

8

7

6

5

4

3

2

1

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

A

554161

PRODUCTION RELEASED

12/18/07

?

SCHEM, LIO, M87, MBP15

12/18/07

PVT

PDF PAGE

CSA PAGE

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SYNC MASTER

DATE

1

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(Master)

(Master)

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(Master)

(Master)

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(Master)

(Master)

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ExpressCard Connector

(Master)

(Master)

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MLB I/O Board Connector

(Master)

(Master)

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Left USB Port

(Master)

(Master)

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57

Current & Thermal Sensors

(Master)

(Master)

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62

AUDIO:CODEC

LENGO_M87_AUDIO

11/01/2007

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AUDIO: HEADPHONE AMP

LENGO_M87_AUDIO

11/01/2007

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AUDIO:SPEAKER AMP

LENGO_M87_AUDIO

11/01/2007

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AUDIO: JACKS

LENGO_M87_AUDIO

11/01/2007

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(Master)

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<MASTER>

<MASTER>

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Inverter Connector

SPLIT_INVERTER

12/06/2006

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LCD Backlight Support

M88_MLB

07/05/2007

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Cross Reference Page

PART#

QTY

DESCRIPTION

REFERENCE DESIGNATOR(S)

CRITICAL

BOM OPTION

051-7447

1

SCHEM, DUBLIN, M87

SW1

CRITICAL

820-2273

1

PCBF, DUBLIN, M87

PCB1

CRITICAL

DIMENSIONS ARE IN MILLIMETERS

XX ±

X.XX ±

X.XXX ±

ANGLES ±

DO NOT SCALE DRAWING

THIRD ANGLE PROJECTION

METRIC

DRAFTER

ENG APPD

QA APPD

RELEASE

DESIGN CK

MFG APPD

DESIGNER

SCALE

MATERIAL/FINISH NOTED AS APPLICABLE

SIZE D

APPLE INC.

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TITLE

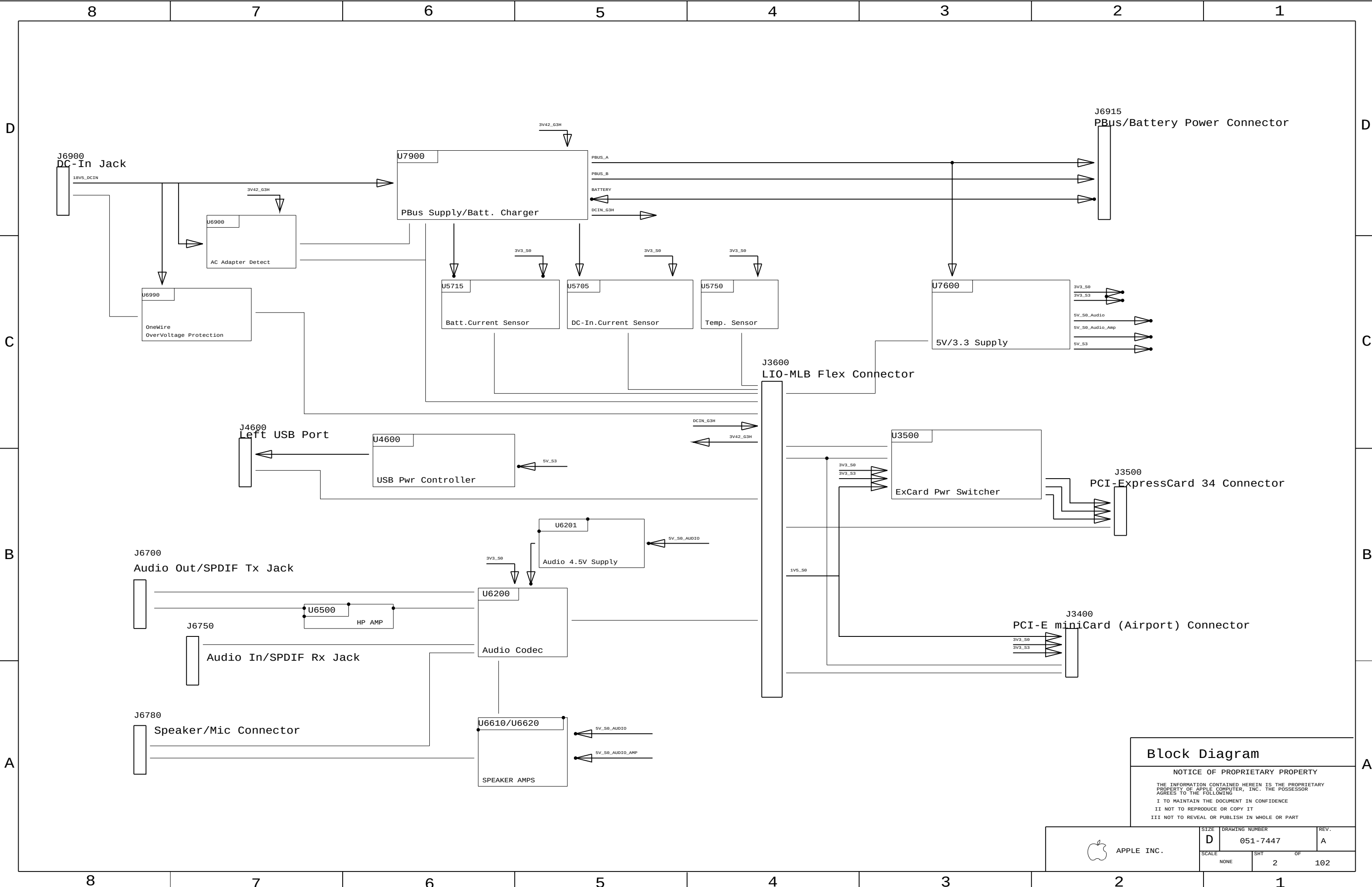
SCHEM, DUBLIN, M87

DRAWING NUMBER

051-7447

REV. A

SHT 1 OF 102



Block Diagram

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APPLE INC.

SIZE	DRAWING NUMBER	REV.
D	051-7447	A
SCALE	SHT	OF
NONE	2	102

BOM NUMBER	BOM NAME	BOM OPTIONS
630-9094	PCBA, DUBLIN, M87	ALTERNATE, COMMON, M87_COMMON, EEE_Z3M

BOM GROUP	BOM OPTIONS
M87_COMMON	BKLT_3V_SIG, COMBOJACK

Bar Code Label / EEE #'s

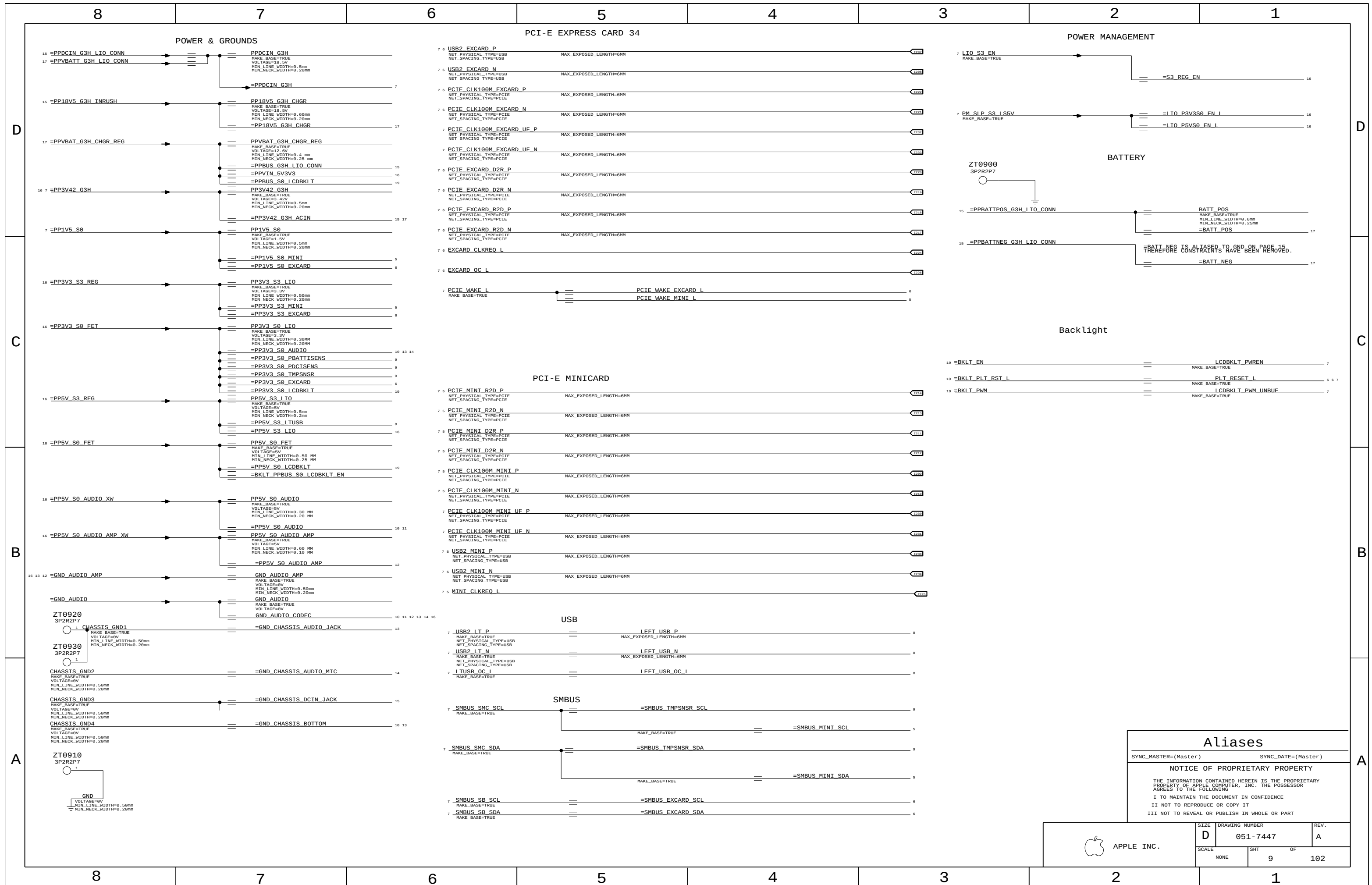
PART NUMBER	QTY	DESCRIPTION	REFERENCE DES	CRITICAL	BOM OPTION
000-0041	1	PLACEHOLDER FOR EEE/CCC INFO	[EEE:Z3M]	CRITICAL	EEE_Z3M

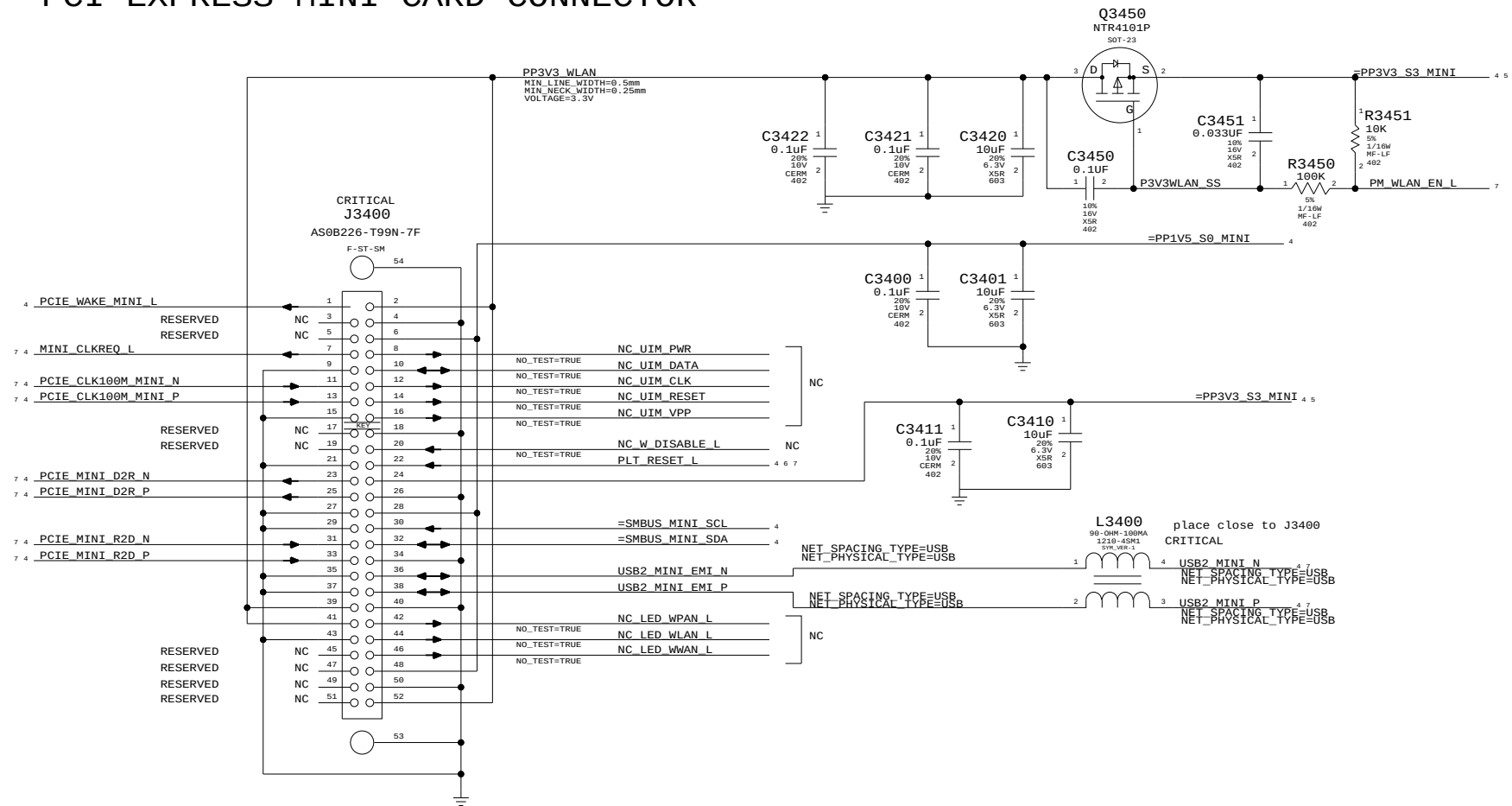
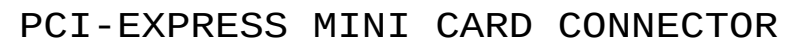
Alternate Parts

PART NUMBER	ALTERNATE FOR PART NUMBER	BOM OPTION	REF DES	COMMENTS:
37650448	37650445		ALL	SI7806ACN for FSM6296
12850001	12850001		ALL	150uF, 6, 3V, 250MHZ, C2
12850093	12850092		ALL	33uF, 16V, 450MHZ, D2E
35351717	35351297		ALL	LM397, COMPARETOR
37650560	37650532		ALL	SI7980ND for SI7913DN

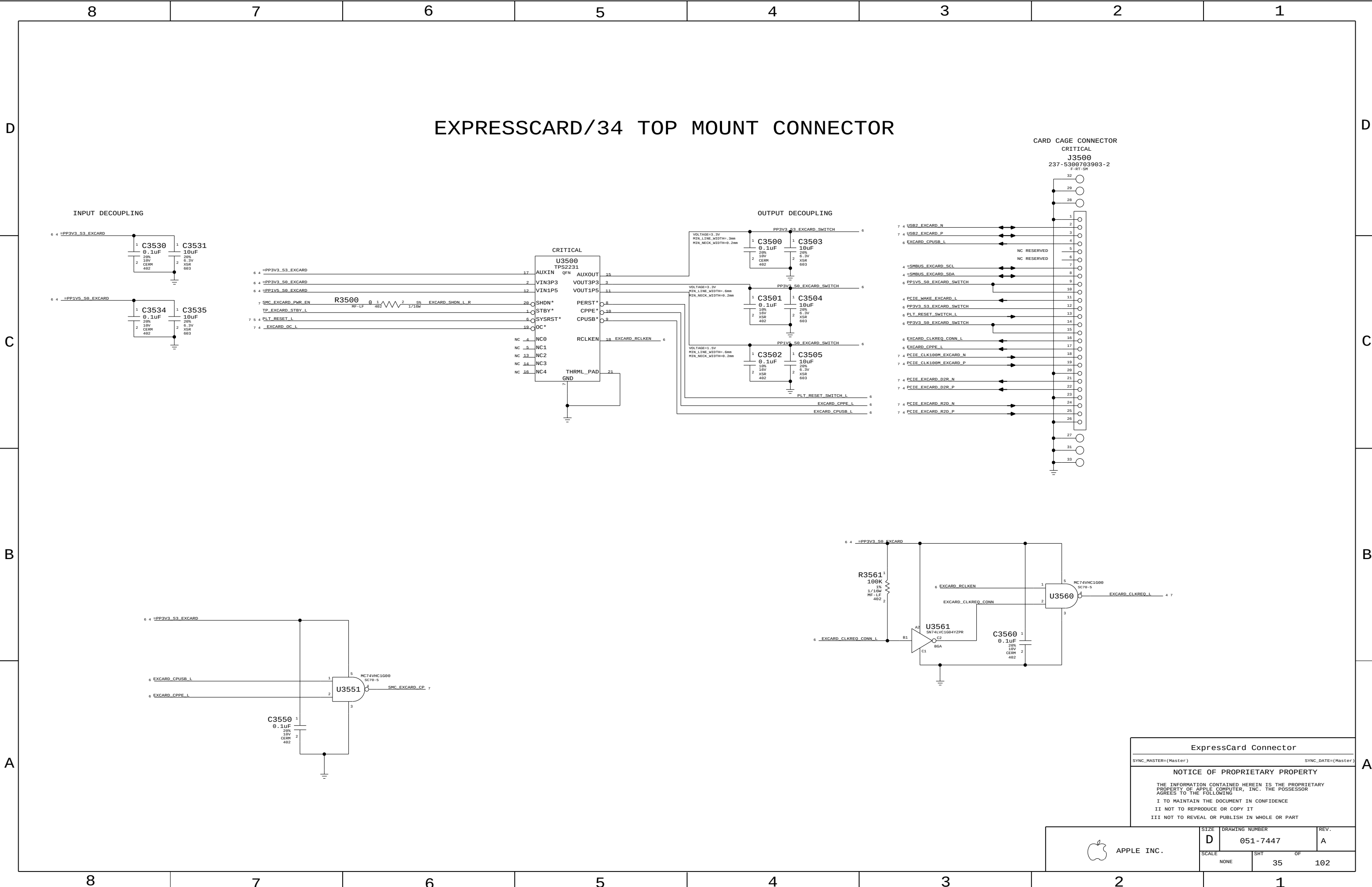
BOM Configuration	
SYNCH_MASTER=(Master)	SYNCH_DATE=(Master)
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 APPLE INC.	SIZE D	DRAWING NUMBER 051-7447	REV. A
	SCALE NONE	SHT 4	OF 102





PCI-E MiniCard Connector	
SYNC_MASTER={Master}	SYNC_DATE={Master}
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ExpressCard Connector

SYNC_MASTER=(Master) SYNC_DATE=(Master)

NOTICE OF PROPRIETARY PROPERTY

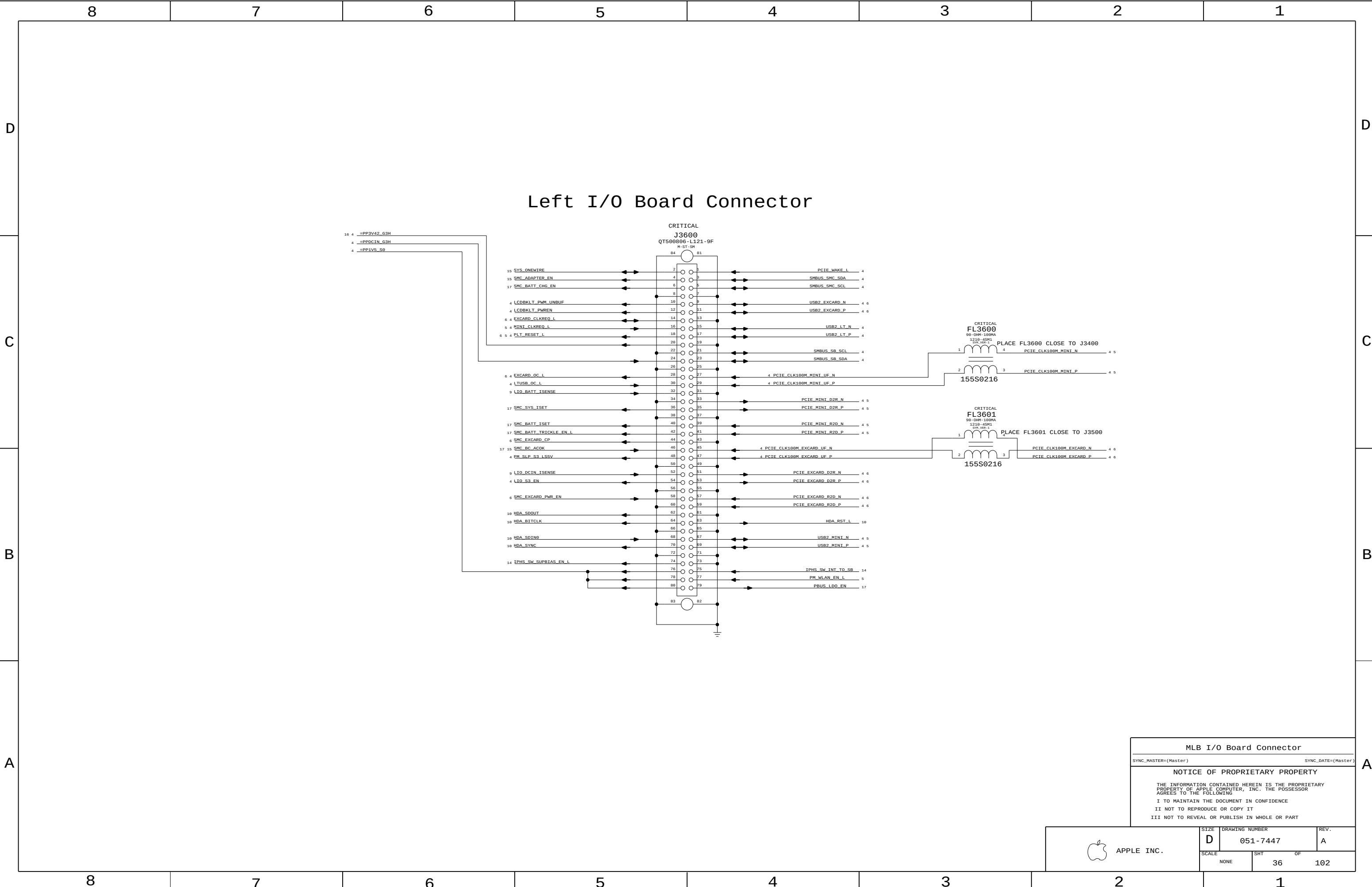
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APPLE INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7447	A
SCALE		SHT	OF
NONE		35	102



MLB I/O Board Connector

SYNC_MASTER=(Master) SYNC_DATE=(Master)

NOTICE OF PROPRIETARY PROPERTY

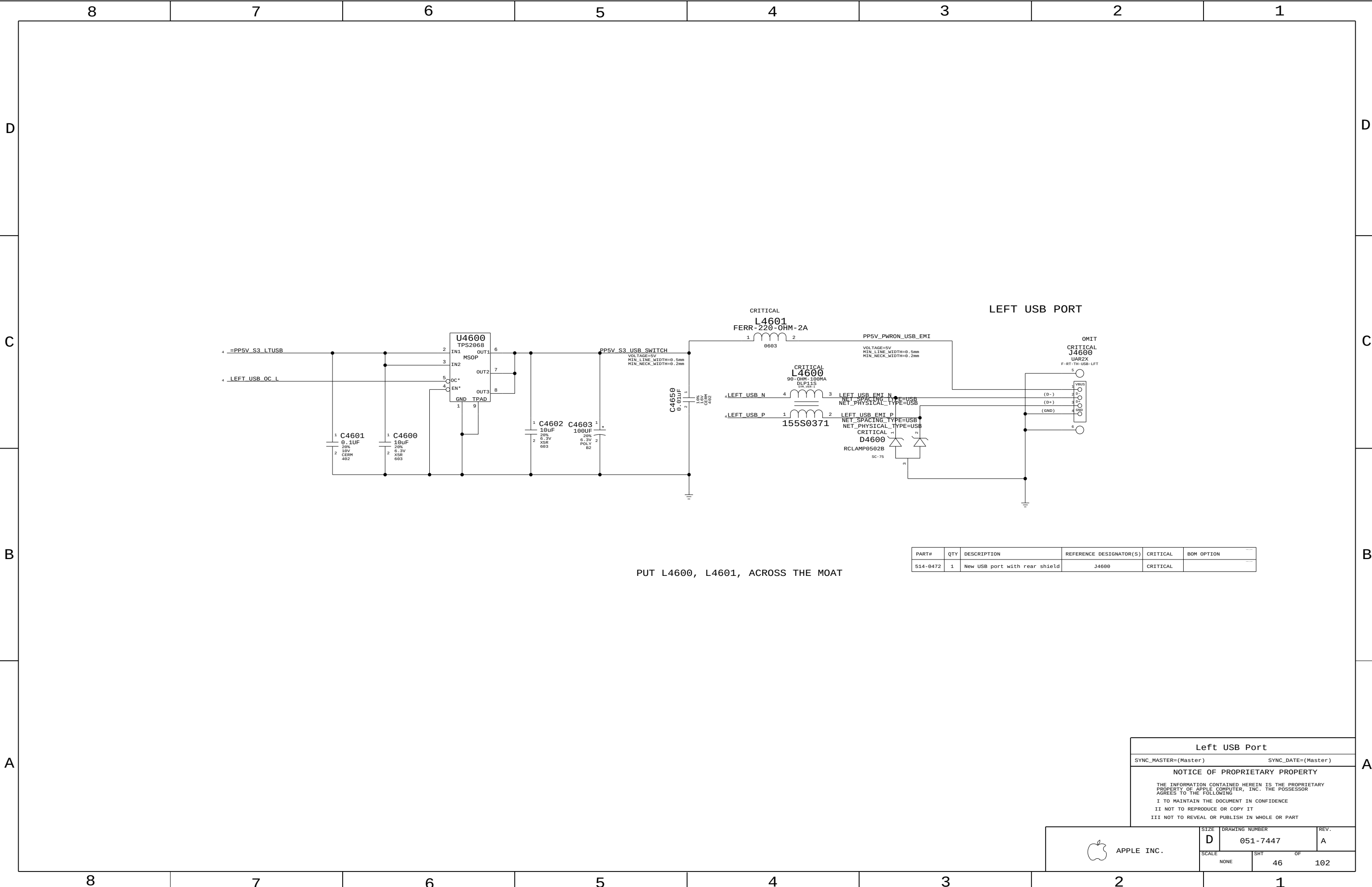
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	D	051-7447	A
SCALE		SHT	OF
NONE		36	102



PUT L4600, L4601, ACROSS THE MOAT

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
514-0472	1	New USB port with rear shield	J4600	CRITICAL	

Left USB Port

SYNC_MASTER=(Master)

SYNC_DATE=(Master)

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APPLE INC.

SIZE

D

DRAWING NUMBER

051-7447

REV.

A

SCALE

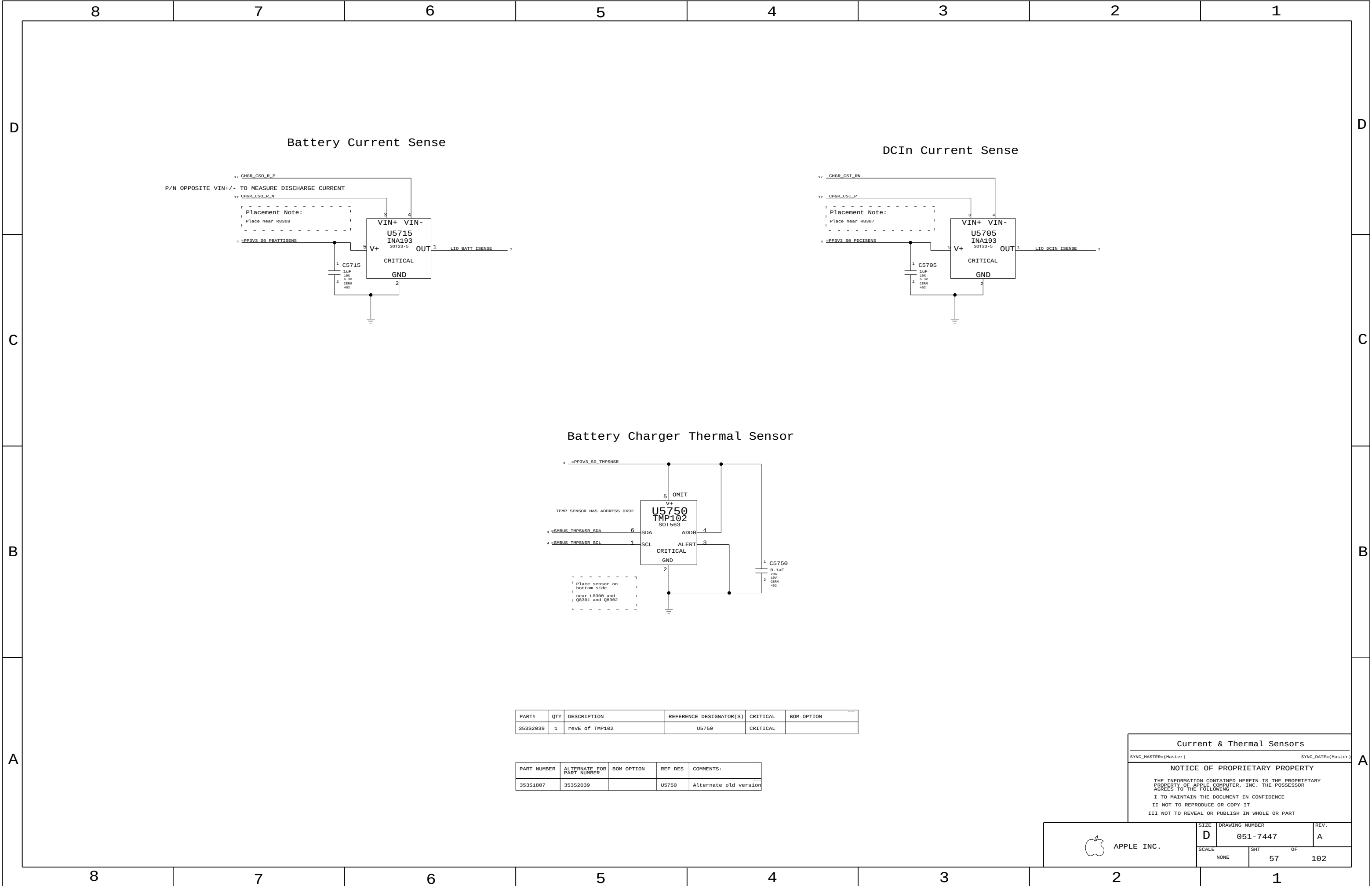
NONE

SHT

46

OF

102



D

C

B

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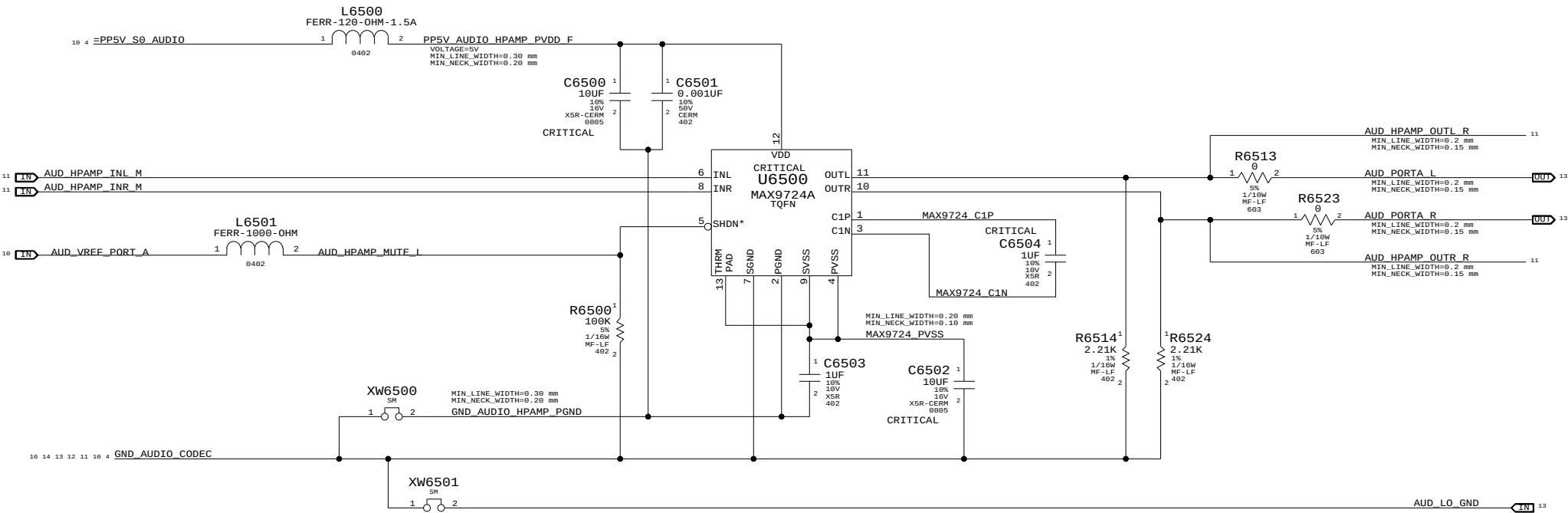
D

C

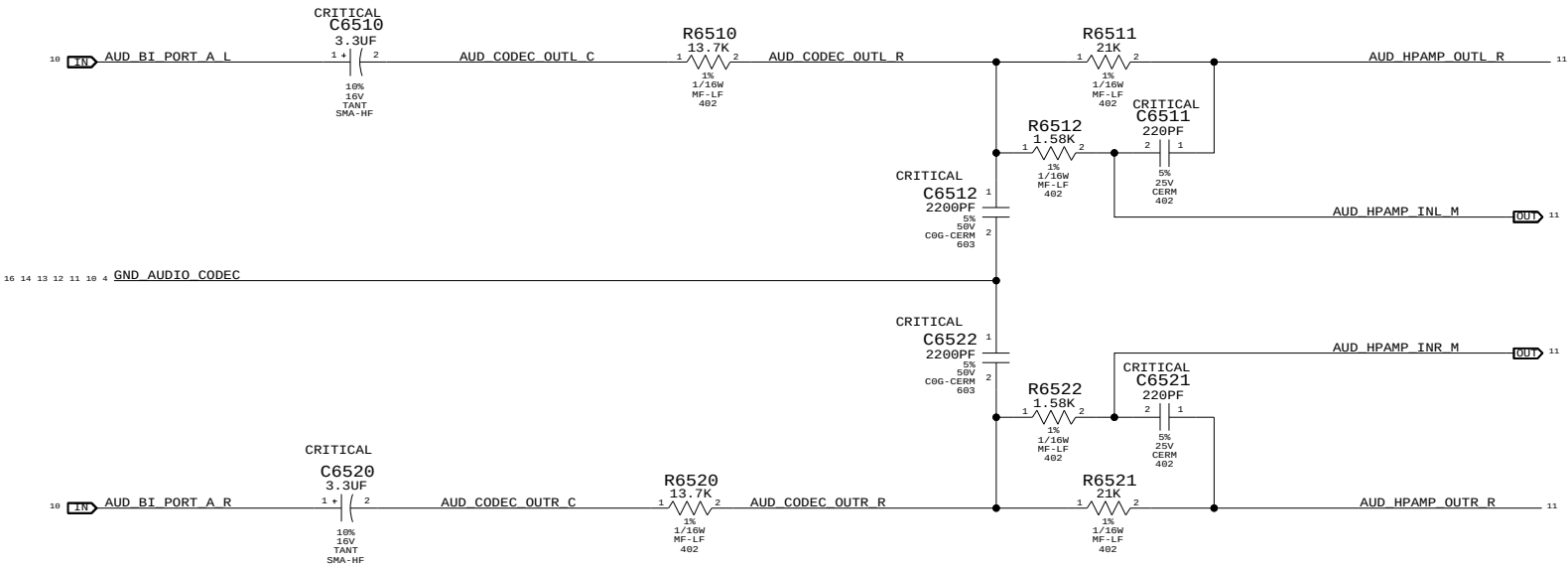
B

A

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=11/01/2007

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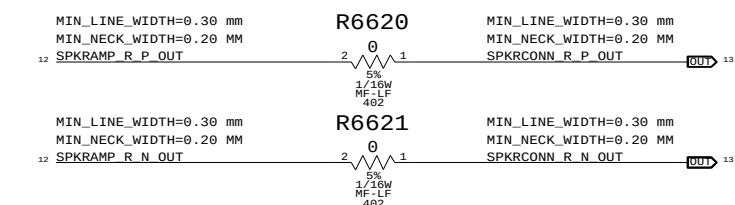
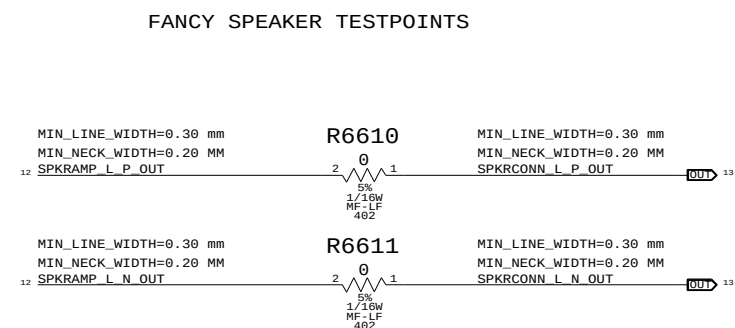
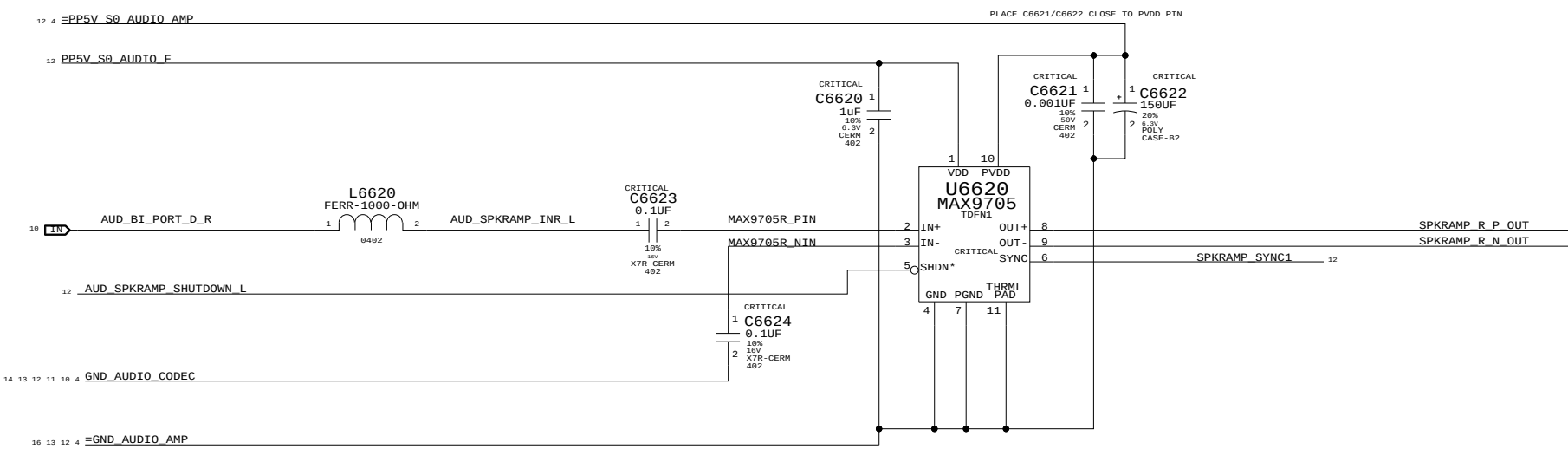
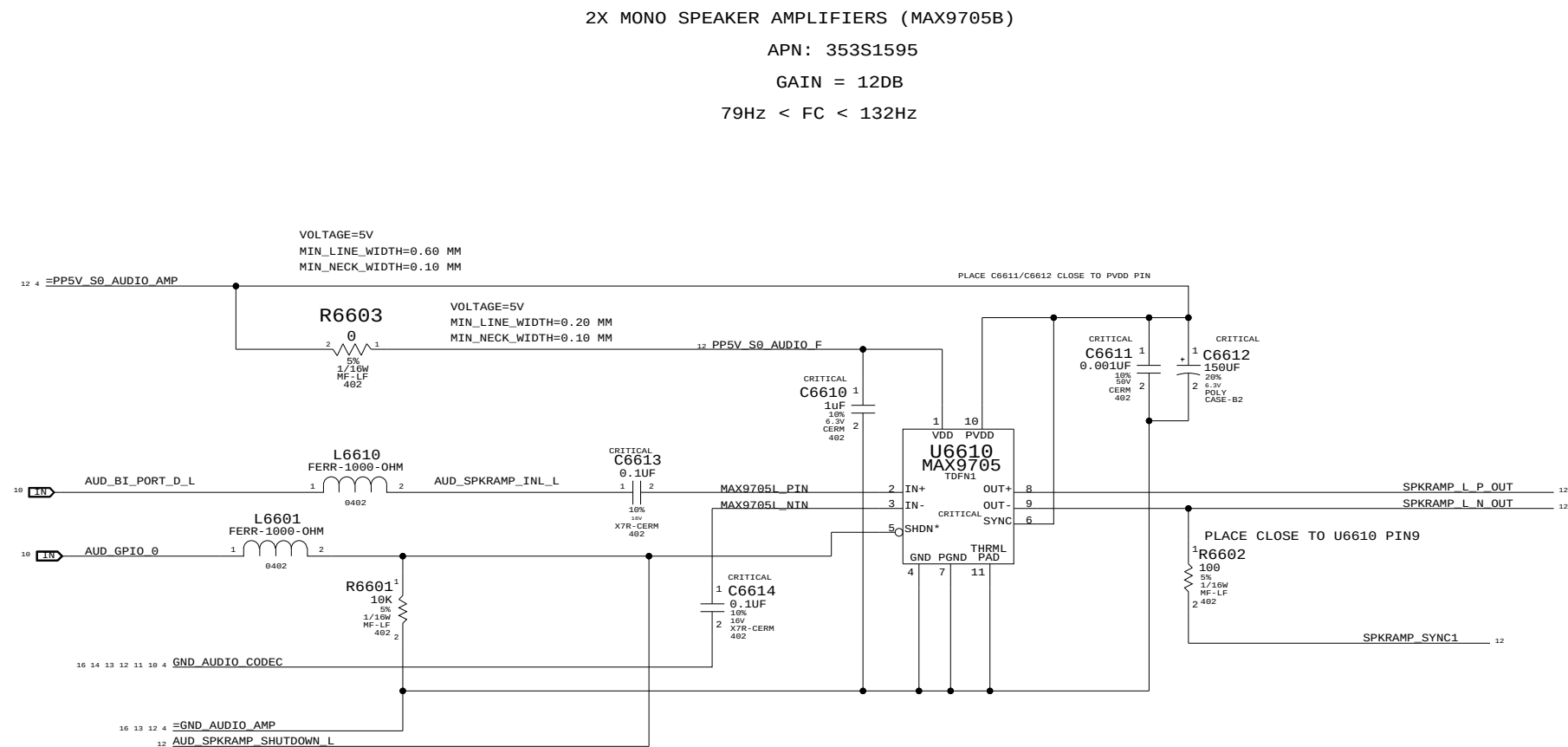
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APPLE INC.

SIZE	DRAWING NUMBER	REV.
D	051-7447	A
SCALE	SHT	OF
NONE	65	102



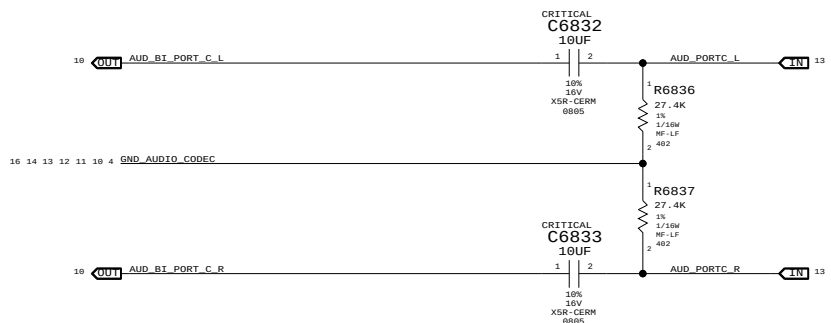
AUDIO:SPEAKER AMP	
SYNC_MASTER=LENGO_M87_AUDIO	SYNC_DATE=11/01/2007
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 APPLE INC.	SIZE	DRAWING NUMBER	REV.
	D	051-7447	A
	SCALE	SHT	OF
	NONE	66	102

FUNCTION	VOLUME	CONVERTER
HP/LINE OUT	0X0D (15)	0X03 (3)
SPEAKER	0X26 (38)	0X25 (37)
SPDIF OUT	N/A	0X06 (6)

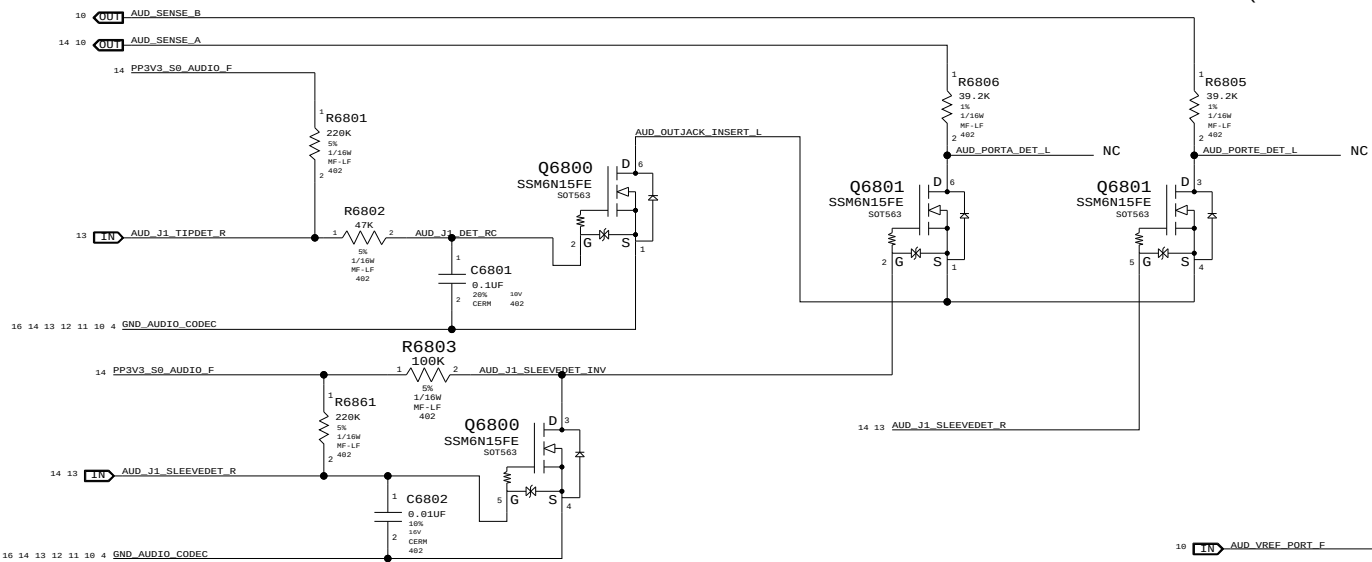
FUNCTION	MIXER(INPUT)	CONVERTER
LINE IN	0X23 (35)	0X08 (8)
SPDIF IN	N/A	0X0A (10)
MIC (BUILT IN)	0X24 (36)	0X07 (7)
MIC (HEADSET)	0X24 (36)	0X07 (7)

PORT C LI

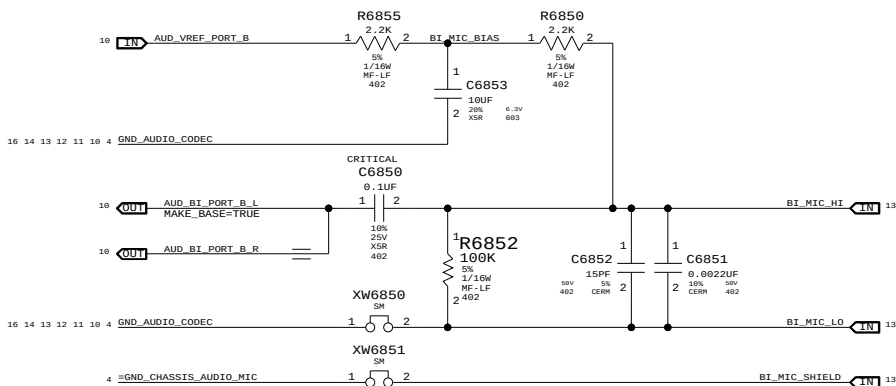


PORT A DETECT

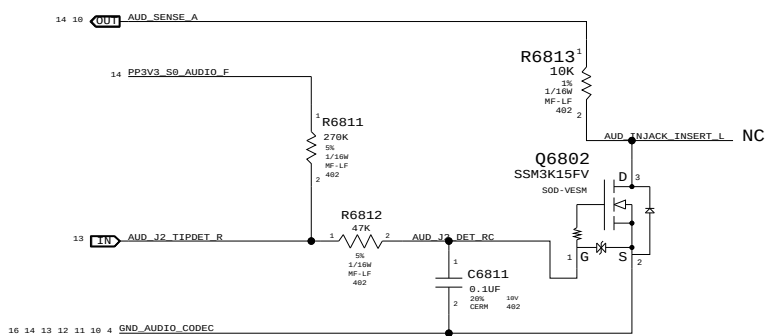
PORT E DETECT(SPDIF DELEGATE)



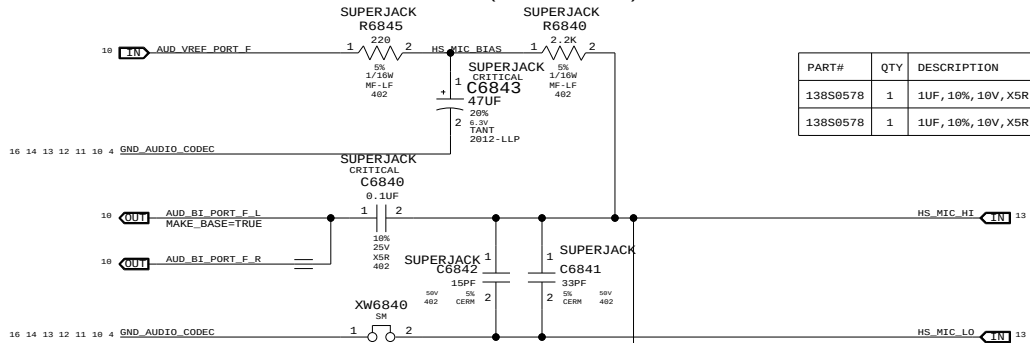
PORT B (BUILT-IN MIC)



Line-in (PORT C) DETECT

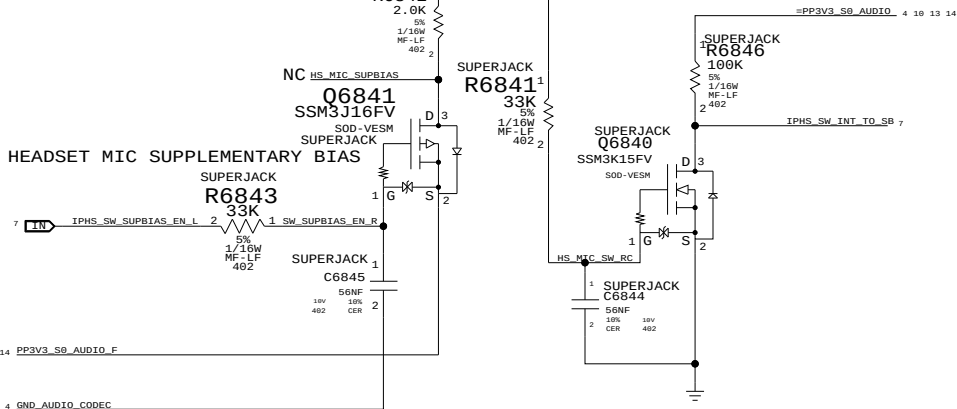


PORT F (HEADSET MIC)

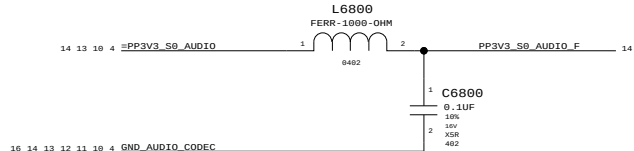


PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	CRITICAL	BOM OPTION
138S0578	1	1UF, 10%, 10V, X5R	C6842	CRITICAL	COMBOJACK
138S0578	1	1UF, 10%, 10V, X5R	C6840	CRITICAL	COMBOJACK

HEADSET SW INTERRUPT TO SOUTHBRIDGE



PLACE L6800/C6800 CLOSE TO Q6800/01/02



AUDIO: JACK TRANSLATORS

SYNC_MASTER=LENGO_M87_AUDIO	SYNC_DATE=11/01/2007
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APPLE INC.

SIZE

D

051-7447

REV.

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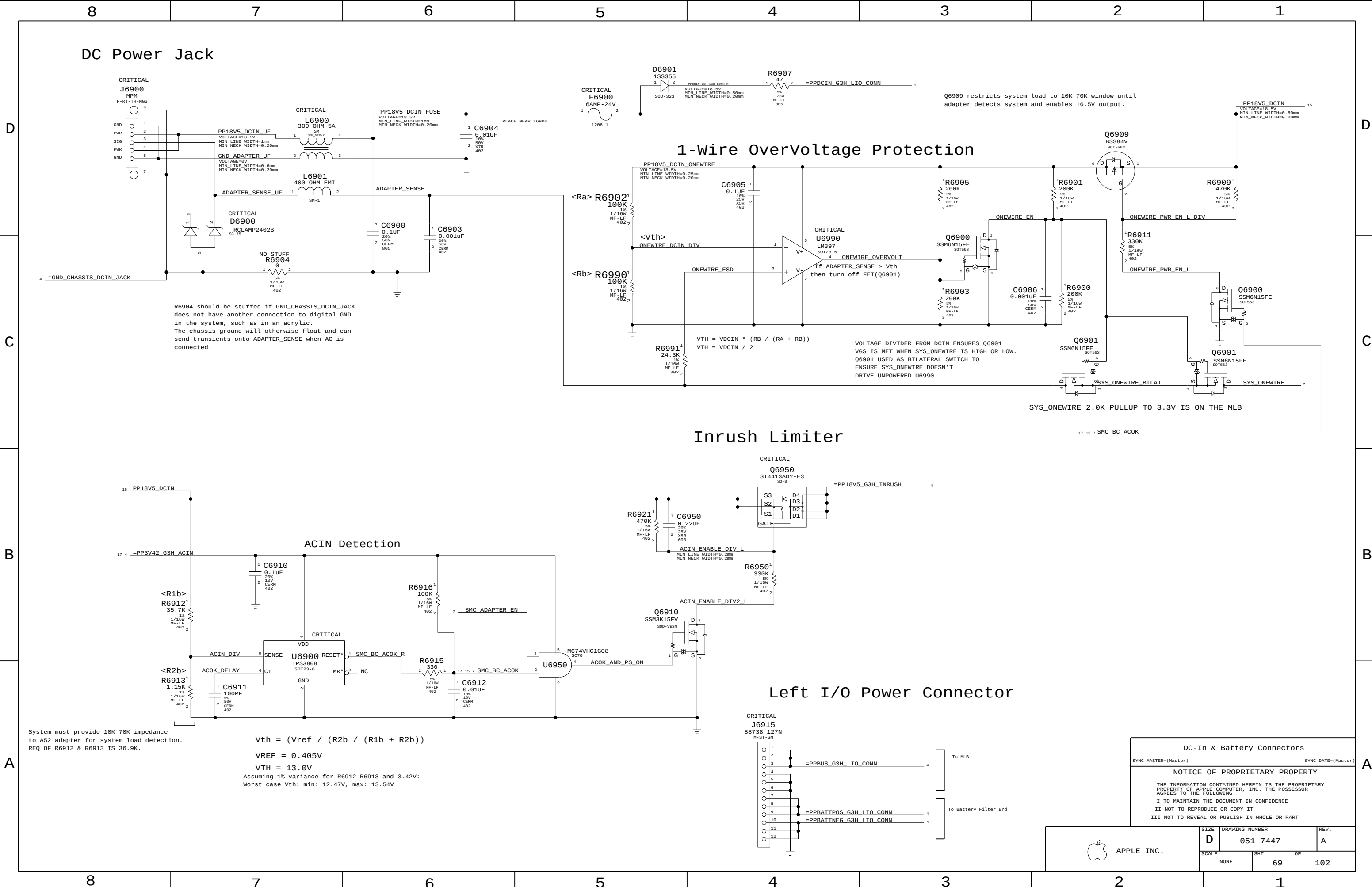
1444

A

SCALE

SHT

...



DC Power Jack

1-Wire OverVoltage Protection

Inrush Limiter

Left I/O Power Connector

ACIN Detection

System must provide 10K-70K impedance to A52 adapter for system load detection. REQ OF R6912 & R6913 IS 36.9K.

$V_{th} = (V_{ref} / (R_{2b} / (R_{1b} + R_{2b})))$

$V_{REF} = 0.405V$

$V_{TH} = 13.0V$

Assuming 1% variance for R6912-R6913 and 3.42V:
Worst case Vth: min: 12.47V, max: 13.54V

DC-In & Battery Connectors

SYNC_MASTER=(Master)

SYNC_DATA=(Master)

NOTICE OF PROPRIETARY PROPERTY

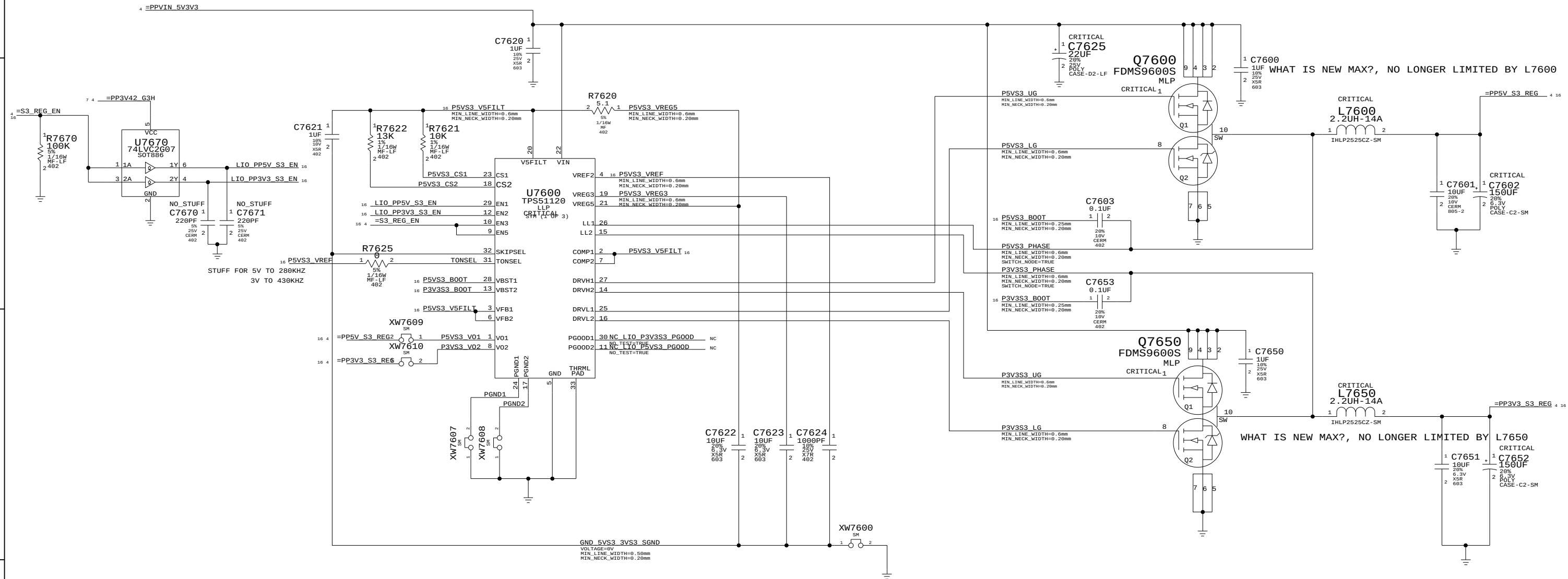
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5V/3.3V POWER SUPPLY



5V S0 FET
Q7610
FDC697P

PLACE XW7601 TO XW76010 CLOSE TO 5V SWITCHER AND S0 FET

3.3V S0 FET

Q7611
FDC697P

5V/3.3V SUPPLY

SYNC_MASTER=<MASTER> SYNC_DATE=<MASTER>

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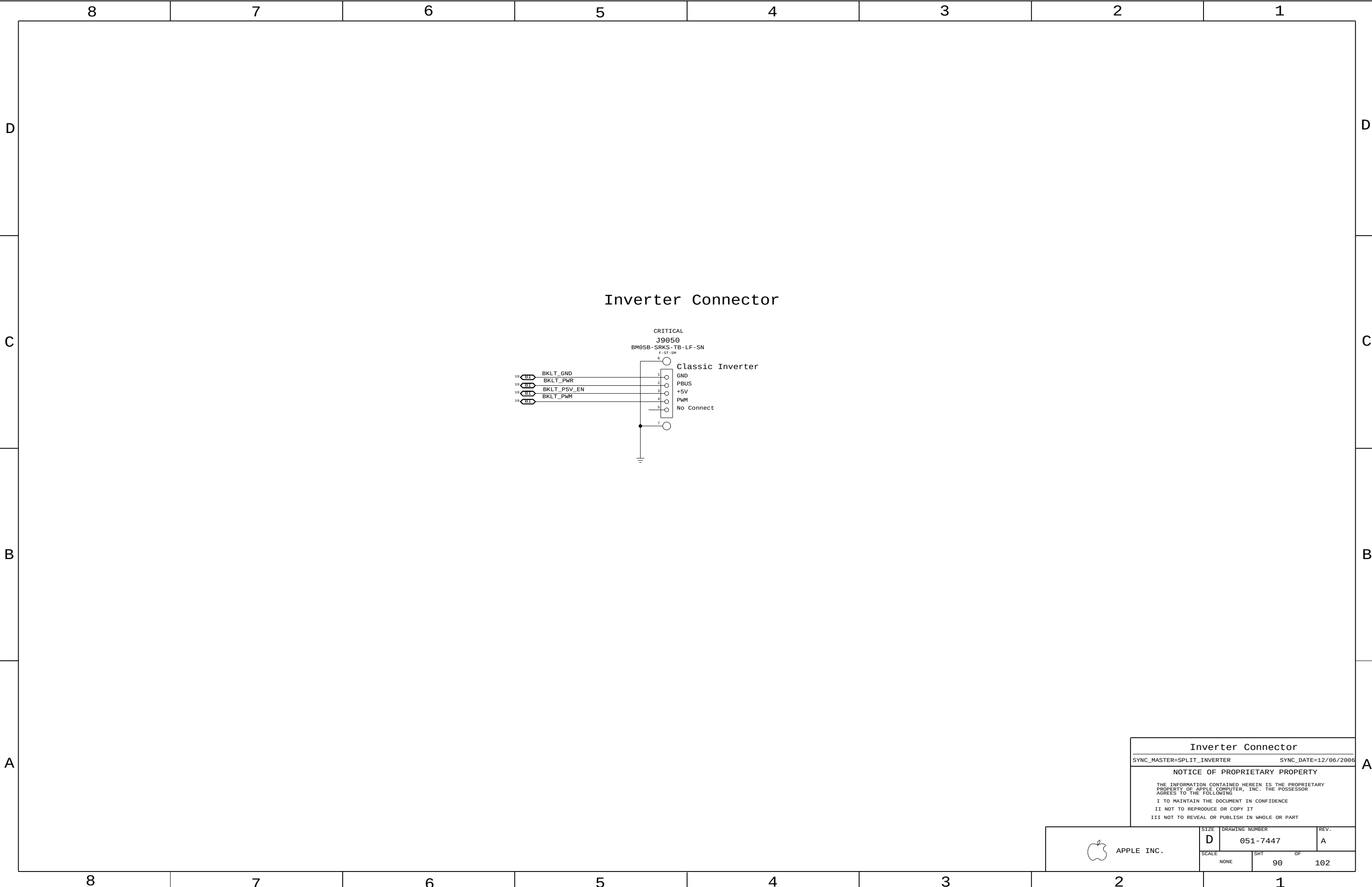
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SIZE	DRAWING NUMBER	REV.
D	051-7447	A
SCALE	SHT	OF
NONE	76	102



Inverter Connector

SYNC_MASTER=SPLIT_INVERTER

SYNC_DATE=12/06/2006

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APPLE INC.

SIZE

D

DRAWING NUMBER

051-7447

REV.

A

SCALE

NONE

SHT

90

OF

102

[illegible]

8			7			6			5			4			3			2			1		
D	Title: Cref Part Report Design: lio Date: Oct 5 17:43:38 2007			C7907 CAP_603 lio[17D6] C7908 CAP_P_CASE-D2-LF lio[17C2] C7910 CAP_603 lio[17C1] C7911 CAP_402 lio[17D5] C7912 CAP_402 lio[17D4] C7915 CAP_402 lio[17C6] C7916 CAP_805 lio[17D3] C7917 CAP_805 lio[17D2] C7920 CAP_402 lio[17B5] C7921 CAP_402 lio[17B5] C7922 CAP_402 lio[17B5] C7924 CAP_402 lio[17A4] C7925 CAP_402 lio[17B4] C7927 CAP_402 lio[17B1] C7940 CAP_603 lio[17D7] C7941 CAP_402 lio[17C7] C7950 CAP_603 lio[17B6] C7951 CAP_603 lio[17B4] C7961 CAP_402 lio[17A7] C7962 CAP_402 lio[17A7] C7970 CAP_603 lio[17C4] C7971 CAP_402 lio[17A2] C7980 CAP_402 lio[17B7] C7990 CAP_402 lio[17C6] C9800 CAP_402 lio[19A7] C9801 CAP_402 lio[19A5] C9802 CAP_402 lio[19D6] C9805 CAP_402 lio[19C6] C9807 CAP_402 lio[19B5] C9892 CAP_402 lio[19C3] C9893 CAP_402 lio[19C3] C9894 CAP_402 lio[19B3] D4000 DIODE_SCHOT_3P_A_SC-75 lio[8B3]			C7907 CAP_603 lio[17D6] C7908 CAP_P_CASE-D2-LF lio[17C2] C7910 CAP_603 lio[17C1] C7911 CAP_402 lio[17D5] C7912 CAP_402 lio[17D4] C7915 CAP_402 lio[17C6] C7916 CAP_805 lio[17D3] C7917 CAP_805 lio[17D2] C7920 CAP_402 lio[17B5] C7921 CAP_402 lio[17B5] C7922 CAP_402 lio[17B5] C7924 CAP_402 lio[17A4] C7925 CAP_402 lio[17B4] C7927 CAP_402 lio[17B1] C7940 CAP_603 lio[17D7] C7941 CAP_402 lio[17C7] C7950 CAP_603 lio[17B6] C7951 CAP_603 lio[17B4] C7961 CAP_402 lio[17A7] C7962 CAP_402 lio[17A7] C7970 CAP_603 lio[17C4] C7971 CAP_402 lio[17A2] C7980 CAP_402 lio[17B7] C7990 CAP_402 lio[17C6] C9800 CAP_402 lio[19A7] C9801 CAP_402 lio[19A5] C9802 CAP_402 lio[19D6] C9805 CAP_402 lio[19C6] C9807 CAP_402 lio[19B5] C9892 CAP_402 lio[19C3] C9893 CAP_402 lio[19C3] C9894 CAP_402 lio[19B3] D4000 DIODE_SCHOT_3P_A_SC-75 lio[8B3]			D6900 RCLAMP2402B_SC-75 lio[15C7] D6901 DIODE_S0D-323 lio[15D5] D7900 DIODE_SCHOT_S0D-123 lio[17C3] D7903 ZENER_S0T23 lio[17C4] D7921 DIODE_S0D-323 lio[17B3] D7940 DIODE_3P_CA_S0T-523-3 lio[17D7] D7950 DIODE_3P_C1_S0T-323 lio[17B5] DZ6702 SUPPR_TRANSIENT1_402 lio[13C5] DZ6703 SUPPR_TRANSIENT1_402 lio[13C5] DZ6704 SUPPR_TRANSIENT1_402 lio[13C5] DZ6705 SUPPR_TRANSIENT1_402 lio[13C6] DZ6706 SUPPR_TRANSIENT1_402 lio[13C6] DZ6752 SUPPR_TRANSIENT1_402 lio[13A6] DZ6753 SUPPR_TRANSIENT1_402 lio[13A6] DZ6754 SUPPR_TRANSIENT1_402 lio[13A5] DZ6755 SUPPR_TRANSIENT1_402 lio[13A5] F6900 FUSE_1206-1 lio[15D5] F7902 FUSE_1206-1 lio[17B2] F9000 FUSE_603 lio[19D6] FL3000 FILTER_4P_1210-4SM1 lio[7C3] FL3001 FILTER_4P_1210-4SM1 lio[7B3] J3400 CON_F52RT_D2MT_SM-F-ST-SM lio[9C5] J3500 CON_F26RT_S4MT_SM_M7 5_F-RT-SM lio[6D2] J3600 CON_M80ST_D4MT_SM_M-ST-SM lio[7C4] J4000 CON_F4RT_USB_S2MT_TH_F-RT-TH-USB-LFT lio[8C2] J6700 CON_F0RT_SPDIFTRAN_T H_F-RT-TH lio[13C8] J6750 CON_F0RT_SPDIFRCVR_T H2_F-RT-TH lio[13B0] J6780 CON_MBST_S_TH_M-ST-T H lio[13C1] J6900 CON_FSRT_S2MT_TH3_F-RT-TH-M03 lio[15D0] J6915 CON_M12ST_S_SM_M-ST-SM lio[15A4] J9050 CON_FSST_S2MT_SM_F-S T-SM lio[18C5] L3400 FILTER_4P_1210-4SM1 lio[5B2] L4000 FILTER_4P2_DLP115 lio[8C4] L4001 IND_0003 lio[8C4] L6200 IND_0402 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TRA_SI4413ADY_S0-8 lio[17D4] Q7091 TRA_RJK_LFPAK lio[17C3] Q7092 TRA_RJK_LFPAK lio[17C3] Q7093 TRA_SI4413ADY_S0-8 lio[17B4] Q7094 TRA_SI4413ADY_S0-8 lio[17B3] Q7095 TRA_DUAL_SSM6N15FE_S lio[17A4 17A4] Q7096 0T563 TRA_DUAL_SSM6N15FE_S lio[17A3 17A5] Q7097 0T563 TRA_10RLM5203_SM lio[17D7] Q7098 TRA_SSM3K15FV_S0D-VE lio[17C7] Q7099 SM Q7960 TRA_DUAL_SSM6N15FE_S lio[17A7 17A8] 0T563 TRA_DUAL_SSM6N15FE_S lio[17A7 17A8] 0T563 TRA_SI4413ADY_S0-8 lio[17B2] Q9805 TRA_DUAL_NPCH_NT2D31 55C1_S0T-563 lio[19B6 19C6] Q9806 TRA_FDMA530PZ_MICROF ET Q9807 TRA_SSM3K15FV_S0D-VE lio[19C6] SM R3450 RES_402 lio[5C2] R3451 RES_402 lio[5C2] R3500 RES_402 lio[6C6] R3501 RES_402 lio[6B3] R6201 RES_402 lio[10B5] R6202 RES_402 lio[10B3] R6204 RES_402 lio[10C6] R6205 RES_402 lio[10B5] R6206 RES_402 lio[10B3] R6207 RES_402 lio[10B2] R6220 RES_402 lio[10A6] R6221 RES_402 lio[10A4] R6222 RES_402 lio[10A4] R6250 RES_402 lio[10C5] R6251 RES_402 lio[10D6] R6500 RES_402 lio[11C5] R6510 RES_402 lio[11B5] R6511 RES_402 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U6610 MAX9705_TDFN1 lio[12C5] U6620 MAX9705_TDFN1 lio[12B5] U6900 TPS3808_S0T23-6 lio[15A7] U6950 MC74VHC1G00_S0T0 lio[15A5] U6990 COMPARATOR_LM397_S0T23-5 lio[15C4] U7000 TPSS1120_LLP lio[16C6] U7070 74LVC2607_S0T886 lio[16C8] U7090 ISL6257_QFN lio[17D5] U7901 OPAMP_MAX4245_S0T0-6 lio[17B8] U7950 LREG_MAX8719_TDFN lio[17C6] U9000 MC74VHC1G00_S0T0 lio[19A6] U9001 MC74VHC1G00_S0T0 lio[19A5] XW6200 SHORT_SM lio[10A6] XW6202 SHORT_SM lio[10A6] XW6500 SHORT_SM lio[11C6] XW6501 SHORT_SM lio[11C6] XW6701 SHORT_SM lio[13A3] XW6710 SHORT_SM lio[13B2] XW6711 SHORT_SM lio[13B2] XW6712 SHORT_SM lio[13B2] XW6840 SHORT_SM lio[14B4] XW6850 SHORT_SM lio[14C3] XW6851 SHORT_SM lio[14B3] XW7000 SHORT_SM lio[16A4]<							

8			7			6			5			4			3			2			1			
D	U9900	BD9828FV_SSOP	lio[20C5]																				D	
	XW6200	SHORT_SM	lio[10A6]																					
	XW6202	SHORT_SM	lio[10A6]																					
	XW6500	SHORT_SM	lio[11C6]																					
	XW6501	SHORT_SM	lio[11C5]																					
	XW6701	SHORT_SM	lio[13A3]																					
	XW6710	SHORT_SM	lio[13B2]																					
	XW6711	SHORT_SM	lio[13B2]																					
	XW6712	SHORT_SM	lio[13B2]																					
	XW6800	SHORT_SM	lio[14C3]																					
	XW7600	SHORT_SM	lio[16A4]																					
	XW7601	SHORT_SM	lio[16A6]																					
	XW7602	SHORT_SM	lio[16A6]																					
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	XW7606	SHORT_SM	lio[16A6]																					
	XW7607	SHORT_SM	lio[16B6]																					
	XW7608	SHORT_SM	lio[16B6]																					
	XW7609	SHORT_SM	lio[16B6]																					
	XW7610	SHORT_SM	lio[16B6]																					
	XW7900	SHORT_SM	lio[17C5]																					
	XW7901	SHORT_SM	lio[17D3]																					
	XW7902	SHORT_SM	lio[17D3]																					
	XW7903	SHORT_SM	lio[17C2]																					
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	XW9900	SHORT_SM	lio[20D5]																					
	ZT0900	MTGHOLE	lio[4D3]																					
	ZT0910	MTGHOLE	lio[4A8]																					
	ZT0920	MTGHOLE	lio[4B8]																					
	ZT0930	MTGHOLE	lio[4A8]																					
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