

# iPhone 3G

## A1241/A1324<sup>1</sup>n82ap

### Professional Schematic

Wites OM Tesla



First released on!

If you need parts contact  
this very good supplier!  
Msn: [chally.gsm@blingrzm.com](mailto:chally.gsm@blingrzm.com)  
Yahoo: [cally\\_wu@yahoo.com](mailto:cally_wu@yahoo.com)  
Skype: [cally\\_wu](https://www.skype.com/user/cally_wu)  
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# EVT3B BRD REV10

## N82 SINGLE\_BRD (MLB) 2/15/2008 (I) REV10

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02

RADIO AND AP SCHEMATIC INSTANTIATION

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
051-7340	1	N82_SCHEMATIC_TOP	SCH	Y	?
820-2186	1	N82_SINGLE_BOARD	PCB	Y	?
AP_V1	7	DOCK JTAG STUFF OPTIONS FOR DEVELOPMENT		Y	DEVELOPMENT
AP_V1	2	DOCK JTAG STUFF OPTIONS FOR PRODUCTION		Y	PRODUCTION
AP_V1	1	HP MIC RETURN TO SNS		Y	HP_RET_SNS
AP_V1	1	HP MIC RETURN TO GND		Y	HP_RET_GND
AP_V1	1	MIKEY AVDD=VCC_MAIN		Y	MIKEY_VCCMAIN
AP_V1	1	MIKEY AVDD=CODEC_A3V		Y	MIKEY_A3V
RADIO_PROTO	1	3G PA DC/DC = MAX8836		Y	MAX_8836
RADIO_PROTO	1	3G PA DC/DC = MAX8805		Y	MAX_8805
AP_V1	5	3V SERIAL FLASH		Y	SFLASH_3V
AP_V1	4	1V8 SERIAL FLASH		Y	SFLASH_1V8
RADIO_PROTO	2	BT/WIFI MODULE (MURATA)		Y	MURATA
RADIO_PROTO	2	BT/WIFI MODULE ALPS		Y	ALPS

### N82 EEE BOM LABELS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
825-2029	1	EEE FOR 630-8772 (8G)	EEE:Y5K	Y	FLASH_8GB
825-2029	1	EEE FOR 630-8943 (16G)	EEE:YEU	Y	FLASH_16GB

BOARD - 820-2186  
 SCHEMATIC - 051-7340  
 BOM - 630-8772 (8GB)  
 BOM - 630-8943 (16GB)

### NAND BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
335S0517	1	8GB TOSHIBA 56NM FLASH TSOP48	U29_AP	Y	FLASH_8GB
335S0514	1	16GB SAMSUNG 51NM FLASH DSP/WELP	U29_AP	Y	FLASH_16GB

### NAND ALTERNATES

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
335S0575	335S0517	FLASH_8GB	U29_AP	8GB SAMSUNG 63NM FLASH TSOP48
335S0548	335S0517	FLASH_8GB	U29_AP	8GB MICRON 50NM FLASH TSOP48
335S0545	335S0517	FLASH_8GB	U29_AP	8GB INTEL 50NM FLASH TSOP48
335S0573	335S0514	FLASH_16GB	U29_AP	16GB TOSHIBA 56NM FLASH BGA

### SUB BOM FOR BT/WIFI MODULE

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
607-2683	1	FOR MURATA BT/WIFI MODULE	SB1	Y	BT_WIFI

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
607-2682	607-2683	BT_WIFI	SB1	FOR ALPS BT/WIFI MODULE

### EEE BOM LABELS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
825-2029	1	EEE FOR 607-2683 (MURATA)	EEE:OXL	Y	MURATA
825-2029	1	EEE FOR 607-2682 (ALPS)	EEE:OXM	Y	ALPS

### SERIAL FLASH BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
335S0552	1	SST 8MBIT 3V SERIAL FLASH	U11_AP	Y	SFLASH_3V
335S0555	1	ATMEL 8MBIT 1V8 SERIAL FLASH	U11_AP	Y	SFLASH_1V8

### VIDEO AMP ALTERNATE

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
353S1625	353S1650	?	U30_AP	VIDEO AMP

### ACC SWITCH ALTERNATE

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
353S1769	353S1751	?	SI_AP	ACC SWITCH

### BB MEMORY BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
335S0486	1	BLANK BASEBAND MEMORY	U13_RF	Y	BB_MEM_BLANK
341S2247	1	PROGRAMMED BASEBAND MEMORY	U13_RF	Y	BB_MEM_PROGRAMMED

### 3G PA DC/DC BOM OPTION

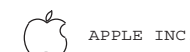
PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
353S1988	1	3GPA DC/DC CUSTOM MAX8836	U1_RF	Y	MAX_8836
353S1981	1	3GPA DC/DC STAND MAX8805	U1_RF	Y	MAX_8805

### BT/WIFI BOM OPTIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
339S0040	1	MURATA BT/WIFI MODULE	U10_RF	Y	MURATA
339S0039	1	ALPS BT/WIFI MODULE	U10_RF	Y	ALPS
118S0012	1	RESISTER ID FOR MURATA	R61_RF	Y	MURATA
118S0012	1	RESISTER ID FOR ALPS	R6_RF	Y	ALPS

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SIZE	DRAWING NUMBER	REV.
D	051-7340	02
SCALE	SHEET 1 OF 9	
NONE		




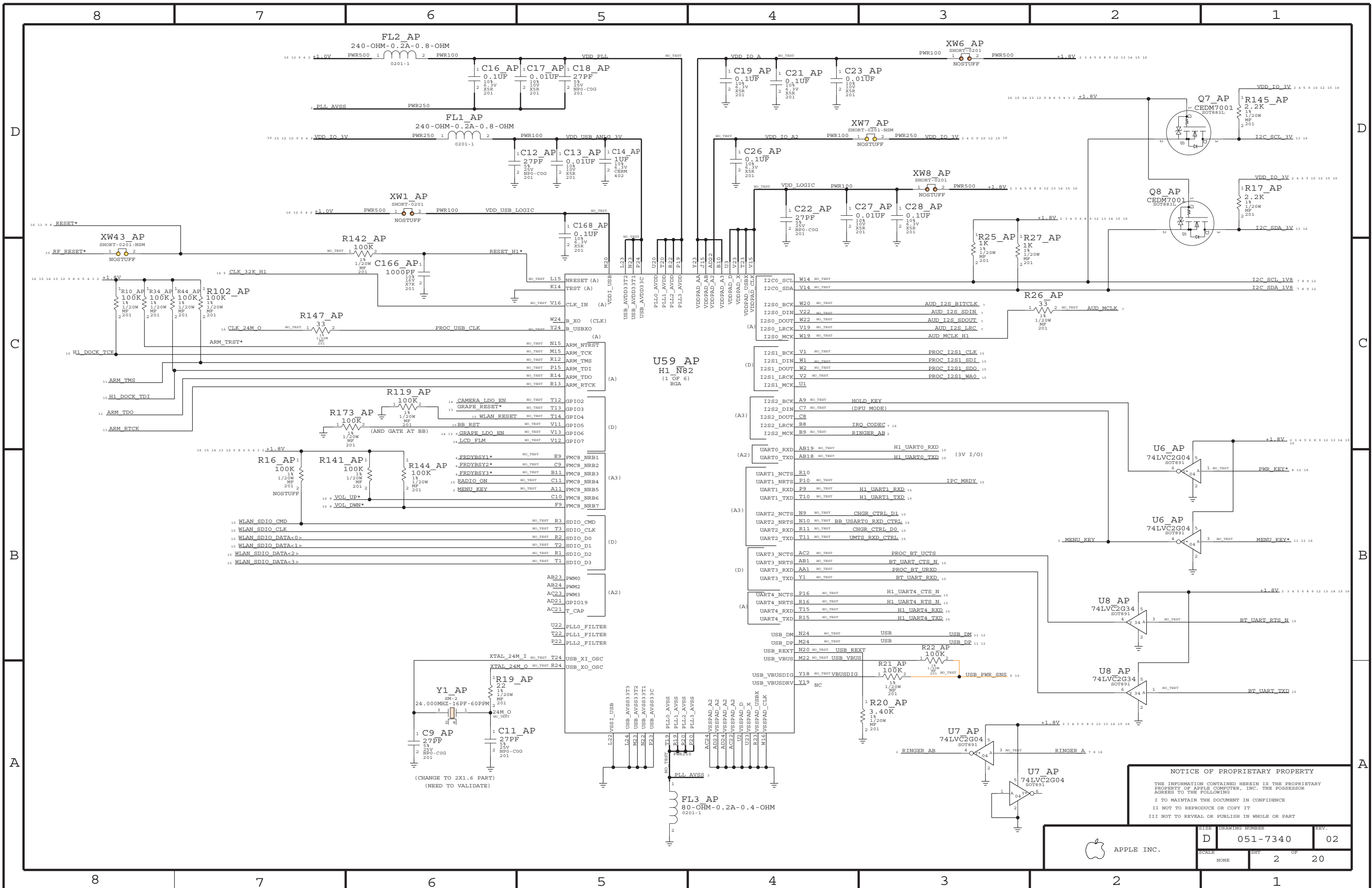
MLB EVT3B REV10

N82 SINGLE BRD (MLB) AP -2/15/2008 (I) REV10

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06	H1 CAMERA, VIDEO OUT
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	SCALE NONE	SHEET 1	OF 20

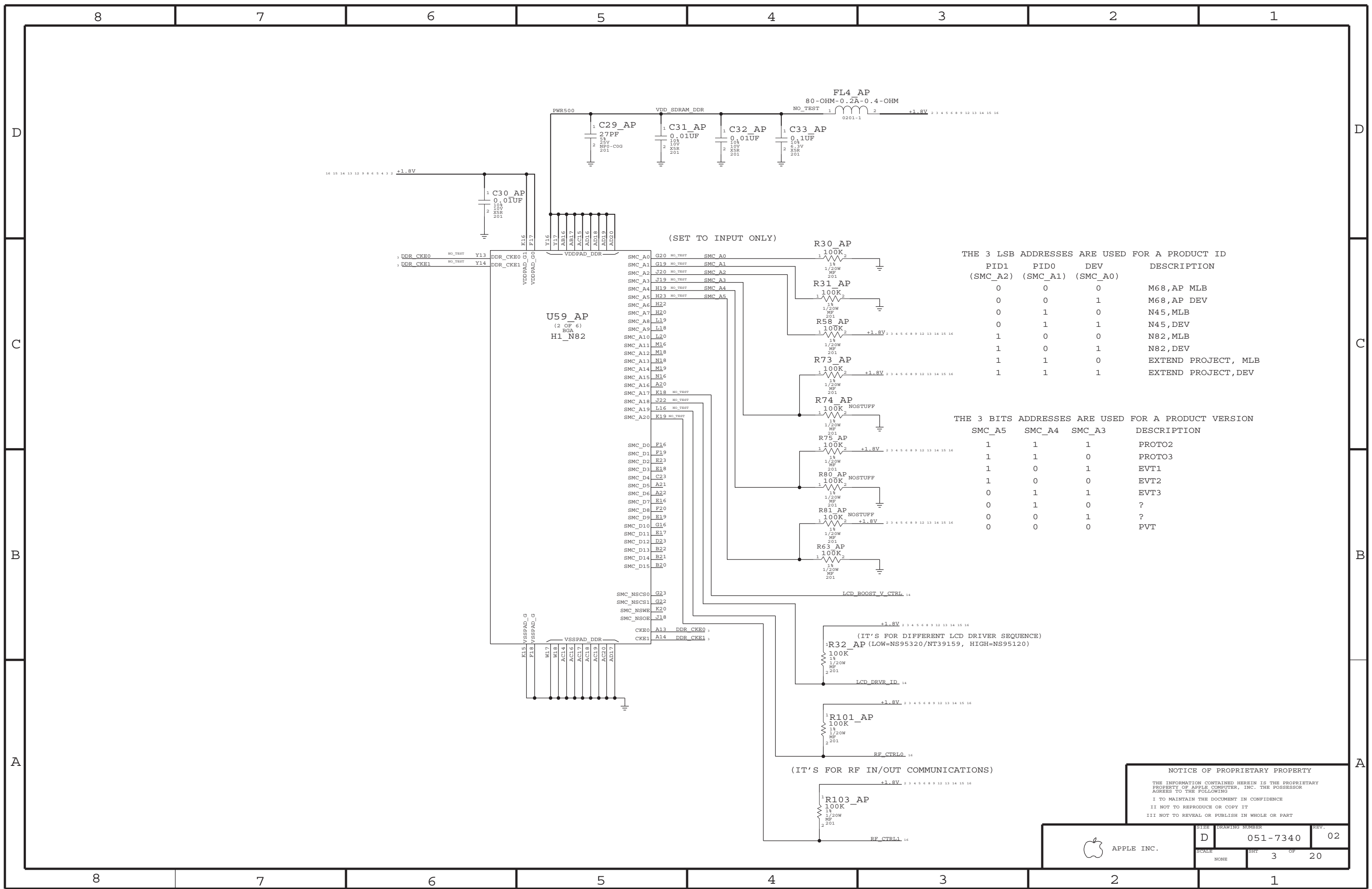


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	DRAWING NUMBER	051-7340	REV.	02

U59 AP  
 H1 N82  
 (1 OF 6)  
 BGA

(CHANGE TO 2X1.6 PART)  
 (NEED TO VALIDATE)



THE 3 LSB ADDRESSES ARE USED FOR A PRODUCT ID

PID1 (SMC_A2)	PID0 (SMC_A1)	DEV (SMC_A0)	DESCRIPTION
0	0	0	M68, AP MLB
0	0	1	M68, AP DEV
0	1	0	N45, MLB
0	1	1	N45, DEV
1	0	0	N82, MLB
1	0	1	N82, DEV
1	1	0	EXTEND PROJECT, MLB
1	1	1	EXTEND PROJECT, DEV

THE 3 BITS ADDRESSES ARE USED FOR A PRODUCT VERSION

SMC_A5	SMC_A4	SMC_A3	DESCRIPTION
1	1	1	PROTO2
1	1	0	PROTO3
1	0	1	EVT1
1	0	0	EVT2
0	1	1	EVT3
0	1	0	?
0	0	1	?
0	0	0	PVT

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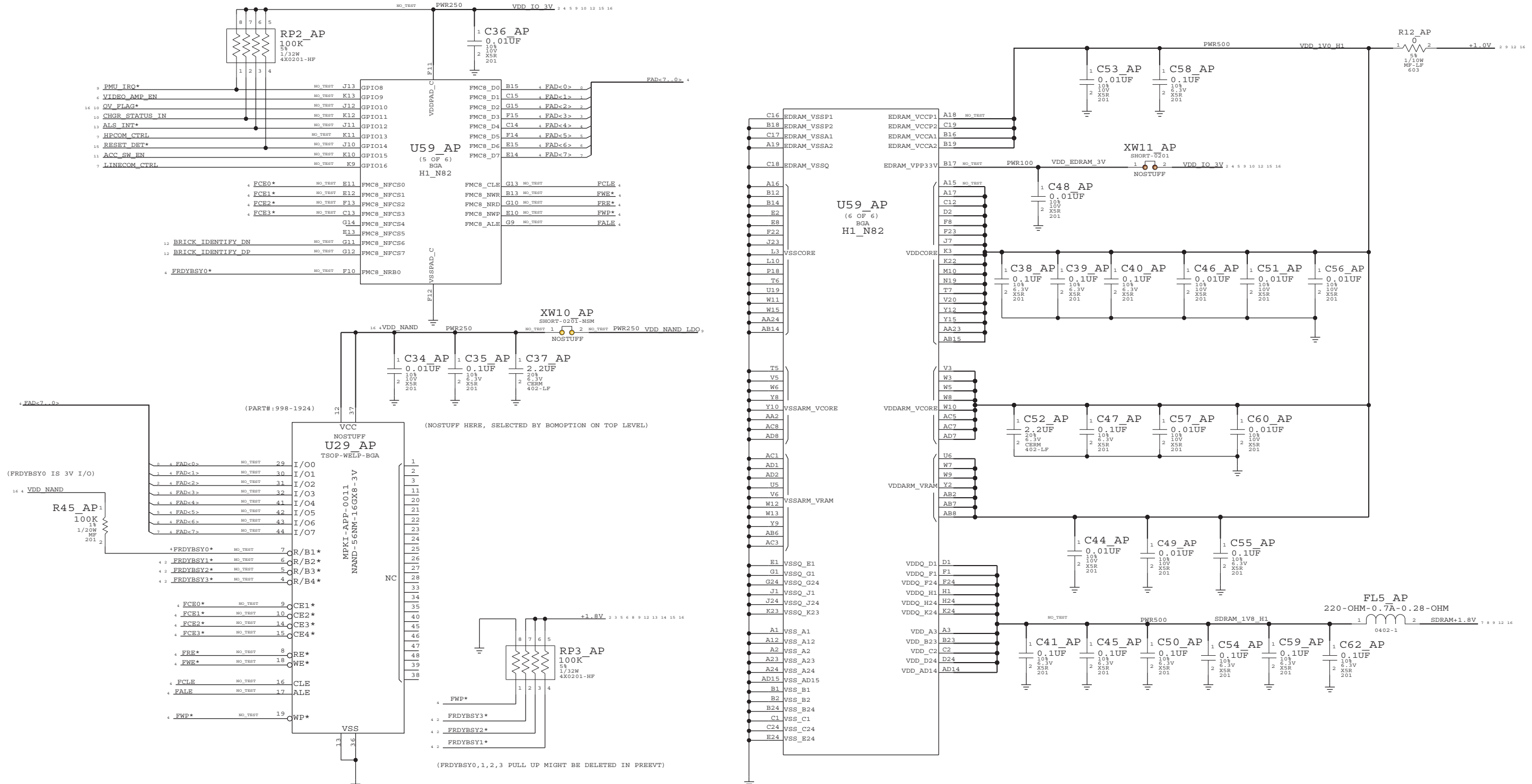
II NOT TO REPRODUCE OR COPY IT

III NOT TO REVEAL OR PUBLISH IN WHOLE OR PART

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SCALE	SHEET		OF
NONE	3		20



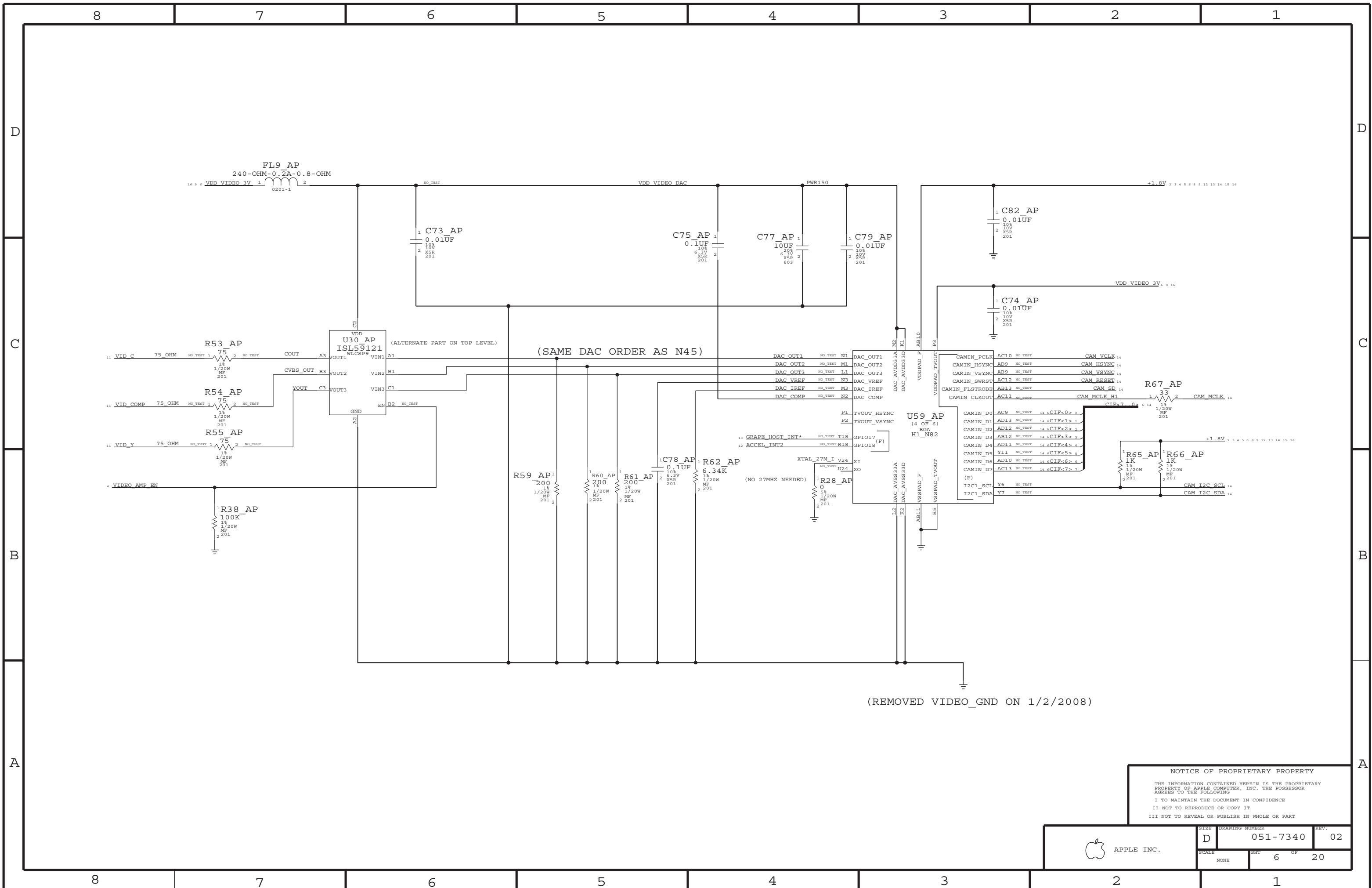
# NAND FLASH & GPIO



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		SHT	4 OF 20	

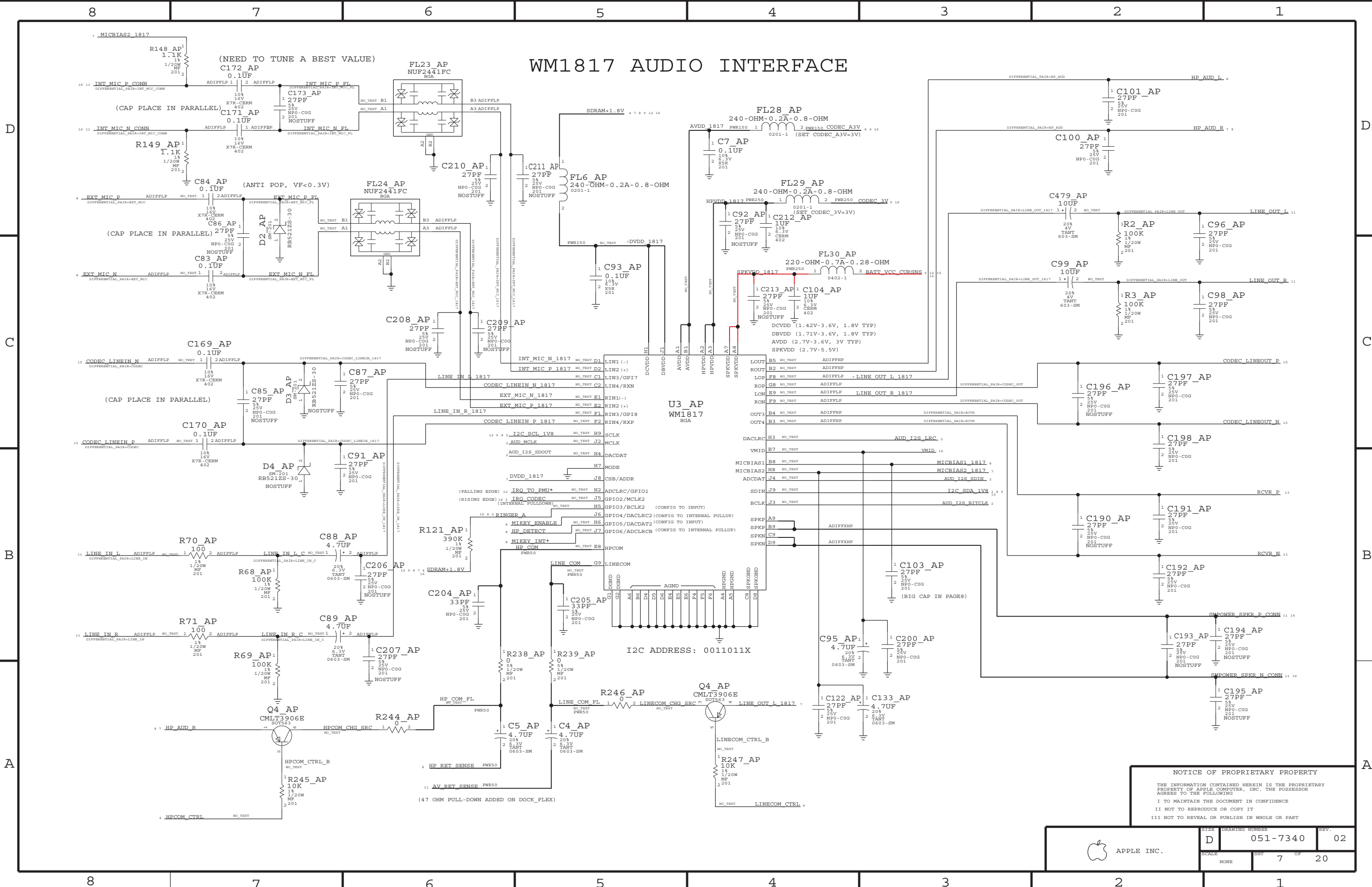




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SCALE	SHT	OF	REV.
NONE	6	20	

# WM1817 AUDIO INTERFACE

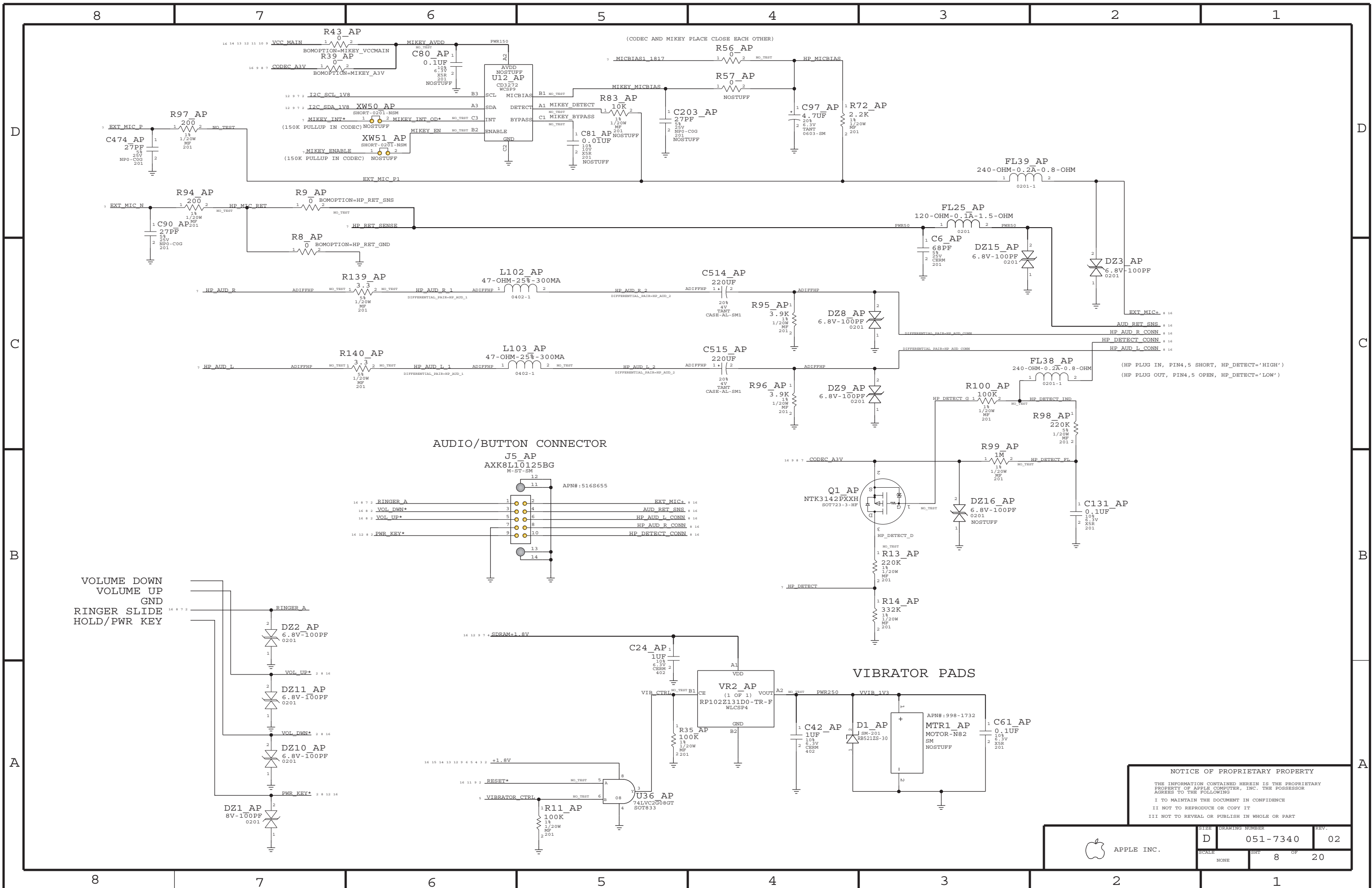


U3 AP  
WM1817  
BGA

I2C ADDRESS: 0011011X

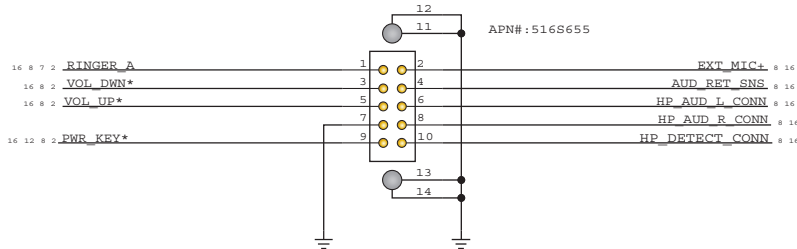
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APPLE INC.	SCALE	SHEET	OF	REV.
	NONE	7	OF	02

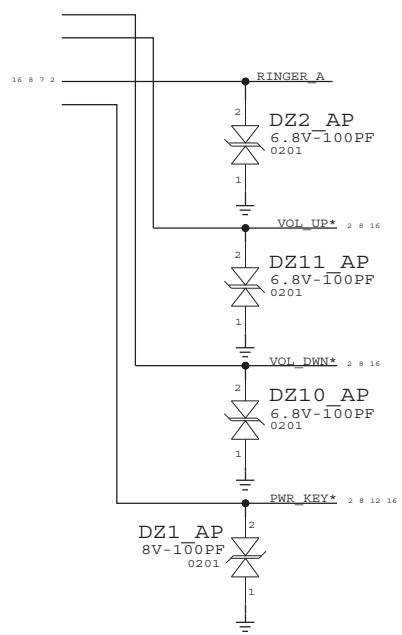


**AUDIO/BUTTON CONNECTOR**

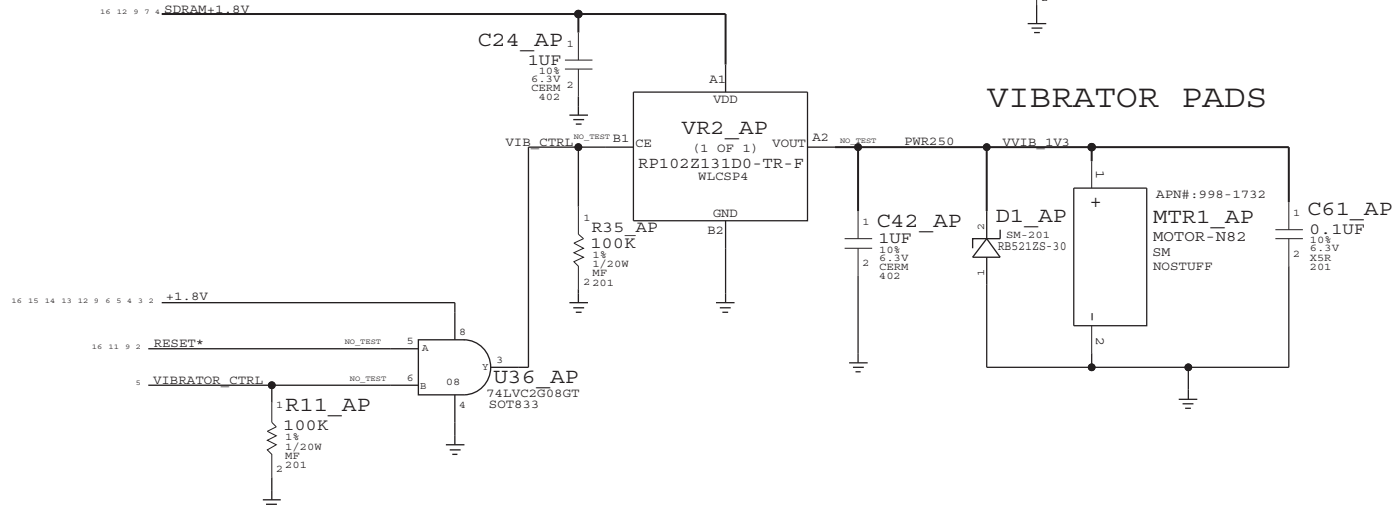
J5\_AP  
 AXK8L10125BG  
 M-ST-SM  
 APN#:516S655



VOLUME DOWN  
 VOLUME UP  
 GND  
 RINGER SLIDE  
 HOLD/PWR KEY

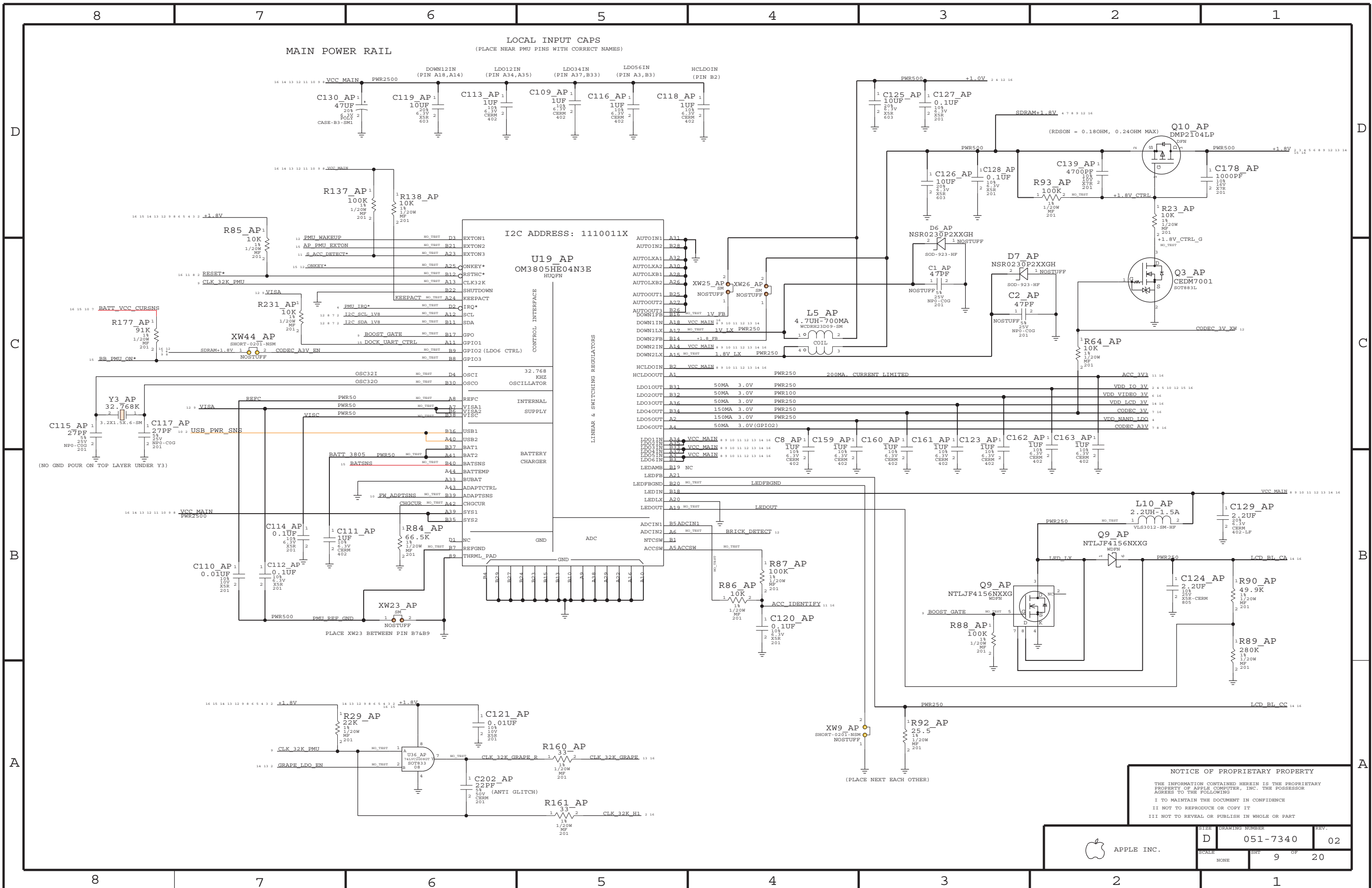


**VIBRATOR PADS**



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APPLE INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7340	02
SCALE	SHT 8 OF 20		
NONE			



LOCAL INPUT CAPS  
(PLACE NEAR PMU PINS WITH CORRECT NAMES)

MAIN POWER RAIL

I2C ADDRESS: 1110011X

U19 AP  
OM3805HE04N3E  
HUQFM

LINEAR & SWITCHING REGULATORS

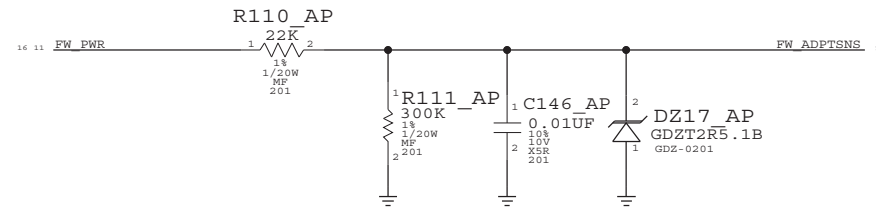
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SCALE	DRAWING NUMBER	REV.
NONE	D 051-7340	02
	SHT 9 OF 20	

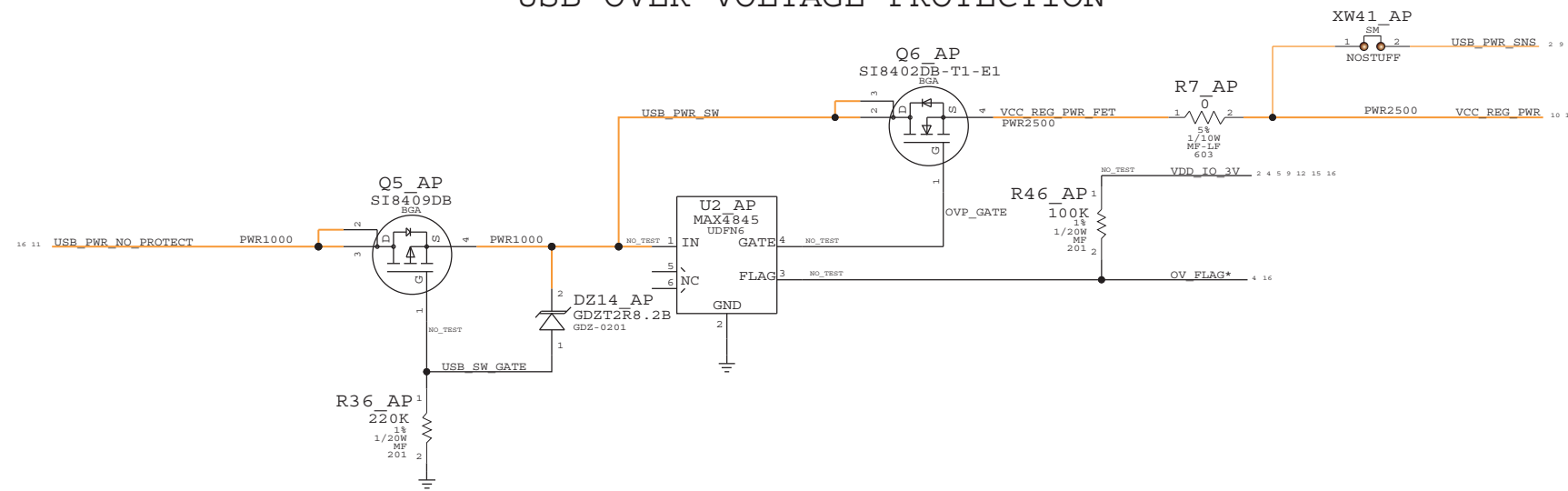


APPLE INC.

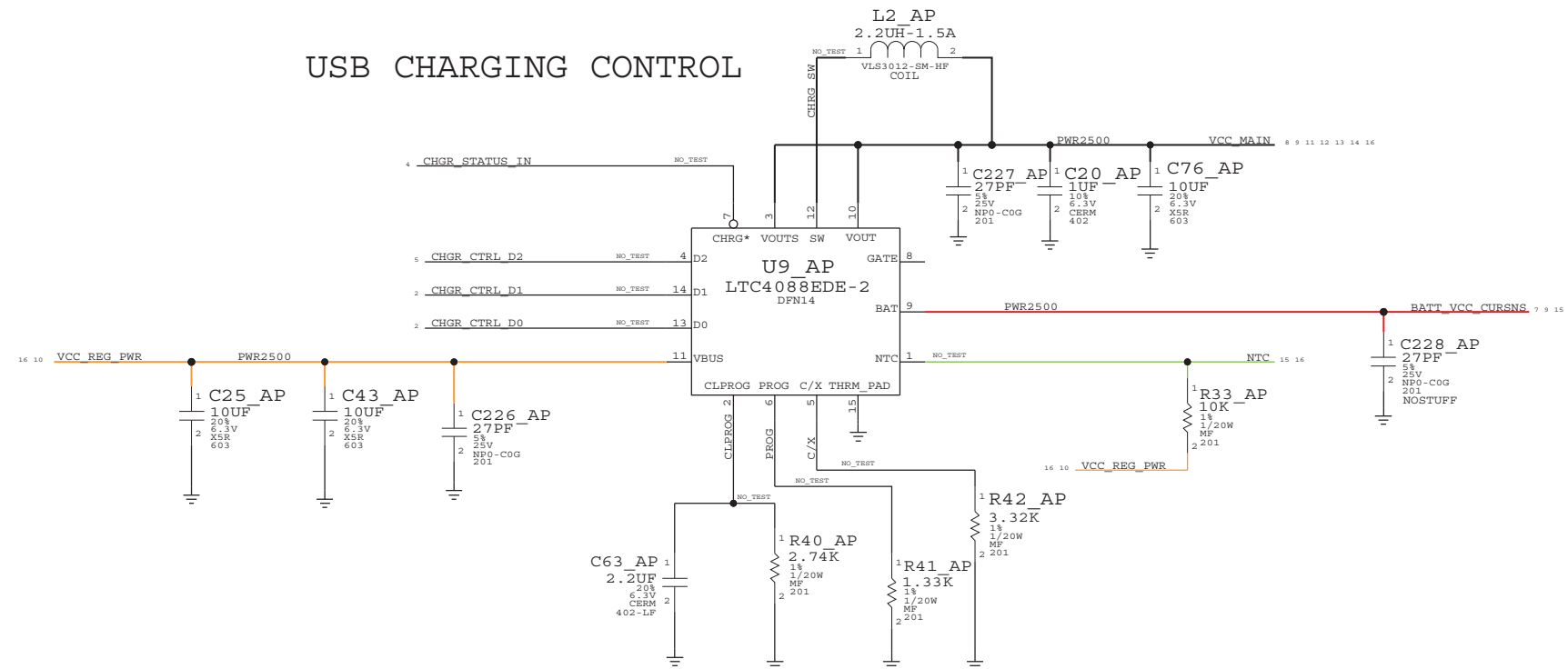
### FIREWIRE SENSE



### USB OVER VOLTAGE PROTECTION

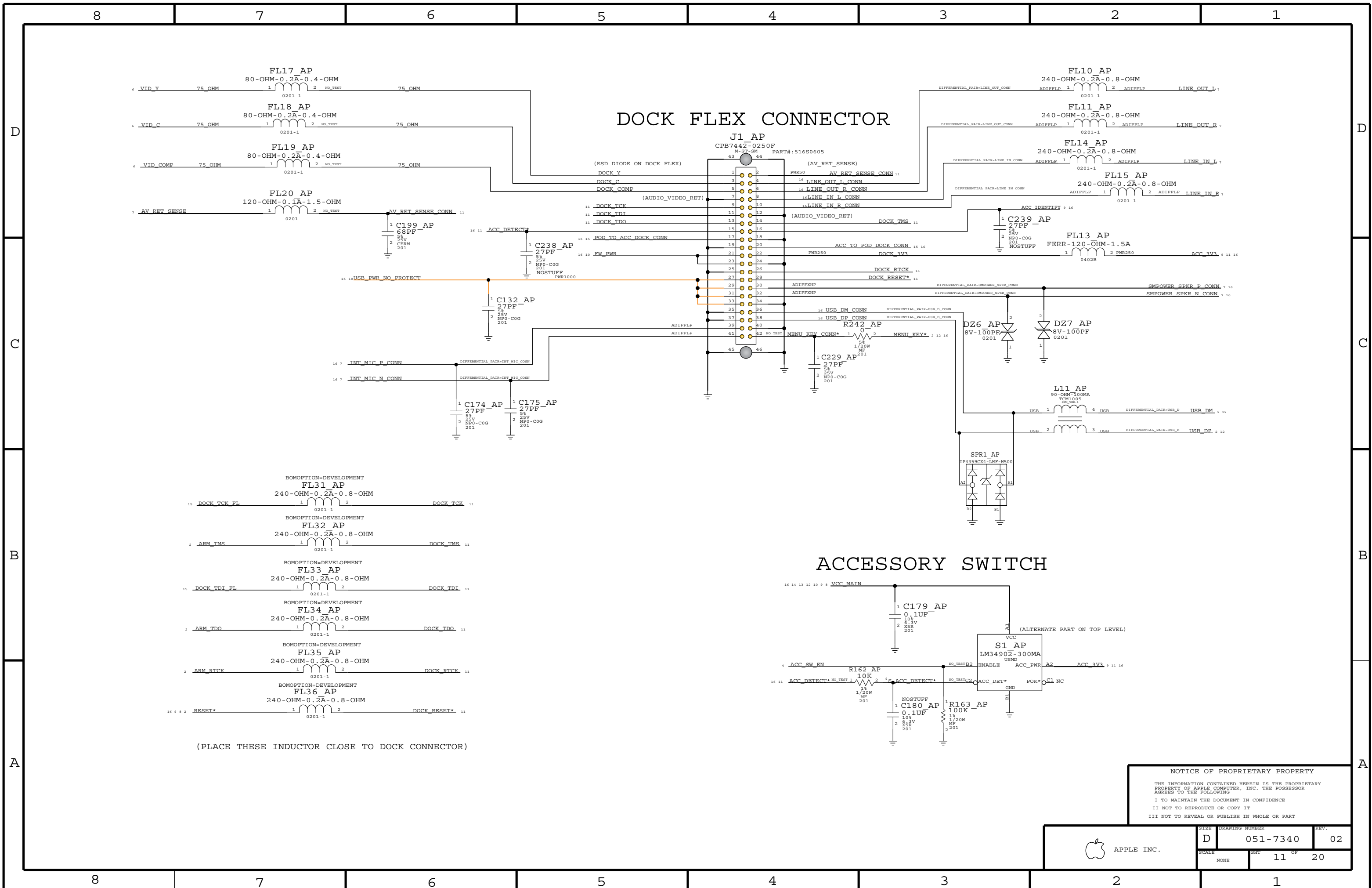


### USB CHARGING CONTROL



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	D	051-7340	02
SCALE	SHT	OF	REV.
NONE	10	20	



# DOCK FLEX CONNECTOR

# ACCESSORY SWITCH

(PLACE THESE INDUCTOR CLOSE TO DOCK CONNECTOR)

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	D	051-7340	02
SCALE	SHT		OF
NONE	11		20



D

D

C

C

B

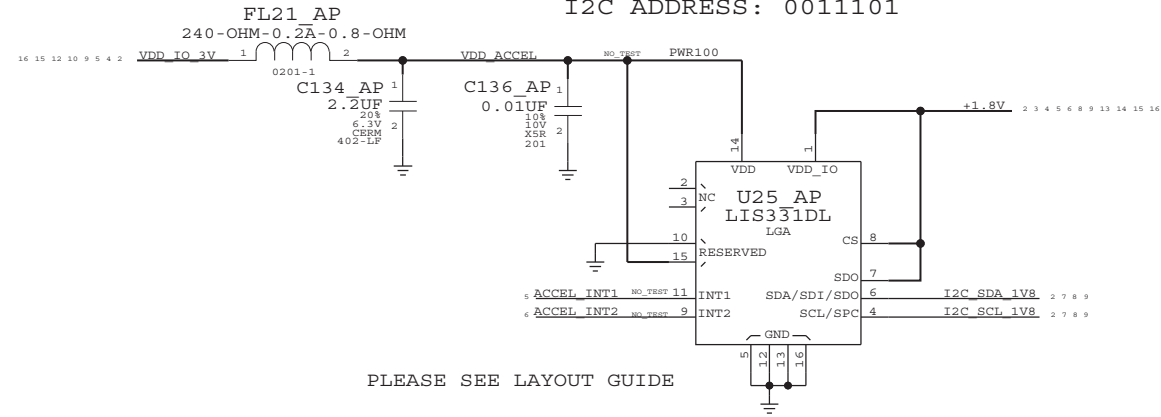
B

A

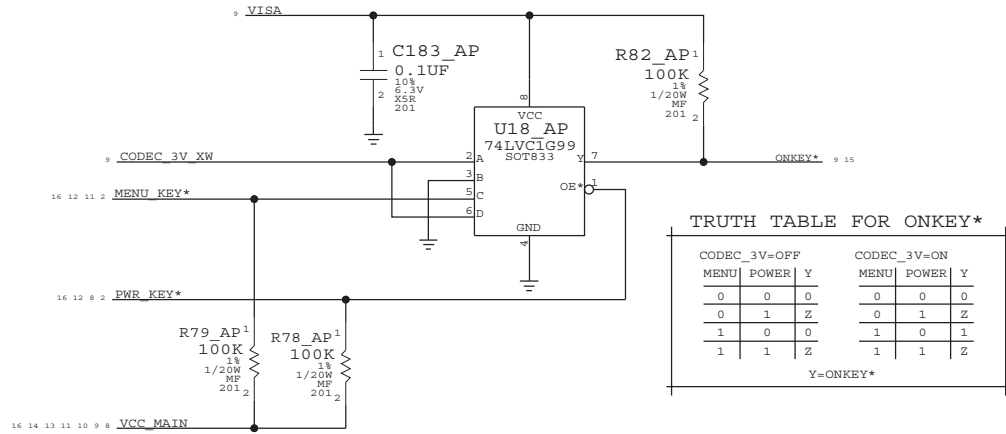
A

### ACCELEROMETER

I2C ADDRESS: 0011101



U18+ONKEY\* IS USED TO WAKE FROM OFF (PMU STANDBY)  
ONKEY\* HELD LOW FOR 6 SECONDS INITIATES PMU RESET SEQUENCE.

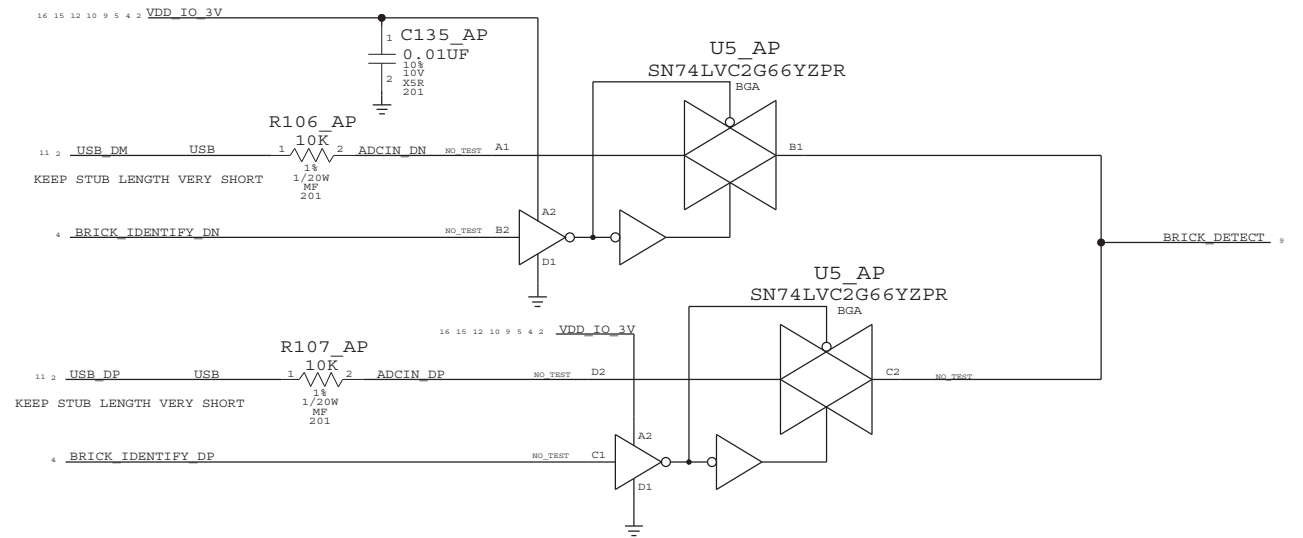


TRUTH TABLE FOR ONKEY\*

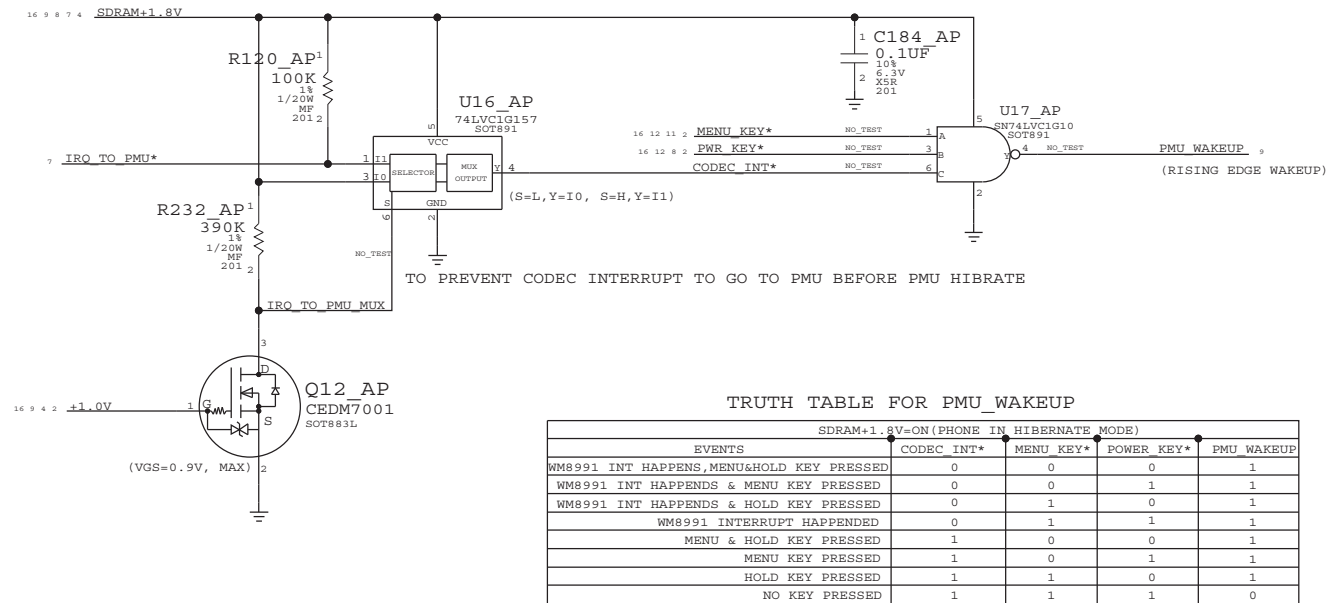
CODEC_3V=OFF			CODEC_3V=ON		
MENU	POWER	Y	MENU	POWER	Y
0	0	0	0	0	0
0	1	Z	0	1	Z
1	0	0	1	0	1
1	1	Z	1	1	Z

Y=ONKEY\*

### ADAPTER CURRENT CAPACITY DETECTION



U17+WAKEUP IS USED TO WAKE FROM HIBERNATE (SUSPEND TO RAM)



TRUTH TABLE FOR PMU\_WAKEUP

EVENTS	SDRAM+1.8V=ON (PHONE IN HIBERNATE MODE)			
	CODEC INT*	MENU KEY*	POWER KEY*	PMU WAKEUP
WM8991 INT HAPPENS, MENU&HOLD KEY PRESSED	0	0	0	1
WM8991 INT HAPPENS & MENU KEY PRESSED	0	0	1	1
WM8991 INT HAPPENS & HOLD KEY PRESSED	0	1	0	1
WM8991 INTERRUPT HAPPENED	0	1	1	1
MENU & HOLD KEY PRESSED	1	0	0	1
MENU KEY PRESSED	1	0	1	1
HOLD KEY PRESSED	1	1	0	1
NO KEY PRESSED	1	1	1	0

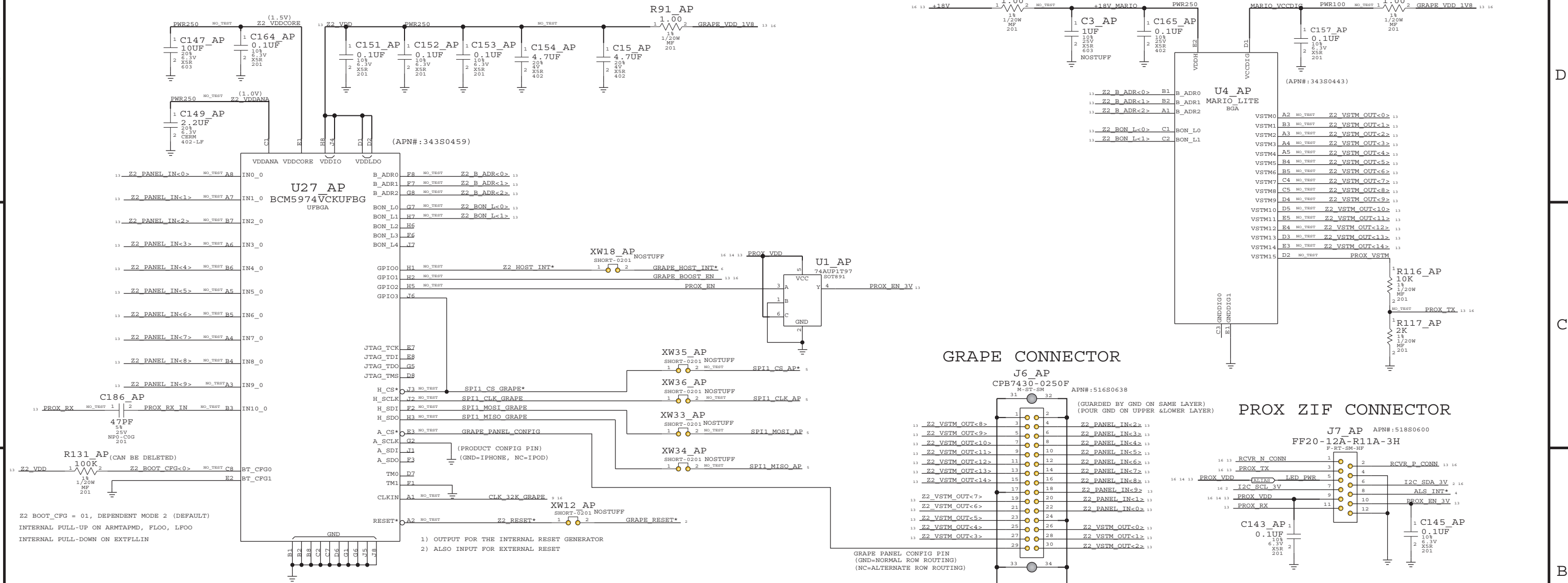
WM8991 INTERRUPT HAPPENS AT:  
 (1) RINGER KEY SLIDES  
 (2) HEAD PHONE PLUG IN/OUT  
 (3) HEAD PHONE SEND KEY PRESSED

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APPLE INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7340	02
SCALE	SHT	12 OF	20
NONE			

# ZEPHYR2 LITE A2

# MARIO LITE



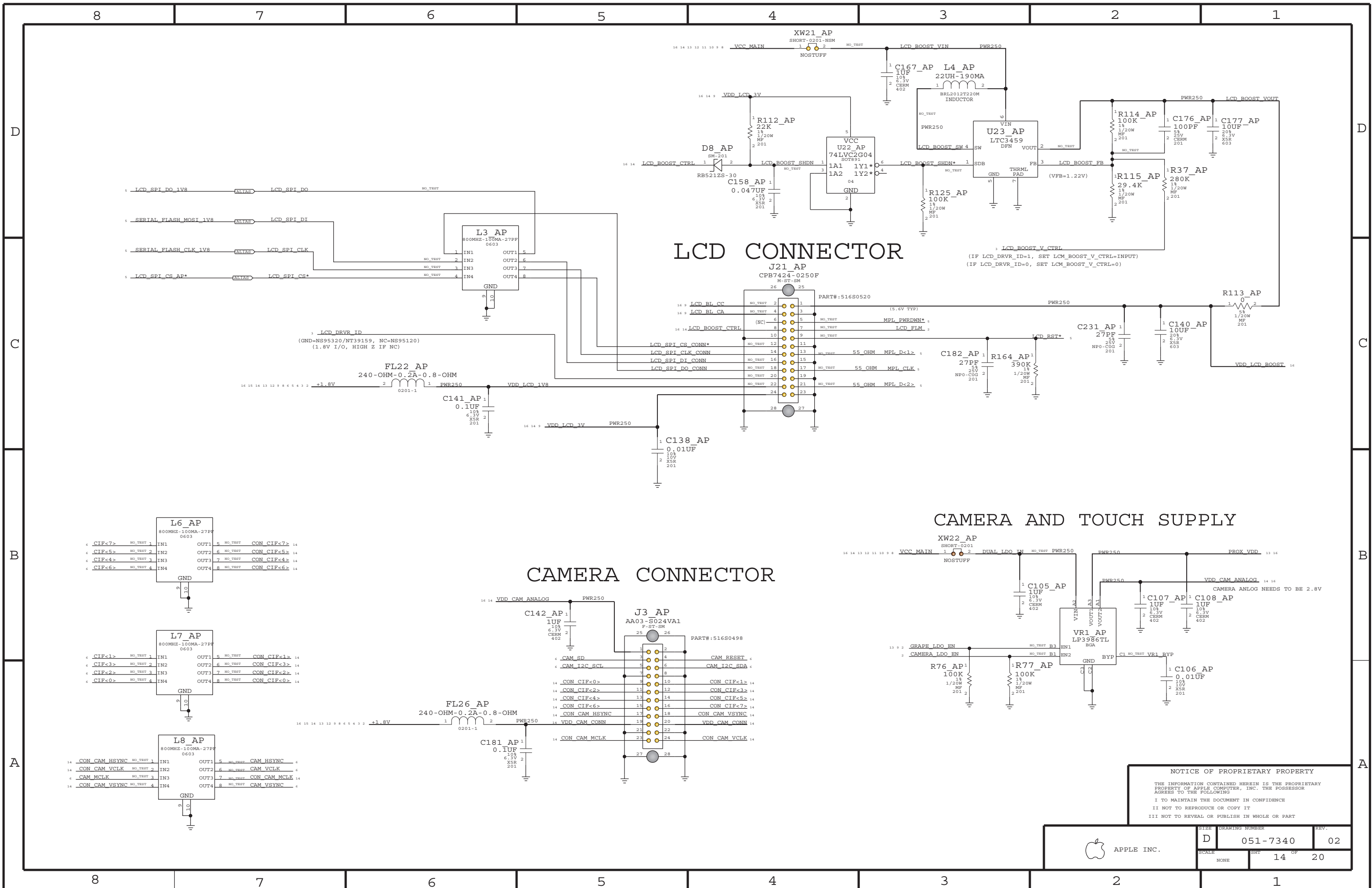
Z2 BOOT\_CFG = 01, DEPENDENT MODE 2 (DEFAULT)  
 INTERNAL PULL-UP ON ARMTAPMD, FLOO, LPOO  
 INTERNAL PULL-DOWN ON EXTFLIN

- 1) OUTPUT FOR THE INTERNAL RESET GENERATOR
- 2) ALSO INPUT FOR EXTERNAL RESET

GRAPE PANEL CONFIG PIN  
 (GND=NORMAL ROW ROUTING)  
 (NC=ALTERNATE ROW ROUTING)

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APPLE INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7340	02
SCALE	NONE	SHT	13 OF 20



### LCD CONNECTOR

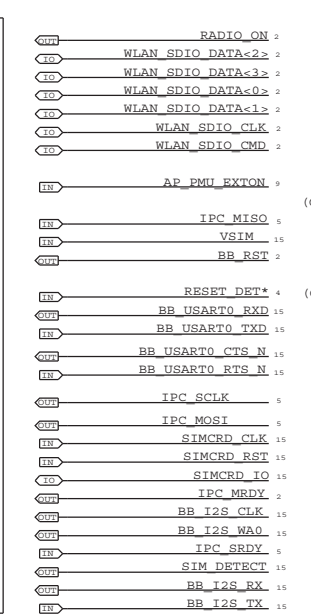
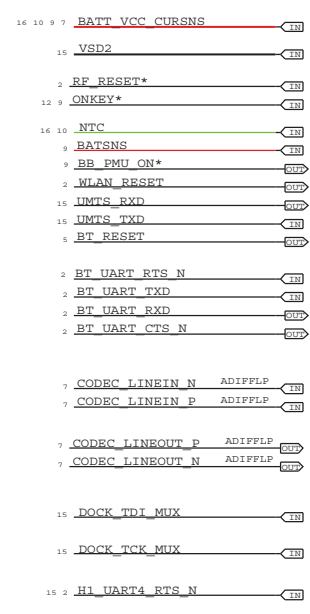
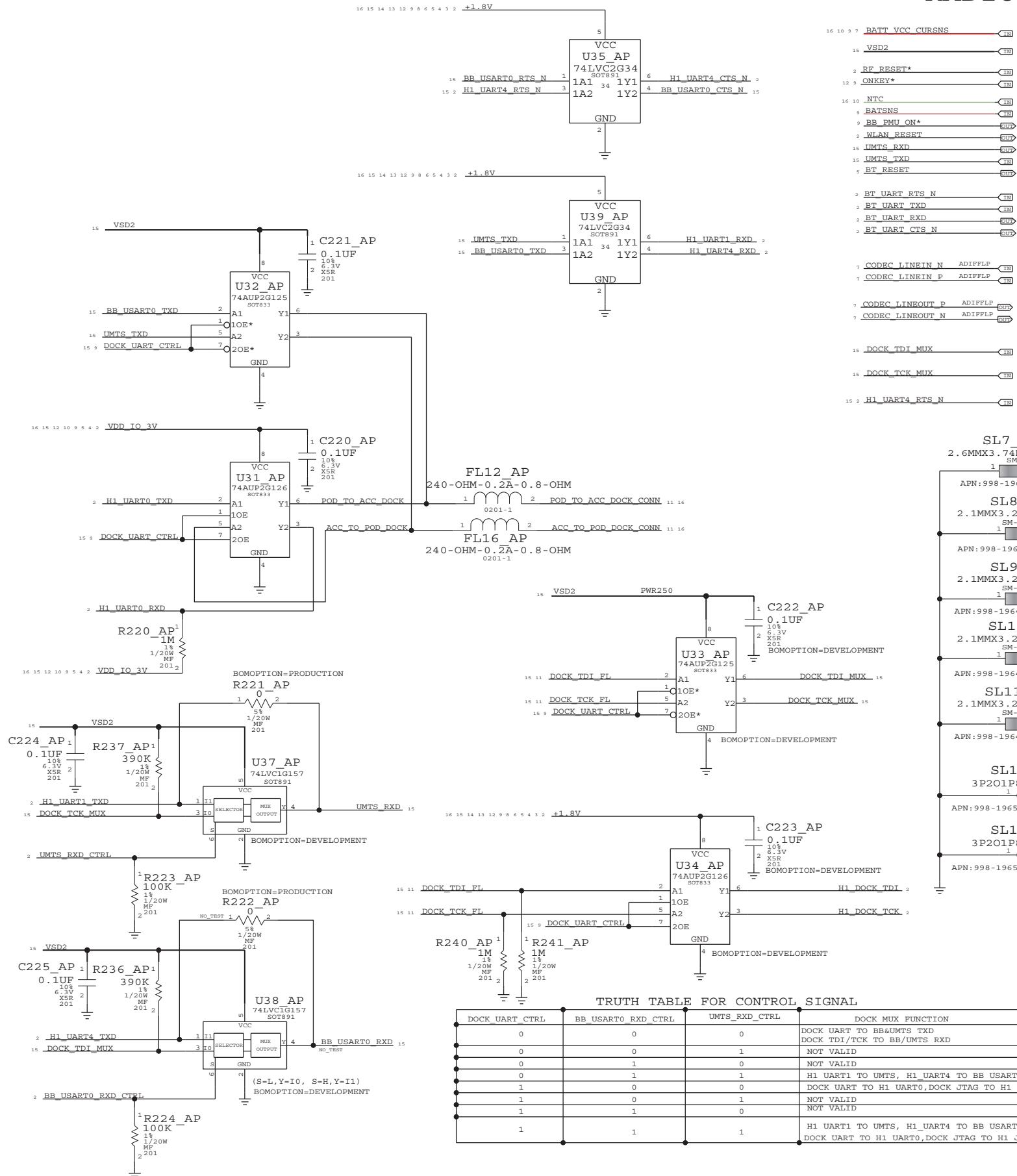
### CAMERA AND TOUCH SUPPLY

### CAMERA CONNECTOR

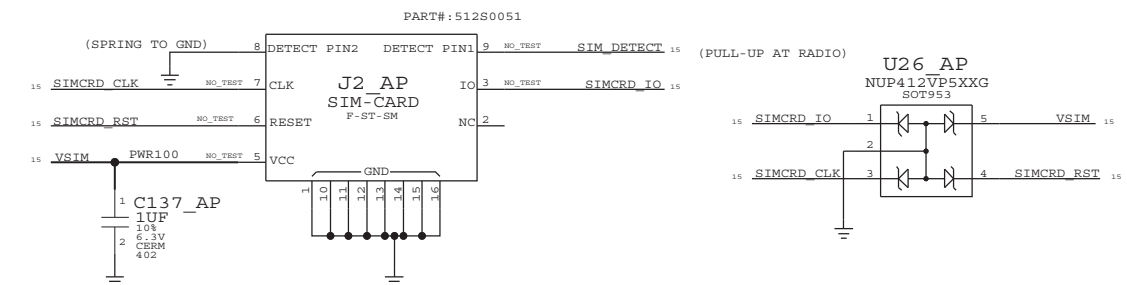
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	SCALE	14 OF 20	02

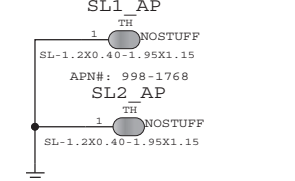
# RADIO INTERFACE



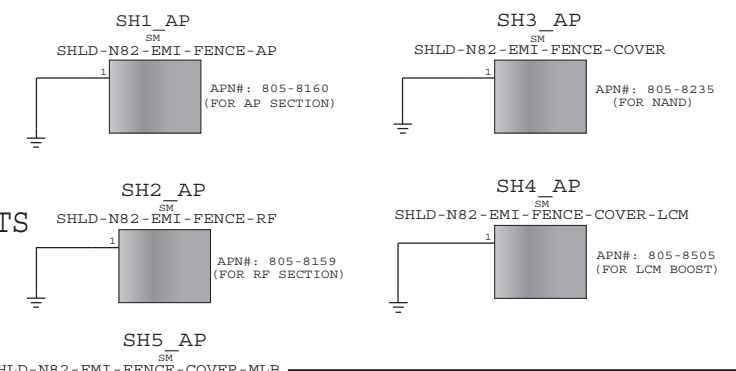
## SIM CARD SLOT AND ESD



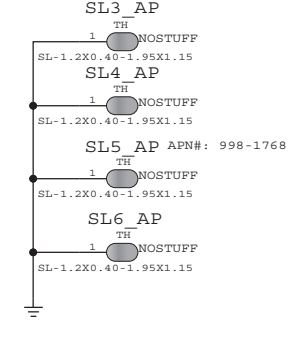
## NAND SHIELD SLOTS



## SHIELDING FENCE



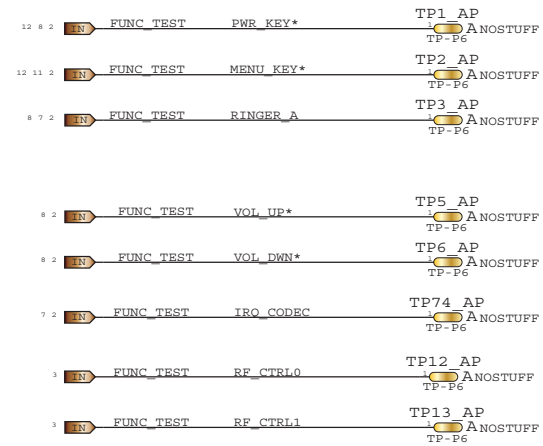
## TOP SHIELD ALIGNMENT SLOTS



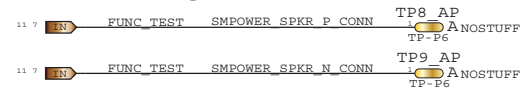
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# TEST POINTS

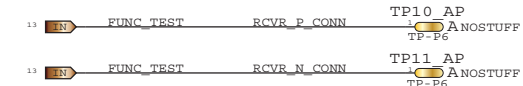
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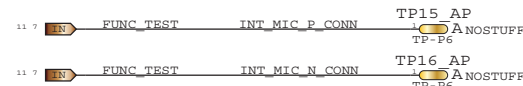
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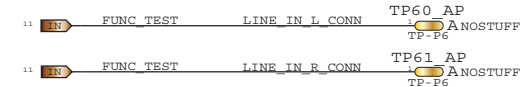
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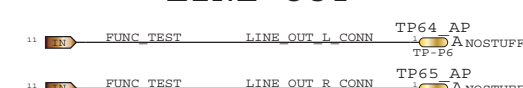
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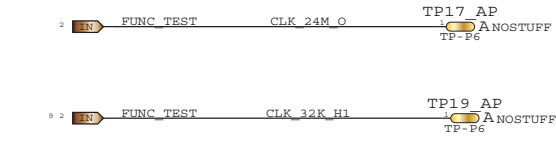
## LINE IN



## LINE OUT



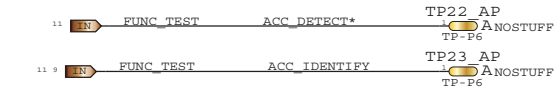
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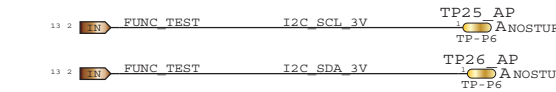
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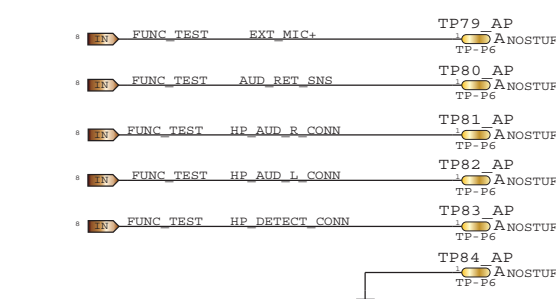
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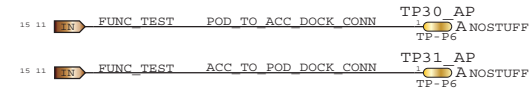
## I2C PINS



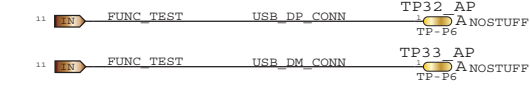
## HEADPHONE



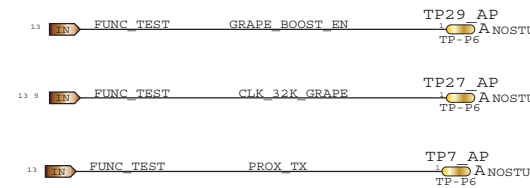
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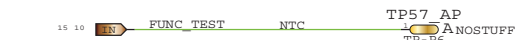
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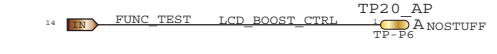
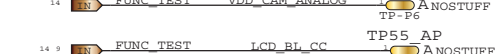
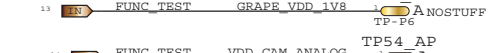
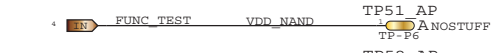
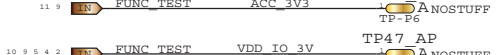
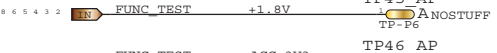
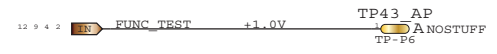
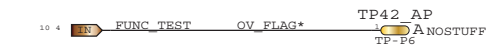
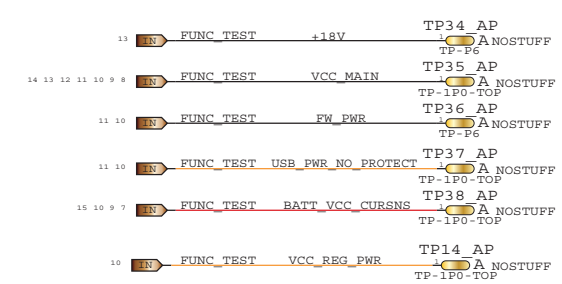
## GRAPE



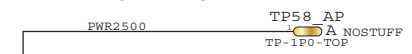
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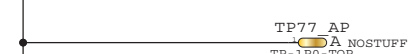
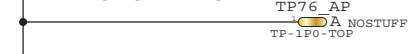
## POWER



## POWER GND



## SIGNAL GND



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D	051-7340	02
SCALE	SHT	OF
NONE	16	20

# N82 HSDPA RADIO

## EVT3B - 02/15/08:BRD REV10

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

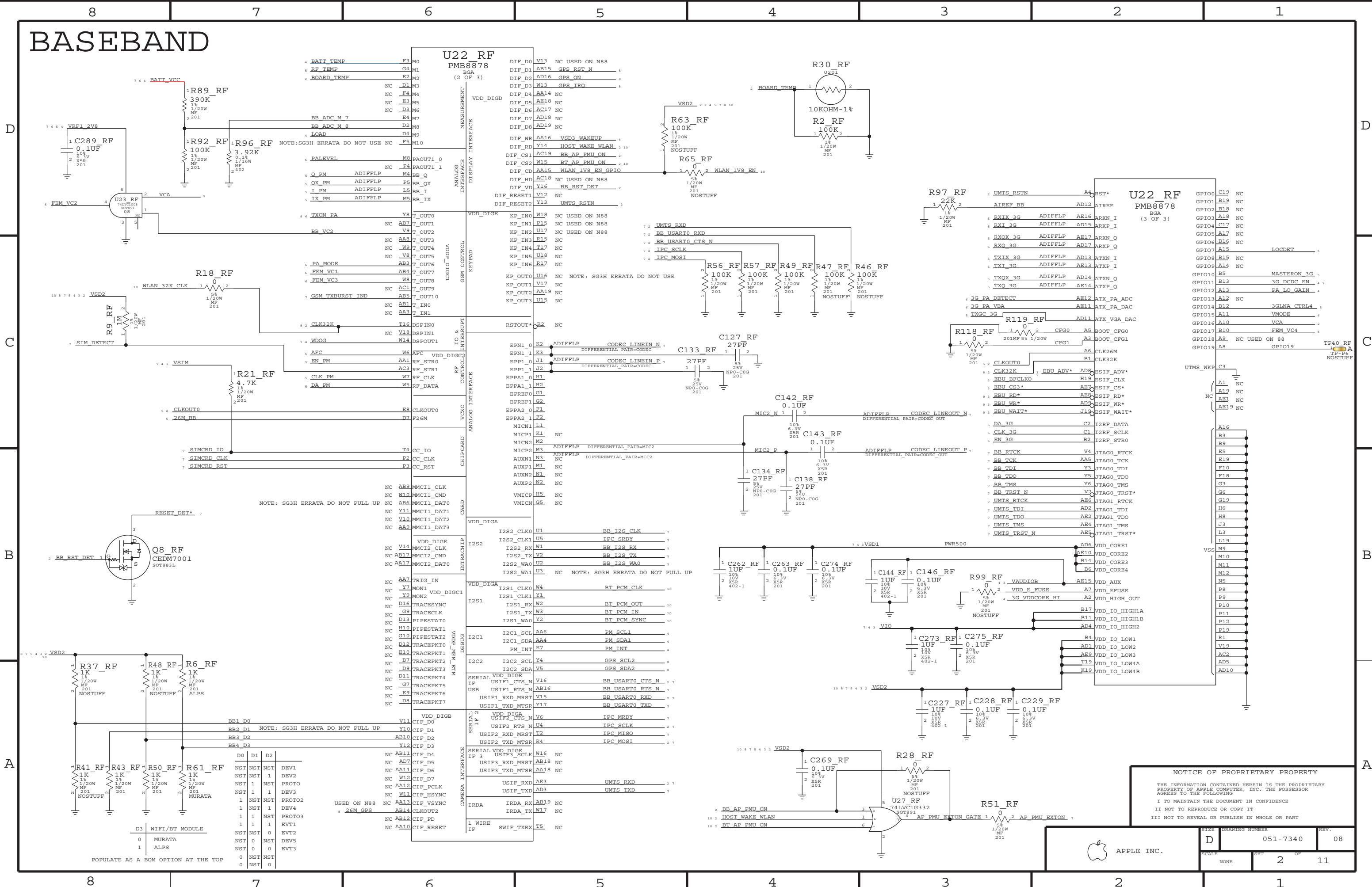
BOARD - 820-2186  
 SCHEMATIC - 051-7340  
 BOM - 630-8772

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
051-7340	1	N82_RF_AND_AP_SCHEMATIC	SCH	Y	
820-2186	1	N82_RF_AND_AP_PCB	PCB	Y	
825-2029	1	EEE: Y5K(8GB), YEU(16GB)	EEE:Y5K	Y	

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# BASEBAND



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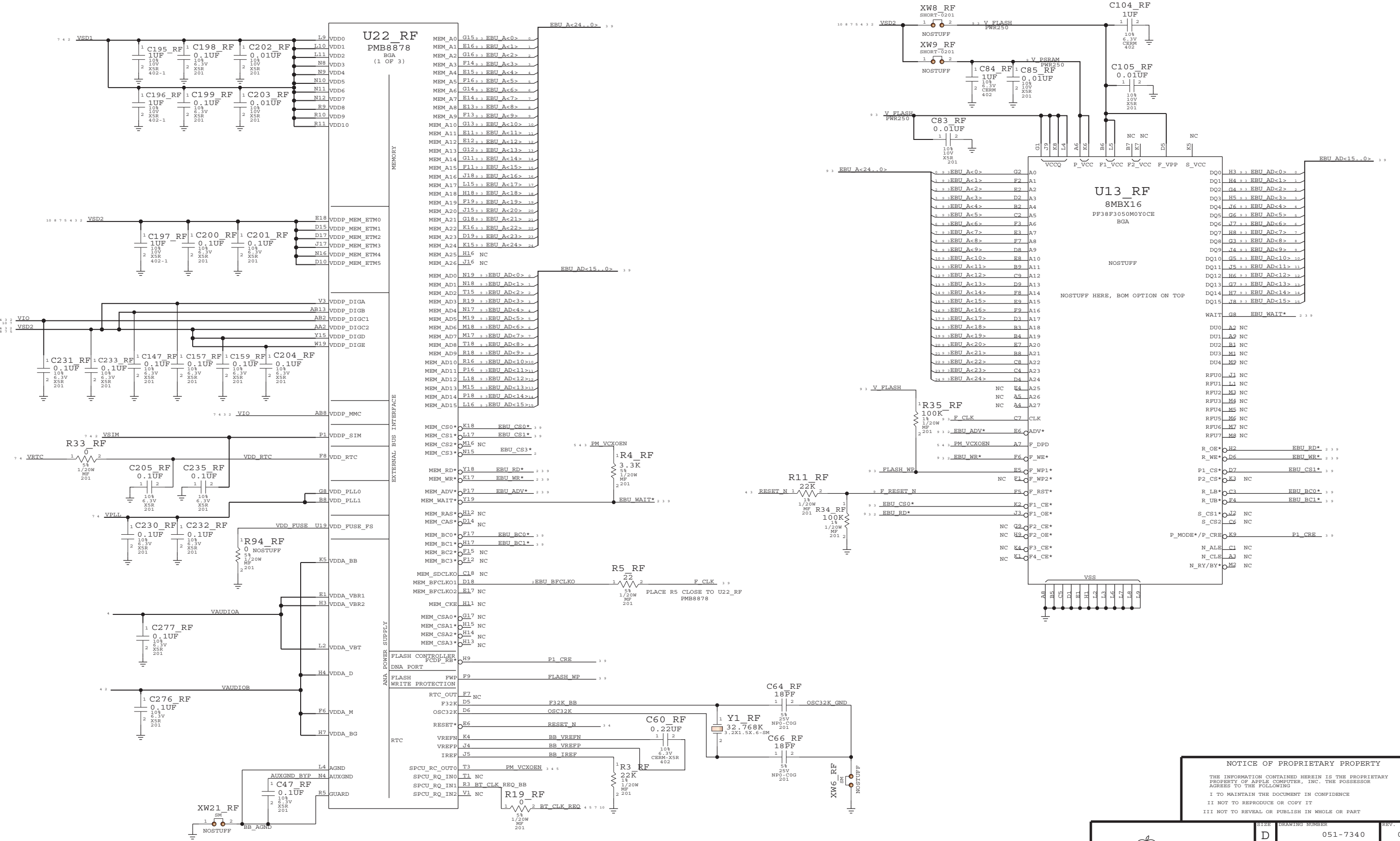
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SHEET	OF	
2	11	



POPULATE AS A BOM OPTION AT THE TOP

# BASEBAND/RADIO MEM



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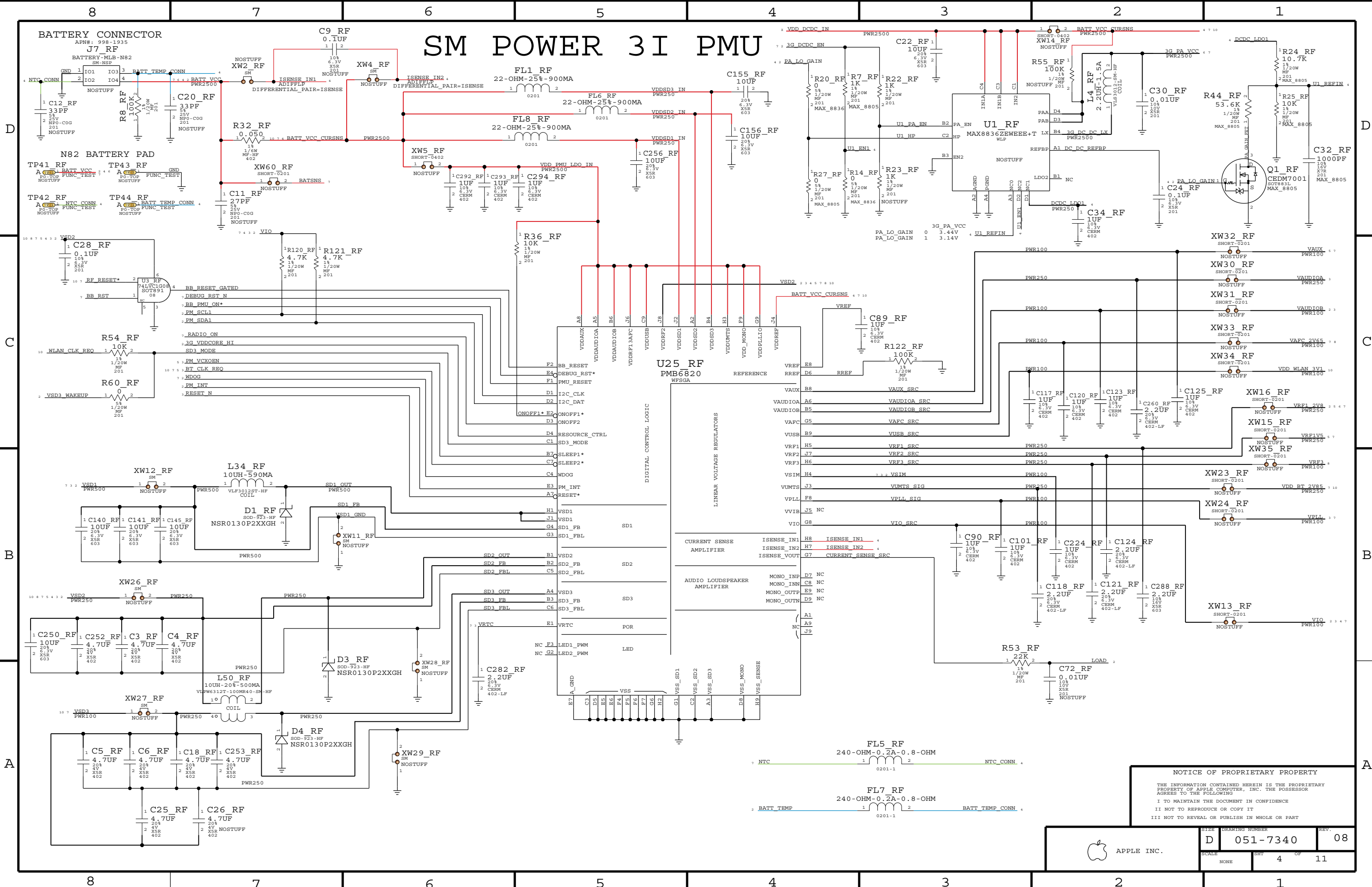
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SCALE	SHT	OF
NONE	3	11



# SM POWER 3 I PMU

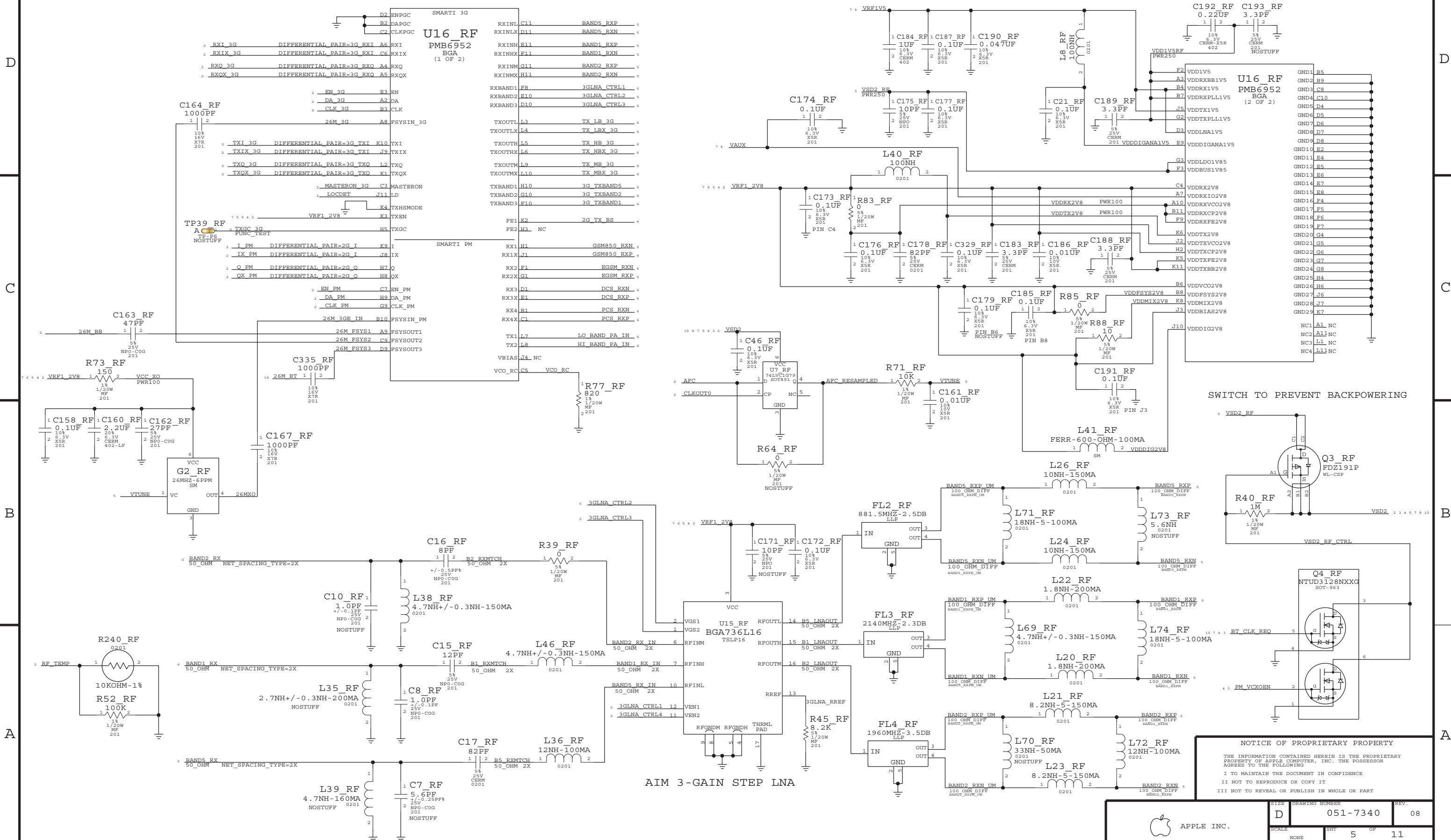


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		SHEET	OF	
		4	11	

# GSM & UMTS TRANSCIEVER - SMARTI 3GE

## SMARTI3GE SUPPLIES

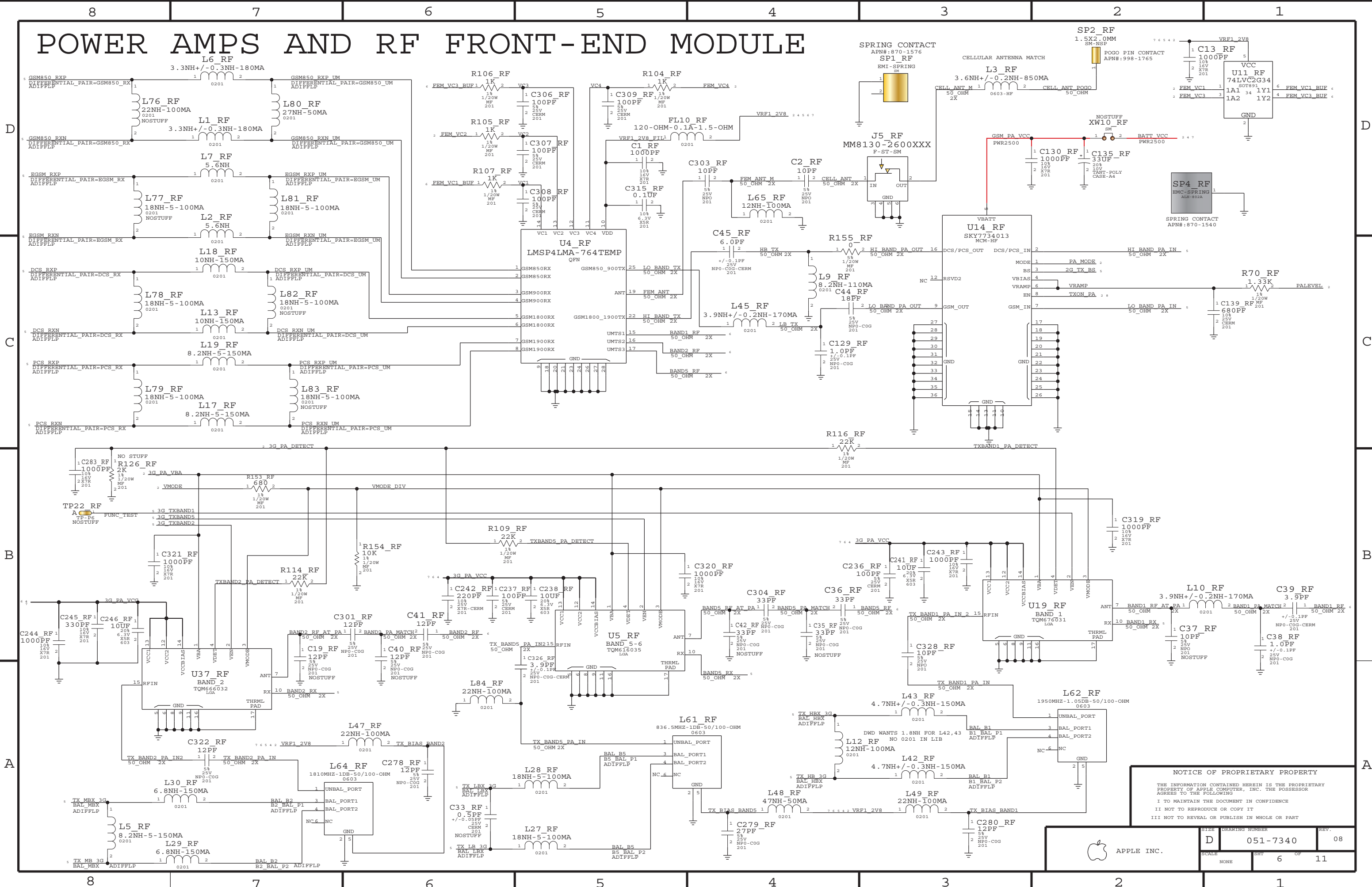


AIM 3-GAIN STEP LNA

SWITCH TO PREVENT BACKPOWERING

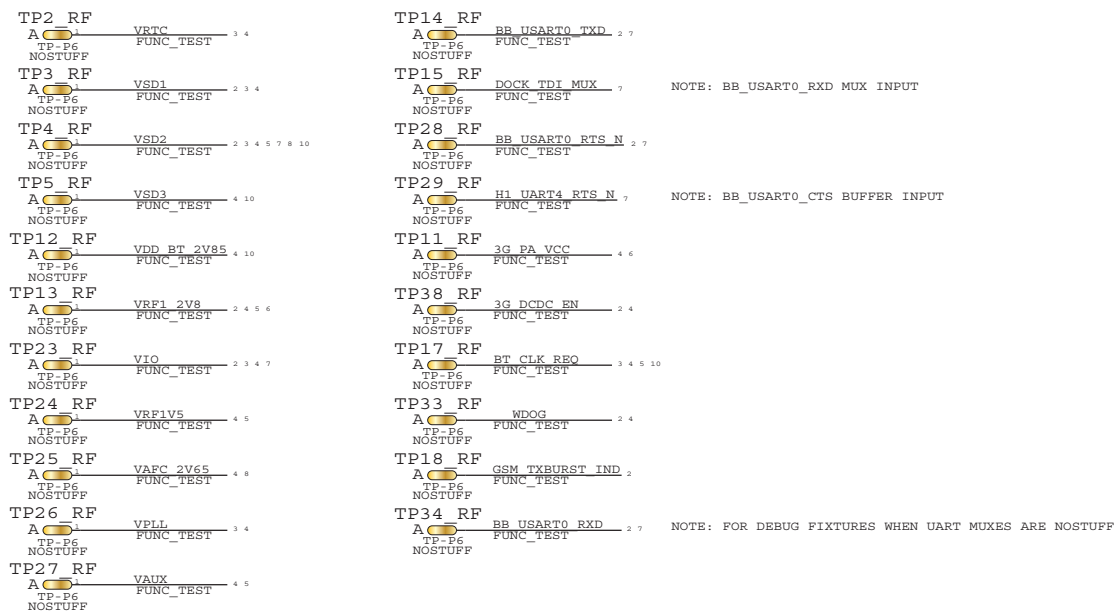
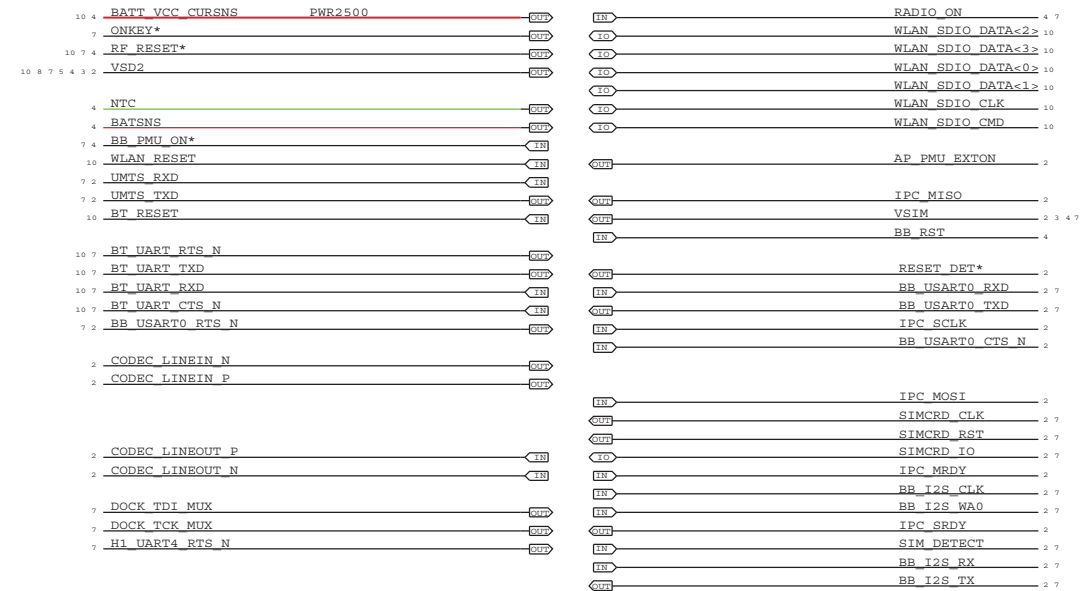
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# POWER AMPS AND RF FRONT-END MODULE



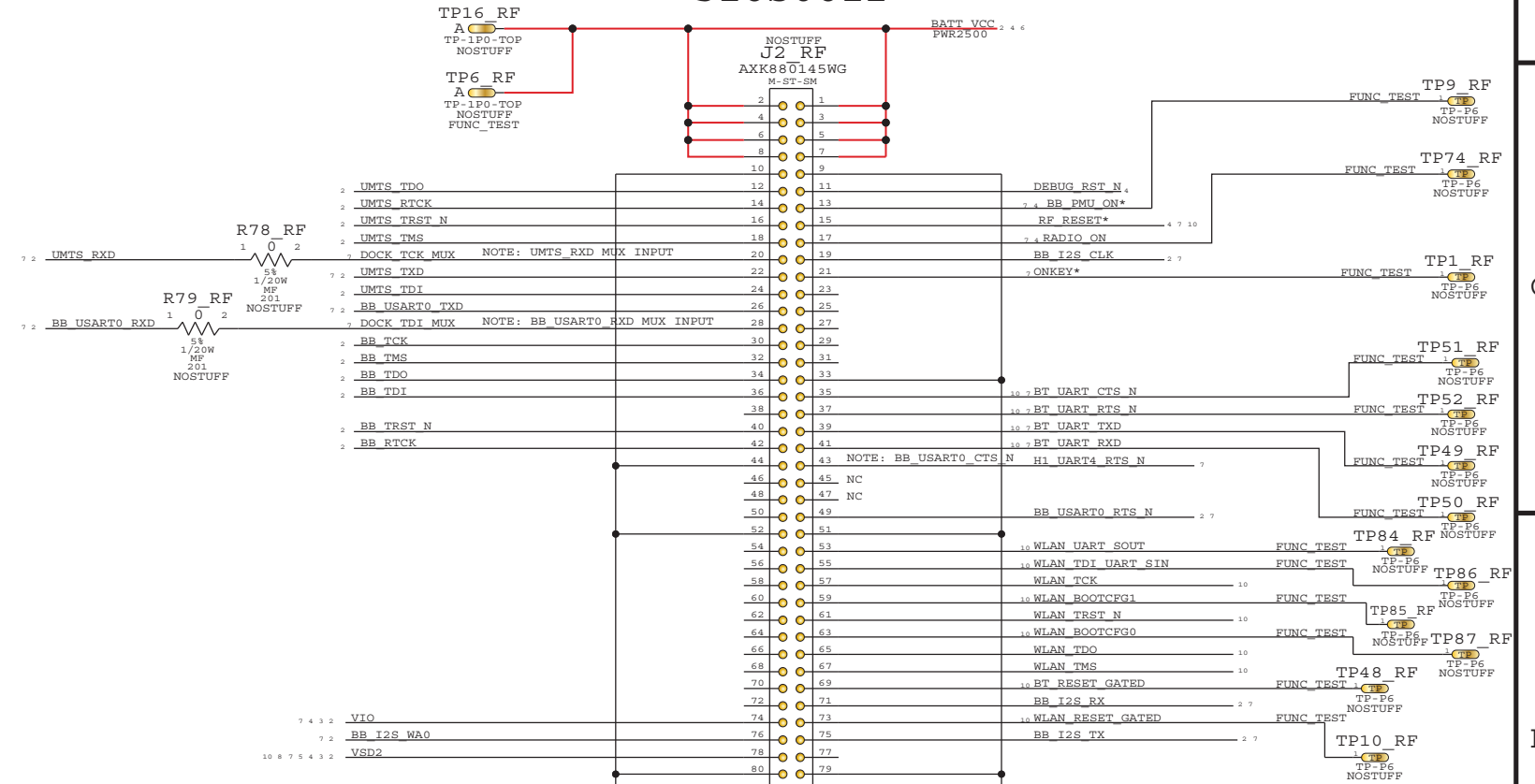
# SYSTEM CONNECTORS

## AP CONNECTIONS



## DEBUG CONNECTOR

516S0612

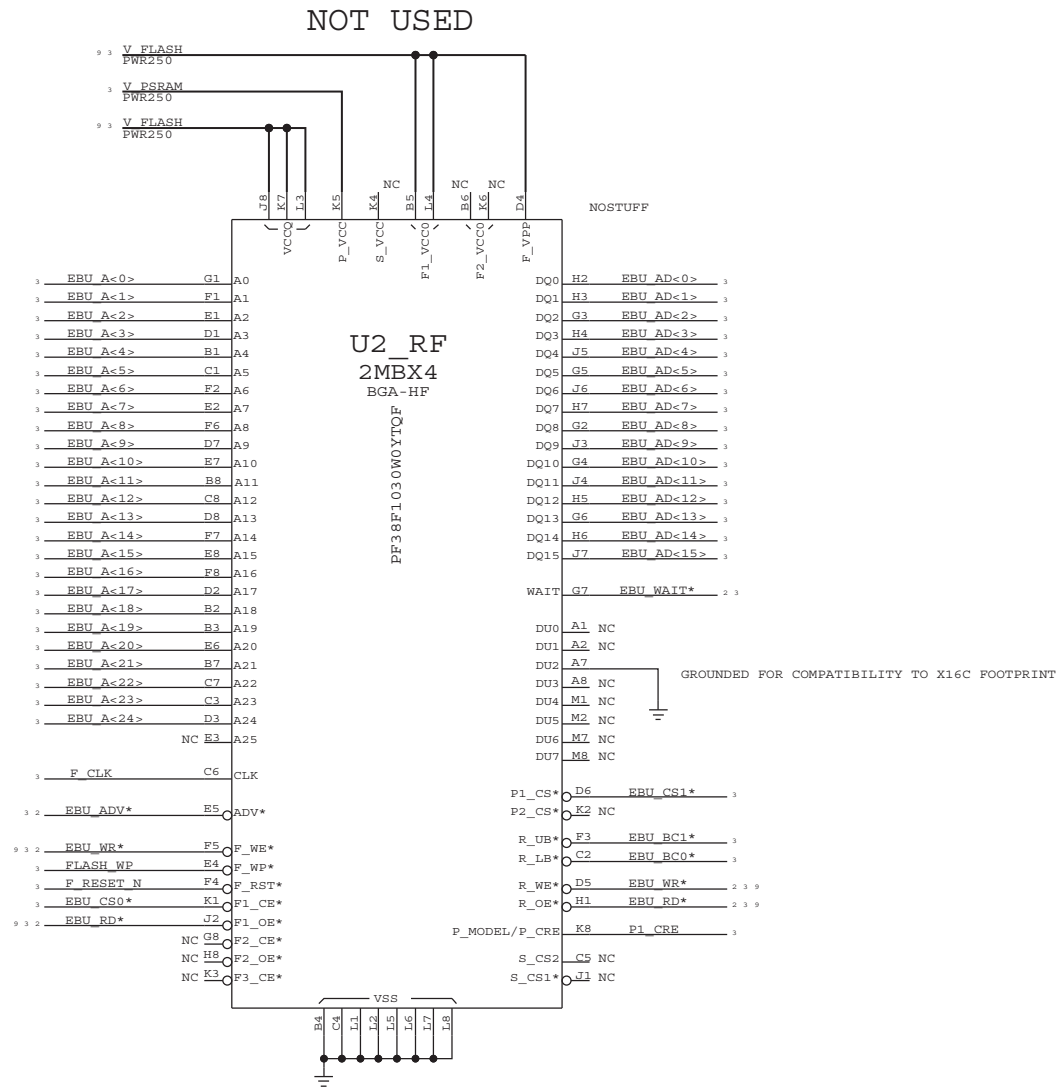


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# DUAL FOOTPRINTED LOW-COST MEMORY OPTION



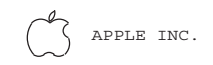
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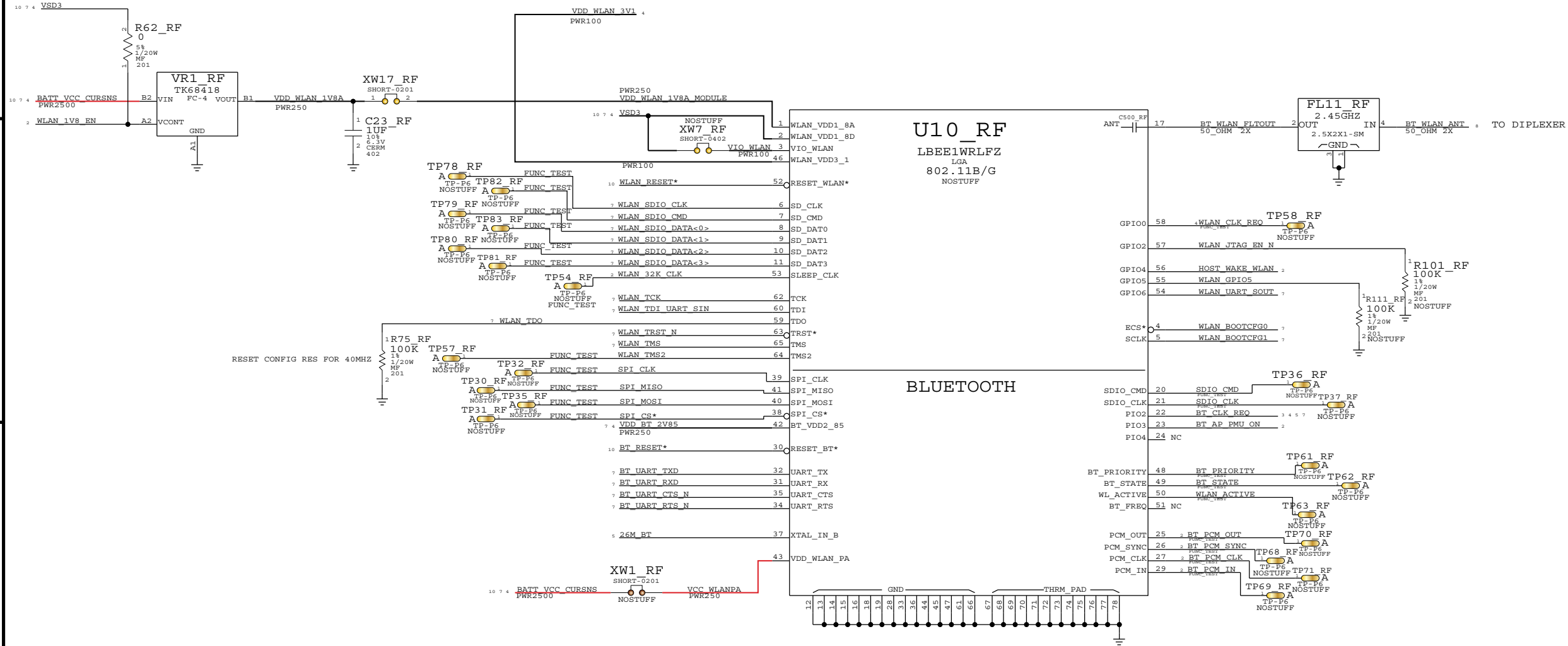
III NOT TO REVEAL OR PUBLISH IN WHOLE OR PART



APPLE INC.

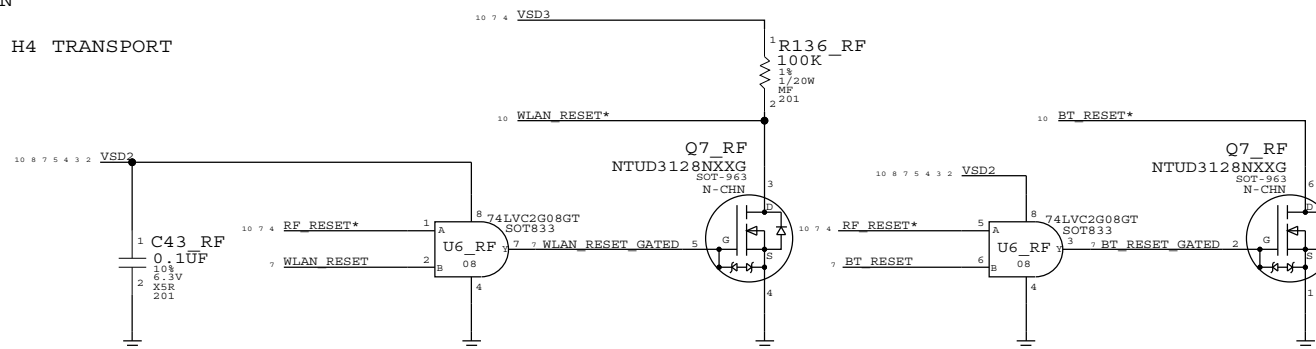
SIZE	DRAWING NUMBER	REV.
D	051-7340	08
SCALE	SHEET 9 OF 11	
NONE		

# WLAN RADIO



HOST TRANSPORT CONFIGURATION  
MODULE CONFIGURED INTERNALLY FOR H4 TRANSPORT

TO ALLOW AP TO USE ACTIVE HIGH



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		SHT	10 OF 11