

Service Manual

Model: CONTROL60

30+30 Band Digital Equalizer



www.altoproaudio.com

Version: 1.1

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Parametric Filters

Gain	- /+15dB step 0.5dB
Freq	20Hz - 20KHz step 1/12 oct
Bandwidth	0.05oct - 3oct step 0.05oct

Band Pass Filters

High pass Butterworth	
Freq	20Hz - 20KHz step 1/12 oct
Slope	Bypass, 1 st ord(- 6dB/oct),2 nd ord(- 12dB/oct)
Low pass Butterworth	
Freq	20Hz - 20KHz Step 1/12 oct
Slope	Bypass, 1 st ord(- 6dB/oct),2 nd ord(- 12dB/oct)

AUX Section

Delay line	Up to 512 ms min step 21us
Digital input gain	- /+12dB step 0.5dB
Digital output volume	- /+12dB step 0.5dB

Analog Input Section

Inputs	2 XLR - F electronically balanced
Input Impedance	>40 Kohms
Max. Input Level	+12dBv

Analog Output Section

Outputs	2 XLR - M electronically balanced
Output Impedance	<200 Ohms
Max. Output Level	+12dBv

Digital/Analog Interface

Amplitude Response	20Hz - 20KHz
Signal to Noise Ratio	>99 dB
THD+N	0.01%@ 1KHz - 3 dBFS
Sampling Frequency	46.875 KHz
Conversion	Input 20 bits Sigma-Delta
Conversion	Output 24 bits Sigma-Delta

Memory

Factory preset	36 (6 for each EQ type)
User preset	63

MIDI Section

Connections	Input/output/thru
Sockets	5 - poles DIN(female)
mode	Photocoupled

Power Supply

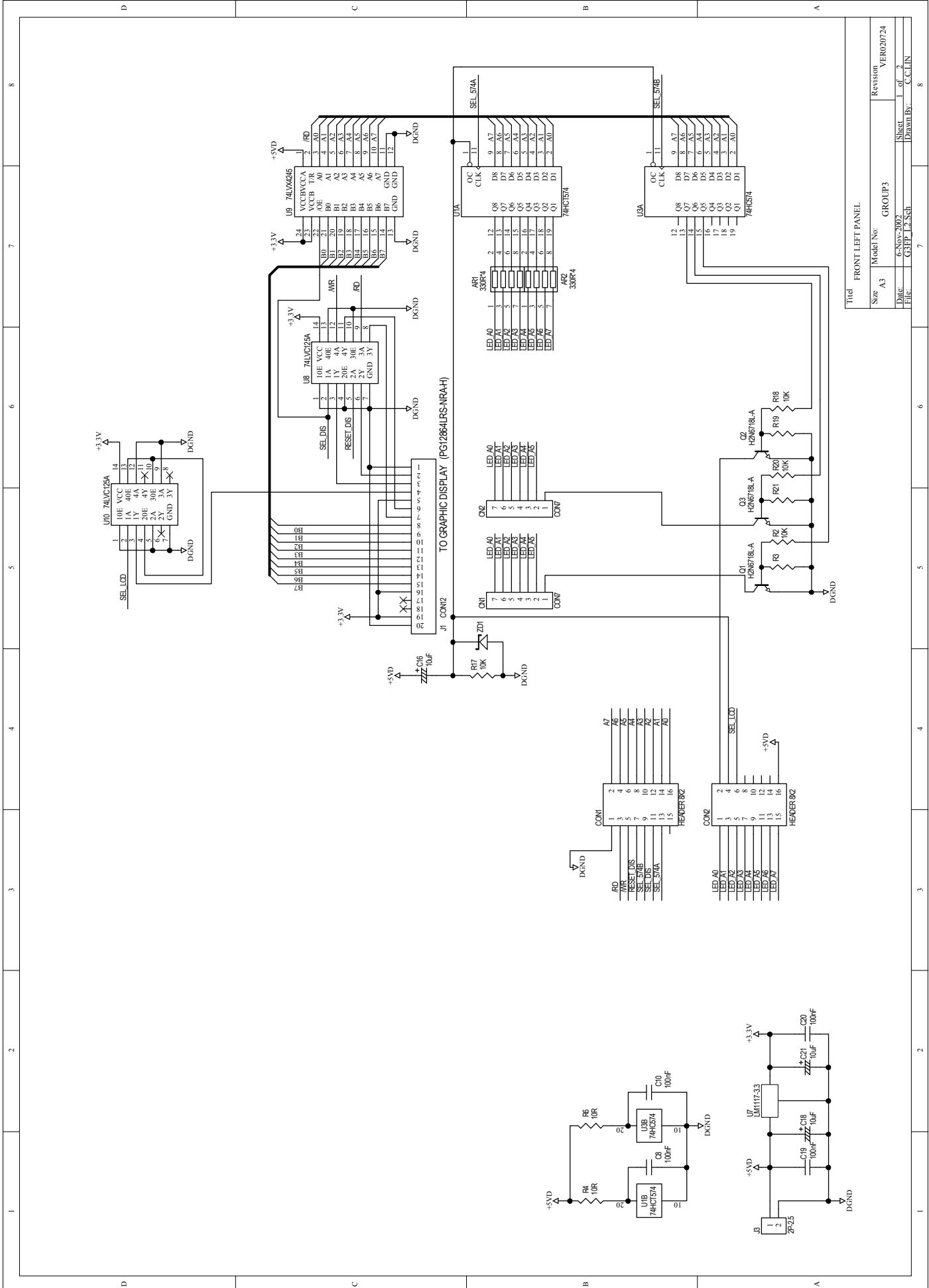
Connector type	3 - pole IEC, grounded
Type	Servo controlled , switching
fuse	210 - 240V: T250mAL250VAC
	95 - 120V: 500mAL250VAC
AC Input	95 - 240V~60 - 50Hz
Rated power consumption	15W

User Interface

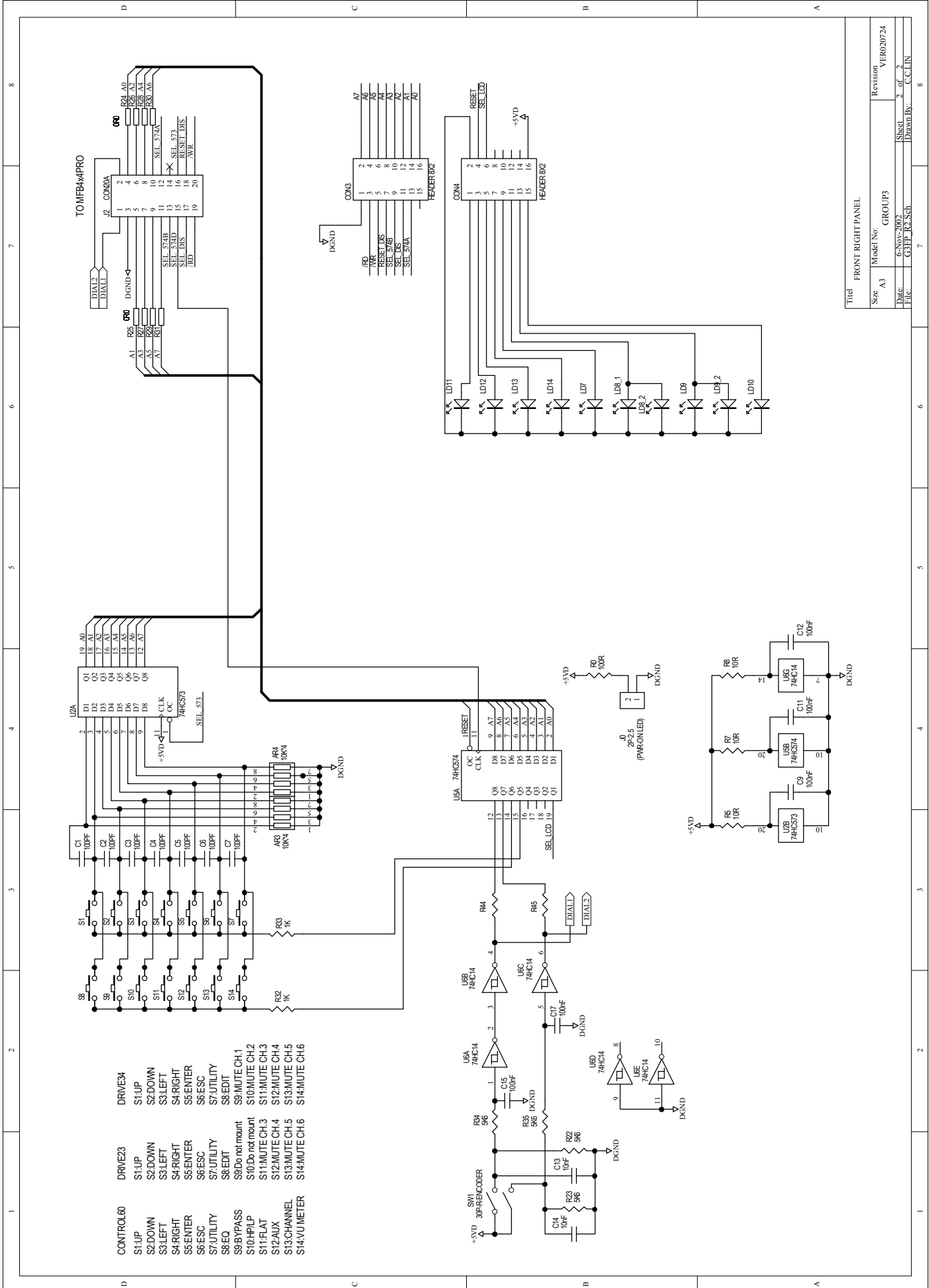
Graphic Display	128X 64 dot
Keyboard	14 user keys/8 LEDs
Vu - meter	2X6 LEDs

Physical

Size	Standard 19"rack mounting
Dimensions	483(W)X232.5(D)X44(H)mm(19"X9.3"X1.7")
weight	3.5Kg(7.72lb)

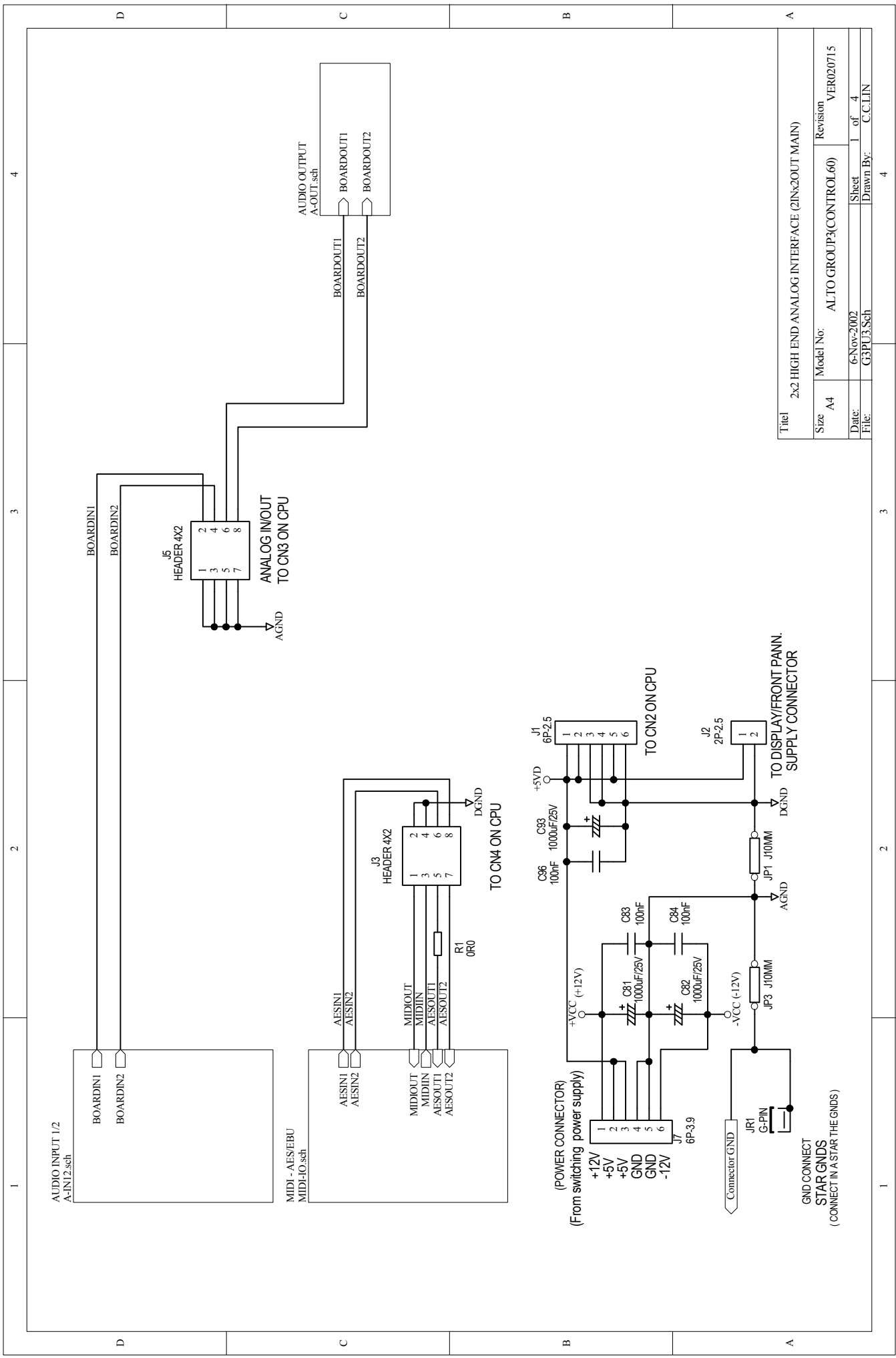


Title		FRONT LEFT PANEL	
Model No.	A3	GROUP	3
Date	6/Nov/2007	Sheet	1 of 2
File	CEIP_L2.Sch	Drawn By	C.C.LIN
Revision	VER020724	Sheet	1 of 2
		Drawn By	C.C.LIN



- | | | | | | |
|-----------|------------------|---------|---------------|---------|---------------|
| CONTROL60 | S1:UP | DRIVE23 | S1:UP | DRIVE34 | S1:UP |
| | S2:DOWN | | S2:DOWN | | S2:DOWN |
| | S3:LEFT | | S3:LEFT | | S3:LEFT |
| | S4:RIGHT | | S4:RIGHT | | S4:RIGHT |
| | S5:ENTER | | S5:ENTER | | S5:ENTER |
| | S6:ESC | | S6:ESC | | S6:ESC |
| | S7:UTILITY | | S7:UTILITY | | S7:UTILITY |
| | S8:EDIT | | S8:EDIT | | S8:EDIT |
| | S9:Do not mount | | S9:MUTE CH.1 | | S9:MUTE CH.1 |
| | S10:Do not mount | | S10:MUTE CH.2 | | S10:MUTE CH.2 |
| | S11:FLAT | | S11:MUTE CH.3 | | S11:MUTE CH.3 |
| | S12:AUX | | S12:MUTE CH.4 | | S12:MUTE CH.4 |
| | S13:CHANNEL | | S13:MUTE CH.5 | | S13:MUTE CH.5 |
| | S14:VU METER | | S14:MUTE CH.6 | | S14:MUTE CH.6 |

Title		FRONT RIGHT PANEL	
Size	A3	Model No.	GROUP3
Date	6/15/2002	Revision	VER020724
File	CEP-RA-Sub	Sheet	2 of 2
		Drawn By	C.C.LIN



Title		2x2 HIGH END ANALOG INTERFACE (2INx2OUT MAIN)	
Size	A4	Model No:	AL TO GROUP3(CONTROL60)
Date:	6-Nov-2002	Revision	VER020715
File:	G3PU3.Sch	Sheet	1 of 4
		Drawn By:	C.CLIN

4

3

2

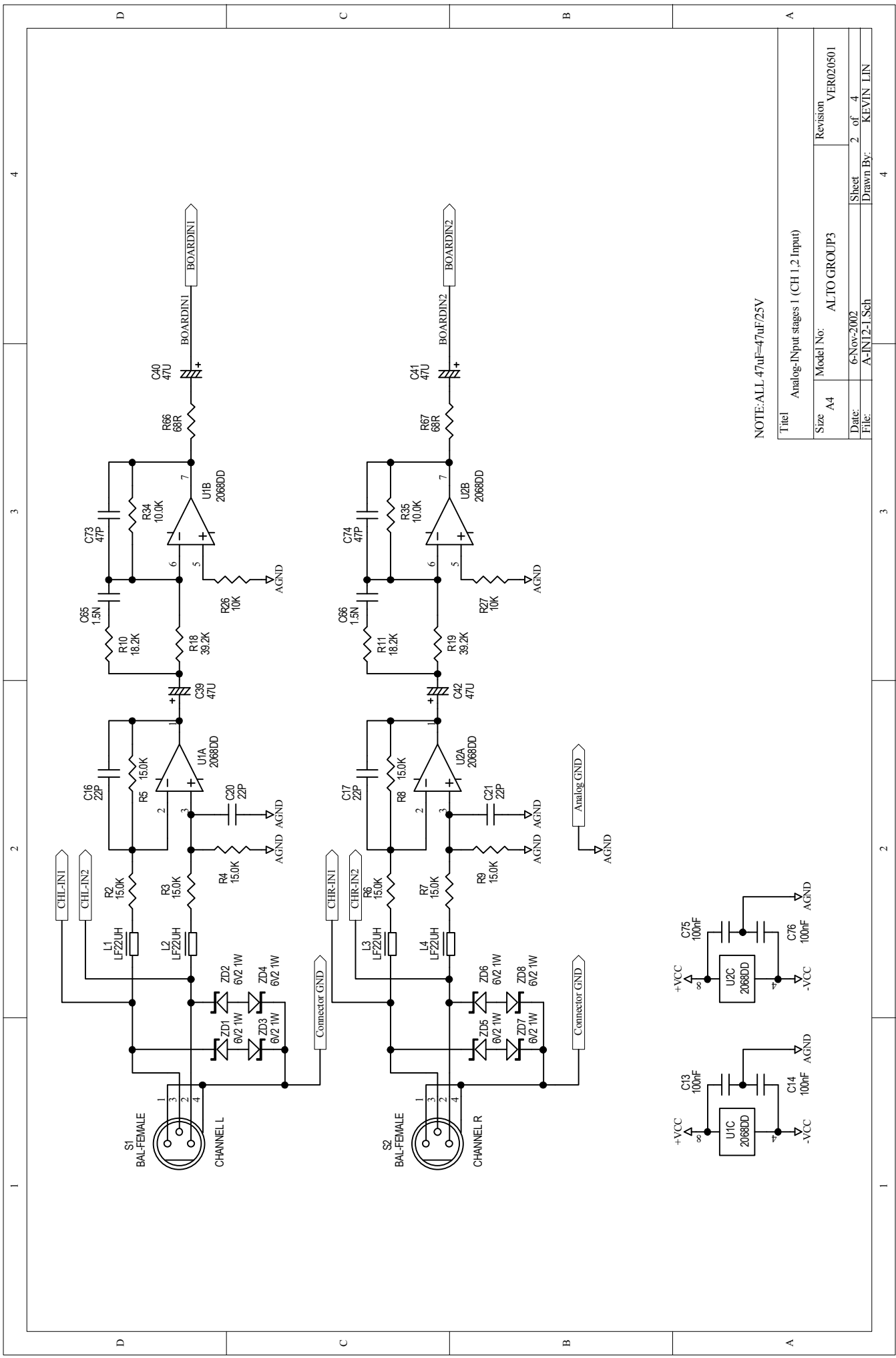
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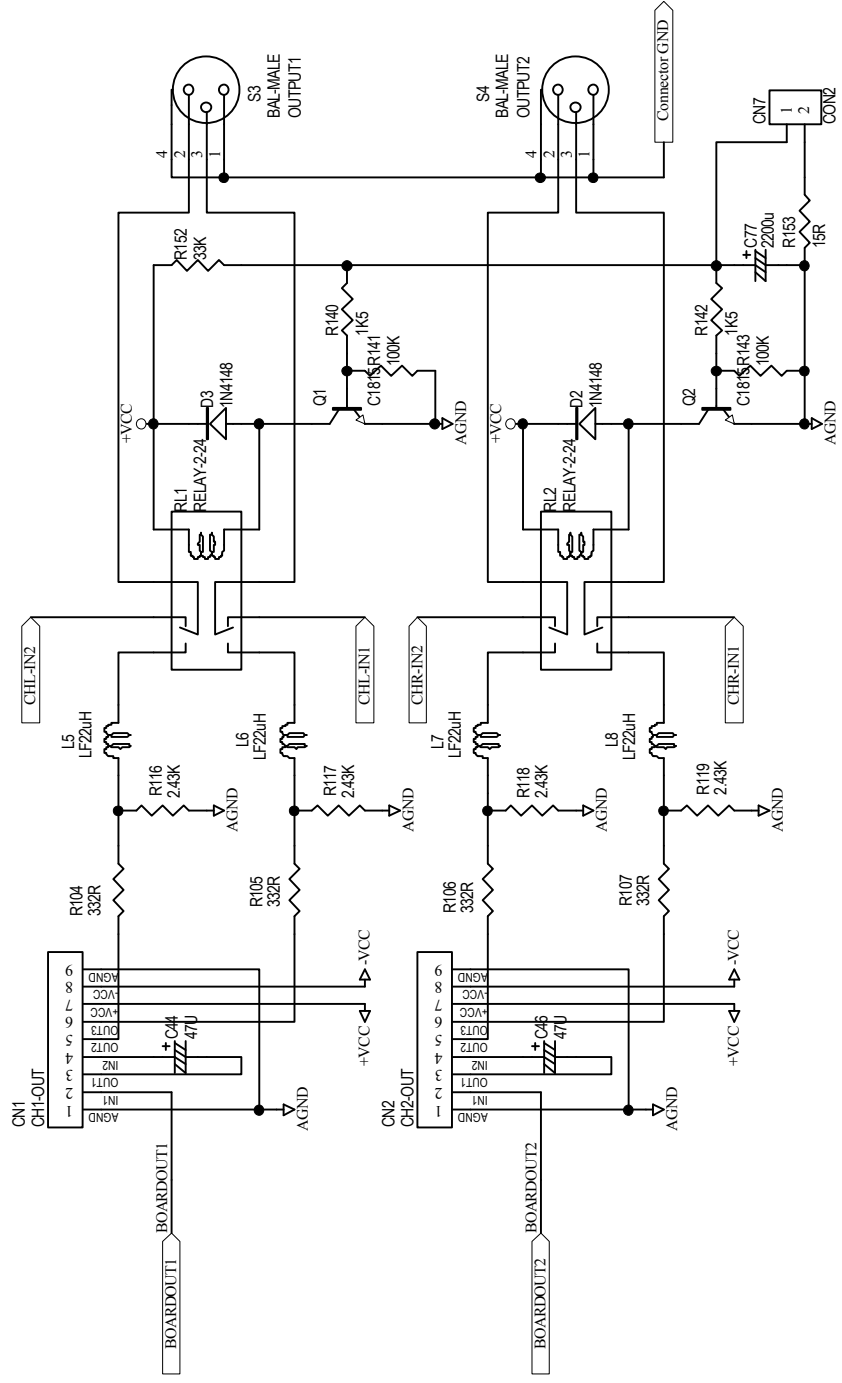
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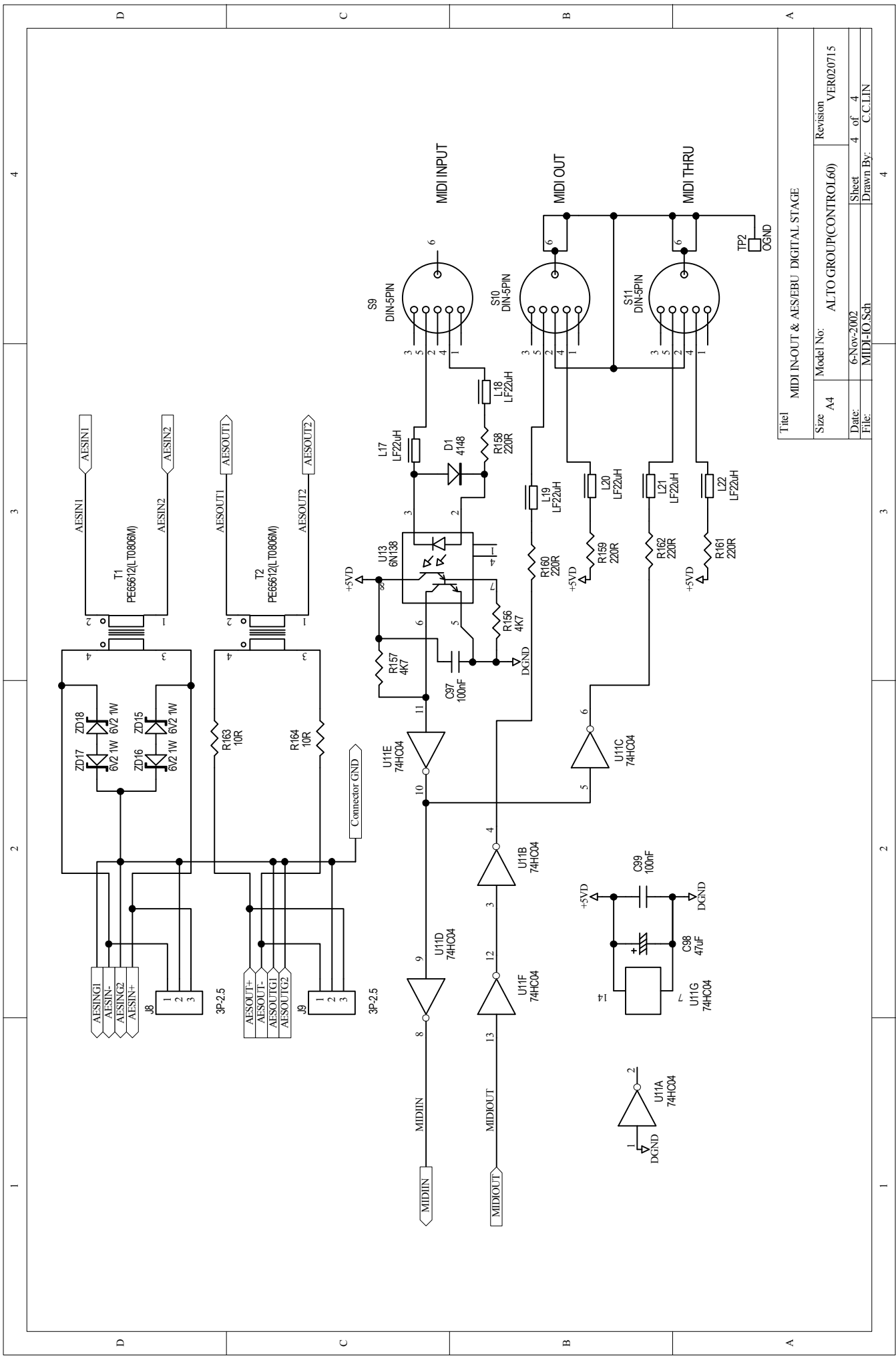


NOTE: ALL 47uF=47uF/25V

Title		Analog-Input stages 1 (CH 1,2 Input)	
Size	A4	Model No:	ALTO GROUP3
Date:	6-Nov-2002	Revision	VER020501
File:	A-IN12-1.Sch	Sheet	2 of 4
		Drawn By:	KEVIN LIN



Title		Analog-Output	
Size	A4	Model No:	ALTO GROUP3(CONTROL60)
Date:	6-Nov-2002	Revision	VER020715
File:	A-OUT1.Sch	Sheet	3 of 4
		Drawn By:	C.C.LIN



Title: MIDI IN-OUT & AES/EBU DIGITAL STAGE

Size	A4	Model No:	ALTO GROUP(CONTROL60)	Revision	VER020715
Date:	6-Nov-2002	Sheet	4	of	4
File:	MIDI-I/O.Sch	Drawn By:	C.C.LIN		

1

2

3

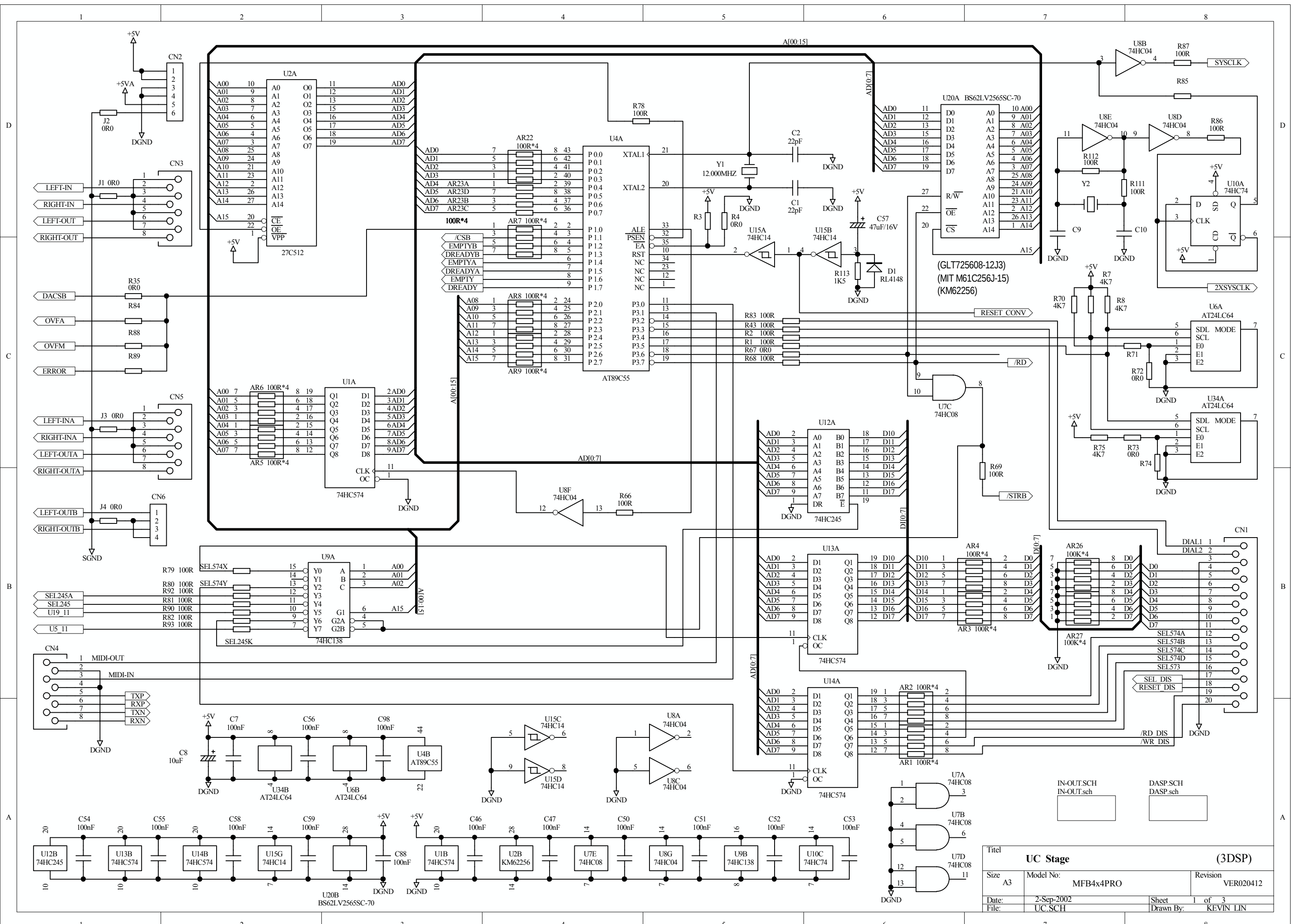
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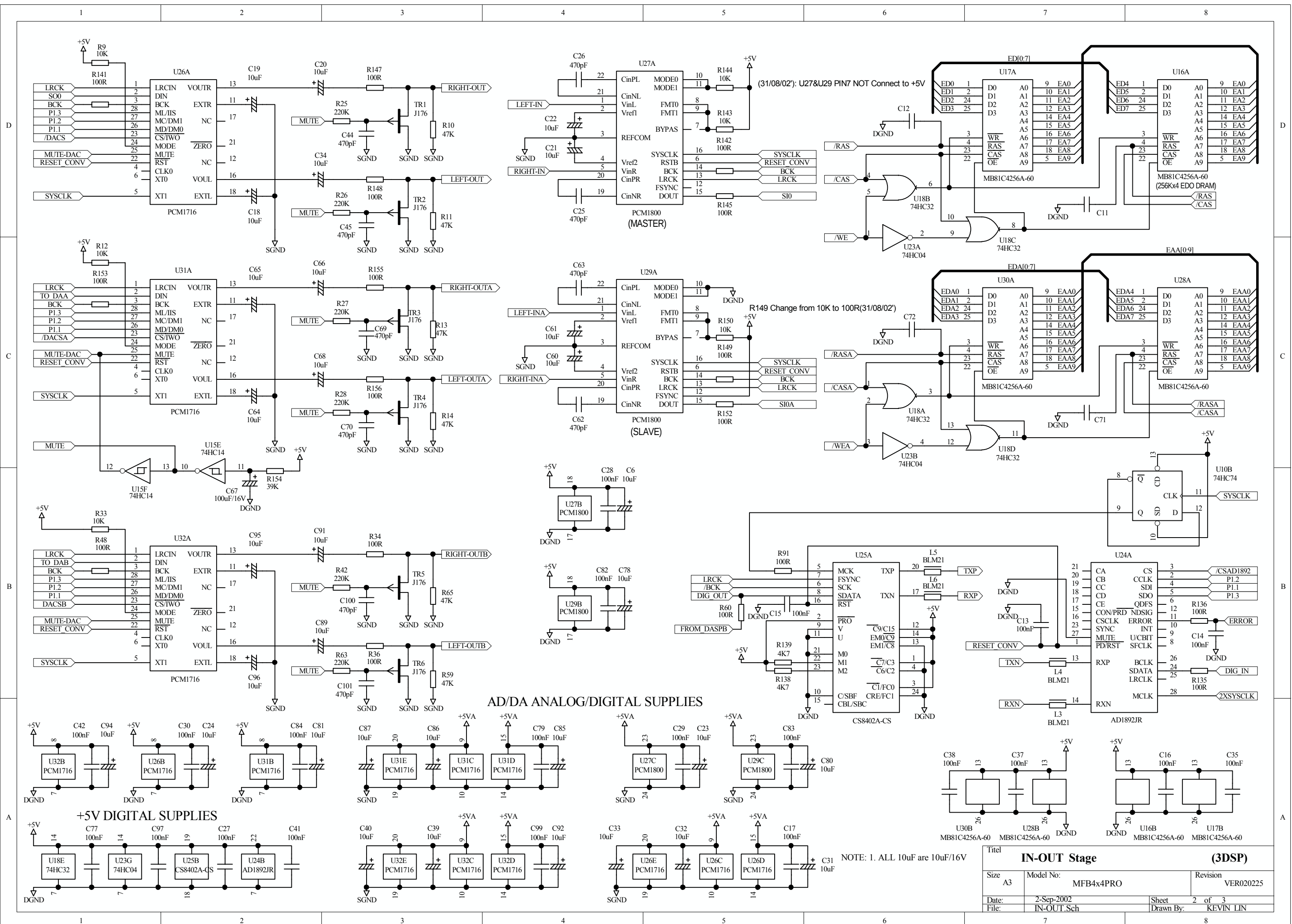
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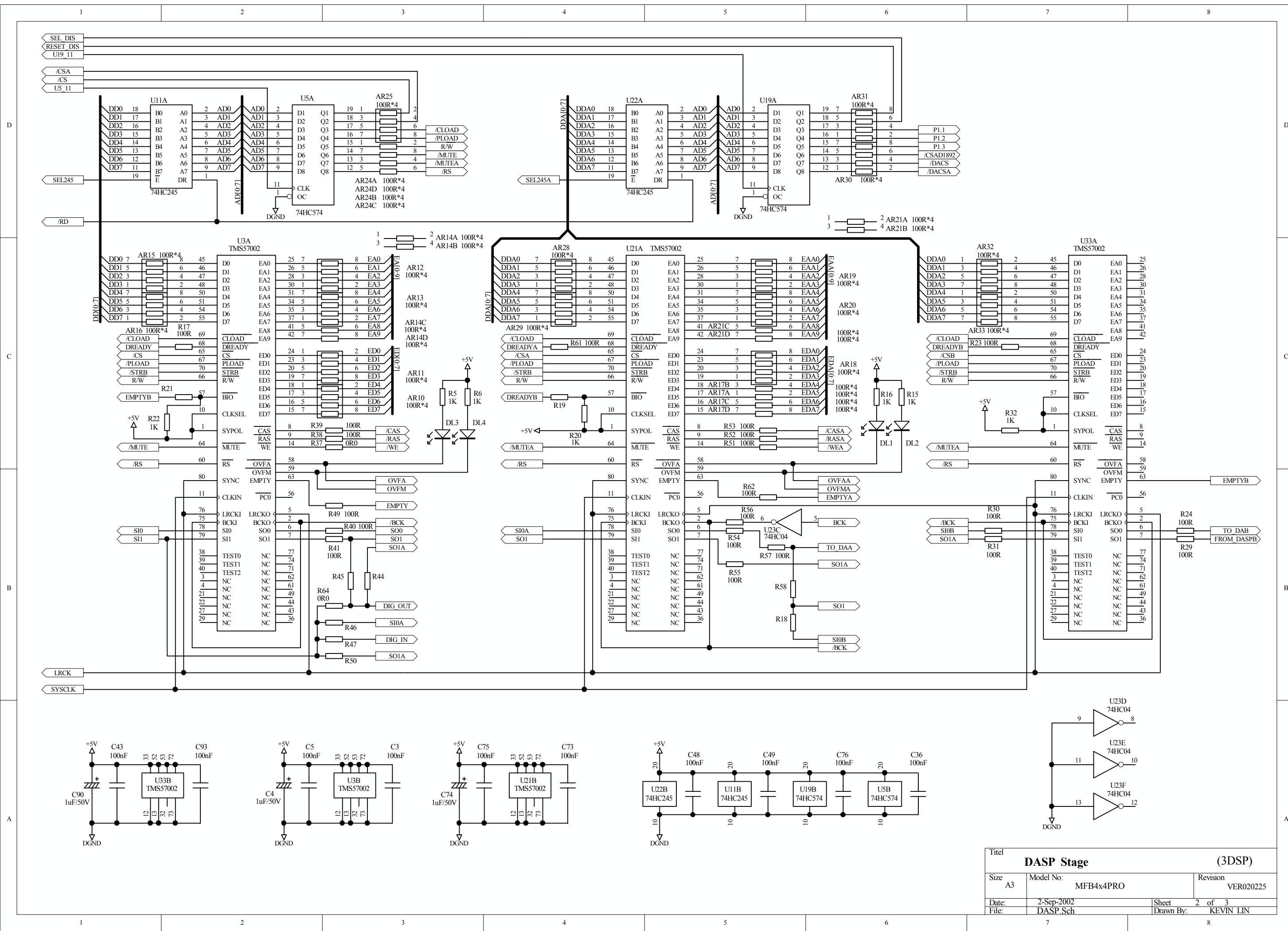
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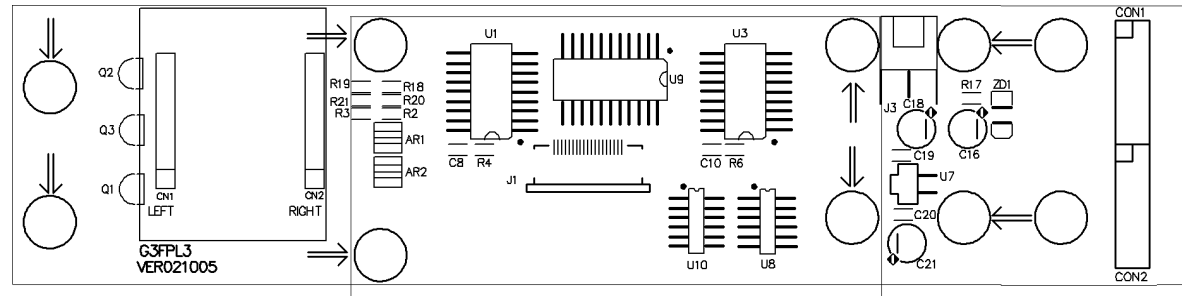
Titel		UC Stage		(3DSP)	
Size	A3	Model No:	MFB4x4PRO	Revision	VER020412
Date:	2-Sep-2002	Sheet	1 of 3		
File:	UC.SCH	Drawn By:	KEVIN LIN		



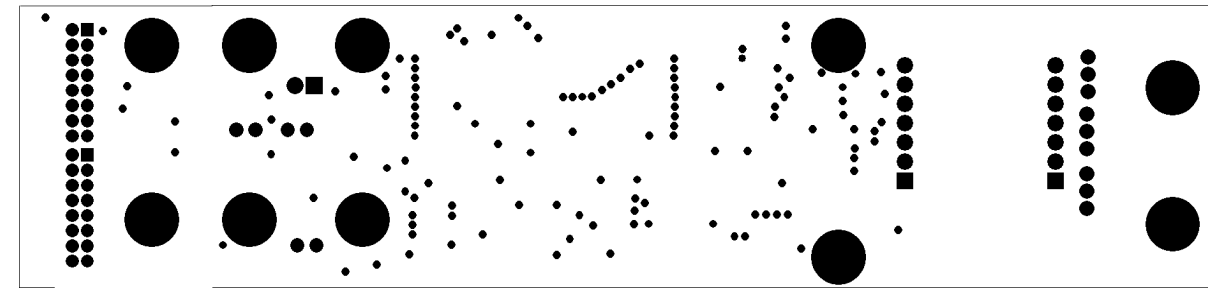
IN-OUT Stage		(3DSP)	
Size	A3	Model No:	MFB4x4PRO
Date:	2-Sep-2002	Revision	VER020225
File:	IN-OUT_Sch	Sheet	2 of 3
		Drawn By:	KEVIN LIN



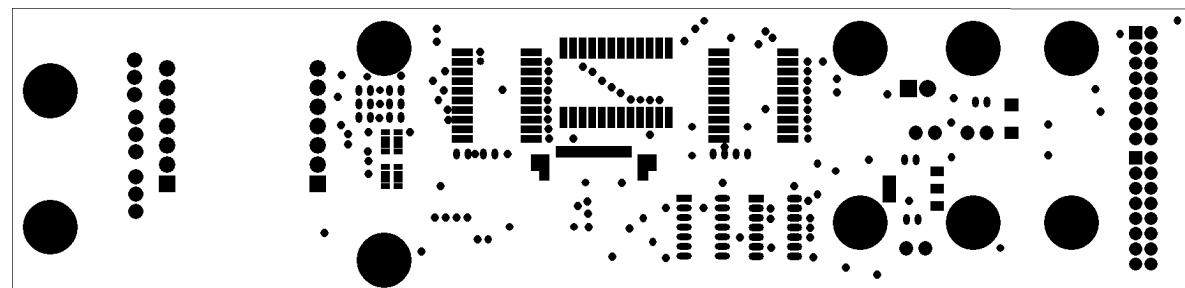
Titel		DASP Stage		(3DSP)	
Size	A3	Model No:	MFB4x4PRO	Revision	VER020225
Date:	2-Sep-2002	Sheet	2 of 3		
File:	DASP.Sch	Drawn By:	KEVIN LIN		



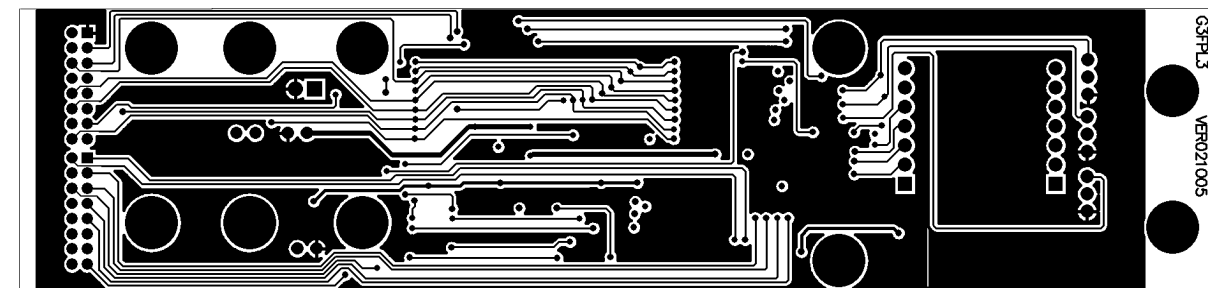
G3FPL3 Top Silkscreen



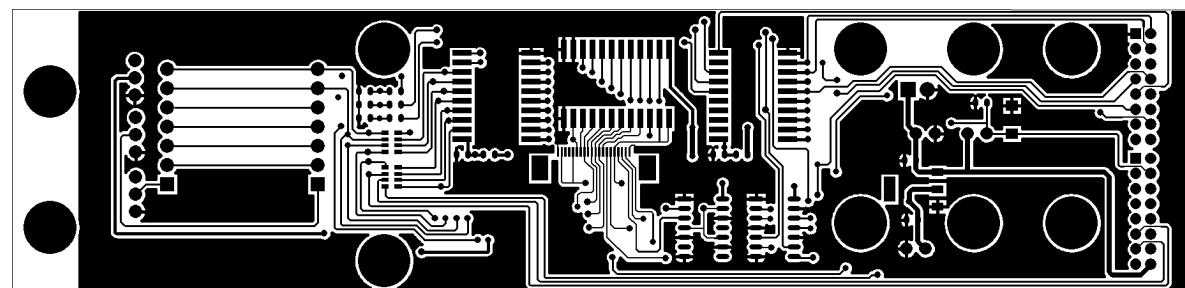
G3FPL3 Bottom Solder Mask



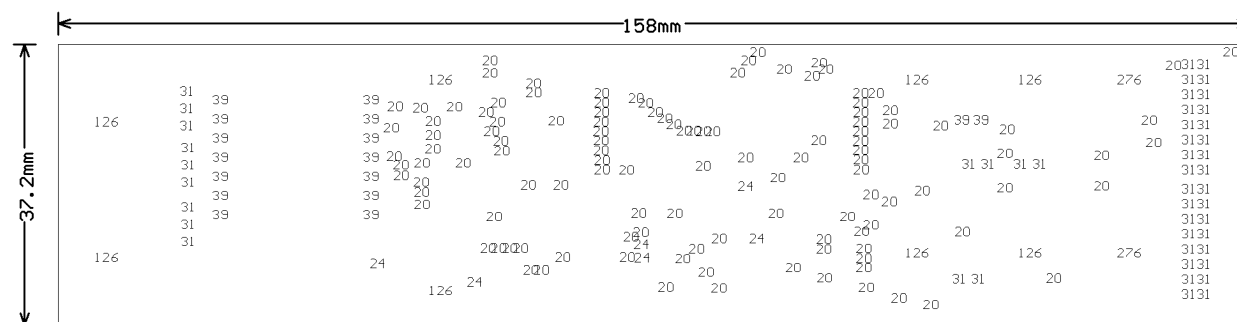
G3FPL3 Top Solder Mask



G3FPL3 Bottom Layer

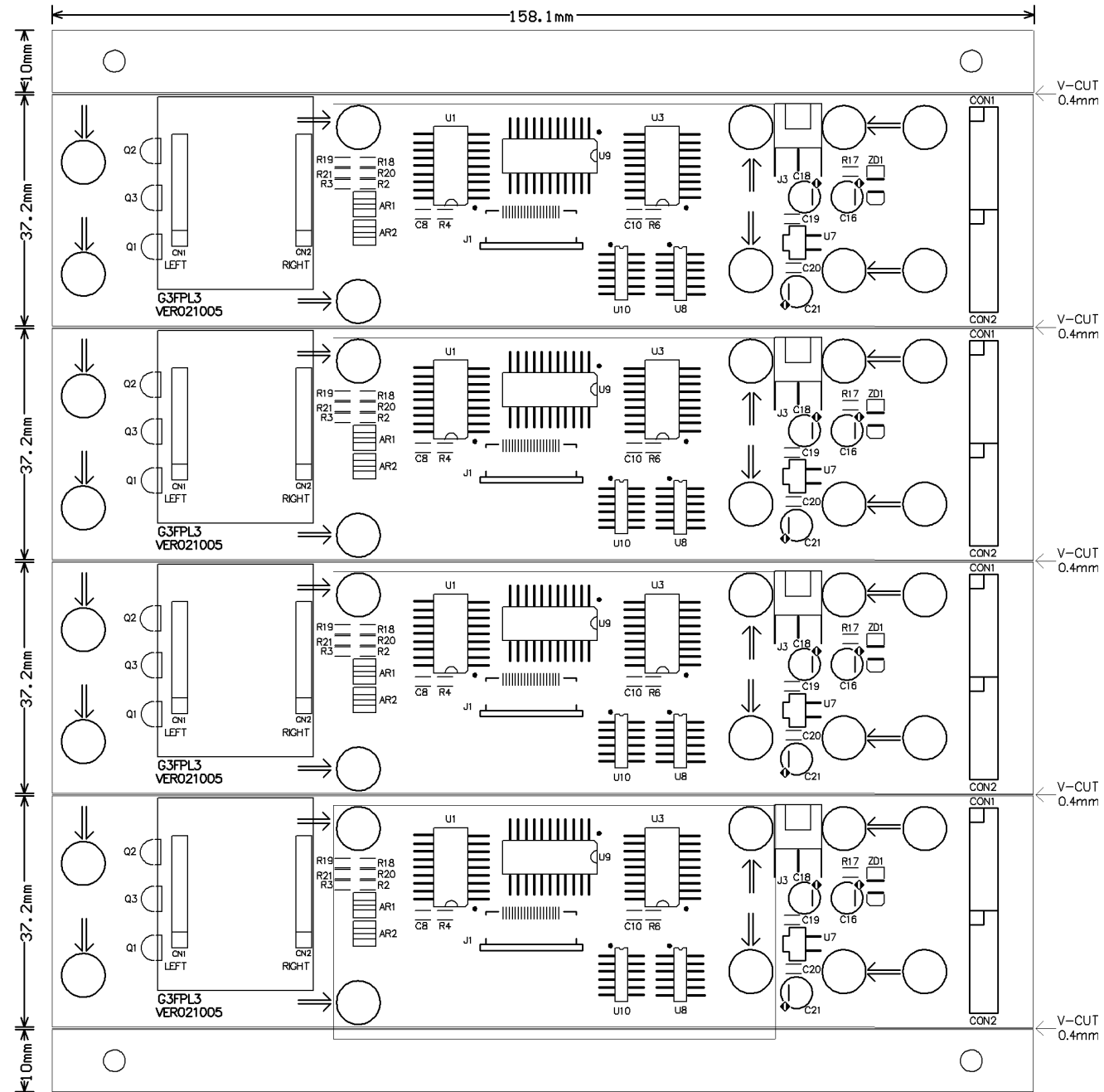


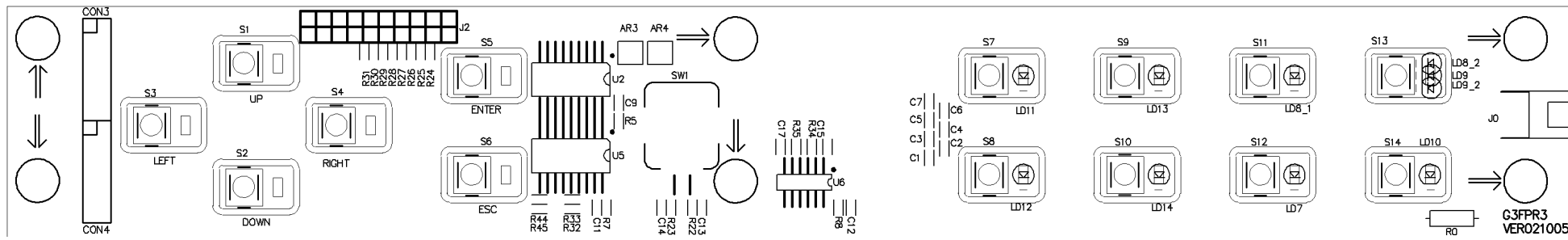
G3FPL3 Top Layer



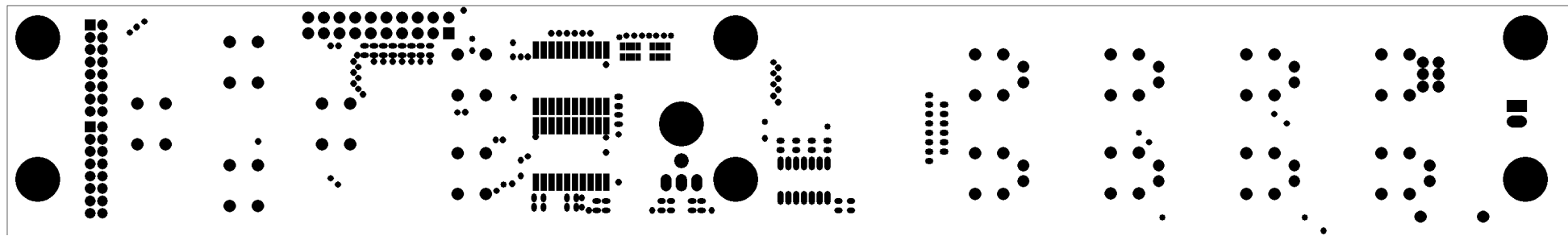
G3FPL3 Drill Drawing

Tool	Hole Size	Hole Count Plated	
T1	20mil (0.508mm)	119	
T2	24mil (0.6096mm)	7	
T3	31mil (0.7874mm)	47	
T4	39mil (0.9906mm)	16	
T5	126mil (3.2004mm)	8	NPTH
T6	276mil (7.0104mm)	2	NPTH
Totals		198	

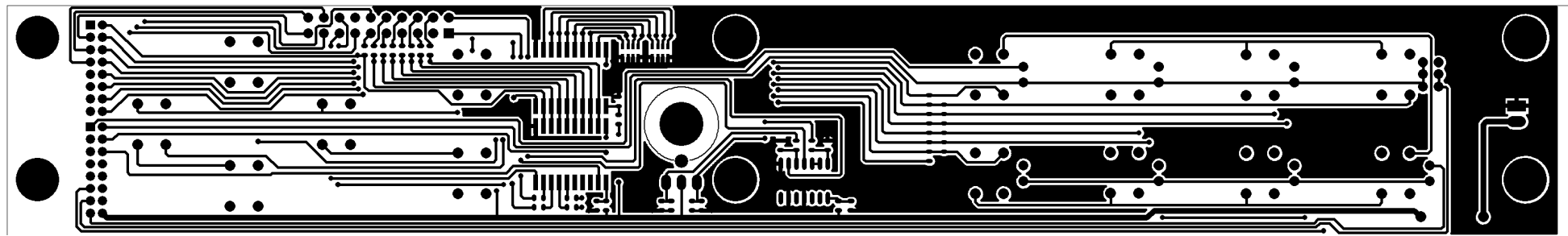




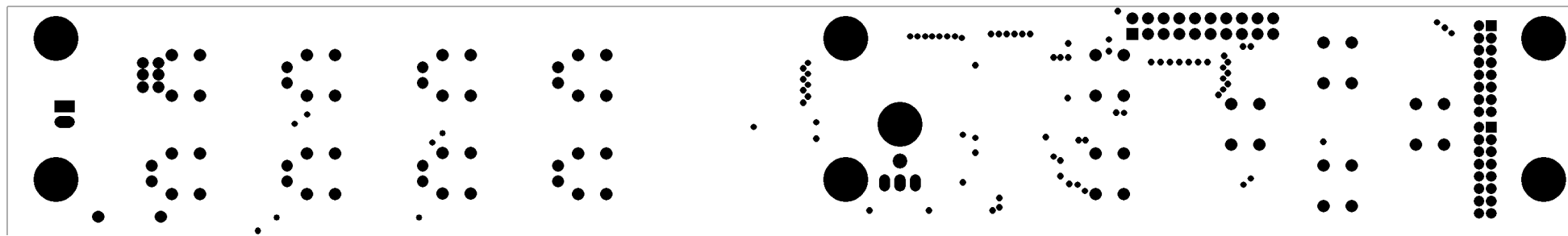
G3FPR3 Top Silkscreen



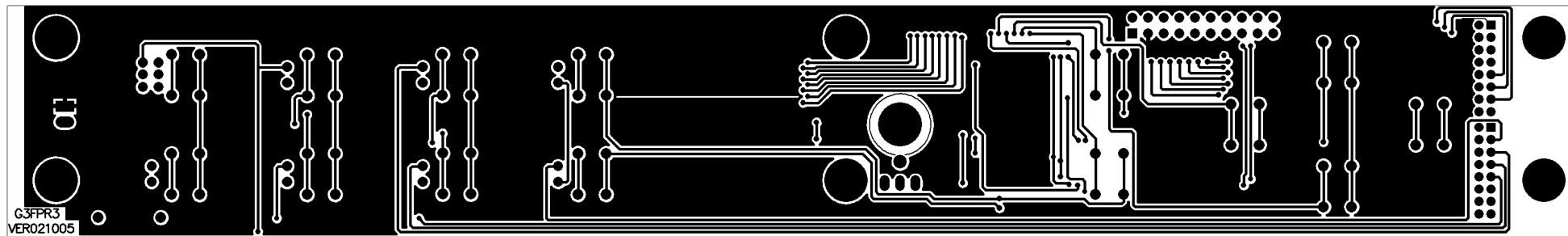
G3FPR3 Top Solder Mask



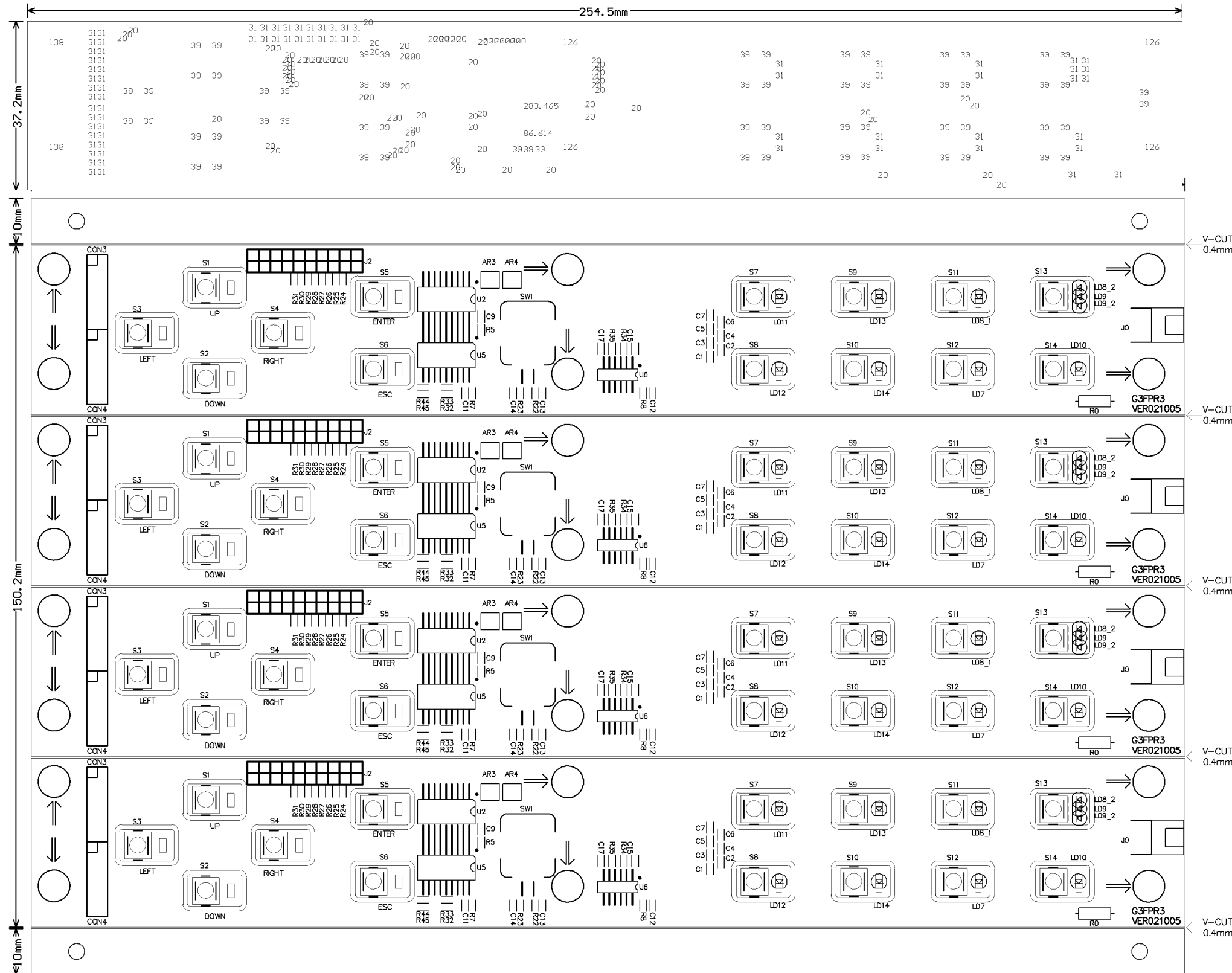
G3FPR3 Top Layer



G3FPR3 Bottom Solder Mask

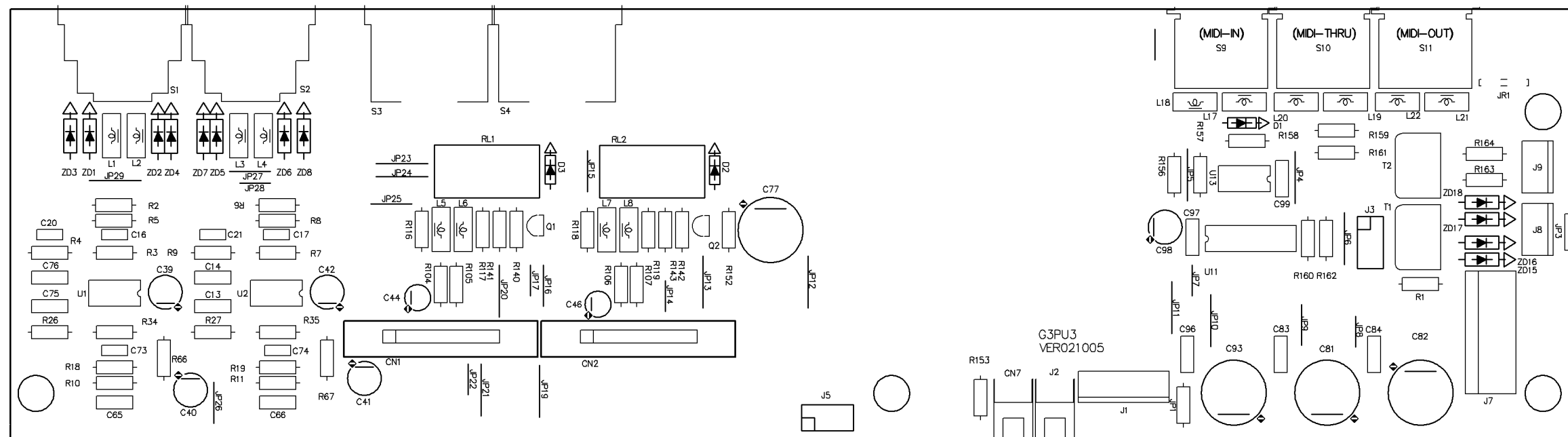


G3FPR3 Bottom Layer

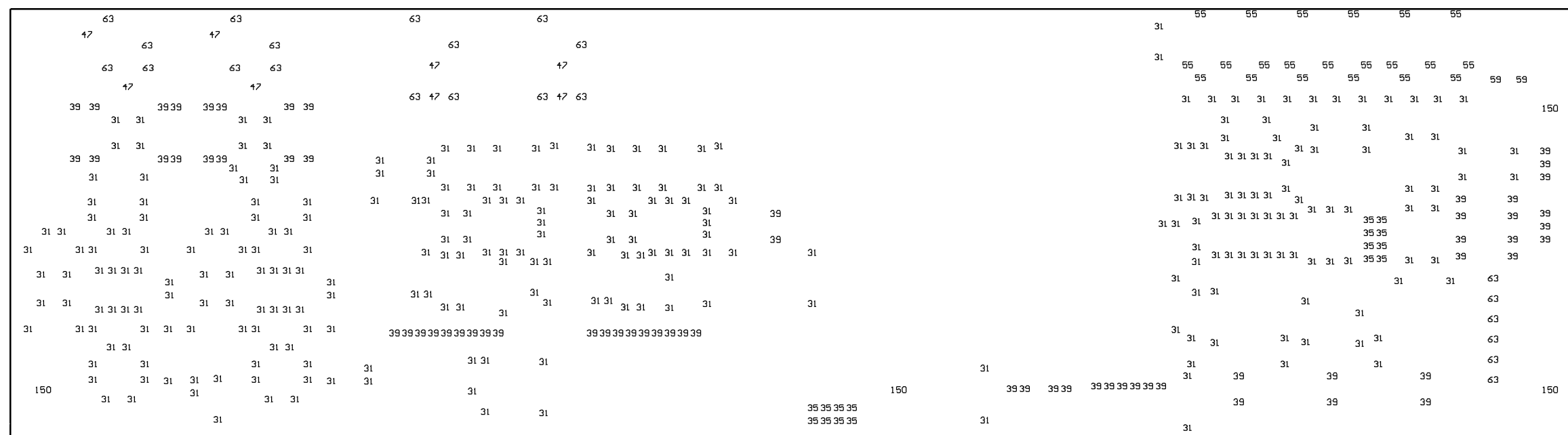


G3FPR3 Drill Drawing

Tool	Hole Size	Hole Count Plated	
T1	20mil (0.508mm)	84	
T2	31mil (0.7874mm)	74	
T3	39mil (0.9906mm)	61	
T4	87mil (2.2098mm)	1	
T5			
T6	280mil (7.112mm)	1	
T7			
T8	126mil (3.2004mm)	4	NPTH
T9	138mil (3.5052mm)	2	NPTH
Totals		227	



G3PU3 Top Silkscreen

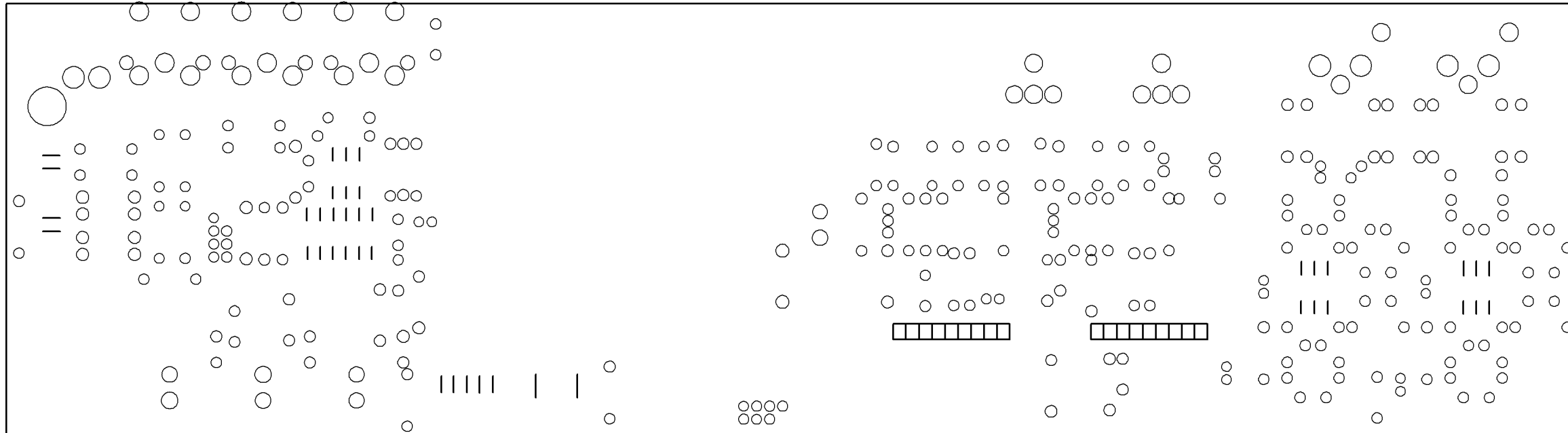


G3PU3 Drill Drawing

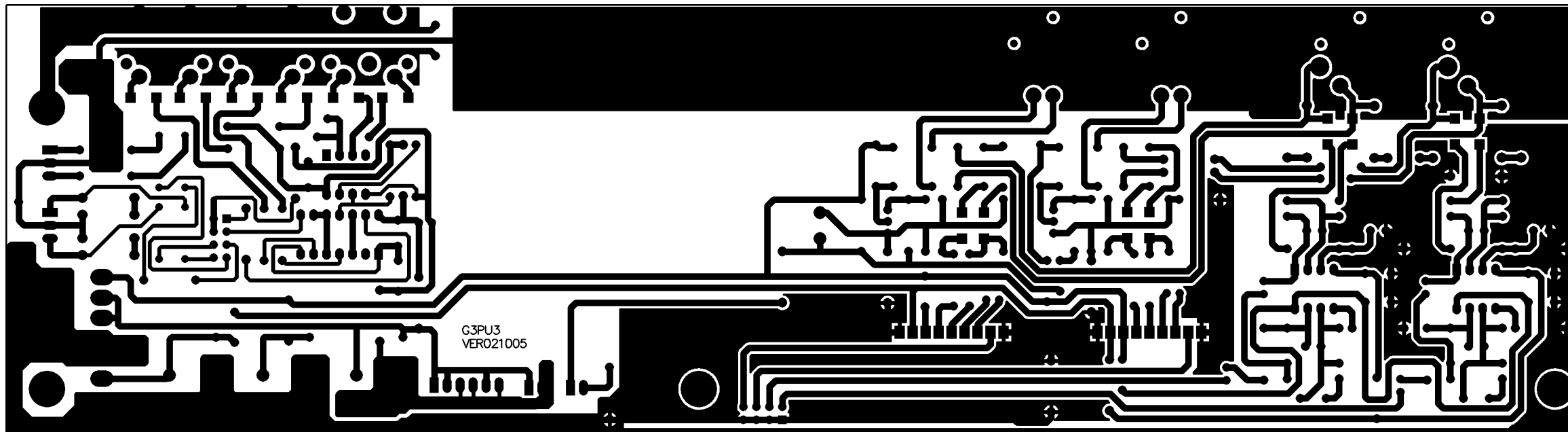
Tool	Hole Size	Hole Count Plated
T1	31mil (0.7874mm)	290
T2	35mil (0.889mm)	16
T3	39mil (0.9906mm)	66

T4	47mil (1.1938mm)	8
T5	55mil (1.397mm)	21
T6	59mil (1.4986mm)	2
T7	63mil (1.6002mm)	18

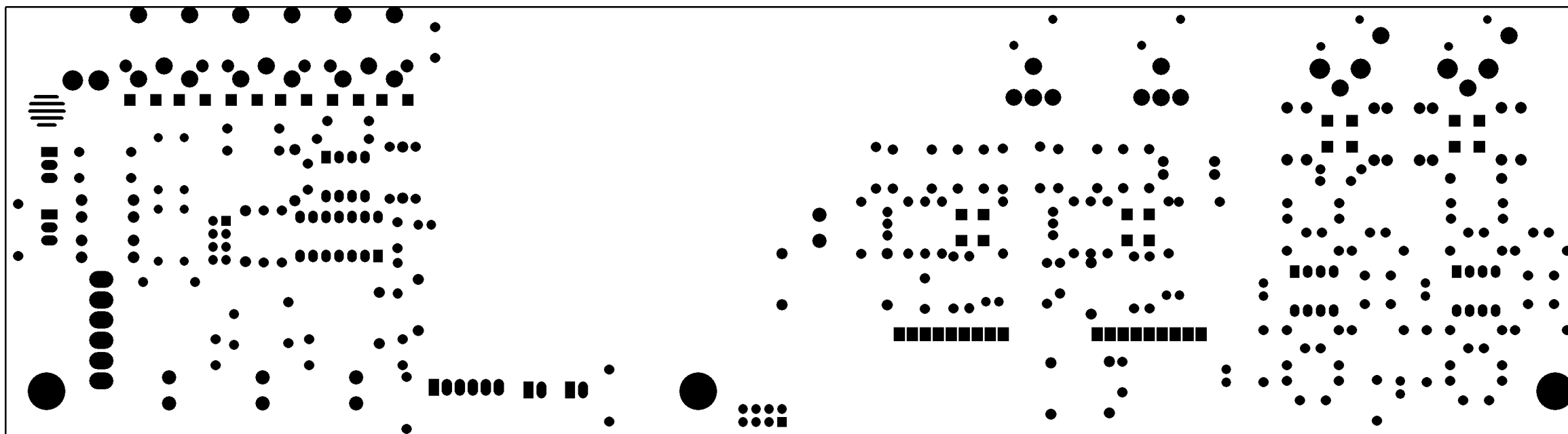
T8	150mil (3.81mm)	4	NPTH
T9	63mil (1.6002mm)	4	



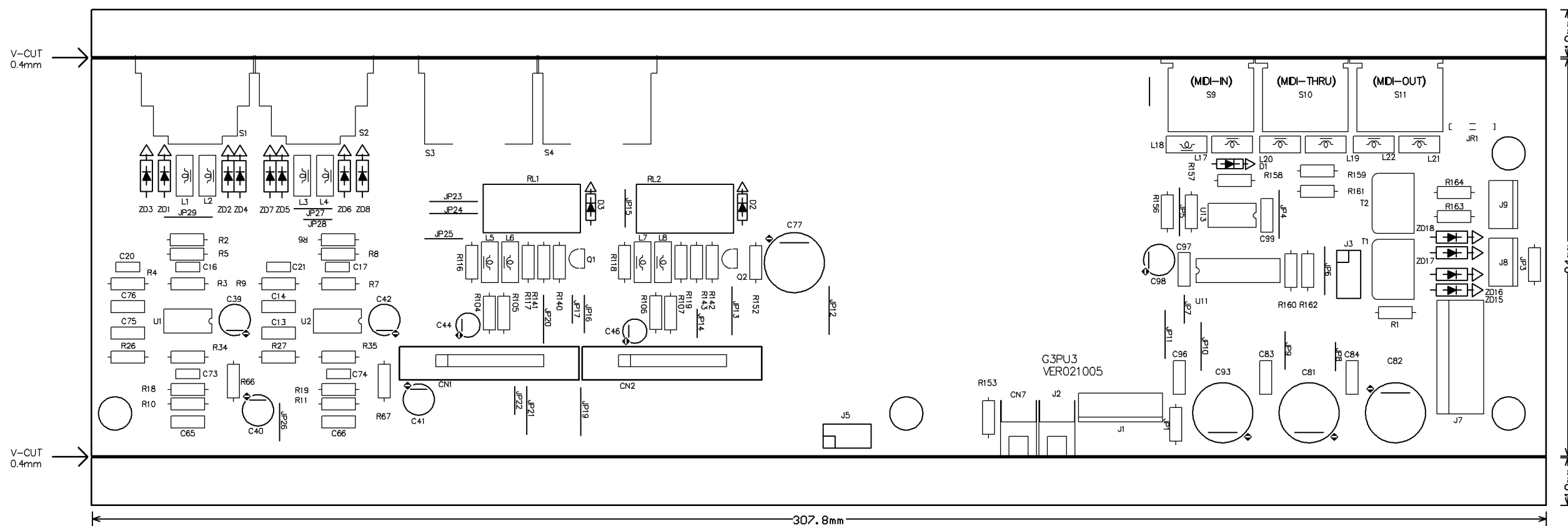
G3PU3 Bottom Scilkscreen

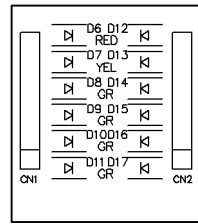


G3PU3 Bottom Layer

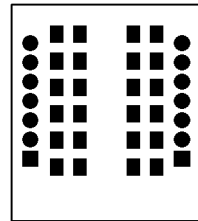


G3PU3 Bottom Solder Mask

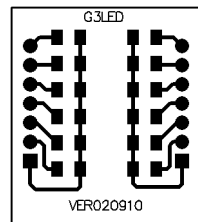




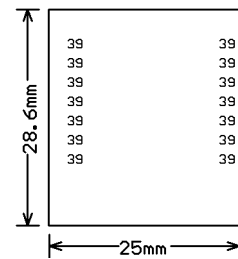
G3LED Top Silkscreen



G3LED Top Solder Mask

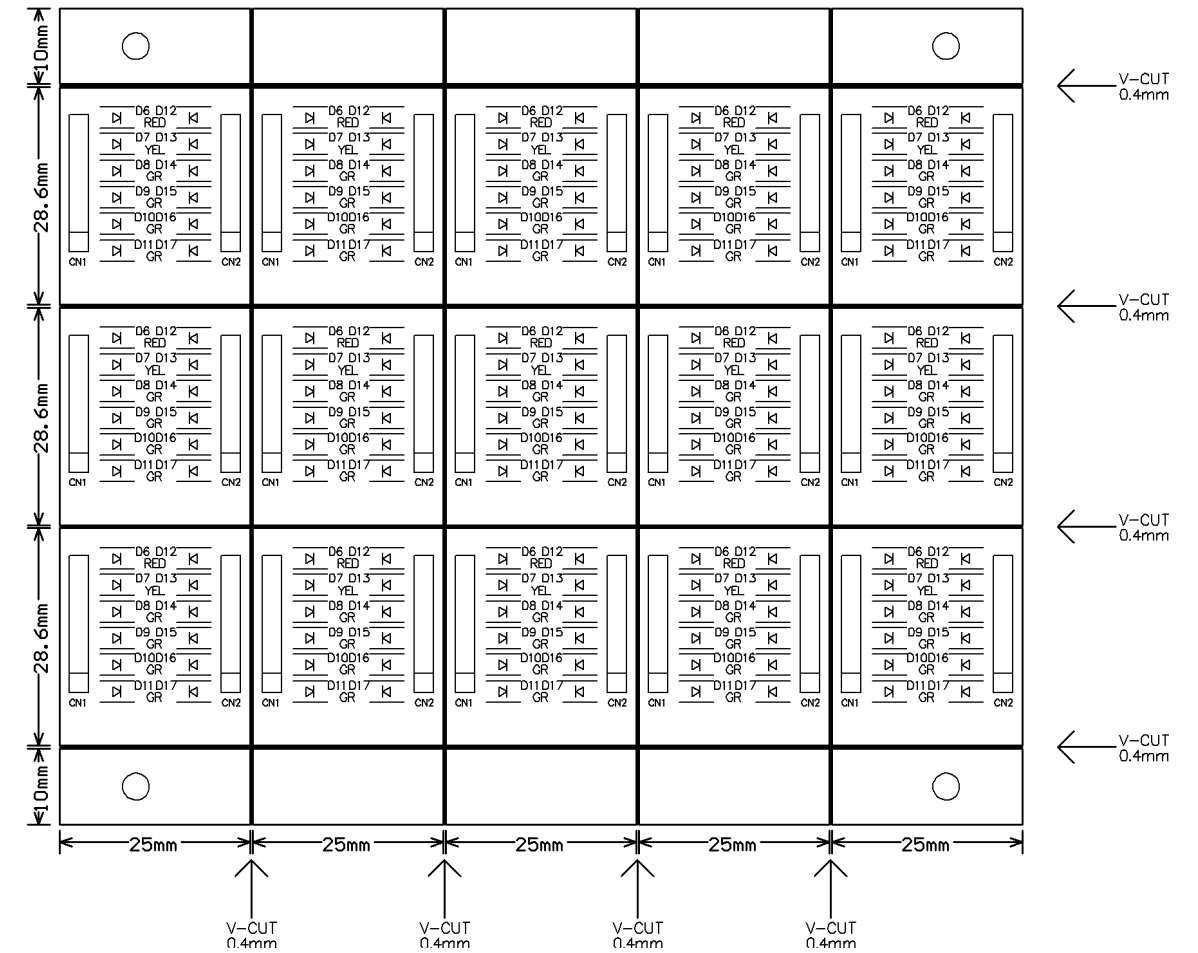


G3LED Top Layer

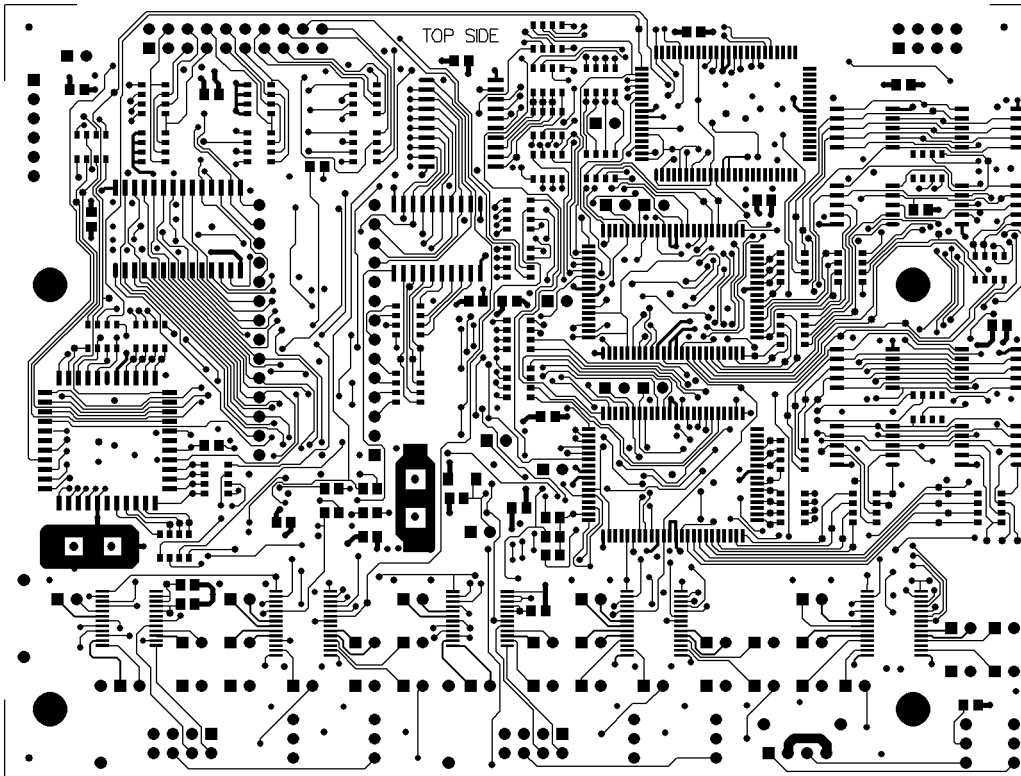


G3LED Drill Drawing

Tool	Hole Size	Hole Count Plated
T1	39mil (0.9906mm)	14
Totals		14

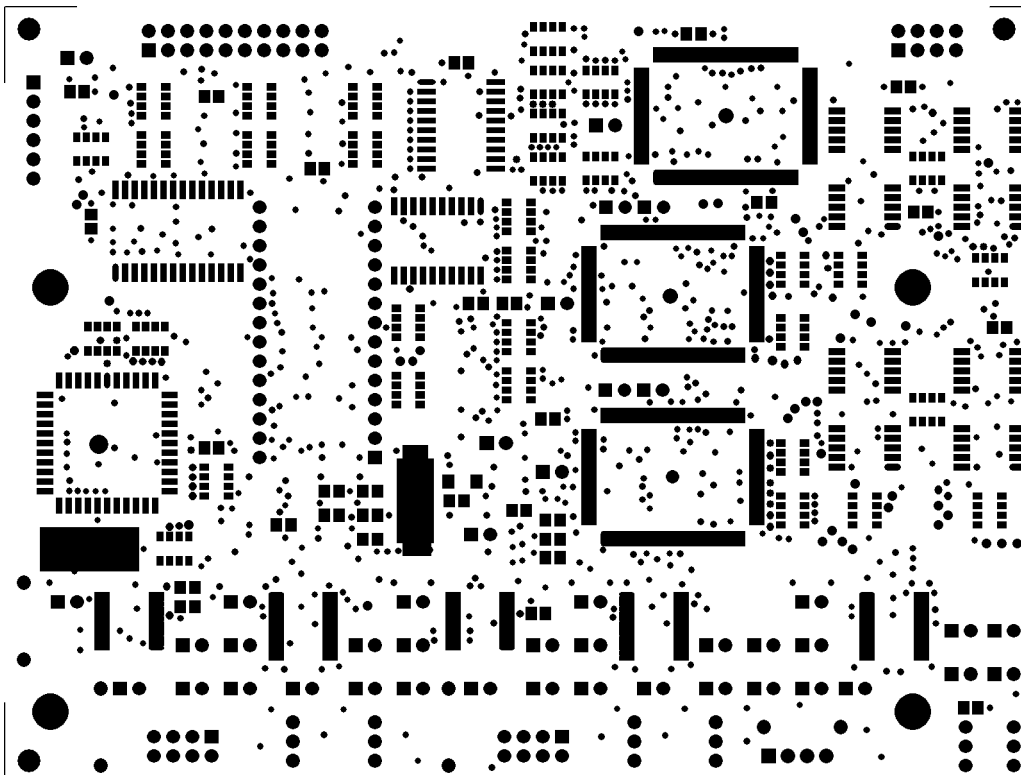


PCB#MFB4x4PRO TOP LAYER

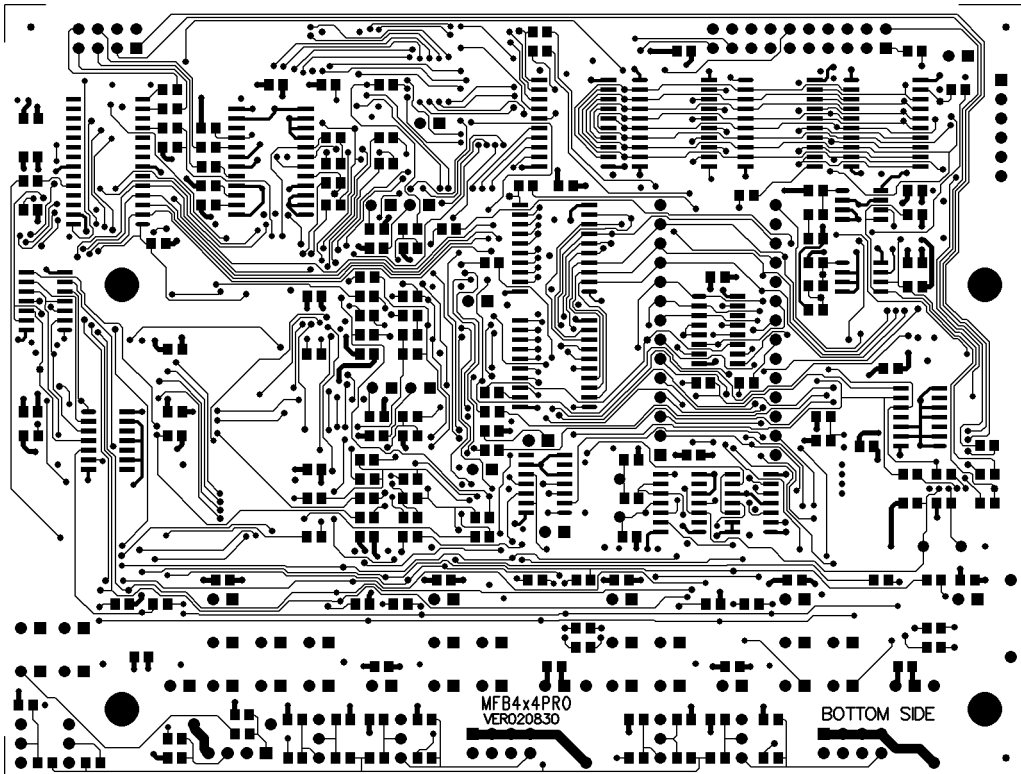


SEED-cod. MFB4x4PRO VER020830

PCB#MFB4x4PRO TOP SOLDER MASK

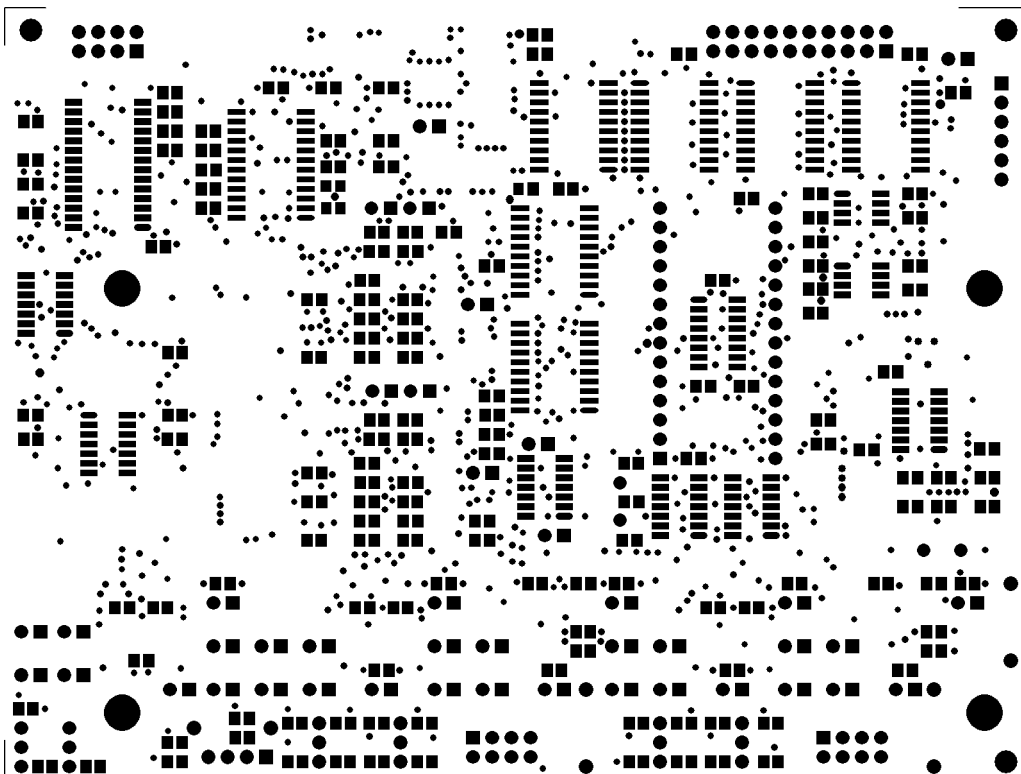


PCB#MFB4x4PRO BOTTOM LAYER

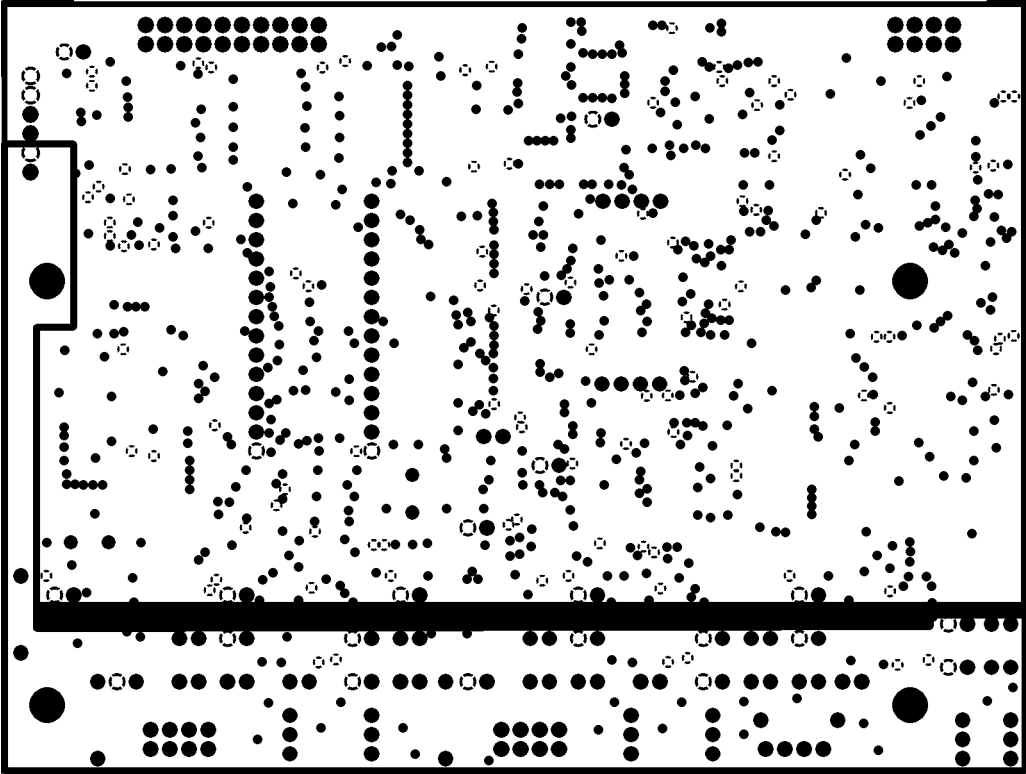


SEED-cod. MFB4x4PRO VER020830

PCB#MFB4x4PRO BOTTOM SOLDER MASK



PCB#MFB4x4PRO INTERNAL PLANE1 (VCC)



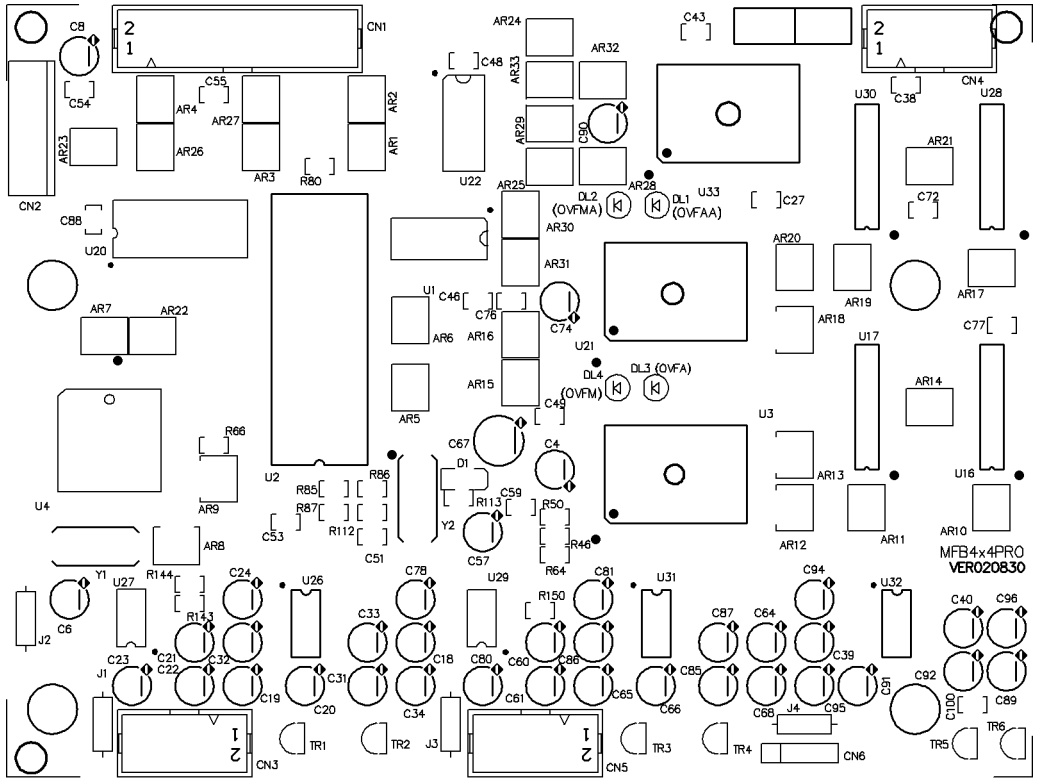
INTERNAL PLANE1(VCC)

PCB#MFB4x4PRO INTERNAL PLANE2 (GND)



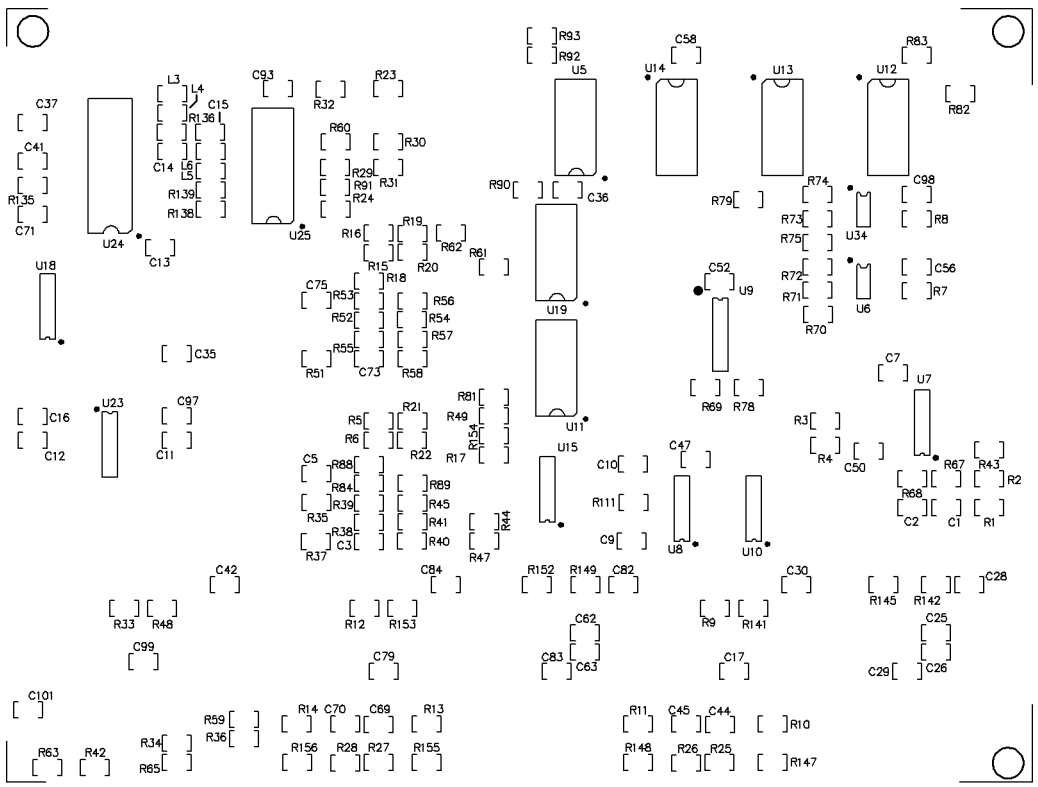
INTERNAL PLANE2(GND)

PCB#MFB4x4PRO SILKSCREEN TOP LAYER



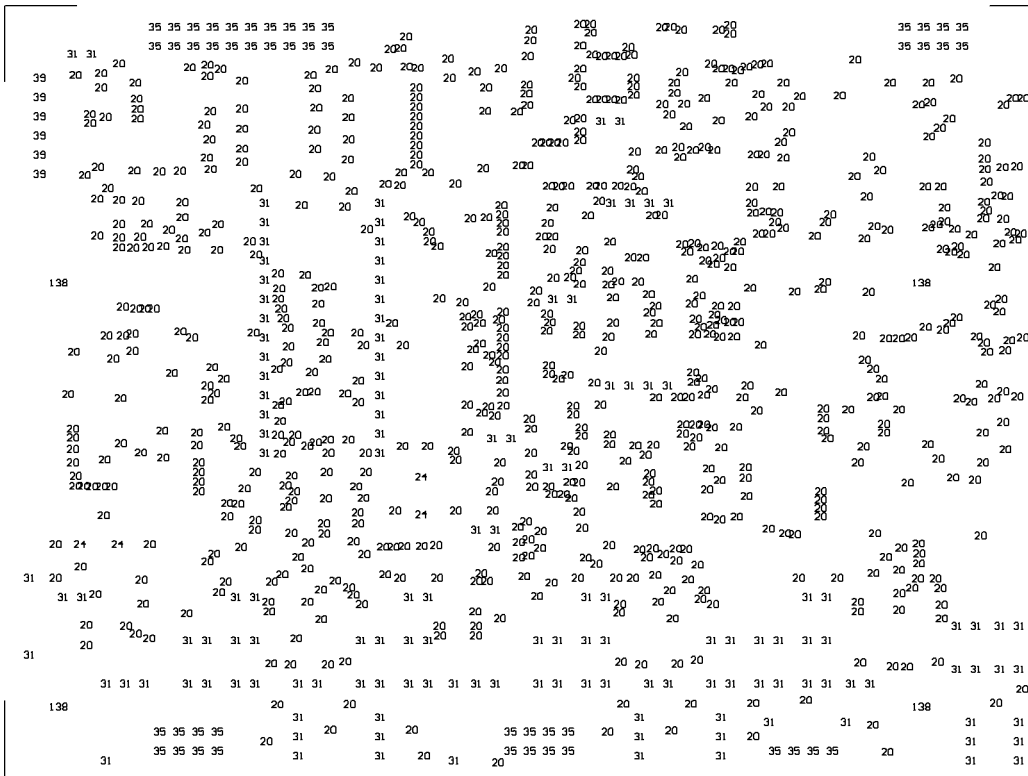
SILKSCREEN TOP

PCB#MFB4x4PRO SILKSCREEN BOTTOM LAYER



SILKSCREEN BOTTOM

PCB#MFB4x4PRO DRILL DRAWING

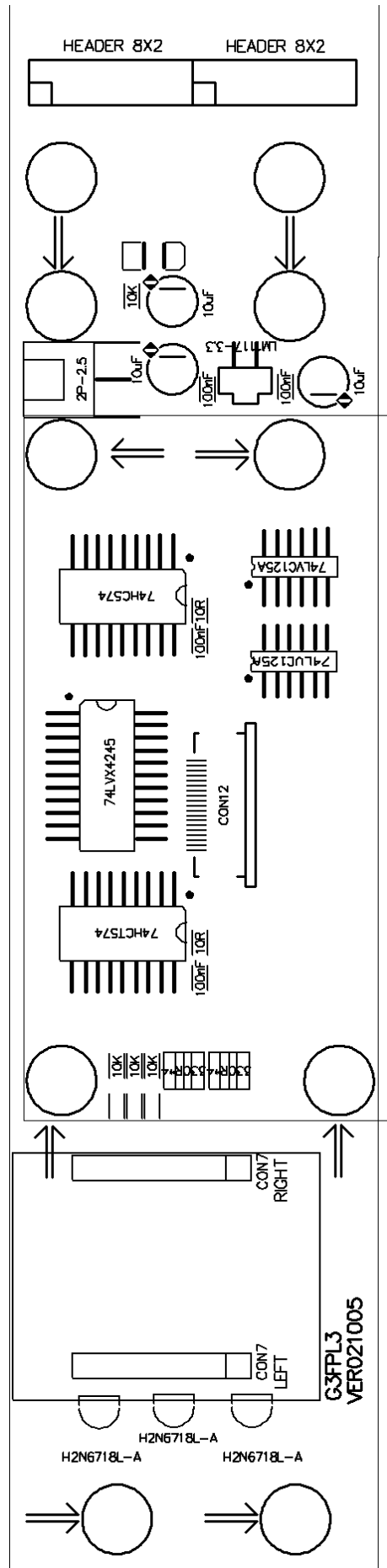
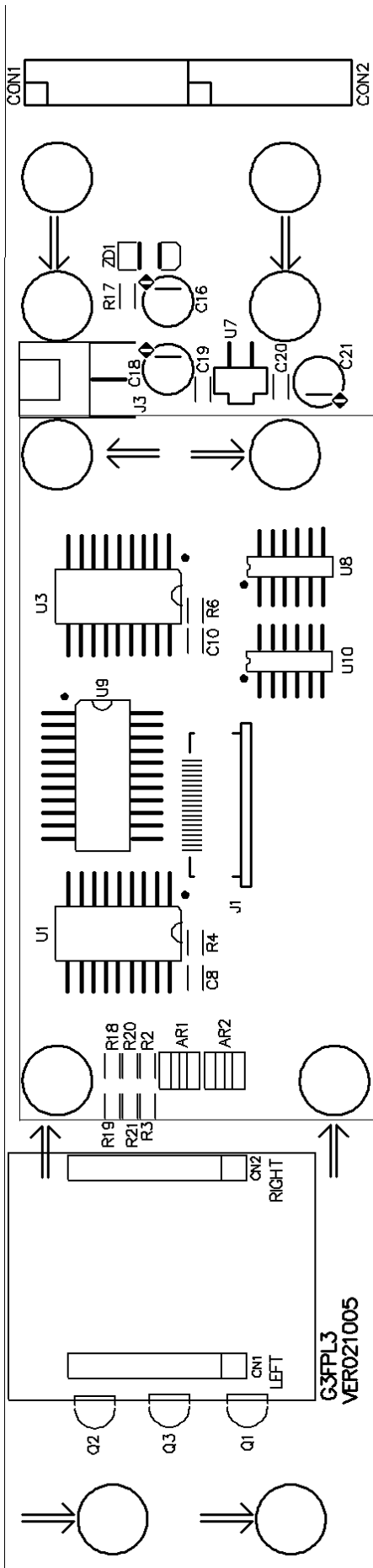


 NCDrill File Report For: MFB4x4PRO.PCB 31-Aug-2002

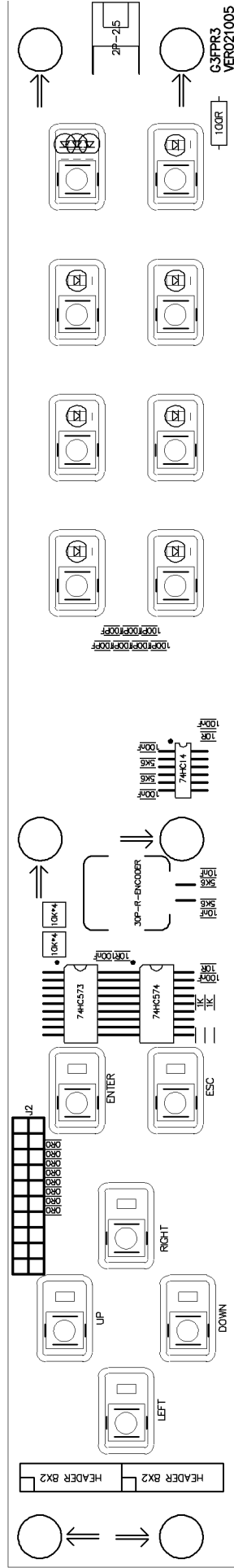
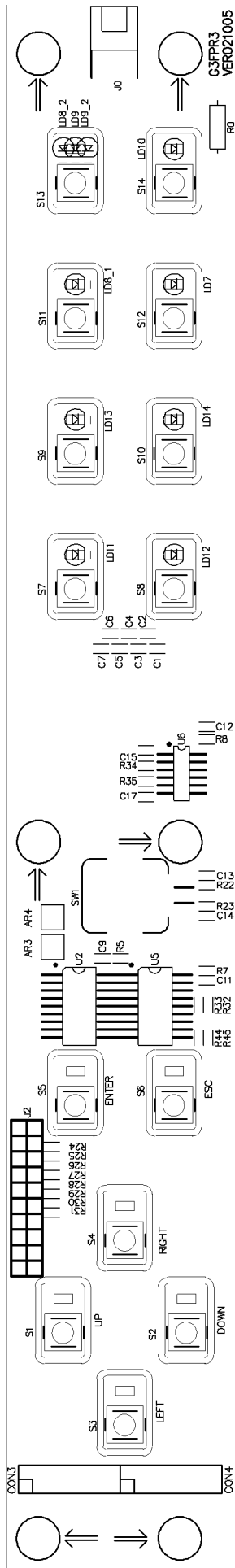
Layer Pair : TopLayer to BottomLayer
 ASCII File : NCDrillOutput.TXT
 EIA File : NCDrillOutput.DRL

Tool	Hole Size	Hole Count	Plated
T1	20mil (0.508mm)	742	
T2	24mil (0.6096mm)	4	
T3	31mil (0.7874mm)	138	
T4	35mil (0.889mm)	48	
T5	39mil (0.9906mm)	6	
T6	138mil (3.5052mm)	4	NPTH
Totals		942	

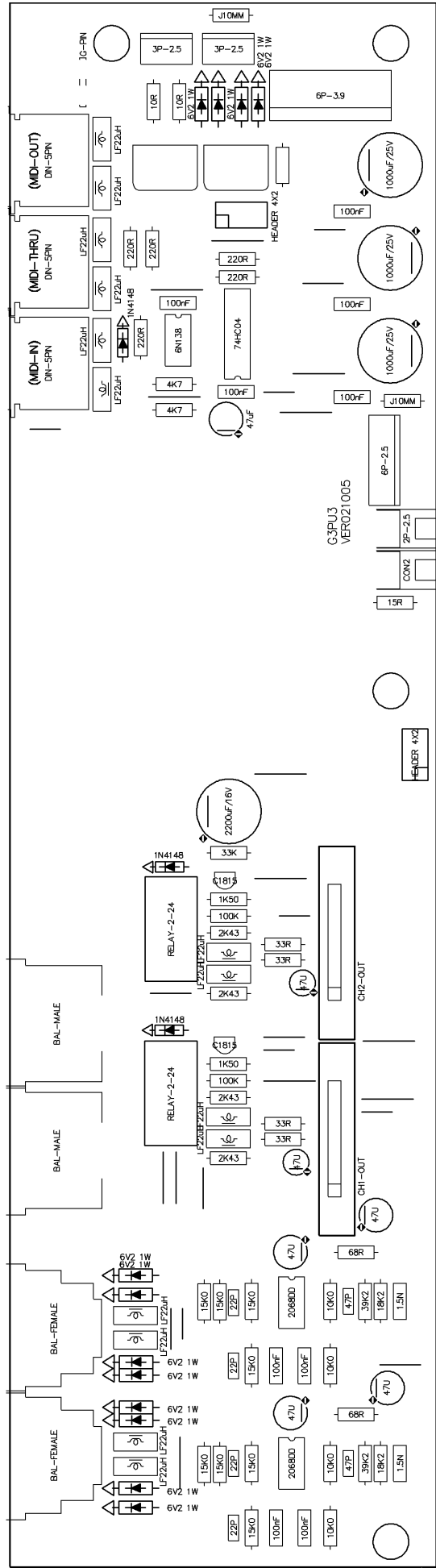
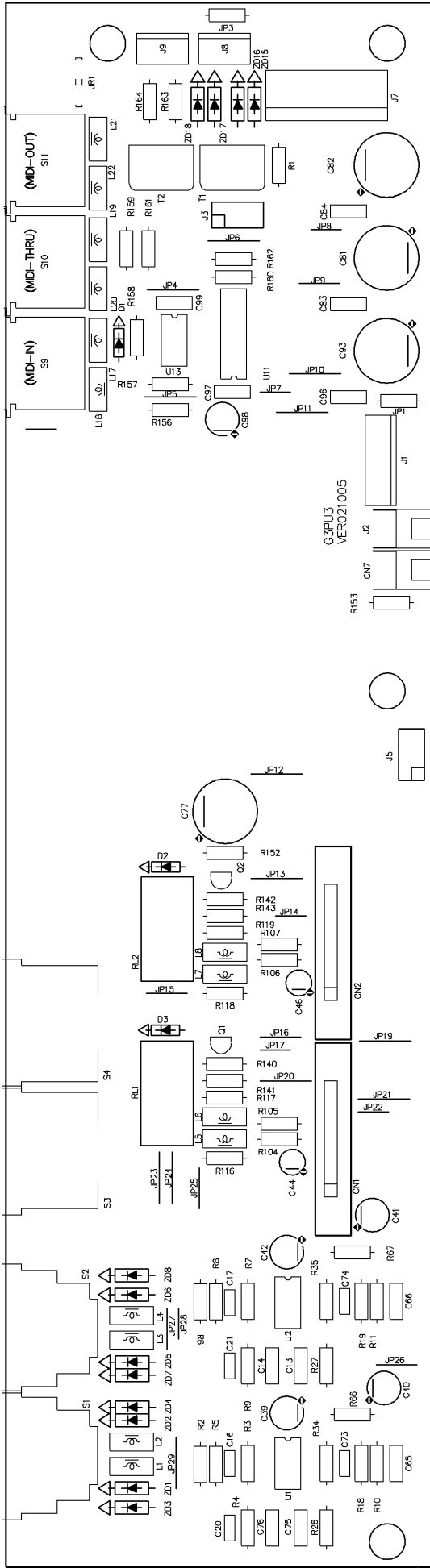
G3FPL3 (VER021005)



G3FPR3 (VER021005)

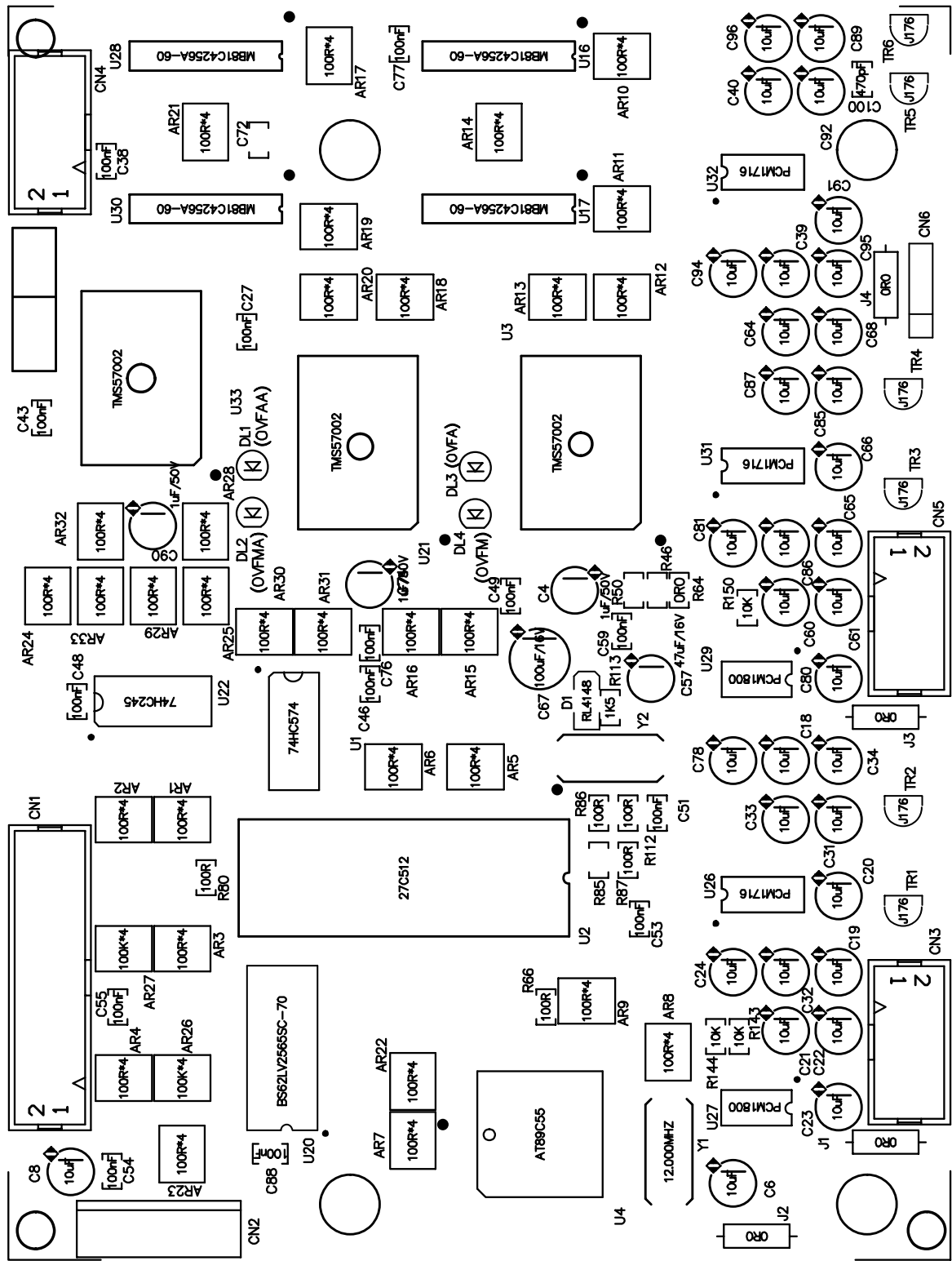


G3PU3 (VER021005)

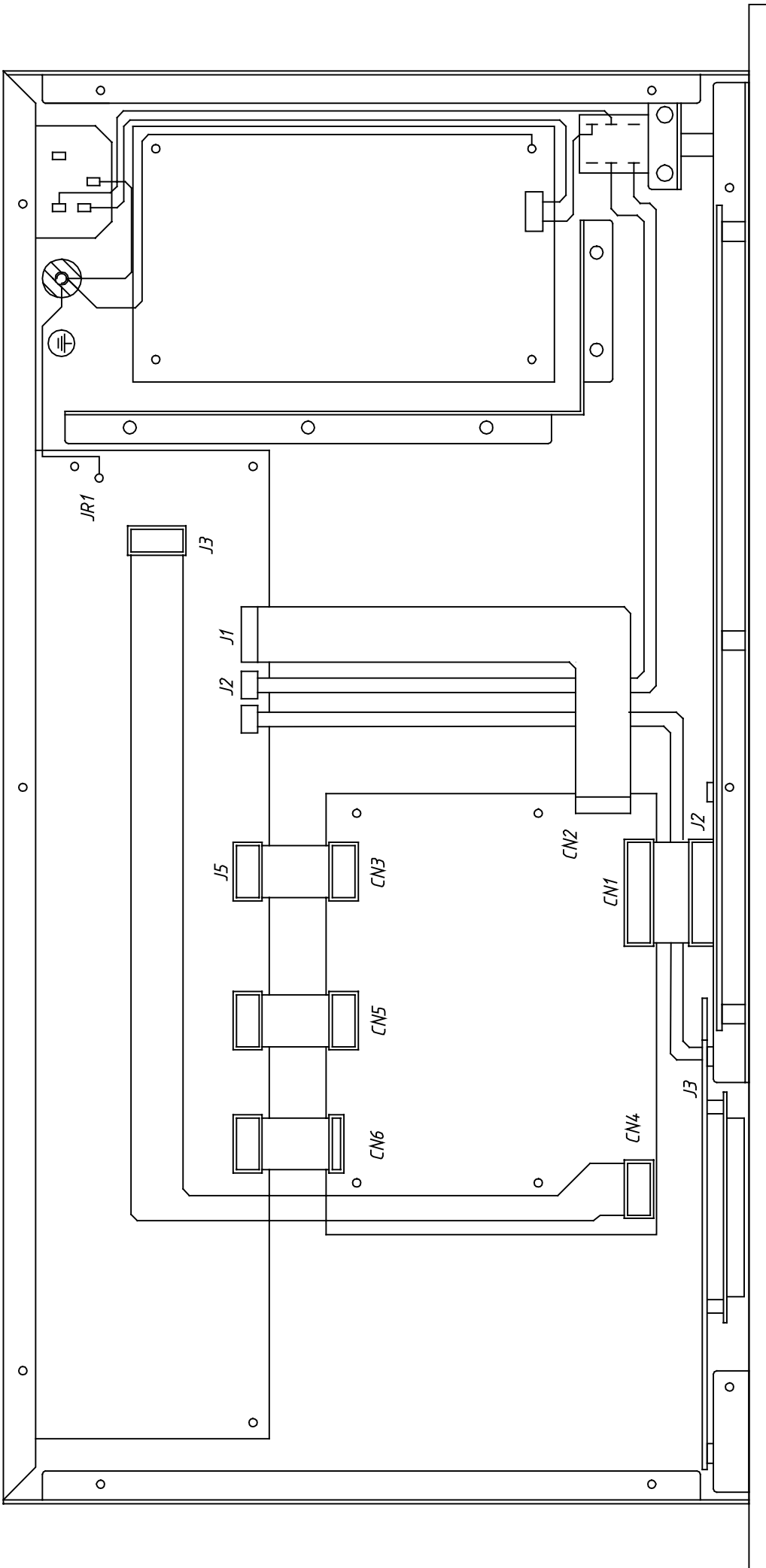


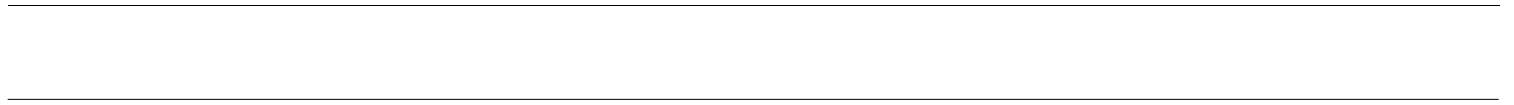
G3LED (VER020915)

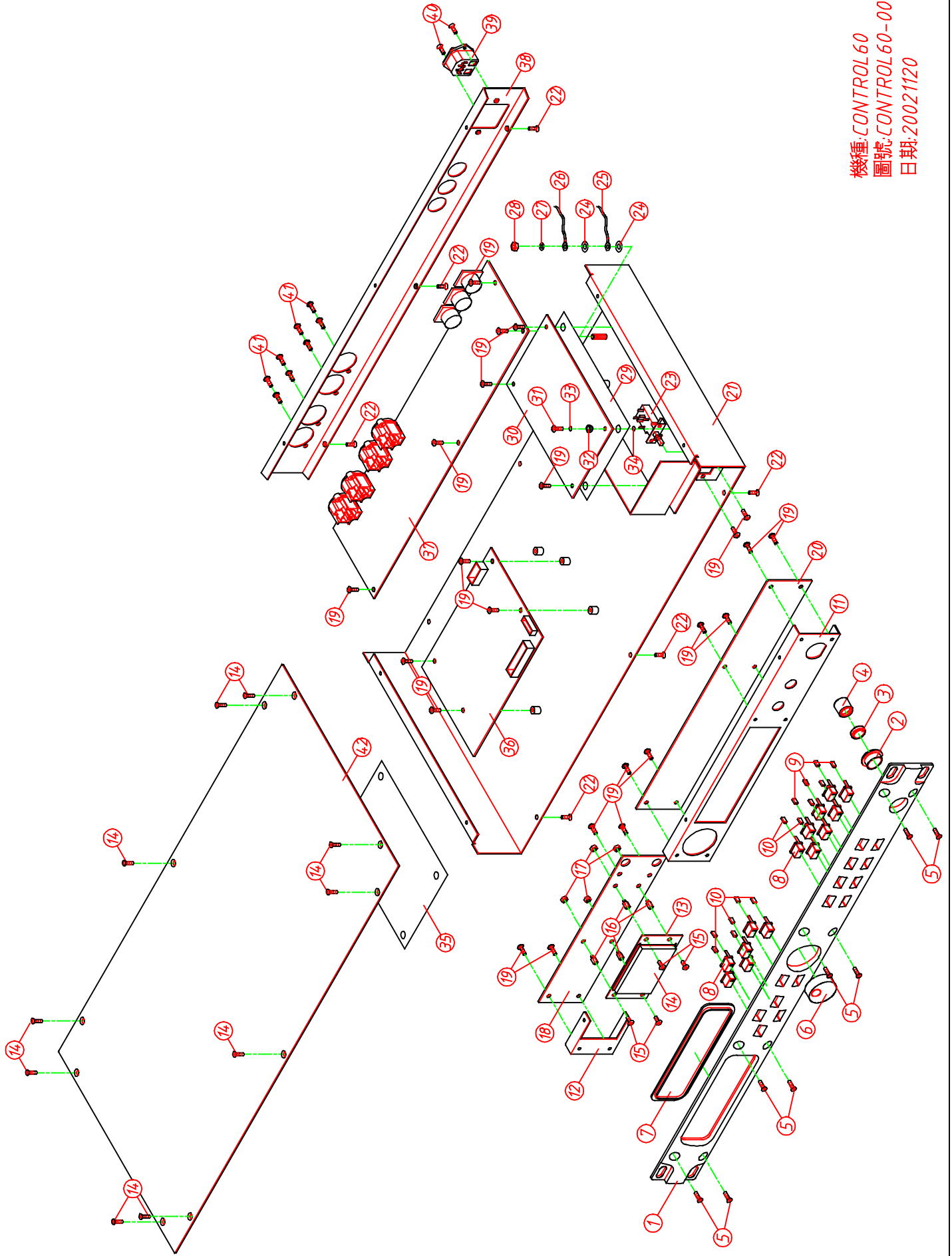
○				○	
○					○



SILKSCREEN TOP







機種: CONTROL 60
圖號: CONTROL 60-00
日期: 20021120