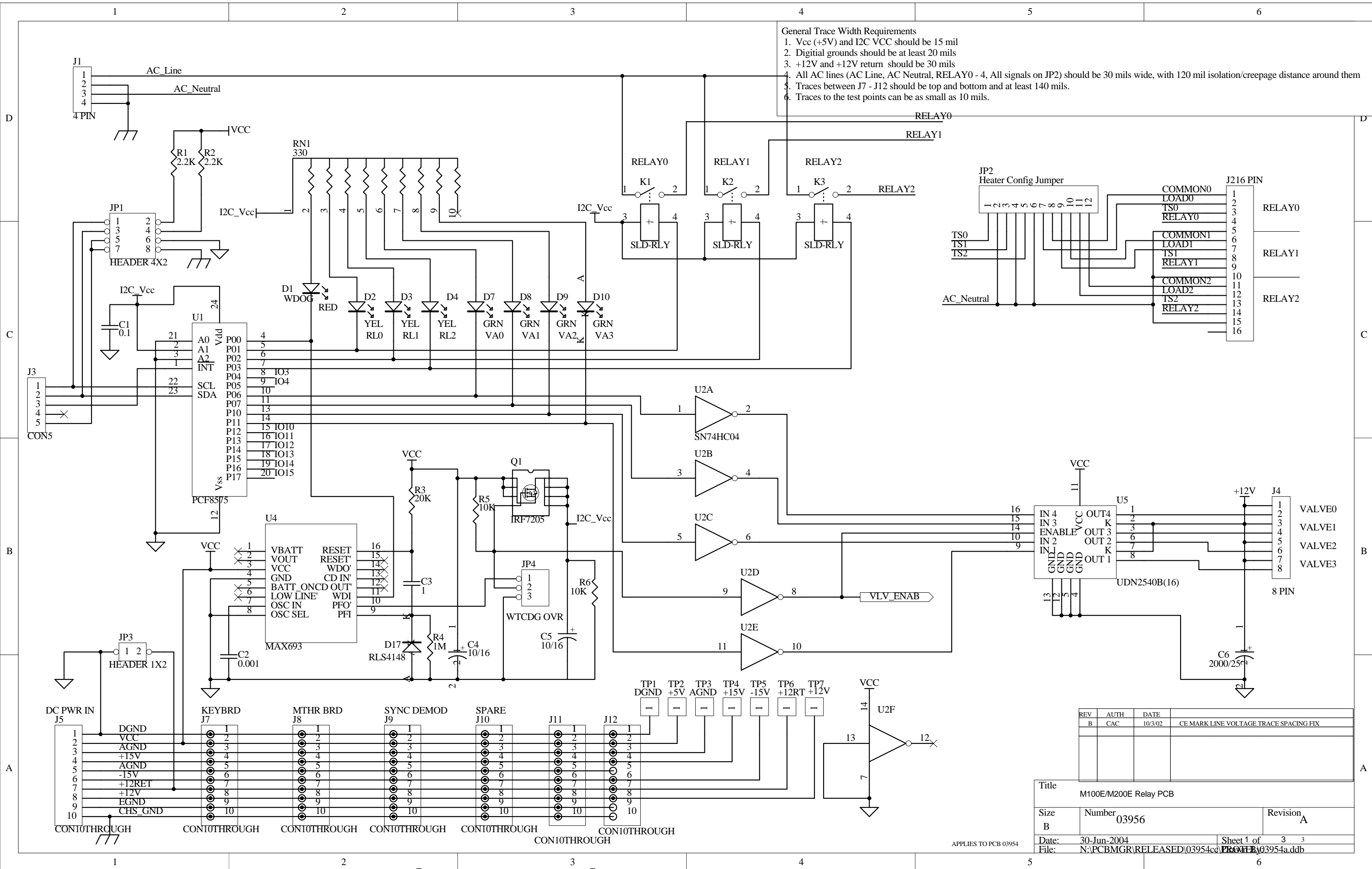


APPENDIX D - ELECTRONIC SCHEMATICS

Table D-1: List of Included Electronic Schematics

DOCUMENT #	DOCUMENT TITLE
03956	PCA, 03955, Relay Driver
02173	PCA, 02172, Pressure Flow Sensor Board
05703	PCA, 05702, Motherboard, E-Series Gen 4
04181	PCA, 04180, PMT Preamp
04259	PCA, 04258, Keyboard Display Interface
01312	PCA, 04120, UV Detector Preamp
04693	PCA, UV Lamp Driver, M100EH
04932	PCA, Thermo-Electric Cooler Board
04468	PCA, Analog Output Series Res

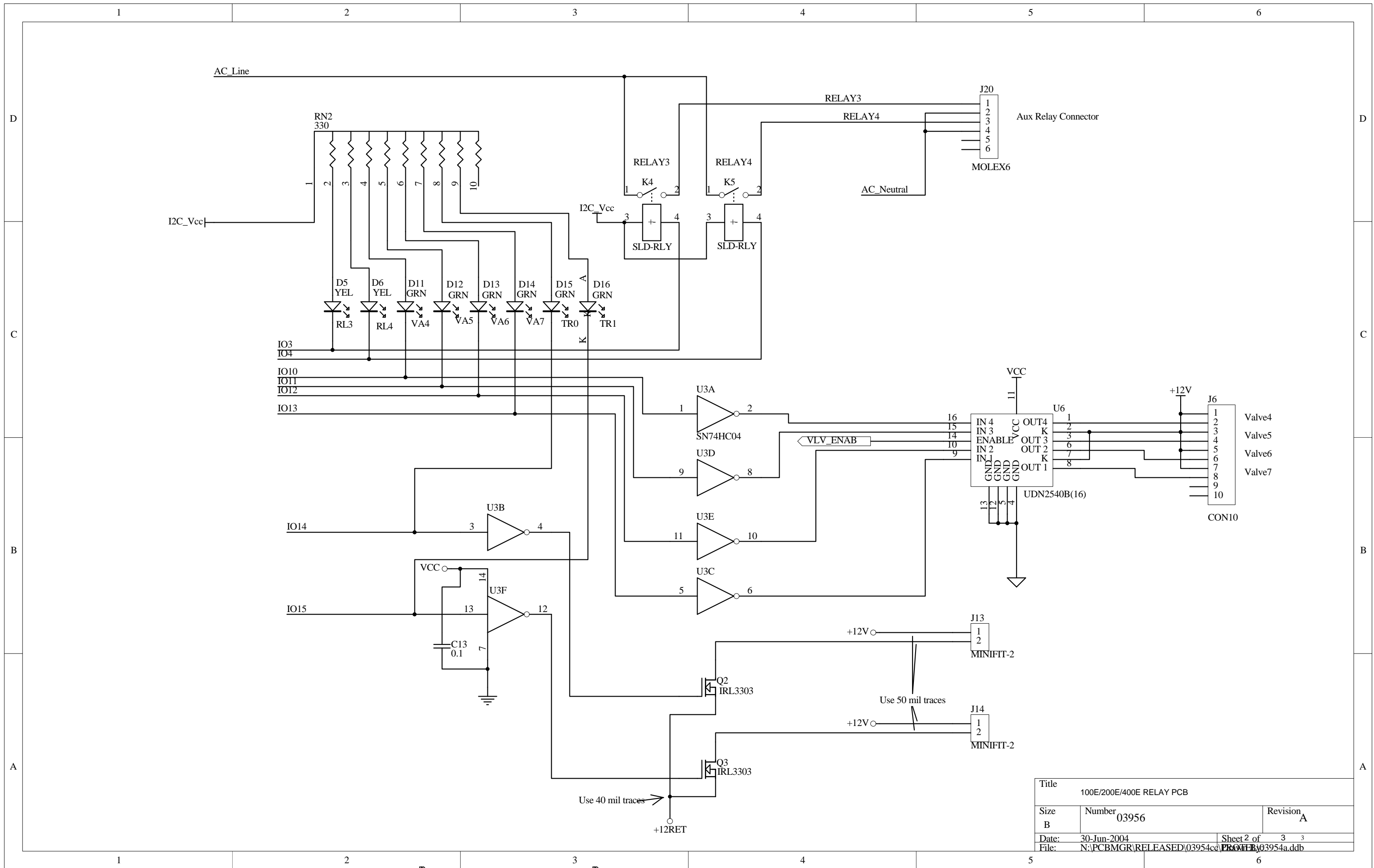
- General Trace Width Requirements
1. Vcc (+5V) and I2C VCC should be 15 mil
 2. Digital grounds should be at least 20 mils
 3. +12V and +12V return should be 30 mils
 4. All AC lines (AC Line, AC Neutral, RELAY0 - 4, All signals on JP2) should be 30 mils wide, with 120 mil isolation/creepage distance around them
 5. Traces between J7 - J12 should be top and bottom and at least 140 mils.
 6. Traces to the test points can be as small as 10 mils.



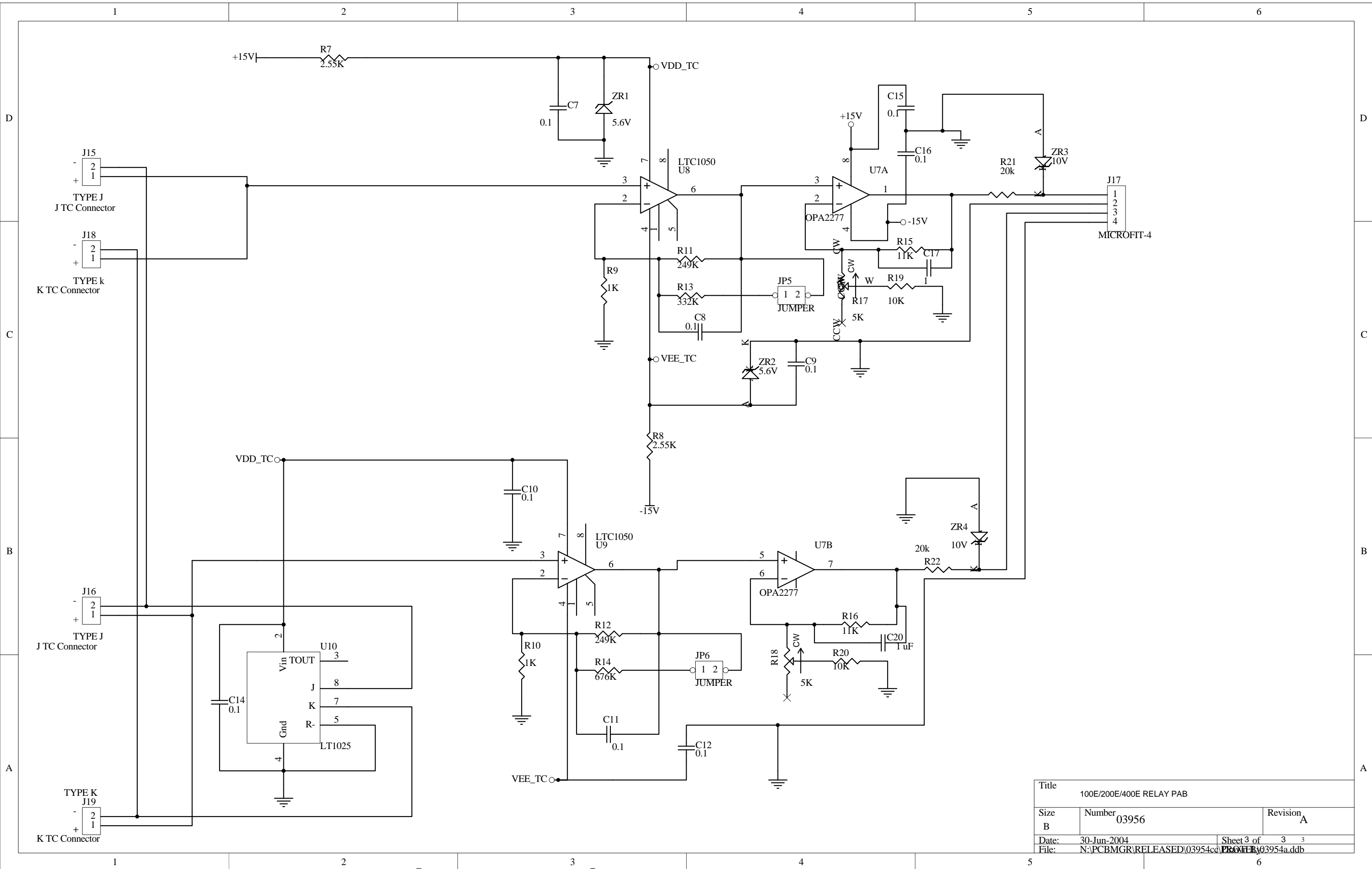
REV	AUTH	DATE	DESCRIPTION
B	CAC	10/3/02	CE MARK LINE VOLTAGE TRACE SPACING FIX

Title			M100E/M200E Relay PCB		
Size	Number	Revision			
B	03956	A			
Date:	30-Jun-2004	Sheet 1 of	3	3	
File:	N:\PCBMGR\RELEASED\03954.ddb				

APPLIES TO PCB 03954



Title			100E/200E/400E RELAY PCB		
Size	Number			Revision	
B	03956			A	
Date:	30-Jun-2004	Sheet 2 of	3	3	
File:	N:\PCBMGR\RELEASED\03954.dwg				



Title	100E/200E/400E RELAY PAB		
Size	Number	Revision	
B	03956	A	
Date:	30-Jun-2004	Sheet 3 of	3 3
File:	N:\PCBMGR\RELEASED\03954a.ddb		

1 2 3 4 5 6

D

D

C

C

B

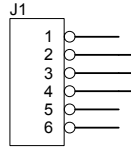
B

A

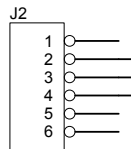
A

1 2 3 4 5 6

SENSYM ASCX
PRESSURE XDUCER



SENSYM ASCX
PRESSURE XDUCER



P1

P2

1

2

3

4

TO:

M400A: MOTHERBOARD

PCA 01478, J11

+15

+15

R1

1.1 K

1

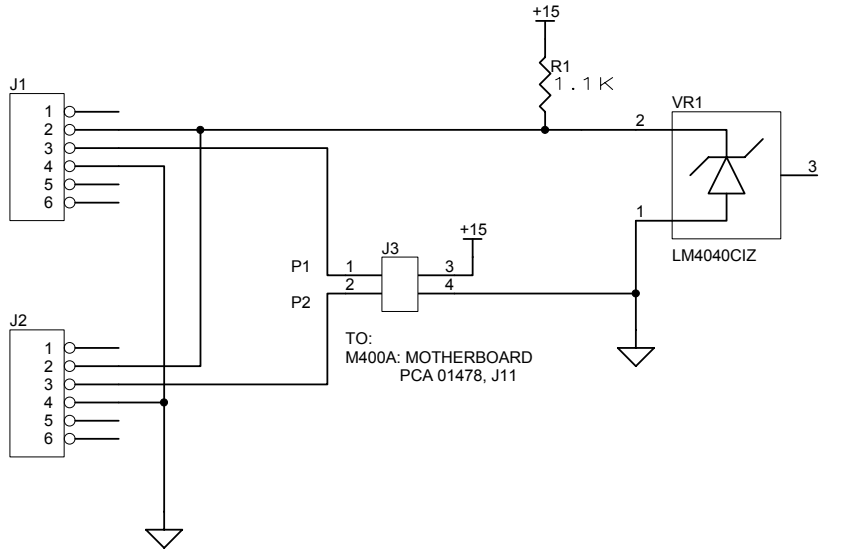
2

3

LM4040CIZ

VR1

3



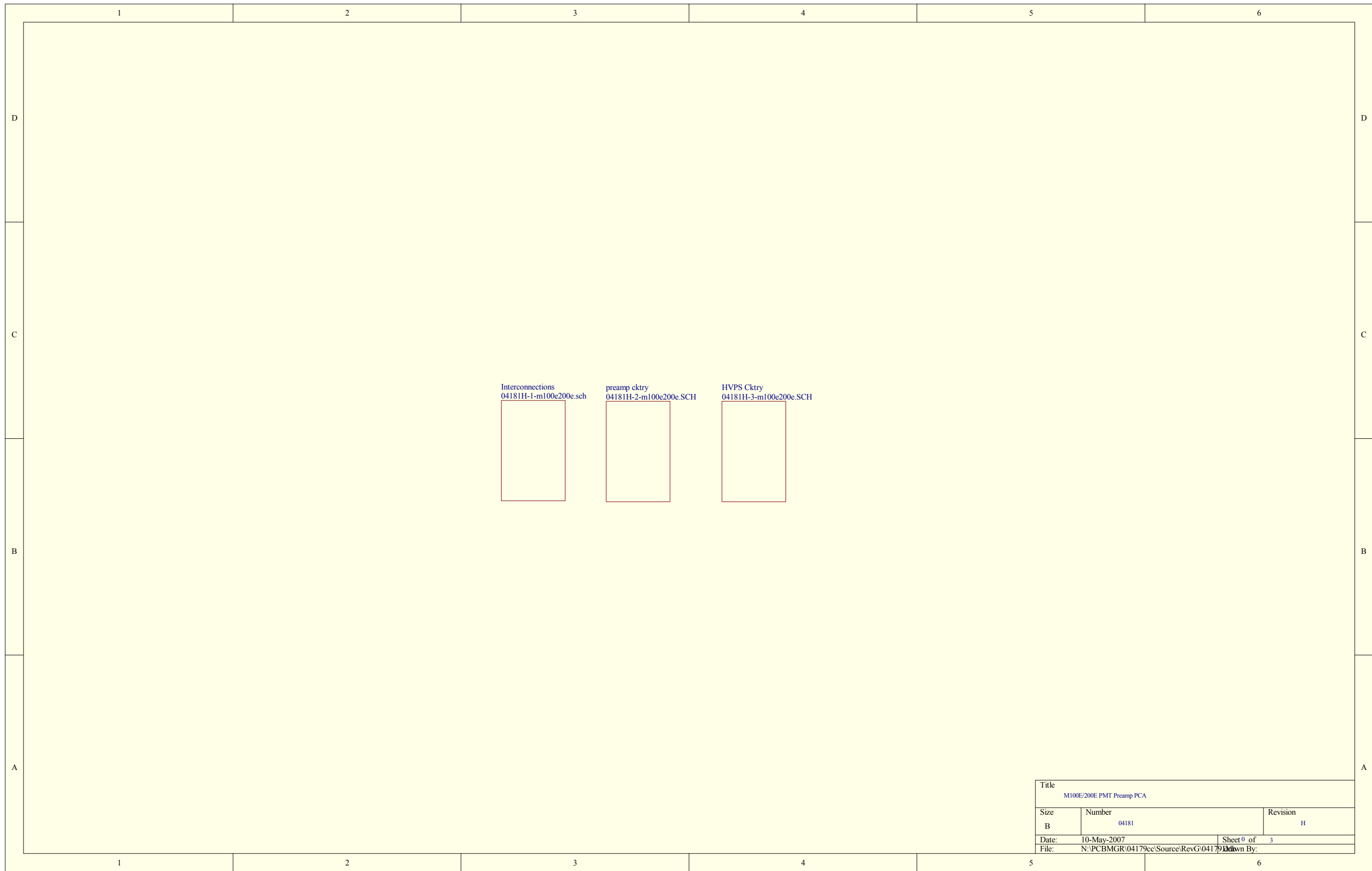
Error : LOGO.BMP file not found.

The information herein is the property of API and is submitted in strictest confidence for reference only. Unauthorized use by anyone for any other purposes is prohibited. This document or any information contained in it may not be duplicated without proper authorization.

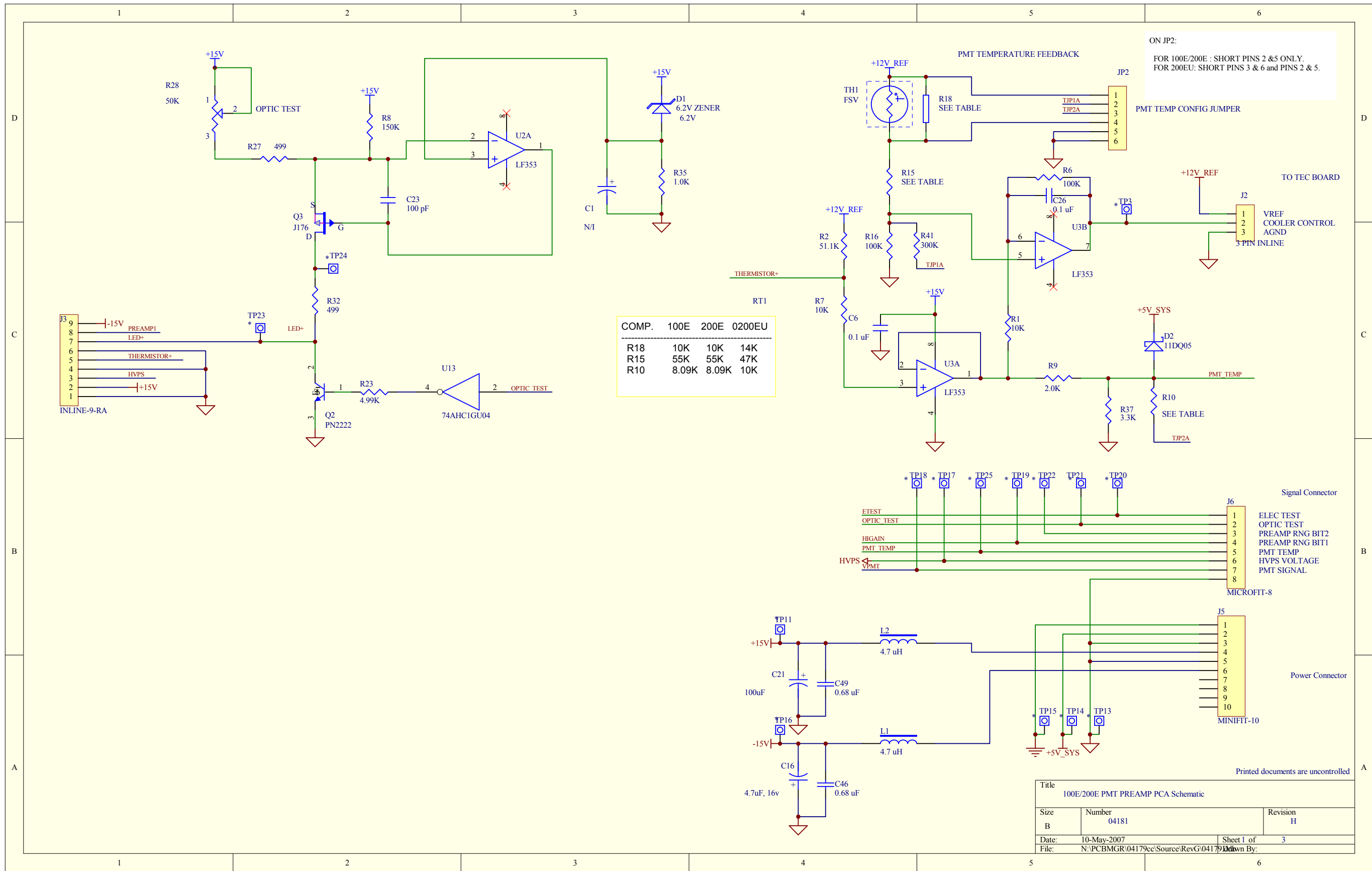
APPROVALS	DATE
DRAWN	
CHECKED	
APPROVED	

SIZE	DRAWING NO.	REVISION
B	02173	B
LAST MOD.	SHEET 1 of 1	
11-Nov-2002		

PRESSURE/FLOW PCB , M400A



Title		
M100E/200E PMT Preamp PCA		
Size	Number	Revision
B	04181	H
Date:	10-May-2007	Sheet 0 of 3
File:	N:\PCBMGR\04179ce\Source\RevG\04179ce.dwg	



COMP.	100E	200E	0200EU
R18	10K	10K	14K
R15	55K	55K	47K
R10	8.09K	8.09K	10K

ON JP2:
 FOR 100E/200E : SHORT PINS 2 & 5 ONLY.
 FOR 200EU: SHORT PINS 3 & 6 and PINS 2 & 5.

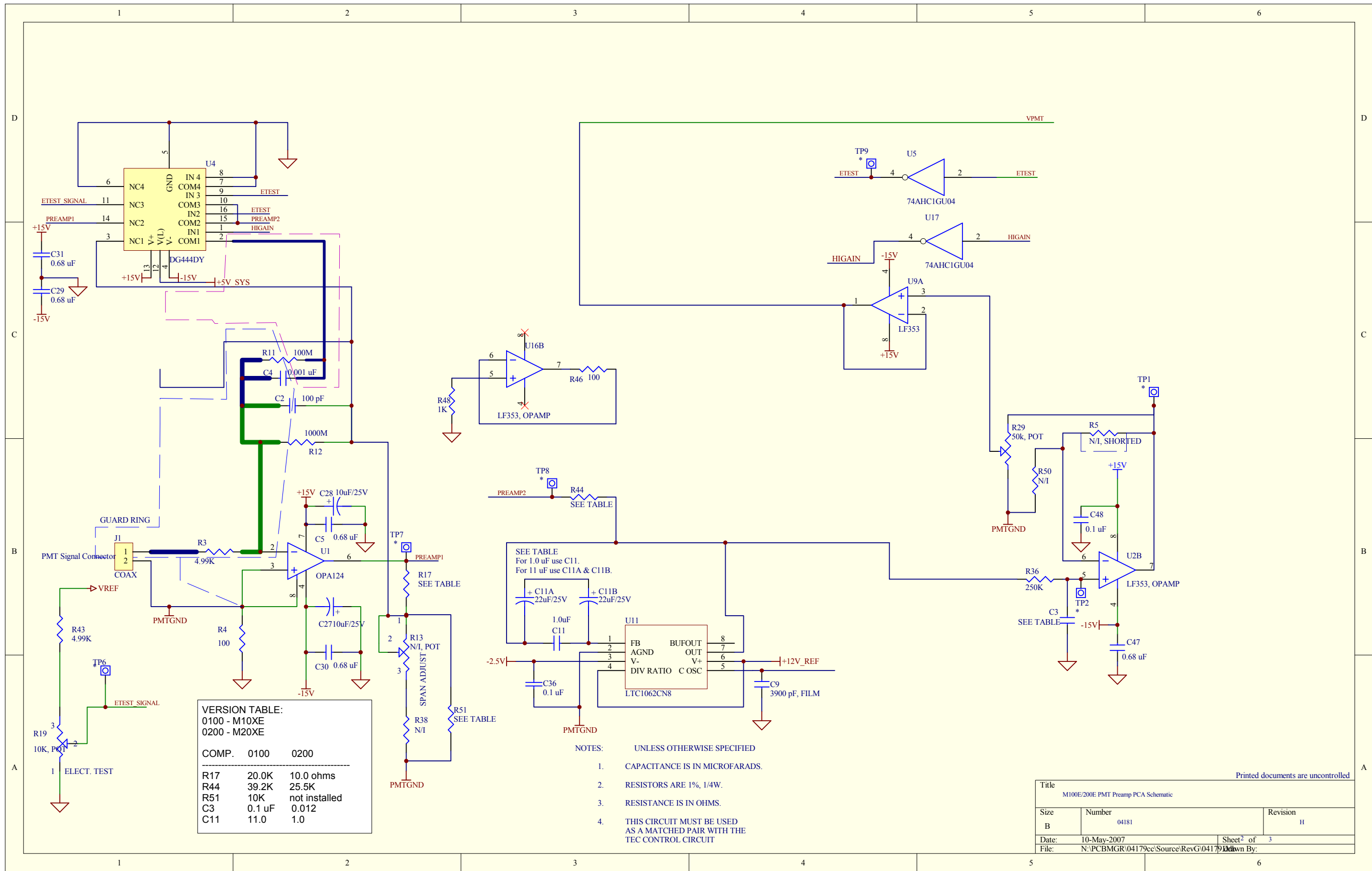
J2
 VREF
 COOLER CONTROL
 AGND
 3 PIN INLINE

J6
 Signal Connector
 1 ELEC TEST
 2 OPTIC TEST
 3 PREAMP RNG BIT2
 4 PREAMP RNG BIT1
 5 PMT TEMP
 6 HVPS VOLTAGE
 7 PMT SIGNAL
 8

J5
 Power Connector
 1
 2
 3
 4
 5
 6
 7
 8
 9
 10
 MINIFIT-10

Printed documents are uncontrolled

Title 100E/200E PMT PREAMP PCA Schematic		
Size B	Number 04181	Revision H
Date: 10-May-2007	Sheet 1 of 3	
File: N:\PCBMGR\04179cc\Source\RevG\04179cc\04179cc.dwg		



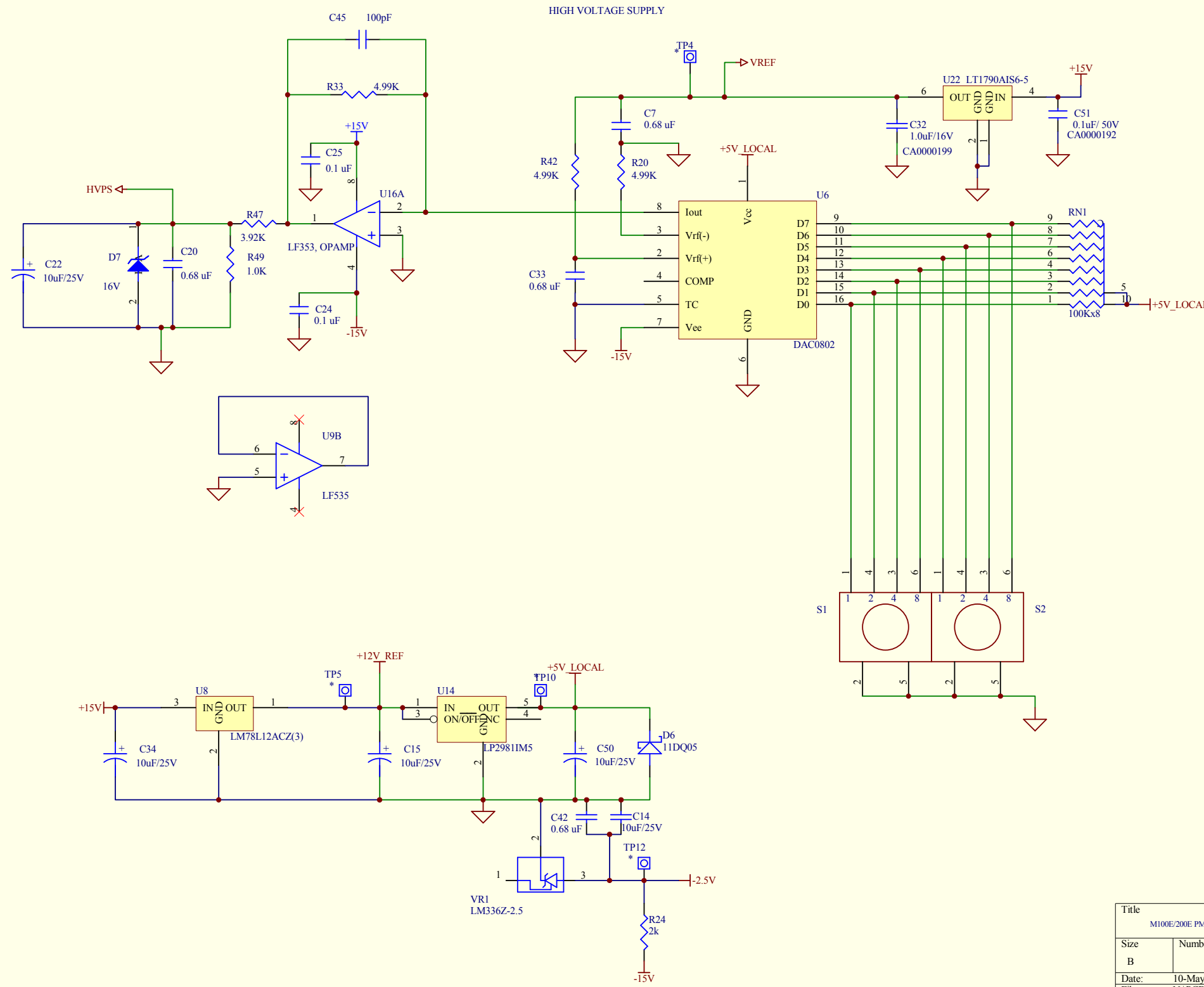
VERSION TABLE:
 0100 - M10XE
 0200 - M20XE

COMP.	0100	0200
R17	20.0K	10.0 ohms
R44	39.2K	25.5K
R51	10K	not installed
C3	0.1 uF	0.012
C11	11.0	1.0

- NOTES:** UNLESS OTHERWISE SPECIFIED
- CAPACITANCE IS IN MICROFARADS.
 - RESISTORS ARE 1%, 1/4W.
 - RESISTANCE IS IN OHMS.
 - THIS CIRCUIT MUST BE USED AS A MATCHED PAIR WITH THE TEC CONTROL CIRCUIT

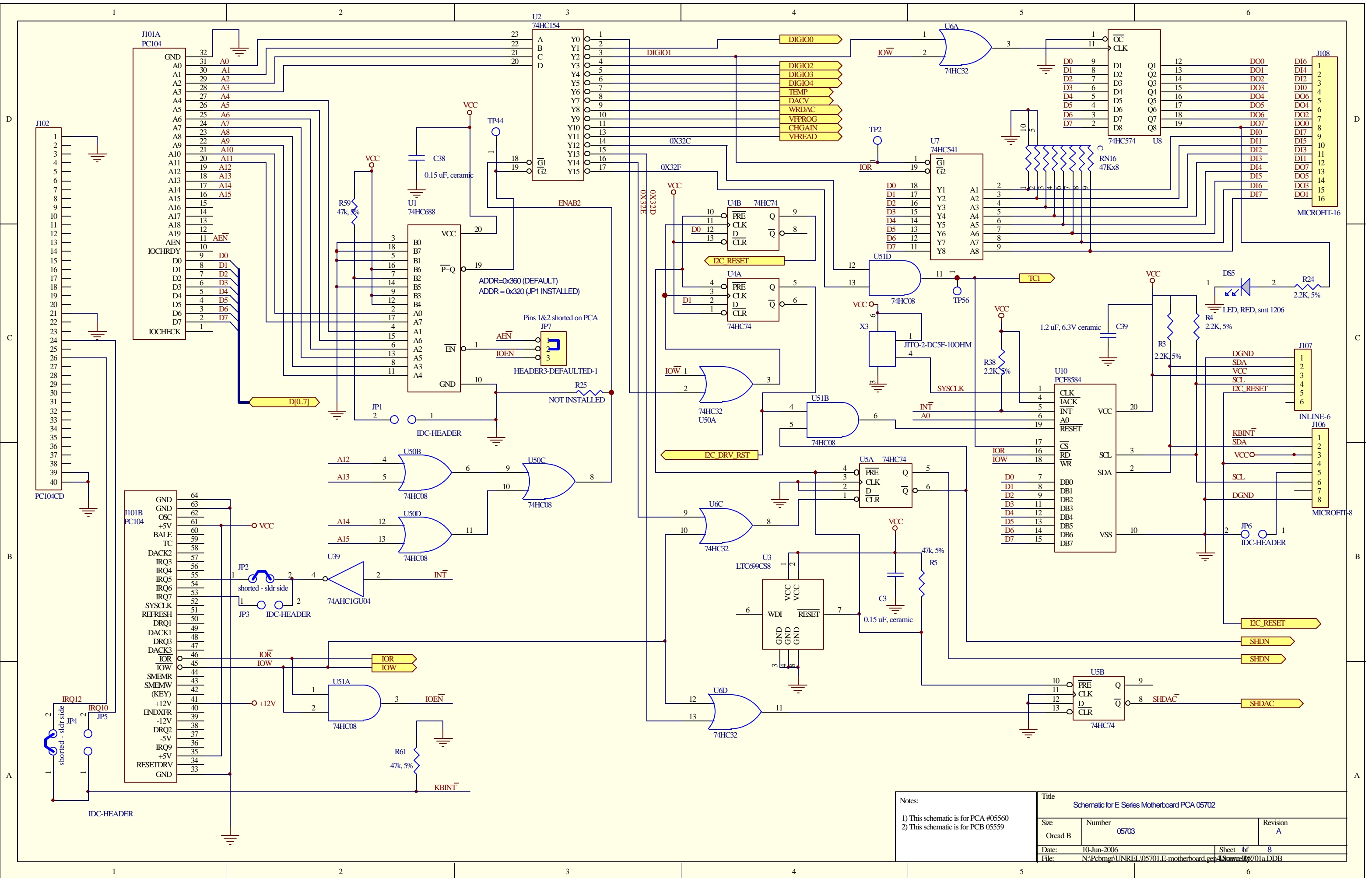
Printed documents are uncontrolled

Title M100E/200E PMT Preamp PCA Schematic		
Size B	Number 04181	Revision H
Date: 10-May-2007	Sheet 2 of 3	
File: N:\PCBMGR\04179ce\Source\RevG\04179ce.dwg		



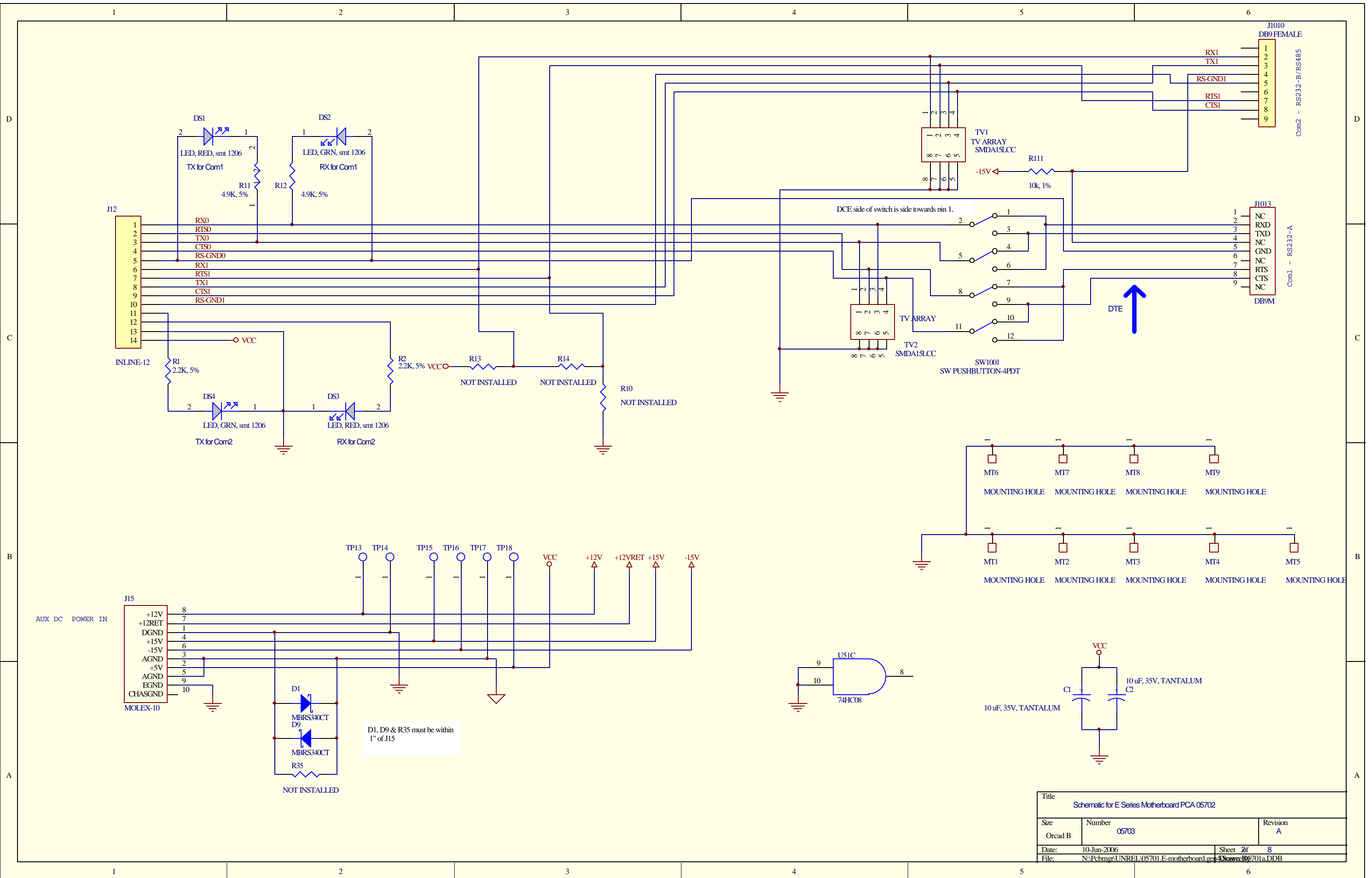
Printed documents are uncontrolled

Title		
M100E/200E PMT PREAMP PCA Schematic		
Size	Number	Revision
B	04181	H
Date:	10-May-2007	Sheet 3 of 3
File:	N:\PCBMGR\04179ce\Source\RevG\04179ce.dwg	

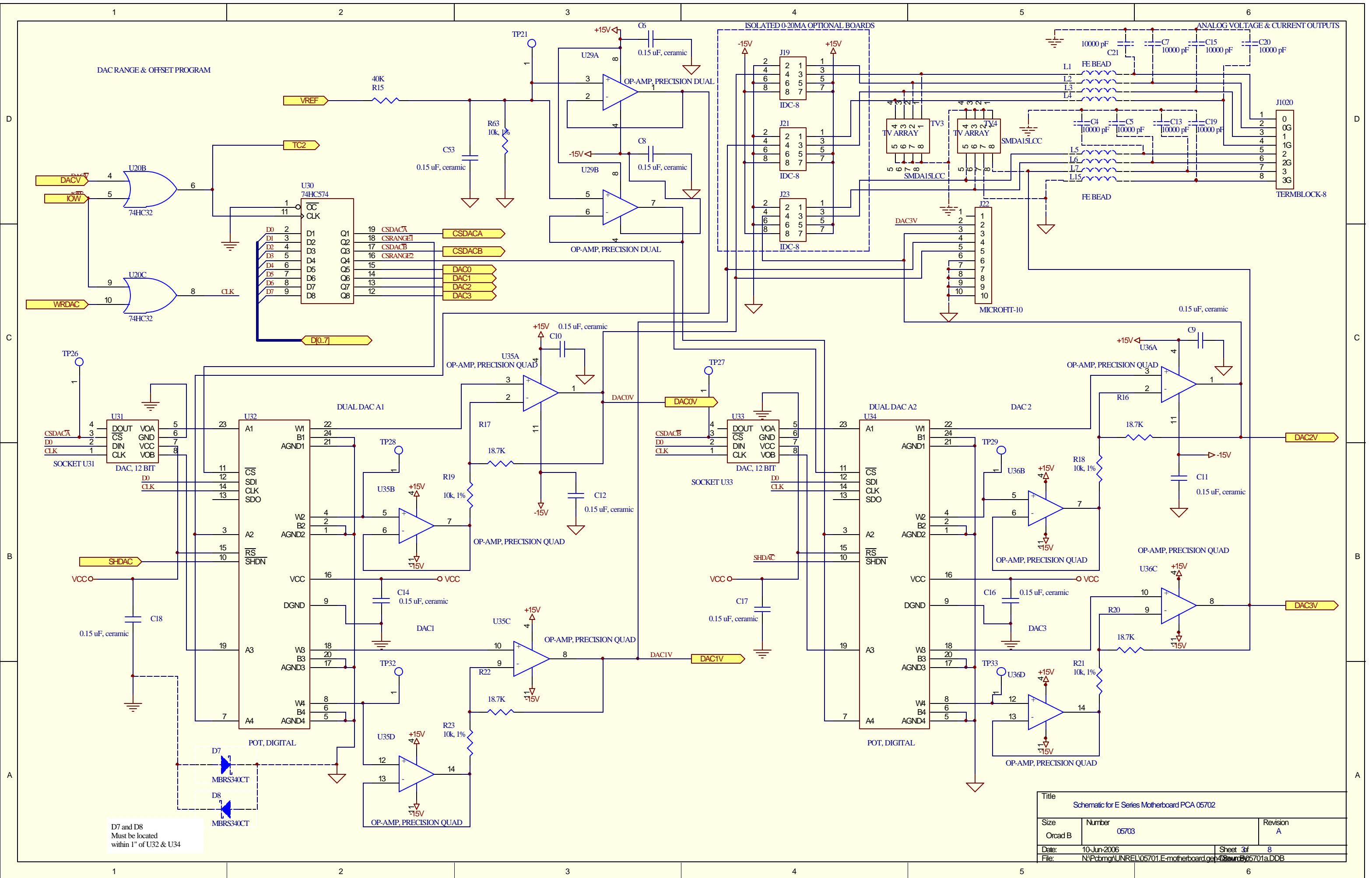


Notes:
 1) This schematic is for PCA #05560
 2) This schematic is for PCB 05559

Title Schematic for E Series Motherboard PCA 05702		
Size Orcad B	Number 05703	Revision A
Date: 10-Jun-2006	Sheet of	8
File: N:\Pcbmgr\UNREL\05701.E-motherboard.cad		



Title		
Schematic for E Series Motherboard PCA 05702		
Size	Number	Revision
Orcad B	05703	A
Date:	10-Jun-2006	Sheet 2 of 8
File:	N:\Pcbmgr\UNREL\05701.E-motherboard.g43\Draws\05701a.DDB	



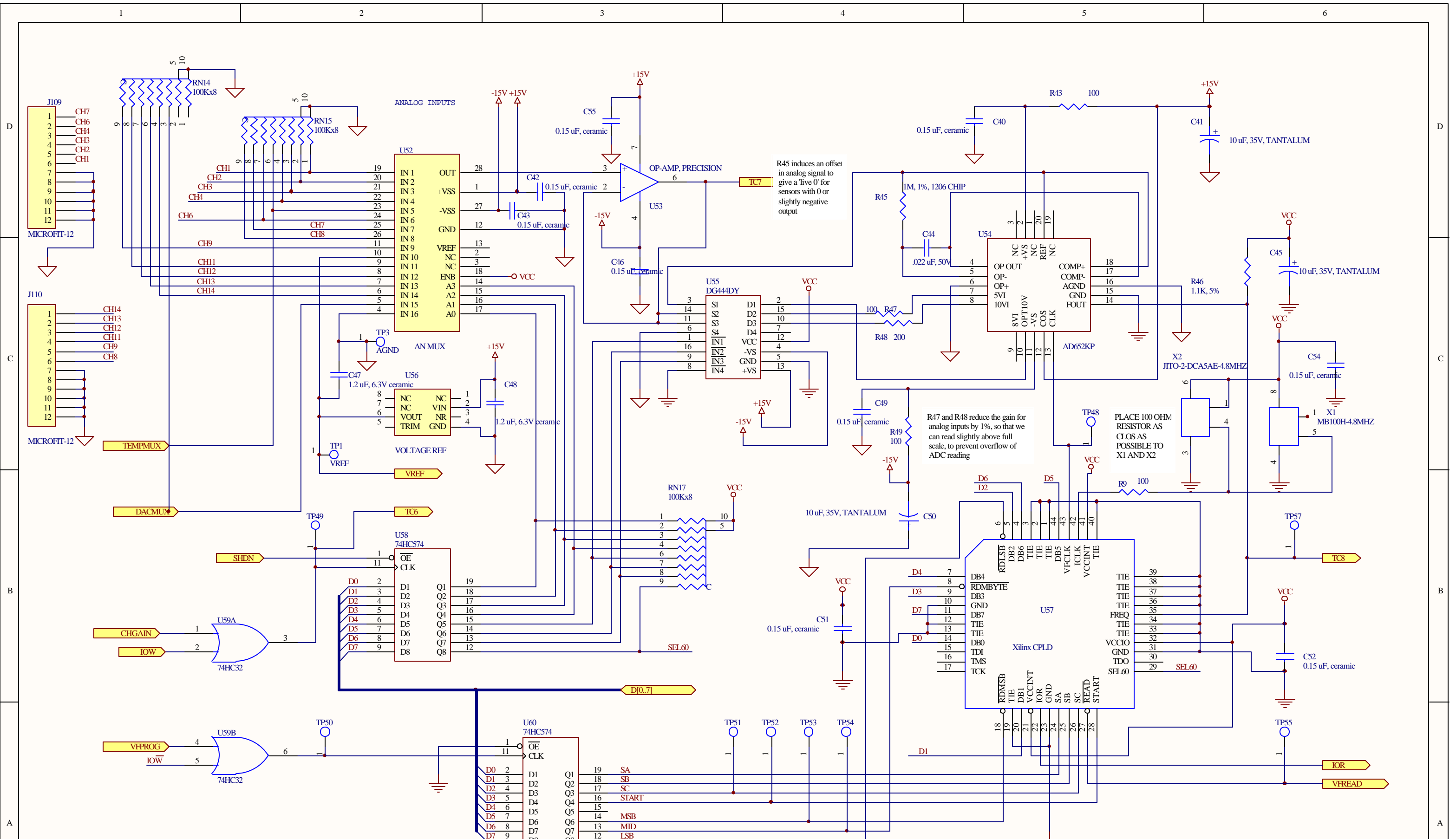
DAC RANGE & OFFSET PROGRAM

ISOLATED 0-20MA OPTIONAL BOARDS

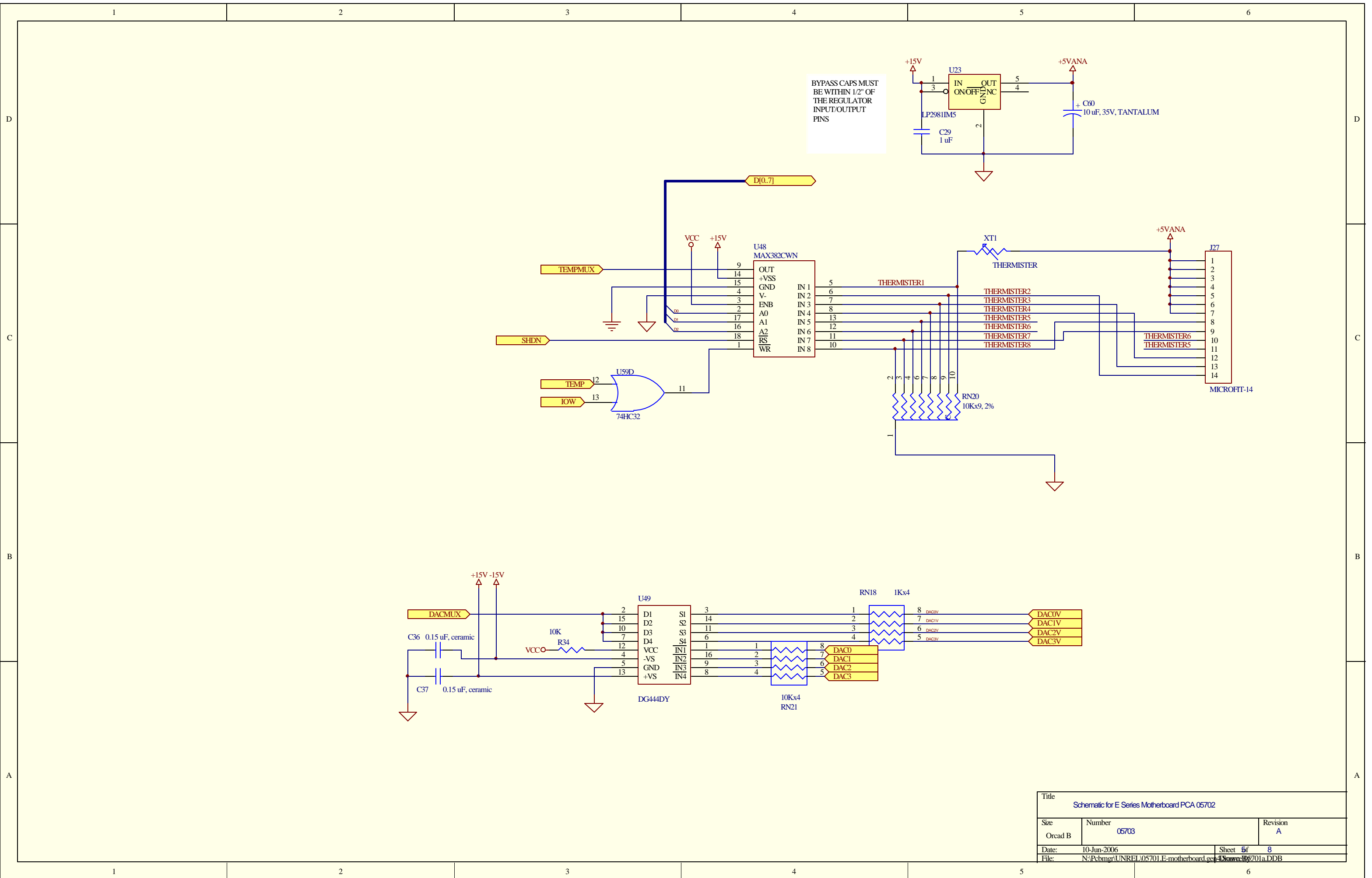
ANALOG VOLTAGE & CURRENT OUTPUTS

D7 and D8
Must be located
within 1" of U32 & U34

Title		
Schematic for E Series Motherboard PCA 05702		
Size	Number	Revision
Orcad B	05703	A
Date:	10-Jun-2006	Sheet 3 of 8
File:	N:\Pcbmg\UNREL\05701.E-motherboard.gcp\05701a.DDB	



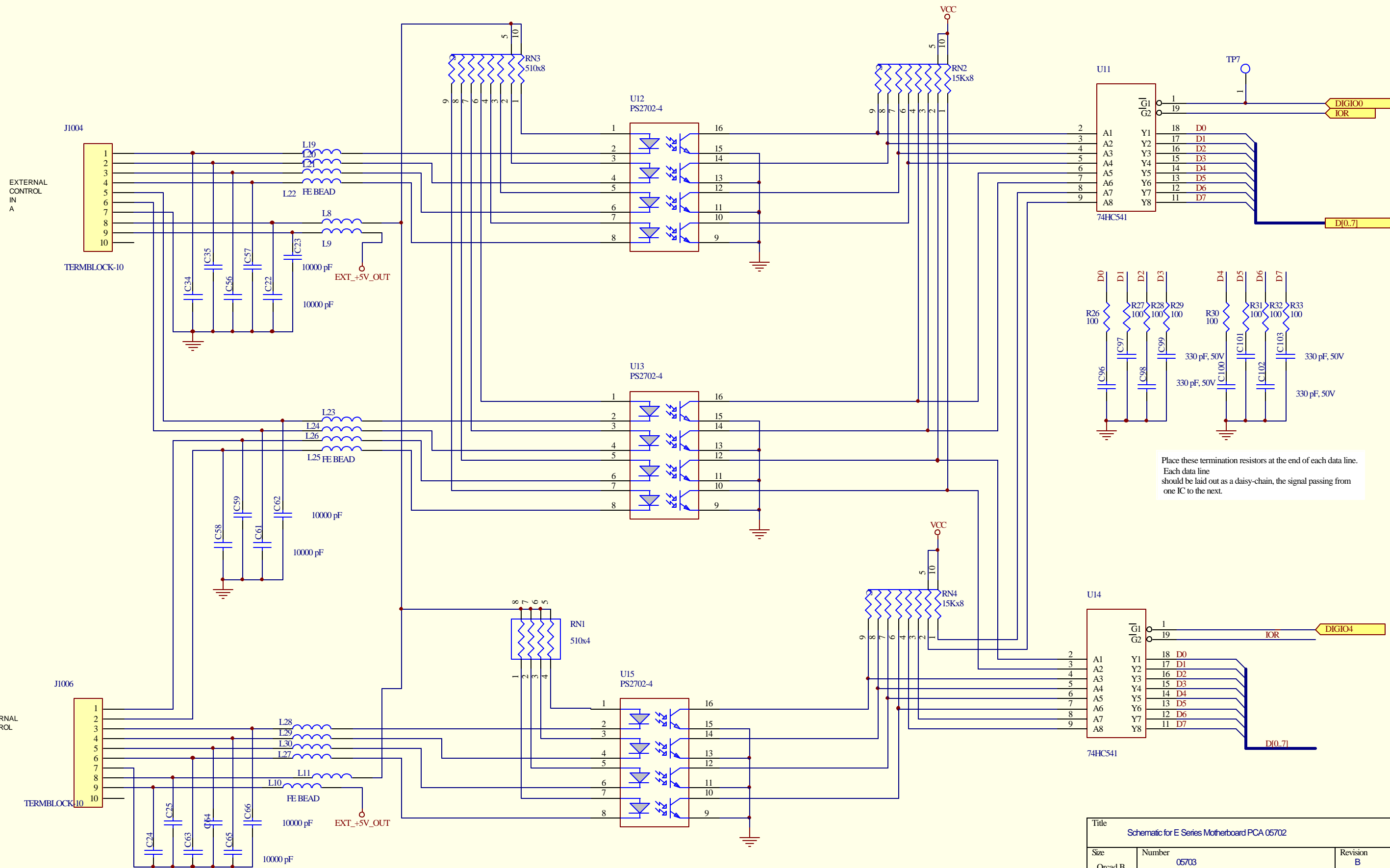
Title		
Schematic for E Series Motherboard PCA 05702		
Size	Number	Revision
Orcad B	05703	A
Date:	10-Jun-2006	Sheet 4of 8
File:	N:\Pcbmgr\UNREL\05701.E-motherboard.cad\Drawings\05701a.DDB	



BYPASS CAPS MUST BE WITHIN 1/2" OF THE REGULATOR INPUT/OUTPUT PINS

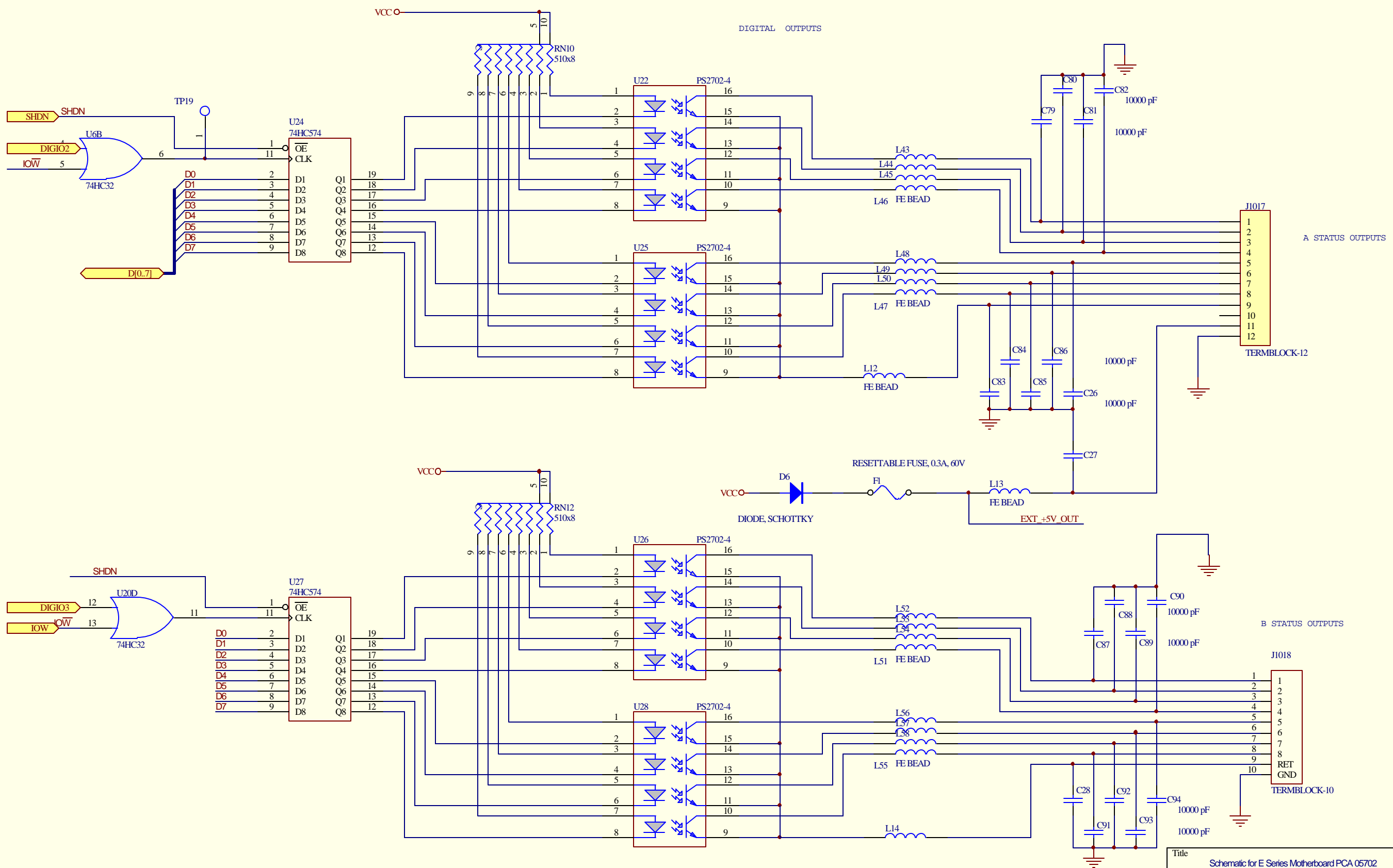
Title		
Schematic for E Series Motherboard PCA 05702		
Size	Number	Revision
Orcad B	05703	A
Date:	10-Jun-2006	Sheet 5 of 8
File:	N:\Pcbmgr\UNREL\05701.E-motherboard.g43\05701a.DDB	

CONTROL INPUTS

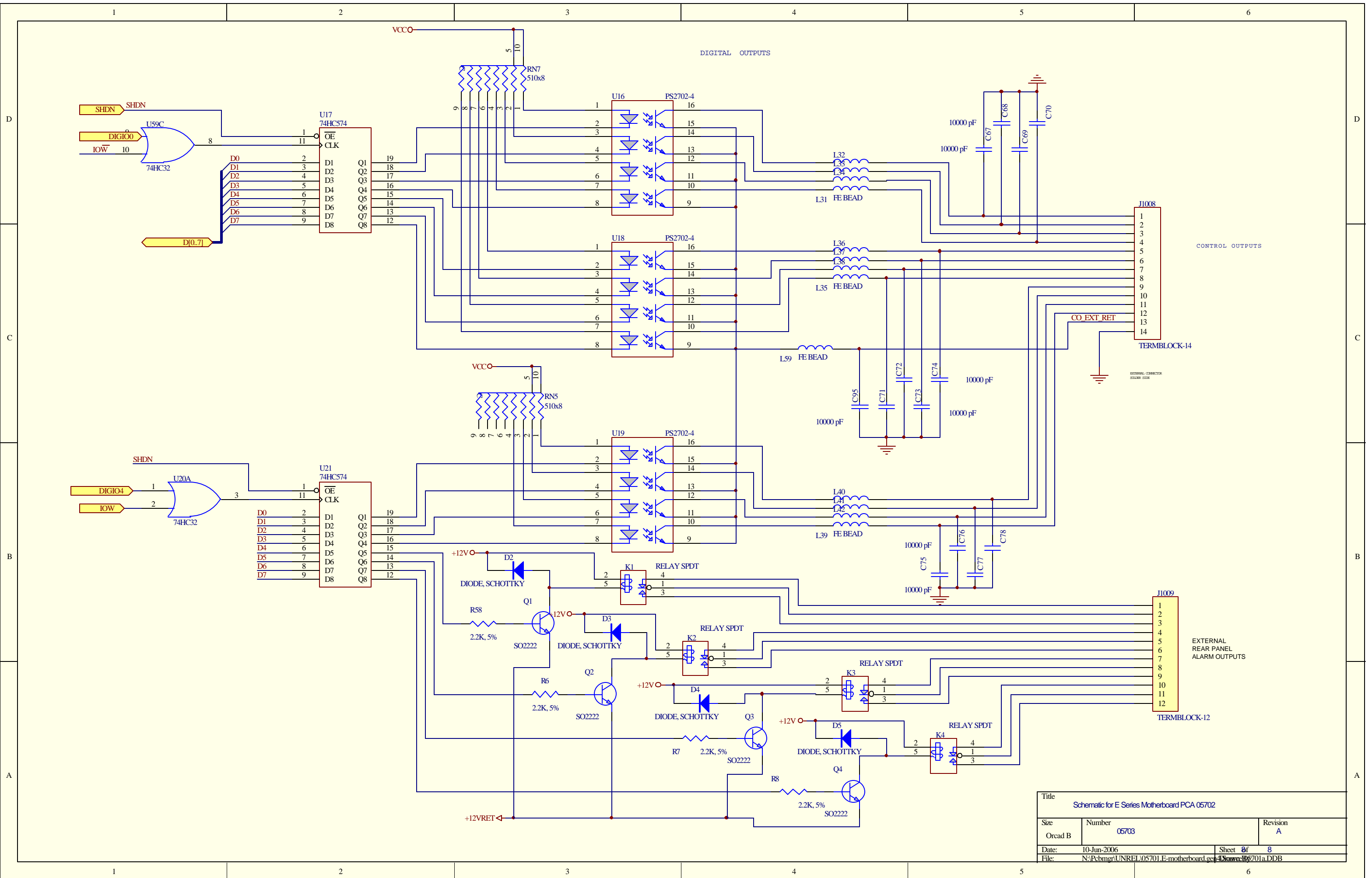


Place these termination resistors at the end of each data line. Each data line should be laid out as a daisy-chain, the signal passing from one IC to the next.

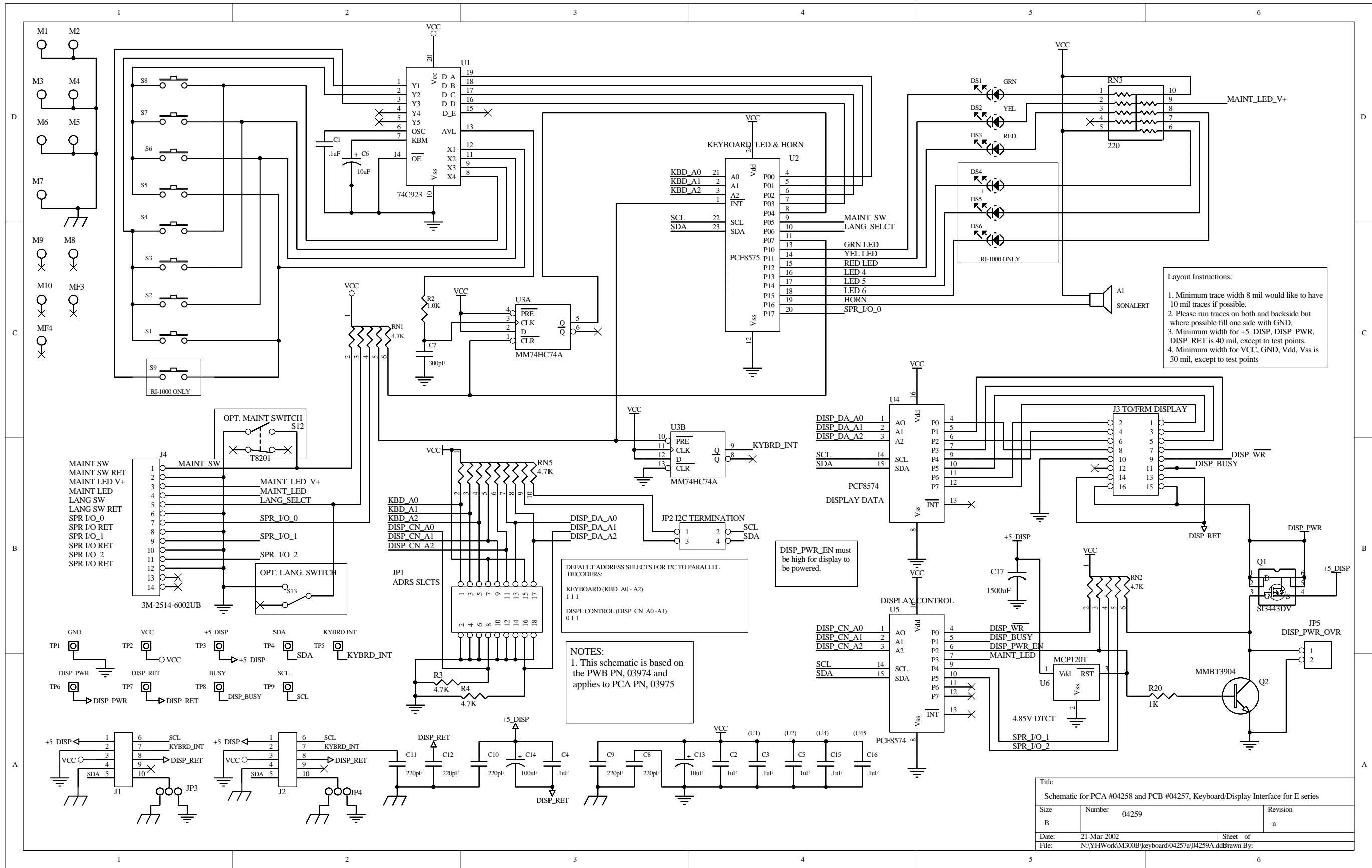
Title		
Schematic for E Series Motherboard PCA 05702		
Size	Number	Revision
Orcad B	05703	B
Date:	10-Jun-2006	Sheet 6 of 8
File:	N:\Pcbmgr\UNREL\05701.E-motherboard.cad\Draws\05701a.DDB	



Title Schematic for E Series Motherboard PCA 05702		
Size Orcad B	Number 05703	Revision A
Date: 10-Jun-2006	Sheet 7	of 8
File: N:\Pcbmgr\UNREL\05701.E-motherboard.g... 4-Drawing-05701a.DDB		

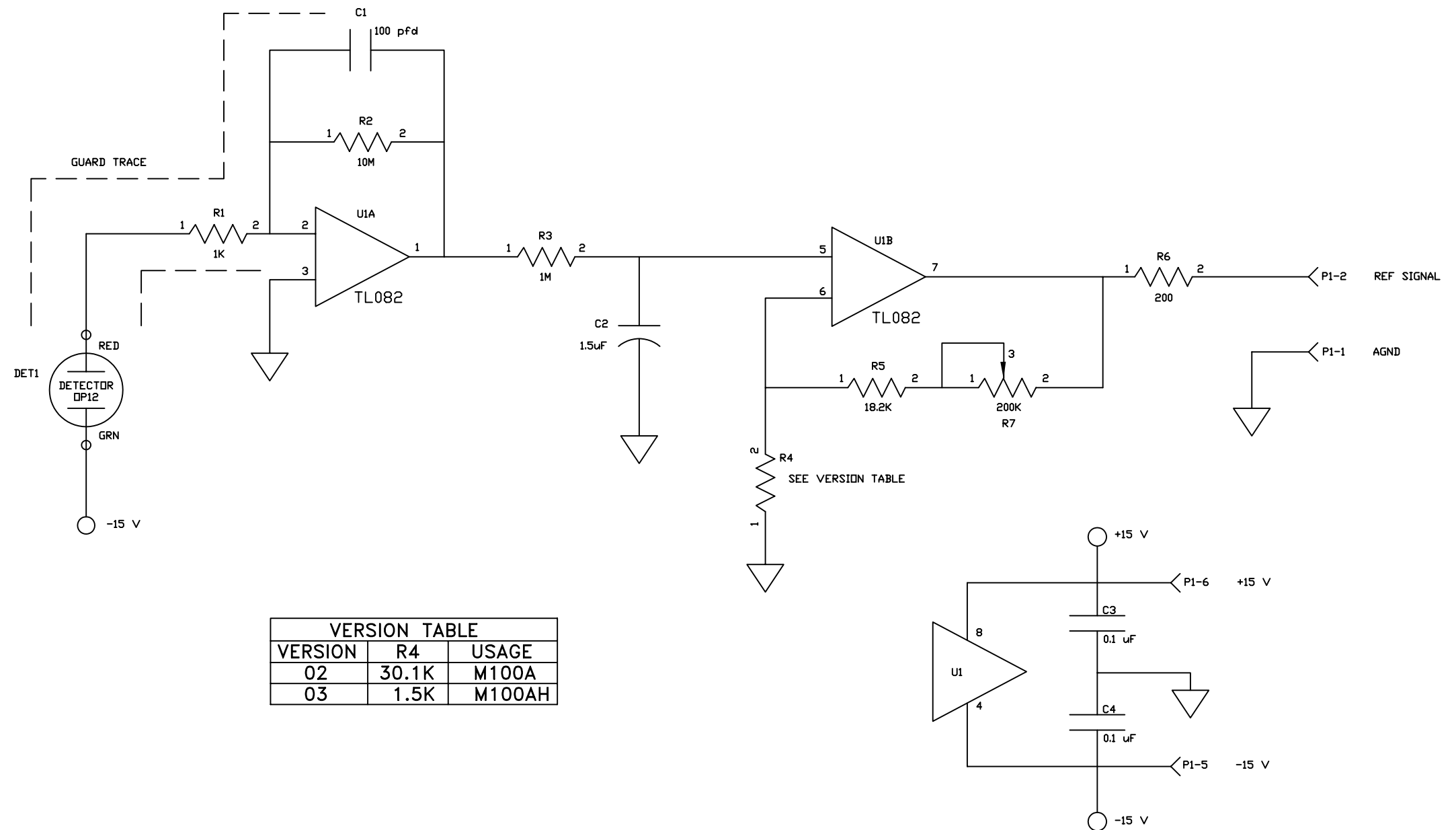


Title		
Schematic for E Series Motherboard PCA 05702		
Size	Number	Revision
Orcad B	05703	A
Date:	10-Jun-2006	Sheet 8 of 8
File:	N:\Pcbmgr\UNREL\05701.E-motherboard.cad\Draws\05701a.DDB	



Title		
Schematic for PCA #04258 and PCB #04257, Keyboard/Display Interface for E series		
Size	Number	Revision
B	04259	a
Date:	21-Mar-2002	Sheet of
File:	N:\YHWork\M300B\keyboard\04257a\04259a.d	
	Drawn By:	

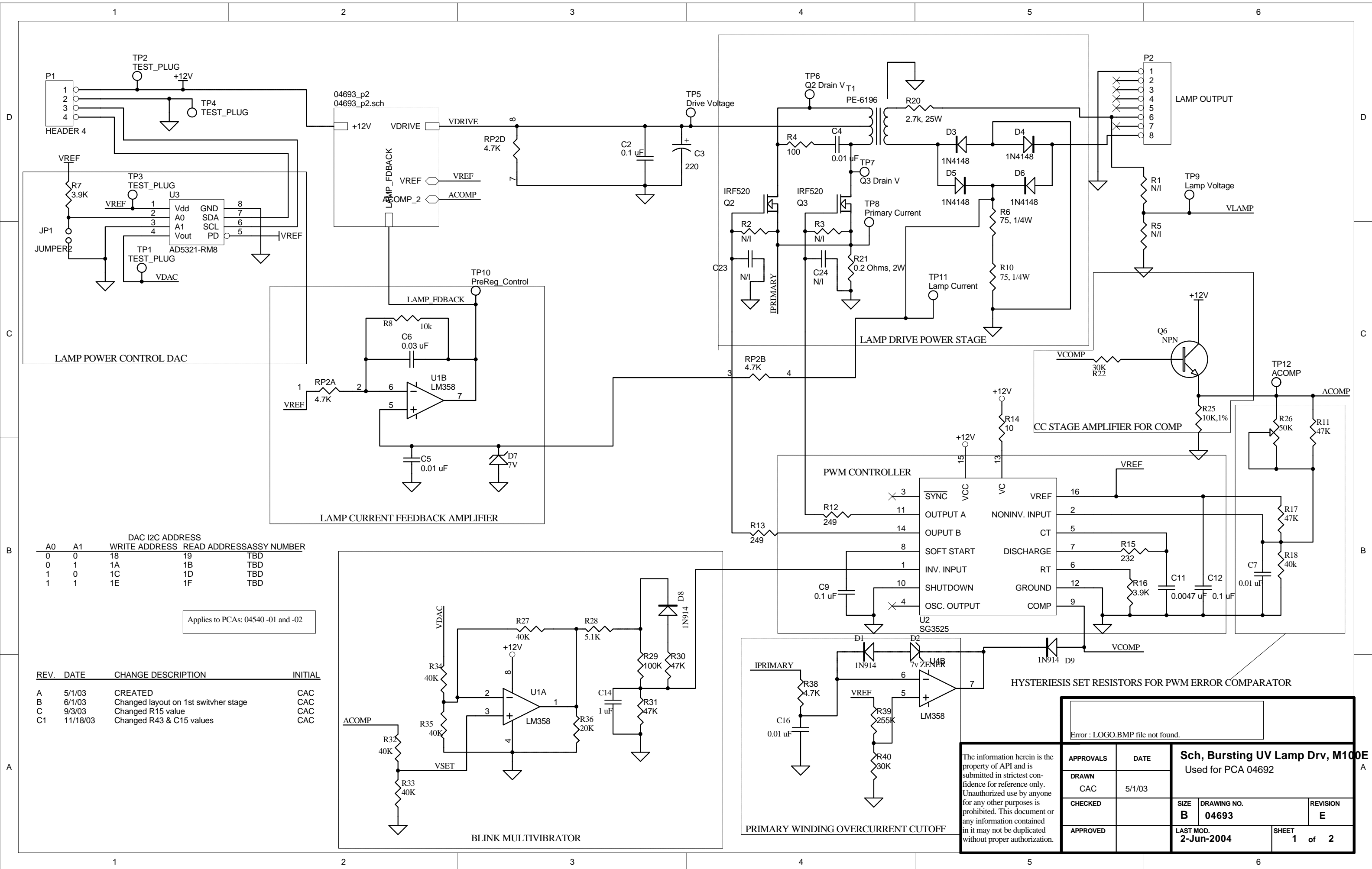
REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
C		U1,R5 CHANGED	8/15/95	HC
D		ADD C4, R7	10/5/98	HC
F		INCORPORATED ALL VERSIONS	12/11/02	CB
G		RESISTOR R5 IS 18.2K	4/17/03	CB



VERSION TABLE		
VERSION	R4	USAGE
02	30.1K	M100A
03	1.5K	M100AH

NOTES: UNLESS OTHERWISE SPECIFIED
 1. RESISTANCE IS IN OHMS.
 2. RESISTORS ARE 1%, 1/4W.
 3. CAPACITORS ARE IN MICROFARADS.

QTY REQD	CODE IDENT	PART OR IDENTIFYING NUMBER	NOMENCLATURE OR DESCRIPTION
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE FRACTIONS DECIMALS ANGLES ± .XX ± .XXX ±			
MATERIAL		CONTRACT NO.	APPROVALS DATE
FINISH		DRAWN	CHECKED
DO NOT SCALE DRAWING		REFERENCE DETECTOR PREAMP	
SIZE	CODE IDENT NO.	DRAWING NO.	REV
B		01312	G
SCALE	SHEET 1 OF 1		



DAC I2C ADDRESS				
A0	A1	WRITE ADDRESS	READ ADDRESS	ASSY NUMBER
0	0	18	19	TBD
0	1	1A	1B	TBD
1	0	1C	1D	TBD
1	1	1E	1F	TBD

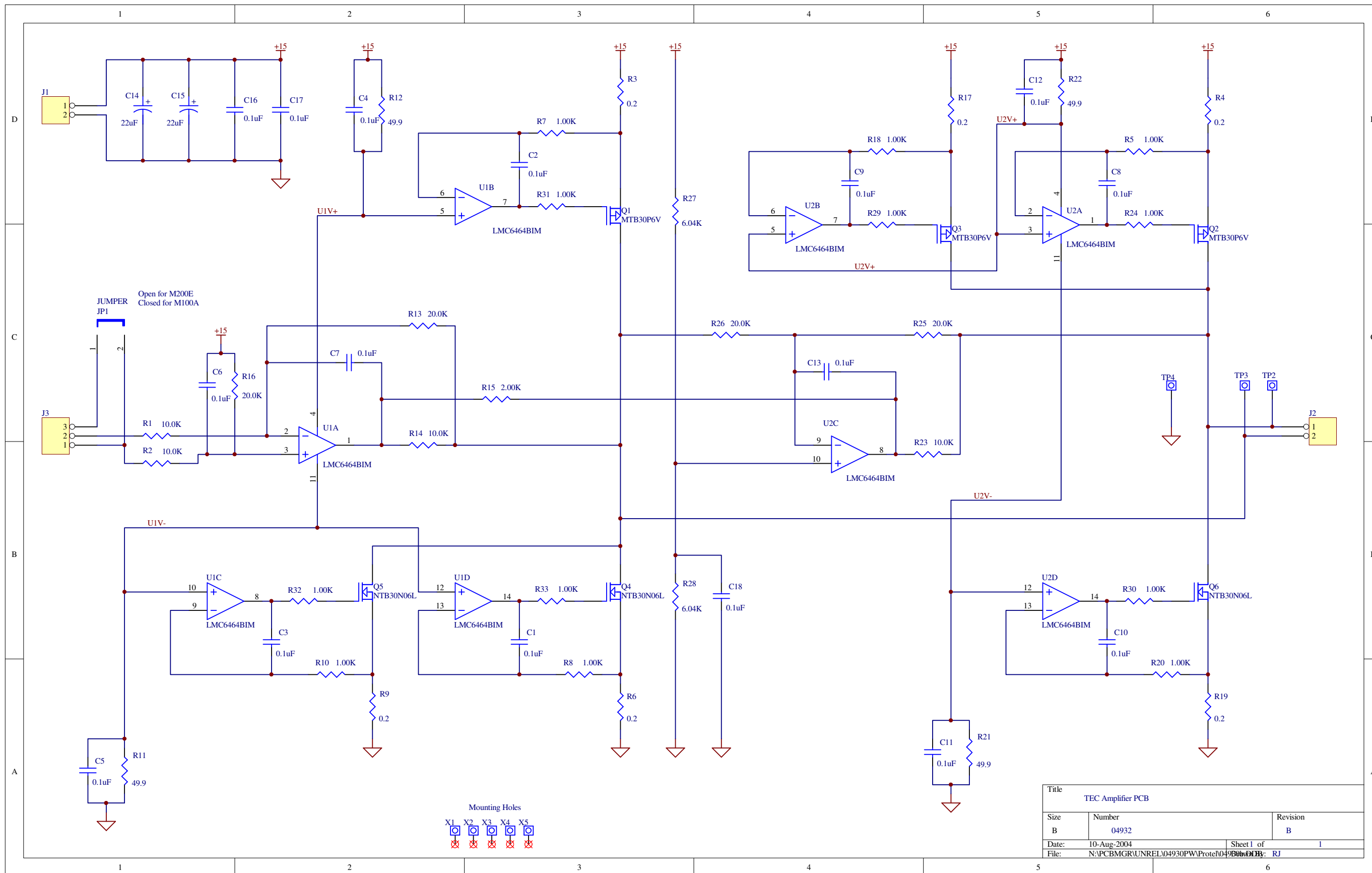
Applies to PCAs: 04540 -01 and -02

REV.	DATE	CHANGE DESCRIPTION	INITIAL
A	5/1/03	CREATED	CAC
B	6/1/03	Changed layout on 1st switvher stage	CAC
C	9/3/03	Changed R15 value	CAC
C1	11/18/03	Changed R43 & C15 values	CAC

Error : LOGO.BMP file not found.

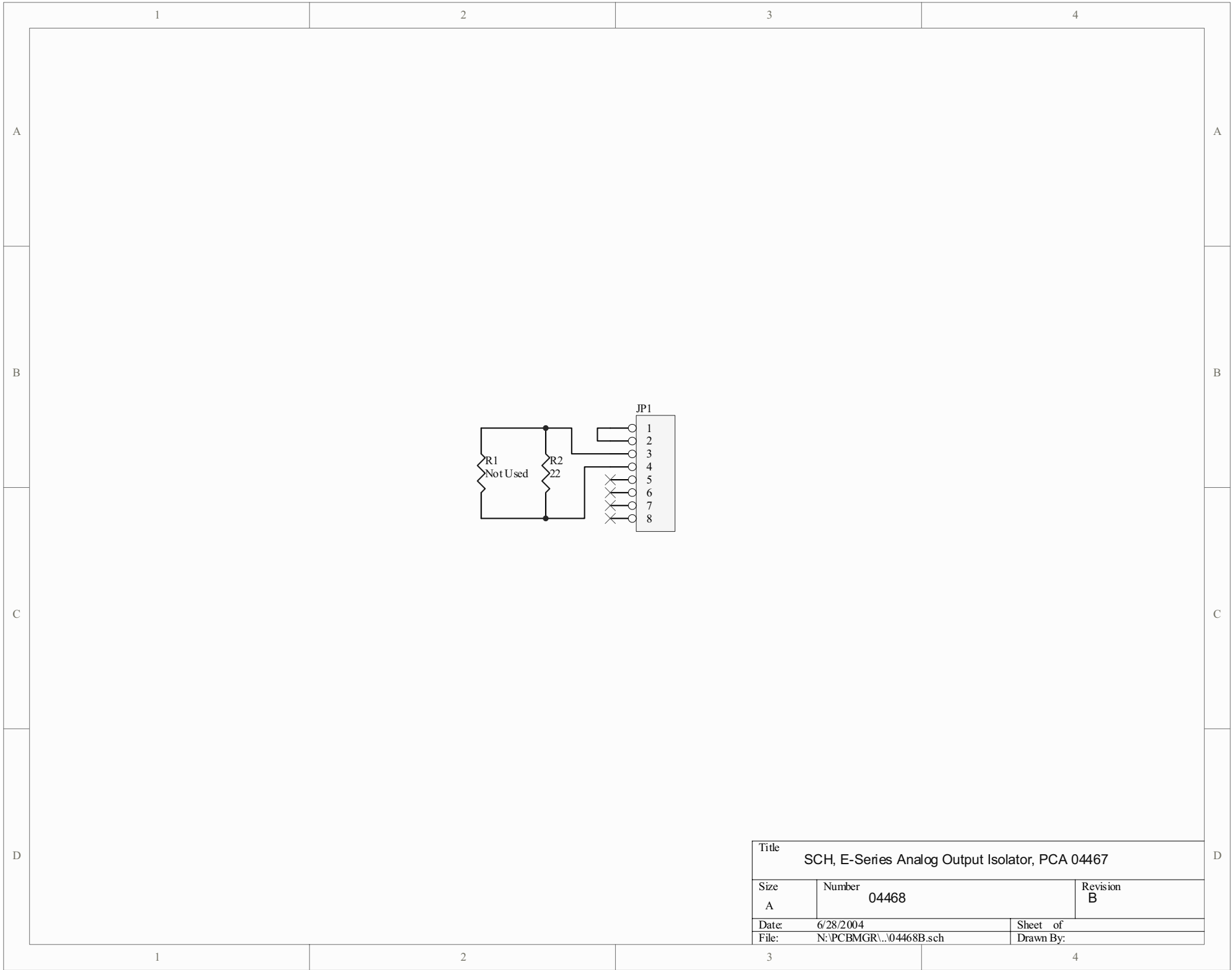
APPROVALS		DATE	Sch, Bursting UV Lamp Drv, M100E Used for PCA 04692						
DRAWN	CAC	5/1/03							
CHECKED			<table border="1" style="width: 100%;"> <tr> <td>SIZE</td> <td>DRAWING NO.</td> <td>REVISION</td> </tr> <tr> <td>B</td> <td>04693</td> <td>E</td> </tr> </table>	SIZE	DRAWING NO.	REVISION	B	04693	E
SIZE	DRAWING NO.	REVISION							
B	04693	E							
APPROVED			<table border="1" style="width: 100%;"> <tr> <td>LAST MOD.</td> <td>SHEET</td> </tr> <tr> <td>2-Jun-2004</td> <td>1 of 2</td> </tr> </table>	LAST MOD.	SHEET	2-Jun-2004	1 of 2		
LAST MOD.	SHEET								
2-Jun-2004	1 of 2								

The information herein is the property of API and is submitted in strictest confidence for reference only. Unauthorized use by anyone for any other purposes is prohibited. This document or any information contained in it may not be duplicated without proper authorization.



Mounting Holes
 X1 X2 X3 X4 X5

Title		
TEC Amplifier PCB		
Size	Number	Revision
B	04932	B
Date:	10-Aug-2004	Sheet 1 of 1
File:	N:\PCBMGR\UNREL\04930PW\Protel\04930.DDB: RJ	



Title		
SCH, E-Series Analog Output Isolator, PCA 04467		
Size	Number	Revision
A	04468	B
Date:	6/28/2004	Sheet of
File:	N:\PCBMGR\...\04468B.sch	Drawn By: