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.

SCHEM,DOB,Q41A

(DAUGHTER OF BUBBA)

12/15/2003

REV	ZONE	ECN	DESCRIPTION OF CHANGE	CK APPD DATE	ENG APPD DATE
01		308001	ENGINEERING RELEASED	12/19/03	?

PAGE	CONTENTS
1	TITLE PAGE AND CONTENTS
2	PCB NOTES AND HOLES
3	BACK UP BATTERY
4	RIGHT USB PORT
5	CONSTRAINTS / REVISION HISTORY
6	SIGNAL LOCATIONS
7	COMPONENT LOCATIONS

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
051-6601	1	SCHEM,DOB,Q41A	SCH1	
820-1618	1	PCBF,DOB,Q41A	PCB1	

DIMENSIONS ARE IN MILLIMETERS

XX ±

X.XX ±

X.XXX ±

ANGLES °

DO NOT SCALE DRAWING

THIRD ANGLE PROJECTION

METRIC

DRAFTER		DESIGN CK	
ENG APPD		MFG APPD	
QA APPD		DESIGNER	
RELEASE		SCALE	NONE

MATERIAL/FINISH NOTED AS APPLICABLE

SIZE D

Apple Computer Inc.

TITLE

SCHEM,DOB,Q41A

DRAWING NUMBER 051-6601 REV. 01

SHT 1 OF 5

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: 12
SIGNAL TRACE WIDTH: 4 MILS
SIGNAL TRACE SPACING: 4 MILS
PREPREG THICKNESS: 2-3 MILS

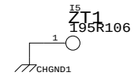
SEE PCB CAD FILES FOR MORE SPECIFIC INFO.

BOARD STACK-UP AND CONSTRUCTION

20R10 TH VIA OR VIA IN PAD

1		SIGNAL (1/3 OZ + COPPER PLATING)
2	PREPREG (3MIL)	GROUND (1/2 OZ)
3	LAMINATE (4MIL)	SIGNAL (1/2 OZ)
4	PREPREG (3MIL)	SIGNAL (1/2 OZ)
5	LAMINATE (4MIL)	GROUND (1/2 OZ)
6	PREPREG (2MIL)	CUT POWER PLANE(1 OZ)
7	LAMINATE (3MIL)	CUT POWER PLANE(1 OZ)
8	PREPREG (2MIL)	GROUND (1/2 OZ)
9	LAMINATE (4MIL)	SIGNAL (1/2 OZ)
10	PREPREG (3MIL)	SIGNAL (1/2 OZ)
11	LAMINATE (4MIL)	GROUND (1/2 OZ)
12	PREPREG (3MIL)	SIGNAL (1/3 OZ + COPPER PLATING)

BOARD HOLES



PCB BOARD STANDOFFS

BOARD INFORMATION

NOTICE OF PROPRIETARY PROPERTY

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II NOT TO REPRODUCE OR COPY IT

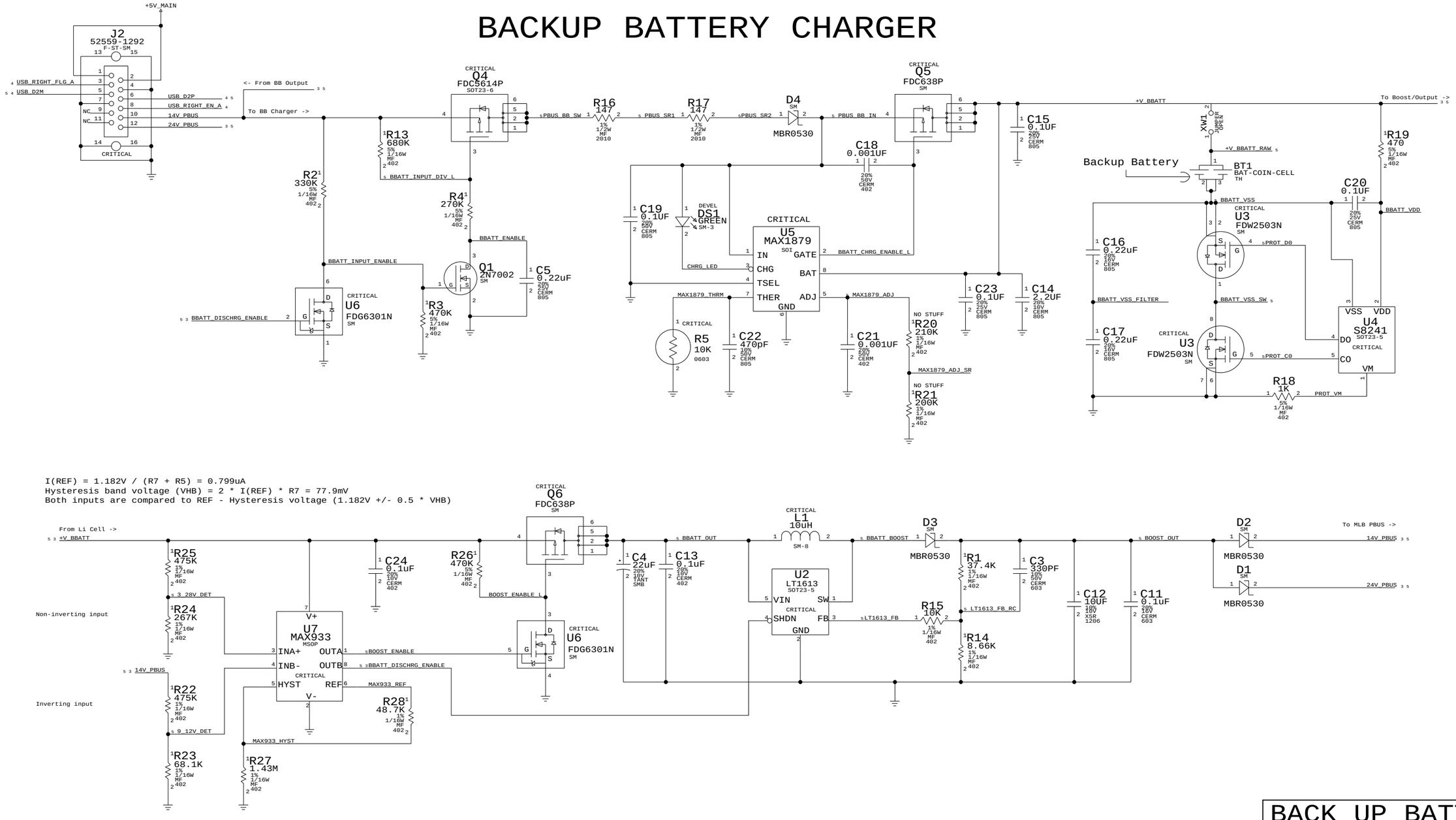
III NOT TO REVEAL OR PUBLISH IN WHOLE OR PART

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6601	01

SCALE	SHT	OF
NONE	2	5

BACKUP BATTERY CHARGER



I(REF) = 1.182V / (R7 + R5) = 0.799uA
Hysteresis band voltage (VHB) = 2 * I(REF) * R7 = 77.9mV
Both inputs are compared to REF - Hysteresis voltage (1.182V +/- 0.5 * VHB)

BACK UP BATTERY

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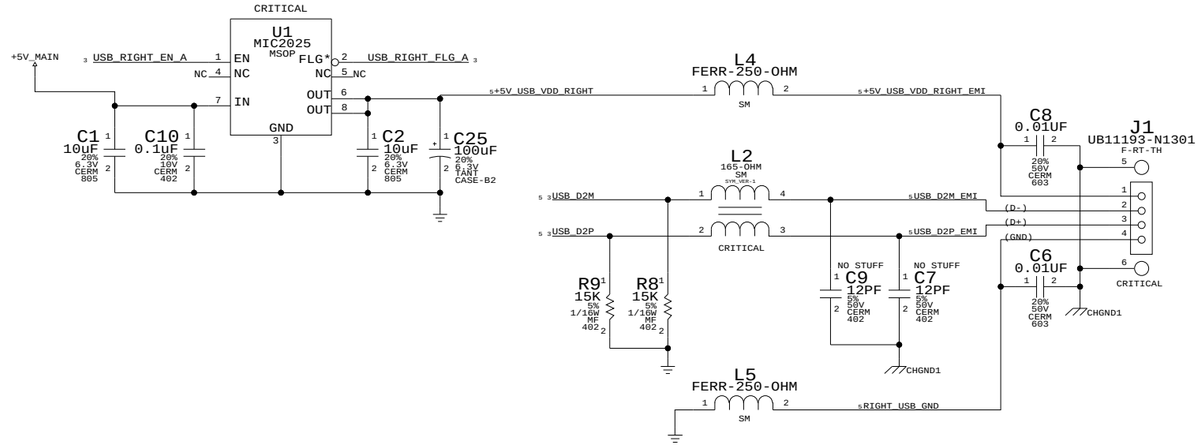
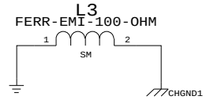
SIZE	DRAWING NUMBER	REV.
D	051-6601	01

SCALE	SHT	OF
NONE	3	5

RIGHT USB PORT



PUT L2, L4 AND L5 ACROSS THE MOAT



USB CONNECTOR

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6601	01

SCALE	SHT	OF
NONE	4	5

Differential Signals

GROUP	SIG_NAME	DIFFERENTIAL_PAIR	MATCHED_DELAY	
USB	USB_D2M	USB_D2	USB_D2:J2.5:L2.1:200	3 4
	USB_D2P	USB_D2	USB_D2:J2.6:L2.2:200	3 4
	USB_D2M_EMI	USB_D2_EMI	USB_D2_EMI:L2.4:J1.2:200	4
	USB_D2P_EMI	USB_D2_EMI	USB_D2_EMI:L2.3:J1.3:200	4

Power Signals

GROUP	SIG_NAME	VOLTAGE	MIN_LINE_WIDTH	MIN_NECK_WIDTH	
BATTERY	24V_PBUS	VOLTAGE=24V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10	
	14V_PBUS	VOLTAGE=14V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10	3
	PBUS_BB_IN	VOLTAGE=14V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10	3
	PBUS_SR2	VOLTAGE=14V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10	3
	PBUS_SR1	VOLTAGE=14V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10	3
	PBUS_BB_SW	VOLTAGE=14V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10	3
	+V_BBATT	VOLTAGE=4.2V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10	3
	+V_BBATT_RAW	VOLTAGE=4.2V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10	3
	BBATT_VSS	VOLTAGE=0V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10	3
	BBATT_VSS_SW	VOLTAGE=0V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10	3
MAX1879	MAX1879_ADJ	VOLTAGE=1.4V	MIN_LINE_WIDTH=8	MIN_NECK_WIDTH=10	3
	BBATT_INPUT_DIV_L	VOLTAGE=14V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10	3
S8241	PROT_D0	VOLTAGE=4.2V	MIN_LINE_WIDTH=8	MIN_NECK_WIDTH=10	3
	PROT_C0	VOLTAGE=4.2V	MIN_LINE_WIDTH=8	MIN_NECK_WIDTH=10	3
MAX933	9_12V_DET	VOLTAGE=1.2V	MIN_LINE_WIDTH=8	MIN_NECK_WIDTH=10	3
	3_28V_DET	VOLTAGE=1.2V	MIN_LINE_WIDTH=8	MIN_NECK_WIDTH=10	3
	BOOST_ENABLE	VOLTAGE=4.2V	MIN_LINE_WIDTH=8	MIN_NECK_WIDTH=10	3
	BBATT_DISCHRG_ENABLE	VOLTAGE=4.2V	MIN_LINE_WIDTH=8	MIN_NECK_WIDTH=10	3
LT1613	BBATT_OUT	VOLTAGE=4.2V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10	3
	BBATT_BOOST	VOLTAGE=6.5V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10	3
	BOOST_OUT	VOLTAGE=6.5V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10	3
	LT1613_FB	VOLTAGE=1.3V	MIN_LINE_WIDTH=8	MIN_NECK_WIDTH=10	3
	LT1613_FB_RC	VOLTAGE=1.3V	MIN_LINE_WIDTH=8	MIN_NECK_WIDTH=10	3
USB	+5V_USB_VDD_SW	VOLTAGE=5V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10	
	+5V_USB_VDD_RIGHT	VOLTAGE=5V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10	4
	+5V_USB_VDD_RIGHT_EMI	VOLTAGE=5V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10	4
	RIGHT_USB_GND	VOLTAGE=0V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10	4
	+5V_MAIN	VOLTAGE=5V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10	
	GND	VOLTAGE=0V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10	

REVISION HISTORY

04/22/03 - DESIGN ORIGINATED FROM 051-6283
04/23/03 - (PG. 3) CHANGED C12 TO LOW-PROFILE PART
EVT 04/28/03 - (PG. 4) REPLACED R6 & R7 WITH 250-OHM 2A FERRITES (TABLE ITEM)
04/29/03 - (PG. 4) CHANGED R6 & R7 TO L4 & L5 (PAD CHANGE FOR FERRITES)
07/24/03 - PRODUCTION RELEASE

SIGNAL CONSTRAINTS

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	051-6601	01

SCALE	SHT	OF
NONE	5	5