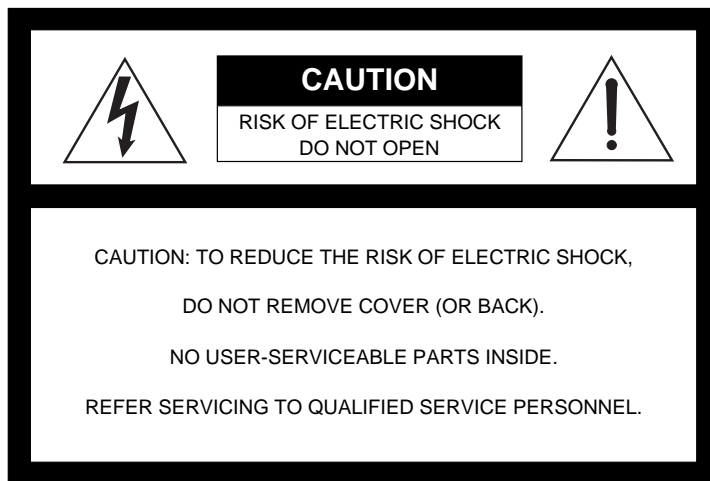

Service Manual

Model

VC-8

ADAT/ANALOG Converter

Fostex[®]



CAUTION:

TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

ATTENTION:

POUR ÉVITER LES CHOCS ÉLECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU' AU FOND.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

“WARNING”

“TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.”

SAFETY INSTRUCTIONS

1. Read instructions - All the safety and operating instructions should be read before the appliance is operated.
2. Retain instructions - The safety and operating instructions should be retained for future reference.
3. Heed warnings - All warnings on the appliance and in the operating instructions should be adhered to.
4. Follow instructions - All operating and use instructions should be followed.
5. Water and Moisture - The appliance should not be used near water - for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.
6. Carts and Stands - The appliance should be used only with a cart or stand that is recommended by the manufacturer.
7. Wall or Ceiling Mounting - The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. Ventilation - The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
9. Heat - The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
10. Power Sources - The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
11. Grounding or Polarization - The precautions that should be taken so that the grounding or polarization means of an appliance is not defeated.
12. Power Cord Protection - Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
13. Cleaning - The appliance should be cleaned only as recommended by the manufacturer.
14. Nonuse Periods - The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
15. Object and Liquid Entry - Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
16. Damage requiring Service - The appliance should be serviced by qualified service personnel when:
 - A. The power supply cord or the plug has been damaged; or
 - B. Objects have fallen, or liquid has been spilled into the appliance; or
 - C. The appliance has been exposed to rain; or
 - D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
 - E. The appliance has been dropped, or the enclosure damaged.
17. Servicing - The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.



An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

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NOTES

* Parts List and circuit diagrams are given in this manual to assist the service technician in maintaining the Model VC-8.

* The following accessories are supplied with VC-8 as the standard accessories.

Owner's manual, VC-8, MLT : 8288444000

 AC adaptor AD-12A	: 8270727003 (for USA/CND)
	: 8270727006 (for EUR)
	: 8270727007 (for UK)
	: 8270727010 (for JPN)

* Following is the packing material for the Model VC-8.


PACK, SIDE, L, DE-1 : 8228454000

PACK, SIDE, R, DE-1 : 8228455000

CARTON, INNER, VC-8 : 8228727000

CARTON, OUTER, VC-8 : 8228906000

CAUTION

 Parts marked with this sign are safety critical components. They must always be replaced with identical components. Refer to the Fostex Parts List and ensure exact replacement.

1. SPECIFICATIONS (Specification Unit : 0 dBV = 1 Vrms)

INPUT 1~8

Connector	RCA pin jack
Input Impedance	20k Ω or more
Input Level	-10dBV

OUTPUT 1~8

Connector	RCA pin jack
Load Impedance	10k Ω or more
Output Level	-10dBV

DATA IN/OUT

Connector	Square shape optical
Format	IEC60958 (S/P DIF) ALESIS Proprietary Multi Channel Optical Interface

WORD IN

Connector	BNC type
Input Impedance	Terminate switch ON : 75 Ω Terminate switch OFF : Hi impedance
Input Level	Hi Level : 3.5~5V Lo Level : 0~1V

DIGITAL SECTION

Quantization	20-bit linear
AD Converter	20 bit 64 times over sampling $\Delta\Sigma$ modulation
DA Converter	20 bit 128times over sampling $\Delta\Sigma$ modulation
Sampling Frequency	INT mode : 44.1kHz OPTICAL/WORD mode : 32~48kHz

CHARACTERISTICS

Overall Frequency Responce	+1, -2dB (20Hz~20kHz)
Dynamic Range (overall)	90dB or more
T.H.D.	0.008% or less (at 1kHz,+2dB)
Channel Separation	80dB or more (at 1kHz)
S/N (overall)	90dB or more
Phase Difference between Channel	20° or less
Click Noise	Power ON/OFF : -20dBV or less

GENERAL

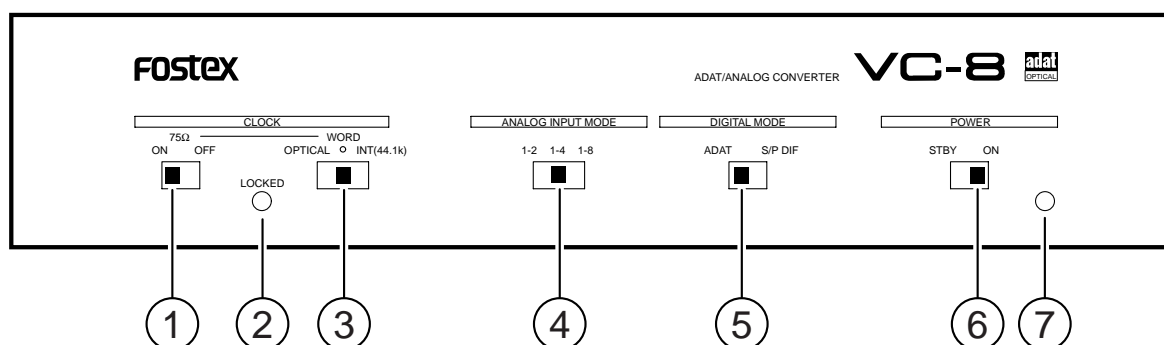
Dimensions	220 (W) x 43 (H) x 200 (D) mm
Weight	1.0kg (Excluding accessories)
Power Supply	DC12V, 600mA, Exclusive AC Adaptor (AD-12A)

* Specifications and appearance are subjects to change without notice for product improvement.

* Adat and the  marks are trademarks of Alesis Corporation.

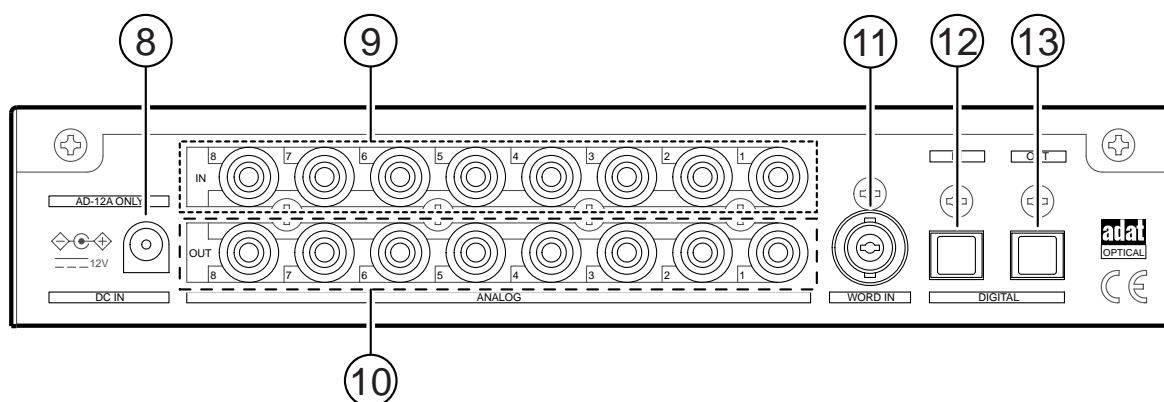
2. CONTROLS, INDICATORS AND CONNECTORS

< Front Side >



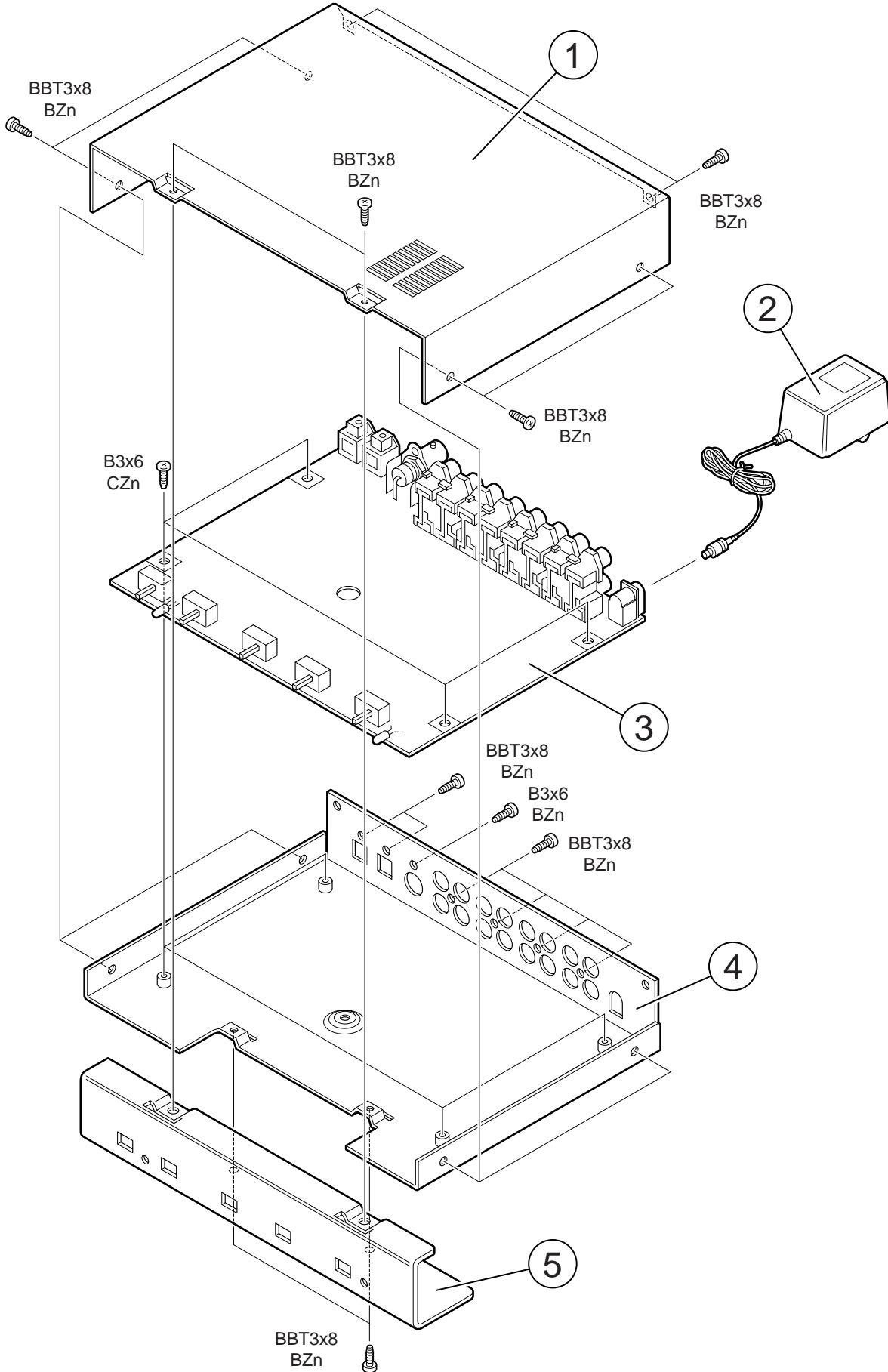
1. WORD IN terminate switch
2. LOCKED LED
3. CLOCK select switch
4. ANALOG INPUT MODE switch
5. DIGITAL MODE select switch
6. POWER switch
7. POWER LED

< Rear Side >



8. DC IN jack [Center: Plus +]
9. ANALOG INPUT connectors 1~8 [RCA]
10. ANALOG OUTPUT connectors 1~8 [RCA]
11. WORD IN connector [BNC]
12. DIGITAL INPUT connectors [Square shape optical]
13. DIGITAL OUTPUT connectors [Square shape optical]

3. EXPLODED VIEW



Ref. No.	Part No.	Description
1	8221288000	PANEL ,TOP, DE-1
⚠ 2	8270727003	AC ADAPTOR, AD-12A, USA/CND
	8270727006	AC ADAPTOR, AD-12A, EUR
	8270727007	AC ADAPTOR, AD-12A, UK
	8270727010	AC ADAPTOR, AD-12A, JPN
3	8274201000	PCB_ASSY, VC-8
4	8221291000	CHASSIS, VC-8
5	8221290000	PANEL, FRONT, VC-8
	8260561000	FOOT_ASSY, S

CAUTION :

The “PARITY SW (S001)” on the MAIN PCB assy must be set “ON”.

4. PARTS LIST

• MAIN PCB ASSY

Ref. No.	Part No.	Description
	8274201000	PCB_ASSY, VC-8
B101	8251525200	PLAIN_PCB, VC-8

ICs

Ref. No.	Part No.	Description
U001	8236541610	ST, AN, REGULATOR, UPD29M10T
U002~004	8236540301	ST, AN, REGULATOR, L78M05T-TL
U005	8236545904	ST, TSSOP, 74VHC04
U006	8236545000	QFP, DG, GATE_ARRAY, DIF
U007	8236502500	ST, AN, RESET, NJM2103M
U008, 009	8236545163	ST, TSSOP, TC74VHC163
U010, 011	8236545153	ST, TSSOP, TC74VHC153
U012	8236503400	ST, DG, VCO, TC9246F
U013, 014	8236570101	ST, DG, DRIVER, DTC114EK
U015~017	8236545074	ST, TSSOP, 74VHC74
U018	8236545000	ST, TSSOP, 74VHC00
U019	8236545161	ST, TSSOP, 74VHC161
U020	8236545086	ST, TSSOP, 74VHC86
U021, 022	8236570101	ST, DG, DRIVER, DTC114EK
U023	8236570801	ST, DG, DRIVER, DTB114TK
U024	8236545074	ST, TSSOP, 74VHC74
U025	8236545904	ST, TSSOP, 74VHC04
U026	8236503400	ST, DG, VCO, TC9246F
U027	8236570401	ST, DG, DRIVER, DTA114EK
U029, 030	8236545157	ST, TSSOP, 74VHC157
U031	8236545000	ST, TSSOP, 74VHC00
U032	8236541300	ST, AN, DC-DC, NJM2360AM
U034, 035	8236570401	ST, DG, DRIVER, DTA114EK
U101~801	8236505011	ST, AN, OPAMP, NJM2115M(TEI)
U151~451	8236541700	ST, DG, ADDA, AK4522
U153~453	8236541200	ST, AN, OPAMP, NJM4565M
U157~857	8236570201	ST, DG, DRIVER, DTC314TK

DIODES

Ref. No.	Part No.	Description
D001	8234101400	OPT, VT, LED, GRN, LT3K8B
D002	8234502800	D, ST, DAN202K
D003	8234750600	D, ST, RB400D
D004	non	
D005	8234202700	OPT, V, LED, GRN-RED, GL3ED8
D006, 007	8234502800	D, ST, DAN202K
D008	8234108400	D, VT, SCHOTTKY, EK03W
D009~011	8234502800	D, ST, DAN202K

RESISTORS

Ref. No.	Part No.	Description
R001	8230500681	ST, CARBON, 1/10W, 680, 5%
R002	8230500101	ST, CARBON, 1/10W, 100, 5%
R003	8230500332	ST, CARBON, 1/10W, 3.3K, 5%
R004	8230500222	ST, CARBON, 1/10W, 2.2K, 5%
R005	8230500105	ST, CARBON, 1/10W, 1M, 5%
R006	8230500000	ST, CARBON, 1/10W, 0, 5%
R007	8230500101	ST, CARBON, 1/10W, 100, 5%
R008	8230500561	ST, CARBON, 1/10W, 560, 5%

RESISTORS

Ref. No.	Part No.	Description
R009	8230500331	ST, CARBON, 1/10W, 330, 5%
R010	8230500101	ST, CARBON, 1/10W, 100, 5%
R011~013	8230500103	ST, CARBON, 1/10W, 10K, 5%
R014	8230500101	ST, CARBON, 1/10W, 100, 5%
R015	8230500751	ST, CARBON, 1/10W, 750, 5%
R016	8230500472	ST, CARBON, 1/10W, 4.7K, 5%
R017	non	
R018	8230500331	ST, CARBON, 1/10W, 330, 5%
R019	non	
R020, 021	8230500101	ST, CARBON, 1/10W, 100, 5%
R022	non	
R023	8230500102	ST, CARBON, 1/10W, 1K, 5%
R024, 025	8230500103	ST, CARBON, 1/10W, 10K, 5%
R026	8230508101	R, ST, ARRAY, 100x4, 5%, CN1J4
R027	8230500101	ST, CARBON, 1/10W, 100, 5%
R029	8230500103	ST, CARBON, 1/10W, 10K, 5%
R030	8230500222	ST, CARBON, 1/10W, 2.2K, 5%
R031, 032	8230500102	ST, CARBON, 1/10W, 1K, 5%
R033, 034	8230500104	ST, CARBON, 1/10W, 100K, 5%
R035	8230500561	ST, CARBON, 1/10W, 560, 5%
R036	8230500152	ST, CARBON, 1/10W, 1.5K, 5%
R037	8230500224	ST, CARBON, 1/10W, 220K, 5%
R038, 039	8230500101	ST, CARBON, 1/10W, 100, 5%
R040	8230500681	ST, CARBON, 1/10W, 680, 5%
R041~043	8230500101	ST, CARBON, 1/10W, 100, 5%
R044	8230500681	ST, CARBON, 1/10W, 680, 5%
R045	8230500104	ST, CARBON, 1/10W, 100K, 5%
R048	8230500104	ST, CARBON, 1/10W, 100K, 5%
R049	8230500103	ST, CARBON, 1/10W, 10K, 5%
R050, 051	8230500101	ST, CARBON, 1/10W, 100, 5%
R054	8230500103	ST, CARBON, 1/10W, 10K, 5%
R055	8230500101	ST, CARBON, 1/10W, 100, 5%
R056	8230500750	ST, CARBON, 1/10W, 75, 5%
R057	8230500103	ST, CARBON, 1/10W, 10K, 5%
R058	8230500159	ST, CARBON, 1/10W, 1.5, 5%
R059	8230500105	ST, CARBON, 1/10W, 1M, 5%
R060, 061	8230500561	ST, CARBON, 1/10W, 560, 5%
R062	8230500103	ST, CARBON, 1/10W, 10K, 5%
R063, 064	8230500473	ST, CARBON, 1/10W, 47K, 5%
R065	8230500101	ST, CARBON, 1/10W, 100, 5%
R101~801	8230500183	ST, CARBON, 1/10W, 18K, 5%
R102~802	8230500752	ST, CARBON, 1/10W, 7.5K, 5%
R103~803	8230500103	ST, CARBON, 1/10W, 10K, 5%
R104~804	8230500103	ST, CARBON, 1/10W, 10K, 5%
R105~805	8230500331	ST, CARBON, 1/10W, 330, 5%
R106~806	8230500331	ST, CARBON, 1/10W, 330, 5%
R109~809	8230500104	ST, CARBON, 1/10W, 100K, 5%
R111~811	8230500103	ST, CARBON, 1/10W, 10K, 5%
R112~812	8230500123	ST, CARBON, 1/10W, 12K, 5%
R113~813	8230500222	ST, CARBON, 1/10W, 2.2K, 5%
R114~814	8230500104	ST, CARBON, 1/10W, 100K, 5%
R151~451	8230500100	ST, CARBON, 1/10W, 10, 5%
R152~452	8230500101	ST, CARBON, 1/10W, 100, 5%
R153~453	8230500100	ST, CARBON, 1/10W, 10, 5%
R156~856	8230500101	ST, CARBON, 1/10W, 100, 5%

CAPACITORS

ALU = Electrolytic type

CER = Ceramic type

Ref. No.	Part No.	Description
C001~003	8232143106	VT, ALU, 16V, 10µF, 20%, SME-VB
C004	8232142107	VT, ALU, 10V, 100µF, 20%, SME-VB
C005~008	8232143106	VT, ALU, 16V, 10µF, 20%, SME-VB
C009	8232143477	VT, ALU, 16V, 470µF, 20%, SME-VB
C010~012	8232143106	VT, ALU, 16V, 10µF, 20%, SME-VB
C013~020	8233502104	ST, CER, 50V, 0.1µF, +80, CC20F
C021~024	8233504103	ST, CER, 25V, 0.01µF, 10%, CC20R
C025	8233500471	ST, CER, 50V, 470pF, 5%, CC20SL
C026, 027	8233504103	ST, CER, 25V, 0.01µF, 10%, CC20R
C028, 029	8233500471	ST, CER, 50V, 470pF, 5%, CC20SL
C030~034	8233504103	ST, CER, 25V, 0.01µF, 10%, CC20R
C035	8233502104	ST, CER, 50V, 0.1µF, +80, CC20F
C036~042	8233504103	ST, CER, 25V, 0.01µF, 10%, CC20R
C043, 044	8233500101	ST, CER, 50V, 100pF, 5%, CC20SL
C045	8233500470	ST, CER, 50V, 47pF, 5%, CC20SL
C046	8233504103	ST, CER, 25V, 0.01µF, 10%, CC20R
C047, 048	8233500220	ST, CER, 50V, 22pF, 5%, CC20SL
C049~051	8233504103	ST, CER, 25V, 0.01µF, 10%, CC20R
C052	8233500150	ST, CER, 50V, 15pF, 5%, CC20SL
C053	8233509474	ST, CER, 25V, 0.47µF, 20%, KC30E
C054	8233504103	ST, CER, 25V, 0.01µF, 10%, CC20R
C055	8232144107	VT, ALU, 25V, 100µF, 20%, SME-VB
C056	8233504103	ST, CER, 25V, 0.01µF, 10%, CC20R
C057	8232142107	VT, ALU, 10V, 100µF, 20%, SME-VB
C058	8233502104	ST, CER, 50V, 0.1µF, +80, CC20F
C059~062	8233504103	ST, CER, 25V, 0.01µF, 10%, CC20R
C063	8233500222	ST, CER, 50V, 0.0022µF, 5%, CC20SL
C064	8232143107	VT, ALU, 16V, 100µF, 20%, SME-VB
C065	8232143476	VT, ALU, 16V, 47µF, 20%, SME-VB
C066	8233504103	ST, CER, 25V, 0.01µF, 10%, CC20R
C067	non	
C068, 069	8233504103	ST, CER, 25V, 0.01µF, 10%, CC20R
C070	8232143106	VT, ALU, 16V, 10µF, 20%, SME-VB
C071	8233504103	ST, CER, 25V, 0.01µF, 10%, CC20R
C072	8233502104	ST, CER, 50V, 0.1µF, +80, CC20F
C073	8233509474	ST, CER, 25V, 0.47µF, 20%, KC30E
C074	8233504103	ST, CER, 25V, 0.01µF, 10%, CC20R
C075	8233500150	ST, CER, 50V, 15pF, 5%, CC20SL
C076	8233500470	ST, CER, 50V, 47pF, 5%, CC20SL
C077	8232357477	VT, ALU, 16V, 470µF, 20%, LXV, D10
C078	8233504103	ST, CER, 25V, 0.01µF, 10%, CC20R
C079~081	8233502104	ST, CER, 50V, 0.1µF, +80, CC20F
C101~801	8232143106	VT, ALU, 16V, 10µF, 20%, SME-VB
C102~802	8233500152	ST, CER, 50V, 0.0015µF, 5%, CC20R
C103~803	8233504103	ST, CER, 25V, 0.01µF, 10%, CC20R
C104~804	8233504103	ST, CER, 25V, 0.01µF, 10%, CC20R
C107~807	non	
C108~808	non	
C111~811	8232143106	VT, ALU, 16V, 10µF, 20%, SME-VB
C112~812	8233500681	ST, CER, 50V, 680pF, 5%, CC20SL
C113~413	8233504103	ST, CER, 25V, 0.01µF, 10%, CC20R

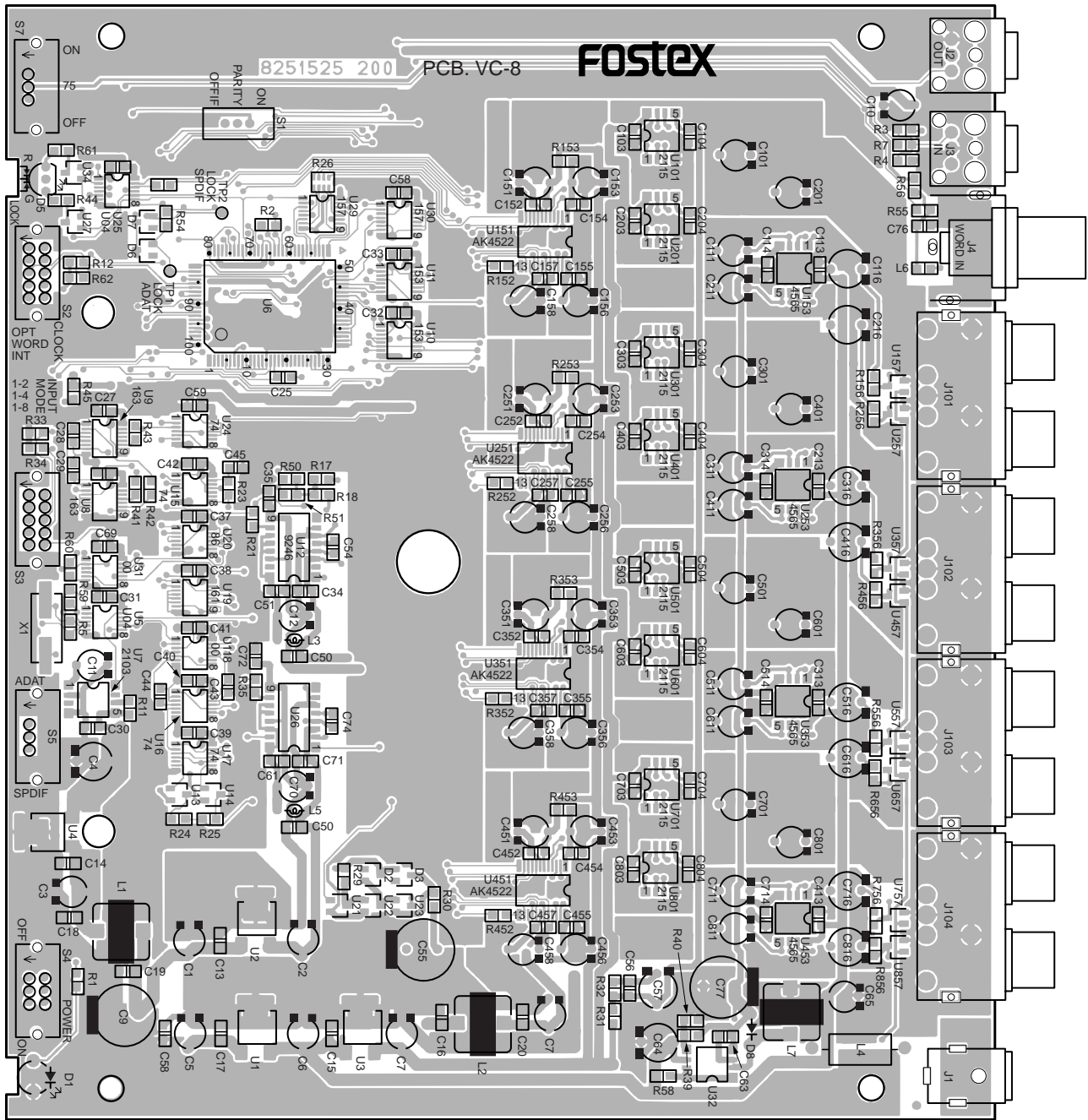
CAPACITORS

Ref. No.	Part No.	Description
C114	8233504103	ST, CER, 25V, 0.01µF, 10%, CC20R
C115~815	non	
C116~816	8232143107	VT, ALU, 16V, 100µF, 20%, SME-VB
C151~451	8232143106	VT, ALU, 16V, 10µF, 20%, SME-VB
C152~452	8233504103	ST, CER, 25V, 0.01µF, 10%, CC20R
C153~453	8232143106	VT, ALU, 16V, 10µF, 20%, SME-VB
C154~454	8233504103	ST, CER, 25V, 0.01µF, 10%, CC20R
C155~455	8233504103	ST, CER, 25V, 0.01µF, 10%, CC20R
C156~456	8232143106	VT, ALU, 16V, 10µF, 20%, SME-VB
C157~457	8233504103	ST, CER, 25V, 0.01µF, 10%, CC20R
C158~458	8232143106	VT, ALU, 16V, 10µF, 20%, SME-VB
C314	8233504103	ST, CER, 25V, 0.01µF, 10%, CC20R
C514	8233504103	ST, CER, 25V, 0.01µF, 10%, CC20R
C714	8233504103	ST, CER, 25V, 0.01µF, 10%, CC20R

MISCELLANEOUS

Ref. No.	Part No.	Description
J001	8245541000	CONN, PL, JACK, DC-INLET, YKB31-0012
J002	8245552010	CONN, OPT, GPIF38T2
J003	8245553010	CONN, OPT, GPIF37R1
J004	8245325000	CONN, PL, JACK, BNC, YKS11-0011
J101~104	8245286000	CONN, PL, JACK, RCA, 4P, YKC21-3077
L001, 002	8242502560	CORE, ST, CDRH104, 56µH
L003	8242196223	COIL, PVT, 22µH, 5%, LF5.0S
L004	8242134001	FILTER, EMI, 6HOLE
L005	8242196223	COIL, PVT, 22µH, 5%, LF5.0S
L006	8242501121	FILTER, ST, EMI, 120, 25%, MMZ2012S
L007	8242503221	CORE, ST, CDPH73, 220µH
L101~801	8242501121	FILTER, ST, EMI, 120, 25%, MMZ2012S
L102~802	8242501121	FILTER, ST, EMI, 120, 25%, MMZ2012S
S001	8253457002	SW, PI, SLIDE, 1-3, NONSH, SSSS91, L4
S002, 003	8253655002	SW, SLIDE, 2-3, NONSH, SSSF1
S004	8253655018	SW, PL, SLIDE, 2-2, NONSH, SSSF122, L06, COVER
S005	8253655017	SW, PL, SLIDE, 1-2, NONSH, SSSF1, L06, COVER
S007	8253655017	SW, PL, SLIDE, 1-2, NONSH, SSSF1, L06, COVER
X001	8256170005	RESONATOR, ST, XTL, 11.2896MHZ, FUP-FBB3A
Y701	8276873002	TUBE, UL, BLACK, 1, L05

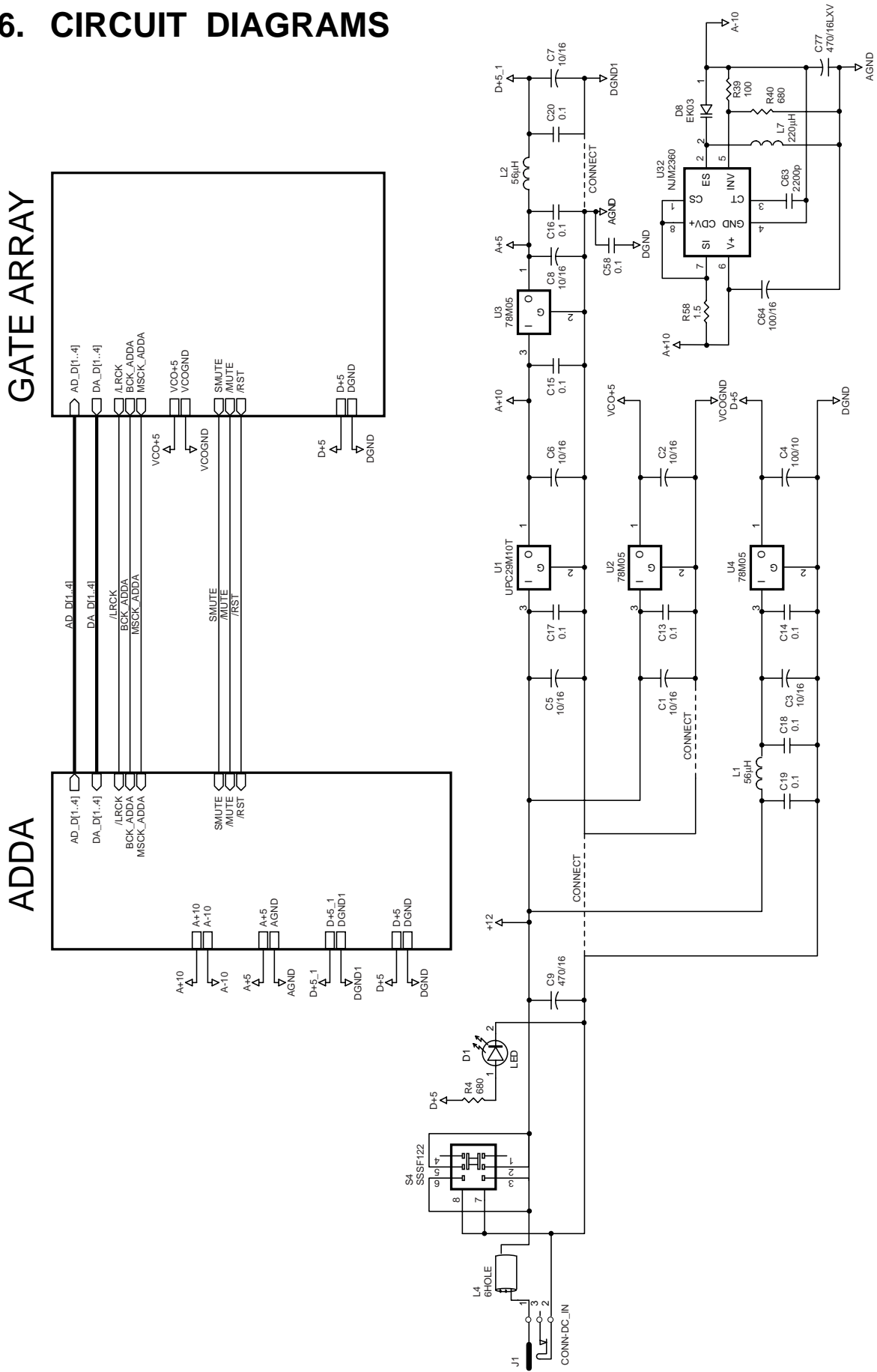
5. PCB PATTERN DRAWING



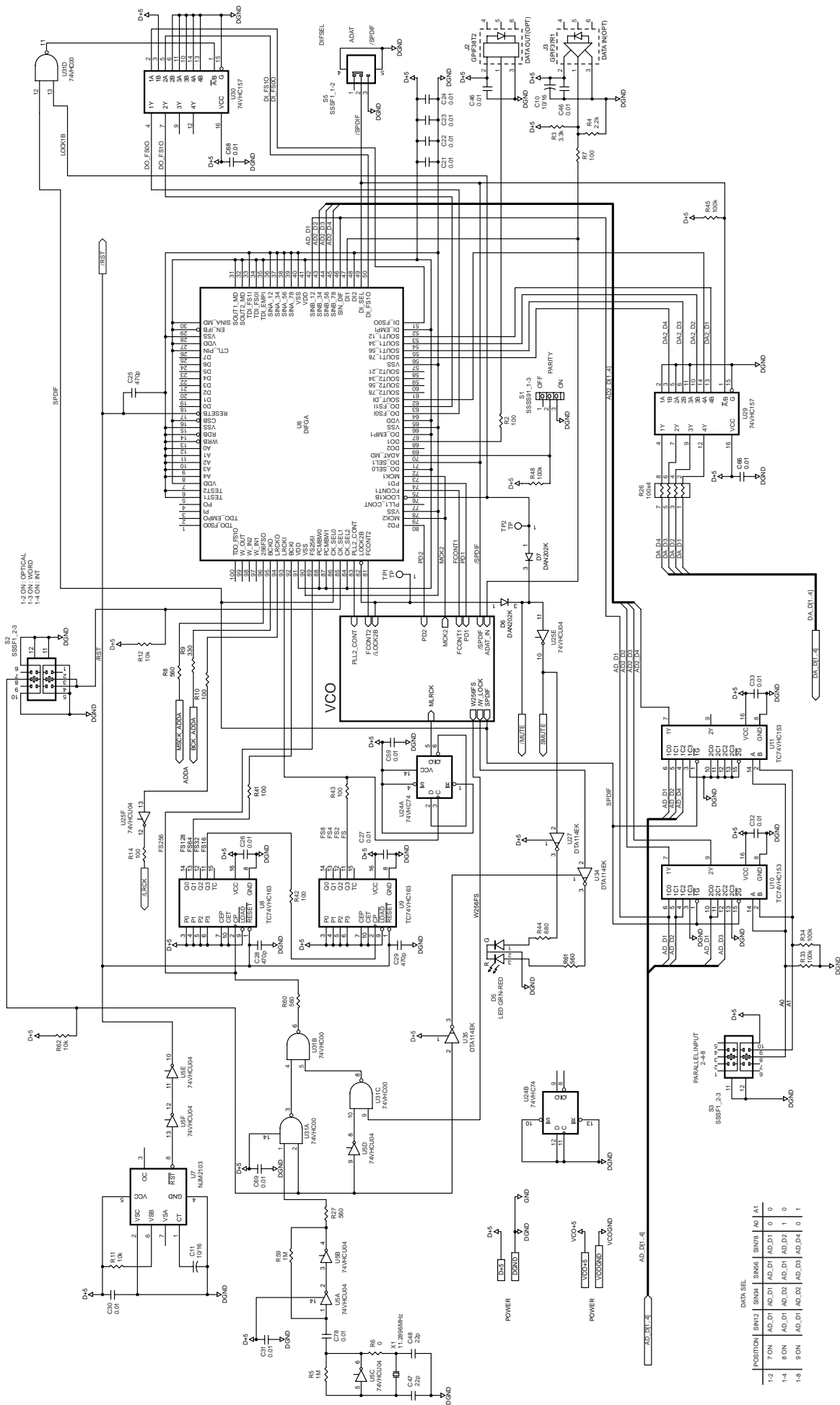
• PARTS SIDE

6. CIRCUIT DIAGRAMS

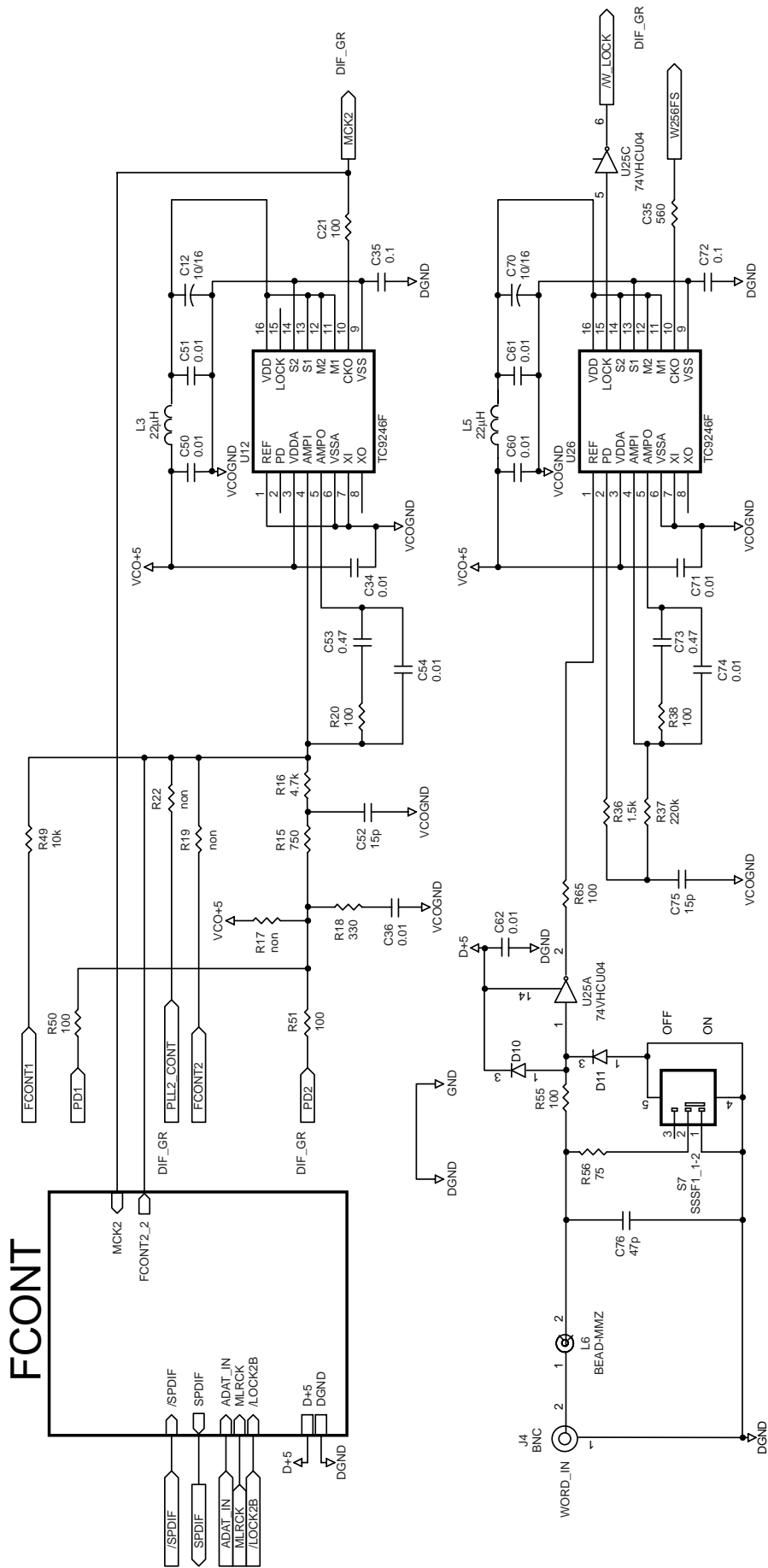
• ROOT



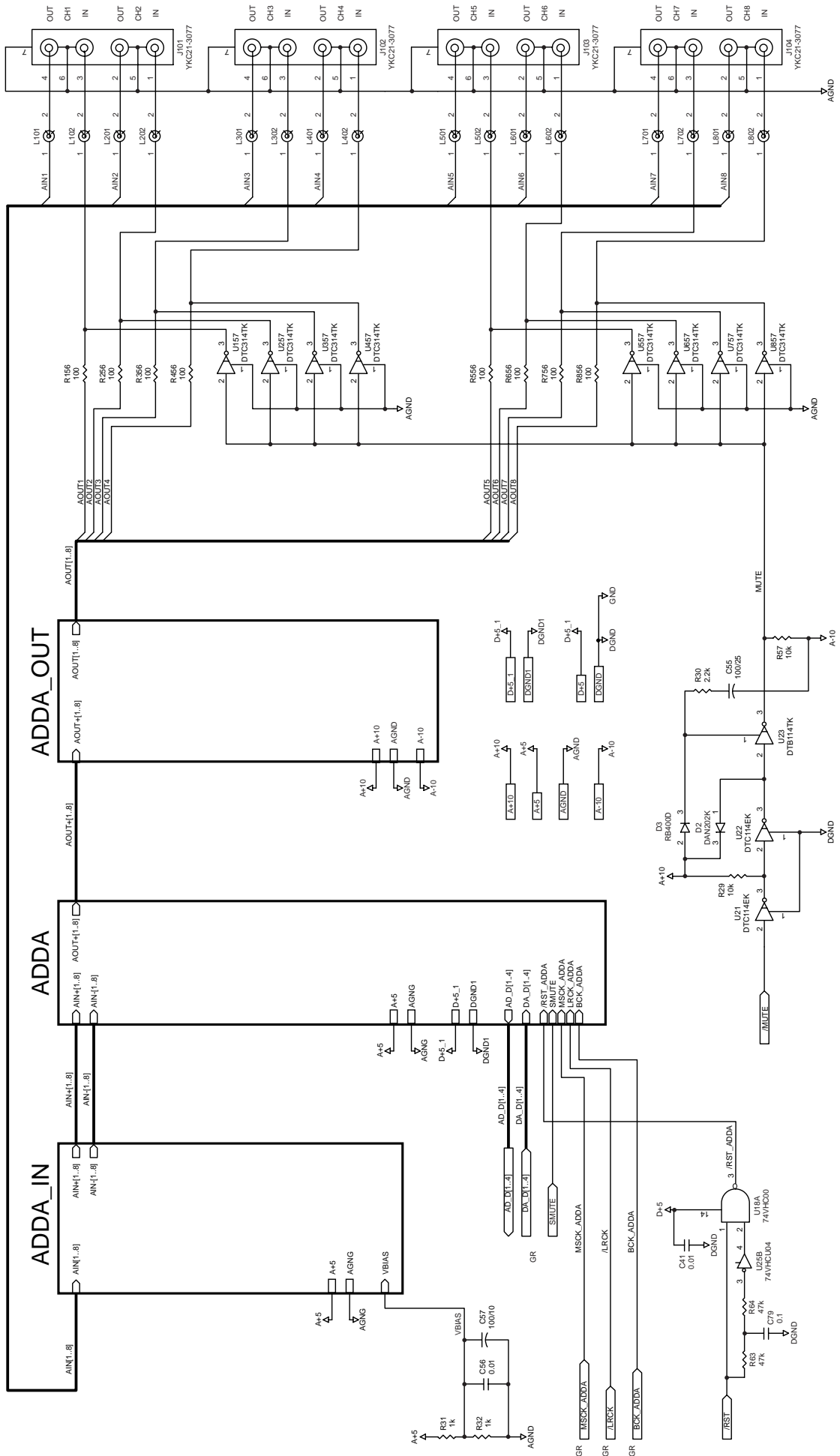
• GATE ARRAY



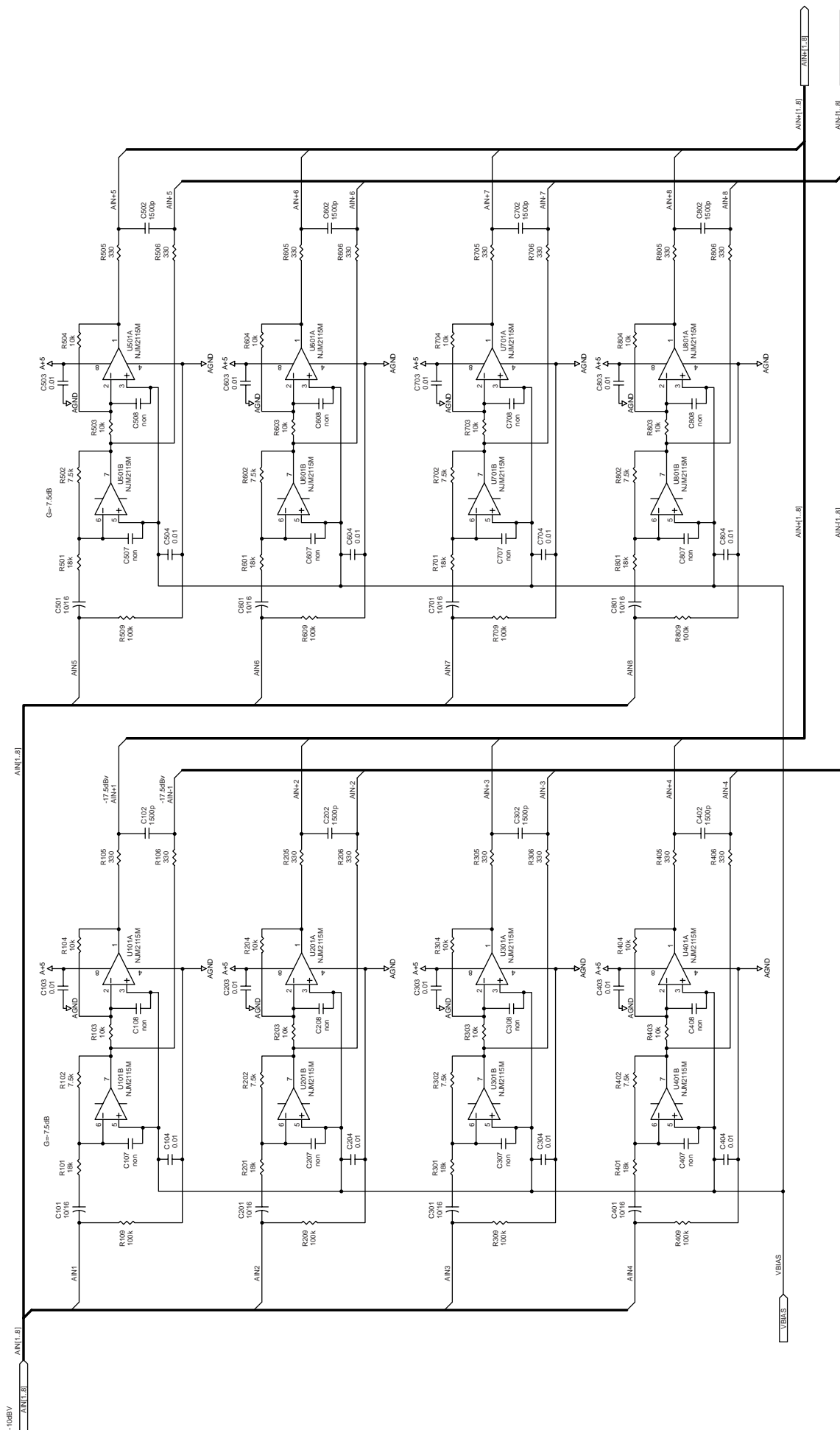
• VCO



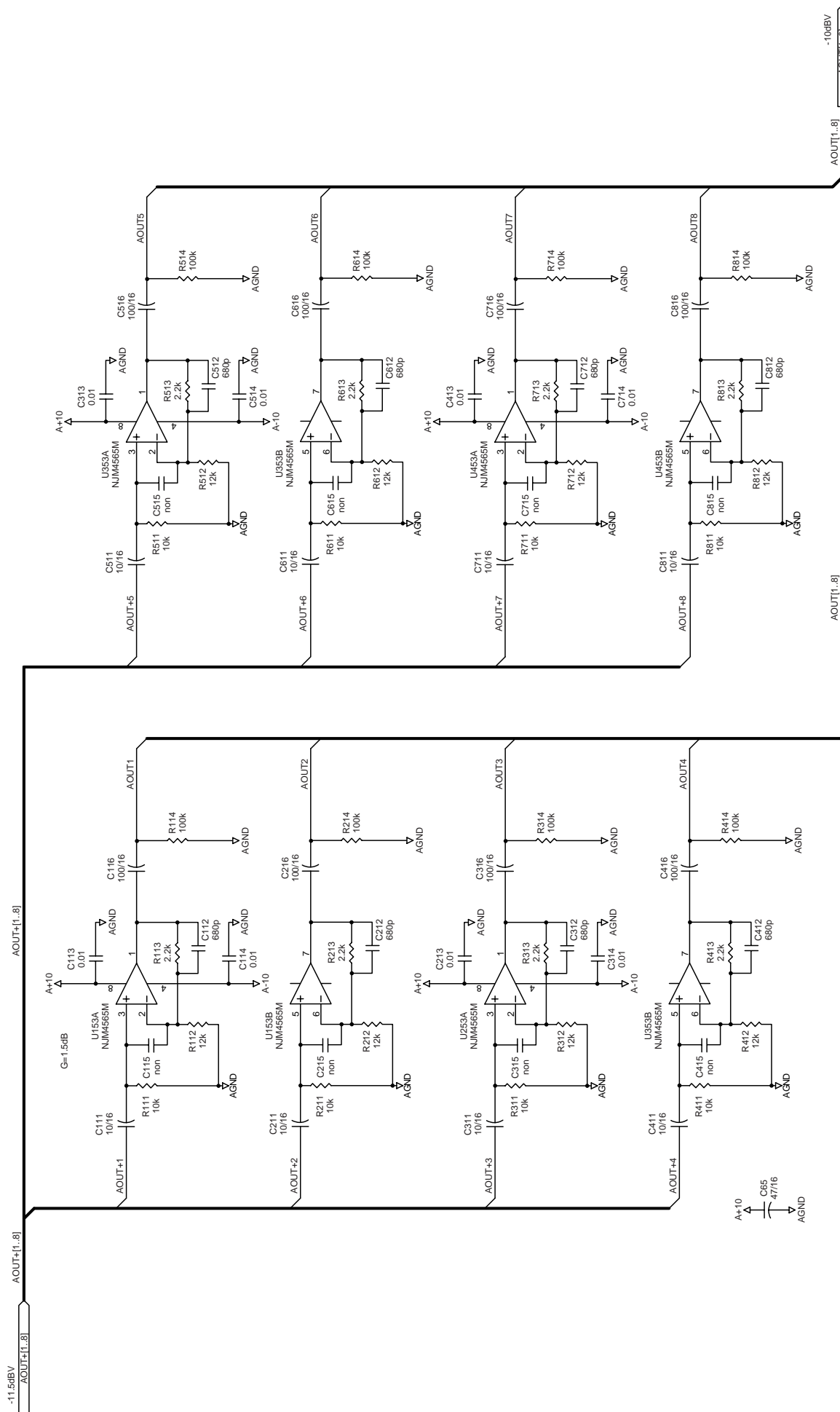
• ROOT AD-DA



• AD-DA IN



• AD-DA OUT



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