

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.

Thu Apr 17 17:11:44 2014

REV	ECN	DESCRIPTION OF REVISION	CK APPD DATE
7	0002727241	ENGINEERING RELEASED	2014-04-18

N61 CARRIER BUILD

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SCH 051-9903
 BRD 820-3486
 MCO 056-6825

BOM 639-4237 (16GB,BETTER)
 BOM 639-5838 (32GB,BEST)
 BOM 639-5839 (64GB,ULTRA)

BOM 639-000208 (16GB,BETTER,DTD)
 BOM 639-00209 (32GB,BEST,DTD)
 BOM 639-00210 (64GB,ULTRA,DTD)

BOM 639-00025 (128GB,SUPREME,TLC) BOM 639-00212 (128GB,SUPREME,TLC,DTD)

NAND BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
335S0998	1	NAND,19NM,16GX8,MLC,PPN1.5	U0604	CRITICAL	NAND_16G
335S0993	1	NAND,19NM,32GX8,MLC,PPN1.5	U0604	CRITICAL	NAND_32G
335S0994	1	NAND,19NM,64GX8,MLC,PPN1.5	U0604	CRITICAL	NAND_64G
335S0010	1	NAND,19NM,128GX8,TLC,PPN1.5	U0604	CRITICAL	NAND_128G
138S0867	1	CAP,XSR,10UF,20%,6.3V,0.65MM,HRTZ,0402	C0610,C0611,C0614,C0634	CRITICAL	NAND_16G
138S0867	1	CAP,XSR,10UF,20%,6.3V,0.65MM,HRTZ,0402	C0613,C0633,C0610,C0611,C0614,C0634	CRITICAL	NAND_32G & NAND_64G
138S0003	1	CAP,XSR,15UF,20%,6.3V,0.65MM,HRTZ,0402	C0613,C0633,C0610,C0611,C0614,C0634	CRITICAL	NAND_128G

ALTERNATE NAND BOM OPTIONS

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
335S0992	335S0998	ALTERNATE	U0604	TOSHIBA,NAND,16GB
335S1038	335S0998	ALTERNATE	U0604	HYNNIX,NAND,16GB
335S1040	335S0994	ALTERNATE	U0604	HYNNIX,NAND,64GB
335S0014	335S0994	ALTERNATE	U0604	TOSHIBA,NAND,64GB
335S00015	335S0010	ALTERNATE	U0604	TOSHIBA,NAND128GB
335S00009	335S0994	ALTERNATE	U0604	SANDISK,NAND,64GB,TLC

SHIELD BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
604-00241	1	SUBASSY, SHIELD, UPPER, FRONT, N61	SH2501	CRITICAL	COMMON
604-00242	1	SUBASSY, SHIELD, LOWER, FRONT, N61	SH2502	CRITICAL	COMMON
604-00243	1	SUBASSY, SHIELD, LOWER, BACK, N61	SH2504	CRITICAL	COMMON
604-00244	1	SUBASSY, SA SHIELD, N61	SH2506	CRITICAL	COMMON

N61 BOM CALLOUTS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
051-9903	1	SCH, MLB, N61		SCH	CRITICAL
820-3486	1	PCBF, MLB, N61		PCB	CRITICAL
825-6838	1	EEEE FOR 639-4237 16GB	EEEE_G16T	CRITICAL	EEEE_16G
825-6838	1	EEEE FOR 639-5838 32GB	EEEE_G16R	CRITICAL	EEEE_32G
825-6838	1	EEEE FOR 639-5839 64GB	EEEE_G16Q	CRITICAL	EEEE_64G
825-6838	1	EEEE FOR 639-00025 128GB	EEEE_G16N	CRITICAL	EEEE_128G
825-6838	1	EEEE FOR 639-00208 16GB	EEEE_F98F	CRITICAL	EEEE_16G_TDDLTE
825-6838	1	EEEE FOR 639-00209 32GB	EEEE_FQK0	CRITICAL	EEEE_32G_TDDLTE
825-6838	1	EEEE FOR 639-00210 64GB	EEEE_FQJY	CRITICAL	EEEE_64G_TDDLTE
825-6838	1	EEEE FOR 639-00212 128GB	EEEE_FY9W	CRITICAL	EEEE_128G_TDDLTE

ALTERNATE BOM OPTIONS

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
152S1844	152S1836	ALTERNATE	L1604	TY ALT INDUCTOR
152S1842	152S1849	ALTERNATE	L1519	TY ALT INDUCTOR
197S0392	197S0369	ALTERNATE	Y1200	ESPON ALT XTAL
197S0399	197S0369	ALTERNATE		

FIJI: JTAG , USB , HSIC , XTAL

D

D

C

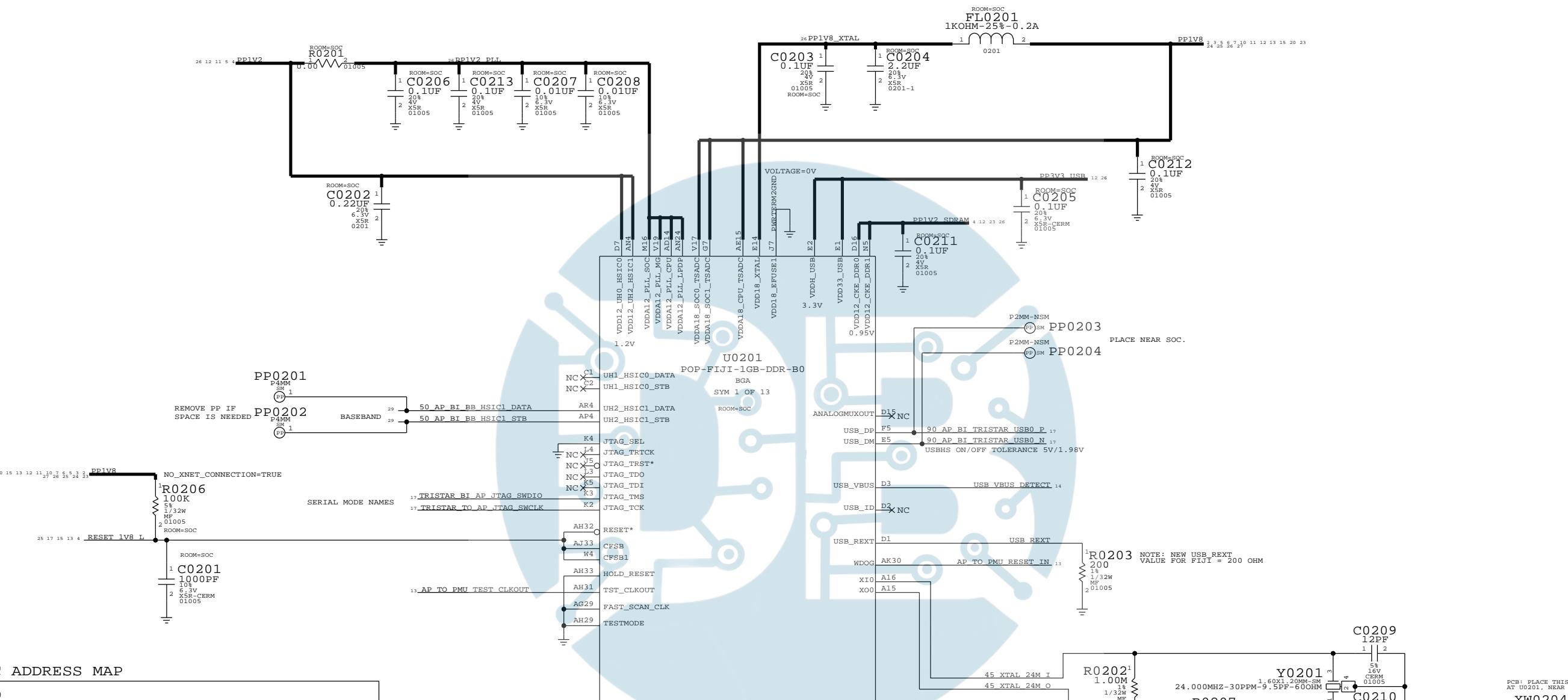
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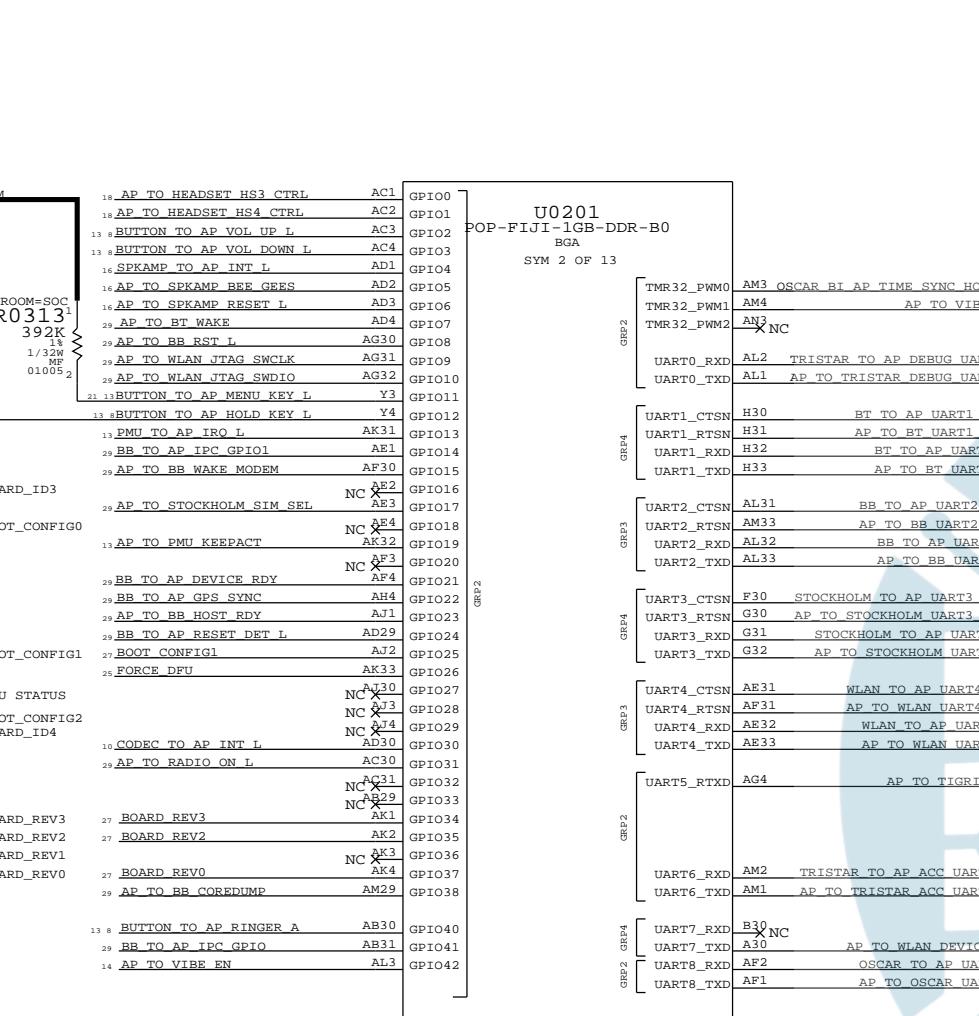
I2C ADDRESS MAP

I2C0	DEVICE	BINARY	7-BIT HEX	8-BIT HEX
ADI PMU:	1110100X	0X74	0XE8	
LM3534 BL DRIVER:	1100011X	0X63	0XC6	
TRISTAR:	0011010X	0X1A	0X34	
CHESTNUT:	0100111X	0X27	0X4E	
I2C1	TIGRIS CHARGER:	1110101X	0X75	0XE9
	LINEAR VIBE:	1011010X	0X5A	0XB4
	CS351L19B AMP:	0000000X	0X40	0XB0
MESA EEPROM (MEMORY):	1010110X	0X56	0XAC	
MESA EEPROM (ID):	0111110X	0X5E	0XB2	
I2C2	CT814 ALS:	0101001X	0X29	0XA2
	DISPLAY EEPROM:	1010001X	0X51	
RCAM I2C	OPEL STROBE DRIVER:	1100011X	0X63	0XC6
	REAR FACING CAM:	0010000X	0X10	0X20
	VCM AF DRIVER:	0001100X	0X0C	0XA8
FCAM I2C	FRONT FACING CAM:	0010000X	0X10	0X20
NOTE: ACCEL, GYRO, COMPASS ALL USING SPI (VIA OSCAR) FOR AP COMMUNICATION.				

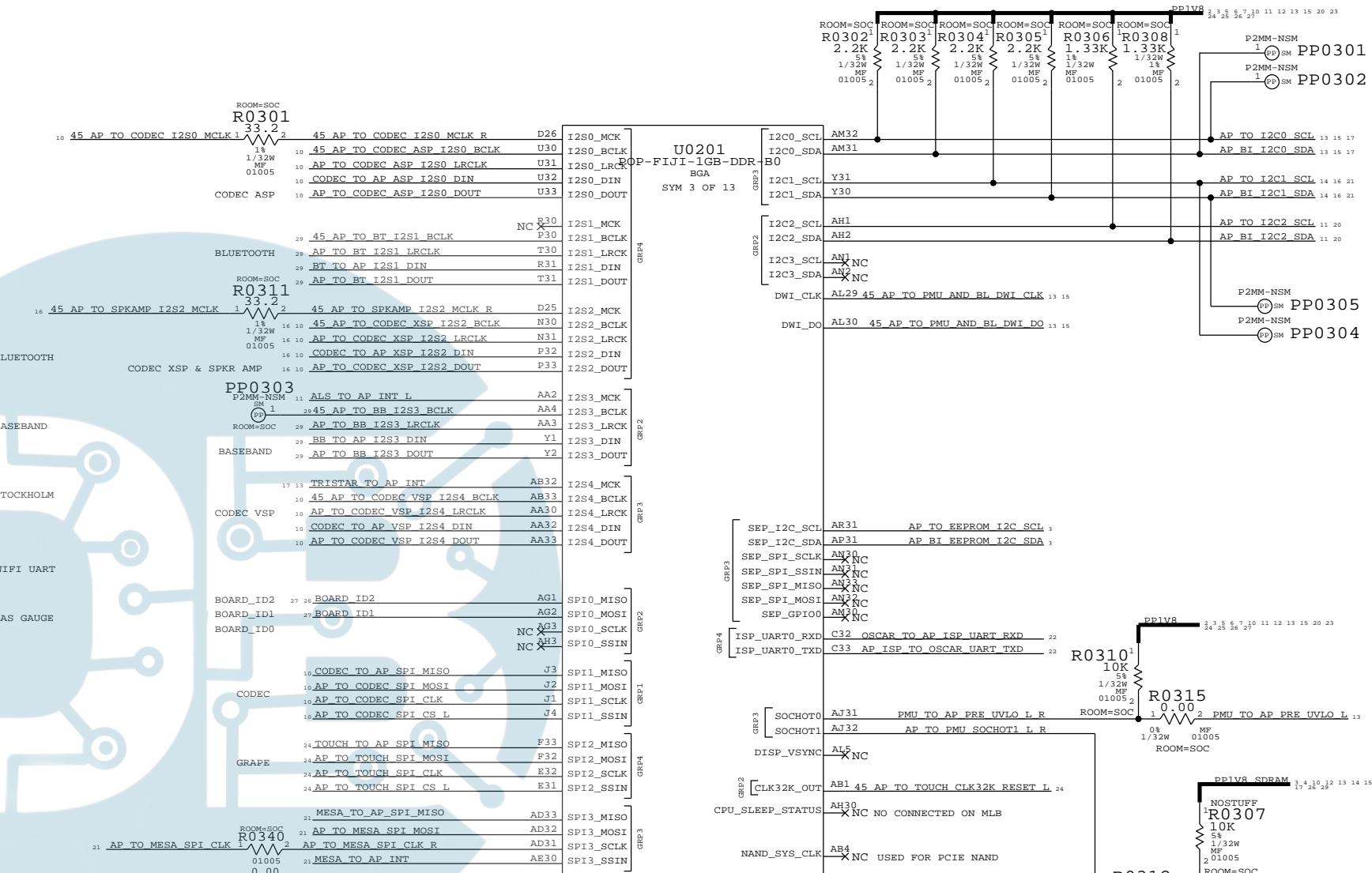
SYNC MASTER=N56 MLB	SYNC DATE=08/29/2013
PAGE TITLE	
SOC:MAIN	
Apple Inc.	
DRAWING NUMBER	051-9903 D
REVISION	7.0.0
BRANCH	
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FIJI: DIGITAL I/O, BOOTSTRAPPING

D

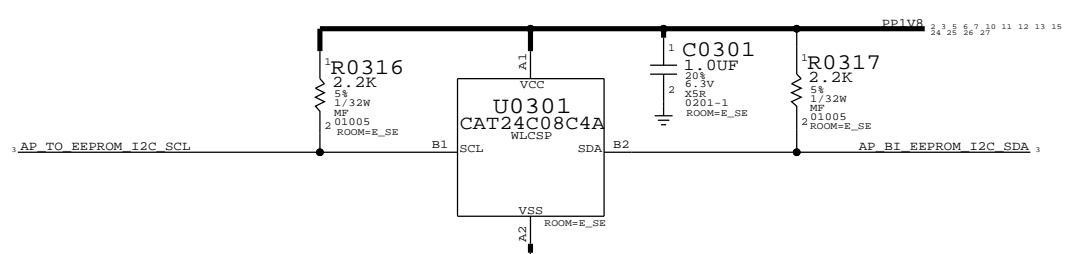


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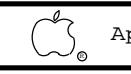
B

ANTI-ROLLBACK EEPROM
ONSEMI EEPROM
APN: 335S0894



A

REMOVED HOLD + MENU KEY
BUFFERS SINCE NOT NEEDED FOR FIJI

SYNC MASTER=N56 MLB		SYNC DATE=08/29/2013
PAGE TITLE		
SOC: I/O S		
 Apple Inc.		
DRAWING NUMBER	051-9903	SHEET
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PAGE		
SHEET		

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8

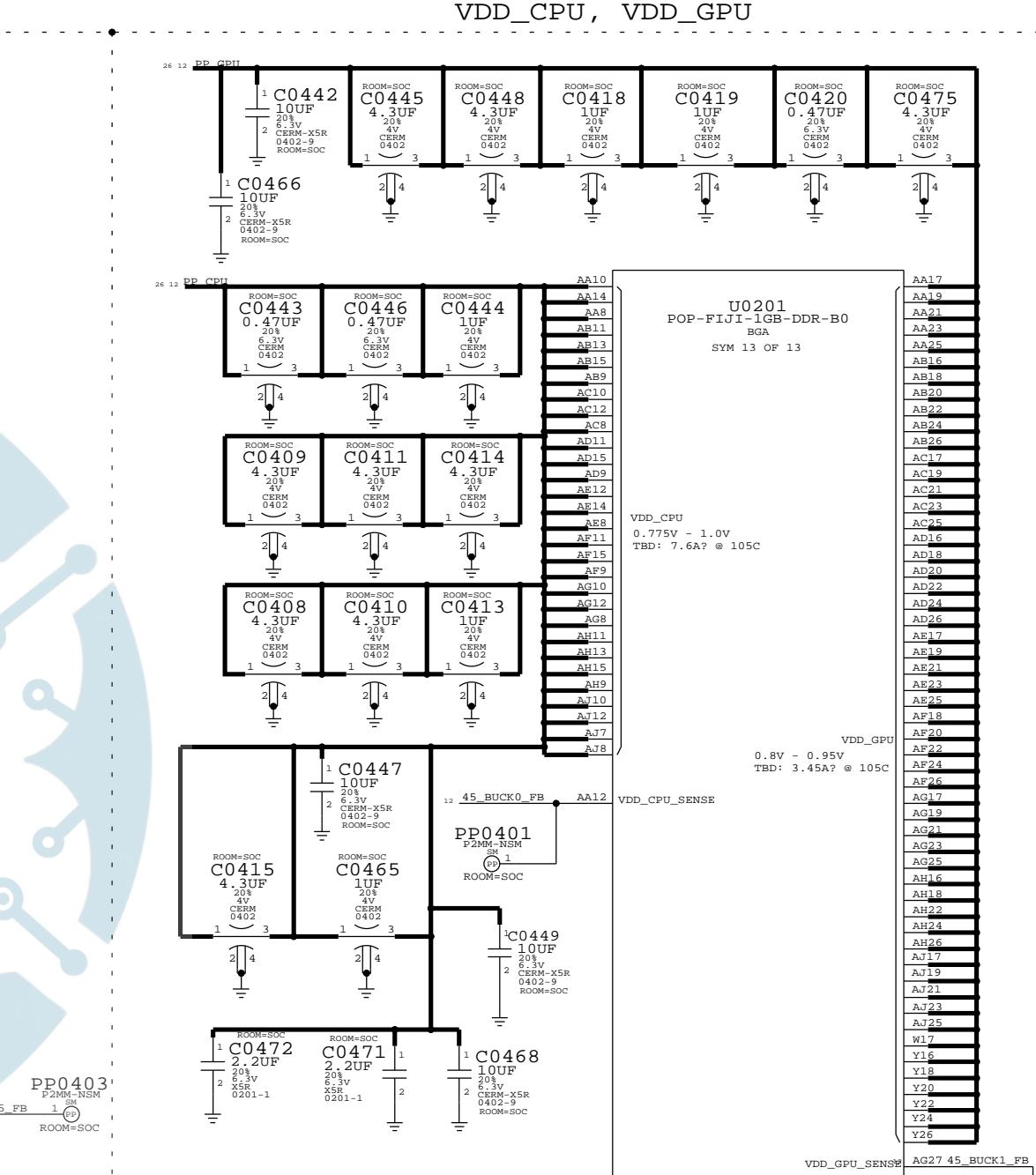
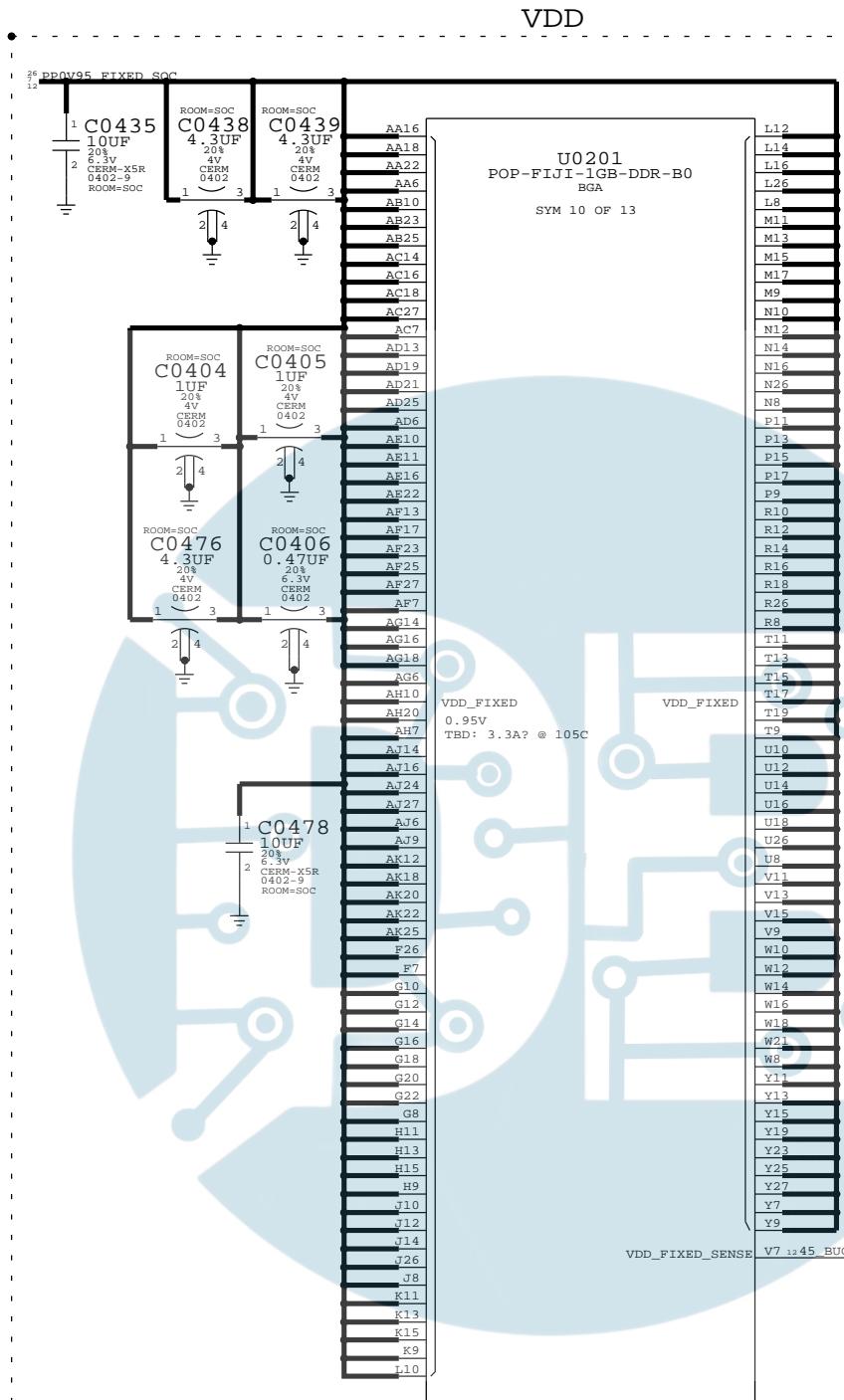
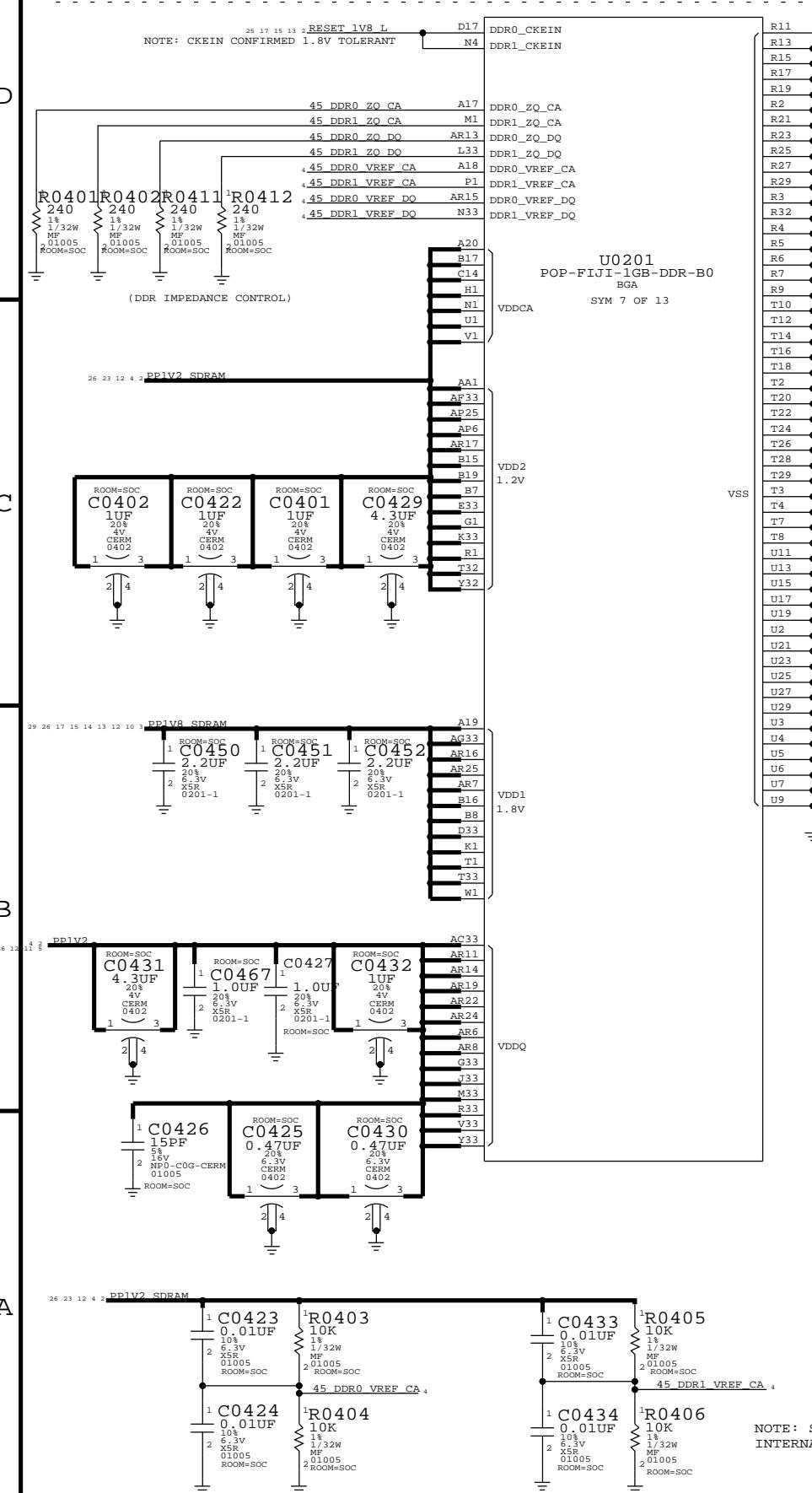
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4

1

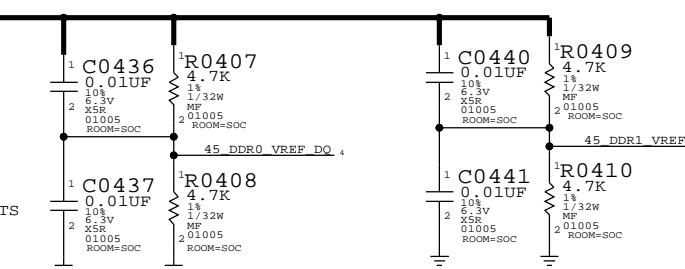
FIJI: VDDCA, VDD1/2, VDDQ, VDD, VDD_FIXED, VDD_CPU, VDD_GPU

VDDCA, VDD1/2, VDDQ



PP0402
P2MM-NSM
SM 1
PF

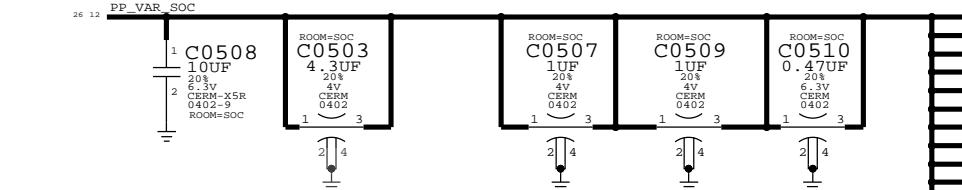
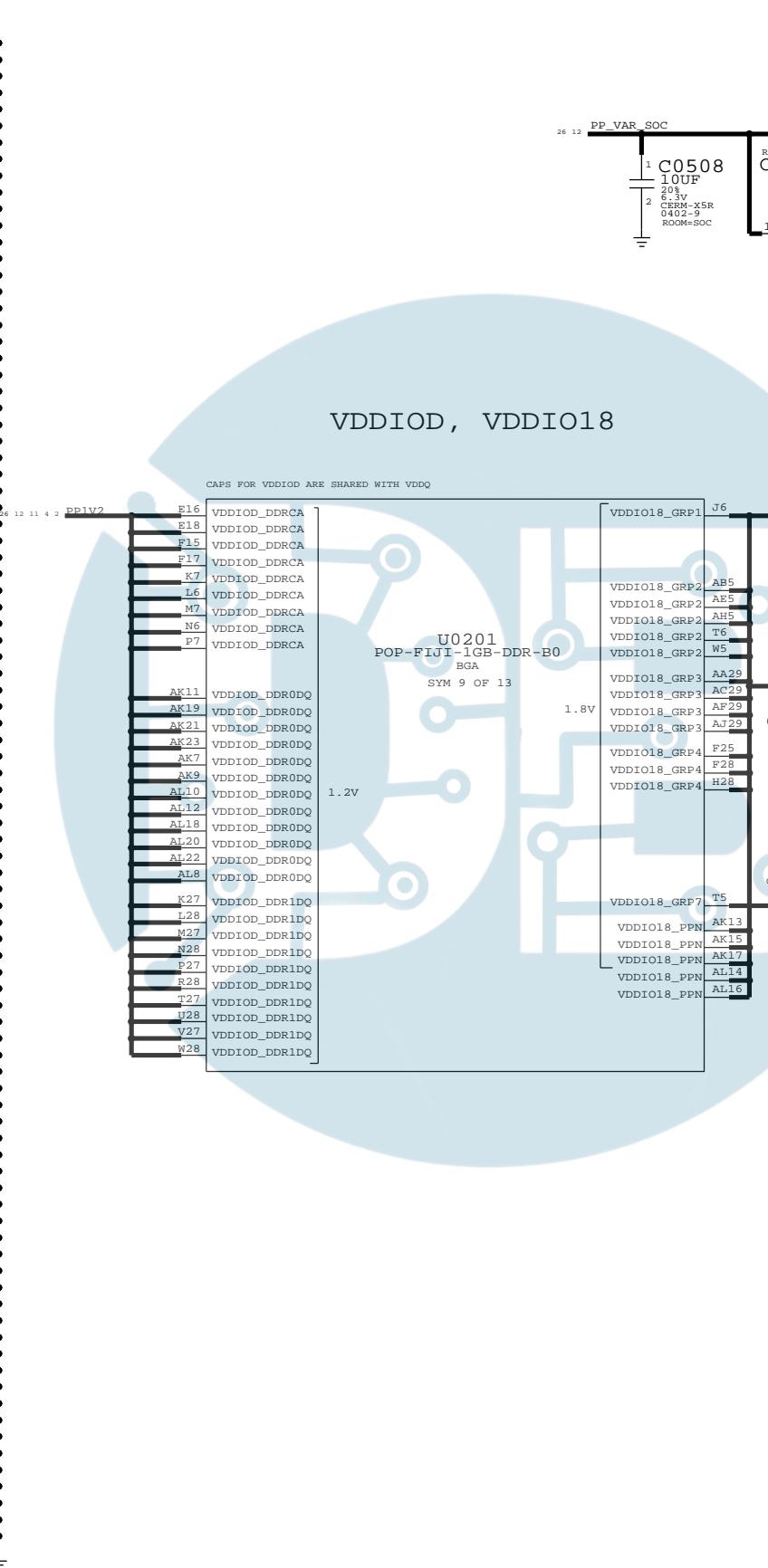
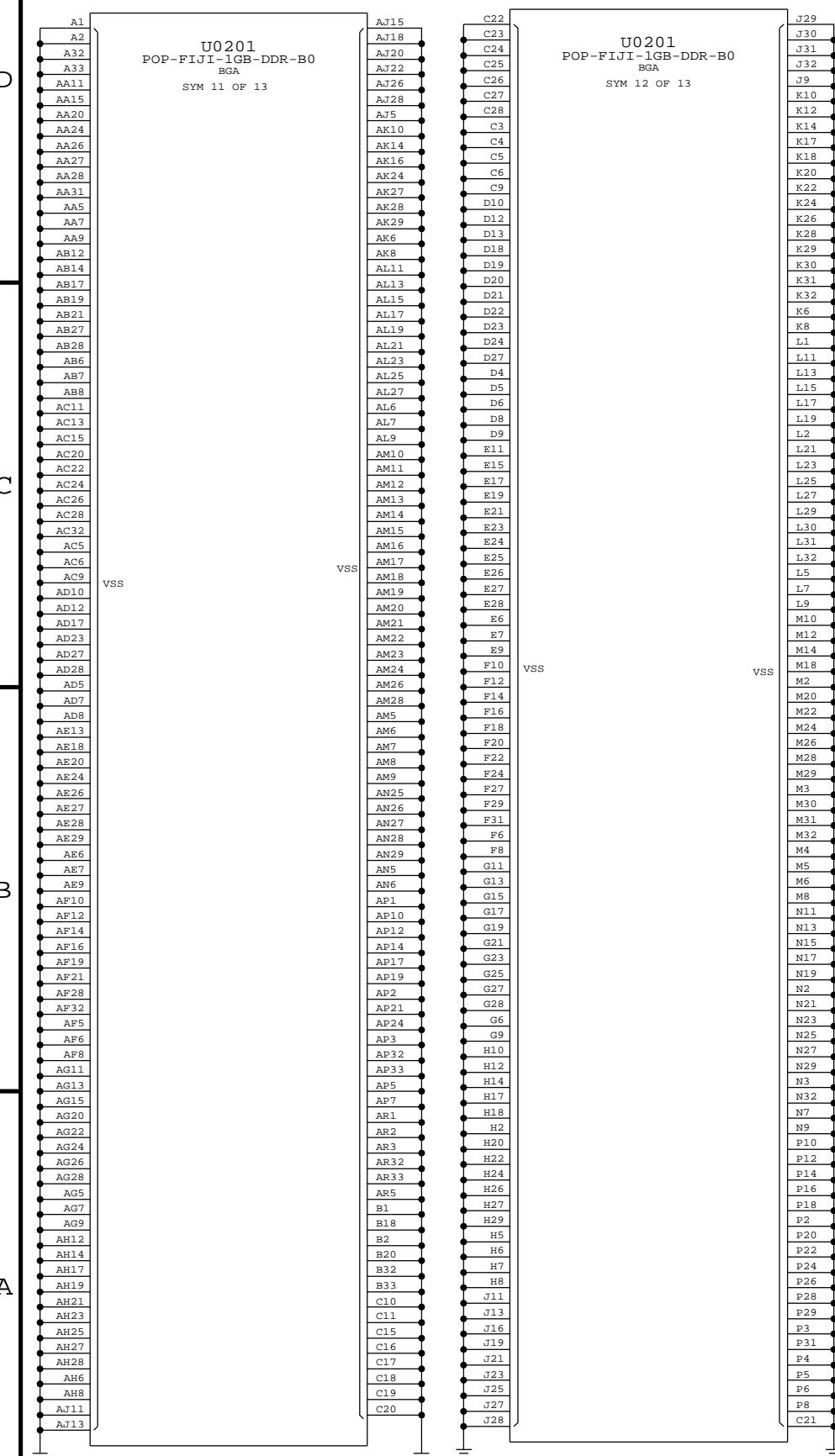
NOTE: SOME VENDORS HAVE INTERNAL DIVIDER CIRCUITS



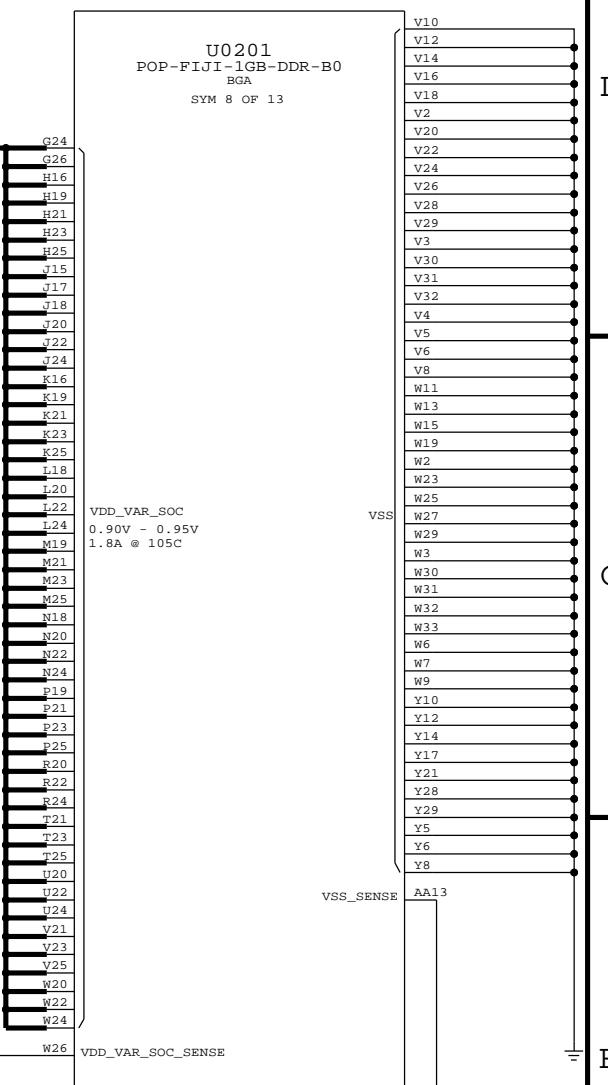
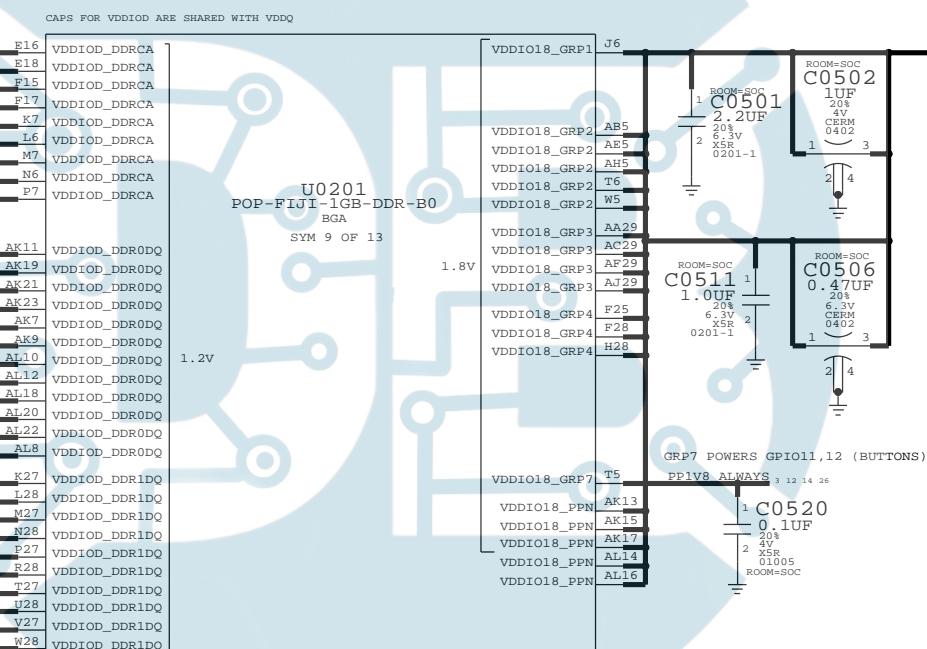
INC MASTER=N56 MLB		SYNC DATE=08/29/2013
THE TITLE		
OC :VDDCA,VDD1/2,VDD,VDD_CPU,VDD_GPU		
 Apple Inc.		DRAWING NUMBER 051-9903 D
REVISION 7.0.0		
BRANCH		
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SHEET 4 OF 54		
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FIJI: VDDIOD, VDDIO18, VDD_VAR_SOC

JUST A FEW GNDS



VDDIOD, VDDIO18



PP0501
P2MM-NSM
SM
PP CPU
ROOM-SOC

SYNC MASTER=N56 MLB	SYNC DATE=08/29/2013
PAGE TITLE	SOC:GND,VDDIO18,VDDIOD,VDD_VAR_SOC
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FIJI: NAND + 12x17 NAND PKG

SUPPORT FOR PPN1.5 (1.8V IO) ONLY

D

D

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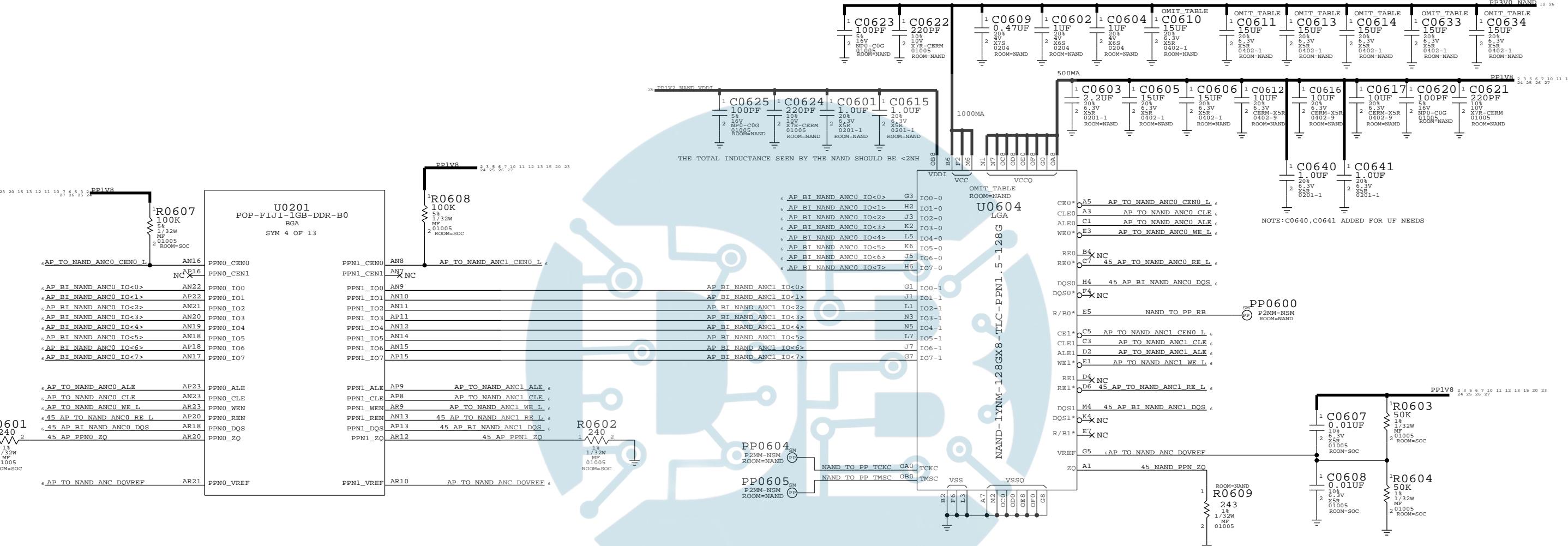
C

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NOTE: IO<6> PREFERRED BY MATT BYOM (N51)
(IS A STATUS READY BIT)

PP0601
P4MM
ROOM=SOC
AP_BI_NAND_ANC0_IO<6>

PP0602
P4MM
ROOM=SOC
45_AP_TO_NAND_ANC0_RE_L

PP0603
P4MM
ROOM=SOC
45_AP_BI_NAND_ANC0_DQS

SYNC MASTER=N56 MLB		SYNC DATE=08/29/2013
PAGE TITLE		
SOC:NAND		
Apple Inc.		
DRAWING NUMBER	051-9903	SIZE
REVISION	7.0.0	
BRANCH		
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FIJI: HIGH SPEED DIG (CAM, LCD, LPDP, PCIE)

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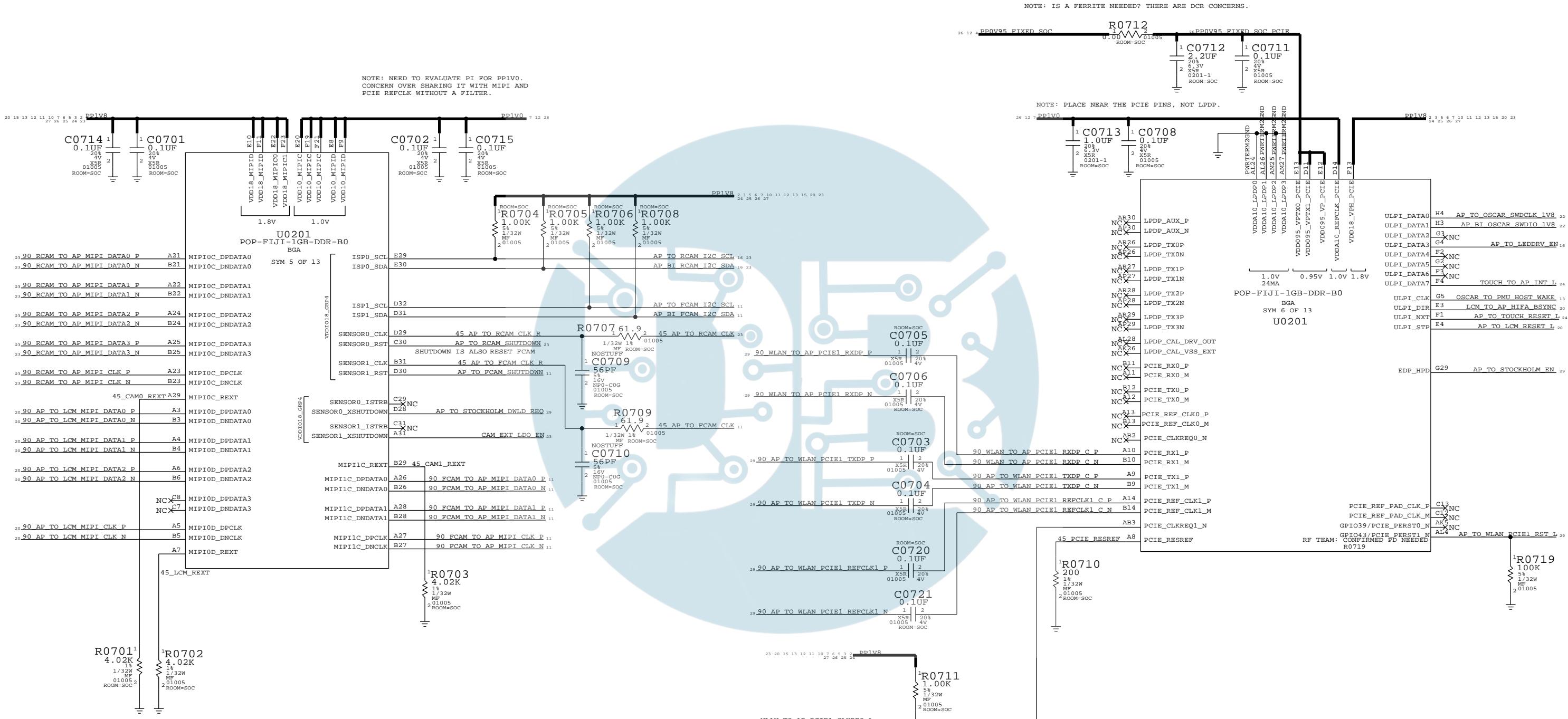
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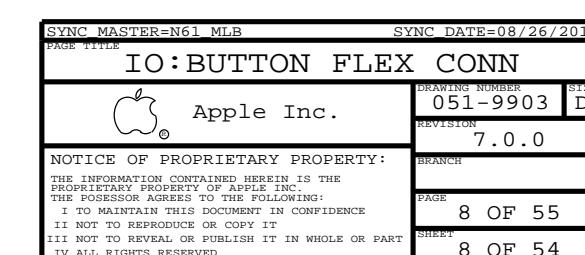
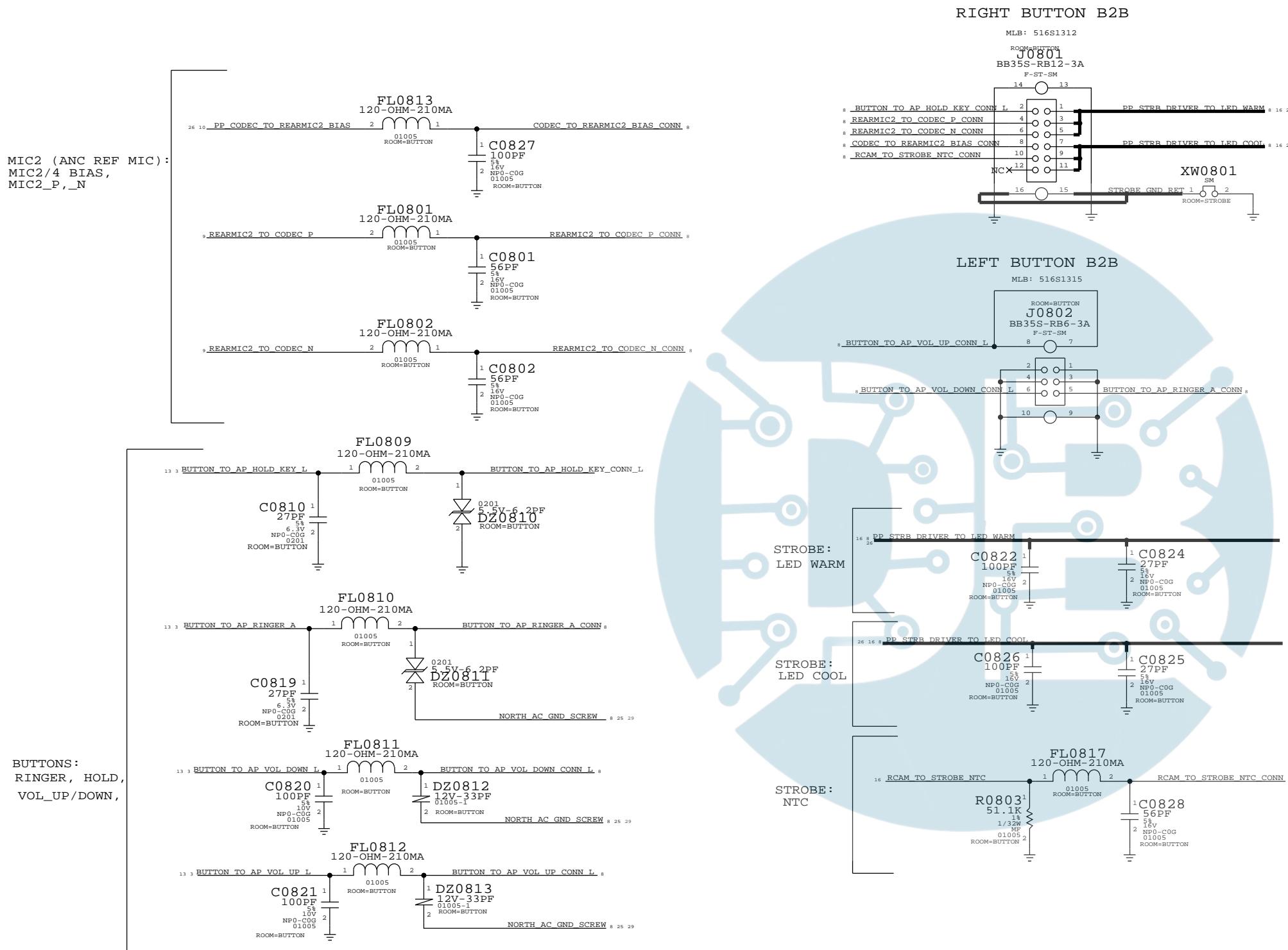
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SYNC MASTER=N56 MLB	SYNC DATE=08/29/2013
PAGE TITLE	
SOC:CAM,LCD,LPDP,PCIE	
Apple Inc.	
DRAWING NUMBER	051-9903 D
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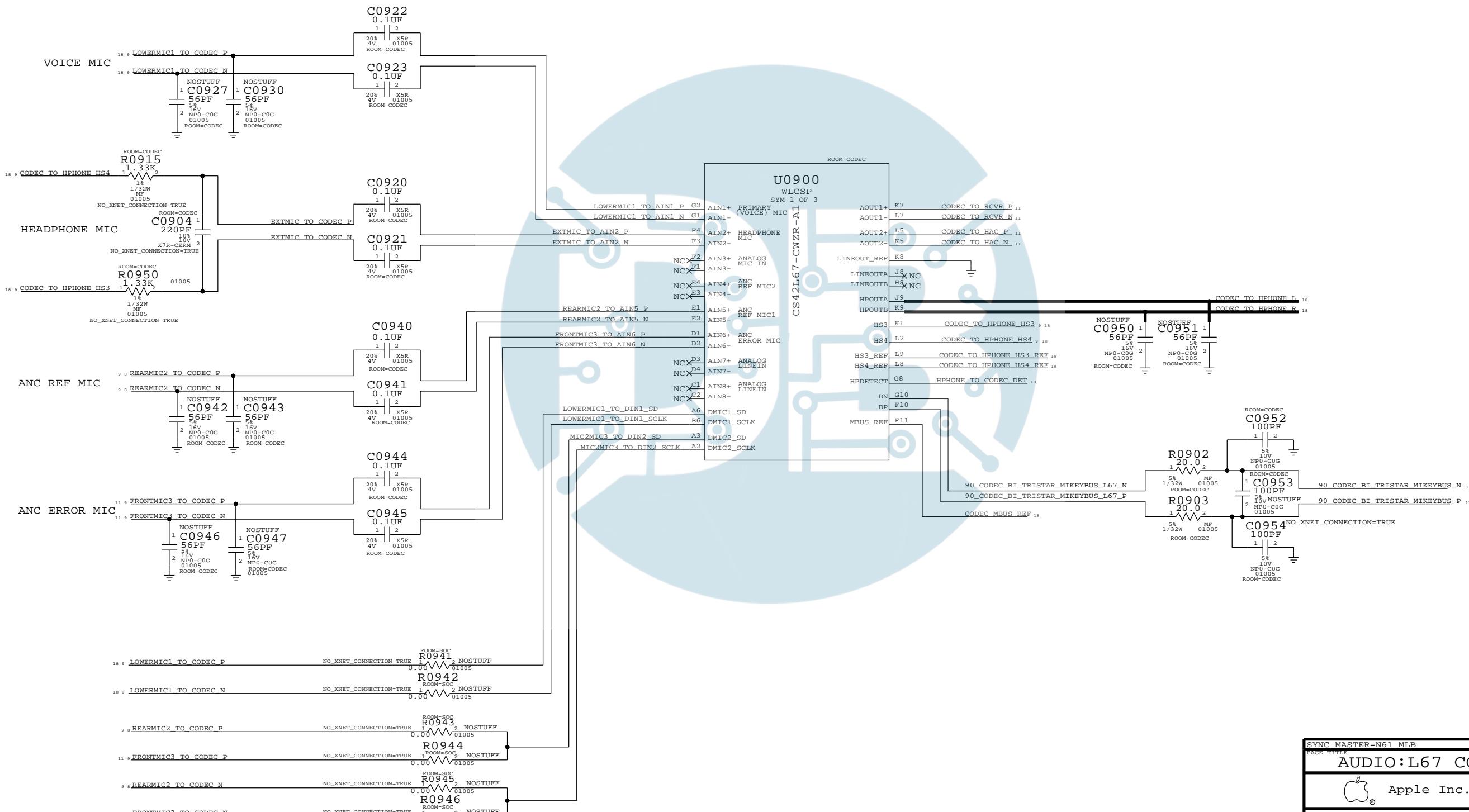
BUTTON FLEX (BUTTONS, ANC REF MIC, STROBE, STROBE_NTC, WIFI FLEX PAC



L67 AUDIO CODEC

AUDIO I/O

(ANALOG MIC IN, DIG MIC IN, HPOUT, LINEOUT, RECEIVER OUT, MIKEYBUS)



SYNC MASTER=N61 MLB	SYNC DATE=08/26/2013
PAGE TITLE: AUDIO:L67 CODEC (1/2)	
DRAWING NUMBER: 051-9903	SIZE: D
REVISION: 7.0.0	BRANCH:
PAGE: 9 OF 55	SHEET: 9 OF 54

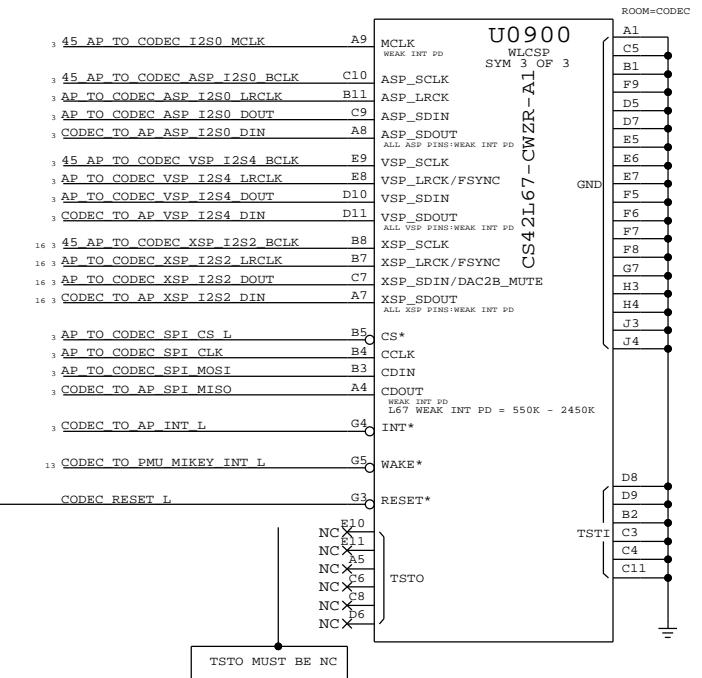
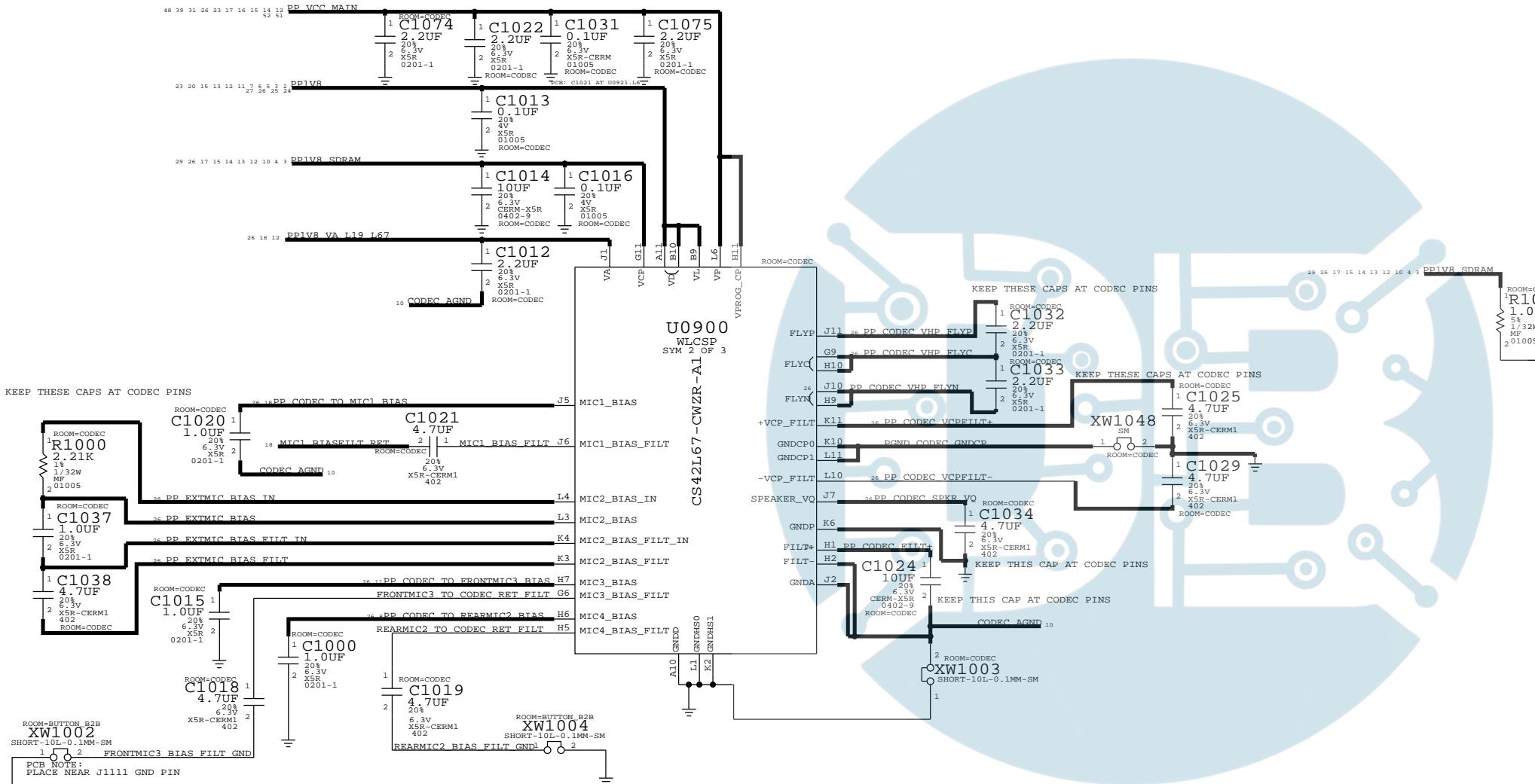
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L67 AUDIO CODEC

POWER, MICBIAS

DIGITAL SYSTEM I/O

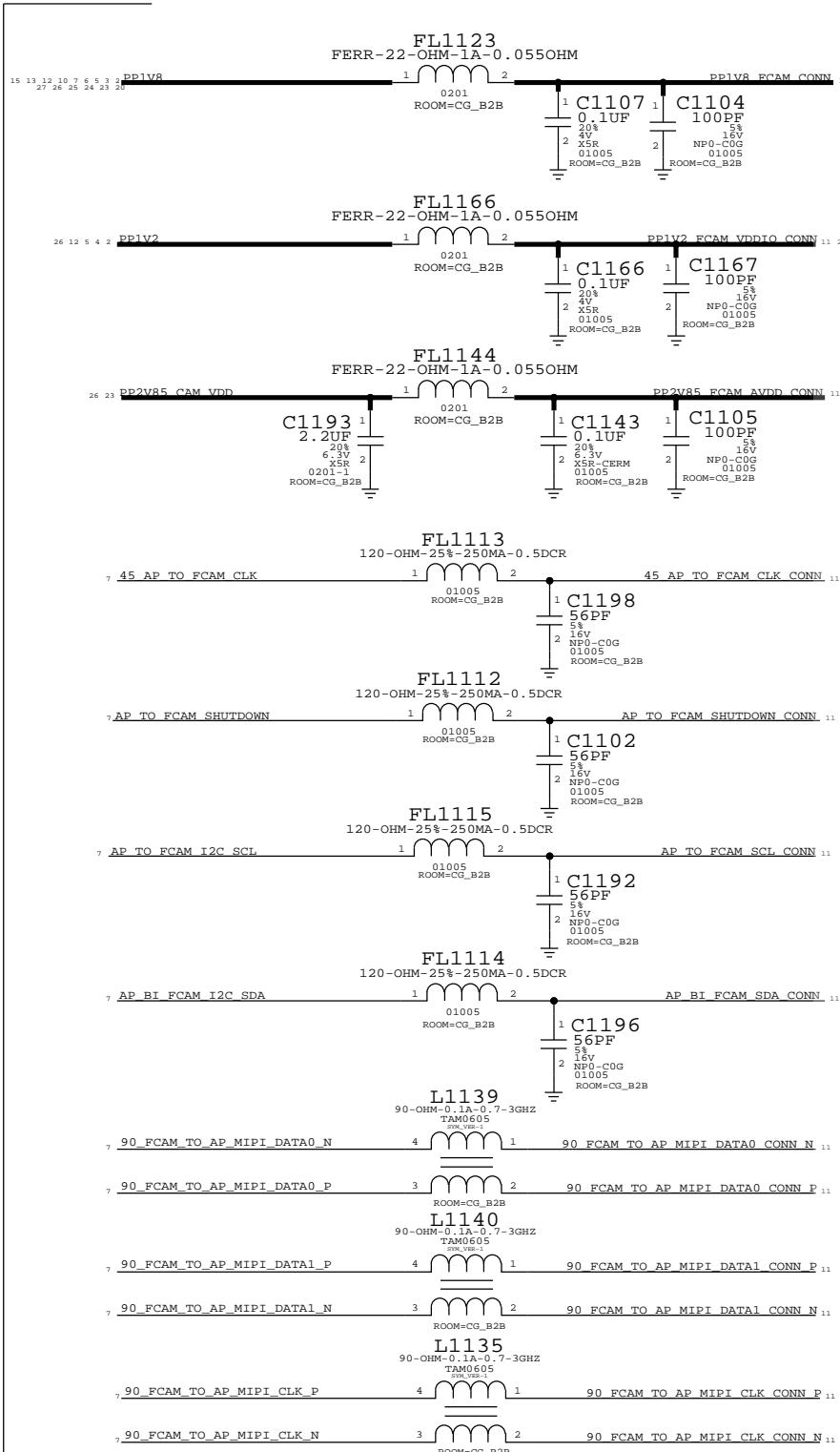
NOTE: C1022 WAS REDUCED TO 2.2UF BECAUSE OF
ADDITIONAL NEARBY VCC MAIN CAPS



SYNC MASTER=N61 MLB	SYNC DATE=08/26/2013
PAGE TITLE	AUDIO:L67 CODEC (2/2)
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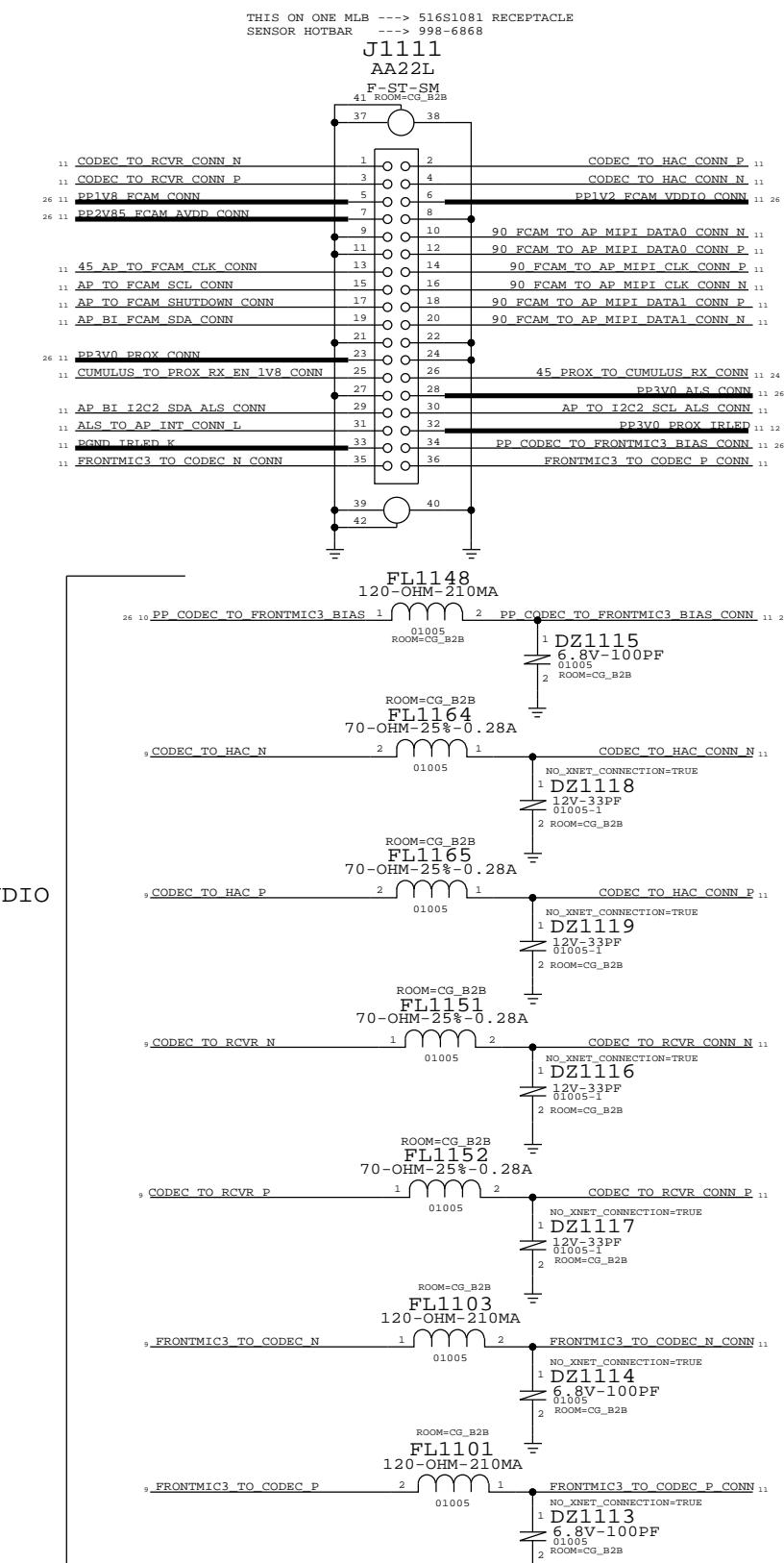
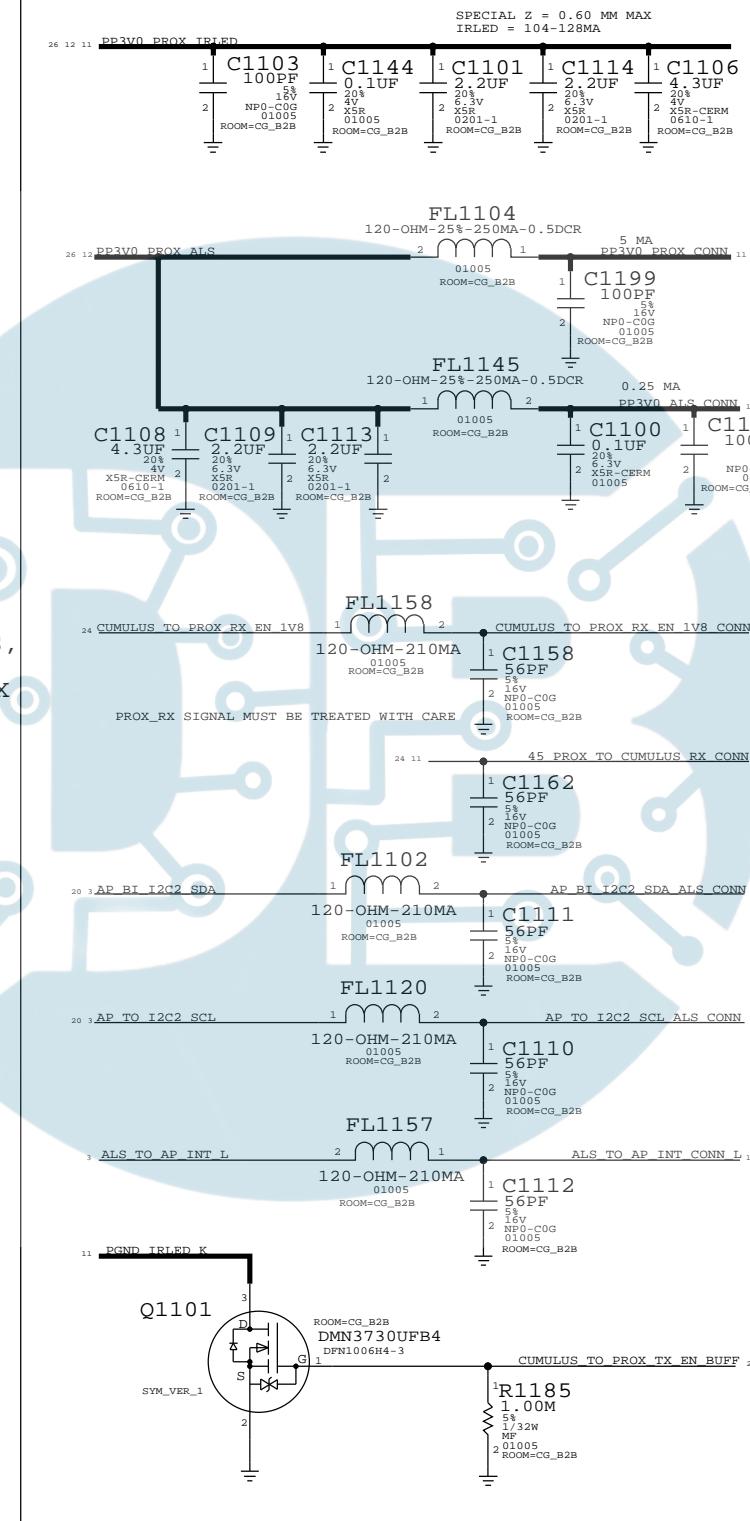
FRONT CAM FLEX B2B

(FCAM, PROX, ALS, RECEIVER, ANC ERROR MIC)



ALS,
PROX

AUDIO

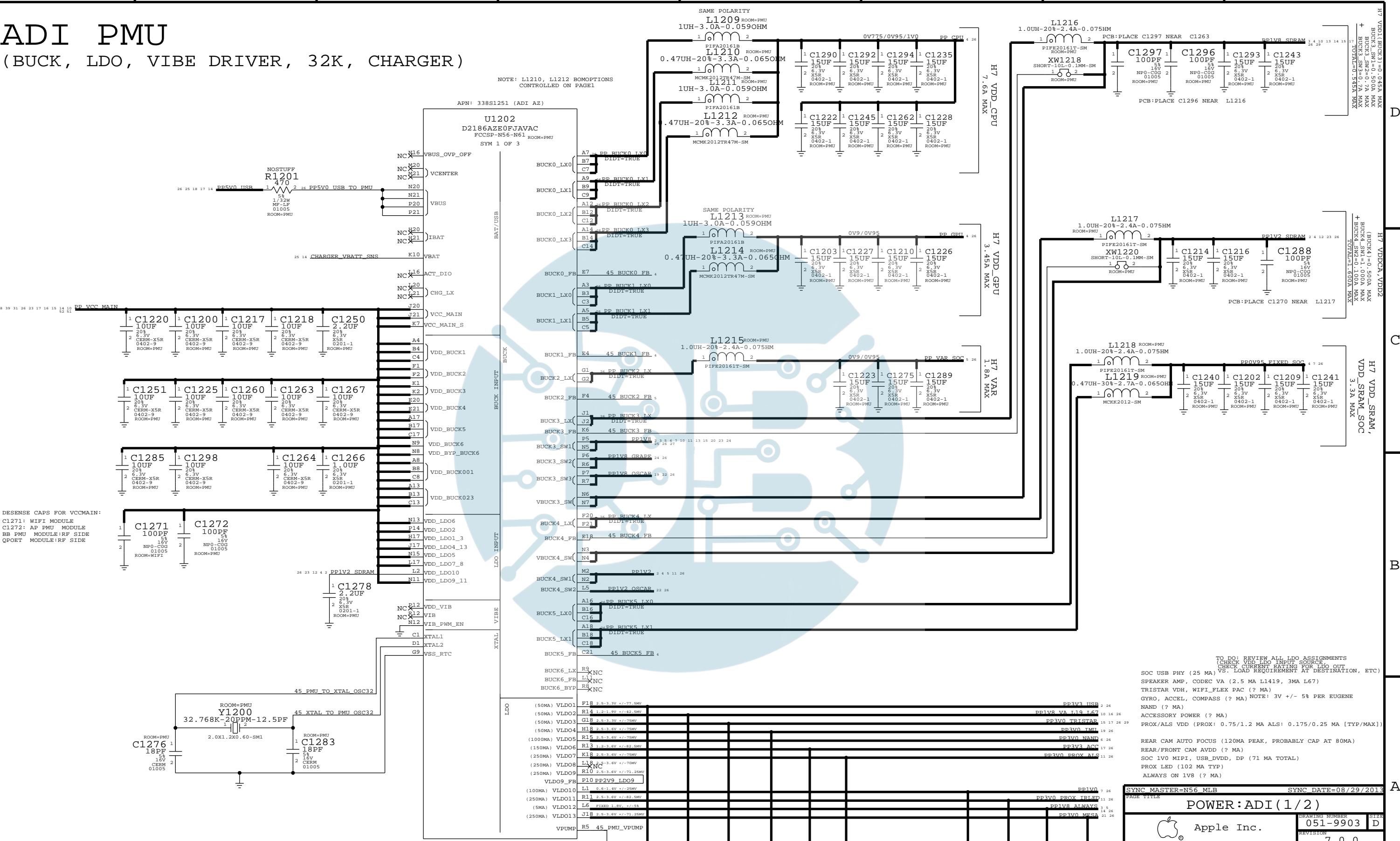


CAMERA: FRONT FLEX CONN	
SYNCHRONIZATION	Sync Master=N61 MLB
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ADI PMU

(BUCK, LDO, VIBE DRIVER, 32K, CHARGER)

NOTE: L1210, L1212 BOMOPTIONS
CONTROLLED ON PAGE1



ADI PMU

(AMUX, GPIO, BUTTONS, ADC, THERMISTORS, SYSTEM I/F, GND)

D

D

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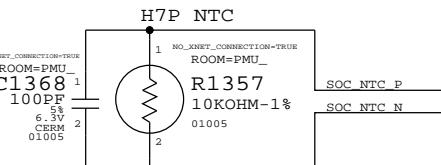
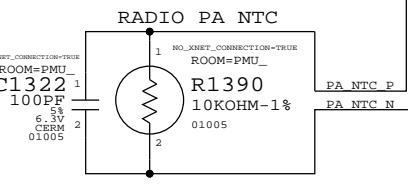
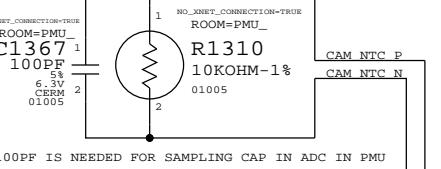
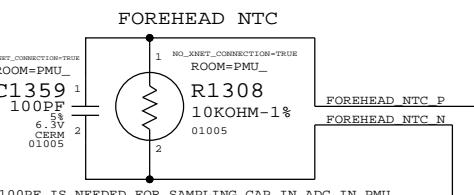
C

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AMUX VOLTAGE LIMIT IS APPROX. = VDD_REF = PP_VCC_MAIN

1.8V ---->
1.8V ---->
1.8V ----> 13 8 ;BUTTON TO AP RINGER A
1.8V ----> 8 ;BUTTON TO AP VOL UP L
1.8V ----> 8 ;BUTTON TO AP VOL DOWN L
3.33V ----> 20 15 ;LCM TO CHESTNUT_PWN_EN
3.33V ----> 15 ;CHESTNUT_TO_PMU_ADCIN7
3.33V ----> 25 ;PMU TO TP_AMUX_AY
3.33V ----> 29 ;RADIO TO PMU ADC_SMPSS1
3.33V ----> 29 ;RADIO TO PMU ADC_PP_LDD011_VDDIO
3.33V ----> 1.8V ----> 29 ;45 PMU TO WLAN_CLK32K
3.33V ----> 29 ;AP TO PMU ADC_PP_LD05_SIM
3.33V ----> 29 ;AP TO PMU_TEST_CLKOUT
3.33V ----> 29 ;RADIO TO PMU ADC_SMPSS4
3.33V ----> 29 ;PMU TO TP_AMUX_BY

PCB: MAKE XW1328, XW1329 ACCESSIBLE!

ROOM=PMU_
PP1300 1 P2MM-NSM
ROOM=PMU_ PP1301 1 P2MM-NSM

ROOM=PMU_
XW1306 1 2 SHORT-10L-0.1MM-SM

ROOM=PMU_
XW1309 1 2 SHORT-10L-0.1MM-SM

ROOM=PMU_
XW1304 1 2 SHORT-10L-0.1MM-SM

ROOM=PMU_
XW1311 1 2 SHORT-10L-0.1MM-SM

ROOM=PMU_
XW1308 1 2 SHORT-10L-0.1MM-SM

ROOM=PMU_
XW1333 1 2 SHORT-10L-0.1MM-SM

ROOM=PMU_
XW1314 1 2 SHORT-10L-0.1MM-SM

ROOM=PMU_
XW1315 1 2 SHORT-10L-0.1MM-SM

PLACE THESE XWS AT PMU

1.8V ---->
1.8V ---->
1.8V ----> 13 8 ;BUTTON TO AP RINGER A
1.8V ----> 8 ;BUTTON TO AP VOL UP L
1.8V ----> 8 ;BUTTON TO AP VOL DOWN L
3.33V ----> 20 15 ;LCM TO CHESTNUT_PWN_EN
3.33V ----> 15 ;CHESTNUT_TO_PMU_ADCIN7
3.33V ----> 25 ;PMU TO TP_AMUX_AY
3.33V ----> 29 ;RADIO TO PMU ADC_SMPSS1
3.33V ----> 29 ;RADIO TO PMU ADC_PP_LDD011_VDDIO
3.33V ----> 1.8V ----> 29 ;45 PMU TO WLAN_CLK32K
3.33V ----> 29 ;AP TO PMU ADC_PP_LD05_SIM
3.33V ----> 29 ;AP TO PMU_TEST_CLKOUT
3.33V ----> 29 ;RADIO TO PMU ADC_SMPSS4
3.33V ----> 29 ;PMU TO TP_AMUX_BY

ROOM=PMU U1202 D2186AZE0FJAVAC FCCSP-N56-N61 SYM 2 OF 3

NC XA1 AMUX_A0
NC XB1 AMUX_A1
D2 AMUX_A2
E1 AMUX_A3
E2 AMUX_A4
E3 AMUX_A5
H6 AMUX_A5
H5 AMUX_A6
H4 AMUX_A7
G4 AMUX_AY
J5 AMUX_B0
J6 AMUX_B1
K5 AMUX_B2
K8 AMUX_B3
L8 AMUX_B4
K9 AMUX_B5
L9 AMUX_B6
L10 AMUX_B7
L4 AMUX_BY
J4 SCL
K4 SDA
F8 PRE_UVLO
P3 RESET_IN1
P4 RESET_IN2
P5 RESET_IN3
P6 RESET_IN4
P7 PRE_IRO
P8 IRO
N1 SYS_ALIVE
NC XA15 PMU_IREF
G5 26PP PMU_VREF
E5 26PP PMU_VDD_REF
F7 26PP PMU_VDD_RTC
IREF
VREF
VDD_REF
VDD_RTC
BRICK_ID
ADC_IN7
ADC_REF
ACC_ID
TMPPR_DET
ACC_DET
BUTTON1
D21
BUTTON2
D20
BUTTON3
D20
BUTTON4
D20
L7
KEPACT
NO INT DET
SHDN
OUT_32K
E8 45 PMU_TO_WLAN_CLK32K
F17 CHG_TO_PMU_INT_L
F16 BB_TO_PMU_HOST_WAKE_L
E15 PMU_TO_BB_RST_R_L
F15 TRISTAR_TO_AP_INT
G17 STOCKHOLM_TO_PMU_HOST_WAKE
P45 PMU_TO_OSCAR_RESET_CLK32K_L
E17 PMU_TO_OSCAR_RESET_CLK32K_L
F16 WLAN_TO_PMU_HOST_WAKE_L
E14 CODEC_TO_PMU_MIKEY_INT_L
H16 PMU_TO_BT_REG_ON
G16 BT_TO_PMU_HOST_WAKE
F14 PMU_TO_WLAN_REG_ON
F13 AP_TO_I2CO_SCL
E13 OSCAR_TO_PMU_HOST_WAKE
E14 NC
E11 PMU_TO_BB_VBUS_DET
F12 NC
G16 WLAN_TO_PMU_PCIE_WAKE_L
E9 PMU_TO_ACC_SW_ON
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TIGRIS CHARGER & VIBE DRIVER

D

D

C

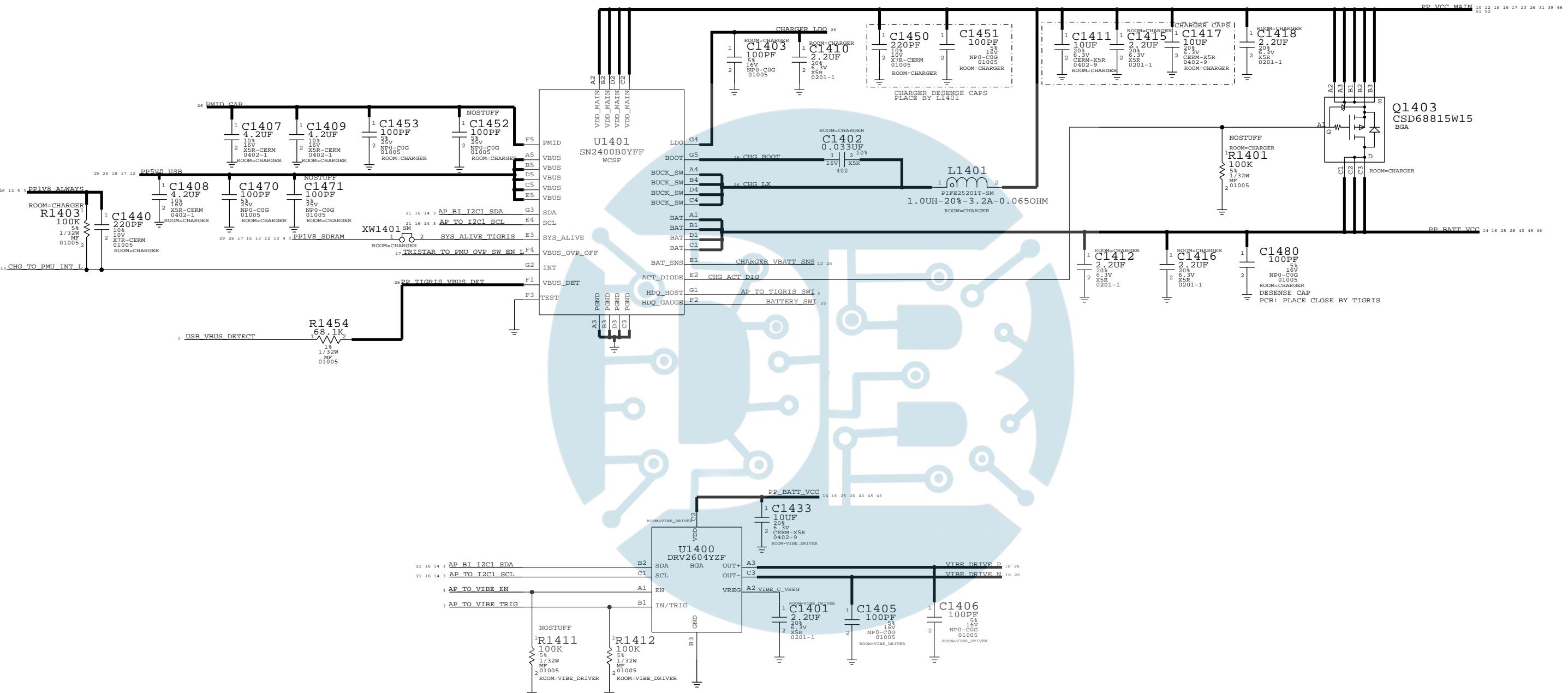
C

B

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A

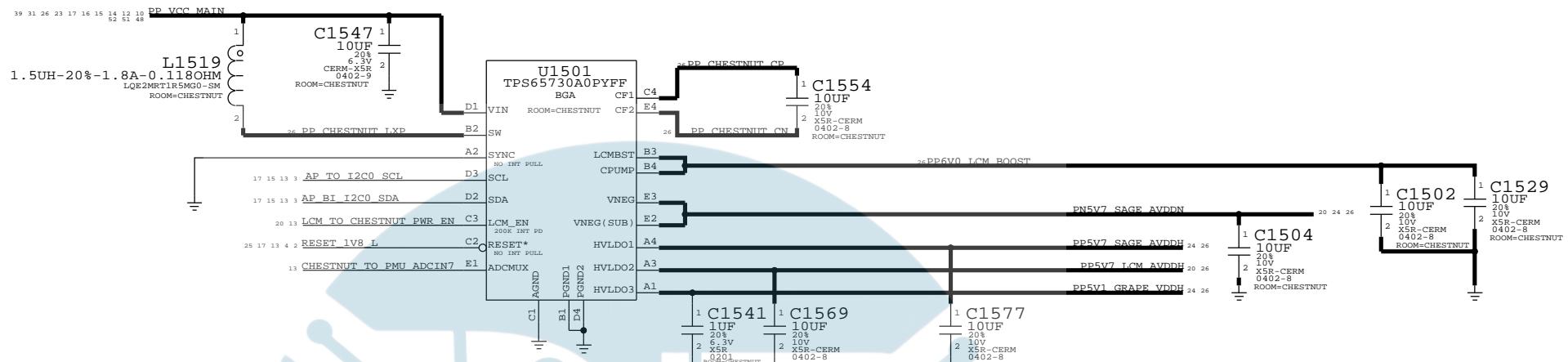
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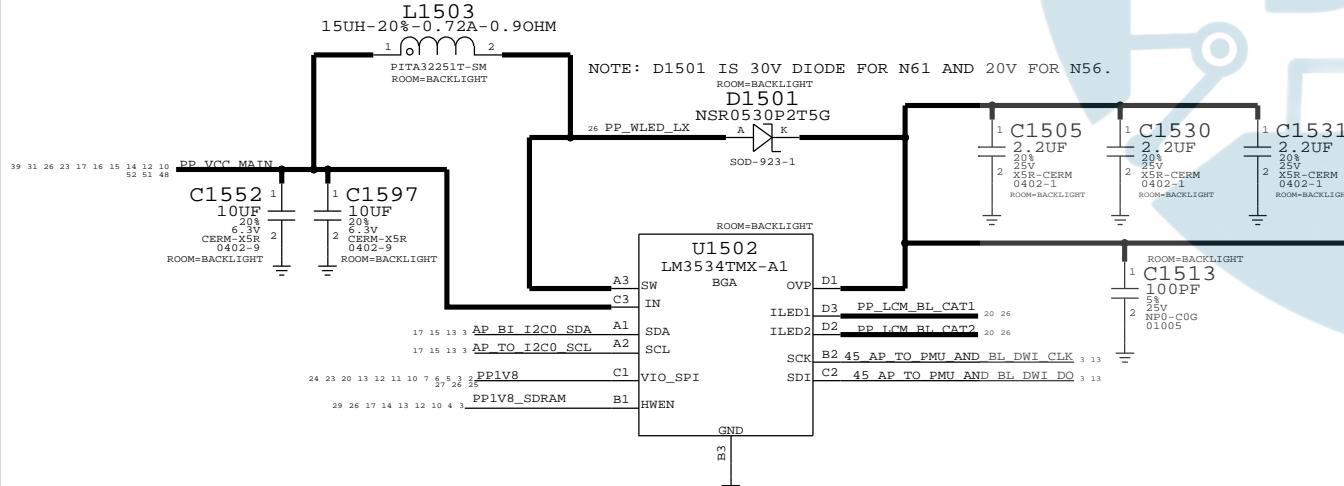
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REVISION 7.0.0 BRANCH PAGE 14 OF 55 SHEET 14 OF 54			

CHESTNUT, BACKLIGHT DRIVER, MESA BOOST

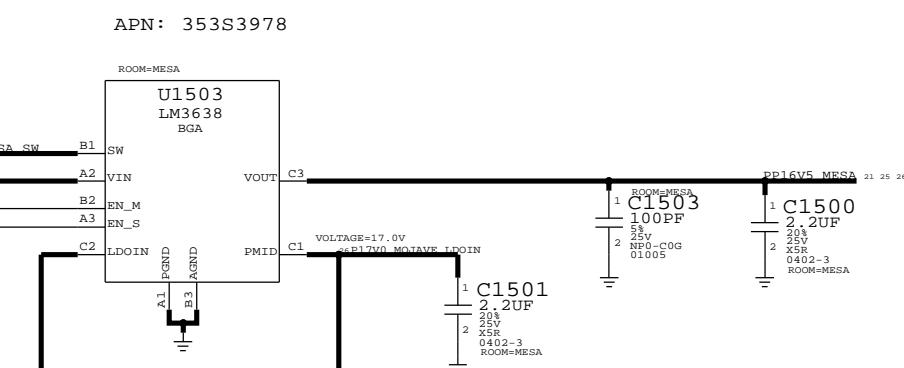
D500 DISPLAY PMU (TI CHESTNUT, 338S1149)



D500 BACKLIGHT DRIVER



MESA BOOST A0

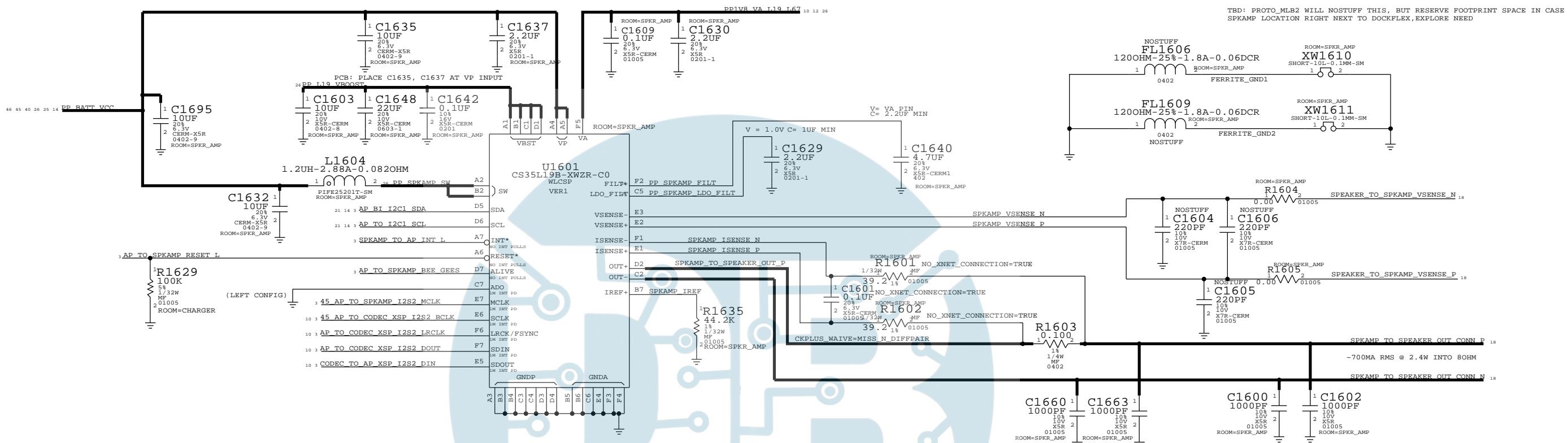


SYNC MASTER=N61 MLB		SYNC DATE=08/26/2013	
DISPLAY: CHESTNUT, BACKLIGHT DRIVER			
Apple Inc.		DRAWING NUMBER 051-9903 D	
REVISION 7.0.0		SIZE	
BRANCH		01005	
PAGE 15 OF 55		0402-3	
SHEET 15 OF 54		0402-8	
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SPEAKER AMP, LED DRIVER

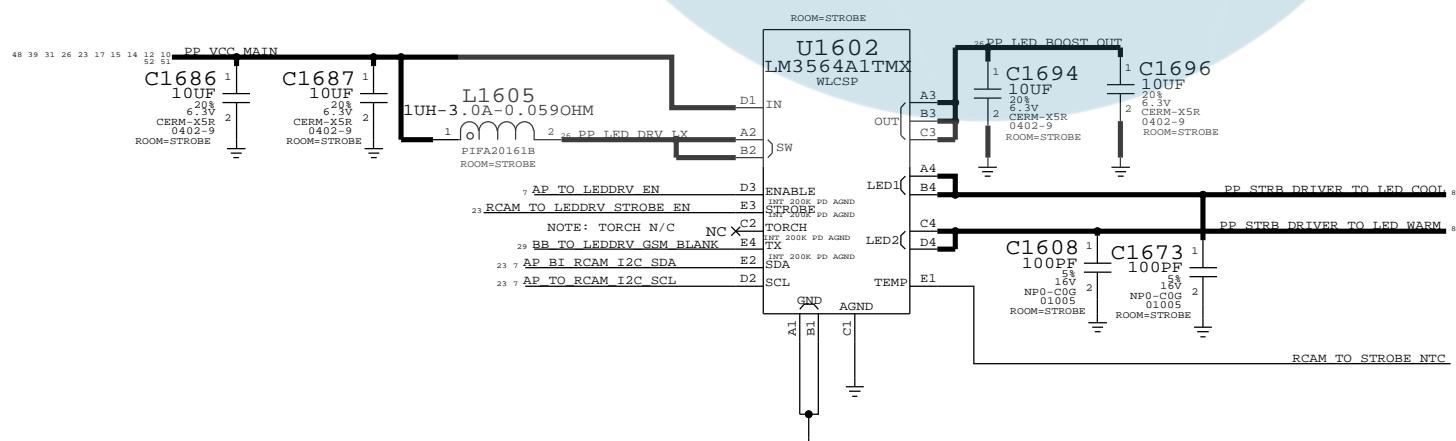
SPEAKER AMP

I2C ADDRESS: 1000000X



STROBE DRIVER

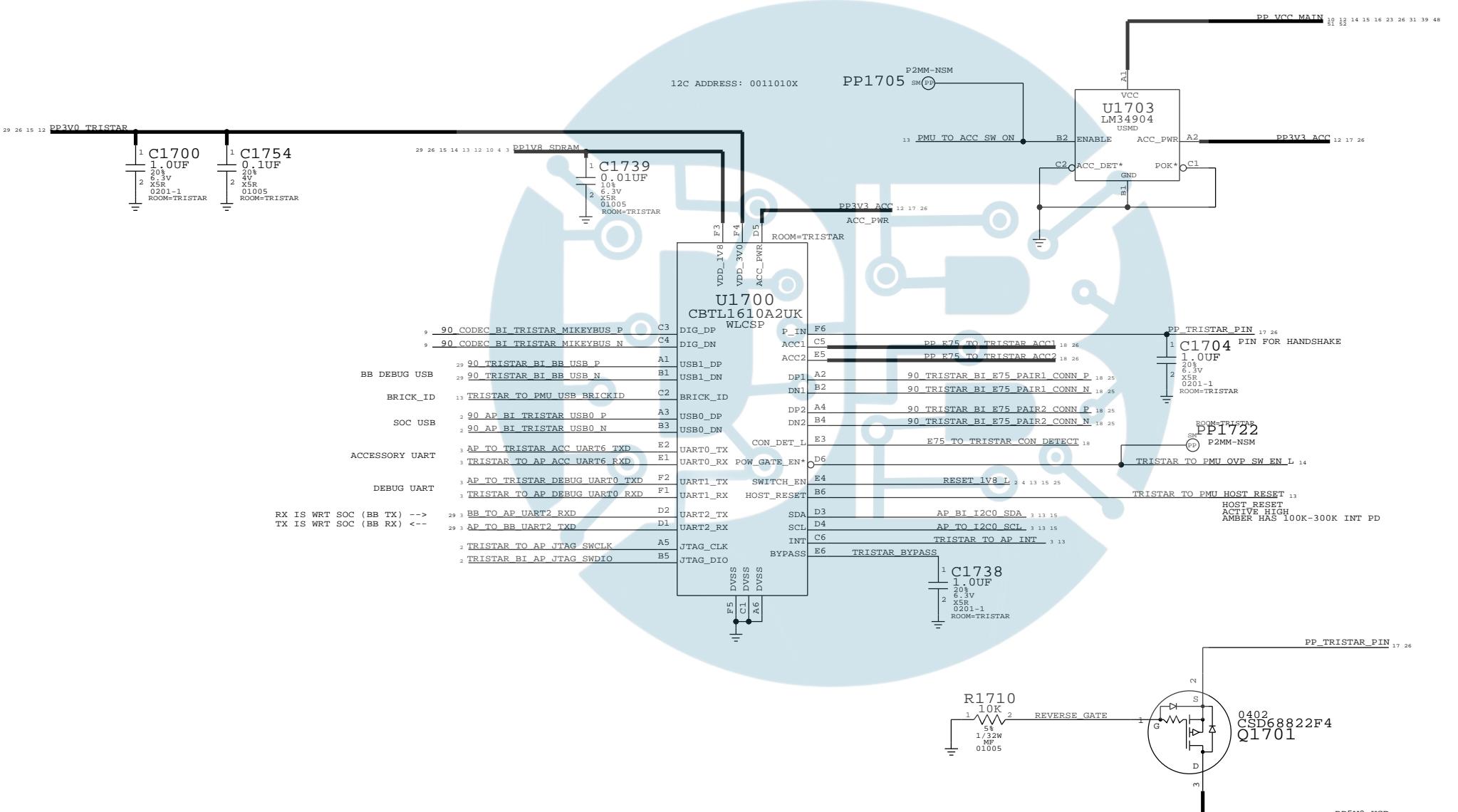
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DRAWING NUMBER	051-9903	SIZE
REVISION	7.0.0	
BRANCH		
PAGE	16 OF 55	
SHEET	16 OF 54	

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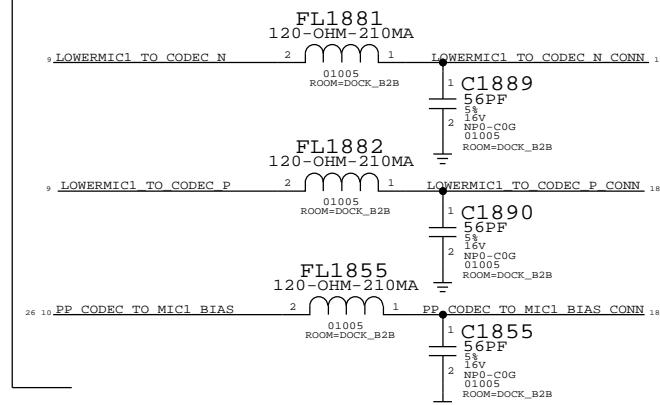
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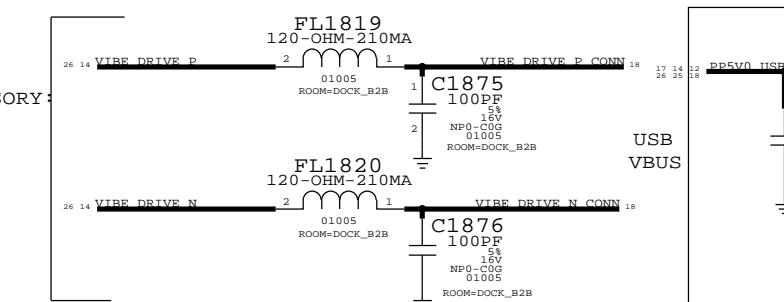
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DOCKFLEX B2B (USB VBUS, SPEAKER, ANTENNA LAT SW CTRL, MIC1 (PRIMARY MIC), ACC DET/ID/PWR, E75 DIFFPAIRS)

D
LOWER MIC1
(PRIMARY
VOICE MIC)



ACCESSORY
VIBE
DRIVE



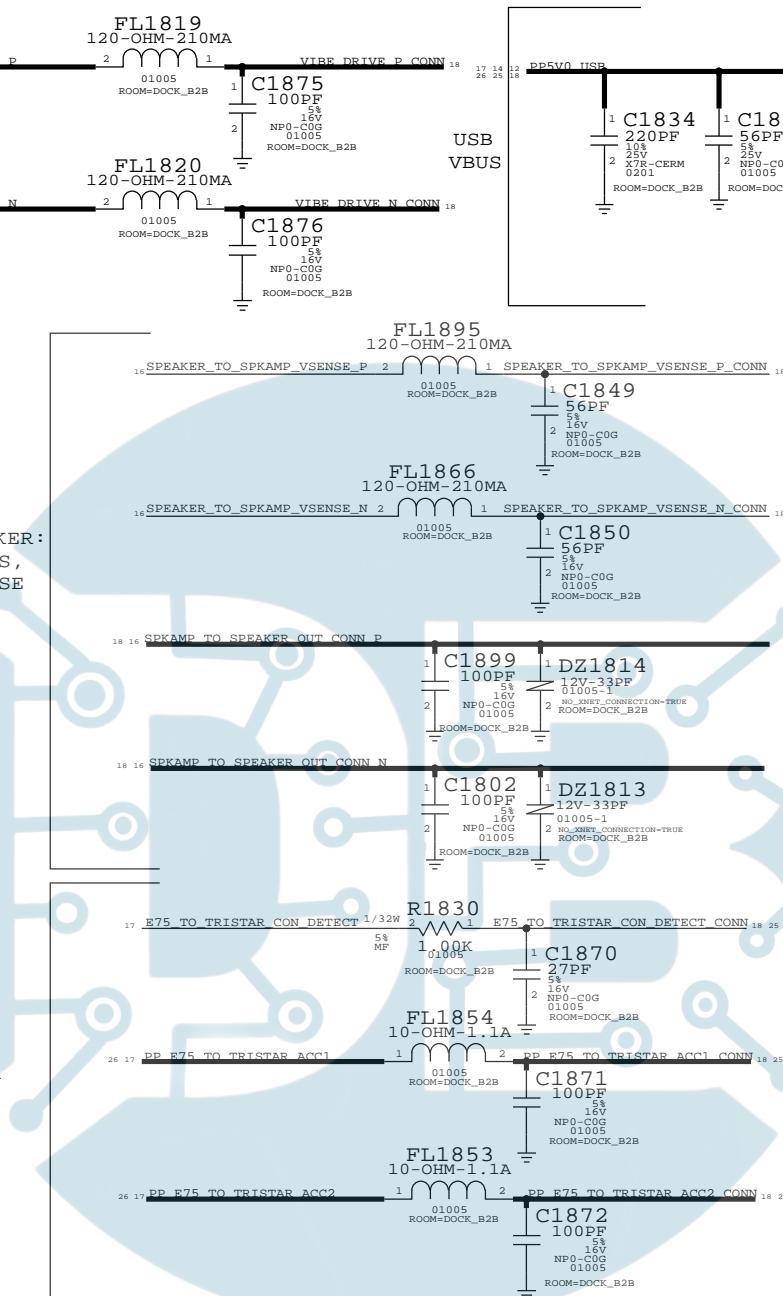
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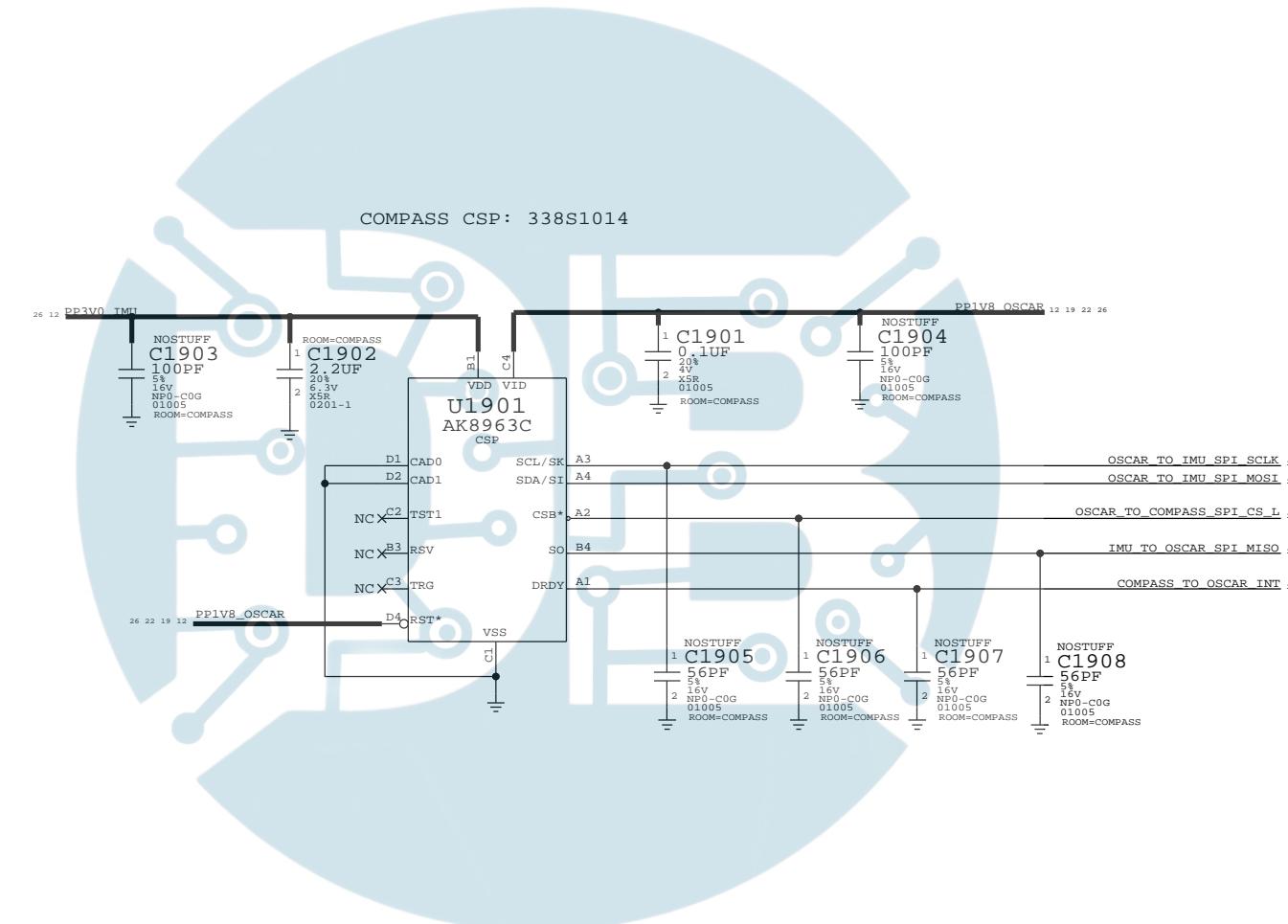
TRISTAR



ANTENNA

SYNC MASTER=N61 MLB		SYNC DATE=08/26/2013
IO: DOCK FLEX CONN		
Apple Inc.		
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DRAWING NUMBER	051-9903	SIZE
REVISION	7.0.0	
BRANCH		
PAGE	18 OF 55	
SHEET	18 OF 54	

COMPASS - AKM COMPASS IN POR LOCATION



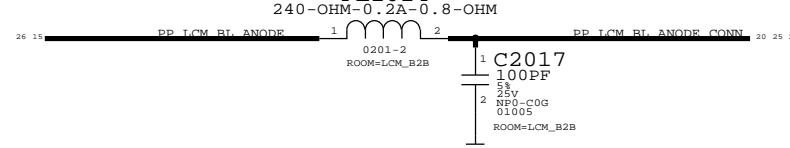
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PAGE 19 OF 55	SHEET 19 OF 54

LCD B2B

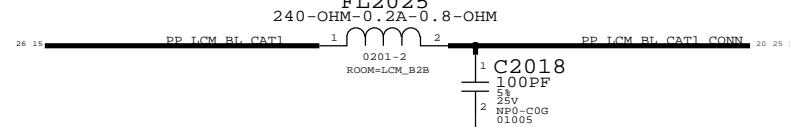
Backlight

(N56 HAS A 2ND SET OF BL SIGNALS ON P. 19).

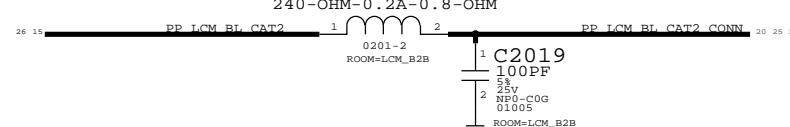
FL2024
240-OHM-0.2A-0.8-OHM



FL2025
240-OHM-0.2A-0.8-OHM



FL2026
240-OHM-0.2A-0.8-OHM



LCM Supplies

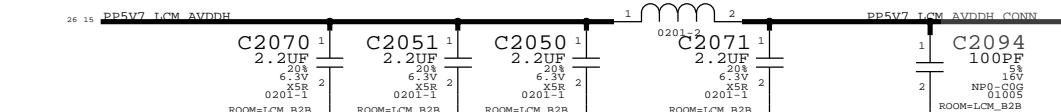
FL2027
80-OHM-0.2A-0.4-OHM



FL2061
70-OHM-300MA

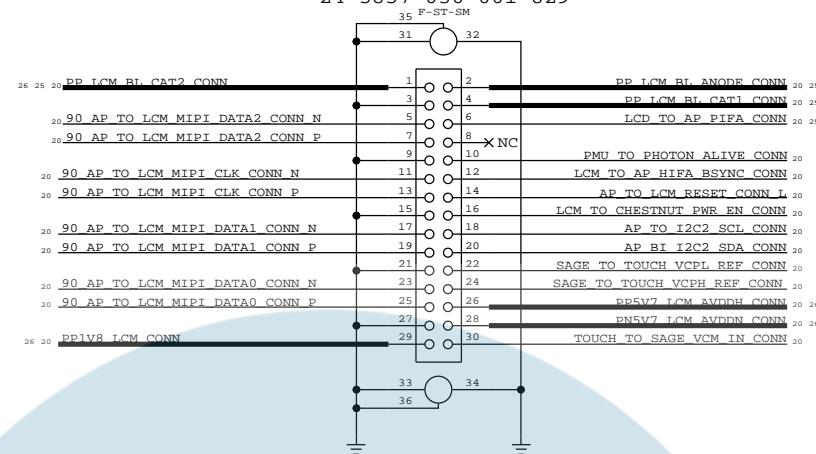


FL2037
80-OHM-0.2A-0.4-OHM



THIS ONE ON MLB ---> 516S1164

J2019
24-5857-030-001-829



MIPI Common Mode Chokes
(N56 HAS A 4TH MIPI LANE ON P. 19).

L2044



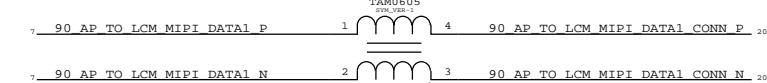
L2043



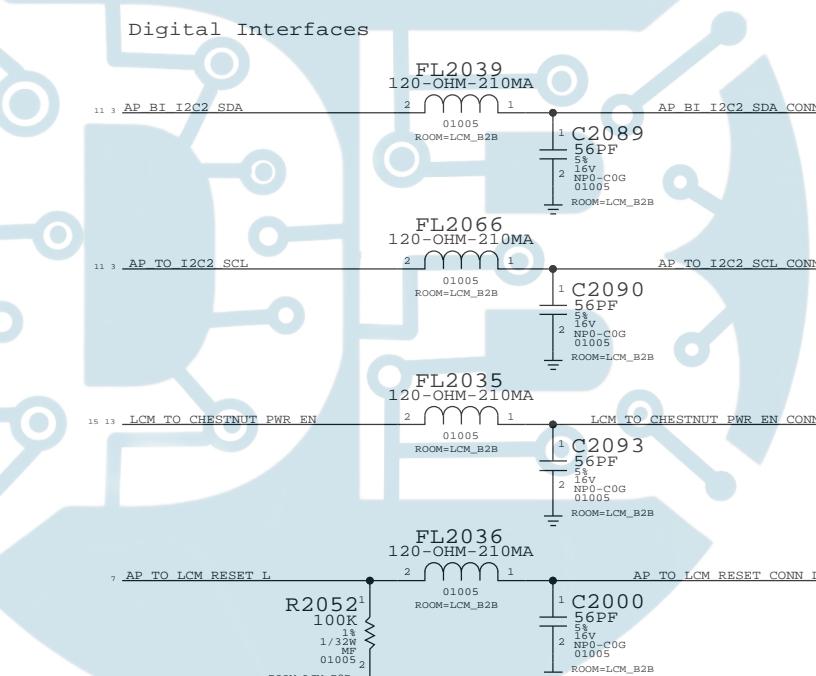
L2042



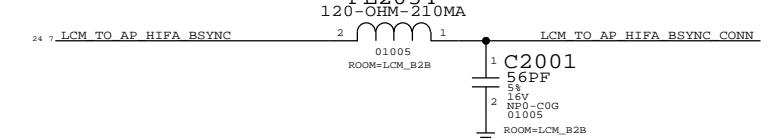
L2041



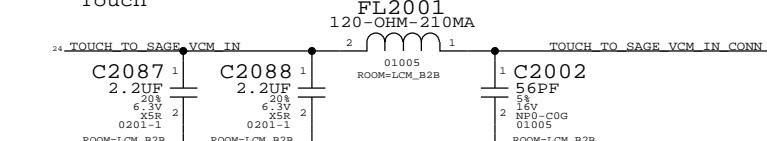
Digital Interfaces



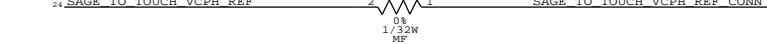
Sync/Reset/Debug



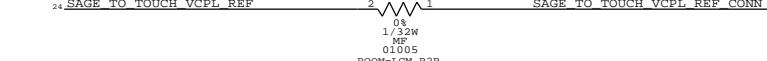
Touch



R2008



R2009



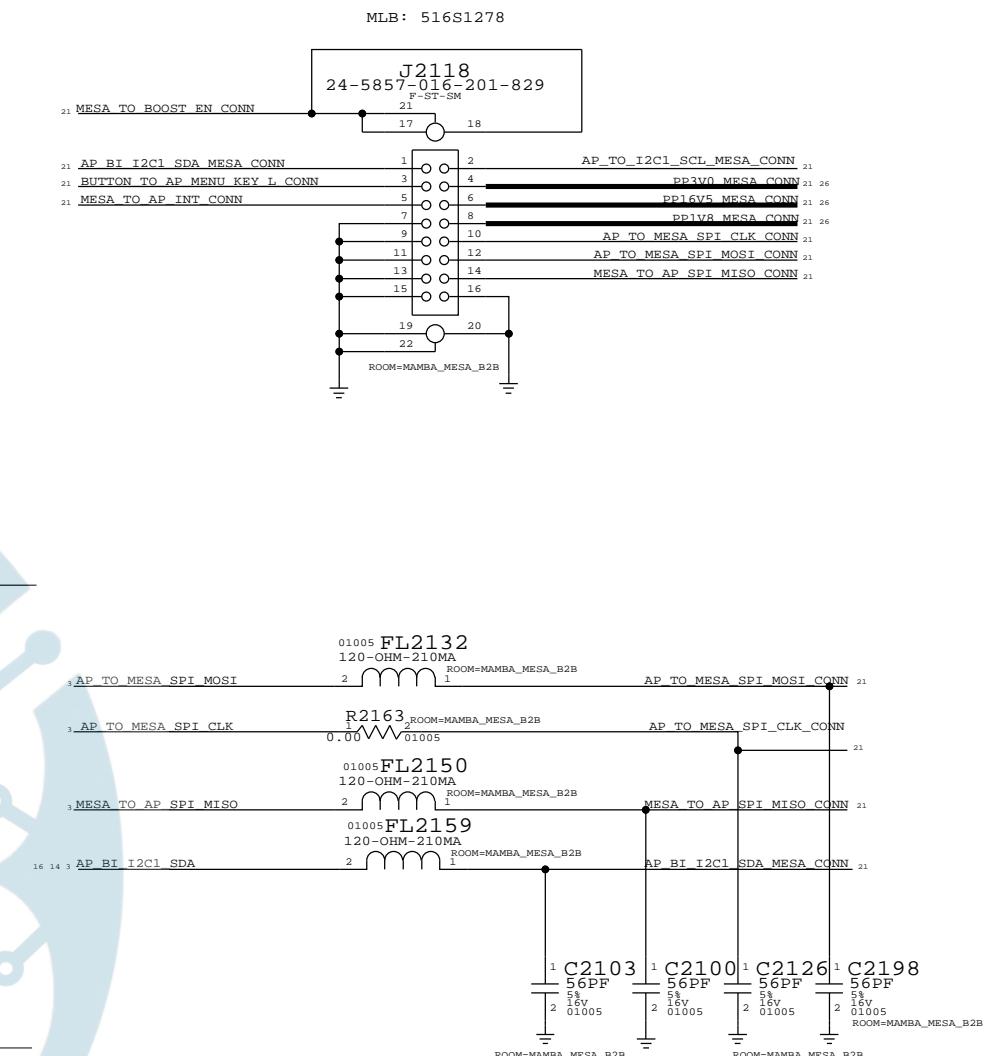
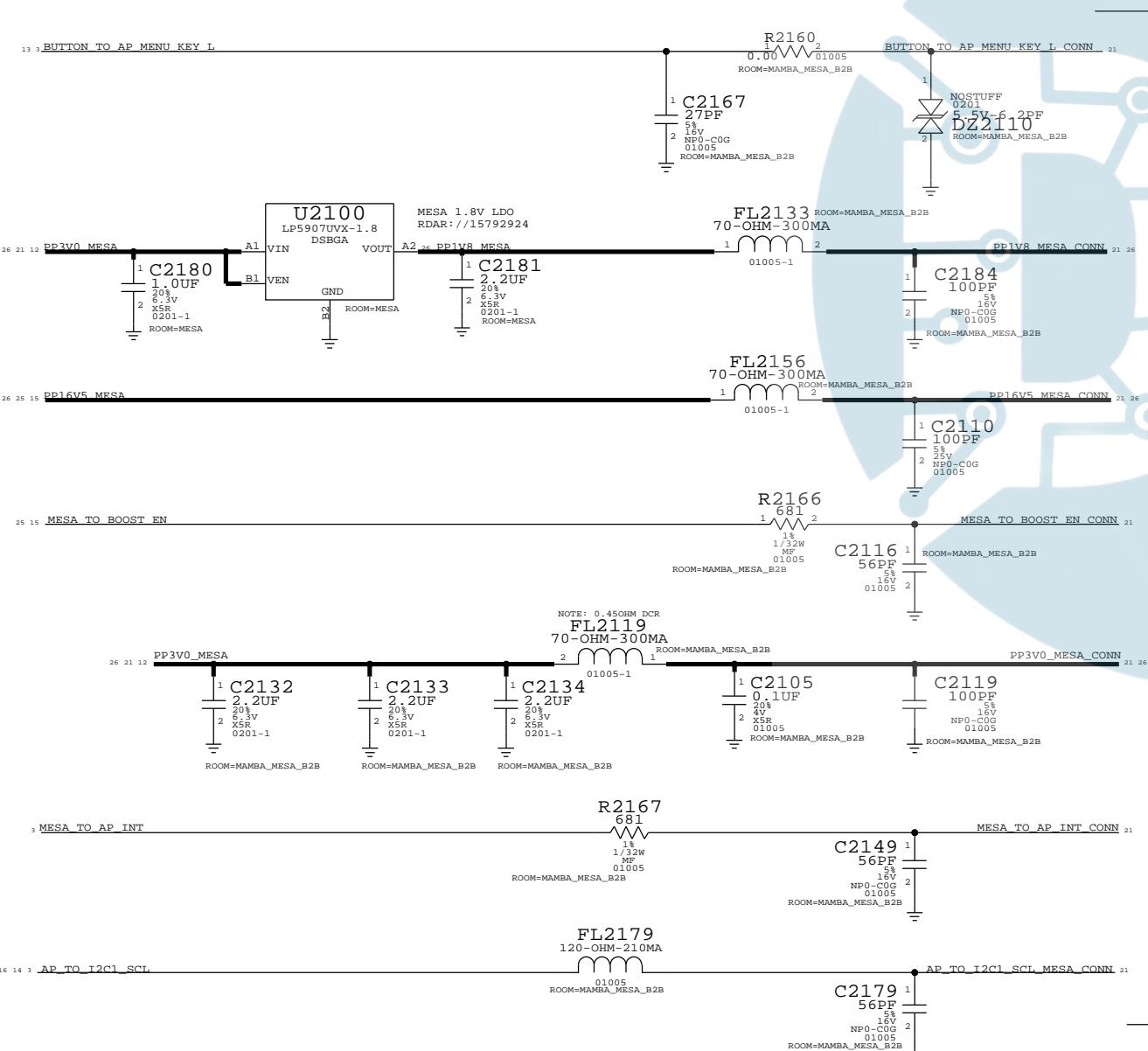
LCD TO AP PIFA CONN



SYNC MASTER=N61 MLB	SYNC DATE=08/26/2013
PAGE TITLE	
Apple Inc.	DISPLAY:FLEX CONN
DRAWING NUMBER	051-9903 D
REVISION	7.0.0
BRANCH	
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MESA CONNECTOR

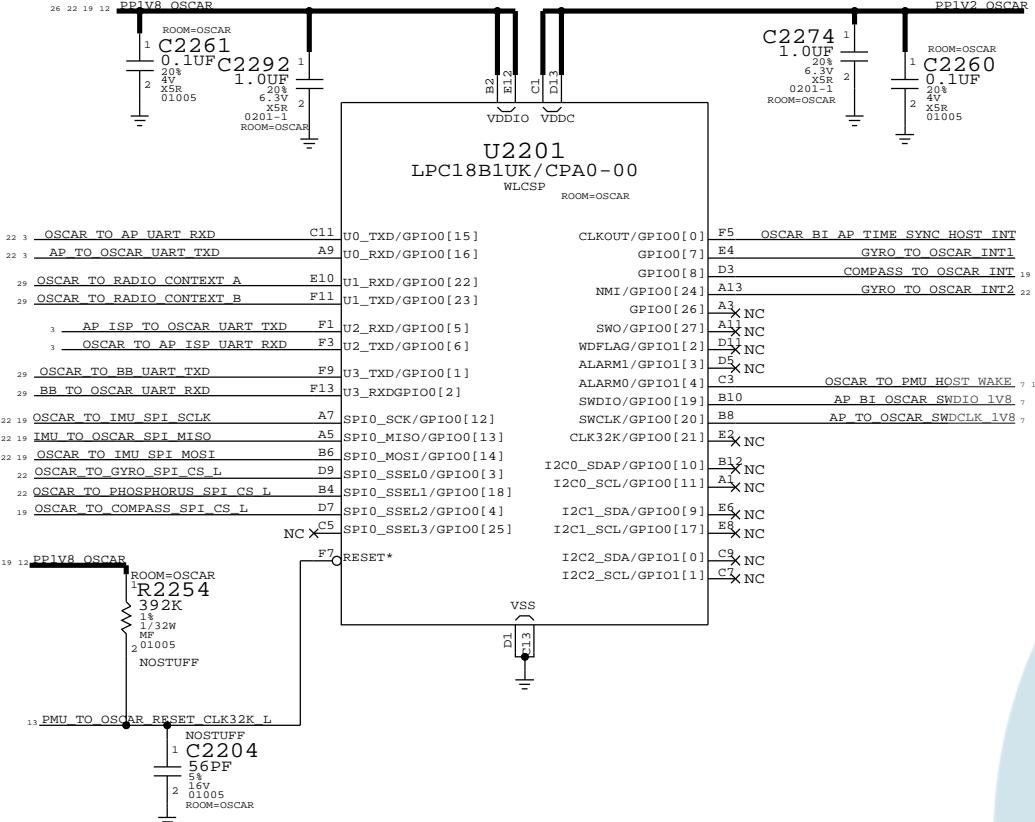


E TITLE		SENSORS : MESA FLEX CONN	
 Apple Inc.		DRAWING NUMBER	051-9903
		REVISION	7.0.0
		BRANCH	
		PAGE	21 OF 55
		SHEET	21 OF 54

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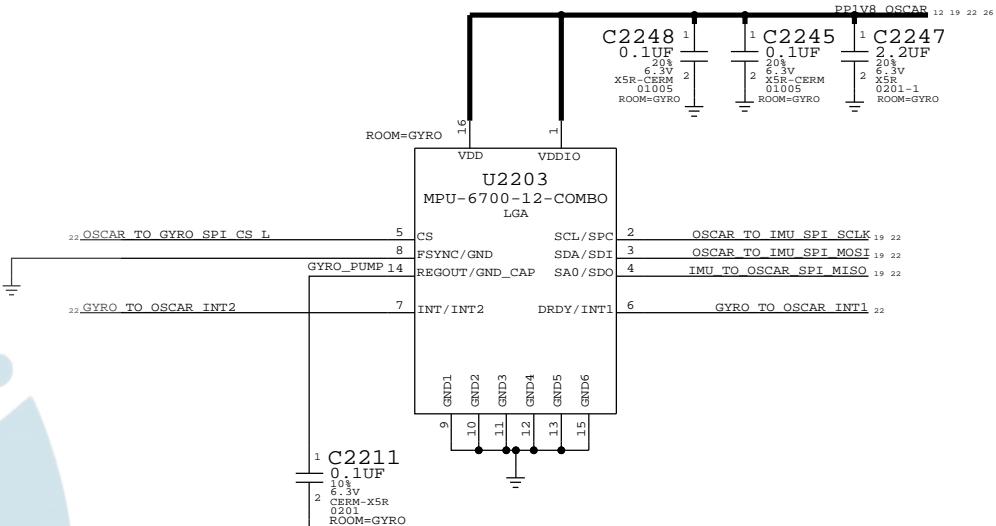


OSCAR VDDIO = 1.8V ALWAYS ON (NEED TO WAKE HOST & RUN PLL)
OSCAR CORE = 1.2V ALWAYS ON (NEED TO RUN IN S2RAM)



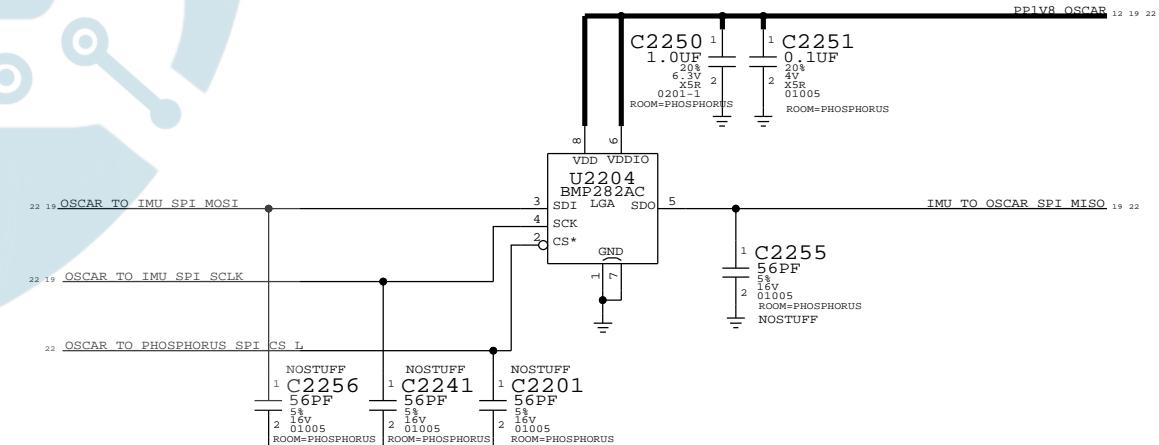
CARBON (ACCEL GYRO COMBO)

INVENSENSE, APN 338S00017, C2211=0.1UF
BOSCH, APN 338S00028, C2211=0.1UF
ST, APN 338S00029, C2211=0.01UF, 25V



THIS IS OUTSIDE OF SHIELD IN
TO THE RIGHT OF THE NAND

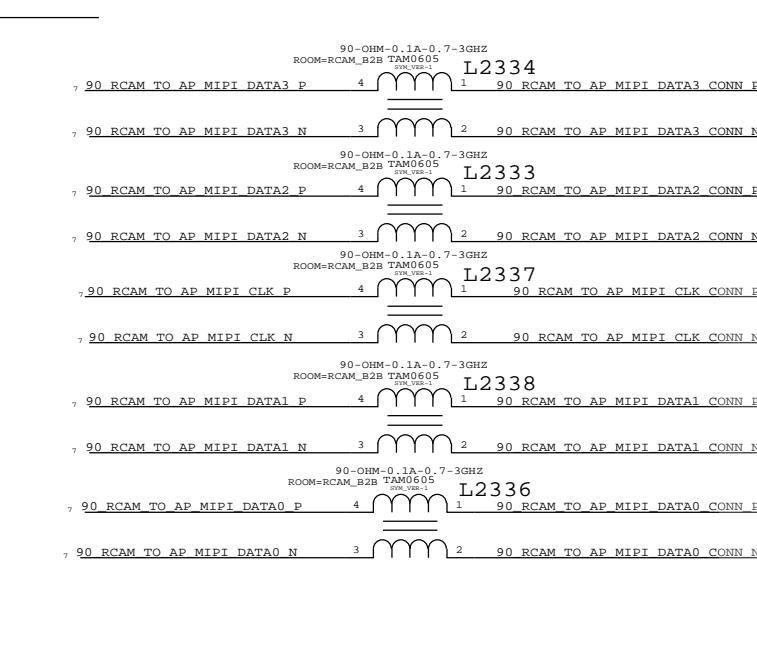
PHOSPHORUS



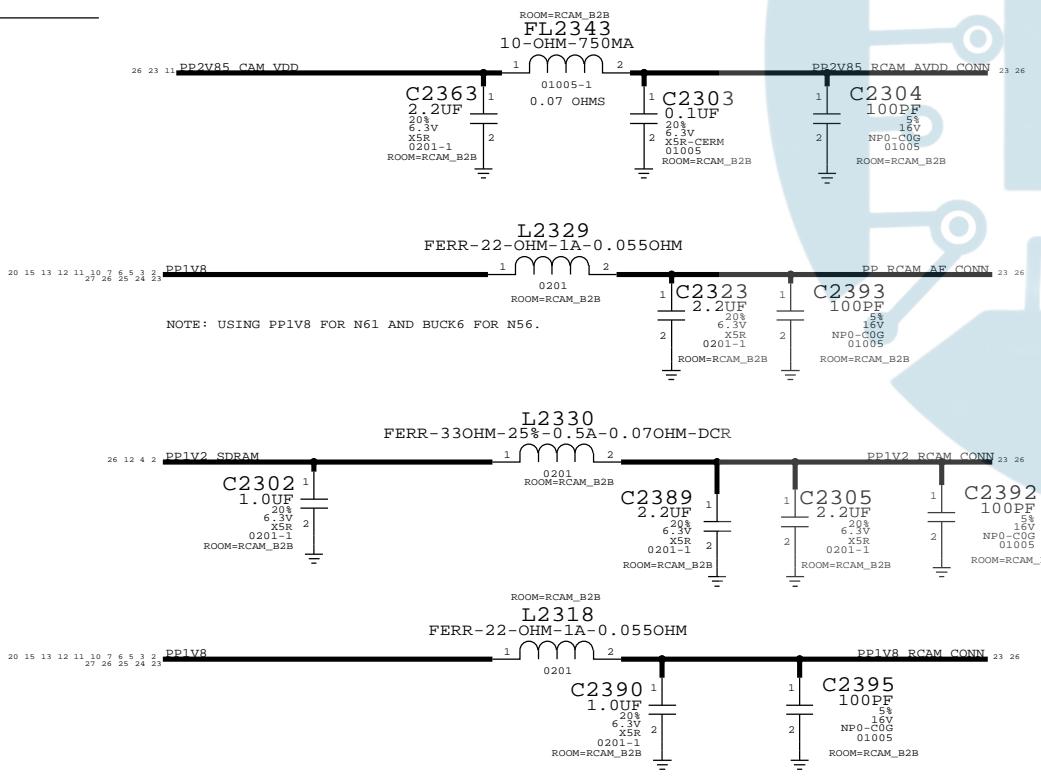
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PAGE TITLE			
SENSORS:OSCAR,CARBON,PHOS,MAGNESIUM			
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RCAM B2B (REAR CAMERA CONNECTOR)

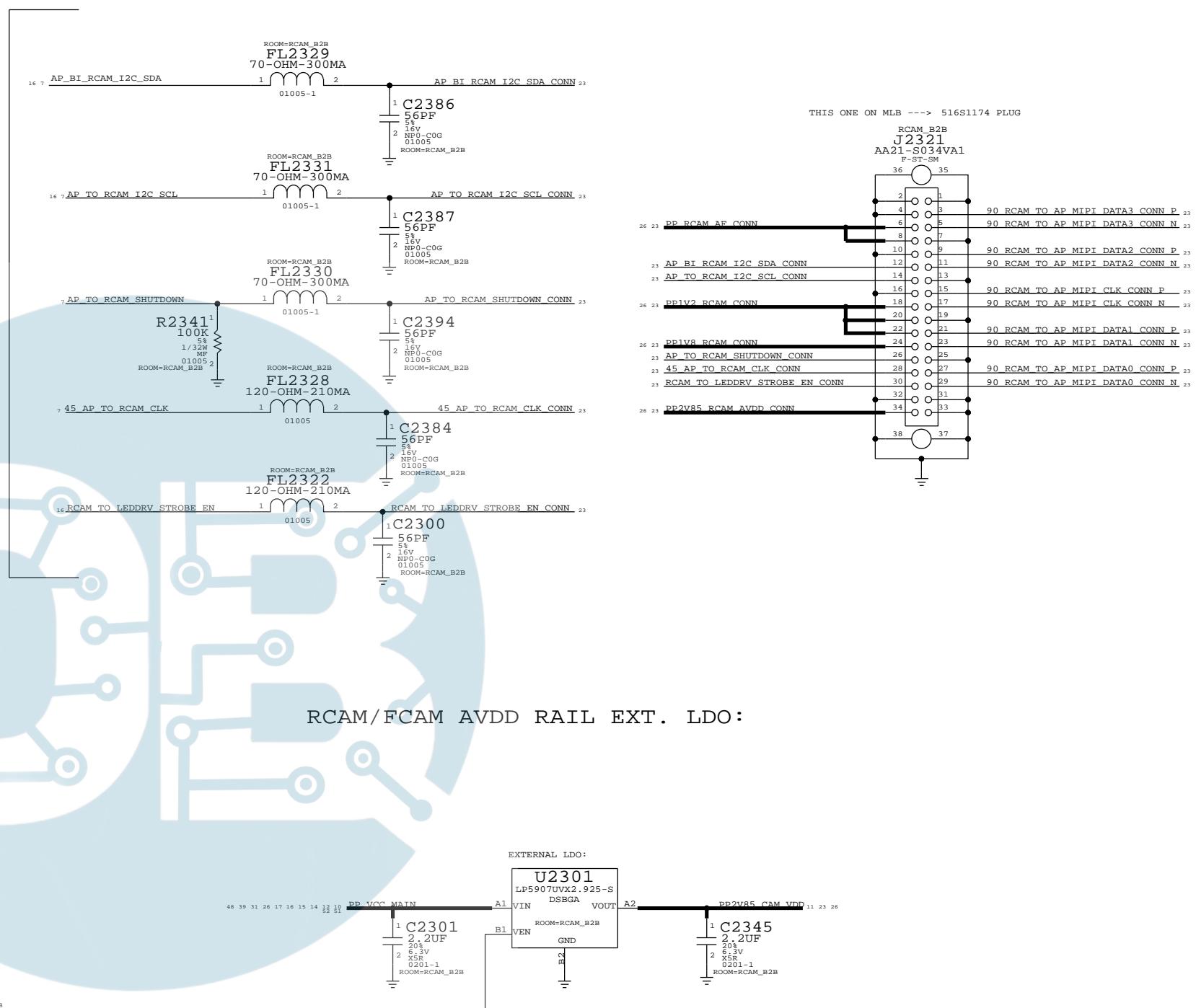
RCAM:
4-LANE MIPI



RCAM:
DIGITAL I/F
(I2C, CTRL, CLK)



RCAM:
POWER:
(1.8V DVDD)
(2.8V AVDD)
(1.2V VCC)
(1.8V/2V AF)

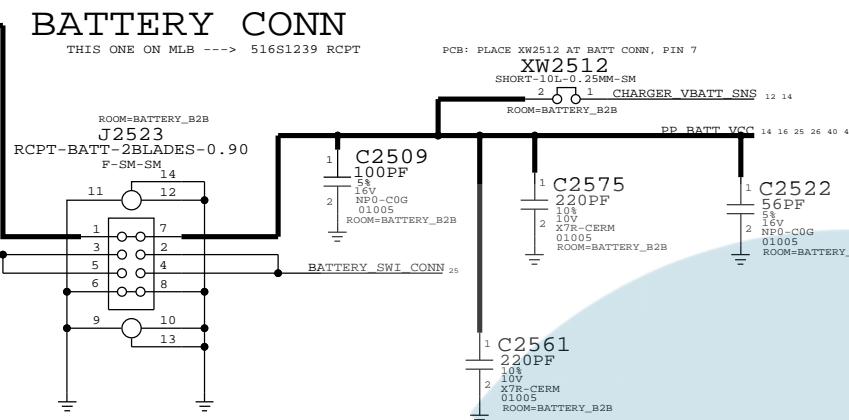
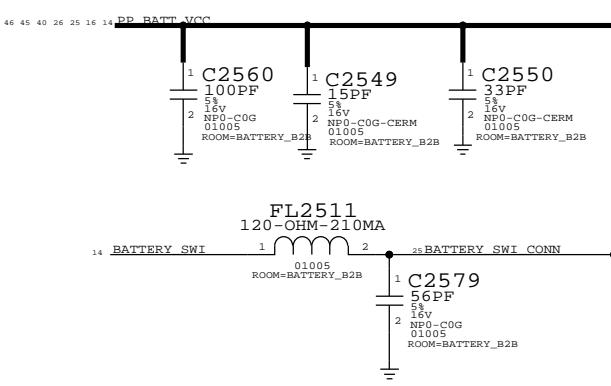


RCAM/FCAM AVDD RAIL EXT. LDO:

SYNC MASTER=N61_MLB	SYNC DATE=08/26/2013
PAGE TITLE	CAMERA:REAR FLEX CONN
 Apple Inc.	
DRAWING NUMBER	051-9903 D
REVISION	7.0.0
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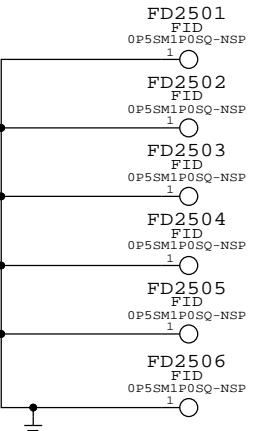
BATT CONN, TPS, STANDOFFS/SHIELDS/FIDUCIALS

D



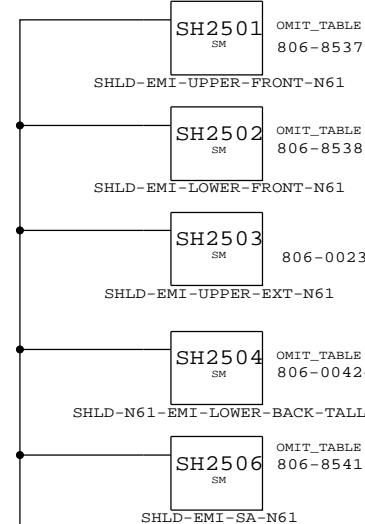
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FIDUCIALS



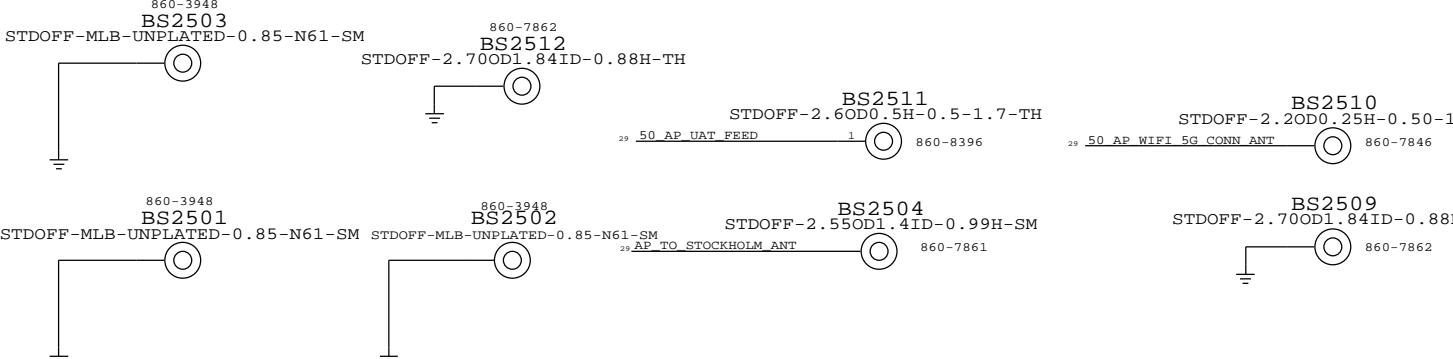
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SHIELDS

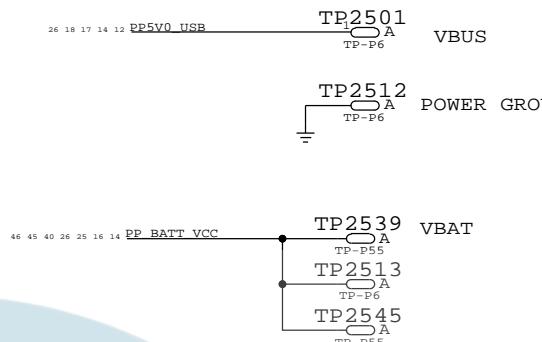


A

SCREW HOLES + STANDOFFS



POWER TP

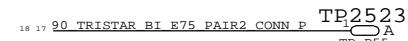
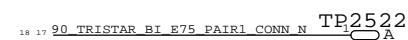
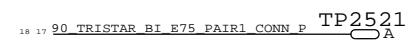


TESTPOINTS

MOJAVE TP

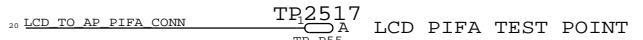
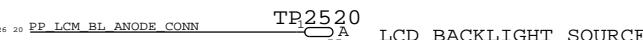
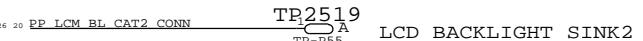
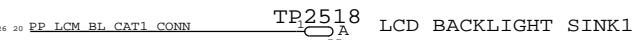


E75 - USB/UART/ID/POWER

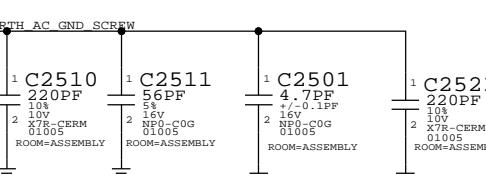


TP2535 A TP IS TO HELP WITH USB SI
IN THE FACTORY FIXTURE.

LCM BACKLIGHT



SUPER TP



SYNC MASTER=N61_MLB	SYNC DATE=08/26/2013
PAGE TITLE	
POWER:BATT CONN, TPS, PD FEATURES	
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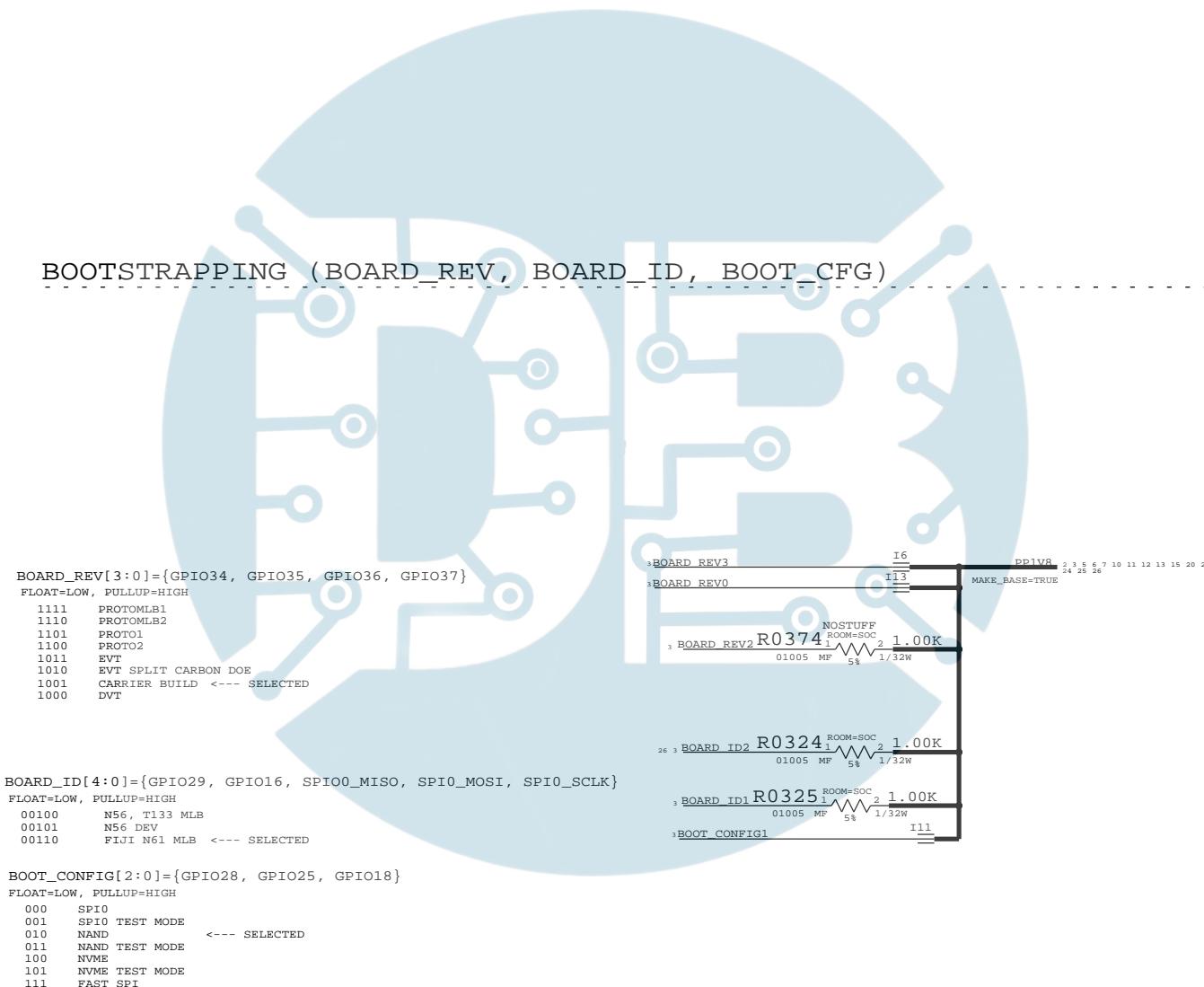
VOLTAGE PROPERTIES

E51	VOLTAGE=3.3V	PP3V3_USB	2 12		E51	VOLTAGE=5.0V	PP_LED_DRV_LX	16
E52	VOLTAGE=1.8V	PP1V8_VA_L19_167	10 12 16		E52	VOLTAGE=5.0V	PP_LED_BOOST_OUT	16
E53	VOLTAGE=3.0V	PP3V0_TRISTAR	12 15 17 29		E53	VOLTAGE=2.9V	PP2V9_LDO9	12
E54	VOLTAGE=3.0V	PP3V0_IMU	12 19		E54	VOLTAGE=1.8V	PP_CODEC_TO_MIC1_BIAS_CONN	18
E55	VOLTAGE=3.0V	PP3V0_NAND	6 12		E55	VOLTAGE=4.6V	PP_E75_TO_TRISTAR_ACC2	17 18
E56	VOLTAGE=3.0V	PP3V3_ACC	12 17		E56	VOLTAGE=4.6V	PP_E75_TO_TRISTAR_ACC2_CONN	18 25
E57	VOLTAGE=3.0V	PP3V0_PROX_ALS	11 12		E58	VOLTAGE=1.8V	PP1V8_LCM_CONN	20
E58	VOLTAGE=4.6V	PP_VCC_MAIN	10 12 14 15 16 17 23 31 39		E59	VOLTAGE=22.0V	PP_LCM_BL_ANODE_CONN	20 25
E59	VOLTAGE=1.0V	PP1V0	7 12		E60	VOLTAGE=-5.7V	PN5V7_LCM_AVDDN_CONN	20
E60	VOLTAGE=3.0V	PP3V0_PROX_IIRD	11 12		E61	VOLTAGE=5.7V	PP5V7_LCM_AVDD_CONN	20
E61	VOLTAGE=1.8V	PP1V8_ALWAYS	3 5 12 14		E62	VOLTAGE=1.8V	PP1V8_MESA	21
E62	VOLTAGE=3.0V	PP3V0_MESA	12 21		E63	VOLTAGE=16.5V	PP1GV5_MESA_CONN	21
E63	VOLTAGE=1.1V	PP_CPU	4 12		E64	VOLTAGE=5.0V	PP_TRISTAR_PIN	17
E64	VOLTAGE=1.1V	PP_GPU	4 12		E65	VOLTAGE=1.2V	PP1V2_RCAM_CONN	23
E65	VOLTAGE=1.2V	PE1V2_SDRAM	2 4 12 23		E66	VOLTAGE=1.8V	PP1V8_RCAM_CONN	23
E66	VOLTAGE=1.8V	PP1V8_SDRAM	3 4 10 12 13 14 15 17 29		E67	VOLTAGE=3.0V	PP2V85_CAM_VDD	11 23
E67	VOLTAGE=1.8V	PP1V8	24 25 6 7 10 11 12 13 15 20 23		E68	VOLTAGE=1.8V	PP2V85_RCAM_AVDD_CONN	23
E68	VOLTAGE=1.8V	PP1V8_GRAPE	12 24		E69	VOLTAGE=1.2V	PP_CUMULUS_VDDCORE	24
E69	VOLTAGE=1.8V	PP1V8_OSCAR	12 19 22		E70	VOLTAGE=1.2V	PP_CUMULUS_VDDANA	24
E70	VOLTAGE=1.2V	PP1V2_NAND_VDDI	6		E71	VOLTAGE=13.5V	PP_SAGE_TO_TOUCH_VCPH_CONN	24
E71	VOLTAGE=1.8V	PP_EXTMIC_BIAS_EILT_IN	10		E72	VOLTAGE=-12V	PN_SAGE_TO_TOUCH_VCP_CONN	24
E72	VOLTAGE=1.8V	BOARD_ID2	3 27		E73	VOLTAGE=13.5V	PP_SAGE_TO_TOUCH_VCPH	24
E73	VOLTAGE=1.2V	PP1V2	2 4 5 11 12		E74	VOLTAGE=-12V	PN_SAGE_TO_TOUCH_VCP	24
E74	VOLTAGE=5.0V	PP_E75_TO_TRISTAR_ACC1_CONN	18 25		E75	VOLTAGE=-12V	PN_SAGE_TO_TOUCH_VCP1	24
E75	VOLTAGE=5.0V	PP_E75_TO_TRISTAR_ACC1	17 18		E76	VOLTAGE=-12V	PN_SAGE_TO_TOUCH_VCP1	24
E76	VOLTAGE=22.0V	PP_LCM_BL_ANODE	19 20		E77	VOLTAGE=-12V	PN_SAGE_TO_TOUCH_VCP1	24
E77	VOLTAGE=0.2V	PP_LCM_BL_CAT2	15 20		E78	VOLTAGE=-12V	PN_SAGE_TO_TOUCH_VCP1	24
E78	VOLTAGE=0.2V	PP_LCM_BL_CAT1	15 20		E79	VOLTAGE=-12V	PN_SAGE_TO_TOUCH_VCP1	24
E79	VOLTAGE=0.2V	PP_LCM_BL_CAT2_CONN	20 25		E80	VOLTAGE=-12V	PN_SAGE_TO_TOUCH_VCP1	24
E80	VOLTAGE=0.2V	PP_LCM_BL_CAT1_CONN	20 25		E81	VOLTAGE=-12V	PN_SAGE_TO_TOUCH_VCP1	24
E81	VOLTAGE=-5.7V	PN5V7_SAGE_AVDDN	15 20 24		E82	VOLTAGE=-12V	PN_SAGE_VCP1_F	24
E82	VOLTAGE=1.2V	PP1V8_OSCAR	12 22		E83	VOLTAGE=5.7V	PP_SAGE_LX	24
E83	VOLTAGE=3.0V	PP3V0_MESA_CONN	21		E84	VOLTAGE=17.0V	PP_SAGE_IV	24
E84	VOLTAGE=6V	PP6V0_LCM_BOOST	15		E85	VOLTAGE=1.8V	PP_PMI_VREF	13
E85	VOLTAGE=5.0V	PP_STRB_DRIVER_TO_LED_WARM	8 16		E86	VOLTAGE=14V	PP_SAGE_VBST_OUTH	24
E86	VOLTAGE=5.0V	PP_STRB_DRIVER_TO_LED_COOL	8 16		E87	VOLTAGE=5.0V	PP_TIGRIS_VBUS_DET	14
E87	VOLTAGE=1.8V	PP_CODEC_TO_MIC1_BIAS	10 18		E88	VOLTAGE=1.8V	PP1V8_PLL	
E88	VOLTAGE=1.8V	PP_EXTMIC_BIAS_IN	10		E89	VOLTAGE=1.8V	PP_MIPIOD_VREG	
E89	VOLTAGE=1.8V	PP_EXTMIC_BIAS_EILT	10		E90	VOLTAGE=1.8V	BOARD_ID0	
E90	VOLTAGE=1.8V	PP_CODEC_TO_FRONTMIC3_BIAS	10 11		E91	VOLTAGE=2.5V	PP_PMI_VDD_REF	13
E91	VOLTAGE=1.8V	PP_CODEC_TO_REARMIC2_BIAS	8 10		E92	VOLTAGE=1.8V	PP_EXTMIC_BIAS	10
E92	VOLTAGE=1.8V	PP_CODEC_EILT	10		E93	VOLTAGE=1.8V	PP1V8_XTAL	2
E93	VOLTAGE=2.2V	PP_CODEC_SPKR_VO	10		E94	VOLTAGE=1.8V	PP_PMI_VDD_RTC	13
E94	VOLTAGE=2.5V	PP_CODEC_VCPBIAS	10		E95	VOLTAGE=4.6V	PP_BATT_VCC	14 16 25 40 45 46
E95	VOLTAGE=2.5V	PP_CODEC_VHP_FLYN	10		E96	VOLTAGE=1.8V	PP1V8_MESA_CONN	21
E96	VOLTAGE=0.2V	PP_CODEC_VHP_FLYC	10		E97	VOLTAGE=3.0V	PP3V0_PROX_CONN	11
E97	VOLTAGE=2.5V	PP_CODEC_VHP_FLYP	10		E98	VOLTAGE=1.0V	PP0V95_FIXED_SOC	4 7 12
E98	VOLTAGE=1.8V	PP1V8_ECAM_CONN	11		E99	VOLTAGE=1.0V	PP0V95_FIXED_SOC_PCIE	7
E99	VOLTAGE=3.0V	PP2V85_ECAM_AVDD_CONN	11		E100	VOLTAGE=1.2V	PP1V2_PLL	2
E100	VOLTAGE=1.8V	PP_CODEC_TO_FRONTMIC3_BIAS_CONN	11		E101	VOLTAGE=1.0V	PP_BUCK5_LX1	12
E101	VOLTAGE=3.0V	PP3V0_ALS_CONN	11		E102	VOLTAGE=1.0V	PP_VAR_SOC	5 12
E102	VOLTAGE=1.2V	PP1V2_ECAM_VDDTO_CONN	11		E103	VOLTAGE=5.0V	PMID_CAP	14
E103	VOLTAGE=5.0V	PP5V0_USB	12 14 17 18 25		E104	VOLTAGE=5.0V	CHARGER_LDO	14
E104	VOLTAGE=5.0V	PP5V0_USB_TO_PMI	12		E105	VOLTAGE=4.6V	CHG_BOOT	14
E105	VOLTAGE=4.6V	PP_BUCK1_LX0	12		E106	VOLTAGE=4.6V	CHG_LX	14
E106	VOLTAGE=4.6V	PP_BUCK1_LX0	12		E107	VOLTAGE=3.0V	VIBE_DRIVE_P	14 18
E107	VOLTAGE=4.6V	PP_BUCK0_LX3	12		E108	VOLTAGE=3.0V	VIBE_DRIVE_N	14 18
E108	VOLTAGE=4.6V	PP_BUCK0_LX2	12		E109	VOLTAGE=1.8V	PP_RCAM_AF_CONN	23
E109	VOLTAGE=6.0V	PP_CHESTNUT_LXP	15		E110	VOLTAGE=-14.0V	PN_SAGE_VBST_OUTL	24
E110	VOLTAGE=6.0V	PP_CHESTNUT_LP	15		E111	VOLTAGE=-12.0V	PN_SAGE_TO_TOUCH_VCP1_FILT	24
E111	VOLTAGE=5.7V	PP5V7_SAGE_AVDDH	15 24		E112	VOLTAGE=2.7V	PE_BB_VDD_2V7_CONN	18
E112	VOLTAGE=5.7V	PP5V7_LCM_AVDDH	15 20		E113	VOLTAGE=5.0V	PMID_CAP	14
E113	VOLTAGE=5.1V	PP5V1_GRAPE_VDDH	15 24		E114	VOLTAGE=5.0V	CHARGER_LDO	14
E114	VOLTAGE=22.0V	PE_WLED_LX	15		E115	VOLTAGE=4.6V	CHG_BOOT	14
E115	VOLTAGE=18.0V	PP1AV0_MESA_SW	15		E116	VOLTAGE=4.6V	CHG_LX	14
E116	VOLTAGE=17.0V	P17V0_MAJAVE_LD0N	15		E117	VOLTAGE=3.0V	VIBE_DRIVE_P	14 18
E117	VOLTAGE=16.5V	PP16V0_MESA_SW	16 21 25		E118	VOLTAGE=3.0V	VIBE_DRIVE_N	14 18
E118	VOLTAGE=8.0V	PP_SKAMP_SW	16		E119	VOLTAGE=1.8V	PP_RCAM_AF_CONN	23
E119	VOLTAGE=8.0V	PP_L19_VBOOST	16		E120	VOLTAGE=-14.0V	PN_SAGE_VBST_OUTL	24
E120	VOLTAGE=1.8V	PP_SKAMP_FILT	16		E121	VOLTAGE=-12.0V	PN_SAGE_TO_TOUCH_VCP1_FILT	24
E121	VOLTAGE=1.8V	PP_SKAMP_LDO_FILT	16		E122	VOLTAGE=2.7V	PE_BB_VDD_2V7_CONN	18

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REVISION	7.0.0	BRANCH	
PAGE	27 OF 55	SHEET	27 OF 54

8 7 6 5 4 3 2 1

D

D

C

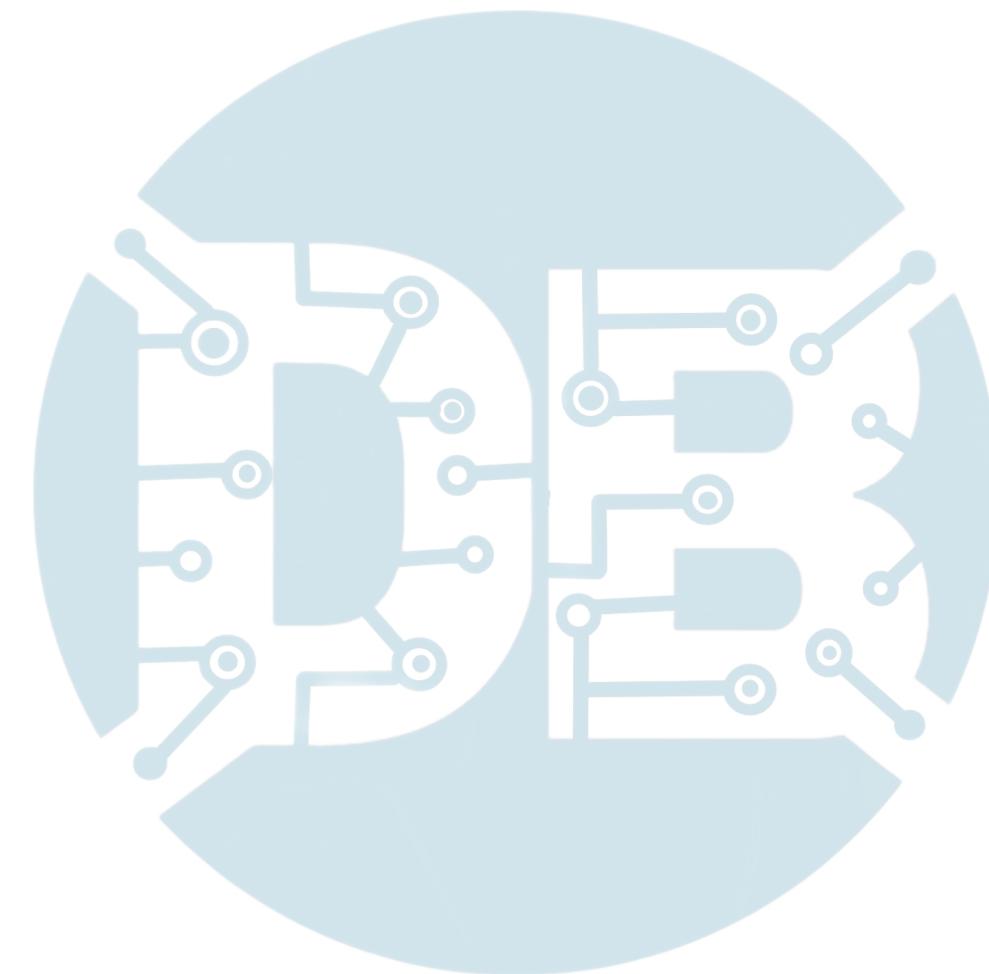
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B

B

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A



PAGE TITLE		BLANK	
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RADIO_MLB HIERARCHICAL SYMBOL

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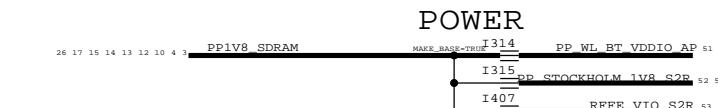
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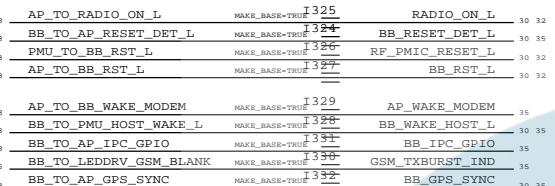
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POWER

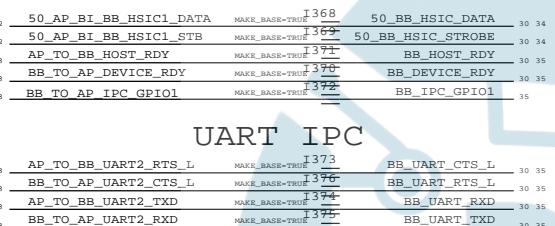
VCC_MAIN, VBAT GOES TO RADIO_MLB DIRECTLY
CHECK ALL PAGES IN RF SIDE!



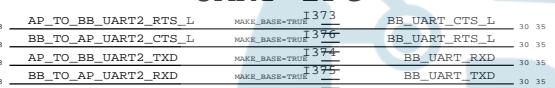
CELLULAR HOUSE KEEPING



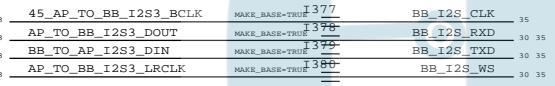
HSIC IPC



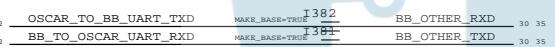
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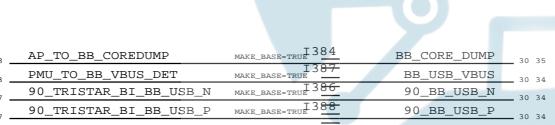
AUDIO I2S



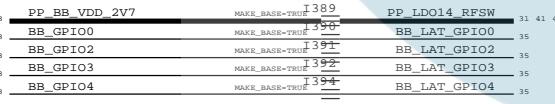
OSCAR UART



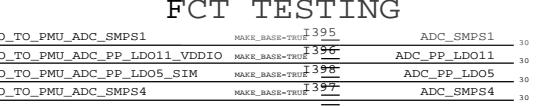
BB DEBUG INTERFACES



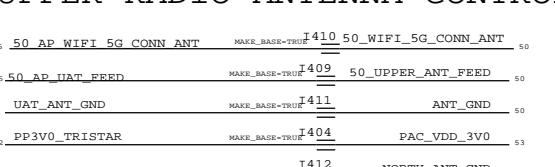
RADIO ANTENNA CONTROL



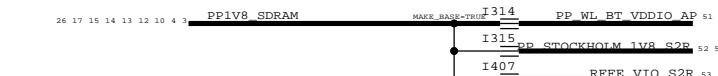
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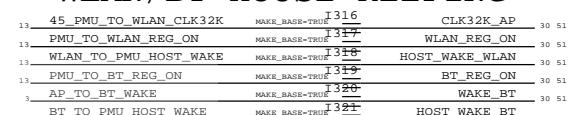
UPPER RADIO ANTENNA CONTROL



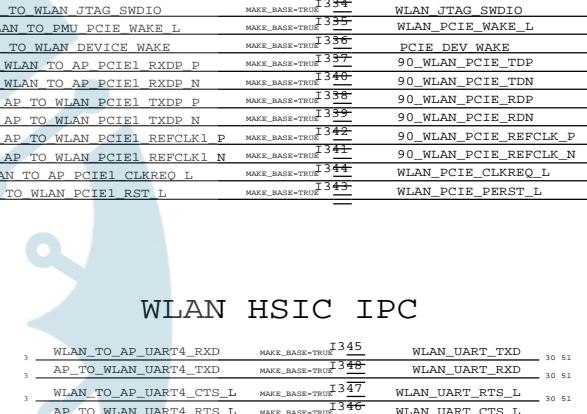
POWER



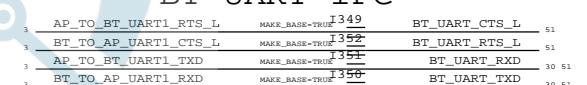
WLAN/BT HOUSE KEEPING



WLAN HSIC IPC



BT UART IPC



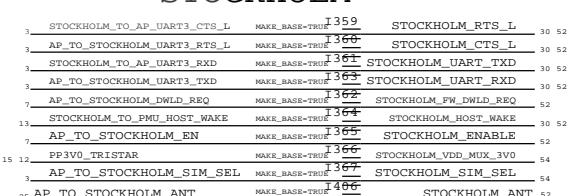
BT AUDIO PCM



OSCAR STATES



STOCKHOLM



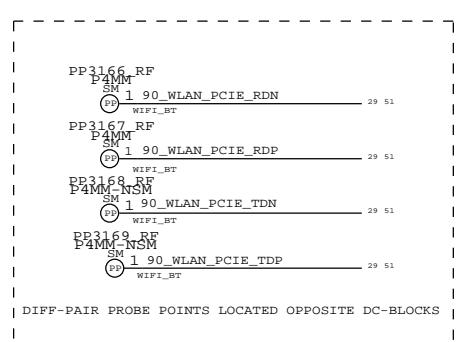
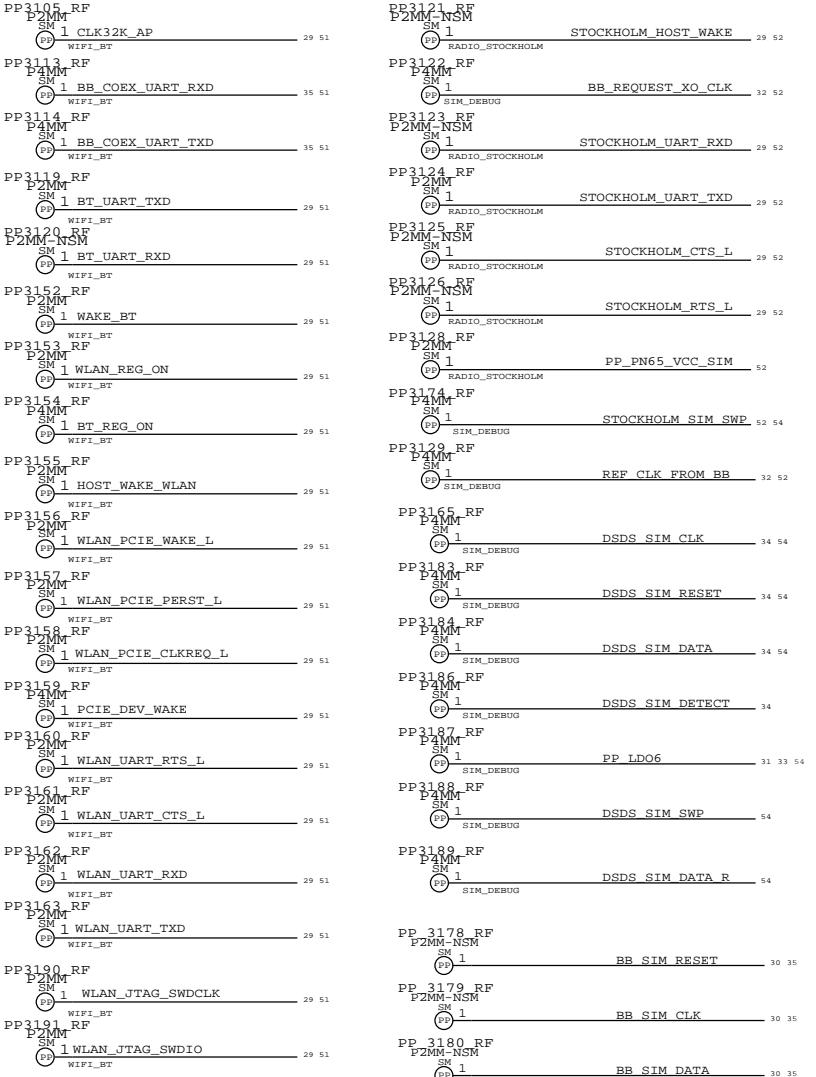
CELL: ALIASES

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REVISION	
7.0.0	
BRANCH	
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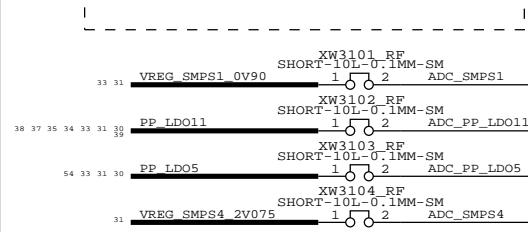
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AP INTERFACE & DEBUG CONNECTORS

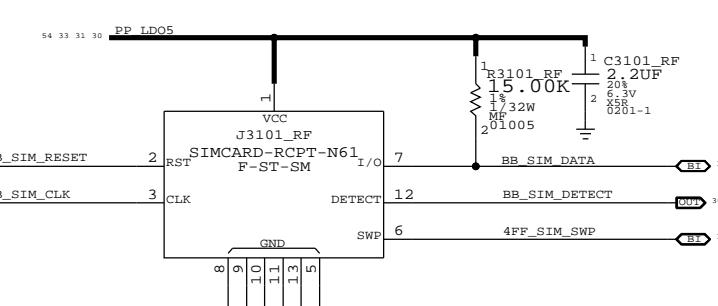
PROBE POINTS



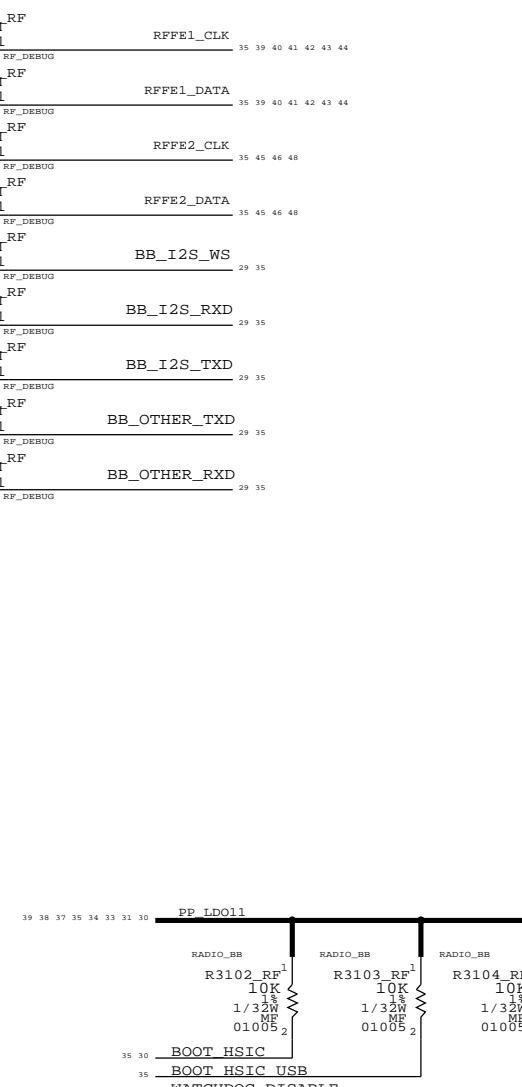
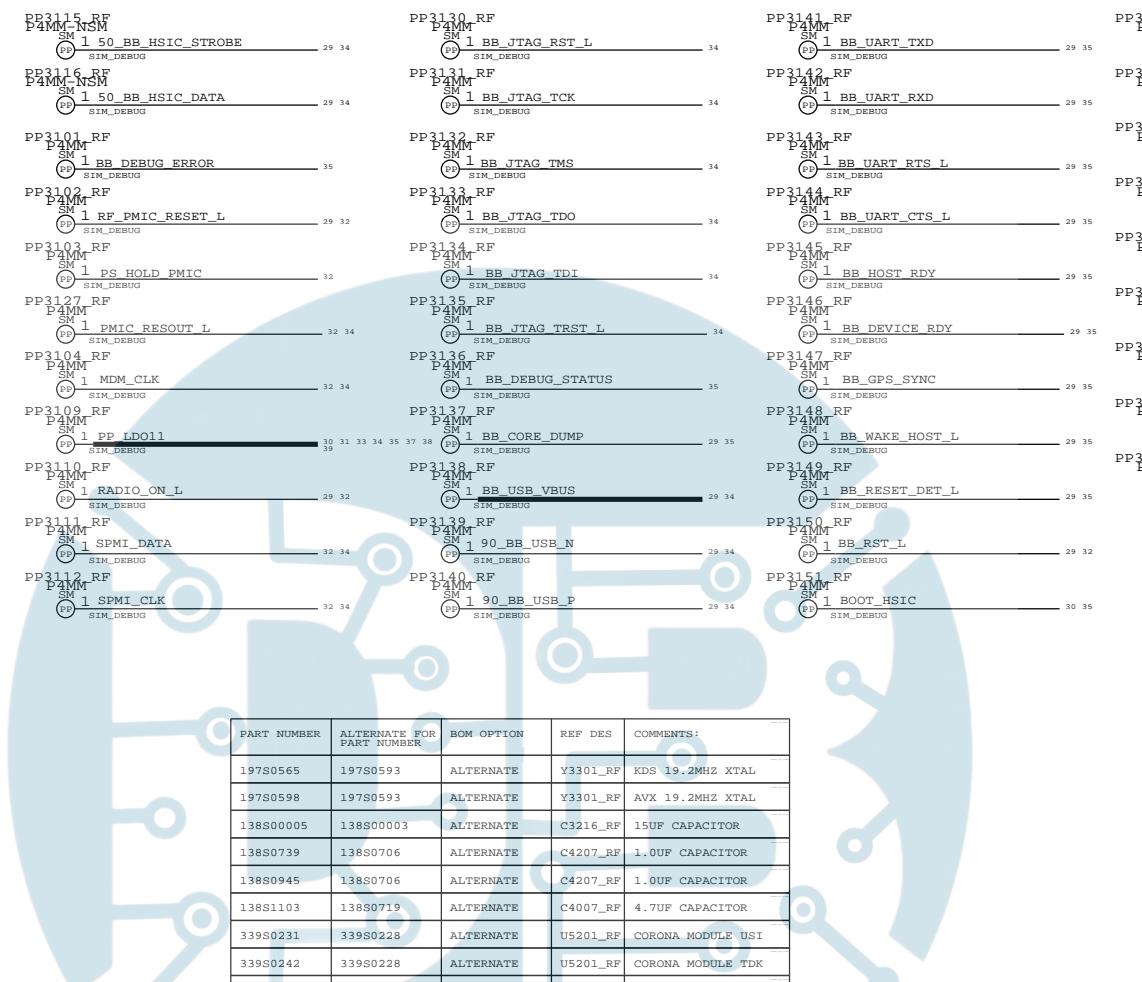
| DIFF-PAIR PROBE POINTS LOCATED OPPOSITE DC-BLOCKS



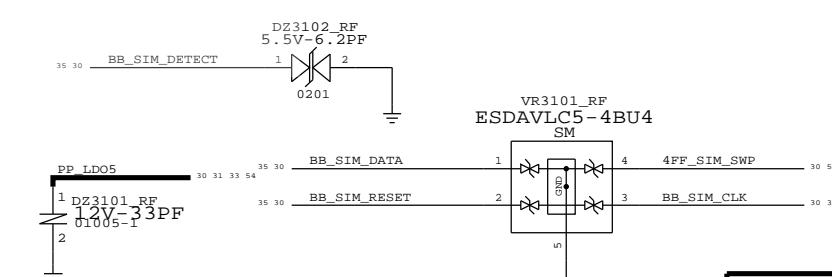
STM CARD CONNECTOR



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SIM CARD ESD PROTECTION

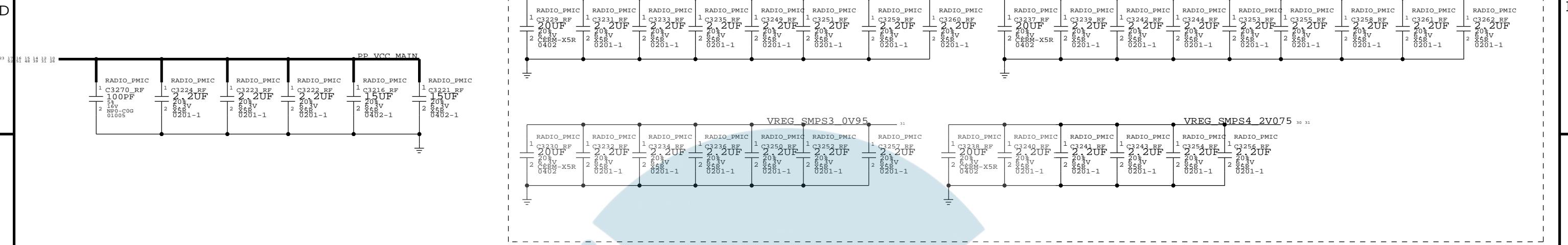


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		REVISION 7.0.0	BRANCH
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BASEBAND PMU (1 OF 2)

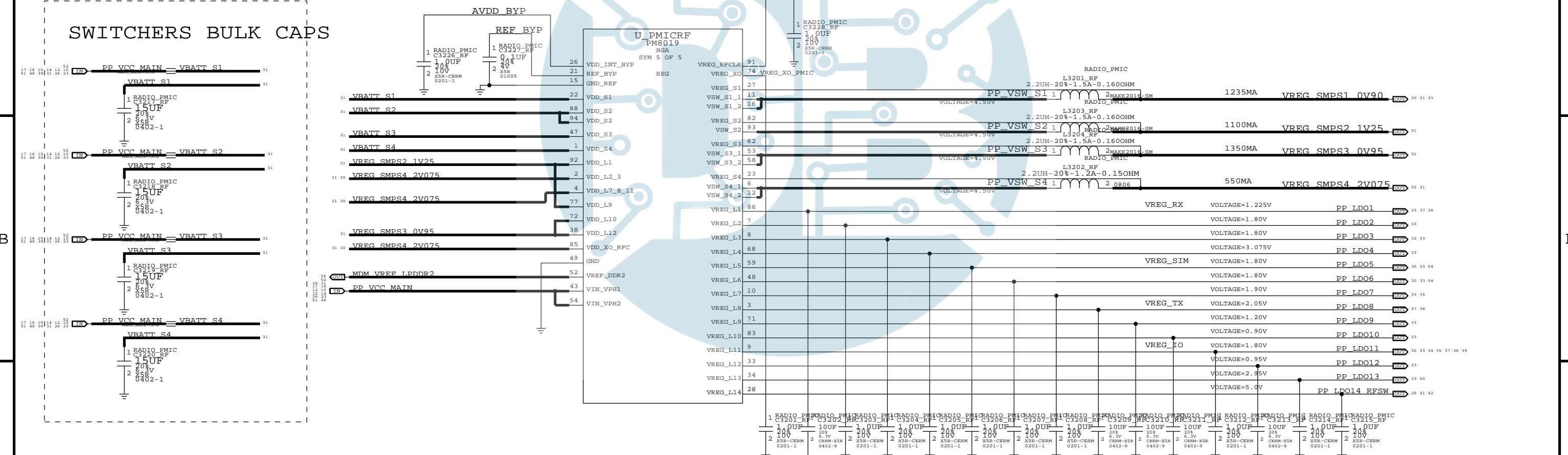
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D



SWITCHERS OUTPUT CAPS

C



A

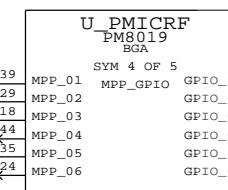
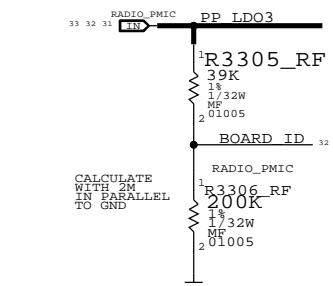
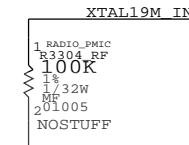
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REVISION 7.0.0	BRANCH
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BASEBAND PMU (2 OF 2)

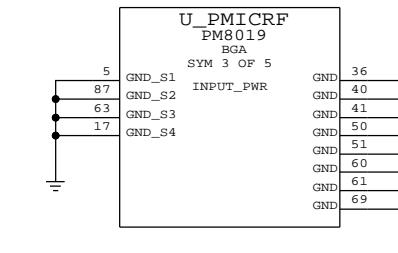
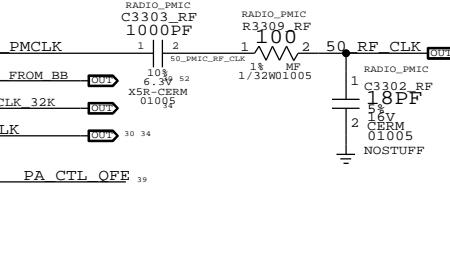
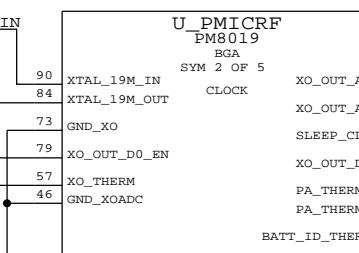
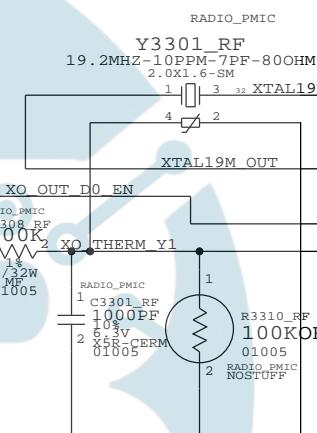
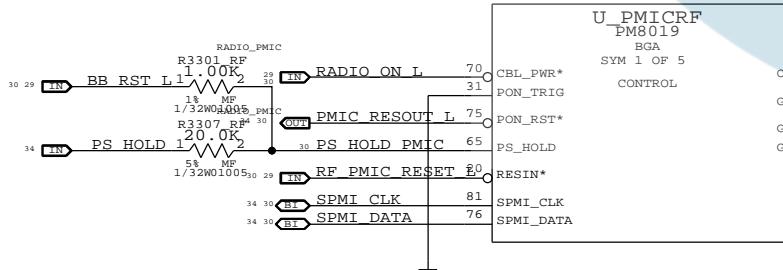
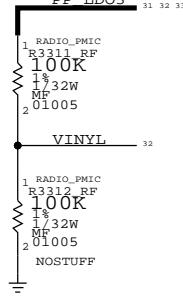
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C401
R411
L400
U404

BOARD_I Revision	
0.00V	N61 PROTO_MLB1
0.50V	N61 DEV3
0.70V	N61 DEV4
0.90V	N61 PROTO_MLB2
1.10V	N61/N56 PROTO1
1.30V	N61/N56 PROTO2
1.40V	N61/N56 EVT1
1.50V	N61/N56 EVT2 (CARRIER)
1.60V	N61/N56 DVT
1.70V	N61/N56 PVT



DEFAULT CONFIGURATION SUPPORTS VINYL

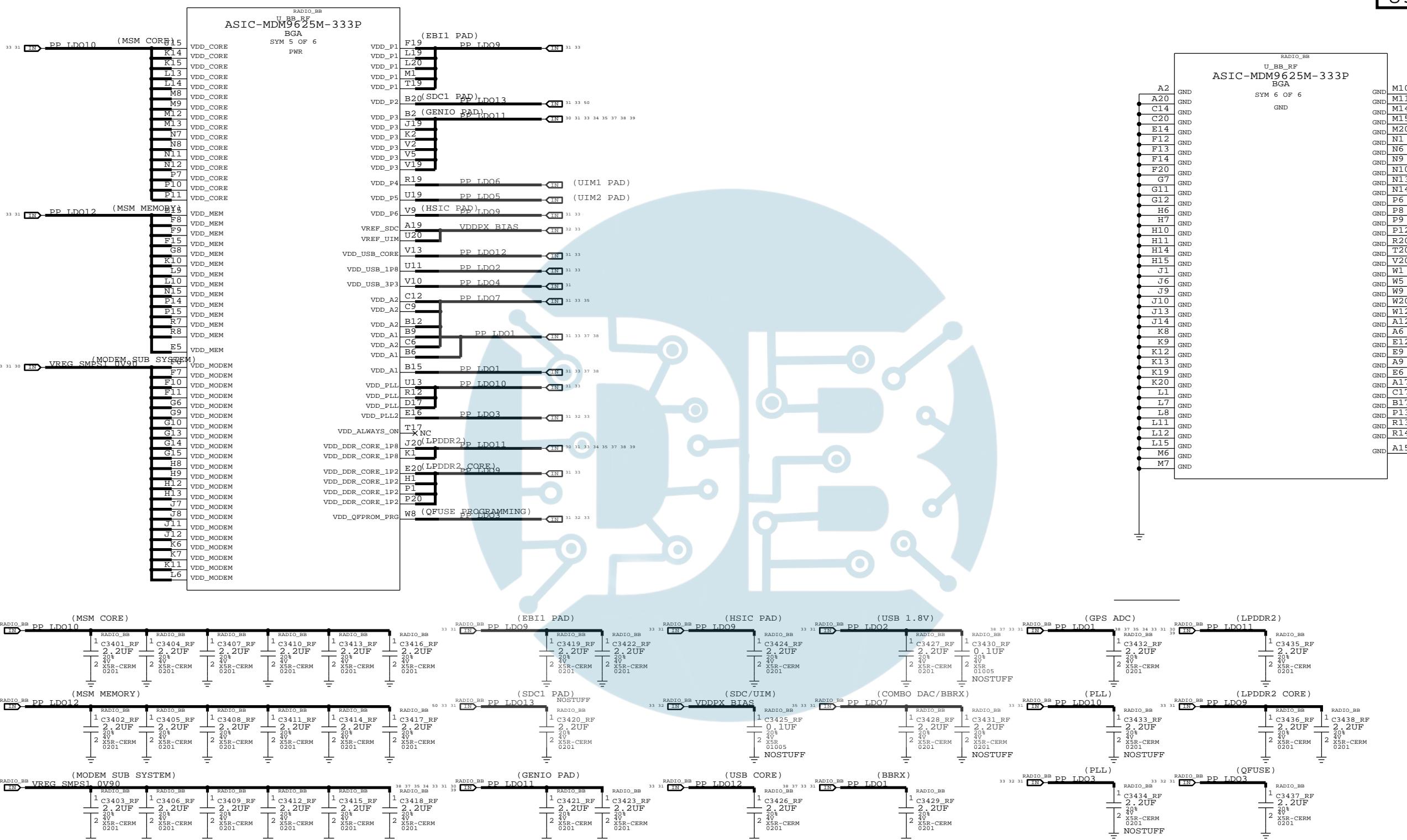


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REVISION: 7.0.0
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BASEBAND (1 OF 3)

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C538
R500
L500
U502



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BASEBAND (2 OF 3)

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C600
R606
L600
U602

D

D

C

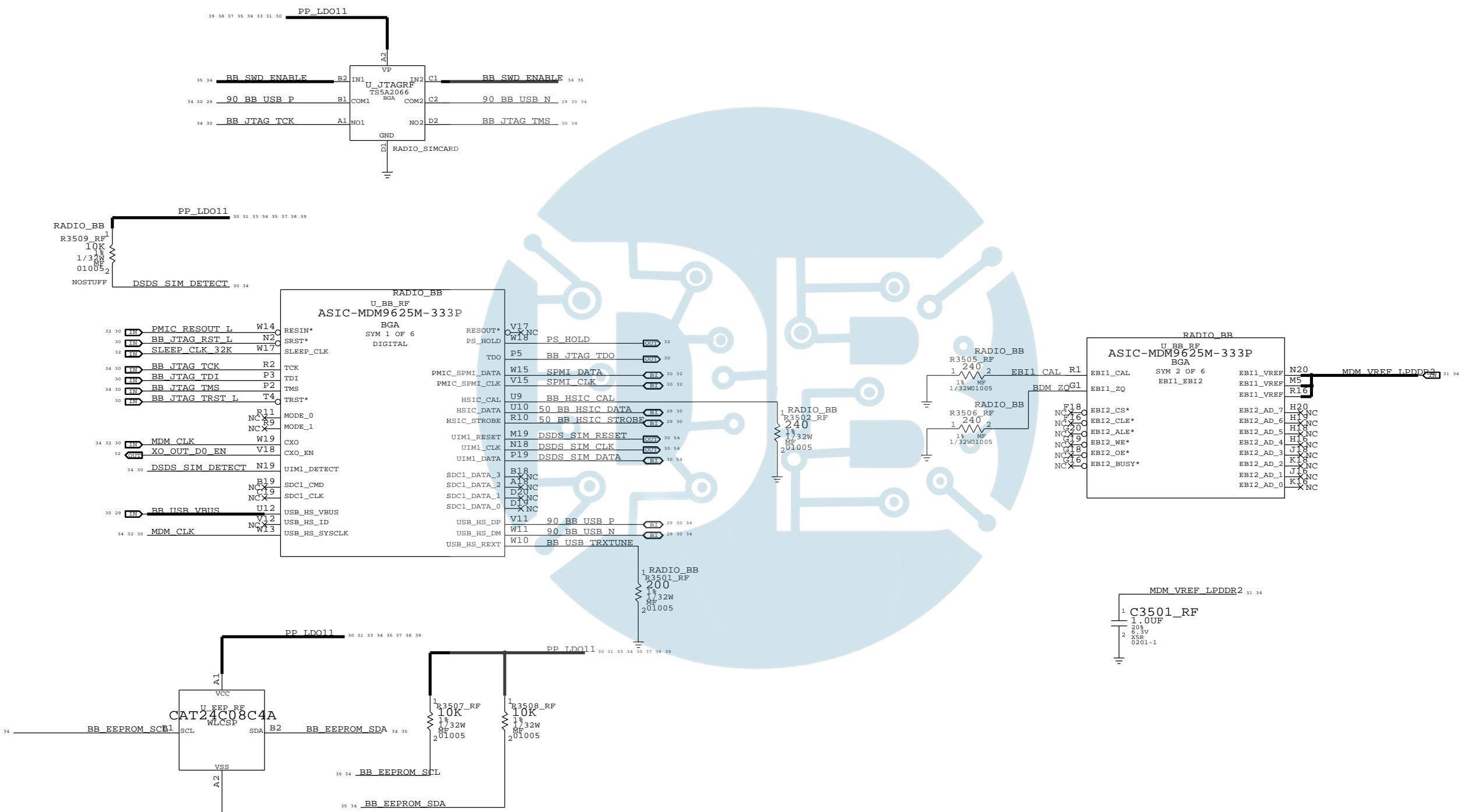
C

B

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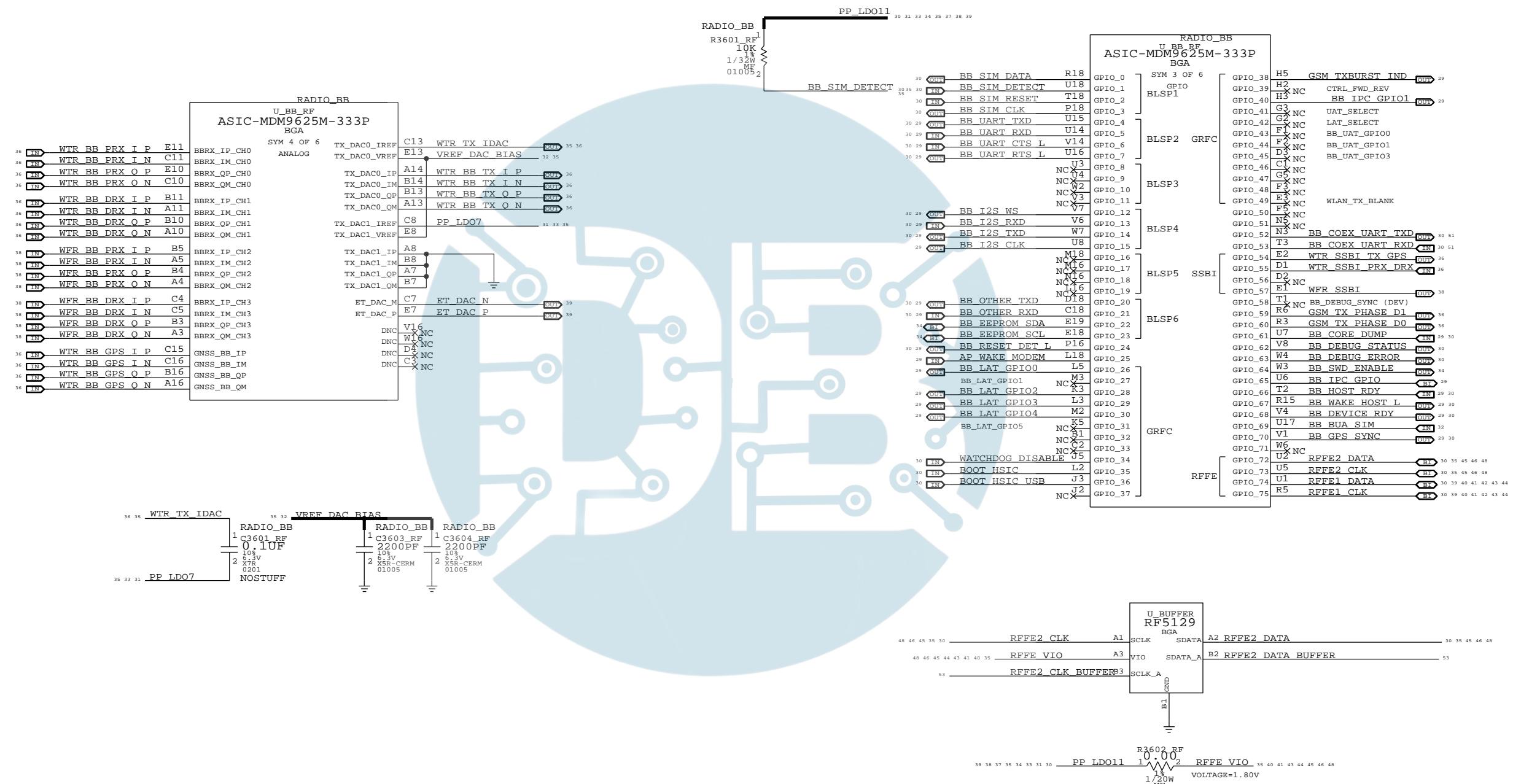


PAGE TITLE		BASEBAND (1 OF 2)	
Apple Inc.	051-9903	D	SHEET
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BASEBAND (3 OF 3)

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C704
R700
L700
U702



MOBILE DATA MODEM (2 OF 2)	
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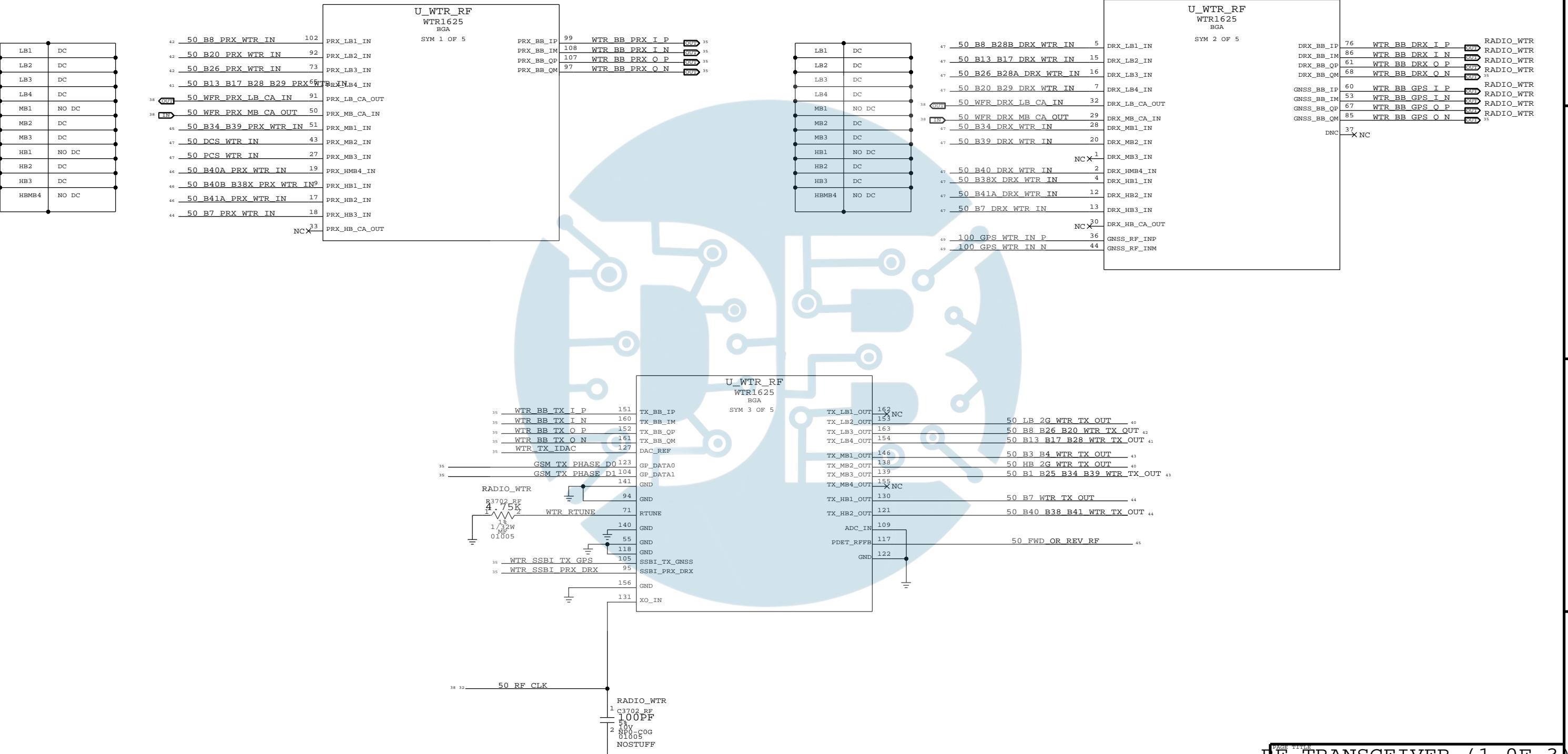
WTR TRANSCEIVER (1 OF 2)
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C802
R802
L800
U803

D

1



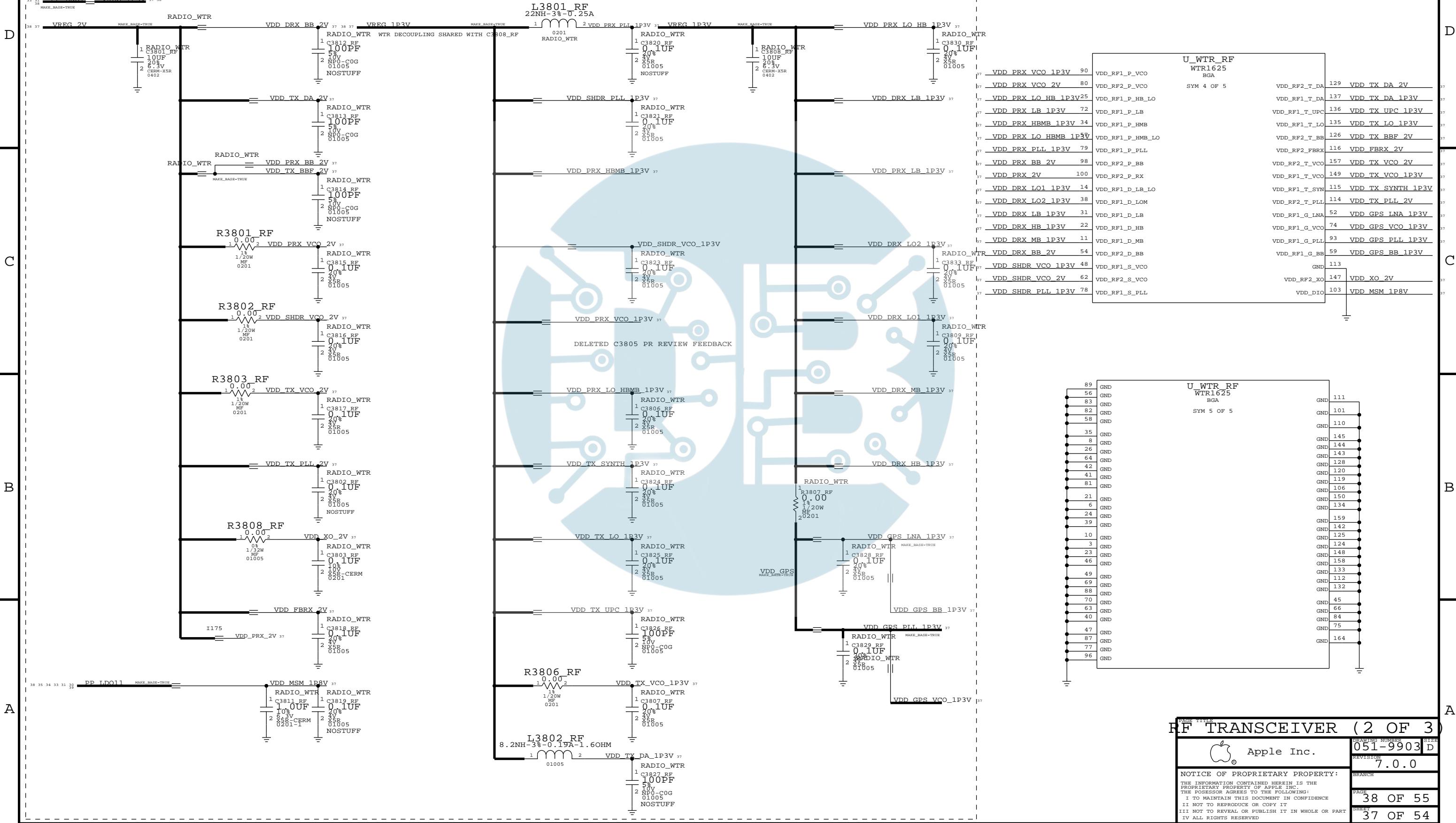
REF CLK IS SHARED BETWEEN WTR AND WER. LENGTH DIFFERENCE BETWEEN THE TWO SHOULD BE < 5MM

PAGE	TITLE	F TRANSCEIVER (1 OF 3)	
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WTR TRANSCEIVER (2 OF 2)
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WTR DECOUPLING CAPS



C934
R926
L3802_RF
U902

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WFR TRANSCEIVER

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C1019
R1016
L1000
U1002

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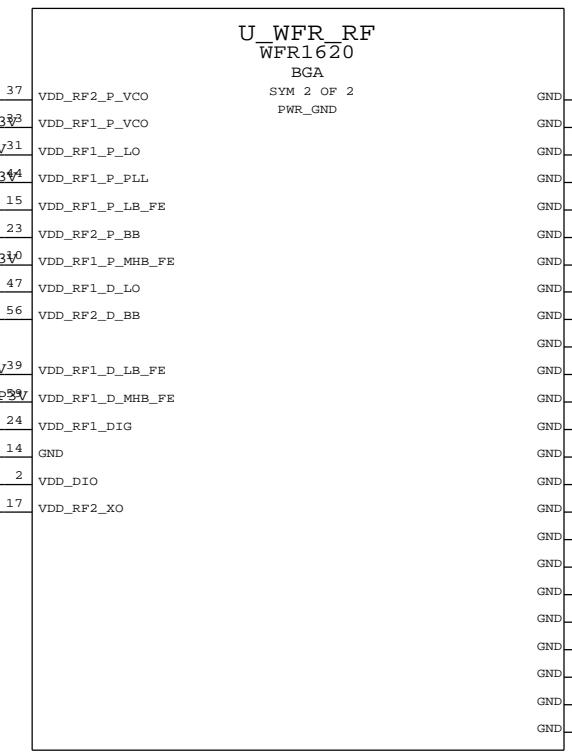
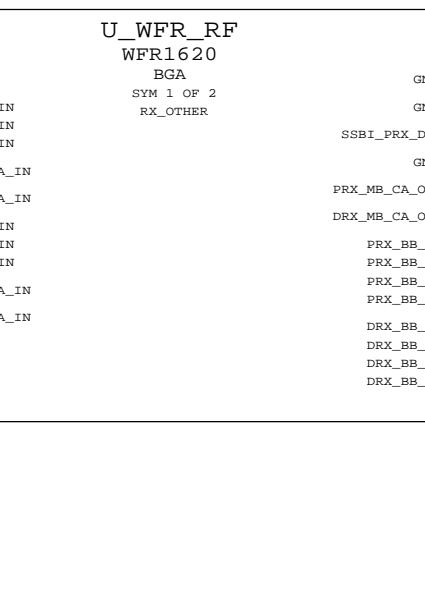
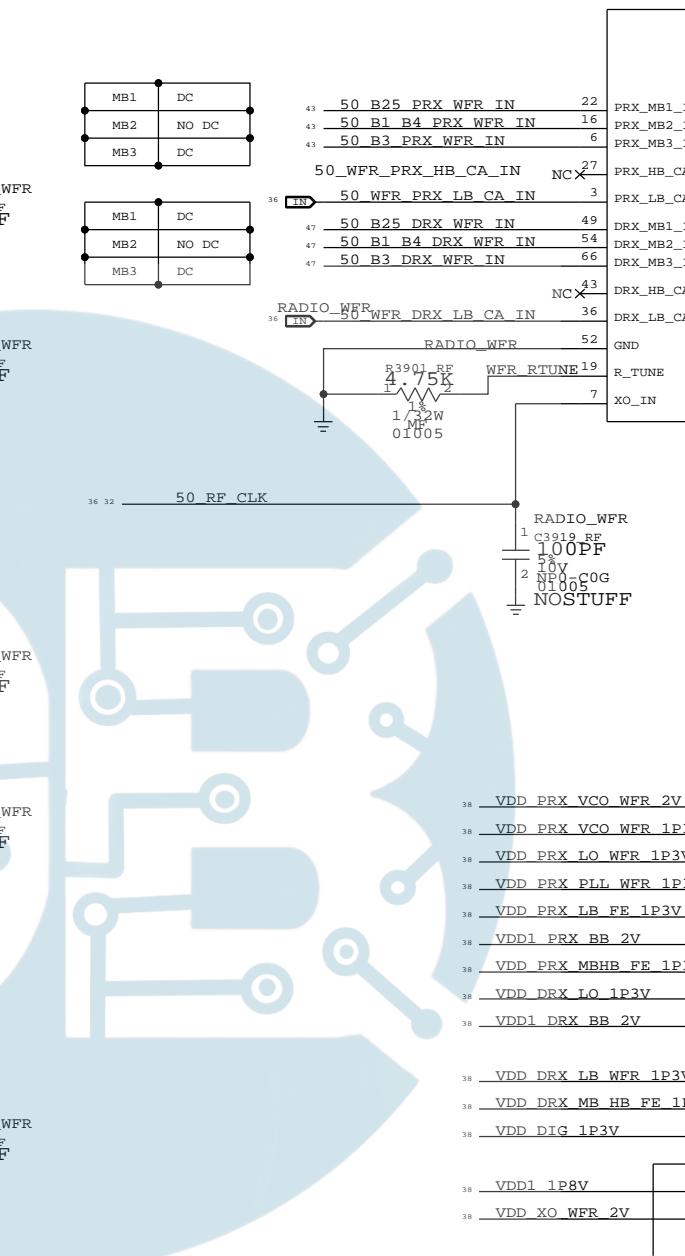
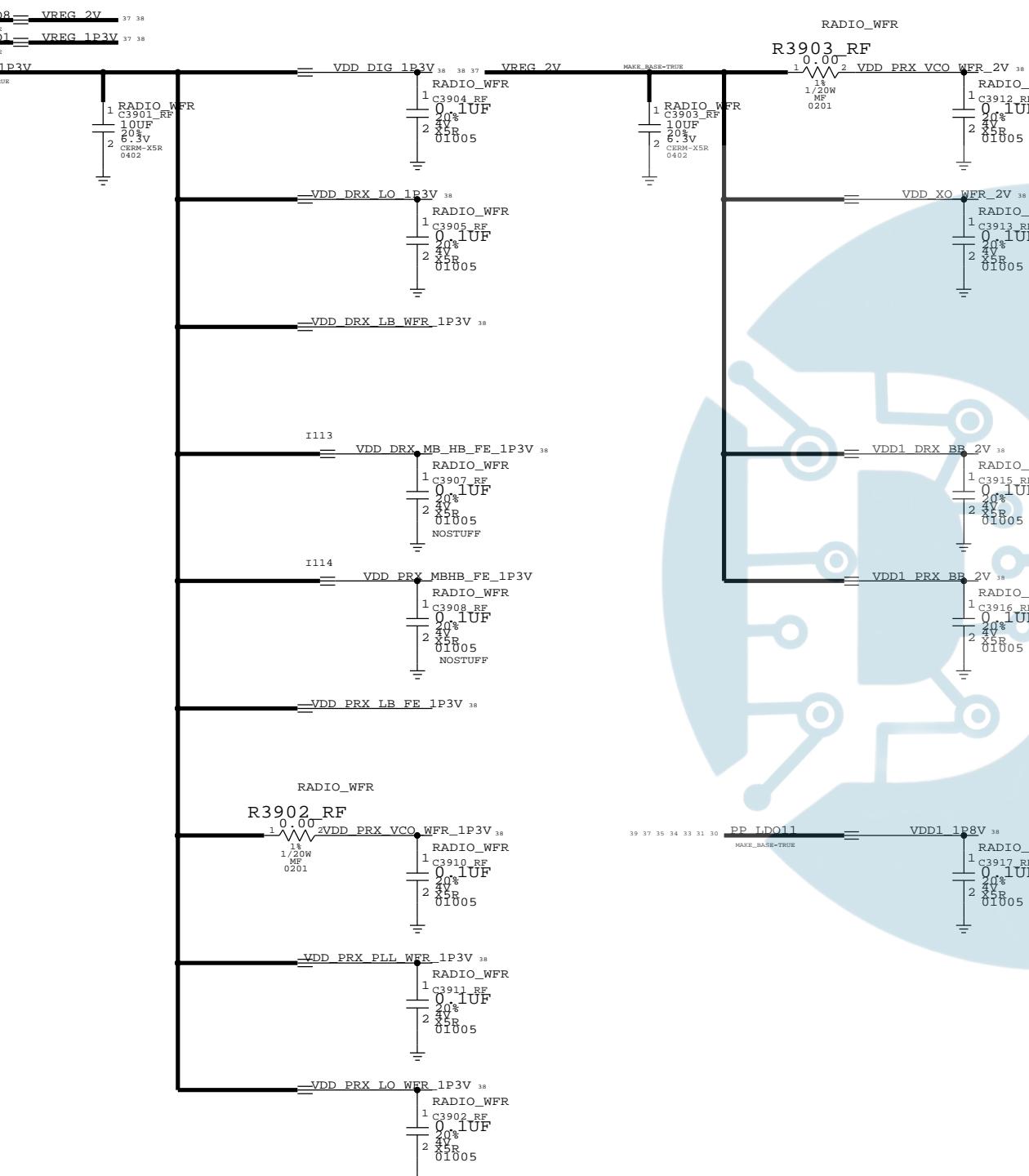
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PAGE TITLE		DRAWING NUMBER		SIZE					
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Apple Inc.		REVISION		7.0.0					
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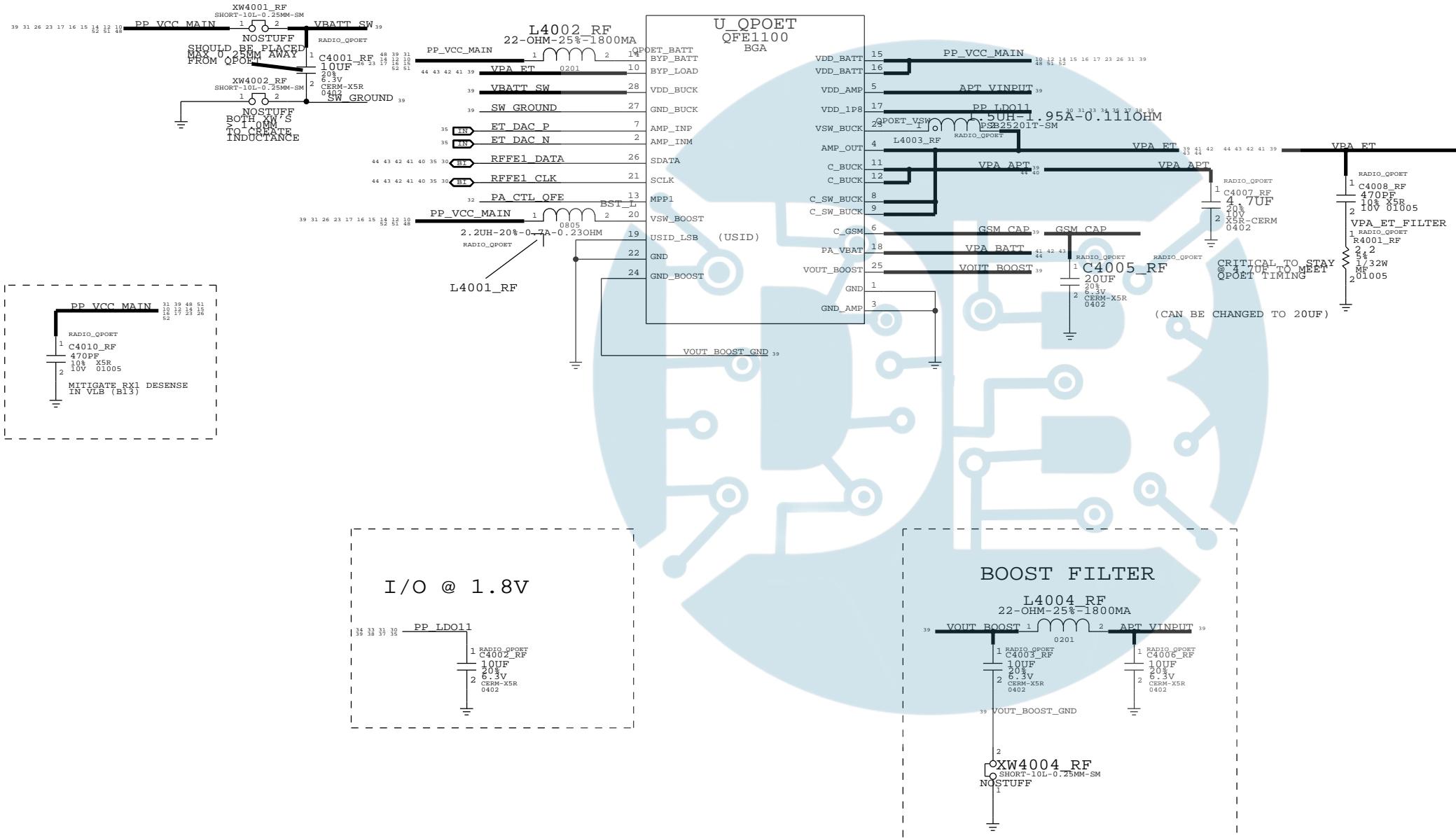
QFE DCDC

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C1110
R1102
L1104
U1101

D

10



C

10

B

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A

10

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2G PA

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C1208
R1200
L1204
U1201

D

D

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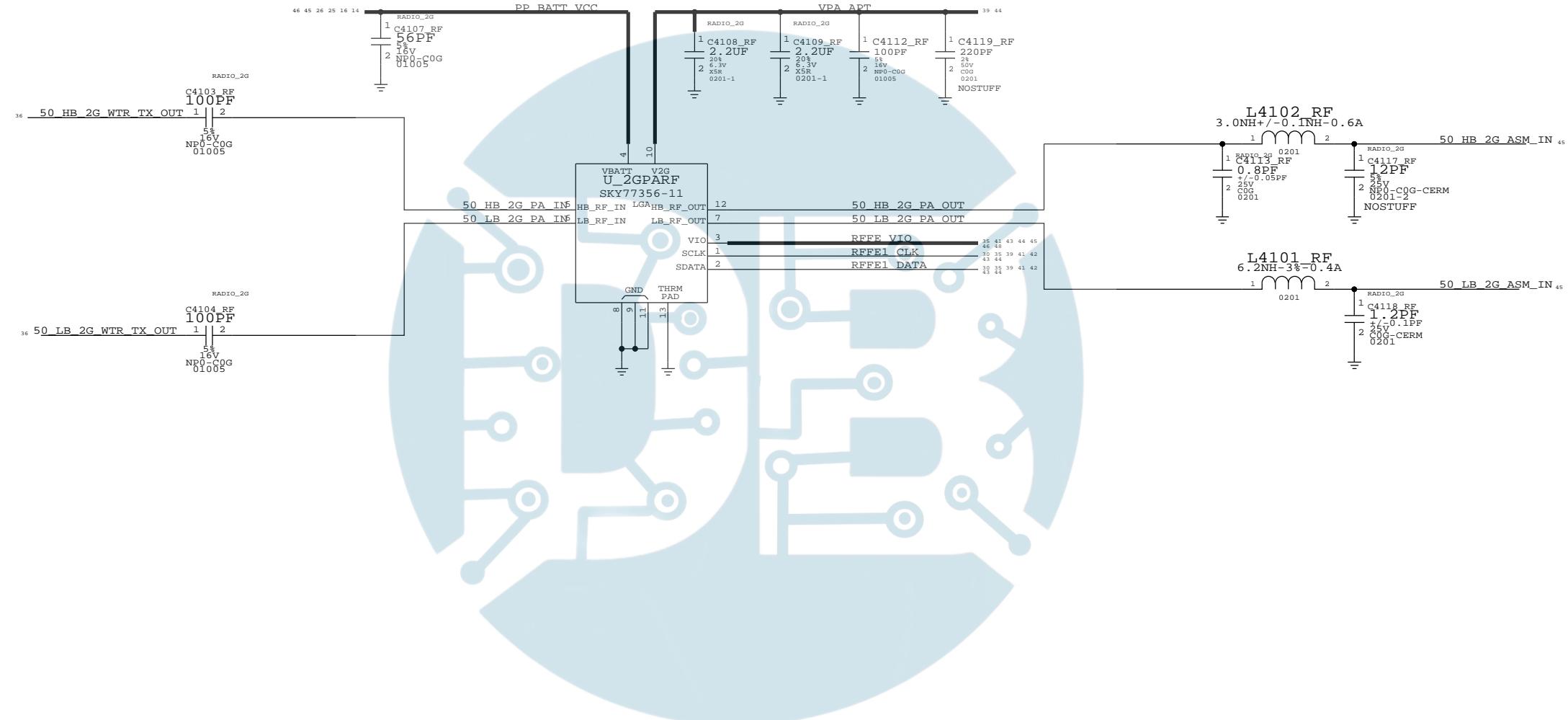
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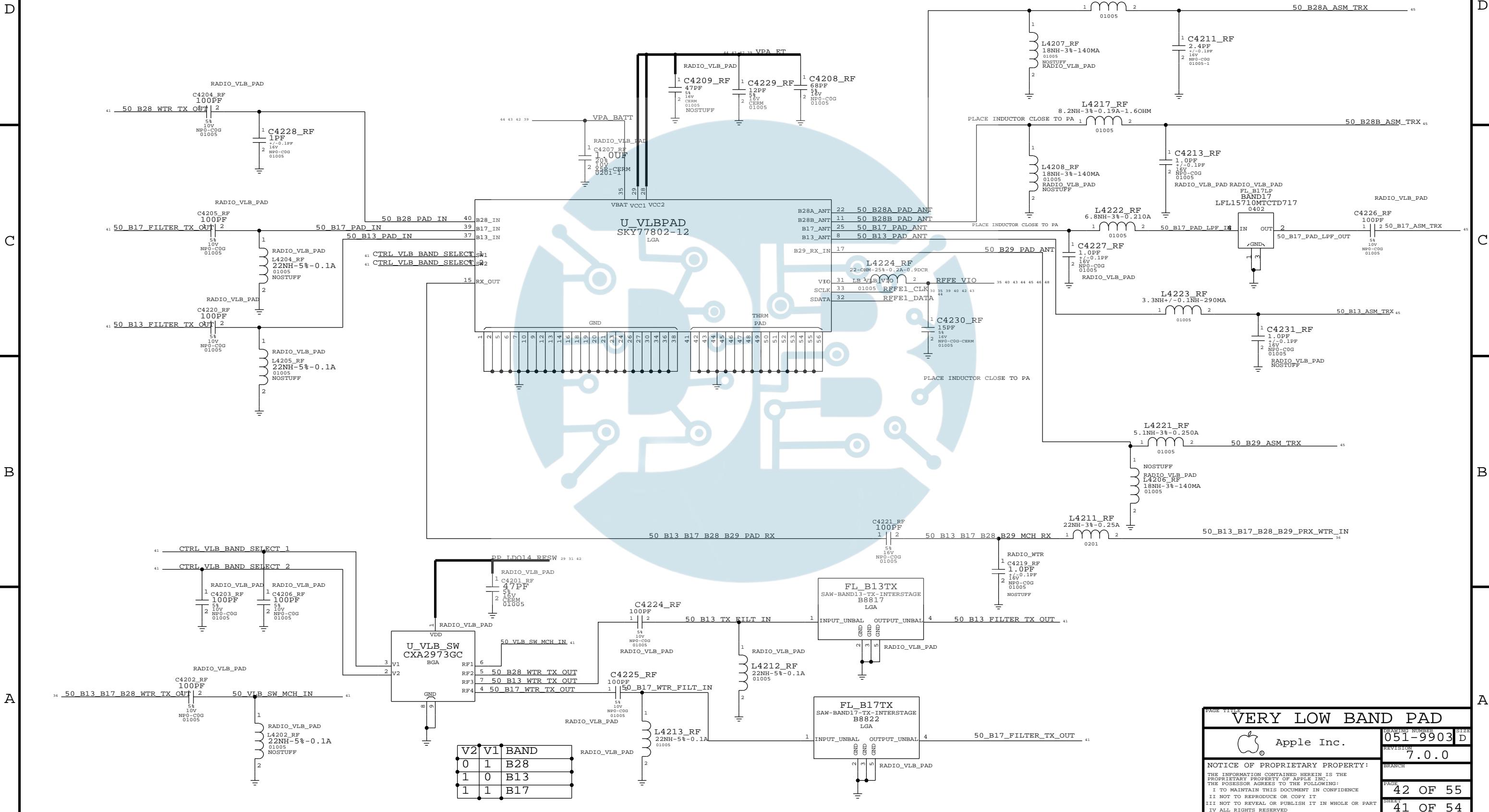


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VERY LOW BAND PAD (B13, B17, B28)

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C1332
R1300
L4215_RF
U1304

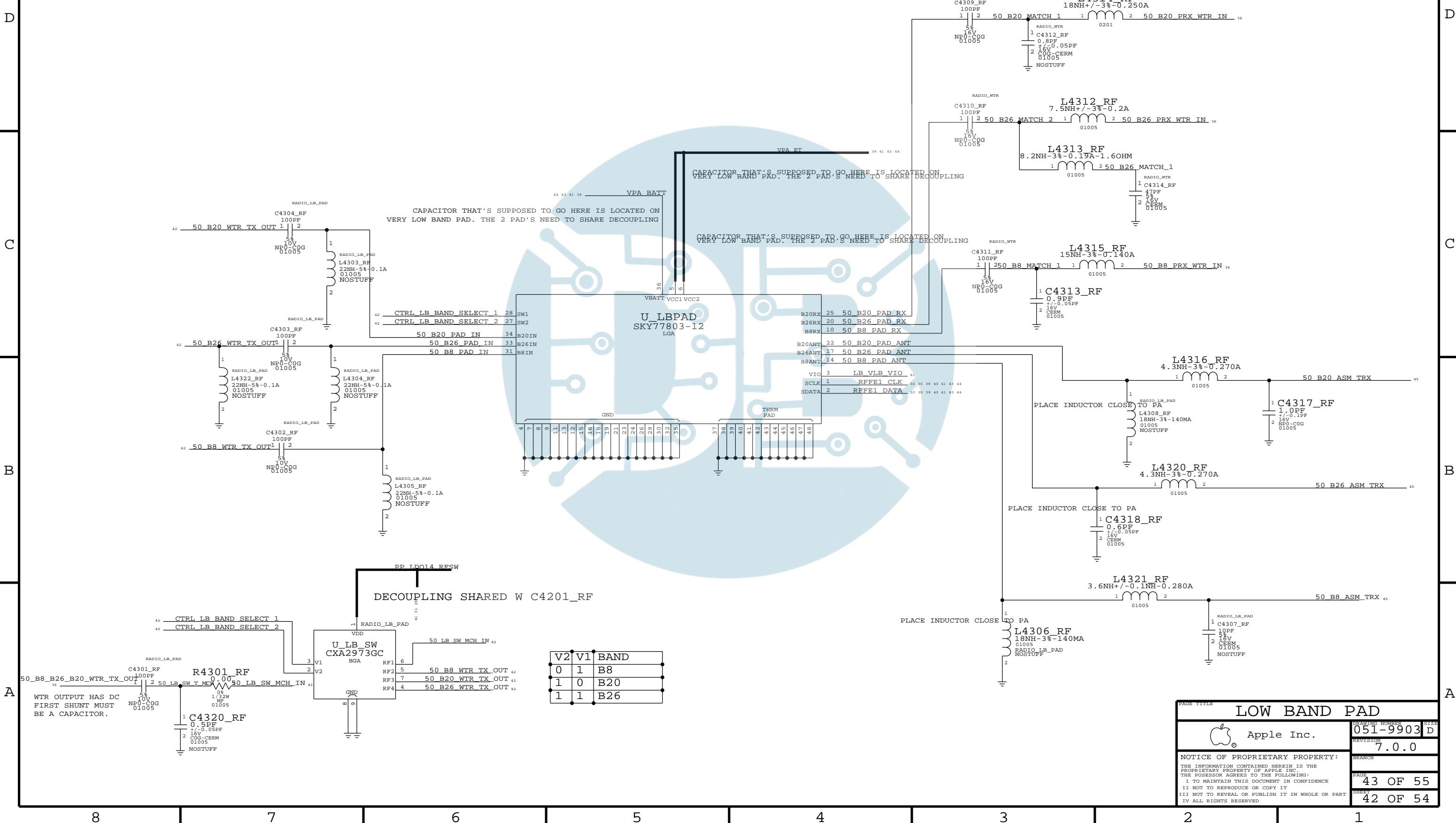


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LOW BAND PAD (B8, B26, B20)

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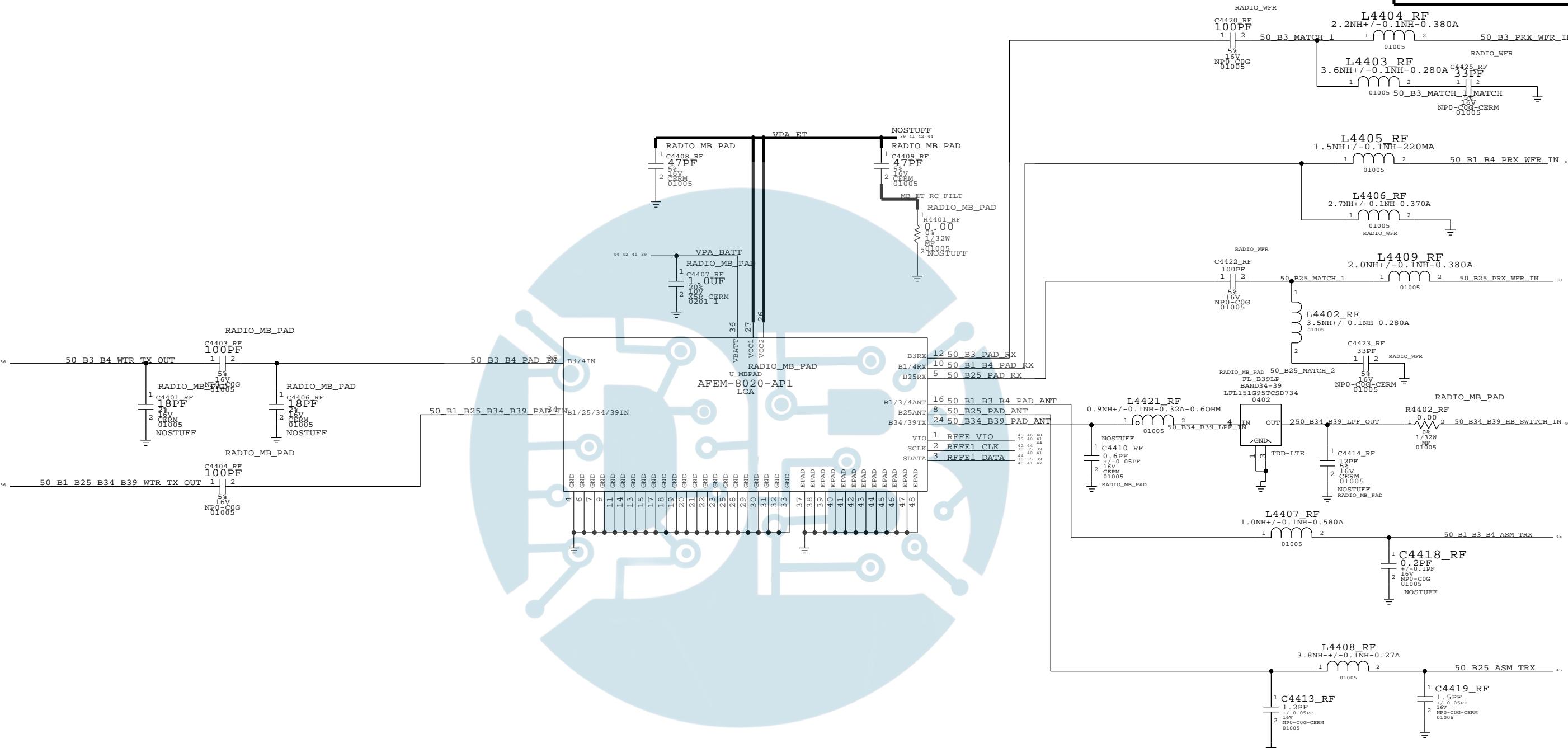
C4318_RF
R1400
L4322_RF
U1402



MID BAND PAD (B1 , B25 , B3 , B4 , B34 , B39)

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C4426_RF
R1500
L4409_RF
U1501



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HIGH BAND PAD (B7, B38, B40, B41, XGP)

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C4533_RF
R1600
L1616
U1601

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D

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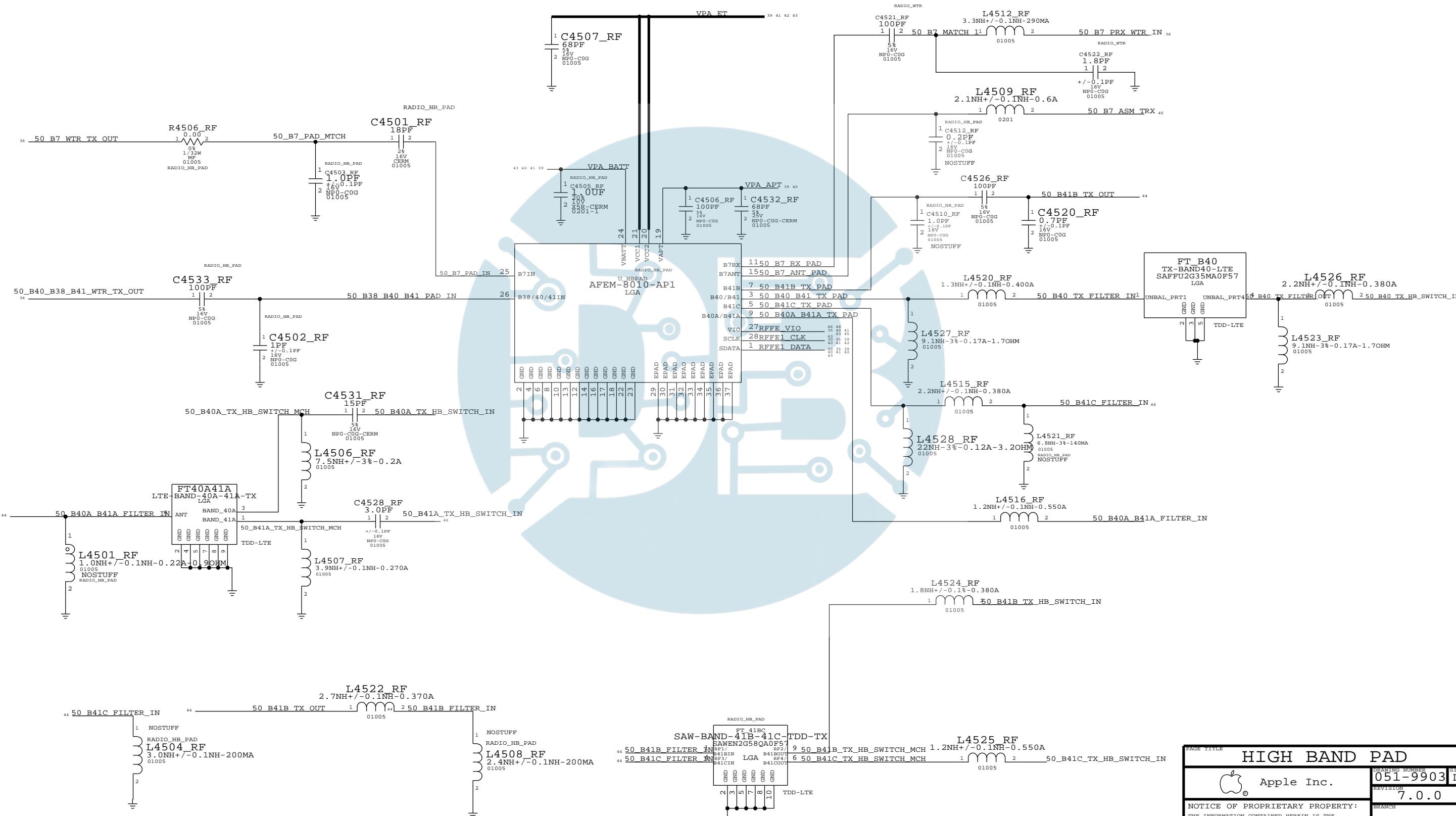
C

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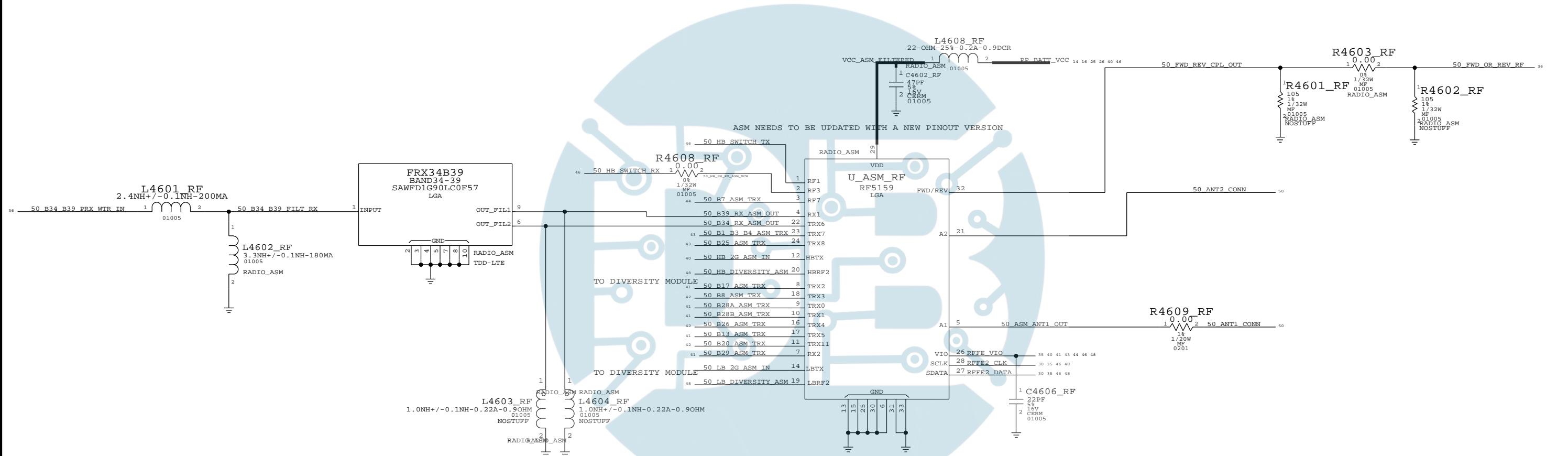


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ANTENNA SWITCH

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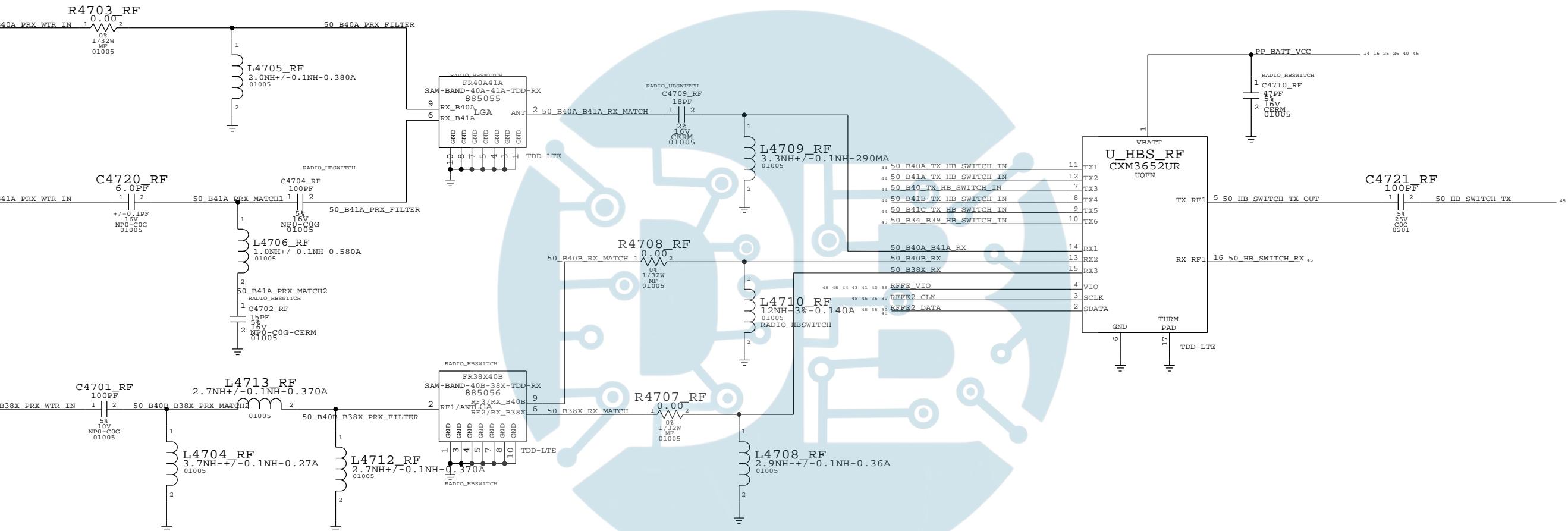
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R1700
L4608_RF
U1702



HIGH BAND SWITCH

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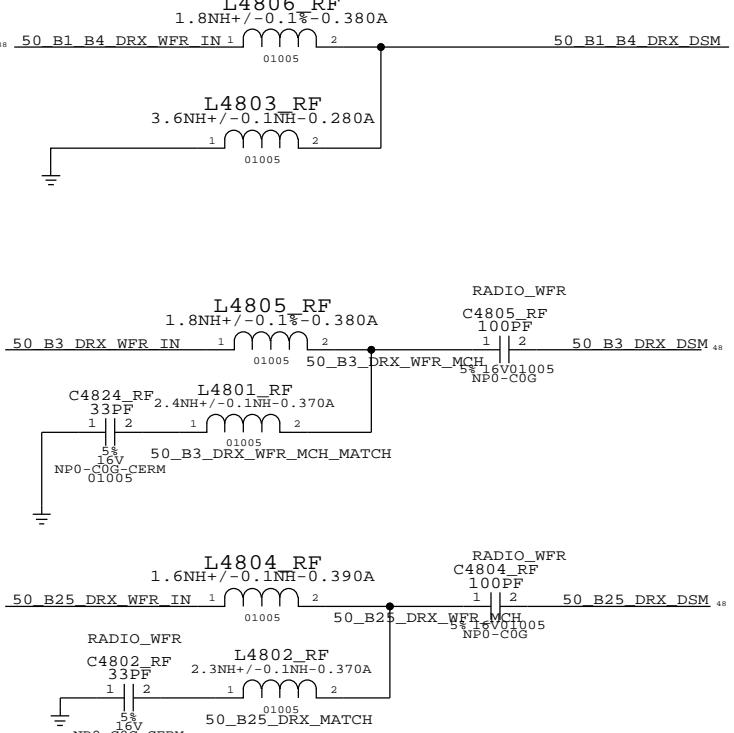
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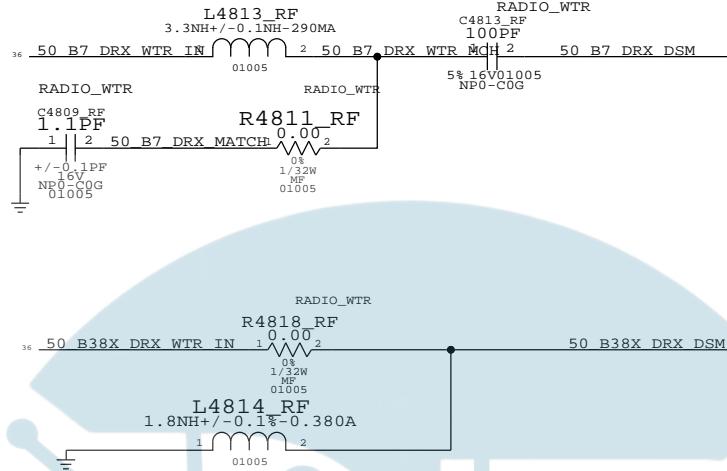
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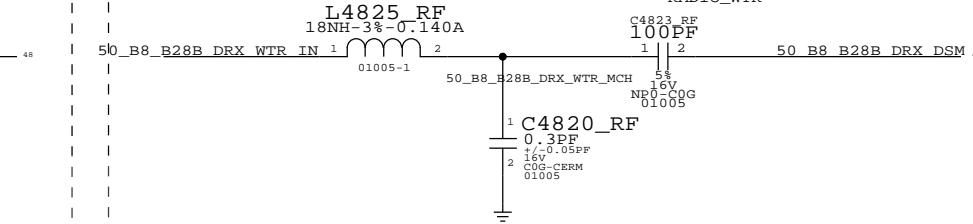


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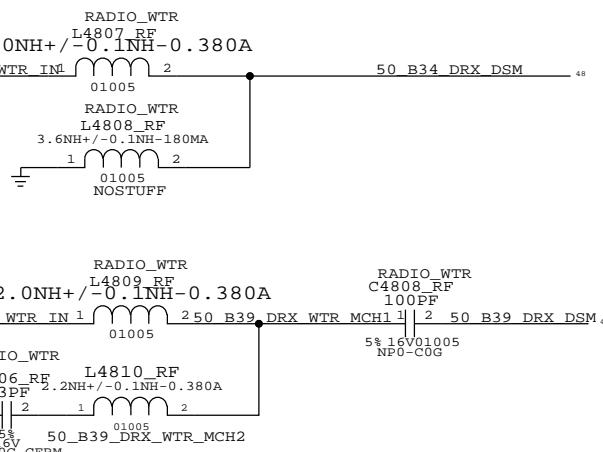
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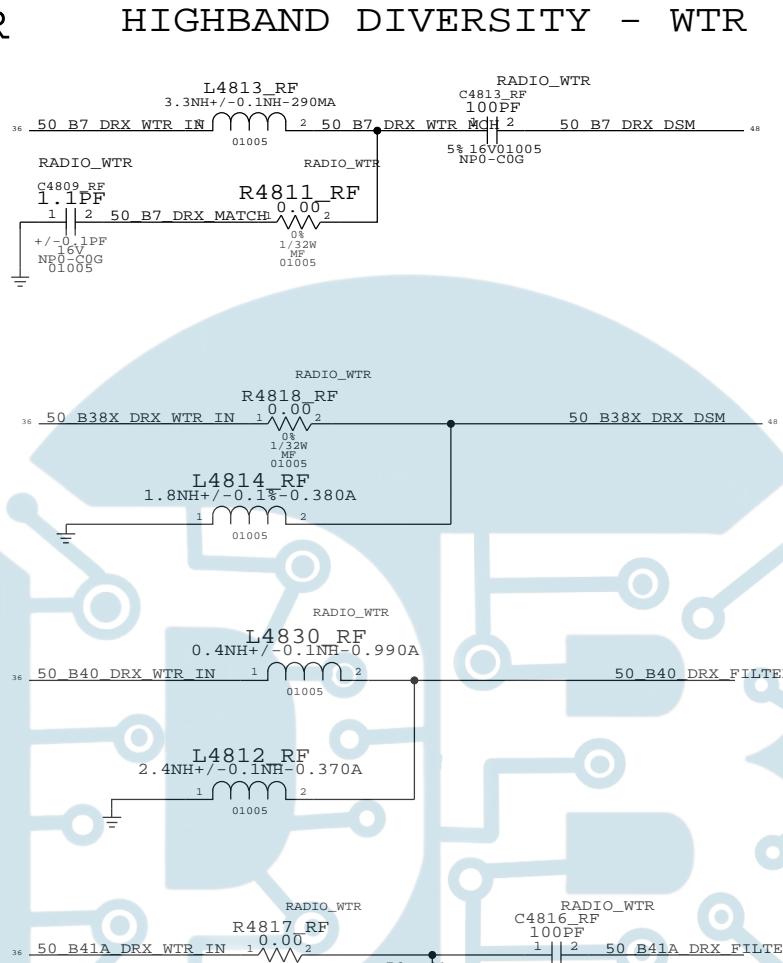
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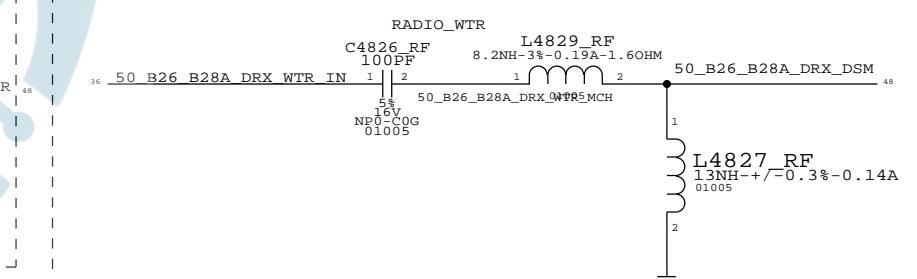
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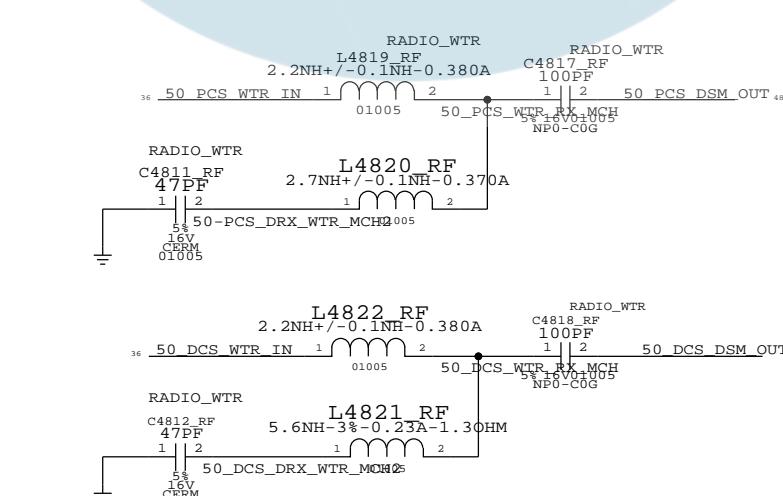
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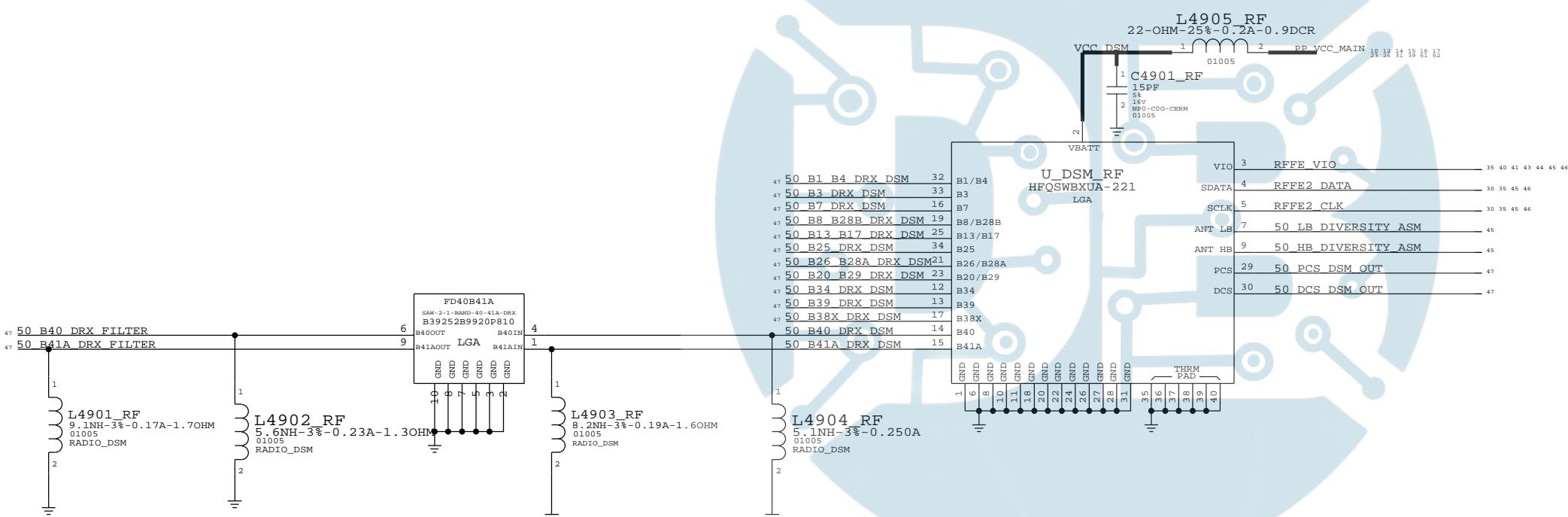
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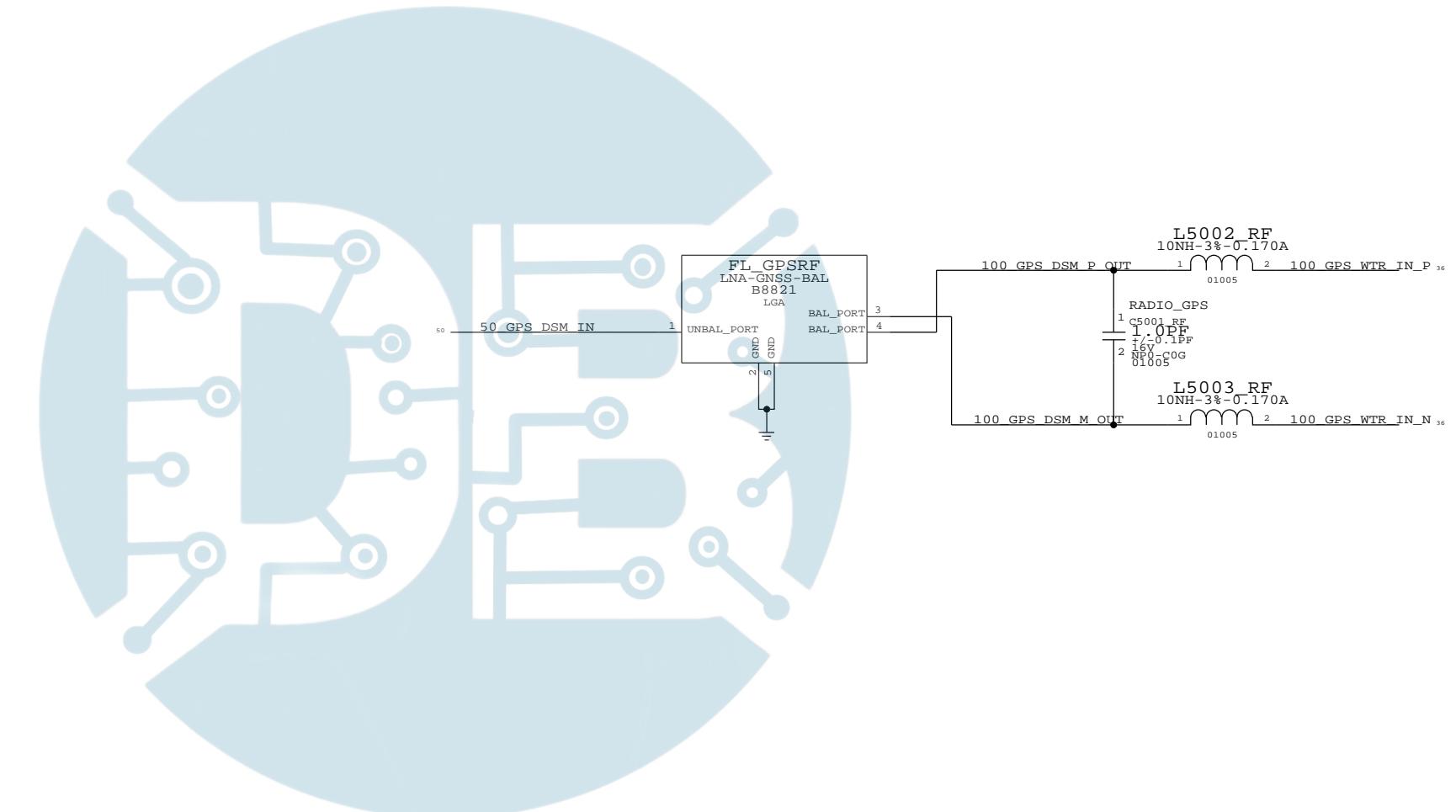
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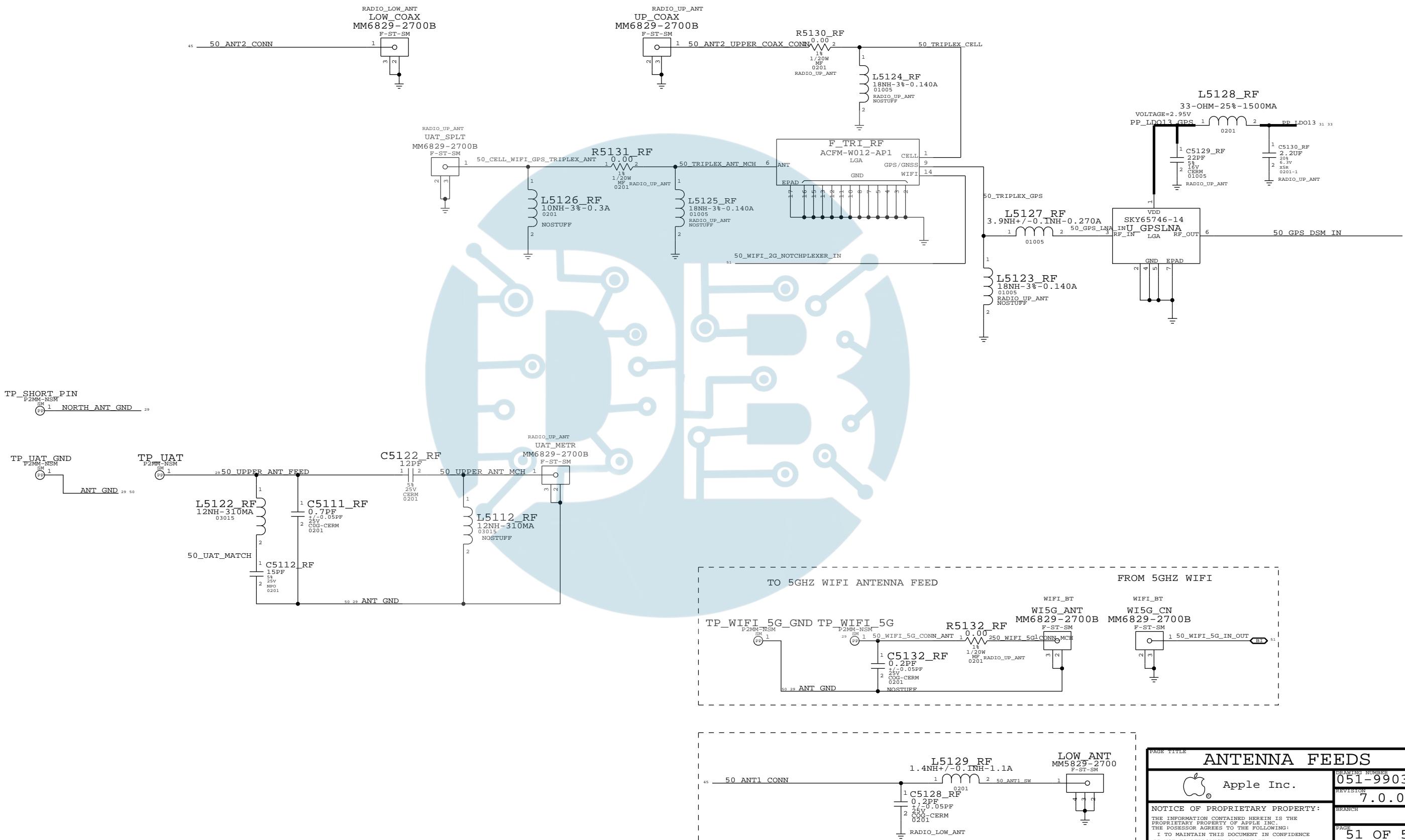


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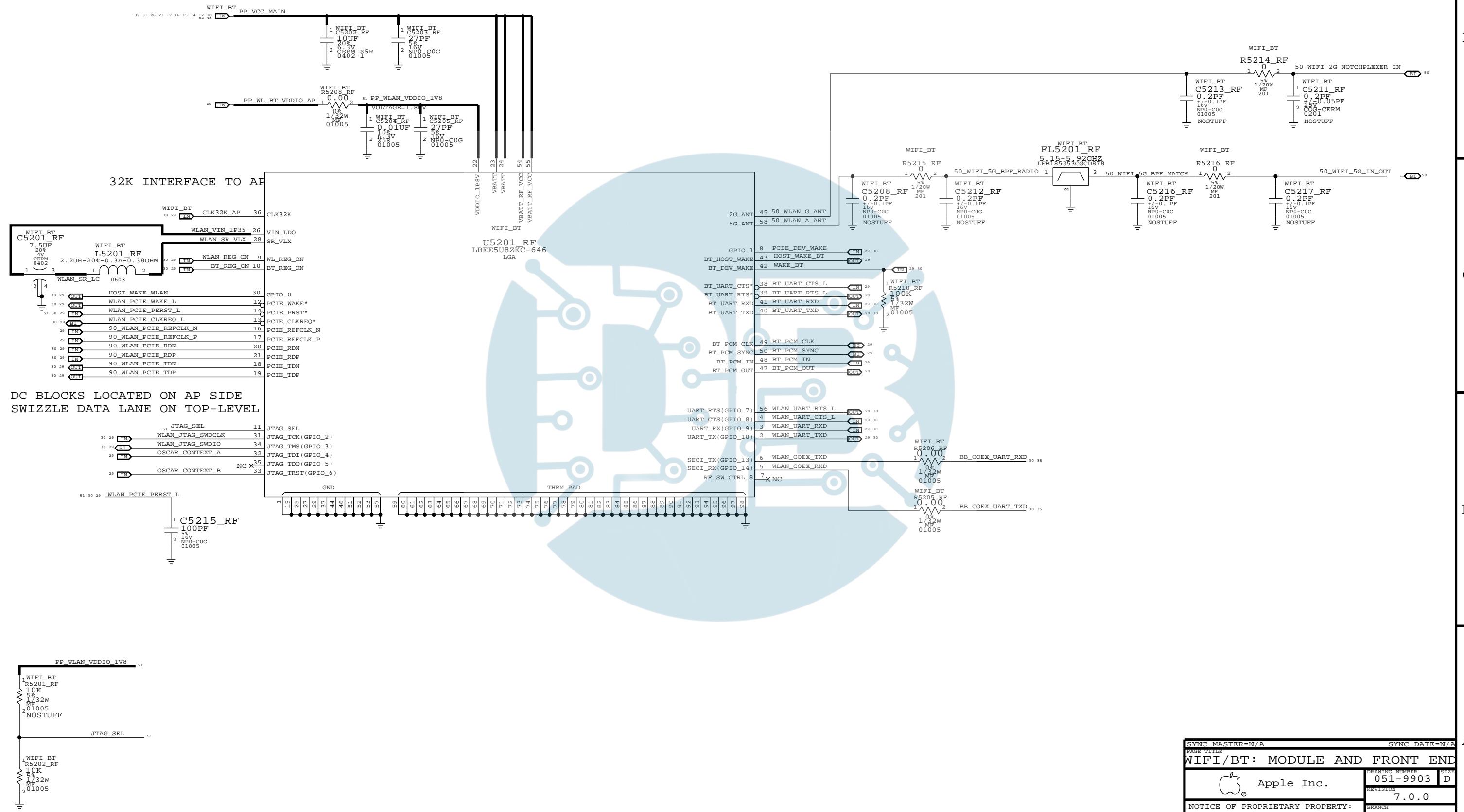
ANTENNA FEED'S

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TEST & COAX CONNECTOR FOR LOWER SECTION OF MLI



WLAN / BT



MODULE BOOT-STRAPPED TO PCIE INTERNALLY

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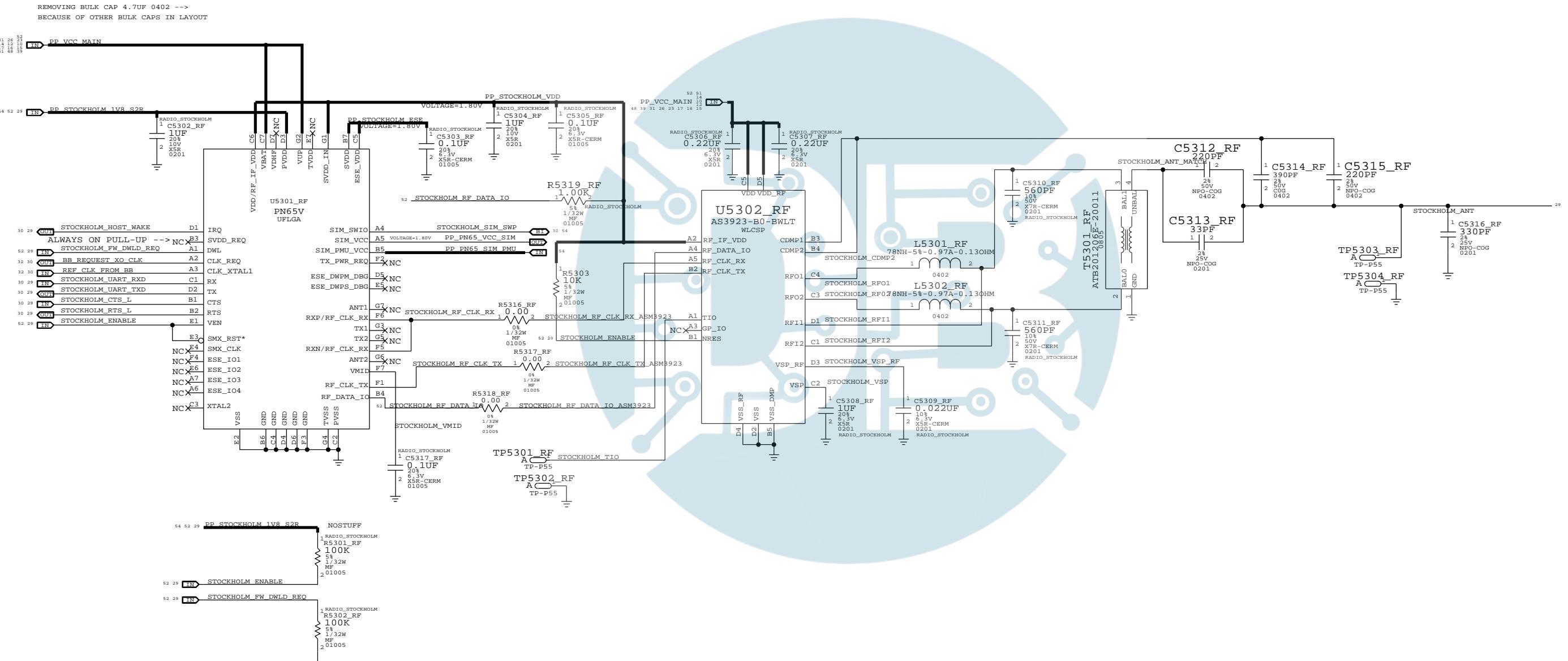
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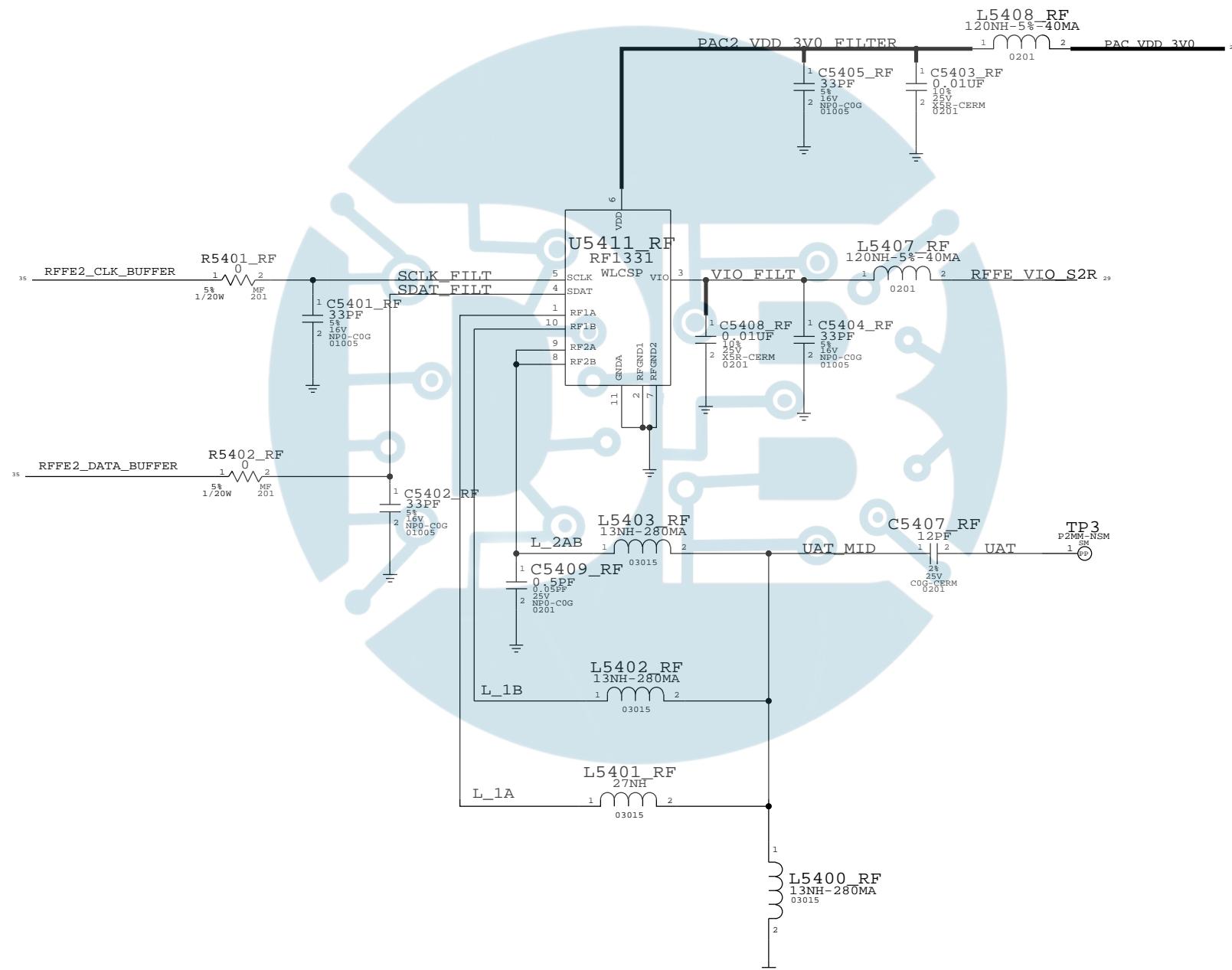


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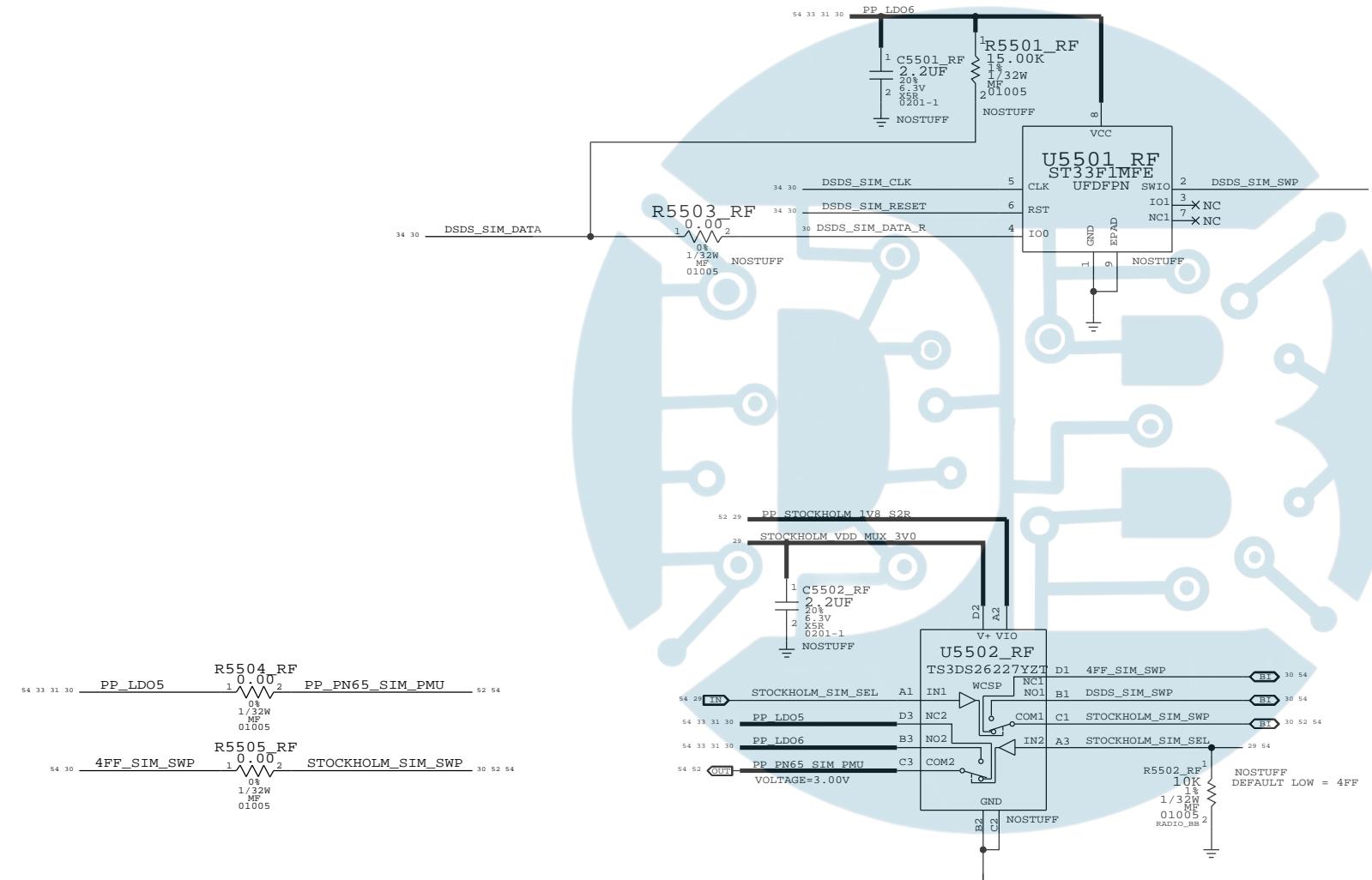
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