
Service Guide (*Schematics Only*)

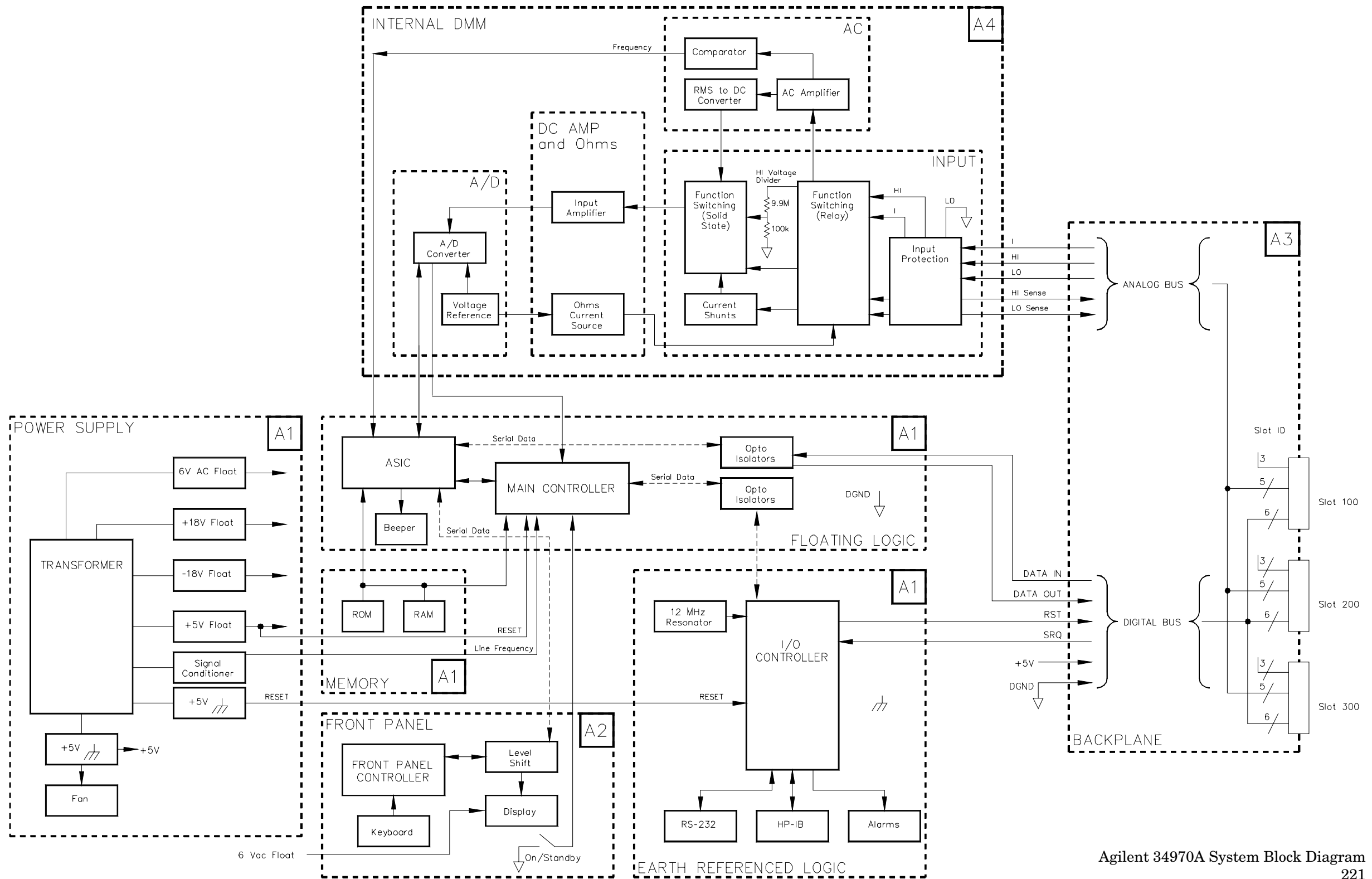
Publication Number 34970-90012 (*order as 34970-90101 manual set*)
Edition 3, March 2003

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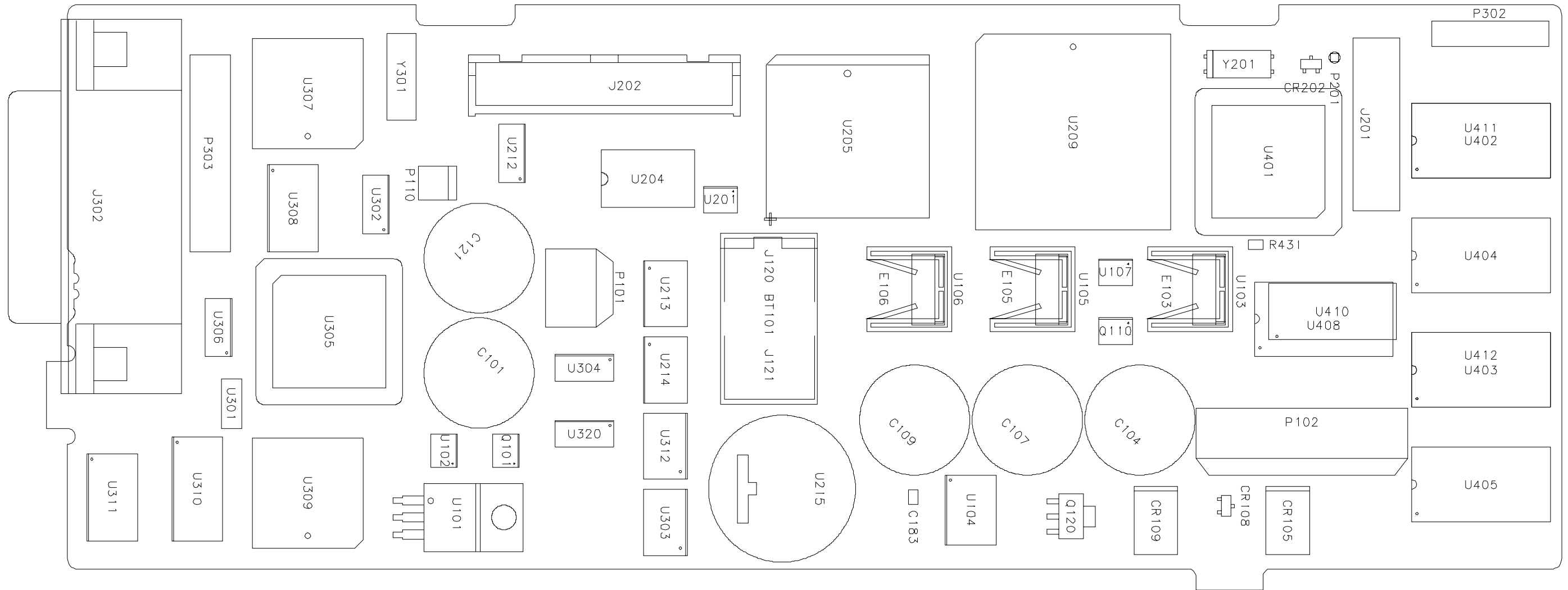
*For Safety information, Warranties, and Regulatory information,
see the pages following the Index.*

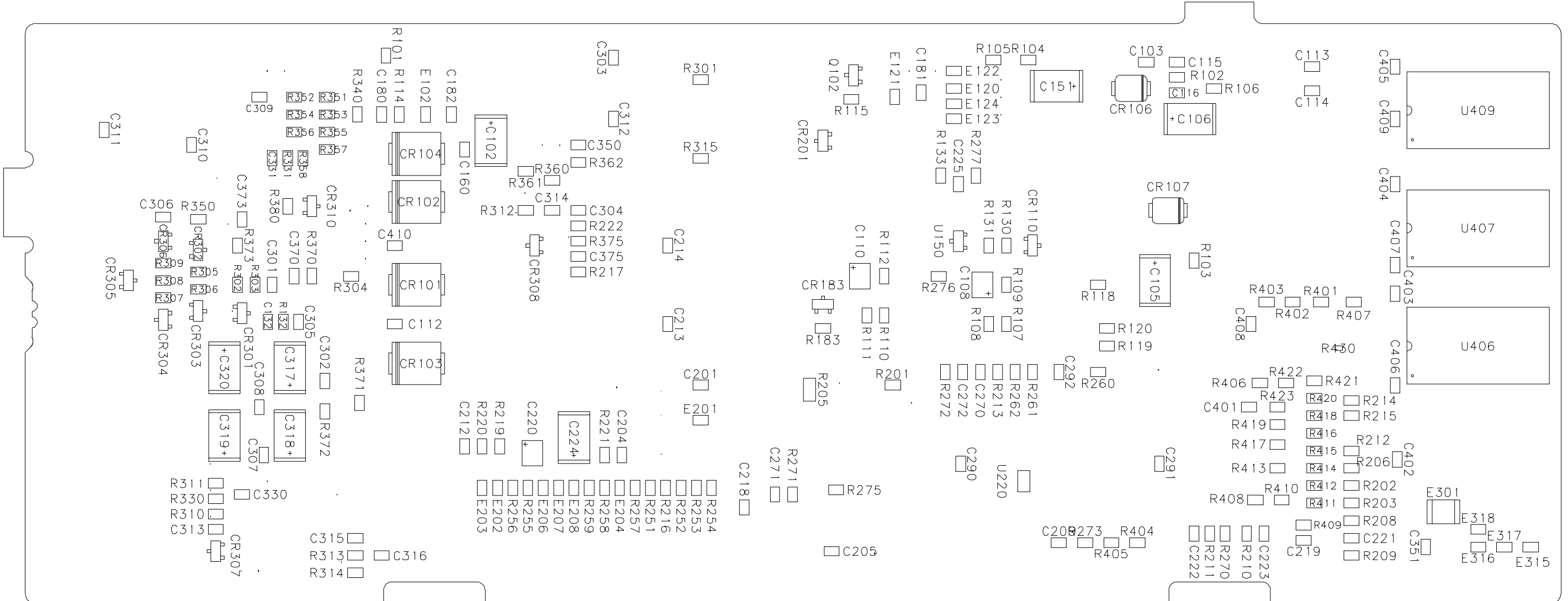
Note: *The remainder of the Service Guide is available as a separate
downloadable PDF file from the Agilent web site at www.agilent.com.*

Agilent 34970A Data Acquisition/Switch Unit

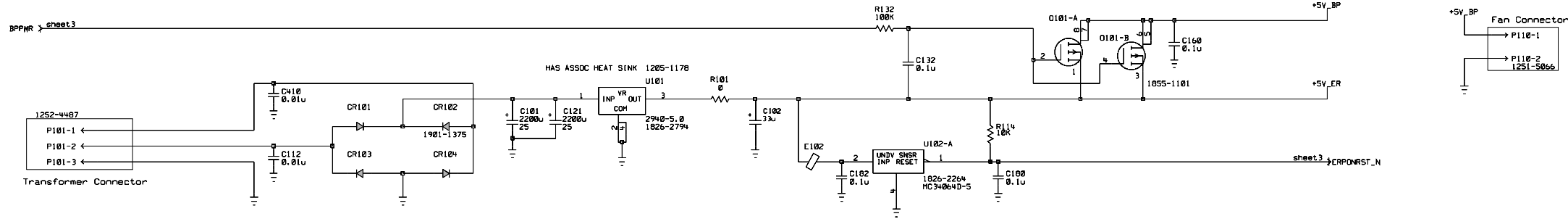


Agilent 34970A System Block Diagram
221

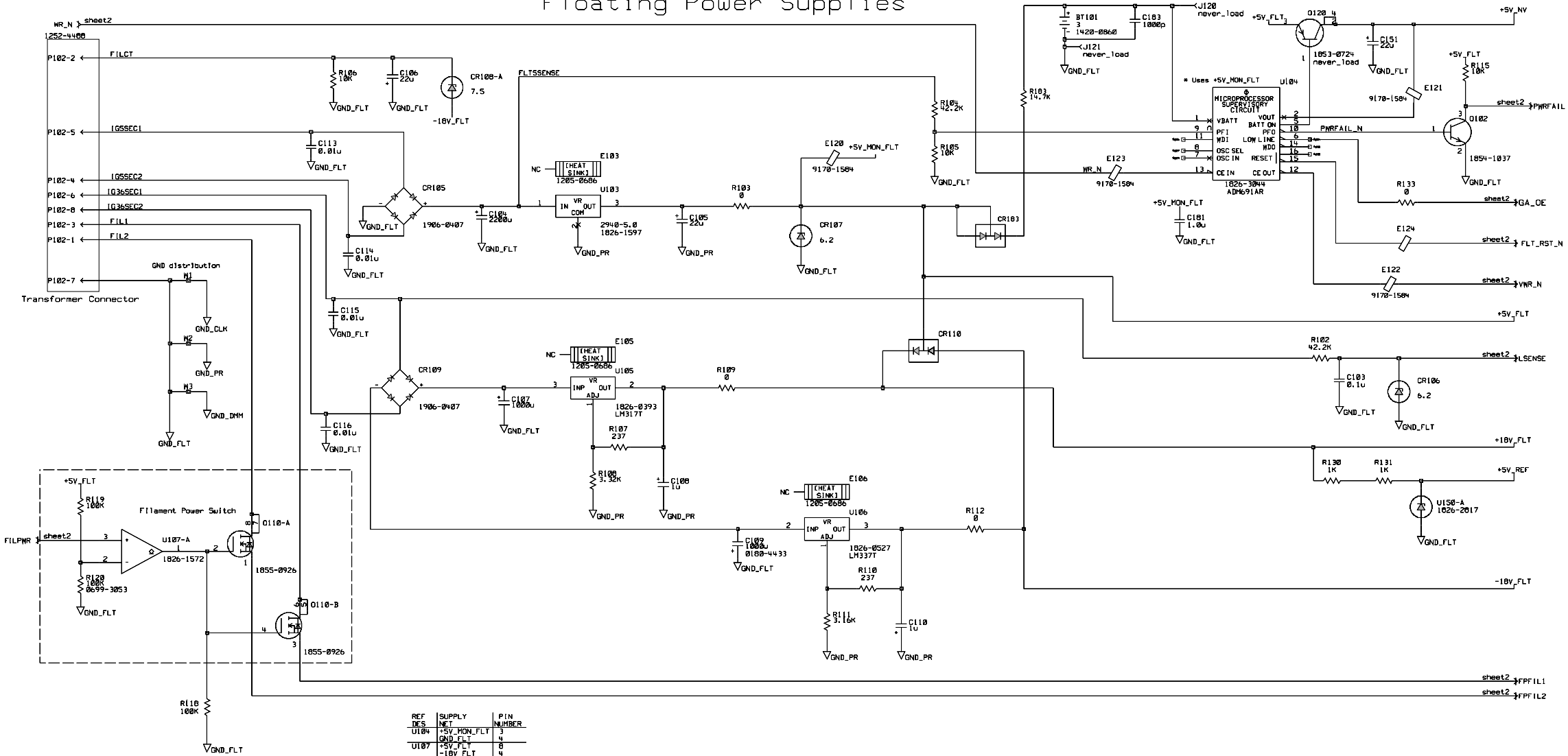




Earth Referenced Power Supplies

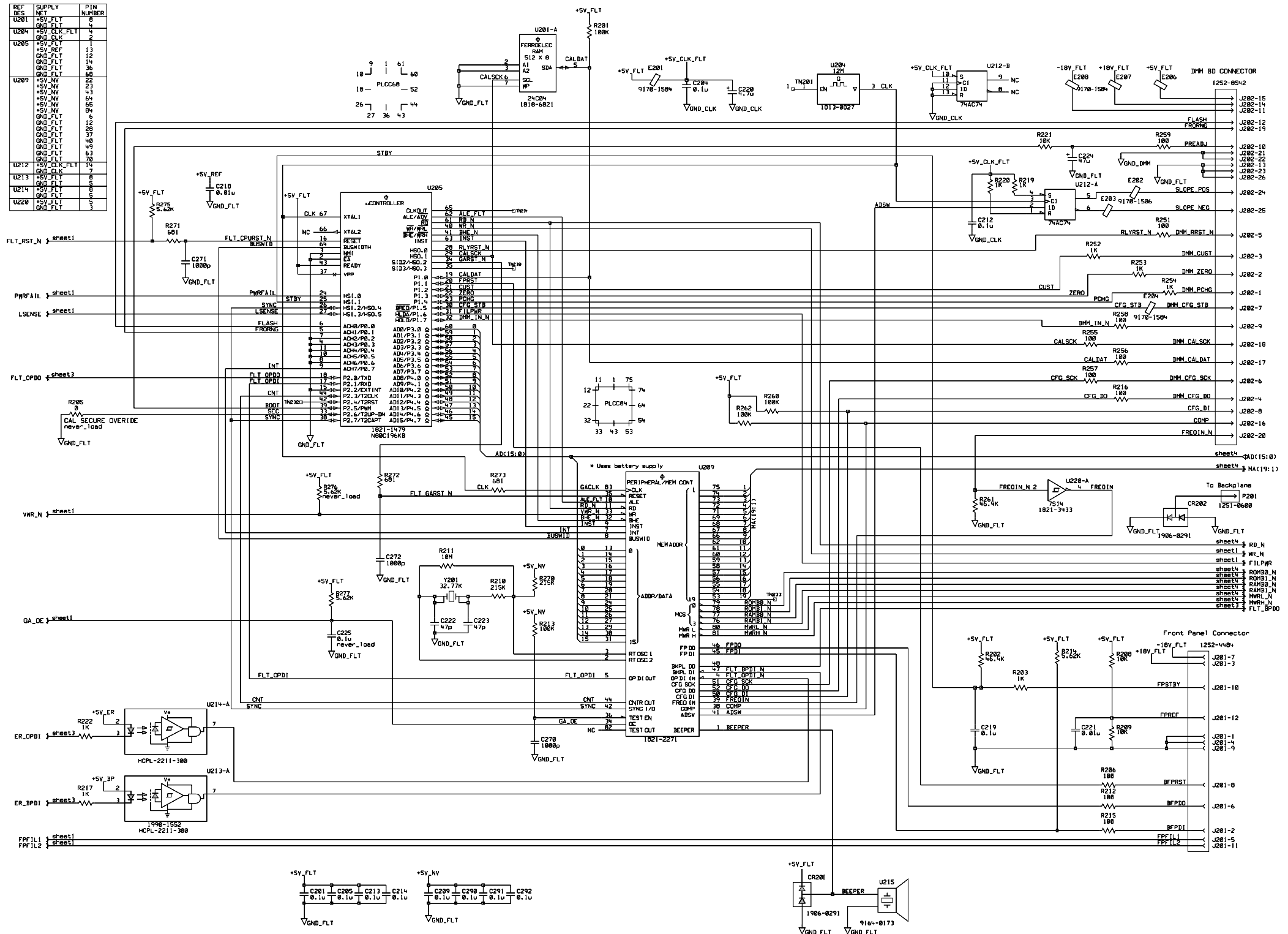


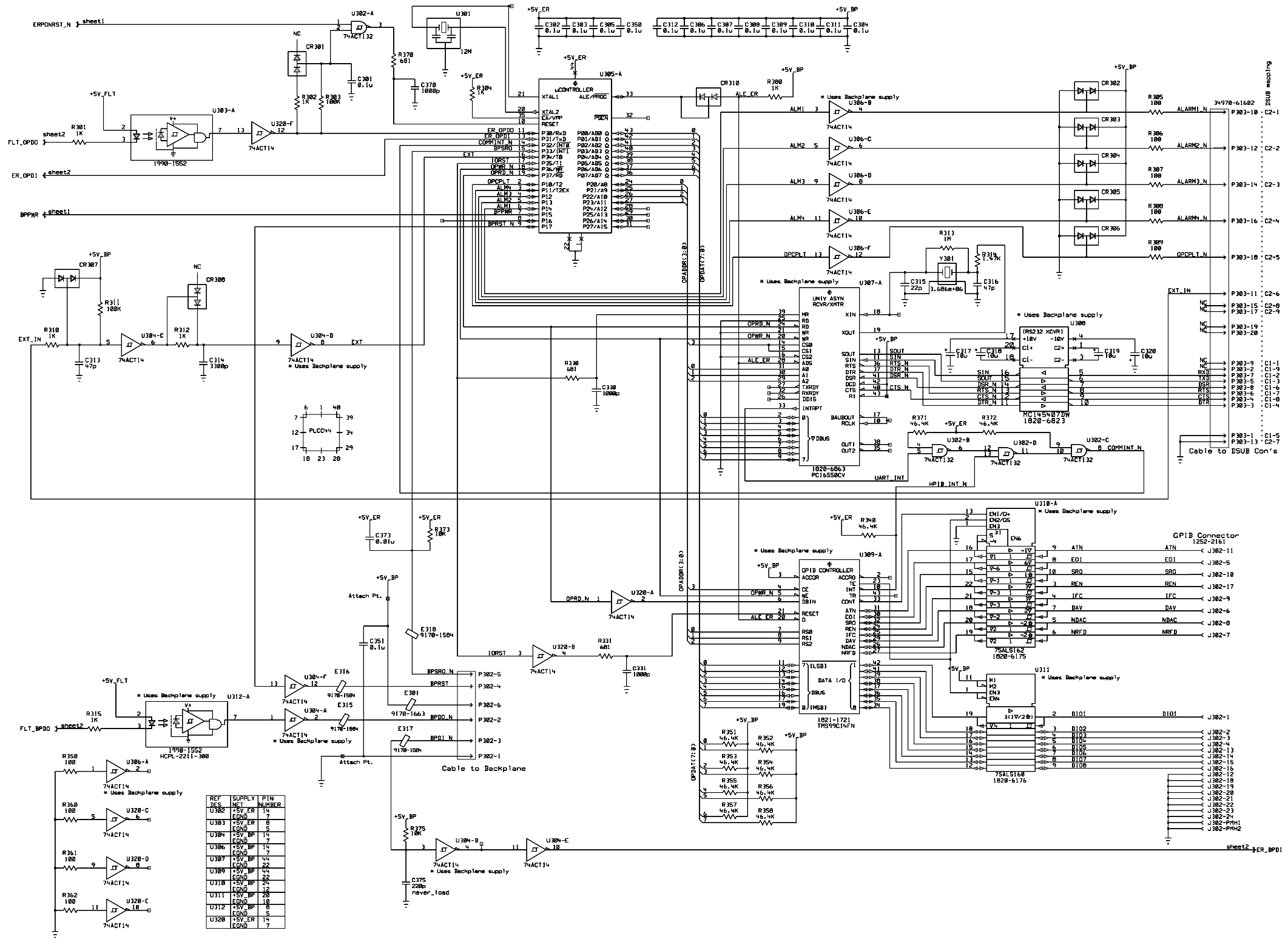
Floating Power Supplies



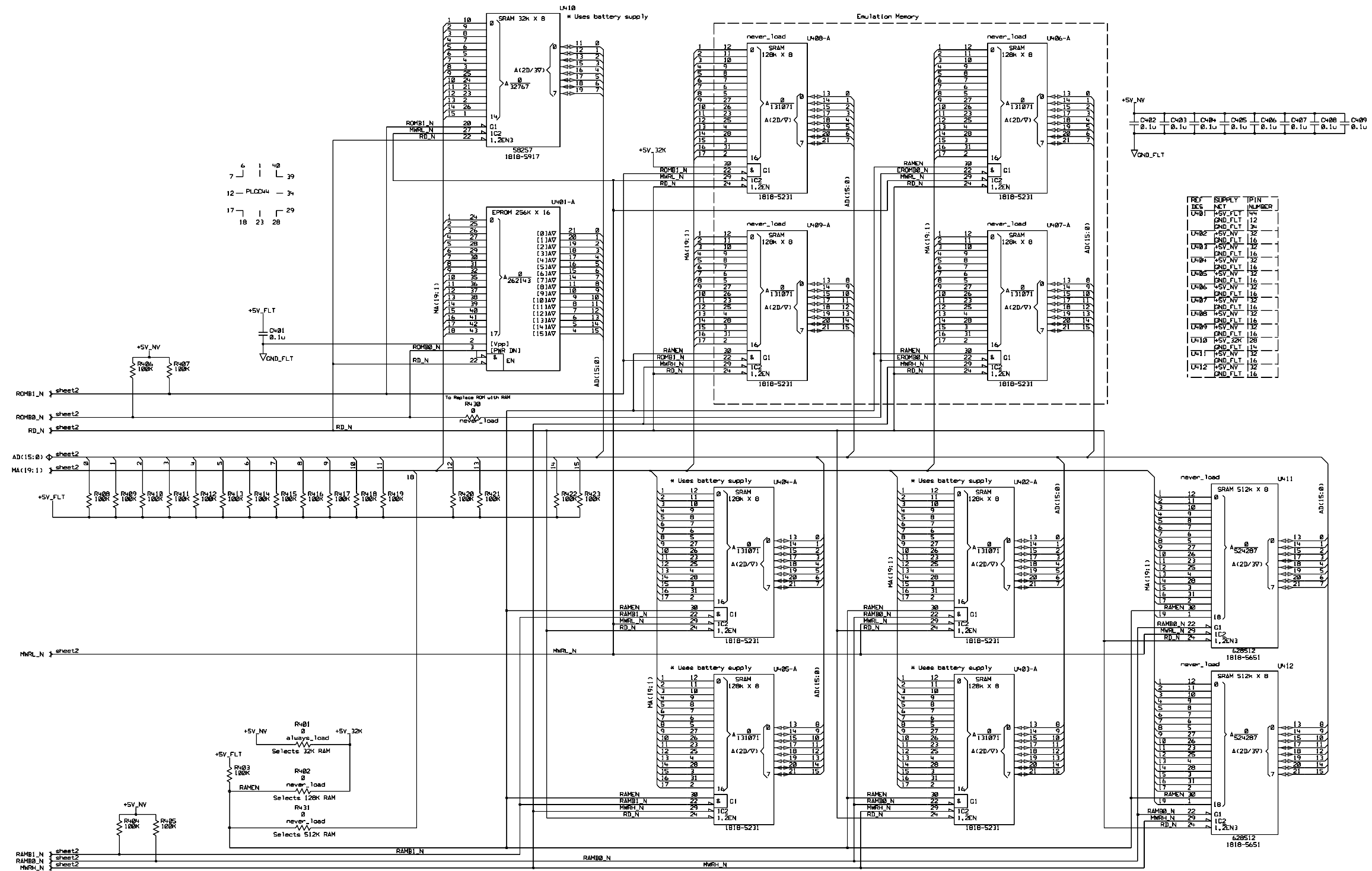
REF DES	SUPPLY NET	PIN NUMBER
U104	+5V_MON_FLT	3
	GND_FLT	4
U107	+5V_FLT	8
	-18V_FLT	4

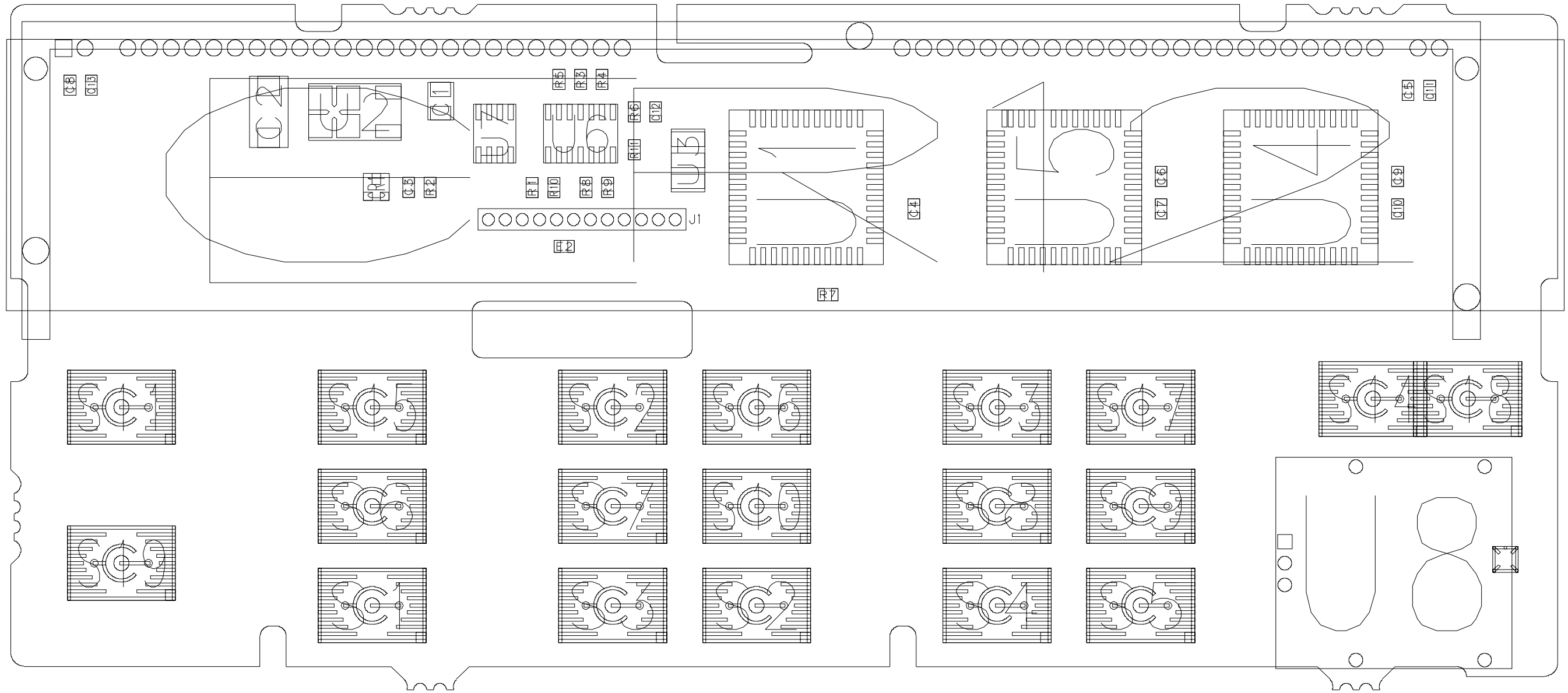
REF DES	SUPPLY NET	PTN NUMBER
U201	+5V_FLT	8
U204	+5V_CLK_FLT	4
U205	+5V_FLT	1
U209	+5V_NV	22
	+5V_NV	23
	+5V_REF	13
	GND_FLT	12
	GND_FLT	14
	GND_FLT	36
	GND_FLT	68
	+5V_NV	22
	+5V_NV	23
	+5V_REF	13
	GND_FLT	12
	GND_FLT	14
	GND_FLT	36
	GND_FLT	68
	+5V_NV	22
	+5V_NV	23
	+5V_REF	13
	GND_FLT	12
	GND_FLT	14
	GND_FLT	36
	GND_FLT	68
U212	+5V_CLK_FLT	14
U213	+5V_FLT	8
U214	+5V_FLT	8
U220	+5V_FLT	5
	GND_FLT	3

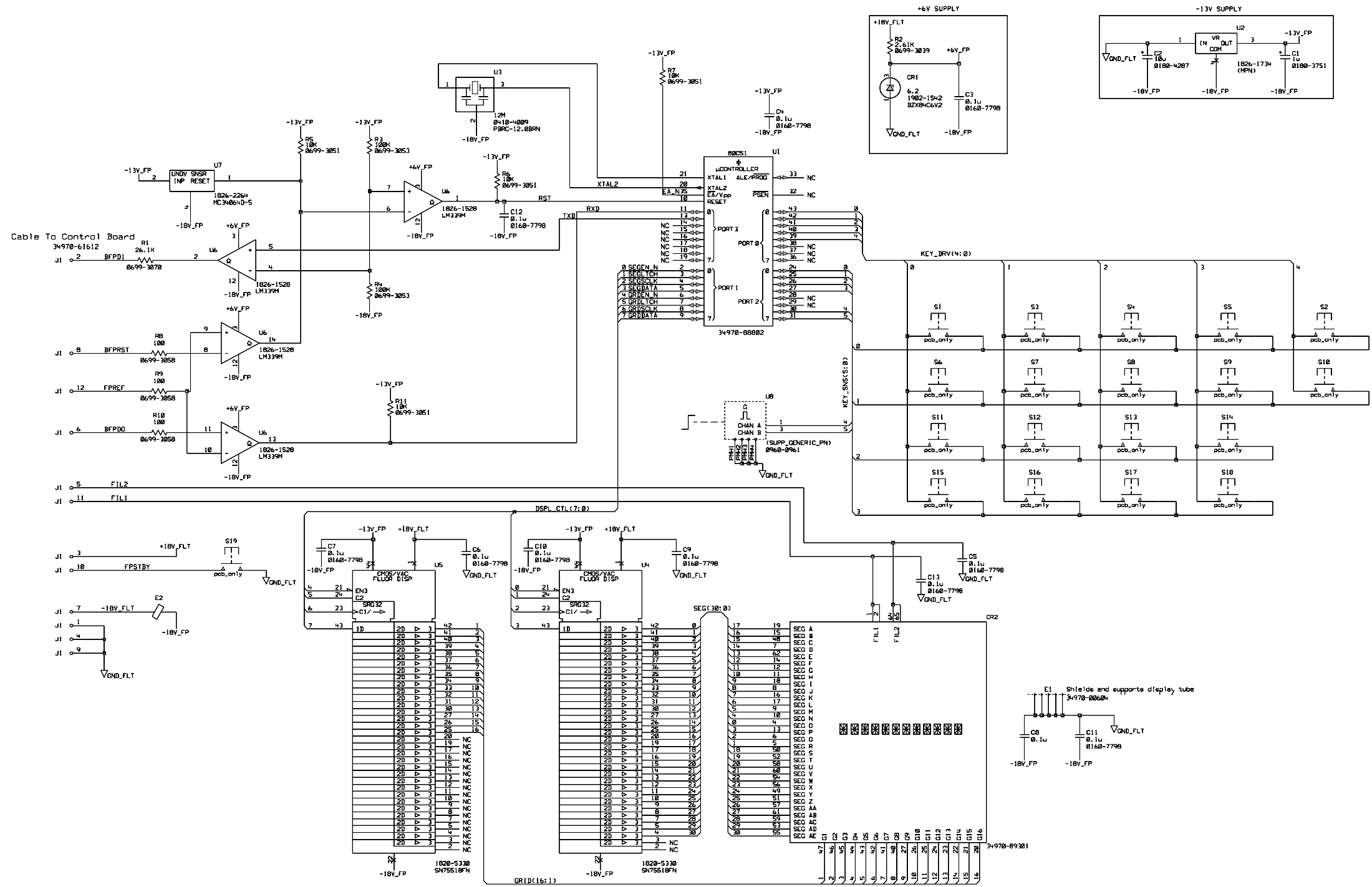


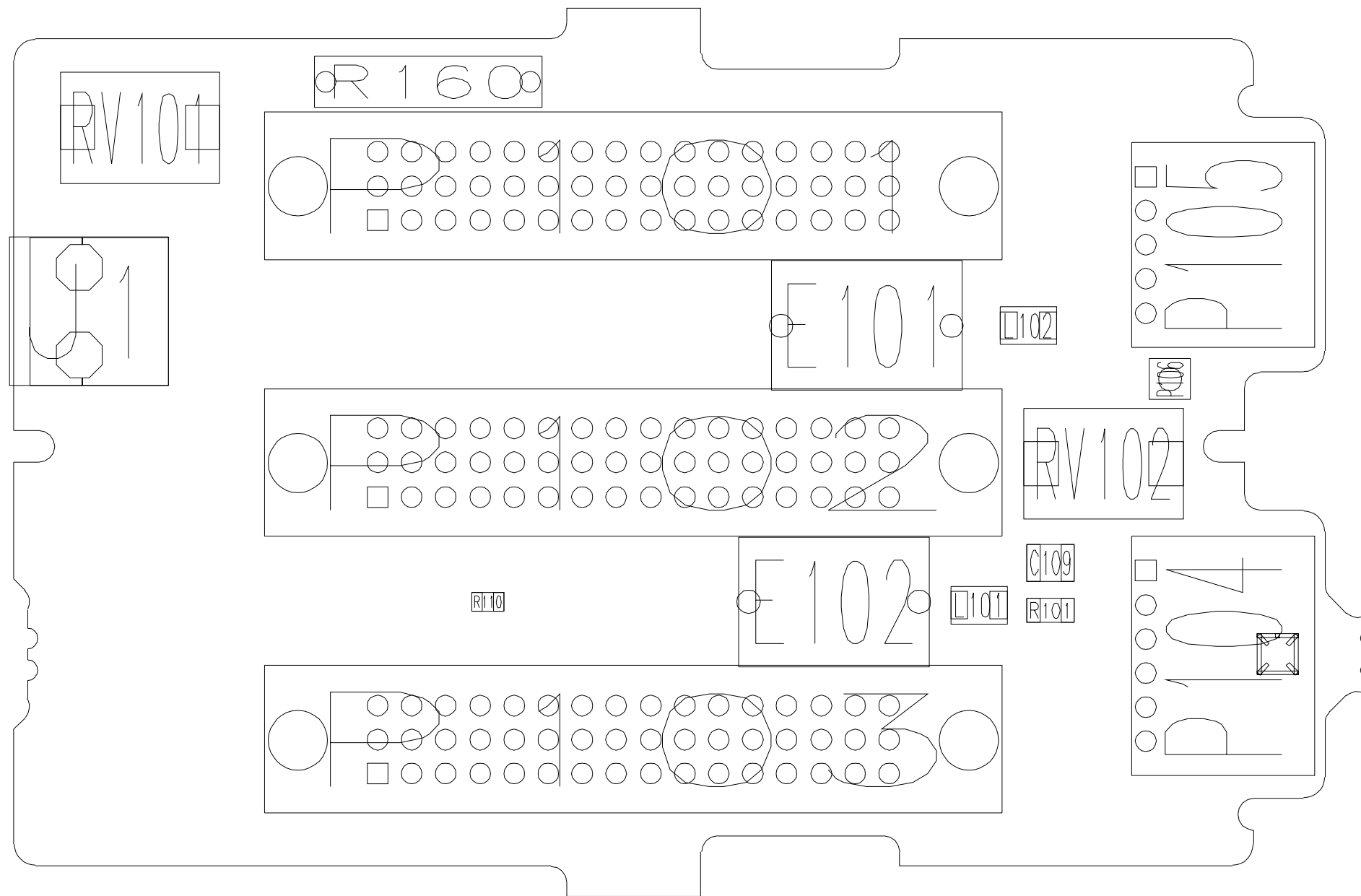


34970-66501 (sheet 3 of 4)
 A1 Earth Referenced Logic Schematic
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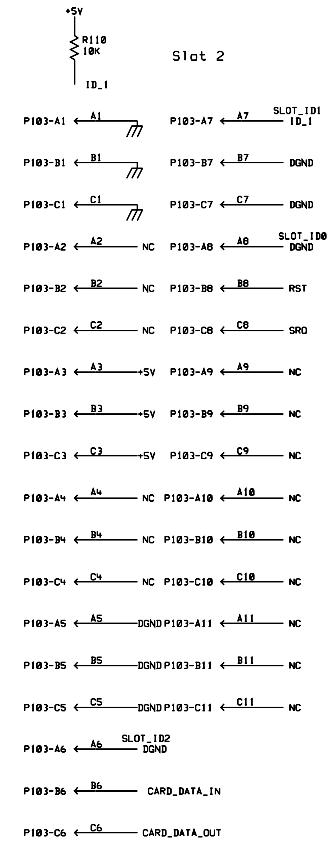
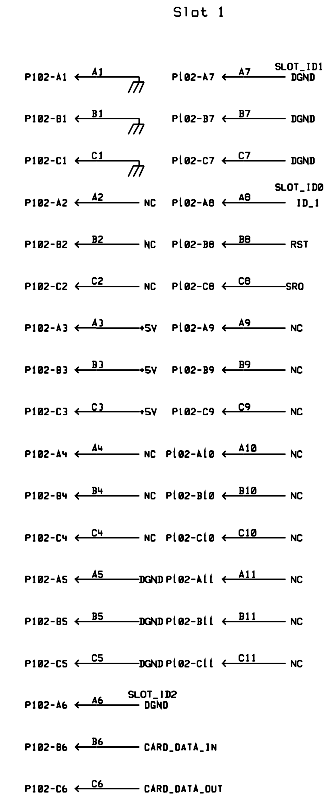
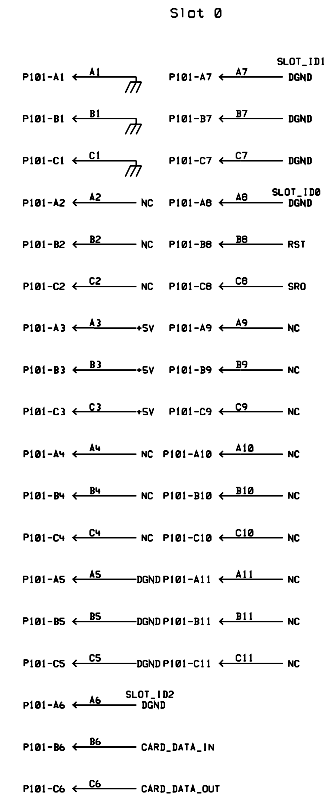




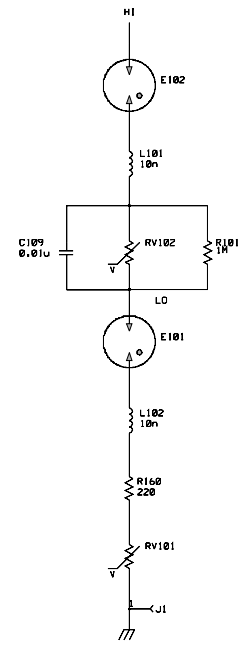
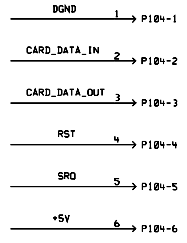
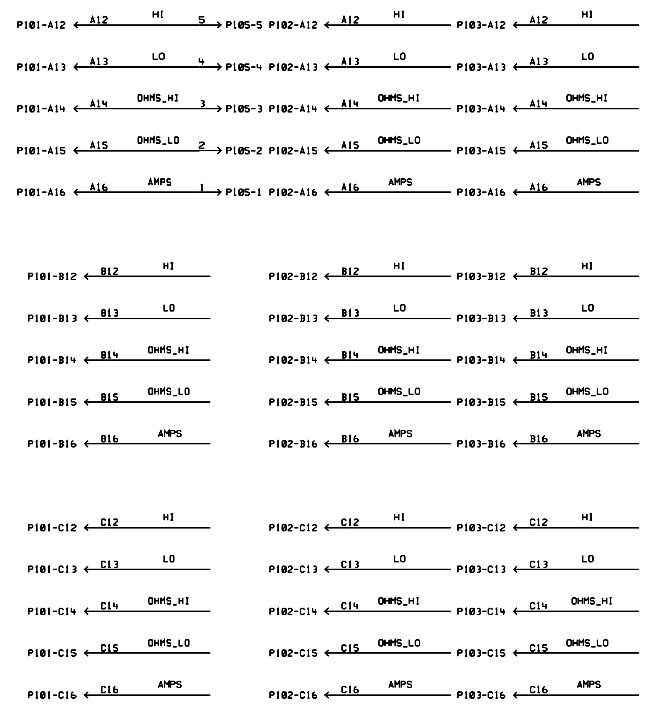


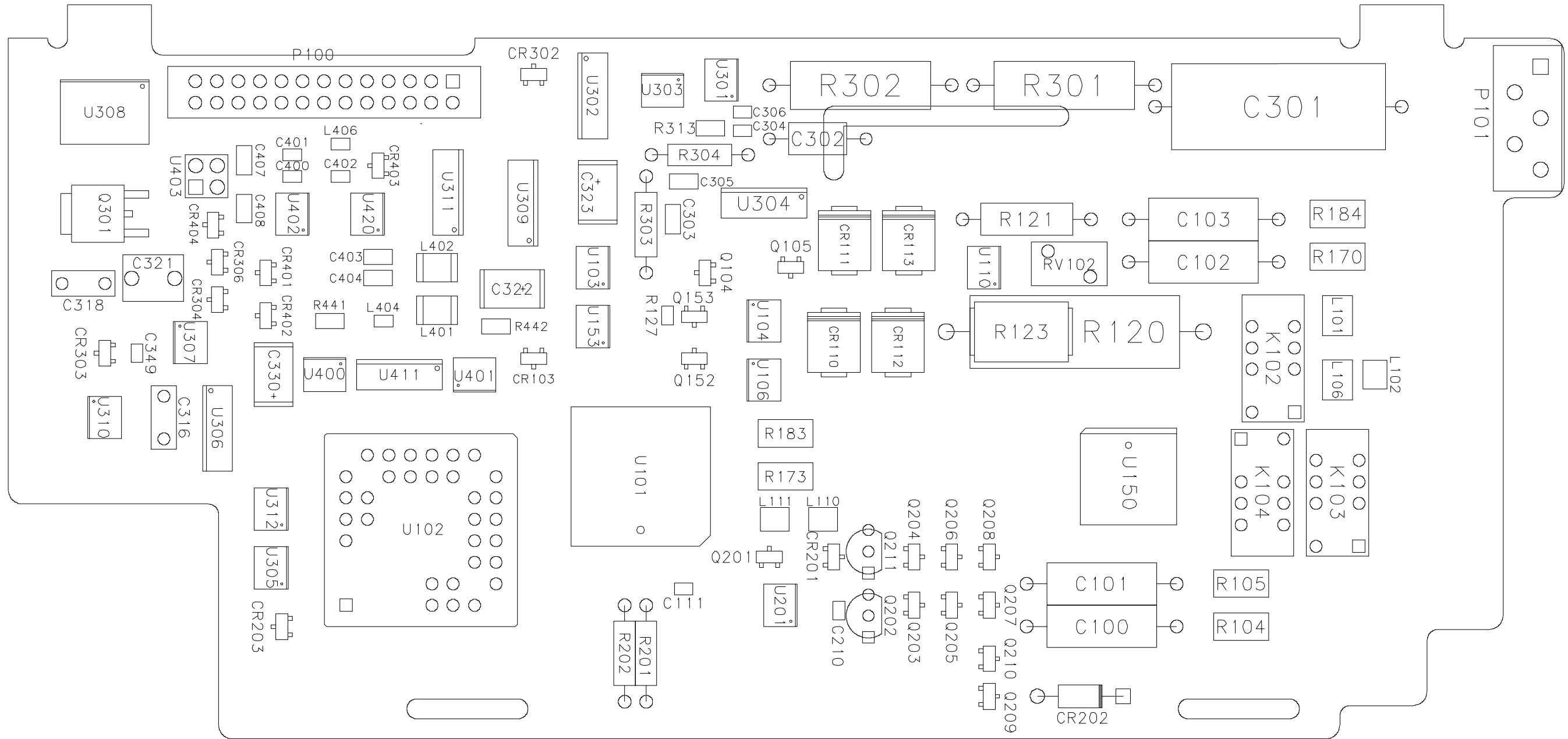


Backplane Card Slot

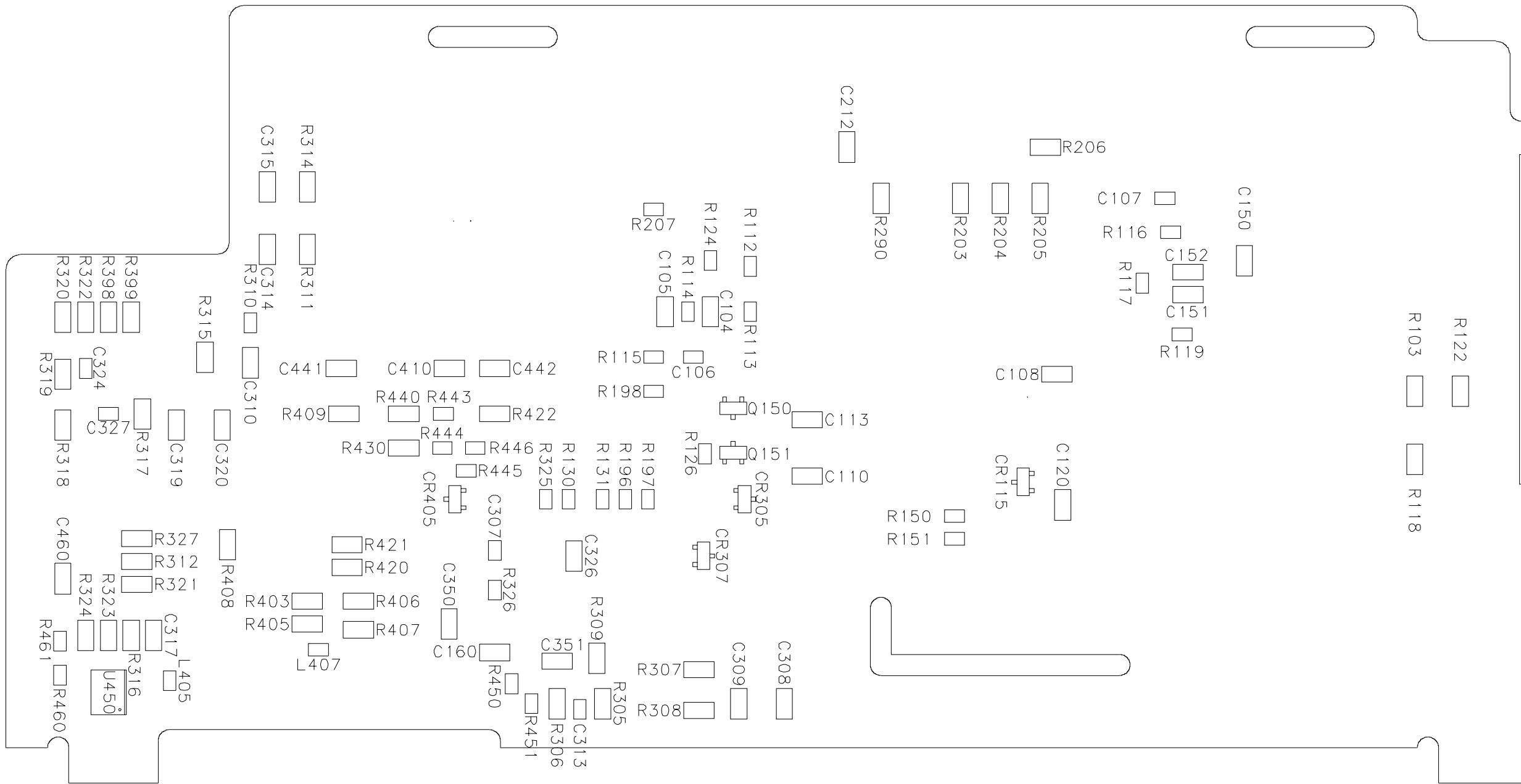


ANALOG connector
To dmm option

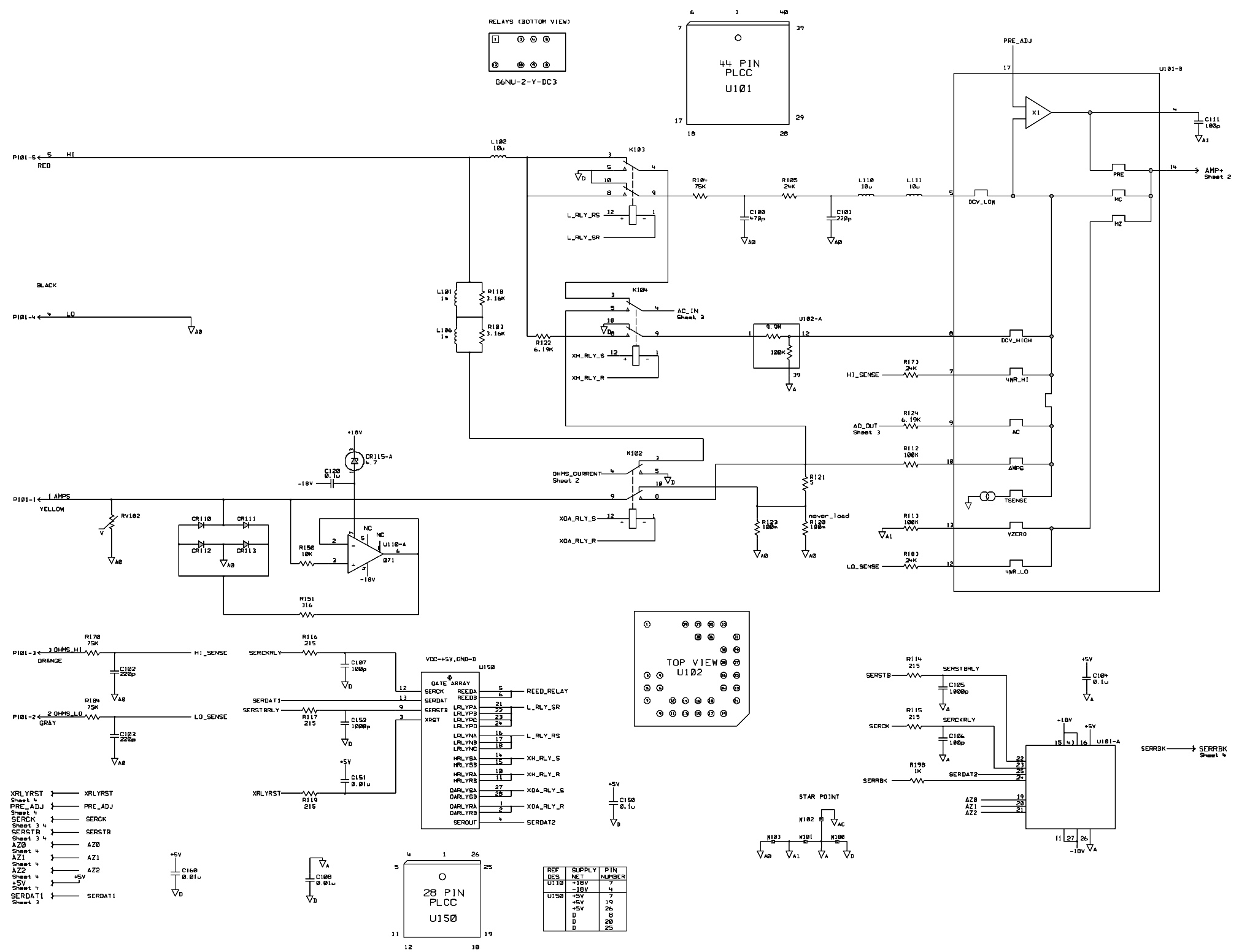


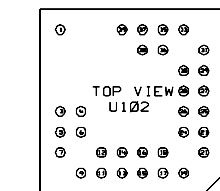
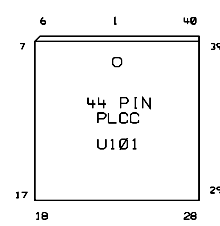
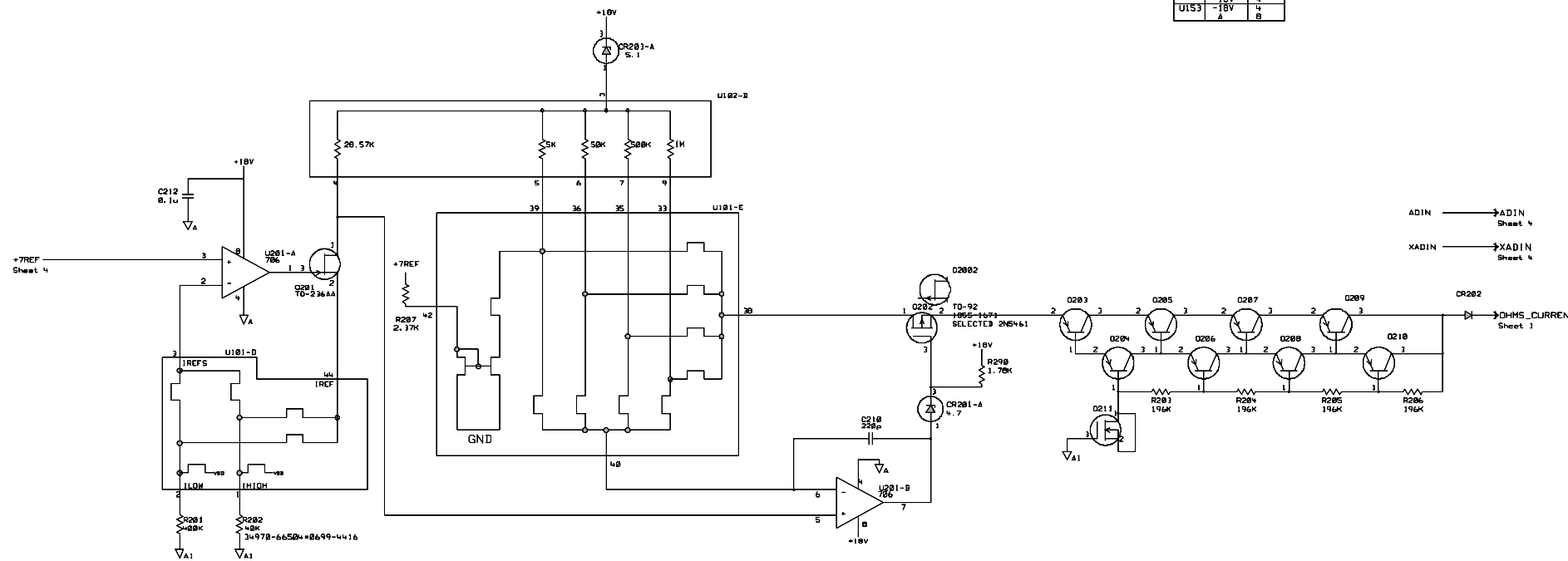
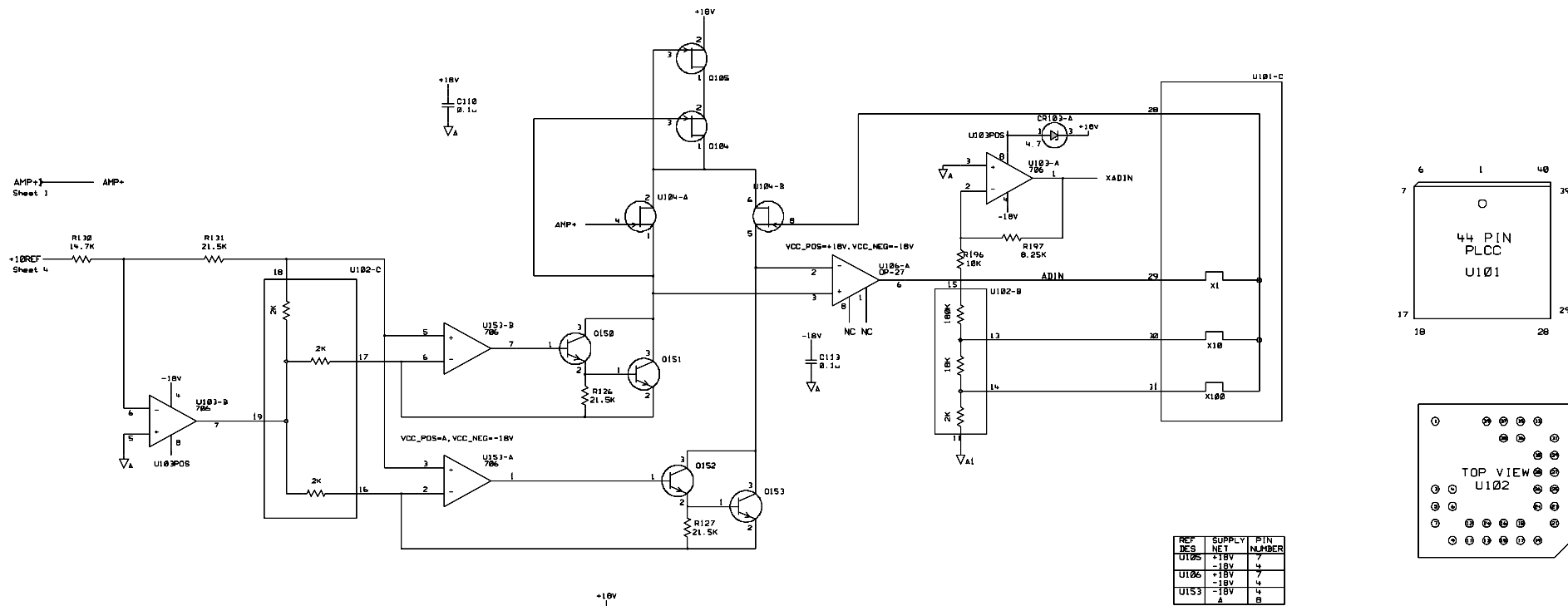


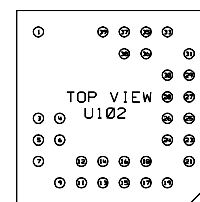
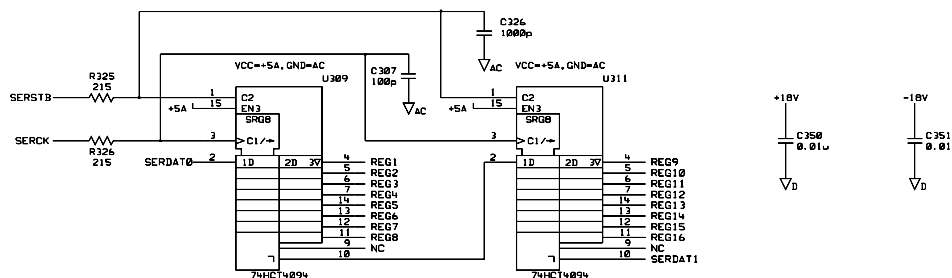
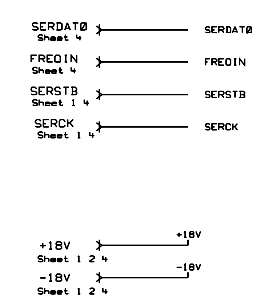
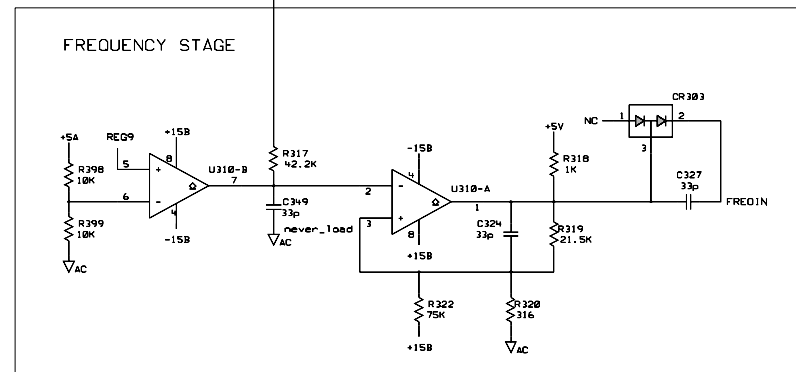
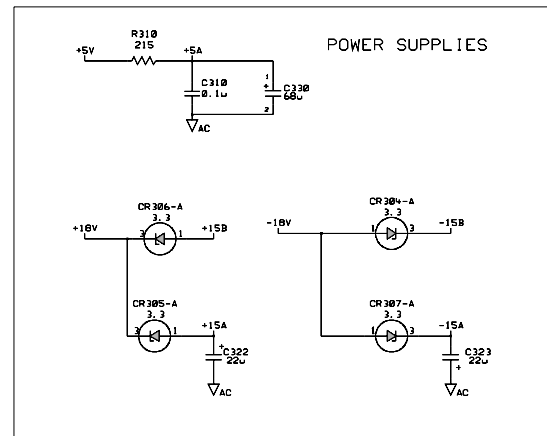
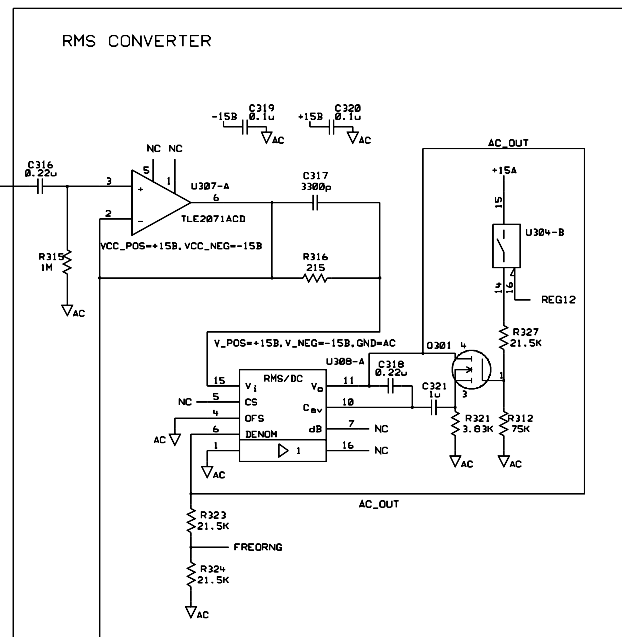
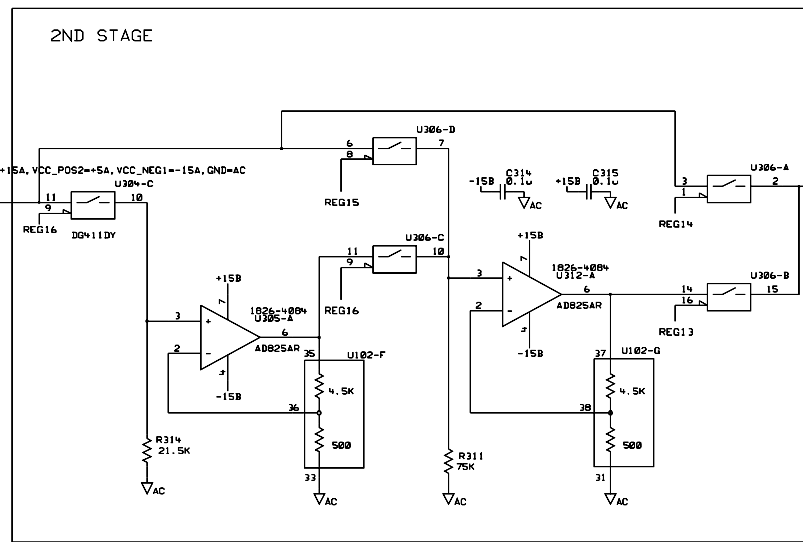
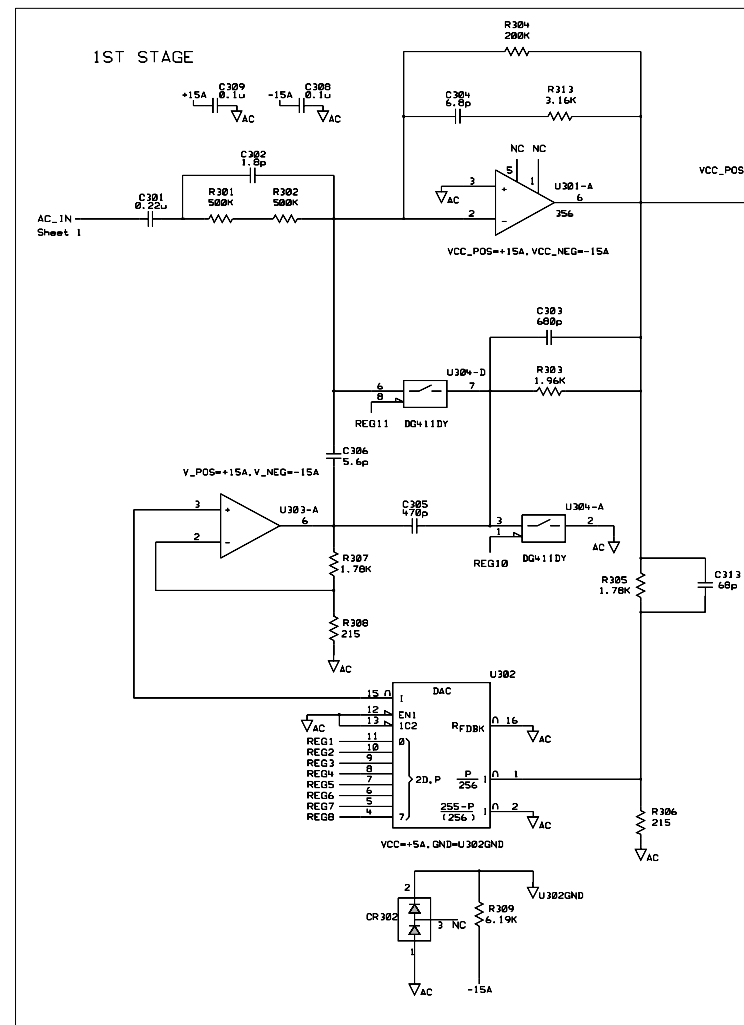
LBL2



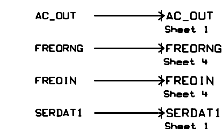
Note: The DIAG:DMM:CYCLes? command returns three numbers indicating the cycle count on backplane relays "1", "2", and "3" (which correspond to relays K102, K103, and K104 respectively). See chapter 5 in the *User's Guide* for more information.



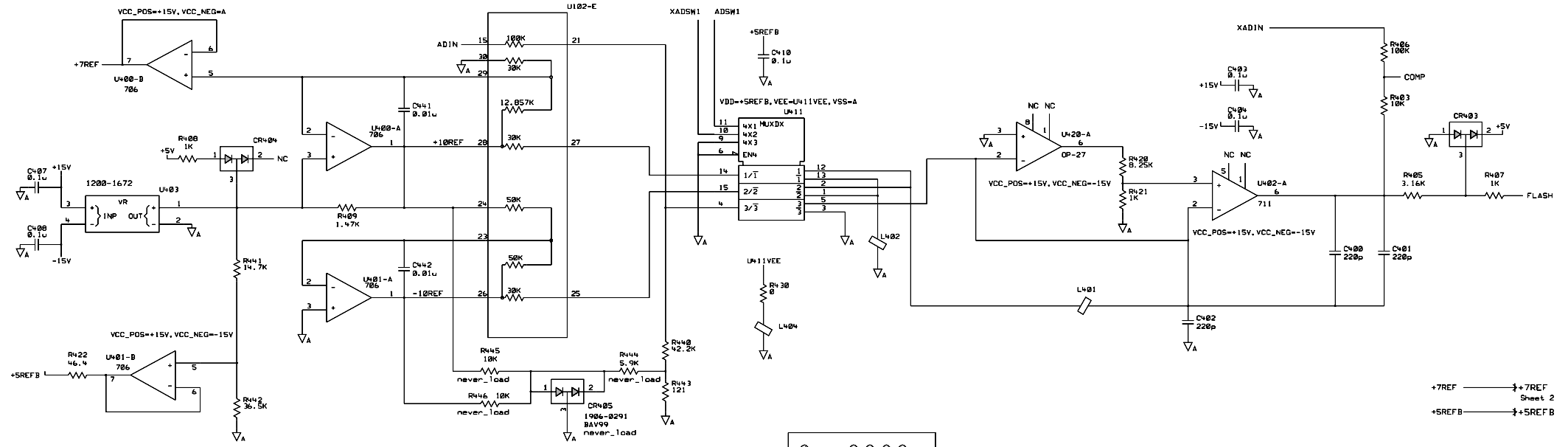




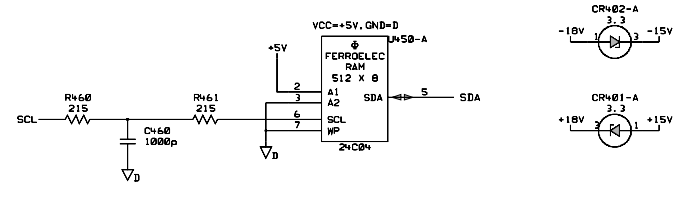
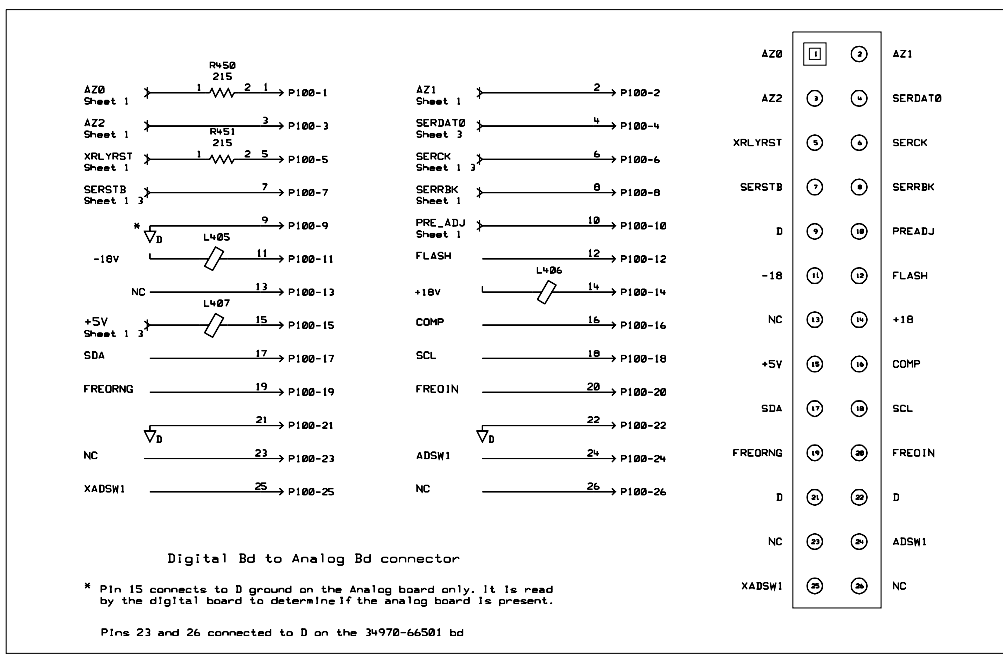
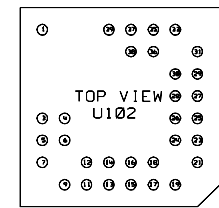
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U301	-15A	4
U302	+5A	14
U302	U302GND	3
U303	+15A	7
U303	-15A	4
U304	+15B	13
U304	-15B	4
U305	+5A	5
U305	-15B	4
U306	+15B	13
U306	-15B	12
U306	-15B	4
U307	+15B	7
U307	-15B	4
U308	+15B	13
U308	-15B	12
U308	-15B	3
U309	+5A	16
U309	AC	8
U311	+5A	16
U311	AC	8
U312	+15B	4
U312	-15B	4



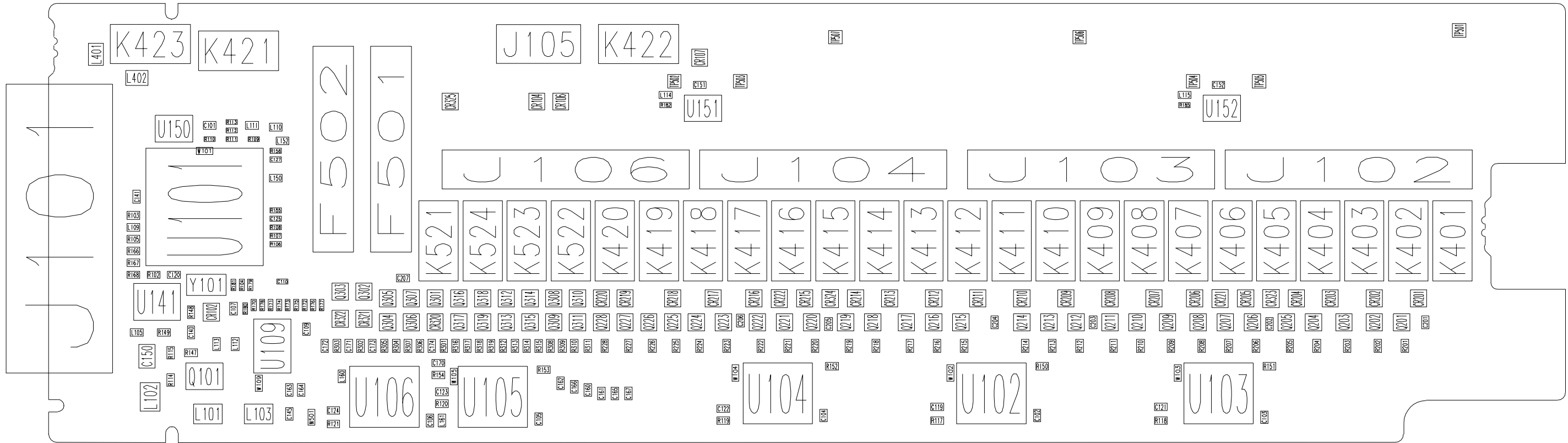
ADIN Sheet 2
 XADIN Sheet 2

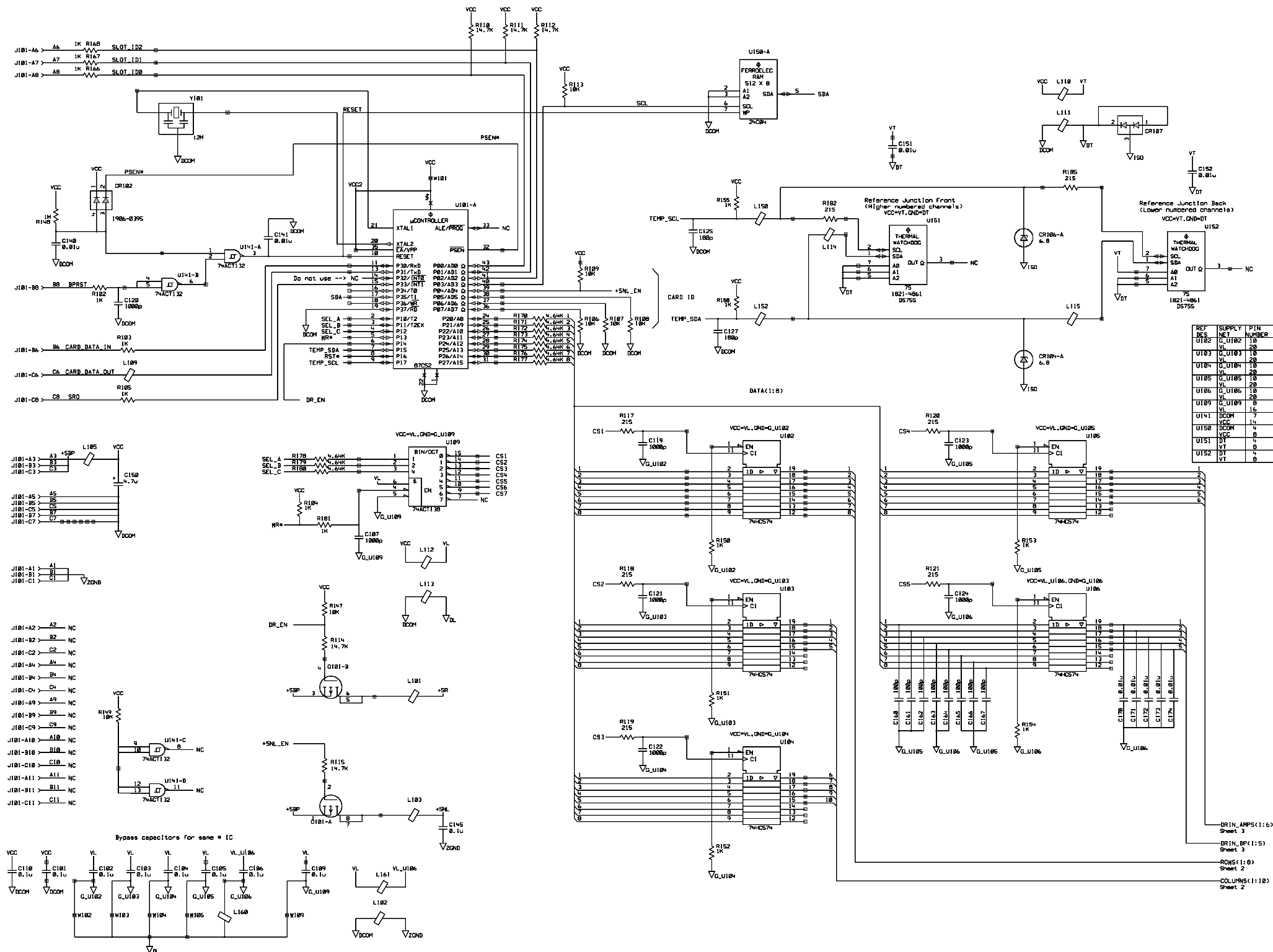


+7REF Sheet 2
 +SREFB Sheet 2

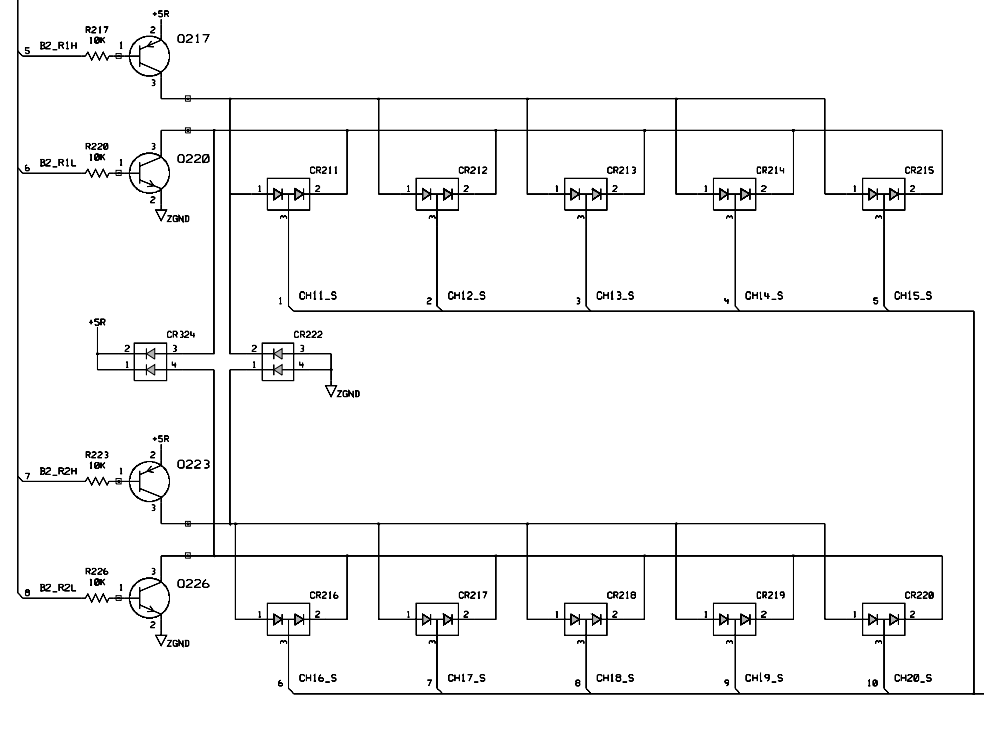
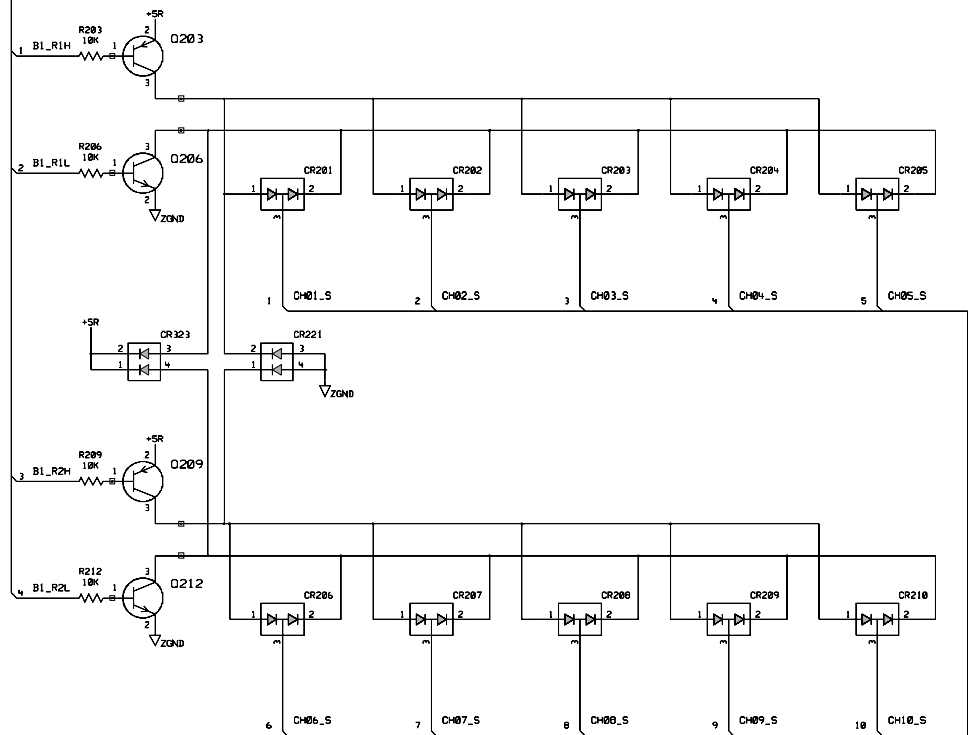


REF DES	SUPPLY NET	PIN NUMBER
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U400	-15V	4
U401	+15V	8
U401	-15V	7
U402	+15V	4
U402	-15V	7
U411	+SREFB	16
U411	-15V	4
U420	+15V	7
U420	-15V	4
U450	+5V	8
U450	D	4





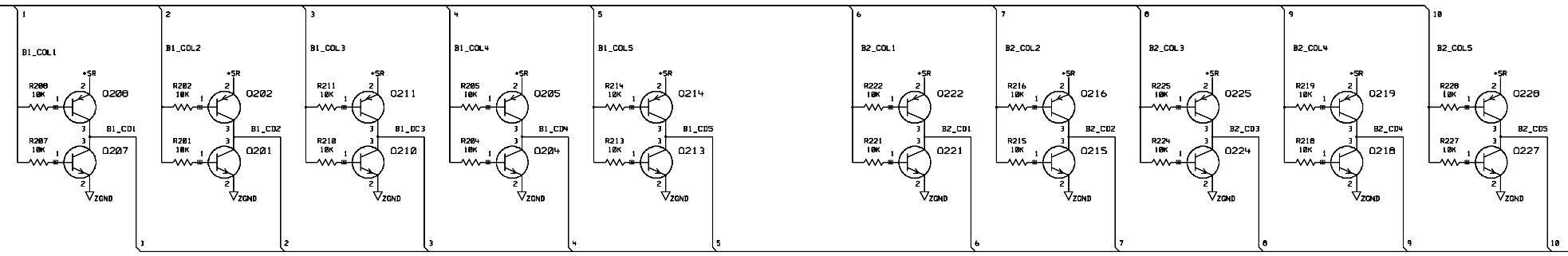
ROWS(1:8)
Sheet 1



B2_SET(1:10)
Sheet 4

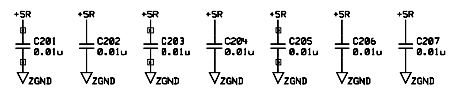
B1_SET(1:10)
Sheet 4

COLUMNS(1:10)
Sheet 1

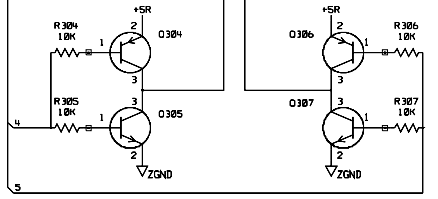
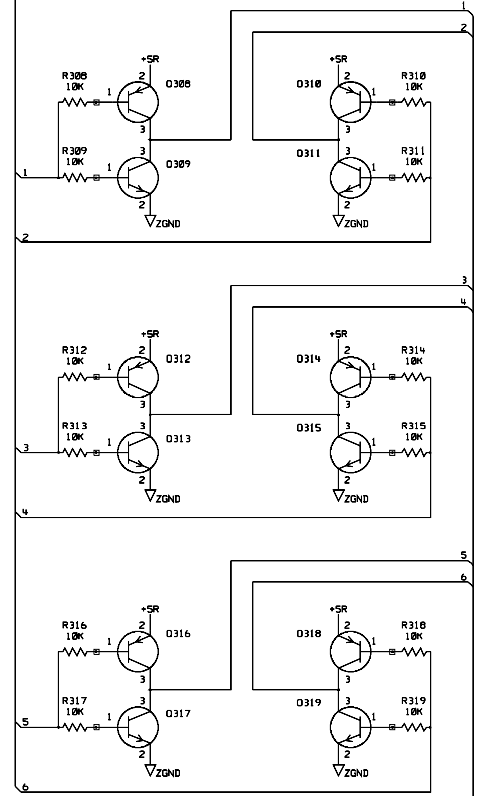
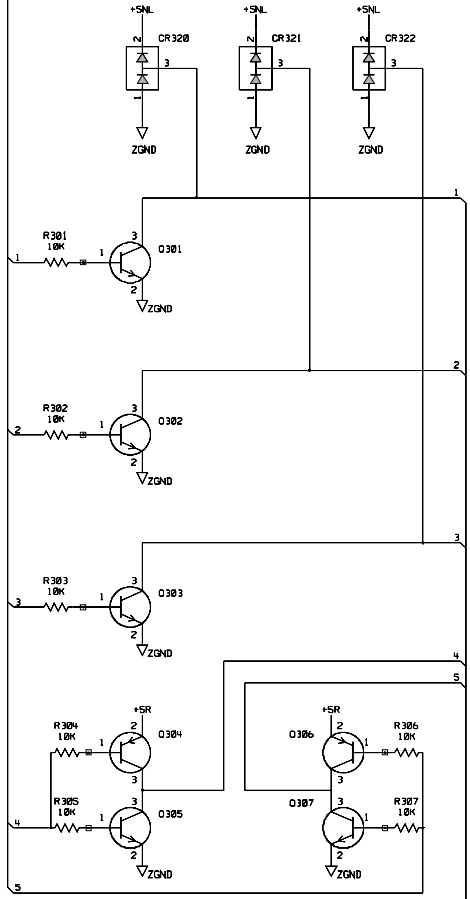


COL_DR(1:10)
Sheet 4

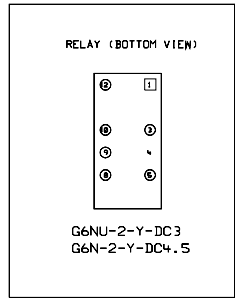
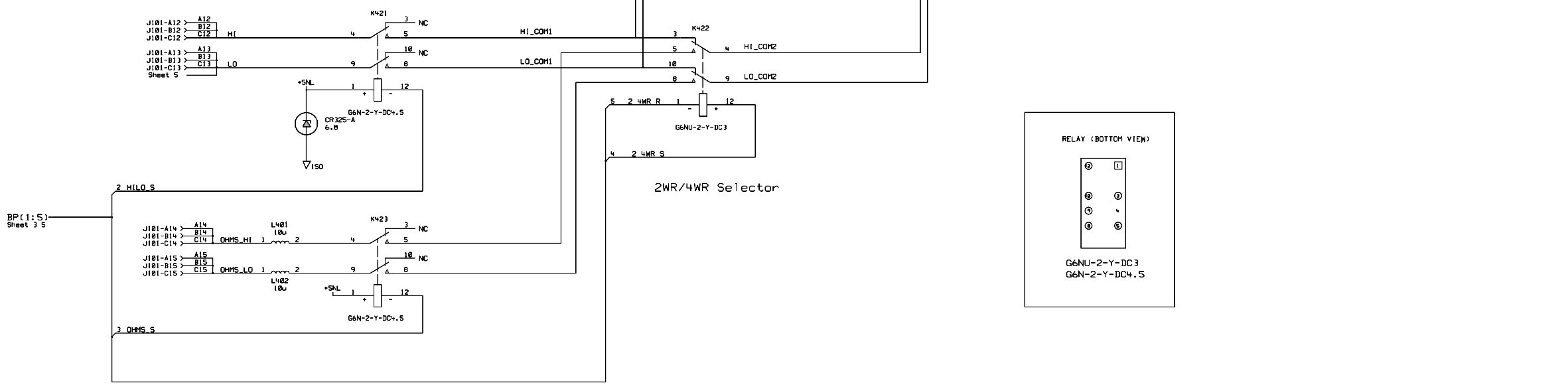
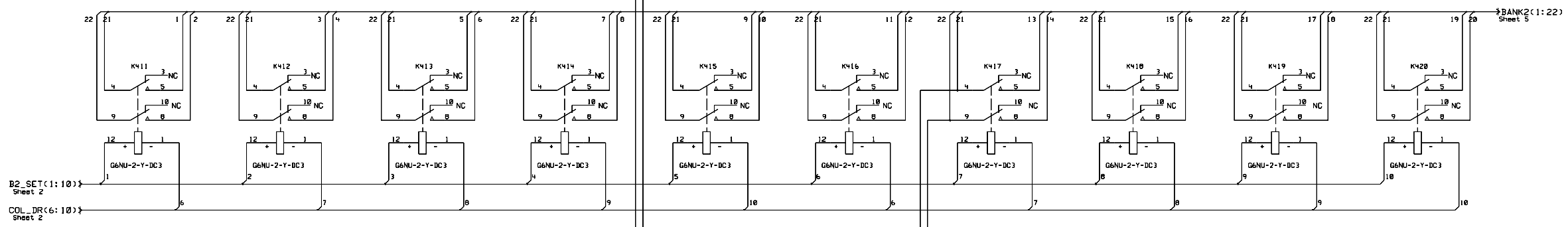
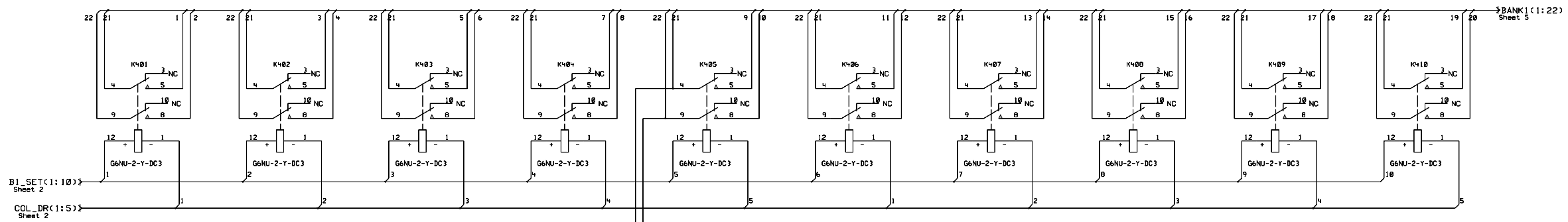
Bypass caps to be spread out among relays

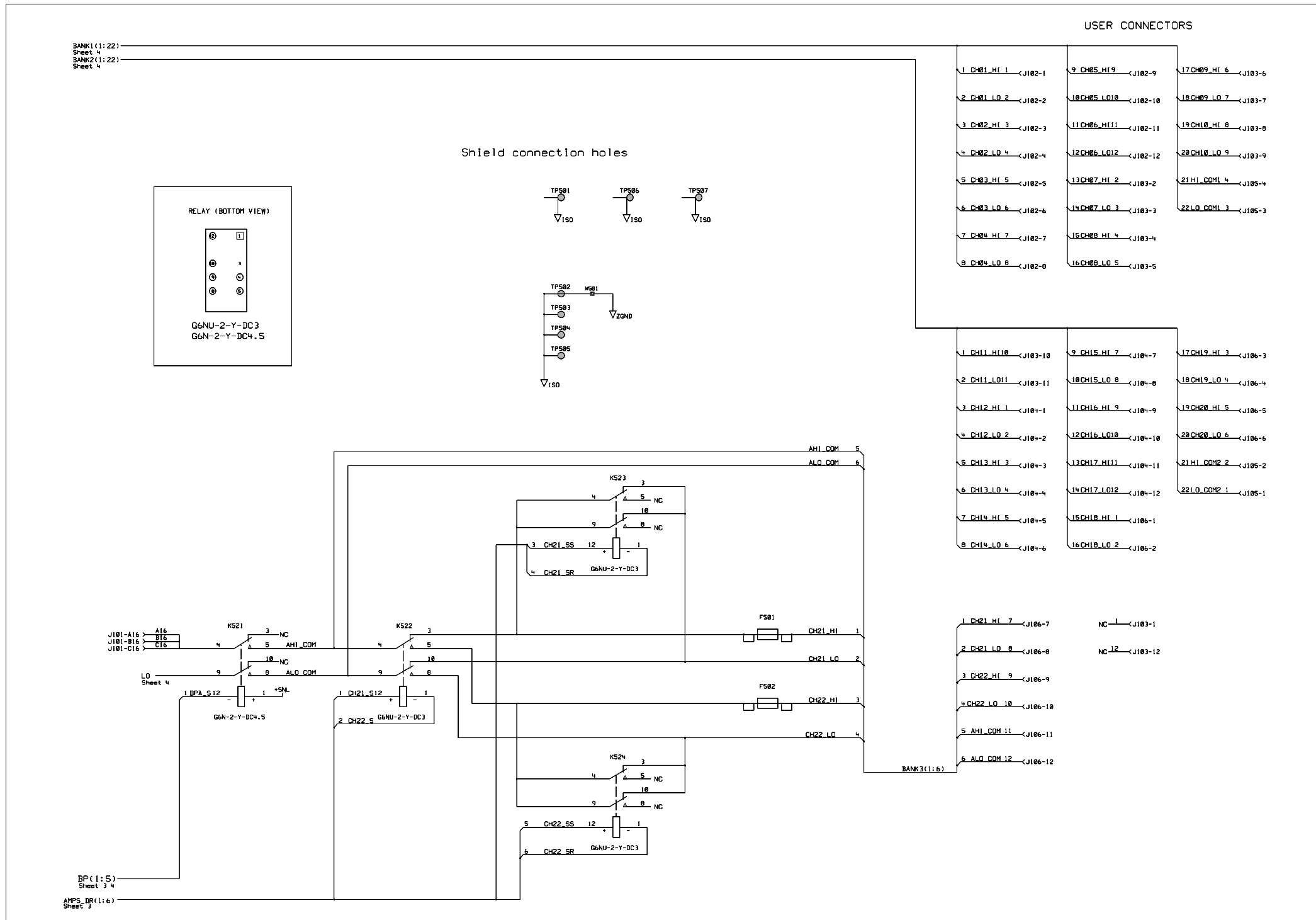


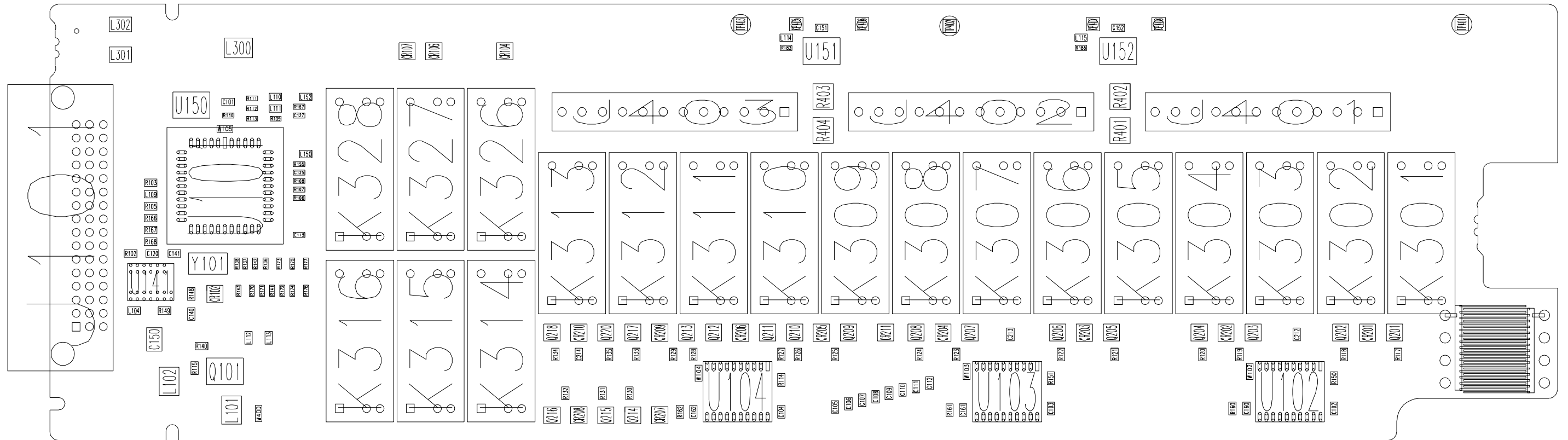
DRIN_AMPS(1:6)
Sheet 1
DRIN_BP(1:5)
Sheet 1

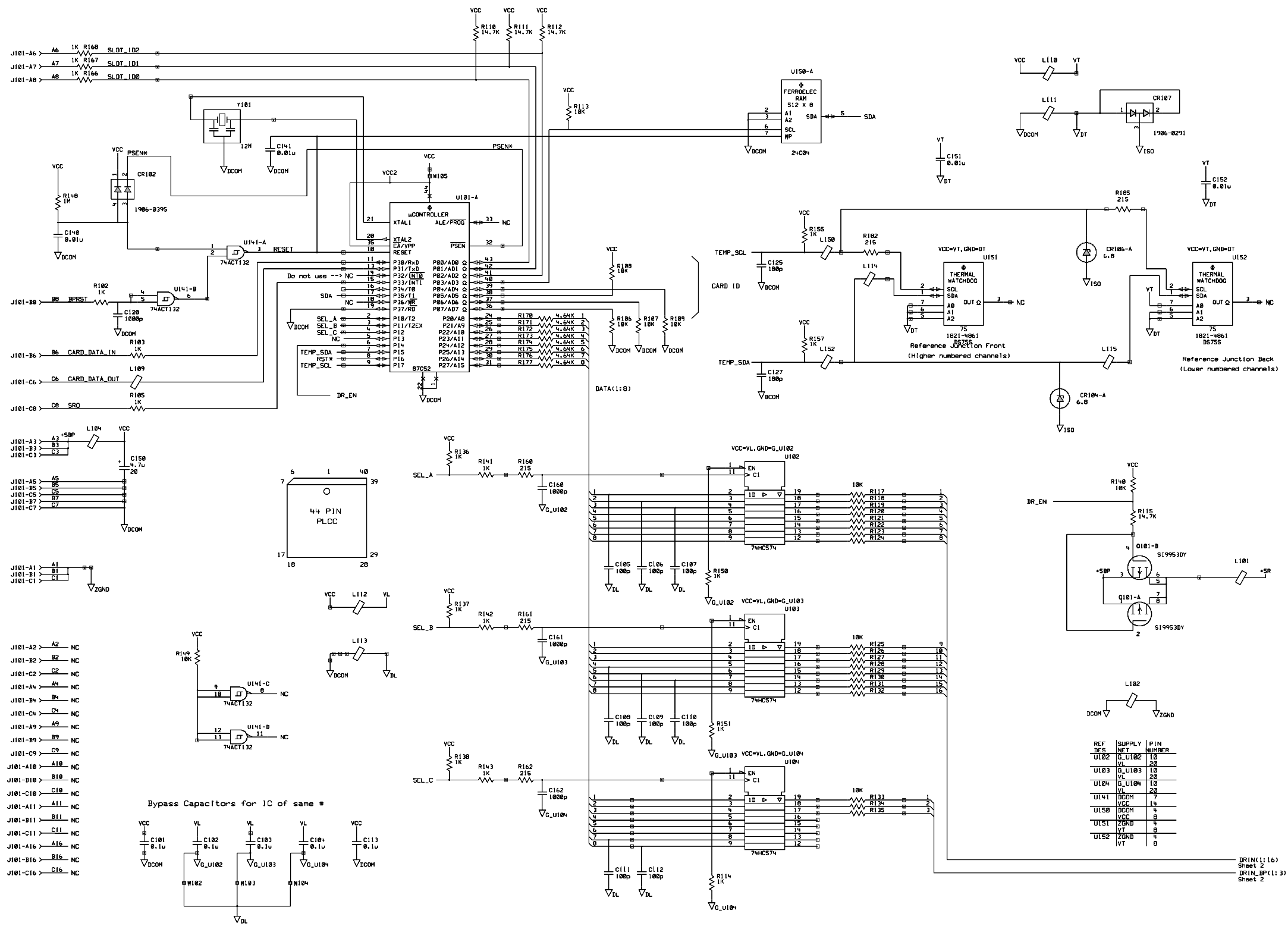


AMPS_DR(1:6)
Sheet 5
BP(1:5)
Sheet 4 5





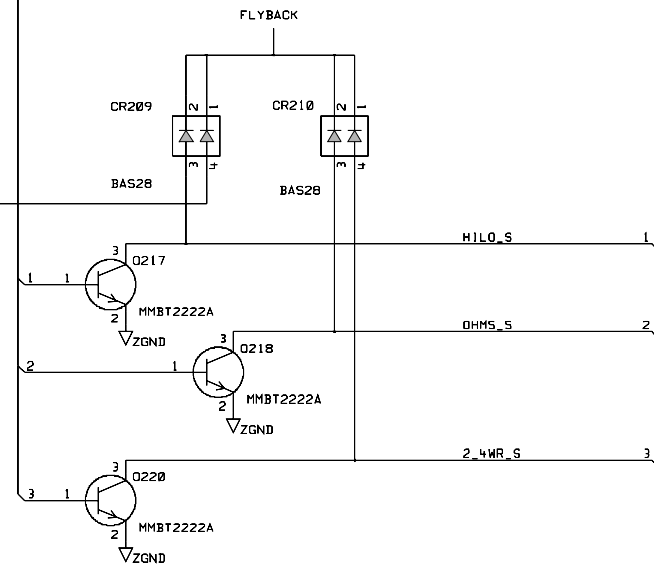
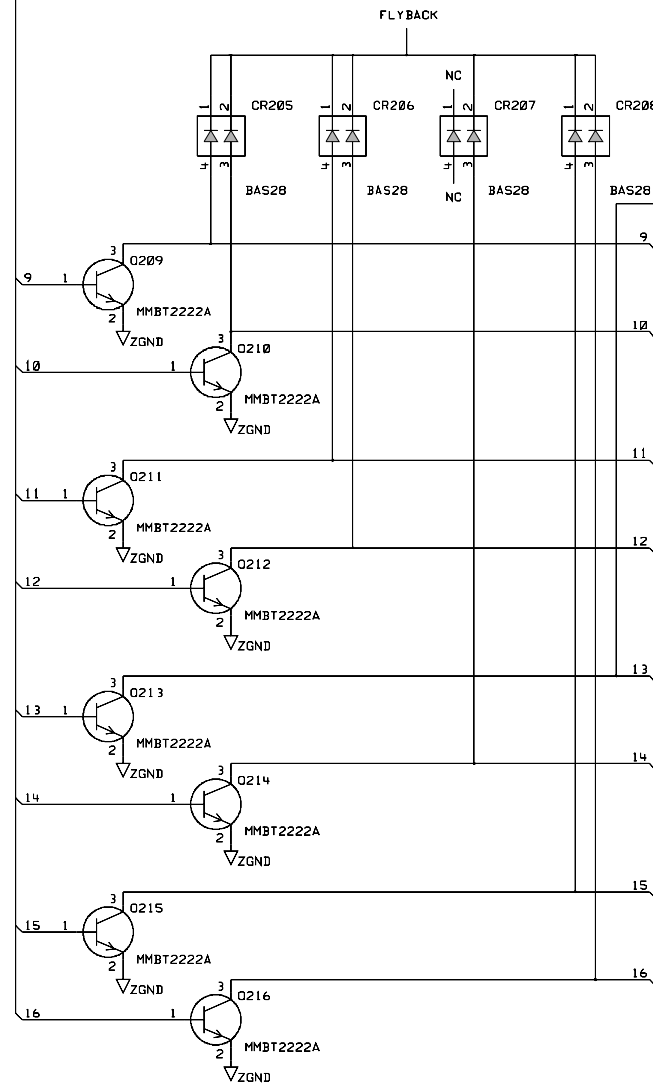
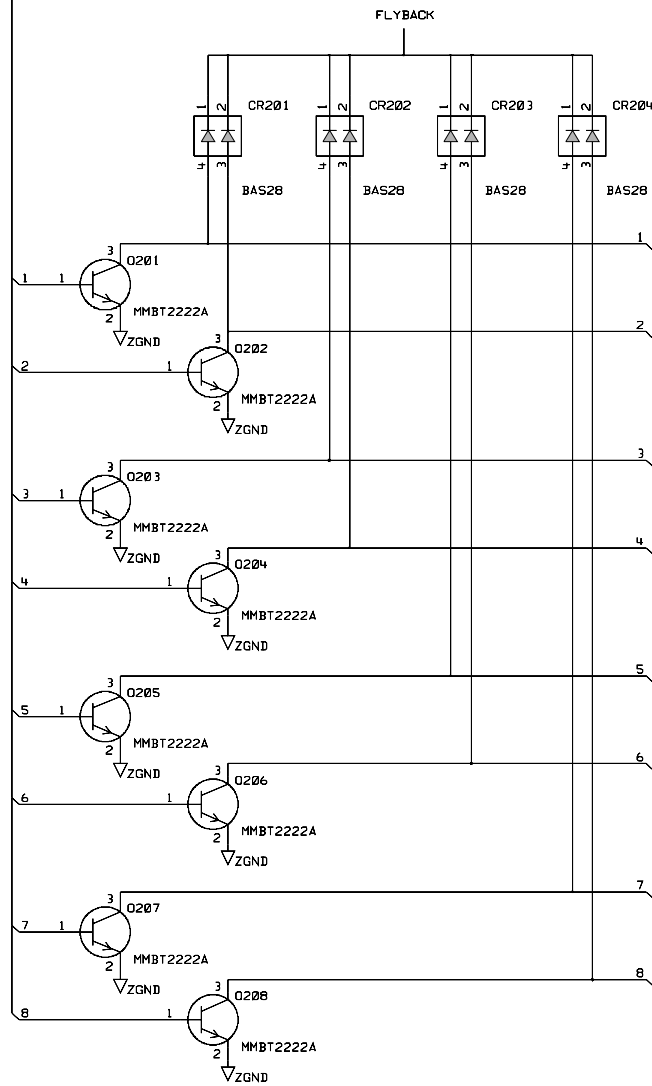




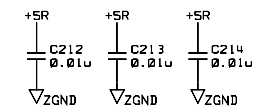
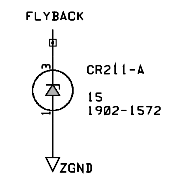
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DES	NET	NUMBER
U102	G_U102	10
U103	G_U103	20
U104	G_U104	10
U141	VCC	4
U150	VCC	4
U151	VCC	4
U152	VCC	4

DRIN(1:16)
Sheet 2
DRIN_BP(1:3)
Sheet 2

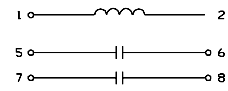
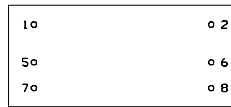
DRIN_BP(1:3)
Sheet 1
DRIN(1:16)
Sheet 1



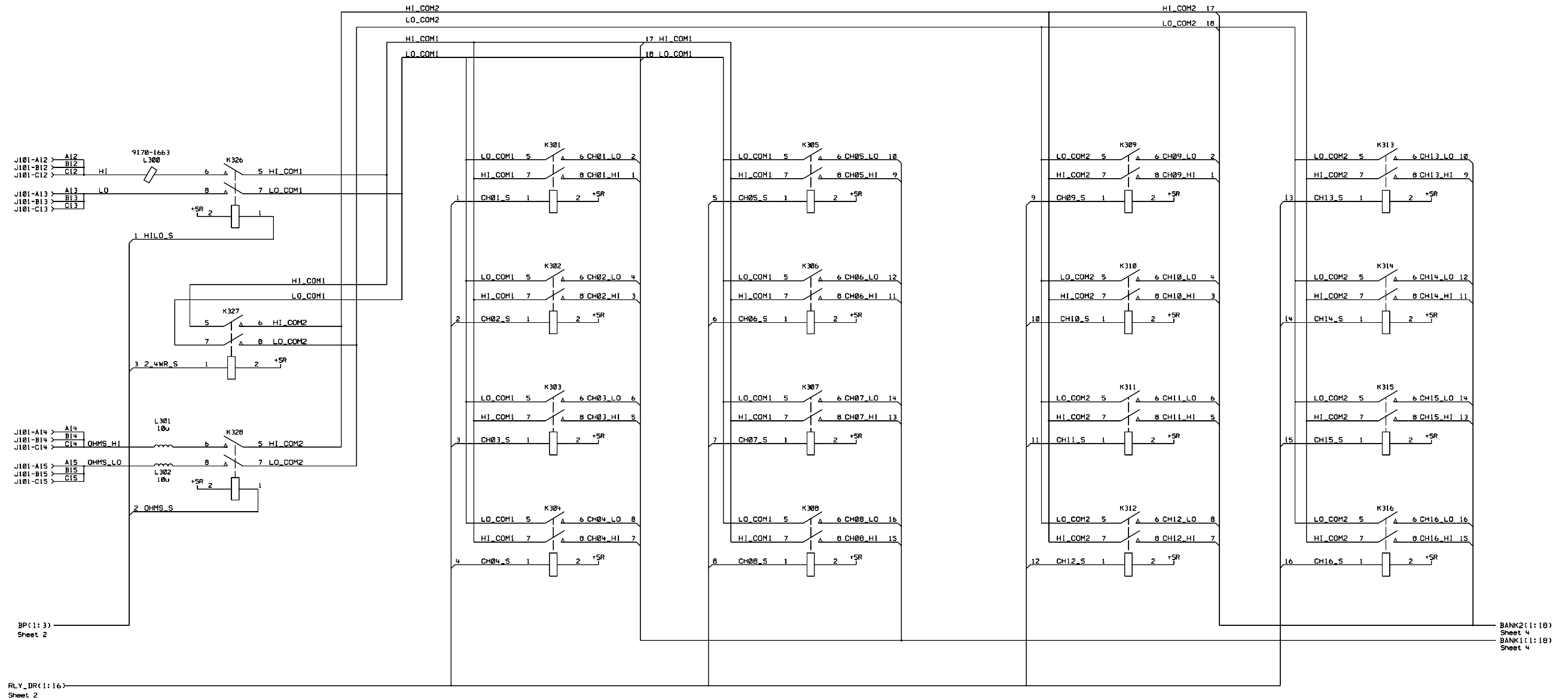
BP(1:3)
Sheet 3



RLY_DR(1:16)
Sheet 3

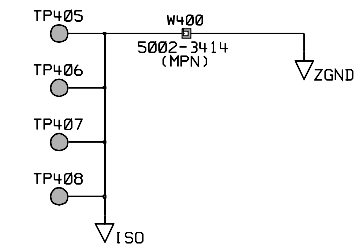
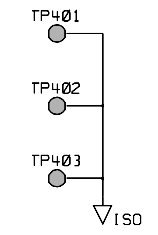
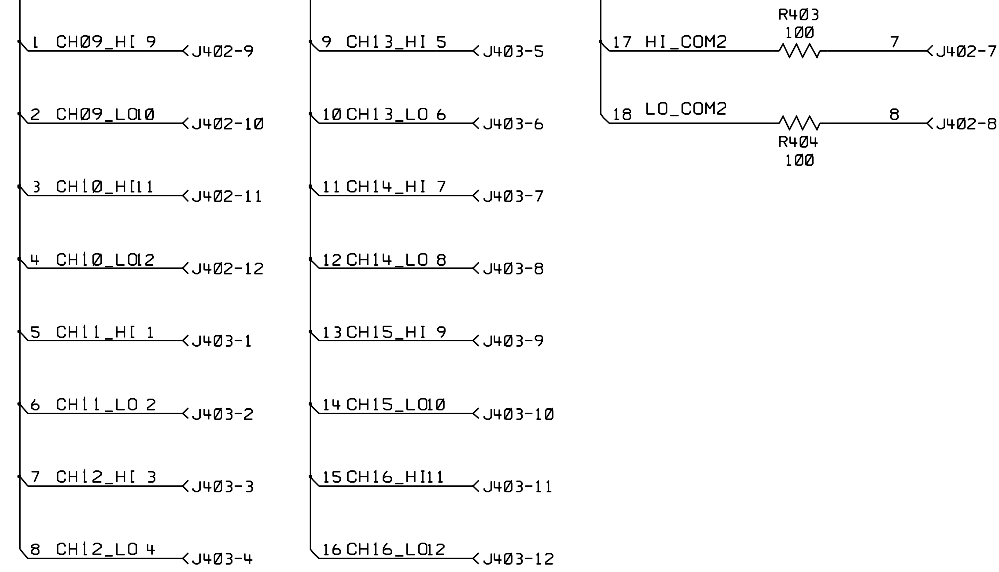
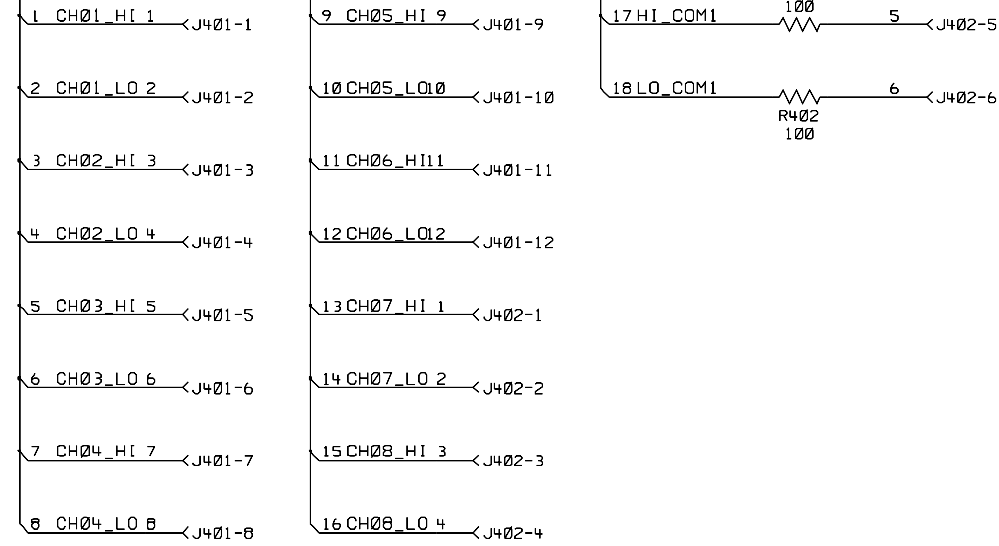


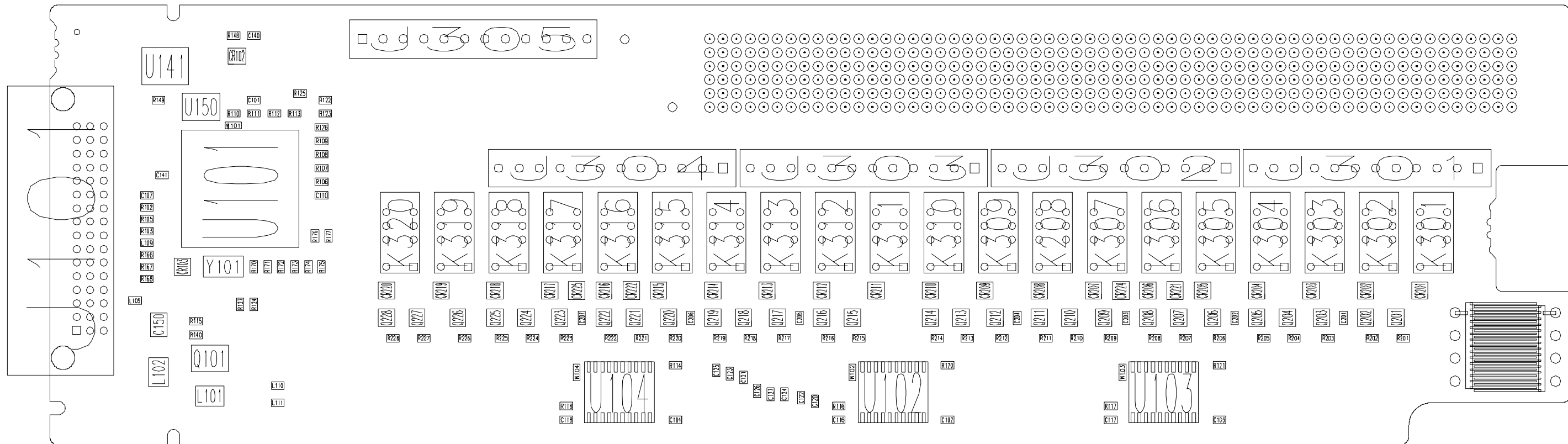
Relay Schematic (Bottom View)

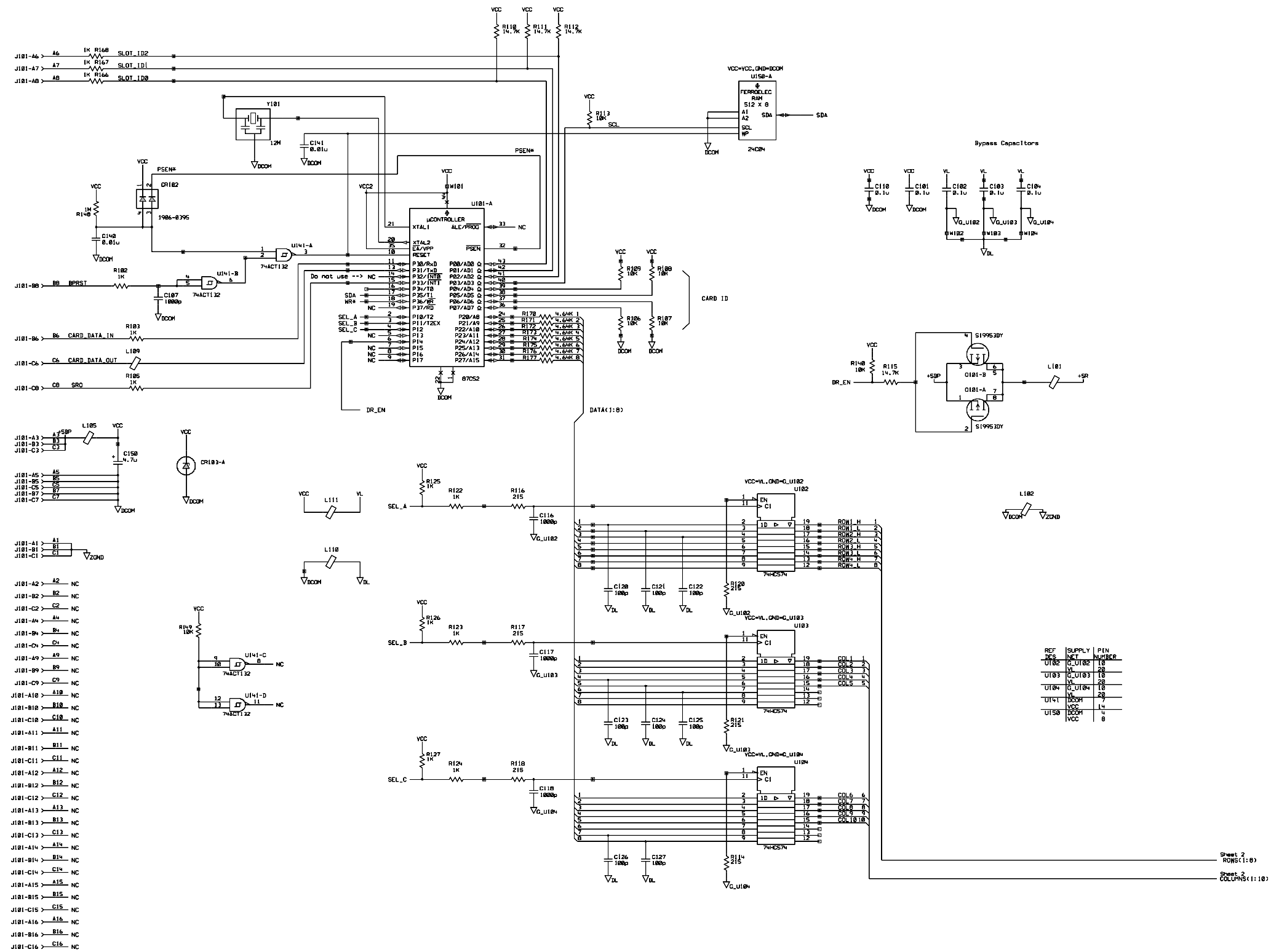


USER CONNECTORS

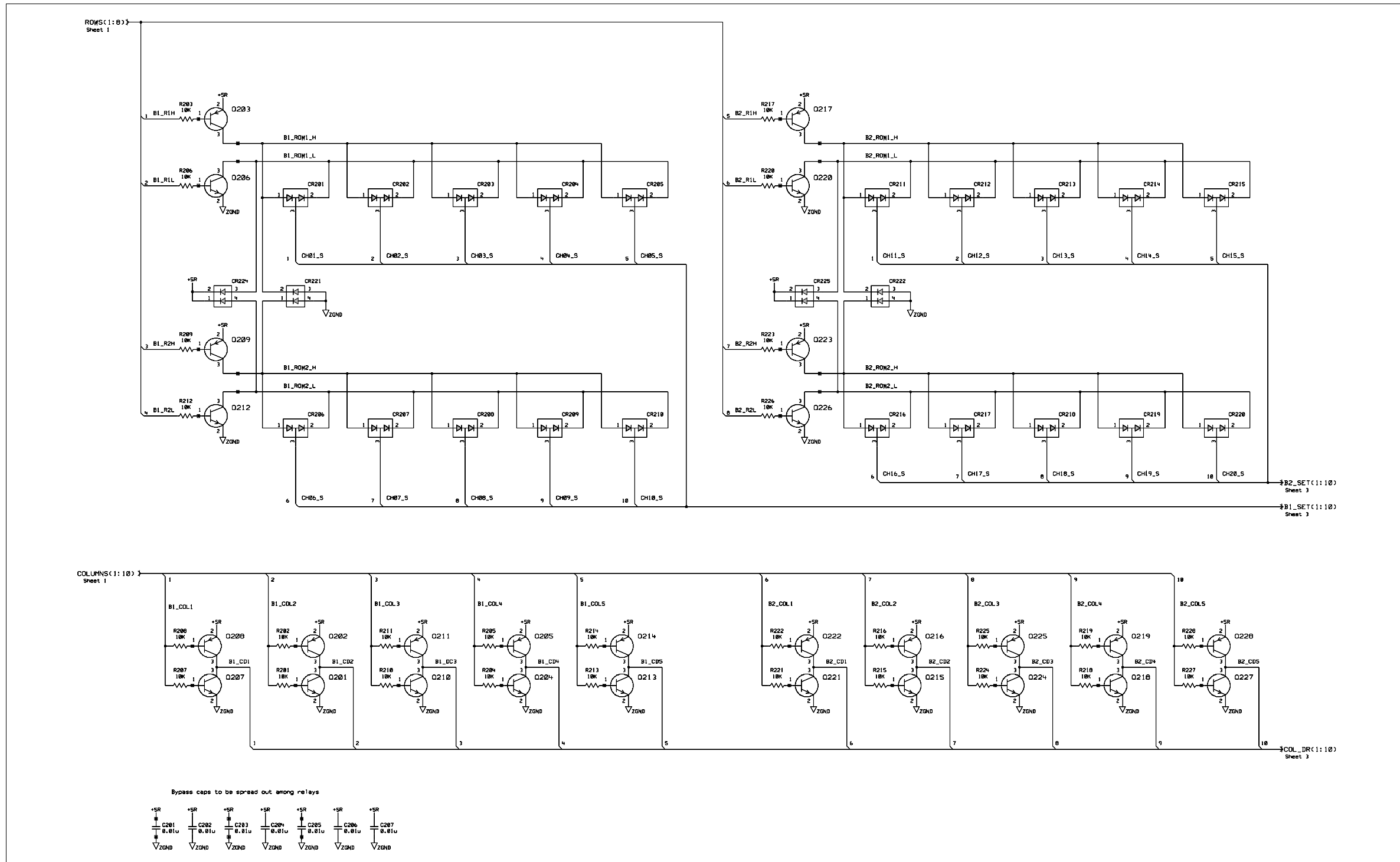
BANK1(1:18)
Sheet 3
BANK2(1:18)
Sheet 3

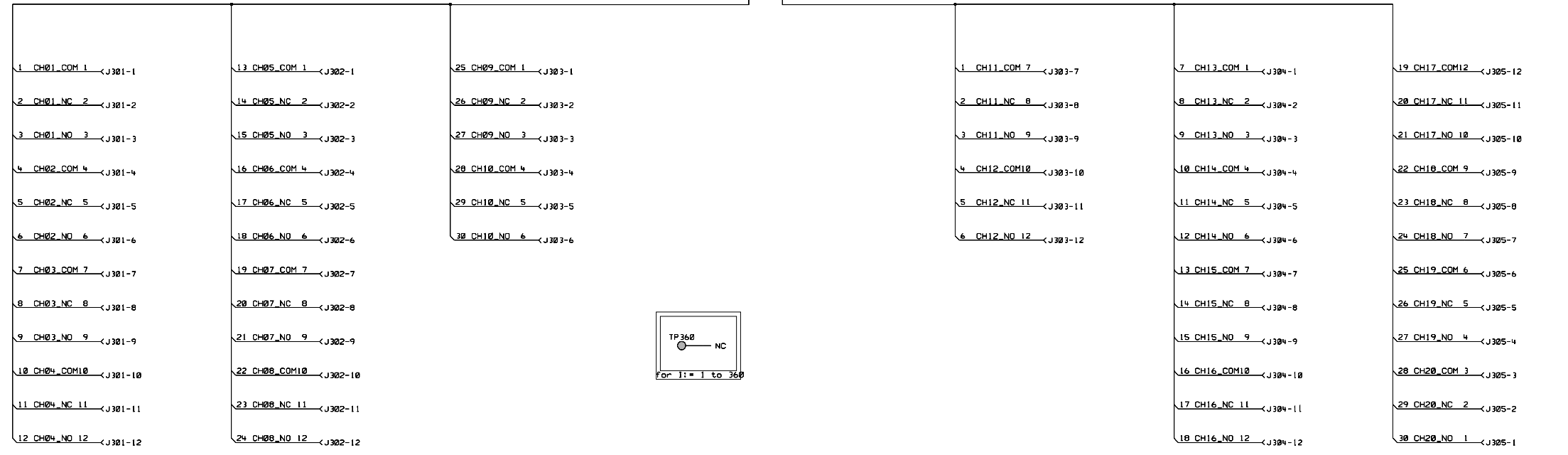
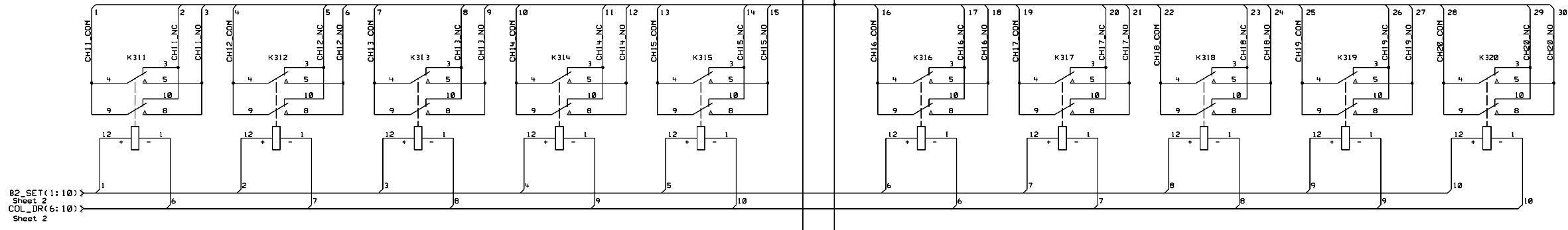
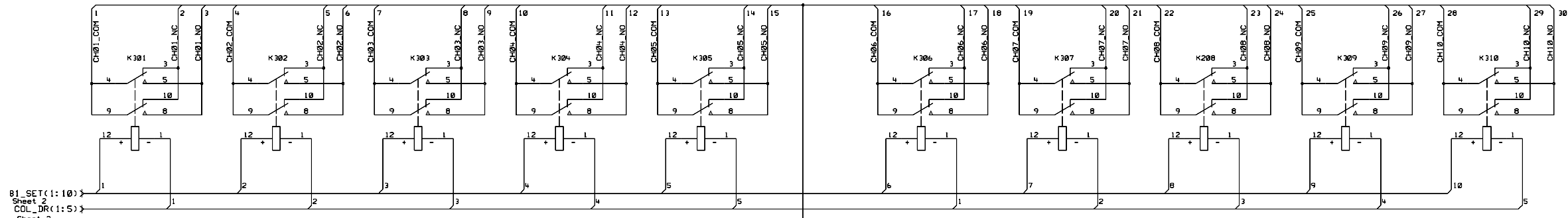


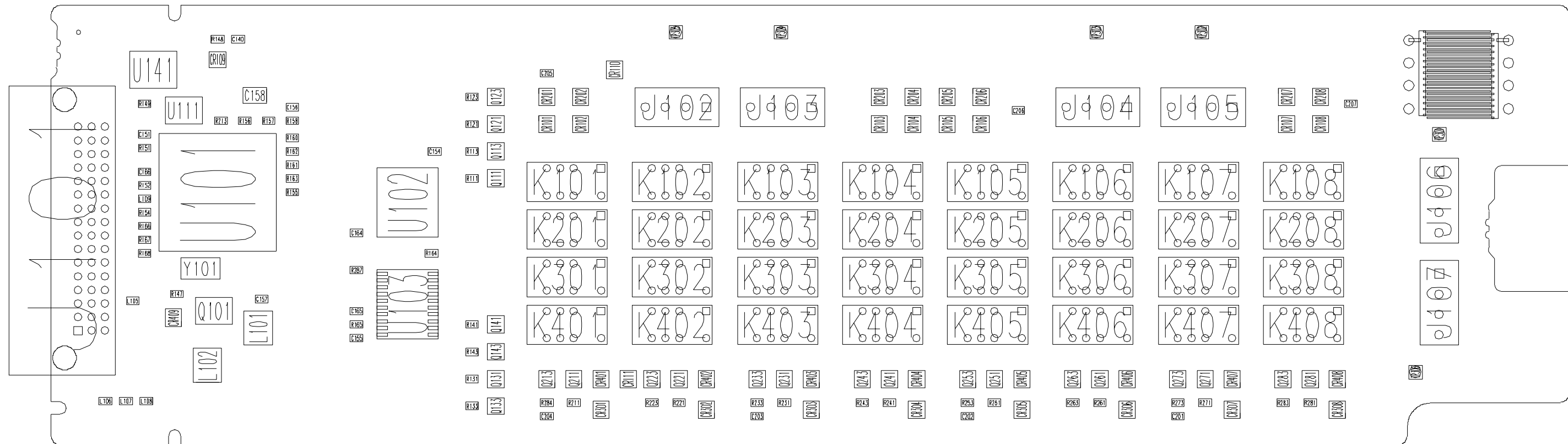


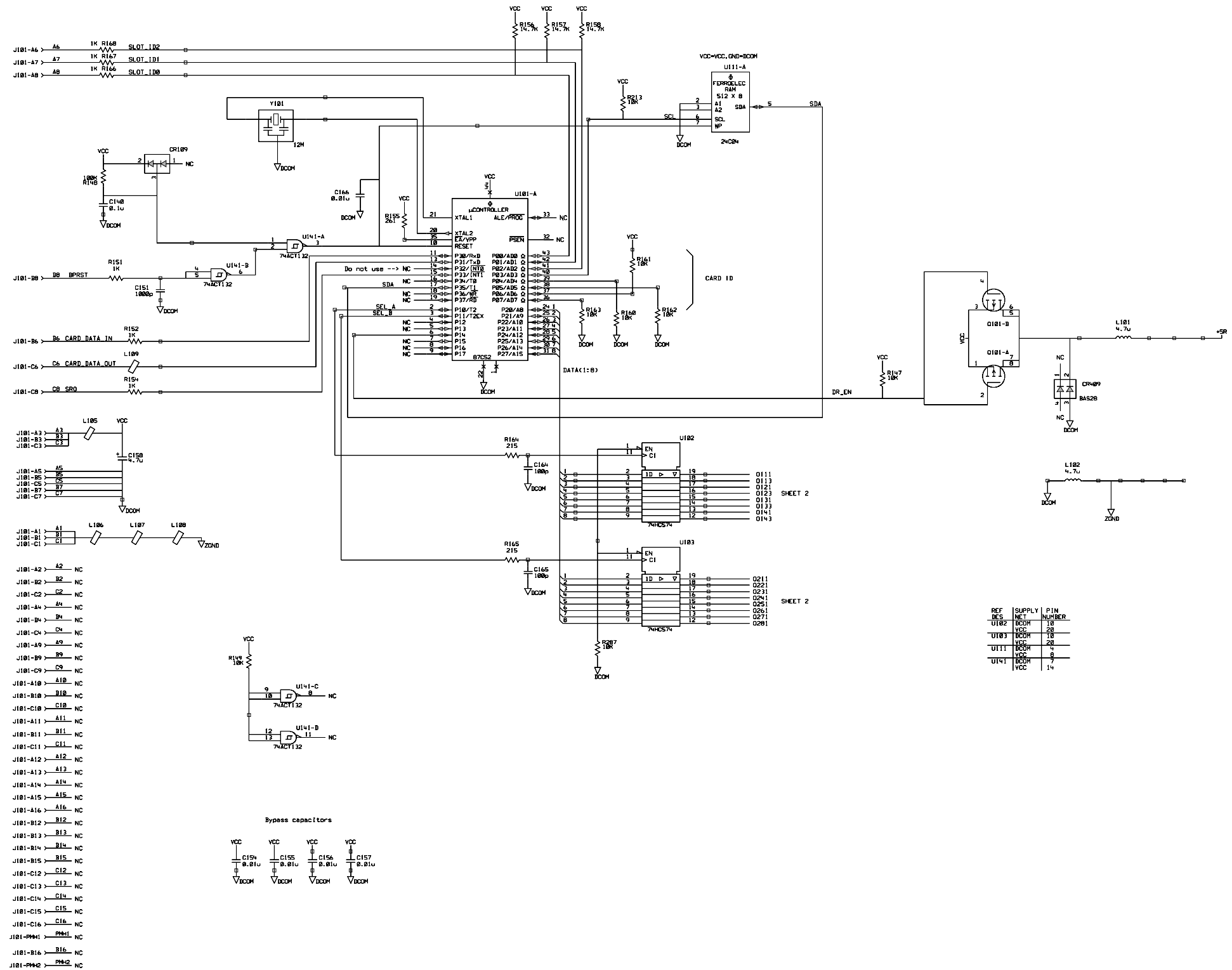


34903-66501 (sheet 1 of 3)
 34903A 20-Channel Actuator Schematic
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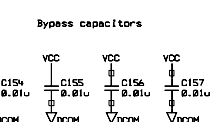
Do not use --> NC

DATA(1:B)

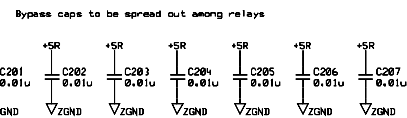
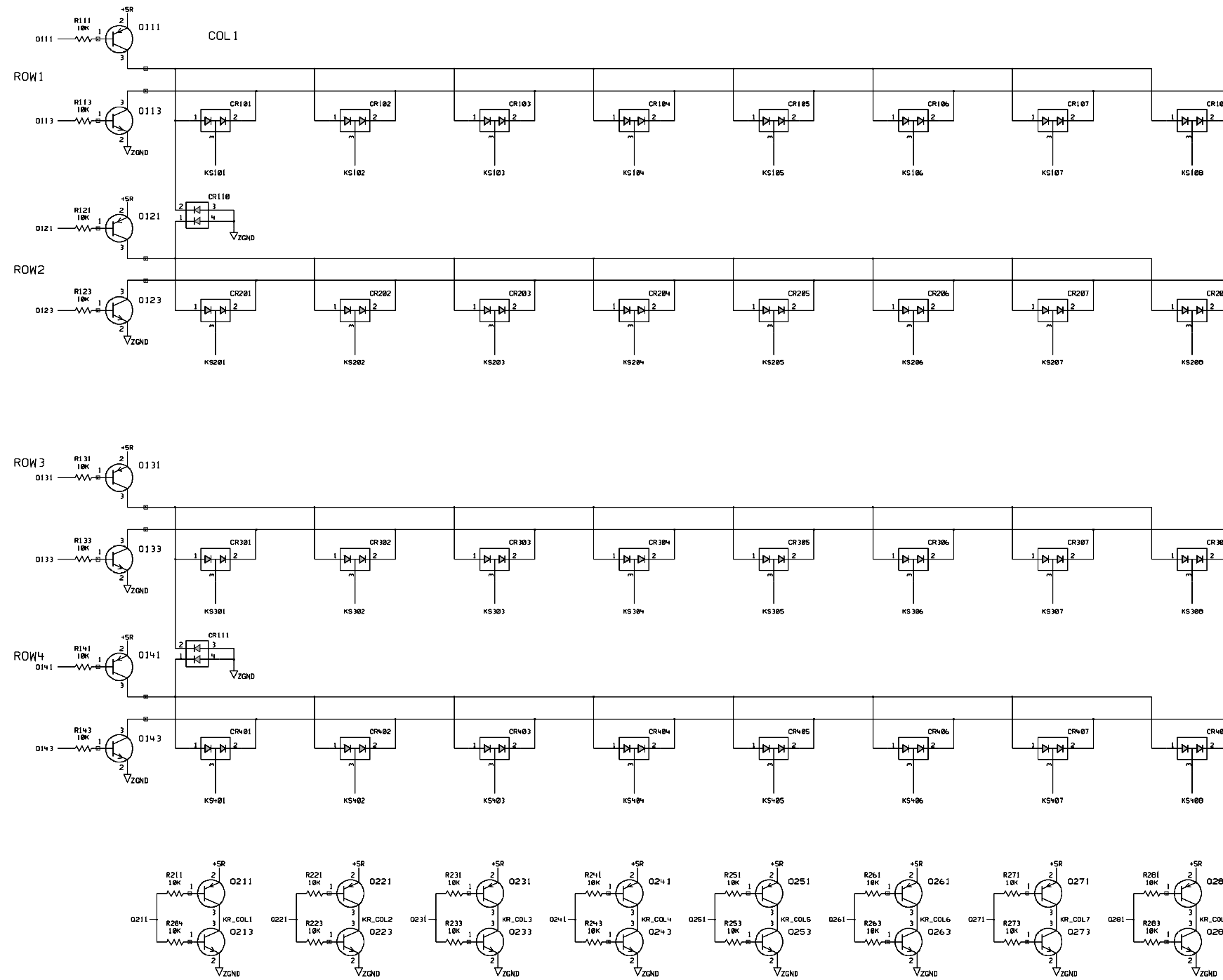
SHEET 2

SHEET 2

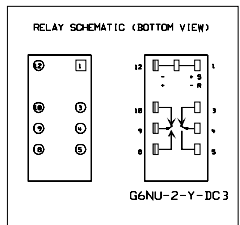
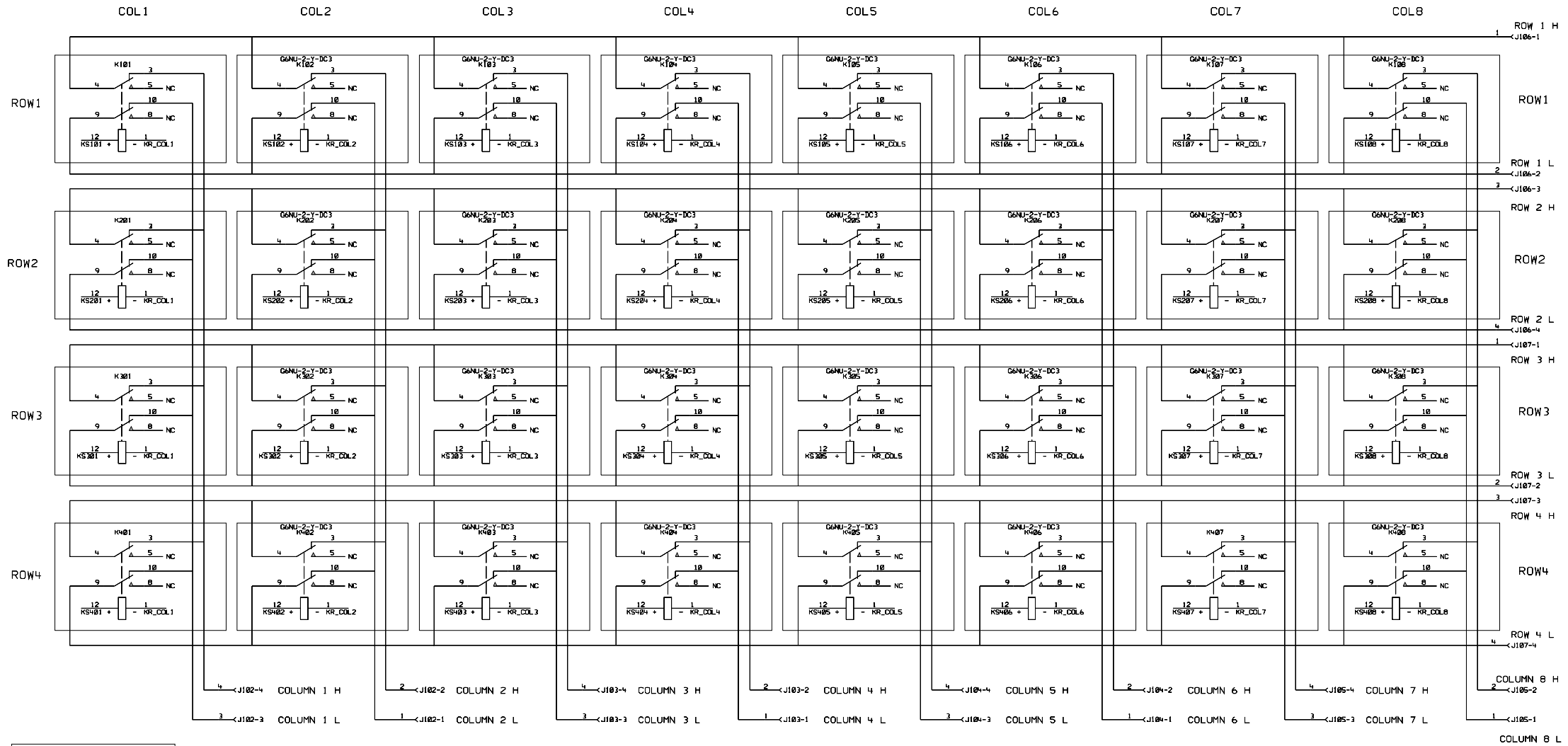
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	VCC	28
U103	DCOM	18
	VCC	28
U111	DCOM	4
	VCC	9
U141	DCOM	7
	VCC	14

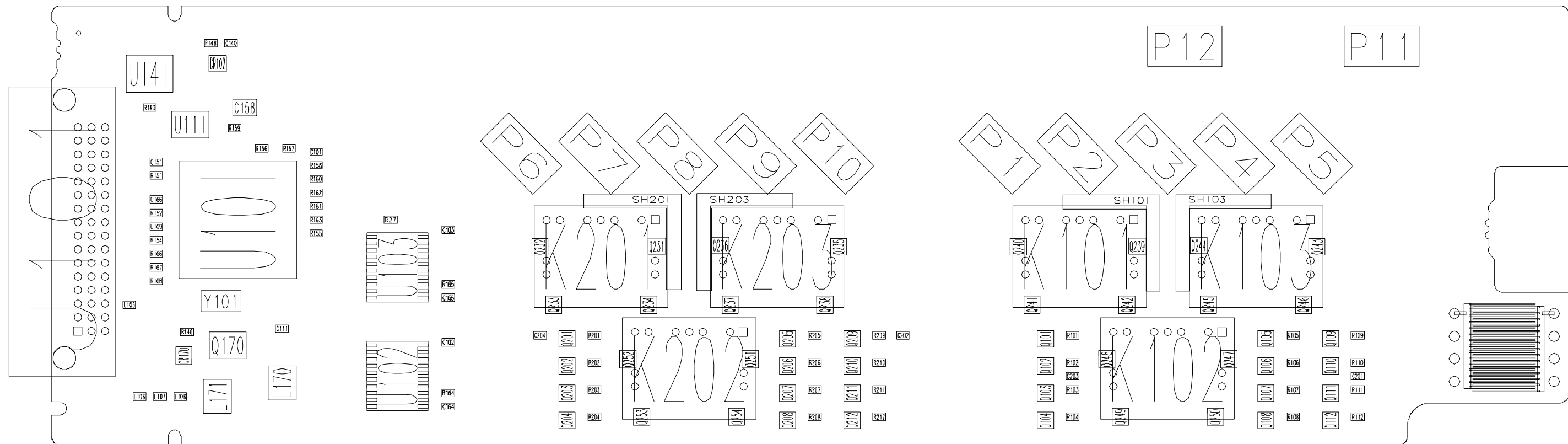


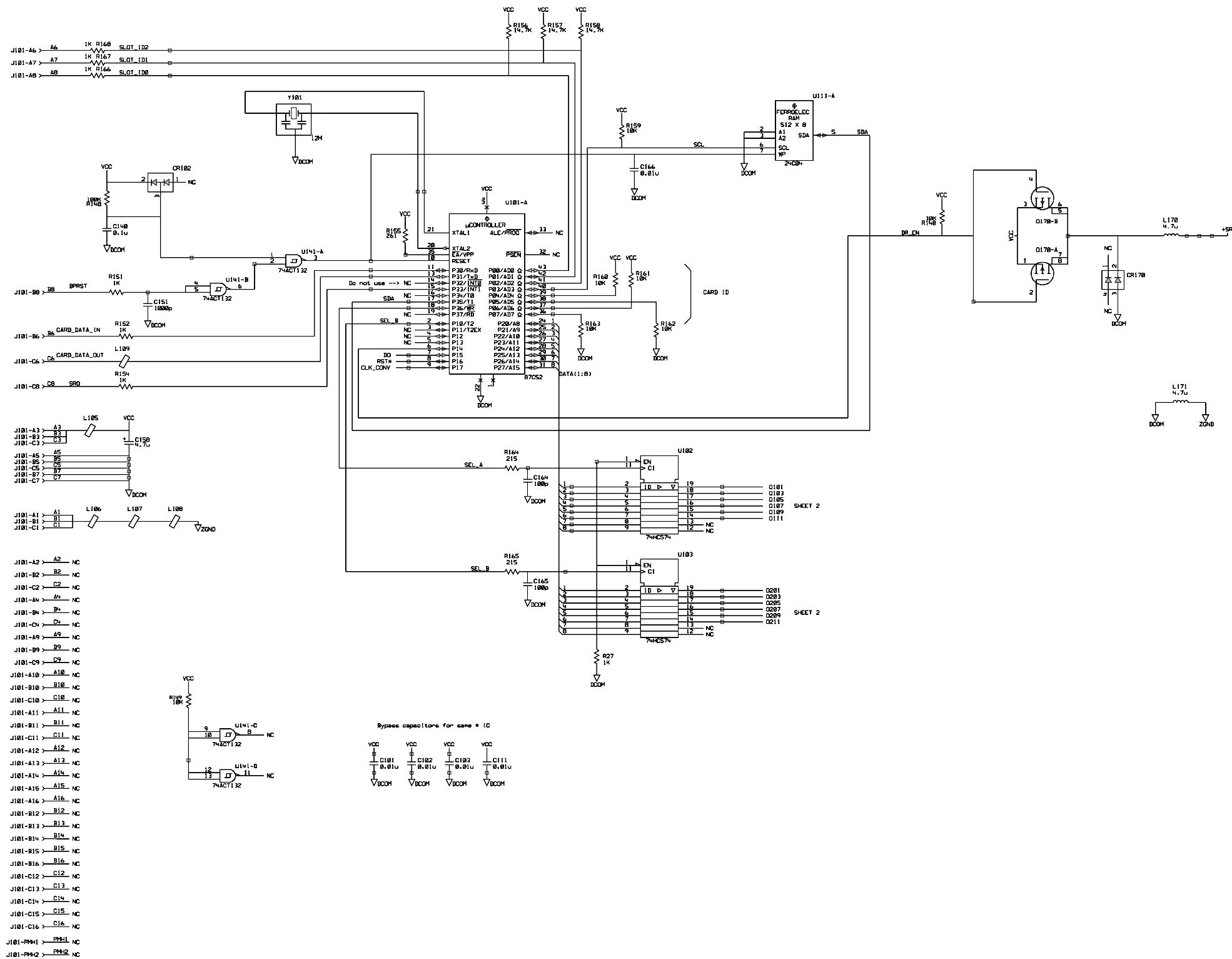
- J101-A2 - A2 - NC
- J101-B2 - B2 - NC
- J101-C2 - C2 - NC
- J101-A4 - A4 - NC
- J101-B4 - B4 - NC
- J101-C4 - C4 - NC
- J101-A9 - A9 - NC
- J101-B9 - B9 - NC
- J101-C9 - C9 - NC
- J101-A10 - A10 - NC
- J101-B10 - B10 - NC
- J101-C10 - C10 - NC
- J101-A11 - A11 - NC
- J101-B11 - B11 - NC
- J101-C11 - C11 - NC
- J101-A12 - A12 - NC
- J101-B12 - B12 - NC
- J101-C12 - C12 - NC
- J101-A13 - A13 - NC
- J101-B13 - B13 - NC
- J101-C13 - C13 - NC
- J101-A14 - A14 - NC
- J101-B14 - B14 - NC
- J101-C14 - C14 - NC
- J101-A15 - A15 - NC
- J101-B15 - B15 - NC
- J101-C15 - C15 - NC
- J101-A16 - A16 - NC
- J101-B16 - B16 - NC
- J101-C16 - C16 - NC
- J101-PM#1 - PM#1 - NC
- J101-B16 - B16 - NC
- J101-PM#2 - PM#2 - NC

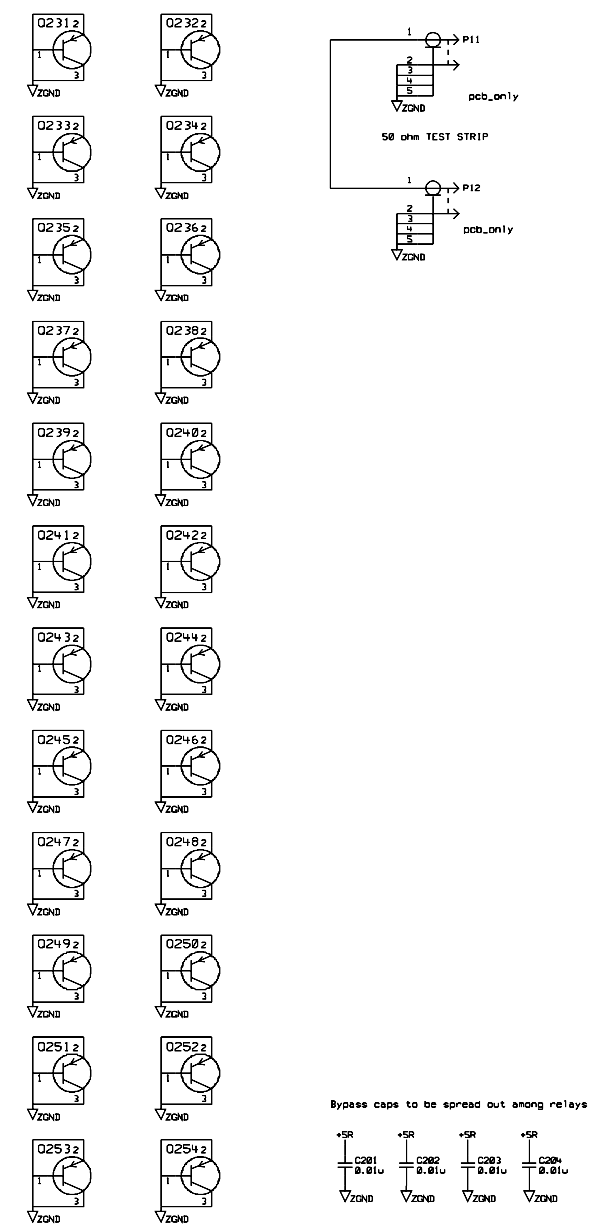
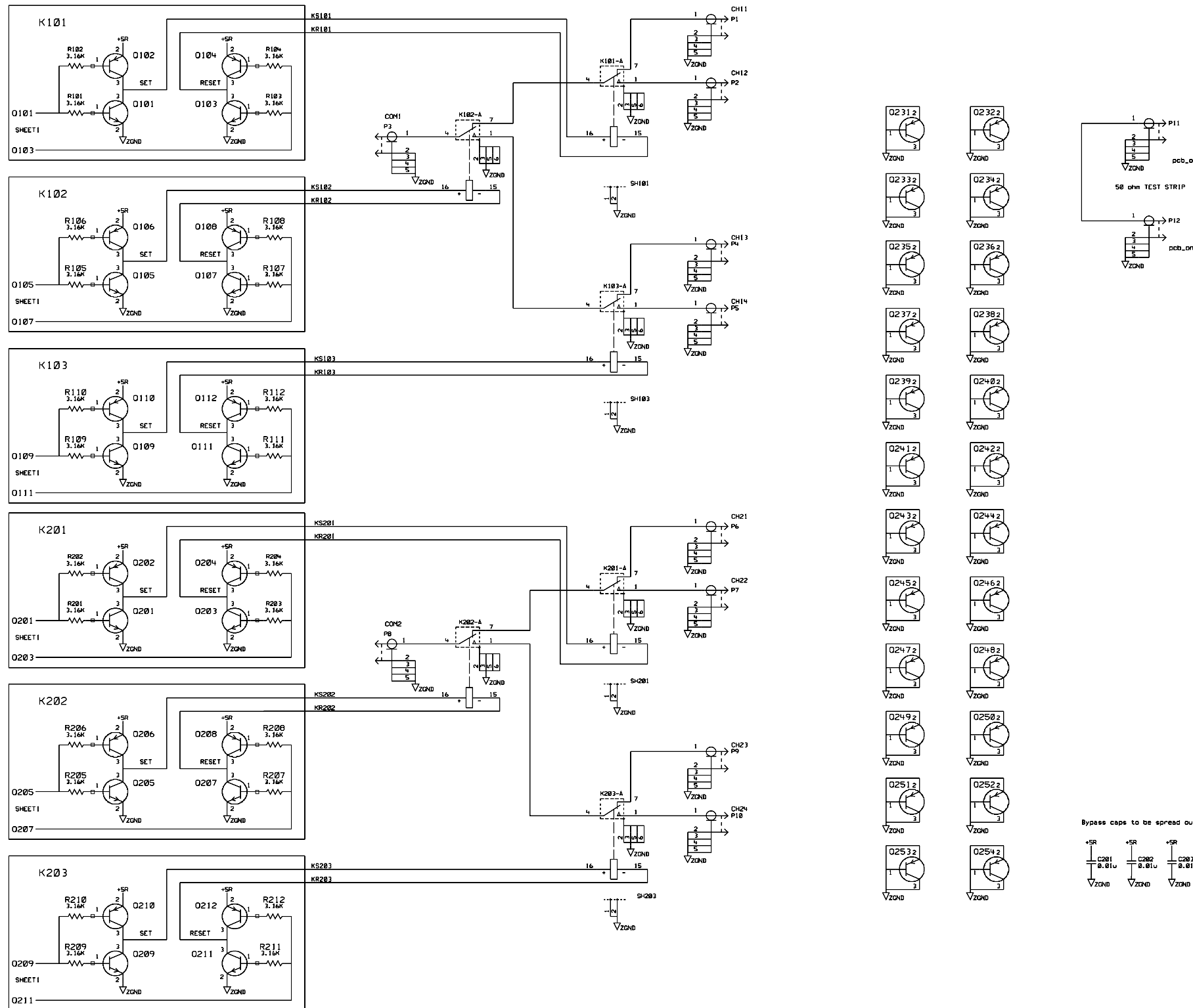


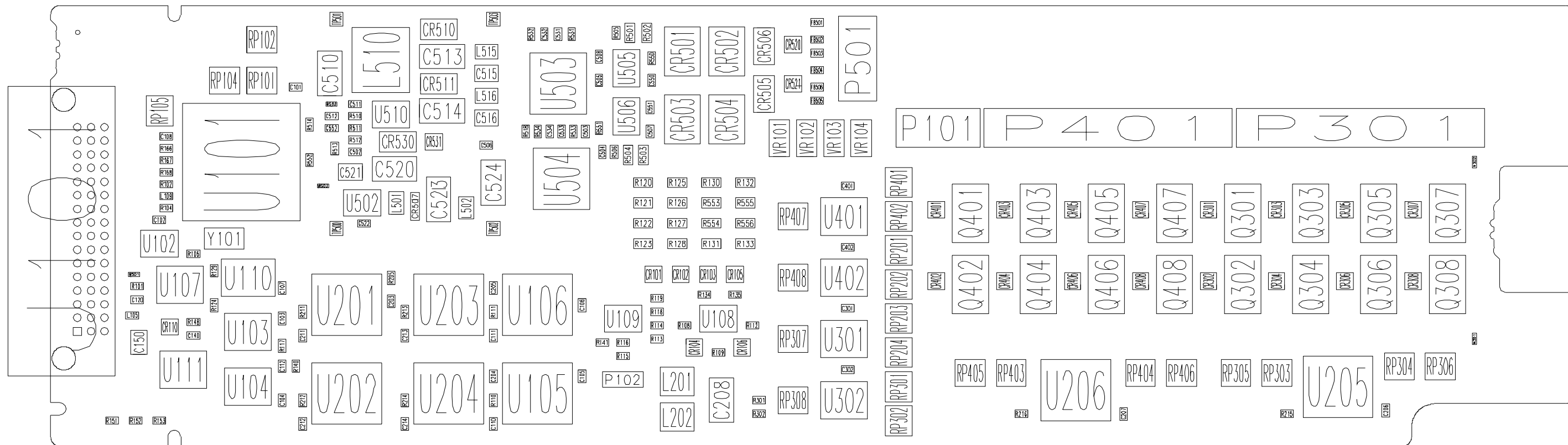
Earth referenced holes for shielding

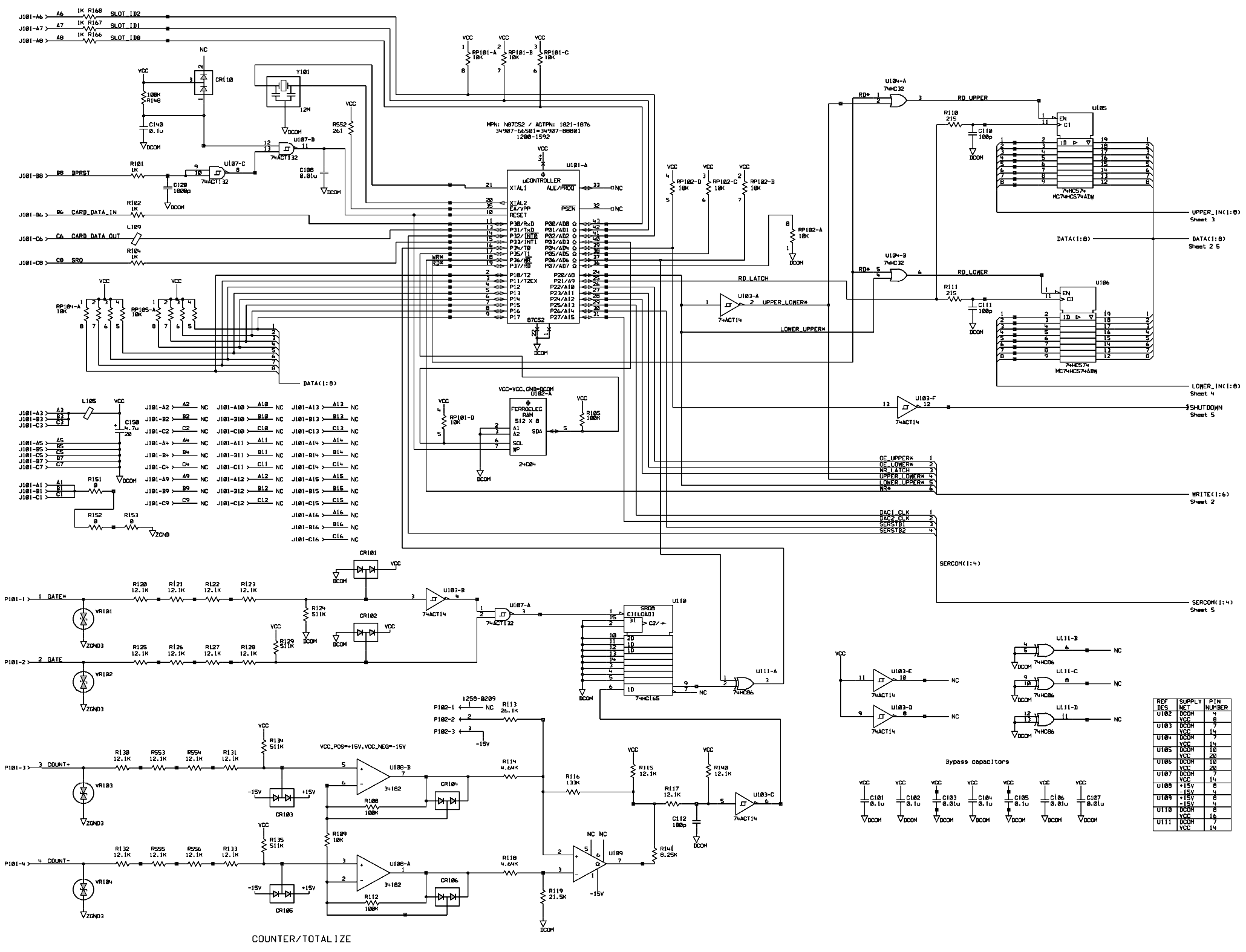




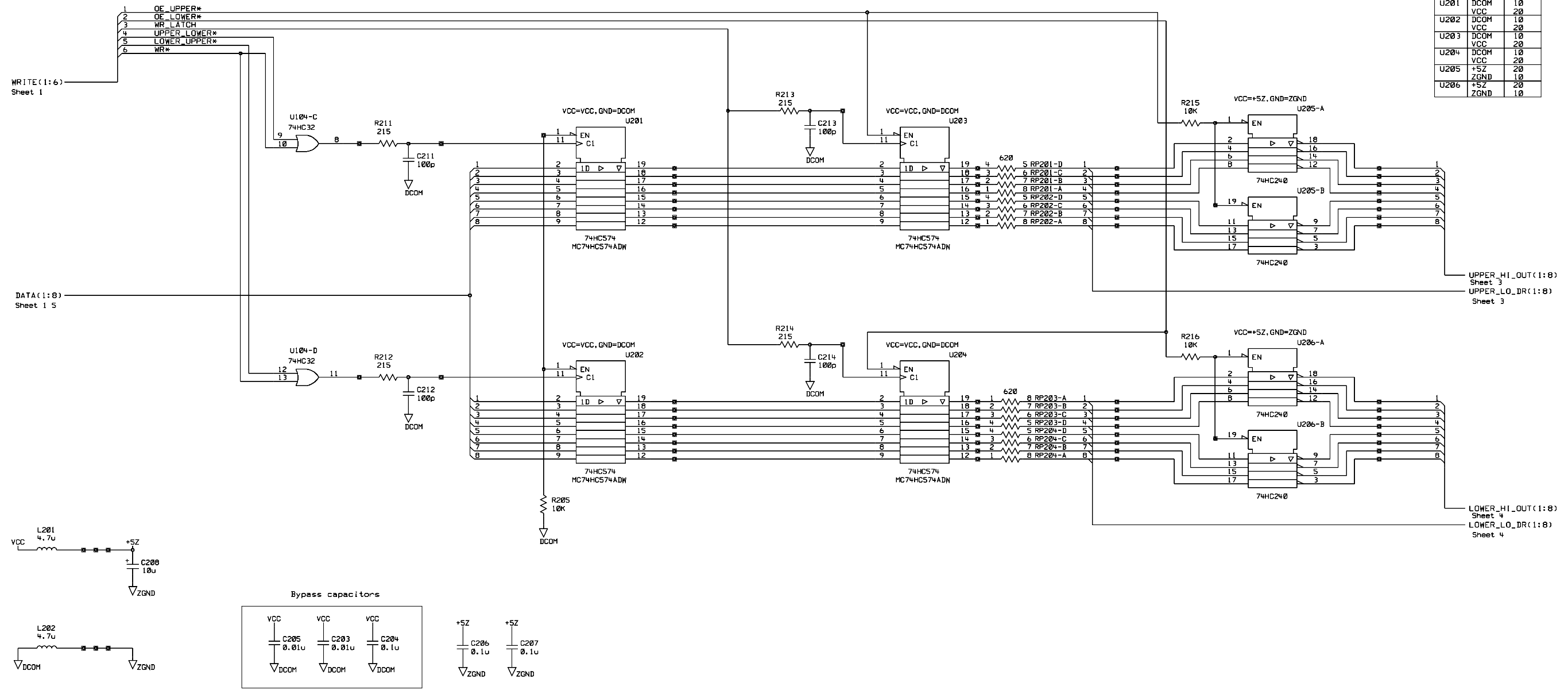




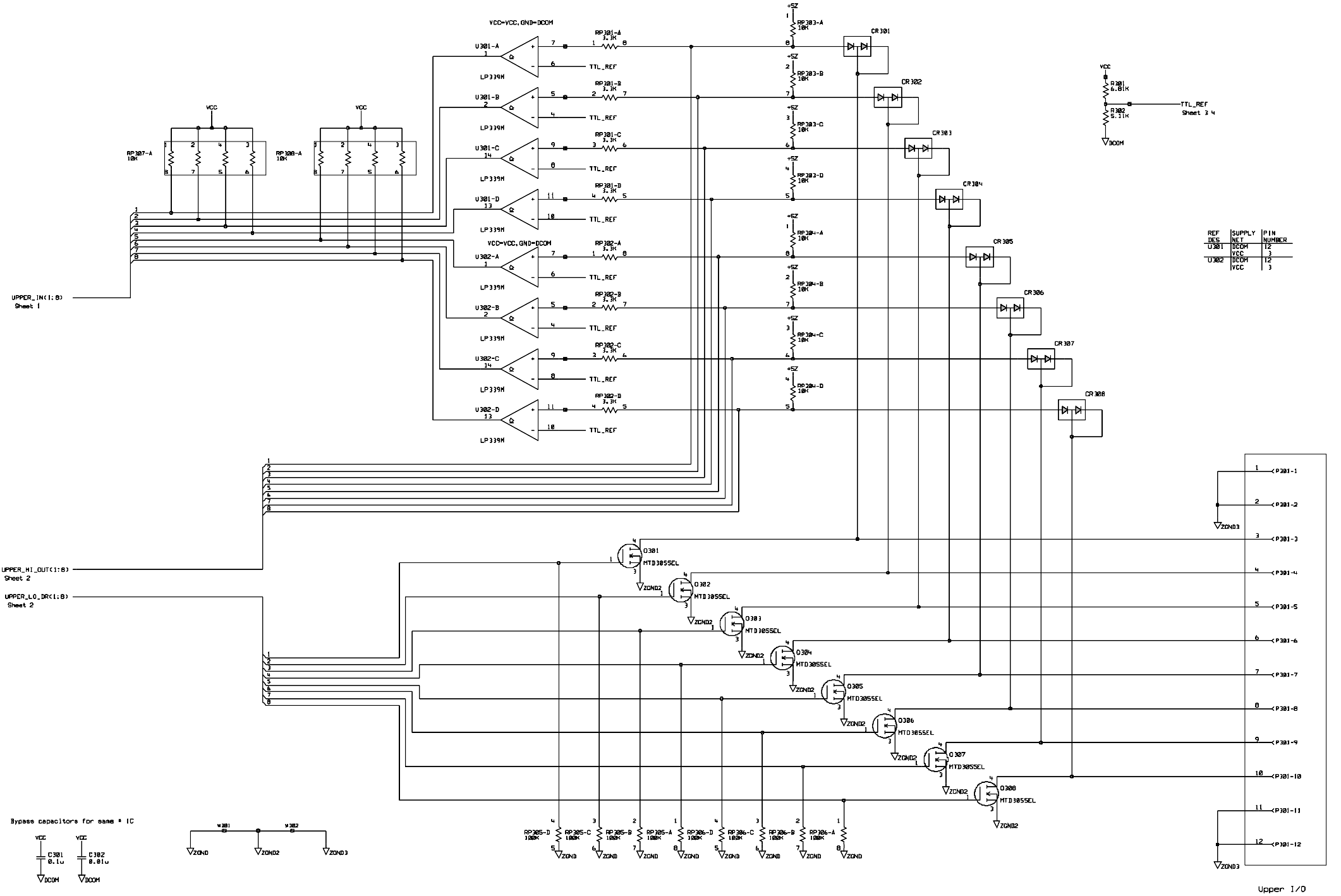




OUTPUT LATCHES & HIGH DRIVERS



REF DES	SUPPLY NET	PIN NUMBER
U104	DCOM	7
	VCC	14
U201	DCOM	10
	VCC	20
U202	DCOM	10
	VCC	20
U203	DCOM	10
	VCC	20
U204	DCOM	10
	VCC	20
U205	+SZ	20
	ZGND	10
U206	+SZ	20
	ZGND	10



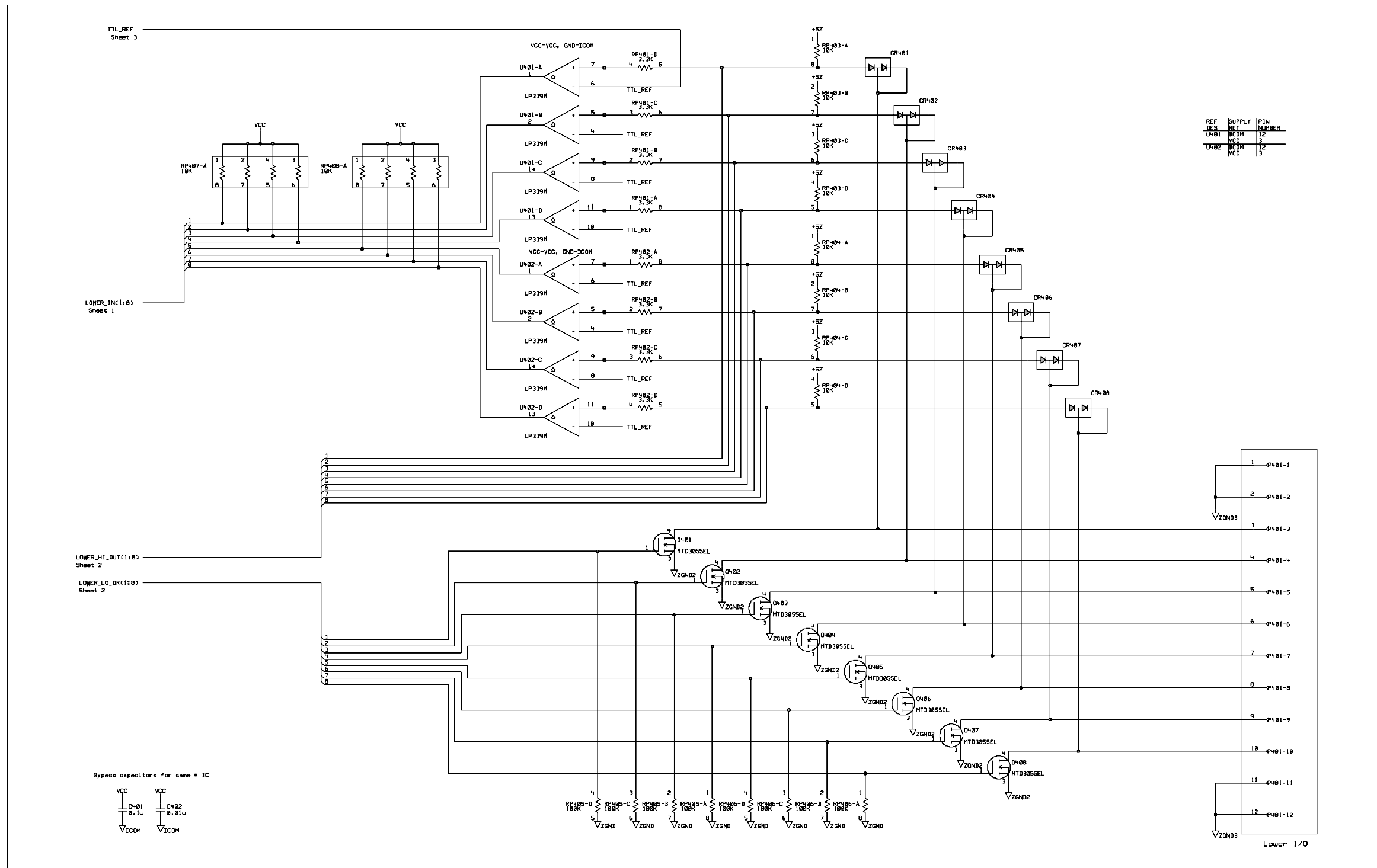
Bypass capacitors for same IC

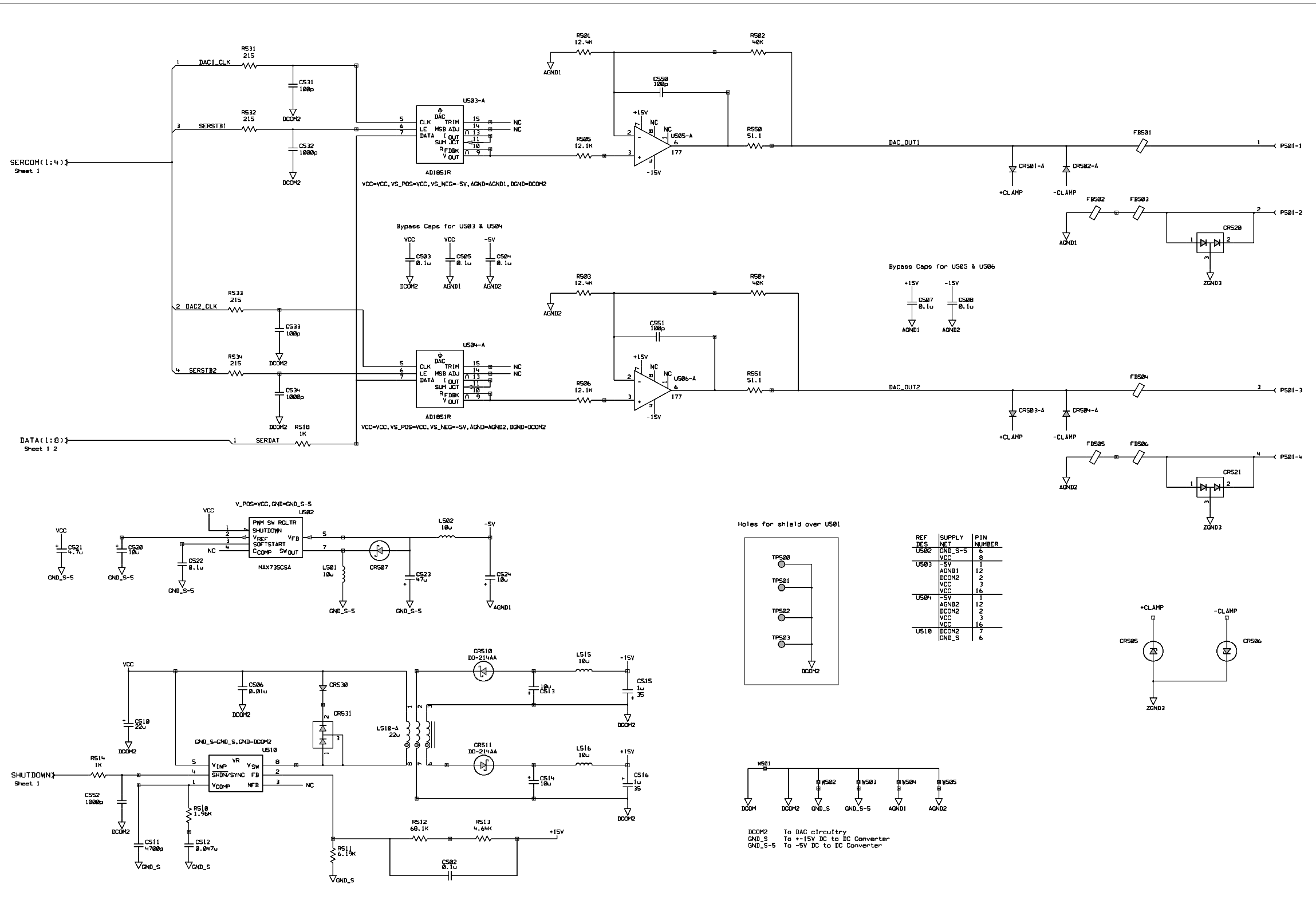
VCC C301 0.1u VDDM

VCC C302 0.01u VDDM

REF	SUPPLY	PIN
U301	DDCM	12
U302	VCC	3
U302	DDCM	12
U302	VCC	3

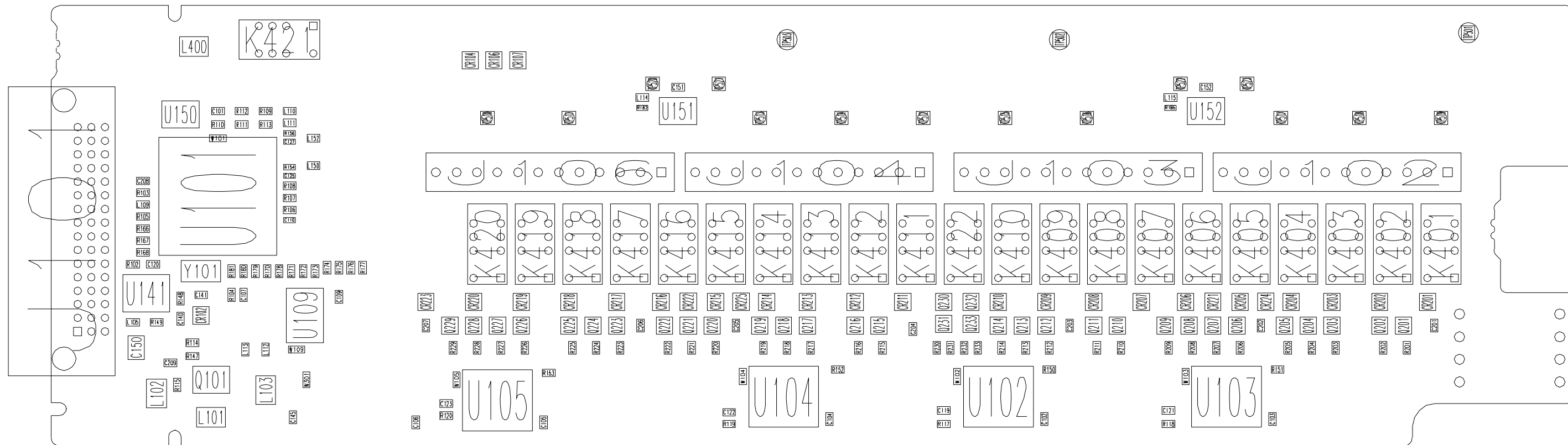
Upper 1/0

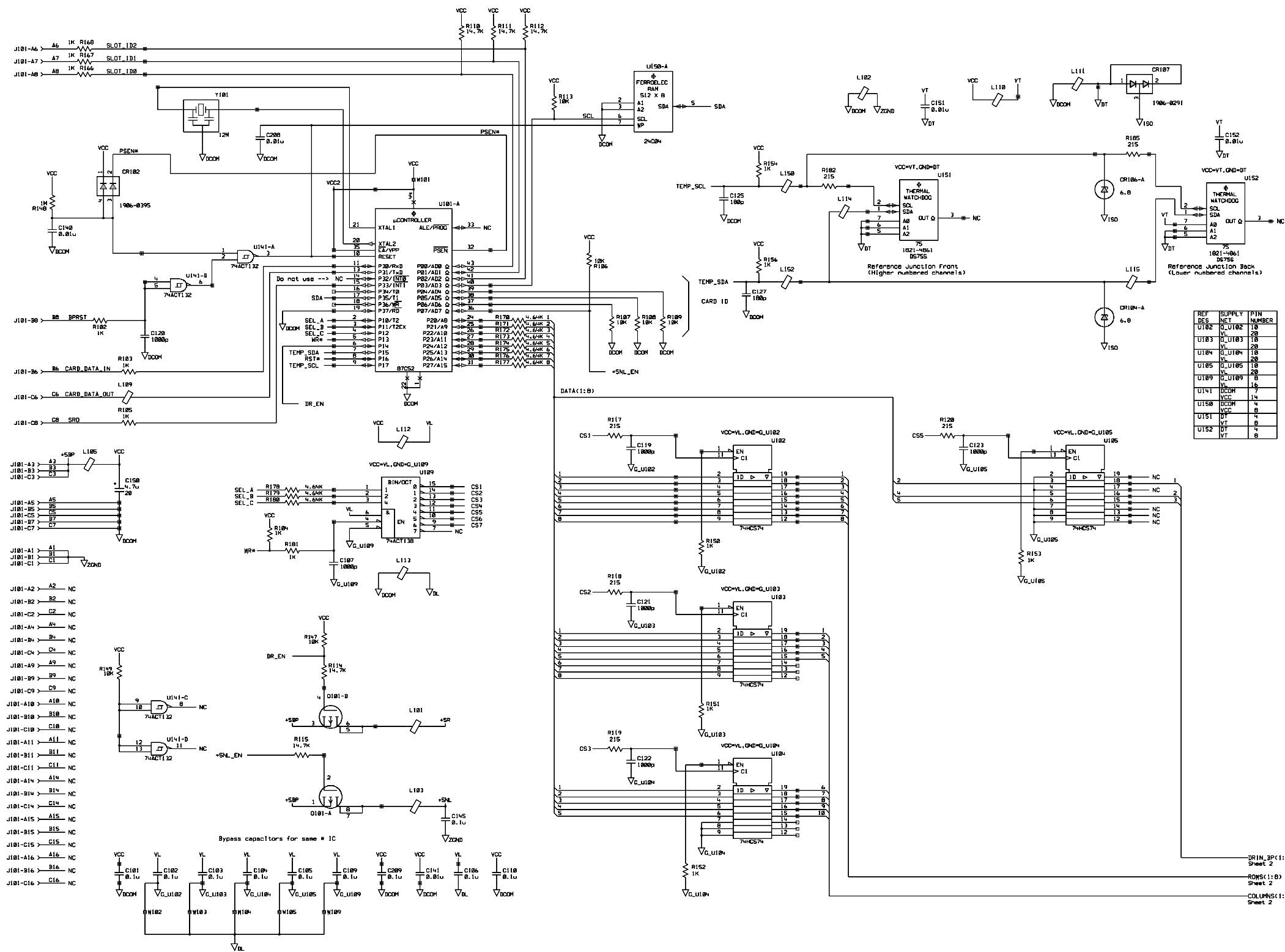




REF DES	SUPPLY NET	PIN NUMBER
US02	GND_S-5	6
	VCC	8
US03	-5V	1
	AGND1	12
	DCOM2	2
	VCC	3
	VCC	16
US04	-5V	1
	AGND2	12
	DCOM2	2
	VCC	3
	VCC	16
US10	DCOM2	7
	GND_S	6

DCOM2 To DAC circuitry
 GND_S To +15V DC to DC Converter
 GND_S-5 To -5V DC to DC Converter

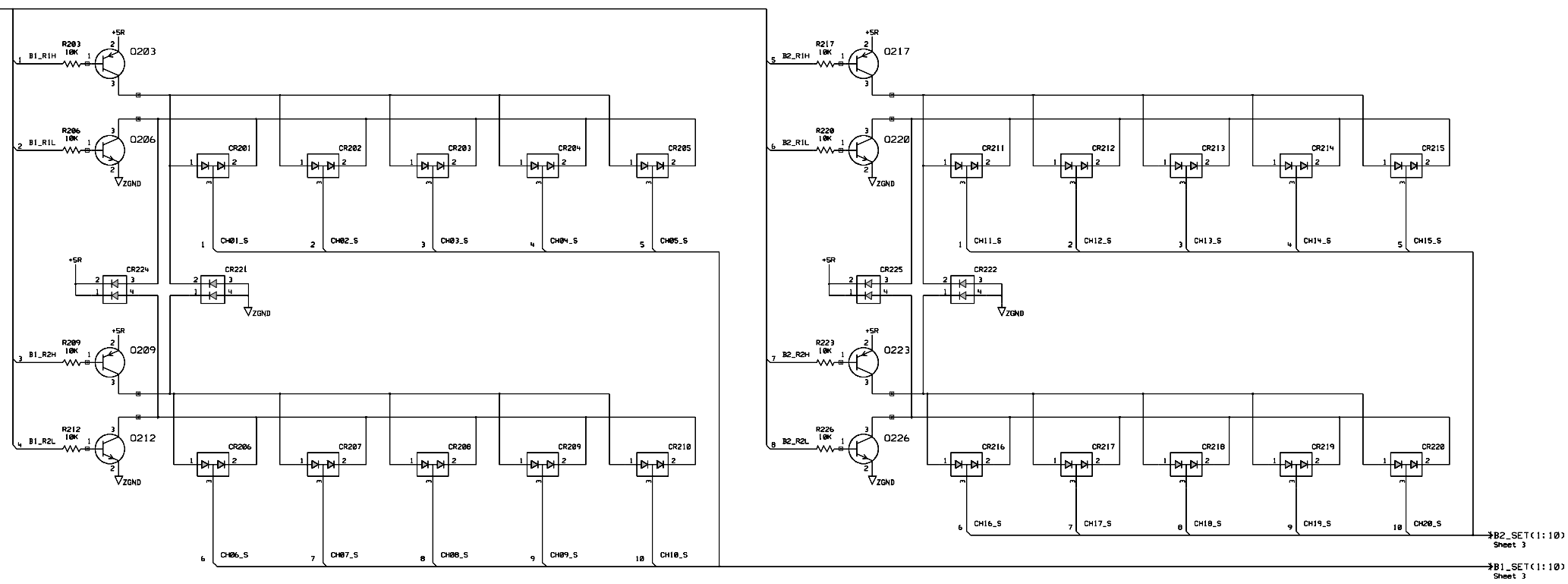




REF DES	SUPPLY NET	PTIN NUMBER
U102	G_U102	10
U103	G_U103	10
U104	G_U104	20
U105	G_U105	10
U109	G_U109	8
U141	VCC	14
U150	VCC	4
U151	VCC	8
U152	VCC	4

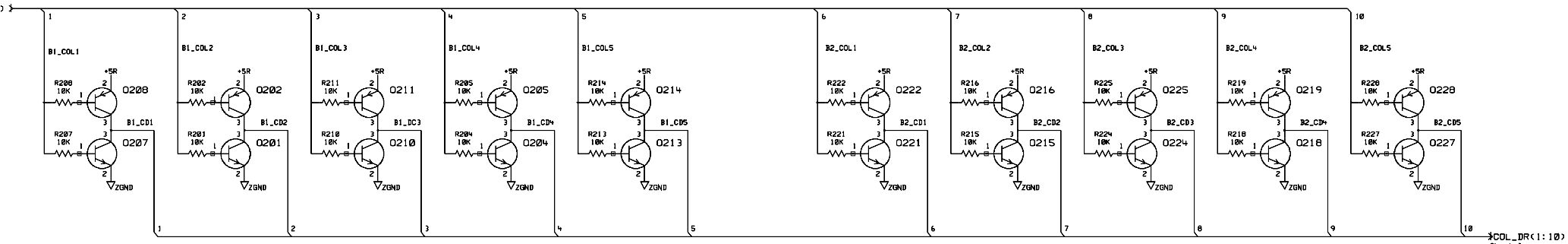
DRIN_BP(1:3)
Sheet 2
RONS(1:8)
Sheet 2
COLUMNS(1:10)
Sheet 2

ROWS(1:8)
Sheet 1



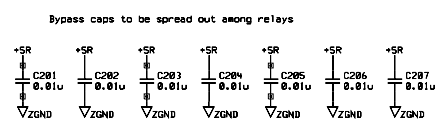
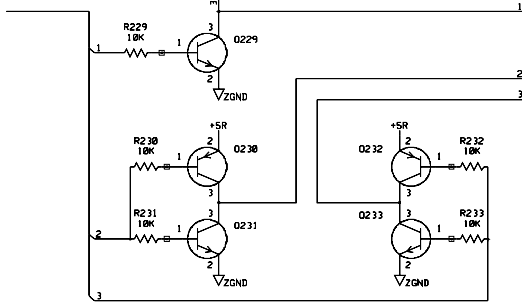
B2_SET(1:10)
Sheet 3
B1_SET(1:10)
Sheet 3

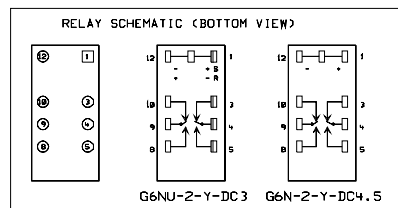
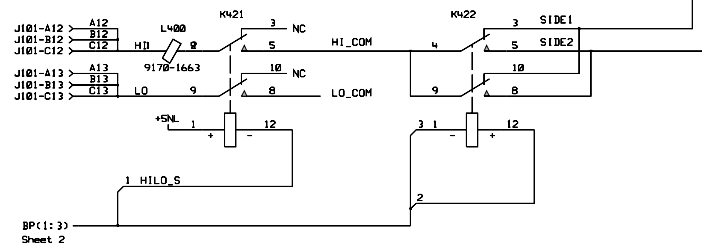
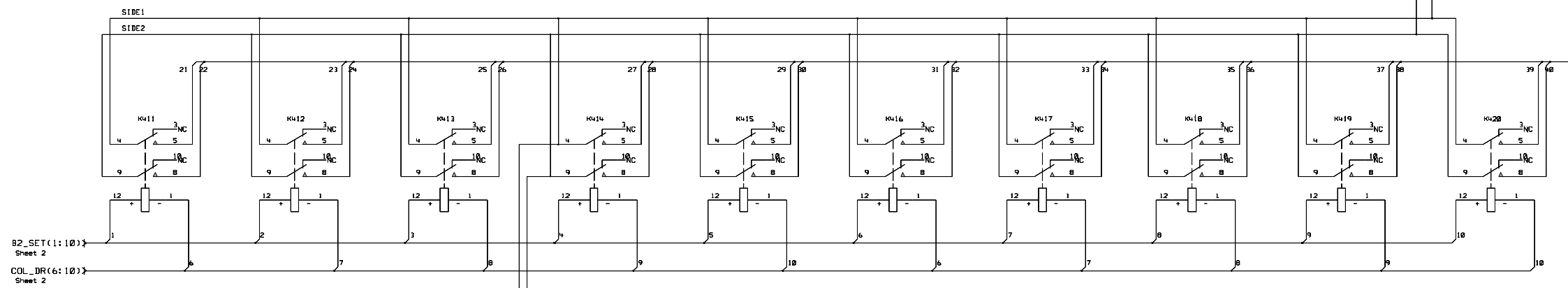
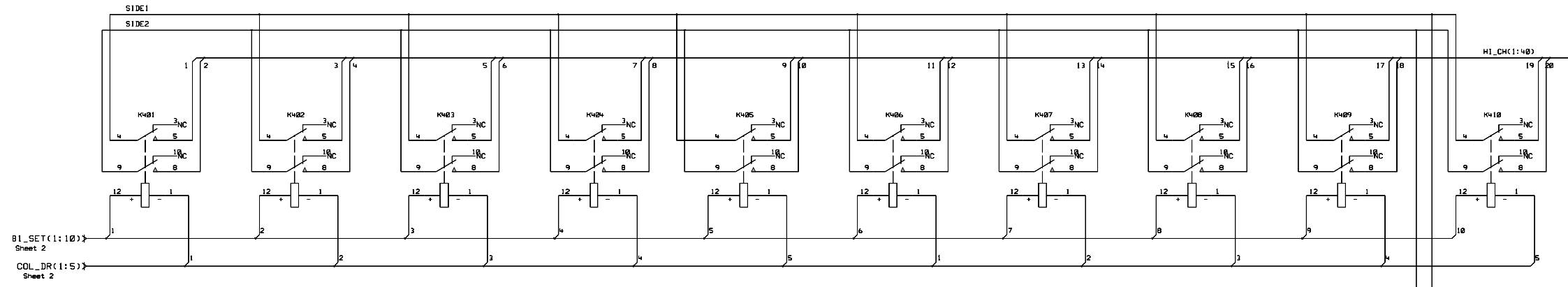
COLUMNS(1:10)
Sheet 1



COL_DR(1:10)
Sheet 3
BP(1:3)
Sheet 3

DRIN_BP(1:3)
Sheet 1





1 CH01 1 <J102-1	11 CH06 1 <J103-1	21 CH11 1 <J104-1	31 CH16 1 <J106-1
2 CH21 2 <J102-2	12 CH26 2 <J103-2	22 CH31 2 <J104-2	32 CH36 2 <J106-2
3 CH02 3 <J102-3	13 CH07 3 <J103-3	23 CH12 3 <J104-3	33 CH17 3 <J106-3
4 CH22 4 <J102-4	14 CH27 4 <J103-4	24 CH32 4 <J104-4	34 CH37 4 <J106-4
5 CH03 5 <J102-5	15 CH08 5 <J103-5	25 CH13 5 <J104-5	35 CH18 5 <J106-5
6 CH23 6 <J102-6	16 CH28 6 <J103-6	26 CH33 6 <J104-6	36 CH38 6 <J106-6
7 CH04 7 <J102-7	17 CH09 7 <J103-7	27 CH14 7 <J104-7	37 CH19 7 <J106-7
8 CH24 8 <J102-8	18 CH29 8 <J103-8	28 CH34 8 <J104-8	38 CH39 8 <J106-8
9 CH05 9 <J102-9	19 CH10 9 <J103-9	29 CH15 9 <J104-9	39 CH20 9 <J106-9
10 CH25 10 <J102-10	20 CH30 10 <J103-10	30 CH35 10 <J104-10	40 CH40 10 <J106-10
LO_COM 11 <J102-11	LO_COM 11 <J103-11	LO_COM 11 <J104-11	HI_COM 11 <J106-11
LO_COM 12 <J102-12	LO_COM 12 <J103-12	LO_COM 12 <J104-12	LO_COM 12 <J106-12

