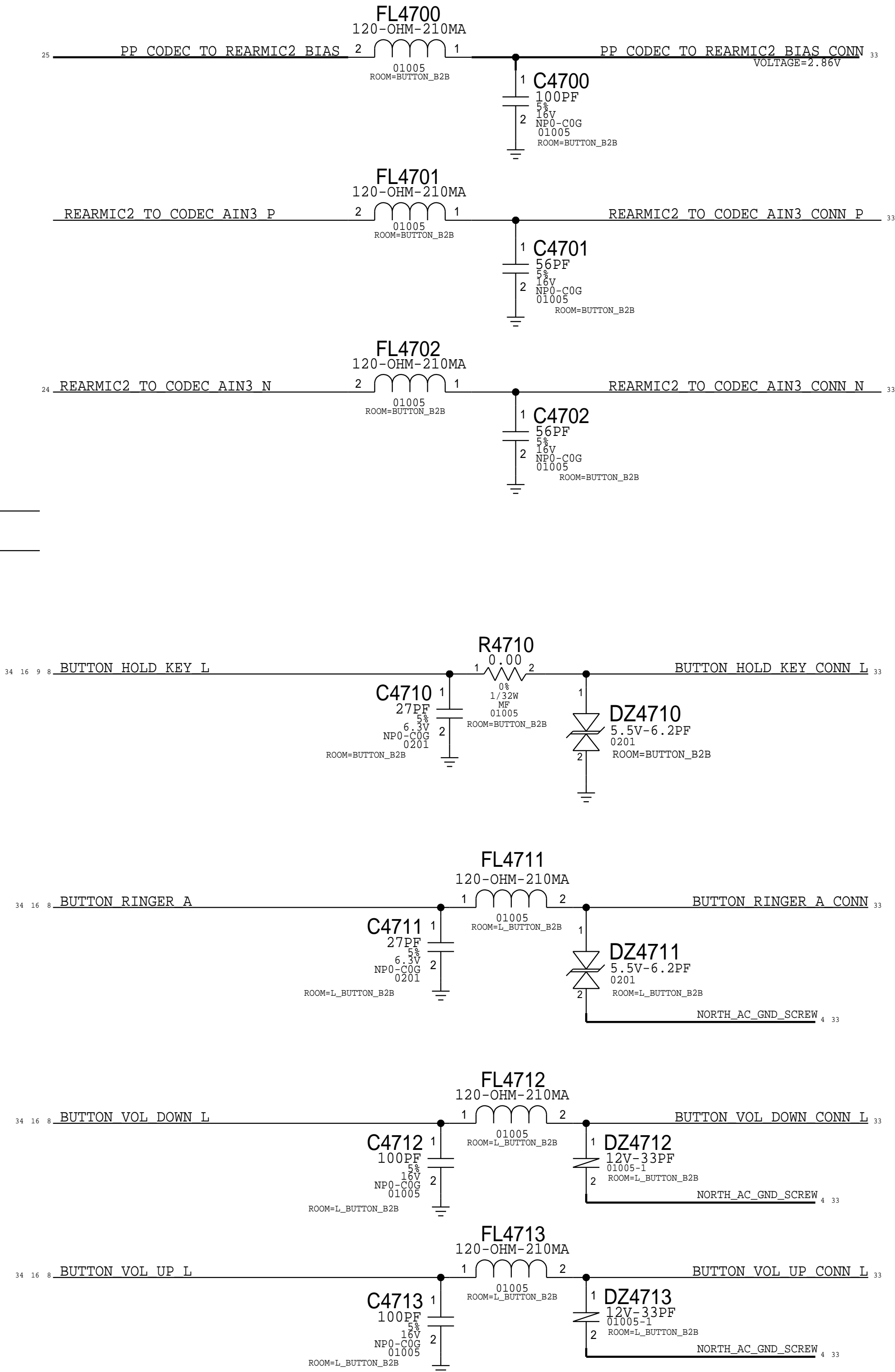
SYNC_MASTER=N71_SINGLE_BRD		SYNC_DATE=05/29/2014	
PAGE TITLE			
I/O:DOCK FLEX B2B			
 Apple Inc.		DRAWING NUMBER	051-00094
		REVISION	A.0.0
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		SHEET	32 OF 60



BUTTON FLEX

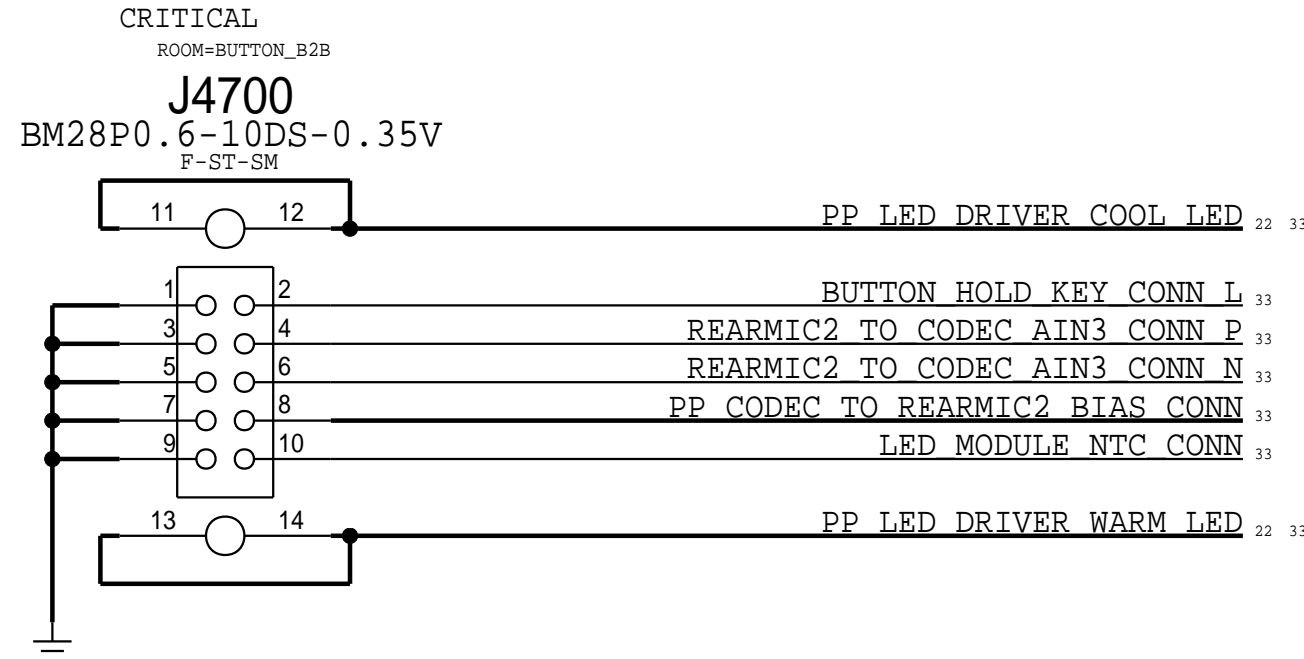
MIC2  
ANC REF MIC

BUTTONS:  
HOLD  
RINGER  
VOL UP/DOWN



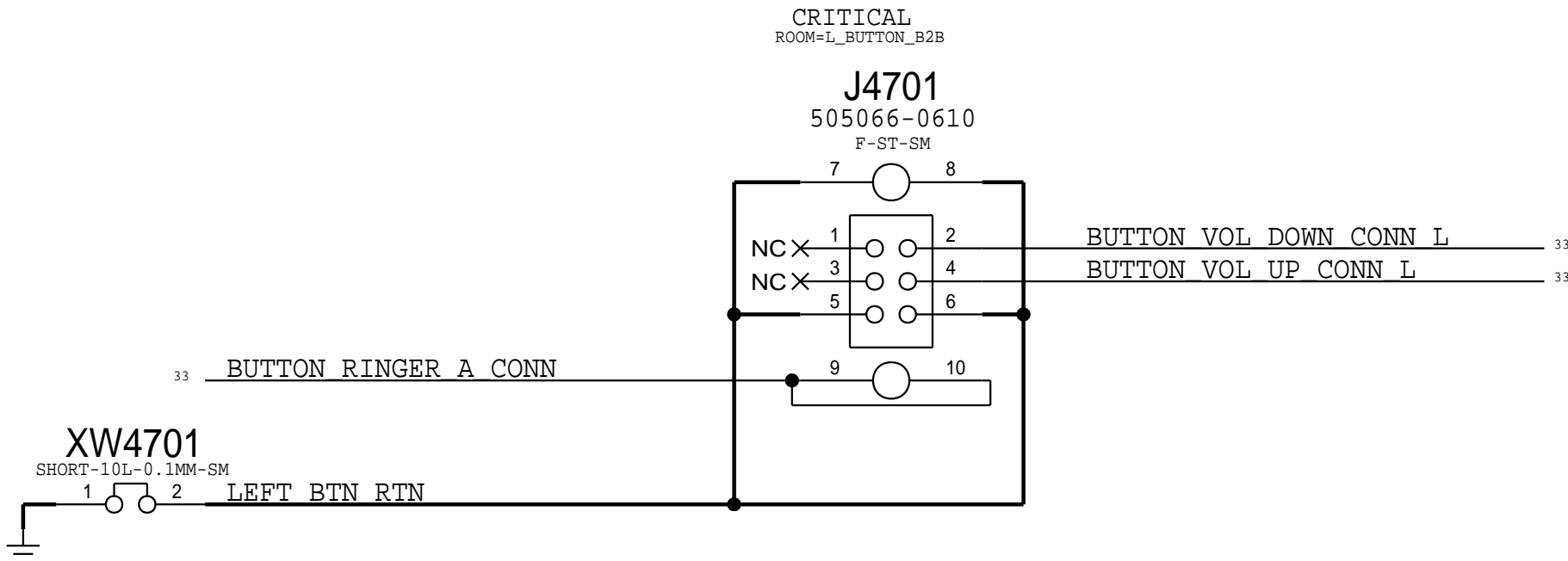
RIGHT BUTTON FLEX CONNECTOR

MLB: 516S00047 (RCPT)  
FLEX: 516S00046 (PLUG)

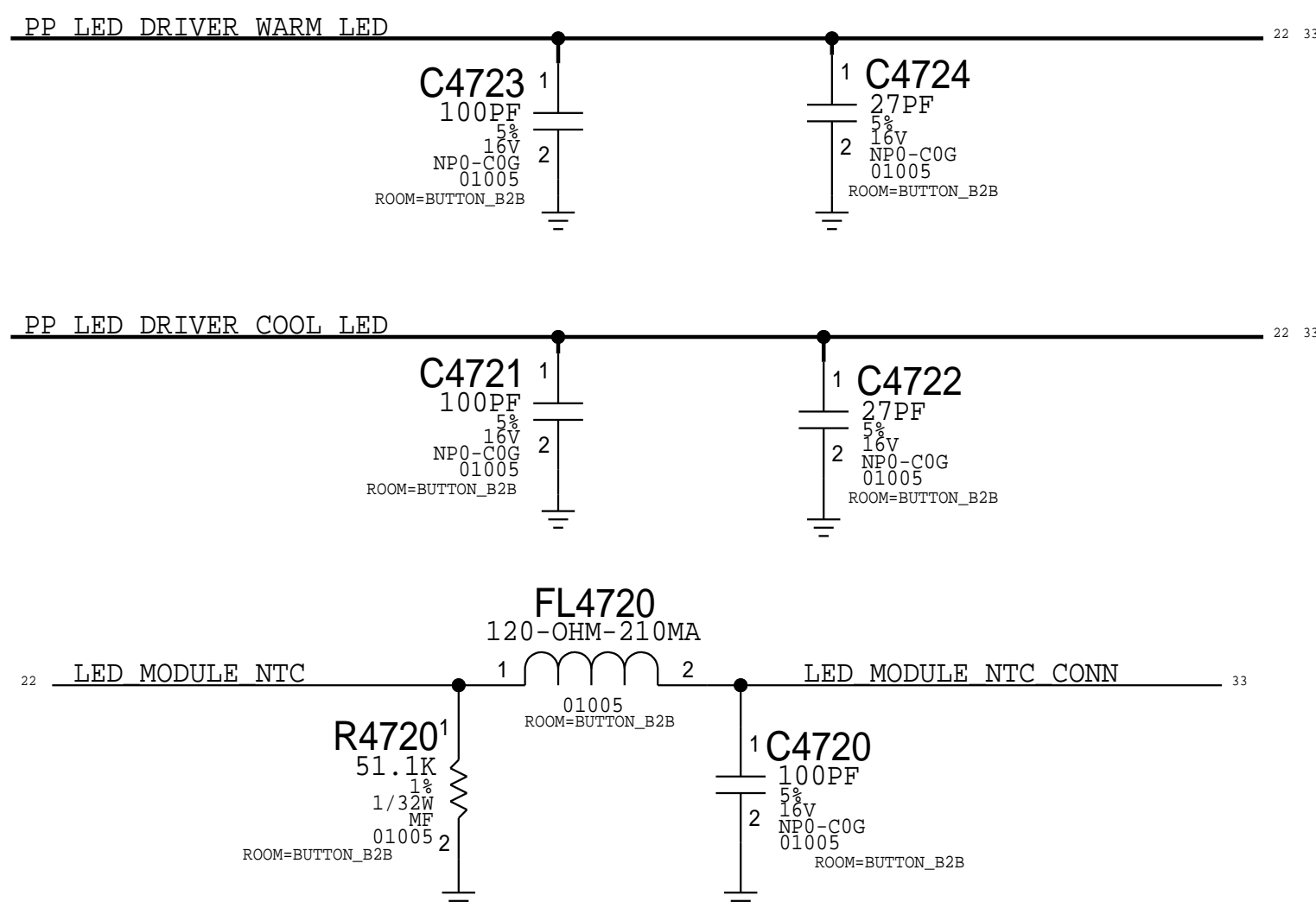



LEFT BUTTON FLEX CONNECTOR

MLB: 516S1317



STROBE:  
WARM LED  
COOL LED  
MODULE NTC



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I/O:BUTTON FLEX B2B			
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		PAGE	47 OF 49
		SHEET	33 OF 60

8		7		6		5		4		3		2		1	
BASEBAND, WLAN, BT & STOCKHOLM															
SUBDESIGN_SUFFIX=RF															
RADIO_MLB_MIMO															
SHARED POWER															
PP_VCC_MAIN															
PP3V0_TRISTAR															
PP1V8_SDRAM															
BASEBAND															
WLAN															
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27 26 25 23 22 21 17 15 14 4 PP\_VCC\_MAIN  
45 39 38 PP3V0\_TRISTAR  
37 32 31 28 19 15 PP1V8\_SDRAM  
39 32 31 28 25 16 15 14 12 8

39 6 PCIE\_AP\_TO\_BB\_TXD\_P  
39 6 PCIE\_AP\_TO\_BB\_TXD\_N

39 6 PCIE\_BB\_TO\_AP\_RXD\_P  
39 6 PCIE\_BB\_TO\_AP\_RXD\_N

39 6 PCIE\_AP\_TO\_BB\_REFCLK\_P  
39 6 PCIE\_AP\_TO\_BB\_REFCLK\_N

39 6 PCIE\_AP\_TO\_BB\_RESET\_L  
39 6 PCIE\_BB\_BT\_AP\_CLKREQ\_L  
39 16 BB\_TO\_PMU\_PCIE\_HOST\_WAKE\_L  
39 8 AP\_TO\_BB\_PCIE\_DEV\_WAKE

39 8 I2S\_AP\_TO\_BB\_LRCLK  
39 8 I2S\_AP\_TO\_BB\_BCLK  
39 8 I2S\_AP\_TO\_BB\_DOUT  
39 8 I2S\_BB\_TO\_AP\_DIN

44 8 AP\_TO\_BB\_RADIO\_UP\_L  
39 16 PMU\_TO\_BB\_PMIC\_RESET\_L  
44 8 AP\_TO\_BB\_RESET\_L

43 8 BB\_TO\_AP\_RESET\_DETECT\_L  
39 28 22 BB\_TO\_LED\_DRIVER\_GSM\_BURST\_IND  
39 8 AP\_TO\_BB\_MESA\_ON\_L  
39 8 BB\_TO\_AP\_GPS\_TIME\_MARK  
39 8 AP\_TO\_BB\_COREDUMP  
43 8 BB\_IPC\_GPIO  
39 30 9 8 LCM\_TO\_OWL\_BSYN  
39 9 UART\_OWL\_TO\_BB\_TXD  
39 9 UART\_BB\_TO\_OWL\_RXD

42 31 USB\_BB\_DATA\_P  
42 31 USB\_BB\_DATA\_N  
44 16 PMU\_TO\_BB\_USB\_VBUS\_DETECT

42 13 9 SWD\_AP\_PERIPHERAL\_SWCLK  
39 9 SWD\_AP\_BT\_BB\_SWDTIO

36 32 RFFE5\_BB\_TO\_ANT\_SCLK  
36 32 RFFE5\_BB\_TO\_ANT\_DATA  
43 32 BB\_LAT\_GPIO1


45 16 BB\_TO\_PMU\_AMUX\_LDO11\_SIM1  
45 16 BB\_TO\_PMU\_AMUX\_SMPS1  
45 16 BB\_TO\_PMU\_AMUX\_SMPS3  
45 16 BB\_TO\_PMU\_AMUX\_SMPS4


21 20 17 14 13 12 9 8 7 6 5 3 PP1V8  
39 30 DFU\_STATUS  
39 8 FORCE\_DFU

16 9 5 3 PMU\_TO\_SYSTEM\_COLD\_RESET\_L  
39 28 16 I2C0\_AP\_SCL  
39 28 16 I2C0\_AP\_SDA  
39 31 27 26 17 I2C1\_AP\_SCL  
39 31 27 26 17 I2C1\_AP\_SDA  
39 33 16 9 BUTTON\_HOLD\_KEY\_L  
39 29 16 9 BUTTON\_MENU\_KEY\_L  
39 33 16 BUTTON\_RINGER\_A  
39 33 16 BUTTON\_VOL\_DOWN\_L  
39 33 16 BUTTON\_VOL\_UP\_L

NC\_PMU\_GPIO20 NO\_TEST  
NC\_PMU\_GPIO21 NO\_TEST  
NC\_OWL\_FUNC2 NO\_TEST  
NC\_AP\_RESERVED2 NO\_TEST  
31 8 UART\_AP\_DEBUG\_RXD  
31 8 UART\_AP\_DEBUG\_TXD  
NC\_PMU\_AMUX\_AY NO\_TEST  
NC\_PMU\_AMUX\_BY NO\_TEST

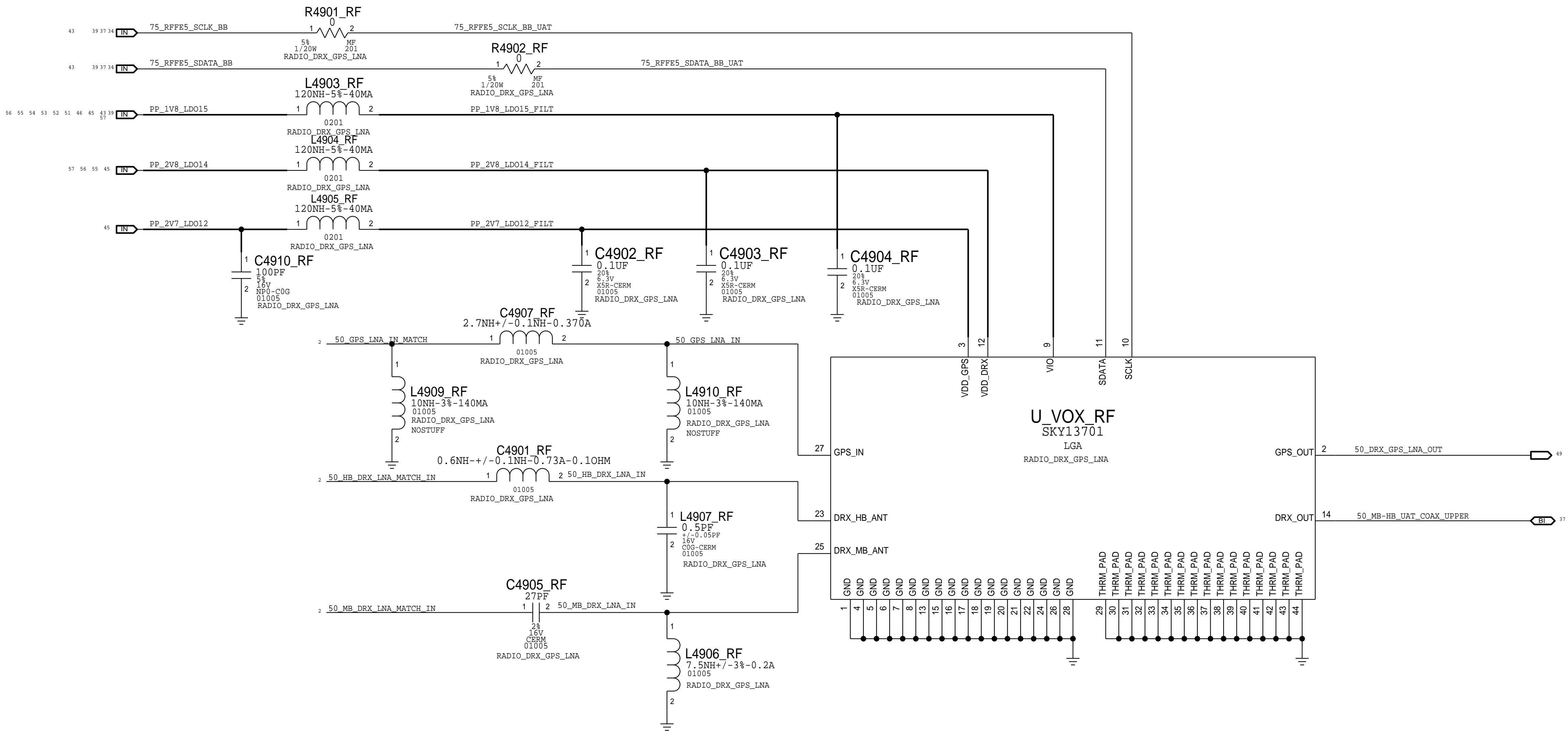
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RADIO_MLB_MIMO	
SHARED POWER	
PP_VCC_MAIN PP3V0_TRISTAR PP1V8_SDRAM	
BASEBAND	WLAN
PCIE0_AP_TO_BB_TXD_P PCIE0_AP_TO_BB_TXD_N	PCIE_AP_TO_WLAN_TXD_P PCIE_AP_TO_WLAN_TXD_N
PCIE0_BB_TO_AP_TXD_P PCIE0_BB_TO_AP_TXD_N	PCIE_WLAN_TO_AP_RXD_P PCIE_WLAN_TO_AP_RXD_N
PCIE0_AP_TO_BB_REFCLK_P PCIE0_AP_TO_BB_REFCLK_N	PCIE_AP_TO_WLAN_REFCLK_P PCIE_AP_TO_WLAN_REFCLK_N
PCIE0_AP_TO_BB_PERST_L PCIE0_AP_TO_BB_CLKREQ_L PCIE0_BB_TO_PMU_HOST_WAKE_L PCIE0_AP_TO_BB_DEV_WAKE	PCIE_AP_TO_WLAN_PERST_L  PCIE_AP_TO_WLAN_DEV_WAKE PCIE_WLAN_TO_AP_CLKREQ_L
I2S_AP_TO_BB_WS I2S_AP_TO_BB_CLK I2S_AP_TO_BB_TX I2S_BB_TO_AP_TX	UART4_AP_TO_WLAN_TX UART4_AP_TO_WLAN_RTS_L UART4_WLAN_TO_AP_TX UART4_WLAN_TO_AP_RTS_L
AP_TO_BBPMU_RADIO_ON_L PMU_TO_BBPMU_RESET_L AP_TO_BB_RST_L	PMU_TO_WLAN_CLK32K PMU_TO_WLAN_REG_ON WLAN_TO_PMU_HOST_WAKE
BB_TO_AP_RESET_DET_L BB_TO_AP_GSM_TXBURST_IND AP_TO_BB_MESA_ON_L BB_TO_AP_GPS_TIME_MARK AP_TO_BB_COREDUMP_TRIG AP_TO_BB_IPC_GPIO TOUCH_TO_BBPMU_FORCE_PWM UART0_OWL_TO_BB_TX UART0_BB_TO_OWL_TX	OWL_TO_WLAN_CONTEXT_A OWL_TO_WLAN_CONTEXT_B
USB_BB_P USB_BB_N USB_BB_VBUS_DETECT	I2S_AP_TO_BT_LRCLK I2S_AP_TO_BT_BCLK I2S_AP_TO_BT_DOUT I2S_BT_TO_AP_DIN
SWD_CLK_BB_JTAG_TCK SWD_IO_BB_JTAG_TMS	UART1_AP_TO_BT_TX UART1_AP_TO_BT_RTS_L UART1_BT_TO_AP_TX UART1_BT_TO_AP_RTS_L
75_RFFE5_SCLK_BB 75_RFFE5_SDATA_BB RFFE_BUFFER_LAT_GPIO1	PMU_TO_BT_REG_ON BT_TO_PMU_HOST_WAKE AP_TO_BT_WAKE
BB_TO_PMU_AMUX_LDO11_SIM1 BB_TO_PMU_AMUX_SMPS1 BB_TO_PMU_AMUX_SMPS3 BB_TO_PMU_AMUX_SMPS4	UART3_AP_TO_STOCKHOLM_TXD UART3_AP_TO_STOCKHOLM_RTS_L UART3_STOCKHOLM_TO_AP_TXD UART3_STOCKHOLM_TO_AP_RTS_L
ANT	STOCKHOLM
STOCKHOLM_ANT	PMU_TO_STOCKHOLM_EN STOCKHOLM_TO_PMU_HOST_WAKE AP_TO_STOCKHOLM_DEV_WAKE AP_TO_STOCKHOLM_FW_DWLD_REQ
AP_DEBUG	
PP1V8 DFU_STATUS FORCE_DFU	
PMU_TO_SYSTEM_COLD_RESET_L I2C0_AP_SCL I2C0_AP_SDA I2C1_AP_SCL I2C1_AP_SDA BUTTON_HOLD_KEY_L BUTTON_MENU_KEY_L BUTTON_RINGER_A BUTTON_VOL_DOWN_L BUTTON_VOL_UP_L PMU_GPIO20 PMU_GPIO21 OWL_FUNC2 AP_RESERVED2 AP_RESERVED1 AP_RESERVED0 PMU_AMUX_AY PMU_AMUX_BY	

PAGE TITLE			
BASEBAND:RADIO SYMBOL			
 Apple Inc.	DRAWING NUMBER	051-00094	SIZE D
	REVISION	A.0.0	
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		PAGE	49 OF 49
		SHEET	34 OF 60

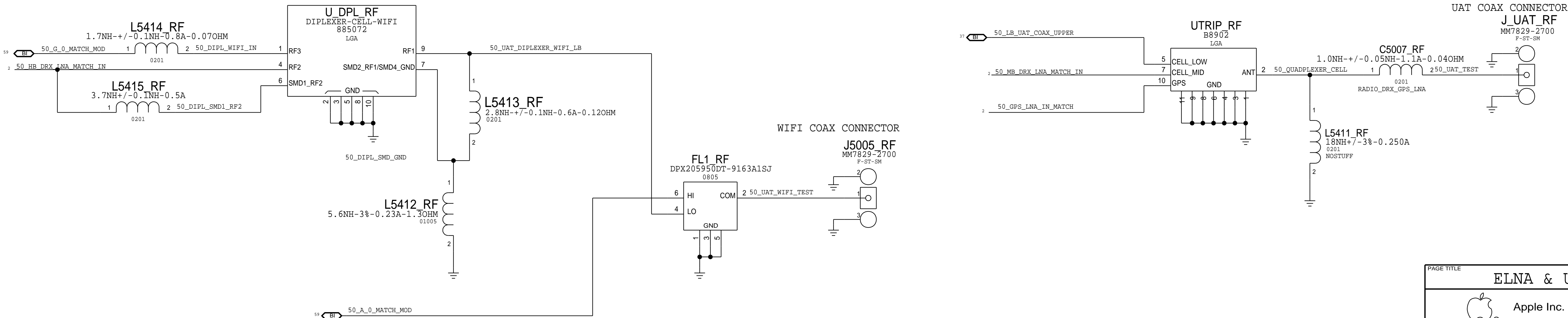
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1. ALL RESISTANCE VALUES ARE IN OHMS, 0.1 WATT +/- 5%. 2. ALL CAPACITANCE VALUES ARE IN MICROFARADS. 3. ALL CRYSTALS & OSCILLATOR VALUES ARE IN HERTZ.												REV	ECN	DESCRIPTION OF REVISION	CK APPD DATE				
												A	0004600844	PRODUCTION RELEASED	2015-07-30				
N66 RADIO_MLB_MIMO - PVT																			
JULY 30, 2015																			
SIM ESD DIODE ALTERNATE																			
PART NUMBER		ALTERNATE FOR PART NUMBER		BOM OPTION		REF DES		COMMENTS:											
377S0163		377S00042		ALTERNATE		VR301_RF		ST ESD DIODE											
19.2MHZ XTAL ALTERNATE																			
PART NUMBER		ALTERNATE FOR PART NUMBER		BOM OPTION		REF DES		COMMENTS:											
197S0565		197S0593		ALTERNATE		Y_XO_RF		XTAL, 19.2MHZ											
197S0598		197S0593		ALTERNATE		Y_XO_RF		XTAL, 19.2MHZ											
ROW HB PAD MATCHING BOM OPTIONS																			
PART#		QTY		DESCRIPTION		REFERENCE DESIGNATOR(S)		BOM OPTION											
152S1907		1		3.3NH, INDUCTOR		L4105_RF		ROW											
152S2007		1		8.2NH, INDUCTOR		L4401_RF		ROW											
131S0426		1		22PF, CAPACITOR		C4405_RF		ROW											
152S2042		1		1.8NH, INDUCTOR		C4406_RF		ROW											
131S0425		1		0.5PF, CAPACITOR		L4407_RF		ROW											
152S2041		1		10.0NH, INDUCTOR		L4403_RF		ROW											
131S00071		1		33PF, CAPACITOR		C4407_RF		ROW											
152S00143		1		15NH, INDUCTOR		L4404_RF		ROW											
131S00071		1		33PF, CAPACITOR		C4408_RF		ROW											
117S0108		1		51 OHM, RESISTOR		L4410_RF		ROW											
131S0599		1		1.5PF, CAPACITOR		C3921_RF		ROW											
152S00052		1		3.4NH, INDUCTOR		L3910_RF		ROW											
117S0201		1		0 OHM, RESISTOR		L3911_RF		ROW											
152S2039		1		3.8NH, INDUCTOR		L3919_RF		ROW											
131S0414		1		5.0PF, CAPACITOR		C4410_RF		ROW											
ROW LB PAD MATCHING BOM OPTIONS																			
PART#		QTY		DESCRIPTION		REFERENCE DESIGNATOR(S)		BOM OPTION											
131S0555		1		1.0PF, CAPACITOR		L4203_RF		ROW											
152S00158		1		4.1NH, INDUCTOR		C4205_RF		ROW											
131S0425		1		0.5PF, CAPACITOR		L4204_RF		ROW											
152S2053		1		4.7NH, INDUCTOR		C4206_RF		ROW											
131S0555		1		1.0PF, CAPACITOR		L4205_RF		ROW											
152S00027		1		3.7NH, INDUCTOR		C4207_RF		ROW											
131S0557		1		0.7PF, CAPACITOR		L4206_RF		ROW											
152S2001		1		2.4NH, INDUCTOR		C4208_RF		ROW											
131S0351		1		0.4PF, CAPACITOR		L4207_RF		ROW											
152S2002		1		2.7NH, INDUCTOR		C4209_RF		ROW											
152S2002		1		2.7NH, INDUCTOR		C4211_RF		ROW											
152S2056		1		5.6NH, INDUCTOR		C4212_RF		ROW											
131S0340		1		2.0PF, CAPACITOR		L4219_RF		ROW											
152S2023		1		1.5NH, INDUCTOR		C4213_RF		ROW											
118S0724		1		0 OHM, RESISTOR		R4201_RF		ROW											
131S0551		1		1.2PF, CAPACITOR		L4601_RF		ROW											
152S1342		1		15NH, INDUCTOR		L3902_RF		ROW											
131S0630		1		27PF, CAPACITOR		C3902_RF		ROW											
RF2 HB PAD MATCHING BOM OPTIONS																			
PART#		QTY		DESCRIPTION		REFERENCE DESIGNATOR(S)		BOM OPTION											
152S1990		1		3.0NH, INDUCTOR		L4105_RF		RF2											
131S0377		1		1.2PF, CAPACITOR		C4108_RF		RF2											
131S0631		1		0.3PF, CAPACITOR		L4401_RF		RF2											
152S2042		1		1.8NH, INDUCTOR		C4405_RF		RF2											
152S2042		1		1.8NH, INDUCTOR		C4406_RF		RF2											
131S0631		1		0.3PF, CAPACITOR		L4407_RF		RF2											
131S00001		1		0.1PF, CAPACITOR		L4403_RF		RF2											
152S2051		1		1.3NH, INDUCTOR		C4407_RF		RF2											
152S2051		1		1.3NH, INDUCTOR		C4408_RF		RF2											
131S0805		1		100PF, CAPACITOR		C4409_RF		RF2											
131S0431		1		0.2PF, CAPACITOR		L4410_RF		RF2											
131S0381		1		1.6PF, CAPACITOR		C3921_RF		RF2											
152S00027		1		3.7NH, INDUCTOR		L3910_RF		RF2											
117S0201		1		0 OHM, RESISTOR		L3911_RF		RF2											
152S2045		1		3.0NH, INDUCTOR		L3919_RF		RF2											
152S00052		1		3.4NH, INDUCTOR		L3912_RF		RF2											
131S0599		1		1.5PF, CAPACITOR		C3922_RF		RF2											
131S0630		1		27PF, CAPACITOR		C3911_RF		RF2											
131S0414		1		5.0PF, CAPACITOR		C4410_RF		RF2											
RF2 LB PAD MATCHING BOM OPTIONS																			
PART#		QTY		DESCRIPTION		REFERENCE DESIGNATOR(S)		BOM OPTION											
131S0555		TRUE		1.0PF, CAPACITOR		L4203_RF		RF2											
152S00158		TRUE		4.1NH, INDUCTOR		C4205_RF		RF2											
131S0425		TRUE		0.5PF, CAPACITOR		L4204_RF		RF2											
152S2053		TRUE		4.7NH, INDUCTOR		C4206_RF		RF2											
131S0555		TRUE		1.0PF, CAPACITOR		L4205_RF		RF2											
152S00027		TRUE		3.7NH, INDUCTOR		C4207_RF		RF2											
131S0557		TRUE		0.7PF, CAPACITOR		L4206_RF		RF2											
152S2001		TRUE		2.4NH, INDUCTOR		C4208_RF		RF2											
131S0351		TRUE		0.4PF, CAPACITOR		L4207_RF		RF2											
152S2002		TRUE		2.7NH, INDUCTOR		C4209_RF		RF2											
152S2002		TRUE		2.7NH, INDUCTOR		C4211_RF		RF2											
152S2056		TRUE		5.6NH, INDUCTOR		C4212_RF		RF2											
131S0340		TRUE		2.0PF, CAPACITOR		L4219_RF		RF2											
152S2021		TRUE		1.5NH, INDUCTOR		C4213_RF		RF2											
118S0724		TRUE		0 OHM, RESISTOR		R4201_RF		RF2											
131S0551		TRUE		1.2PF, CAPACITOR		L4601_RF		RF2											
152S1342		TRUE		15NH, INDUCTOR		L3902_RF		RF2											
131S0630		1		27PF, CAPACITOR		C3902_RF		RF2											
HW_REV1_ID RESISTOR																			
PART#		QTY		DESCRIPTION		REFERENCE DESIGNATOR(S)		BOM OPTION											
118S0646		1		51.1 KOHM, RESISTOR		R3503_RF		DARWIN											
?																			
DRAWING TITLE																			
SCHEM,MLB,N66																			
 Apple Inc.												DRAWING NUMBER		051-00094		SIZE		D	
												REVISION		A.0.0					
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												PAGE				1 OF 51			
												SHEET				35 OF 60			
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8		7		6		5		4		3		2		1					

# N66-SPECIFIC RADIO PAGE 2


## DIVERSITY LNA



## UAT ANT FEED



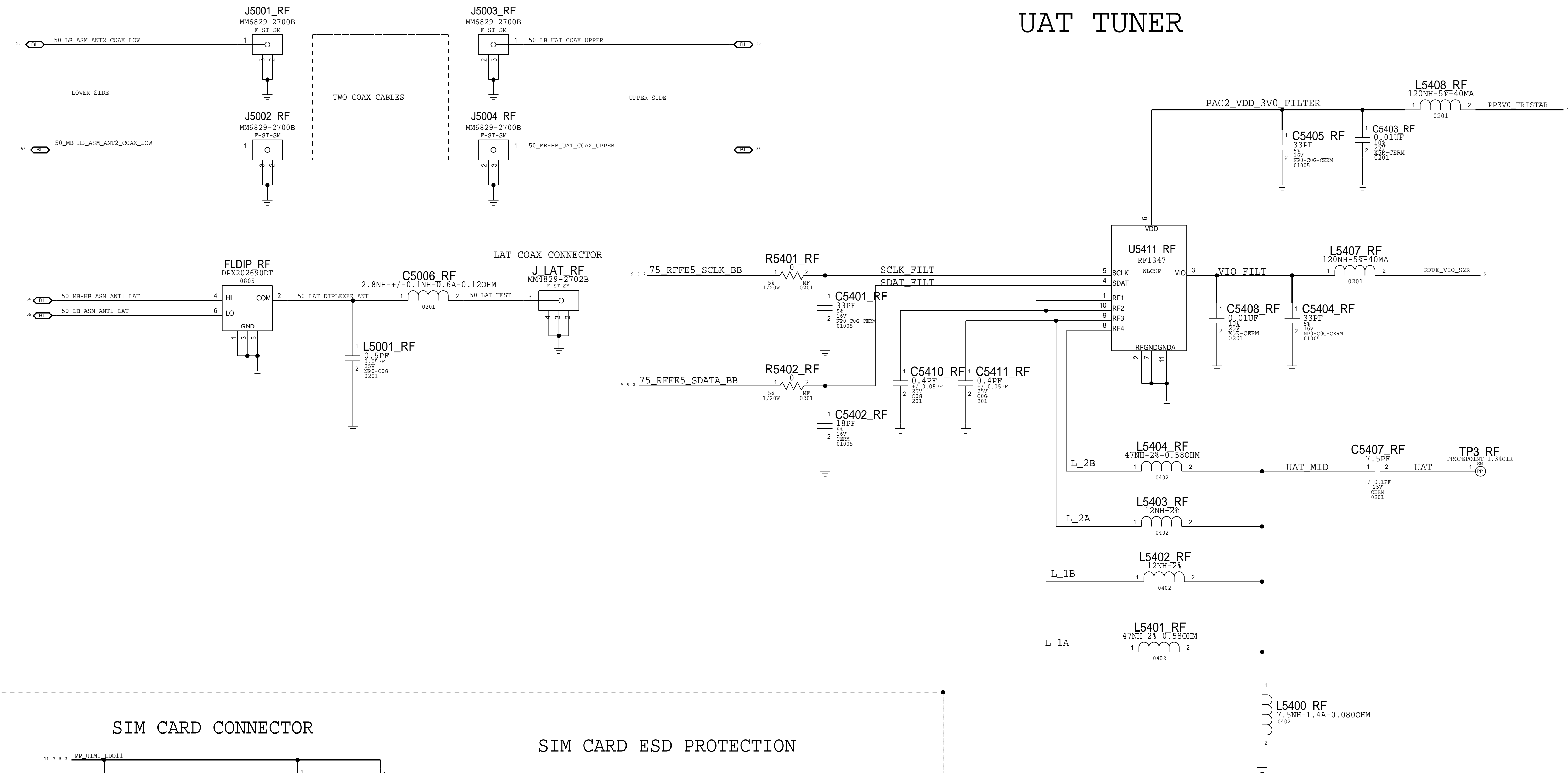
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PAGE TITLE			
ELNA & UAT ANT FEED			
 Apple Inc.	DRAWING NUMBER	051-00094	SIZE D
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PAGE 2 OF 51			
SHEET 36 OF 60			

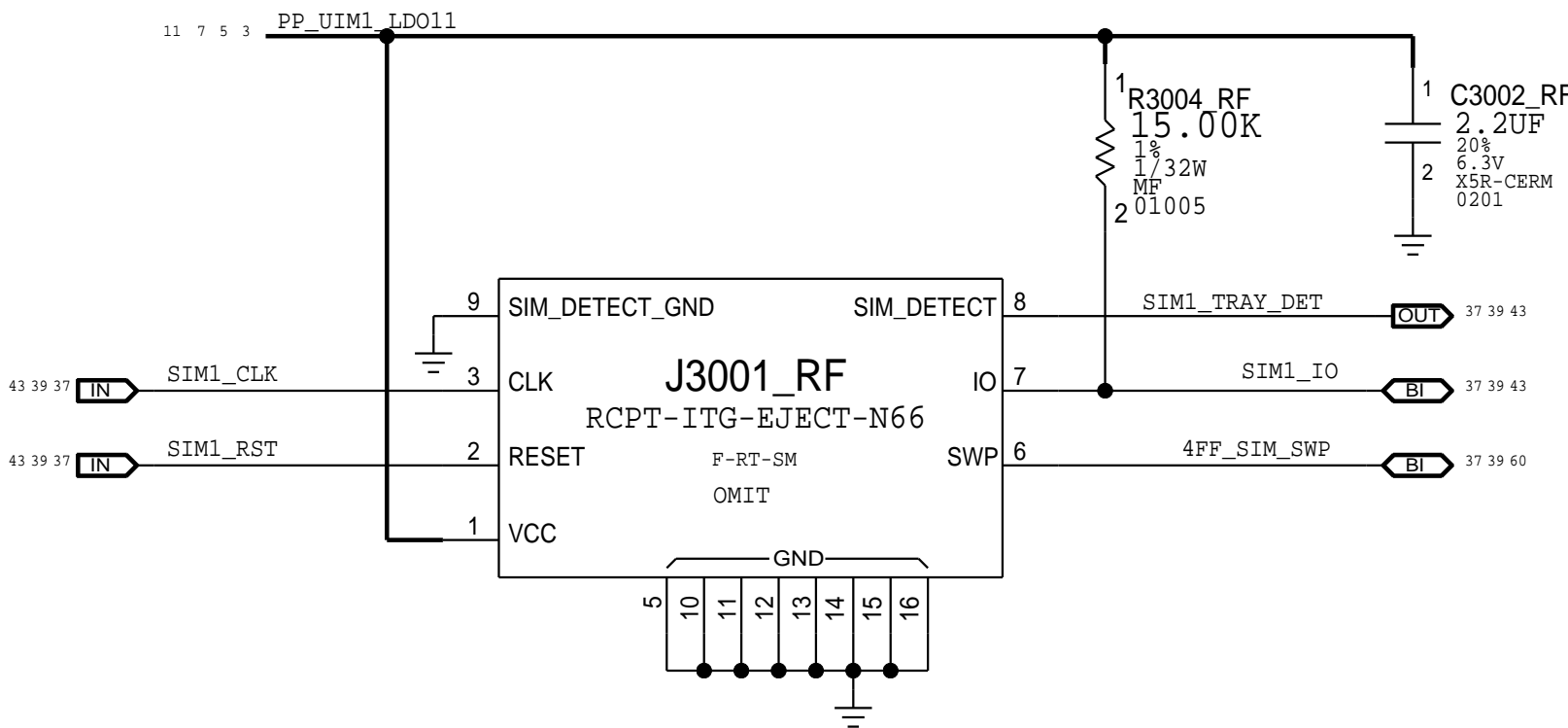
# ANTENNA FEEDS AND CONNECTORS

# N66-SPECIFIC RADIO PAGE 3

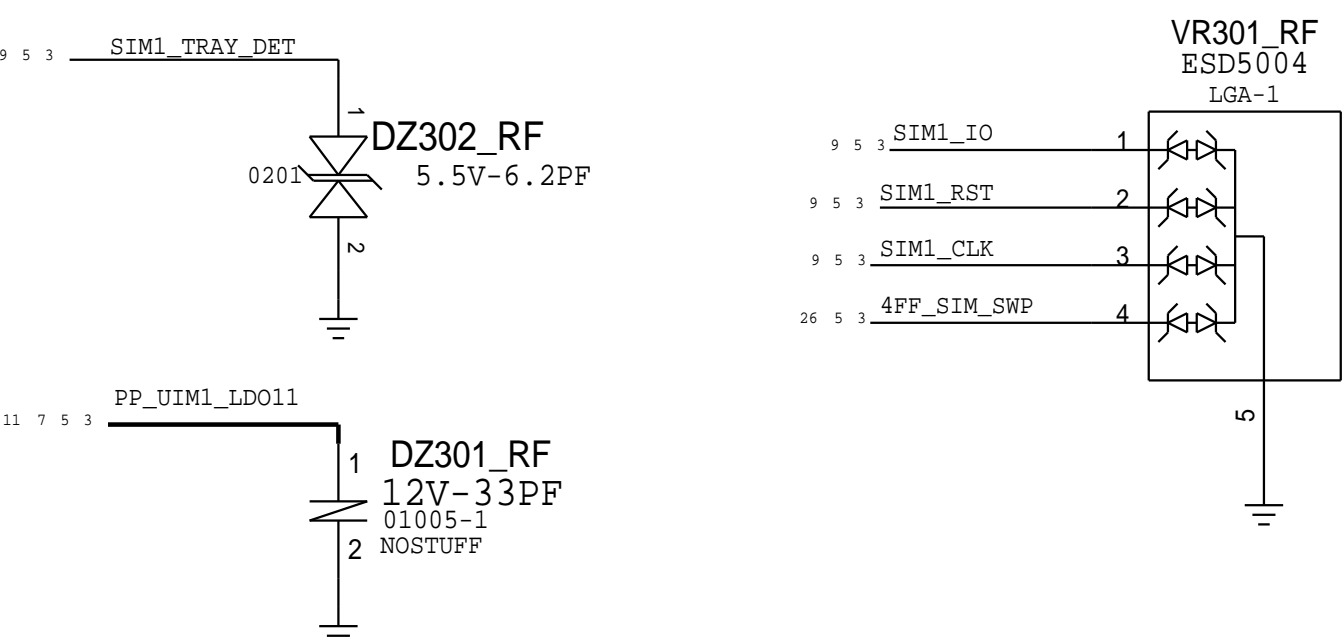
# UAT TUNER



## SIM CARD CONNECTOR



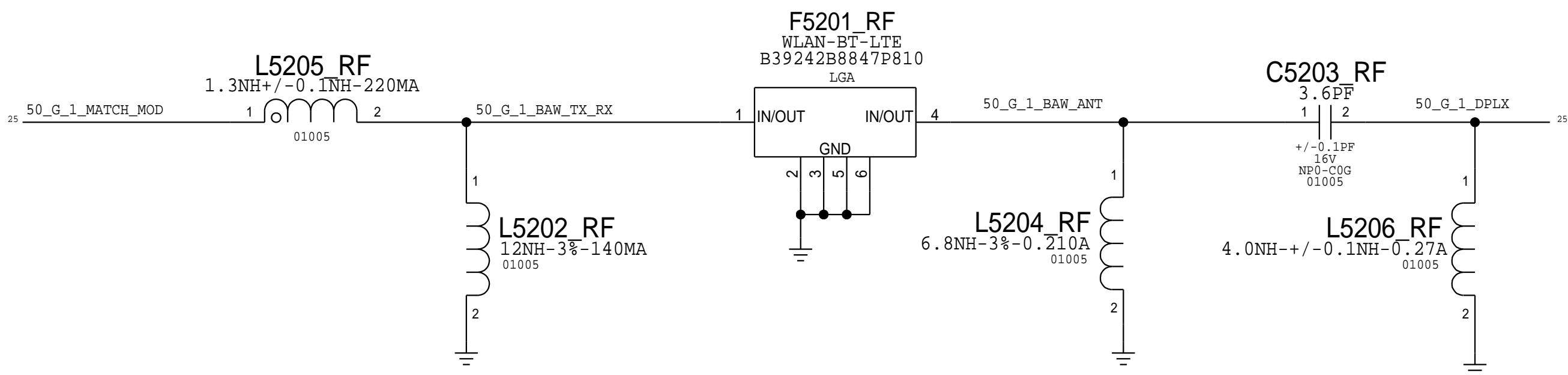
## SIM CARD ESD PROTECTION



PAGE TITLE		
CELLULAR FRONT END: ANTENNA CONNECTORS AND FEEDS		
	DRAWING NUMBER	051-00094
	REVISION	A.0.0
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	PAGE	3 OF 51
	SHEET	37 OF 60

N66-SPECIFIC RADIO PAGE 4

WLAN LAT 2.4GHZ BAW BPF




DARWIN LB PAD MATCHING BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
131S0555	1	1.0PF, CAPACITOR	L4203_RF	DARWIN
152S00158	1	4.1NH, INDUCTOR	C4205_RF	DARWIN
131S0425	1	0.5PF, CAPACITOR	L4204_RF	DARWIN
152S2053	1	4.7NH, INDUCTOR	C4206_RF	DARWIN
131S0555	1	1.0PF, CAPACITOR	L4205_RF	DARWIN
152S00027	1	3.7NH, INDUCTOR	C4207_RF	DARWIN
131S0557	1	0.7PF, CAPACITOR	L4206_RF	DARWIN
152S2001	1	2.4NH, INDUCTOR	C4208_RF	DARWIN
131S0351	1	0.4PF, CAPACITOR	L4207_RF	DARWIN
152S2002	1	2.7NH, INDUCTOR	C4209_RF	DARWIN
152S2002	1	2.7NH, INDUCTOR	C4211_RF	DARWIN
152S2056	1	5.6NH, INDUCTOR	C4212_RF	DARWIN
131S0340	1	2.0PF, CAPACITOR	L4219_RF	DARWIN
152S2021	1	1.5NH, INDUCTOR	C4213_RF	DARWIN
118S0724	1	0 OHM, RESISTOR	R4201_RF	DARWIN
131S0551	1	1.2PF, CAPACITOR	L4601_RF	DARWIN
152S1342	1	15NH, INDUCTOR	L3902_RF	DARWIN
131S0630	1	27PF, CAPACITOR	C3902_RF	DARWIN

DARWIN HB PAD MATCHING BOM OPTIONS

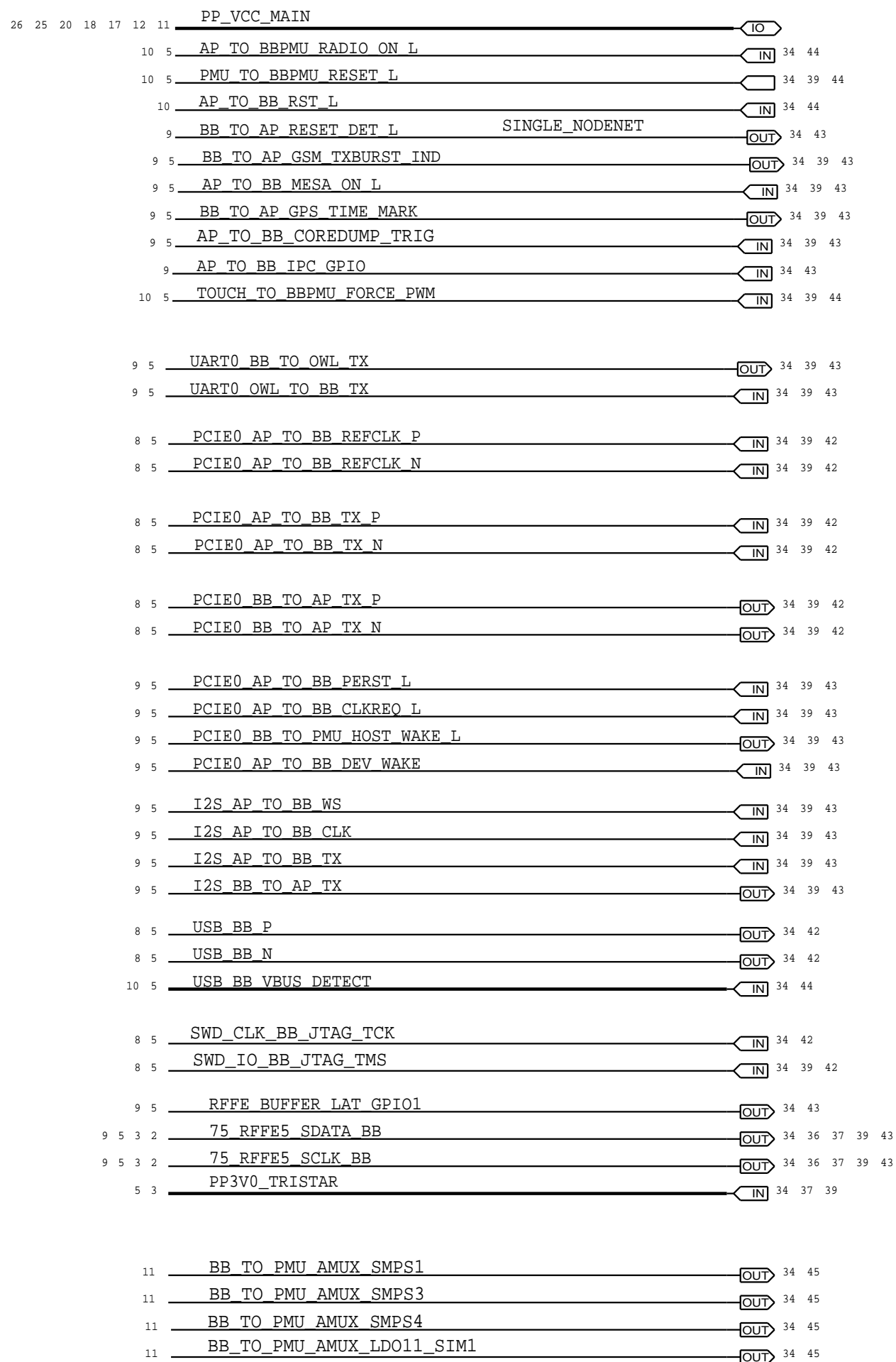
PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
152S1907	1	3.3NH, INDUCTOR	L4105_RF	DARWIN
152S2007	1	8.2NH, INDUCTOR	L4401_RF	DARWIN
131S0426	1	22PF, CAPACITOR	C4405_RF	DARWIN
152S2042	1	1.8NH, INDUCTOR	C4406_RF	DARWIN
131S0425	1	0.5PF, CAPACITOR	L4407_RF	DARWIN
152S2041	1	10.0NH, INDUCTOR	L4403_RF	DARWIN
131S00071	1	33PF, CAPACITOR	C4407_RF	DARWIN
152S00143	1	15NH, INDUCTOR	L4404_RF	DARWIN
131S00071	1	33PF, CAPACITOR	C4408_RF	DARWIN
117S0108	1	51 OHM, RESISTOR	L4410_RF	DARWIN
131S0599	1	1.5PF, CAPACITOR	C3921_RF	DARWIN
152S00052	1	3.4NH, INDUCTOR	L3910_RF	DARWIN
117S0201	1	0 OHM, RESISTOR	L3911_RF	DARWIN
152S2039	1	3.8NH, INDUCTOR	L3919_RF	DARWIN
131S0414	1	5.0PF, CAPACITOR	C4410_RF	DARWIN

PAGE TITLE			
WLAN LAT 2.4GHZ BAW BPF			
 Apple Inc.	DRAWING NUMBER	051-00094	SIZE D
	REVISION	A.0.0	
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	PAGE	4 OF 51	
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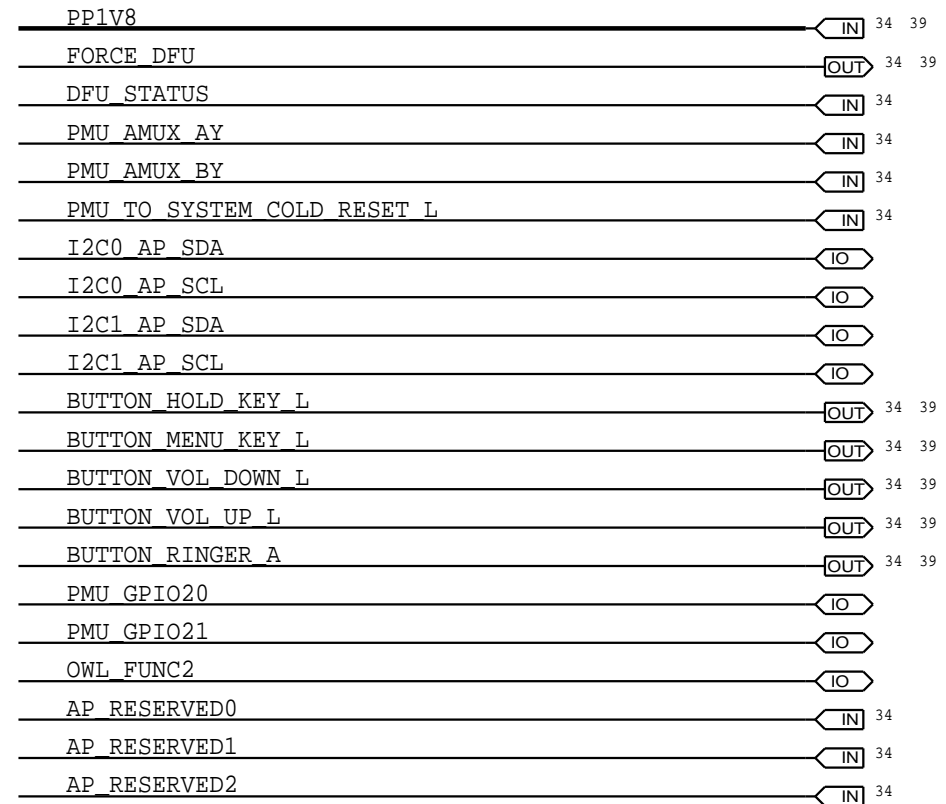


# AP TO BB/WLAN/BT/SH CONNECTIONS

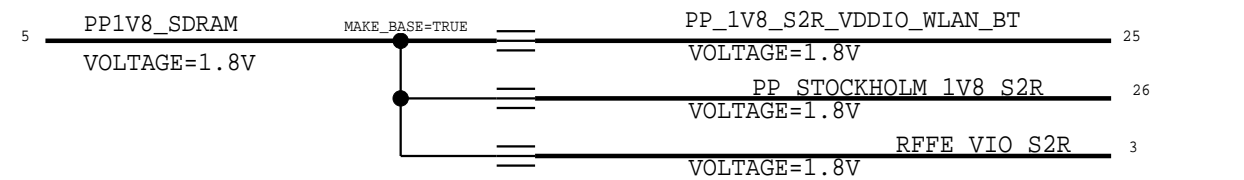
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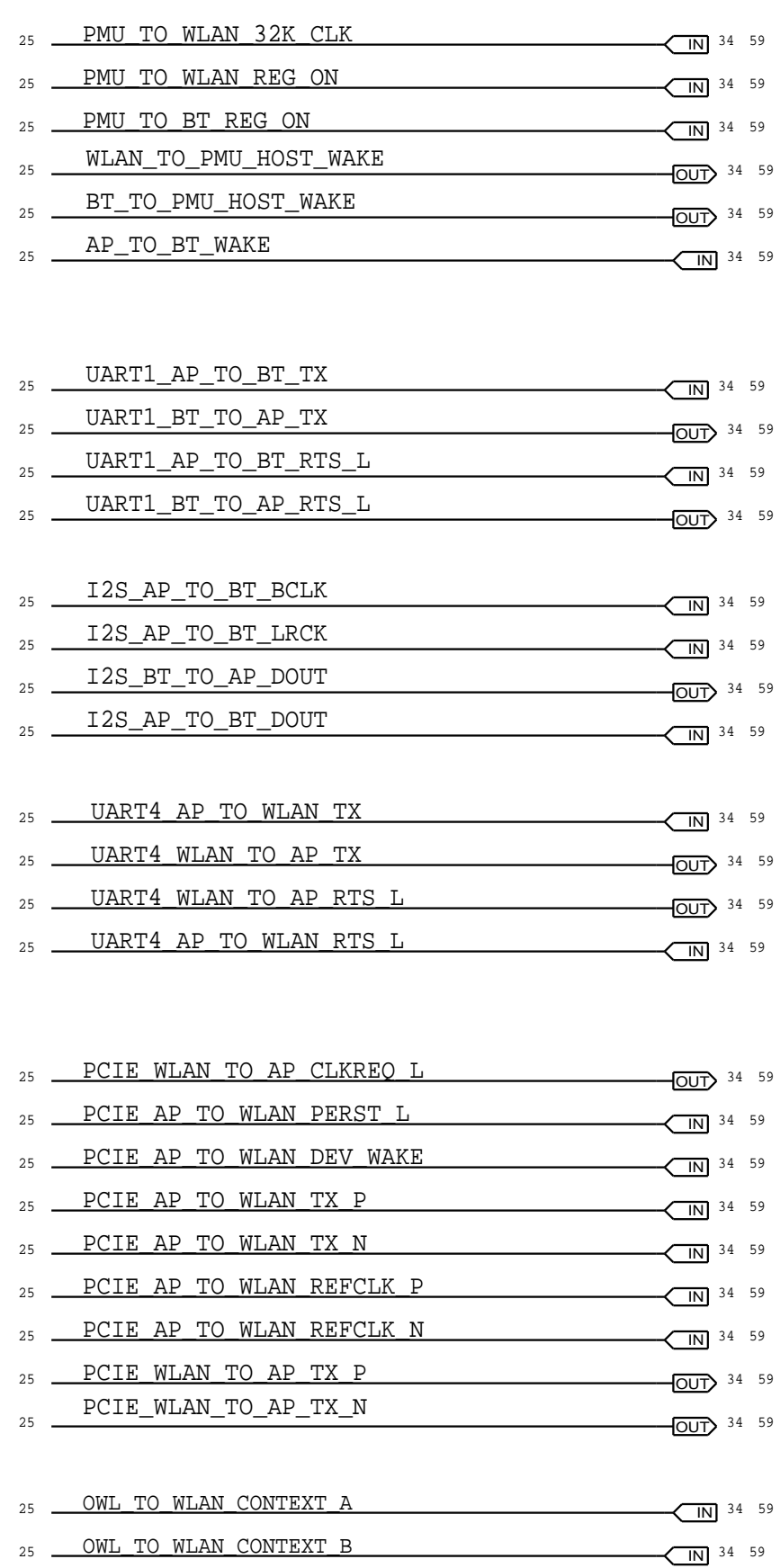
## AP DEBUG



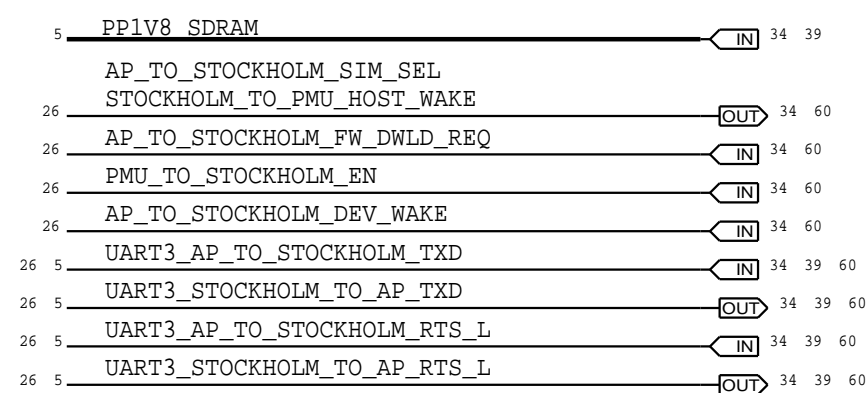
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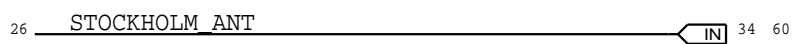
## WLAN/BT



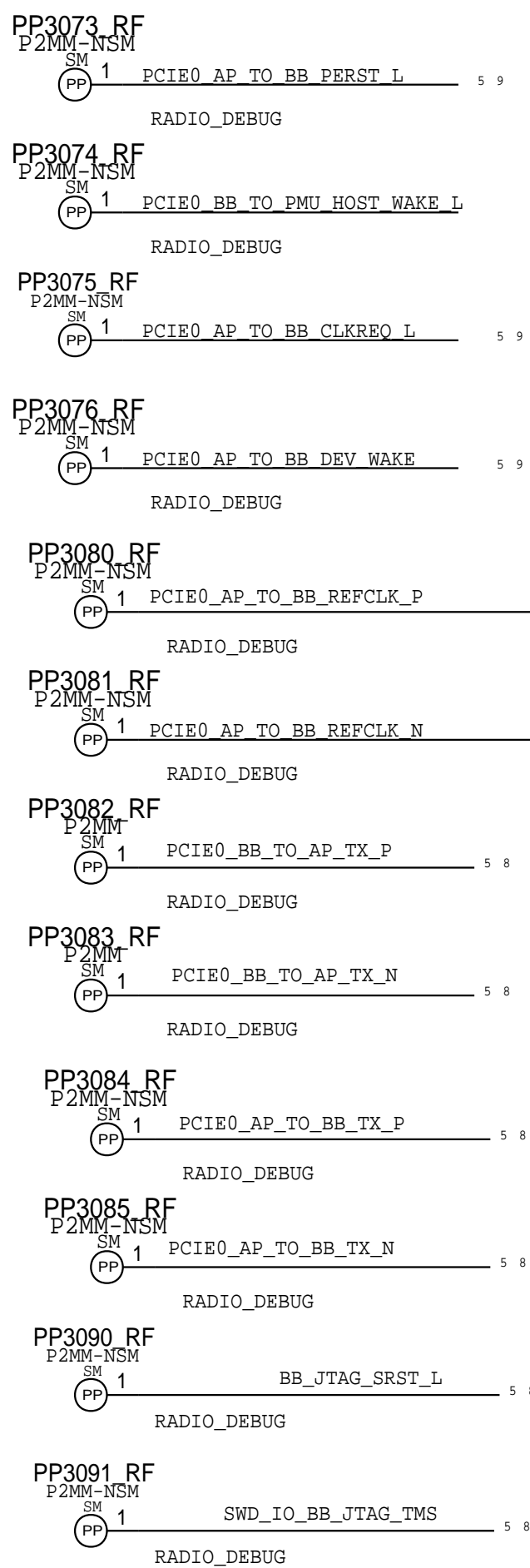
## STOCKHOLM



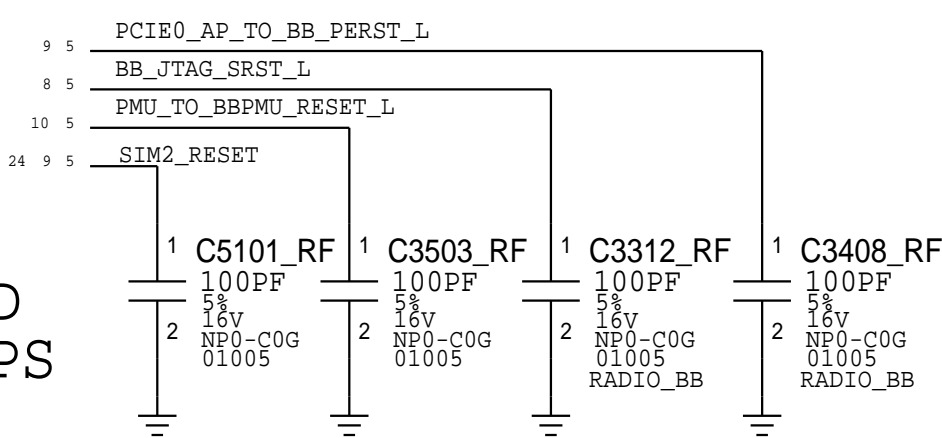
## ANT



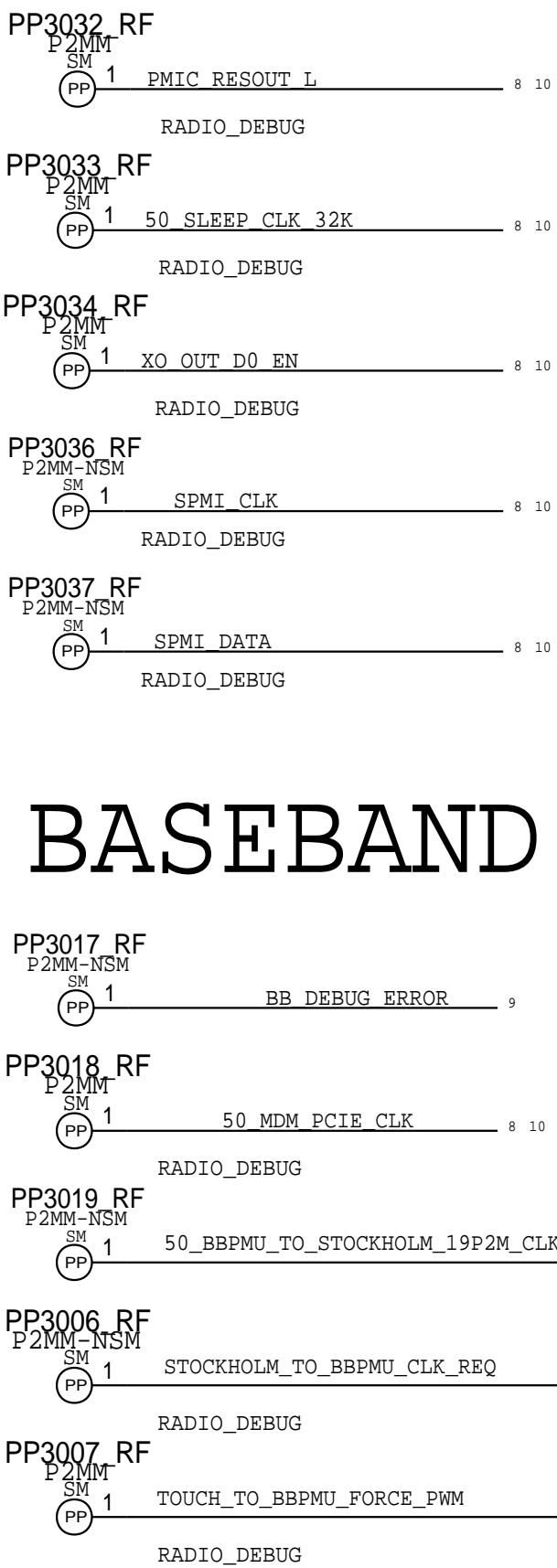
## PCIE



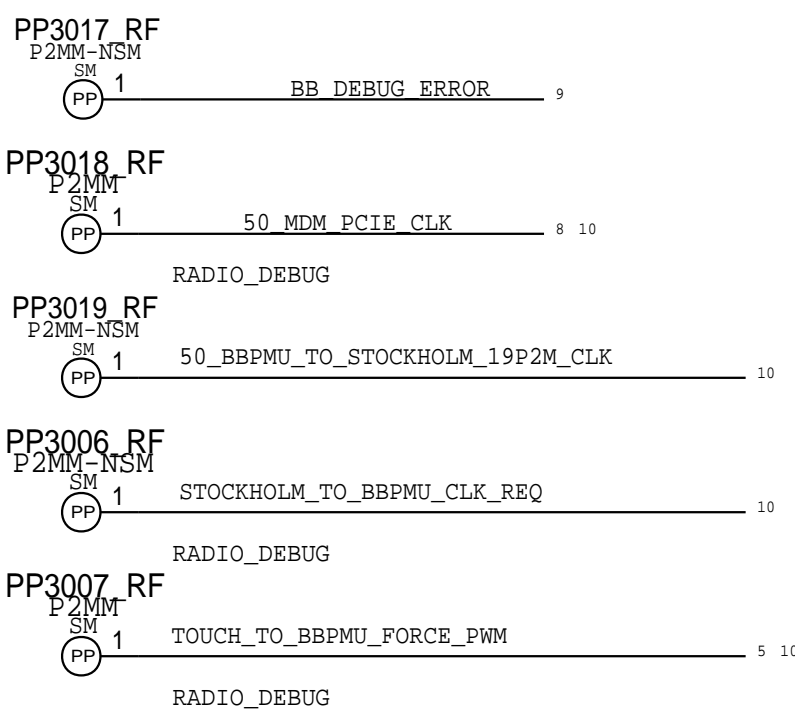
### ESD CAPS



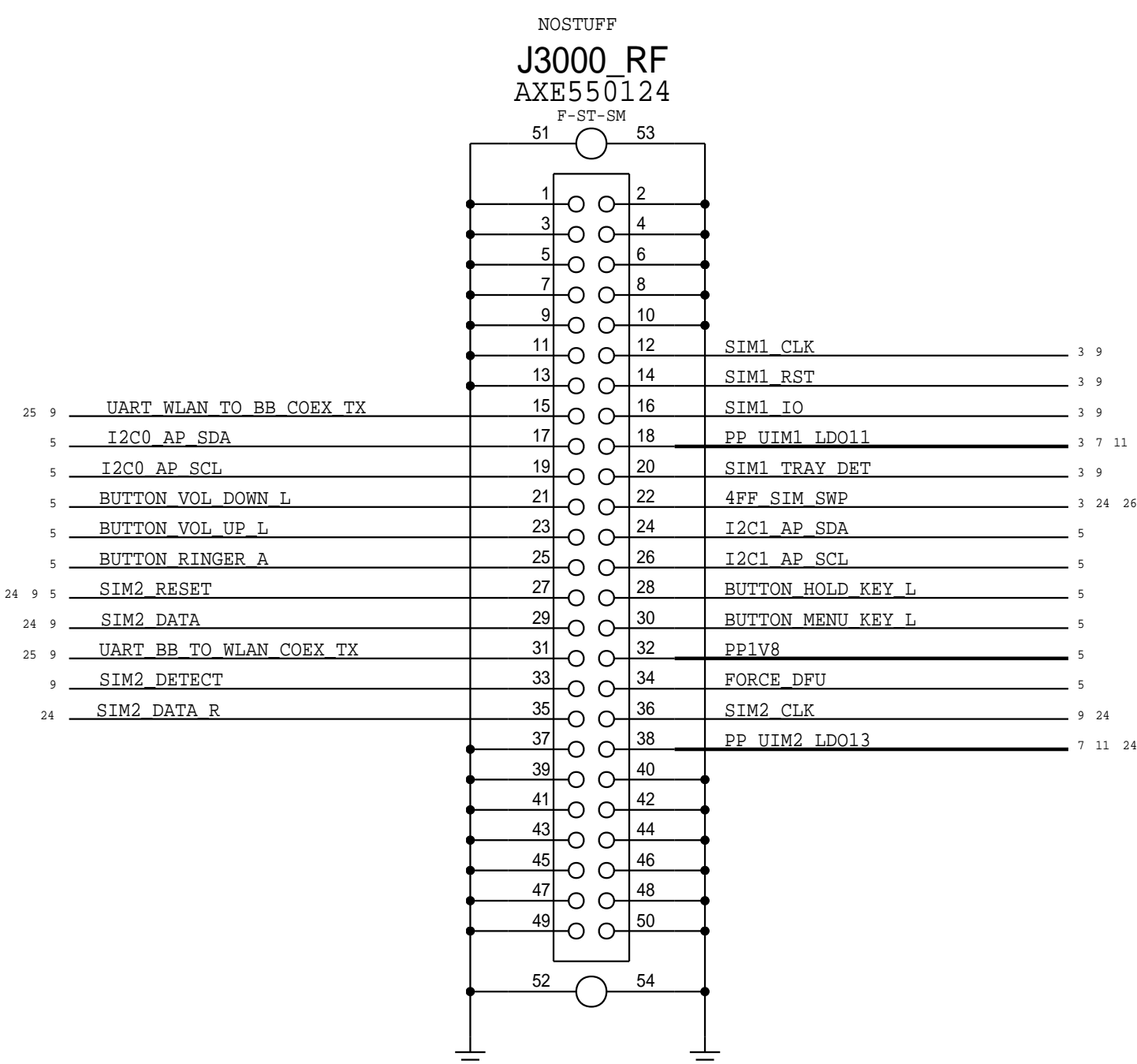
## PMU



## BASEBAND

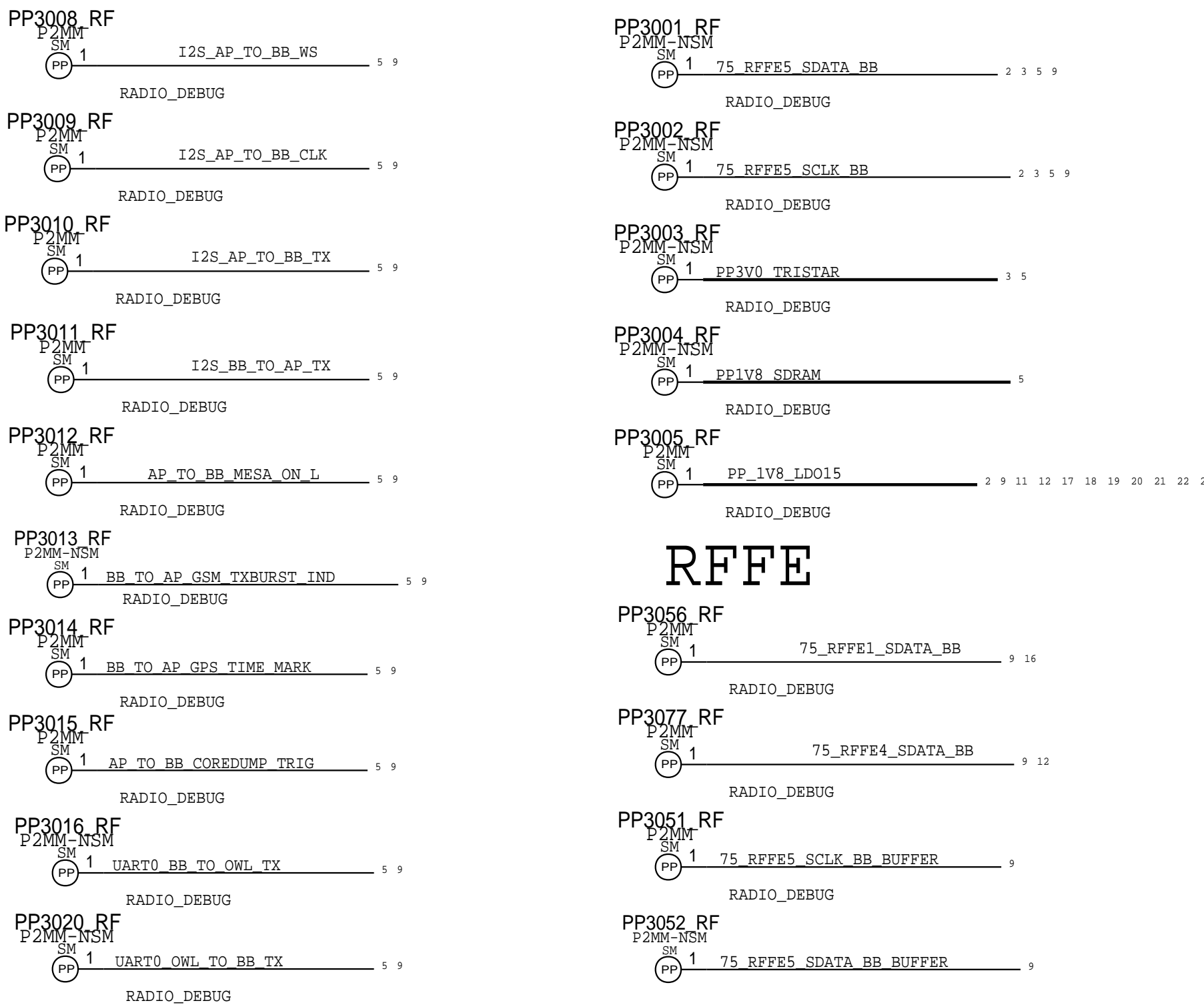


## DEBUG CONNECTOR

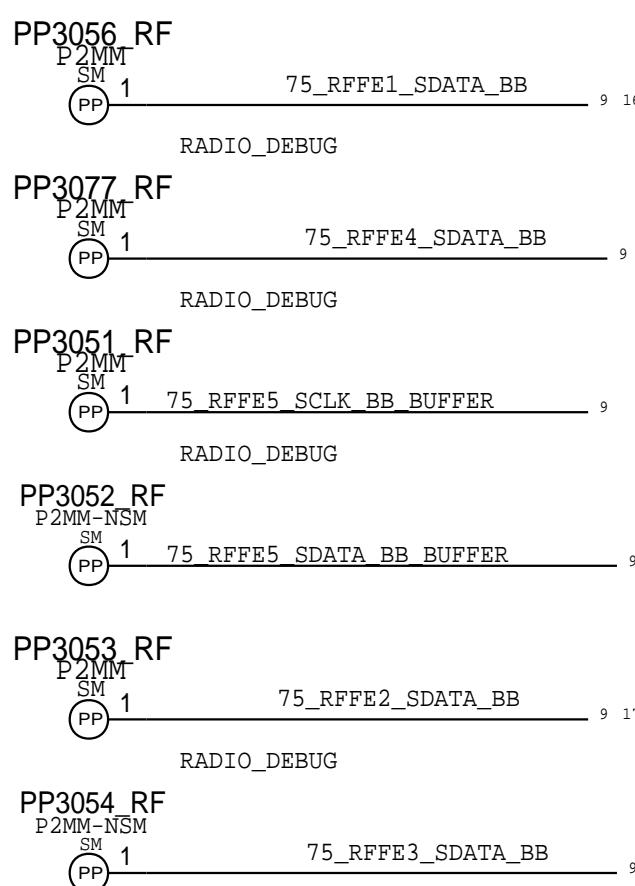


# MLB PROBE POINTS

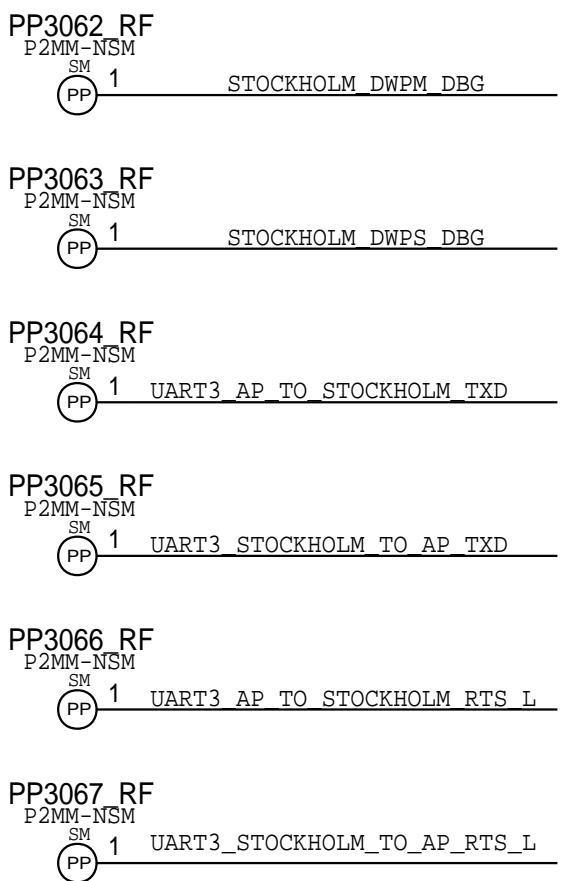
## ANT TUNER



## RFFE

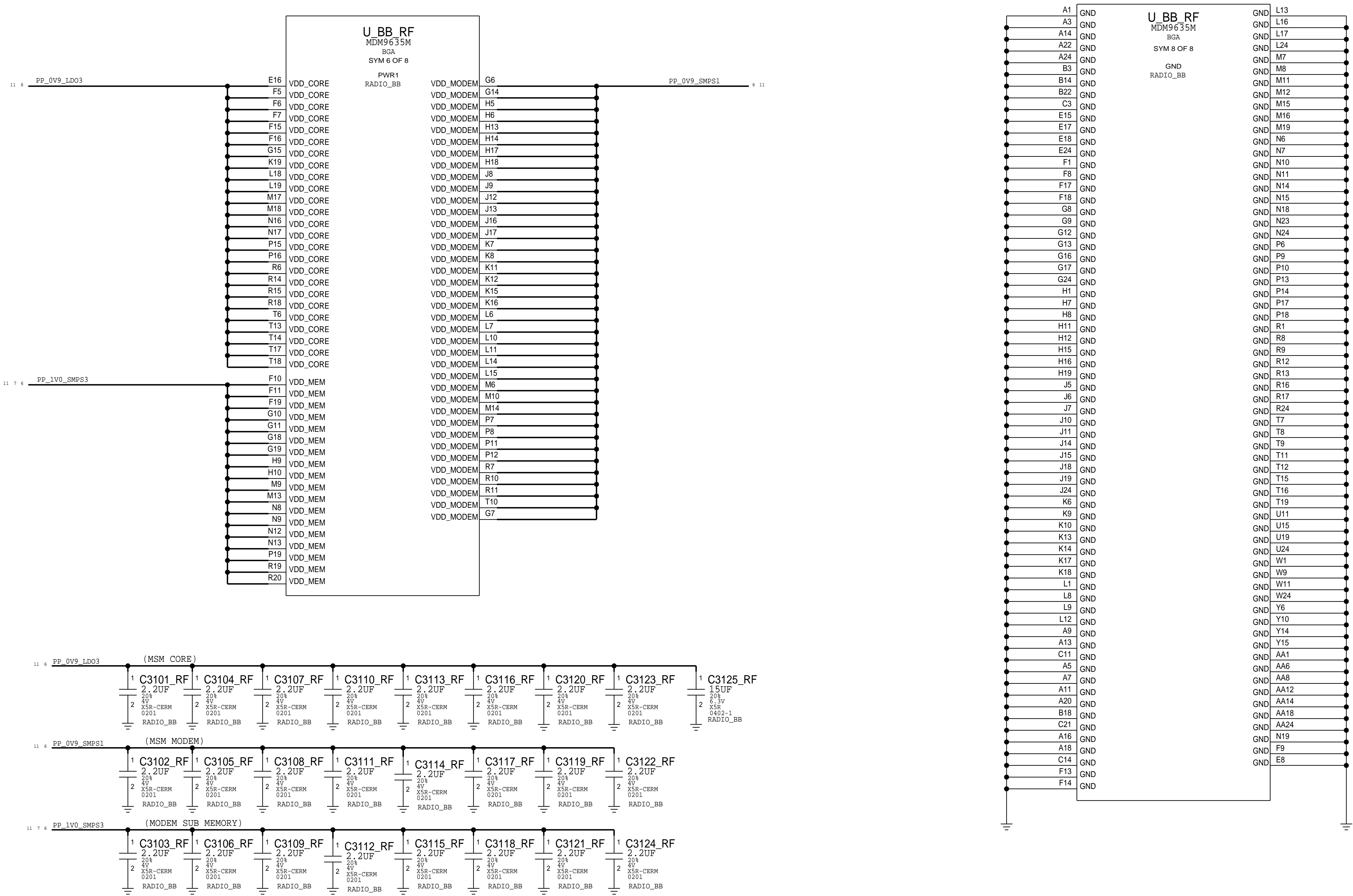



## STOCKHOLM



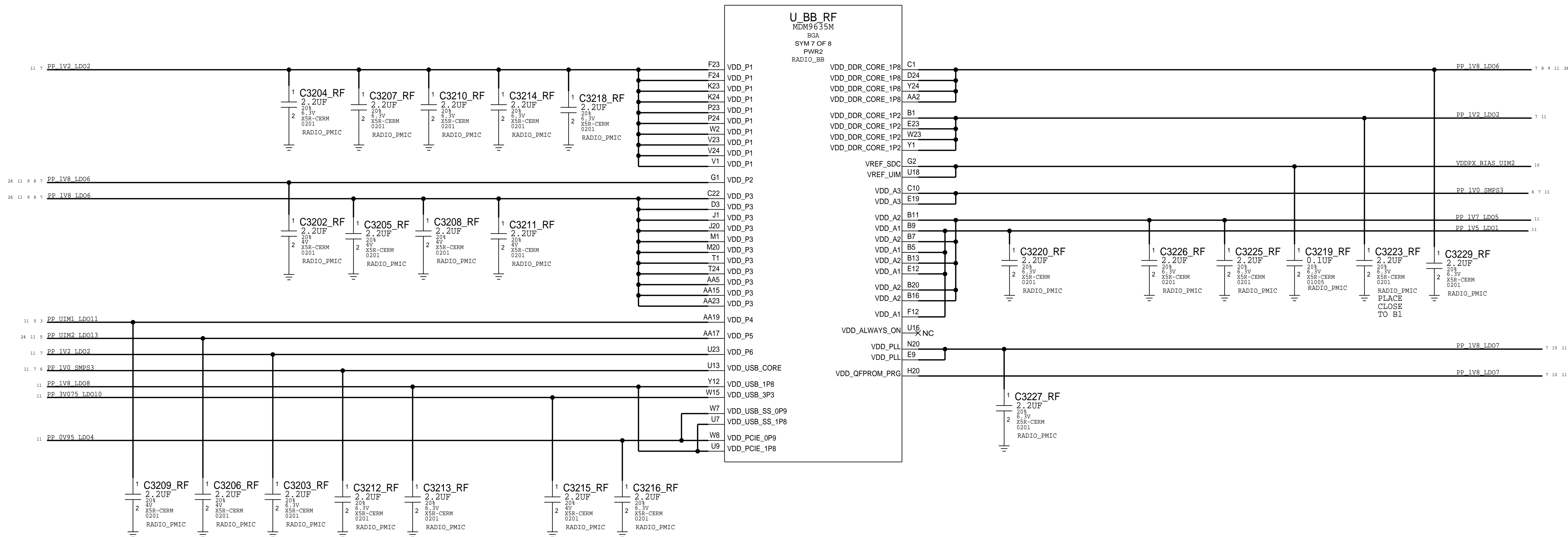


BASEBAND: POWER 1

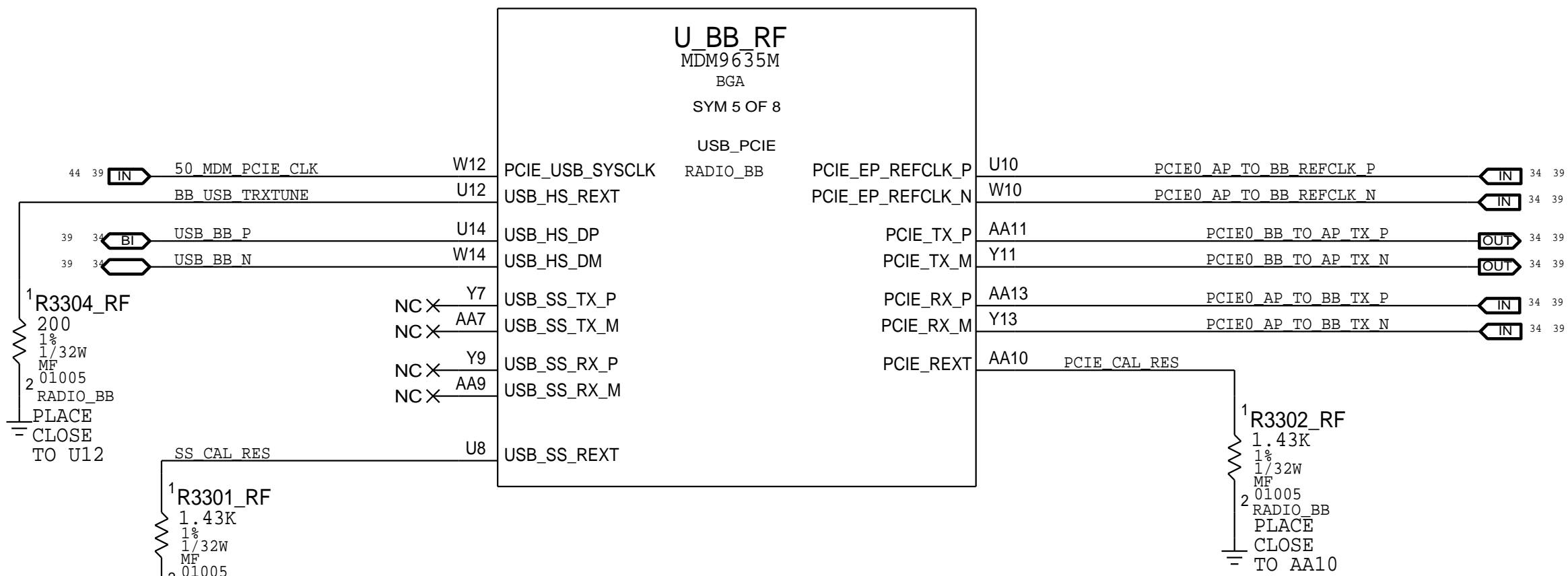
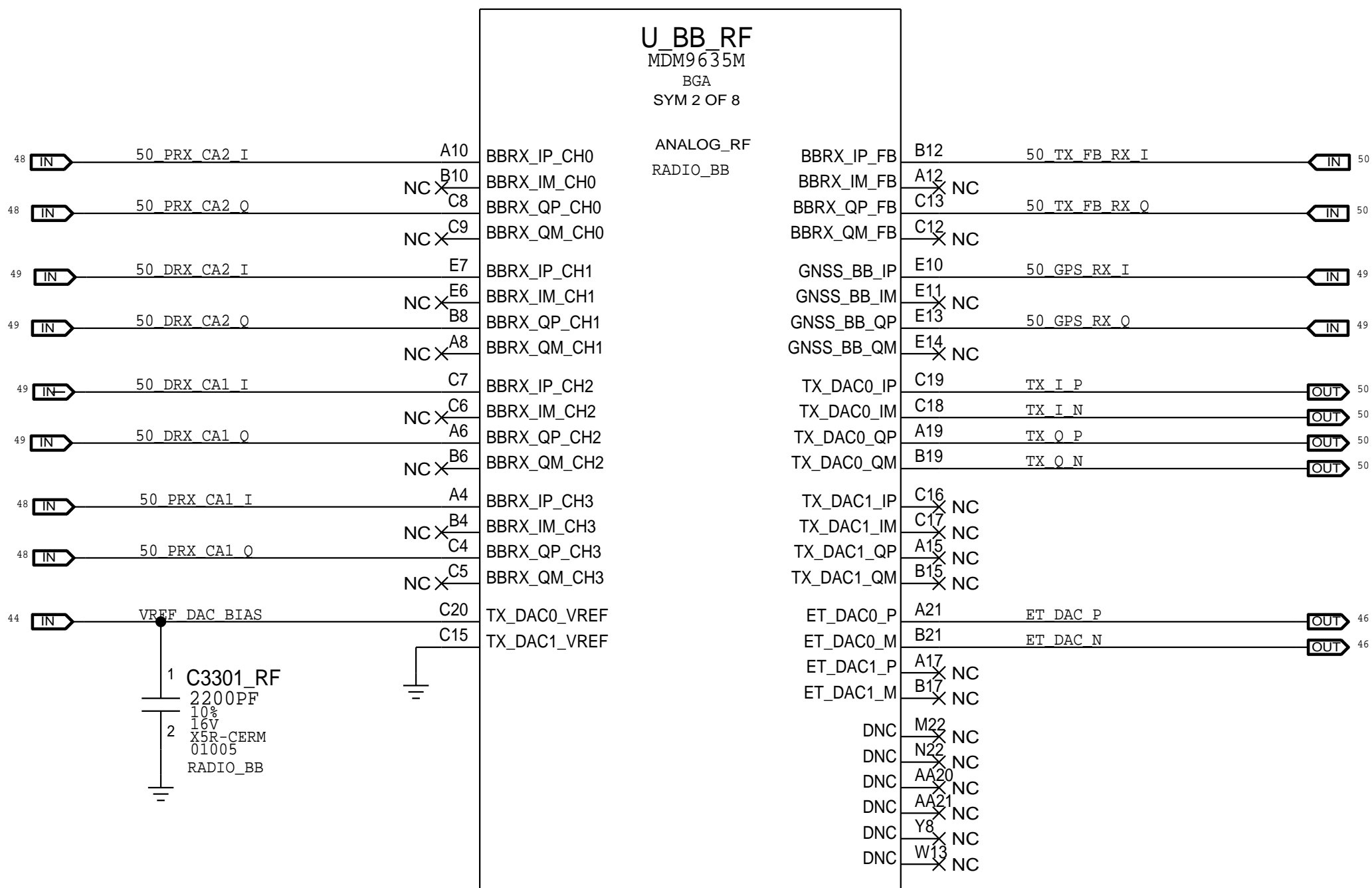
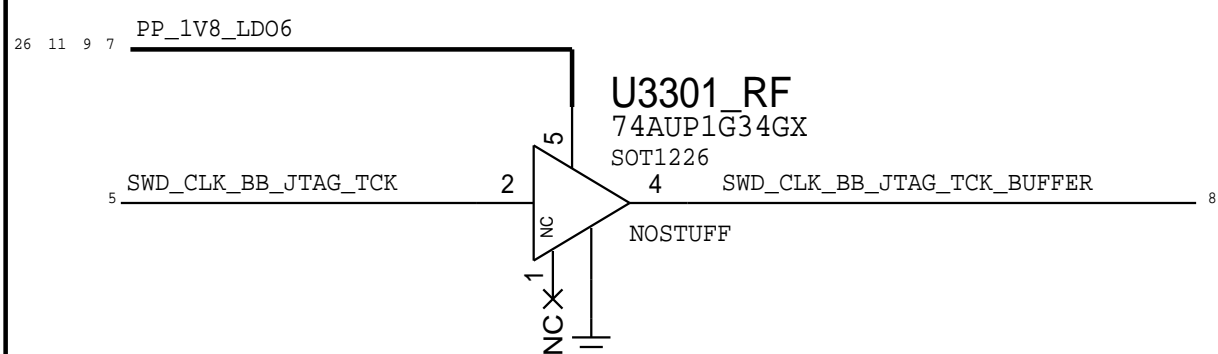
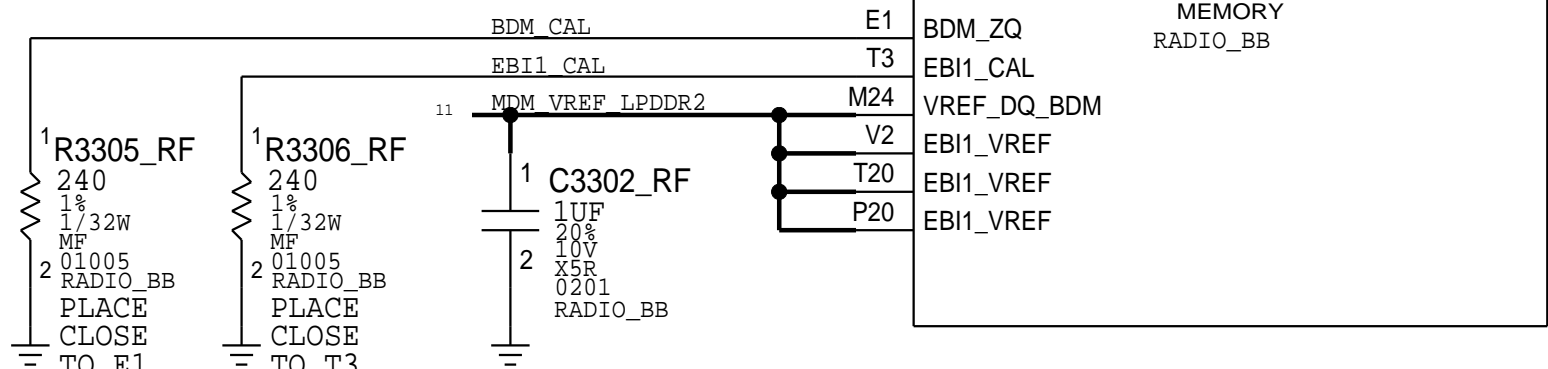
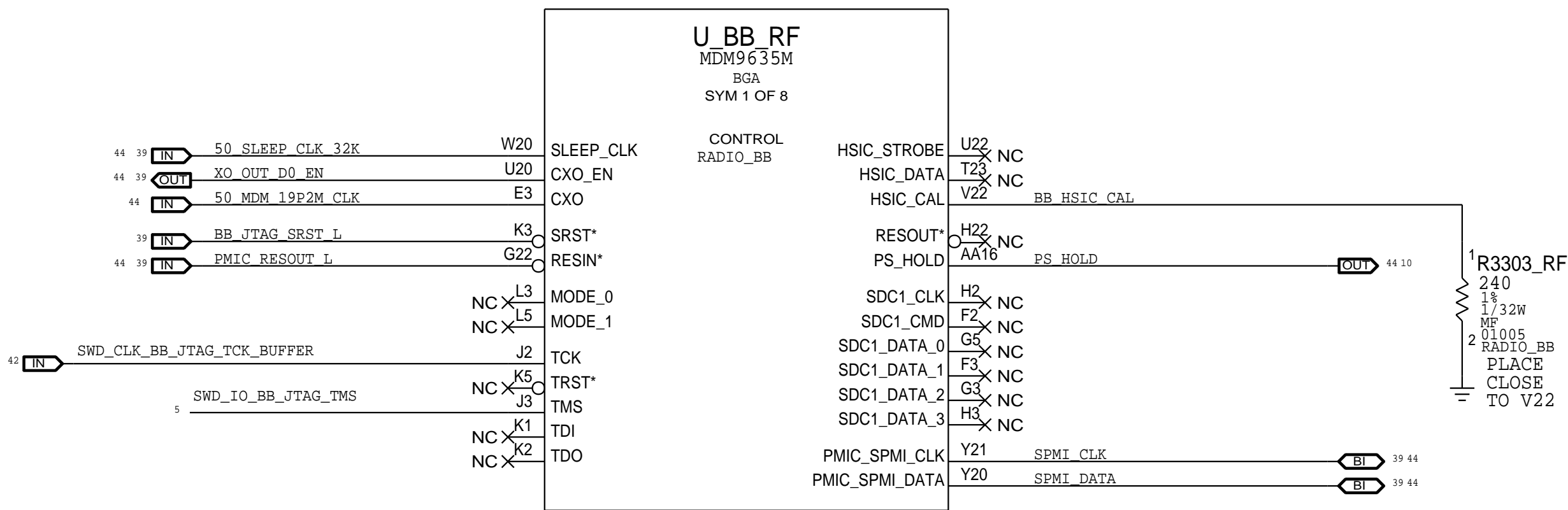



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BASEBAND: POWER 2

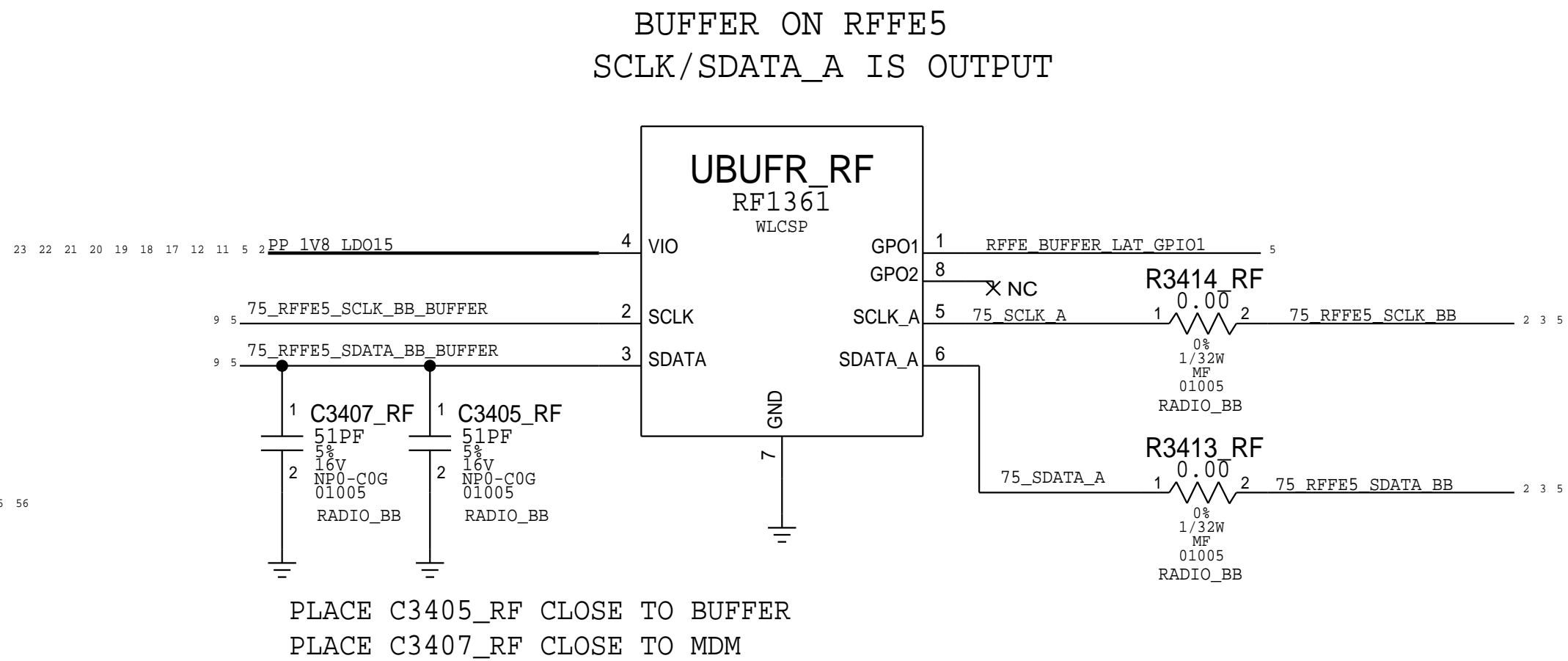
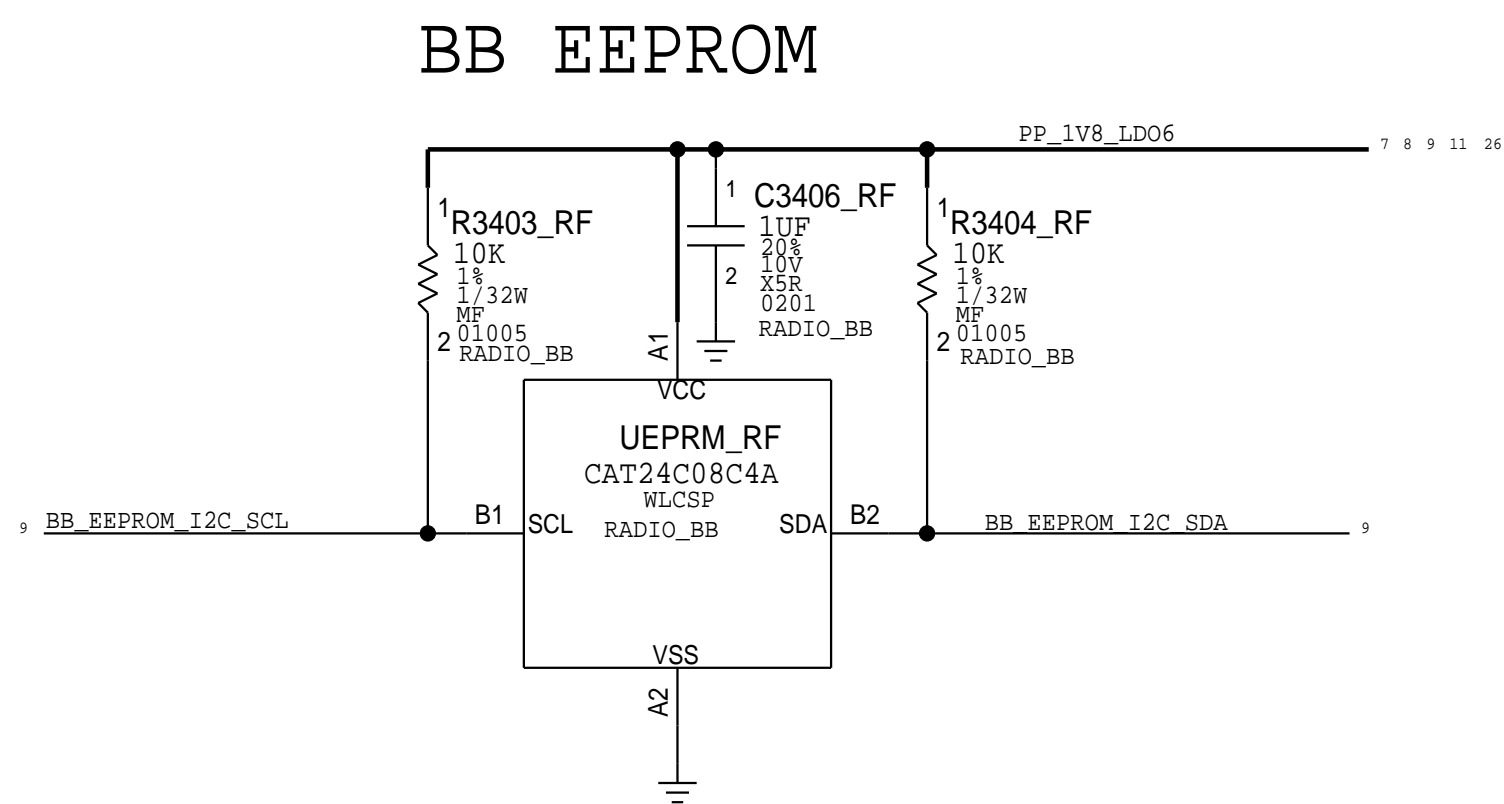
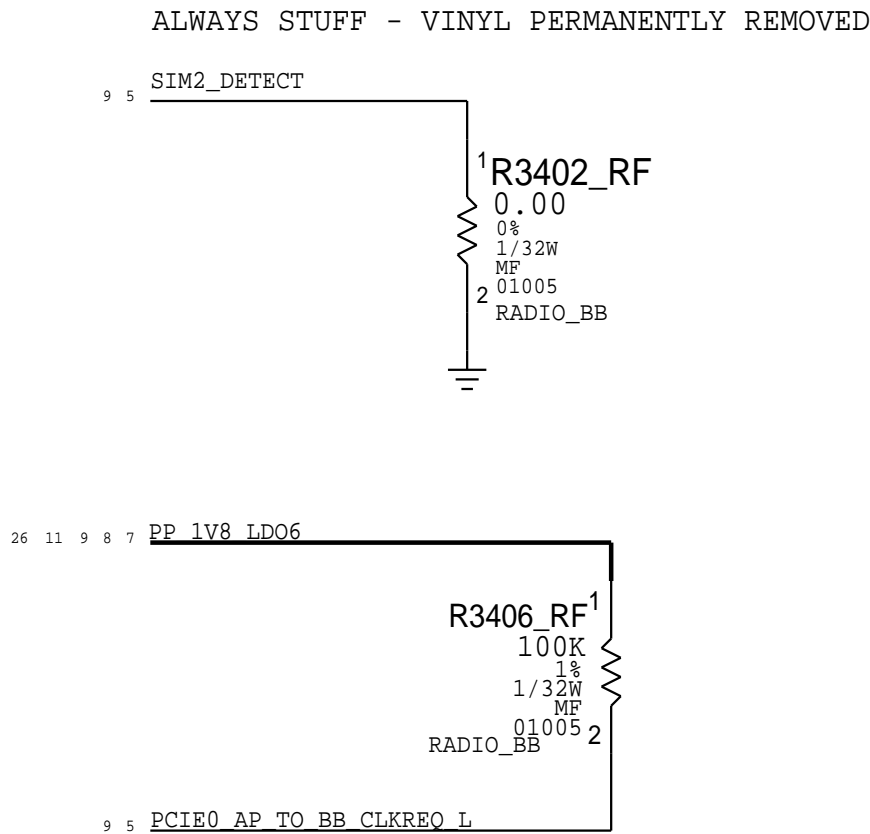
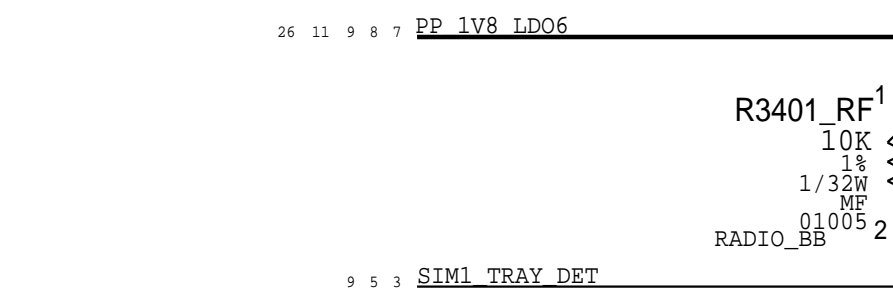
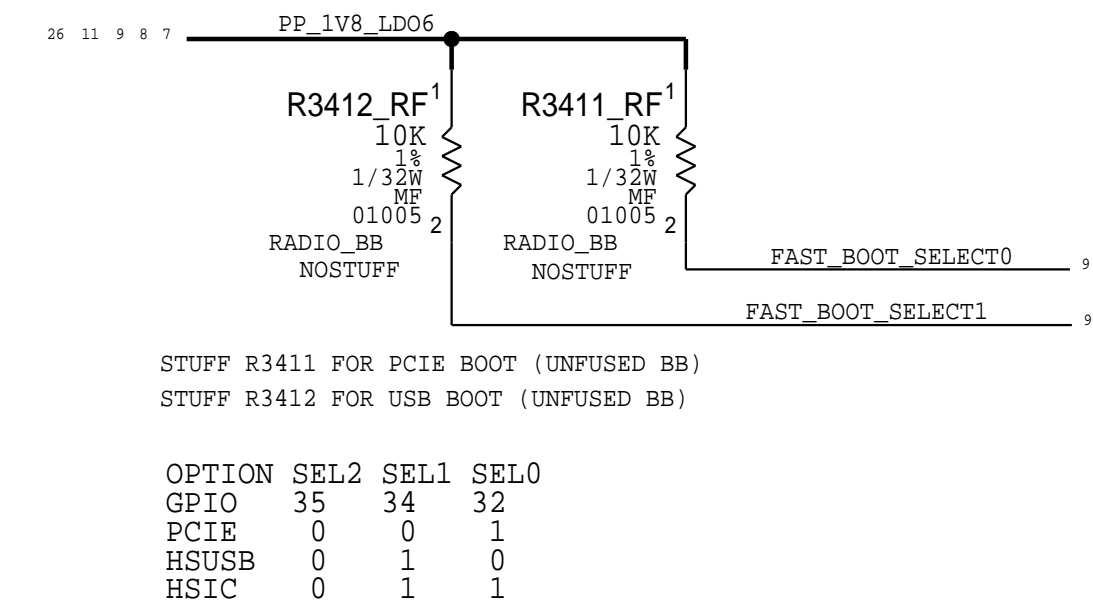
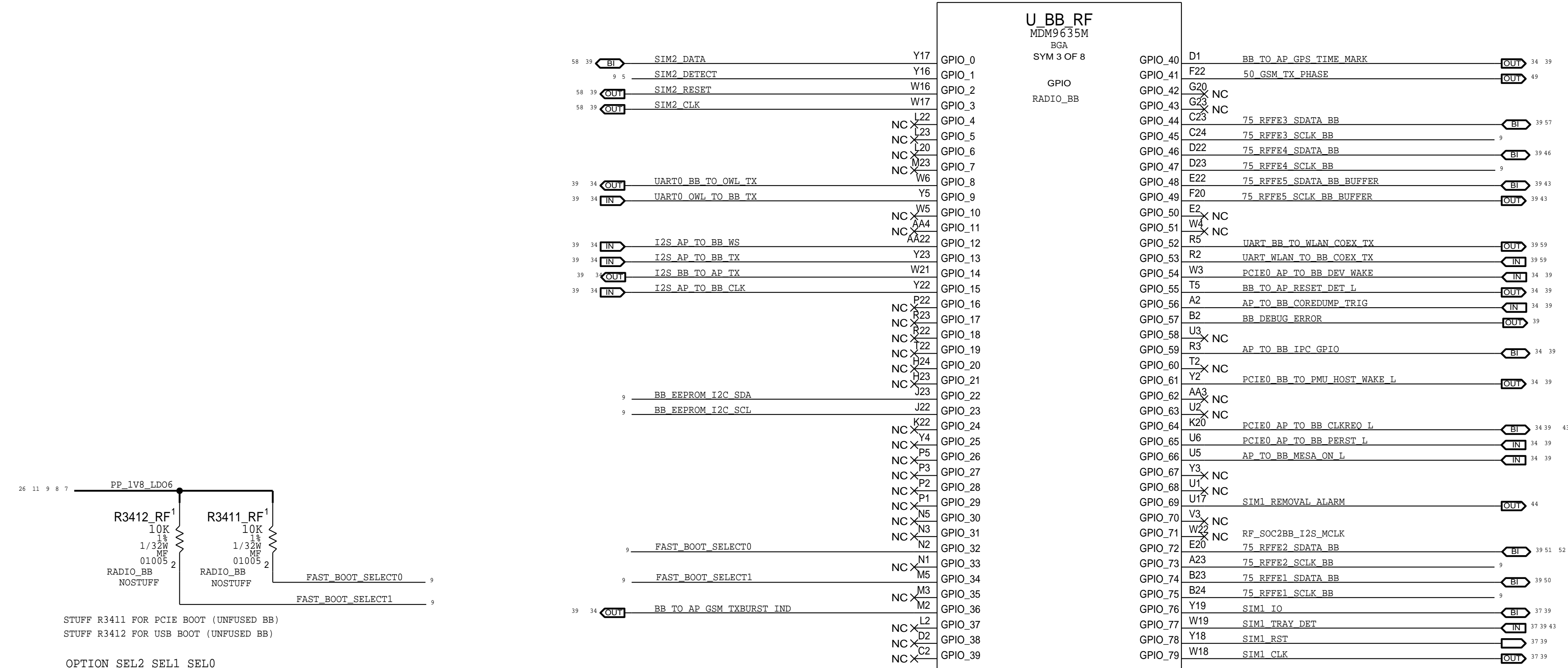


BASEBAND: CONTROL AND INTERFACES

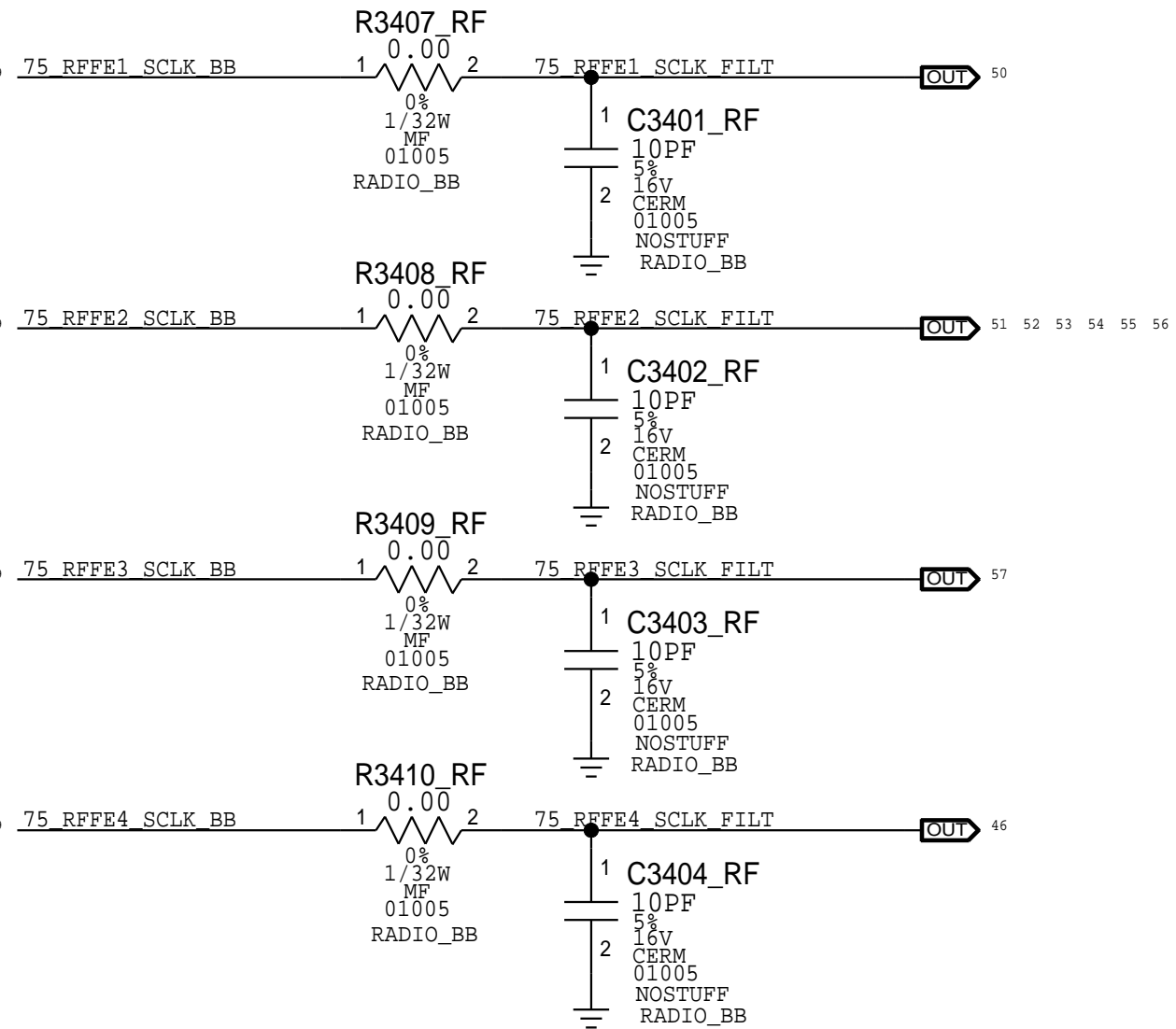


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BASEBAND: GPIOs




RFFE CLOCK FILTERS



RFFE USAGE TABLE

- RFFE1 WTR
- RFFE2 LB/MB/HB PAD, 2G PA, LB/MB/HB ASM
- RFFE3 DIV ASM
- RFFE4 QPOET
- RFFE5 DIV LNA, ANT TUNERS

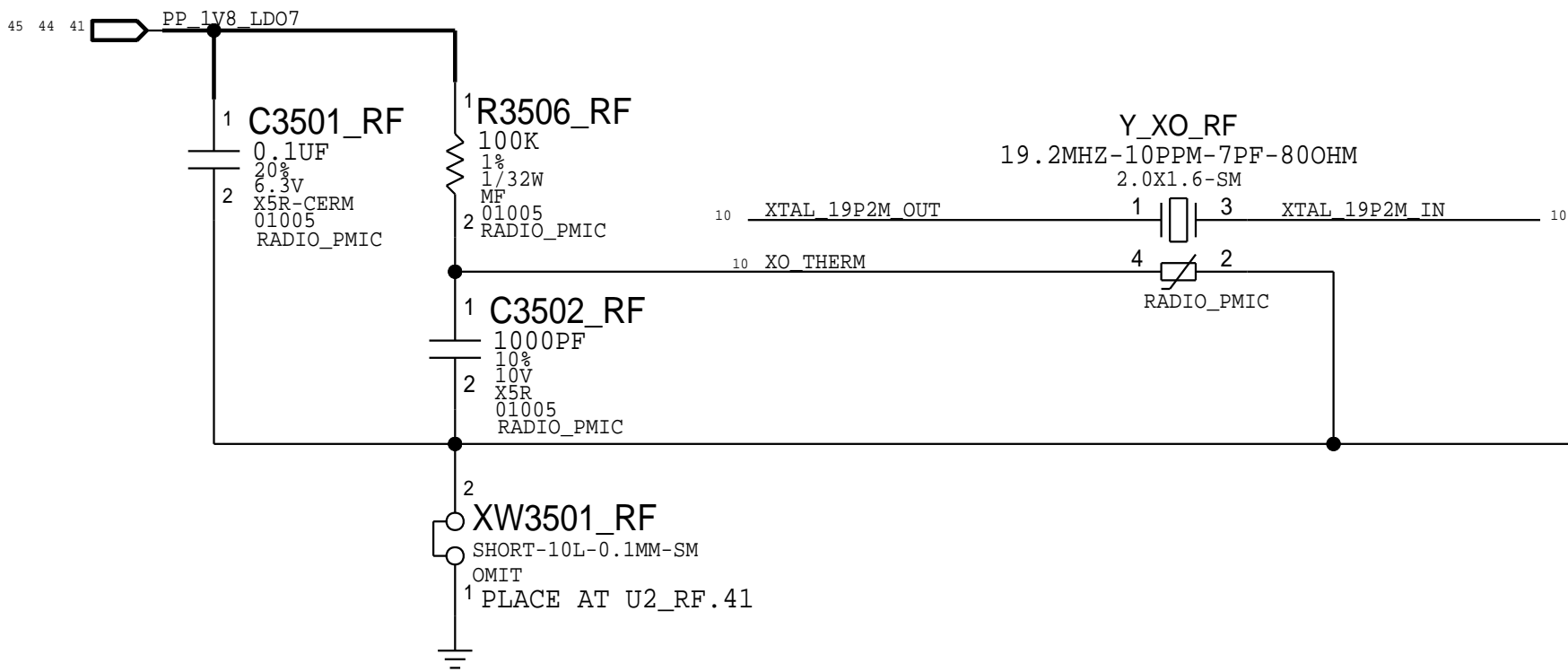
PCIE PULL-UPS TO BB RAIL

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CELLULAR BASEBAND: GPIOs		
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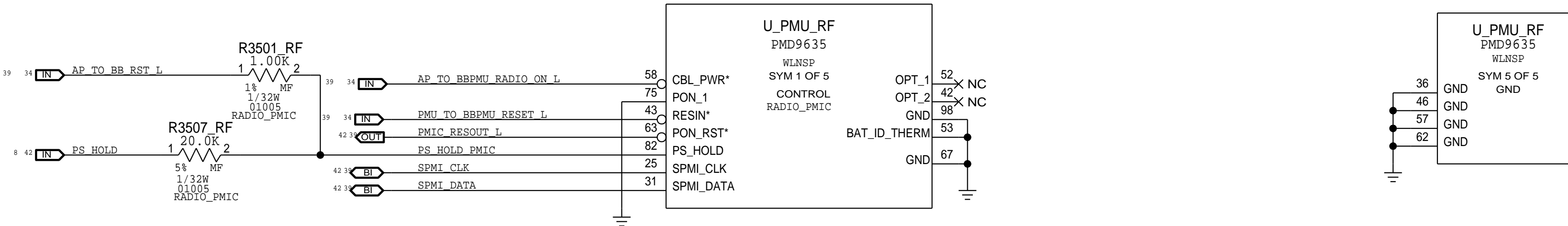
PMU: CONTROL AND CLOCKS

HW_REV1_ID	R3502	R3503	CONFIG
1.80V	698K	-	MLB
0.12V	698K	51.1K	SELF GEN

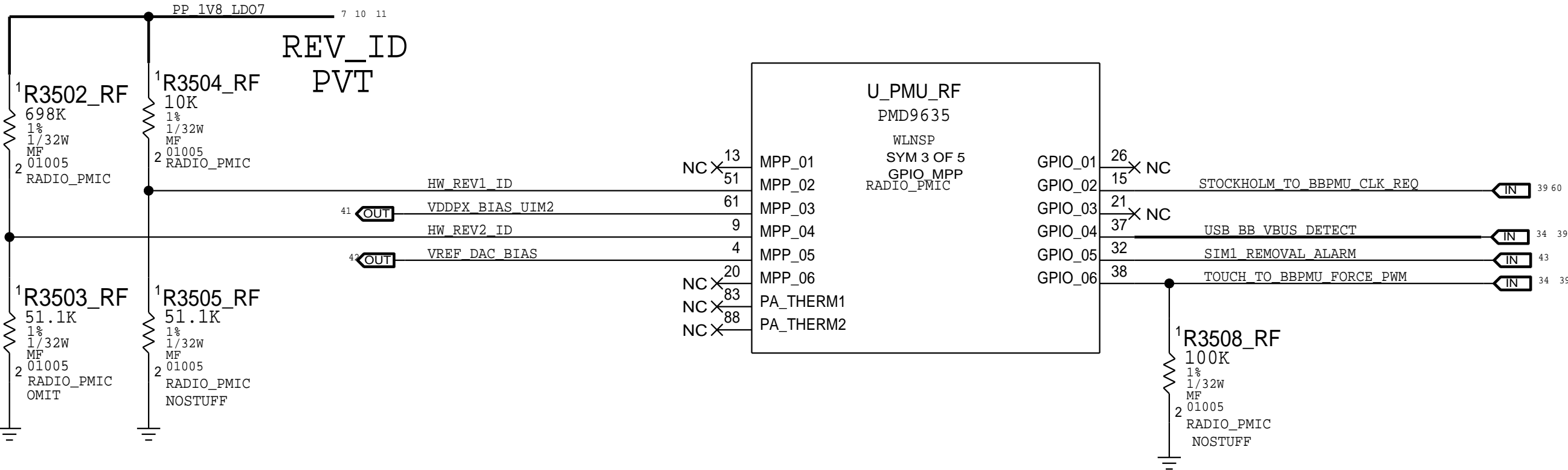
HW_REV_ID	R3504	R3505	REVISION
0.10V	887K	51.1K	DEV1
0.30V	255K	51.1K	DEV2
0.50V	124K	51.1K	DEV3
0.70V	82.5K	51.1K	DEV4/PROTOMLB1
0.90V	51.1K	51.1K	PROTOMLB2
1.10V	31.6K	51.1K	DEV5/PROTO1
1.20V	50K	100K	PROTO2
1.31V	39K	105K	EVT
1.43V	13.3K	51.1K	EVT_ALT
1.55V	8.25K	51.1K	CARRIER BUILD
1.67V	3.92K	51.1K	DVT
1.80V	10K	-	PVT



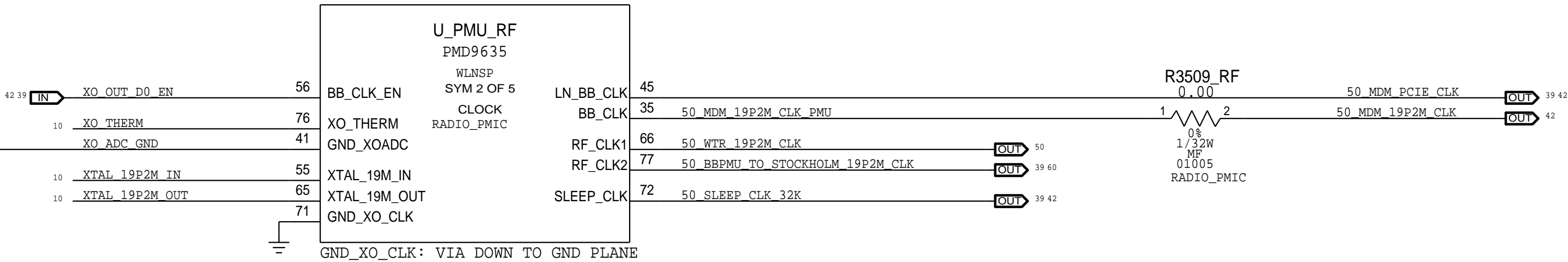
RESET AND CONTROL: PMU



MPPS AND GPIOs: PMU



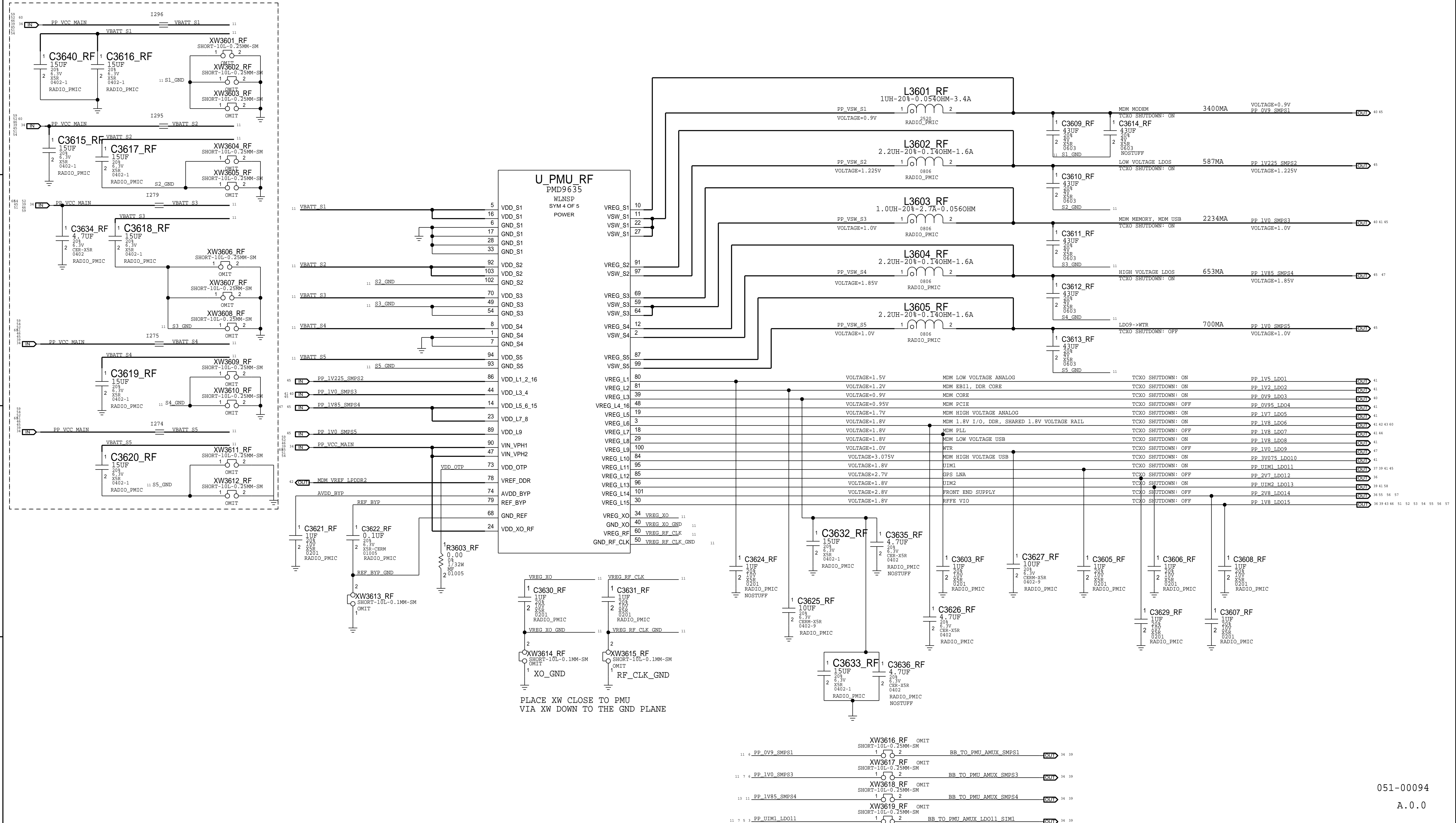
XTAL AND CLOCK: PMU



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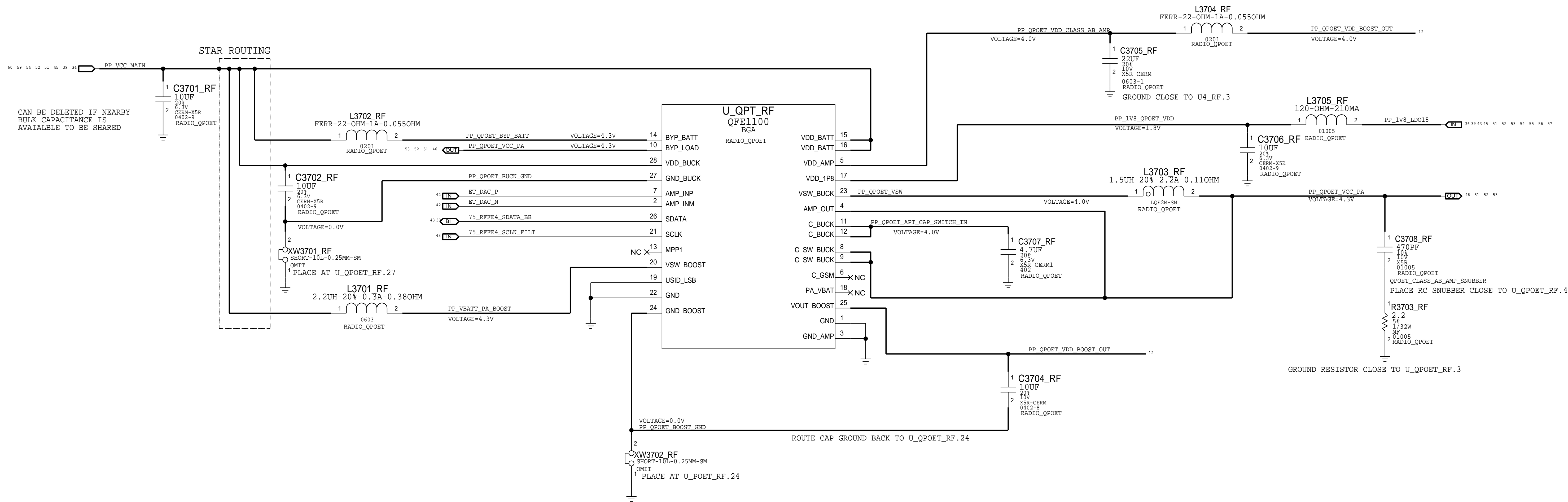
# PMU: SWITCHERS AND LDOS


## SWITCHERS BULK CAPS



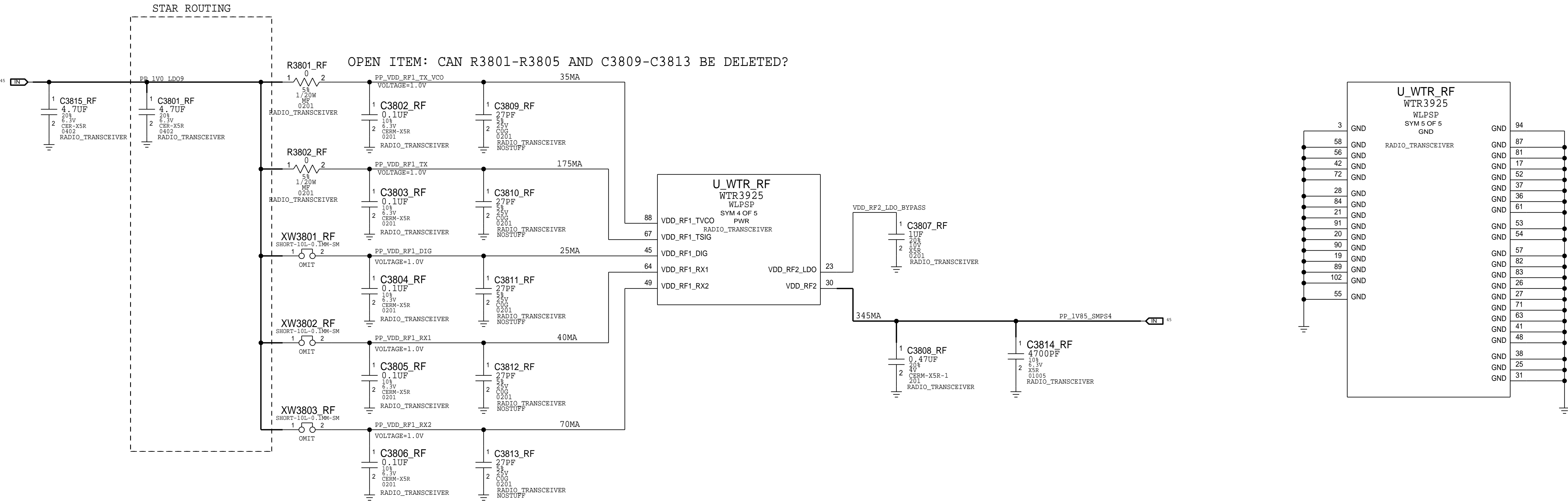


PMU: ET MODULATOR



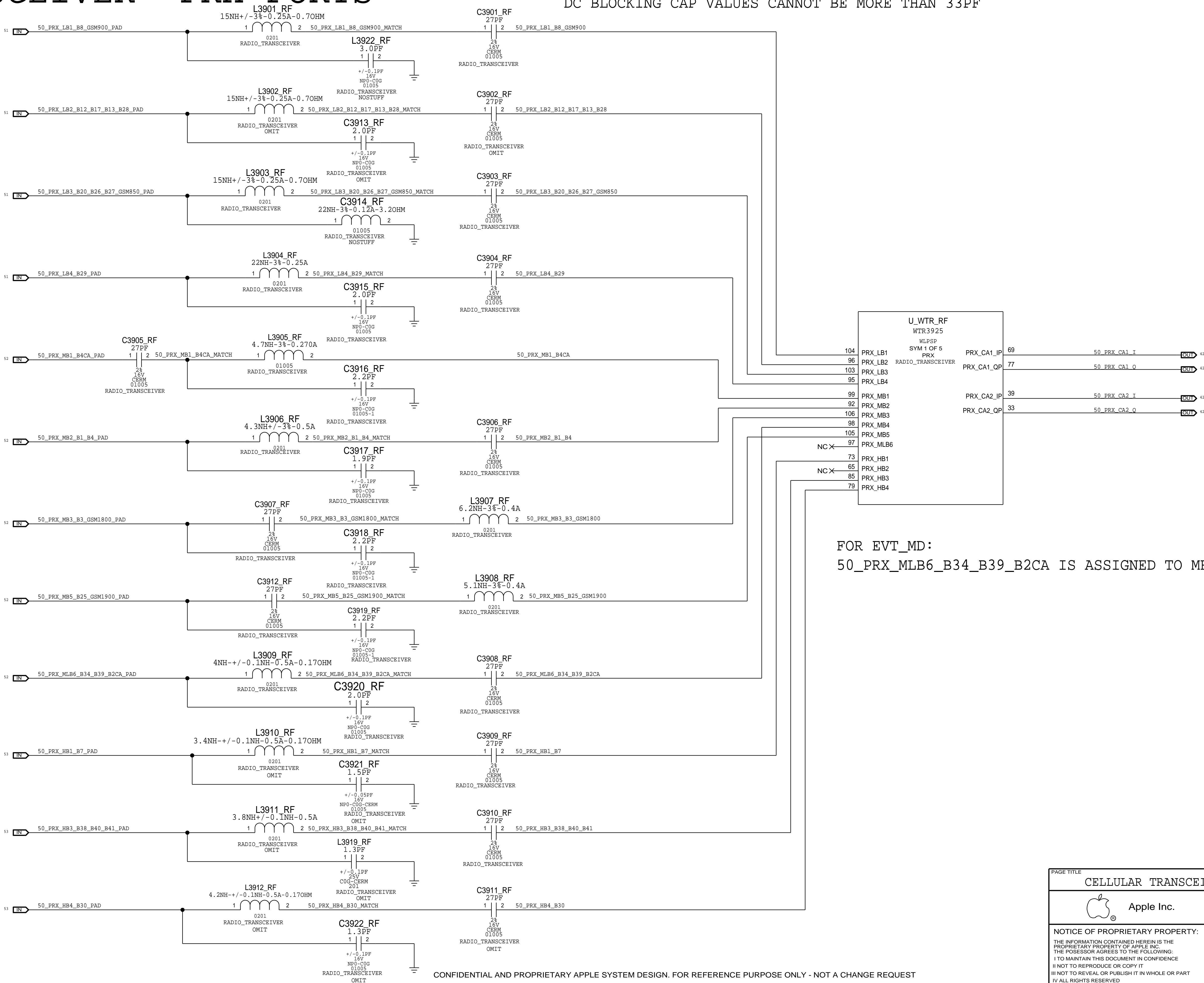
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TRANSCEIVER: POWER



TRANSCEIVER: PRX PORTS

DC BLOCKING CAP VALUES CANNOT BE MORE THAN 33PF

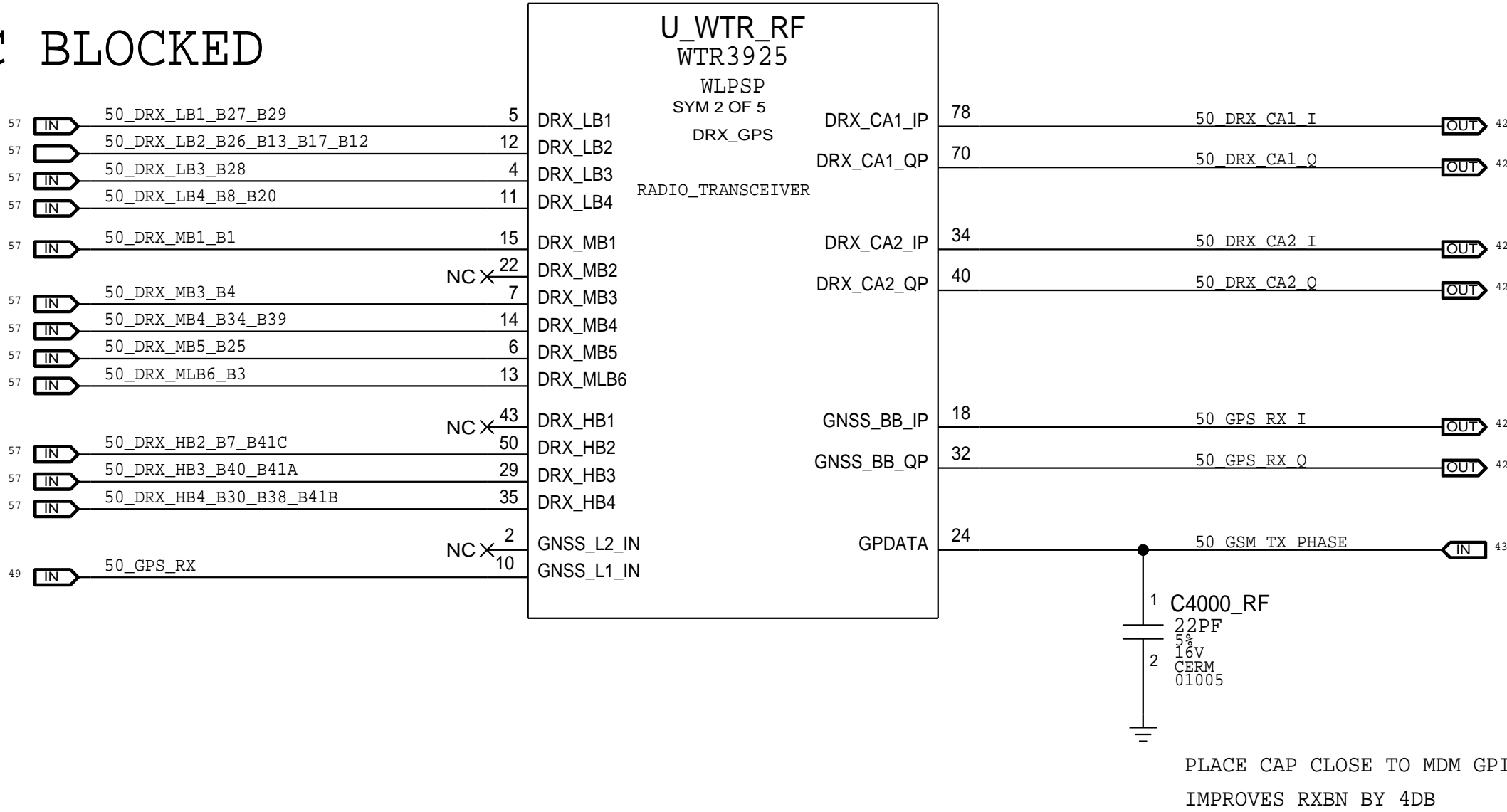


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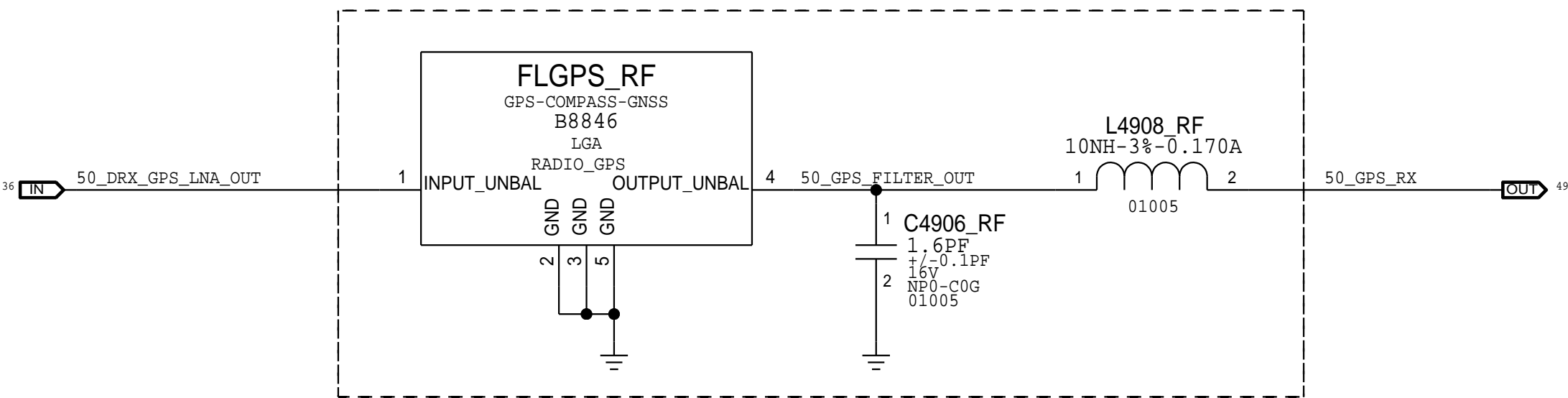
TRANSCEIVER: DRX/GPS PORTS


DRX MODULE PORTS ARE DC BLOCKED



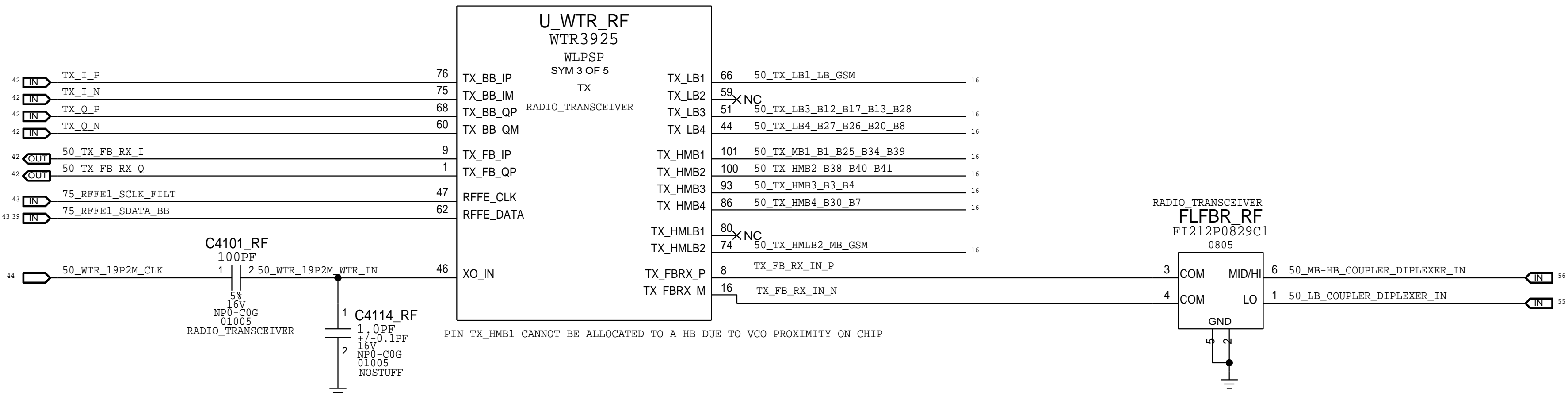
GPS FILTER

PLACE NEAR U\_WTR

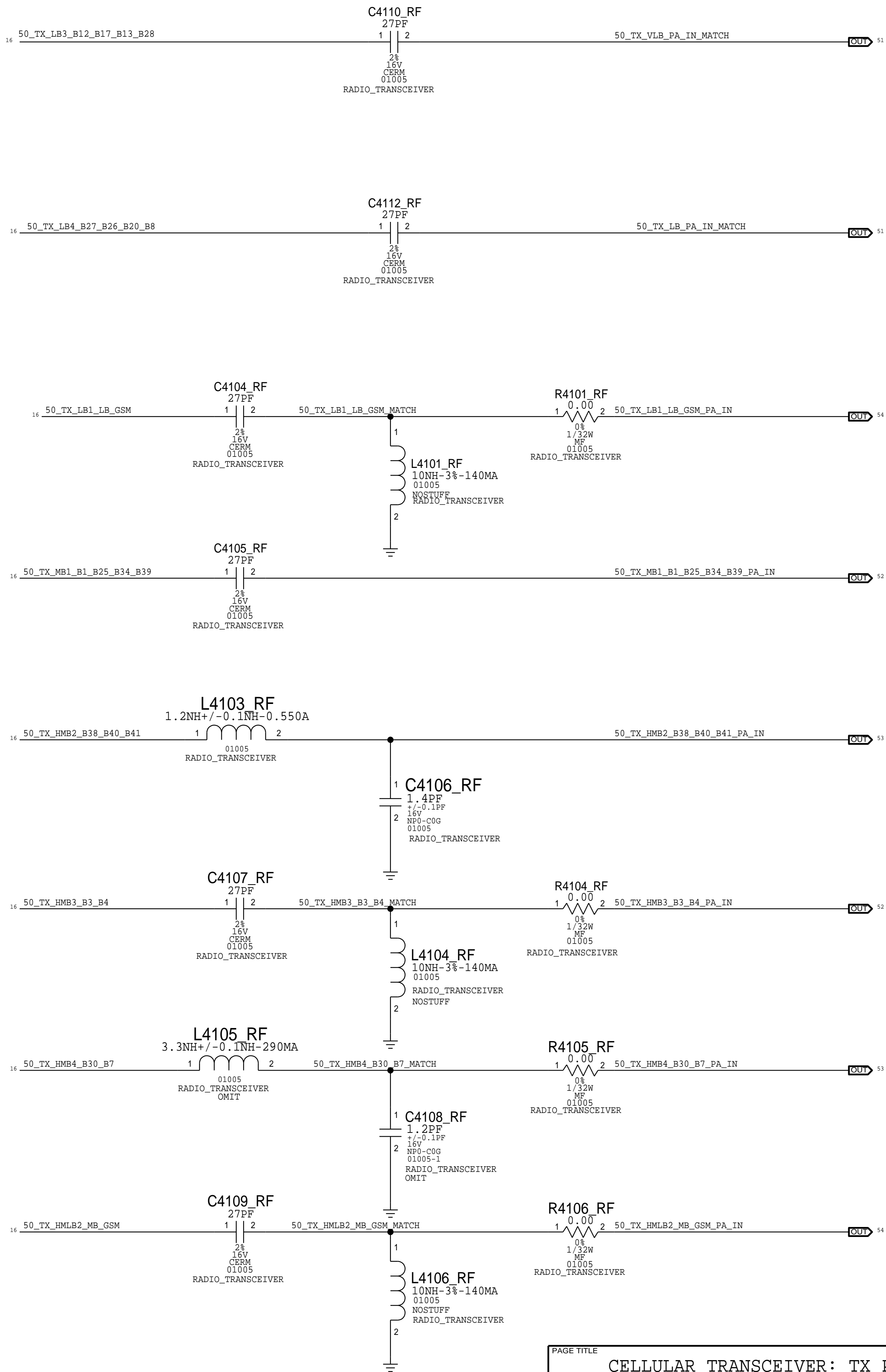



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TRANSCEIVER: TX PORTS

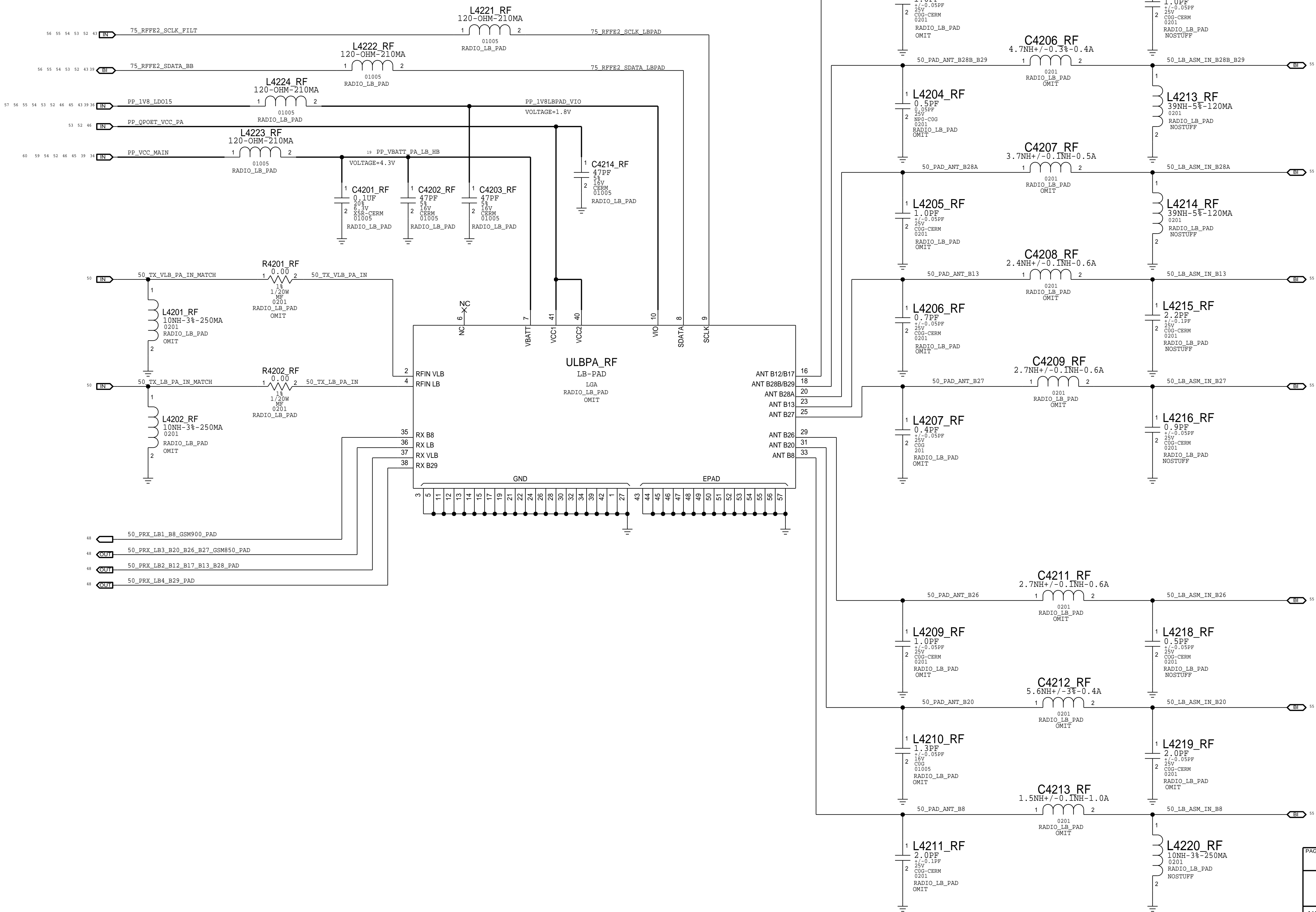



B12/13 TX INTERSTAGE FILTER REMOVED



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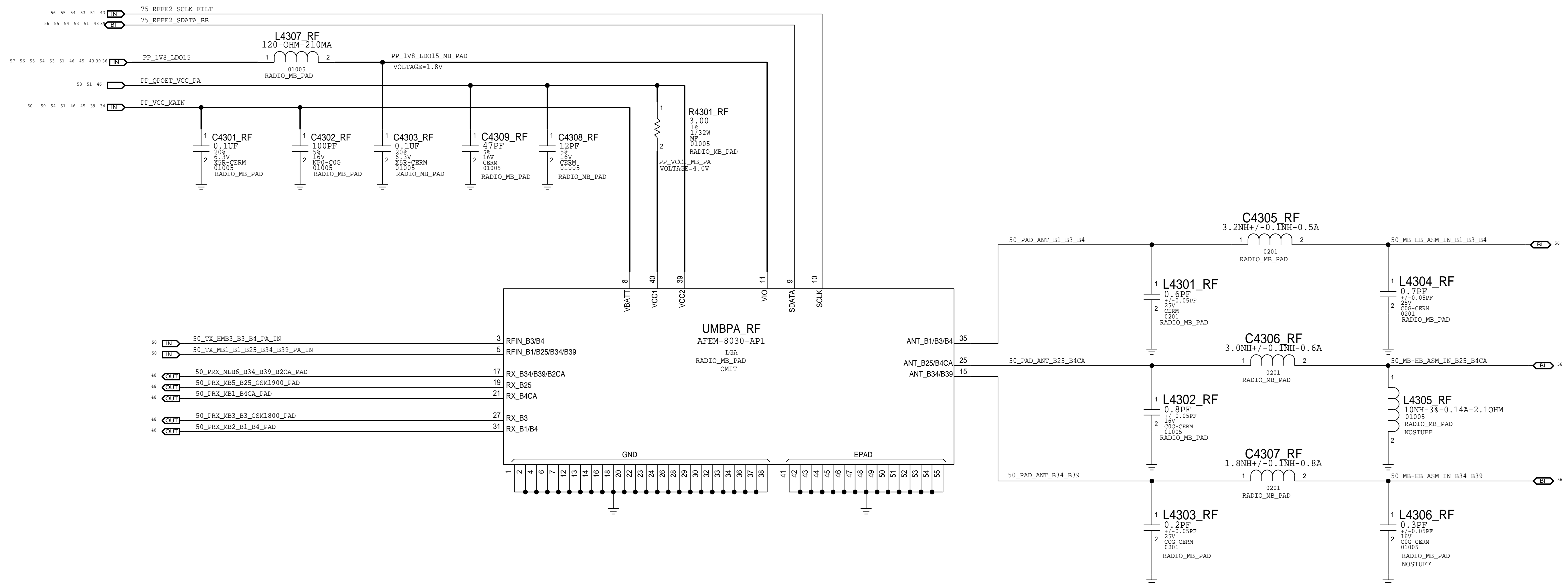
LOW BAND PA+DUPLEXERS



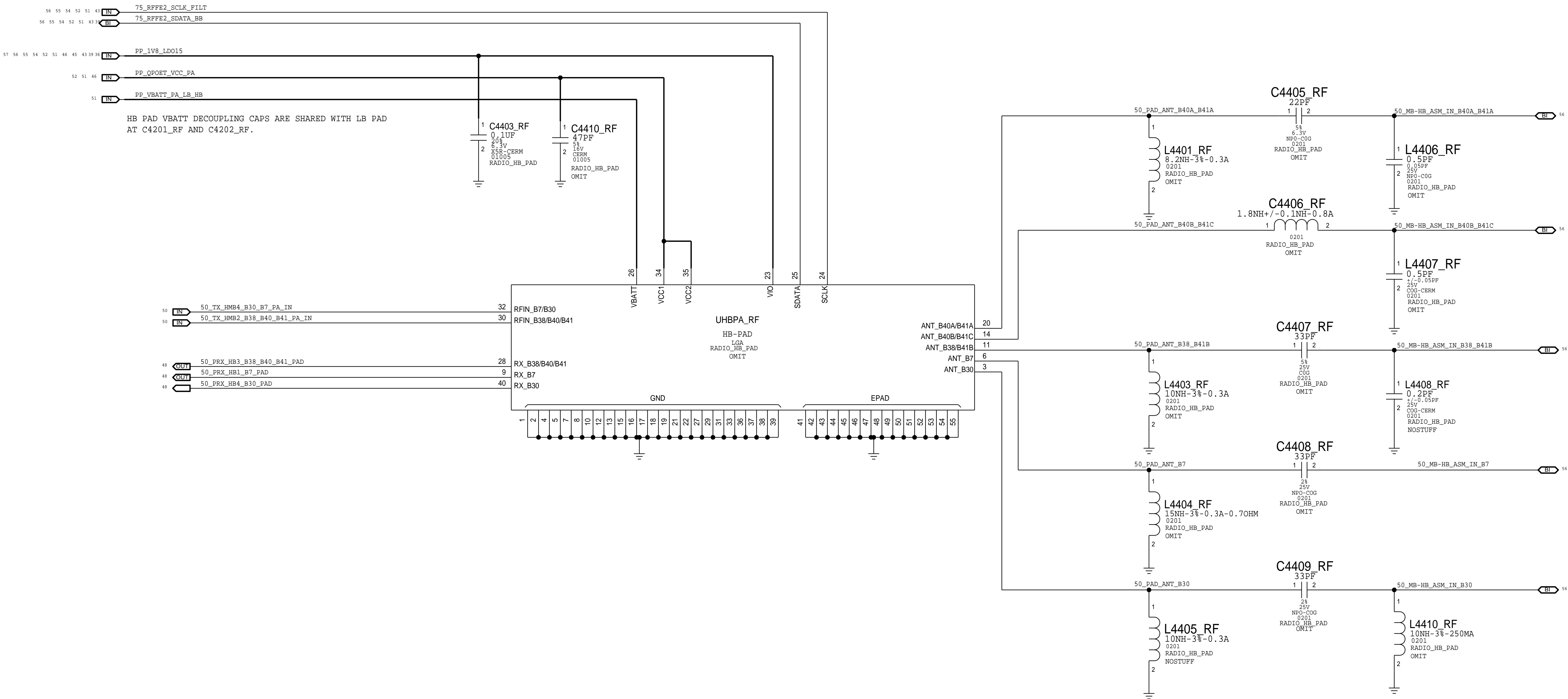
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## MID BAND PA+DUPLXERS

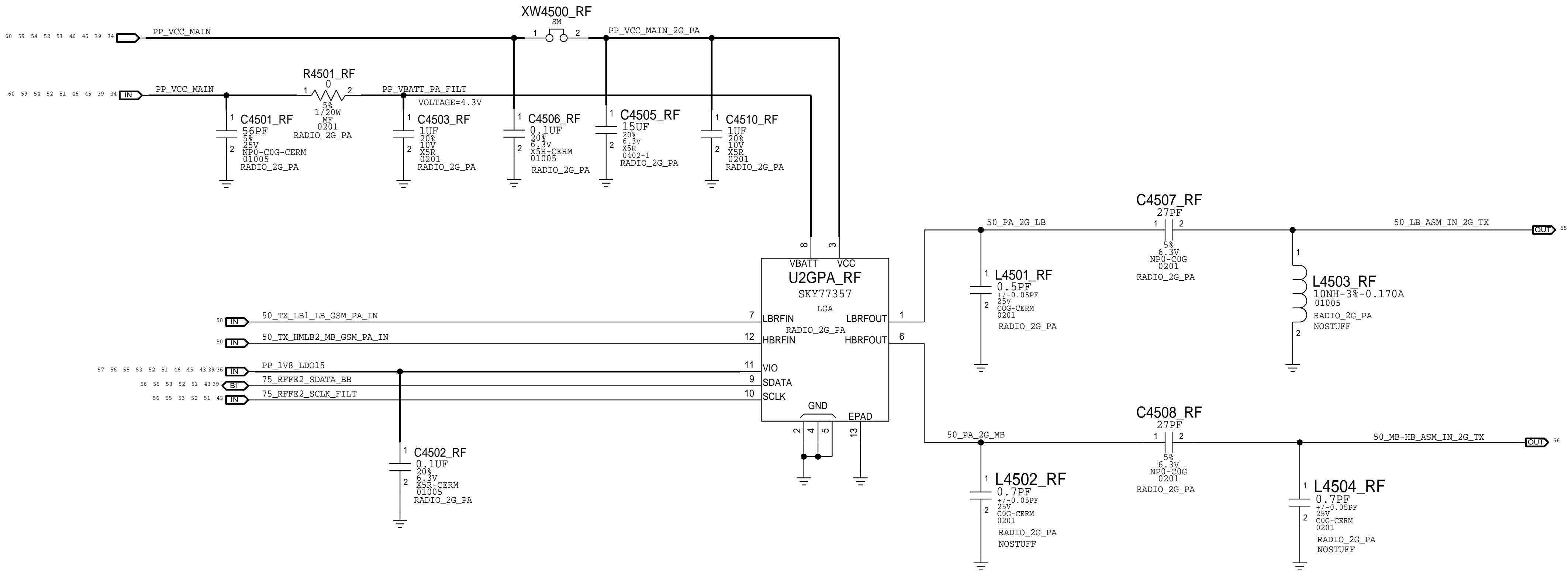



HIGH BAND PA+DUPLEXERS



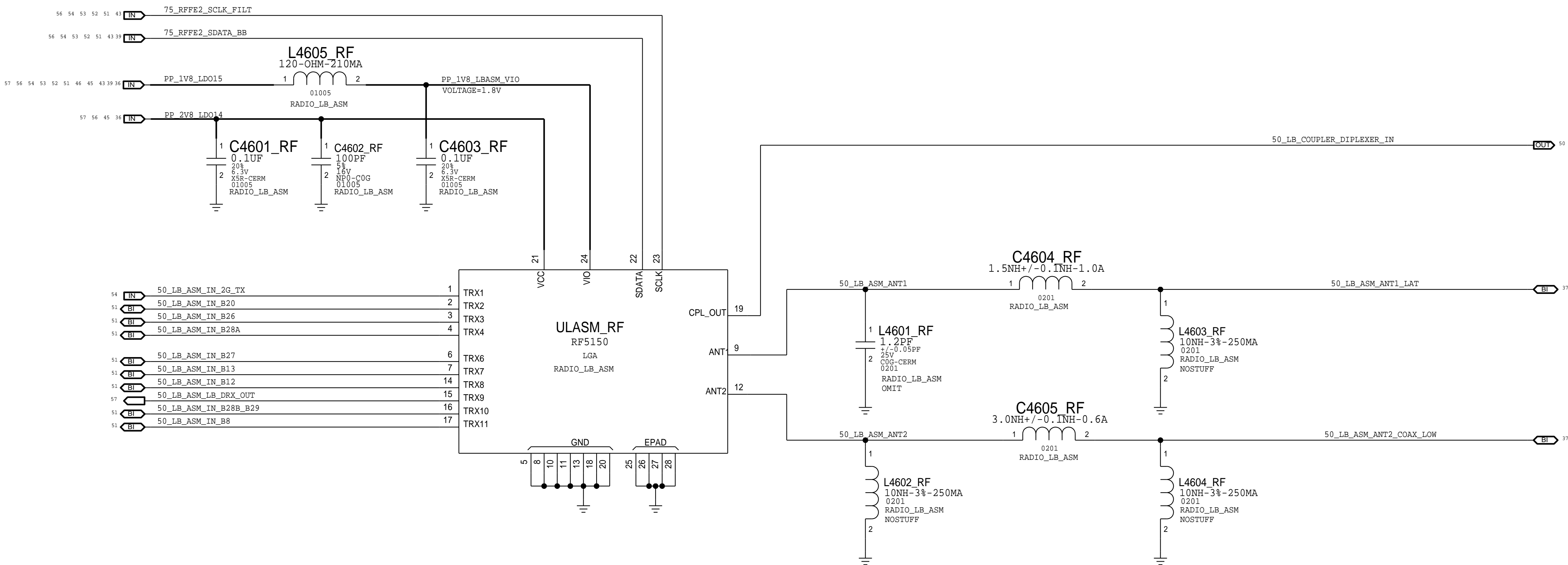
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2G PA



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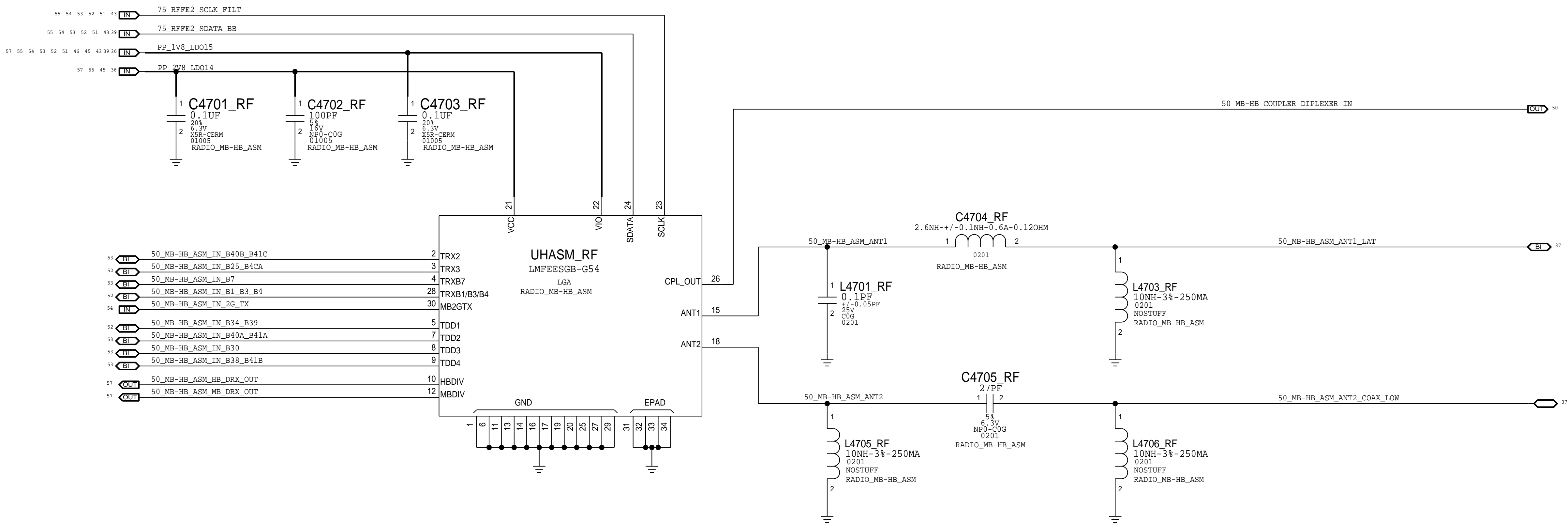
LOW BAND ANTENNA SWITCH MODULE




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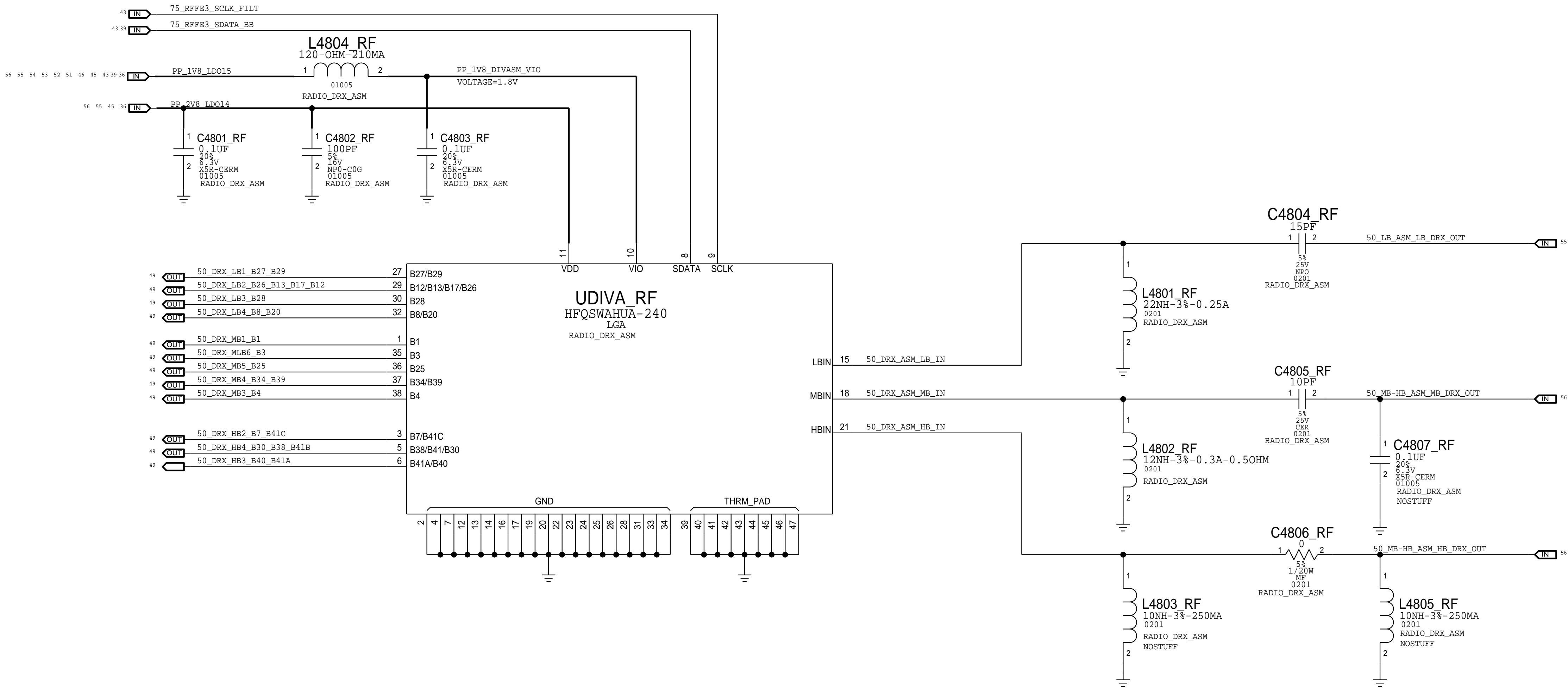
MID-HIGH BAND ANTENNA SWITCH MODULE


EVT ASM ASSIGNMENT:  
B40B/B41C - TRX2  
B30 - TDD3



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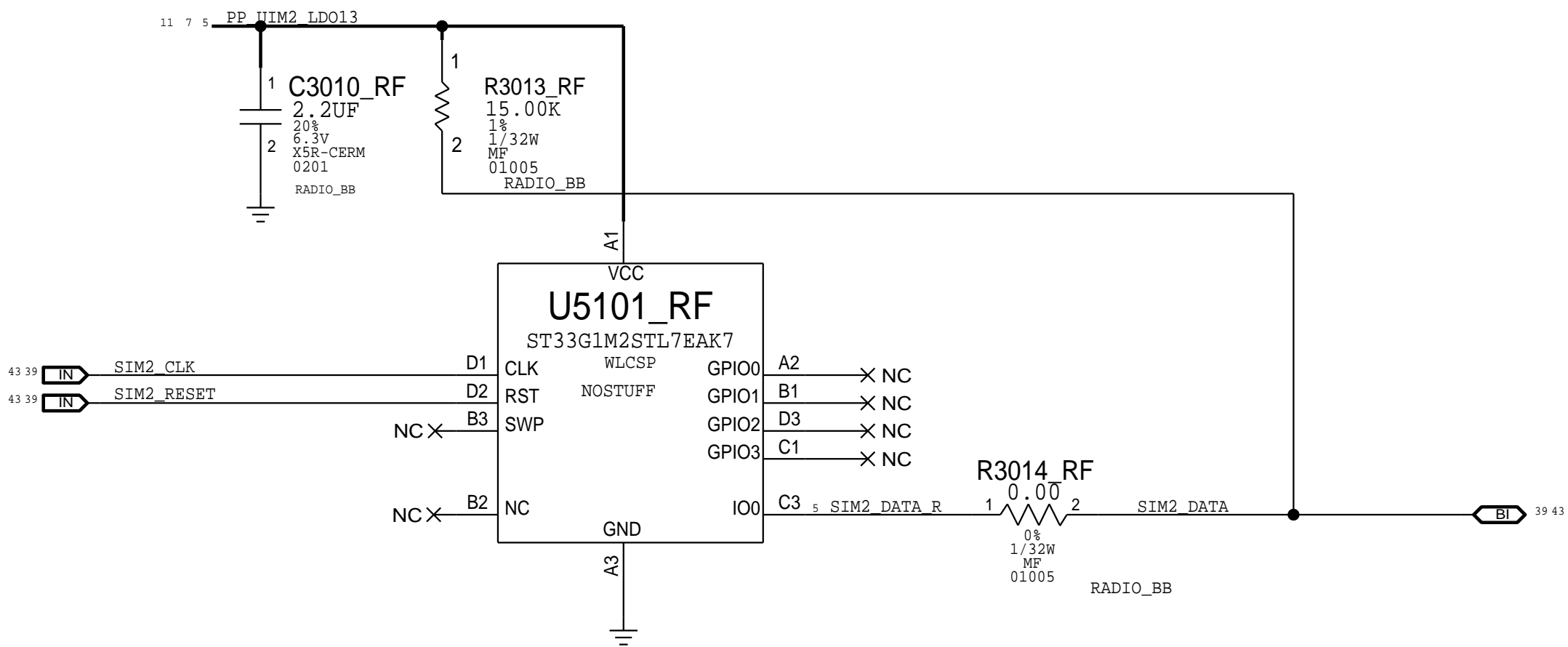
DIVERSITY MODULE




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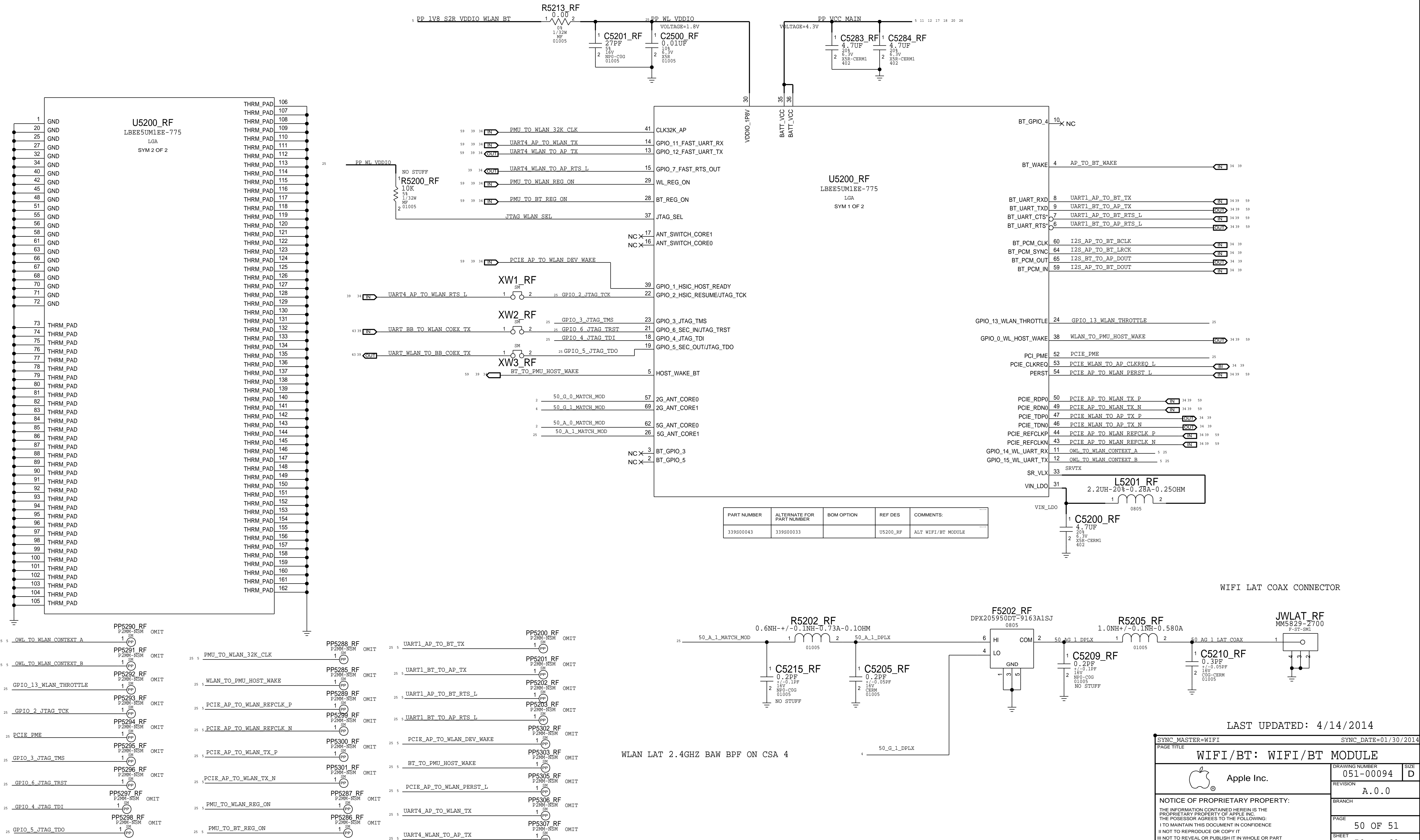


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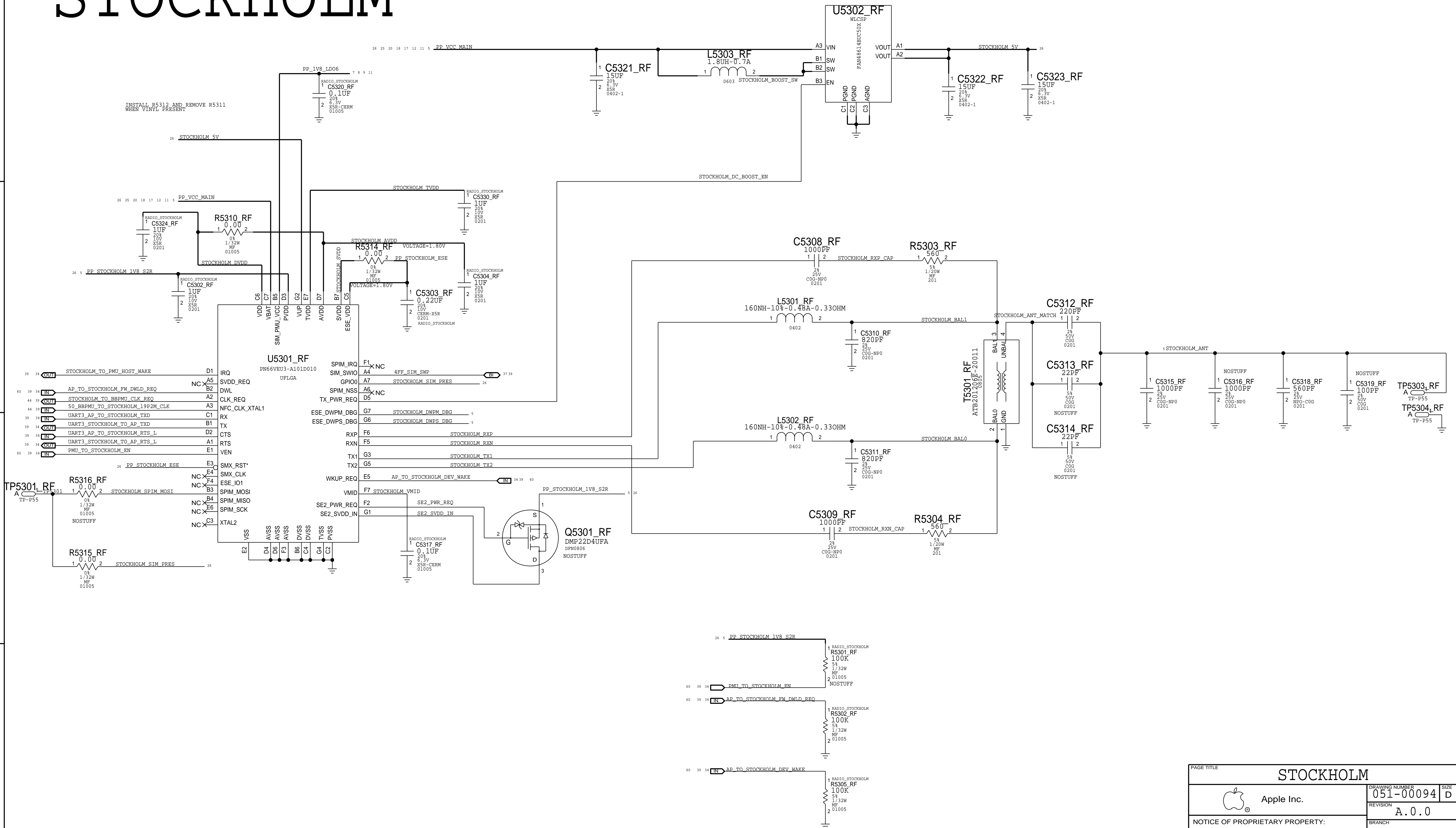
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# WIFI/BT



# STOCKHOLM

ALL NETNAMES NEED TO BE CHECKED



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