

TheraTouch 7.7

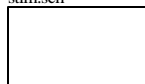
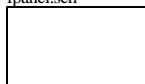
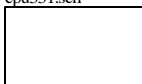
Multi-Waveform Stimulation and 1 & 3 MHz Ultrasound

- I. CPU, Memory, Control (pp. 2-7)
- II. Front Panel Interface (pp. 8-10)
- III. TheraTouch Stim (pp. 11-18)
- IV. Smart Ultrasound (pp. 19-21)
- V. Power Supply, Caps, Notes (pp. 22-23)

68331 CPU
cpu331.sch

FRONT PANEL
fpanel.sch

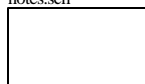
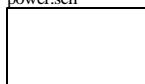
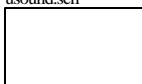
STIM
stim.sch



ULTRASOUND
usound.sch

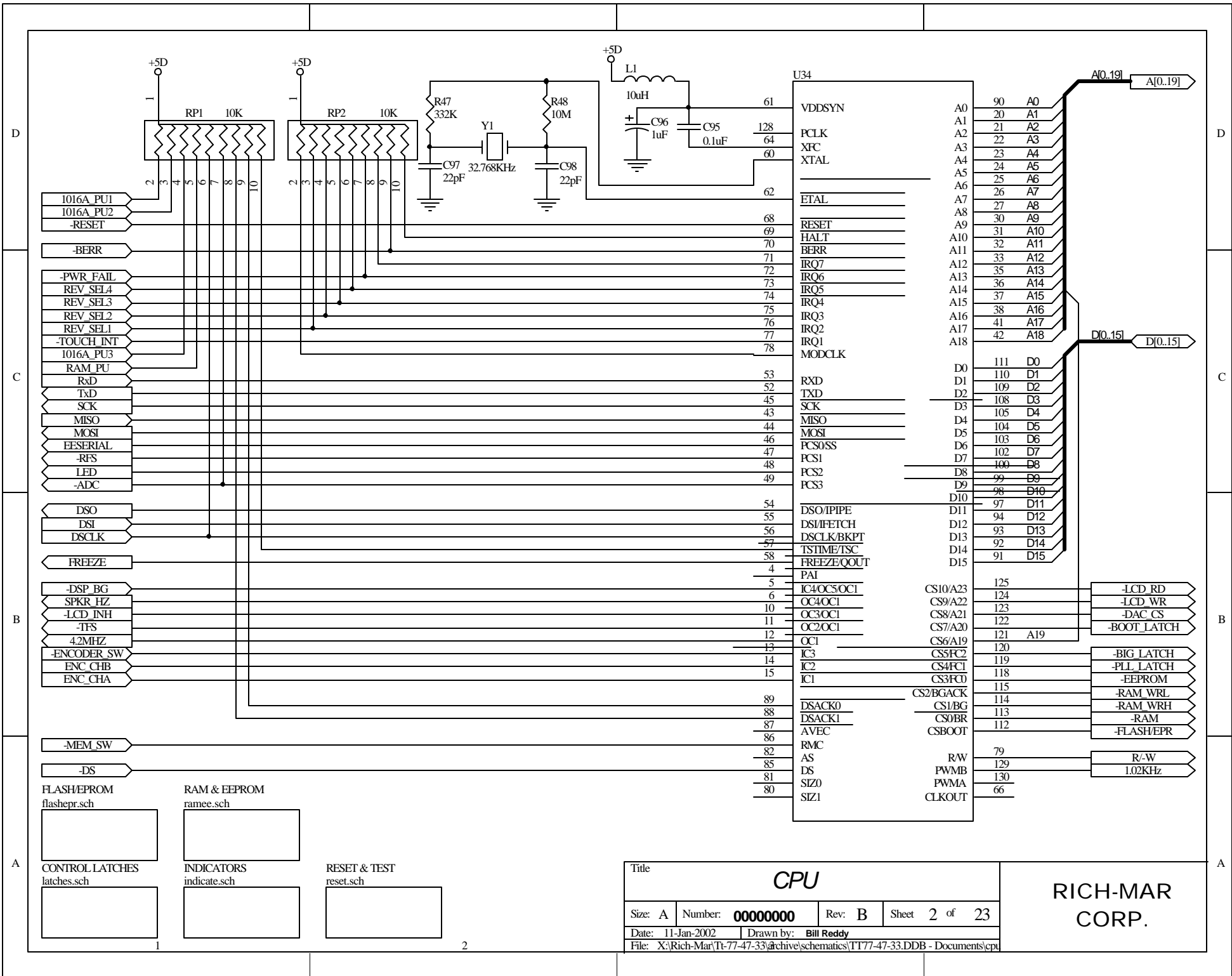
POWER SUPPLY
power.sch

BYPASS CAPS & NOTES
notes.sch



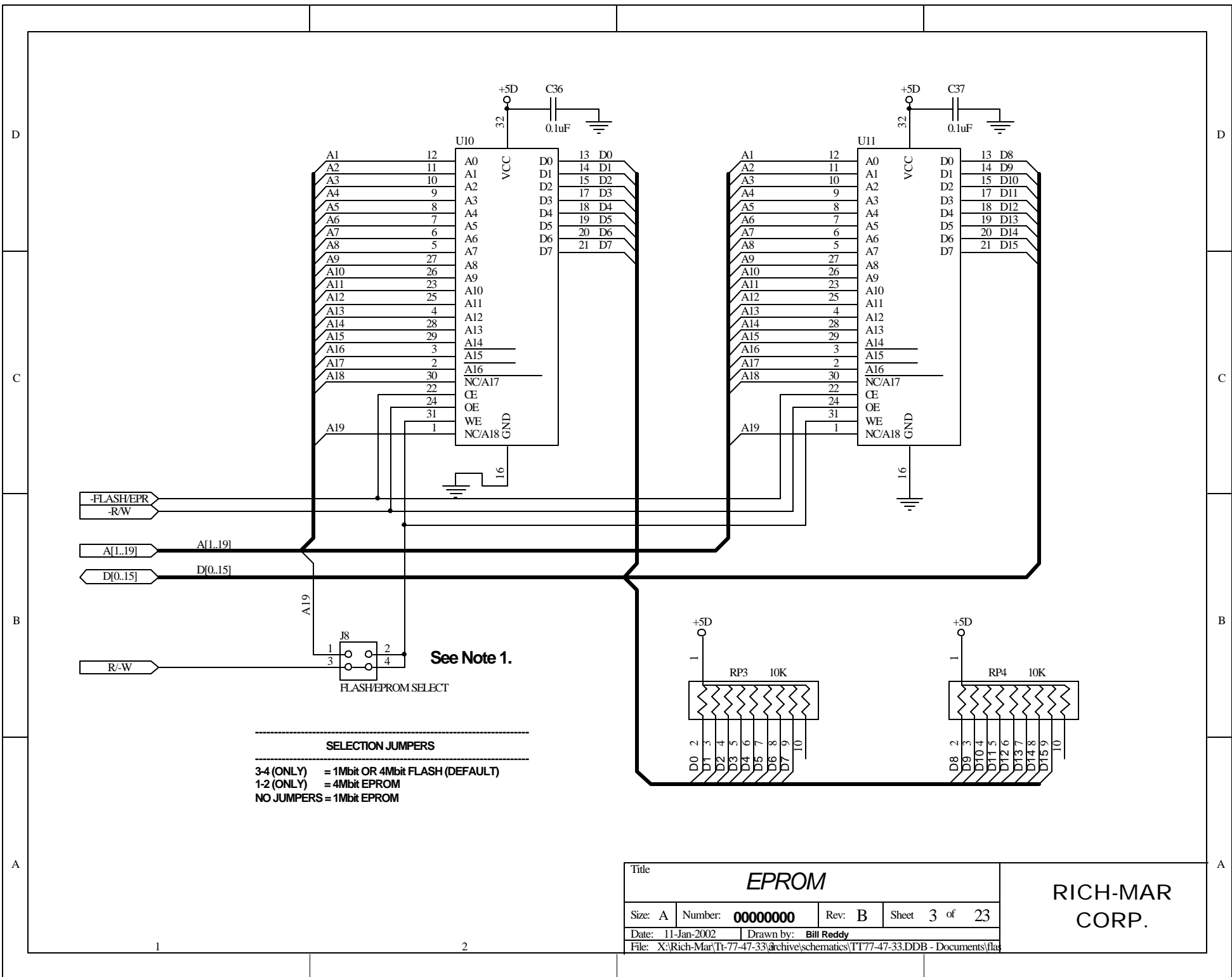
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THE RATOUCH COMBO			
Size: A	Number: 00000000	Rev: B	Sheet 1 of 23
Date: 11-Jan-2002	Drawn by: Bill Reddy		
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**RICH-MAR
CORP.**



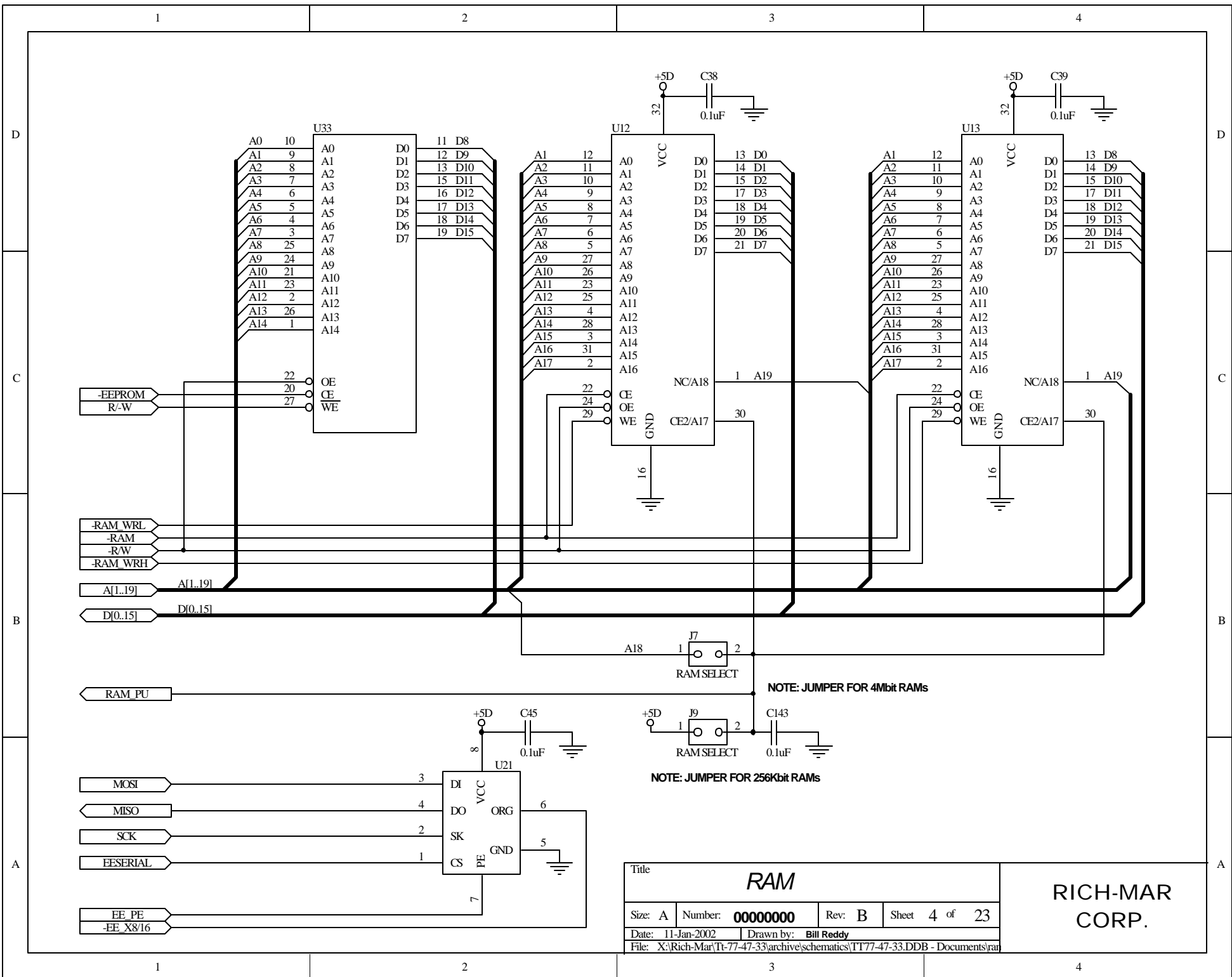
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CPU			
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Title			
EPROM			
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Date: 11-Jan-2002	Drawn by: Bill Reddy		
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Title			
RAM			
Size: A	Number: 00000000	Rev: B	Sheet 4 of 23
Date: 11-Jan-2002	Drawn by: Bill Reddy		
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**RICH-MAR
CORP.**

D

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C

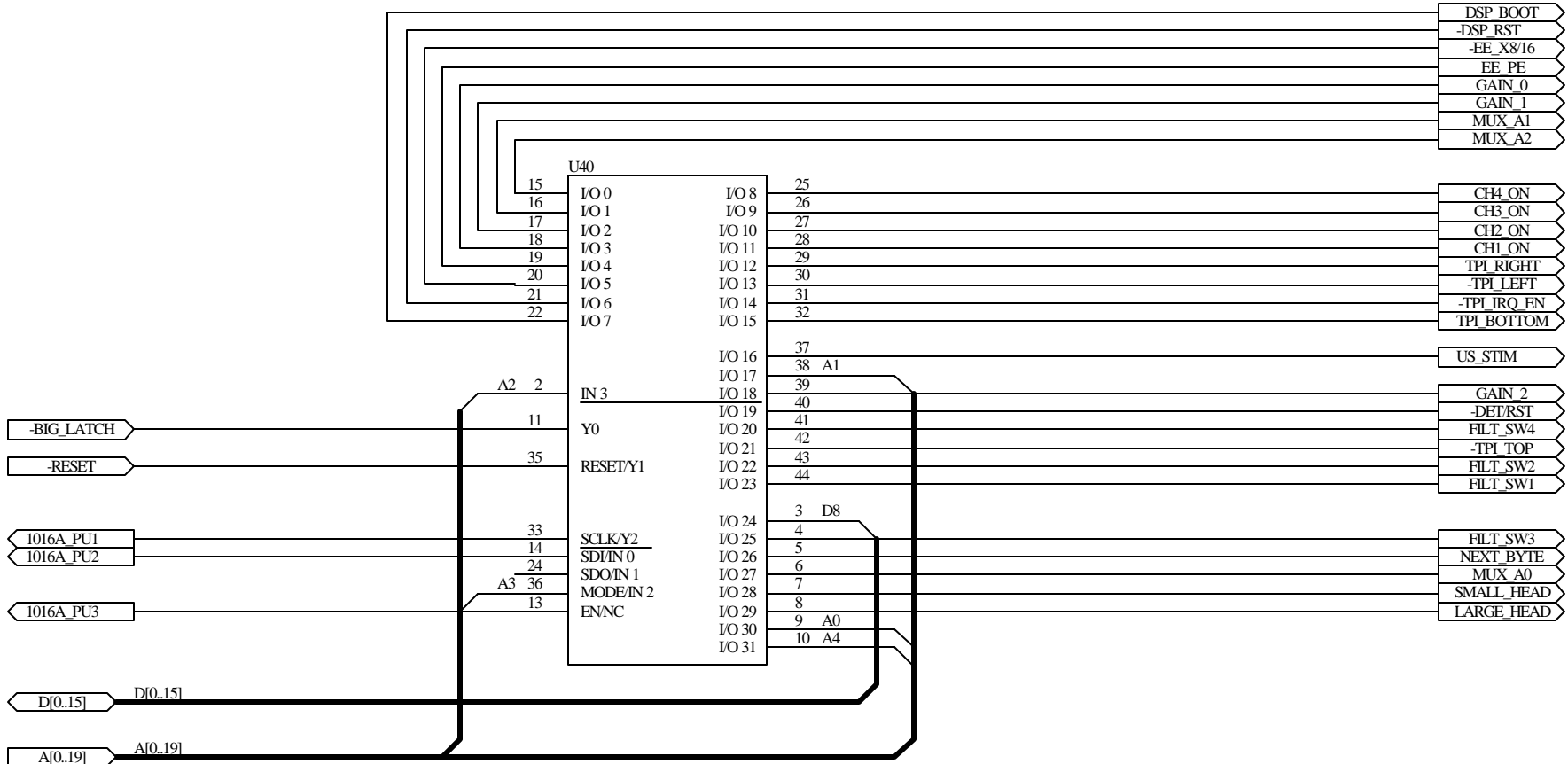
C

B

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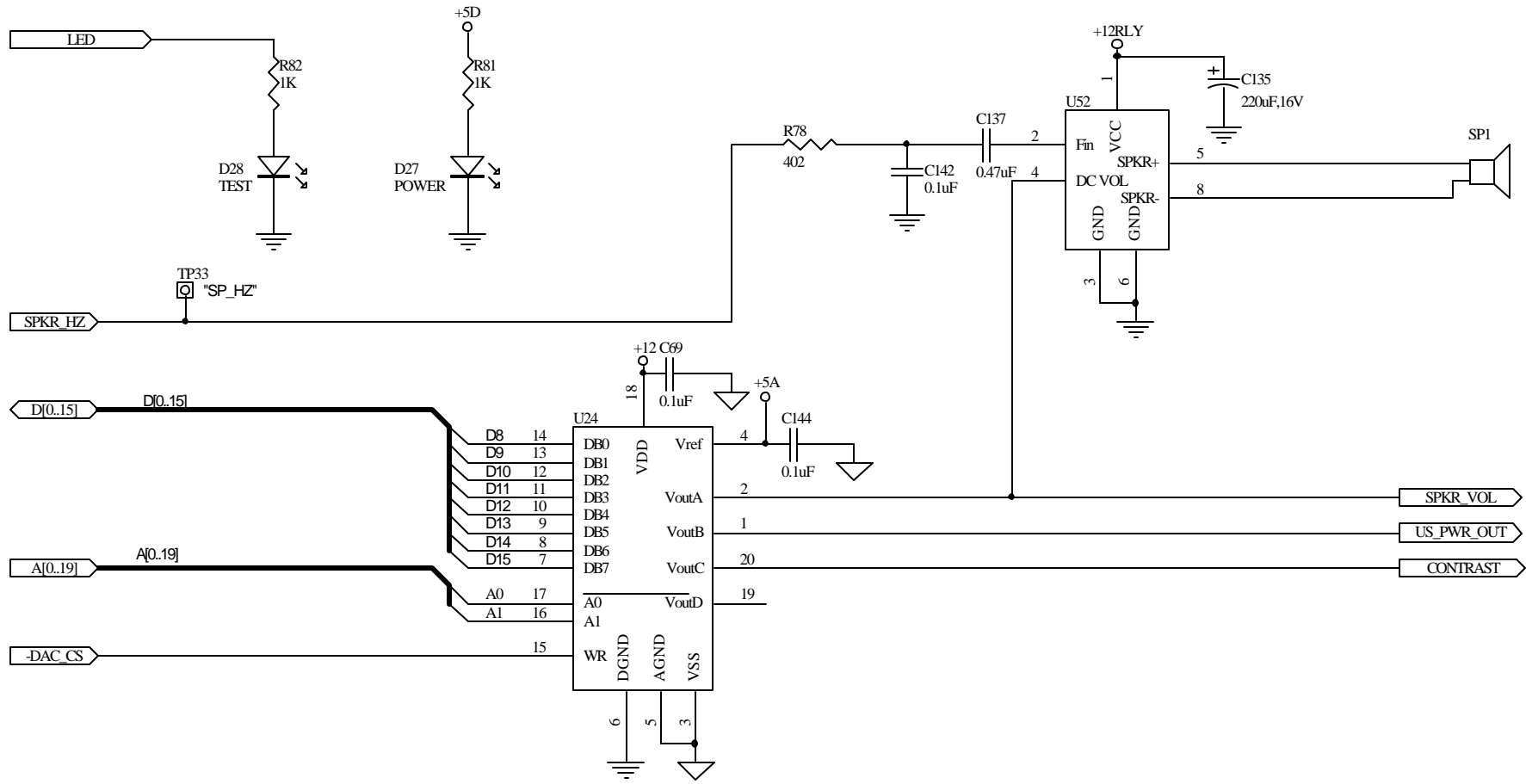
A

A



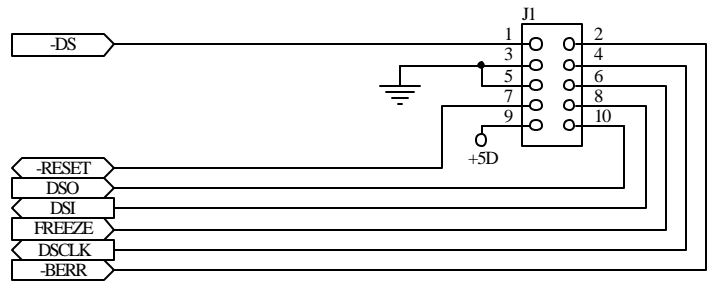
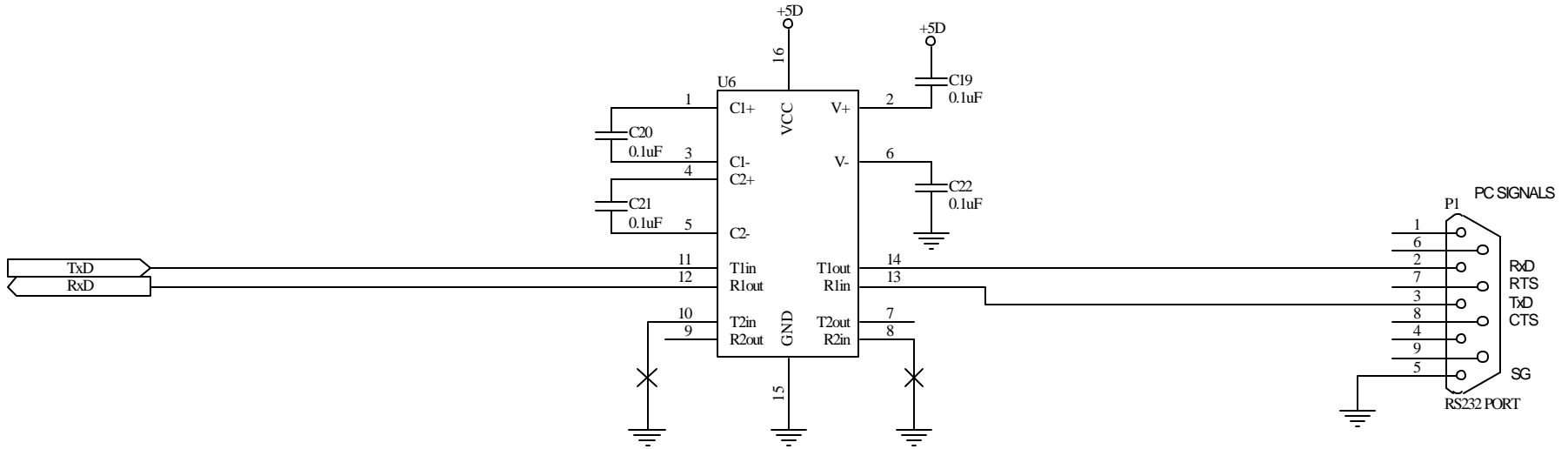
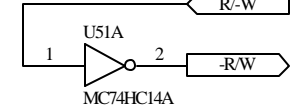
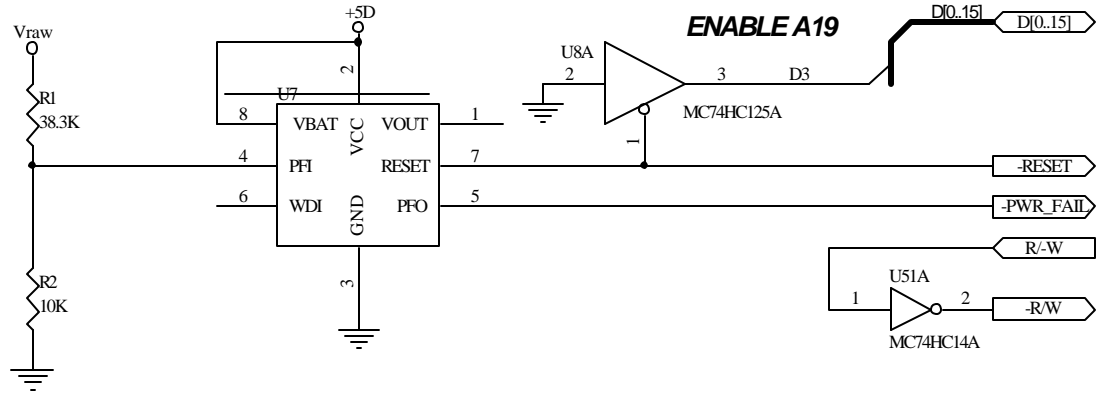
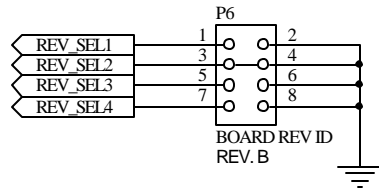
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Control Latches			
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Title			
Control Voltages & Indicators			
Size: A	Number: 00000000	Rev: B	Sheet 6 of 23
Date: 11-Jan-2002	Drawn by: Bill Reddy		
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Title			
Reset & Test I/O			
Size: A	Number: 00000000	Rev: B	Sheet 7 of 23
Date: 11-Jan-2002	Drawn by: Bill Reddy		
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**RICH-MAR
CORP.**

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A

II. FRONT PANEL INTERFACE

- 320 X 240 Graphic LCD
- Touch Panel Interface
- Membrane Switch
- Encoder with Push Button
- Speaker with Adjustable Volume

LCD CONTROLLER
lcd.sch



TOUCH PANEL INTERFACE
touch.sch

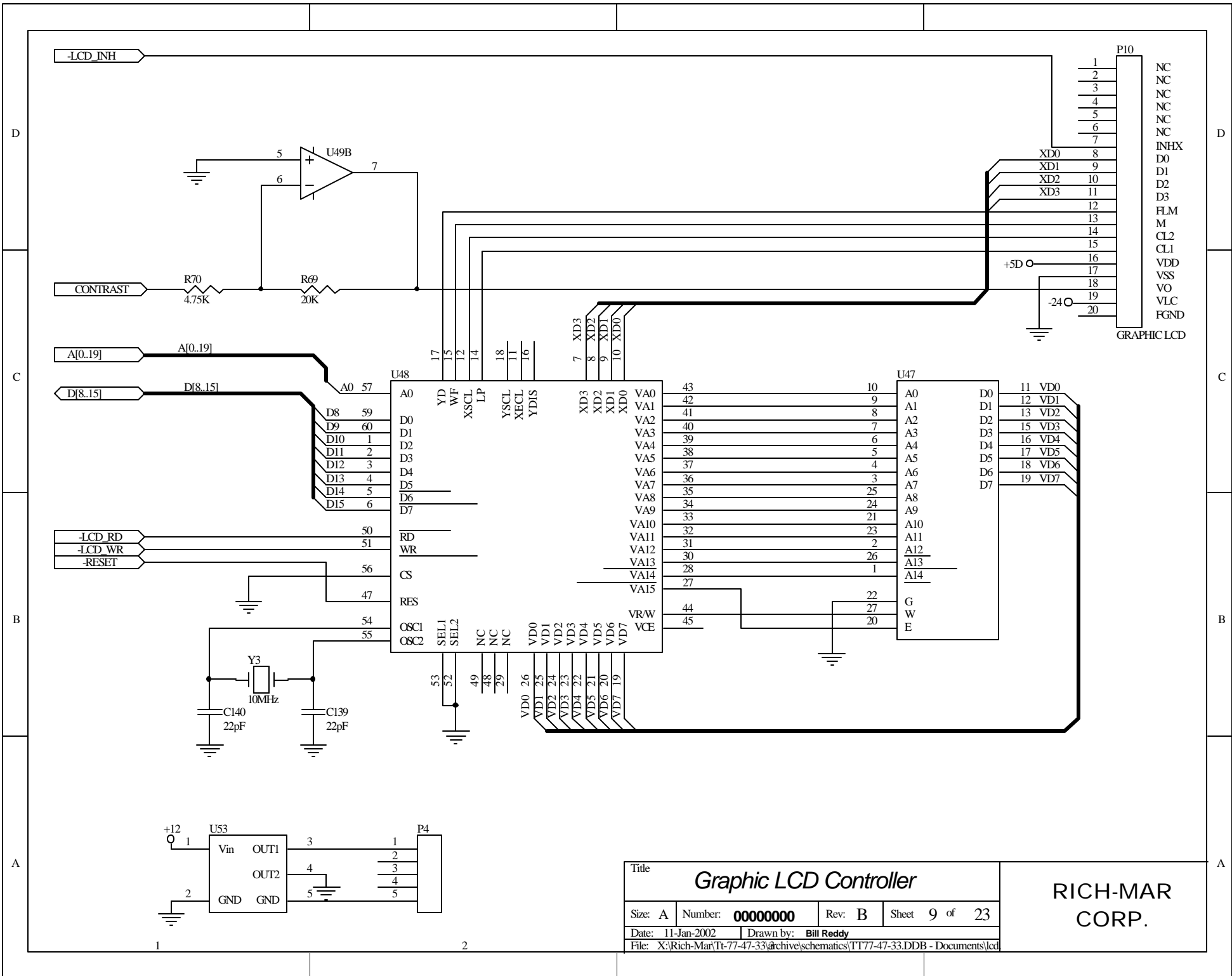


1

2

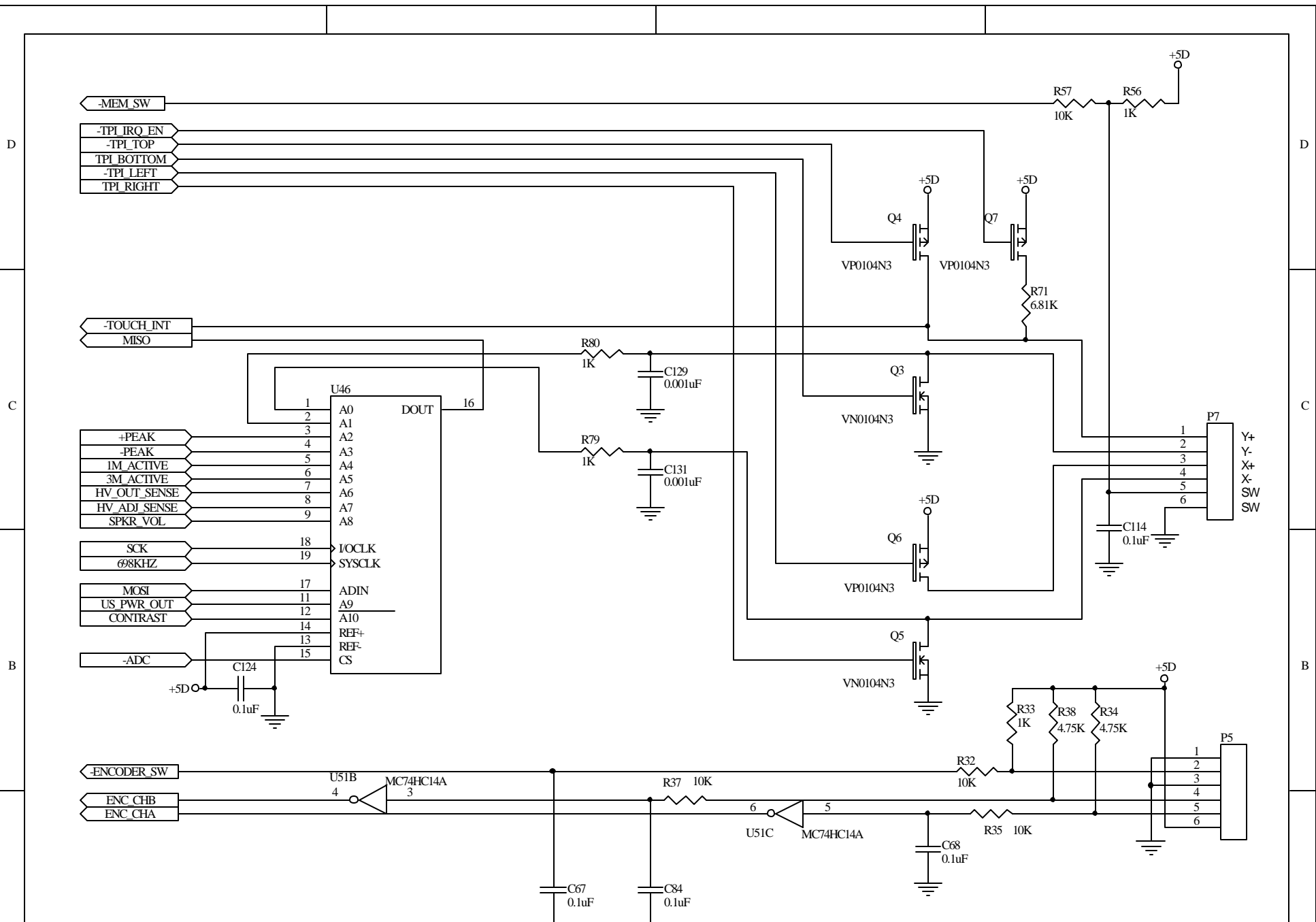
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**RICH-MAR
CORP.**



Title			
Graphic LCD Controller			
Size: A	Number: 00000000	Rev: B	Sheet 9 of 23
Date: 11-Jan-2002	Drawn by: Bill Reddy		
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**RICH-MAR
CORP.**



Title			
Touch Panel			
Size: A	Number: 00000000	Rev: B	Sheet 10 of 23
Date: 11-Jan-2002	Drawn by: Bill Reddy		
File: X:\Rich-Mar\Tt-77-47-33\archive\schematics\TT77-47-33.DDB - Documents\to			

**RICH-MAR
CORP.**

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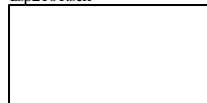
B

A

A

III. THERATOUGH STIM

AD2101 DSP
dsp2101.sch

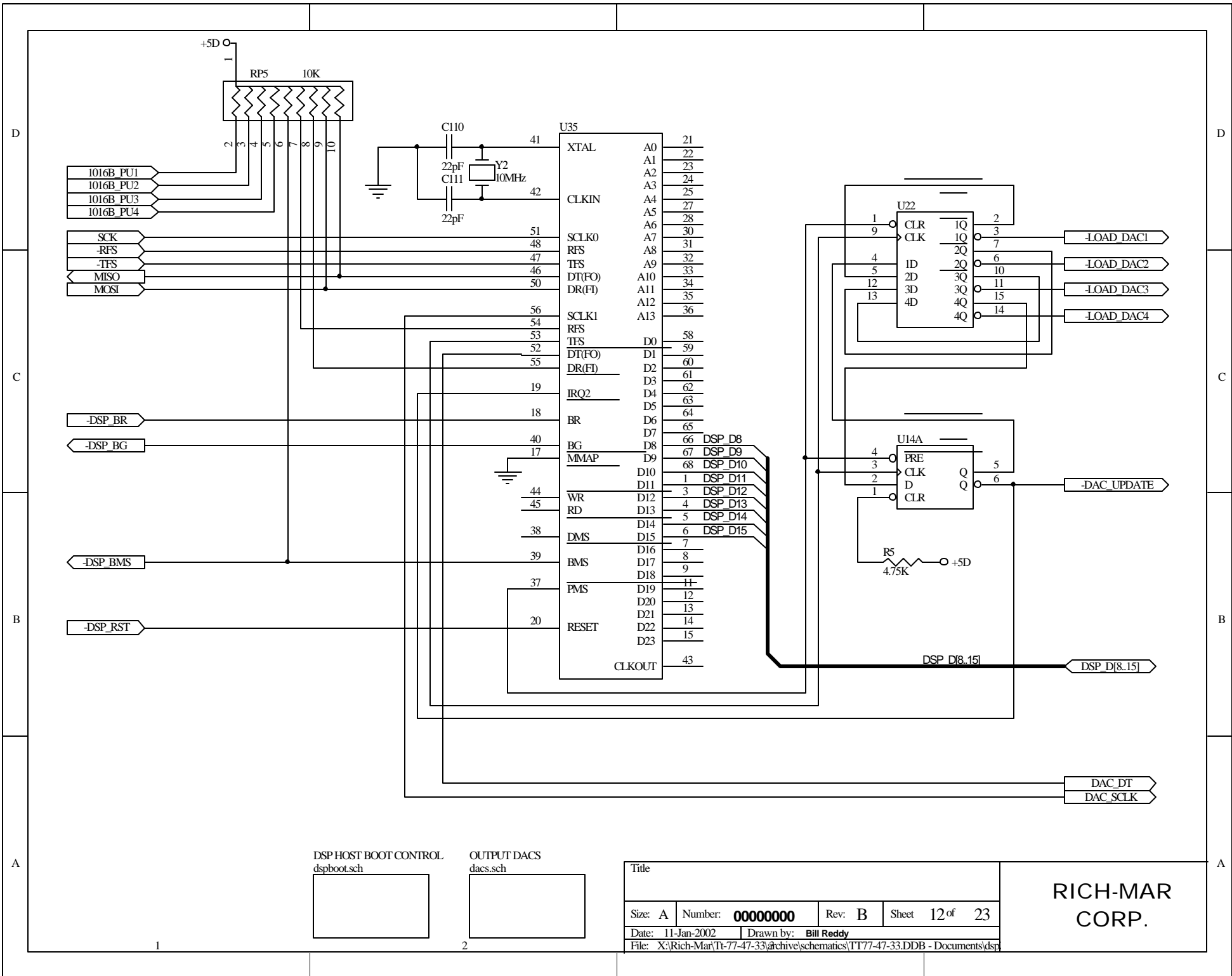


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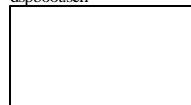
2

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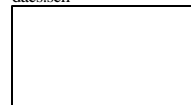
**RICH-MAR
CORP.**



DSP HOST BOOT CONTROL
dspboot.sch

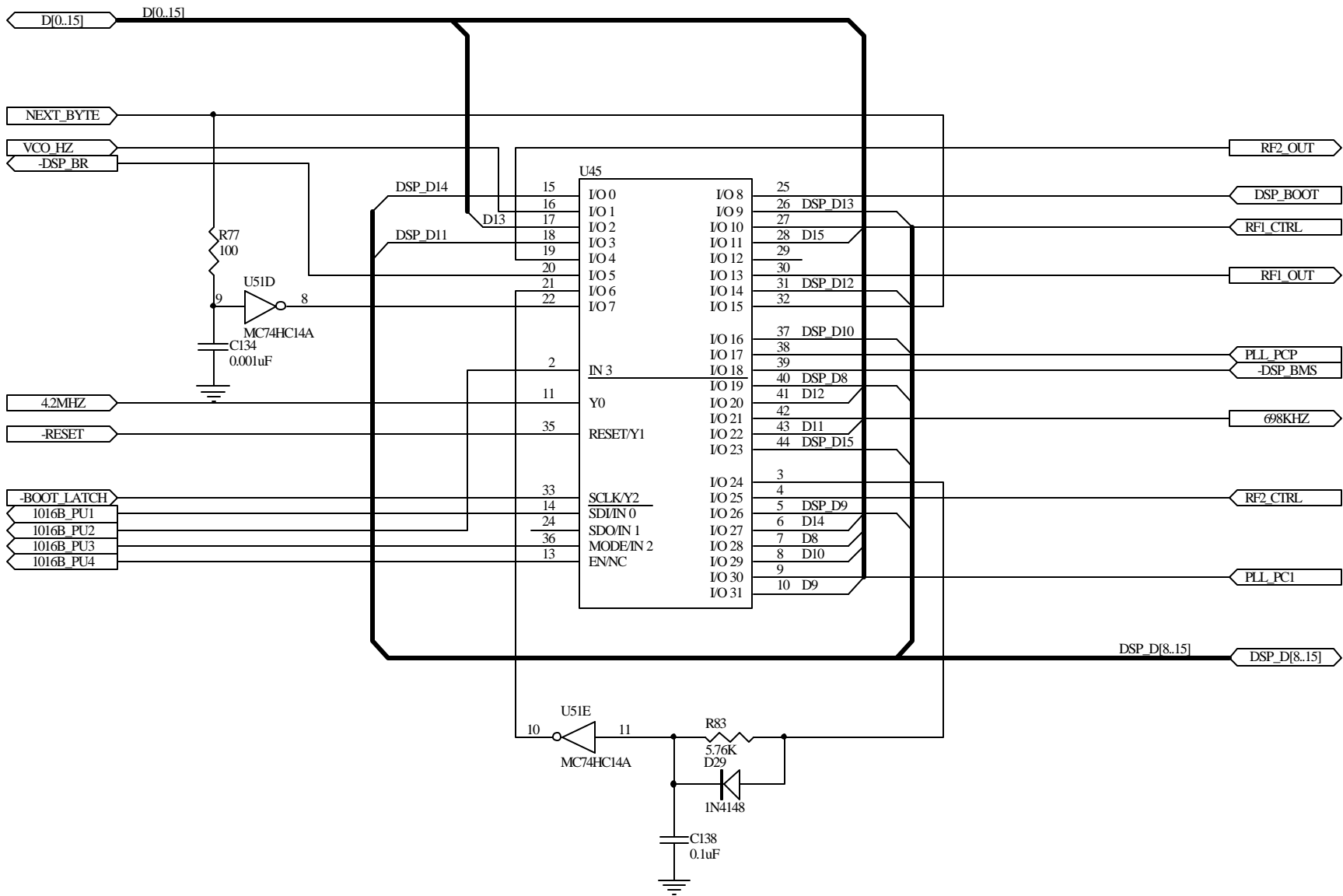


OUTPUT DACS
dacs.sch



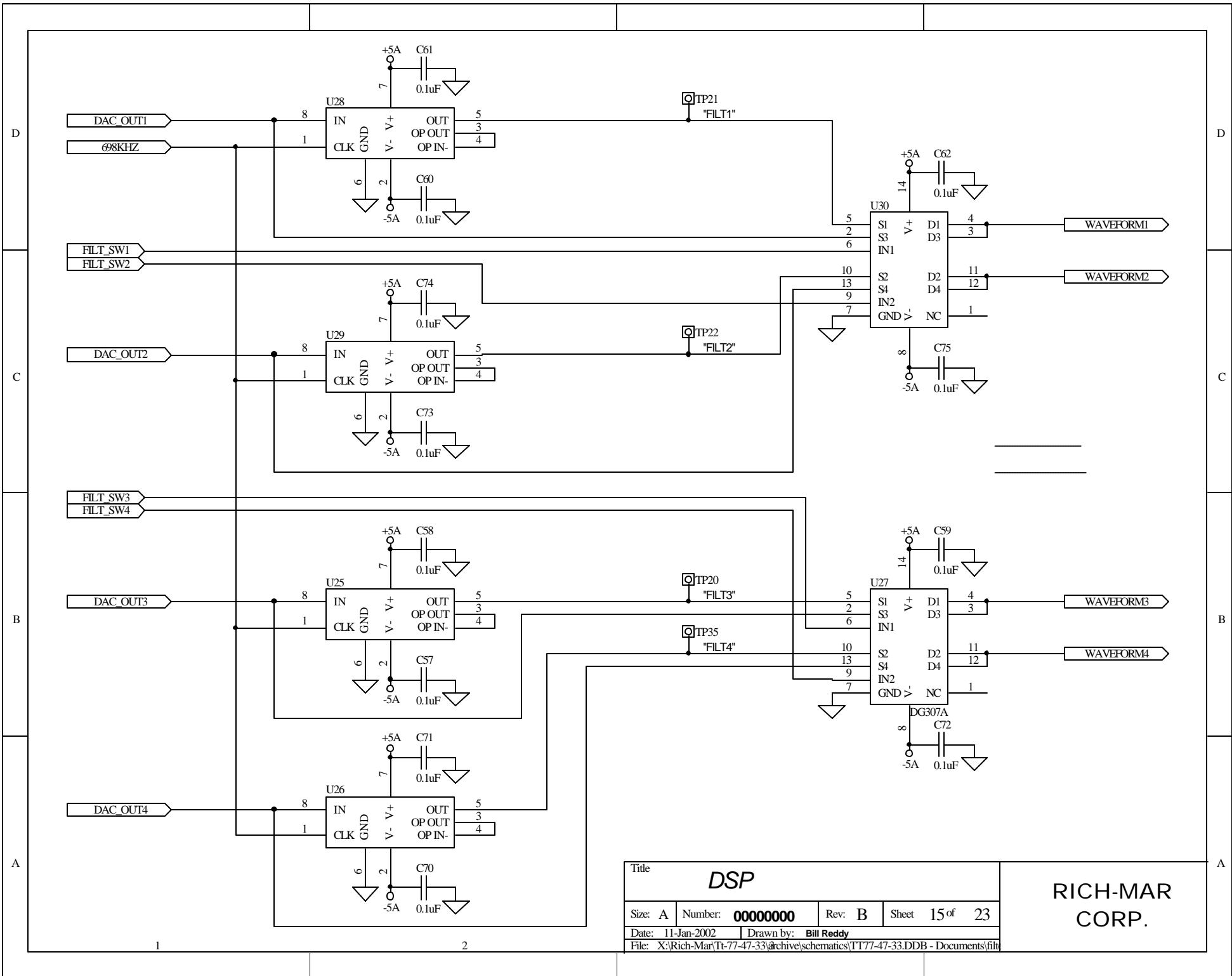
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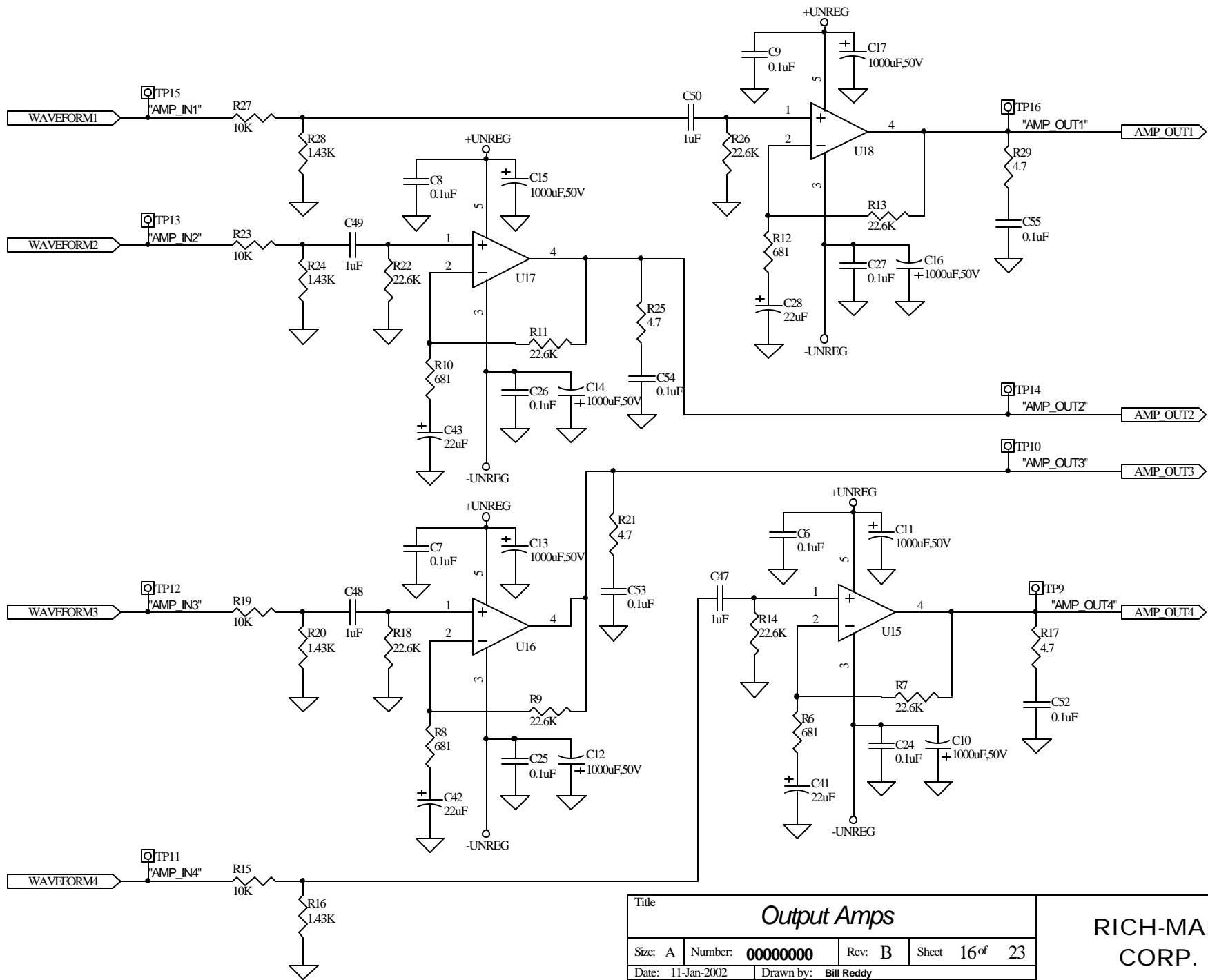
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CORP.**



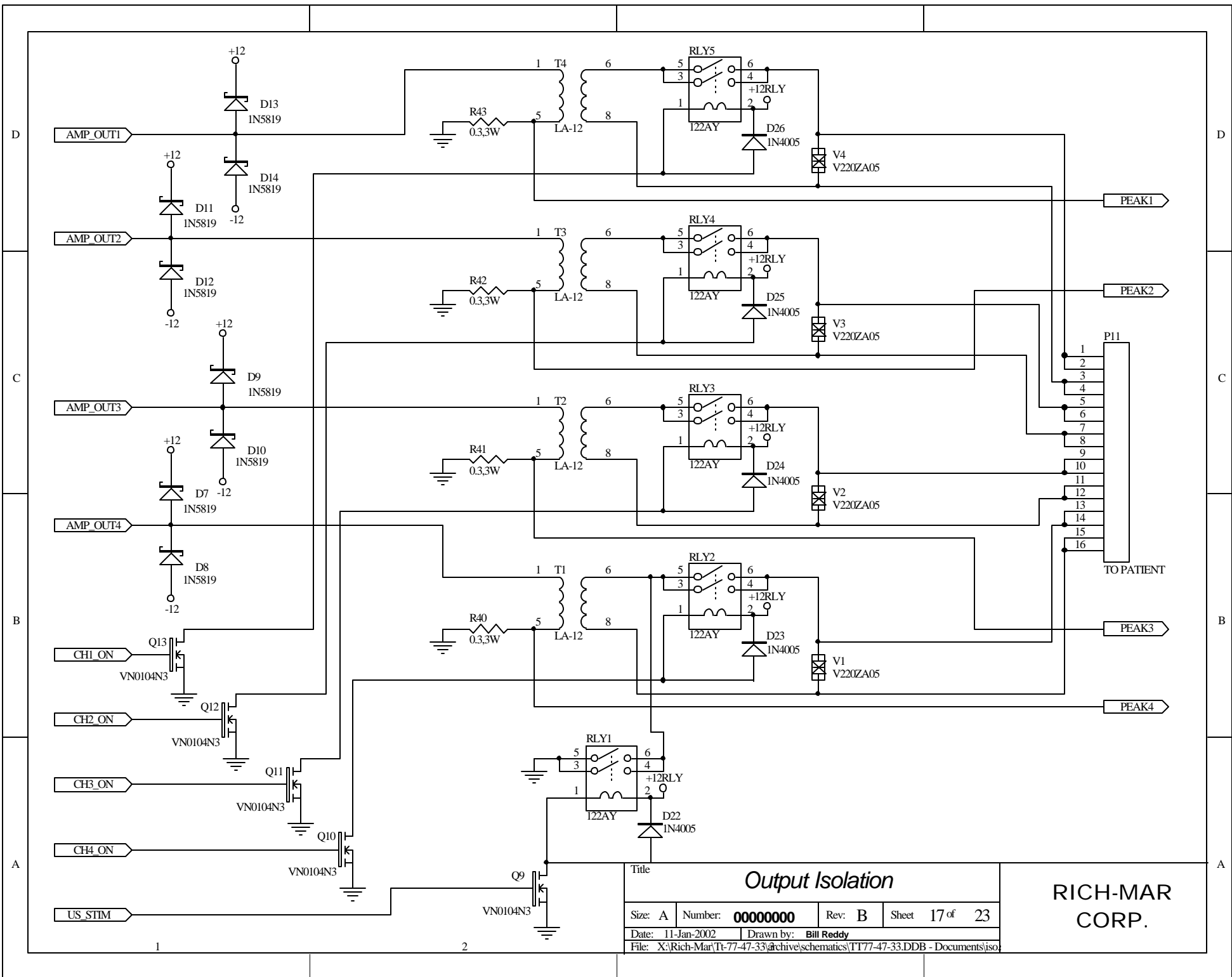
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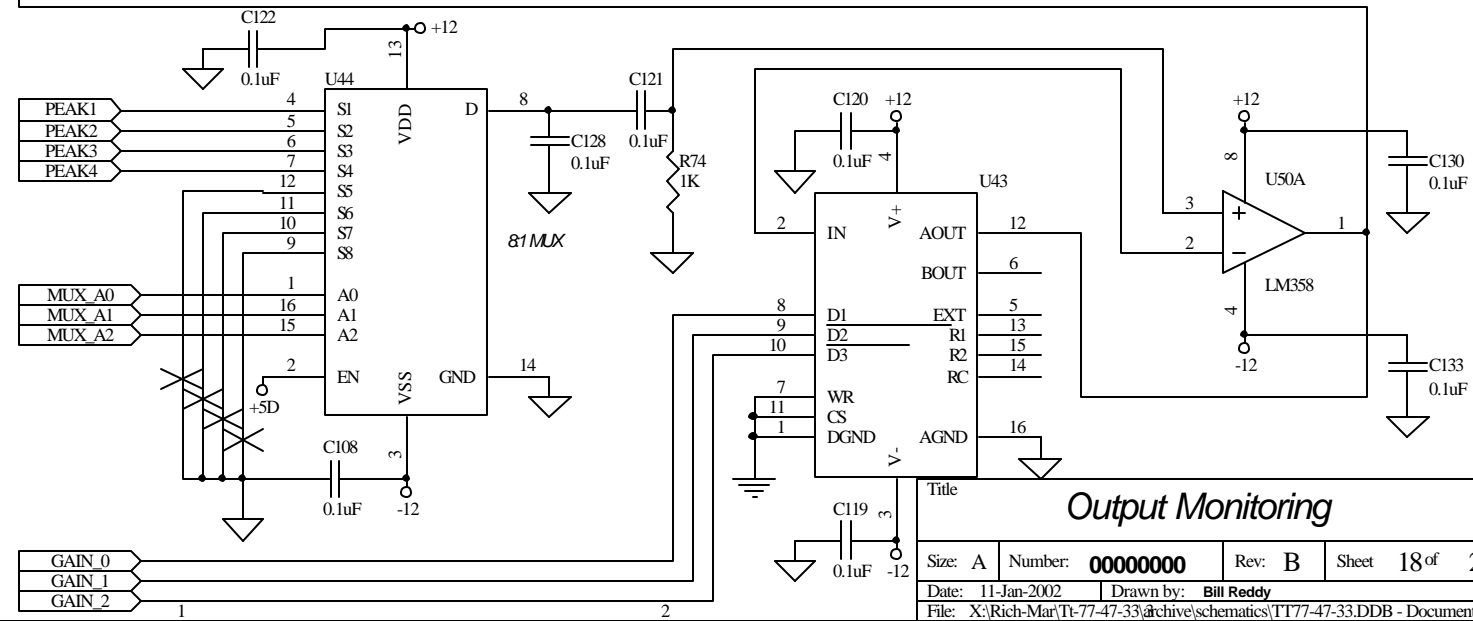
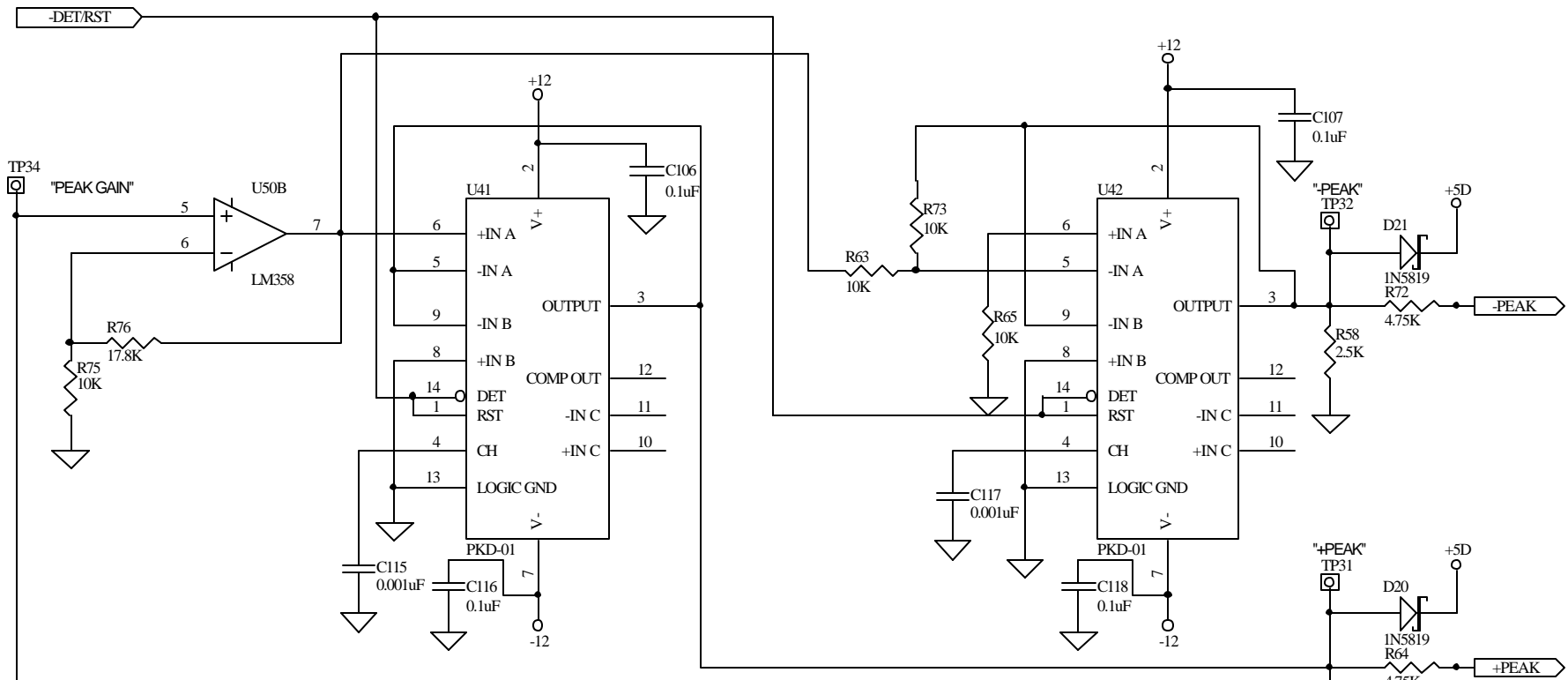
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Output Amps			
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Date: 11-Jan-2002	Drawn by: Bill Reddy		
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Title			
Output Isolation			
Size: A	Number: 00000000	Rev: B	Sheet 17 of 23
Date: 11-Jan-2002	Drawn by: Bill Reddy		
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**RICH-MAR
CORP.**



Title			
Output Monitoring			
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Date: 11-Jan-2002	Drawn by: Bill Reddy		
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CORP.**

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A

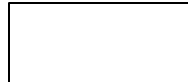
IV. SMART ULTRASOUND

- 1MHz and 3MHz Oscillator
- RF Deck Interface

MULTI-HERTZ
pll.sch



RF DECK IO
deckio.sch

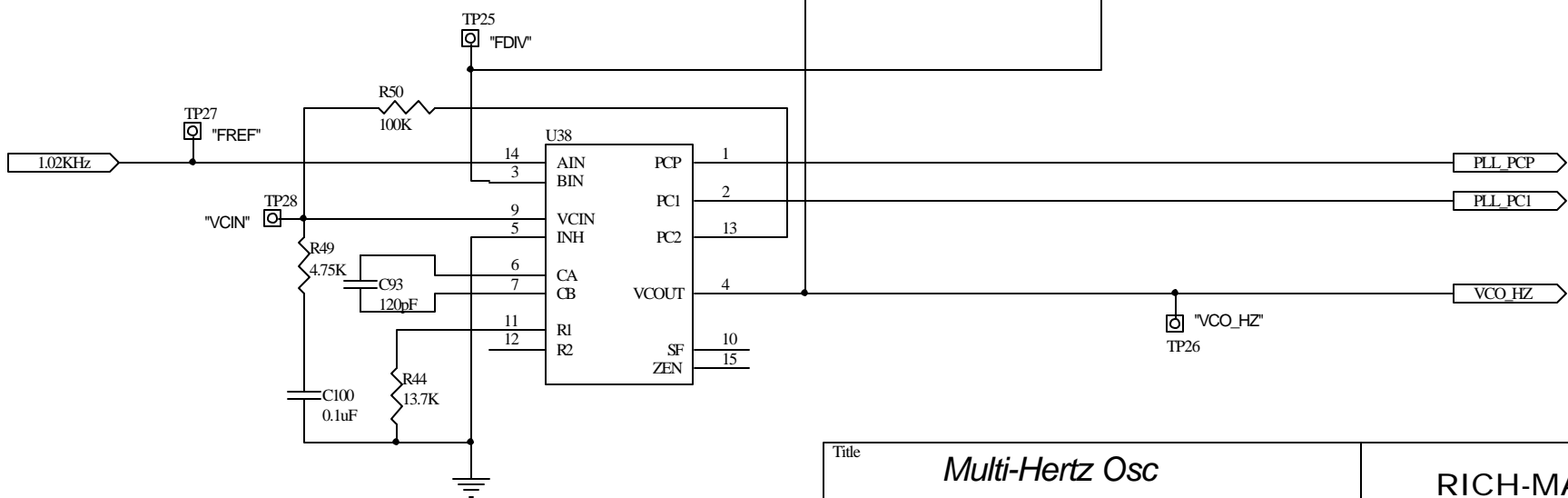
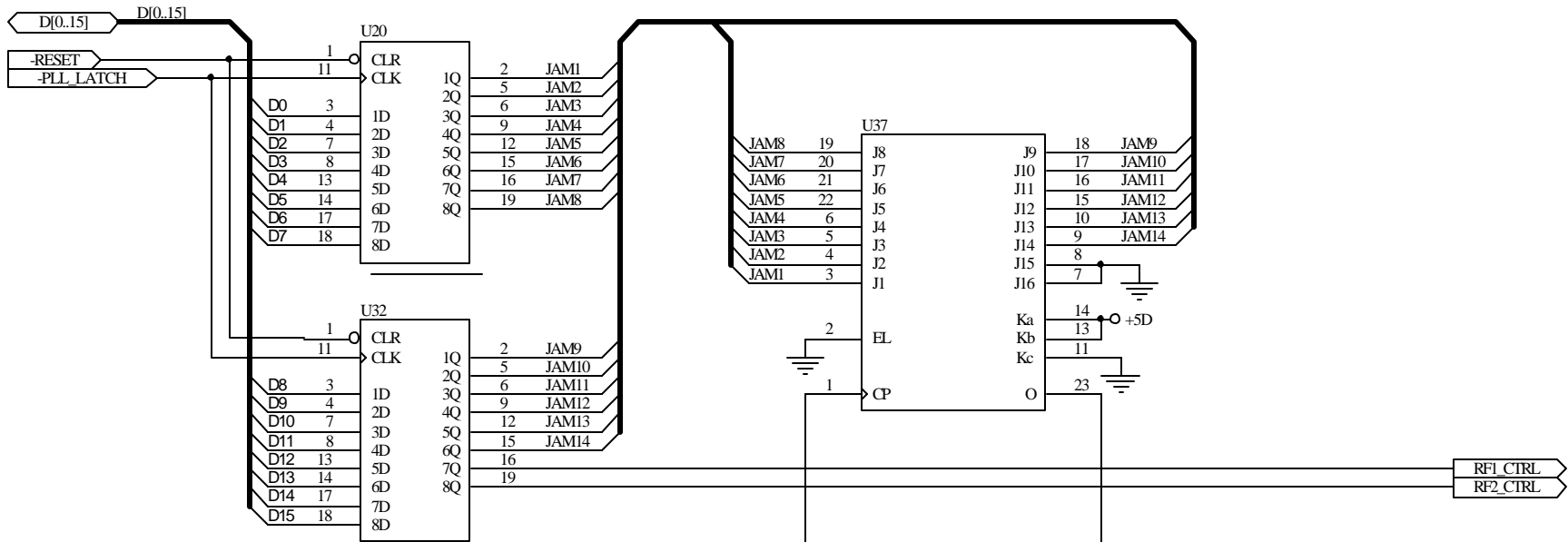


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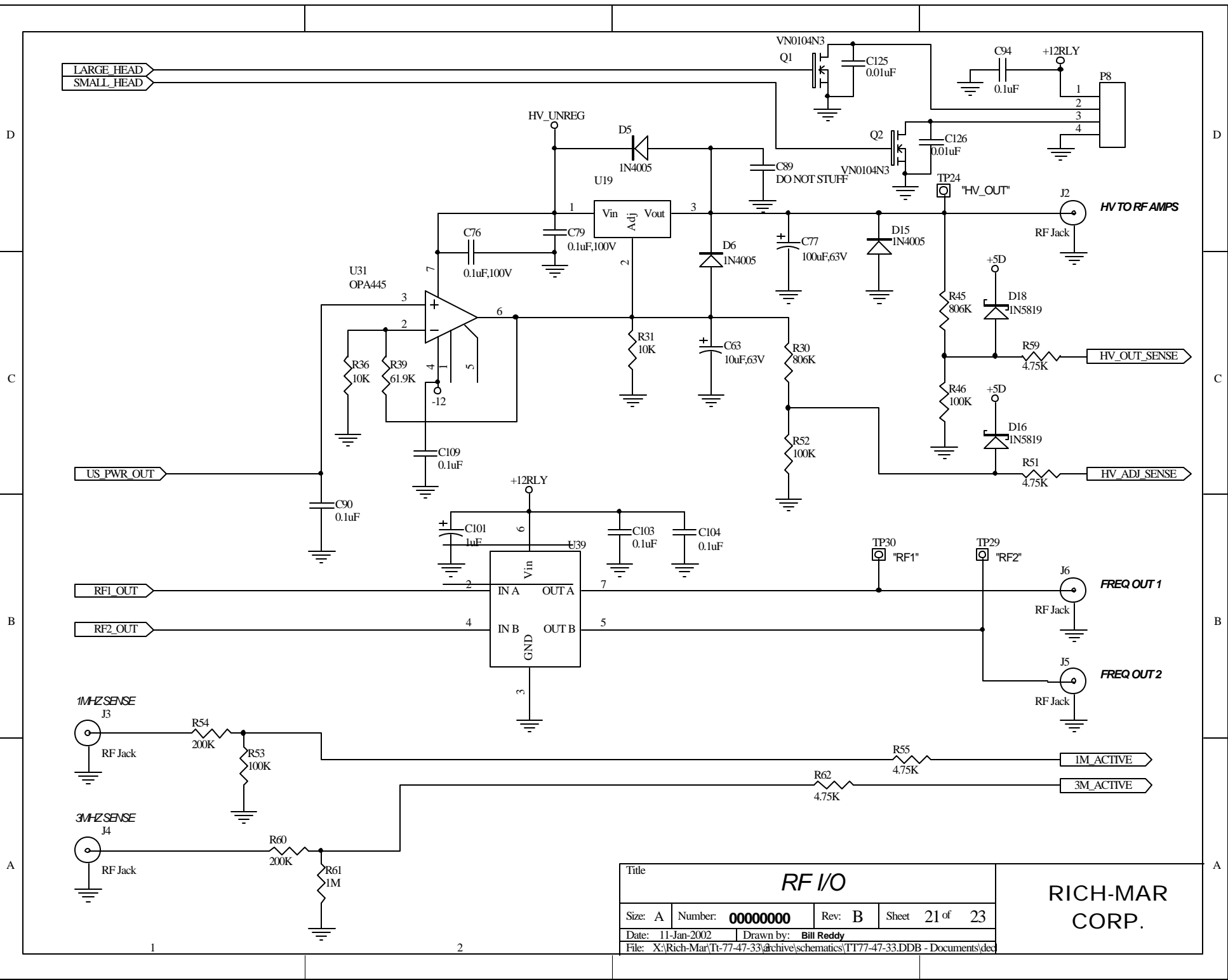
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Title				<i>IV. Smart Ultrasound</i>	
Size: A	Number: 00000000	Rev: B	Sheet	19 of	23
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CORP.**

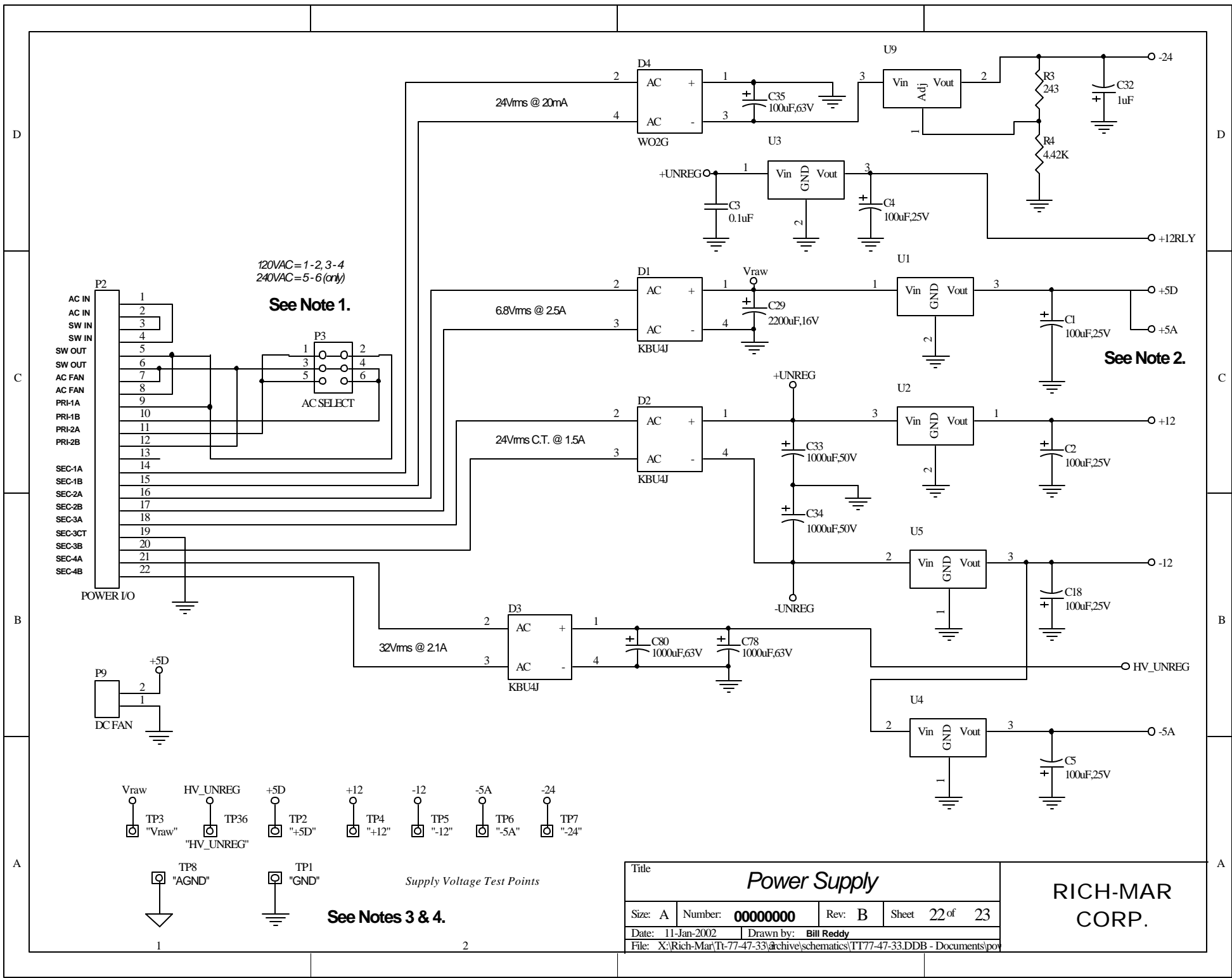


Title				Multi-Hertz Osc		RICH-MAR CORP.	
Size: A	Number: 00000000	Rev: B	Sheet	20 of 23			
Date: 11-Jan-2002		Drawn by: Bill Reddy					
File: X:\Rich-Mar\Tt-77-47-33\archive\schematics\T77-47-33.DDB - Documents\pll							



Title			
RF I/O			
Size: A	Number: 00000000	Rev: B	Sheet 21 of 23
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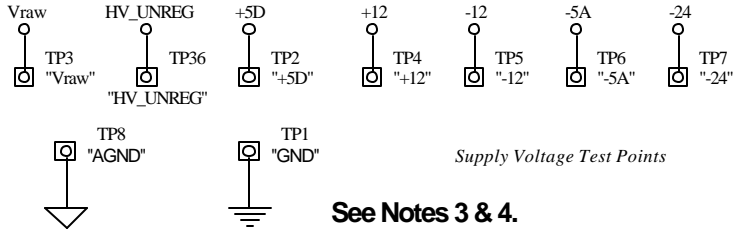
**RICH-MAR
CORP.**



120VAC=1-2,3-4
240VAC=5-6(only)

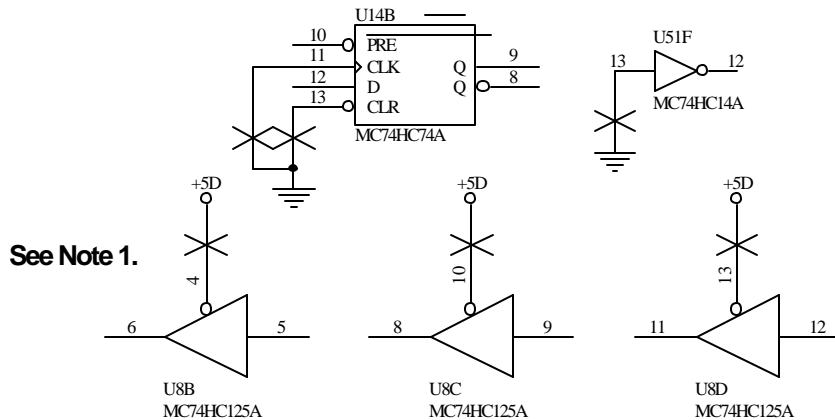
See Note 1.

See Note 2.

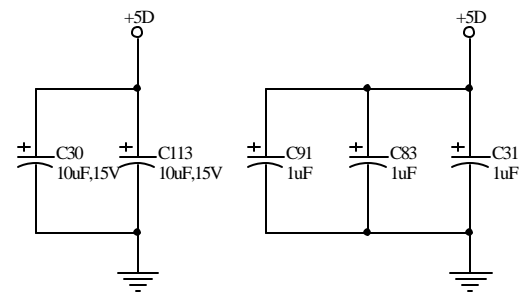


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Power Supply			
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Date: 11-Jan-2002	Drawn by: Bill Reddy		
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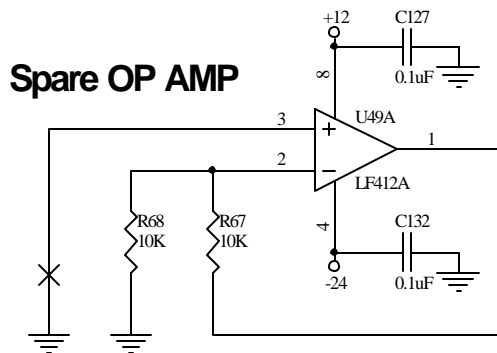
See Note 1.



Bulk Decoupling Caps

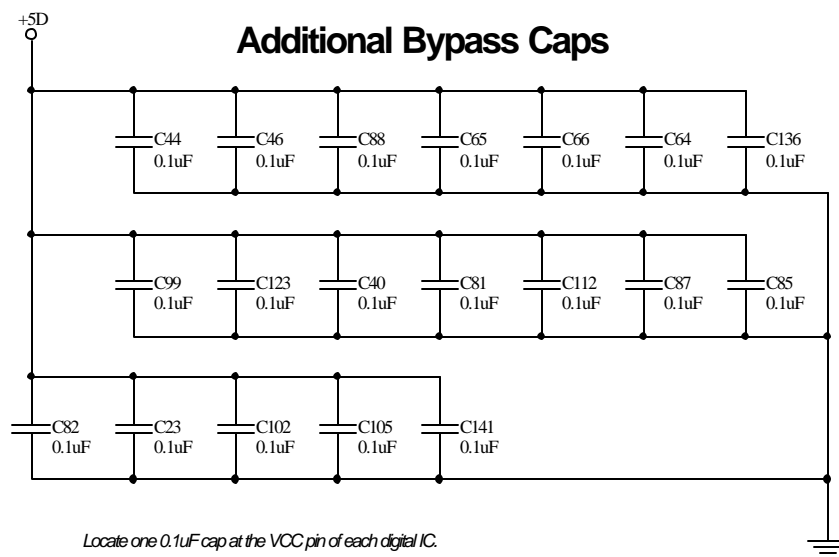
Locate two 1uF caps at the VCC pins of MC68331. Locate one 1uF cap at the VCC pin of ADSP2101.

Unused Gates with Cuttable Traces



See Note 1.

Additional Bypass Caps



Locate one 0.1uF cap at the VCC pin of each digital IC.

NOTES:

1. ⇒ CUTTABLE TRACE (Solder Side)
2. Connect and at power supply only.
3. Connect and at power supply only.
4. Provide chassis ground at mounting hole closest to power supply.
5. Unless otherwise specified;
 - All resistors are in ohms, 1%, 1/4W.
 - All capacitors are in uF.
 - All voltages are DC.

Title

Bypass Caps & Notes

Size: A Number: 00000000 Rev: B Sheet 23 of 23

Date: 11-Jan-2002 Drawn by: Bill Reddy

File: X:\Rich-Mar\Tt-77-47-33\archive\schematics\Tt77-47-33.DDB - Documents\dot

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CORP.