

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	ENG APPD
				DATE	DATE
A		554180	PRODUCTION RELEASED	12/18/07?	

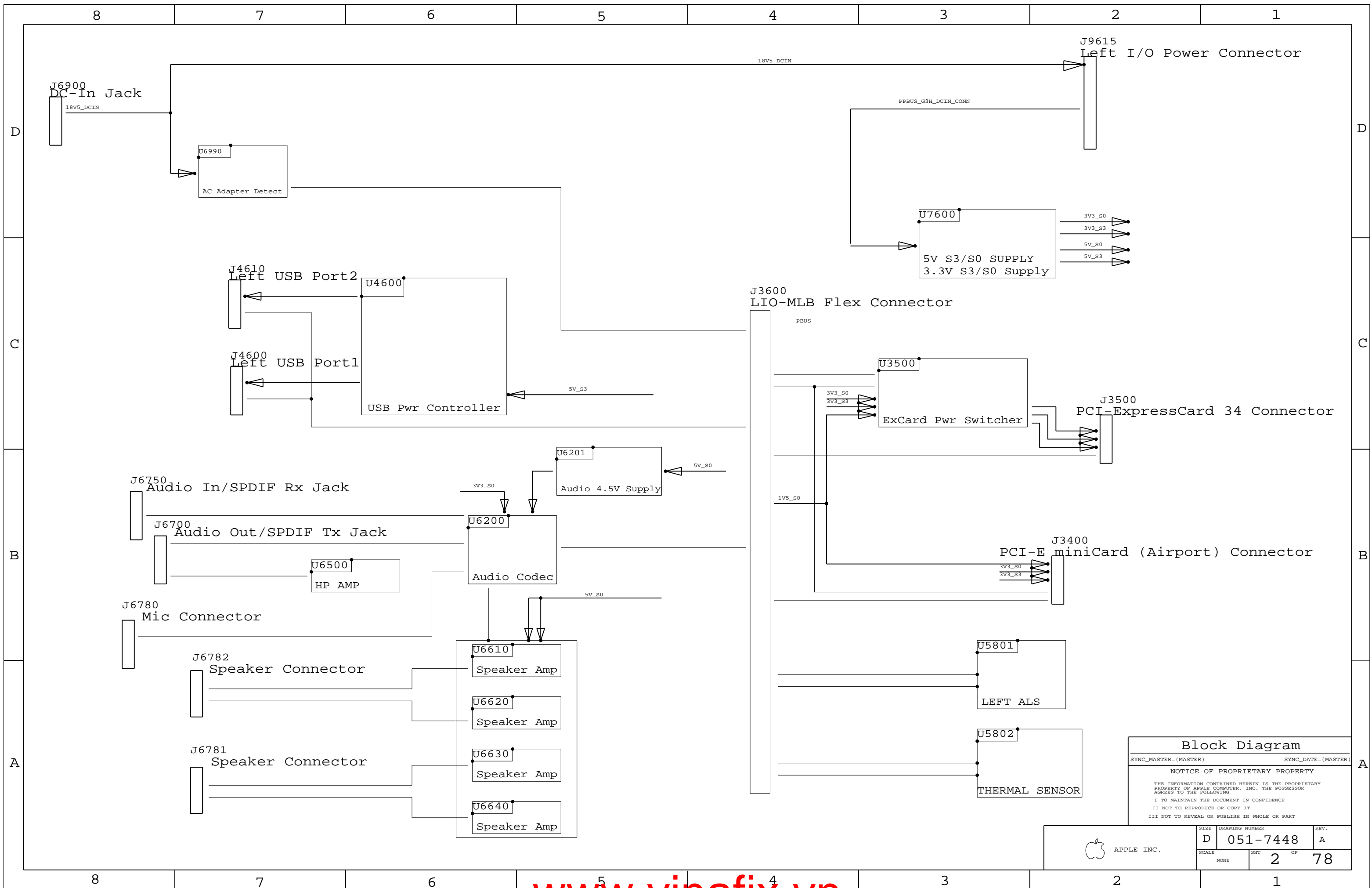
SCHEM, Left IO Board, M88, MBP17

PVT: 12/14/07

PDF PAGE	CSA PAGE	CONTENTS	SYNC MASTER	DATE
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PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
051-7448	1	SCHEM, LEFT IO Board, M88, MBP17	SCH	CRITICAL	
820-2274	1	PCBF, LEFT IO Board, M88, MBP17	PCB	CRITICAL	

DIMENSIONS ARE IN MILLIMETERS		METRIC		APPLE INC.	
XX : _____	_____	DRAPTER	DESIGN CK	NOTICE OF PROPRIETARY PROPERTY THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE COMPUTER, INC. THE POSSESSOR AGREES TO THE FOLLOWING: I TO MAINTAIN THE DOCUMENT IN CONFIDENCE II NOT TO REPRODUCE OR COPY IT III NOT TO REVEAL OR PUBLISH IN WHOLE OR PART	
X.XX : _____	_____	ENG APPD	MFG APPD		
X.XXX : _____	_____	QA APPD	DESIGNER		
ANGLES : _____	_____	RELEASE	SCALE		
DO NOT SCALE DRAWING		SCALE NONE		TITLE	
 THIRD ANGLE PROJECTION		MATERIAL/FINISH NOTED AS APPLICABLE		SIZE D	DRAWING NUMBER 051-7448 REV. A
				SHT 1 OF 78	




Block Diagram

SYNC_MASTER=(MASTER) SYNC_DATE=(MASTER)

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 APPLE INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7448	A
SCALE	SHT	OF	REV.
NONE	2	78	

8

7

6

5

4

3

2

1

BOM NUMBER	BOM NAME	BOM OPTIONS
630-9095	PCBA, KILKENNY, M88	COMMON, ALTERNATE, ALS_NTC, COMBOJACK

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
353S1297	353S1717		U6990	TI Alt Src
152S0683	152S0276		L7600, L7650	MAGLAYER Alt Src

BAR CODE LABEL / EEE#'S

PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
000-0041	1	LBL, P/N LABEL, PCB	[EEE:Z3N]	CRITICAL	

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
815-8851	1	ALS SPACER, M9	SP6401	CRITICAL	

D

D

C

C


B

B

A

A

BOM CONFIGURATION		
SYNC_MASTER=(MASTER)	SYNC_DATE=(MASTER)	
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	D	051-7448	A
SCALE	SHT	OF	
NONE	4	78	

8

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1

Version History

Proto

07/17/07 -- Left ALS: Changed TMP106 to TMP102 (TALP sensor)
 07/17/07 -- Left ALS: Added R5808 as NTC thermistor (with ALS_NTC BOMOPTION)
 07/17/07 -- DC-In: Moved J9615 to DC-In/PBUS page (deleted page 96)

D

D

C

C


B

B

A

A

Version History	
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 APPLE INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7448	A
SCALE	SHT	OF	
NONE	5	78	

8

7

6

5

4

3

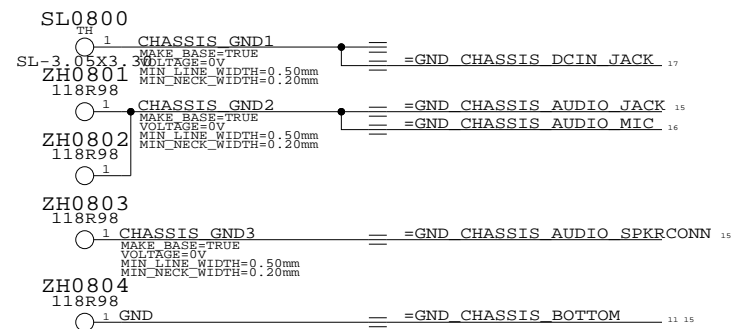
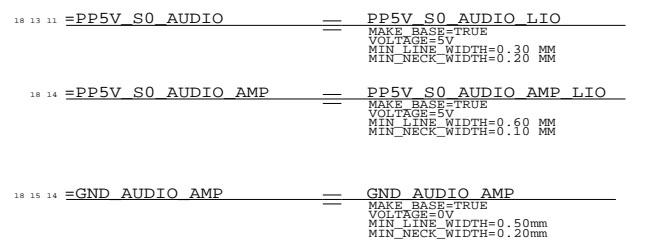
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1

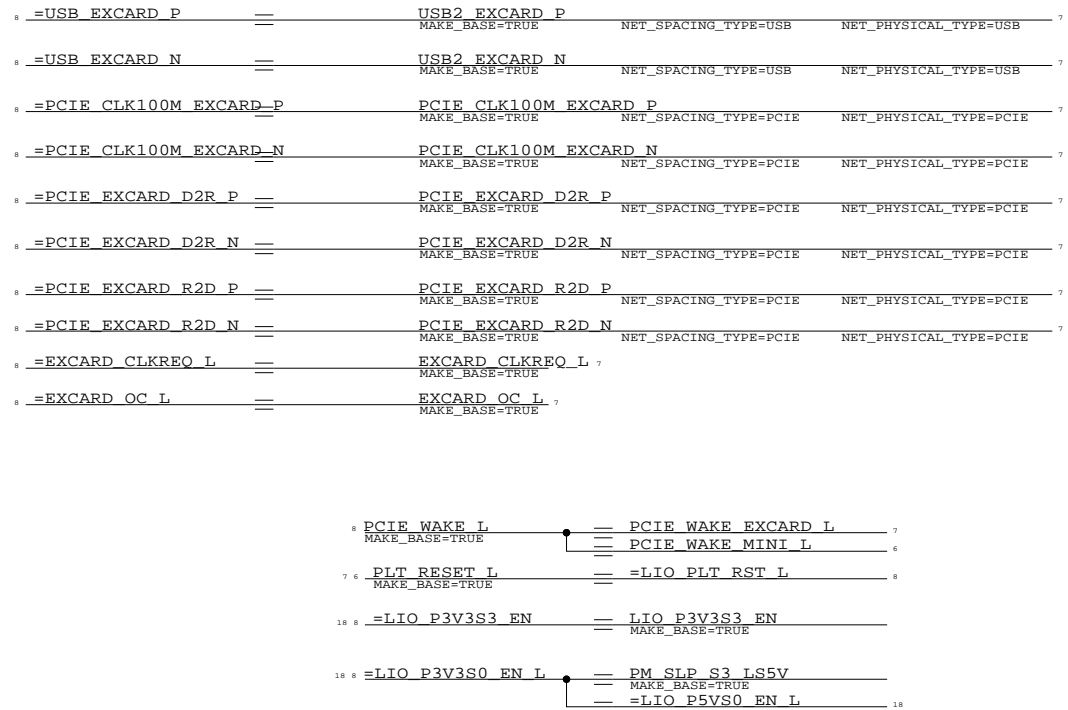
POWER & GROUNDS



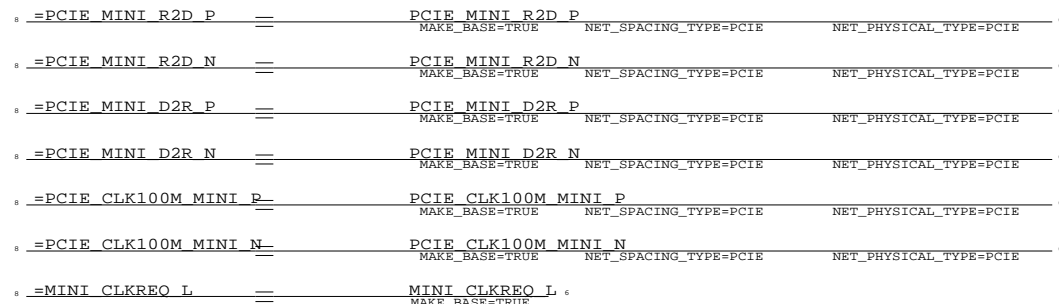
AUDIO POWER & GROUNDS



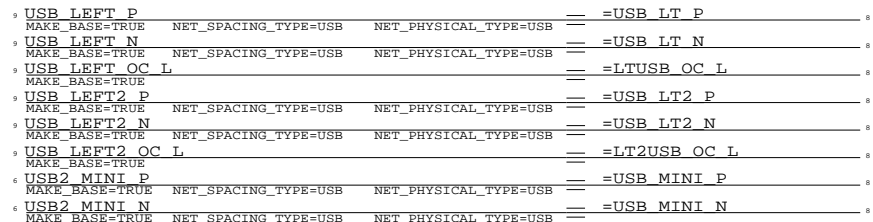
PCI-E EXPRESS CARD 34



PCI-E MINICARD



USB



SMBUS



Aliases

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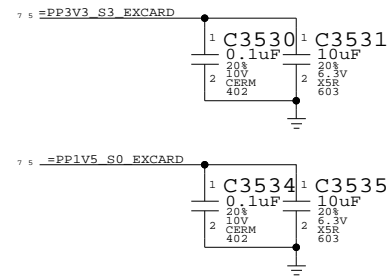
III NOT TO REVEAL OR PUBLISH IN WHOLE OR PART

APPLE INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7448	A
SCALE	SHT	OF	
NONE	8	78	

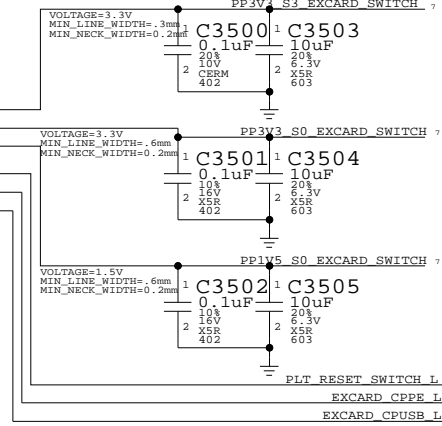
EXPRESSCARD/34 TOP MOUNT CONNECTOR

CARD CAGE CONNECTOR
CRITICAL
J3500
237-5300703903-2
P-RF-SM

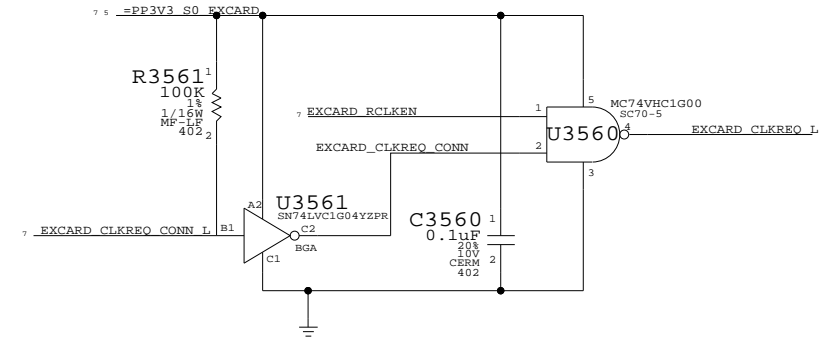
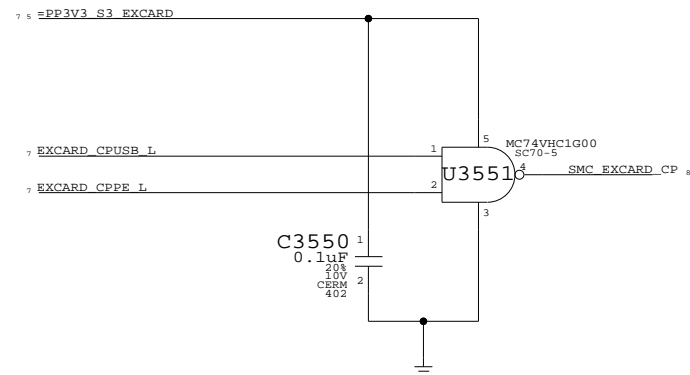
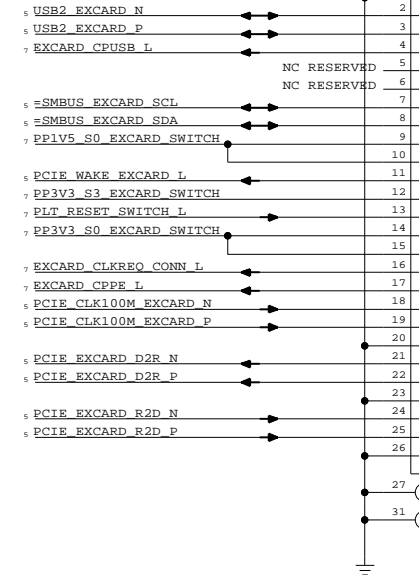
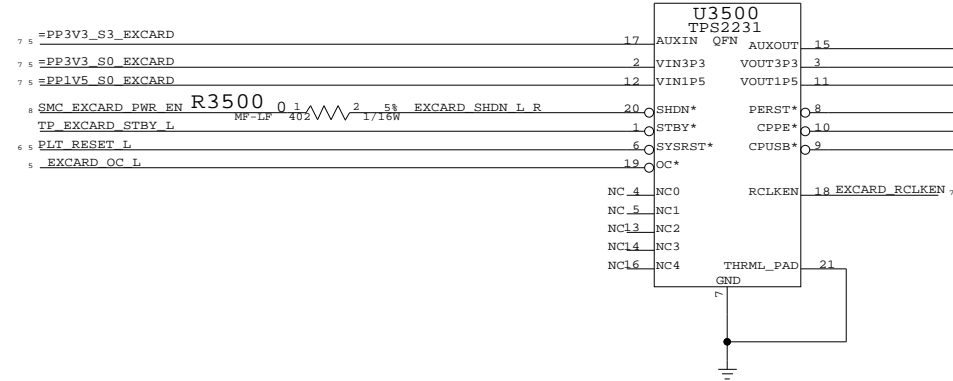
INPUT DECOUPLING



OUTPUT DECOUPLING



CRITICAL



ExpressCard Connector

SYNC_MASTER=M75_LIO SYNC_DATE=04/10/2007

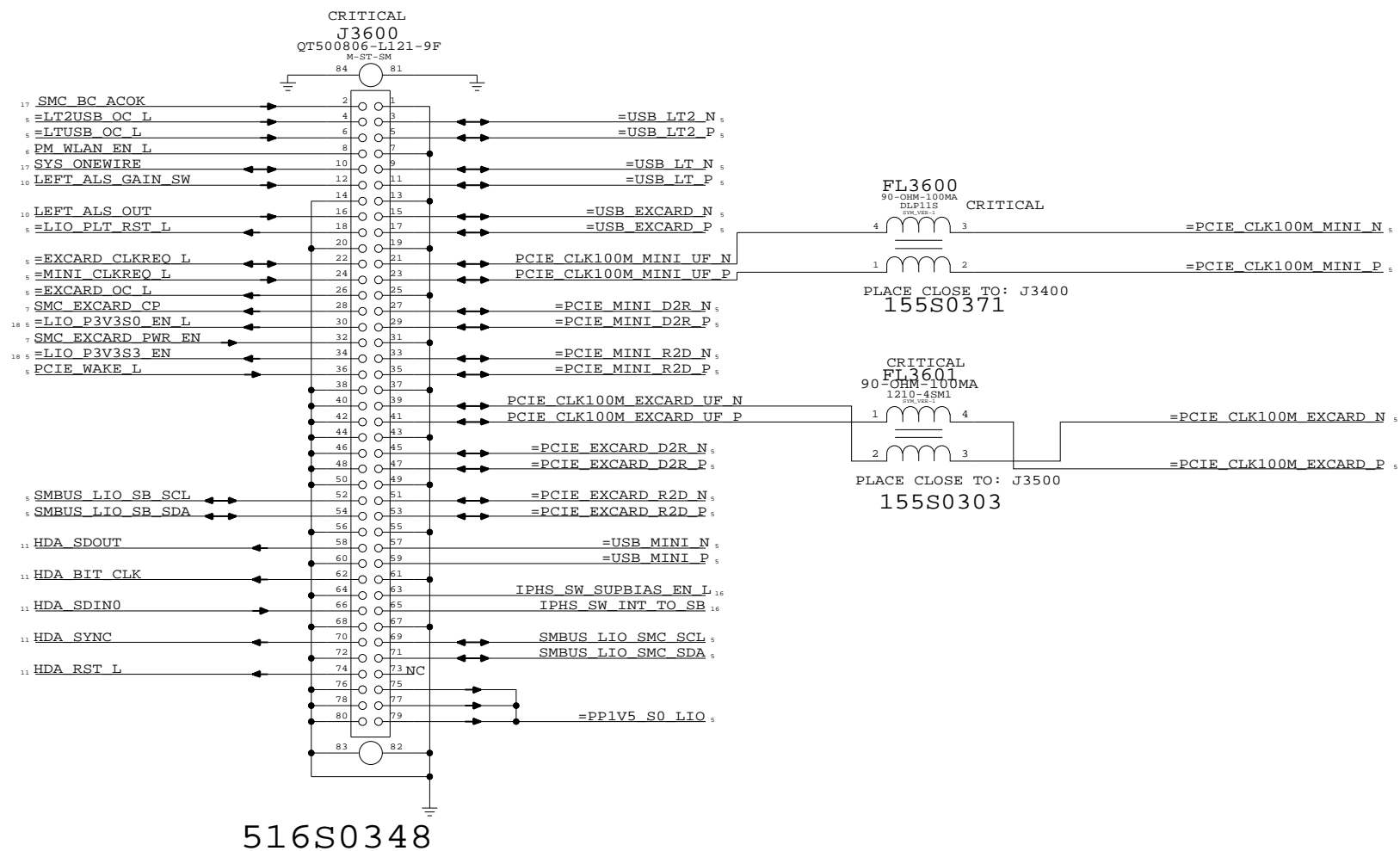
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SIZE	DRAWING NUMBER	REV.
D	051-7448	A
SCALE	SHT	OF
NONE	35	78

Left I/O Board Connector



MLB I/O Board Connector

SYNC_MASTER=(MASTER) SYNC_DATE=(MASTER)

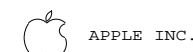
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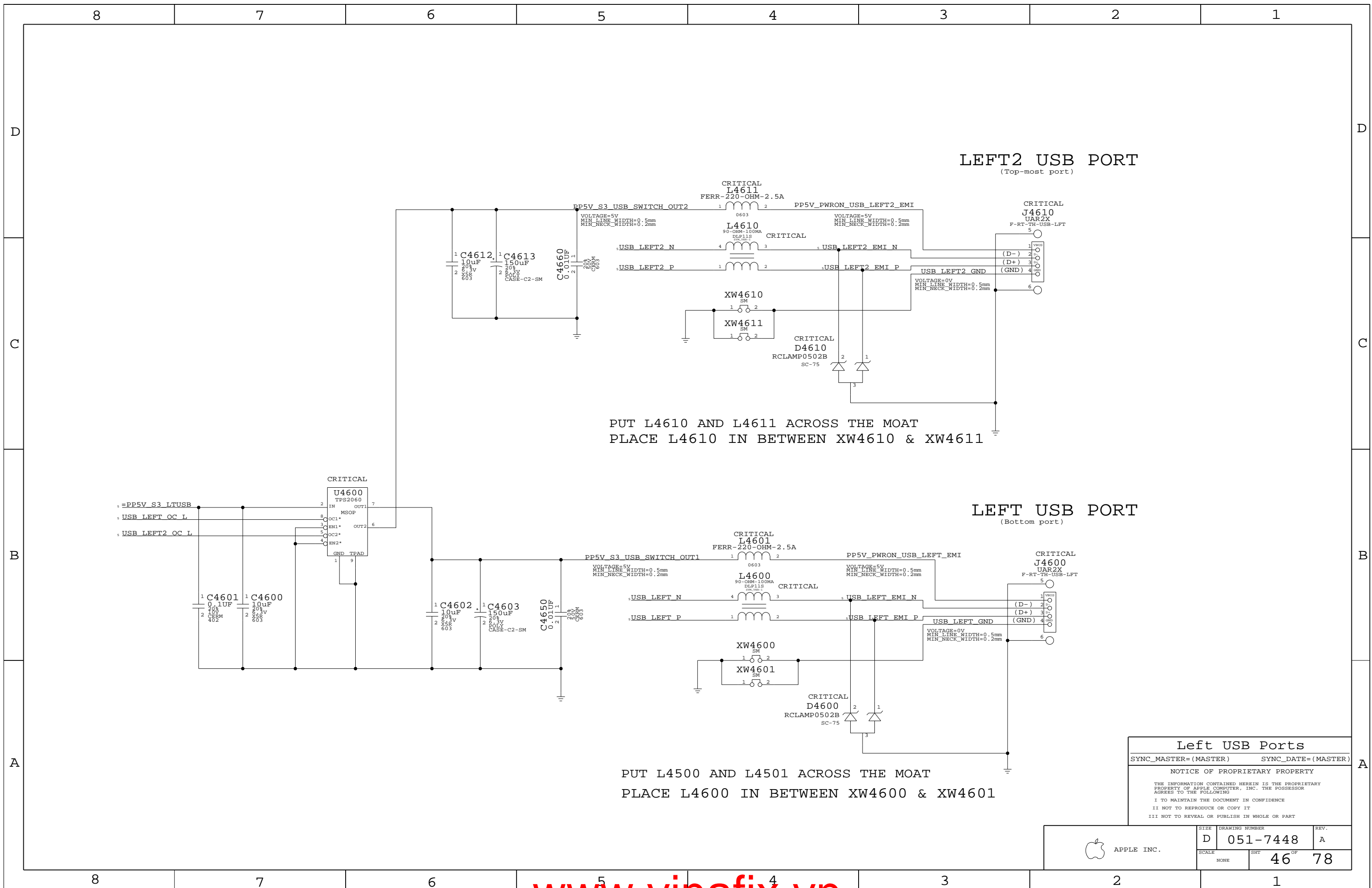
III NOT TO REVEAL OR PUBLISH IN WHOLE OR PART



SIZE DRAWING NUMBER REV.

D 051-7448 A

SCALE NONE SHIT 36 OF 78



LEFT2 USB PORT
(Top-most port)

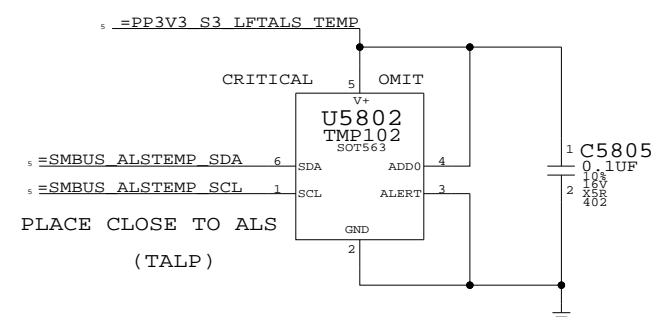
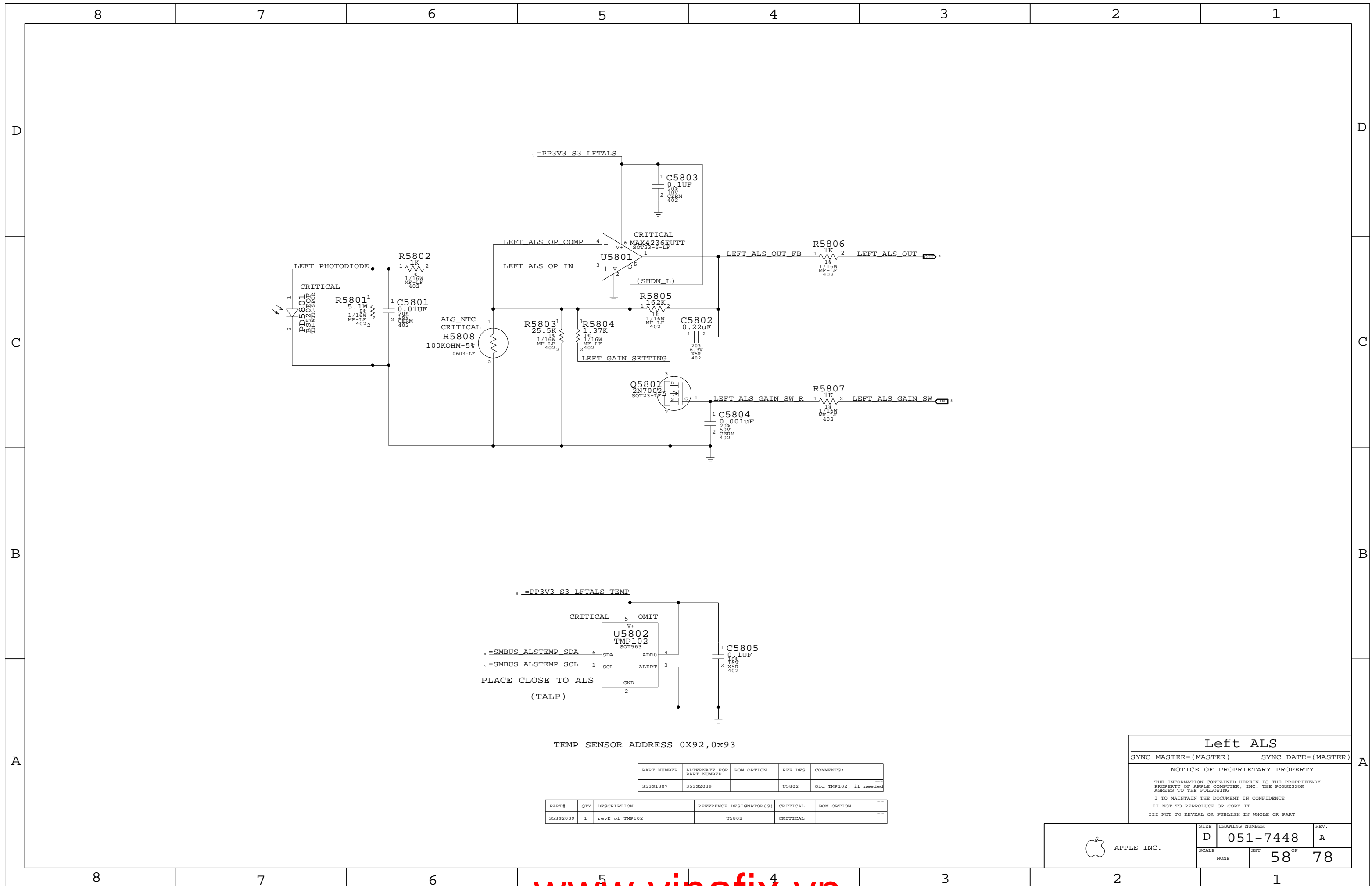
PUT L4610 AND L4611 ACROSS THE MOAT
PLACE L4610 IN BETWEEN XW4610 & XW4611

LEFT USB PORT
(Bottom port)

PUT L4500 AND L4501 ACROSS THE MOAT
PLACE L4600 IN BETWEEN XW4600 & XW4601

Left USB Ports		
SYNC_MASTER=(MASTER)		SYNC_DATE=(MASTER)
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	D	051-7448	A
SCALE	SHT		OF
NONE	46		78



TEMP SENSOR ADDRESS 0x92,0x93

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
353S1807	353S2039		U5802	Old TMP102, if needed

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
353S2039	1	revE of TMP102	U5802	CRITICAL	

Left ALS

SYNC_MASTER=(MASTER) SYNC_DATE=(MASTER)

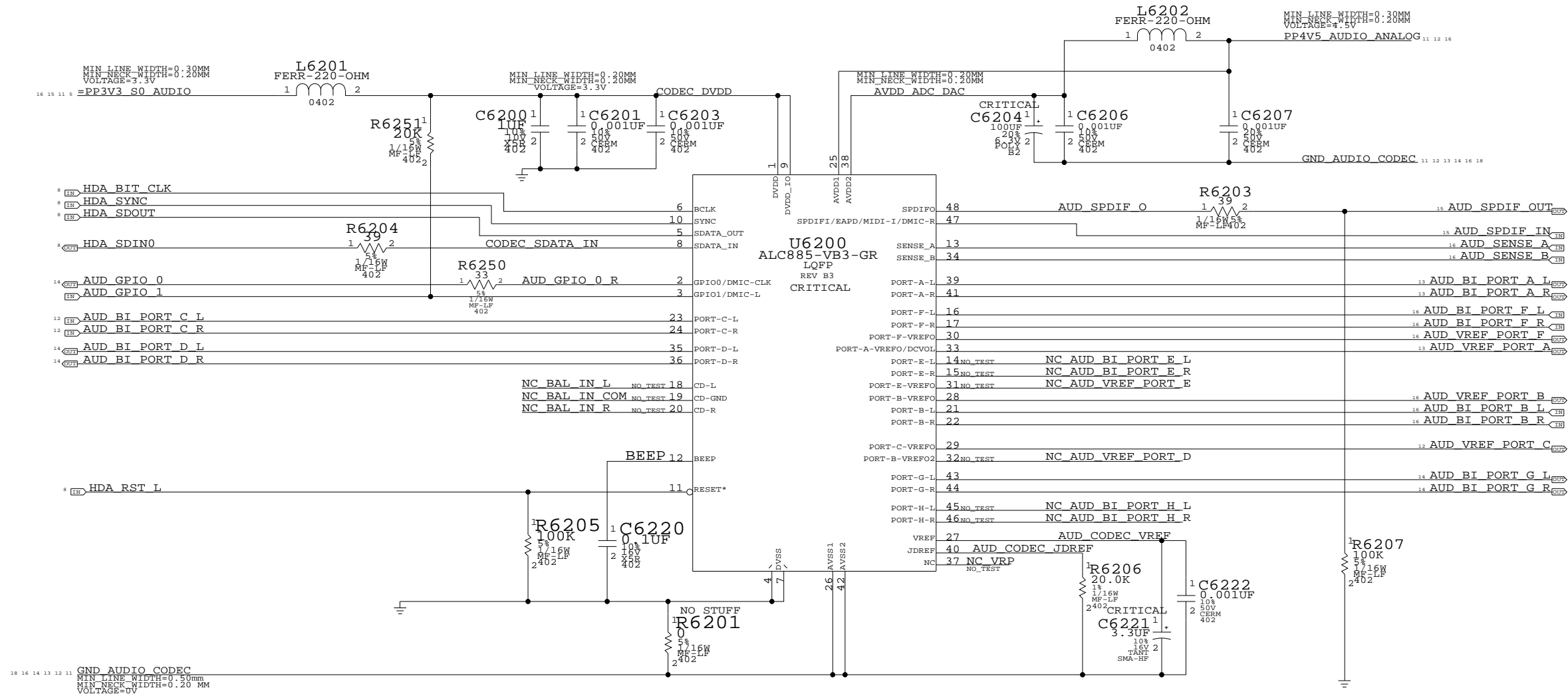
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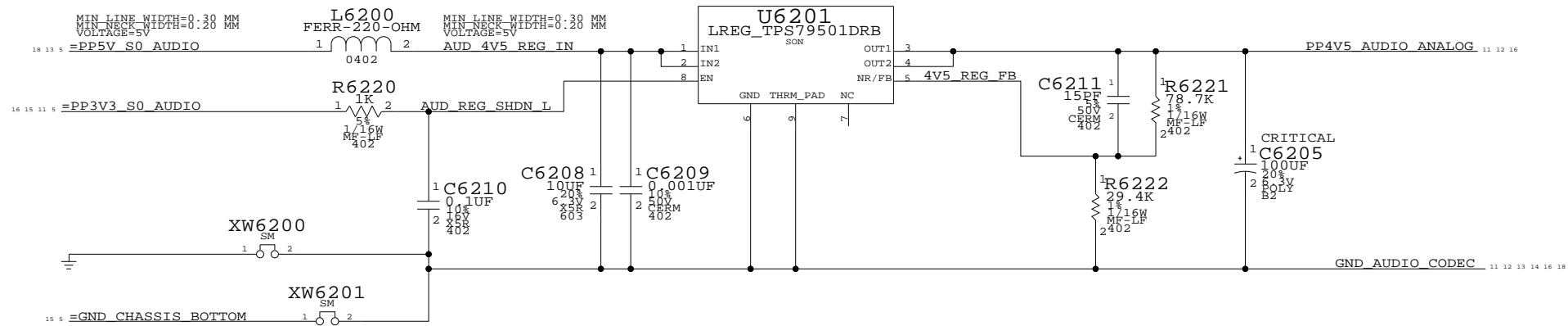
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APPLE INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7448	A
SCALE	SHT	OF	
NONE	58	78	

AUDIO CODEC
APPLE P/N 353S1527



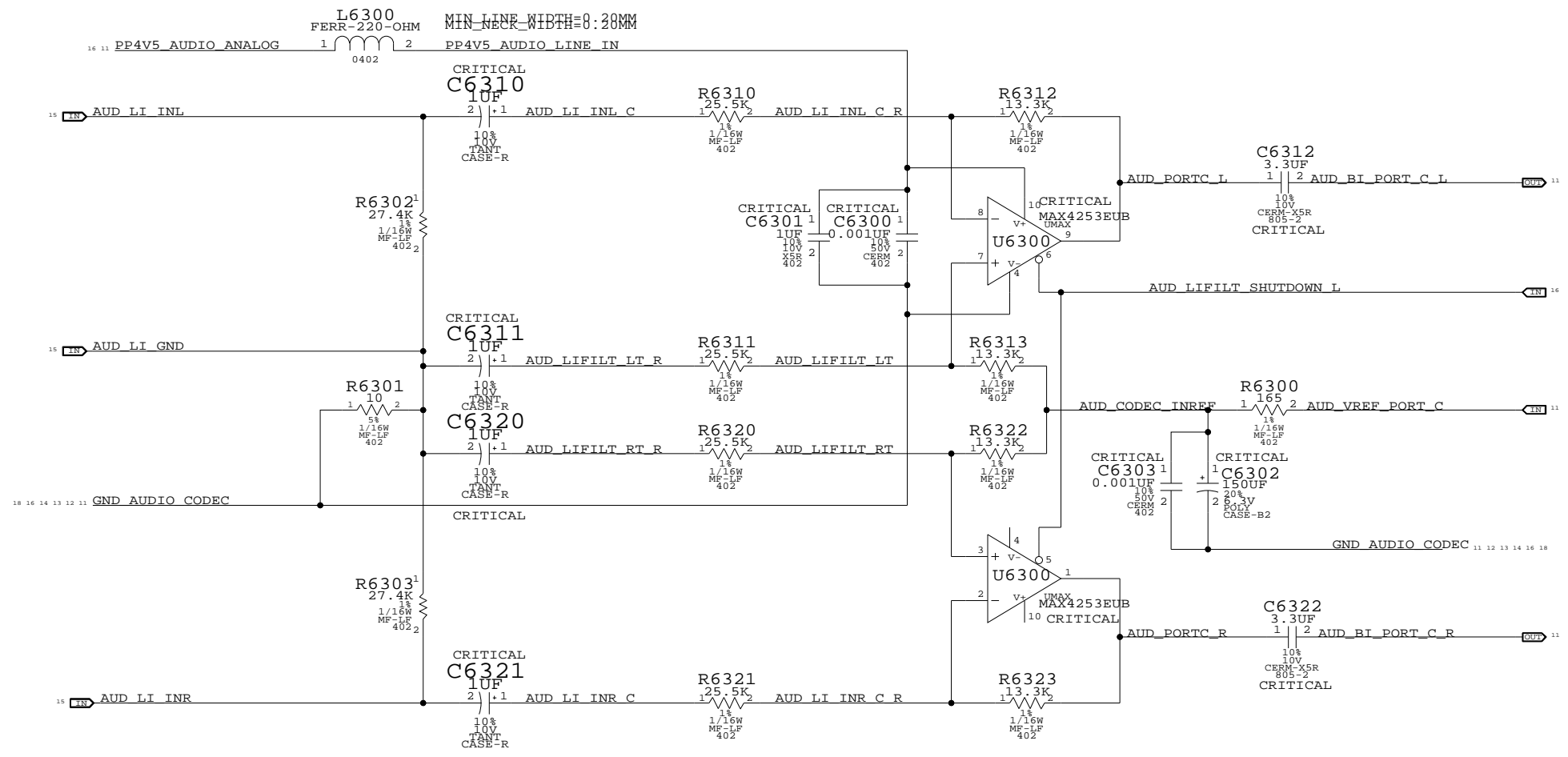
AUDIO 4.5V REGULATOR
APPLE P/N 353S1576



AUDIO:CODEC
 SYNC_MASTER=M88_AUDIO SYNC_DATE=11/01/2007
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APPLE INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7448	A
SCALE	NONE	SHT	62 OF 78

Pseudo-Diff Line-In Filter
 GAIN = -5.4DB AV = 0.52
 FC = 6.24 HZ



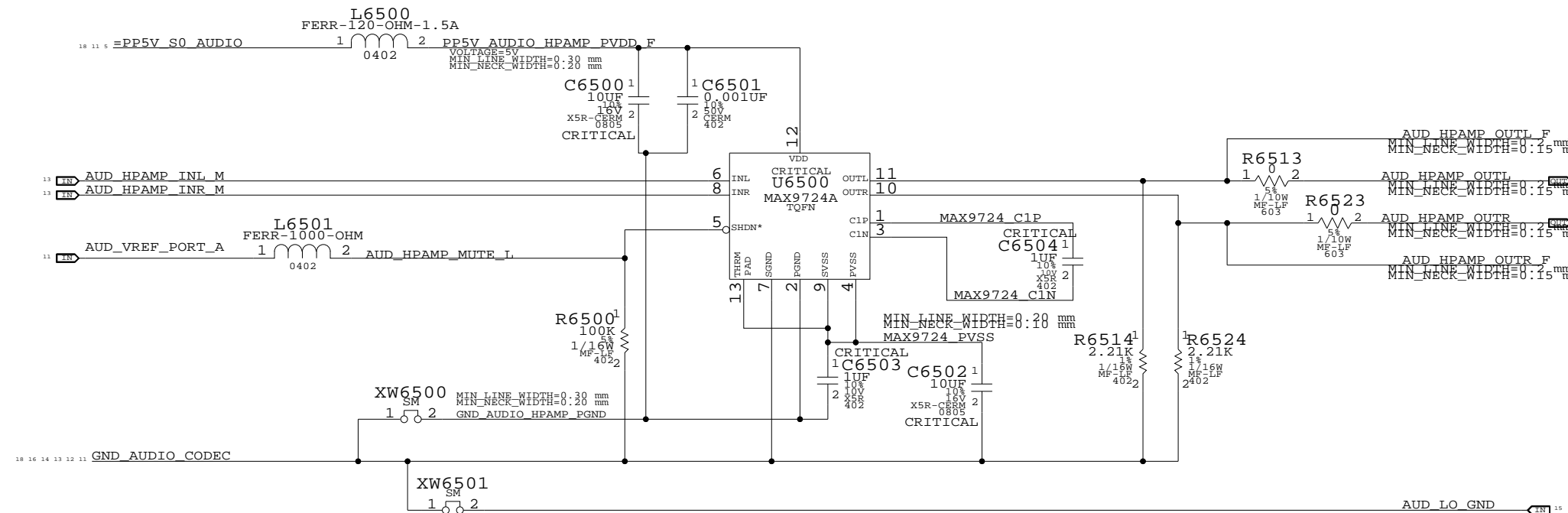
AUDIO: LINE IN
 SYNC_MASTER=M88_AUDIO SYNC_DATE=11/01/2007

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APPLE INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7448	A
SCALE	NONE	SHT	63 OF 78

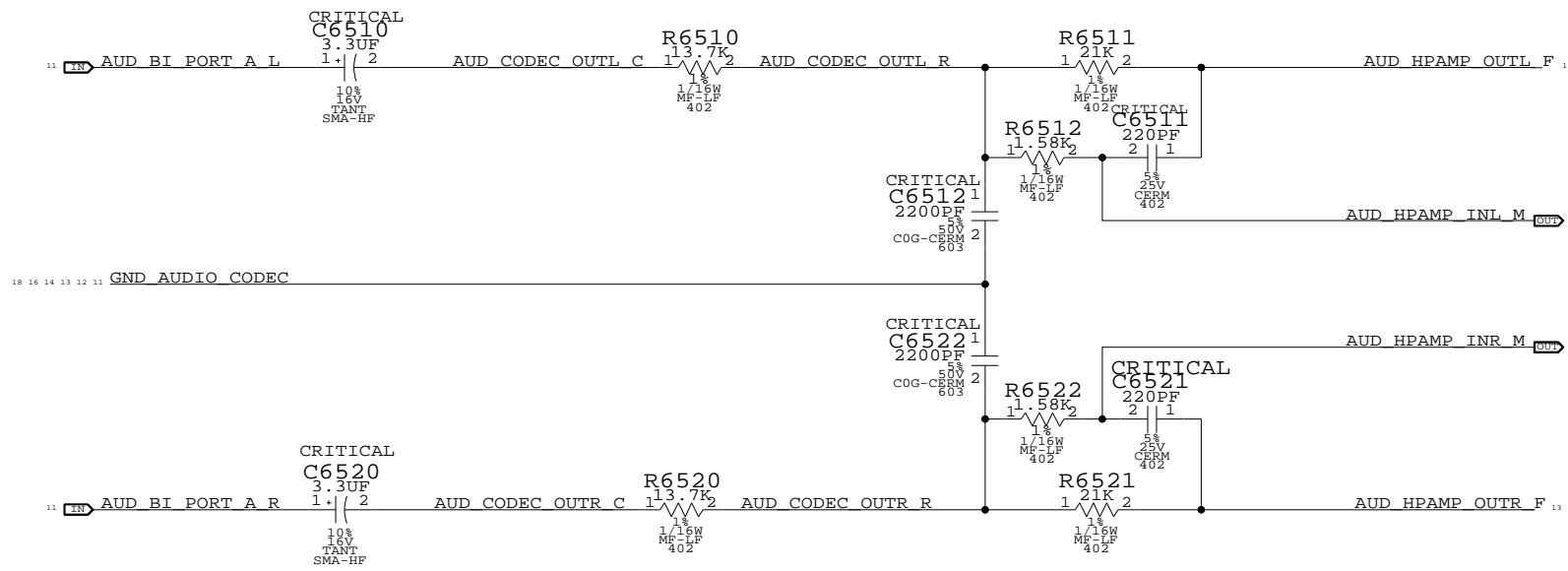
Headphone Amplifier (MAX9724A)

APN: 353S1637
VOLTAGE GAIN: 1.53



2nd Order DAC Filter

HP: 3.52 HZ LP: 39 KHZ



AUDIO: HEADPHONE AMP
 SYNC_MASTER=M88_AUDIO SYNC_DATE=11/01/2007

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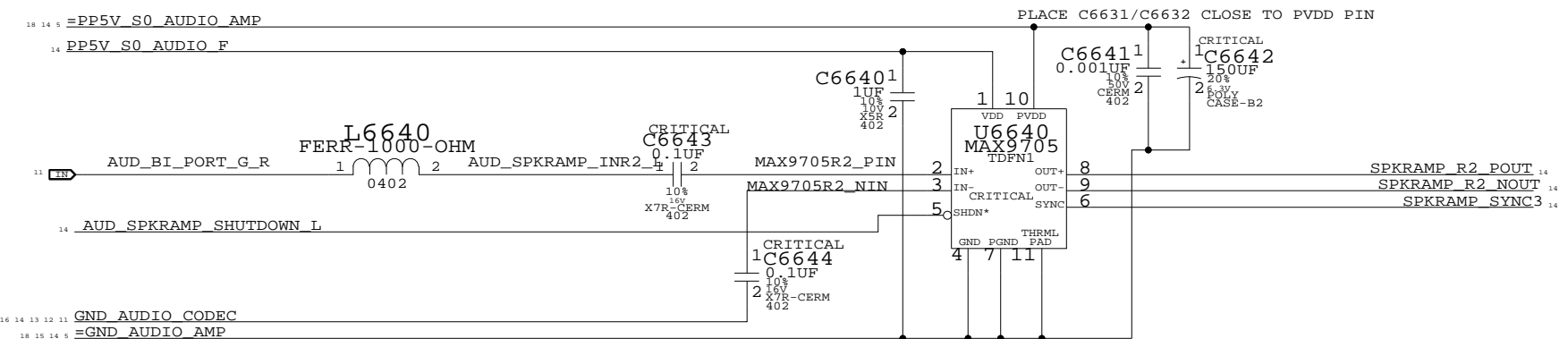
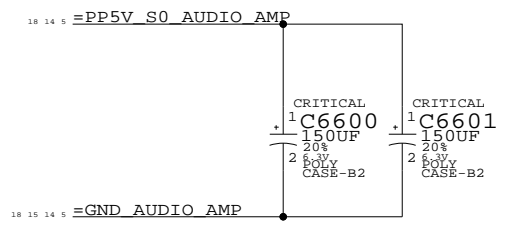
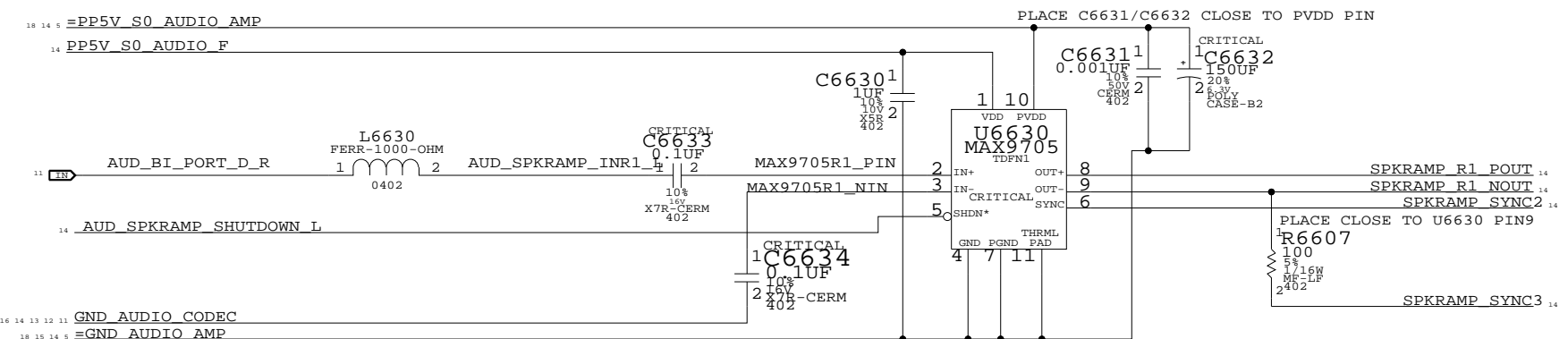
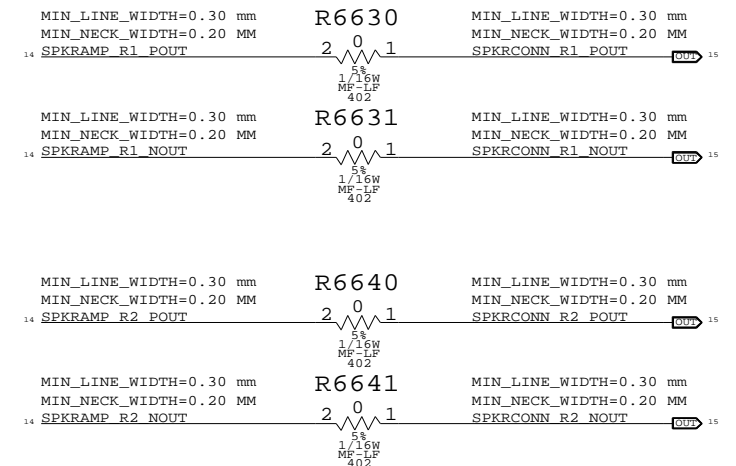
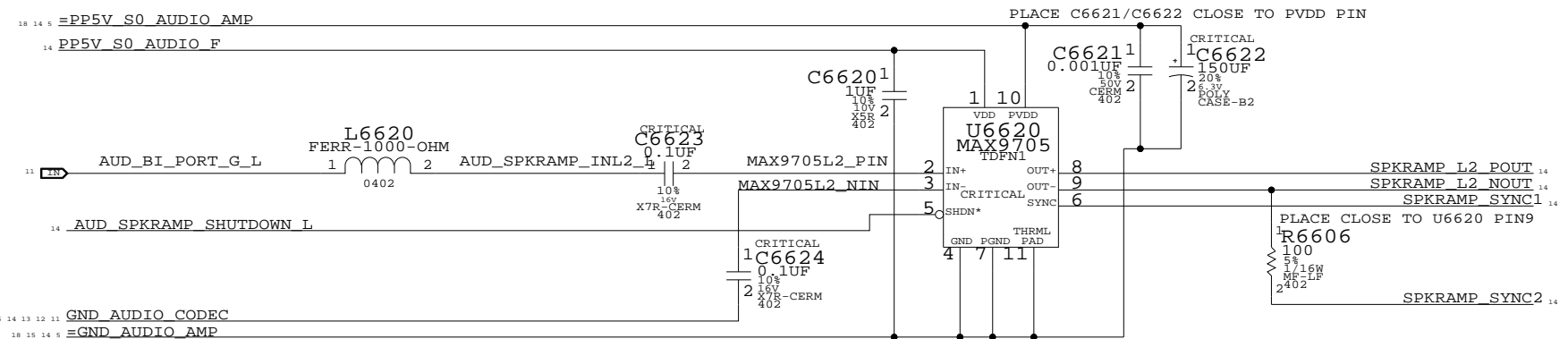
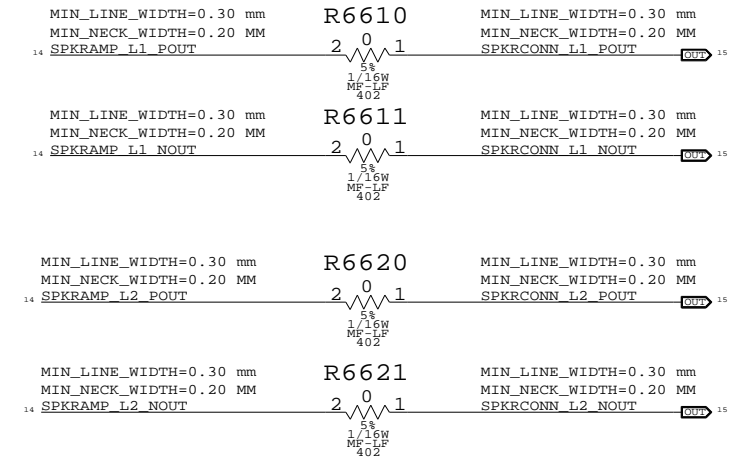
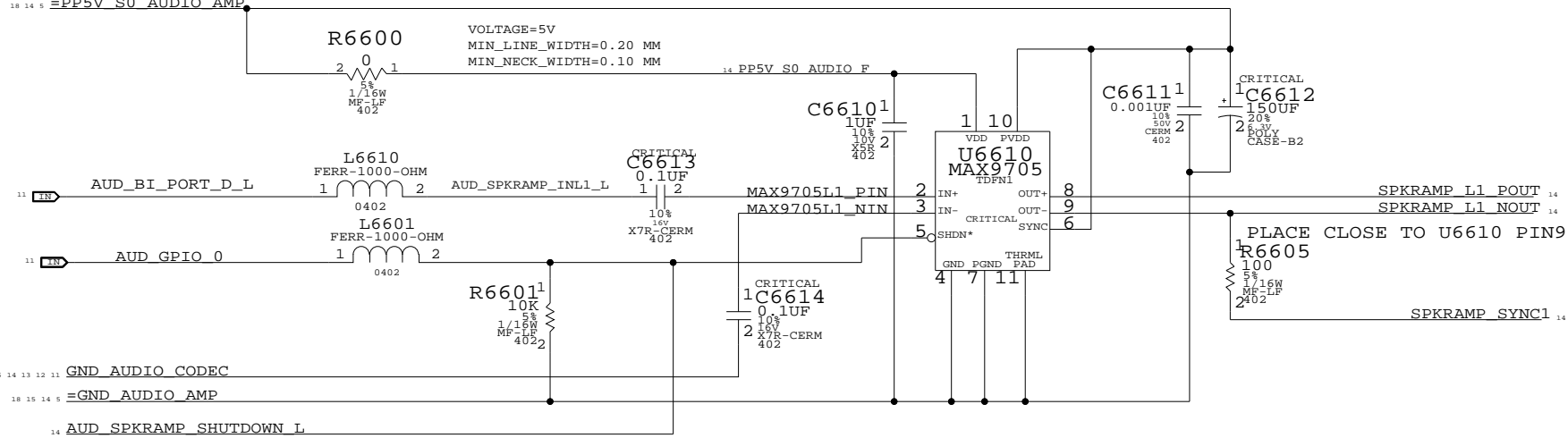
APPLE INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7448	A
SCALE		SHT	OF
NONE		65	78

2X MONO SPEAKER AMPLIFIERS (MAX9705B) GAIN = 12DB 79HZ < FC < 132HZ
 APN: 353S1595 TURN ON TIME: 30MS, TURN ON DELAY: 60MS

VOLTAGE=5V
 MIN_LINE_WIDTH=0.60 MM
 MIN_NECK_WIDTH=0.10 MM

PLACE C6611/C6612 CLOSE TO PVDD PIN

FANCY SPEAKER TESTPOINTS



AUDIO: SPEAKER AMP
 SYNC_MASTER=M88_AUDIO SYNC_DATE=11/01/2007
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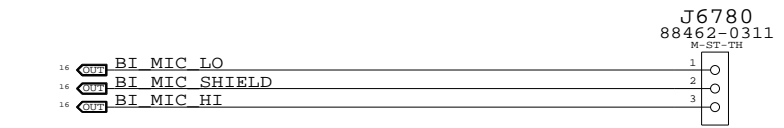
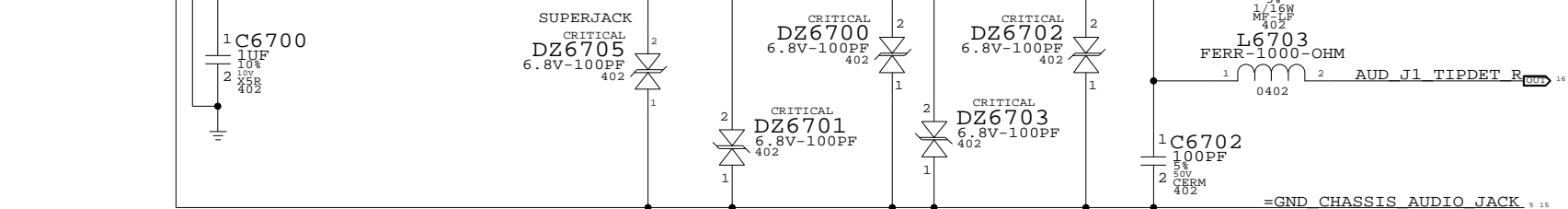
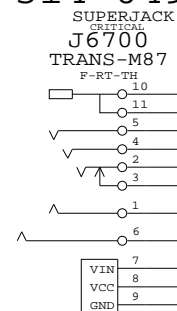
APPLE INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7448	A
SCALE	NONE	SHT	66 OF 78

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
514-0406	1	CONN, RCPT, OPTICAL-COPPER	J6700	CRITICAL	COMBOJACK

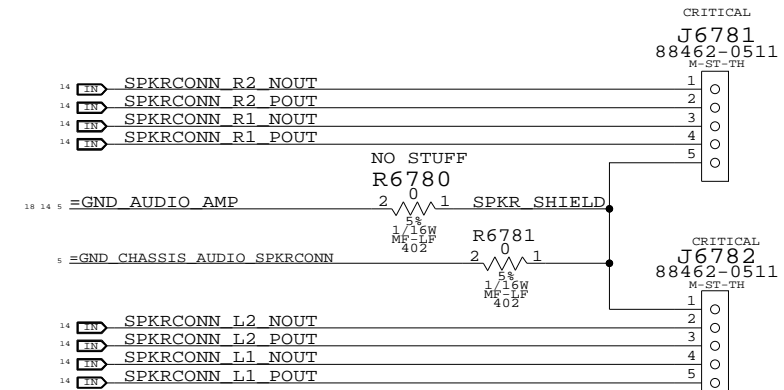
AUDIO JACK 1 LO/HP CONNECTOR, SPDIF TX

BUILT-IN MIC CONNECTOR APN: 518-0230

APN: 514-0493



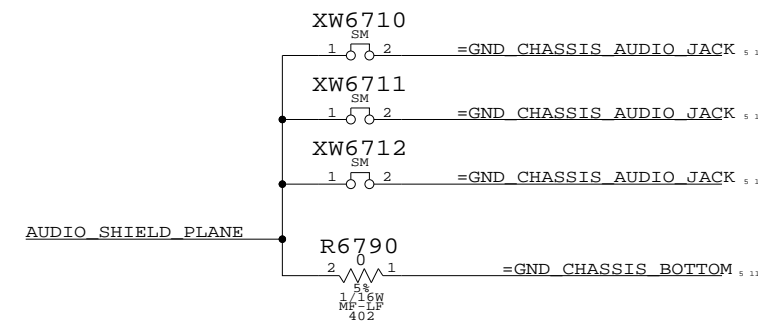
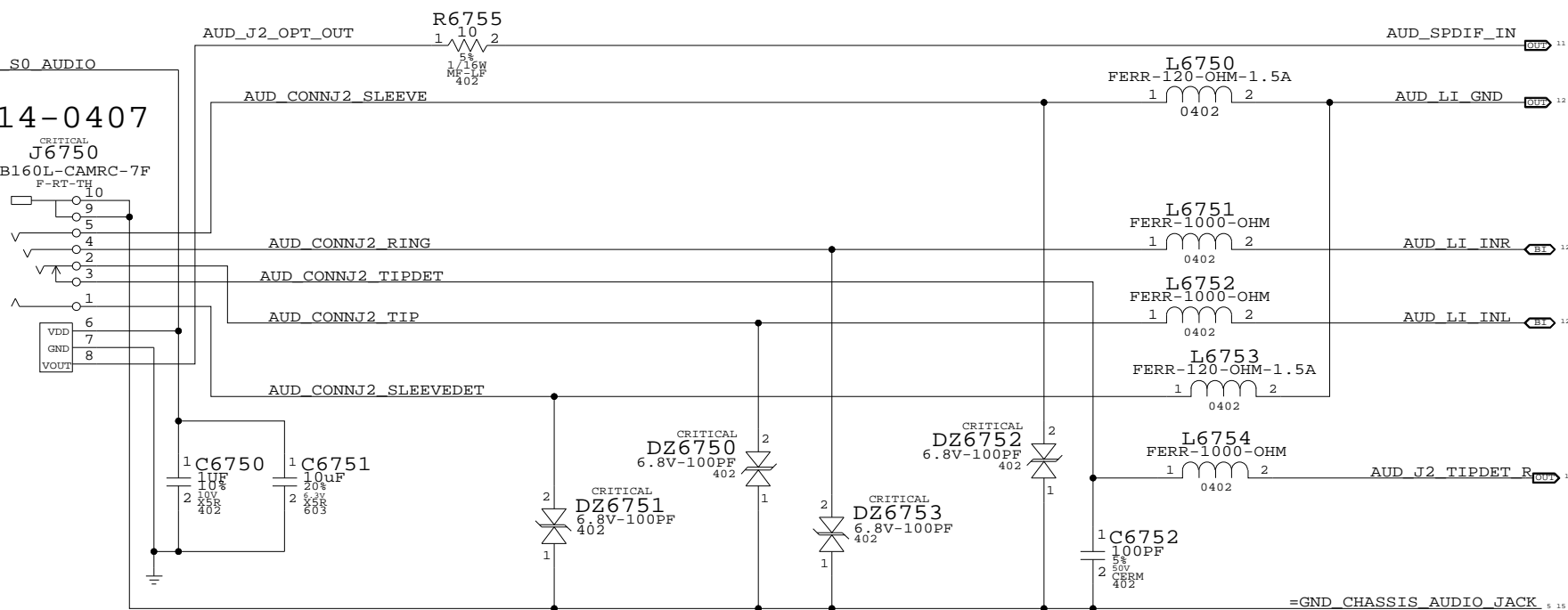
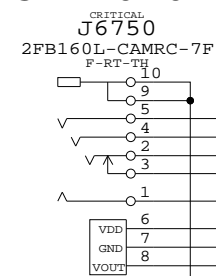
SPEAKER CONNECTORS APN: 518-0229



AUDIO JACK 2 LINE IN CONNECTOR, SPDIF RX

AUDIO SHIELD (FILLED SHAPE)

APN: 514-0407



AUDIO: JACKS
 SYNC_MASTER=M88_AUDIO SYNC_DATE=11/01/2007
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APPLE INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7448	A
SCALE	NONE	SHT	67 OF 78

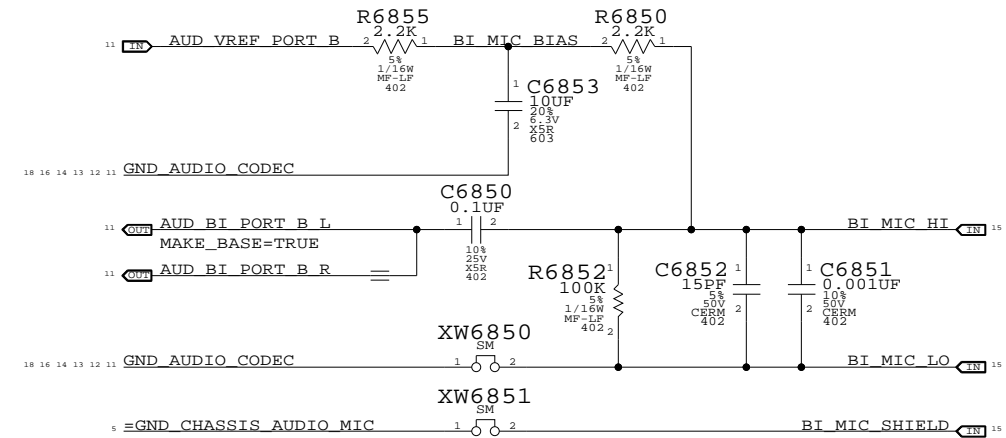
CODEC OUTPUT SIGNAL PATHS

FUNCTION	VOLUME	CONVERTER	PIN COMPLEX	MUTE CONTROL	DET ASSIGNMENT
HP/LINE OUT	0X0F (15)	0X05 (05)	0X15 (21,A)	VREF A (21)	0X15 (21,A)
SPEAKER 1	0X26 (38)	0X25 (37)	0X14 (20,D)	GPIO_0	N/A
SPEAKER 2	0X04 (14)	0X04 (04)	0X16 (22,G)	GPIO_0	N/A
SPDIF OUT	N/A	0X06 (06)	0X1E (30,SPDIFTX)	N/A	0X1B (27,E)

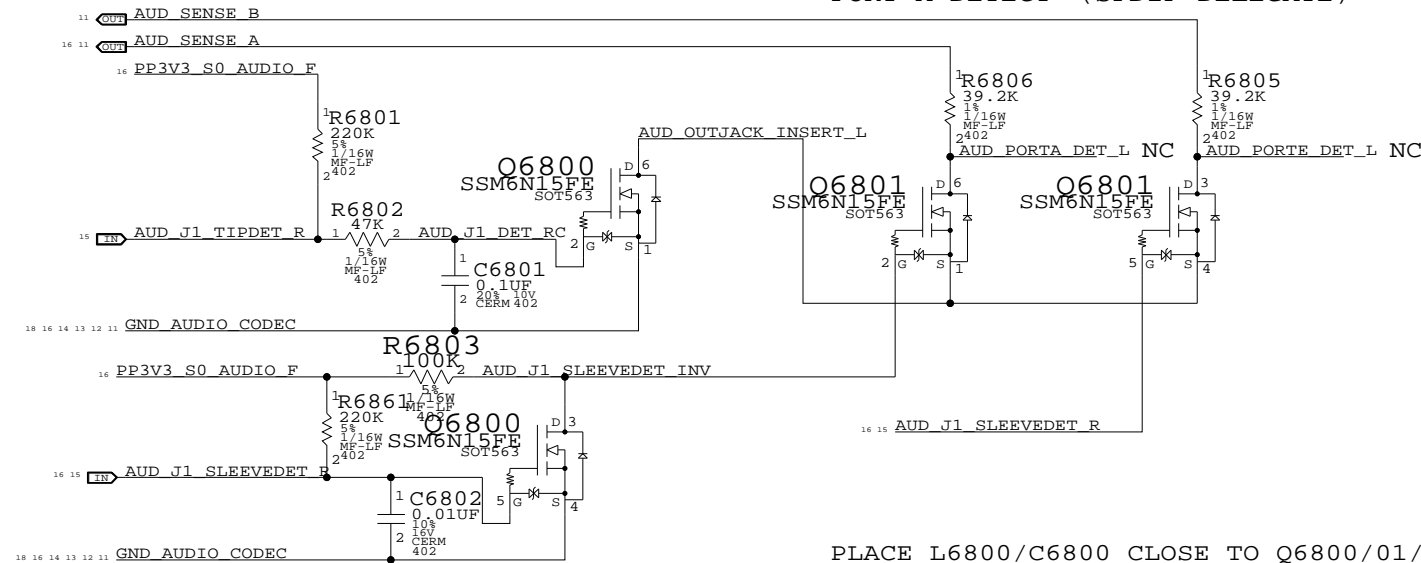
CODEC INPUT SIGNAL PATHS

FUNCTION	MIXER (INPUT)	CONVERTER	PIN COMPLEX	VREF	DET ASSIGNMENT
LINE IN	0X23 (35)	0X08 (08)	0X1A (26,C)	N/A	0X1A (26,C)
SPDIF IN	N/A	0X0A (10)	0X1F (31,SPDIFRX)	N/A	N/A
MIC (BUILT IN)	0X24 (36)	0X07 (07)	0X18 (24,B)	B (80%)	N/A
MIC (HEADSET)	0X24 (36)	0X07 (07)	0X19 (25,F)	F (80%)	SouthBridge

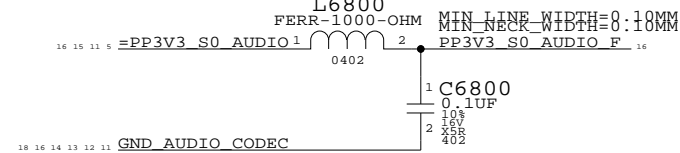
PORT B (BUILT-IN MIC)



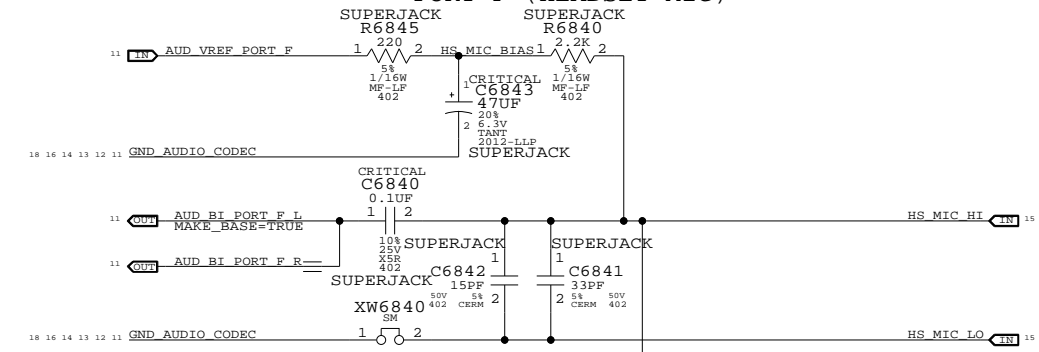
PORT A DETECT (SPDIF DELEGATE) PORT E DETECT (SPDIF DELEGATE)



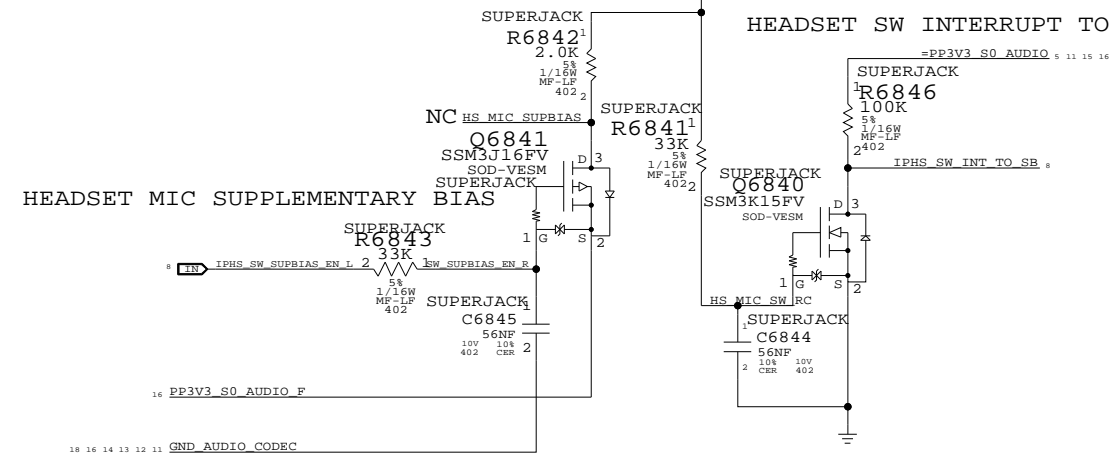
PLACE L6800/C6800 CLOSE TO Q6800/01/02/03



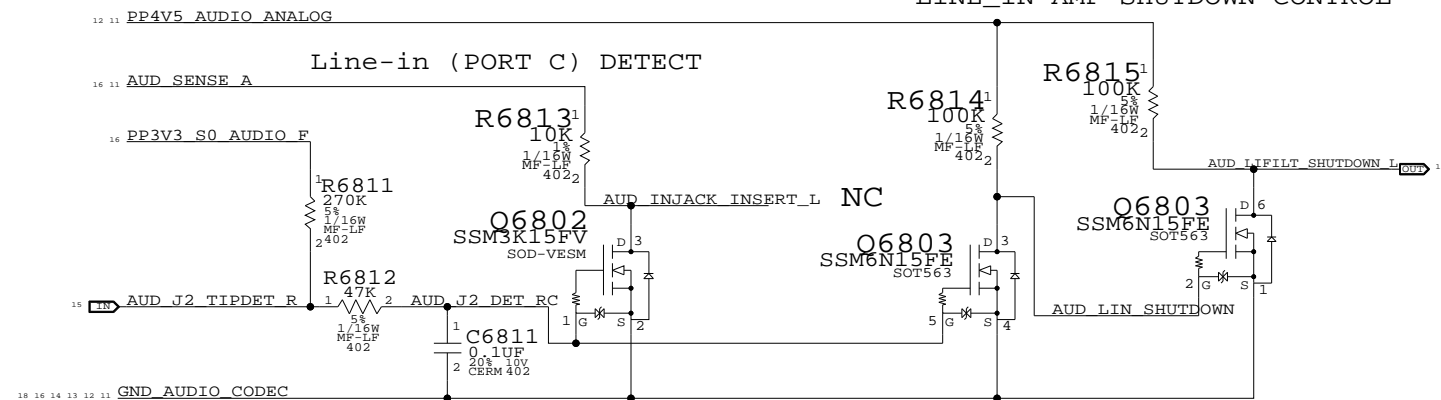
PORT F (HEADSET MIC)



HEADSET SW INTERRUPT TO SOUTHBRIDGE



LINE_IN AMP SHUTDOWN CONTROL



PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
138S0578	1	1UF,10%,10V,XSR	C6842	CRITICAL	COMBOJACK
138S0578	1	1UF,10%,10V,XSR	C6840	CRITICAL	COMBOJACK

AUDIO: JACK TRANSLATORS

SYNC_MASTER=M88_AUDIO SYNC_DATE=11/01/2007

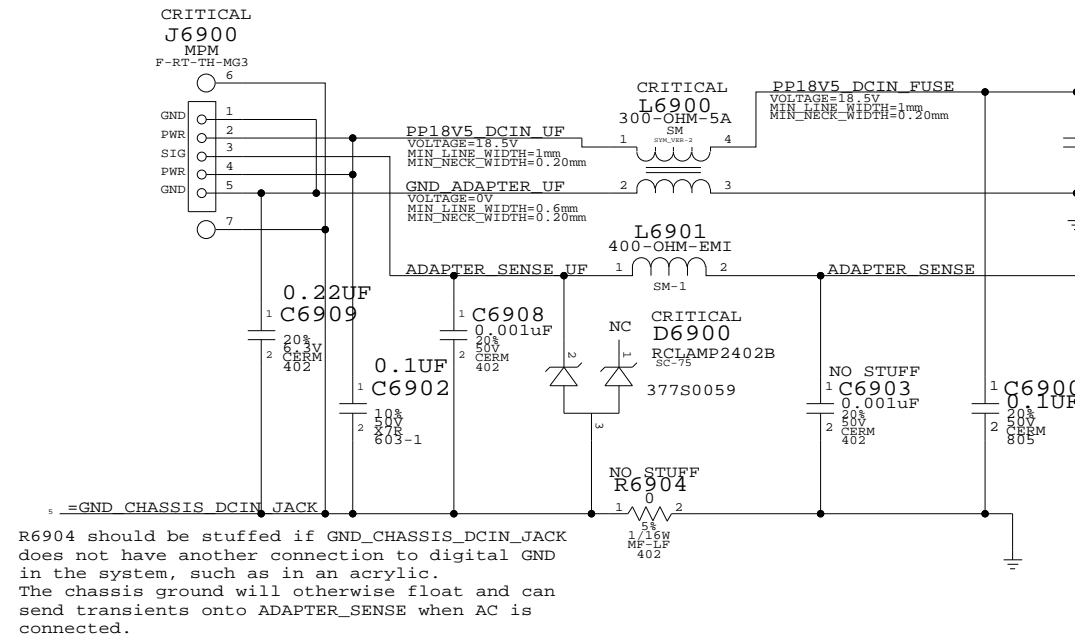
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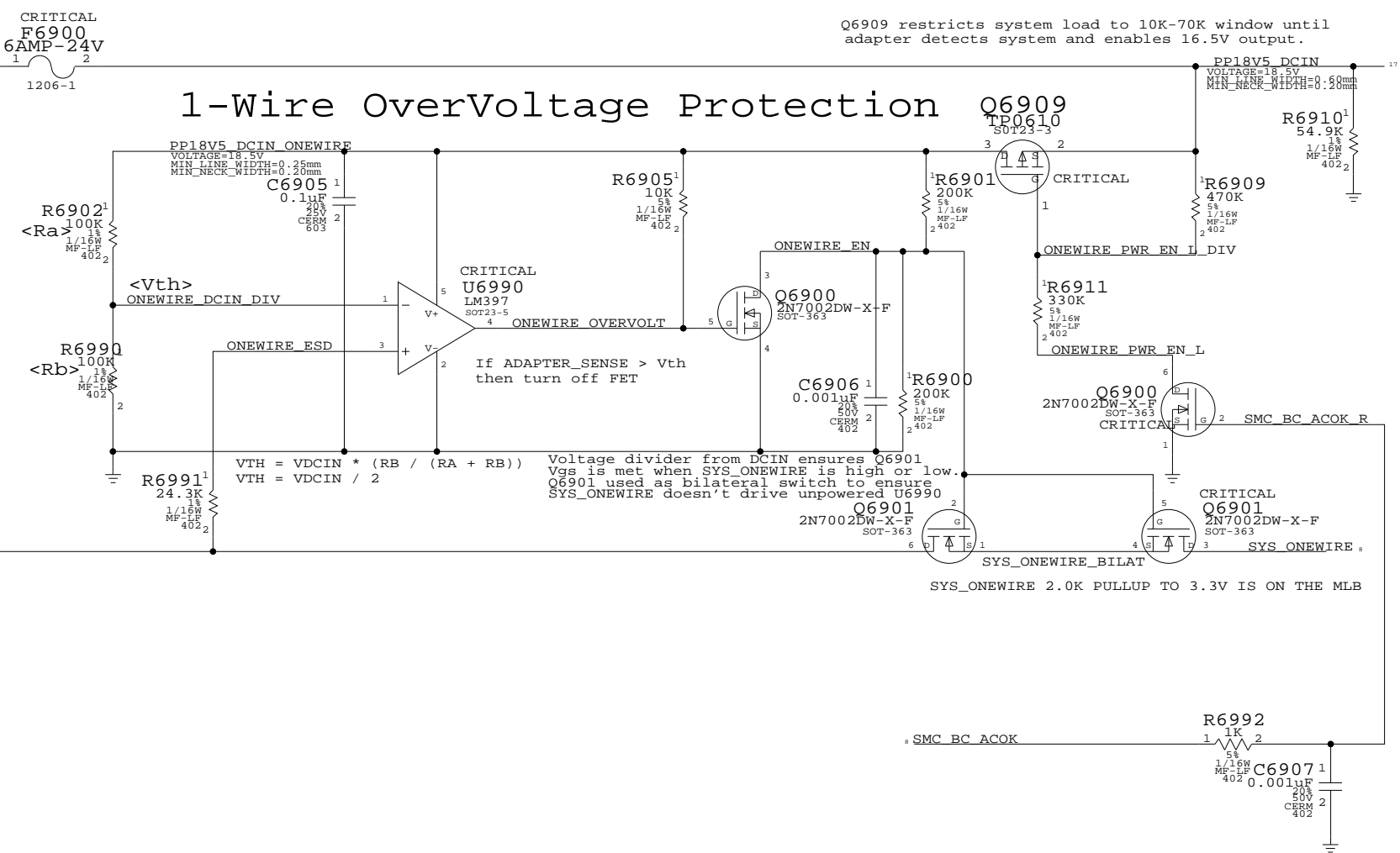


SIZE	DRAWING NUMBER	REV.
D	051-7448	A
SCALE	SHT	OF
NONE	68	78

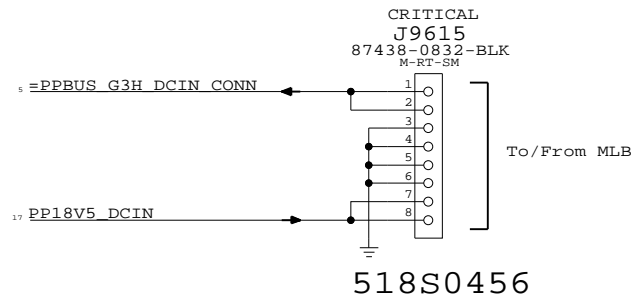
DC Power Jack



1-Wire OverVoltage Protection Q6909



Left I/O Power Connector



DC-In & PBUS Connectors

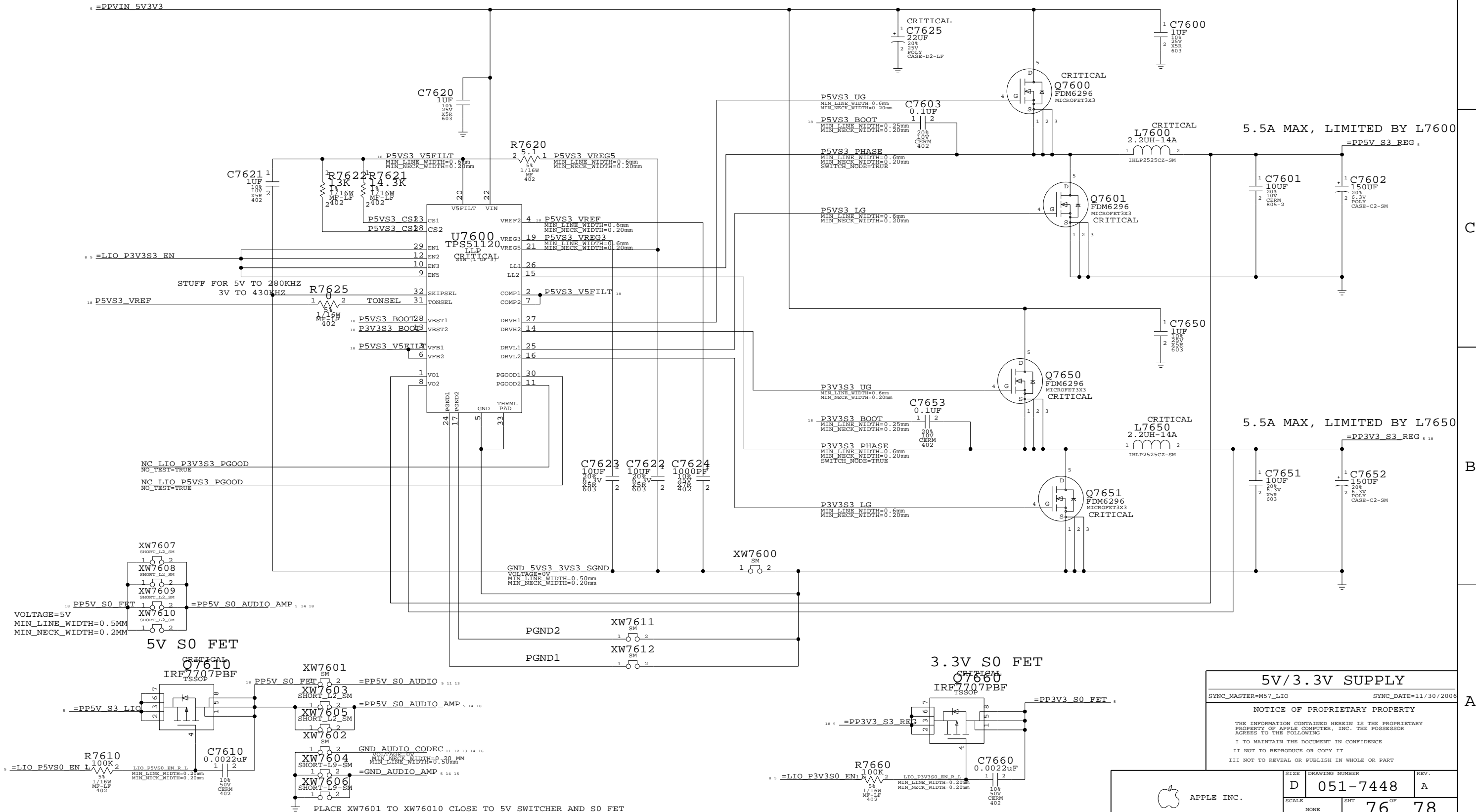
SYNC_MASTER=(MASTER) SYNC_DATE=(MASTER)

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	D	051-7448	A
SCALE	NONE	SHT	69 OF 78

5V/3.3V POWER SUPPLY



5V/3.3V SUPPLY

SYNC_MASTER=M57_LIO SYNC_DATE=11/30/2006

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APPLE INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7448	A
SCALE	SHT	76 OF 78	
NONE			

