

8

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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	ZONE	ECN	DESCRIPTION OF CHANGE	CK APPD DATE	ENG APPD DATE
				?	?

SCHEM, DUBLIN, M87

10/12/07

DVT

PDF PAGE	CSA PAGE	CONTENTS	SYNC MASTER	DATE
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2	2	Block Diagram		
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4	9	Aliases	(Master)	(Master)
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22	101	Cross Reference Page		
23	102	Cross Reference Page		

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
051-7447	1	SCHEM, DUBLIN, M87	SCH1	CRITICAL	
820-2273	1	PCBF, DUBLIN, M87	PCB1	CRITICAL	

DIMENSIONS ARE IN MILLIMETERS		METRIC		APPLE INC.	
XX :	_____	DRAPTER	/	DESIGN CK	/
X.XX :	_____	ENG APPD	/	MFG APPD	/
X.XXX :	_____	QA APPD	/	DESIGNER	/
ANGLES :	_____	RELEASE	/	SCALE	NONE
DO NOT SCALE DRAWING		MATERIAL/FINISH NOTED AS APPLICABLE		SIZE	D
 THIRD ANGLE PROJECTION		DRAWING NUMBER		051-7447	REV. 9.0.0
SHT 1 OF 23					

8

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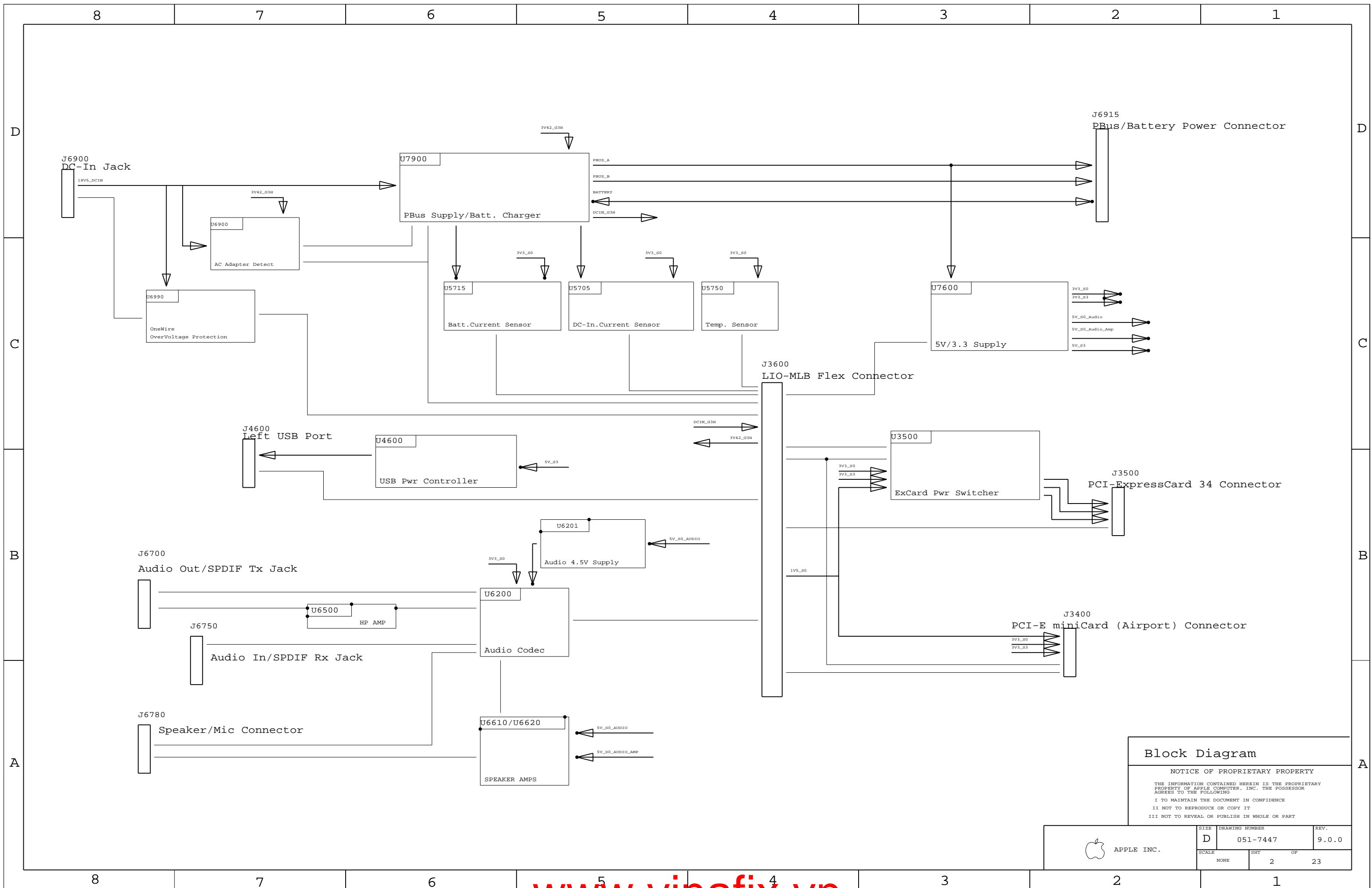
5

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1



Block Diagram

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APPLE INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7447	9.0.0
SCALE	SHT	OF	
NONE	2	23	

8

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1

BOM NUMBER	BOM NAME	BOM OPTIONS
630-9094	PCBA,DUBLIN,M87	ALTERNATE,COMMON,M87_COMMON,INV_BYPASS,X5F,BKLT_LED

BOM GROUP	BOM OPTIONS
M87_COMMON	ISL6257H

Bar Code Label / EEE #'s

PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
000-0041	1	PLACEHOLDER FOR EEE/CCC INFO	[EEE:Z3M]	CRITICAL	X5F

Alternate Parts

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
37600448	37600445		ALL	SI7806ADM for FDM6296
12800081	12800061		ALL	150UF,6.3V,25MHV,C2
12800093	12800092		ALL	33UF,16V,45MHV,D2E
35301717	35301297		ALL	LM397,COMPARATOR
37600560	37600532		ALL	SI7908DN for SI7913DN

D

D

C

C


B

B

A

A

BOM Configuration	
SYNC_MASTER=(Master)	SYNC_DATE=(Master)
NOTICE OF PROPRIETARY PROPERTY	
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	D	051-7447	9.0.0
SCALE	SHT	OF	
NONE	3	23	

8

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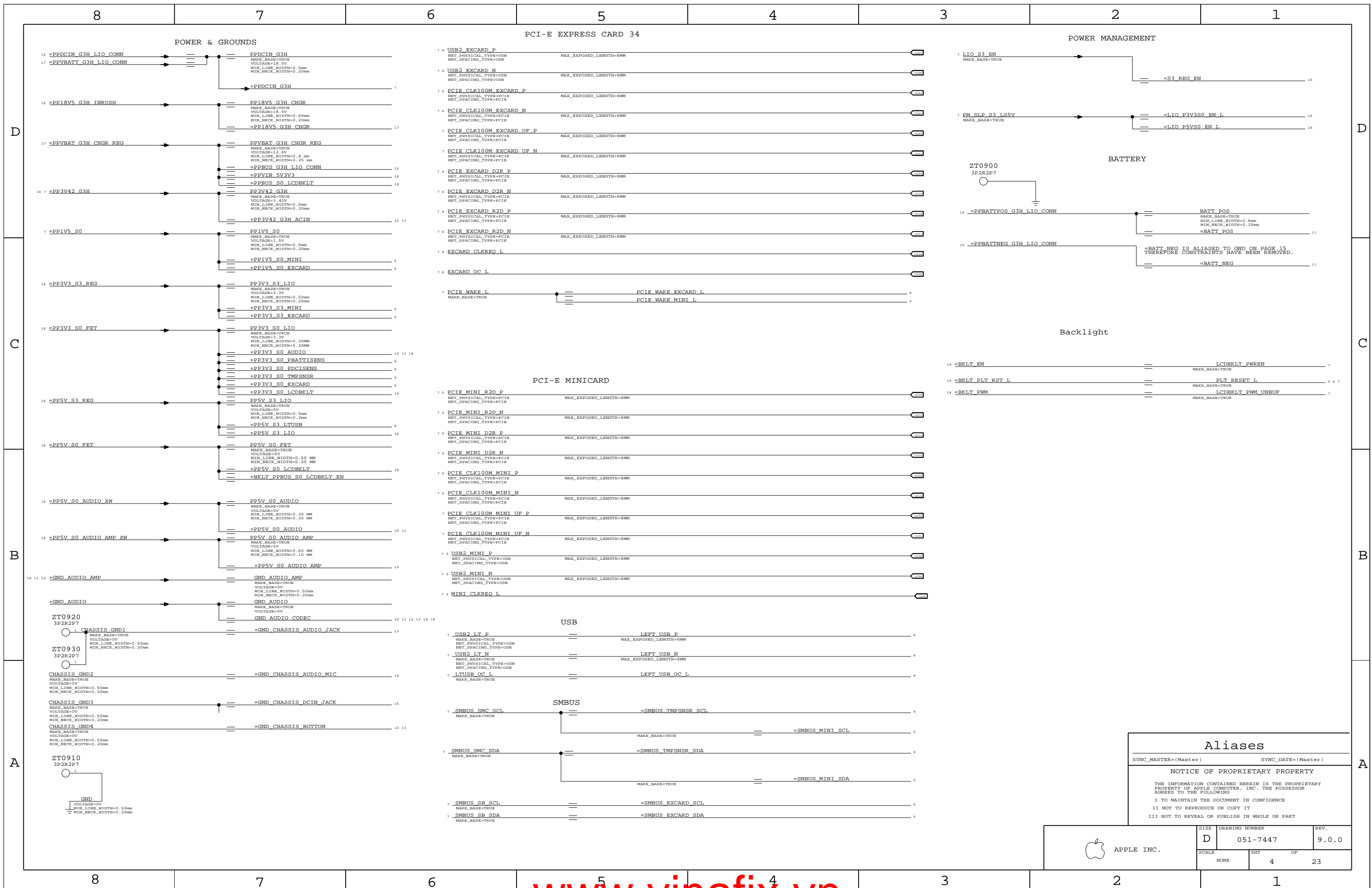
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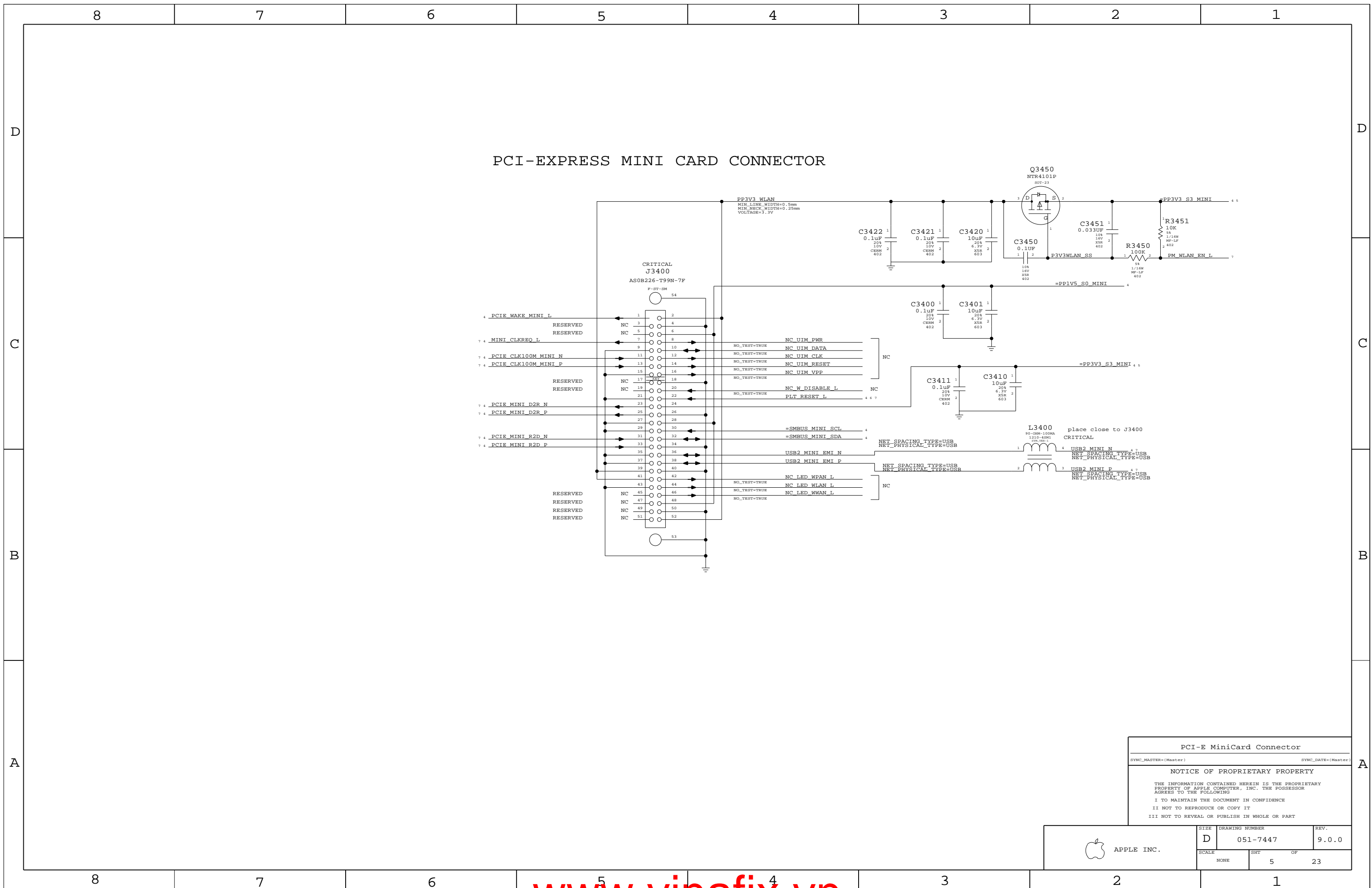
2

1



Aliases		
SYNC_MASTER=(Master)	SYNC_DATE=(Master)	
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	D	051-7447	9.0.0
SCALE	SHT	OF	
NONE	4		23



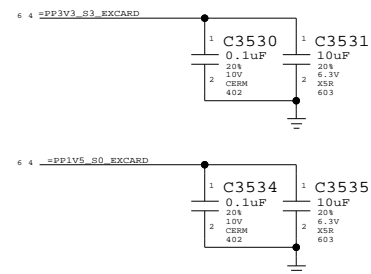
PCI-EXPRESS MINI CARD CONNECTOR

PCI-E MiniCard Connector
 SYNC_MASTER=(Master) SYNC_DATA=(Master)
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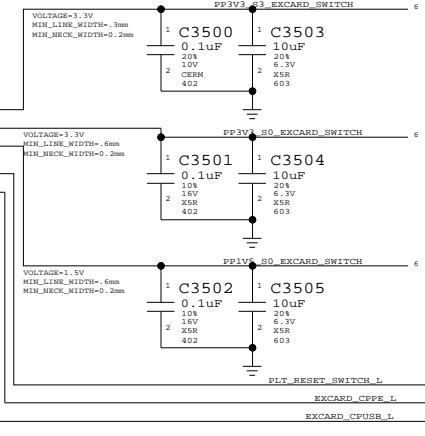
APPLE INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7447	9.0.0
SCALE	SHT OF		
NONE	5 OF		23

EXPRESSCARD/34 TOP MOUNT CONNECTOR

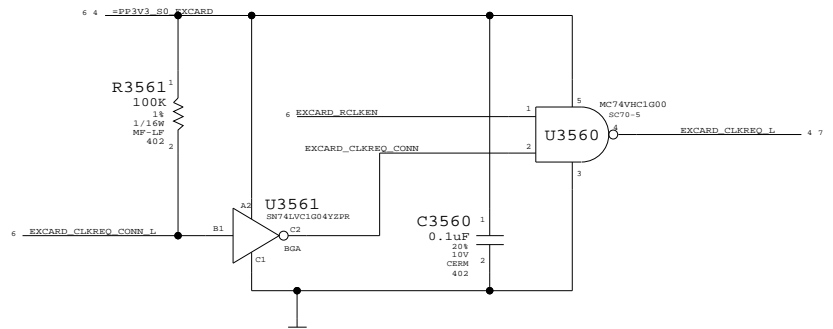
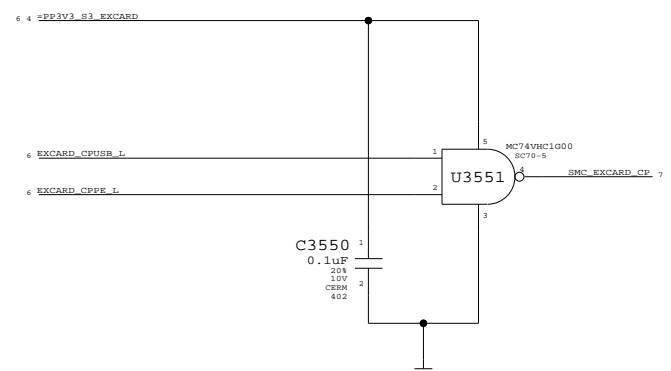
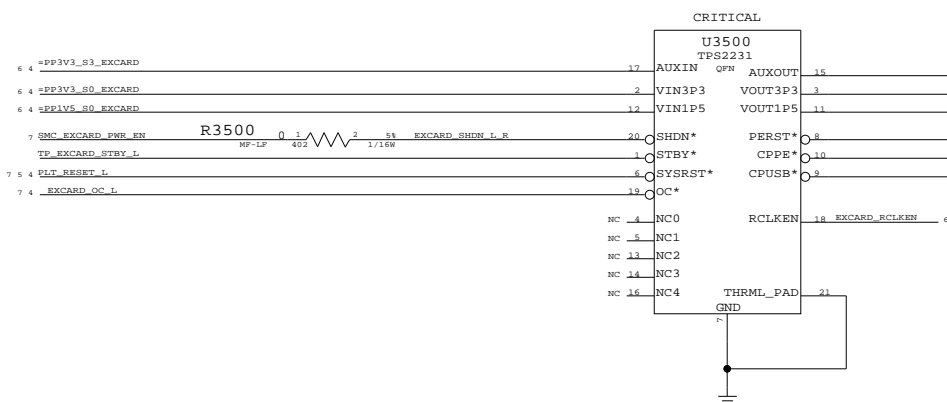
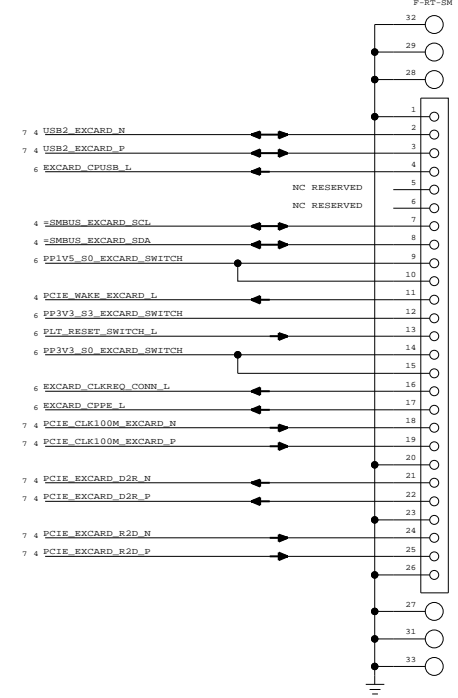
INPUT DECOUPLING



OUTPUT DECOUPLING

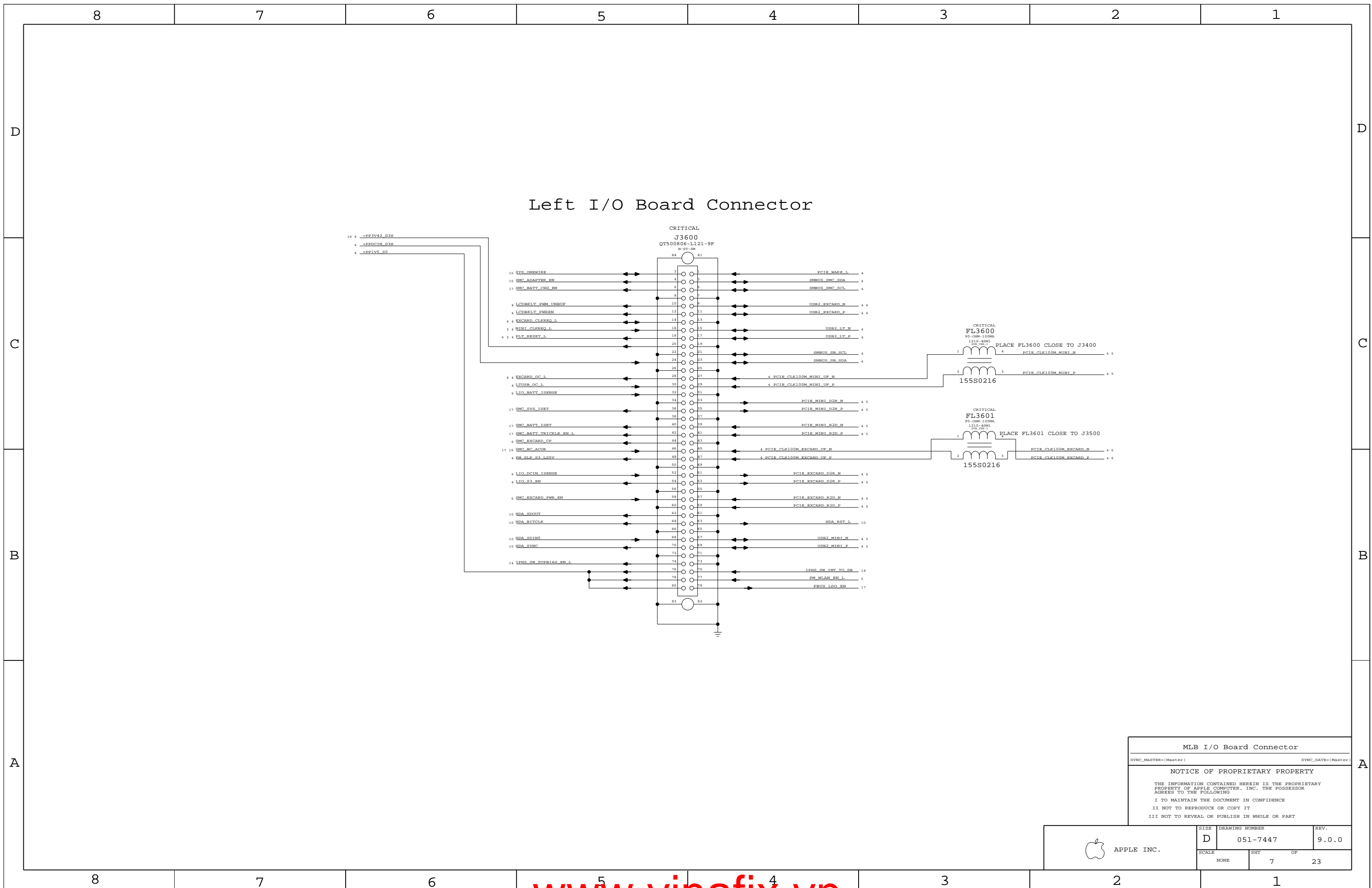


CARD CAGE CONNECTOR
CRITICAL
J3500
237-5300703903-2
P 10/08



ExpressCard Connector
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APPLE INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7447	9.0.0
SCALE	SHT OF		
NONE	6		23



MLB I/O Board Connector

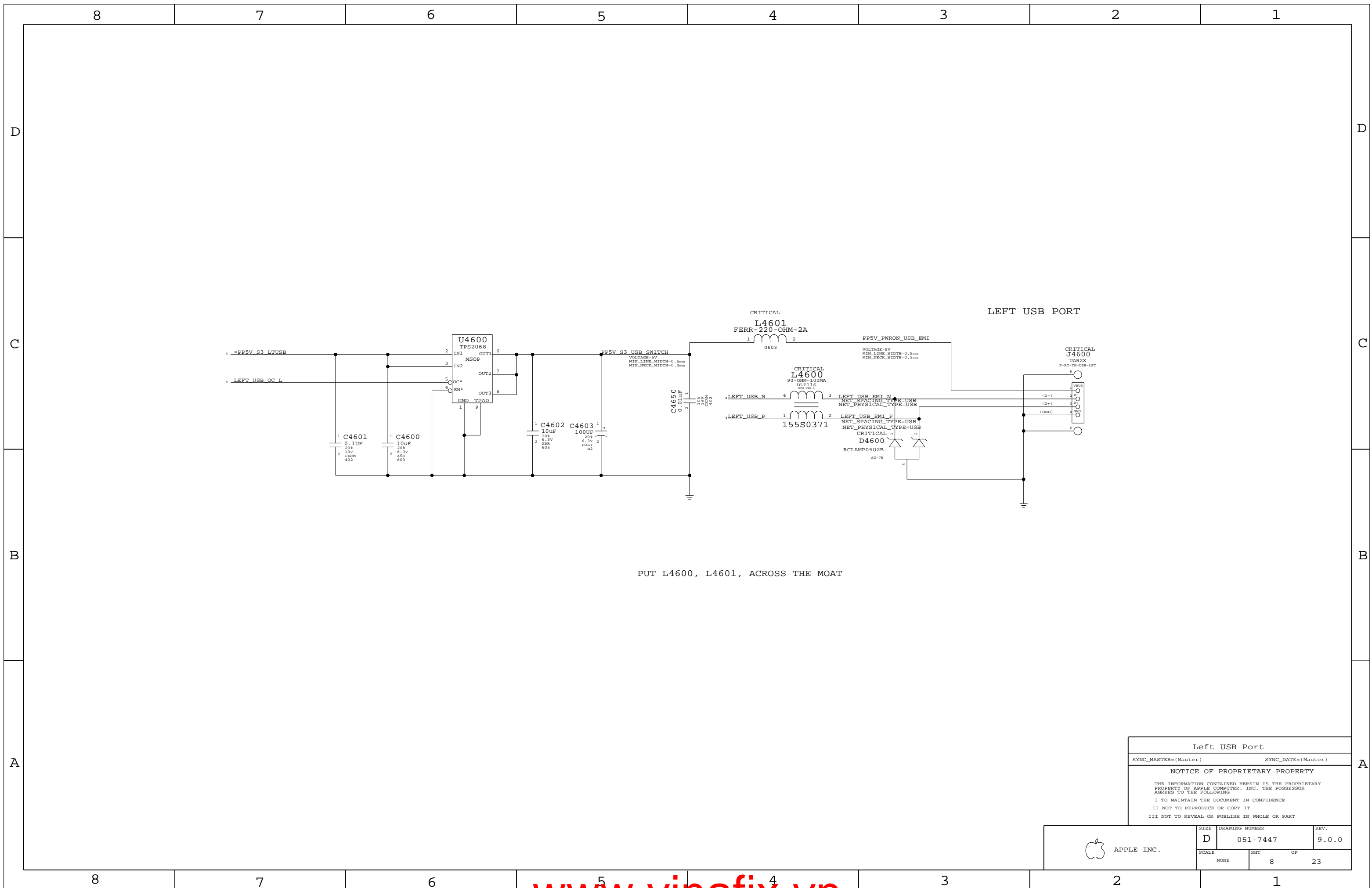
SYNC_MASTER=(Master) SYNC_DATA=(Master)

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APPLE INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7447	9.0.0
SCALE	SHT	OF	23
NONE	7		



PUT L4600, L4601, ACROSS THE MOAT

Left USB Port

SYNC_MASTER=(Master) SYNC_DATE=(Master)

NOTICE OF PROPRIETARY PROPERTY

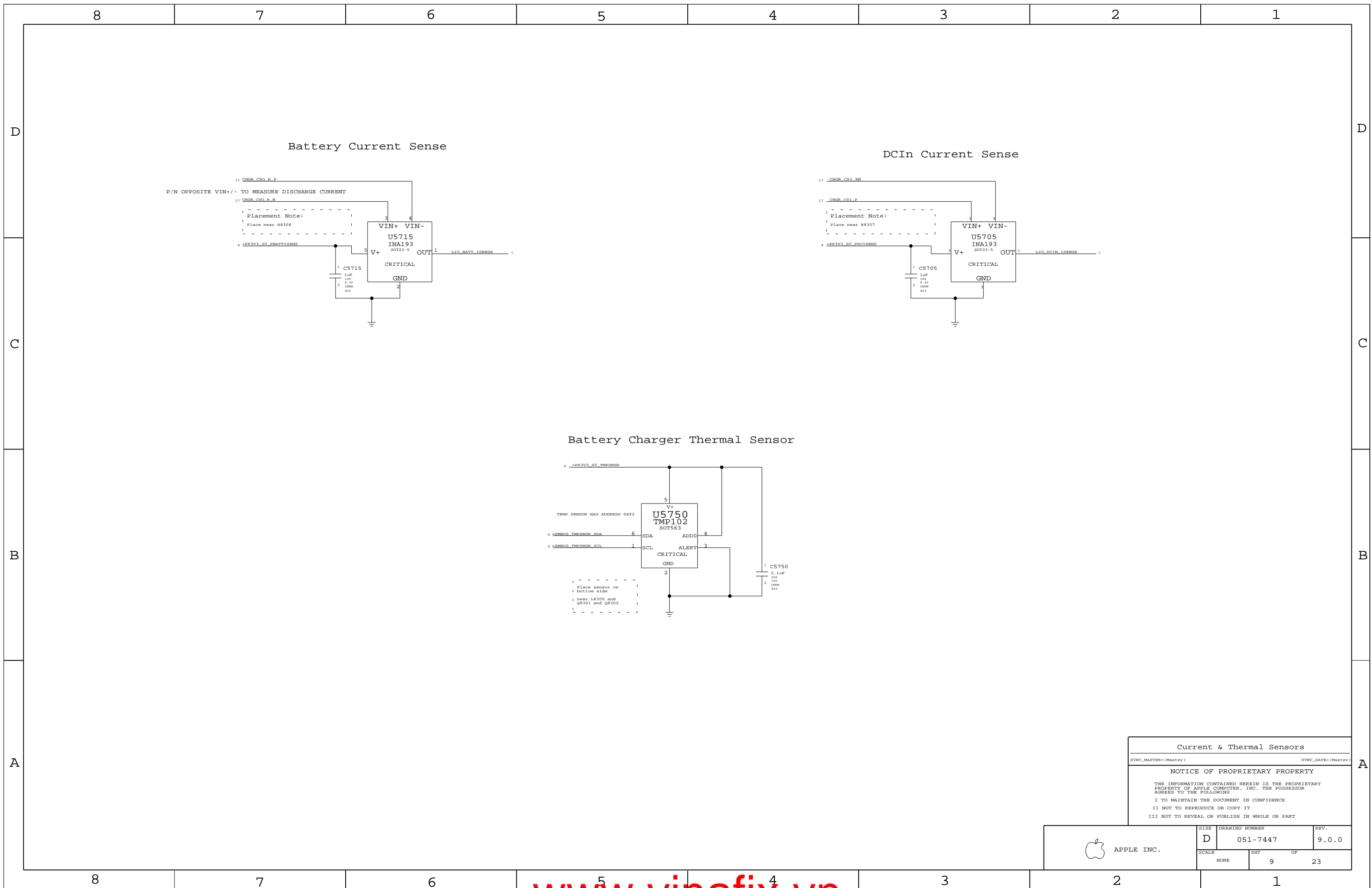
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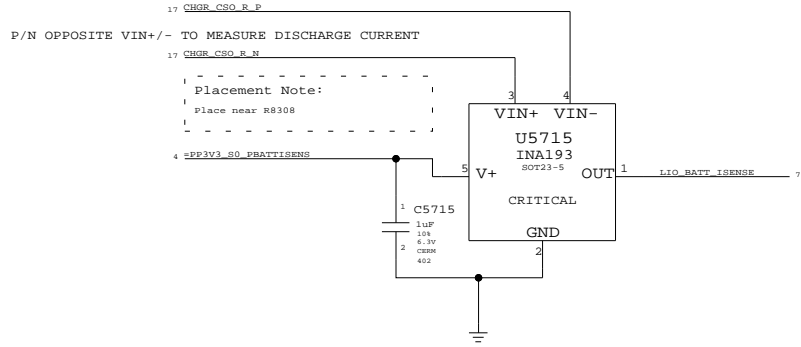
II NOT TO REPRODUCE OR COPY IT

III NOT TO REVEAL OR PUBLISH IN WHOLE OR PART

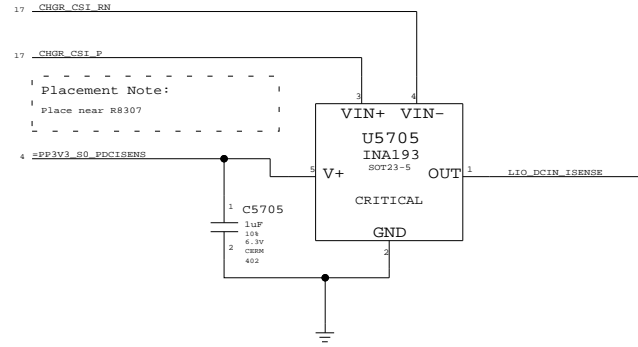
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	D	051-7447	9.0.0
SCALE	SHT	OF	
NONE	8	23	



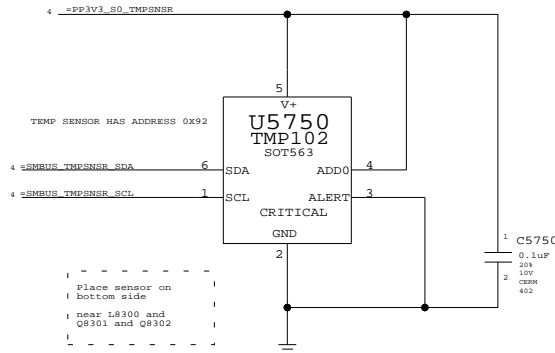
Battery Current Sense



DCIn Current Sense

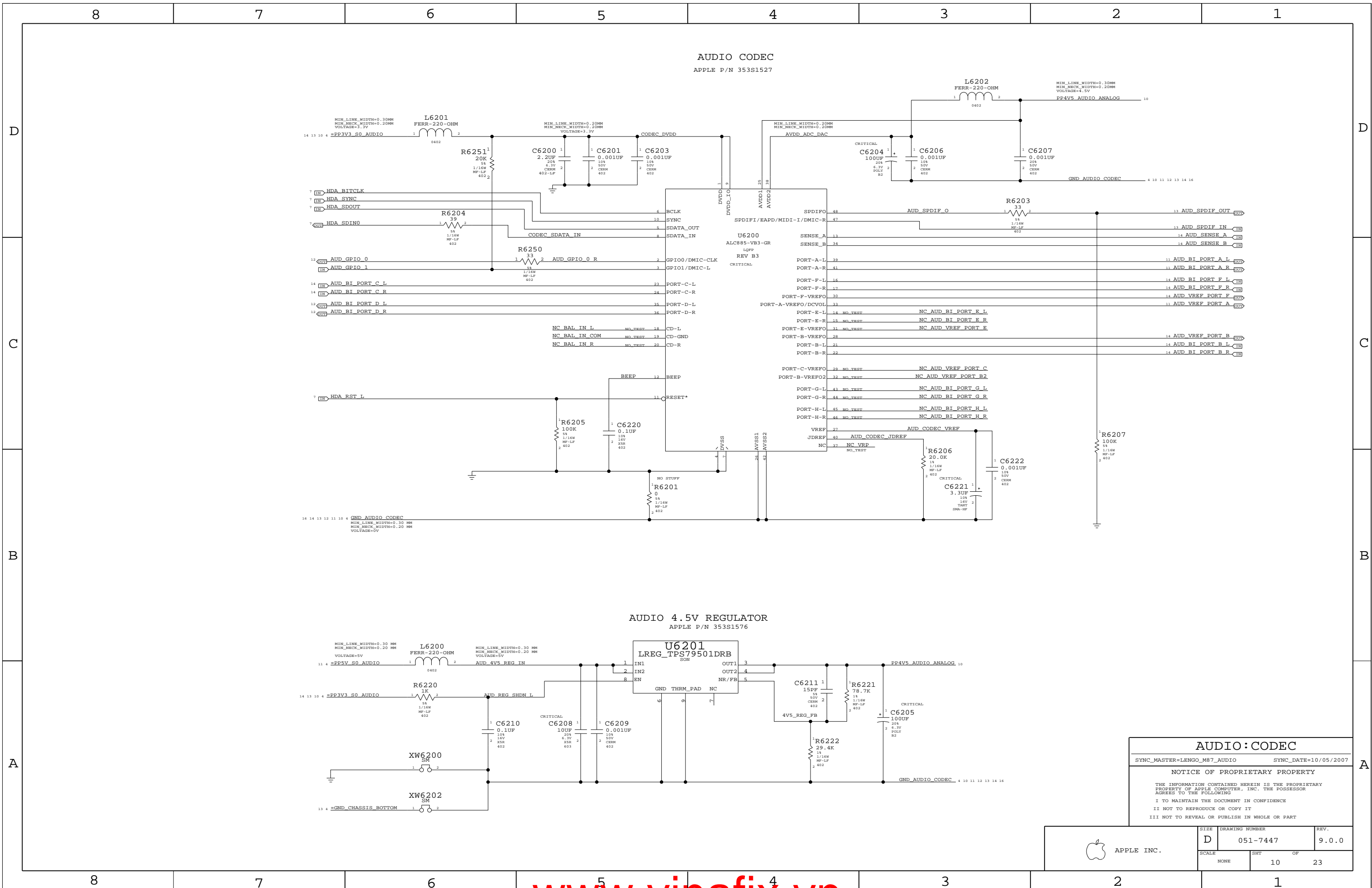


Battery Charger Thermal Sensor



Current & Thermal Sensors
SYNC_MASTER=(Master) SYNC_DATE=(Master)
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	D	051-7447	9.0.0
SCALE	SHT OF		
NONE	9 OF		23



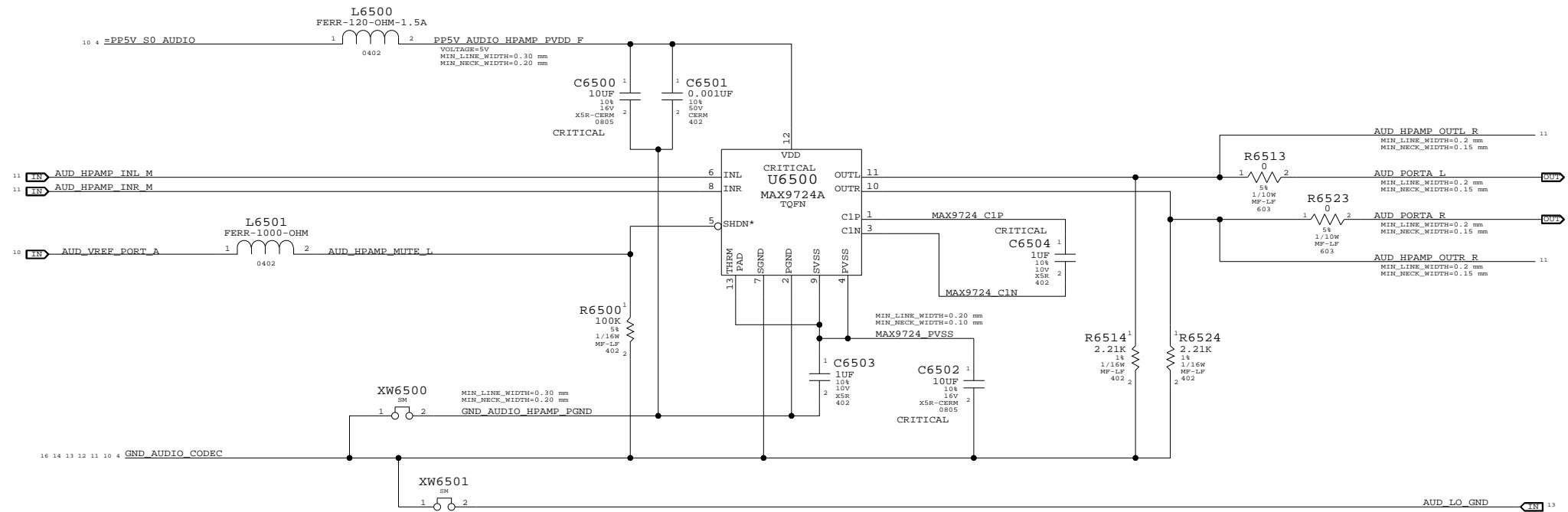
AUDIO CODEC
APPLE P/N 353S1527

AUDIO 4.5V REGULATOR
APPLE P/N 353S1576

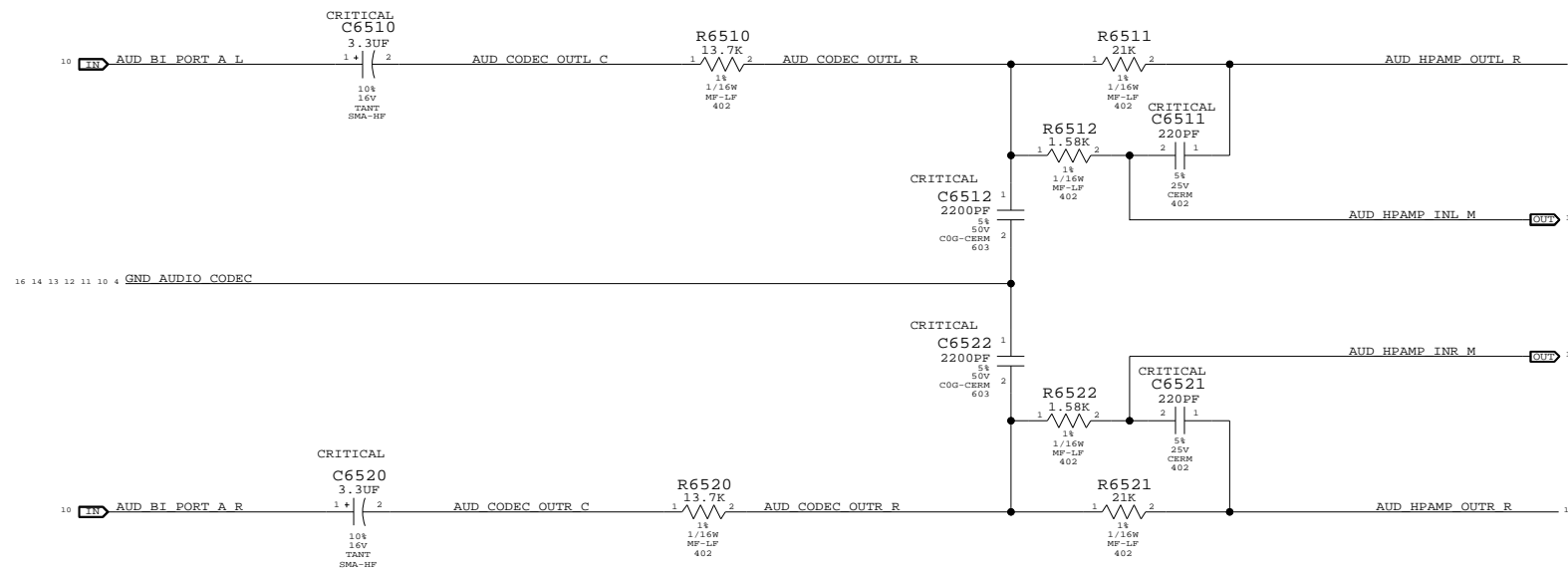
AUDIO: CODEC
 SYNC_MASTER=LENGO_M87_AUDIO SYNC_DATE=10/05/2007
NOTICE OF PROPRIETARY PROPERTY
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APPLE INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7447	9.0.0
SCALE	SHT OF		
NONE	10		23

Headphone Amplifier (MAX9724A)
 APN: 353S1637
 VOLTAGE GAIN: 1.53



2nd Order DAC Filter
 HP: 3.52 HZ LP: 39 KHZ



AUDIO: HEADPHONE AMP
 SYNC_MASTER=LENGO_M87_AUDIO SYNC_DATE=10/05/2007
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APPLE INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7447	9.0.0
SCALE	SHT OF		
NONE	11		23

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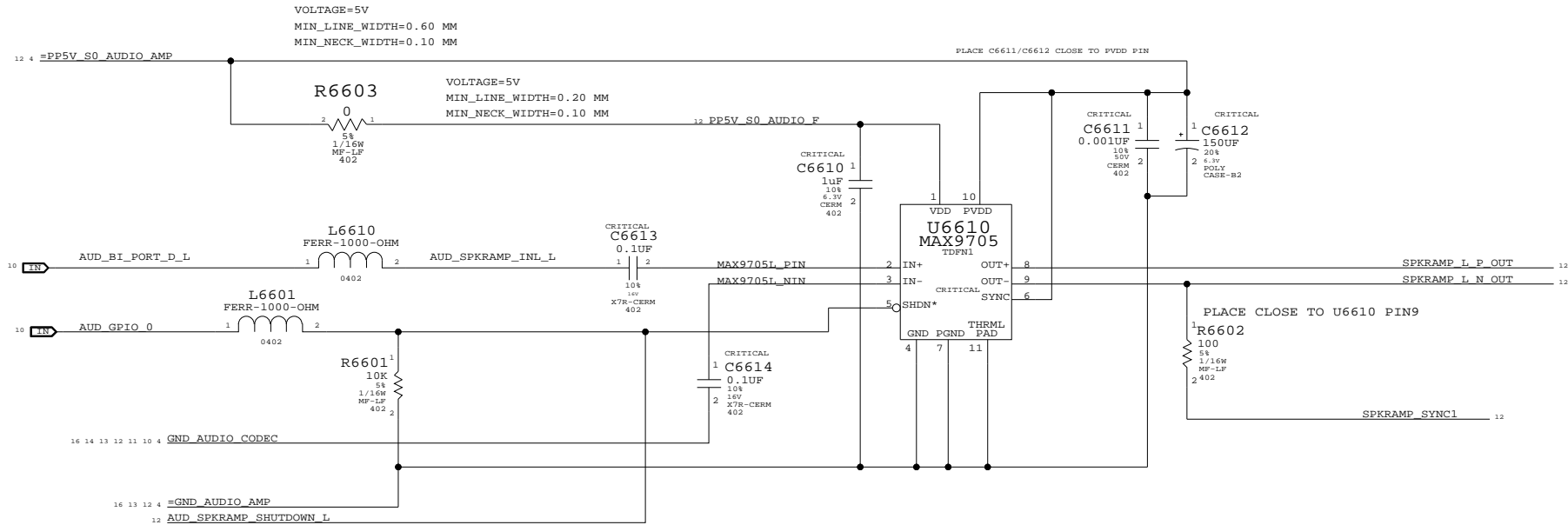
1

2X MONO SPEAKER AMPLIFIERS (MAX9705B)

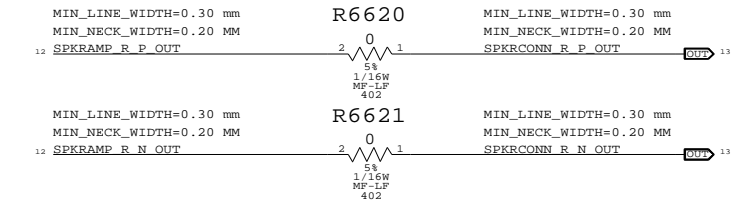
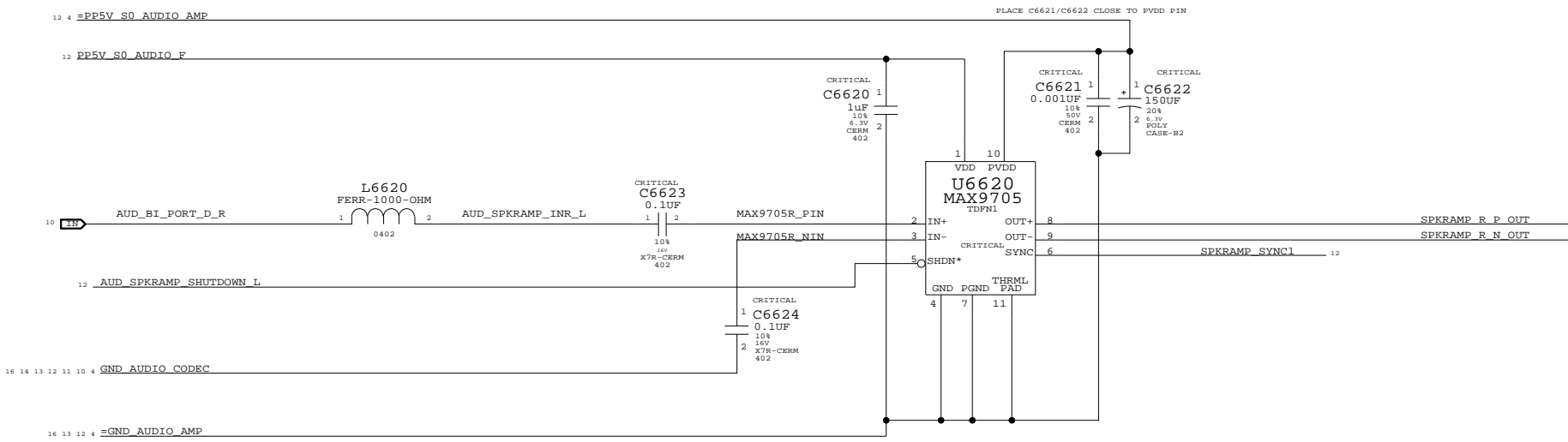
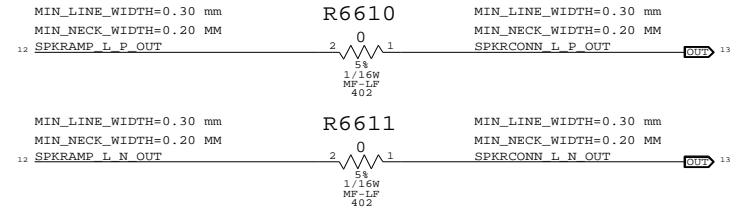
APN: 353S1595

GAIN = 12DB

79Hz < FC < 132Hz



FANCY SPEAKER TESTPOINTS



AUDIO: SPEAKER AMP

SYNC_MASTER=LENGO_M87_AUDIO SYNC_DATE=10/05/2007

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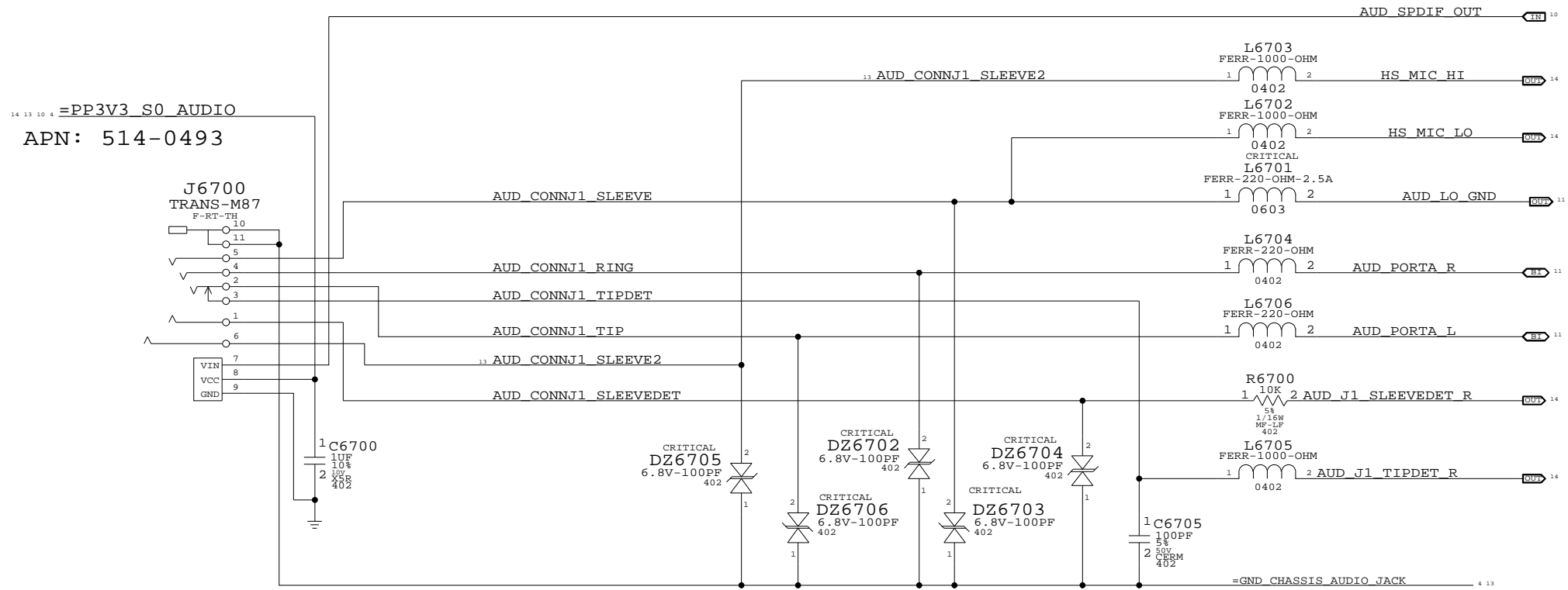
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II NOT TO REPRODUCE OR COPY IT

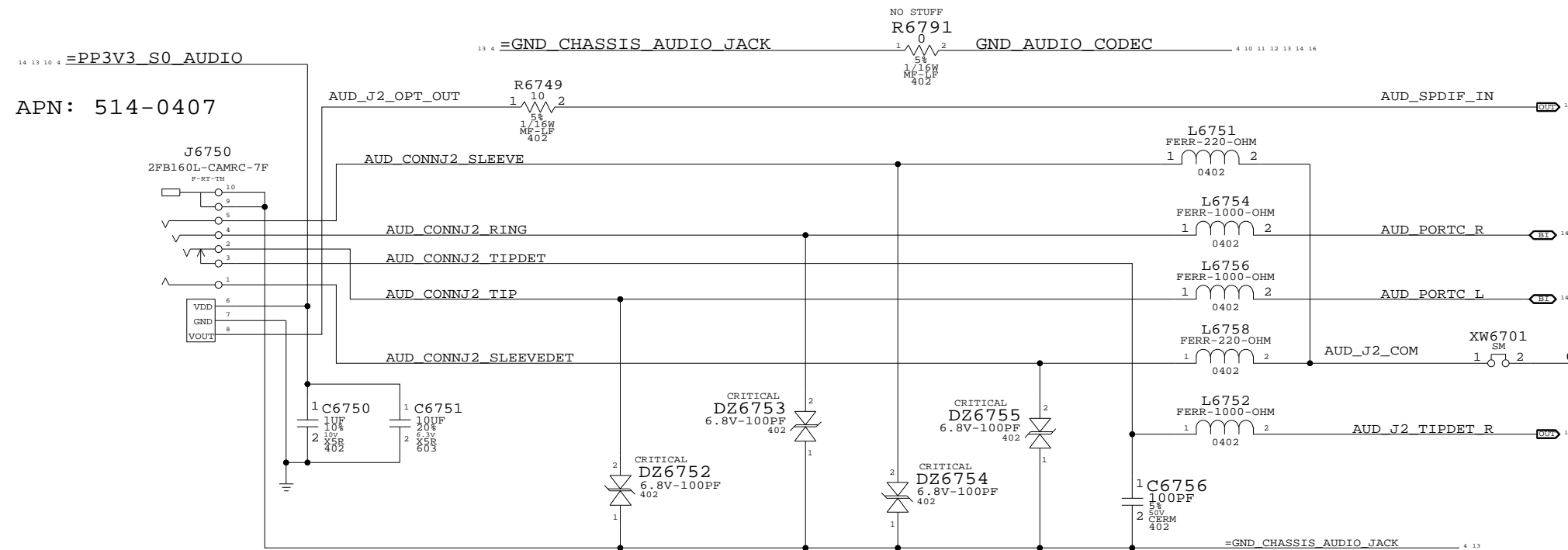
III NOT TO REVEAL OR PUBLISH IN WHOLE OR PART

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	D	051-7447	9.0.0
SCALE	SHT	OF	
NONE	12	23	

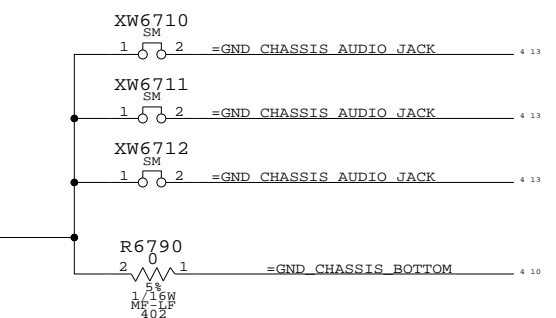
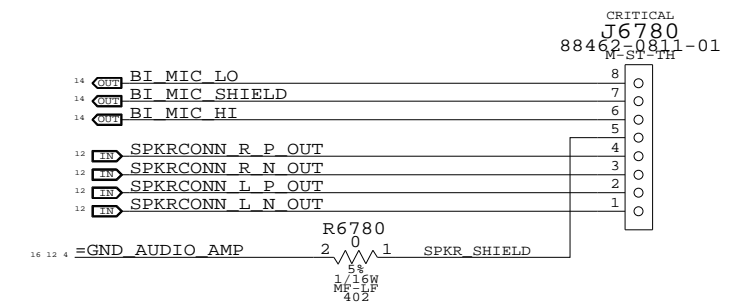
AUDIO JACK 1 LO/HP JACK, SPDIF TX



PLACE AT GROUND MOAT



AUDIO JACK 2 LINE IN JACK, SPDIF RX



AUDIO SHIELD (FILLED SHAPE)

AUDIO: JACKS

SYNC_MASTER=LENGO_M87_AUDIO SYNC_DATE=10/05/2007

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APPLE INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7447	9.0.0
SCALE	SHT OF		
NONE	13 OF		23

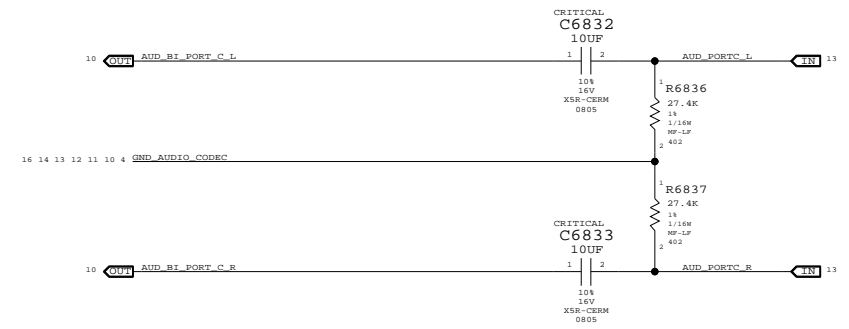
CODEC OUTPUT SIGNAL PATHS

FUNCTION	VOLUME	CONVERTER	PIN COMPLEX	MUTE CONTROL	DET ASSIGNMENT
HP/LINE OUT	0X0D (15)	0X03 (3)	0X15 (21,A)	VREF_A	0X15 (21,A)
SPEAKER	0X26 (38)	0X25 (37)	0X14 (20,D)	GPIO_0	N/A
SPDIF OUT	N/A	0X06 (6)	0X1E (SPDIF OUT)	N/A	0X1B (27,E)

CODEC INPUT SIGNAL PATHS

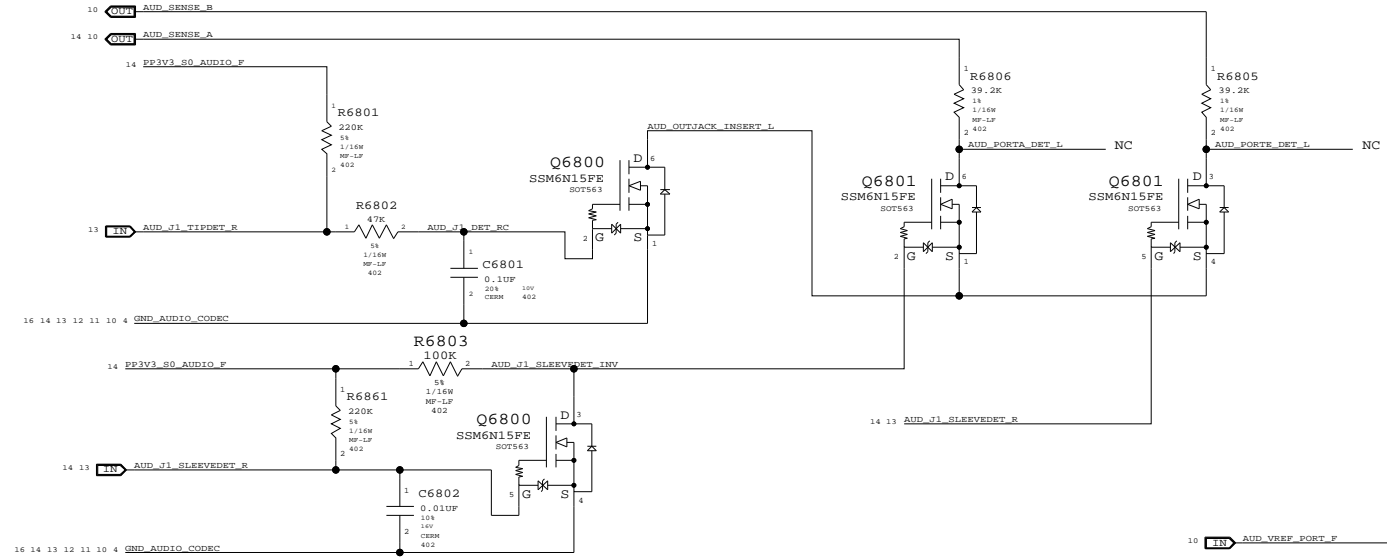
FUNCTION	MIXER (INPUT)	CONVERTER	PIN COMPLEX	VREF	DET ASSIGNMENT
LINE IN	0X23 (35)	0X08 (8)	0X1A (26,C)	N/A	0X1A (26,C)
SPDIF IN	N/A	0X0A (10)	0X1F (SPDIF IN)	N/A	N/A
MIC (BUILT IN)	0X24 (36)	0X07 (7)	0X18 (24,B)	B (80%)	N/A
MIC (HEADSET)	0X24 (36)	0X07 (7)	0X19 (25,F)	F (80%)	SOUTHBRIDGE

PORT C LI

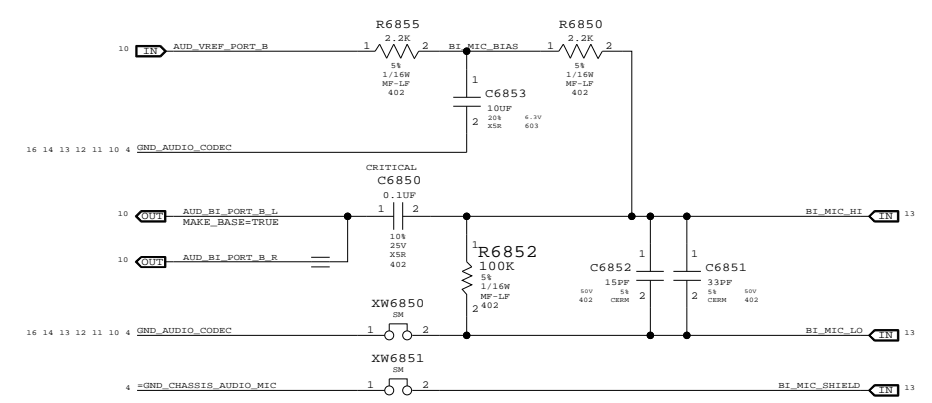


PORT A DETECT

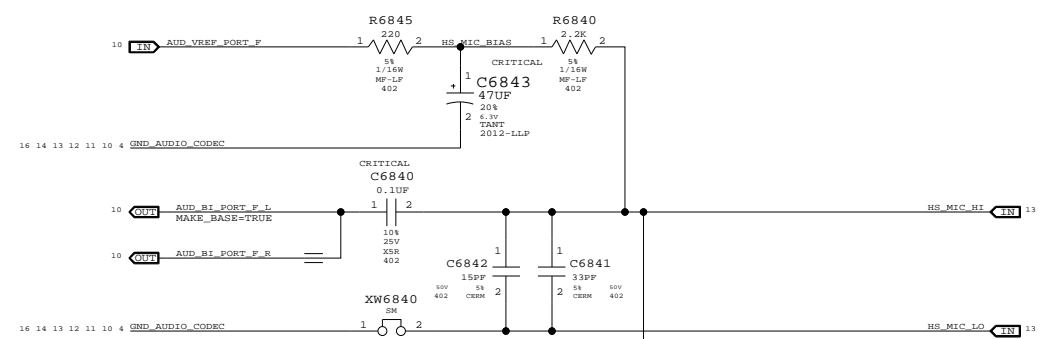
PORT E DETECT (SPDIF DELEGATE)



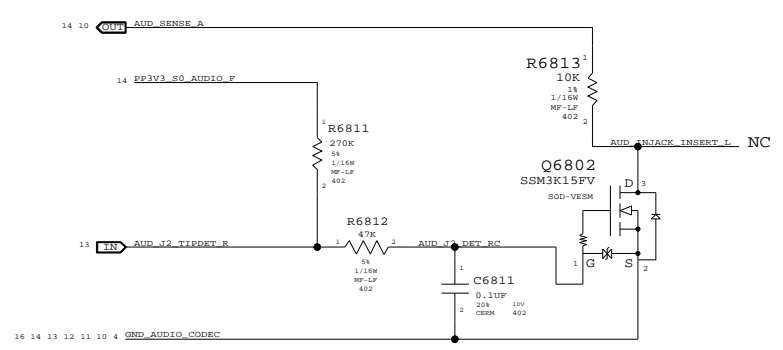
PORT B (BUILT-IN MIC)



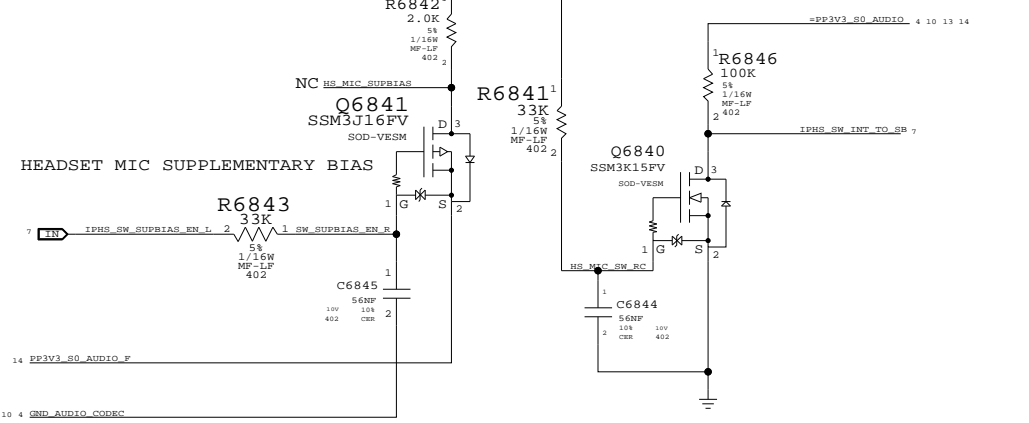
PORT F (HEADSET MIC)



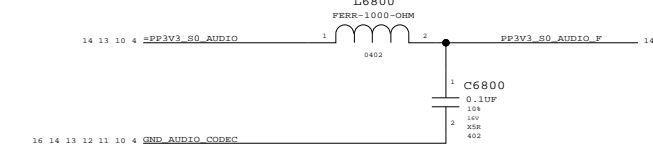
Line-in (PORT C) DETECT



HEADSET SW INTERRUPT TO SOUTHBRIDGE



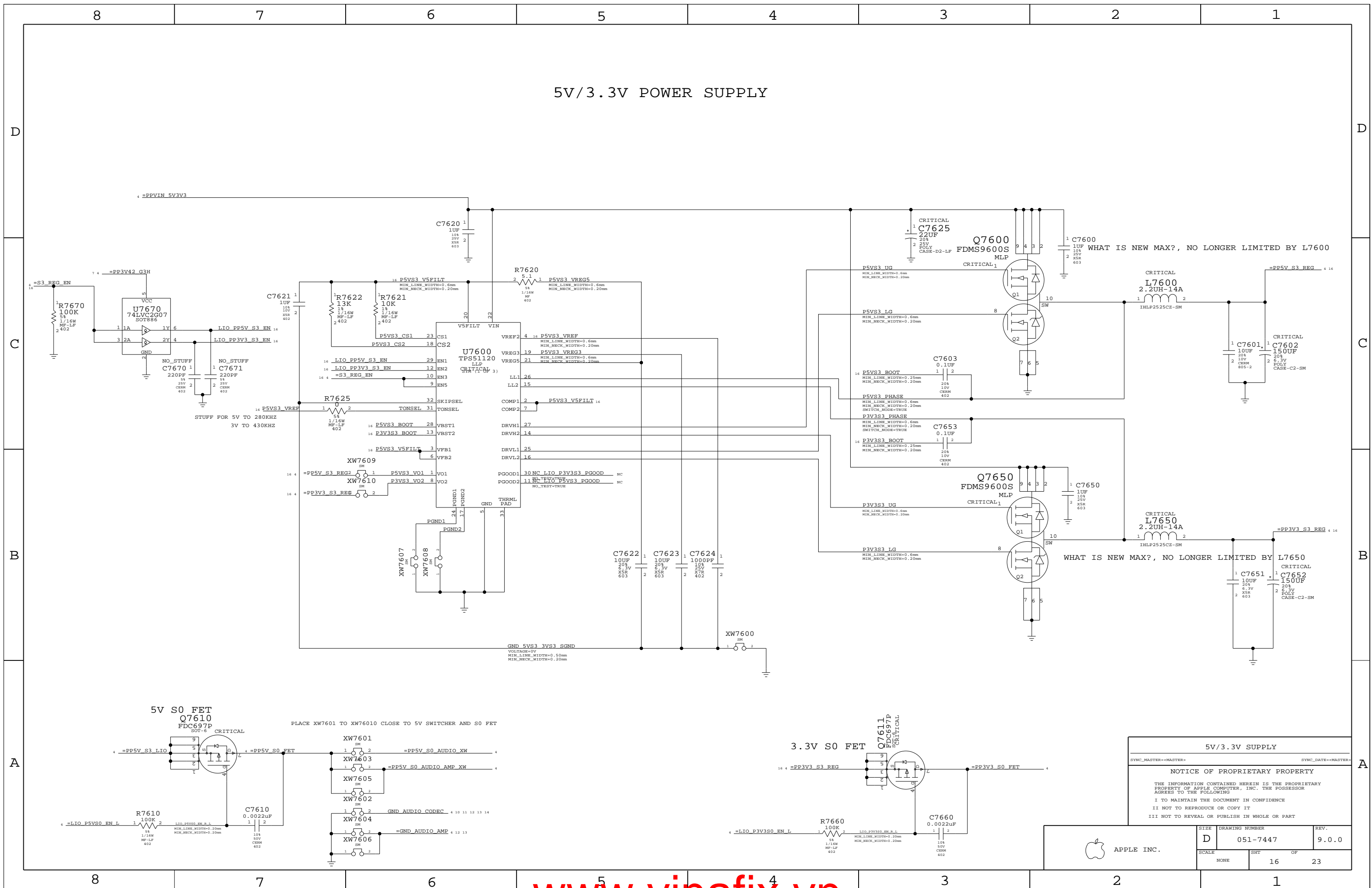
PLACE L6800/C6800 CLOSE TO Q6800/01/02



AUDIO: JACK TRANSLATORS
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APPLE INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7447	9.0.0
SCALE	NONE	SHT	OF
		14	23

5V/3.3V POWER SUPPLY



5V/3.3V SUPPLY

SYNC_MASTER=<MASTER> SYNC_DATE=<MASTER>

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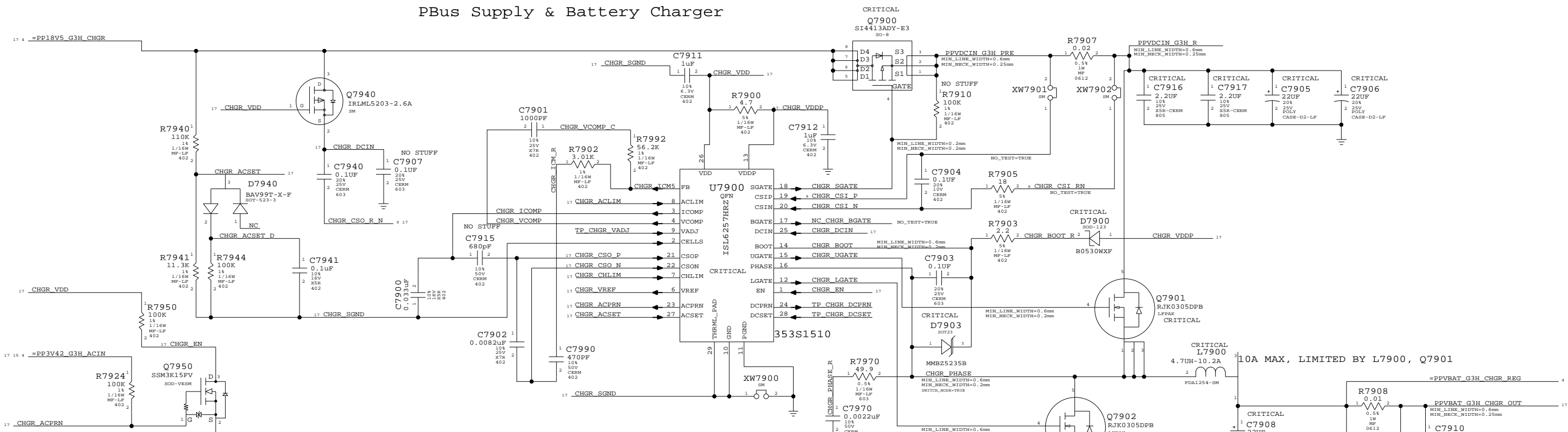
I TO MAINTAIN THE DOCUMENT IN CONFIDENCE

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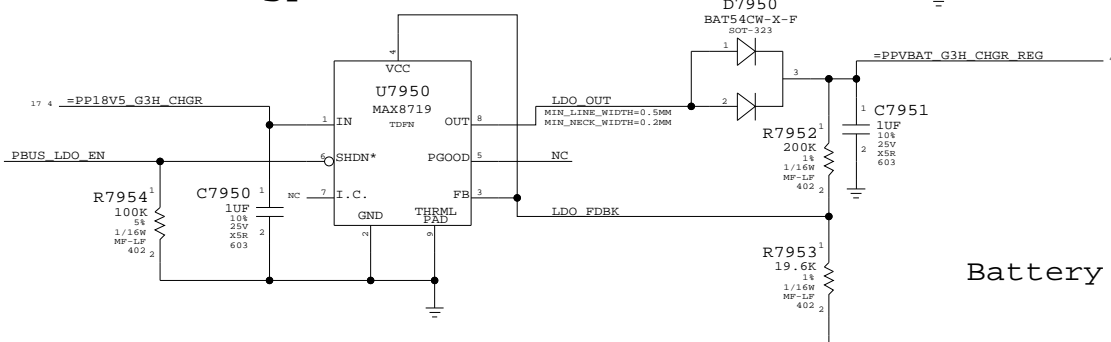
III NOT TO REVEAL OR PUBLISH IN WHOLE OR PART

APPLE INC.	SIZE D	DRAWING NUMBER 051-7447	REV. 9.0.0
	SCALE NONE	SHEET OF 16 OF 23	

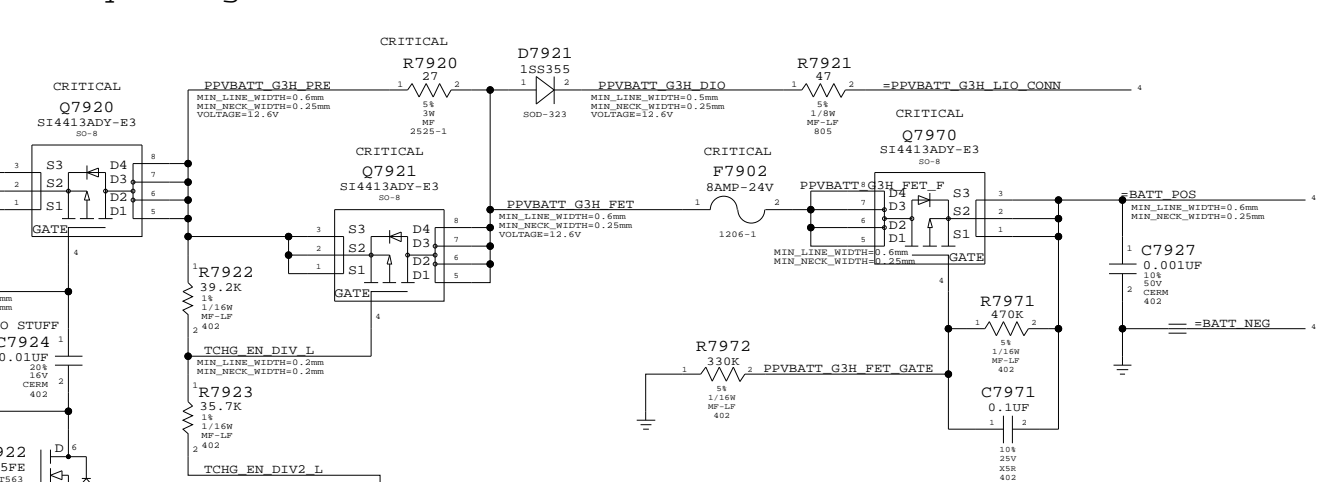
PBus Supply & Battery Charger



Energy Star LDO



Battery Charge FETs



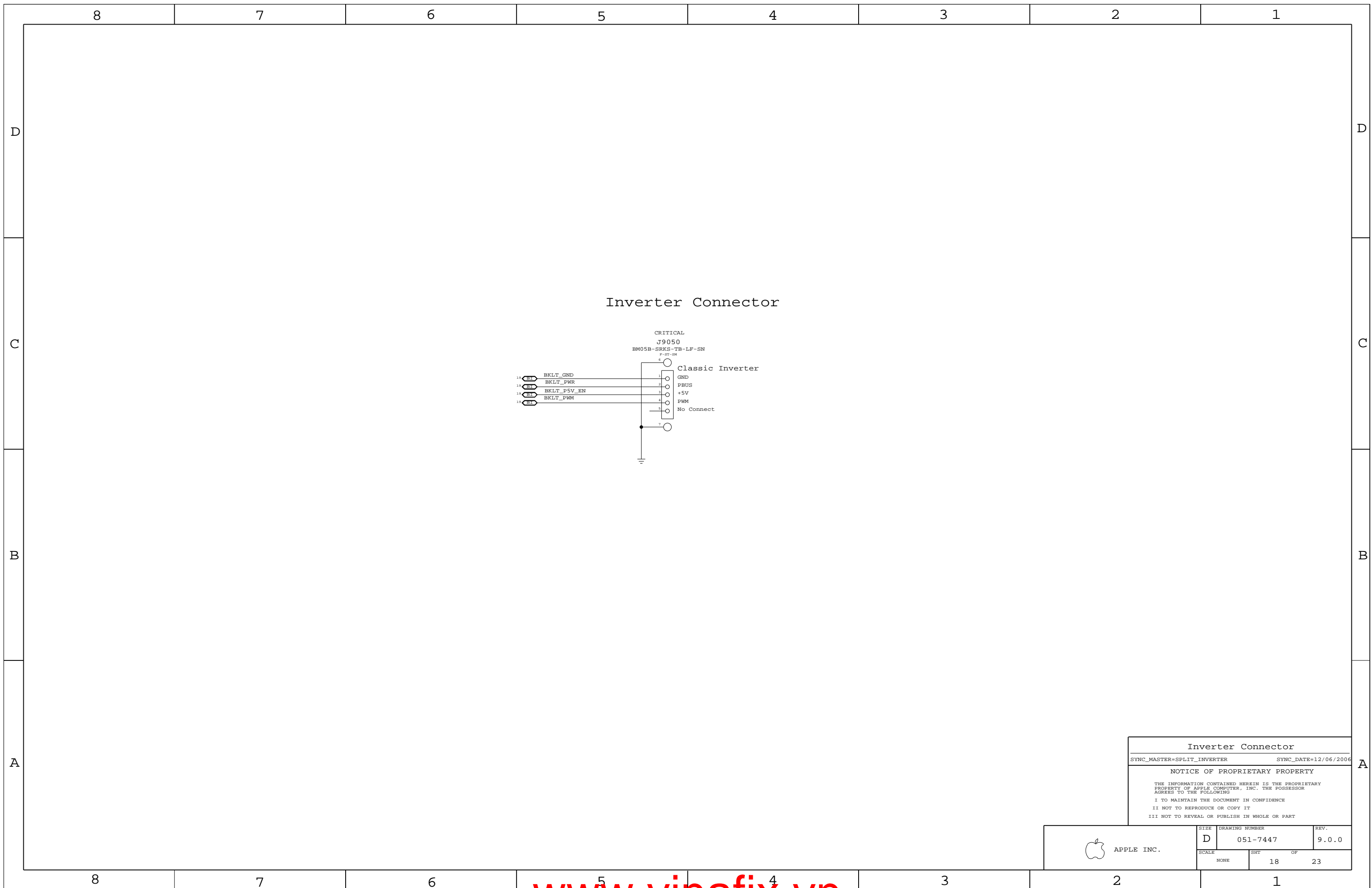
VOLTAGE FOLLOWER GUARANTEES CURRENT LIMIT CIRCUITS ARE PROVIDED WITH SUFFICIENT CURRENT WITHOUT SINKING CURRENT FROM VREF.

Adapter Input Current Limit As shown, I_{ch} = -4.6A max

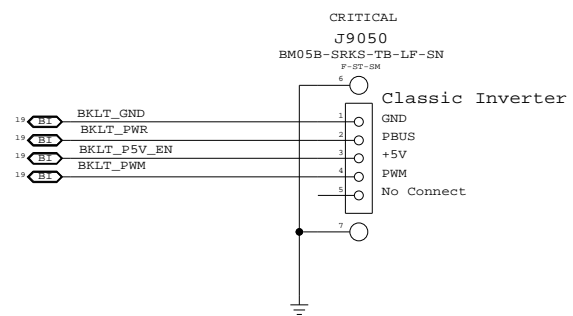
Battery Charge Current Limit As shown, I_{chg} = 3.9A max

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SIZE	D	DRAWING NUMBER	051-7447	REV.	9.0.0
SCALE	NONE	SHEET	17	OF	23



Inverter Connector



Inverter Connector

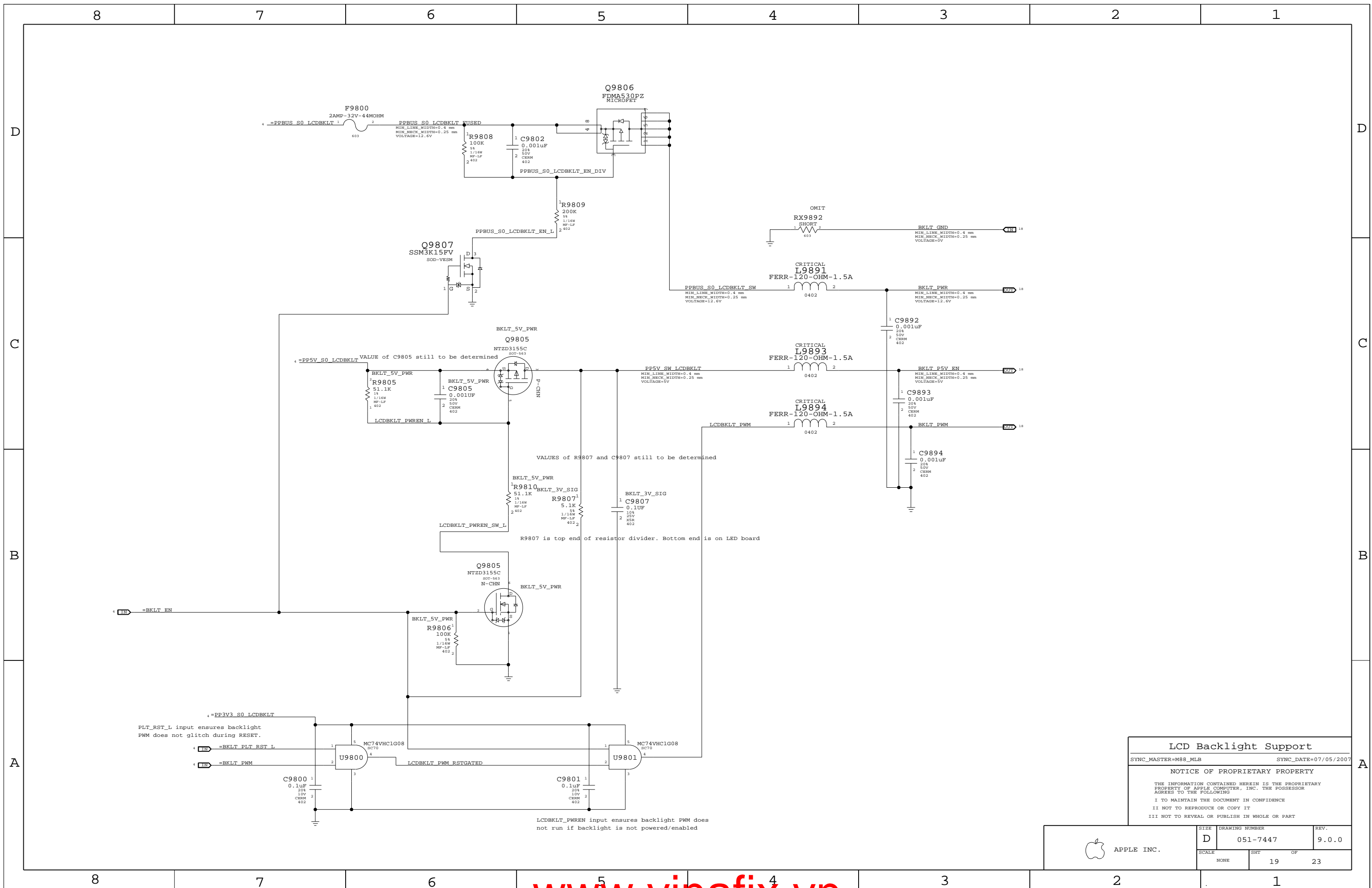
SYNC_MASTER=SPLIT_INVERTER SYNC_DATE=12/06/2006

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APPLE INC.	SIZE D	DRAWING NUMBER 051-7447	REV. 9.0.0
	SCALE NONE	SHT 18	OF 23



LCD Backlight Support

SYNC_MASTER=M88_MLB SYNC_DATE=07/05/2007

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