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	0000880153	PRODUCTION RELEASED	2010-03-23

N90 SINGLE_BRD PVT   Fri Apr 16 15:07:25 2010

PDF PAGE	CSA PAGE	CONTENTS	SYNC MASTER	DATE
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3	3	H3 GPIO,UART,SPI,I2S,I2C,SDIO		
4	4	AP PWR		
5	5	AP PWR(CONT.)		
6	6	ANALOG VIDEO,H3 NAND, NAND		
7	7	H3 MIPI,DPORT,SMIA		
8	8	L61 CODEC		
9	9	HPHONE FILTERS, MIKEY		
10	10	BUTTON B2B, COMPASS		
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12	12	SIM,ACCEL,OVP,GYRO COMPASS		
13	13	HPARK, SWITCH ESD, SIM CARD		
14	14	DOCK,SPKR AMP		
15	15	NIMBUS, GRAPE, LCD CONN.		
16	16	CAMERA,STROBE,SENSOR B2B		
17	17	RADIO,USB MUX,EM PARTS		
18	18	TEST POINTS		

MCO 056-3008
BRD 820-2548
SCH 051-7921
BOM 639-0648(16GB,USI)
BOM 630-9941(16GB,MURATA)
BOM 639-0437(32GB,USI)
BOM 639-0609(32GB,MURATA)
BOM 639-0608(64GB,USI)
BOM 639-0607(64GB,MURATA)

H3P ALTERNATES

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
339S0123	339S0108	?	U52	H3P + ELPIDA 512MB
339S0126	339S0108	?	U52	H3P + HYNIX 512MB

L9 (STROBE) ALTERNATE

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
152S1173	152S0979	?	L9	

VIDEO BUFFER ALTERNATE

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
353S2684	353S2493	?	U9	INTERSIL BUFFER

G3_RF ALTERNATES

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
197S0371	197S0349	?	G3_RF	
197S0364	197S0349	?	G3_RF	

FL1_RF ALTERNATES

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
155S0452	155S0435	?	FL1_RF	

G2_RF ALTERNATES

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
197S0334	197S0292	?	G2_RF	

Y1_RF ALTERNATES

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
197S0329	197S0299	?	Y1_RF	
197S0369	197S0299	?	Y1_RF	

Y2_RF ALTERNATE

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
197S0342	197S0297	?	Y2_PMU	

L2_PMU ALTERNATE

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
152S1172	152S0928	?	L2_PMU	

L7_PMU ALTERNATE

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
152S1051	152S0927	?	L7_PMU	

LCD BL DRIVER ALTERNATE

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
376S0769	376S0768	?	Q1_PMU	LCD BL FET DRIVER

Y1_PMU ALTERNATE

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
197S0329	197S0299	?	Y1_PMU	
197S0369	197S0299	?	Y1_PMU	

PMU POWER IND ALTERNATE

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
607-6810	607-6809	?	L1_L3_L16_L18_PMU	CYNTEC INDUCTORS
197S0369	197S0299	?	Y1_PMU	

SCH & PCB BOM CALLOUT

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
051-7921	1	N90_SCHEMATIC_TOP	SCH	Y	?
820-2548	1	N90_SINGLE_BOARD	PCB	Y	?

H3P BOM CALLOUT

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
339S0108	1	H3P WITH 512MB SAMSUNG DDR	U52	Y	?

BB MEMORY BOM CALLOUT

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
341S2509	1	BB_MEM_PROGRAMMED	U4_RF	Y	BB_MEM

N90 EEE BOM LABELS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
825-2029	1	EEE FOR 630-9941 (16G)	EEE_6LU	Y	GOOD_MURATA
825-2029	1	EEE FOR 639-0609 (32G)	EEE_D7F	Y	BETTER_MURATA
825-2029	1	EEE FOR 639-0607 (64G)	EEE_D7D	Y	BEST_MURATA
825-2029	1	EEE FOR 639-0648 (16G)	EEE_DPM	Y	GOOD_USI
825-2029	1	EEE FOR 639-0437 (32G)	EEE_BA0	Y	BETTER_USI
825-2029	1	EEE FOR 639-0608 (64G)	EEE_D7E	Y	BEST_USI

NAND BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
335S0682	1	16GB SAMSUNG 35NM FLASH WLGA52	U1	Y	GOOD_MURATA
335S0665	1	32GB SAMSUNG 35NM FLASH TLGA52	U1	Y	BETTER_MURATA
335S0707	1	64GB SAMSUNG 35NM FLASH LGA52	U1	Y	BEST_MURATA
117S0161	2	64GB NAND CE7 CE8 JUMPERS	R101, R102	Y	BEST_MURATA
335S0682	1	16GB SAMSUNG 35NM FLASH WLGA52	U1	Y	GOOD_USI
335S0665	1	32GB SAMSUNG 35NM FLASH TLGA52	U1	Y	BETTER_USI
335S0707	1	64GB SAMSUNG 35NM FLASH LGA52	U1	Y	BEST_USI
117S0161	2	64GB NAND CE7 CE8 JUMPERS	R101, R102	Y	BEST_USI

WIFI/BT BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
339S0092	1	MURATA WIFI_BT MODULE	U2_RF	Y	GOOD_MURATA
117S0161	1	MURATA ID RESISTOR	R47_RF	Y	GOOD_MURATA
339S0092	1	MURATA WIFI_BT MODULE	U2_RF	Y	BETTER_MURATA
117S0161	1	MURATA ID RESISTOR	R47_RF	Y	BETTER_MURATA
339S0092	1	MURATA WIFI_BT MODULE	U2_RF	Y	BEST_MURATA
117S0161	1	MURATA ID RESISTOR	R47_RF	Y	BEST_MURATA
339S0091	1	USI WIFI_BT MODULE	U2_RF	Y	GOOD_USI
117S0161	1	USI ID RESISTOR	R46_RF	Y	GOOD_USI
339S0091	1	USI WIFI_BT MODULE	U2_RF	Y	BETTER_USI
117S0161	1	USI ID RESISTOR	R46_RF	Y	BETTER_USI
339S0091	1	USI WIFI_BT MODULE	U2_RF	Y	BEST_USI
117S0161	1	USI ID RESISTOR	R46_RF	Y	BEST_USI

PMU POWER IND CALLOUT

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
607-6809	1	POWER INDUCTORS	L1_L3_L16_L18_PMU	Y	?

SYNC MASTER=N/A   SYNC DATE=N/A

DRAWING TITLE
TABLE OF CONTENTS

Apple Inc.

DRAWING NUMBER 051-7921   SIZE D
REVISION A.0.0
BRANCH
PAGE 1 OF 18
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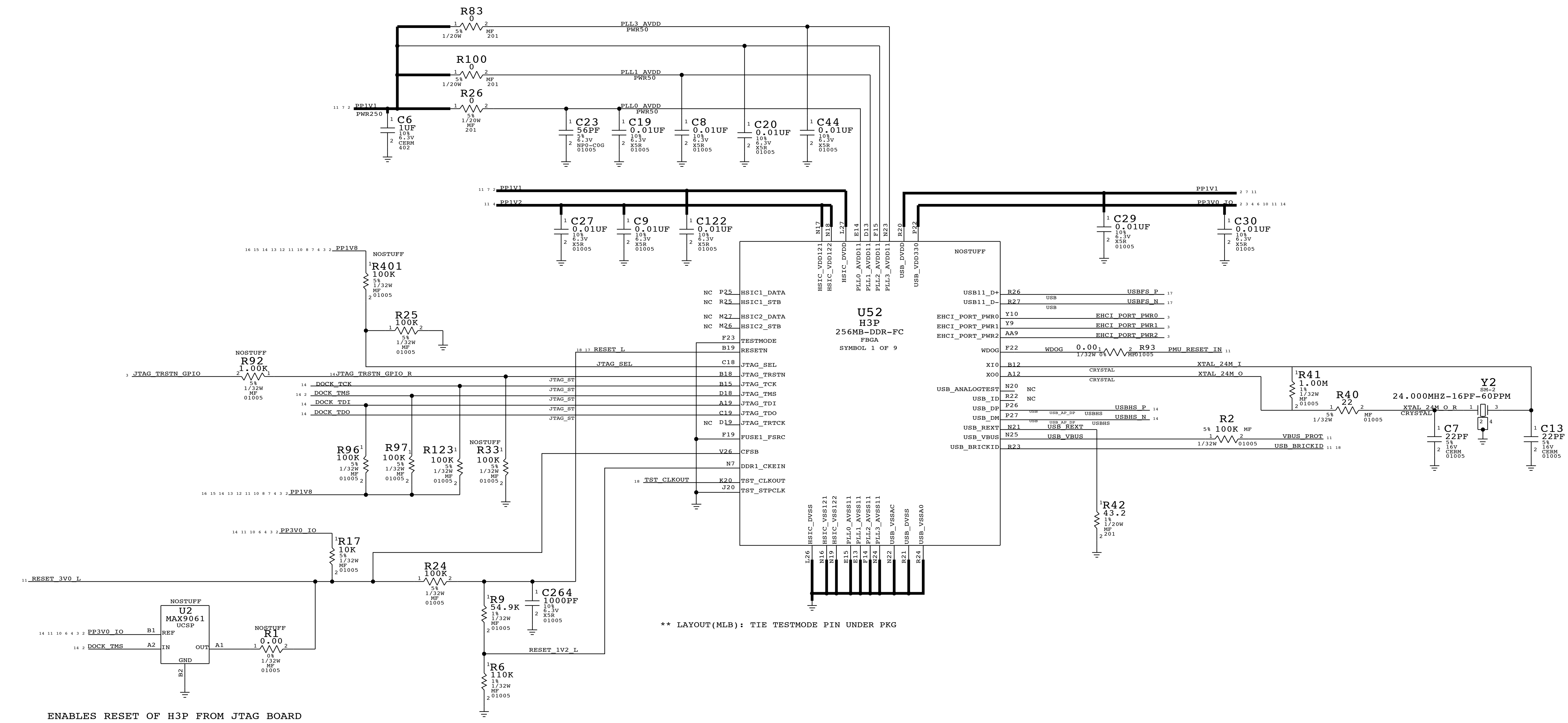

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PAGE TITLE

H3 JTAG, USB ,MISC

Apple Inc.

DRAWING NUMBER 051-7921 SIZE D

REVISION A.0.0

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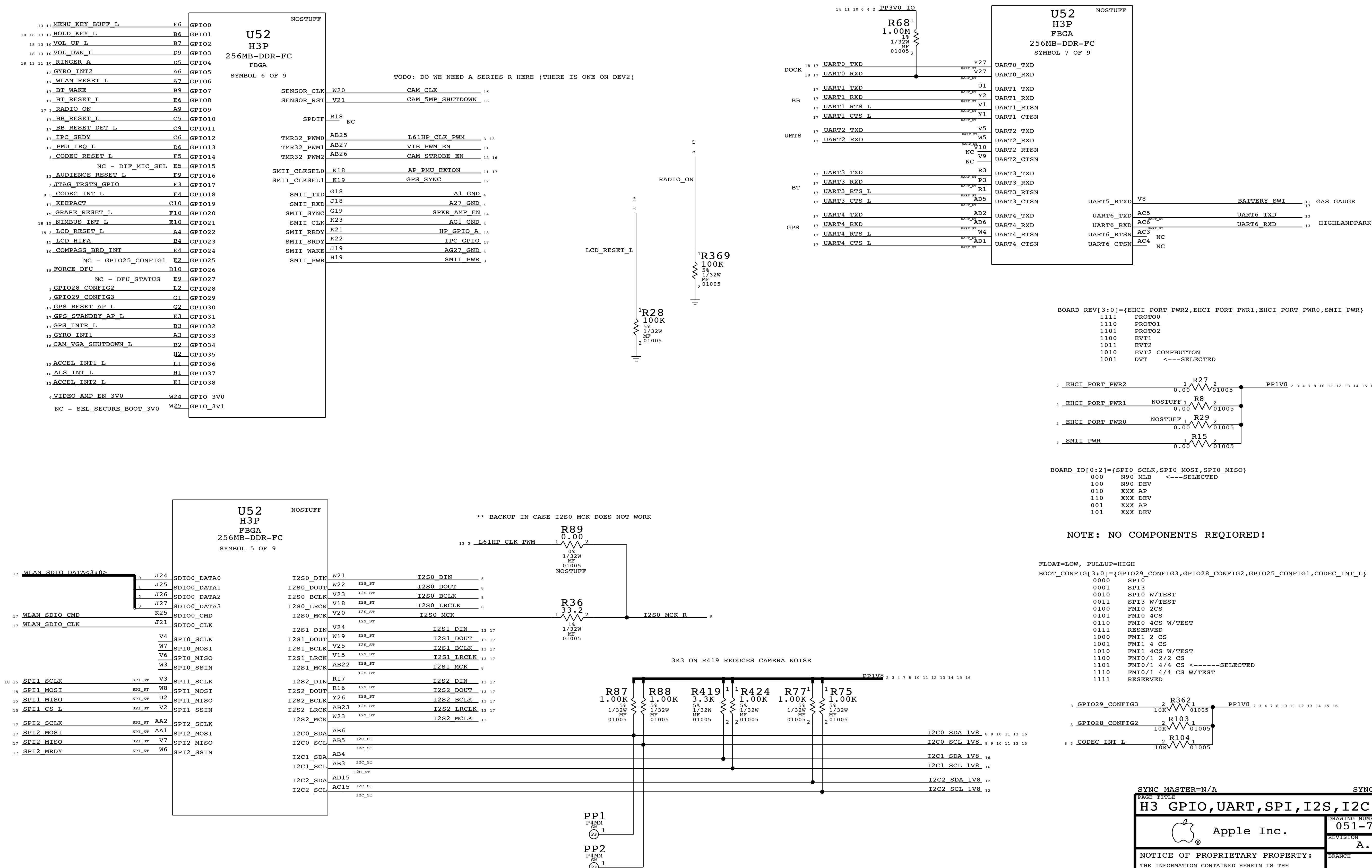

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PAGE TITLE
H3 GPIO,UART,SPI,I2S,I2C,SDIO

Apple Inc.

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051-7921	D

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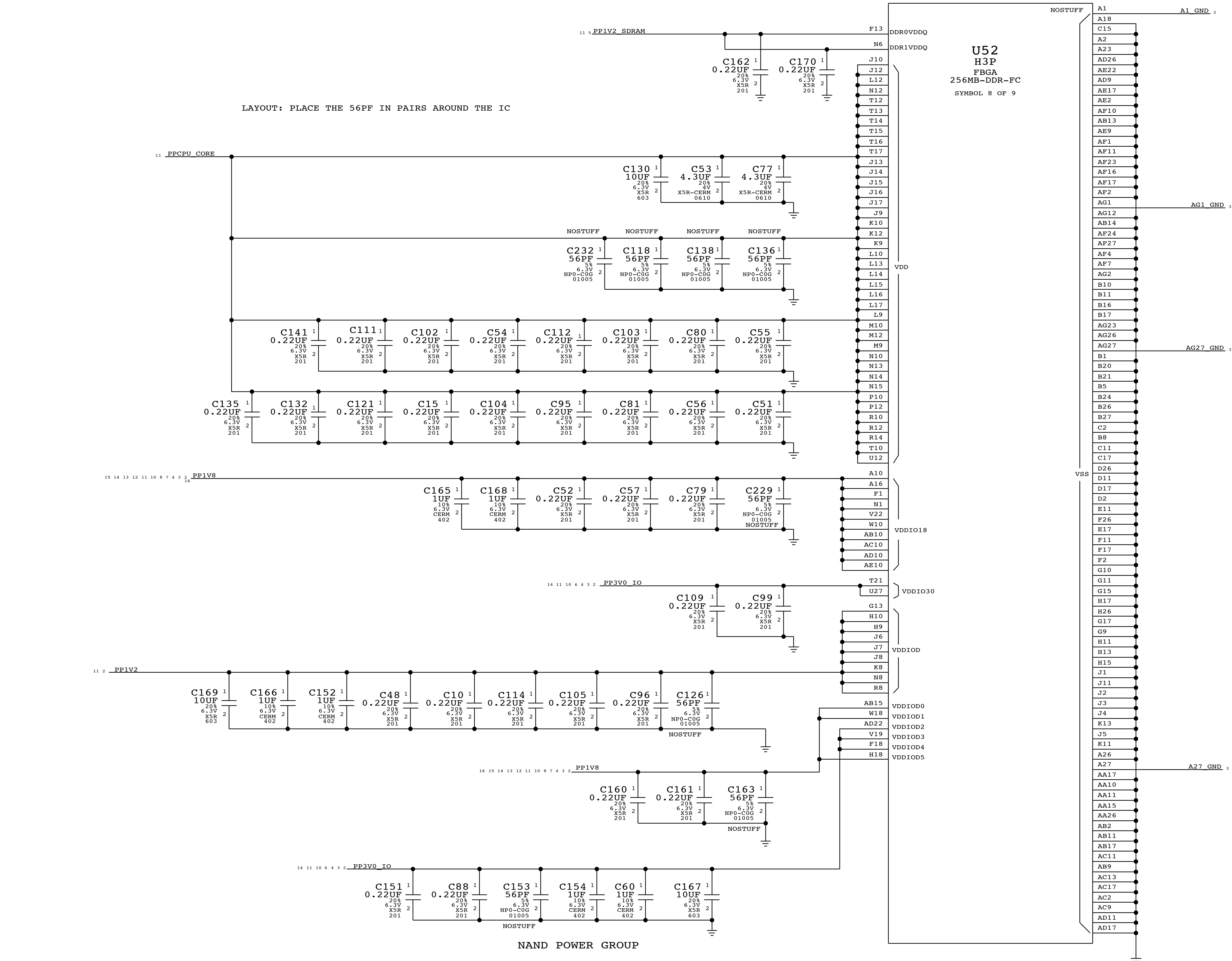

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AP PWR

Apple Inc.

DRAWING NUMBER 051-7921 SIZE D

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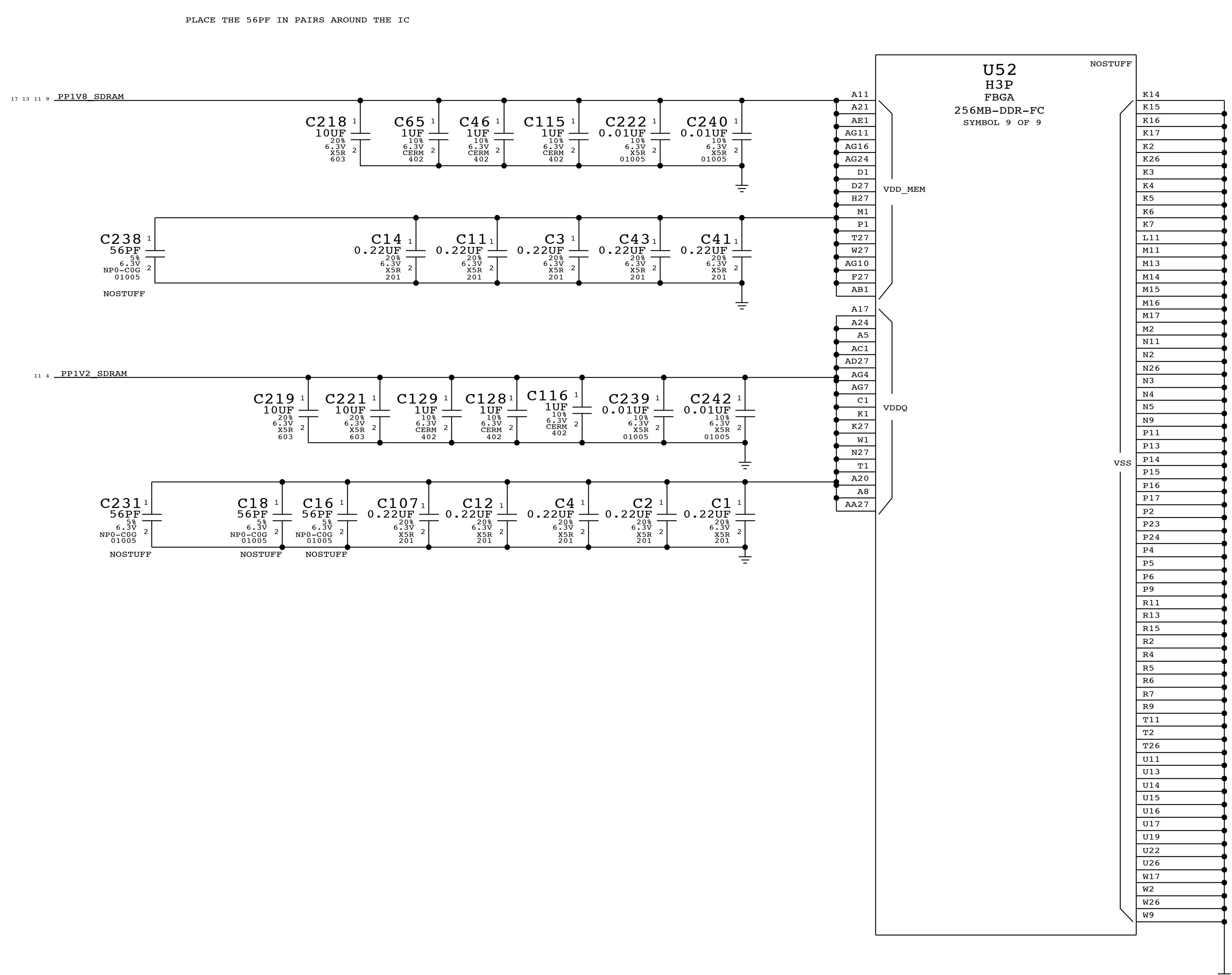

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AP PWR(CONT.)

Apple Inc.

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REVISION A.0.0

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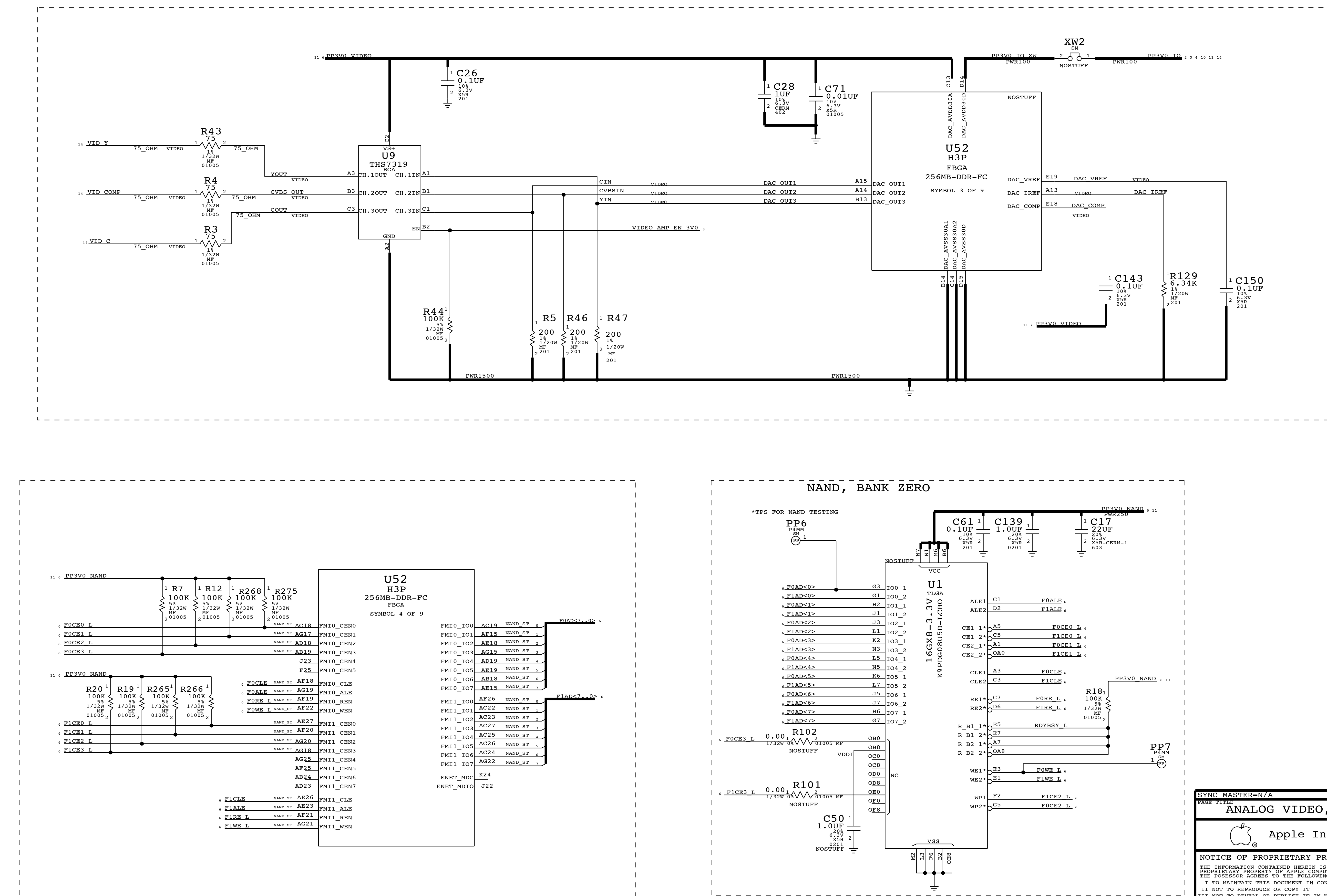

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PAGE TITLE

ANALOG VIDEO,H3 NAND, NAND

Apple Inc.

DRAWING NUMBER 051-7921 SIZE D

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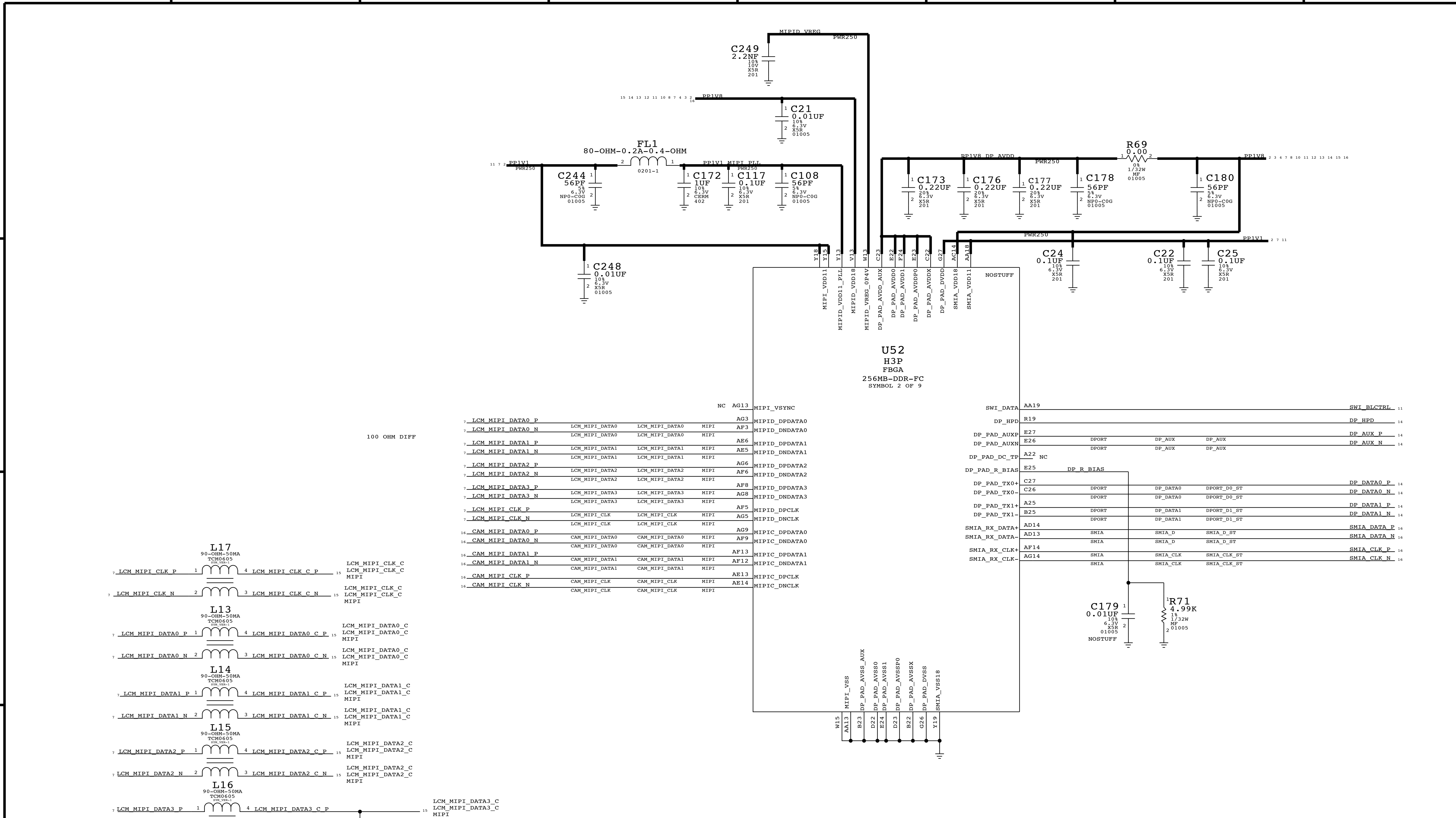

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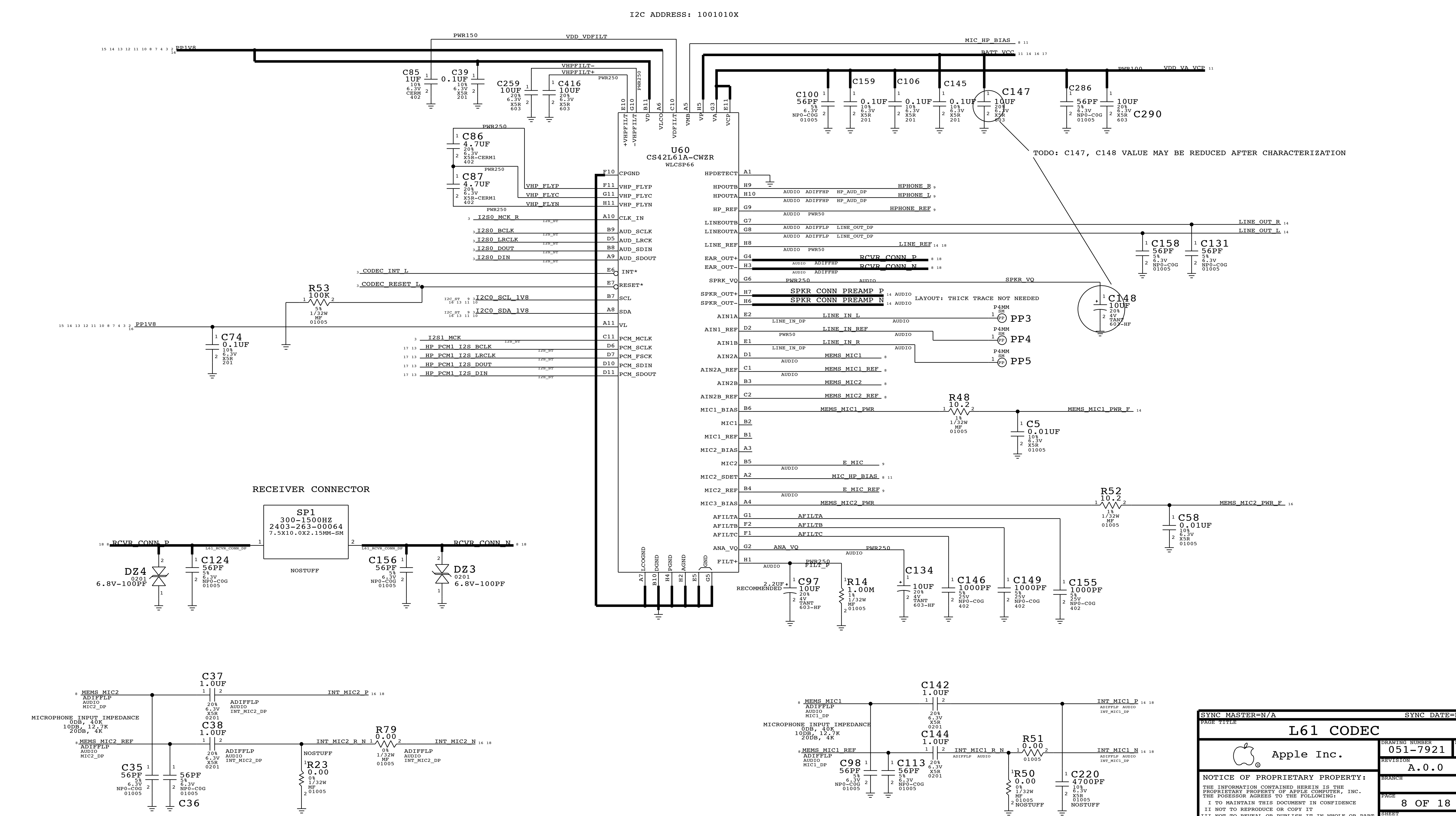
PAGE TITLE: H3 MIPI,DPORT,SMIA

Apple Inc.

DRAWING NUMBER: 051-7921 SIZE: D

REVISION: A.0.0

L61 AUDIO INTERFACE



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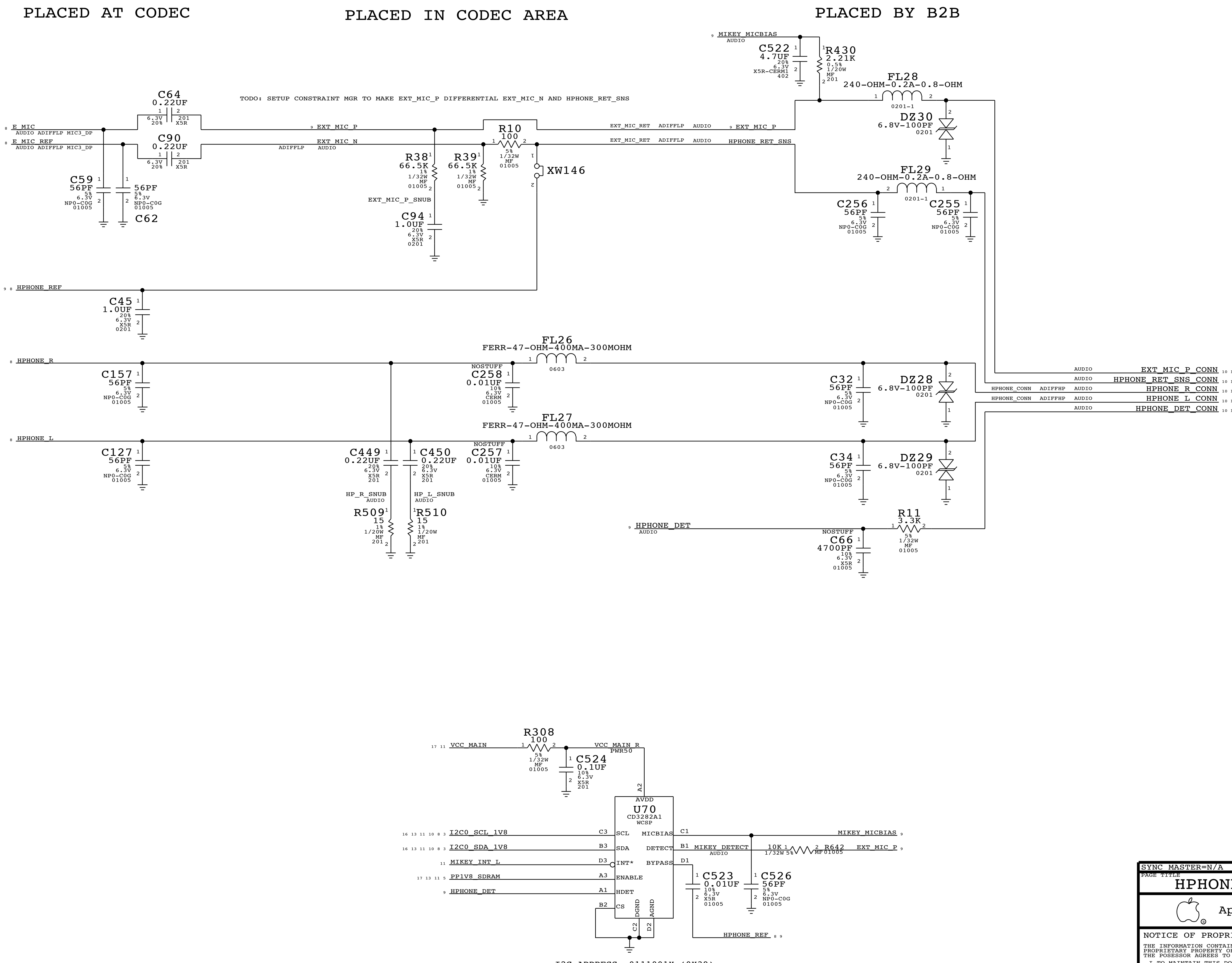
PAGE TITLE: L61 CODEC

Apple Inc.

DRAWING NUMBER: 051-7921 SIZE: D

REVISION: A.0.0



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PAGE TITLE: HPHONE FILTERS, MIKEY

Apple Inc.

DRAWING NUMBER: 051-7921 | SIZE: D

REVISION: A.0.0

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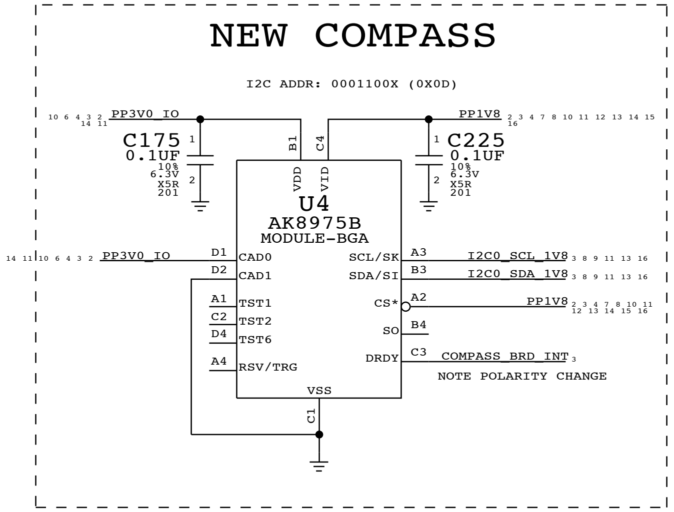
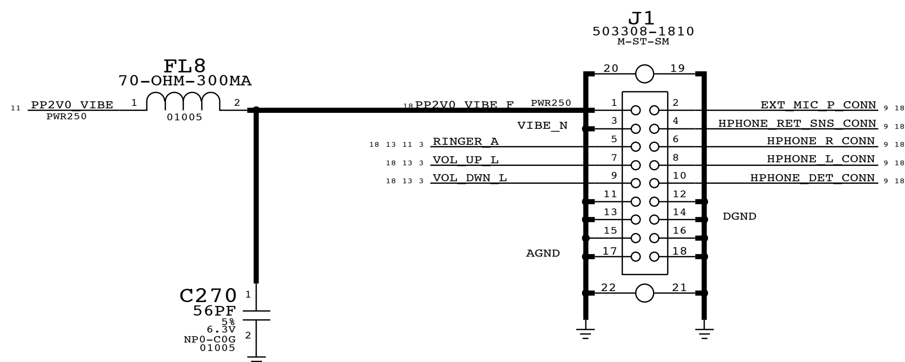




BUTTON FLEX CONNECTOR

SYNC_MASTER=N/A SYNC_DATE=N/A

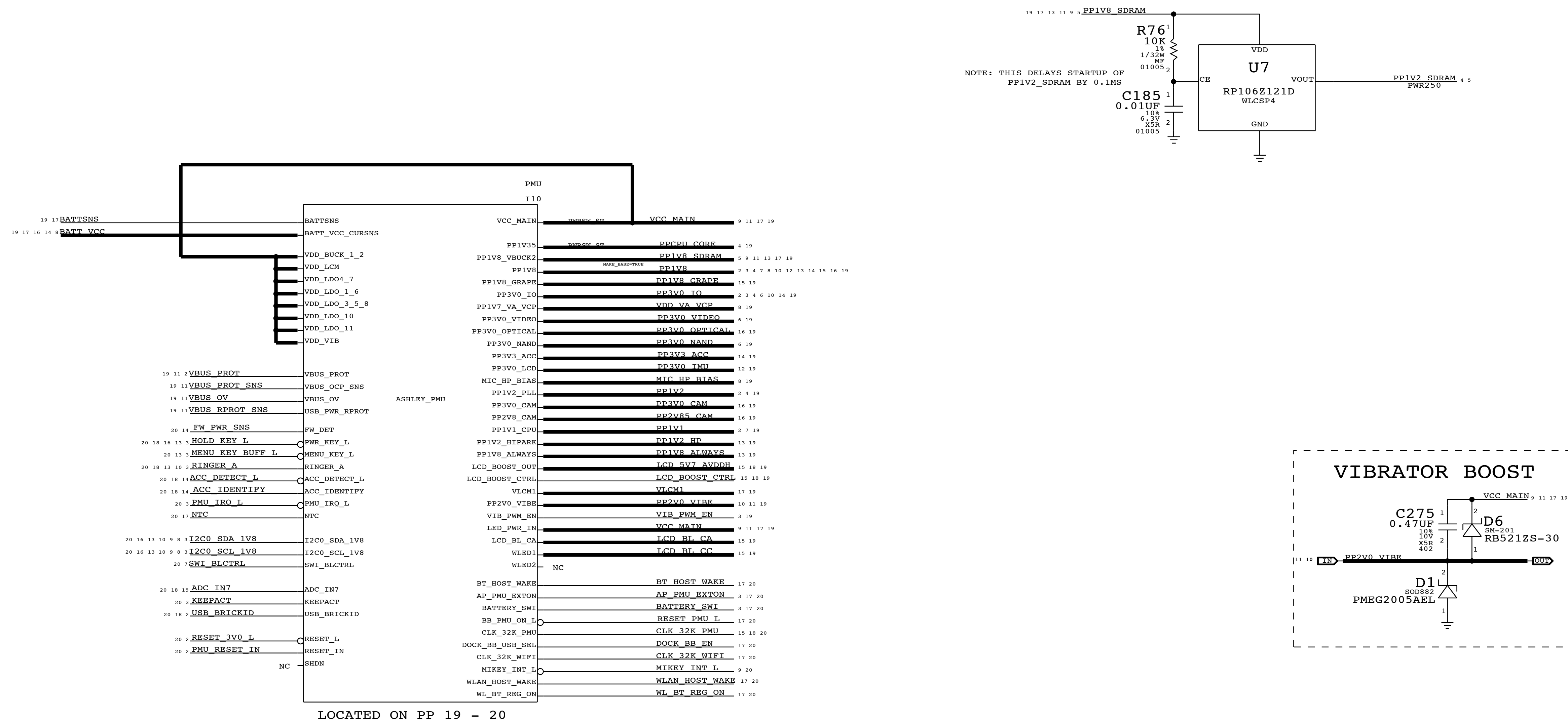
PAGE TITLE: BUTTON B2B, COMPASS

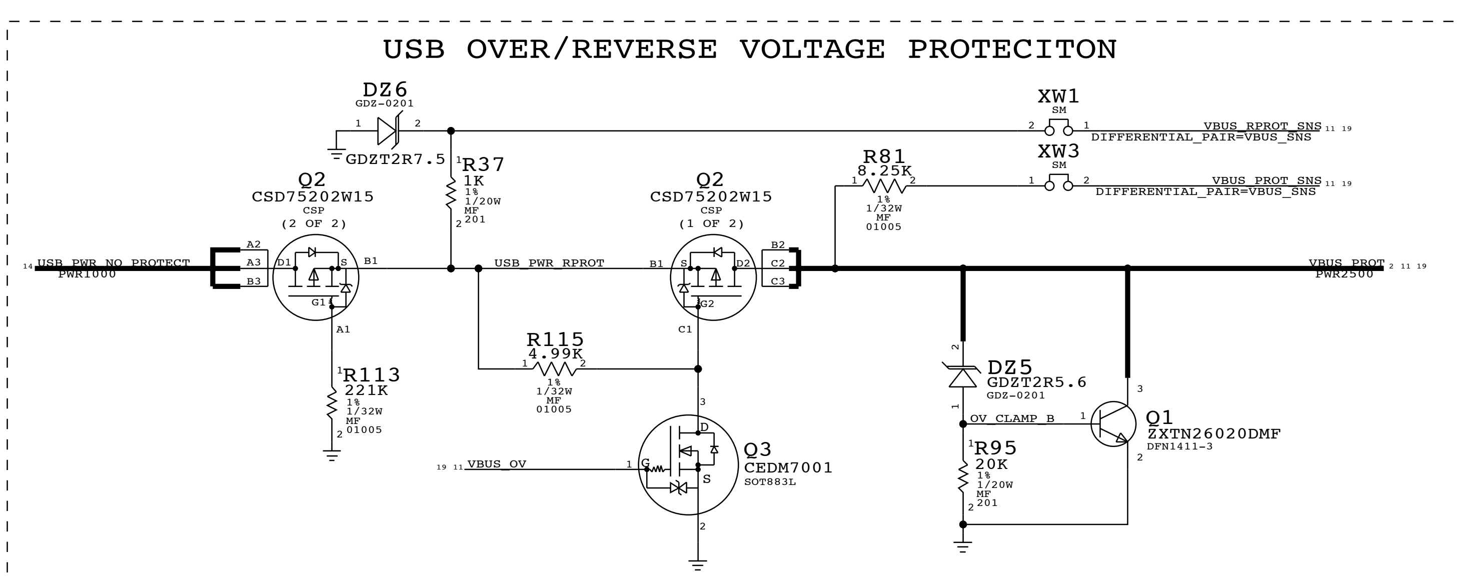
Apple Inc.

DRAWING NUMBER: 051-7921 SIZE: D

REVISION: A.0.0

BRANCH





SYNC_MASTER=N/A SYNC_DATE=N/A

PAGE TITLE

ASHLEY PMU

Apple Inc.

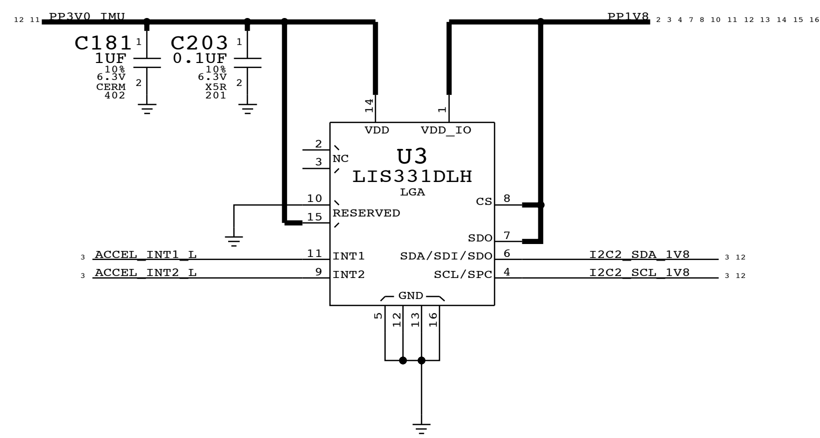
DRAWING NUMBER 051-7921 SIZE D

REVISION A.0.0

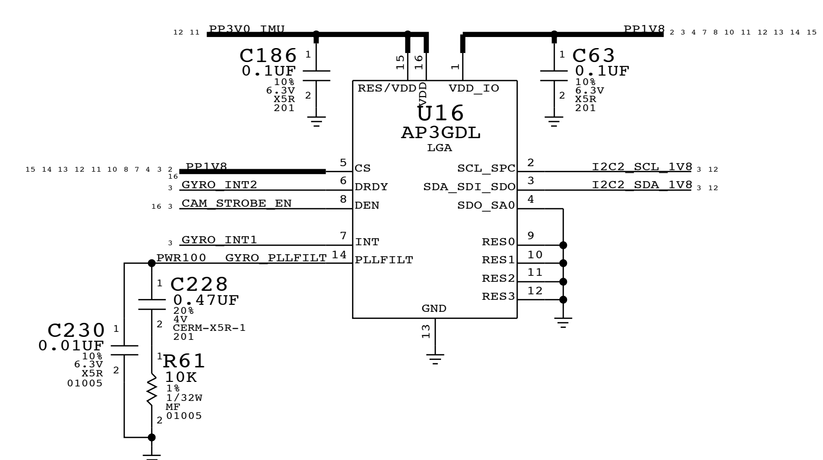
BRANCH

ACCELEROMETER

I2C ADDRESS: 0011101X (0X1D)



GYRO



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PAGE TITLE

ACCEL,GYRO

Apple Inc.

DRAWING NUMBER 051-7921 SIZE D

REVISION A.0.0

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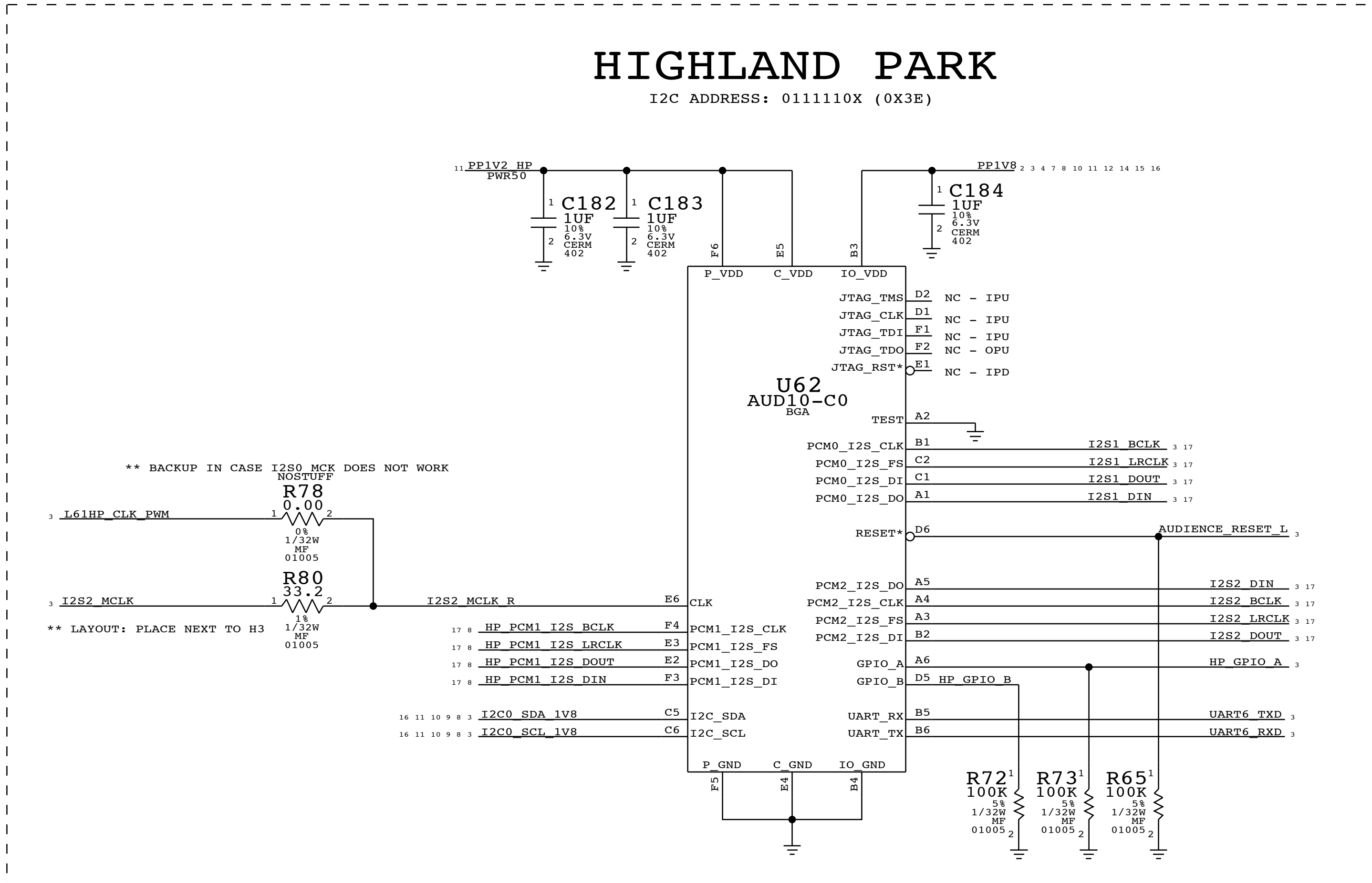

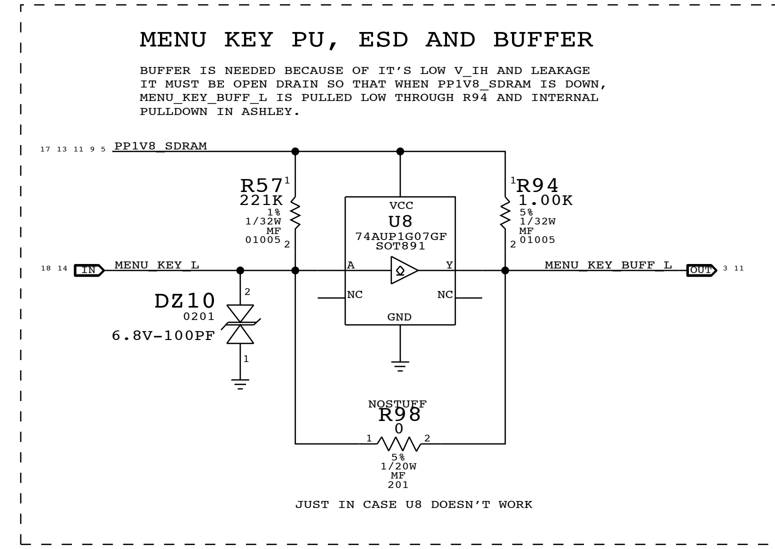

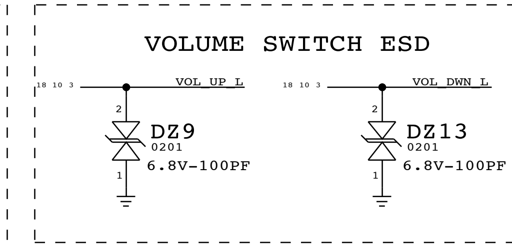

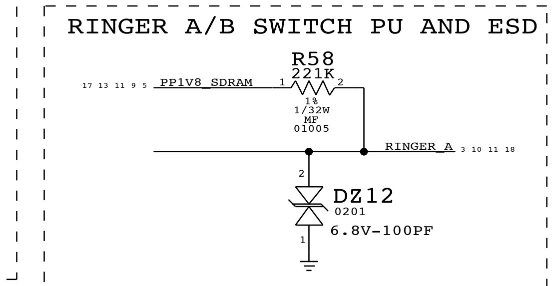

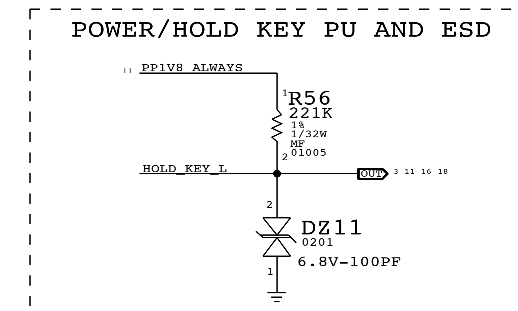

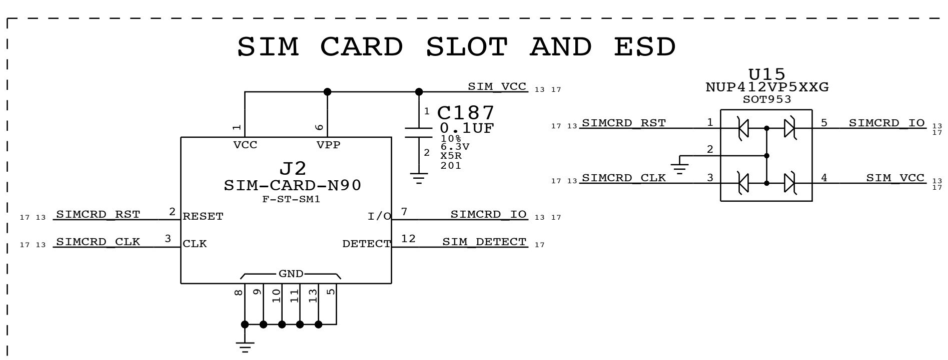

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PAGE TITLE

HPARK, SWITCH ESD, SIM CARD

Apple Inc.

DRAWING NUMBER 051-7921 SIZE D

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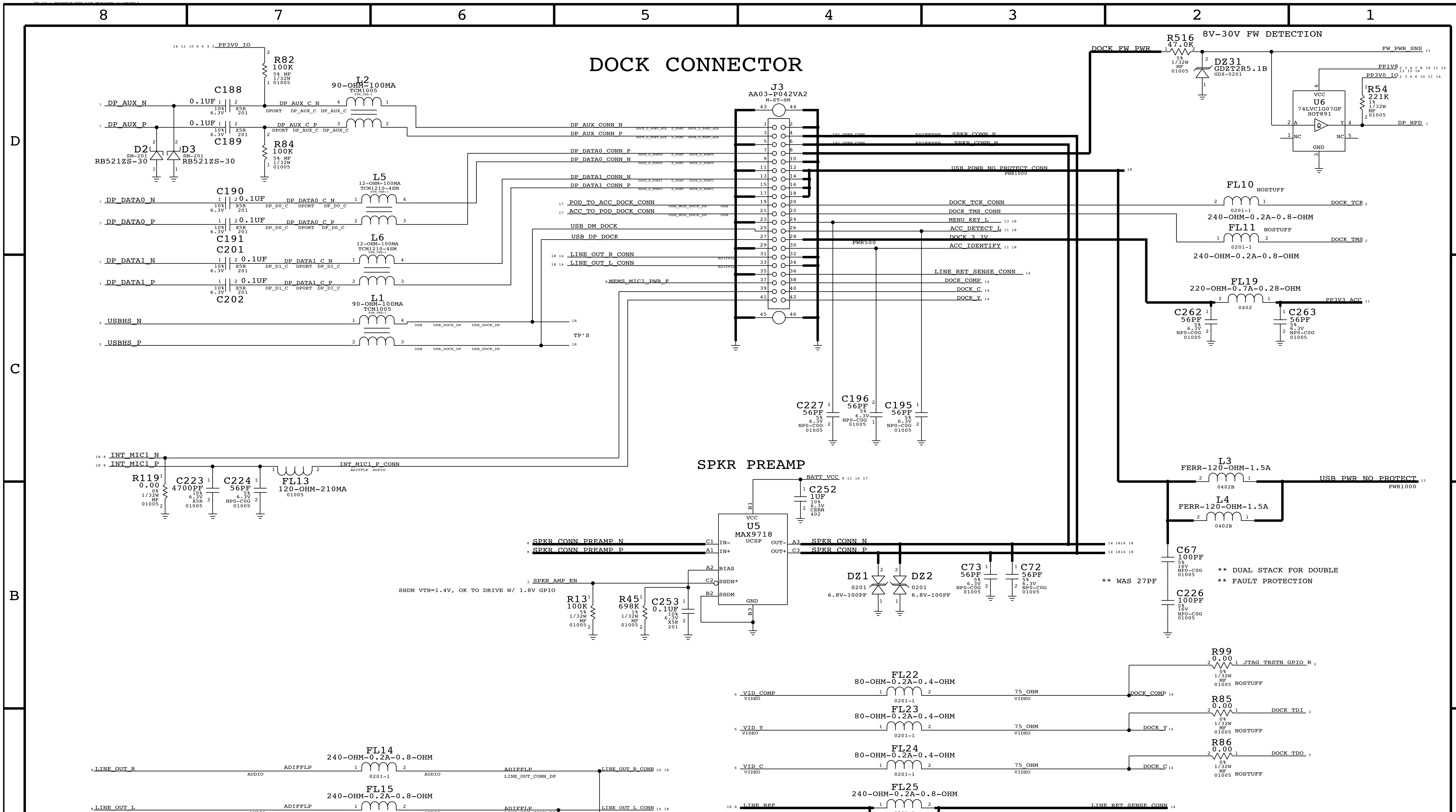

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PAGE TITLE

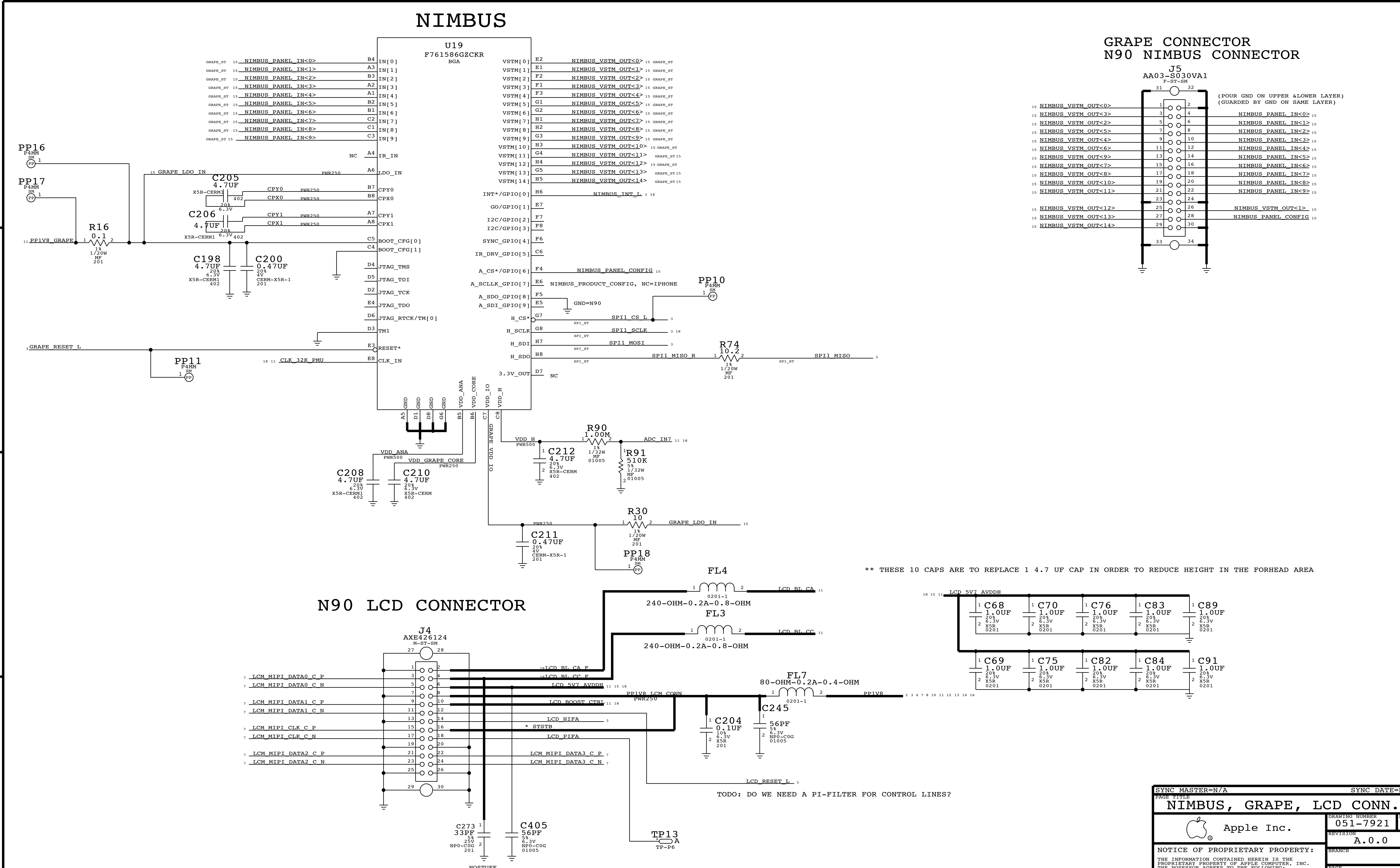
DOCK,SPKR AMP

Apple Inc.

DRAWING NUMBER 051-7921 SIZE D

REVISION A.0.0

BRANCH



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PAGE TITLE

NIMBUS, GRAPE, LCD CONN.

Apple Inc.

DRAWING NUMBER 051-7921 SIZE D

REVISION A.0.0

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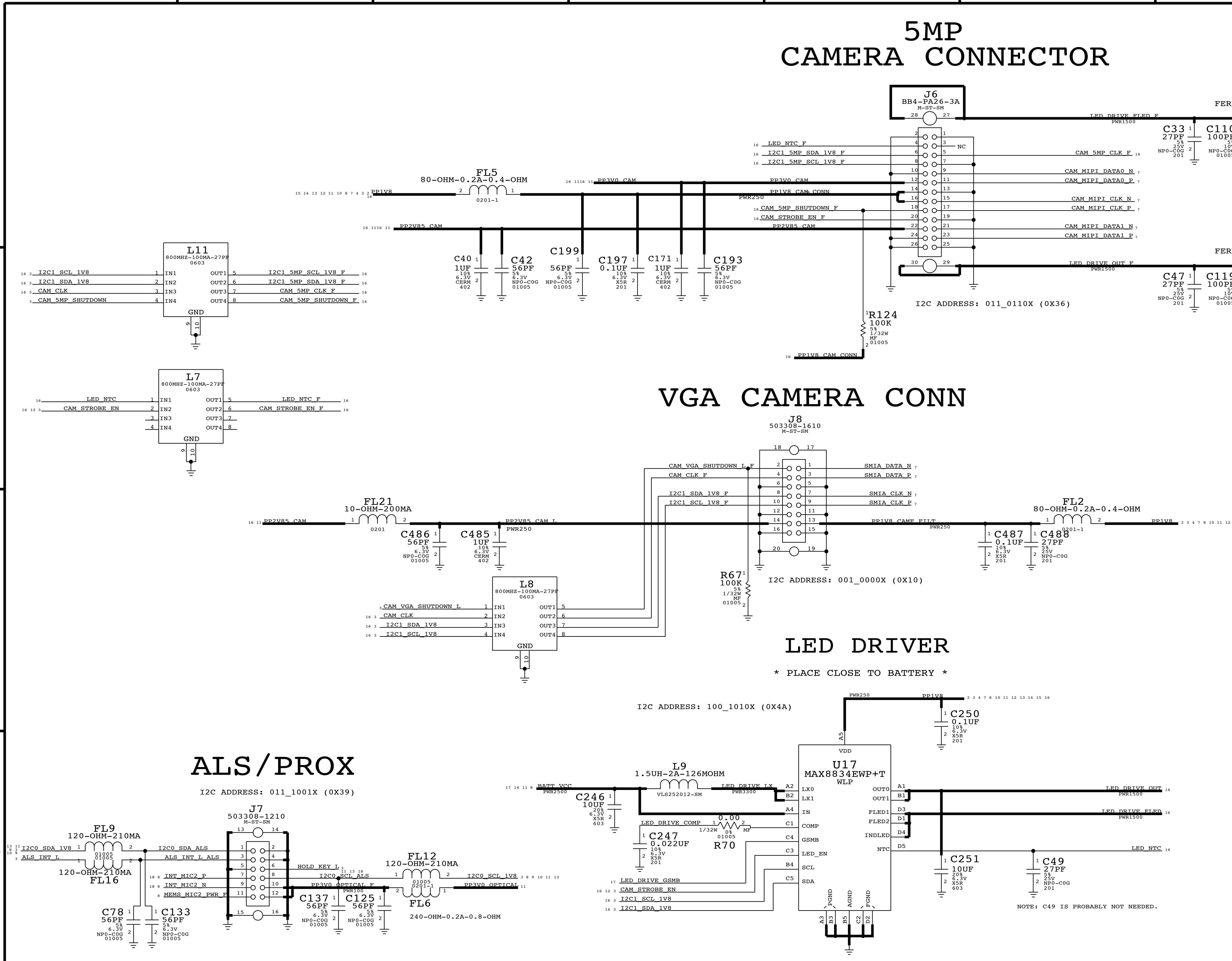

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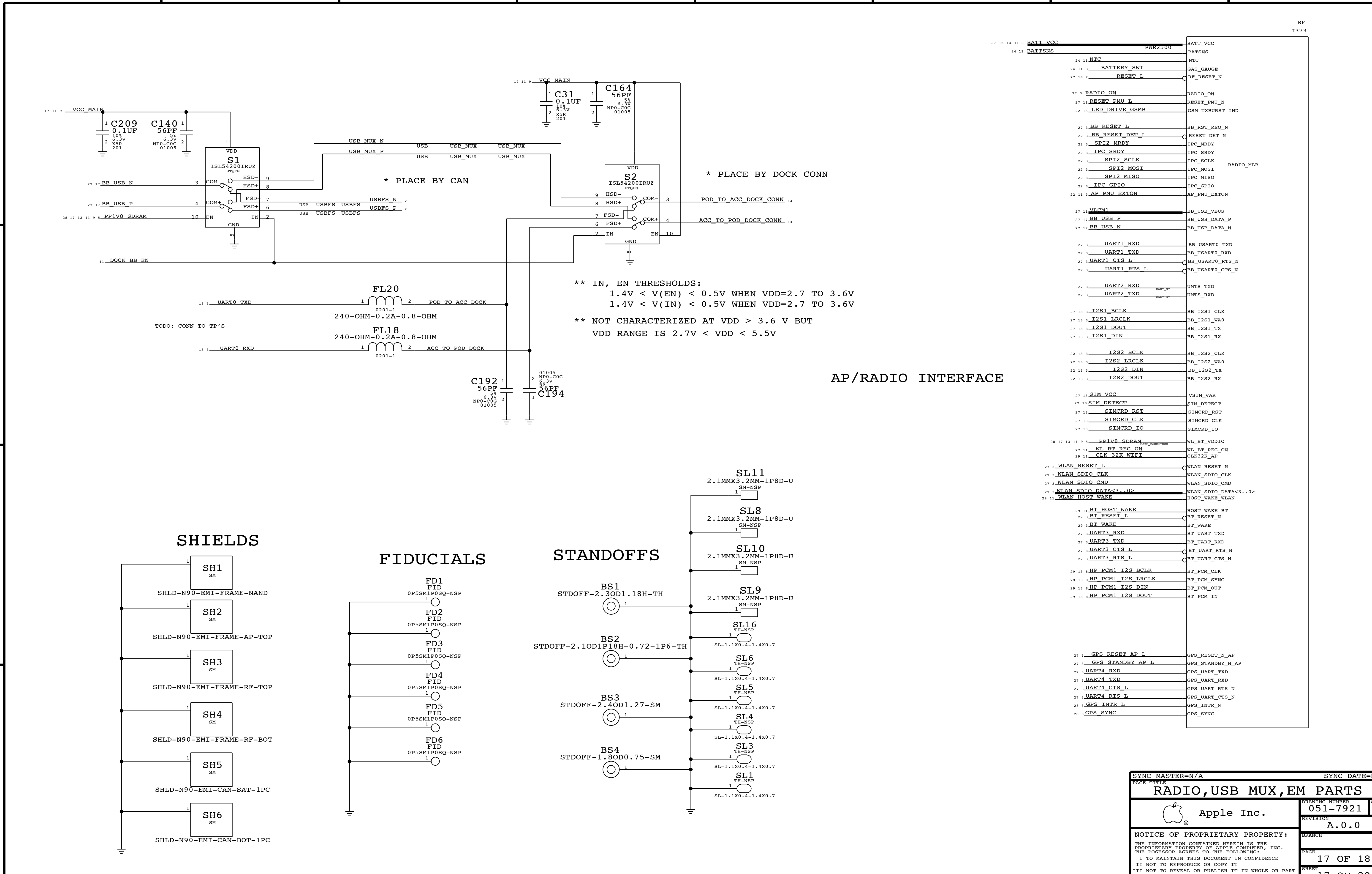
CAMERA,STROBE,SENSOR B2B

Apple Inc.

DRAWING NUMBER 051-7921 SIZE D

REVISION A.0.0

BRANCH



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PAGE TITLE

RADIO,USB MUX,EM PARTS

Apple Inc.

DRAWING NUMBER 051-7921 SIZE D

REVISION A.0.0

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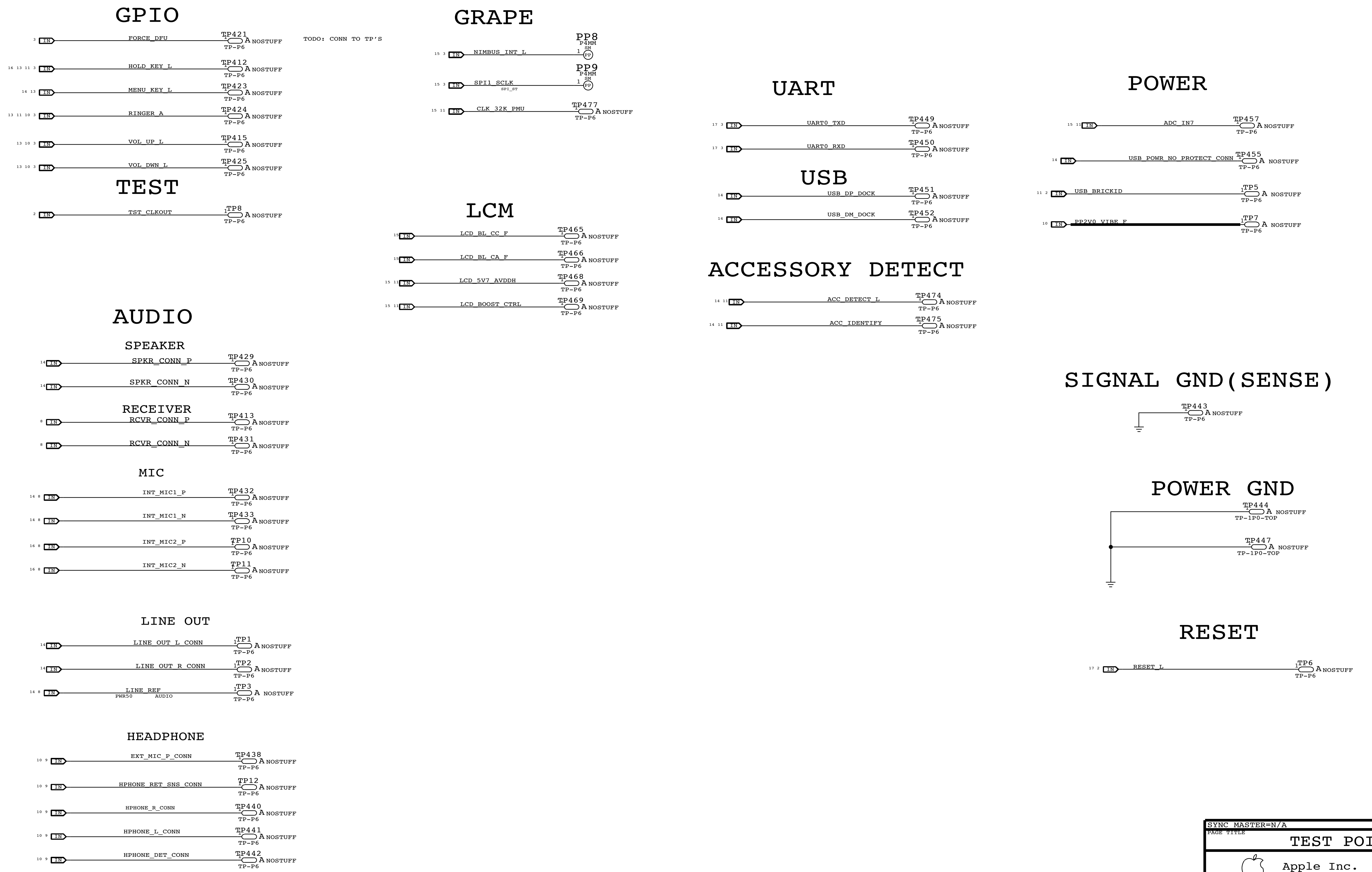


SYNC MASTER=N/A SYNC DATE=N/A

PAGE TITLE

TEST POINTS

Apple Inc.

DRAWING NUMBER 051-7921 SIZE D

REVISION A.0.0

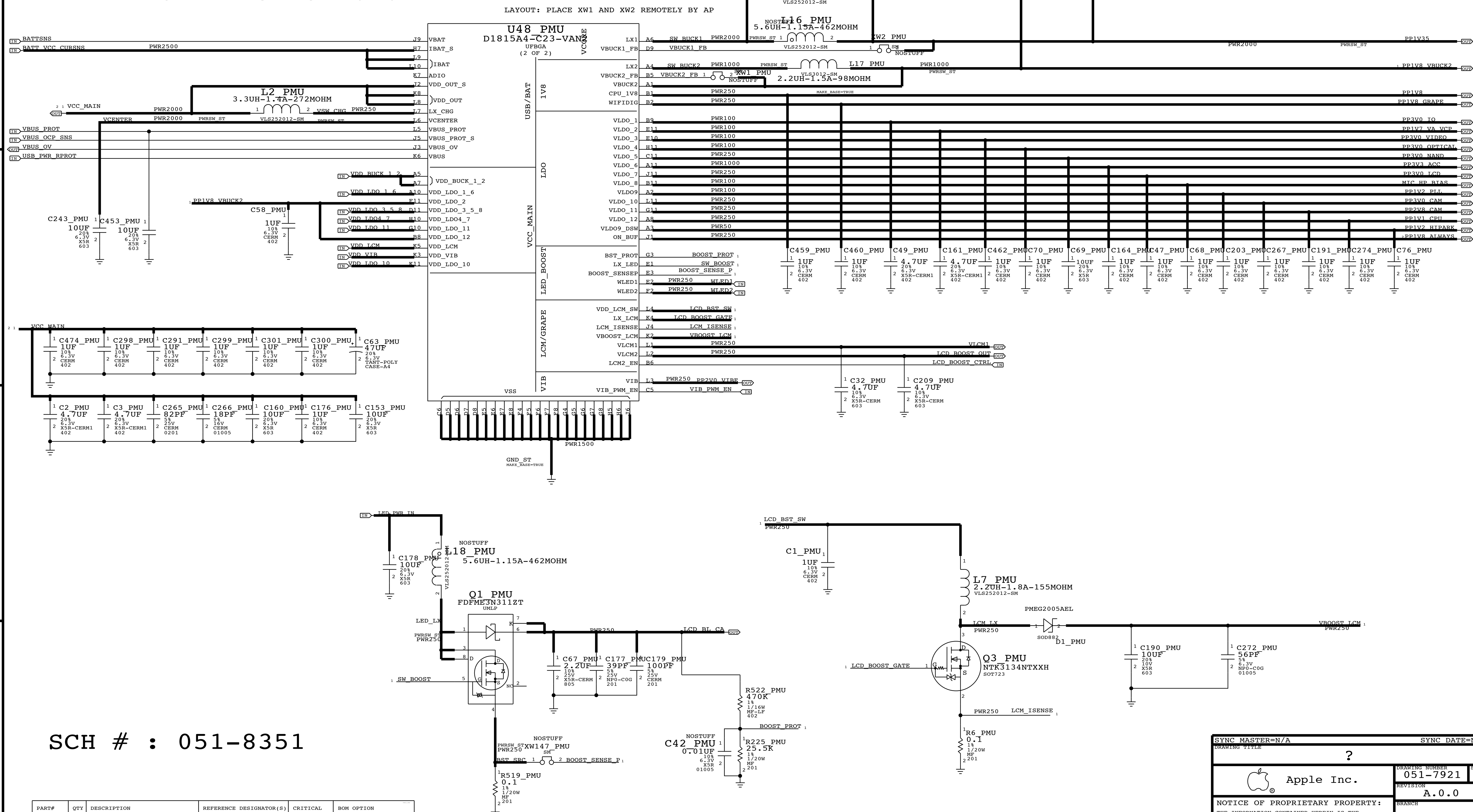
BRANCH

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.

N90 ASHLEY_PMU SUB-DESIGN
Thu Mar 18 14:15:23 2010

REV	ECN	DESCRIPTION OF REVISION	CK APPD DATE
A	0000880153	PRODUCTION RELEASED	2010-03-23

LAYOUT: PLACE XW1 AND XW2 REMOTELY BY AP



SCH # : 051-8351

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
607-6809	1	TDK POWER INDUCTORS	L1_PMU,L3_PMU,L16_PMU,L18_PMU	Y	?

SYNC_MASTER=N/A SYNC_DATE=N/A

DRAWING TITLE ?

Apple Inc.

DRAWING NUMBER 051-7921 SIZE D

REVISION A.0.0

BRANCH

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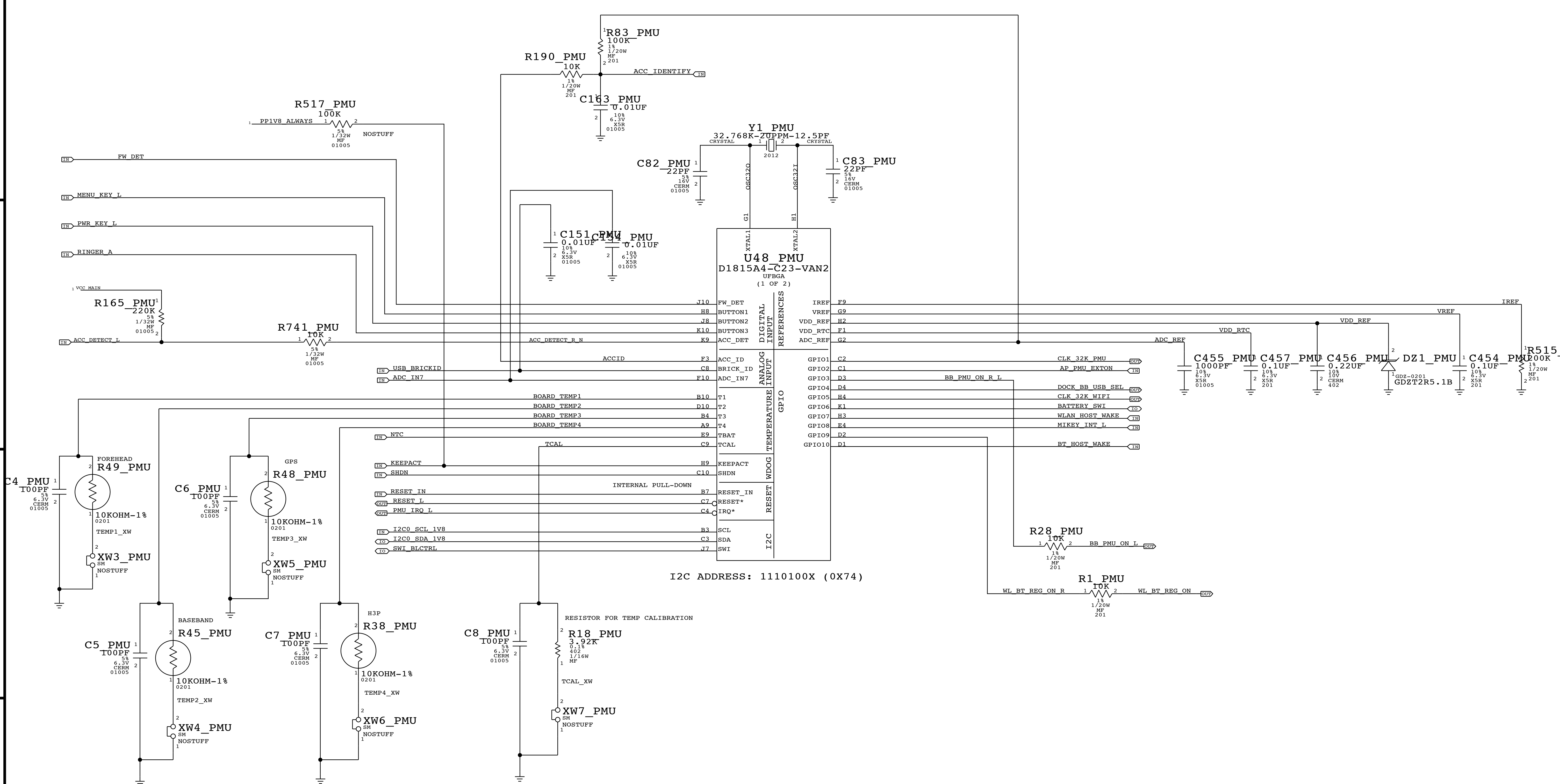

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PAGE TITLE

ASHLEY PMU

Apple Inc.

DRAWING NUMBER 051-7921 SIZE D

REVISION A.0.0

BRANCH

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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	0000880153	PRODUCTION RELEASED	2010-03-23

N90 (ICE3) HSPA RADIO
PVT - 04/15/10:BRD REV9

PAGE	CONTENTS
02	BASEBAND I/O
03	BASEBAND + MEMORY
04	BASEBAND POWER SUPPLY
05	GSM & UMTS TRANSCEIVER
06	POWER AMPS AND RF FRONT END
07	SYSTEM CONNECTORS
08	A-GPS
09	WLAN/BLUETOOTH RADIO

BOARD - 920-XXXX
SCHEMATIC - 951-XXXX
BOM - 630-XXXX

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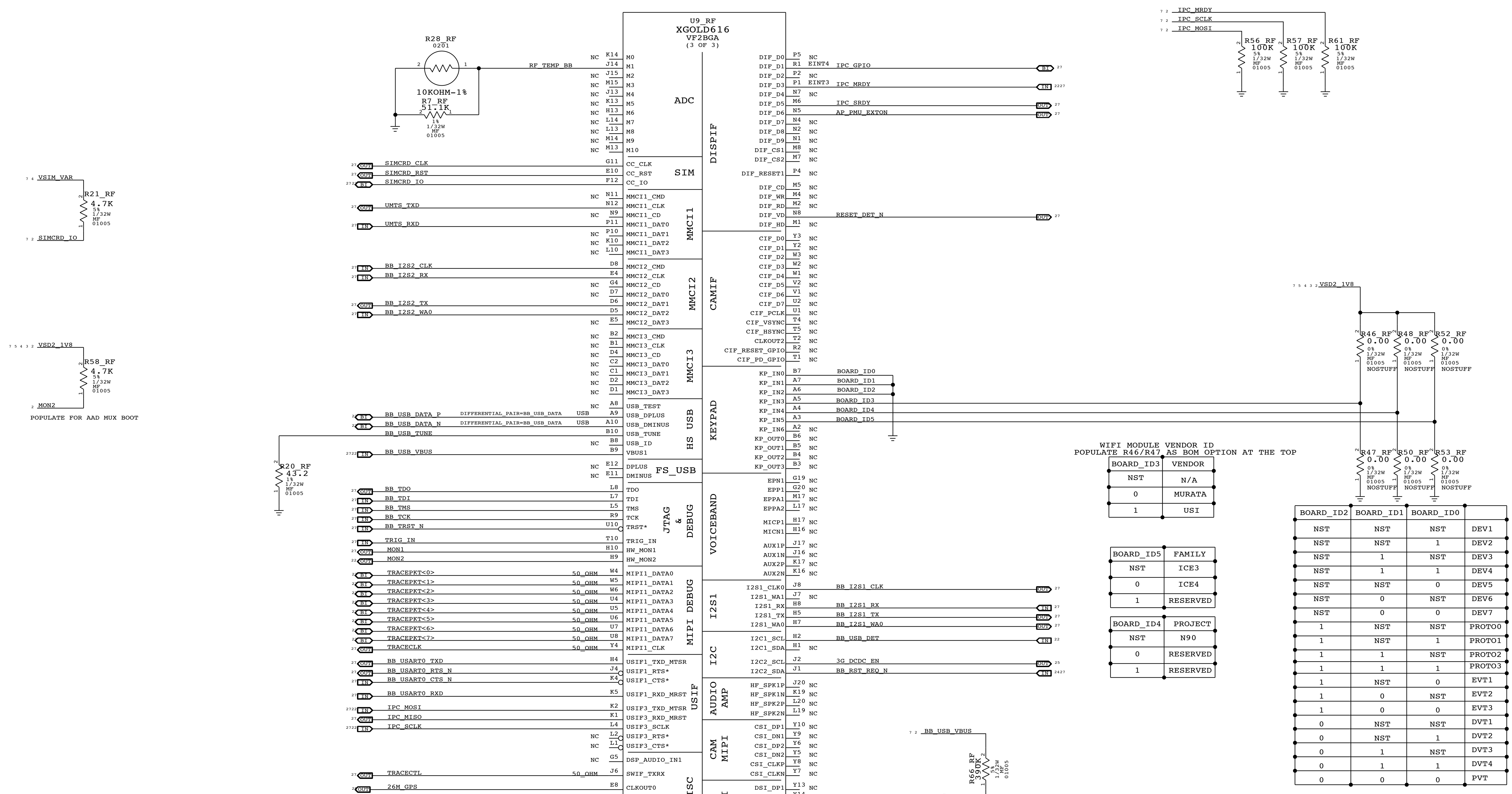
Apple Inc.
DRAWING NUMBER: 051-7921 SIZE: D
REVISION: A.0.0
BRANCH:

BASEBAND I/O



WIFI MODULE VENDOR ID
POPULATE R46/R47 AS BOM OPTION AT THE TOP

BOARD_ID3	VENDOR
NST	N/A
0	MURATA
1	USI

BOARD_ID5	FAMILY
NST	ICE3
0	ICE4
1	RESERVED

BOARD_ID4	PROJECT
NST	N90
0	RESERVED
1	RESERVED

BOARD_ID2	BOARD_ID1	BOARD_ID0	
NST	NST	NST	DEV1
NST	NST	1	DEV2
NST	1	NST	DEV3
NST	1	1	DEV4
NST	NST	0	DEV5
NST	0	NST	DEV6
NST	0	0	DEV7
1	NST	NST	PROTO0
1	NST	1	PROTO1
1	1	NST	PROTO2
1	1	1	PROTO3
1	NST	0	EVT1
1	0	NST	EVT2
1	0	0	EVT3
0	NST	NST	DVT1
0	NST	1	DVT2
0	1	NST	DVT3
0	1	1	DVT4
0	0	0	PVT

BOOT CONFIG DESCRIPTION

DSP_AUDIO_IN1, MON1 AND MON2
ARE ONLY ON TP AVAILABLE

DSP_AUDIO_IN1 HWCFG[3]	MON1 HWCFG[2]	MON2 HWCFG[1]	TRIG_IN HWCFG[0]	BOOT CONFIG DESCRIPTION
0	0	0	0	EXTERNAL BOOT VIA USB
0	0	0	1	NOR FLASH - EBU CONFIG: 16-BIT AD MUXED
0	0	1	0	NOR FLASH - EBU CONFIG: 16-BIT AAD MUXED

PAGE TITLE: BASEBAND I/O
Apple Inc.
DRAWING NUMBER: 051-7921 SIZE: D
REVISION: A.0.0

NOTICE OF PROPRIETARY PROPERTY:

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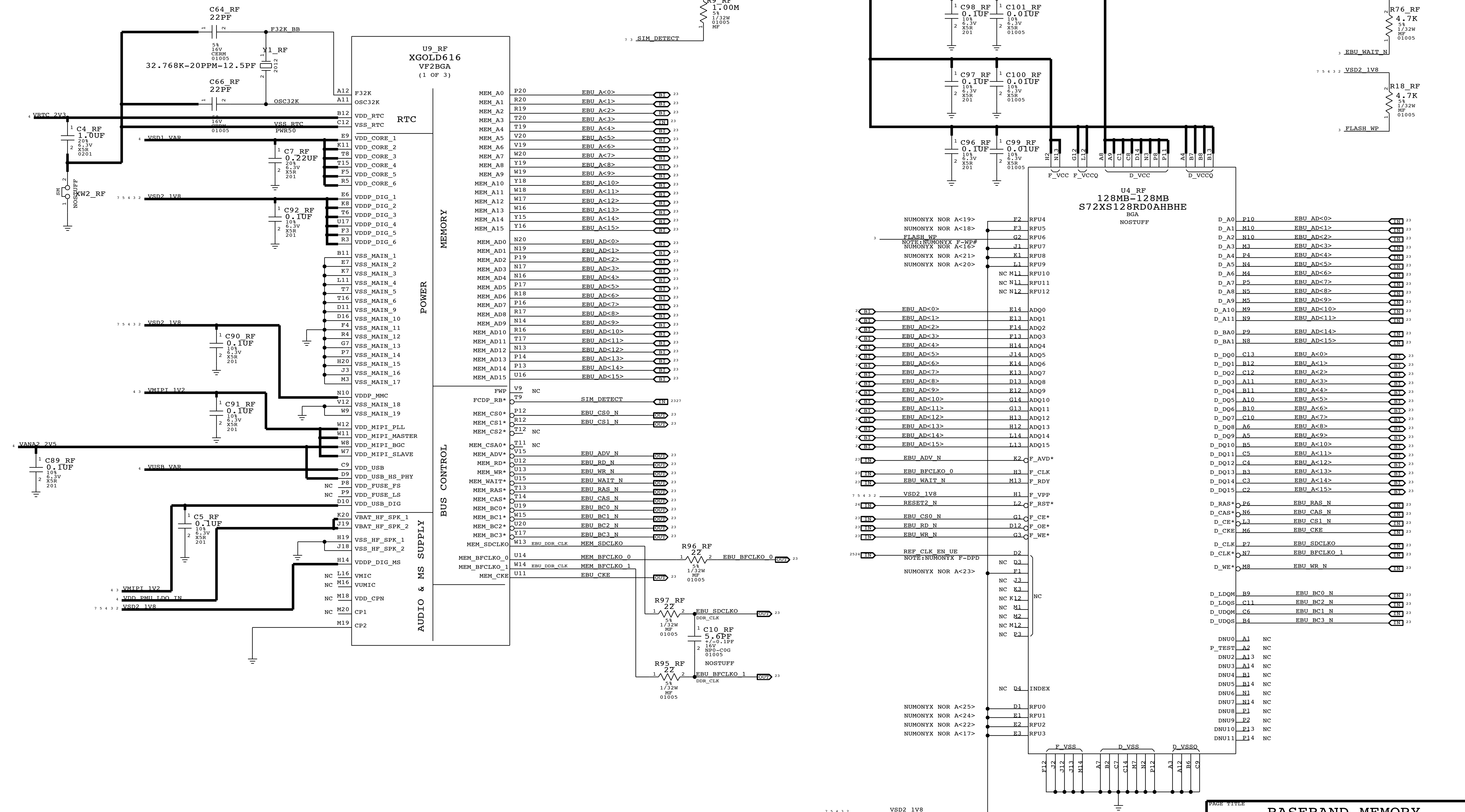
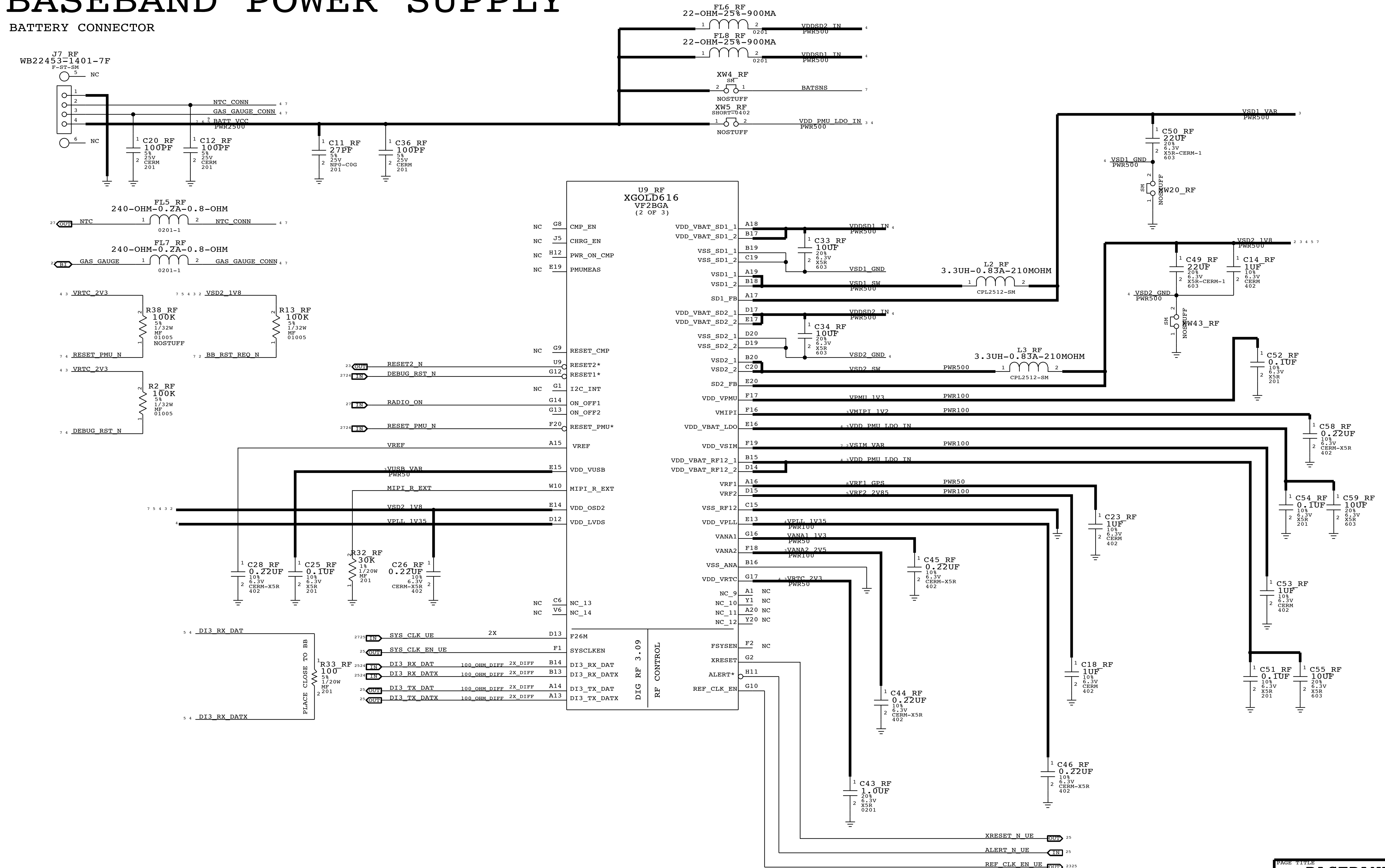
BASEBAND MEMORY



BASEBAND POWER SUPPLY



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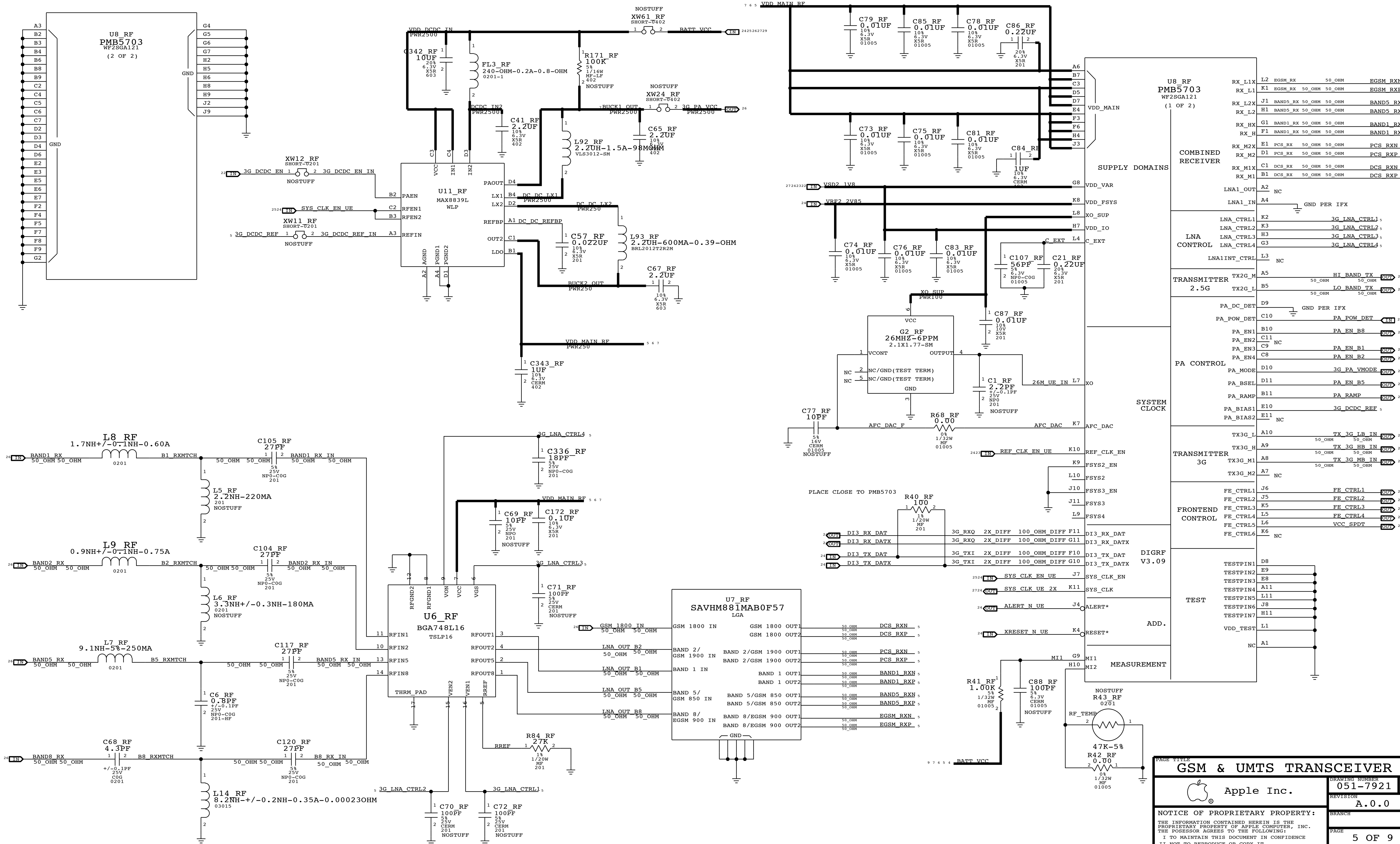

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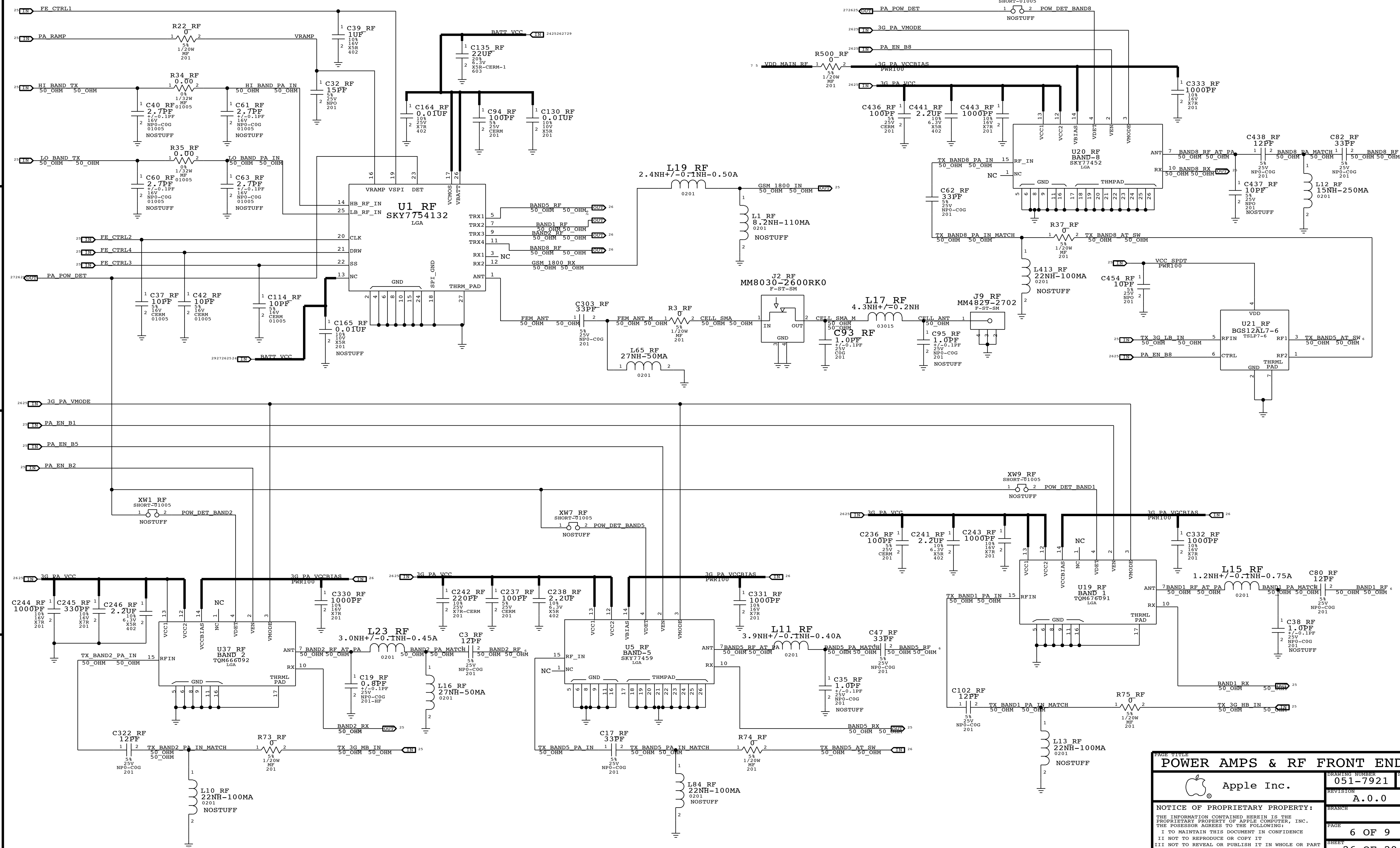
POWER AMPS AND RF FRONT-END MODULE



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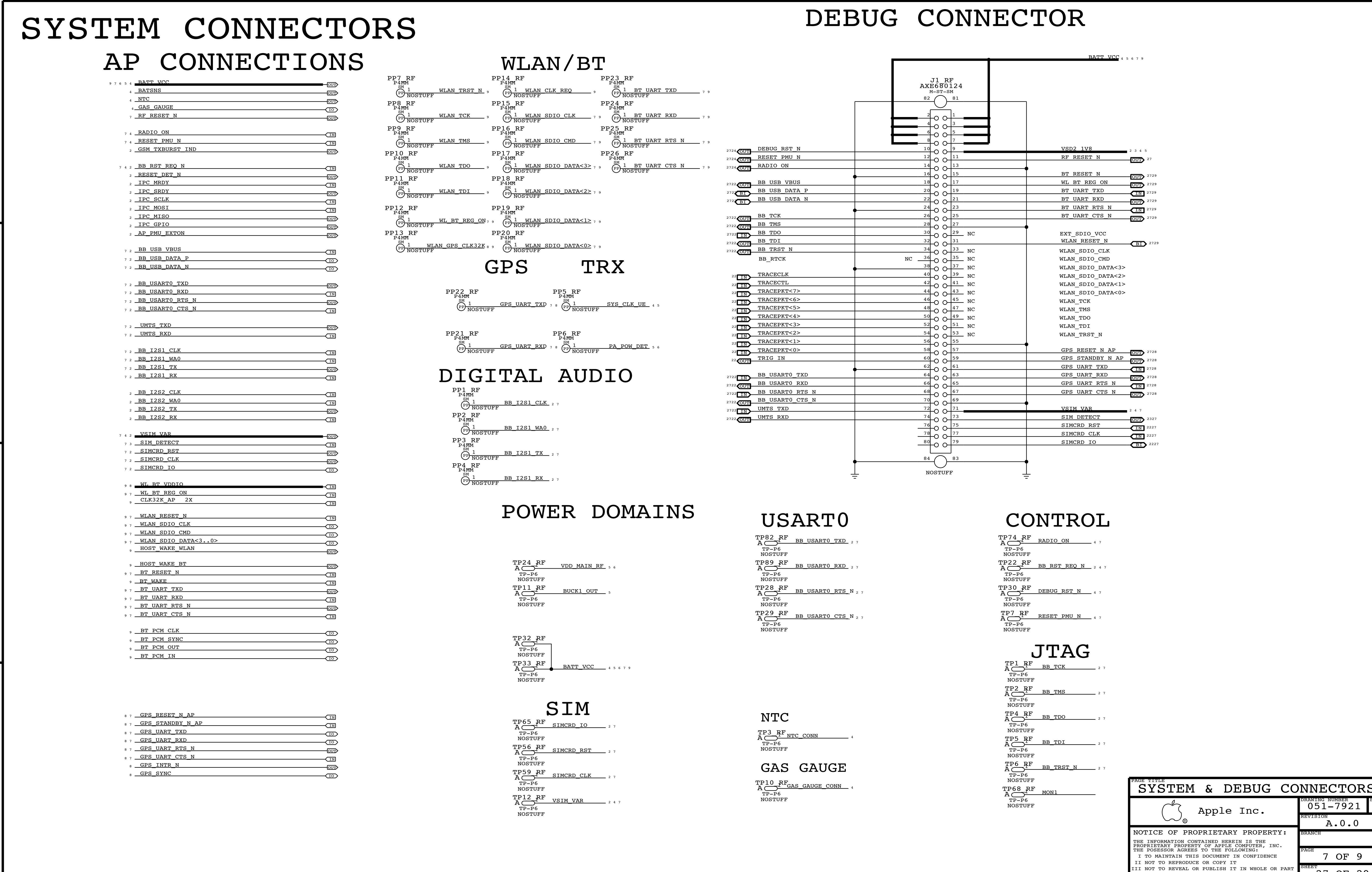

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SYSTEM & DEBUG CONNECTORS

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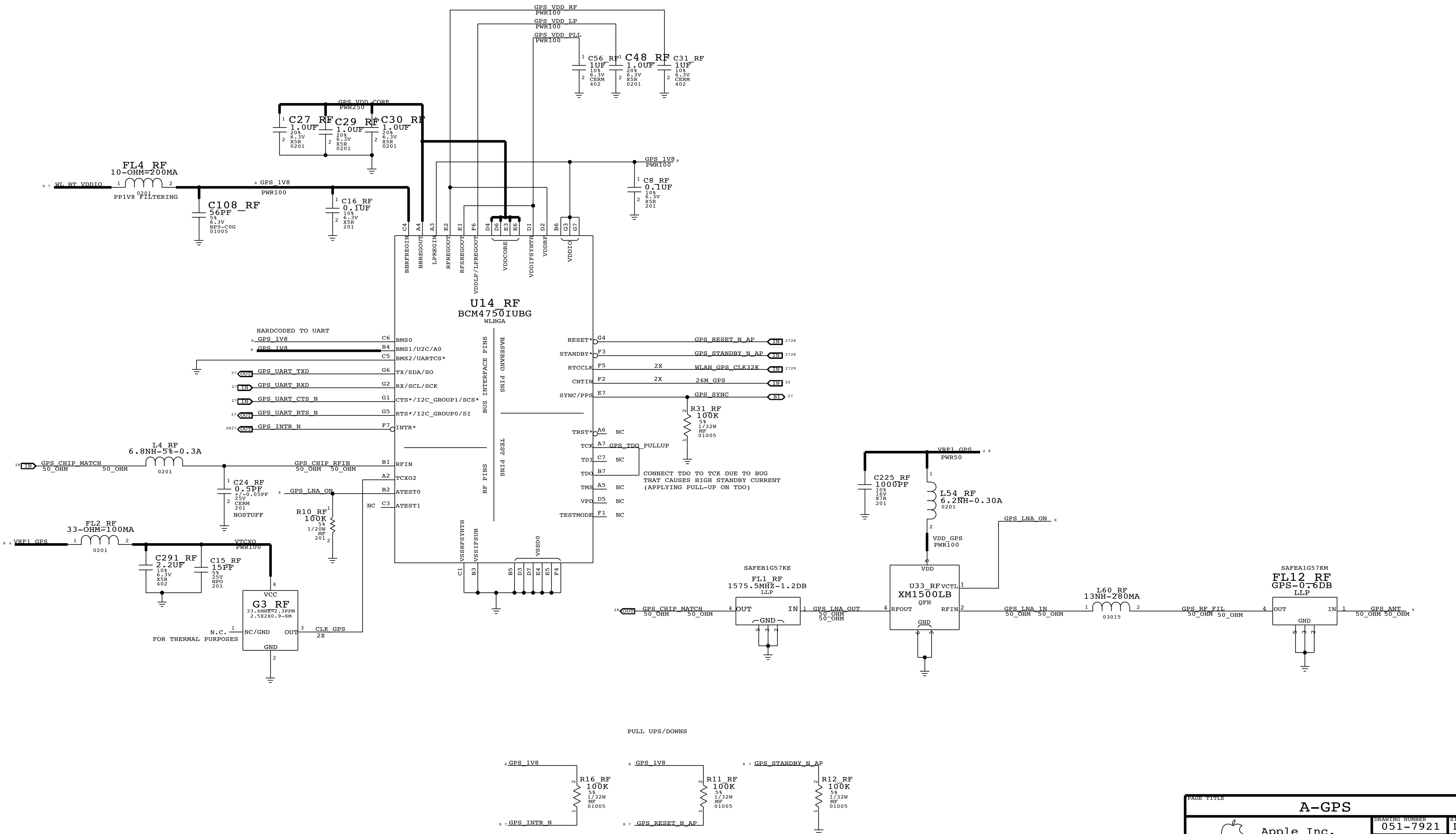

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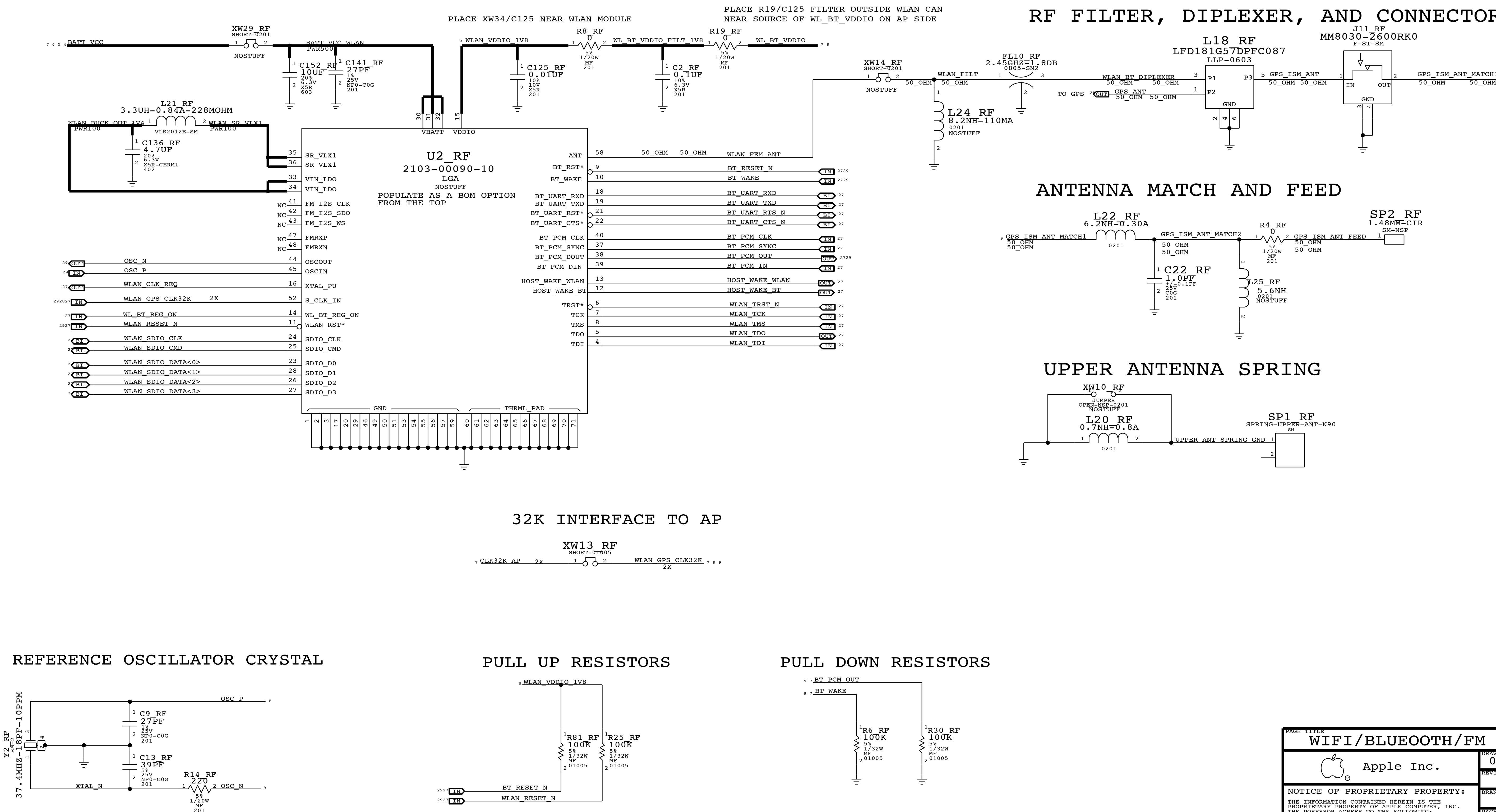
WLAN/BLUETOOTH/FM RADIO



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