

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

ENG APPD

DATE

DATE

B

358898

PRODUCTION RELEASED

01/07/05

D

C

B

A

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REVISION HISTORY

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SIGNAL LOCATIONS

12

COMPONENT LOCATIONS

SCHEM, LEFT I/O BRD, PB15"

01/07/2005

PART#

QTY

DESCRIPTION

REFERENCE DESIGNATOR(S)

BOM OPTION

051-6686

1

SCHEM, LEFT I/O BRD, PB15

SCH1

820-1685

1

PCBF, LEFT I/O BRD, PB15

PCB1

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 Computer Inc.

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TITLE

SCHEM, LEFT I/O BRD, PB15

DRAWING NUMBER

051-6686

REV. B

SHT 1 OF 12

D

C

B

A

87654321

PCB SPECS

THICKNESS : 1.2 MM / 0.047 IN
1/2 OZ CU THICKNESS: 0.7 MILS
1.0 OZ CU THICKNESS: 1.4 MILS

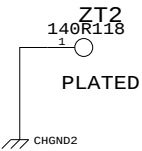
IMPEDANCE : 50 OHMS +/- 10%
DIELECTRIC: FR-4
LAYER COUNT: 10
SIGNAL TRACE WIDTH: 4 MILS
SIGNAL TRACE SPACING: 4 MILS
PREPREG THICKNESS: 3-6 MILS

SEE PCB CAD FILES FOR MORE SPECIFIC INFO.

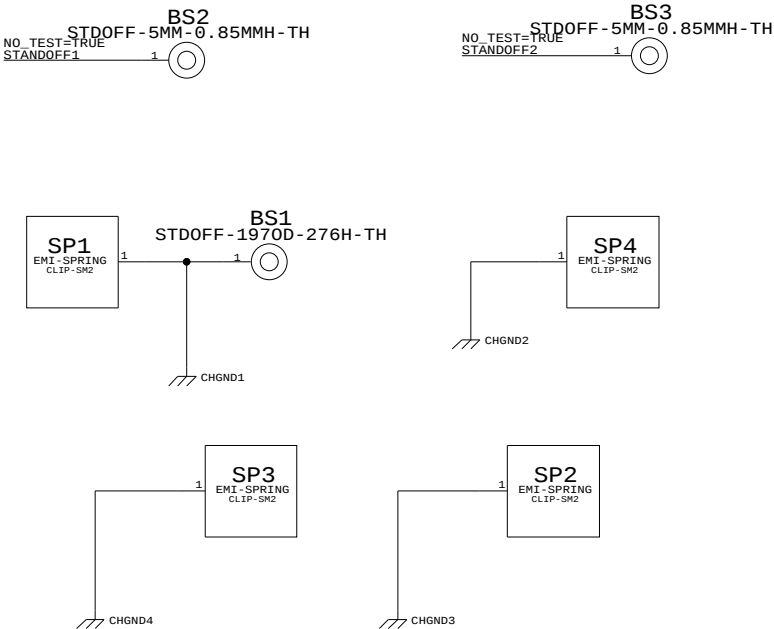
BOARD STACK-UP AND CONSTRUCTION

1	Micro Via (Blind)	20R10 TH Via	SIGNAL (1/2 OZ)
2	20R10 Buried Via		SIGNAL (1/2 OZ)
3			GROUND (1/2 OZ)
4			SIGNAL (1/2 OZ)
5			CUT POWER PLANE(DEFAULT 3V) POWER (1 OZ)
6			CUT POWER PLANE(DEFAULT 5V) POWER (1 OZ)
7			SIGNAL (1/2 OZ)
8			GROUND (1/2 OZ)
9			SIGNAL (1/2 OZ)
10			SIGNAL (1/2 OZ)

BOARD HOLES



PCB BOARD STANDOFFS / FINGER SPRINGS



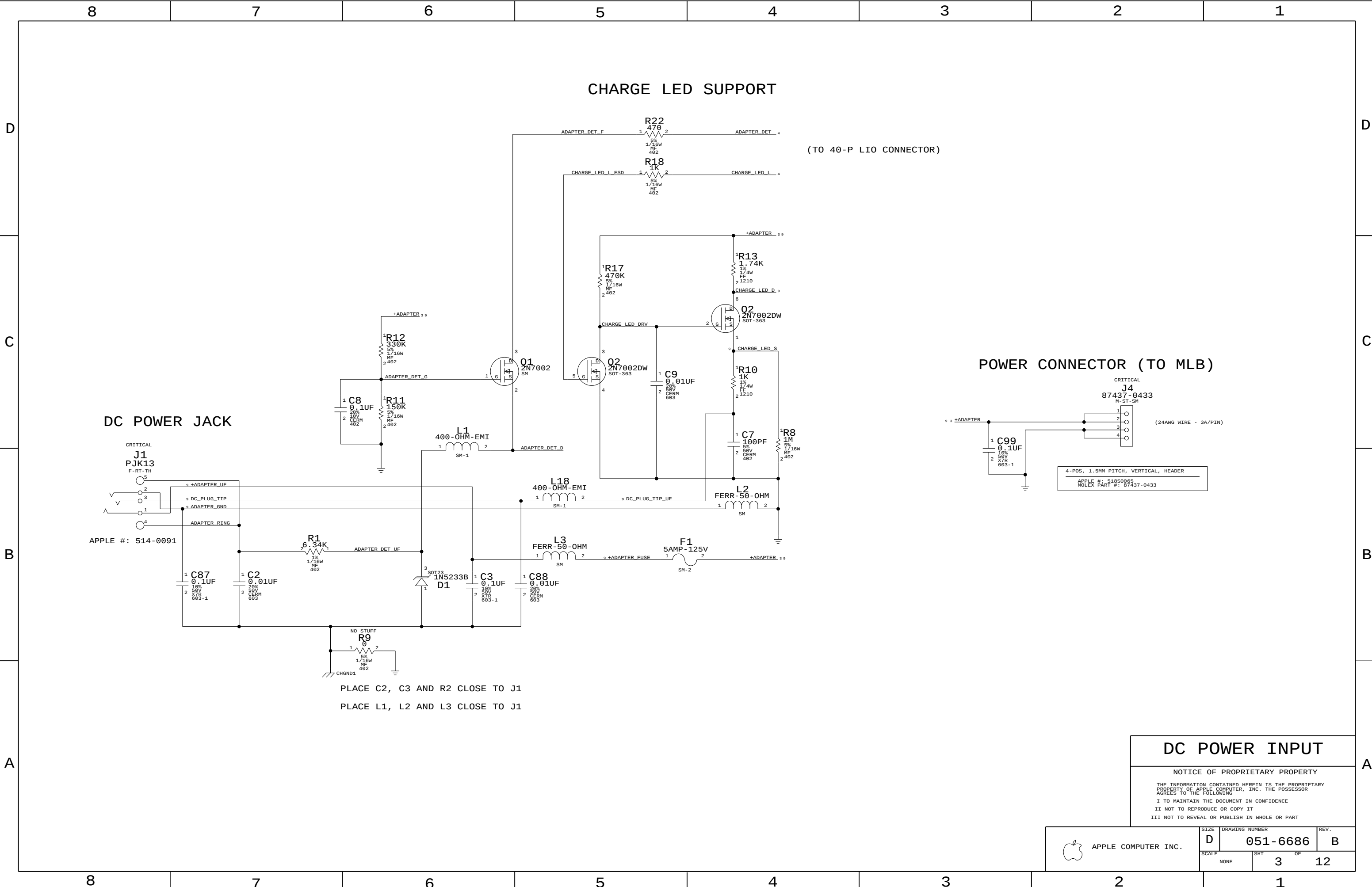
BOARD INFORMATION

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APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6686	B
SCALE	SHT	OF
NONE	2	12



DC POWER JACK

CHARGE LED SUPPORT

POWER CONNECTOR (TO MLB)

DC POWER INPUT

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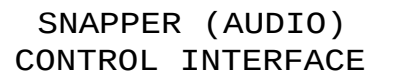
SIZE DRAWING NUMBER REV.

D 051-6686 B

SCALE SHT OF

NONE 3 12

3V AUDIO POWER SUPPLY



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APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
------	----------------	------

D	051-6686	B
---	----------	---

SCALE	SHT	OF
NONE	5	12

D



A

	1
--	---

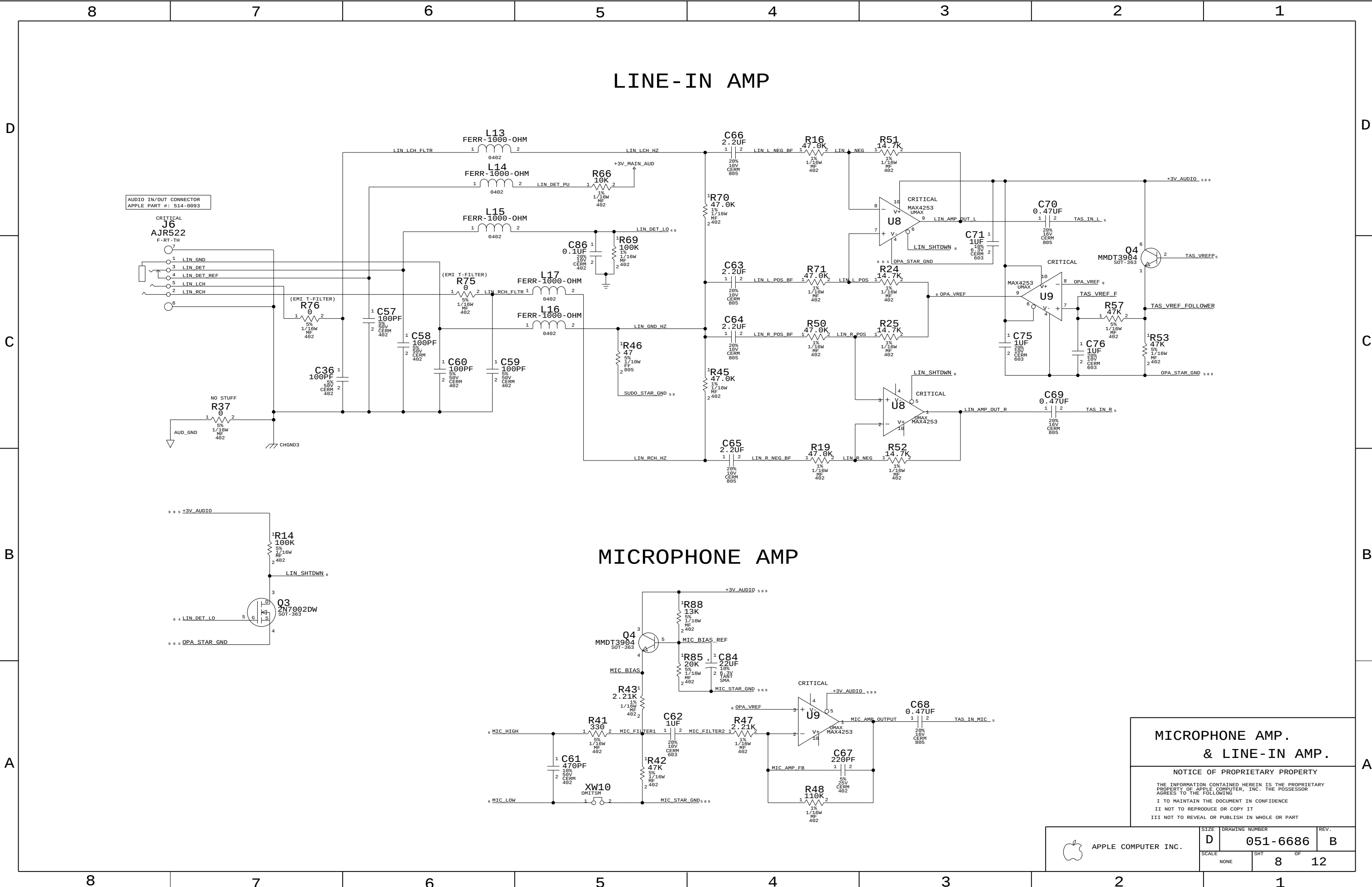
D

B

A

SIZE D	DRAWING NUMBER 051-6686	REV. B
SCALE NONE	SHT 7	OF 12





MICROPHONE AMP.
& LINE-IN AMP.

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	D	051-6686	B
SCALE		SHT	OF
NONE		8	12

8	7	6	5	4	3	2	1
---	---	---	---	---	---	---	---

D

```

LAYER 2 (STRIP LINES)
E=3.8, W=4.7, H=3, T=0.7, S=12.3(IN MIL)
ZSINGLE = 45.0 OHM
ZDIFF = 89.1 OHM

```

D

C

A

A



SIZE D	DRAWING NUMBER 051-6686	REV. B
SCALE NONE	SHT 9	OF 12

8		7		6		5		4		3		2		1	
REVISION HISTORY															
(REV. 01)07/07/2004 -SCHEMATIC ORIGINATED FROM Q16B L10 (REV. A)12/17/2004 -SCHEMATIC RELEASE FOR PRODUCTION															
D														D	
C														C	
B														B	
A														A	
8		7		6		5		4		3		2		1	
APPLE COMPUTER INC. SIZE D DRAWING NUMBER 051-6686 REV. B SCALE NONE SHT 10 OF 12												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			

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 APPLE COMPUTER INC.	SIZE D	DRAWING NUMBER 051-6686	REV. B
	SCALE NONE	SHT 10	OF 12

D

C

B

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*** Signal Cross-Reference for the entire design ***

+3V_AUDIO 5C5< 5D2<< 8A3<> 8B4<> 8B7< 8D1<>
 9C2>
+3V_AUDIO_FILTERED 9C2>
+3V_MAIN_AUD 9D2>
+3V_MAIN_BT 9D2>
+3V_TAS_DVDD 5D3< 9C2>
+5V_MAIN_AUD 9D2>
+5V_MAIN_USB 9D2>
+5V_USB_LEFT 4C5<> 9C2>
+5V_USB_LEFT_FLT 4C5<> 9C2>
+ADAPTER 3B4< 3C3<> 3C4< 3C6< 9D2>
+ADAPTER_FUSE 3B5< 9D2>
+ADAPTER_UF 3B7<> 9D2>
+A489_SND_PWB 7B4< 7C5<
+ADAPTER_DET 3D4< 4B3<>
+ADAPTER_DET_D 3B5<
+ADAPTER_DET_F 3D5<
+ADAPTER_DET_G 3C6<
+ADAPTER_DET_UF 3B6<
+ADAPTER_GND 3B7<> 9D2>
+ADAPTER_RING 3B7<>
AUD_SLEEP_H 4B2<> 5B4< 5B8<
AUD_SLEEP_R 5B4<
AUD_SLEEP_RC 5B7<>
BT_USB_DM 4B3<> 4C3<> 9C6>
BT_USB_DP 4B3<> 4C3<> 9C6>
CHARGE_LED_D 3C4<> 9D2>
CHARGE_LED_DRV 3C5<>
CHARGE_LED_L 3D4< 4B3<>
CHARGE_LED_L_ESD 3D5<>
CHARGE_LED_S 3C4<> 9D2>
DC_PLUG_TIP 3B7<> 9D2>
DC_PLUG_TIP_UF 3B5< 9C2>
FILTER1_L 7C7<
FILTER1_R 7B7<
FILTER2_L 7B6<
FILTER2_R 7B6<
FILTER3_L 7C5<
FILTER3_R 7B5<
GND_GALVA 7B4<
HP_AMP_OUT_L 7C5<>
HP_AMP_OUT_R 7C5<>
HP_AMP_VCC 7D5<> 9B2>
HP_GND 7B4<>
HP_IN_L 7C6<>
HP_IN_R 7C6<
HP_MUTE_LO 4B2<> 7C4<
HP_OUT_L 7C4<>
HP_OUT_L_EMI 7C4<
HP_OUT_R 7B4<>
HP_OUT_R_EMI 7B4<
HP_SENSE 7C3<>
HP_SENSE_FILTER 7C4<
HP_SENSE_LO 4B3<> 7C5<
HP_SENSE_REF 7C3<>
I2S0_LRCK 4B3<> 5B2<>
I2S0_MCLK 4B3<> 5B4< 9C6>
I2S0_RESET 4B2<> 5B4<
I2S0_SCLK 4B2<> 5B2<>
I2S0_SND_FROM_ADC 4B2<> 5C2<
I2S0_SND_TO_DAC 4B3<> 5C4<
INT2_I2C_CLK 4B2<> 5B2<>
LIN_AMP_OUT_L 8C3<>
LIN_AMP_OUT_R 8C3<>
LIN_DET 8C7<>
LIN_DET_LO 4B3<> 8B7<> 8C5<
LIN_DET_PU 8D5<
LIN_DET_REF 8C7<>
LIN_GND 8C7<>
LIN_GND_HZ 8C5<
LIN_LCH 8C7<>
LIN_LCH_FLTR 8D6<
LIN_LCH_HZ 8D5<
LIN_L_NEG 8D4<>
LIN_L_NEG_BP 8D4<
LIN_L_POS 8C4<>
LIN_L_POS_BP 8C4<
LIN_RCH 8C7<>
LIN_RCH_FLTR 8C6<
LIN_RCH_HZ 8B5<
LIN_R_NEG 8B4<>
LIN_R_NEG_BP 8B4<
LIN_R_POS 8C4<>
LIN_R_POS_BP 8C4<
LIN_SHUTDOWN 8B7<> 8C3<> 8C3<>
LP3985_BYPASS 5C5<>
LP3985_EN 5B7<>
L_AMP_IN_N 6D6<
L_AMP_IN_P 6D7<>
L_SPKR_NEG 6C2<> 9B2>
L_SPKR_NEG_UF 6C3< 6C5< 9B2>
L_SPKR_POS 6C2<> 9B2>
L_SPKR_POS_UF 6C3< 6D5<> 9B2>
MAX4418_CIN 7C6<
MAX4418_CLIP 7C6<>
MAX4418_VSS 7C5<
MAX_STAR_GND 5B5<> 7B5< 7C6< 7C6< 9C2>
MIC_AMP_FB 8A4<>
MIC_AMP_OUTPUT 8A4<>
MIC_BIAS 8A5<>
MIC_BIAS_REF 8A5<>
MIC_FILTER1 8A5<
MIC_FILTER2 8A4<
MIC_HIGH 6C2<> 8A6<
MIC_LOW 6C2<> 8A6<
MIC_STAR_GND 5B5<> 8A4<> 8A4< 9C2>
OPA_VREF 8A4<> 8C2<> 8C3<>
PPM_STAR_GND 5B5<> 7C3< 7C6<> 9C2>
REF_STAR_GND 5A3< 5C6<> 9C2>
R_AMP_IN_N 6C6<
R_AMP_IN_P 6C7<>
R_SPKR_NEG 6C2<> 9B2>
R_SPKR_NEG_UF 6C3< 6C5< 9B2>
R_SPKR_POS 6C2<> 9B2>
R_SPKR_POS_UF 6C3< 6C5<> 9B2>
SPKR_MUTE 4B2<> 6A7<> 6C7<> 6C7<>
SPKR_STAR_GND 5B5<> 6A6<> 6B6<> 6C6<> 9B2>
SUB_AMP_IN_N 6A6<
SUB_AMP_IN_P 6A7<>
SUB_NEG 6B2<> 9B2>
SUB_NEG_UF 6A5< 6B3< 9B2>
SUB_POS 6C2<> 9B2>
SUB_POS_UF 6A5<> 6C3< 9B2>
SUDDO_STAR_GND 5B5<> 8C5< 9B2>
TAS_AINLP 5C4<
TAS_AINRP 5C4<
TAS_CS1_PU 5B4<
TAS_FILT 9B2<>
TAS_IN_L 5C4< 8C2<
TAS_IN_MIC 5C4< 8A3<
TAS_IN_R 5C4< 8C2<
TAS_LPFLT 5C4<
TAS_LINB 5C4<
TAS_OUT 5C2<>
TAS_OUT_COM 5B2<>
TAS_OUT_L 5C2> 6B7< 6D7< 7C7<
TAS_OUT_R 5C2> 6A7< 6C7< 7B7<
TAS_OUT_SPKR_L 6D7<
TAS_OUT_SPKR_R 6C7<
TAS_OUT_SUB_L 6B7<
TAS_OUT_SUB_R 6A7<
TAS_PLL 5B4<
TAS_PLL_RC 5B5<
TAS_RPFLT 5C4<
TAS_SOINZ 5C3<
TAS_STAR_GND 5A3< 5C2< 5C5< 5C6<> 7B7< 9C2>
TAS_VREFN 5B4<
TAS_VREFP 5B4< 8C1<>
TAS_VREF_F 8C2<>
TAS_VREF_FOLLOWER 8C1<>
USB_DM 4B2<> 4B7<> 9D6>
USB_DM_EMI 4B6<> 9D6>
USB_DP 4B2<> 4B7<> 9D6>
USB_DP_EMI 4B6<> 9D6>
USB_GND 4B5<>
USB_OC1<1> 4B3<> 4C6>
USB_PPON<1> 4B3<> 4C7<

8

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[illegible]