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Giga-tronics
ASCOR

Technical Manual

Model 7013

4x8 DUAL WIRE MATRIX

Rev: C
NOV 2008

Manual Part No.
07507013

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Introduction

This manual provides the necessary information for the PXI Model 7013 card assembly.

General Description

This ASCOR PXI Series card assembly contains a 4x8 dual wire matrix. The card assembly complies with National Instrument PXI specification which allows ease of design of complex switch systems.

Weight and Dimensions

Size: 3U PXI
Width: .80 in.
Height: 5.2 in.
Length: 6.5 in.
Weight: 0.5 lbs.

Features

- **Bandwidth :** **> 178 MHz @ -3 dB**
- **Crosstalk:** **> -51 dB @ 10 MHz**

Relay Electrical Specifications (Resistive Loads)

CONTACT SPECS	AC	DC
MAX Switching Power	**62.5VA**	**60W**
MAX Switching Voltage	**250V AC**	**220V DC**
MAX Switching Current	**2A**	**2A**
MAX Carry Current	**2A**	**2A**

Life expectancy @ 2A, 30 VDC : **>500,000 cycles**
Initial Contact resistance: **< 0.060 Ohms**

Front Panel Connector 50 pin: **AMP 104129-9**
Mating Parts Kit : **p/n 89800700**

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Programming

The Model 7013 is a PXI register based card assembly design to be used with the National Instrument PXI specification. The Model 7013 can be programmed in 8, 16 or 32 bit wide data format. Through your PXI controller, write the data to the appropriate register as shown on the register map for the relay or relays in the register that is being closed. When the data bit is true, the relay chosen will be closed. The state of the relays in a register can be determined by reading the desired register. Data read back represents the value of the desired register. In addition, you can read back the coil state to verify that the coil is driven correctly by the program register. This scenario verifies that the program register has correctly controlled the relay coil.

The register map is organized to show the relay designation in each register. It is followed by the register's functionality and the path connections to the front panel. PXI will automatically assign the starting address of the card, called Bar0. This will be the starting address of the first register. Each address location controls 8 bits. Shown are the control functions using 16 format.

Programming of the Model 7013 is very straight forward. The module is organized as a 4x8 dual wire matrix with four channels and 8 (2 wire) input/output pins. The location of the first register is assigned by the PCI enumerator. This is designated as "Bar0" or the starting address of the card. The program registers using 16 bit format are located as follows:

Register #1:	read/write function:	Bar0 + 0000h
	coil read back:	Bar0 + 0008h
Register #2:	read/write function:	Bar0 + 0002h
	coil read back:	Bar0 + 000Ah

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J1

Description	Pin #	Pin #	Description
Analog Ground	50	49	PIN 1A
Analog Ground	48	47	PIN 1B
Analog Ground	46	45	PIN 2A
Analog Ground	44	43	PIN 2B
Analog Ground	42	41	PIN 3A
Analog Ground	40	39	PIN 3B
Analog Ground	38	37	PIN 4A
Analog Ground	36	35	PIN 4B
Analog Ground	34	33	PIN 5A
Analog Ground	32	31	PIN 5B
Analog Ground	30	29	PIN 6A
Analog Ground	28	27	PIN 6B
Analog Ground	26	25	PIN 7A
Analog Ground	24	23	PIN 7B
Analog Ground	22	21	PIN 8A
Analog Ground	20	19	PIN 8B
Analog Ground	18	17	Channel 1A
Analog Ground	16	15	Channel 1B
Analog Ground	14	13	Channel 2A
Analog Ground	12	11	Channel 2B
Analog Ground	10	9	Channel 3A
Analog Ground	8	7	Channel 3B
Analog Ground	6	5	Channel 4A
Analog Ground	4	3	Channel 4B
Analog Ground	2	1	Analog Ground

Front Panel Connector Pin Assignments

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ASSEMBLY/SCHEMATICS

Module

PL91000070

Assy91000070

Assembly/Schematics

PL85002550

Assy85002550

SCH85002550

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Single Level Bills Of Material Report

Assembly ID	Dwg Item	Component ID	Required	Description	ECN	Dwg Rev
91000070		07507013	1.000000	MANUAL,MODEL 7013		A
91000070		PI-GENERIC MODULE	0.000000	PROC.INSTR;GENERIC MODULE		A
91000070		PL91000070	0.000000	PARTS LIST,MODULE,4X8 TWO WIRE,MODEL 701		A
91000070		PP-REGCON	0.000000	PLUG & PLAY,GP REG. CON.		
91000070	0001	85002550	1.000000	PCA,4 X 8,TWO WIRE		B
91000070	0002	78002320-003	0.000000	FRONT PANEL,4X8 DUAL WIRE,MDL.7013		A
91000070	0002	86500490	1.000000	FRONT PANEL KIT,50 POS. AMP IDC		
91000070	0004	79301280-013	1.000000	LABEL,INSERT,MODEL NUMBERS 7013		
91000070	0004	89800740	0.000000	KIT,PXI MODULE ASSY	2388	B
91000070	0005	05200160	1.000000	PRIMER,ZINC CHROMATE		
91000070	0006	79300360	1.000000	LABEL,BRADY PRINTER,.75 X .25		

Records Printed: 11

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Single Level Bills Of Material Report

Assembly ID	Dwg Item	Component ID	Required	Description	ECN	Dwg Rev
85002550		FLM75002550	0.000000	FILM,PCB,4 X 8,TWO WIRE		C
85002550		PI85002550	0.000000	PROC.INSTR.,PCB,4 X 8,TWO WIRE		
85002550		PL85002550	0.000000	PARTS LIST,PCA,4 X 8,TWO WIRE		B
85002550		SCH85002550	0.000000	SCHEMATIC,PCA,4 X 8,TWO WIRE		B
85002550	0001	75002550	1.000000	PCB,4 X 8,TWO WIRE		C
85002550	0002	12500190-001	2.000000	CAP,10 UF,10V,TANTALUM,SMD		
85002550	0003	12500290-001	13.000000	CAP,CHIP,0805,.1 UF,50V		
85002550	0004	38100140	2.000000	IC,CUSTOM,16-BIT REG,64TQFP	3125	C
85002550	0005	50100330	32.000000	RELAY,DUAL FORM C, ULTRA SMALL		
85002550	0006	37000160-001	4.000000	IC,2803,8CH DRIVER,SOIC		
85002550	0007	30400123-001	1.000000	IC,74HCT123,MULTIVIBRATOR,MONOS,SML OUTL		
85002550	0009	79300360	1.000000	LABEL,BRADY PRINTER,.75 X .25		
85002550	0010	SN63WRMAP2	0.000000	SOLDER,TIN ALLOY:TIN-LEAD ALLOY		
85002550	0011	79300290	1.000000	LABEL,STATIC SYMBOL,.375 X .375		
85002550	0012	10800100-008	1.000000	RES,CHIP,0805,10.0K OHM,1%		
85002550	0013	10600360	12.000000	RESISTOR,CHP ARRAY		
85002550	0014	56104030	1.000000	CONN,110 POS,PC MOUNT,TYPE A		
85002550	0015	10800100-012	1.000000	RES,CHIP,0805,100K OHM,1%		
85002550	0016	89104930-001	1.000000	PXI 7013,4 X 8 TWO WIRE	2646	B
85002550	0017	12500290-005	1.000000	CAP,CHIP,0805,1UF,16V,10%,SMD		
85002550	0018	10600370-001	8.000000	RESNTWK,10K OHM, 8R,BUSS,SMT		
85002550	0019	40300150-001	1.000000	LED,RED,SMT 1206		
85002550	0020	10800100-001	1.000000	RES,CHIP,0805,100 OHM,1%		
85002550	0021	56100520	1.000000	CONN,50 POS,LOW PROFILE HEADER		

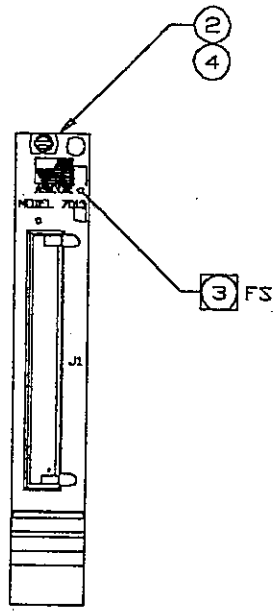
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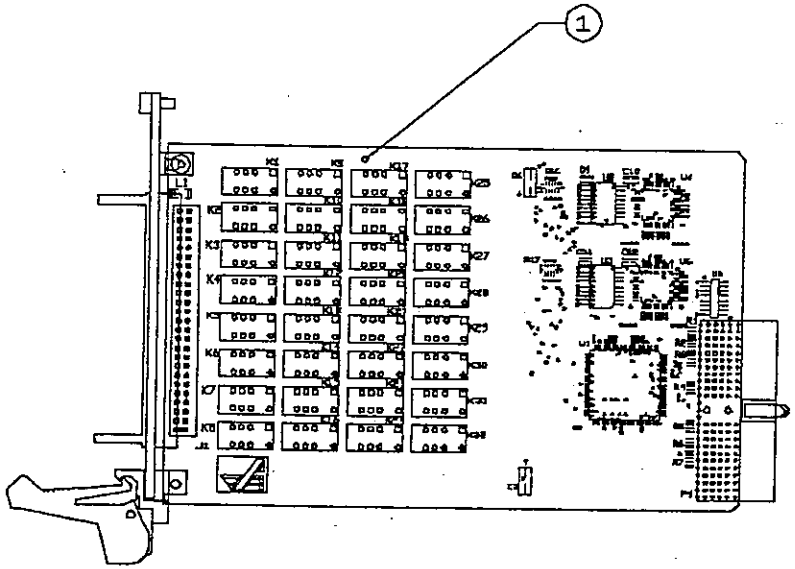
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DBSCI	91000070	1	A

REV	DESCRIPTION	DATE	APPROVED
A	RELEASE	CAH	





3 MARK ON LABEL ITEM 6, PART NUMBER AND SERIAL NUMBER PLACE APPROXIMATELY WHERE SHOWN.

2 APPLY ZINC CHROMATE ITEM 5, TO EXPOSED THREADS OF FASTENERS AS REQUIRED.

1 INTERPRET DRAWING IN ACCORDANCE WITH DOD-STD-100.

NOTES-UNLESS OTHERWISE SPECIFIED:

SEE SEPARATE PARTS LIST: PL91000070

THIRD ANGLE PROJECTION

ASCOR 4384 Enterprise Place Fremont, California

J SANDHU 8/99

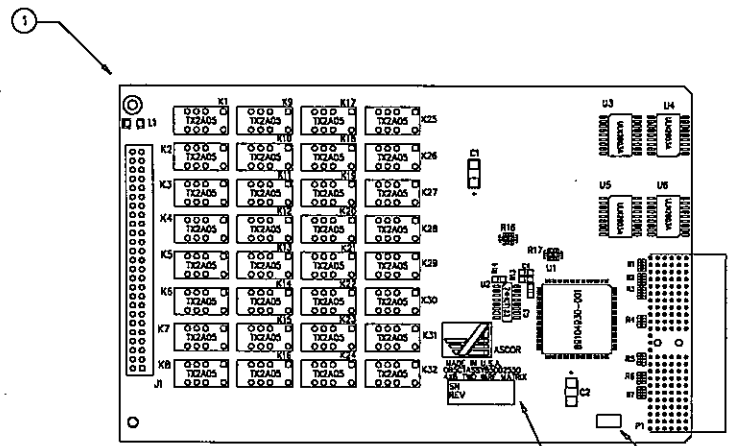
MODULE, 4X8 TWO WIRE
MODEL 7013

DBSCI	91000070	A

SCALE 1.000 | 91000070 | 91000070.MDV | SHEET 1 OF 2

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REV	DESCRIPTION	DATE	APPROVED
B	FORMAL RELEASE		



CAUTION
THIS ASSEMBLY CONTAINS PARTS AND ASSEMBLIES SUSCEPTIBLE TO DAMAGE BY ELECTROSTATIC DISCHARGE (ESD).

SEE SEPARATE PARTS LIST – PL85002550

NOTES--UNLESS OTHERWISE SPECIFIED:

4) TRIM LEADS SOLDER SIDE .060 MAX.

3) SQUARE PIN DENOTES:
PIN 1 OF DIPS,SIPS AND CONNECTORS
EMITTER OF TRANSISTOR
CATHODE OF DIODE
POSITIVE SIDE OF CAPACITORS

2) ASSEMBLE PER MIL-STD-454.

1) INTERPRET DRAWING IN ACCORDANCE WITH DOD-STD-100.

7) ATTENTION: OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC DISCHARGE SENSITIVE DEVICES.

6) MARK SERIAL NUMBER APPROX. NEAR ASCOR LOGO.

5) MARK ASSEMBLY REVISION APPROX. NEAR ASCOR LOGO.

91000070

THIRD ANGLE PROJECTION

ASCOR 4384 Enterprise Place Fremont, California

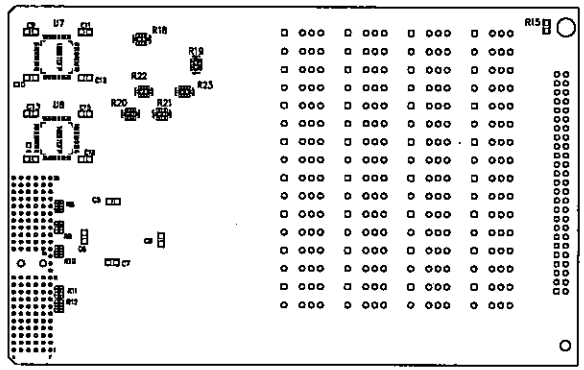
DRAWN	CHER REIS	7/99
CHECKED		
ENGR		
Q.A.		
APPR.		

MATERIAL ------
FINISH ------
DO NOT SCALE DRAWING

ASSY PCB
4X8 TWO WIRE MATRIX

SIZE	CAGE CODE	DWG NO	REV
D	0B5C1	85002550	B

SCALE NONE | A2550-1.DWG | SHEET 1 OF 2

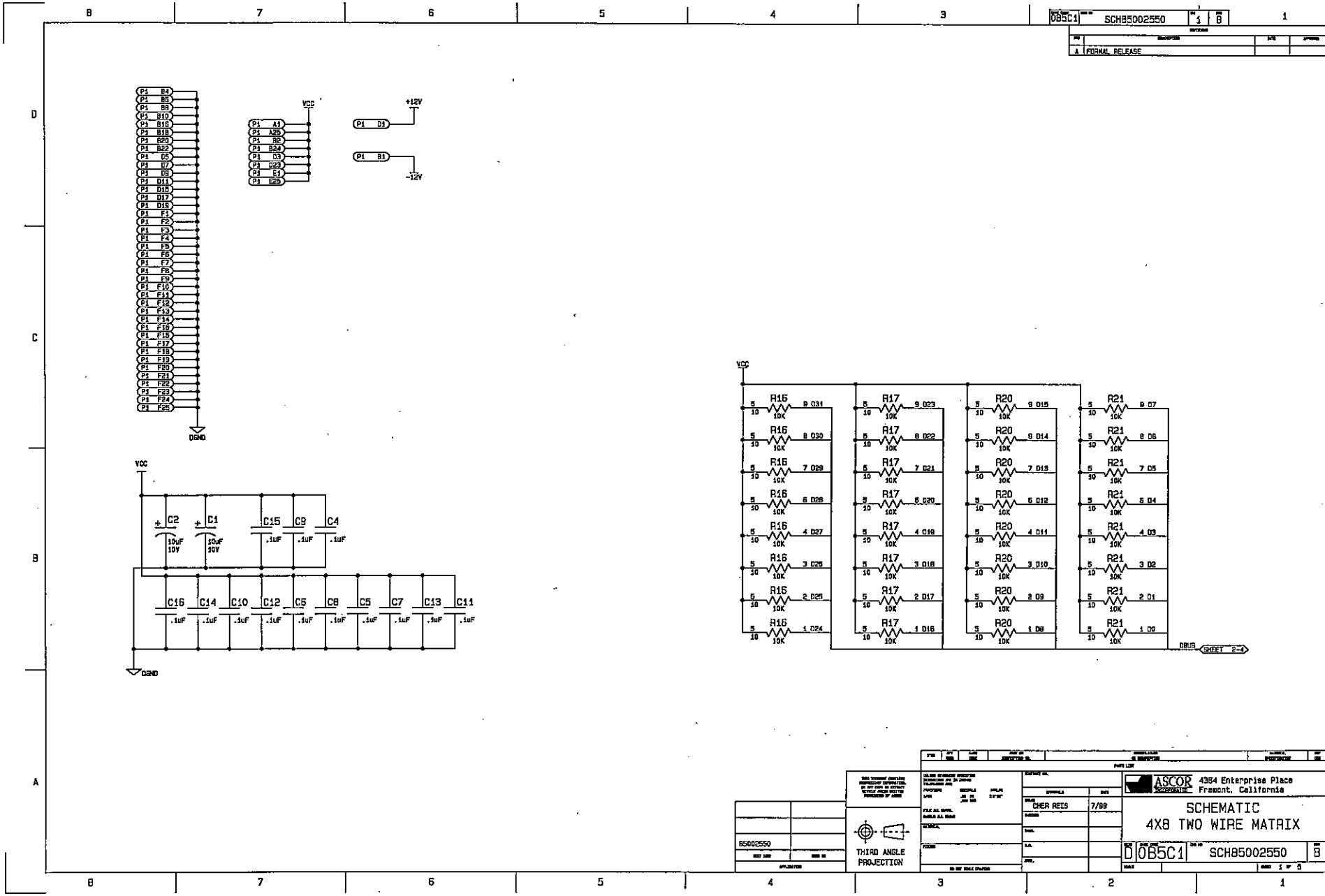


VIEWED FROM BACK SIDE

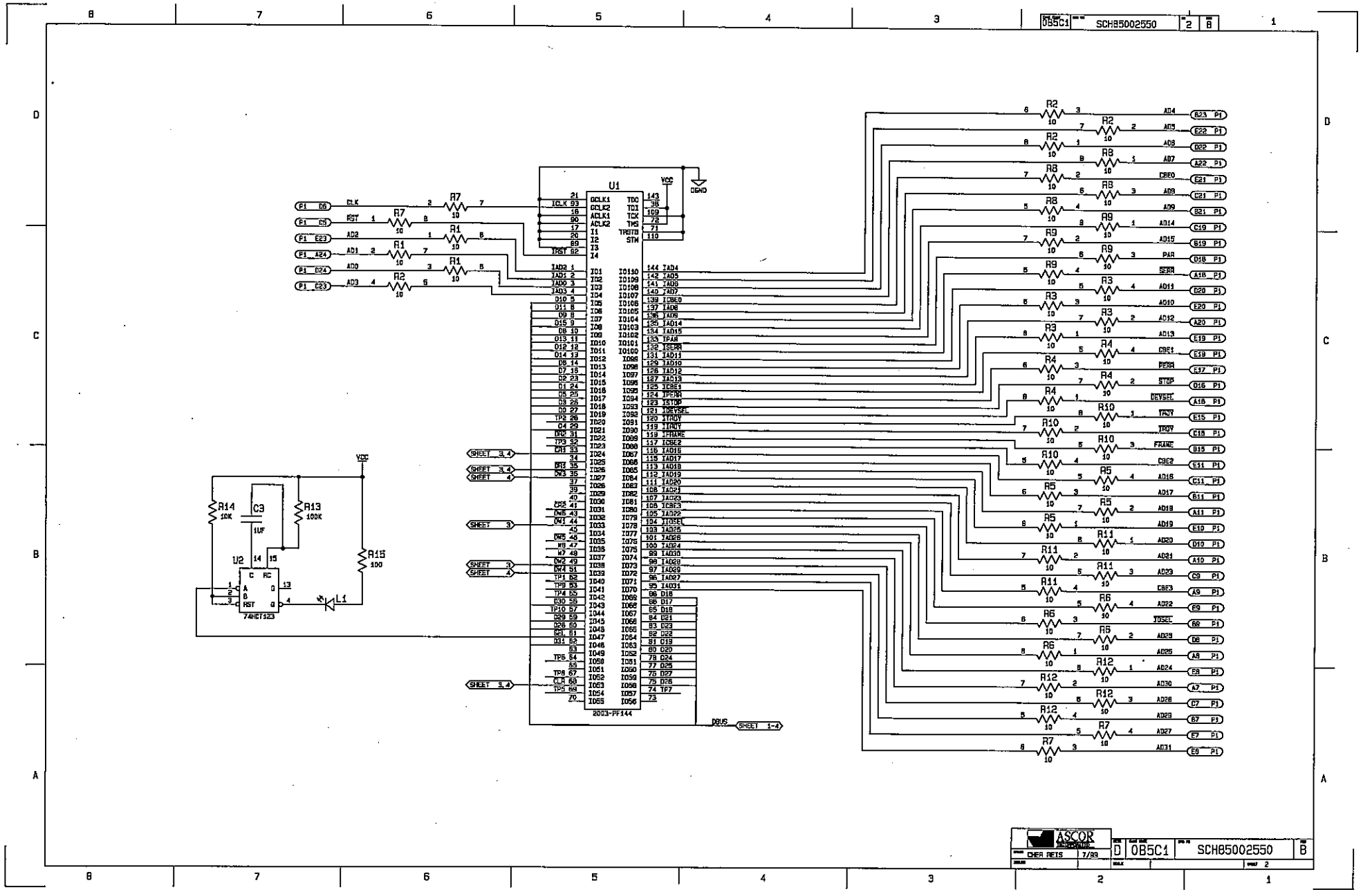
ASCOR		D	0B5C1	85002550	B
DRAWN CHER REIS 7/99					
	SCALE NONE	A2550-2.DWG	SHEET 2		

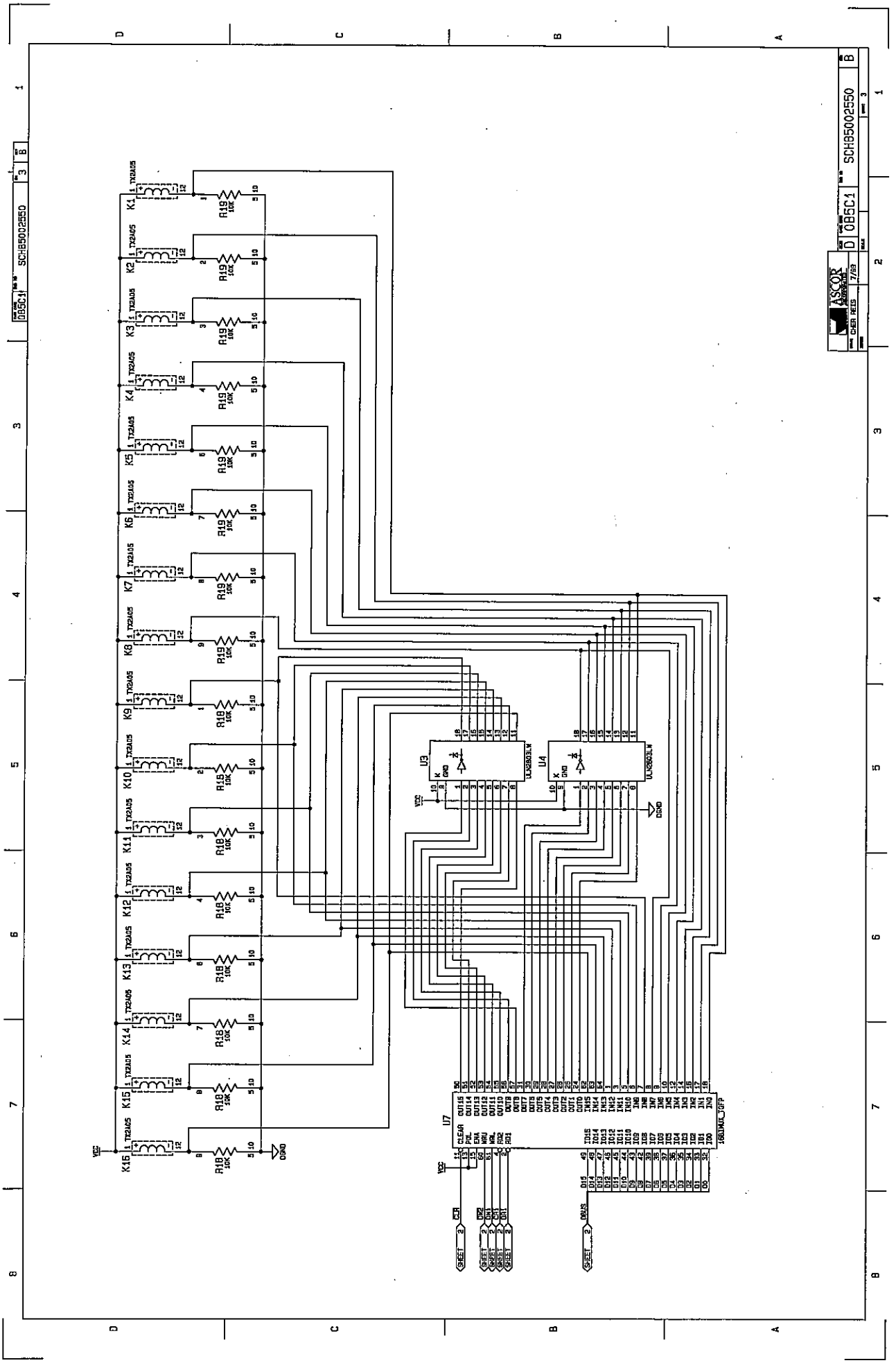
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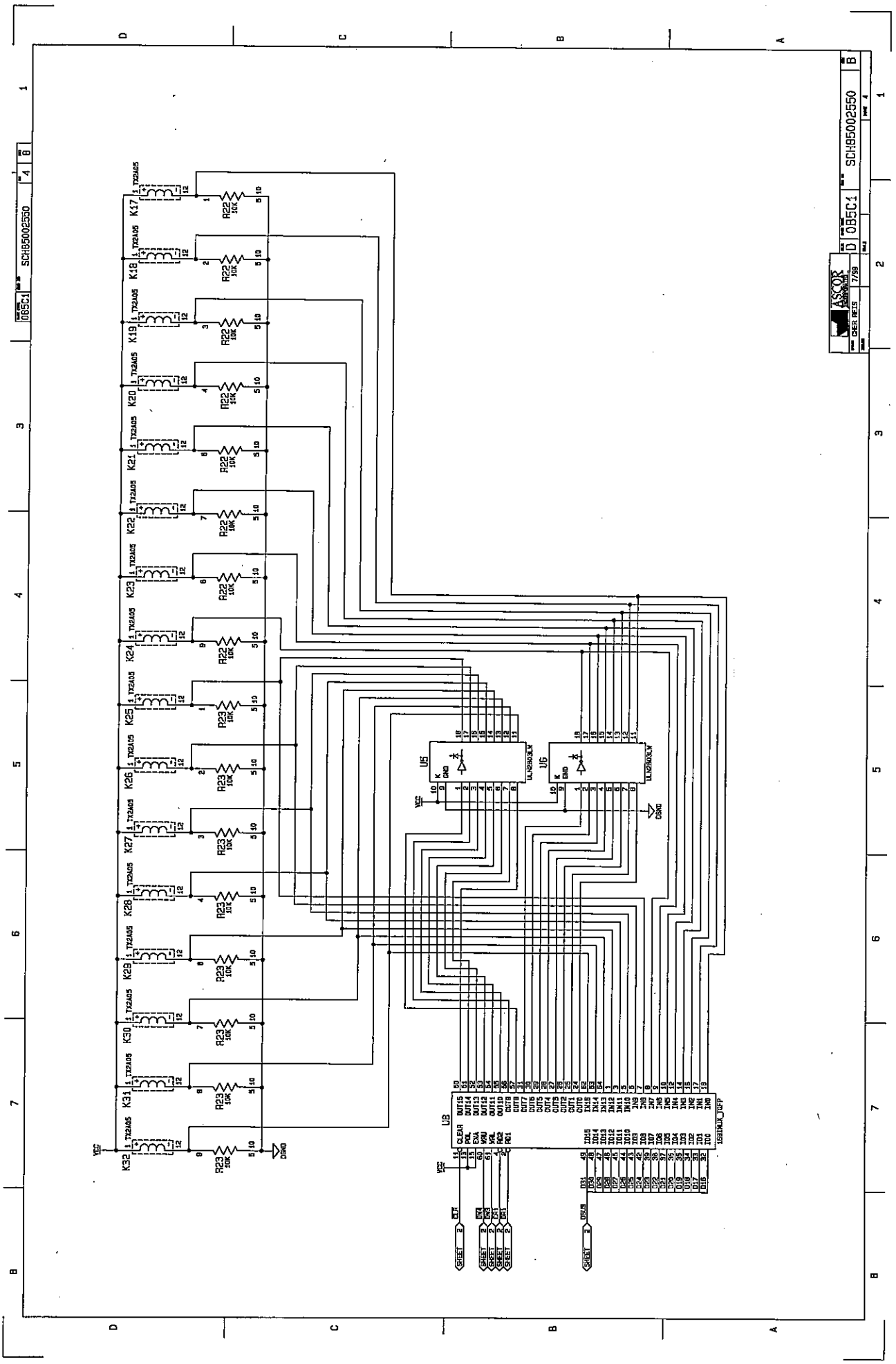


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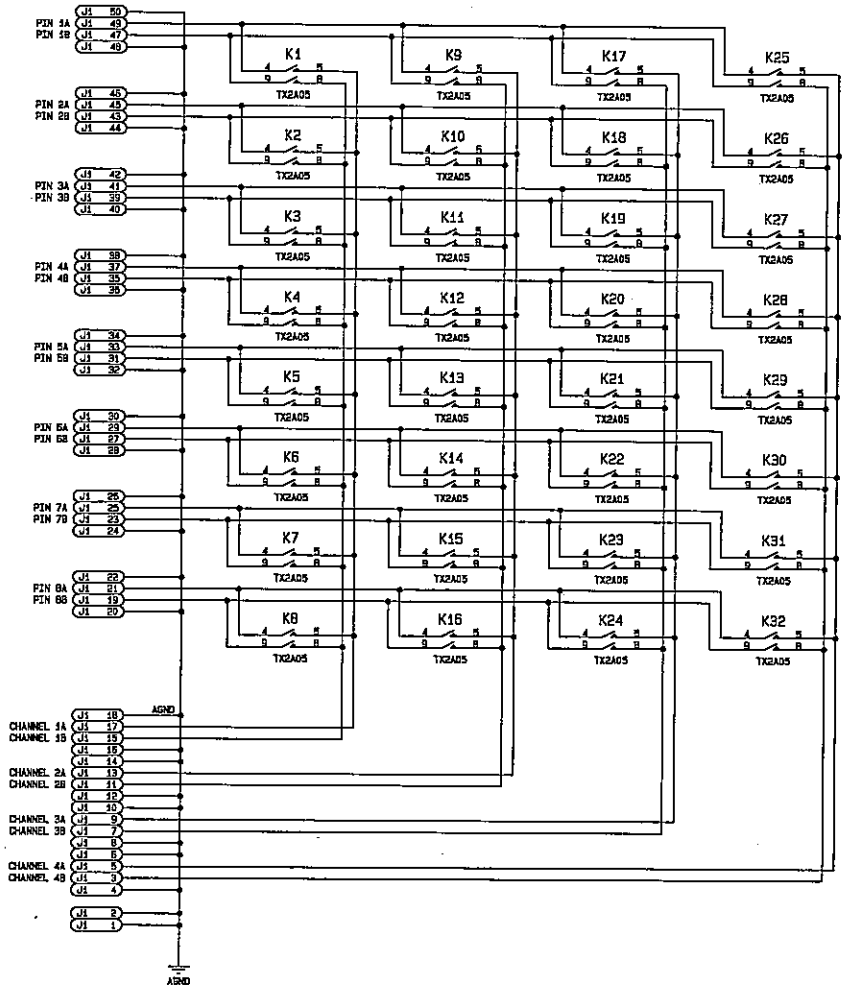


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ASCOR	D	0B5C1	SCH85002550	B
CHER REIS 7/93				5

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