

Service Manual

Model: DI4

4-CH DIRECT INJECT BOX



www.altoproaudio.com

Version: 1.1

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1. SPECIFICATIONS (DI4)

Inputs	1/4" jack unbal. In/ Link Out XLR unbalanced In
Input Impedance	max 220 kOhm
Maximum Input level	+13/+33/+53 dBm

Output	XLR balanced Out
Load Impedance	>600 Ohm
Max Output Level	+18 dBm

System specifications

Bandwidth(100kOhm)	23Hz to 105Khz(± 3dbm)
Bandwidth(600Ohm)	23Hz to 60Khz(± 3dbm)
Bandwidth(High Cut)	23Hz to 8Khz(± 3dbm)

Noise Level	-105dBm
THD+N @ 1 kHz / 10 dBm	< 0.01 %

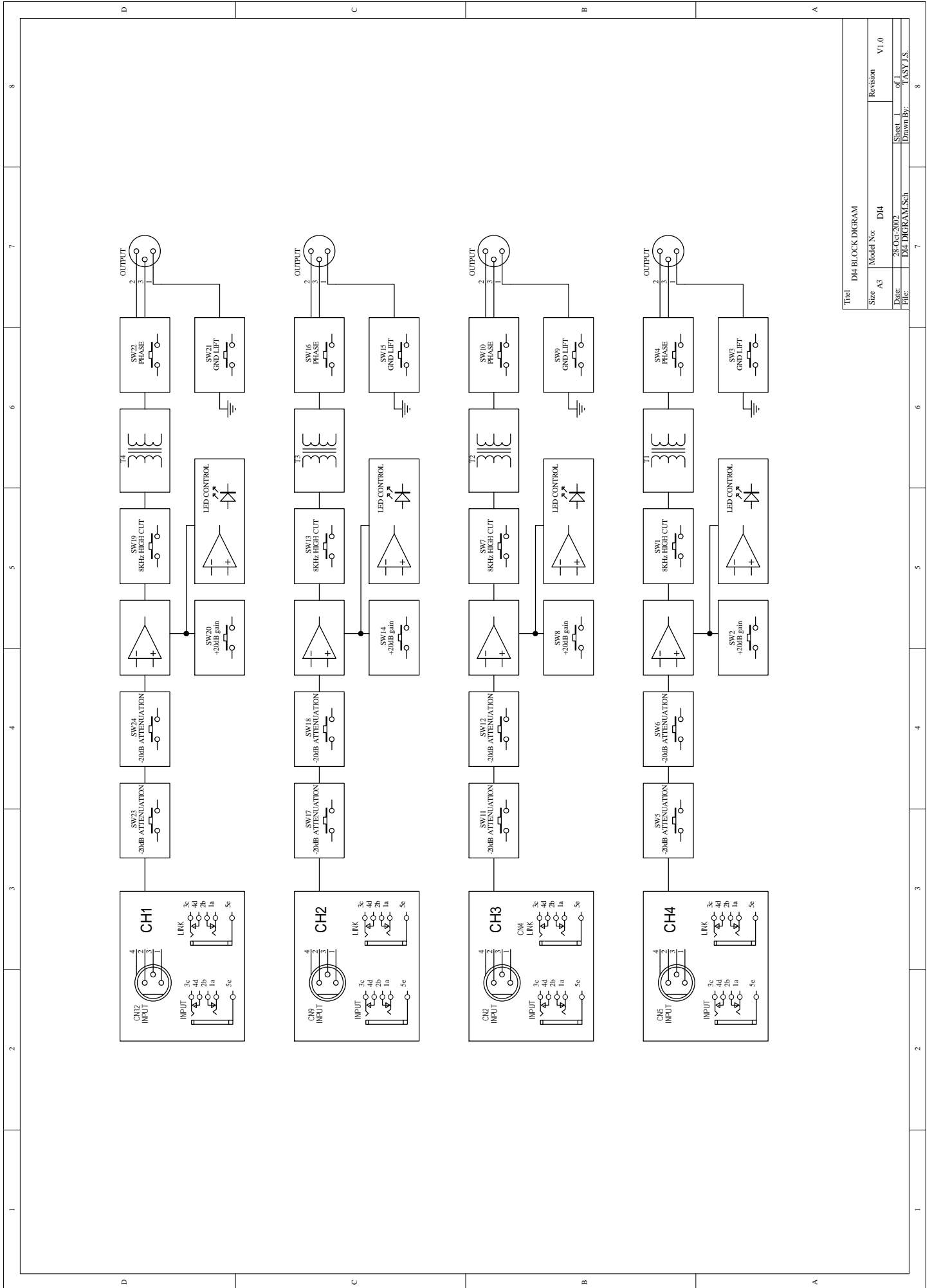
Power supply

Connector type	3-pole IEC,grounded
Type	Servo controlled,stabilized
Mains supply	115V or 230V 50/60Hz
Power Rating	max. 10W
Fuse	100-120V~: T200mA H 200-240V~: T100mA H

Dimensions 483 mm x 197.5 mm x 44.2 mm

Weight ca. 3.7 Kg

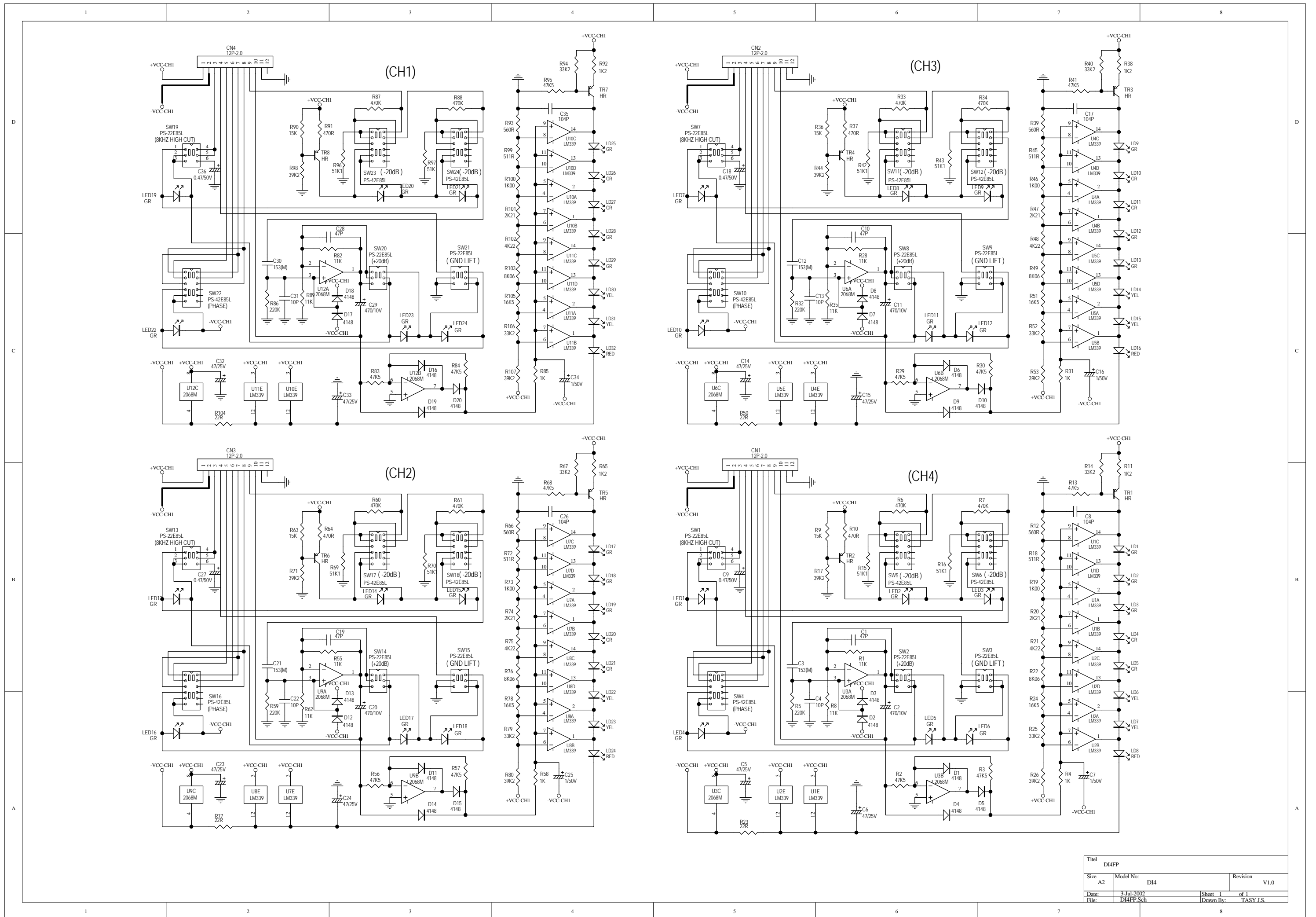
2.Block Diagram



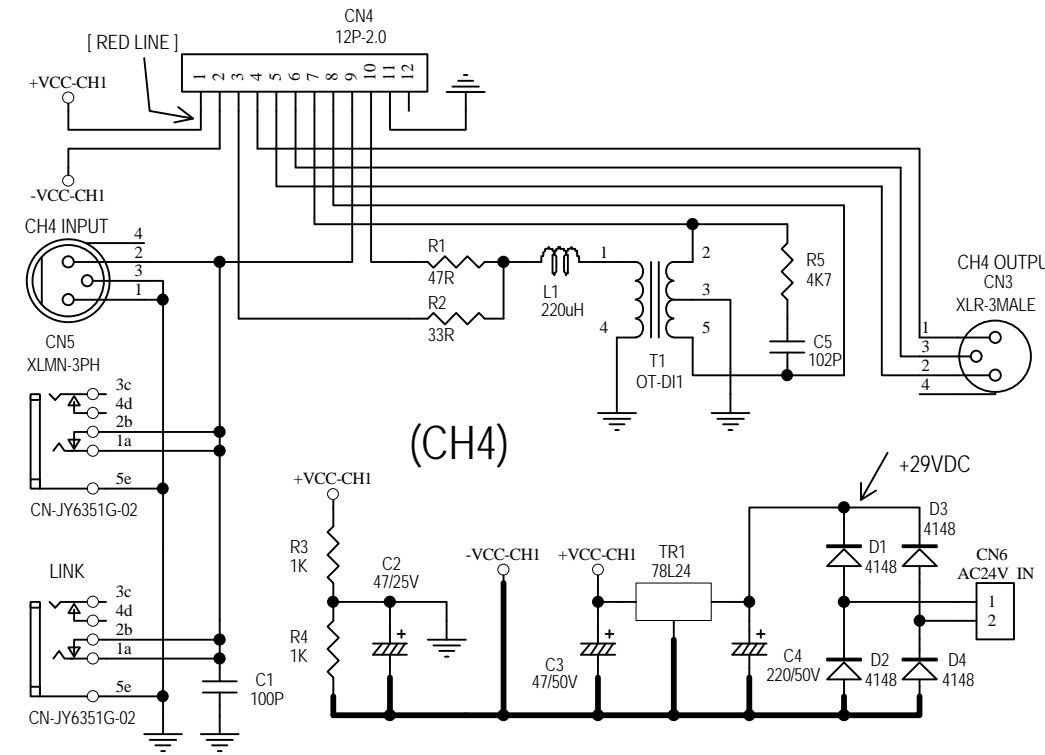
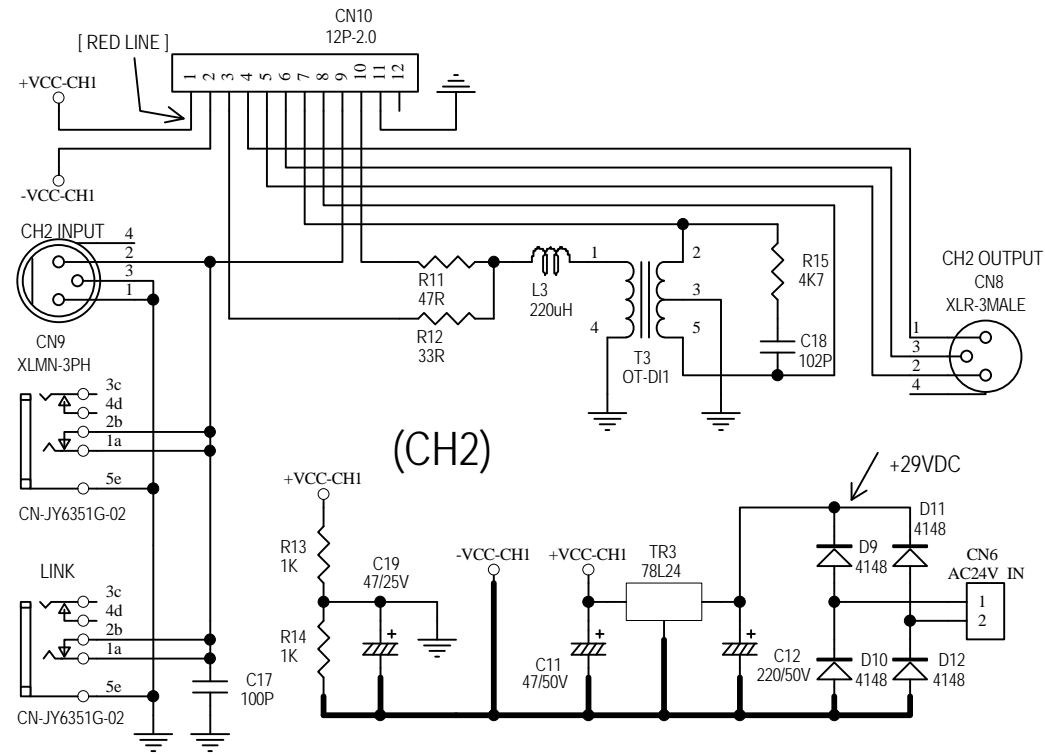
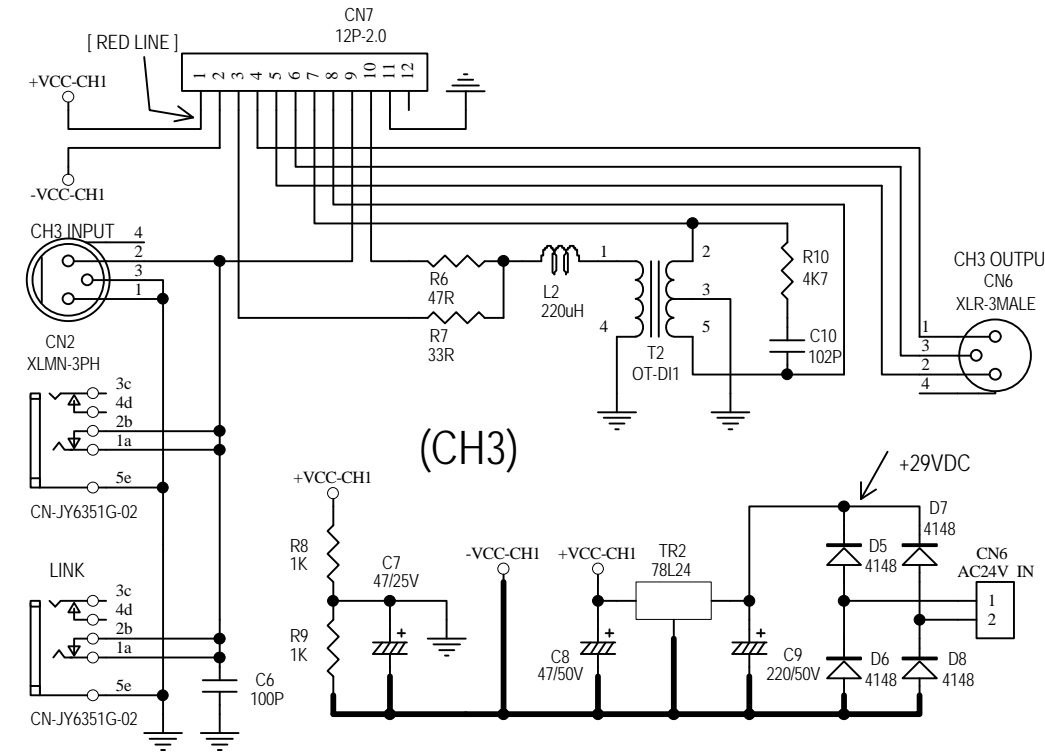
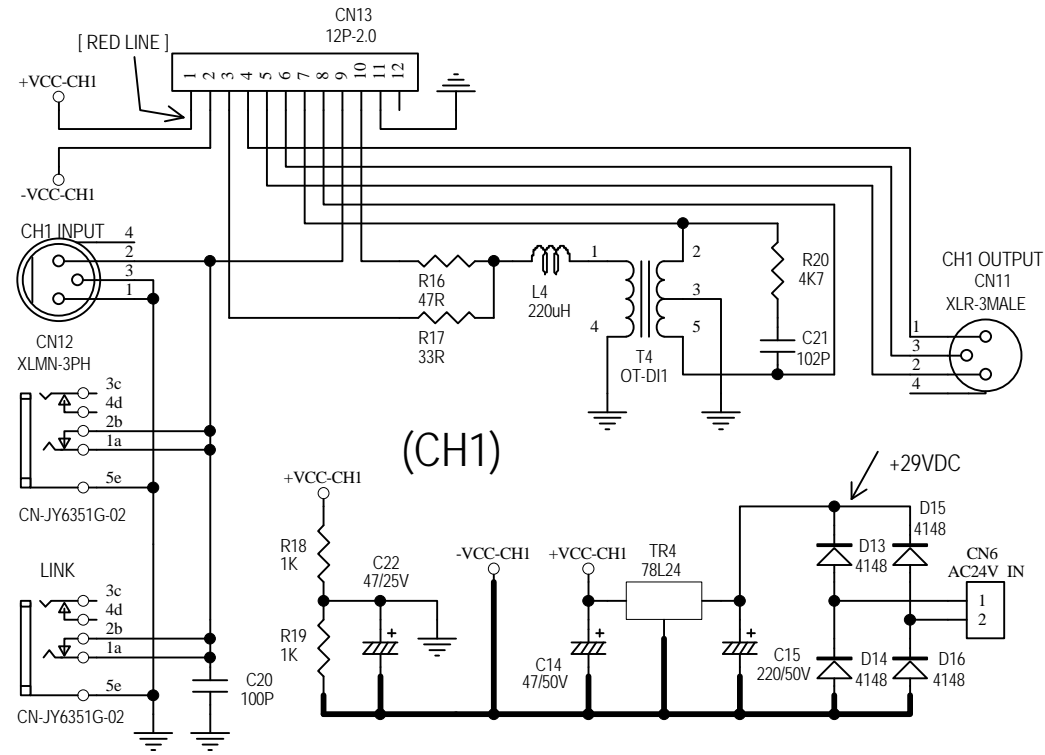
File: D14 BLOCK DIAGRAM

Size: A3	Model No: D14	Revision: V1.0
Date: 28-Oct-2002	Sheet 1 of 1	Drawn By: TASYJ.S.
File: D14 DIAGRAM.Sch		

3. Schematic Diagram



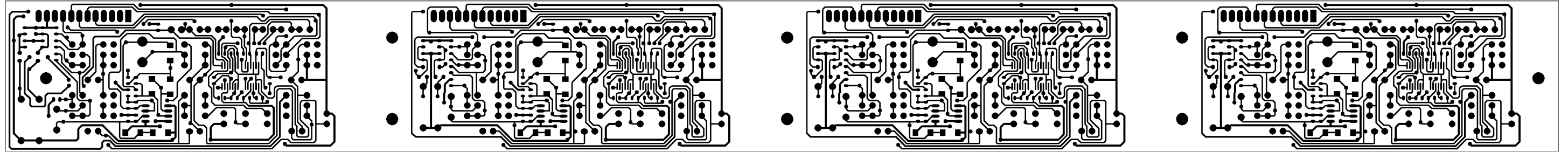
Title		D14FP	
Size	A2	Model No:	D14
Date:	3-Jul-2002	Sheet	1 of 1
File:	D14FP.Sch	Drawn By:	TASY J.S.
		Revision	V1.0



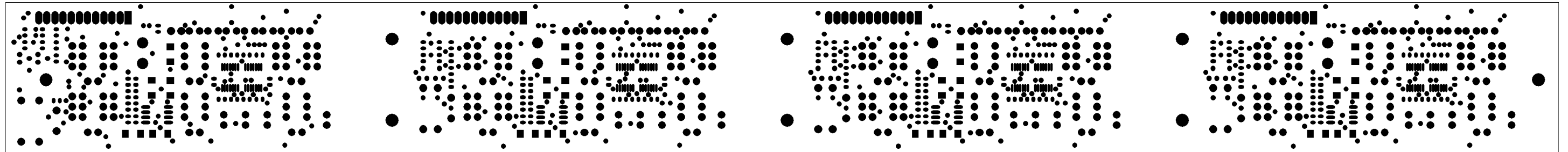
1. 本機的所有GND(電器)未與外殼連通..
2. 工作電壓DC24V(穩壓); 4組獨立供應,互不相連接..
3. 為鋪銅面..

Titel		D14PU	
Size	A3	Model No:	D14
		Revision	v1.0
Date:	21-Jun-2002	Sheet 1	of 1
File:	D14PU.Sch	Drawn By:	TASY J.S.

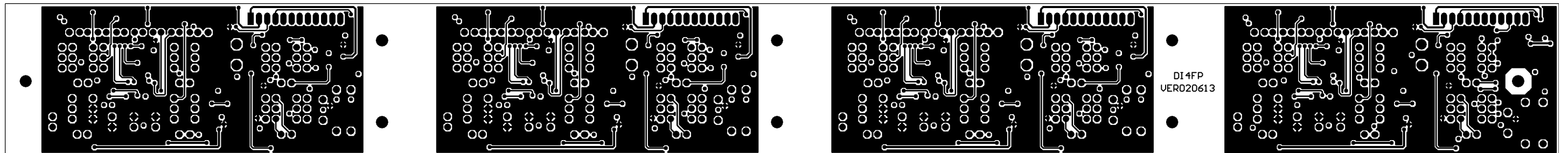
4. Printed Circuit Diagram
DI4FP PCB LAYOUT



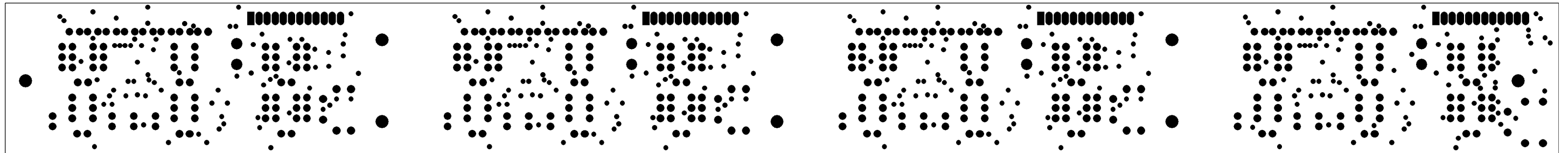
PCB : DI4FP Top Layer



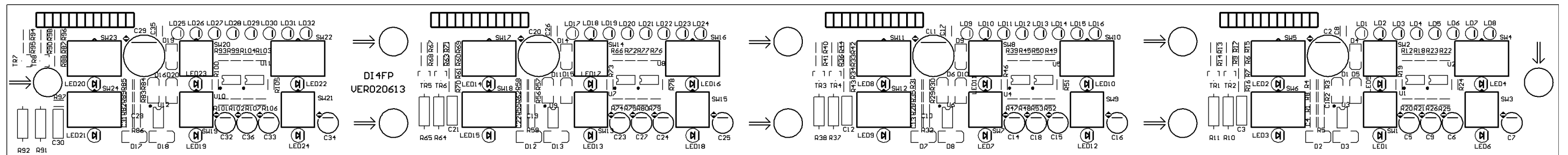
PCB : DI4FP Top Solder Mask



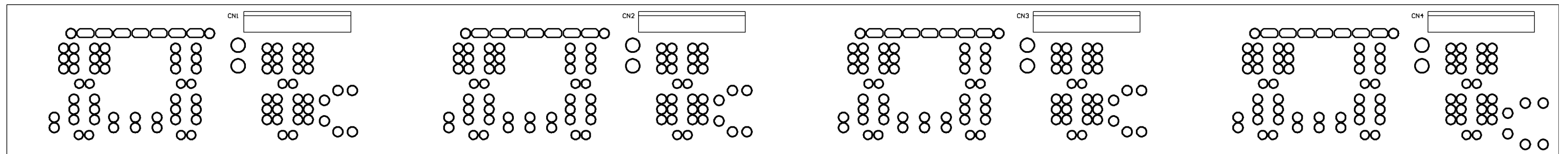
PCB : DI4FP Bottom Layer



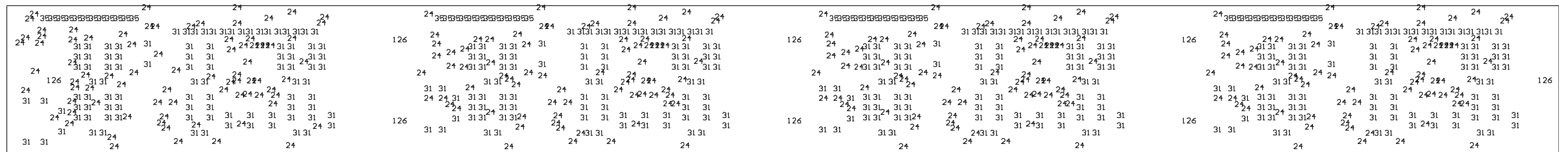
PCB : DI4FP Bottom Solder Mask



PCB : DI4FP Top Overlay



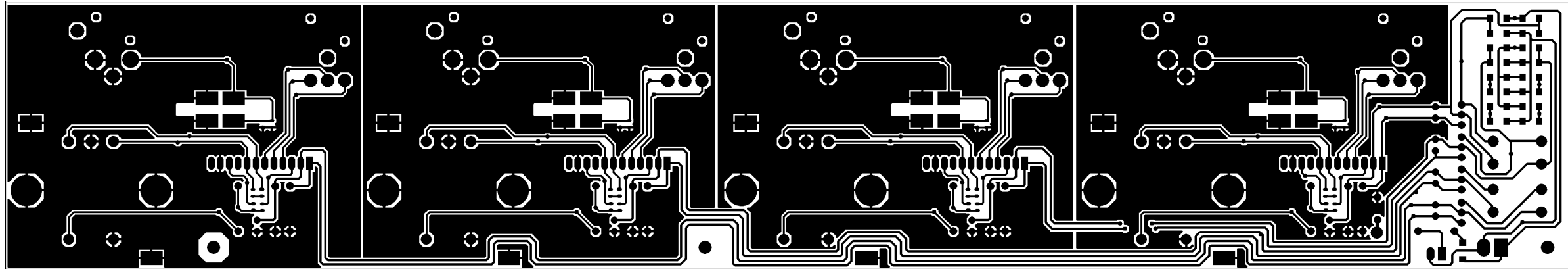
PCB : DI4FP Bottom Overlay



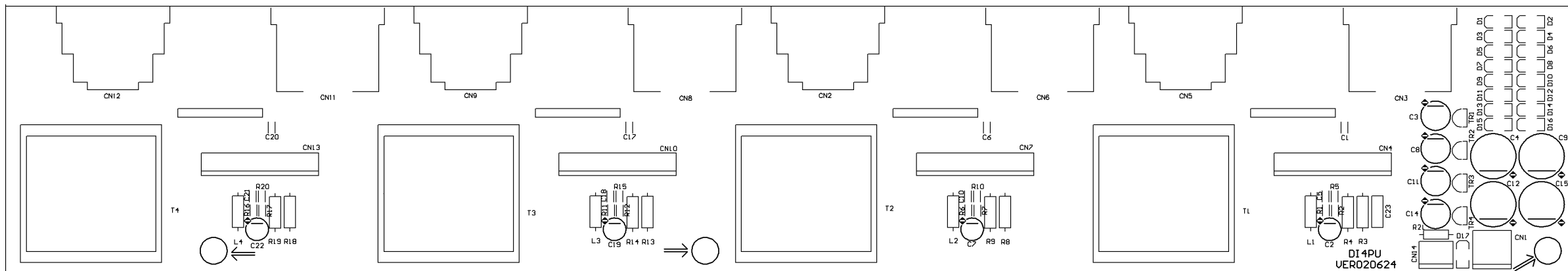
PCB : DI4FP Drill Drawing Plots

Hole Size		Hole Count
24mil	(0.6mm)	308
31mil	(0.8mm)	392
35mil	(0.9mm)	48
126mil	(3.2mm)	8
Totals		756

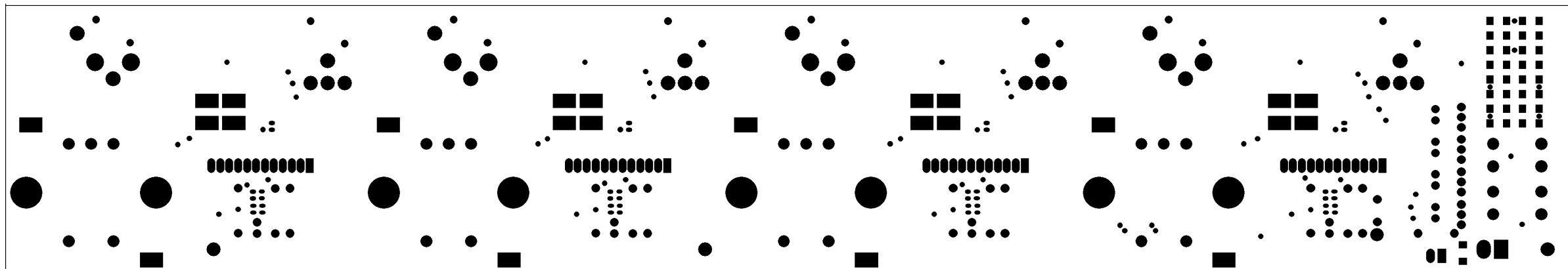
DI4FP PCB LAYOUT



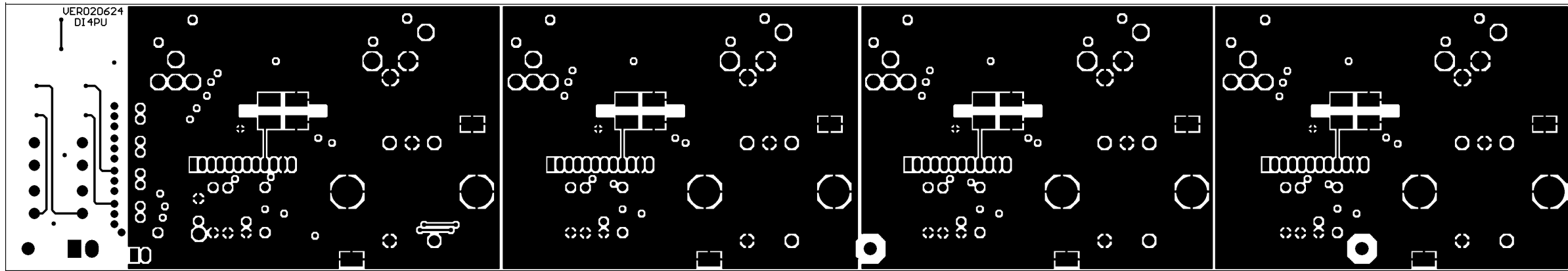
PCB : DI4PU Top Layer



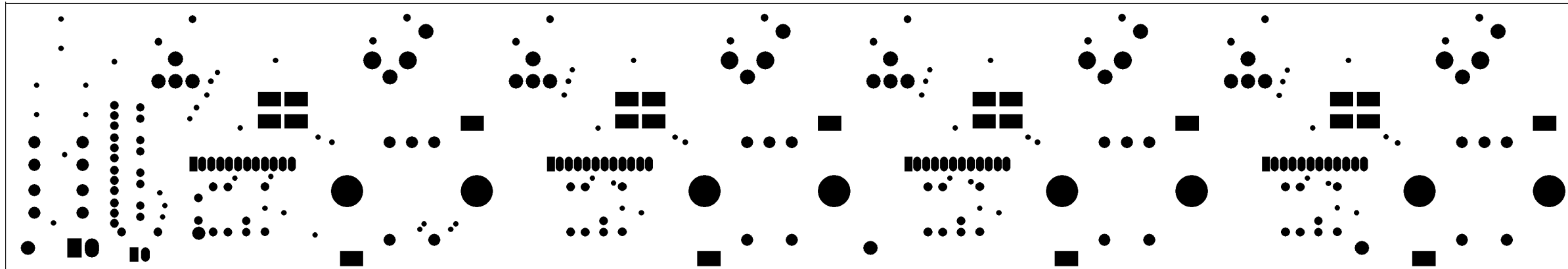
PCB : DI4PU Top Overlay



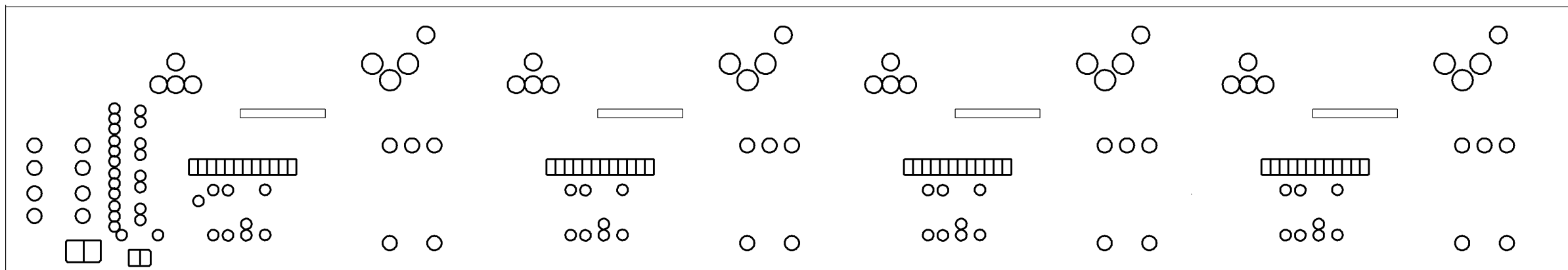
PCB : DI4PU Top Solder Mask



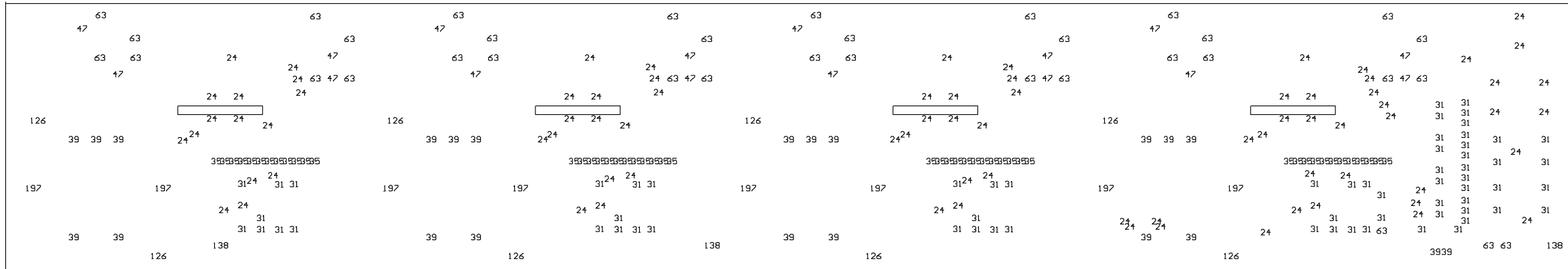
PCB : DI4PU Bottom Layer



PCB : DI4PU Bottom Solder Mask



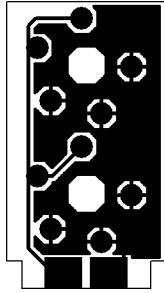
PCB : DI4PU Bottom Overlay



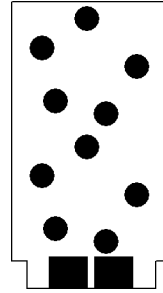
PCB : DI4PU Drill Drawing Plots

Hole Size	Hole Count
24mil (0.6mm)	303
31mil (0.8mm)	80
35mil (0.9mm)	64
39mil (1.0mm)	16
47mil (1.2mm)	6
55mil (1.4mm)	6
59mil (1.5mm)	1
63mil (1.6mm)	21
110mil (2.8mm)	2
Totals	499

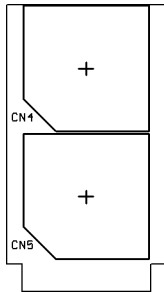
DI4IN PCB LAYOUT



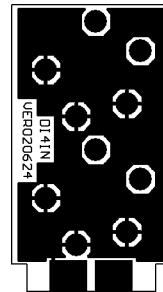
PCB : DI4IN Top Layer



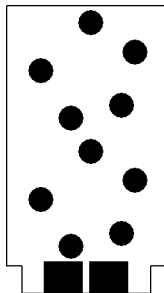
PCB : DI4IN Top Solder Mask



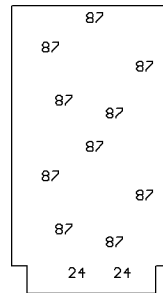
PCB : DI4IN Top Overlay



PCB : DI4IN Bottom Layer

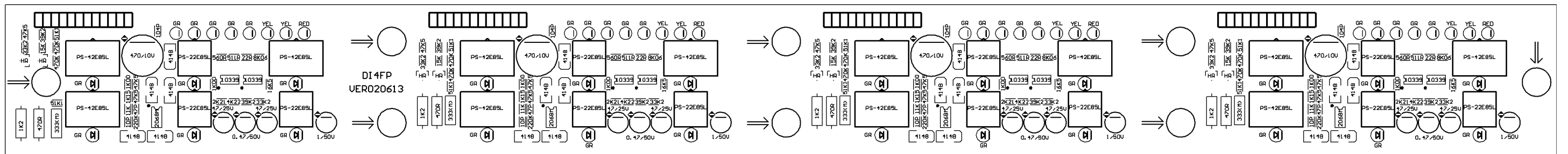
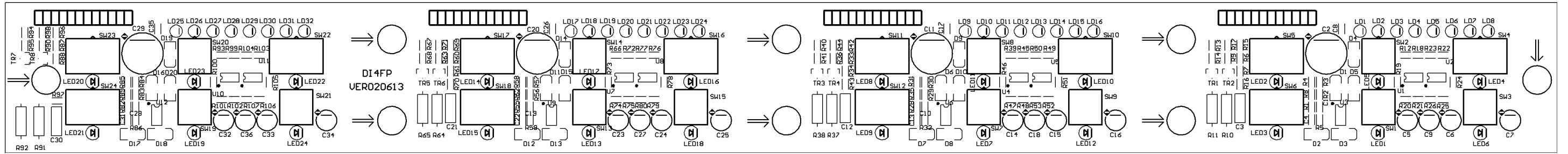


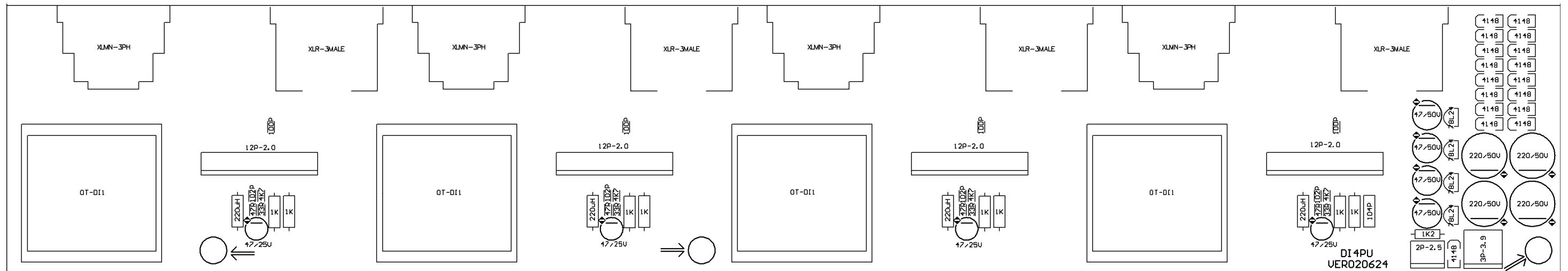
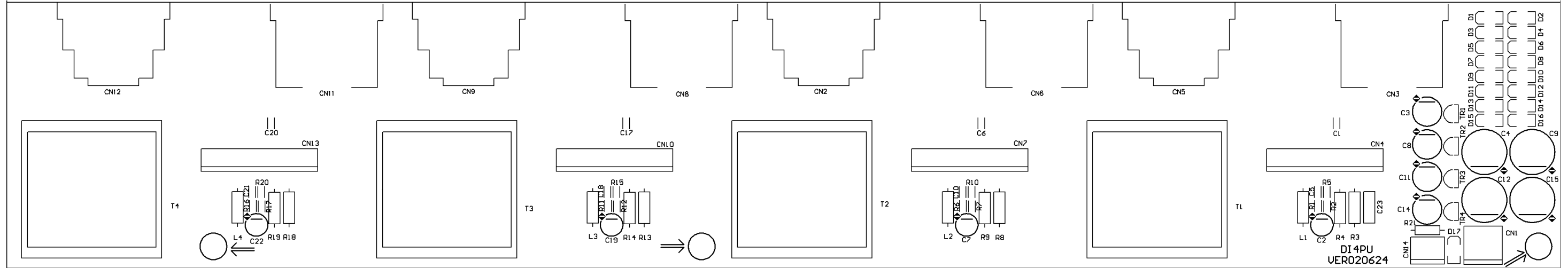
PCB : DI4IN Bottom Solder Mask



PCB : DI4IN Drill Drawing Plots

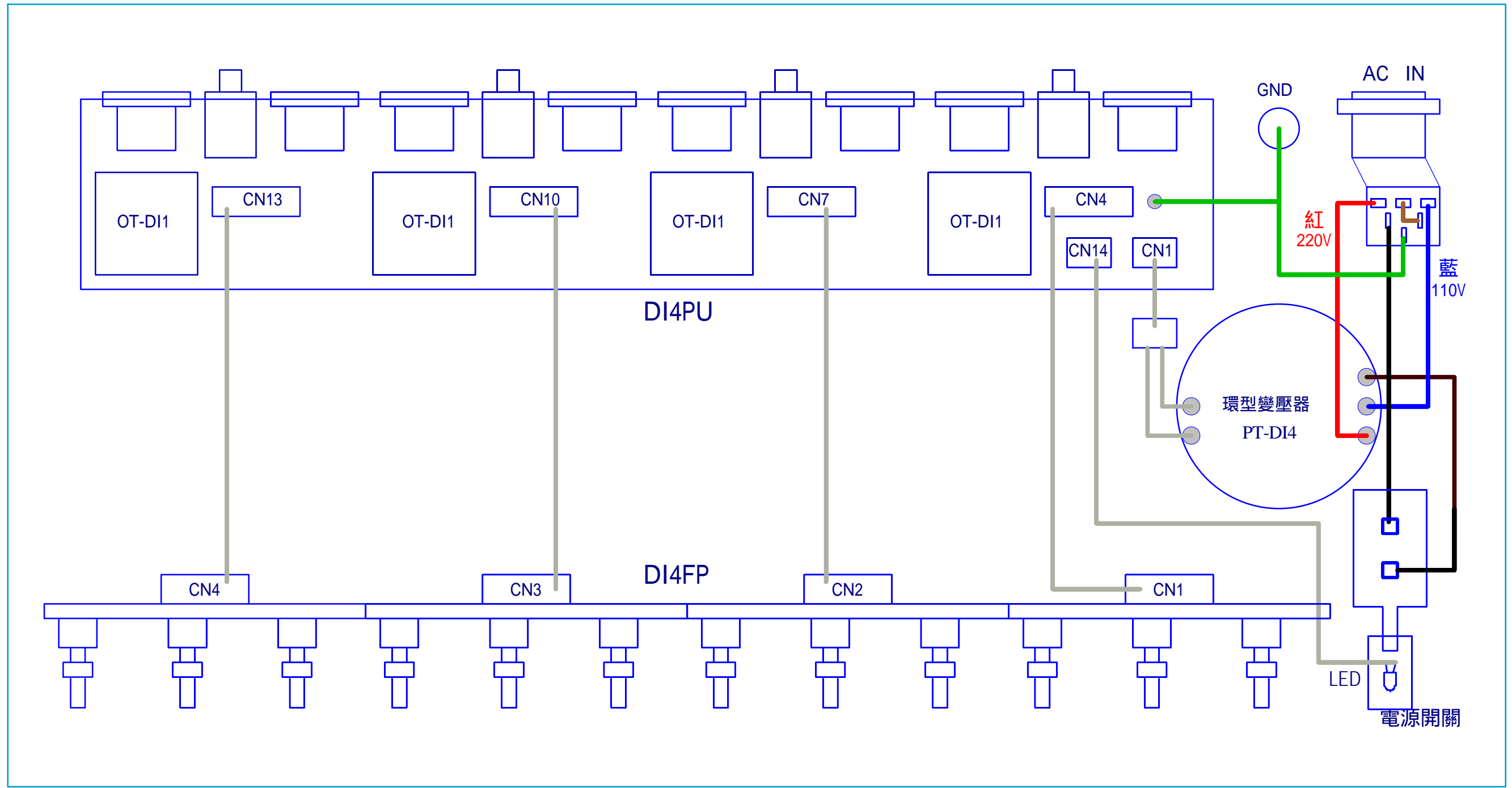
Hole Size	Hole Count
24mil (0.6mm)	2
87mil (2.2mm)	10
Totals	12





5. Wiring Diagram

DI4 Wiring Diagram



Titel			
DI4 Wiring Diagram			
Size	Model No:	Revision	
A4	D14	V1.0	
Date:	28-Oct-2002	Sheet	1 of 1
File:	DI4(全).Sch	Drawn By:	TASY J.S

Structure Needing Material Detail List

建檔日: 2002/07/12 修正日: 2002/08/16

<u>NO.</u>	<u>Midprod NO</u>	<u>Quantity</u>	<u>Unit</u>
1	A-DI4-ALTO-230V-歐規	1.000	PCS
2	A-DI4-前板組合	1.000	PCS
3	A-DI4-底板組合	1.000	PCS
4	P-DI4FP-SMD	1.000	PCS
5	P-DI4FP-DIP	1.000	PCS
6	P-DI4PU-SMD	1.000	PCS
7	P-DI4PU-DIP	1.000	PCS
8	P-DI4IN	4.000	PCS

Item No: DI4

specify: AMP

Mid No: standard quantity:

NO	Material No	Item Name	Specific	Quantity	Unit	Ps
	1 MA03291	panel	DI4 ALTO	1.000	PCS	
MARK:						
	2 MC00432	top cover	DI4	1.000	PCS	
MARK:						
	3 MB02203	rear board	DI4	1.000	PCS	
MARK:						
	4 HD00021	fuse(T)	100mA 250V 5*20mm CSA/	1.000	PCS	
MARK:						
	5 HCSA16	AC outlett	(S)315-B (AC select)	1.000	PCS	
MARK:						
	6 NPL275	push putton	3*W6*18.3	24.000	PCS	
MARK:						
	7 NMLZ779	label	SCL-2020 black/white	1.000		
MARK:						
	8 NPL325	LED spacer support	3.1*85	2.000	PCS	
MARK:						
	9 HA02189	wire	100mm	2.000	PCS	
MARK:						
	10 MSCB28	black plated screw	flat self 3*4	11.000	PCS	DI4FP, DI4PU
MARK:						
	11 MSCB34	black plated screw	pill 3*6	2.000	PCS	電源開關
MARK:						
	12 MSCB38	black plated screw	3*7	4.000	PCS	面板
MARK:						
	13 MSCB13	black-plated screw	cross-head pan head 3*6	14.000	PCS	上蓋,後板,前板
MARK:						
	14 MSCB35	black plated screw	cross-head pan head 3*10	2.000	PCS	AC座
MARK:						
	15 MSCB58	black plated screw	iron-board pill 3*10	16.000	PCS	平衡座
MARK:						
	16 MSCB64	black-plated screw	4*35	1.000	PCS	PT
MARK:						
	17 MSTC04	colour nut	4m/m	2.000	PCS	地線, PT
MARK:						
	18 MFSS04	washer	4* 7*1t	2.000	PCS	地線,PT
MARK:						
	19 MFST01	washer	4* 8*0.5t	2.000	PCS	地線
MARK:						
	20 NMCR01	cable tie(black)	ALT-102SB	4.000	PCS	
MARK:						
	21 NLXM39	self-paste foot pad(SF-012.7*9.0*3.0t		4.000	PCS	
MARK:						
	22 HLSP164	P.V.C wiring	UL1617 AWG22 250mm black	1.000	PCS	
MARK:						
	23 HLSP71	P.V.C single wave wired	UL1617 22AWG 80m/m brown	1.000	PCS	
MARK:						
	24 HLSA31	power cord	Europe 3P LT-312+LT-501	1.000	PCS	
MARK:						
	25 NMCT20WW0020	sleeving flame retardant5	*20m/m	8.000	PCS	AC座,開關
MARK:						

Item No: DI4

specify: AMP

Mid No: standard quantity:

NO	Material No	Item Name	Specific	Quantity	Unit	Ps
	26 NMCT16WW0010	sleeving flame retardant	2.5 *10m/m	2.000	PCS	
MARK:						
	27 NWCP04	lockable bag	5*7	1.000	PCS	
MARK:						
	28 NWCP01WW0300*0580	PE bag	30*58cm	1.000	PCS	
MARK:						
	29 HEM083	desiccant	30g	1.000		
MARK:						
	30 HSWA13	alimantation SW	SDDL B 1007U	1.000	PCS	
MARK:						
	31 DL43RG	L.E.D	LG2043 green	1.000	PCS	
MARK:						
	32 NPL285	switch cap	6*2.5 YELLOW C	1.000	PCS	
MARK:						
	33 NMBA02	power push button	15*17	1.000	PCS	
MARK:						
	34 NB01720	box	ALTO 19"系列	1.000	PCS	
MARK:						
	35 PKMS153	sponge barrier	ALTO 19"	1.000	PCS	
MARK:						
	36 PKMS156	barrier	ALTO19"	1.000	PCS	
MARK:						
	37 POA182	paper outter case 4 hole	ALTO 19"	0.250	PCS	
MARK:						
	38 ME00060	MIC stand nut	JY-6351G-02-250	8.000	PCS	
MARK:						
	39 MF00061	mic stand washer	JY-6351G-02-250	8.000	PCS	
MARK:						
	40 HLSF160	row-wire connecting wiri	2P 230mm	1.000	PCS	
MARK:						
	41 NLXC07	rubber coil	20* 60*2tB	2.000	PCS	
MARK:						
	42 NMCQ-073	assurance book	ALTO	1.000		
MARK:						
	43 NA00154	box	ALTO	2.000	PCS	
MARK:						
	44 NI02085	power switch	22*9.69	1.000	PCS	
MARK:						
	46 MI01424		75.5*35.2(DI4)	1.000	PCS	
MARK:						
	47 NF00966	instruction	DI4 ALTO	1.000	PCS	
MARK:						
	48 TD00107	transformer	PT-DI4	1.000	PCS	
MARK:						
	49 NE06318	label	DI4 ALTO	2.000		
MARK:						
	50 NE05004	label	ALTO	4.000		
MARK:						
	51 NE07652	label	DI4	4.000		
MARK:						

Item No: D14

specify: AMP

Mid No: standard quantity:

NO	Material No	Item Name	Specific	Quantity	Unit	Ps
52	NPL278	LED separating pillar	7.6*4.5*184	0.780	PCS	

MARK:

Item No: D14

specify: AMP

Mid No: standard quantity:

NO	Material No	Item Name	Specific	Quantity	Unit	Ps
1	MI01365	front board	D14	1.000	PCS	
MARK:						
2	MMC013	iron pillar	hexagon 6.35*M3*6	8.000	PCS	
MARK:						

Item No: DI4

specify: AMP

Mid No: standard quantity:

NO	Material No	Item Name	Specific	Quantity	Unit	Ps
1	MB02207	rear board	DI4	1.000	PCS	
MARK:						
2	MMC013	iron pillar	hexagon 6.35*M3*6	3.000	PCS	
MARK:						
3	MSC023	screw pillar	M4*10*0.7PH	1.000	PCS	
MARK:						
4	MAPR80ZZ	L-shape fixed bracket	1.2*28*20*10(CLE2.0)	1.000	PCS	
MARK:						

Item No: DI4

specify: AMP

Mid No: standard quantity:

NO	Material No	Item Name	Specific	Quantity	Unit	Ps
1	HB00710	PC board	DI4FP(1*4)_VER020613	1.000	PCS	
MARK:						
2	RD00361	resistor	511 ±1% 0603	4.000	PCS	
MARK: R 18 45 72 99						
3	RPCA1100	SMD 1/10W precise resis1.00K	±1% 0603	8.000	PCS	
MARK: R 100 19 31 4 46 58 73 85						
4	RD00284	resistor	2.21K ±1% 0603	4.000	PCS	
MARK: R 101 20 47 74						
5	RPCA1115	SMD 1/10W precise resis1.15K	±1% 0603	4.000	PCS	
MARK: R 35 62 8 89						
6	RPCA1422	SMD 1/10W precise resis4.22K	±1% 0603	4.000	PCS	
MARK: R 102 21 48 75						
7	RPCA1806	SMD 1/10W precise resis8.06K	±1% 0603	4.000	PCS	
MARK: R 103 22 49 76						
8	RPCA2110	SMD 1/10W precise resis11.0K	±1% 0603	4.000	PCS	
MARK: R 1 28 55 82						
9	RPCA2150	SMD 1/10W precise resis15.0K	±1% 0603	4.000	PCS	
MARK: R 36 63 90						
10	RD00368	resistor	16.5K ±1% 0603	4.000	PCS	
MARK: R 105 24 51 78						
11	RD00370	resistor	33.2K ±1% 0603	8.000	PCS	
MARK: R 106 14 25 41 52 68 79 95						
12	RD00317	resistor	39.2K ±1% 0603	8.000	PCS	
MARK: R 107 17 26 44 53 71 80 98						
13	RD00290	resistor	47.5K ±1% 0603	12.000	PCS	
MARK: R 13 2 29 3 30 40 56 57 67 83 84 94						
14	RD00371	resistor	51.1K ±1% 0603	8.000	PCS	
MARK: R 15 16 42 43 69 70 96 97						
15	RFCF022	SMD 1/10W fixed resistor22	±5% 0603	4.000	PCS	
MARK: R 104 23 50 77						
16	RFCF156	SMD 1/10W fixed resistor560	±5% 0603	4.000	PCS	
MARK: R 12 39 66 93						
17	RFCF422	SMD 1/10W fixed resistor220K	±5% 0603	4.000	PCS	
MARK: R 32 5 59 86						
18	RFCF447	SMD 1/10W fixed resistor470K	±5% 0603	8.000	PCS	
MARK: R 33 34 6 60 61 7 87 88						
19	CCE010B	SMD0603 ceramic capacitc10PF	NPO ±5% -50	4.000	PCS	
MARK: R 13 22 31 4						
20	CCE047B	SMD0603 ceramic capacitc47PF	NPO ±5% -50	4.000	PCS	
MARK: C 1 10 19 28						
21	CCE410F	SMD0603 ceramic capacitc0.1uF	Y5V+80 -20%50V	4.000	PCS	
MARK: C 17 26 35 8						
22	DRS0005	SMD rectifier diode	RLS4148 0.5A (LL-34)	20.000	PCS	
MARK: C 1 10 11 12 13 14 15 16 17 18 19 2 20 3 4 5 6 7 8 9						
23	SICS202	SMD integraded circuit	NJM2068M-TE1(LM833D)	4.000	PCS	
MARK: U 12 3 6 9						

Item No: D14

specify: AMP

Mid No: standard quantity:

NO	Material No	Item Name	Specific	Quantity	Unit	Ps
24	SICS115	SMD integrated circuit	BA10339FV E2	8.000	PCS	
MARK:U 1 10 11 2 4 5 7 8						
25	STRS103	SMD transistor	2SA1036K(R) (MMBT3906LT1)	8.000	PCS	
MARK:TR 1 2 3 4 5 6 7 8						

Item No: DI4

specify: AMP

Mid No: standard quantity:

NO	Material No	Item Name	Specific	Quantity	Unit	Ps
1	CE447G	electrotytic capacitor	0.47/50V 4*7	4.000	PCS	
MARK:C	18 27 36 9					
2	CE510S	electrolytic capacitor	1/50V 4*7	4.000	PCS	
MARK:C	16 25 34 7					
3	CE647E	electrotytic capacitor	47/25V	8.000	PCS	
MARK:C	14 15 23 24 32 33 5 6					
4	CE747D	electrolytic capacitor	470/16V	4.000	PCS	
MARK:C	11 2 20 29					
5	RFB147S	1/4W fixed resistor	470 S type	4.000	PCS	
MARK:R	10 37 64 91					
6	CL333G	mylar capacitor	0.033/50V	4.000	PCS	
MARK:C	12 21 3 30					
7	HA02078		12P-12P 220	4.000	PCS	
MARK:CN	1 2 3 4					
8	HI00162	sw	PS-22E8552L(3.3x3.3)	12.000	PCS	
MARK:SW	1 13 14 15 19 2 20 21 3 7 8 9					
9	HI00163	SW	PS-42E85L(3.3x3.3)	12.000	PCS	
MARK:SW	10 11 12 16 17 18 22 23 24 4 5 6					
10	DL50RG	L.E.D	LVG2340/A 3 green	44.000	PCS	
MARK:LED	1 10 11 12 13 14 15 16 17 18 19 2 20 21 22 23 24 3 4 5 6 7 8 9 LD1 LD10 LD11 LD12 LD13 LD17 LD18 LD19 LD2 LD20 LD21 LD25 LD26 LD27 LD28 LD29 LD3 LD4 LD5 LD9					
11	DL50RR	L.E.D	LI2340/A 3 red	4.000	PCS	
MARK:LD	16 24 32 8					
12	DL50RY	L.E.D	LVY2340/A 3 yellow	8.000	PCS	
MARK:LD	14 15 22 23 30 31 6 7					
13	NI01772	LED separating pillar	LEDS-7 7mm	12.000	PCS	
MARK:						
14	NI01781	LED separating pillar	LEDS-8 8mm	32.000	PCS	
MARK:						
15	RFB212S	1/4W fixed resistor	1.2K S type	4.000	PCS	
MARK:R	11 38 65 92					
16	NI01831		8.5*4*17 black	12.000	PCS	
MARK:						

Item No: DI4

specify: AMP

Mid No: standard quantity:

NO	Material No	Item Name	Specific	Quantity	Unit	Ps
1	HB00711	PC board	DI4PU(1*3)_VER020624	1.000	PCS	
MARK:						
2	RFCF033	SMD 1/10W fixed resistor33	±5% 0603	4.000	PCS	
MARK: R 12 17 2 7						
3	RFCF047	SMD 1/10W fixed resistor47	±5% 0603	4.000	PCS	
MARK: R 1 11 16 6						
4	RFCF247	SMD 1/10W fixed resistor4.7K	±5% 0603	4.000	PCS	
MARK: R 10 15 20 5						
5	DRS0005	SMD rectifier diode	RLS4148 0.5A (LL-34)	17.000	PCS	
MARK: D 1 10 11 12 13 14 15 16 17 2 3 4 5 6 7 8 9						
6	CCE110B	SMD0603 ceramic capacitc	100PF NPO ±5% -50	4.000	PCS	
MARK: C 1 17 20 6						
7	CCE210I	SMD0603 ceramic capacitc	0.001uF X7R ±10% -50	4.000	PCS	
MARK: C 10 18 21 5						

Item No: DI4

specify: AMP

Mid No: standard quantity:

NO	Material No	Item Name	Specific	Quantity	Unit	Ps
1	RFB210S	1/4W fixed resistor	1.0K S type	8.000	PCS	
MARK:	R 13 14 18 19 3 4 8 9					
2	HCSM40	MIC jack for balance	99M-108SP1	4.000	PCS	
MARK:	CN 11 3 6 8					
3	CE647E	electrotytic capacitor	47/25V	4.000	PCS	
MARK:	C 19 2 22 7					
4	CE647G	electrotytic capacitor	47/50V	4.000	PCS	
MARK:	C 11 14 3 8					
5	CE722G	electrotytic capacitor	220/50V	4.000	PCS	
MARK:	C 12 15 4 9					
6	SD00132	integrated circuit	L78L24ACZ(NJM78L24A)	4.000	PCS	
MARK:	TR 1 2 3 4					
7	CN00038	inductance	220uH(LGA0307-221K)	4.000	PCS	
MARK:	L 1 2 3 4					
8	HCSV0212	row-wire header	12P 2.0mm 180 °	4.000	PCS	
MARK:	CN 10 13 4 7					
9	HCSR0202	row-wire header	2P 3.96mm 180 °	1.000	PCS	
MARK:	CN 1					
10	RFC212S	1/8W fixed resistor	1.2K S type	1.000	PCS	
MARK:	R 21					
11	HC00405	shape male	99M-107SP1L2 母插90 ° NO	4.000	PCS	
MARK:	CN 12 2 5 9					
12	HCSI0202	row-wire header	2P 2.5mm 180 °	1.000	PCS	
MARK:	CN 14					
13	TF00059	transformer	OT-DI1	4.000	PCS	
MARK:	T 1 2 3 4					
14	MI01404	separting shade	DI4	4.000	PCS	
MARK:	T 1 2 3 4					
15	CM410IS	metal-film capacitor(MSC 0.1uF/63V 5% CASE01		1.000	PCS	
MARK:	C 23					

Item No: DI4

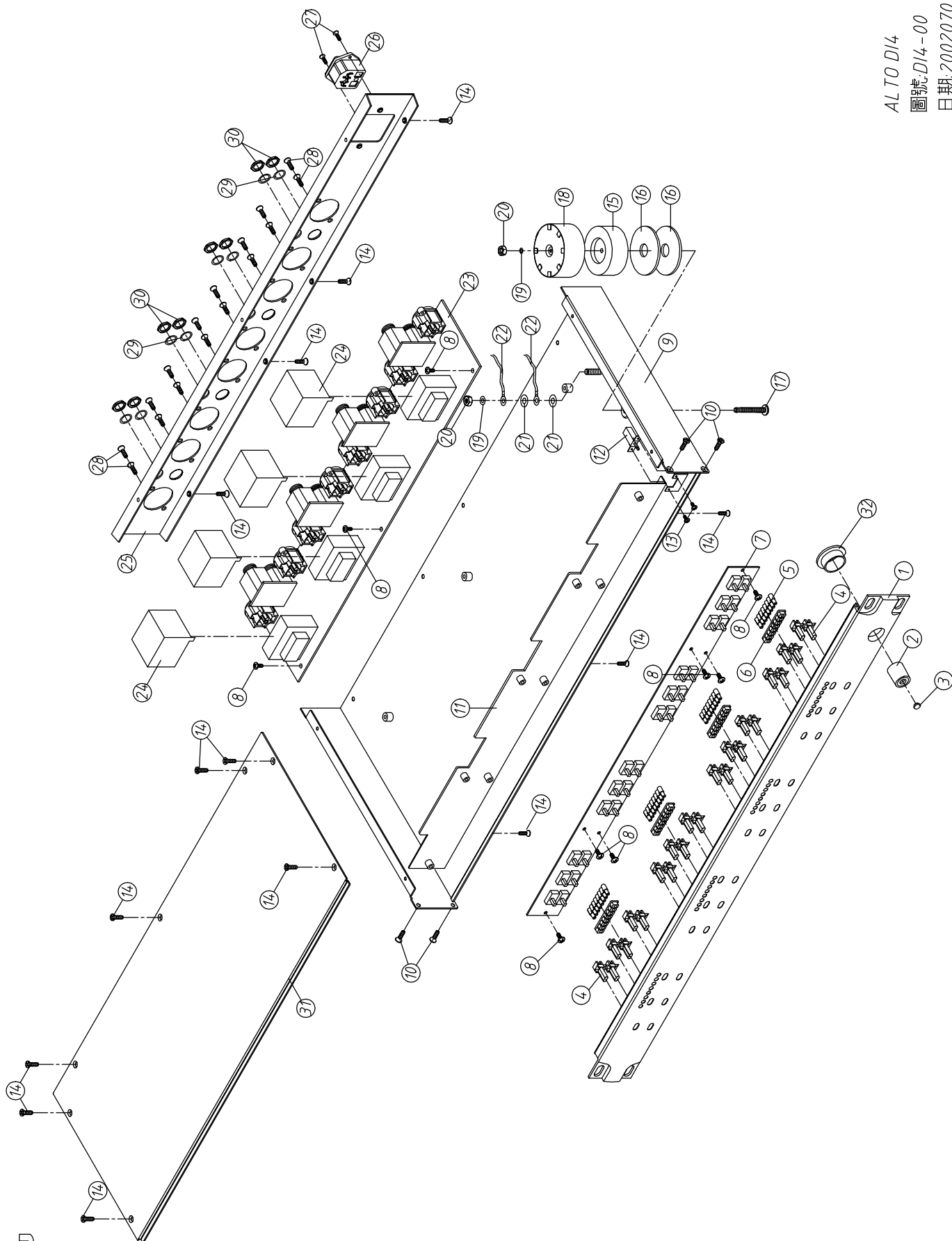
specify: AMP

Mid No: standard quantity:

NO	Material No	Item Name	Specific	Quantity	Unit	Ps
1	HB00712	PC board	DI4IN(1*24)_VER020624	1.000	PCS	
MARK:						
2	HC00371	MIC jack	SCJ-0658-1-Y	2.000	PCS	
MARK:CN 4 5						

8. Exploded Views

ALTO D14
圖號: D14-00
日期: 20020701



SEKAKU