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
01		229127	ENGINEERING RELEASED	07/22/02	?

PAGE	CONTENTS

BUBBA

DVT BUILD
11/20/2002

PART#	QTY	DESCRIPTION	REFERENCE DESIGNATOR(S)	BOM OPTION
051-6283	1	SCHEM,BKUP BATT,BUBBA,P84	SCH1	
820-1391	1	PCBF,BKUP BATT,BUBBA,P84	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,BUBBA,P84

DRAWING NUMBER 405592 REV. 0A

SHT 1 OF 7

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

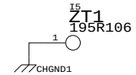
SEE PCB CAD FILES FOR MORE SPECIFIC INFO.

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

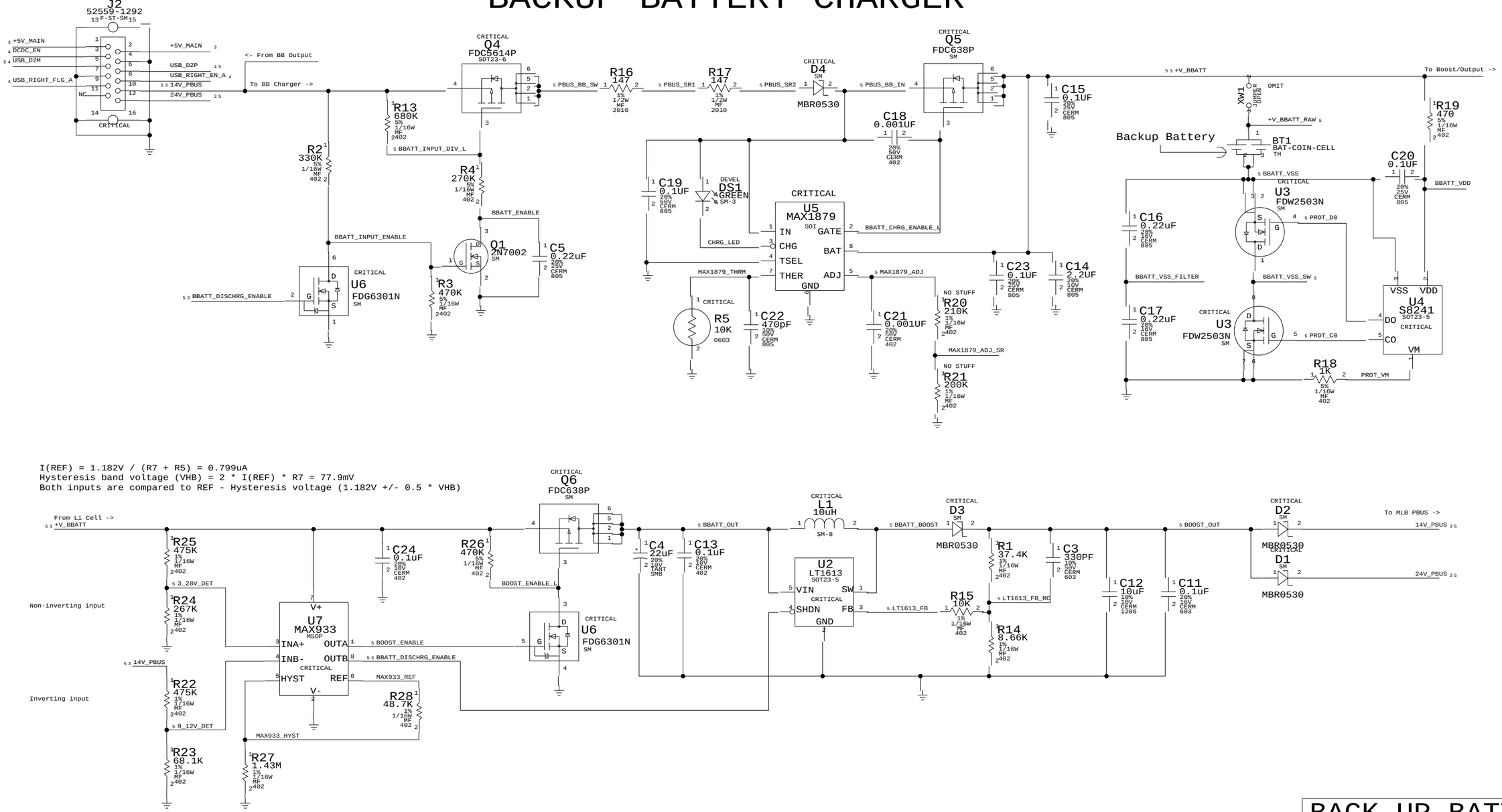
APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	405592	0A

SCALE	SHT	OF
NONE	2	7

CR-3

BACKUP BATTERY CHARGER



BACK UP BATTERY

NOTICE OF PROPRIETARY PROPERTY

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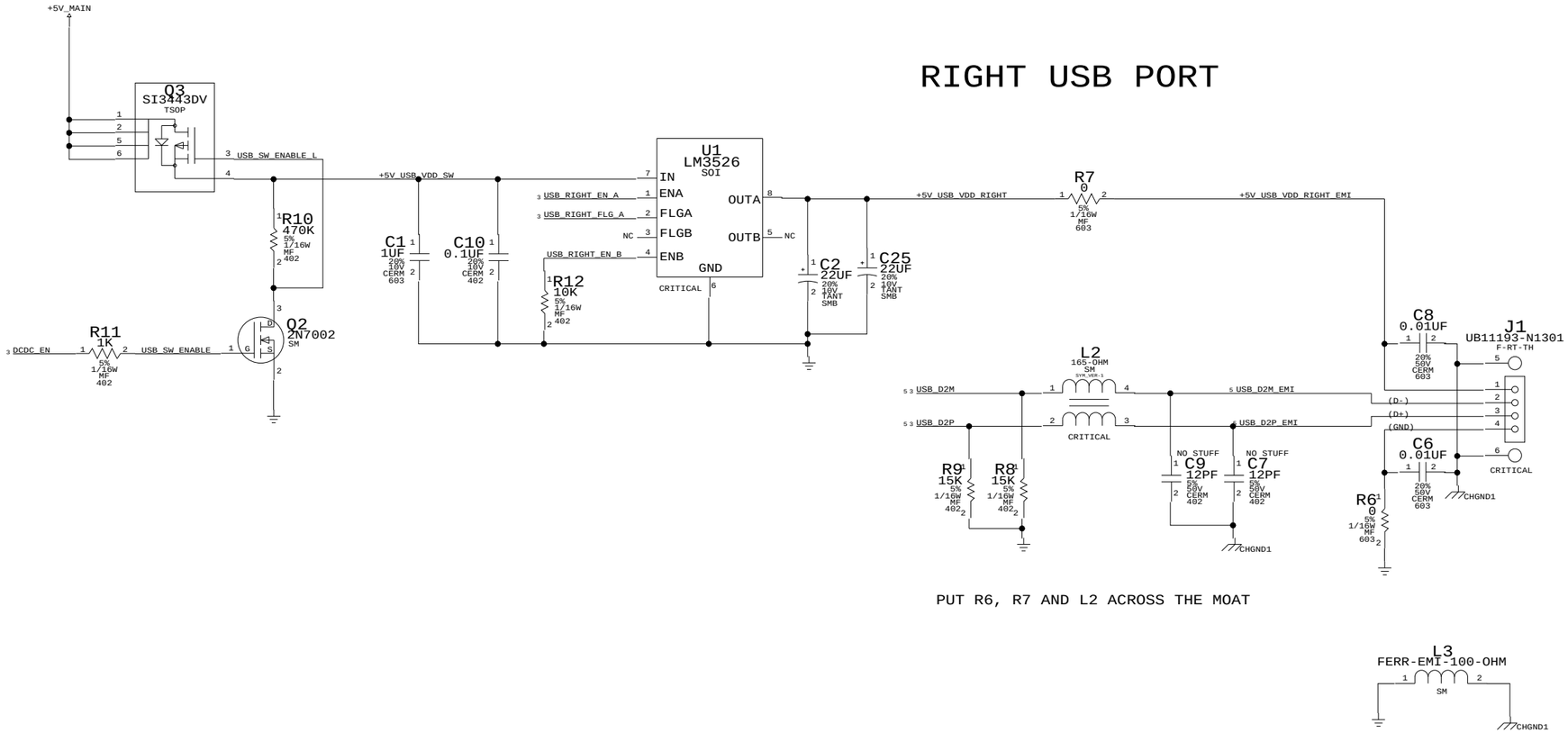
APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	405592	0A

SCALE	SHT	OF
NONE	3	7

RIGHT USB PORT



PUT R6, R7 AND L2 ACROSS THE MOAT

USB CONNECTOR

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SIZE	DRAWING NUMBER	REV.
D	405592	0A

SCALE	SHT	OF
NONE	4	7

Differential Signals

GROUP	SIG_NAME	DIFFERENTIAL_PAIR	MATCHED_DELAY	MIN_LINE_WIDTH	NET_SPACING_TYPE
USB	USB_D2M	USB_D2	USB_D2:::20	MIN_LINE_WIDTH=5	10 MIL SPACING
	USB_D2P	USB_D2	USB_D2:::20	MIN_LINE_WIDTH=5	10 MIL SPACING
	USB_D2M_EMI	USB_D2_EMI	USB_D2_EMI:::20	MIN_LINE_WIDTH=5	10 MIL SPACING
	USB_D2P_EMI	USB_D2_EMI	USB_D2_EMI:::20	MIN_LINE_WIDTH=5	10 MIL SPACING

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
	PBUS_BB_IN	VOLTAGE=14V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10
	PBUS_SR2	VOLTAGE=14V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10
	PBUS_SR1	VOLTAGE=14V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10
	PBUS_BB_SW	VOLTAGE=14V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10
	+V_BBATT	VOLTAGE=4.2V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10
	+V_BBATT_RAW	VOLTAGE=4.2V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10
	BBATT_VSS	VOLTAGE=0V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10
	BBATT_VSS_SW	VOLTAGE=0V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10
MAX1879	MAX1879_ADJ	VOLTAGE=1.4V	MIN_LINE_WIDTH=8	MIN_NECK_WIDTH=10
	BBATT_INPUT_DIV_L	VOLTAGE=14V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10
S8241	PROT_D0	VOLTAGE=4.2V	MIN_LINE_WIDTH=8	MIN_NECK_WIDTH=10
	PROT_C0	VOLTAGE=4.2V	MIN_LINE_WIDTH=8	MIN_NECK_WIDTH=10
MAX933	9_12V_DET	VOLTAGE=1.2V	MIN_LINE_WIDTH=8	MIN_NECK_WIDTH=10
	3_28V_DET	VOLTAGE=1.2V	MIN_LINE_WIDTH=8	MIN_NECK_WIDTH=10
	BOOST_ENABLE	VOLTAGE=4.2V	MIN_LINE_WIDTH=8	MIN_NECK_WIDTH=10
	BBATT_DISCHRG_ENABLE	VOLTAGE=4.2V	MIN_LINE_WIDTH=8	MIN_NECK_WIDTH=10
LT1613	BBATT_OUT	VOLTAGE=4.2V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10
	BBATT_BOOST	VOLTAGE=6.5V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10
	BOOST_OUT	VOLTAGE=6.5V	MIN_LINE_WIDTH=20	MIN_NECK_WIDTH=10
	LT1613_FB	VOLTAGE=1.3V	MIN_LINE_WIDTH=8	MIN_NECK_WIDTH=10
	LT1613_FB_RC	VOLTAGE=1.3V	MIN_LINE_WIDTH=8	MIN_NECK_WIDTH=10
	/+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

BOARD INHERITS FROM P59 (LIBBY)

07/12/02 - RE-PINNED J2 (PG. 2)
07/12/02 - MINOR SCHEMATIC CLEAN-UP
07/12/02 - MAJOR CONSTRAINT FIXES
PROTO2 08/12/02 - CHANGE J2 TO MOLEX 53398-0690(P/N 515S1473)
08/12/02 - DELETE LIGHT SENSOR AND ASSOCIATED COMPONENT
08/14/02 - CHANGE J2 TO MOLEX 52559-1292(P/N 518S00433)
08/14/02 - ADD BATTERY SYMBOL(P/N 742-0047)
08/16/02 - ADD USB 2.0 ASSOCIATED COMPONENT
08/16/02 - RE-PINNED J2 (PG. 2)
08/19/02 - ADD NET DCDC_EN
DVT 10/17/02 - CHANGE BATTERY SYMBOL TO 3P
11/22/02 - ADD L3 BETWEEN DIGITAL GND AND CHASSIS GND
11/22/02 - USE C2 & C25 TO REPLACE C2
11/24/02 - CHANGE C1,R6,R7 TO SMALL SIZE(0603)

SIGNAL CONSTRAINTS

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	405592	0A

SCALE	SHT	OF
NONE	5	7

CR-0


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

+5V_MAIN            3D7 3D8
+5V_USB_VDD_RIGHT 4C4
+5V_USB_VDD_RIGHT_EMI 4C3
+5V_USB_VDD_SW   4C6
+V_BBATT            3B8 3D3 5D6
+V_BBATT_RAW     3D2 5D6
/+5V_MAIN           5C8
/GND                5C8
3_28V_DET           3B7 5C6
9_12V_DET           3A7 5C6
14V_PBUS            3B1 3B8 3D7 5D6
24V_PBUS            3B1 3D7 5D6
BBATT_BOOST         3B4 5C6
BBATT_CHRG_ENABLE_L 3C4
BBATT_DISCHRG_ENABLE 3B6 3C7 5C6
BBATT_ENABLE        3C6
BBATT_INPUT_DIV_L 3D6 5C6
BBATT_INPUT_ENABLE 3C7
BBATT_OUT           3B5 5C6
BBATT_VDD           3C1
BBATT_VSS           3C2 5D6
BBATT_VSS_FILTER 3C2
BBATT_VSS_SW        3C2 5D6
BOOST_ENABLE        3B6 5C6
BOOST_ENABLE_L      3B6
BOOST_OUT           3B3 5C6
CHRG_LED            3C5
DCDC_EN             3D8 4B7
LT1613_FB           3B4 5C6
LT1613_FB_RC        3B3 5C6
MAX933_HYST         3A7
MAX933_REF          3A6
MAX1879_ADJ         3C4 5C6
MAX1879_ADJ_SR      3C3
MAX1879_THRM        3C5
PBUS_BB_IN          3D4 5D6
PBUS_BB_SW          3D6 5D6
PBUS_SR1            3D5 5D6
PBUS_SR2            3D5 5D6
PROT_C0             3C2 5C6
PROT_D0             3C2 5C6
PROT_VM             3C2
USB_D2M             3D8 4B4 5D7
USB_D2M_EMI         4B3 5D7
USB_D2P             3D7 4B4 5D7
USB_D2P_EMI         4B3 5D7
USB_RIGHT_EN_A      3D7 4C6
USB_RIGHT_EN_B      4C6
USB_RIGHT_FLG_A 3D8 4C6
USB_SW_ENABLE       4B7
USB_SW_ENABLE_L 4C7
```


APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	405592	0A

SCALE	SHT	OF
NONE	6	7

CR-7

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

BT1	BATTERY_2PA	3D2
C1	CAP	4C6
C2	CAP_P	4C5
C3	CAP	3B3
C4	CAP_P	3B5
C5	CAP	3C6
C6	CAP	4B2
C7	CAP	4B3
C8	CAP	4C2
C9	CAP	4B3
C10	CAP	4C6
C11	CAP	3B3
C12	CAP	3B3
C13	CAP	3B5
C14	CAP	3C3
C15	CAP	3D3
C16	CAP	3C3
C17	CAP	3C3
C18	CAP	3D4
C19	CAP	3C5
C20	CAP	3D1
C21	CAP	3C4
C22	CAP	3C5
C23	CAP	3C3
C24	CAP	3B6
D1	DIODE_SCHOT	3B2
D2	DIODE_SCHOT	3B2
D3	DIODE_SCHOT	3B4
D4	DIODE_SCHOT	3D4
DS1	LED	3C5
J1	CON_F4RT_S2MT_TH	4C2
J2	CON_F12ST_D4MT_SM1	3D8
L1	IND	3B4
L2	FILTER_4P	4B4
Q1	TRA_2N7002	3C6
Q2	TRA_2N7002	4C6
Q3	TRA_SI3443DV	4C7
Q4	TRA_FDC5614P	3D6
Q5	TRA_FDC638P	3D4
Q6	TRA_FDC638P	3B5
R1	RES	3B3
R2	RES	3D7
R3	RES	3C6
R4	RES	3C6
R5	THERMISTER	3C5
R6	RES	4B3
R7	RES	4C4
R8	RES	4B4
R9	RES	4B4
R10	RES	4C6
R11	RES	4C7
R12	RES	4C6
R13	RES	3D6
R14	RES	3B3
R15	RES	3B4
R16	RES	3D5
R17	RES	3D5
R18	RES	3C2
R19	RES	3D1
R20	RES	3C4
R21	RES	3C4
R22	RES	3A7
R23	RES	3A7
R24	RES	3B7
R25	RES	3B7
R26	RES	3B6
R27	RES	3A7
R28	RES	3A6
U1	LM3526	4C5
U2	DCDC_LT1613	3B4
U3	TRA_FDW2503N	3C2
U4	BAT_PROT_S8241	3C1
U5	MAX1879	3C4
U6	TRA_FDG6303N	3B5 3C6
U7	MAX933	3B7
XW1	JUMPER	3D2
ZT1	MTGHOLE	2C2

APPLE COMPUTER INC.

SIZE	DRAWING NUMBER	REV.
D	405592	0A

SCALE	SHT	OF
NONE	7	7