

Service Manual

DV3110 /K1G/S1G

DVD Player



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Please use this service manual with referring to the user guide (D.F.U.) without fail.
修理の際は、必ず取扱説明書を準備し操作方法を確認の上作業を行ってください。

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DV3110

MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, **MARANTZ** company has created the ultimate in stereo sound. Only original **MARANTZ** parts can insure that your **MARANTZ** product will continue to perform to the specifications for which it is famous.

Parts for your **MARANTZ** equipment are generally available to our National Marantz Subsidiary or Agent.

ORDERING PARTS :

Parts can be ordered either by mail or by Fax.. In both cases, the correct part number has to be specified.

The following information must be supplied to eliminate delays in processing your order :

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which part is required
5. Way of shipment
6. Signature : any order form or Fax. must be signed, otherwise such part order will be considered as null and void.

USA

MARANTZ AMERICA, INC
1100 MAPLEWOOD DRIVE
ITASCA, IL. 60143
USA
PHONE : 630 - 741 - 0300
FAX : 630 - 741 - 0301

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MARANTZ EUROPE B.V.
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THE NETHERLANDS
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BRAZIL

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PROFESSIONAL AMERICAS

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MARANTZ PROFESSIONAL PRODUCTS
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FAX : 630 - 820 - 8103

PROFESSIONAL AUSTRALIA

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558 DARLING STREET,
BALMAIN, NSW 2041,
AUSTRALIA
PHONE : 61 - 2 - 9810 - 5300
FAX : 61 - 2 - 9810 - 5355

CANADA

LENBROOK INDUSTRIES LIMITED
633 GRANITE COURT,
PICKERING, ONTARIO L1W 3K1
CANADA
PHONE : 905 - 831 - 6333
FAX : 905 - 831 - 6936

AUSTRALIA

QualiFi Pty Ltd,
24 LIONEL ROAD,
MT. WAVERLEY VIC 3149
AUSTRALIA
PHONE : +61 - (0)3 - 9543 - 1522
FAX : +61 - (0)3 - 9543 - 3677

THAILAND

MRZ STANDARD CO., LTD
746 - 754 MAHACHAI ROAD.,
WANGBURAPAPIROM, PHRANAKORN,
BANGKOK, 10200 THAILAND
PHONE : +66 - 2 - 222 9181
FAX : +66 - 2 - 224 6795

SINGAPORE

WO KEE HONG DISTRIBUTION PTE LTD
130 JOO SENG ROAD
#03-02 OLIVINE BUILDING
SINGAPORE 368357
PHONE : +65 6858 5535 / +65 6381 8621
FAX : +65 6858 6078

NEW ZEALAND

WILDASH AUDIO SYSTEMS NZ
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AUCKLAND NEW ZEALAND
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PAI- YUING CO., LTD.
6 TH FL NO, 148 SUNG KIANG ROAD,
TAIPEI, 10429, TAIWAN R.O.C.
PHONE : +886 - 2 - 25221304
FAX : +886 - 2 - 25630415

MALAYSIA

WO KEE HONG ELECTRONICS SDN. BHD.
SUITE 8.1, LEVEL 8, MENARA GENESIS,
NO. 33, JALAN SULTAN ISMAIL,
50250 KUALA LUMPUR, MALAYSIA
PHONE : +60 3 - 21457677
FAX : +60 3 - 21458180

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東京都渋谷区恵比寿南1-11-9

KOREA

MK ENTERPRISES LTD.
ROOM 604/605, ELECTRO-OFFICETEL, 16-58,
3GA, HANGANG-RO, YONGSAN-KU, SEOUL
KOREA
PHONE : +822 - 3232 - 155
FAX : +822 - 3232 - 154

SHOCK, FIRE HAZARD SERVICE TEST :

CAUTION : After servicing this appliance and prior to returning to customer, measure the resistance between either primary AC cord connector pins (with unit NOT connected to AC mains and its Power switch ON), and the face or Front Panel of product and controls and chassis bottom.

Any resistance measurement less than 1 Megohms should cause unit to be repaired or corrected before AC power is applied, and verified before it is return to the user/customer.

Ref. UL Standard No. 1492.

In case of difficulties, do not hesitate to contact the Technical Department at above mentioned address.

1. TECHNICAL SPECIFICATIONS

Discs played	
DVD video disc	12 cm single sided, single layer 12 cm single sided, double layer 12 cm double sided, single layer 12 cm double sided, double layer (one layer per side) 8 cm single sided, single layer 8 cm single sided, double layer 8 cm double sided, single layer 8 cm double sided, double layer(one layer per side)
Compact disc (CD-DA, Video CD)	
	12 cm, 8 cm
Video system	PAL/ NTSC
Audio system	Linear PCM audio MPEG 1/2 audio Dolby Digital(AC-3) DTS Digital

OUTPUT

CVBS output

Line output level	1.0 ± 0.2 Vp-p / 75 ohms RCA pin Jack × 1
Line SYNC level	0.3 ± 0.05 Vp-p
Definition	450(CVBS) 500(S-Video)
Luminance frequency response	5.5 MHz(-6 dB)
Chroma frequency response	1.5 MHz(-6 dB)
Luminance nonlinear distortion	5 %
Luminance waveform distortion	10 %
Luminance S/N ratio	50 dB(no weighting)
Chroma S/N ratio	AM: =60 dB PM: =50 dB
Luminance and chroma time delay	100 ns
Differential gain	5 %
Differential phase	5 %

S-VIDEO output

S-Video signal level	Y: 700 ± 140 mV C: chroma. 880 ± 176 mV chroma sync. 300 ± 60 mV
S-Video frequency response	Y: =5.5 MHz(-6 dB) C: =1.5 MHz(-6 dB)
S-Video S/N ratio	Y: =50(no weighting) C: =50

Audio output

Level output	2.0 + 0V, - 1.0V
Audio frequency response	20 Hz ~ 20 kHz ± 1 dB
Audio THD +N	- 65 dB(1 kHz)
Audio dynamic range	80 dB(1 kHz)
Crosstalk(fundamental)	80 dB
1kHz channel unbalance	1.5 dB
Intermodulation distortion	- 50 dB
Frequency error	± 0.02 dB
Level non-linearity	± 1 dB(0 dB ~ - 60 dB)

Digital audio output

Optical output	Optical connector × 1
Coaxial output	RCA pin Jack × 1

Pickup	Wavelength: 655 nm (DVD) Wavelength: 790 nm(CD)
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Others

Power requirements:	AC 110--240V 50/60Hz
Power consumption:	25W
Weight:	3.7kg
Dimensions:	440mm(L) x 325mm(W) x 88mm(H)

Supplied accessories

Audio/Video cabel	× 1
Remote controller	× 1
Batteries(R03)	× 2

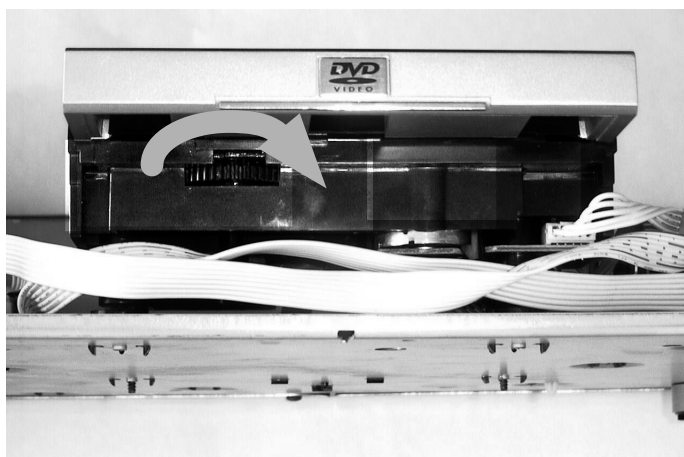
2. SERVICE HINT

2.1 Emergency Eject

1. Remove 7 screws on the top cover and remove the top cover.
2. Remove 2 screws of the Leg at the front.
3. Remove 3 screws from the bottom of the front panel.
4. Remove 2 screws from the earth plate from front panel.
5. Disconnect all the wires from PCB of front panel and remove the front panel.



6. Turn the gear to the direction shown with your finger and disc tray will opened.



2.2 The settlement of the region code

(Connect the DVD player to a TV)

1. Open the player's tray.
2. Press **0 → 1 → 0 → 6 on the remote controller**, check the front panel,
If the Red and White Light are flashing, that means the player have accepted them,
After, you can input the region code,
For example,
To set a region code 3, press "3" on the remote controller.
Then the screen display's "OK"
The region code has been set.
When a wrong region code is input, close the player's tray then return to the process 1

2.3 How to know the firmware version?

(Connect the DVD player to a TV)

1. Turn the player on
2. Remove the disc from the player.
3. Close the player's tray.
4. Press **PLAY** button (Remote controller or front panel) slowly **8 times**,
The screen will display one string just like: "System : 111-Servo : 106".
111 is the version number of system control firmware and 106 is the version number of servo control firmware.
(when it isn't indicated on the screen, press PLAY button more times)

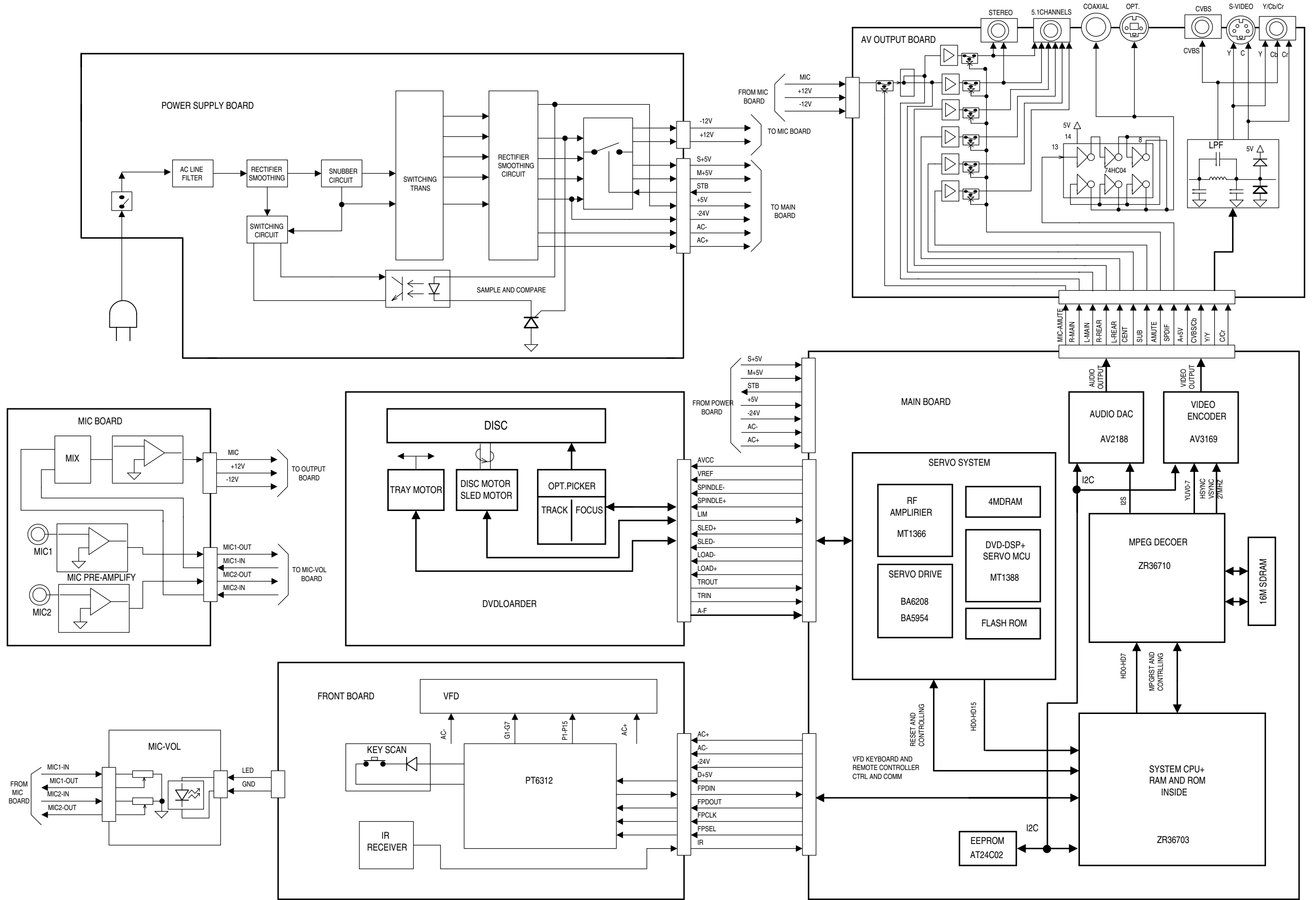
2.4 How to return to the default setting?

1. Remove the disc from the player.
2. Close the player's tray.
3. Press **STOP** button (Remote controller or front panel) more than **8 times**,
The screen will display "**Set to Default**"
(when it isn't indicated on the screen , press **STOP** button more times)
4. Press **POWER** button (turn off the power)
5. Press **POWER** button (turn on the power)
The setting is returned to the default setting.

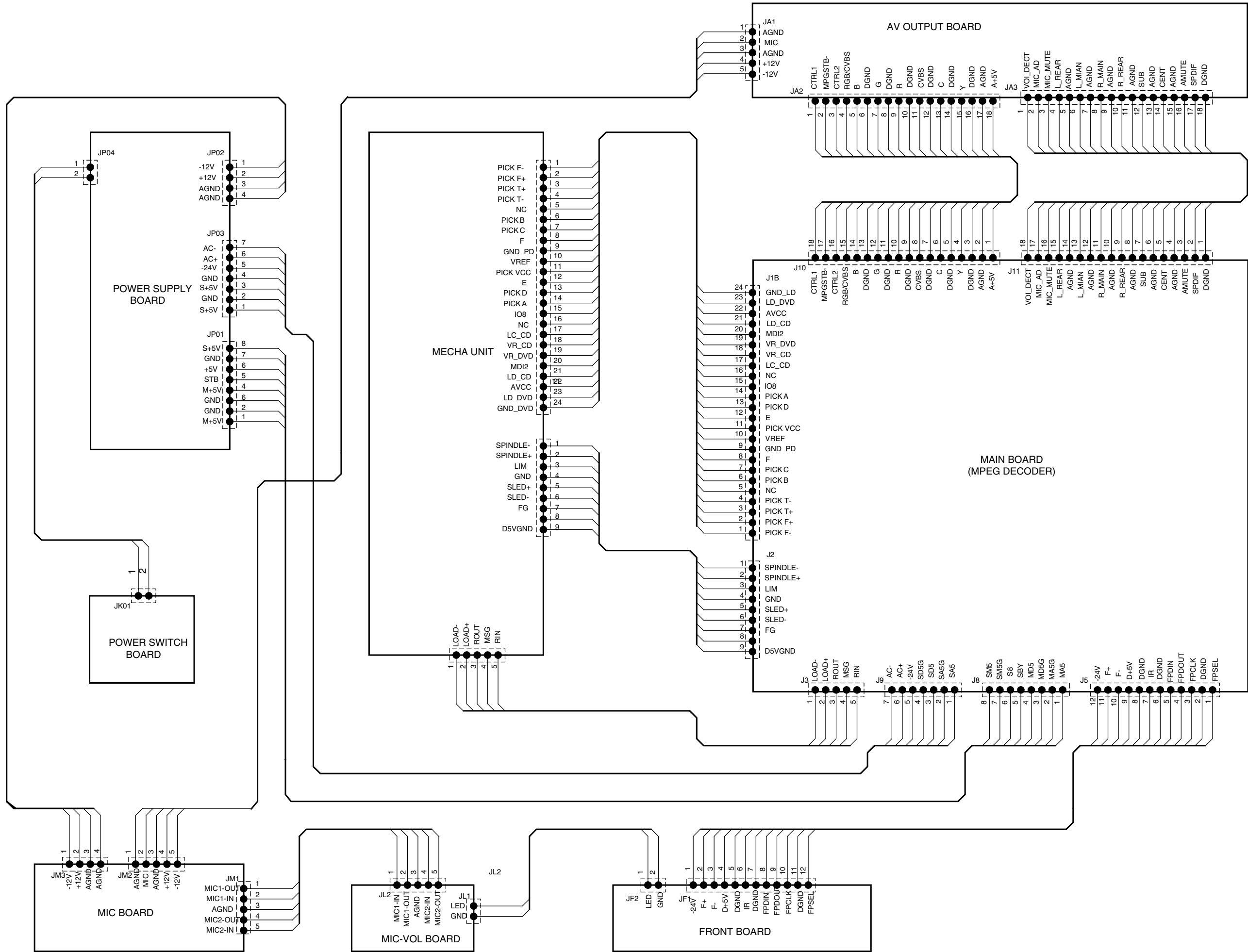
2.5 How to update firmware with the update disc?

1. Put the update disc on the tray.
2. After identified the disc, the player will show the background color and show the update information. The front panel will show the update status.
If the player is updating servo firmware, the front panel will show 2-(0-7),
If the player is updating system firmware, the front panel will show 1-(0-7).
3. After finishing the update process, the player will open the tray automatically.

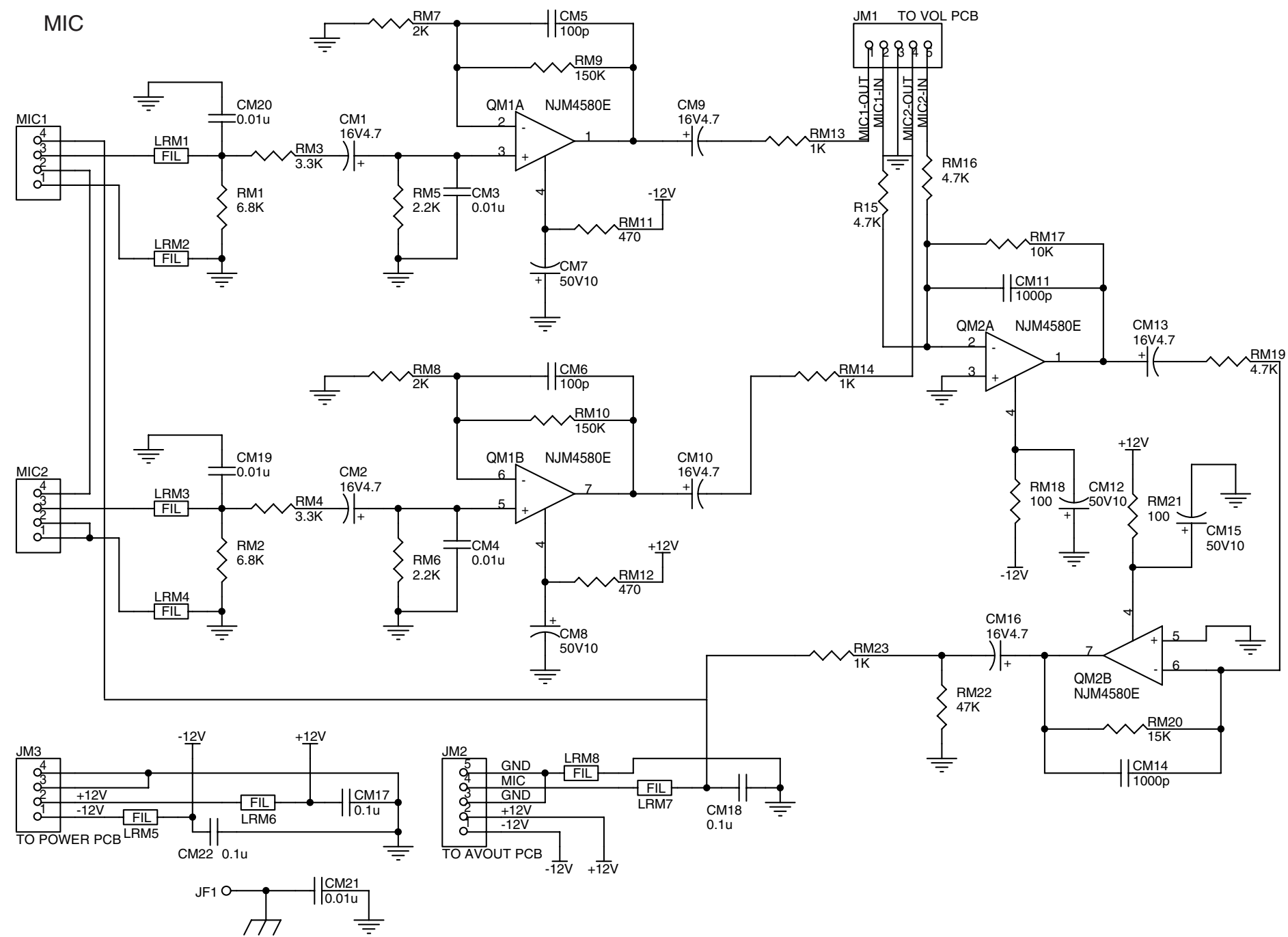
3. BLOCK DIAGRAM

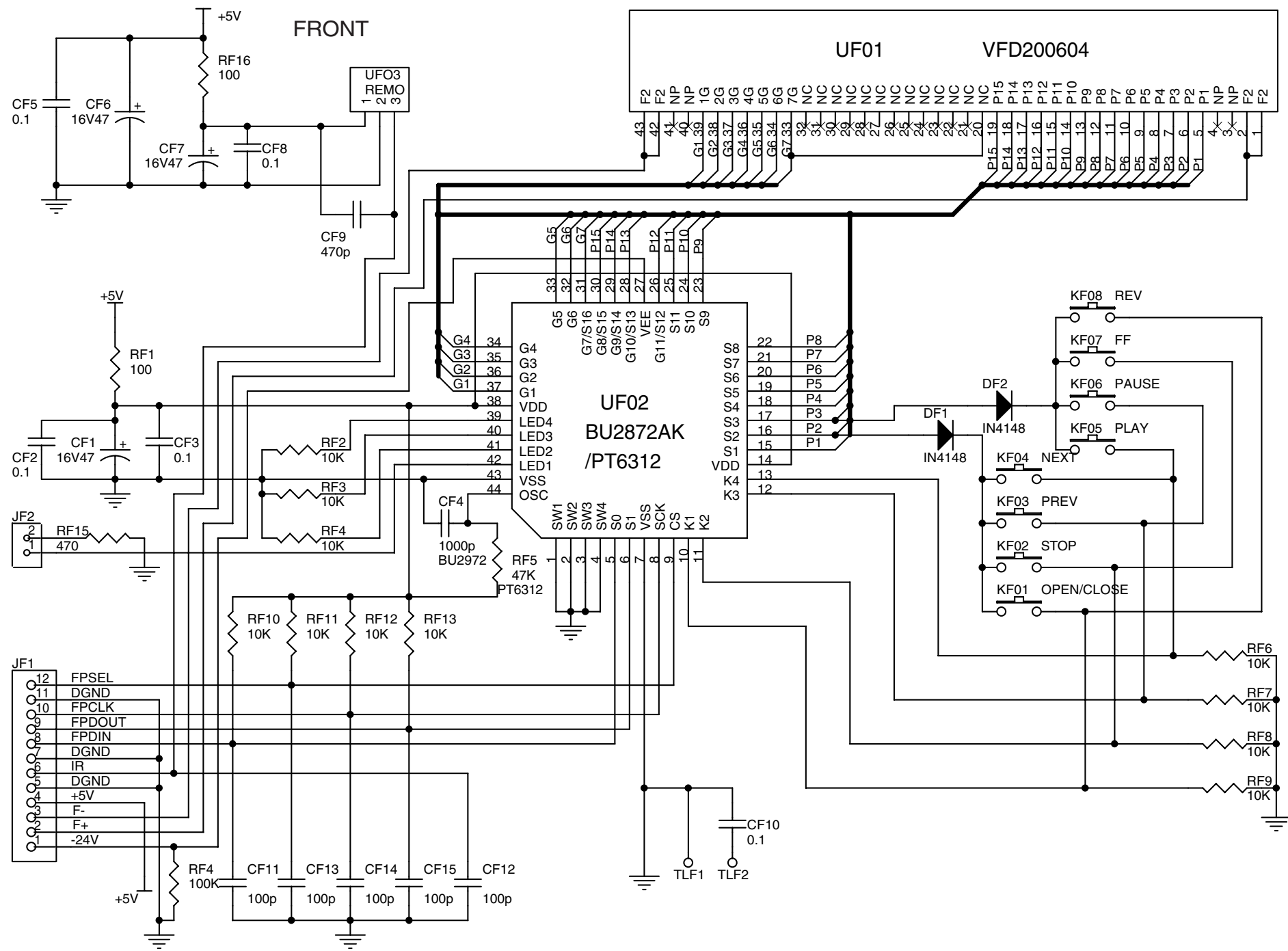


4. WIRING DIAGRAM

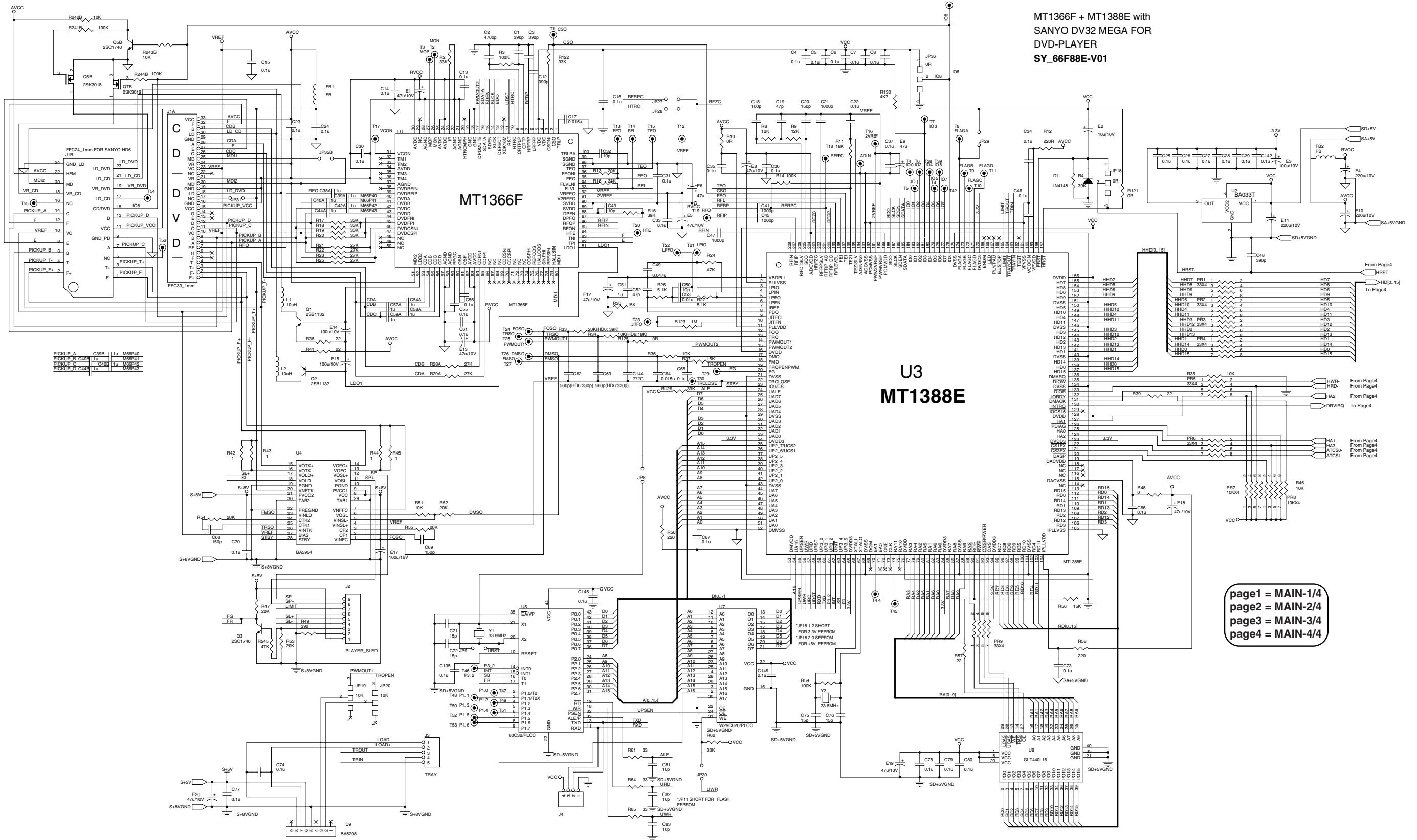


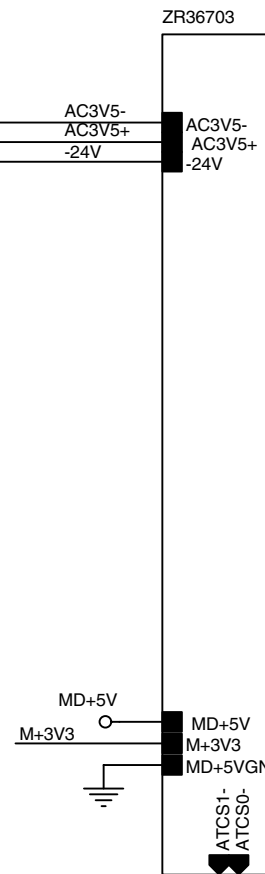
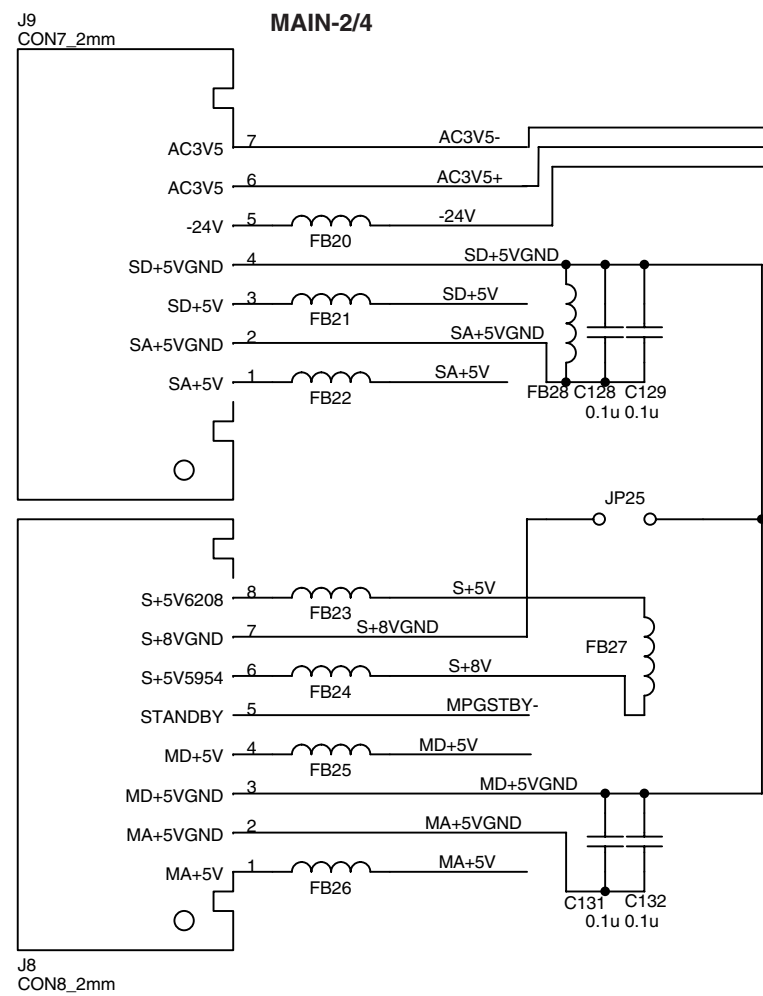
5. SCHEMATIC DIAGRAM



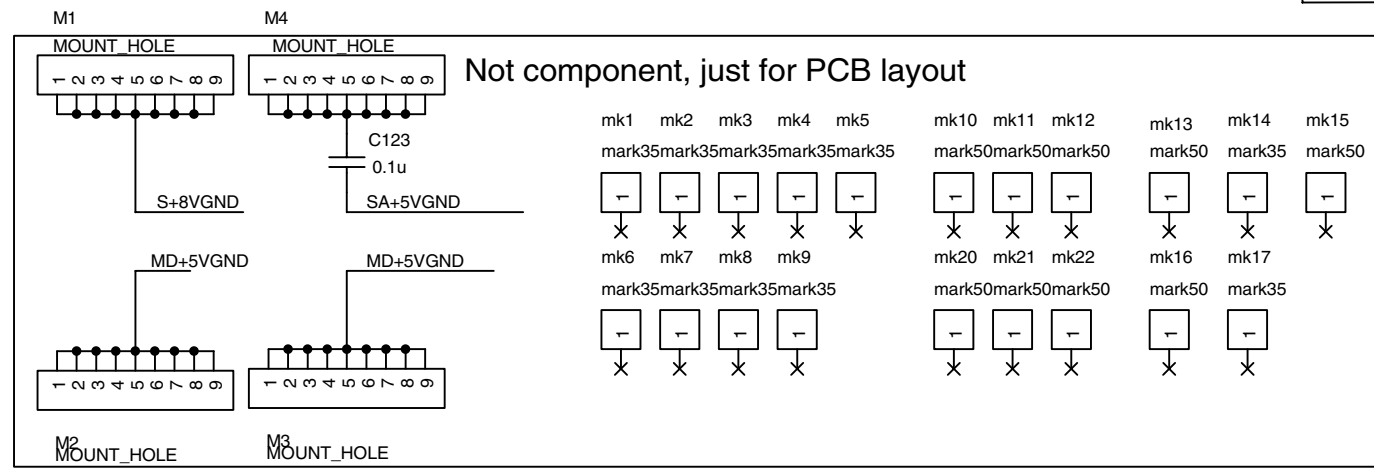
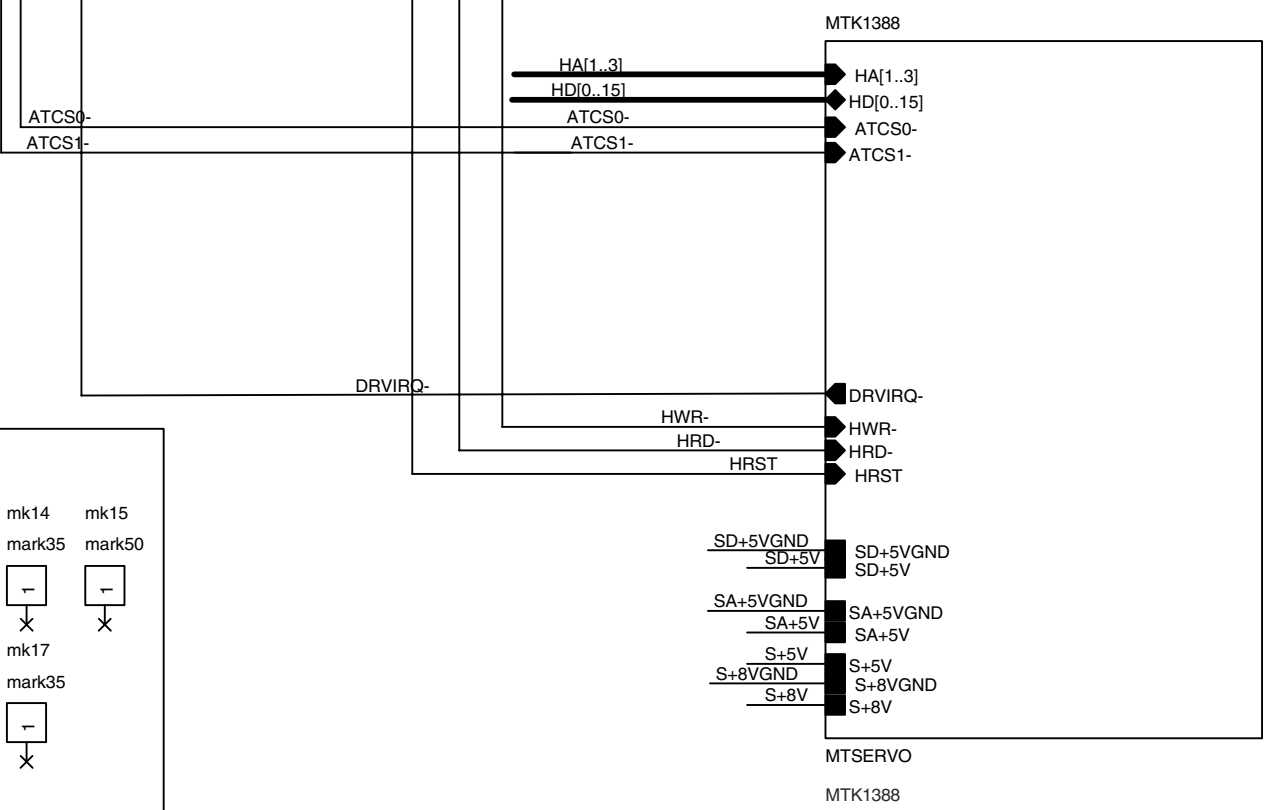
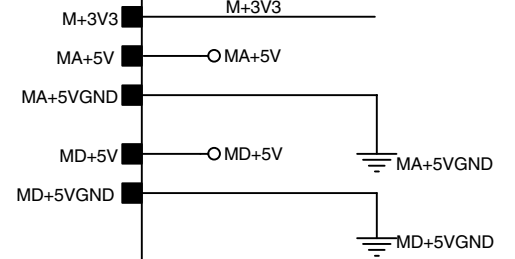
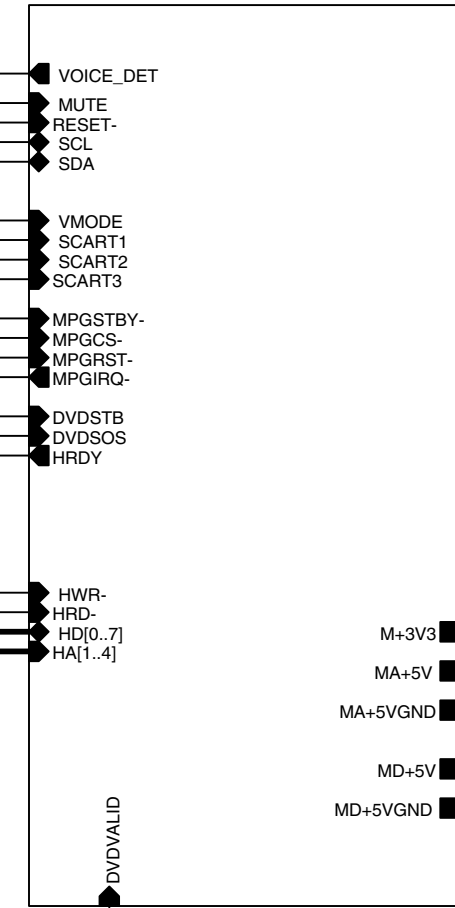


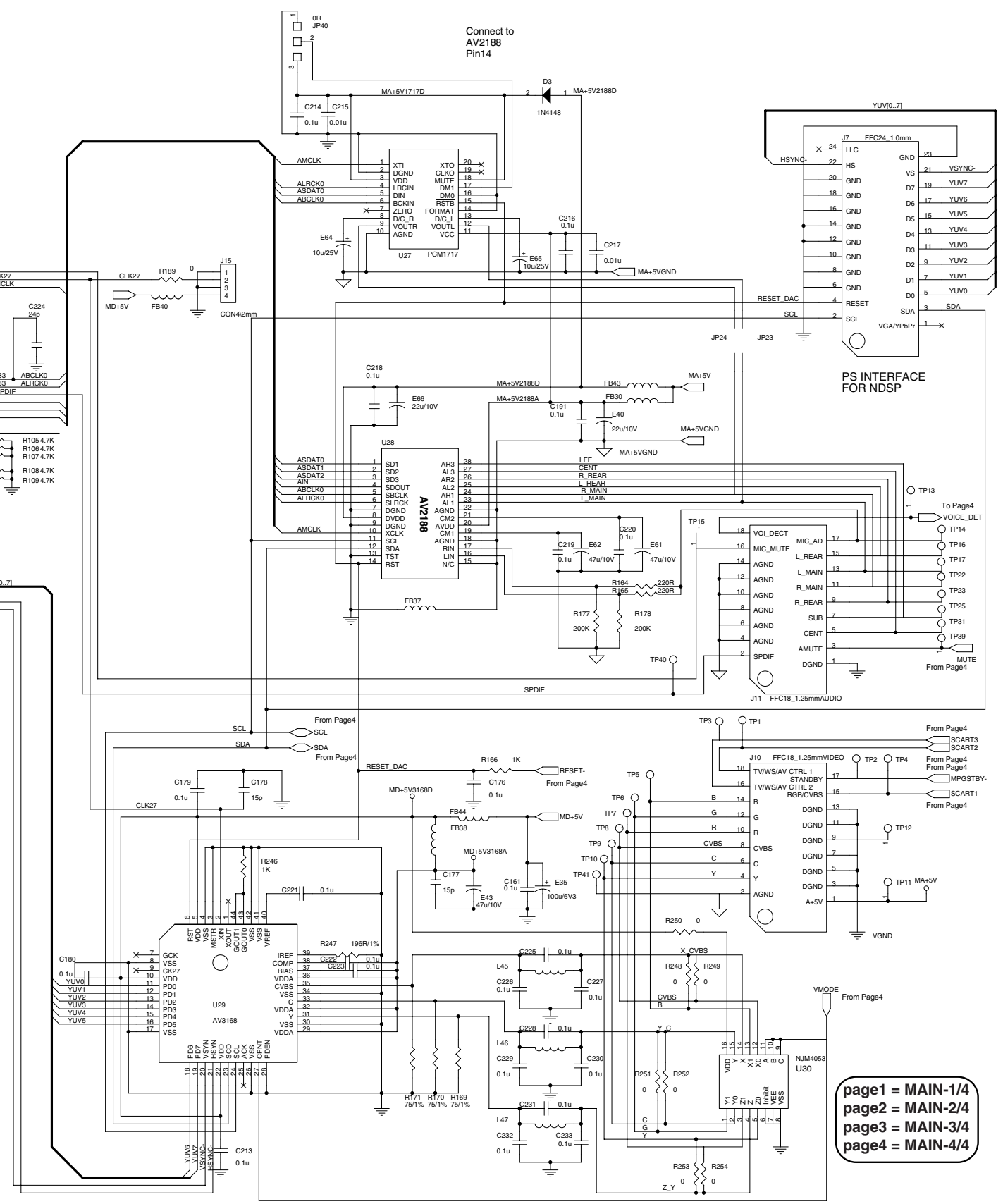
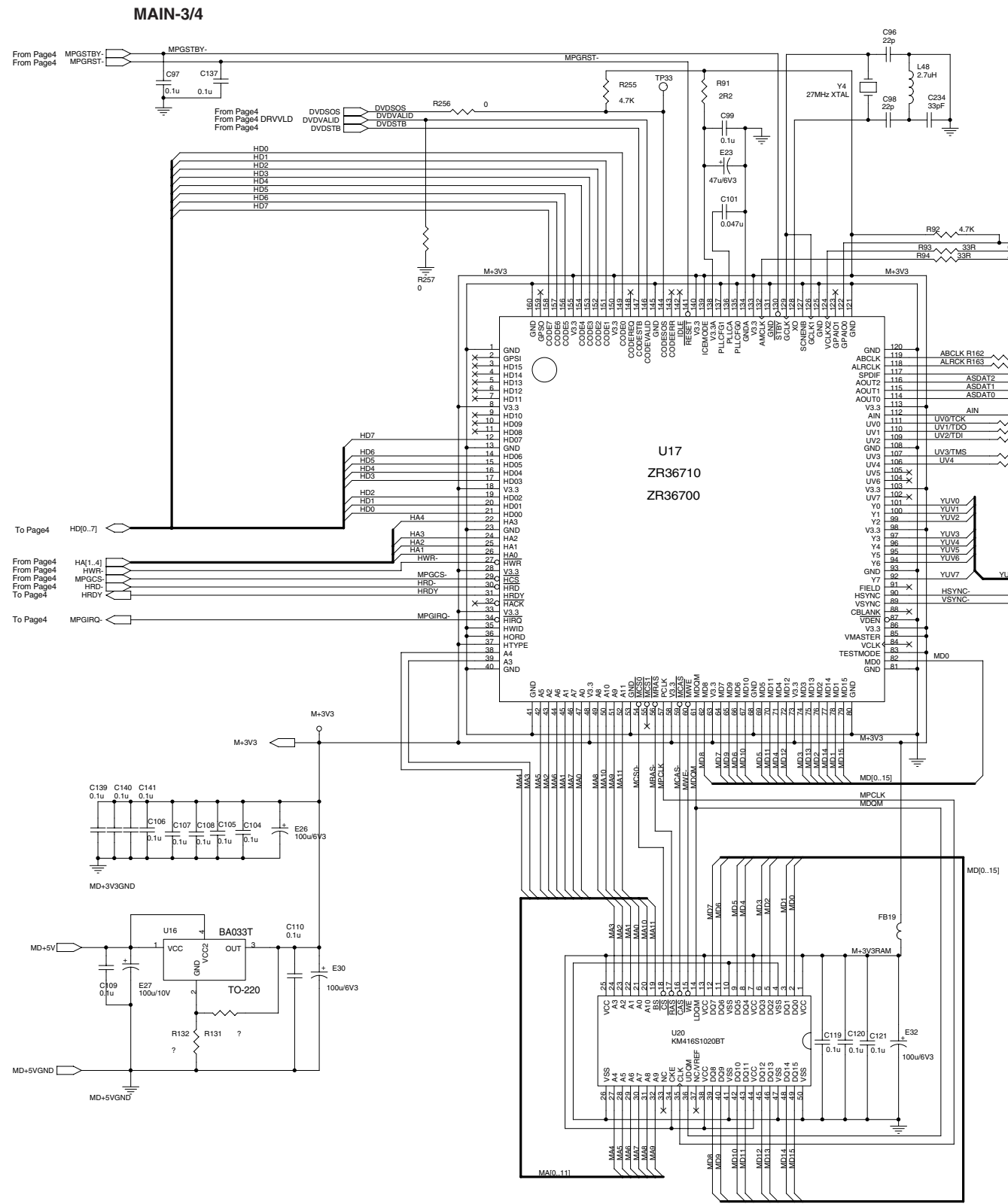
MAIN-1/4





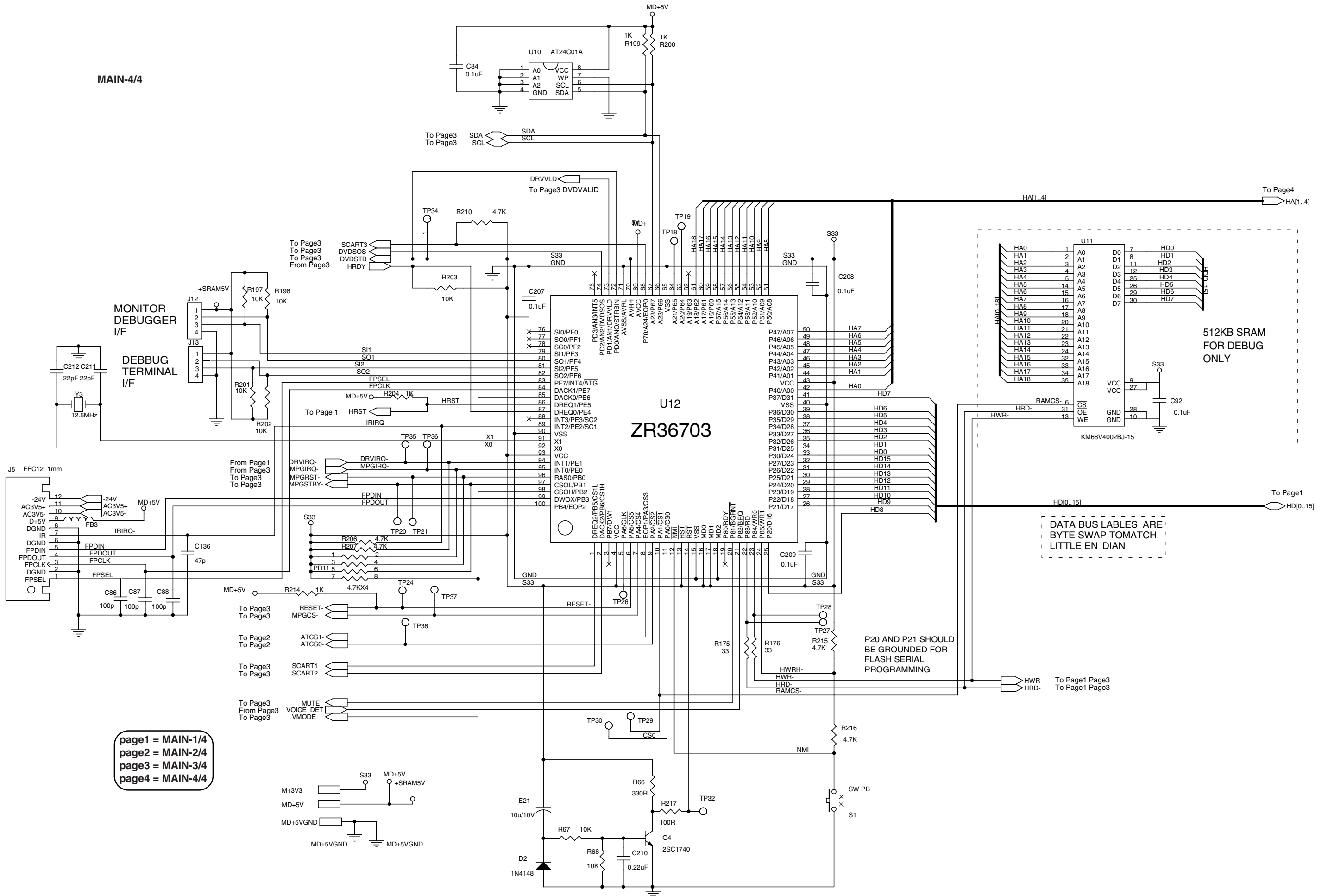
MPEG DECODER





page1 = MAIN-1/4
 page2 = MAIN-2/4
 page3 = MAIN-3/4
 page4 = MAIN-4/4

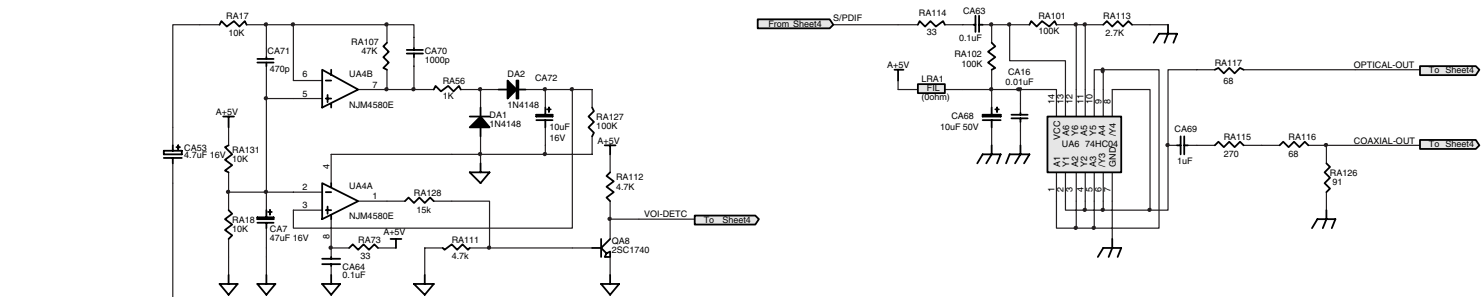
MAIN-4/4



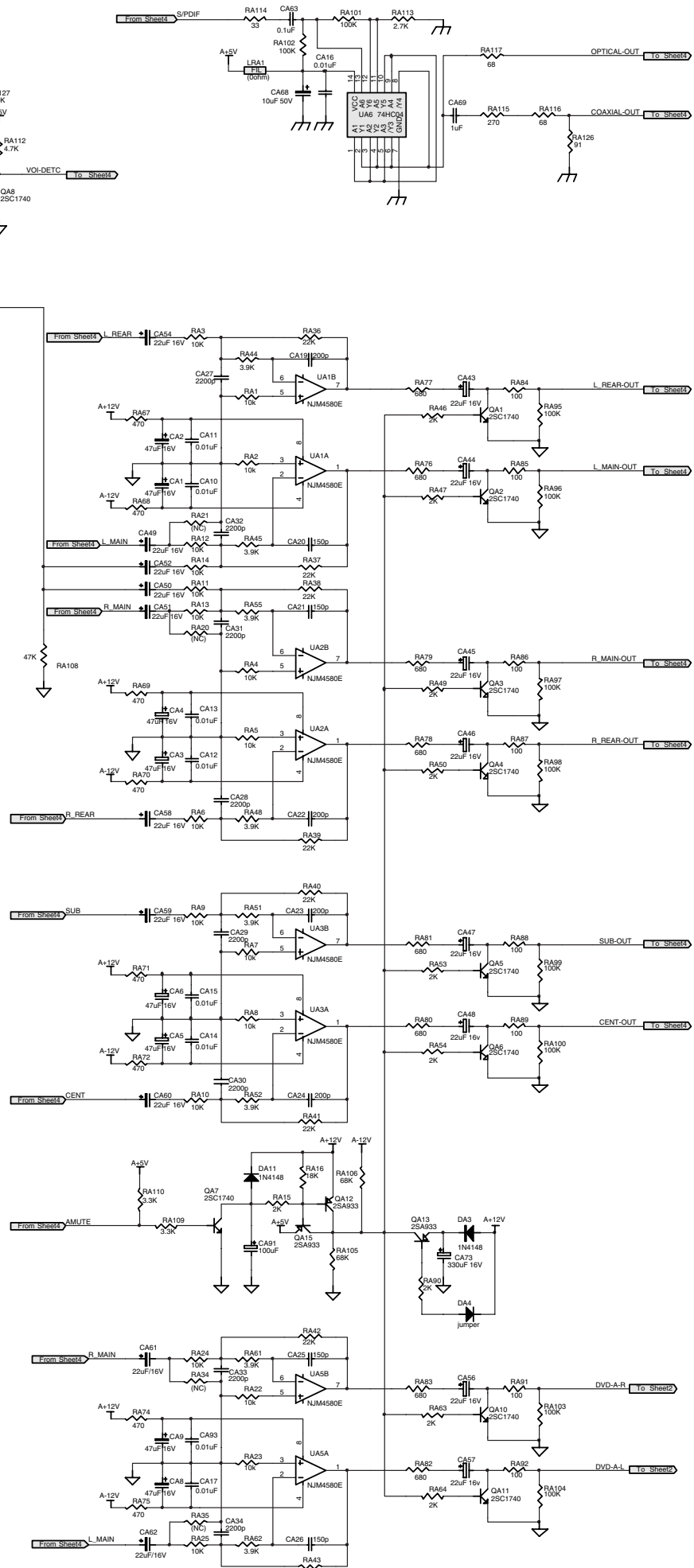
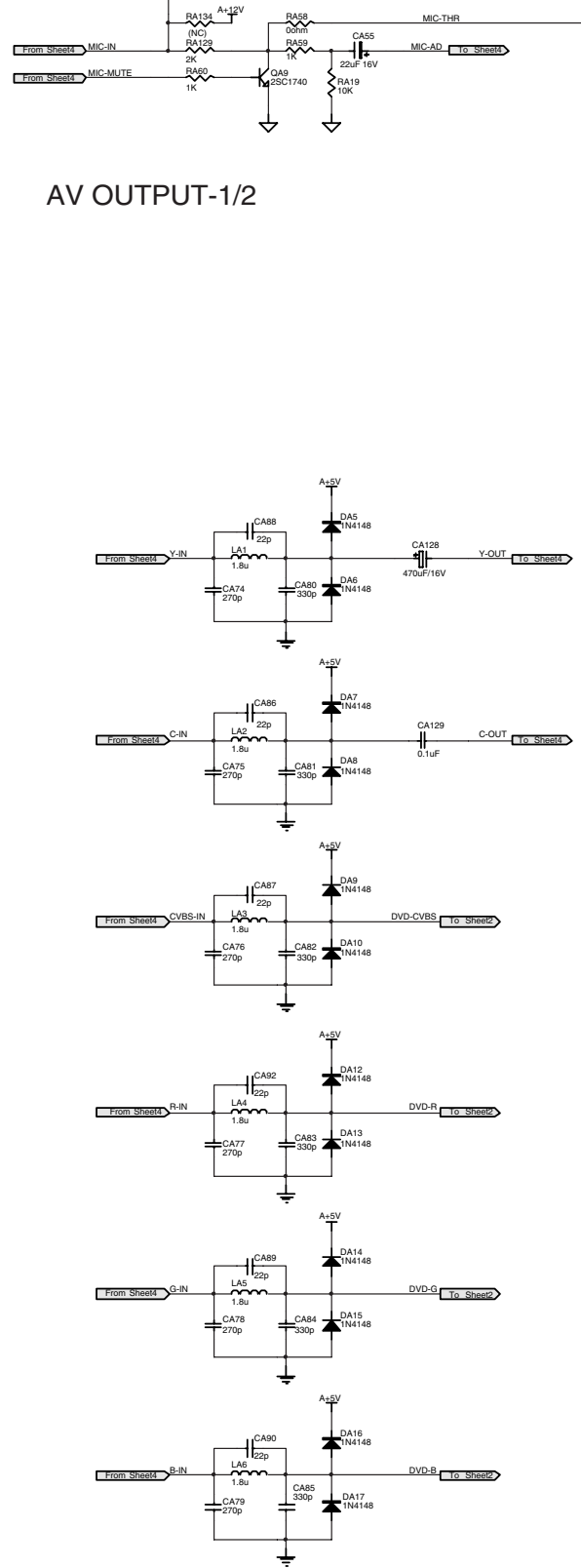
page1 = MAIN-1/4
 page2 = MAIN-2/4
 page3 = MAIN-3/4
 page4 = MAIN-4/4

DATA BUS LABELS ARE BYTE SWAP TOMATCH LITTLE EN DIAN

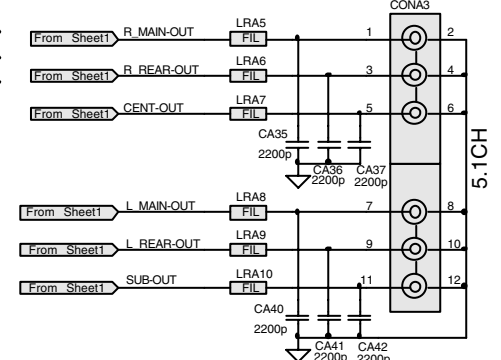
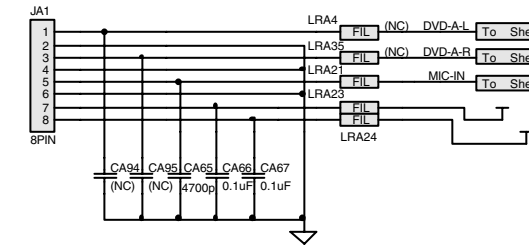
P20 AND P21 SHOULD BE GROUNDED FOR FLASH SERIAL PROGRAMMING



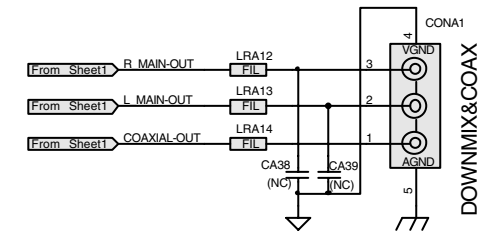
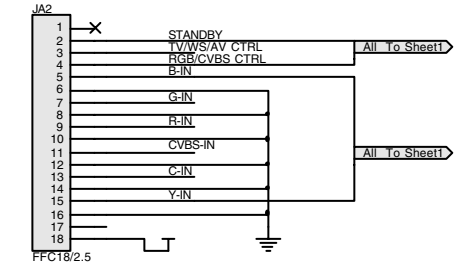
AV OUTPUT-1/2



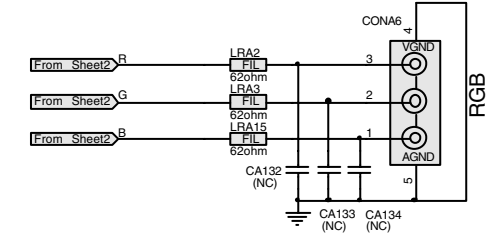
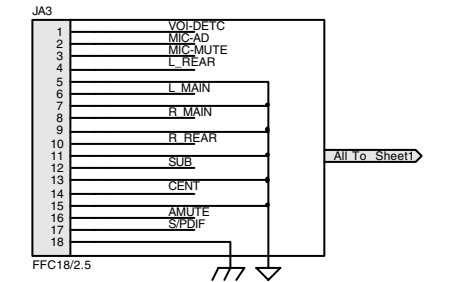
FROM MIC PCB



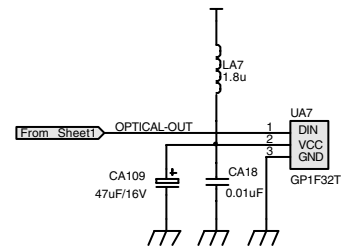
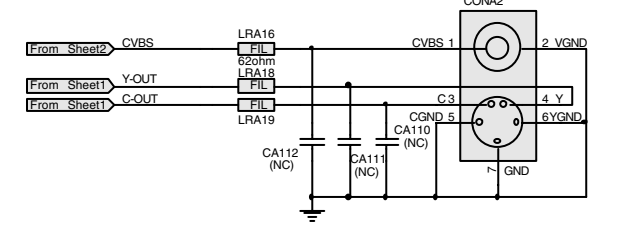
FROM MAIN PCB



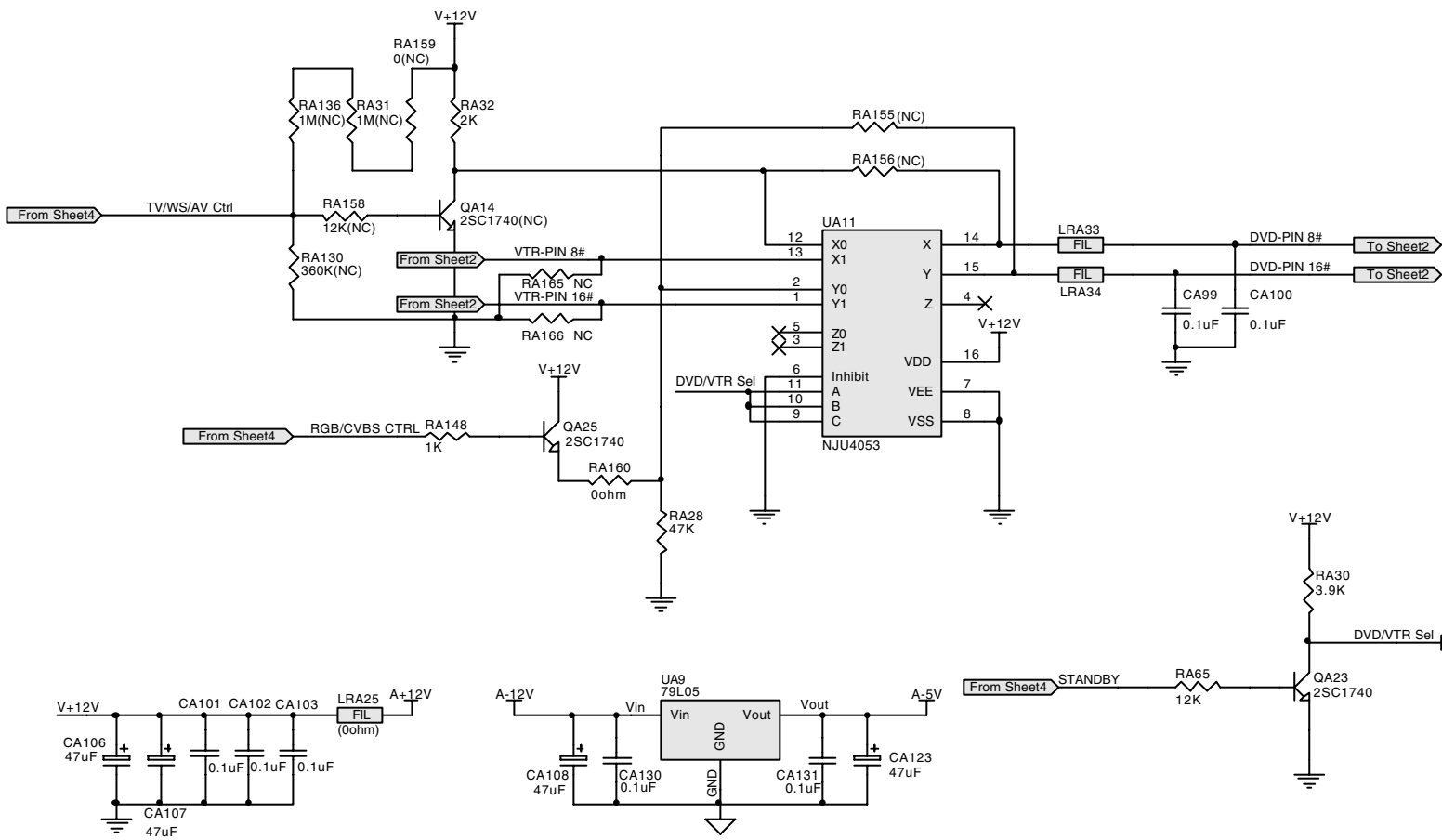
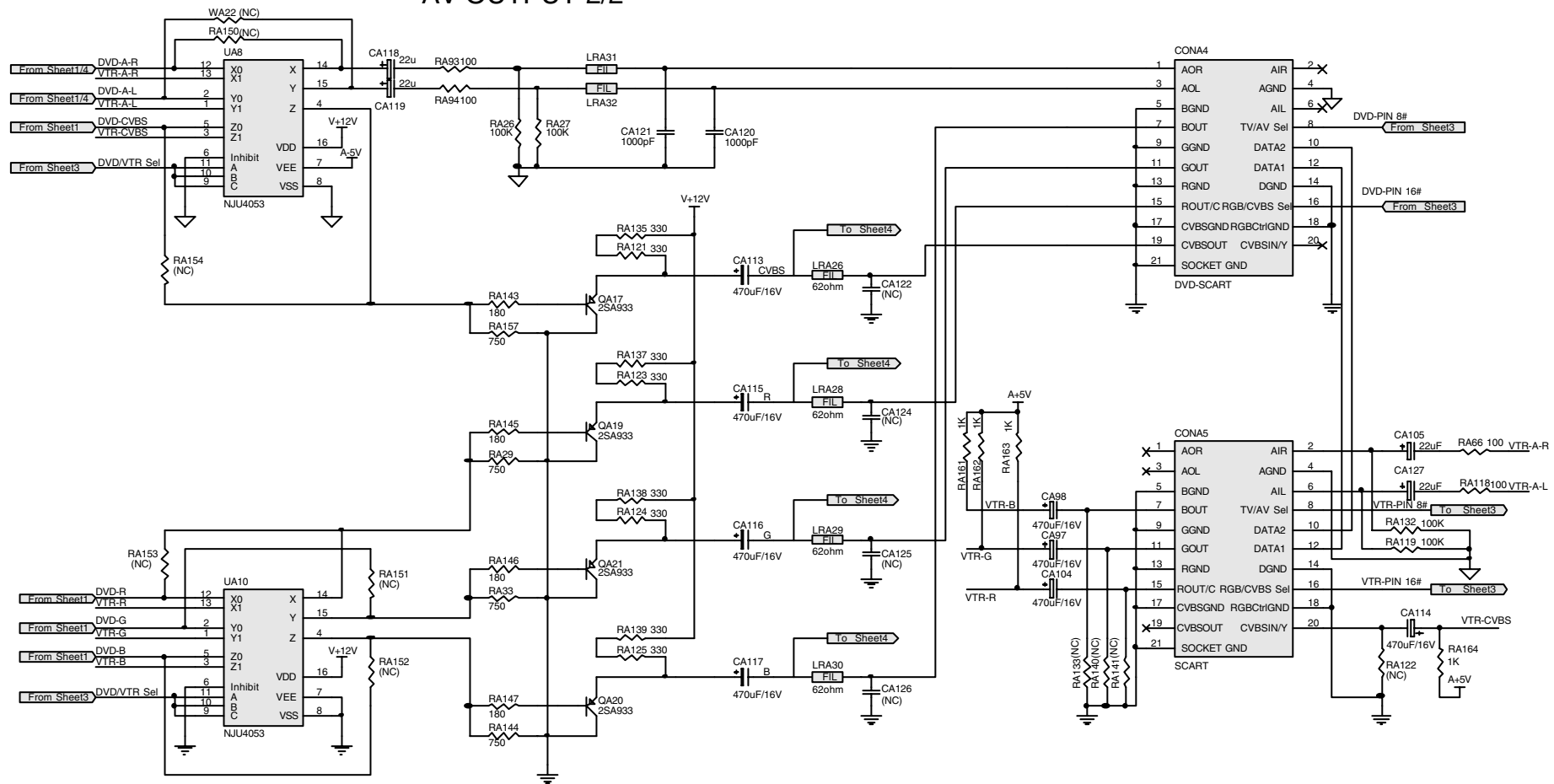
FROM MAIN PCB



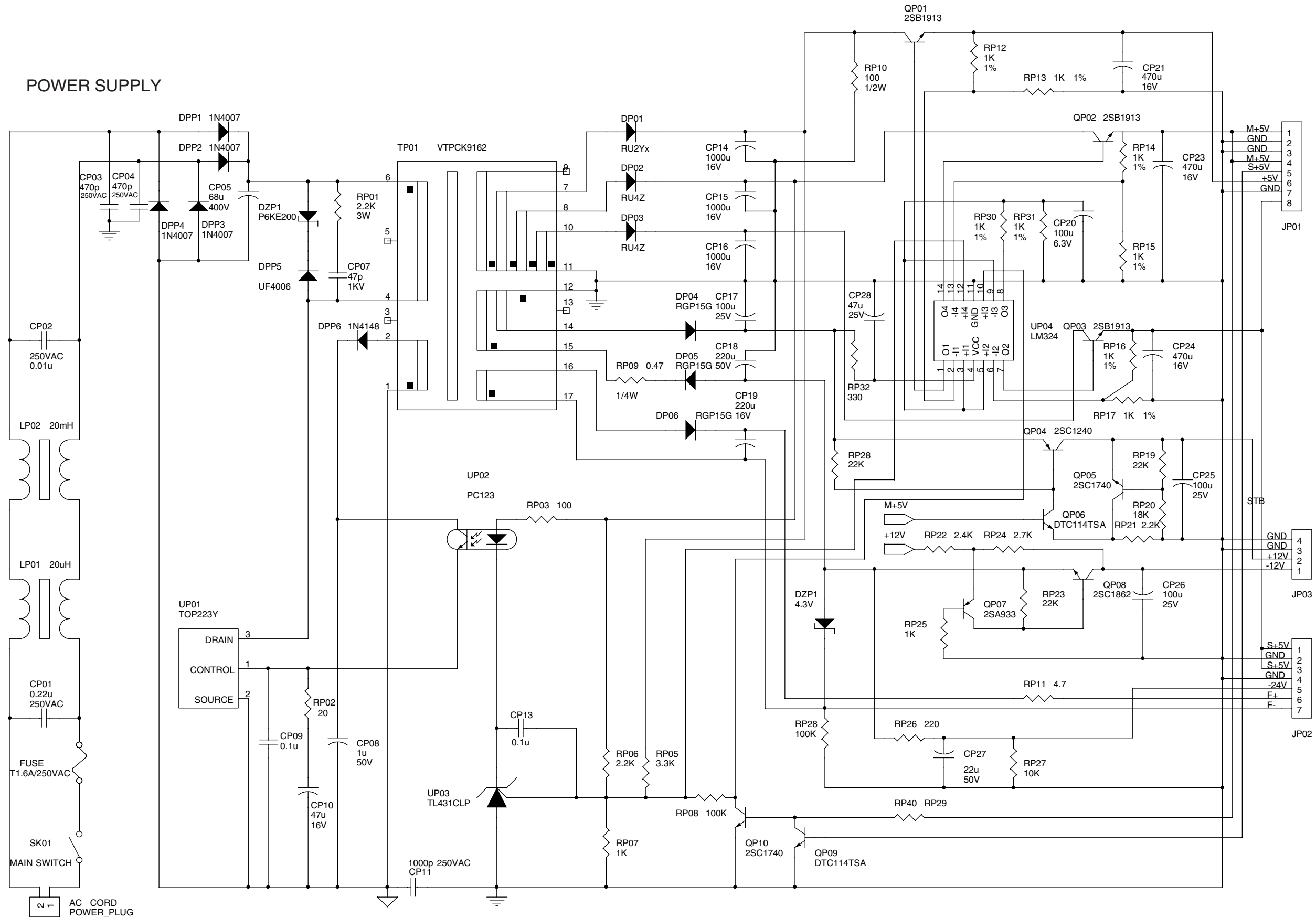
Composite&S_vide



AV OUTPUT-2/2

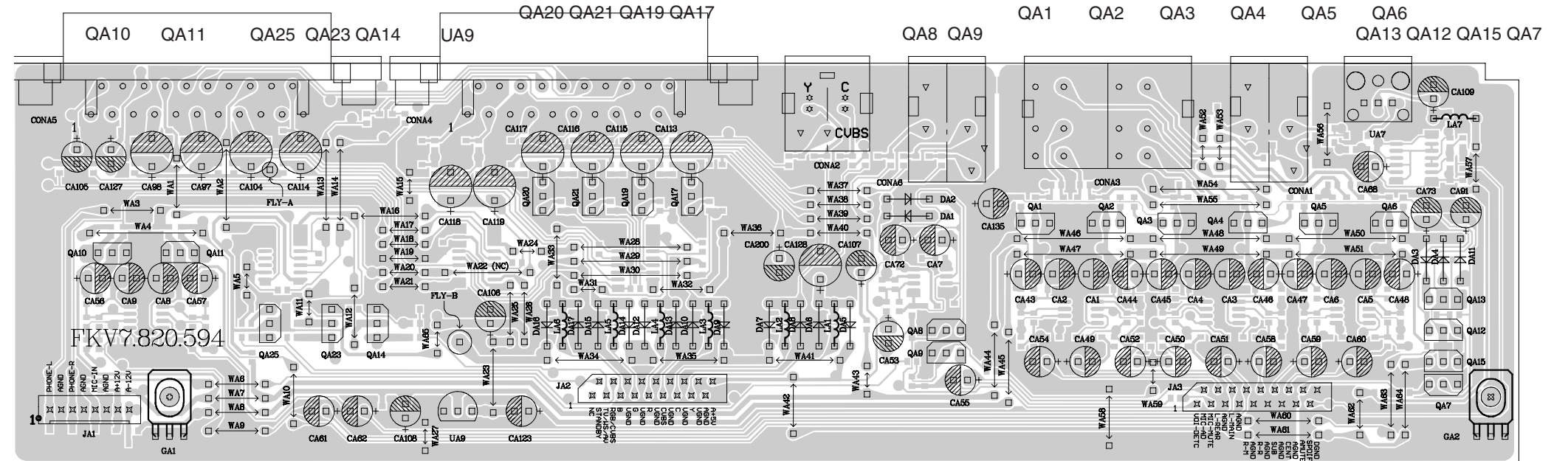


POWER SUPPLY

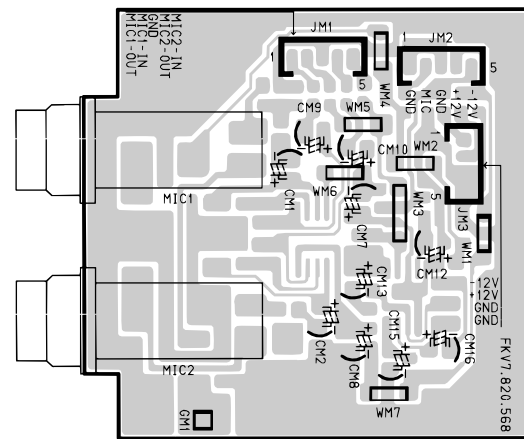


6. PARTS LOCATION

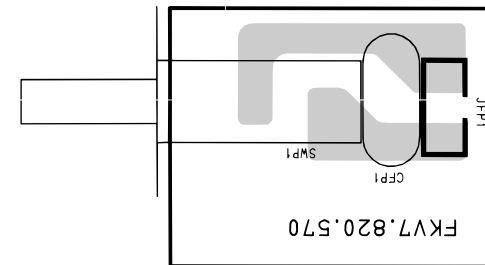
AV OUTPUT



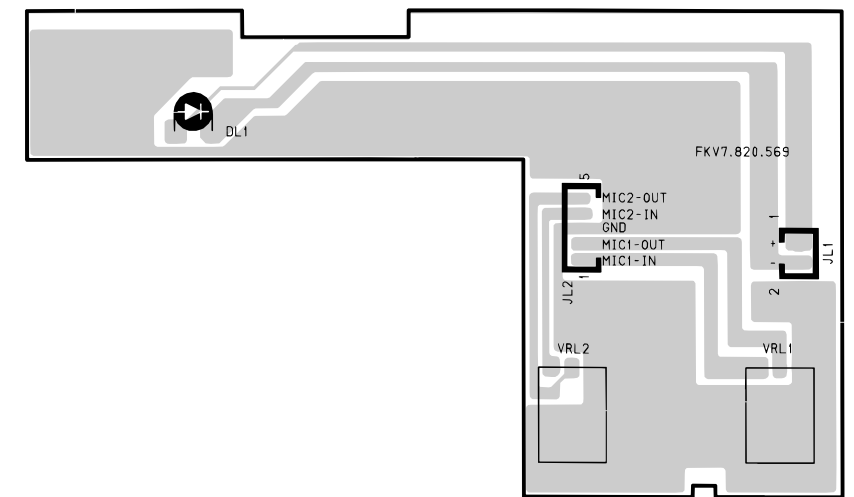
MIC



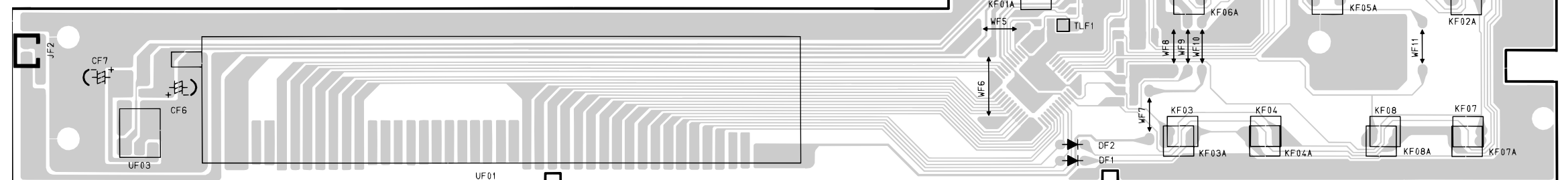
POWER SWITCH



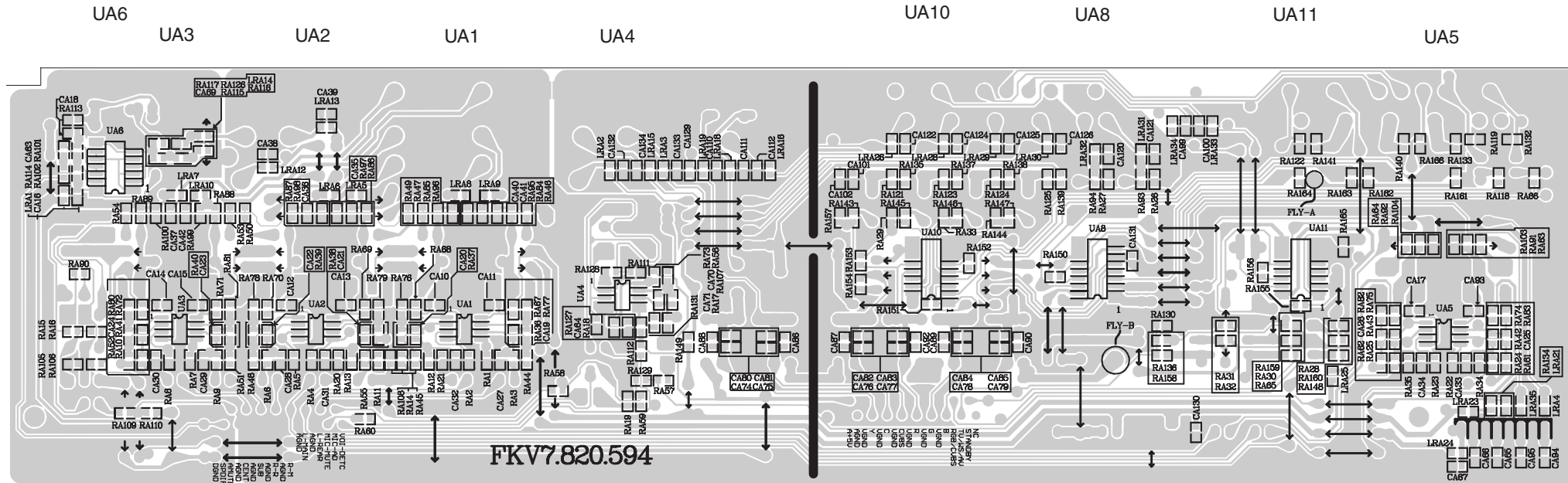
MIC-VOL



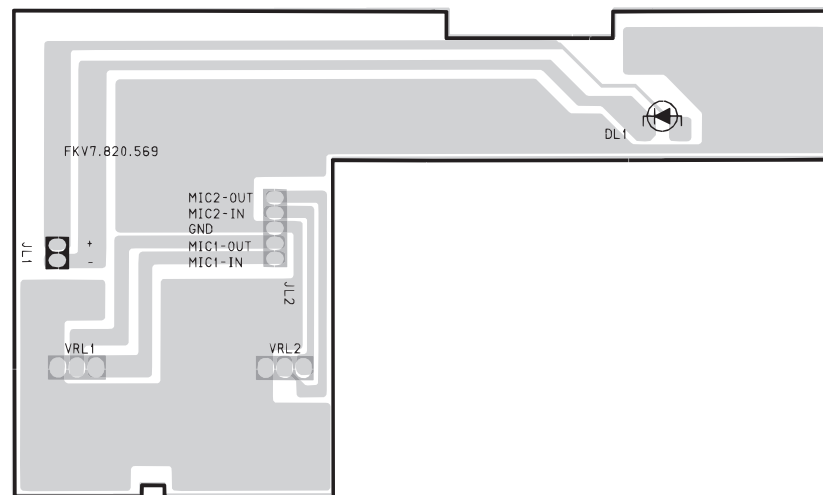
FRONT



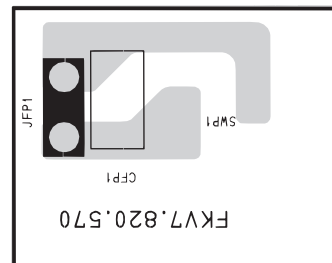
AV OUTPUT



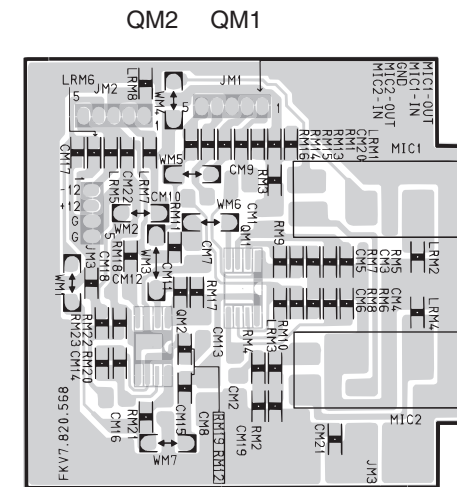
MIC-VOL



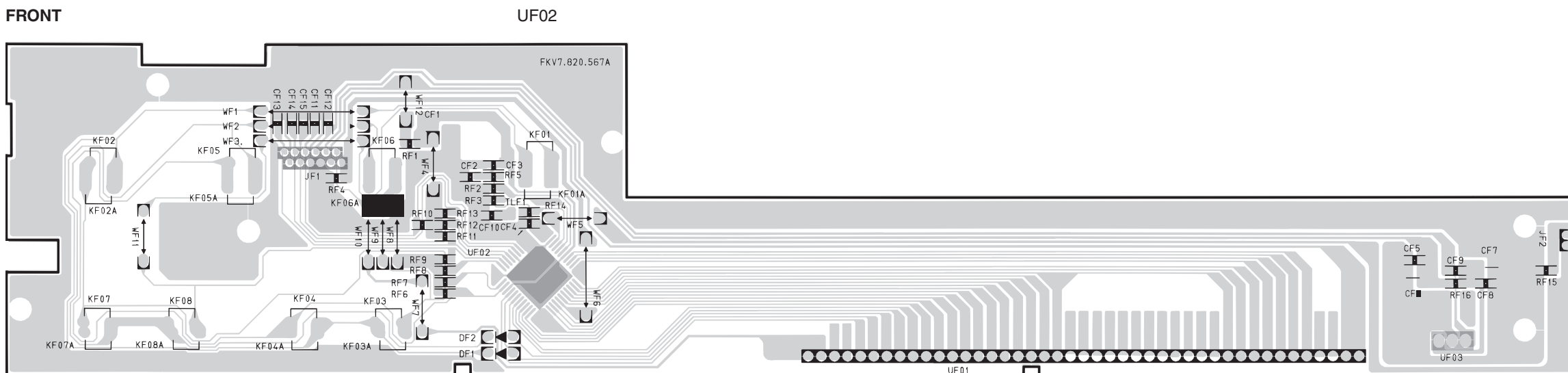
POWER SWITCH



MIC

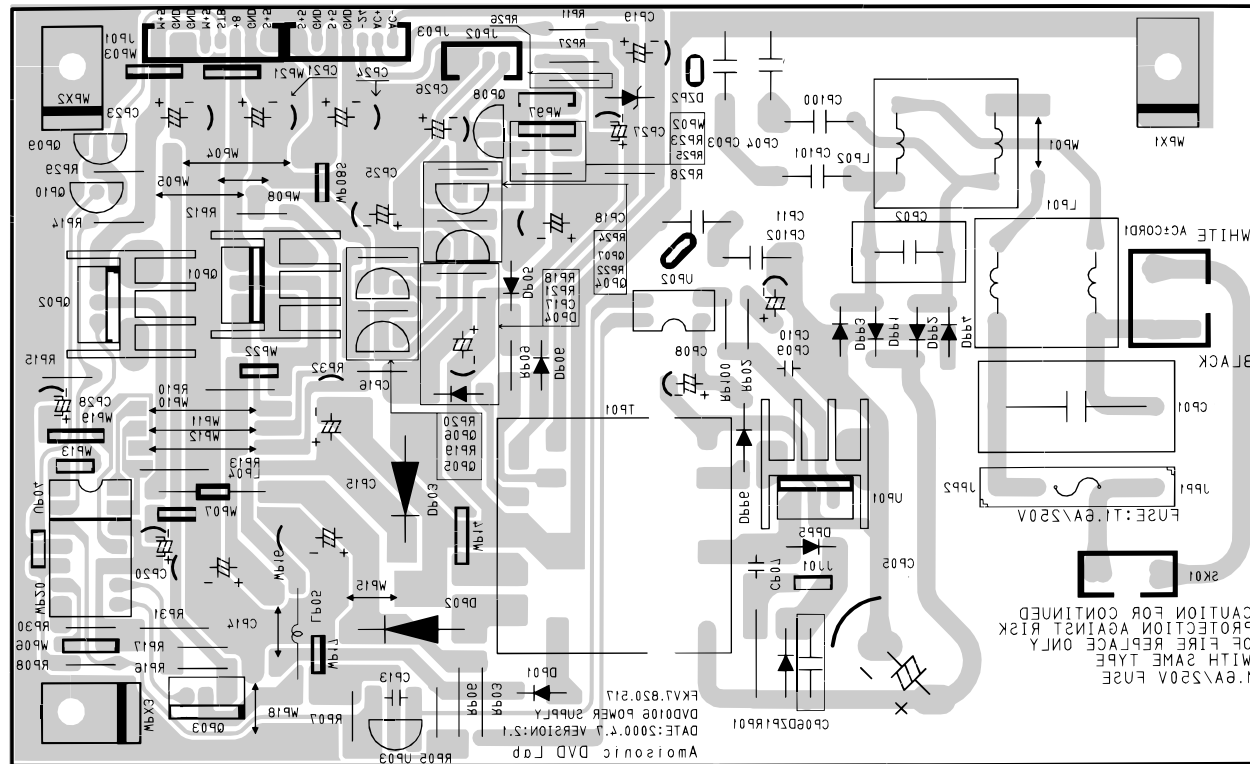


FRONT



POWER SUPPLY
QP09 QP10

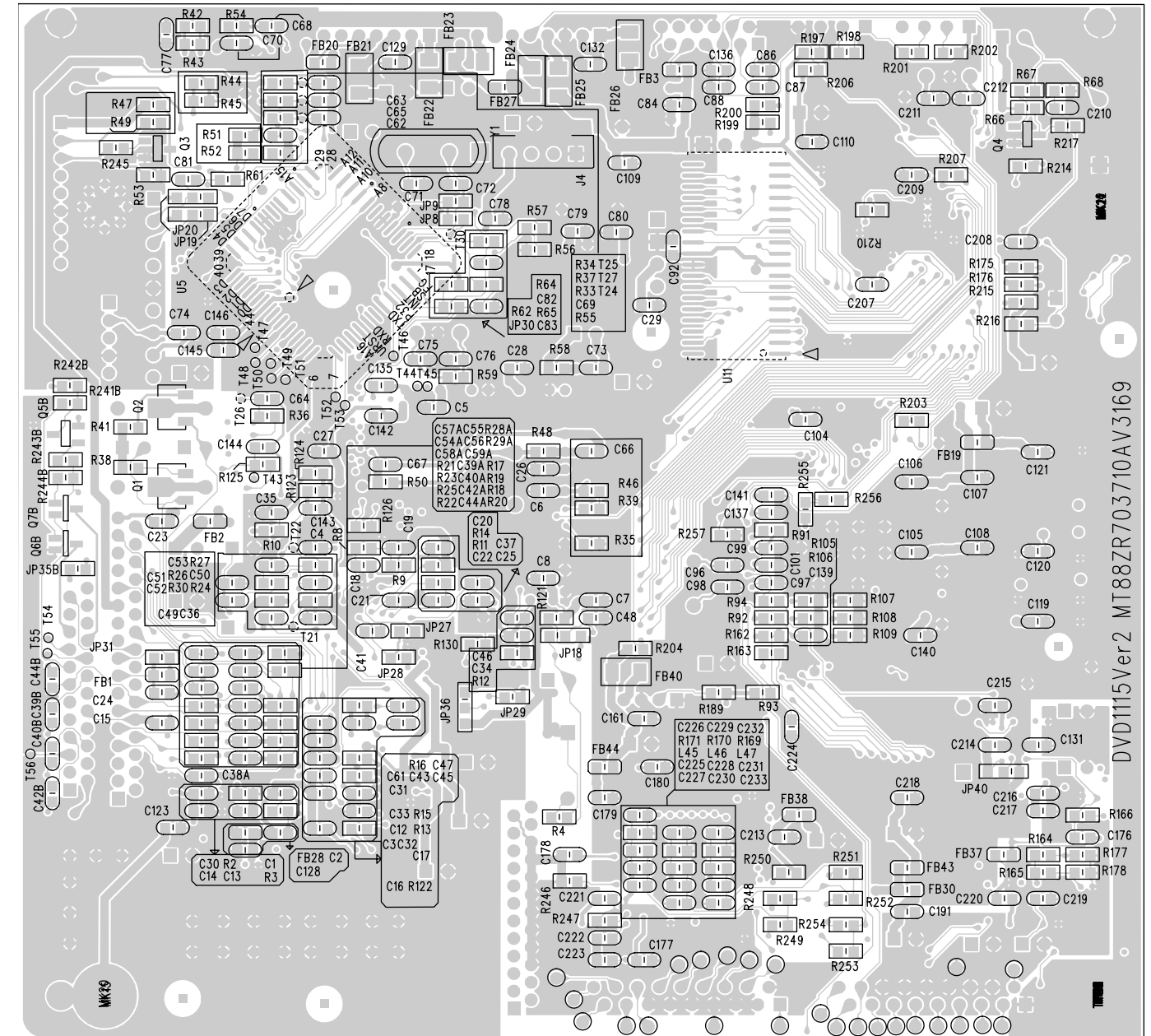
QP02 QP01 QP05 QP06 QP08 QP04 QP07
UP04 QP03 UP03 UP02 UP01

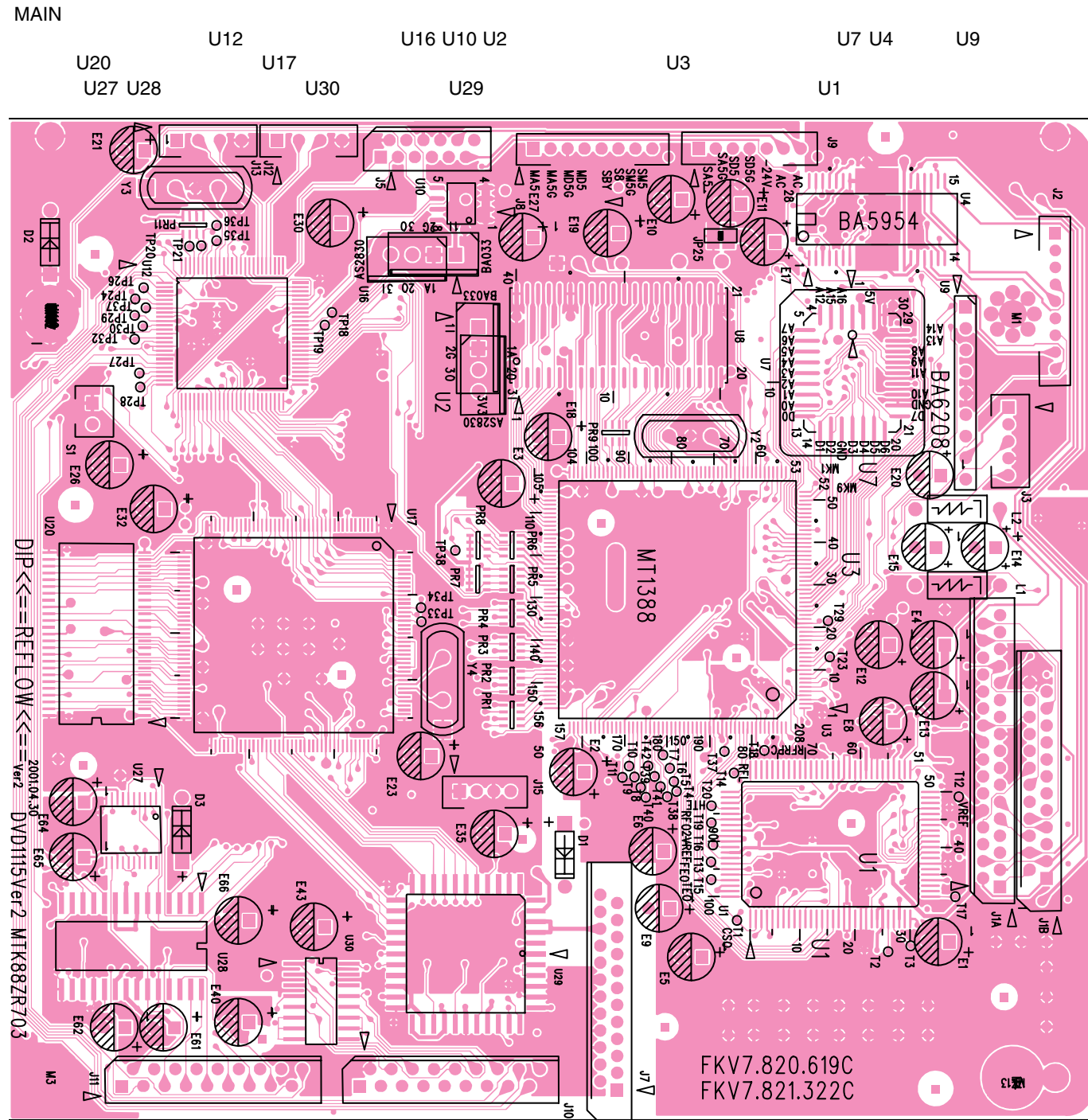


MAIN
Q5B
Q7B
Q6B

Q2
Q1

Q4

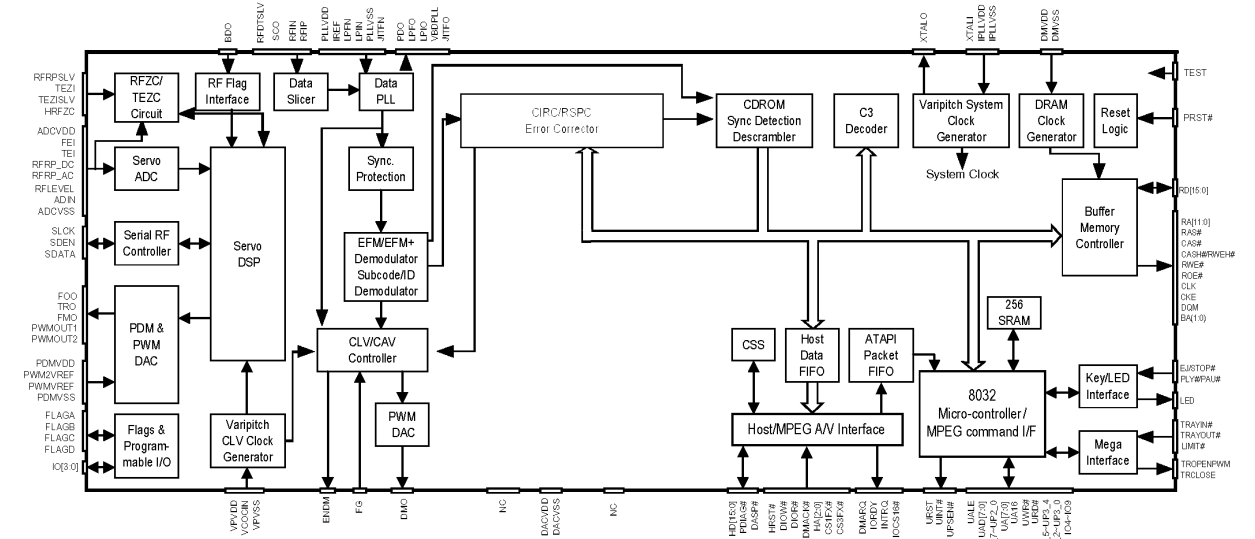




DIP<<=REFLOW<<=Ver2
 2001.04.30
 DVD115Ver2_MTK88ZR703

7. IC DATA

MT1388

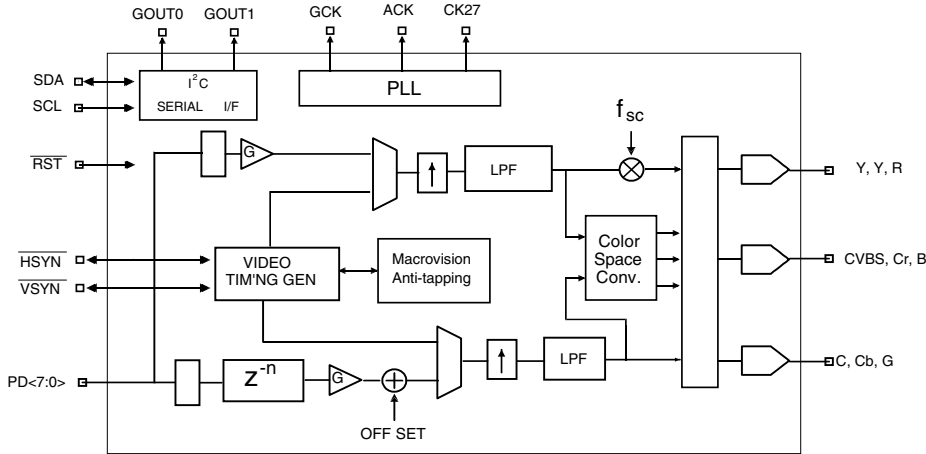


MT1388E

108	REFIN	156	DVDD
107	REFIP	155	HD7
106	RFDTSLV	154	HD8
105	SCO	153	HD6
104	ADCVDD	152	HD9
103	HRFZC	151	DVSS
102	RRFPSLV	150	HD5
101	RRFP_AC	149	HD10
100	RRFP_DC	148	HD4
200	RRFLEVEL	147	HD11
201	FEI	146	DVSS
199	TEI	145	HD3
198	TEZI	144	HD12
197	TEZISLV	143	HD2
196	ADIN/INO	142	HD13
195	ADCVSS	141	HD1
194	PDMVSS	140	DVSS
193	PDMVREF	139	HD0
192	PDMVDD	138	HD15
191	PDMVREF	137	DMARQ
190	PDMVDD	136	DVSS
189	SLCK	135	DVSS
188	SDEN	134	DVSS
187	SDATA	133	DVSS
186	IO0	132	DVSS
185	IO1	131	DVSS
184	IO2	130	DVSS
183	IO3	129	DVSS
182	IO4	128	DVSS
181	IO5	127	DVSS
180	IO6	126	DVSS
179	IO7	125	DVSS
178	IO8	124	DVSS
177	IO9	123	DVSS
176	DVSS	122	DVSS
175	FLAGB	121	DVSS
174	FLAGA	120	DVSS
173	FLAGC	119	DVSS
172	FLAGD	118	DVSS
171	FLAGE	117	DVSS
170	DVDD3	116	DVSS
169	ENDM	115	DVSS
168	LED	114	DVSS
167	PLY/PALU	113	DVSS
166	EJ/STOP	112	DVSS
165	LIMIT	111	DVSS
164	TRAYOUT	110	DVSS
163	TRAYIN	109	DVSS
162	TEST	108	DVSS
161	VPVSS	107	DVSS
160	VPVDD	106	DVSS
159	VPVDD	105	DVSS
158	PRST	104	DVSS
157	HRST	103	DVSS
156	HRST	102	DVSS
155	HRST	101	DVSS
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136	HRST	82	DVSS
135	HRST	81	DVSS
134	HRST	80	DVSS
133	HRST	79	DVSS
132	HRST	78	DVSS
131	HRST	77	DVSS
130	HRST	76	DVSS
129	HRST	75	DVSS
128	HRST	74	DVSS
127	HRST	73	DVSS
126	HRST	72	DVSS
125	HRST	71	DVSS
124	HRST	70	DVSS
123	HRST	69	DVSS
122	HRST	68	DVSS
121	HRST	67	DVSS
120	HRST	66	DVSS
119	HRST	65	DVSS
118	HRST	64	DVSS
117	HRST	63	DVSS
116	HRST	62	DVSS
115	HRST	61	DVSS
114	HRST	60	DVSS
113	HRST	59	DVSS
112	HRST	58	DVSS
111	HRST	57	DVSS
110	HRST	56	DVSS
109	HRST	55	DVSS
108	HRST	54	DVSS
107	HRST	53	DVSS
106	HRST	52	DVSS
105	HRST	51	DVSS
104	HRST	50	DVSS
103	HRST	49	DVSS
102	HRST	48	DVSS
101	HRST	47	DVSS
100	HRST	46	DVSS
99	HRST	45	DVSS
98	HRST	44	DVSS
97	HRST	43	DVSS
96	HRST	42	DVSS
95	HRST	41	DVSS
94	HRST	40	DVSS
93	HRST	39	DVSS
92	HRST	38	DVSS
91	HRST	37	DVSS
90	HRST	36	DVSS
89	HRST	35	DVSS
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79	HRST	25	DVSS
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73	HRST	19	DVSS
72	HRST	18	DVSS
71	HRST	17	DVSS
70	HRST	16	DVSS
69	HRST	15	DVSS
68	HRST	14	DVSS
67	HRST	13	DVSS
66	HRST	12	DVSS
65	HRST	11	DVSS
64	HRST	10	DVSS
63	HRST	9	DVSS
62	HRST	8	DVSS
61	HRST	7	DVSS
60	HRST	6	DVSS
59	HRST	5	DVSS
58	HRST	4	DVSS
57	HRST	3	DVSS
56	HRST	2	DVSS
55	HRST	1	DVSS
54	HRST	0	DVSS
53	HRST	-1	DVSS

MT1388E

AV3168



PIN DESCRIPTIONS

Pin Name	Pin #	Type	Description
DIGITAL VIDEO INPUT			
PD<7:0>	11-16 18-19	I	Multiplexed Cb, Y, and Cr digital video input bus.
HSYN	21	I/O	In Slave Mode (MSTR pin is low) Horizontal Synch input. In Master Mode (MSTR pin is high) Horizontal Synch output.
VSYN	20	I/O	In slave mode (MSTR pin is low) Vertical Sync input. In master mode Vertical Sync output.

VIDEO CONTROL SIGNALS

MSTR	3	I	Master Mode; If this pin is high, the chip outputs horizontal and vertical sync signals. Otherwise it receives both horizontal and vertical sync signals.
CPNT	27	I	Select either component or composite video output. 0: Simultaneous Composite and S-Video output. 1: Component video output either RGB or YCbCr determined by the register CR0[5:4].
PDEN	28	I	Pedestal enable pins. When this pin is high 7.5 IRE is added for the NTSC composite analog output.

VIDEO ANALOG OUTPUT, REFERENCE AND COMPENSATION

CVBS	35	O	Analog video output Determined by the state of CPNT pin and CR0[5:4] CPNT CR0[5] CR0 [4] 0 X X: Composite video output 1 X 0: Cr output in YCbCr component mode 1 0 X: : 1 1 1: Blue color output in RGB mode
Y	31	O	Analog video output Determined by the state of CPNT pin and CR0[5:4] CPNT CR0[5] CR0 [4] 0 X X: S-Video Y output. 1 X 0: Y output in YCbCr component mode 1 0 X: : 1 1 1: R color output in RGB mode

PIN DESCRIPTIONS (Continued)

Pin Name	Pin #	Type	Description
C	33	O	Analog video output Determined by the state of CPNT pin and CR0[5:4] CPNT CR0[5] CR0 [4] 0 X X: S-Video C output. 1 X 0: Cb output in YCbCr component mode 1 0 X: : 1 1 1: Green color output in RGB mode
VREF	40	I/O	Voltage reference. It has an internal voltage reference circuit, but may be overridden by an external voltage reference input. A 0.1 uF ceramic capacitor is required between this pin and GND.
IREF	39	I	A resistor should be connected between this pin and GND to control the DAC output current. The recommended value is 198 (382) ohm 1% metal film resistor for double (single) end 75 ohm termination.
COMP	38	I	Compensation capacitor for the DAC internal reference amplifier. A 0.1 uF ceramic capacitor is required between this pin and VDDA.
BIAS	37	I/O	DAC bias voltage. A 0.1 uF ceramic capacitor must be used to decouple this pin to VDDA.

SERIALCONTRL BUS

SCL	24	I	Serial bus clock
SDA	23	I/O	Serial bus address and data input and output pin. Open drain output.

CLOCK SIGNALS

GCK	7	O	General Purpose Clock. Clock frequency is determined by the state of GOUT[1:0] when RST pin is low. 00 : 40.5 MHz clock output. 0 1: 54.0 MHz clock output. 1 0: 67.5 Mhz clock output. 1 1: 81.0 MHz
CK27	9	O	27 MHz clock output pin.
ACK	25	I/O	384*fs Audio clock output pin. Controlled by CR2[1:0] 0 0: 384 * 48.0 KHz (18.432MHz) clock output. 0 1: 384 * 44.1 KHz (16.934MHz) clock output. 1 0. 384 * 96.0 KHz (36.864MHz) clock output. 1 1: 384 * 88.2 KHz (33.868MHz) clock output.

PIN DESCRIPTIONS (Continued)

Pin Name	Pin #	Type	Description
XIN	2	I	27 Mhz oscillator input
XOUT	1	O	27 Mhz oscillator output

MISCELLANEOUS SIGNALS

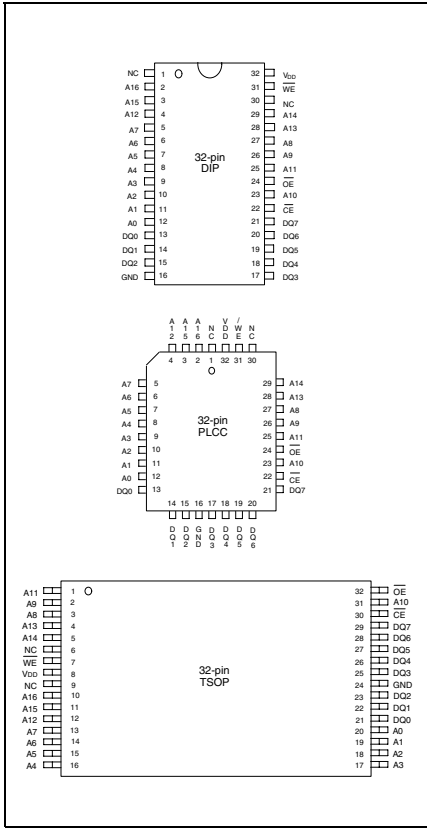
RST	6	I	Active low chip reset input. Chip is in the power down mode when the RST is low.
GOUT1	44	I/O	Dual function pin. GCK frequency select pin when RST is low. General purpose output pin when RST is high
GOUT0	43	I/O	Dual function pin. GCK frequency select pin when RST is low. General purpose output pin when RST is high

POWER AND GROUND

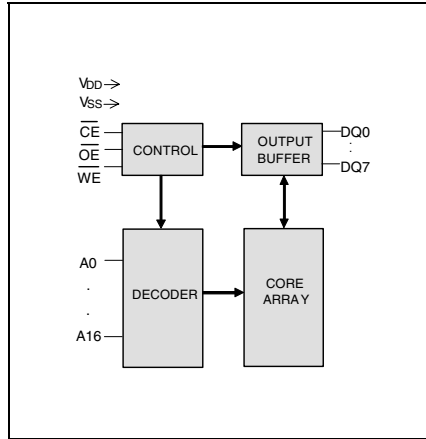
VDD	10, 22, 5	+5V	Digital power supply.
VSS	8, 17, 26, 30, 34, 41, 42, 4	GND	Digital ground
VDDA	29, 32, 36.	+5V	Analog video power supply.

W29EE11

PIN CONFIGURATIONS



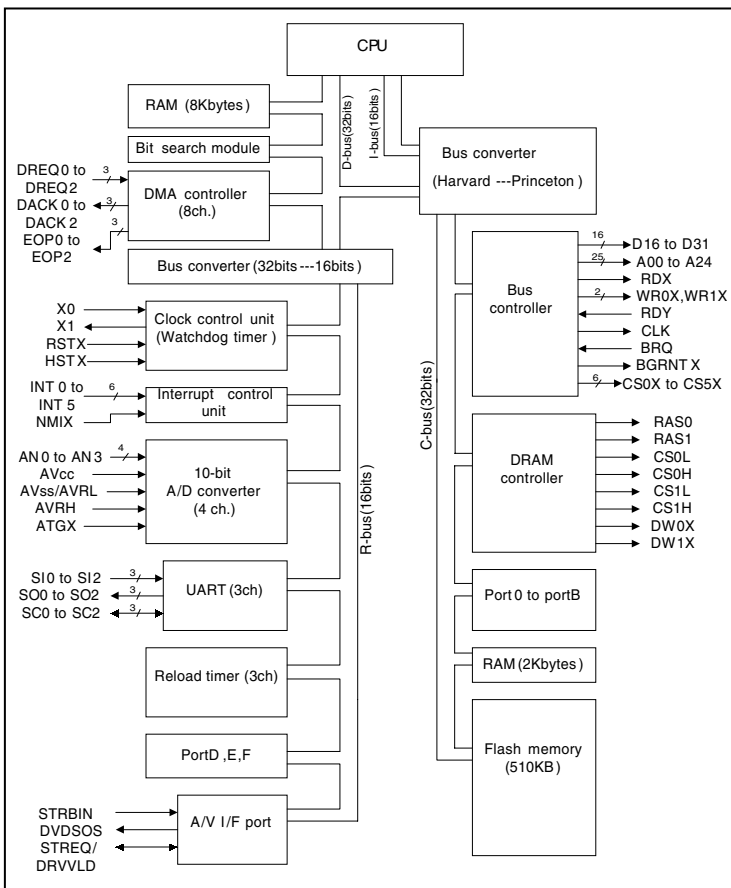
BLOCK DIAGRAM



PIN DESCRIPTION

SYMBOL	PIN NAME
A0- A16	Address Inputs
DQ0- DQ7	Data Inputs/Outputs
\overline{CE}	Chip Enable
\overline{OE}	Output Enable
\overline{WE}	Write Enable
VDD	Power Supply
GND	Ground
NC	No Connection

ZR36703



ZR36703

Pin Number	Pin Name	I/O Circuit Format	Function
25 26 27 28 29 30 31 32	D16/P20 D17/P21 D18/P22 D19/P23 D20/P24 D21/P25 D22/P26 D23/P27	E	Bits 16 to 23 of external data bus. When the external bus width is set to 8 bits or in single-chip mode, these pins can be used as general-purpose I/O ports (P20 to P27).
33 34 35 36 37 38 39 41	D24/P30 D25/P31 D26/P32 D27/P33 D28/P34 D29/P35 D30/P36 D31/P37	E	Bits 24 to 31 of external data bus. When these pins are not used for the data bus, they can be used as general-purpose I/O ports (P30 to P37).
42 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58	A00/P40 A01/P41 A02/P42 A03/P43 A04/P44 A05/P45 A06/P46 A07/P47 A08/P50 A09/P51 A10/P52 A11/P53 A12/P54 A13/P55 A14/P56 A15/P57	F	Bits 00 to 15 of external address bus. When these pins are not used for the address bus, they can be used as general-purpose I/O ports (P40 to P47 and P50 to P57).
59 60 61 62 63 64 66 67	A16/P60 A17/P61 A18/P62 A19/P63 A20/P64 A21/P65 A22/P66 A23/P67	F	Bits 16 to 23 of external address bus. When these pins are not used for the address bus, they can be used as general-purpose I/O ports (P60 to P67).
68	A24/P70/EOP0	F	Bit 24 of external address bus. [EOP0] DMAC EOP output (ch 0). This function is valid when DMAC EOP output is enabled. [P70] When this pin is not used as A24 and EOP0, the pin can be used as a general-purpose I/O port.

Pin Number	Pin Name	I/O Circuit Format	Function
19	RDY/P80	E	External Ready input. 0 is input when the bus cycle being executed is not completed. When the pin is not used for this purpose, it can be used as a general-purpose I/O port.
20	BGRNTX/P81	F	Output of external bus release acceptance. L is output when the external bus has been released. When the pin is not used for this purpose, it can be used as a general-purpose I/O port.
21	BRQ/P82	E	Input of external bus release request. 1 is input to request that the external bus be released. When the pin is not used for this purpose, it can be used as a general-purpose I/O port.
22	RDX/P83	F	External bus read strobe. When this pin is not used for this purpose, it can be used as general-purpose I/O port.
23 24	WR0X/P84 WR1X/P85	F	External bus write strobes. Individual control signals and data bus byte positions have the following relationships: For 16-bit bus width: WR0X strobes D15:D08 WR1X strobes D07:D00 For 8-bit bus width: WR0X strobes D15:D08 WR1X used as P85 For single-chip mode: Both used as P84, P85 Note: WR1X is Hi-Z while it is in reset state. When it is used as a 16-bit bus, attach a pull-up resistor to the outside. [P84 or P85] When WR0X or WR1X is not used, the pin can be used as a general-purpose I/O port.
11 10 9	CS0X/PA0 CS1X/PA1 CS2X/PA2	F	Chip Select 0 output (active-low) Chip Select 1 output (active-low) Chip Select 2 output (active-low) [PA0,1,or 2] When the pin is not used for the above purpose, it can be used as a general-purpose I/O port.
8	CS3X/PA3/EOP1	F	Chip Select 3 output (active-low) [EOP1] DMAC EOP1 output (ch 1). This function is valid when DMAC EOP output is enabled. [PA3] When CS3X and EOP1 are not used, the pin can be used as a general-purpose I/O port.
7 6	CS4X/PA4 CS5X/PA5	F	Chip Select 4 output (active-low) Chip Select 5 output (active-low) [PA4 or 5] When the pin is not used for the above purpose, it can be used as a general-purpose I/O port.

Pin Number	Pin Name	I/O Circuit Format	Function
5	CLK/PA6	F	System clock output. The pin outputs the same clock frequency as the external bus operating frequency. [PA6] When the pin is not used for this purpose, it can be used as a general-purpose I/O port.
96 97 98 99 100 1 2 3	RAS0/PB0 CS0L/PB1 CS0H/PB2 DW0X/PB3 RAS1/PB4/EOP2 CS1L/PB5/DREQ2 CS1H/PB6/DACK2 DW1X/PB7	F	RAS output of DRAM bank 0 CASL output of DRAM bank 0 CASH output of DRAM bank 0 WE output of DRAM bank 0 RAS output of DRAM bank 1 CASL output of DRAM bank 1 CASH output of DRAM bank 1 WE output of DRAM bank 1 See the description of the DRAM interface for more information. [EOP2] DMAC EOP output (ch 2). This function is valid when DMAC EOP output is enabled. [DREQ2] Input of DMA external transfer request. This input is used from time to time when this pin is selected for the DMAC transfer cause. Therefore, it is needed to stop output by other functions except when such output is performed intentionally. [DACK2] Output of DMAC external transfer request acceptance (ch 2). This function is valid when the output of DMAC transfer request acceptance is enabled. [PB0-7] When each pin is not used for the corresponding purpose, the pin can be used as a general-purpose I/O port.
16 17 18	MD0 MD1 MD2	C	Mode pins 0 to 2. Use these pins to setting the basic MCU operation Mode. Connect these pins directly to Vcc or Vss.
92 91	X0 X1	A	Clock (Oscillator) input Clock (Oscillator) output
14	RSTX	B	External reset input.
13	HSTX	B	Hardware Standby input.
12	NMIX	D	Non-maskable interrupt (NMI) input (active-low).
95 94	INT0/PE0 INT1/PE1	F	[INT0,1] Input of external interrupt request. This input is used from time to time while the corresponding external interrupt is enabled. Therefore, it is needed to stop output by other functions except when such output is performed intentionally. [PE0,1] General-purpose I/O ports.

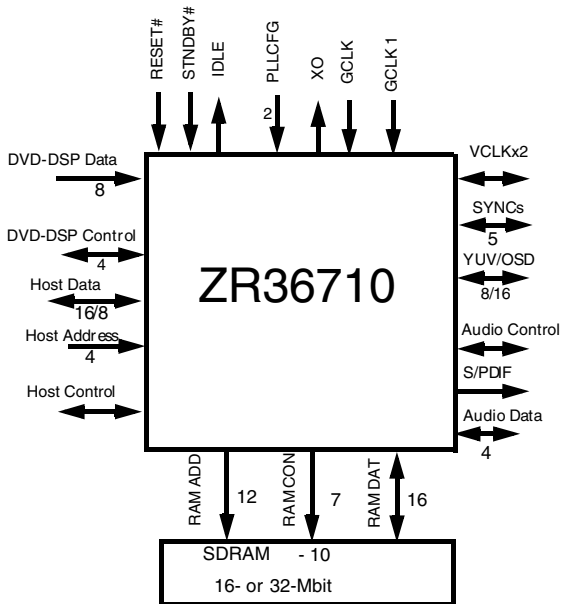
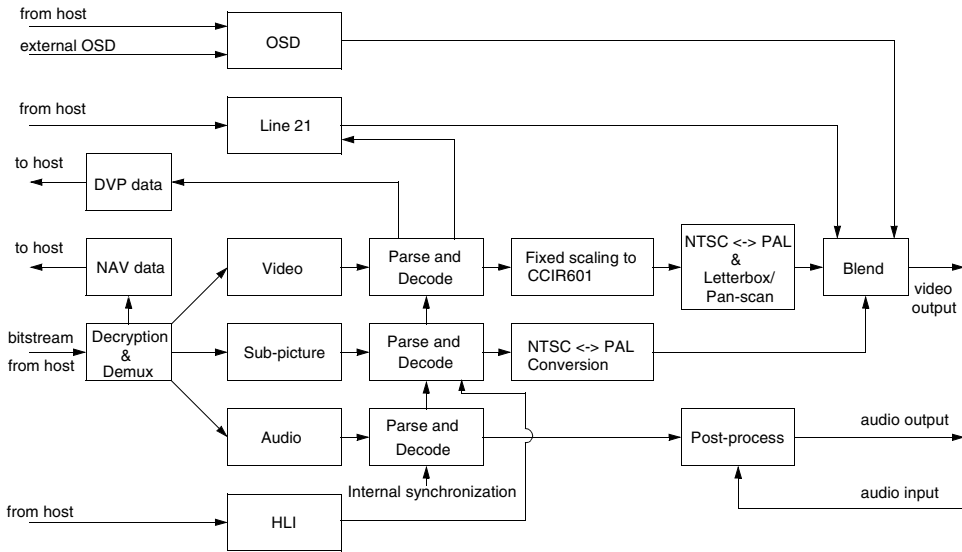
Pin Number	Pin Name	I/O Circuit Format	Function
89	INT2/SC1/PE2	F	[INT2] Input of external interrupt request. This input is used from time to time while the corresponding external interrupt is enabled. Therefore, it is needed to stop output by other functions except when such output is performed intentionally. [SC1] UART1 clock I/O. Clock output can be used when UART1 clock output is enabled. [PE2] General-purpose I/O port. This function is valid when UART1 clock output is disabled.
88	INT3/SC2/PE3	F	[INT3] Input of external interrupt request. This input is used from time to time while the corresponding external interrupt is enabled. Therefore, it is needed to stop output by other functions except when such output is performed intentionally. [SC2] UART1 clock I/O. Clock output can be used when UART1 clock output is enabled. [PE3] General-purpose I/O port. This function is valid when UART1 clock output is disabled.
87 86	DREQ0/PE4 DREQ1/PE5	F	[DREQ0,1] Input of DMA external transfer request. This input is used from time to time when this pin is selected for the DMAC transfer cause. Therefore, it is needed to stop output by other functions except when such output is performed intentionally. [PE4,5] General-purpose I/O ports.
85	DACK0/PE6	F	[DACK0] Output of DMAC external transfer request acceptance (ch 0). This function is valid when the output of DMAC transfer request acceptance is enabled. [PE6] General-purpose I/O port. This function is valid when the output of DMAC transfer request acceptance or DACK0 output is disabled.
84	DACK1/PE7	F	[DACK1] Output of DMAC external transfer request acceptance (ch 0). This function is valid when the output of DMAC transfer request acceptance is enabled. [PE7] General-purpose I/O port. This function is valid when the output of DMAC transfer request acceptance or DACK0 output is disabled.
76	SI0/PF0	F	[SI0] UART0 data input. This input is used from time to time while input operation is selected. Therefore, it is needed to stop output by other functions except when such output is performed intentionally. [PF0] General-purpose I/O port.
77	SO0/PF1	F	[SO0] UART0 data output. This function is valid when UART0 data output is enabled. [PF1] General-purpose I/O port. This function is valid when UART0 data output is disabled.

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Pin Number	Pin Name	I/O Circuit Format	Function
78	SC0/PF2	F	[SC0] UART0 clock I/O. Clock output can be used when UART0 clock output is enabled. [PF2] General-purpose I/O port. This function is valid when UART0 clock output is disabled.
79	SI1/PF3	F	[SI1] UART1 data input. This input is used from time to time while input operation is selected. Therefore, it is needed to stop output by other functions except when such output is performed intentionally. [PF3] General-purpose I/O port.
80	SO1/PF4	F	[SO1] UART1 data output. This function is valid when UART1 data output is enabled. [PF4] General-purpose I/O port. This function is valid when UART1 data output is disabled.
81	SI2/PF5	F	[SI2] UART2 data input. This input is used from time to time while input operation is selected. Therefore, it is needed to stop output by other functions except when such output is performed intentionally. [PF5] General-purpose I/O port.
82	SO2/PF6	F	[SO2] UART2 data output. This function is valid when UART2 data output is enabled. [PF6] General-purpose I/O port. This function is valid when UART2 data output is disabled.
83	PF7/INT5/ATGX	F	[INT5] Input of external interrupt request. This input is used from time to time while the corresponding external interrupt is enabled. Therefore, it is needed to stop output by other functions except when such output is performed intentionally. [ATGX] External trigger input for A/D converter. This input is used from time to time when this pin is selected for the A/D start cause. Therefore, it is needed to stop output by other functions except when such output is performed intentionally. [PF7] General-purpose I/O port.
72	AN0/STRBIN/PD0	G	[AN0] A/D converter analog input. This input is used from time to time while input operation is selected. Therefore, it is needed to stop output by other functions except when such output is performed intentionally. [STRBIN] The clock source input for DVDSOS logic. This input is used from time to time while input operation is selected. Therefore, it is needed to stop output by other functions except when such output is performed intentionally. [PD0] General-purpose I/O port.

Pin Number	Pin Name	I/O Circuit Format	Function
73	AN1/STREQ/DRVVLD/PD1	G	[AN1] A/D converter analog input. This input is used from time to time while input operation is selected. Therefore, it is needed to stop output by other functions except when such output is performed intentionally. [STREQ] STREQ output. This function is valid when STREQ output is enabled. [PD1] General-purpose I/O port. This function is valid when STREQ output is disabled. [DRVVLD] DRVVLD input. This input is used from time to time while input operation is selected. Therefore, it is needed to stop output by other functions except when such output is performed intentionally.
74	AN2/DVDSOS/PD2	G	[AN2] A/D converter analog input. This input is used from time to time while input operation is selected. Therefore, it is needed to stop output by other functions except when such output is performed intentionally. [DVDSOS] DVDSOS output. This function is valid when DVDSOS output is enabled. [PD2] General-purpose I/O port. This function is valid when DVDSOS output is disabled.
75	AN3/INT4/PD3	G	[AN3] A/D converter analog input. This input is used from time to time while input operation is selected. Therefore, it is needed to stop output by other functions except when such output is performed intentionally. [INT4] Input of external interrupt request. This input is used from time to time while the corresponding external interrupt is enabled. Therefore, it is needed to stop output by other functions except when such output is performed intentionally. [PD3] General-purpose I/O port.
69	AVCC	-	VCC power supply for A/D converter.
70	AVRH	-	Reference voltage of A/D converter (high potential side). Always turn the pin on or off while the voltage equal to AVCC or higher is applied to VCC.
71	AVSS/AVRL	-	A/D converter VSS power supply and reference voltage (low potential side).
4, 43, 93	VCC	-	Digital circuit power supply. Be sure to connect the power supply to every VCC pin.
15, 40, 65, 90	VSS	-	Digital circuit ground level.

ZR36710



ZR36710

Symbol	Type	Direction	Description
Host Interface and CD-DSP Interface (32 pins)			
RESET#	I	I	Reset input (active low). Once de-asserted, the ZR36710 initialization process begins.
STNDBY#	I	I	Stand-by input (active low). When asserted together with RESET# , all outputs and bidirectional pins float, such that the ZR36710 is electrically disconnected from its surroundings. All internal clocks are disabled, and the power consumption is minimized.
IDLE	3-S	O	reset , init_pclk , init_display and idle state indication output (active high).
HWD	I	I	Determines the width of the host interface data bus. It is allowed to be changed only during RESET. A low level (GND) configures the ZR36710 to 8-bit host interface, a high level (V_{DD}) to 16-bit width.
HORD	I	I	Determines the order of bytes on the host interface data bus in the case of 16-bit width (HWD at V_{DD}). It is allowed to be changed only during RESET. A low level (GND) configures the ZR36710 to input/output the m.s. byte on HD[15:8] , a high level (V_{DD}) to input/output the m.s. byte on HD[7:0] . If HWD is at GND level, connect to GND.
HTYPE	I	I	Determines the protocol of the host bus. Can be changed only during RESET. A low level (GND) sets the ZR36710 to Type A ^a , a high level (V_{DD}) to Type B ^b .
HD[7:0]	3-S	I/O	8 l.s. data lines of host data bus. When the HWD input is connected to GND, only these 8 l.s. signals are defined as host data signals. When HWD is connected to V_{DD} , these are the 8 l.s. lines of the 16-bit bus.
HD[11:8]	3-S	I/O	When HWD is tied to V_{DD} , these are data lines 11:8 of the 16-bit host data bus. When HWD is tied to GND, these are reserved pins.
HD[15:12]	3-S	I/O	When HWD is tied to V_{DD} , these are data lines 15:12 of the 16-bit host data bus. When HWD is tied to GND, these are the CD-DSP serial input port pins, defined as follows:
CDCLK (HD[12])	I	I	CD-DSP bit clock input
CDDAT (HD[13])	I	I	CD-DSP data input
CDFRM (HD[14])	I	I	CD-DSP left/right channel frame input

Symbol	Type	Direction	Description
Host Interface and CD-DSP Interface (32 pins)...continued.			
HA[3:0]	I	I	Host address inputs. These input signals indicate the register accessed in every cycle on the host interface.
HCS#	I	I	Host chip-select input. Active low.
HWR# (HR/W#)	I	I	In host protocol Type A ^a (HTYPE = GND): HR/W# . This input determines the direction of the host access. In host protocol Type B ^b (HTYPE = V_{DD}): HWR# . Host write input (active low).
HRD# (HDS#)	I	I	In host protocol Type A ^a (HTYPE = GND): HDS# . Data strobe input (active low). In host protocol Type B ^b (HTYPE = V_{DD}): HRD# . Host read input (active low.)
HRDY	3-S	O	Host ready output (active high). When this signal is high, up to <i>CodBurstLen</i> ^b bytes of bitstream can be written to the ZR36710 with no need to poll its condition in between. When HRDY is deactivated during a host access, the host may write up to two additional bytes of bitstream without corrupting the data. When this signal is active, it is 3-stated (needs external pull-up resistor).
HIRQ#	3-S	O	Interrupt request (active low). This output signal requests an interrupt from the host controller. It is de-asserted if the host reads the interrupt status register, disables the interrupt, or toggles the ZR36710 in and out of RESET. When this signal is not active, it is 3-stated (needs external pull-up resistor).
HACK#	3-S	O	Host acknowledge output (active low). In protocol Type A ^a , the ZR36710 indicates that a read or write cycle is completed by asserting this output. In protocol Type B ^b , this signal is used by the ZR36710 to indicate a "wait" state that may be used by "fast" hosts. In protocol Type B the host may ignore the HACK# signal. When this signal is not active, it is 3-stated (needs external pull-up resistor).
GPIO Signals (4 pins)			
GPIO[1:0]	3-S	I/O	General purpose input/output pins, monitored/controlled by the ADP microcode. After RESET, these pins are defined as inputs. Their definition can be configured through ADP commands.
GPSI	I	I	General purpose input, monitored by the DVP microcode.
GPSO	O	O	General purpose output, controlled by the DVP microcode.
PLL Signals (6 pins)			
GCLK	I	I	27.000MHz clock or crystal input for main processing clock generation.
GCLK1	I	I	27.000MHz clock input for audio master clock generation. In normal operation must be connected to GCLK .
XO	O	O	Output to a crystal that is connected to GCLK . If a crystal is not used at GCLK , XO must be left not connected.
PLLCA			PLL Capacitor. In normal operation must be connected to PLLGND through a 47nF capacitor.
PLLCFG[1:0]	I	I	PLL configuration inputs. Allowed to be changed only during RESET. In normal operation both pins must be connected to (digital) GND .

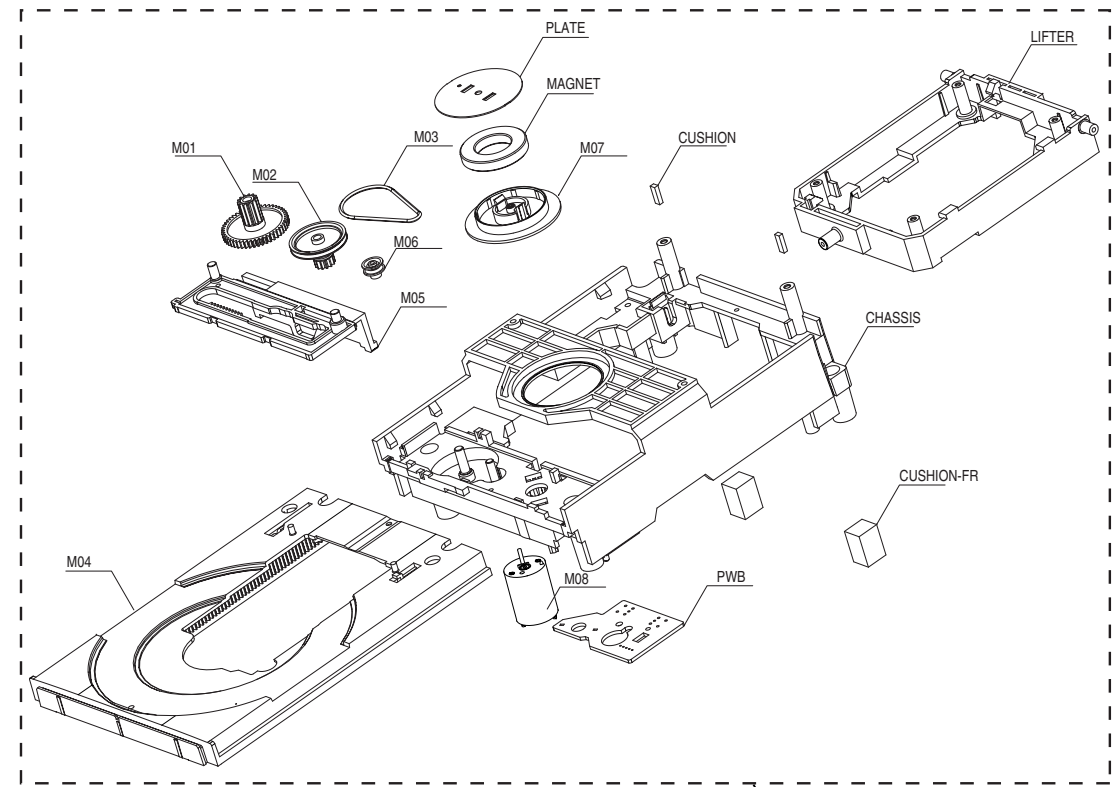
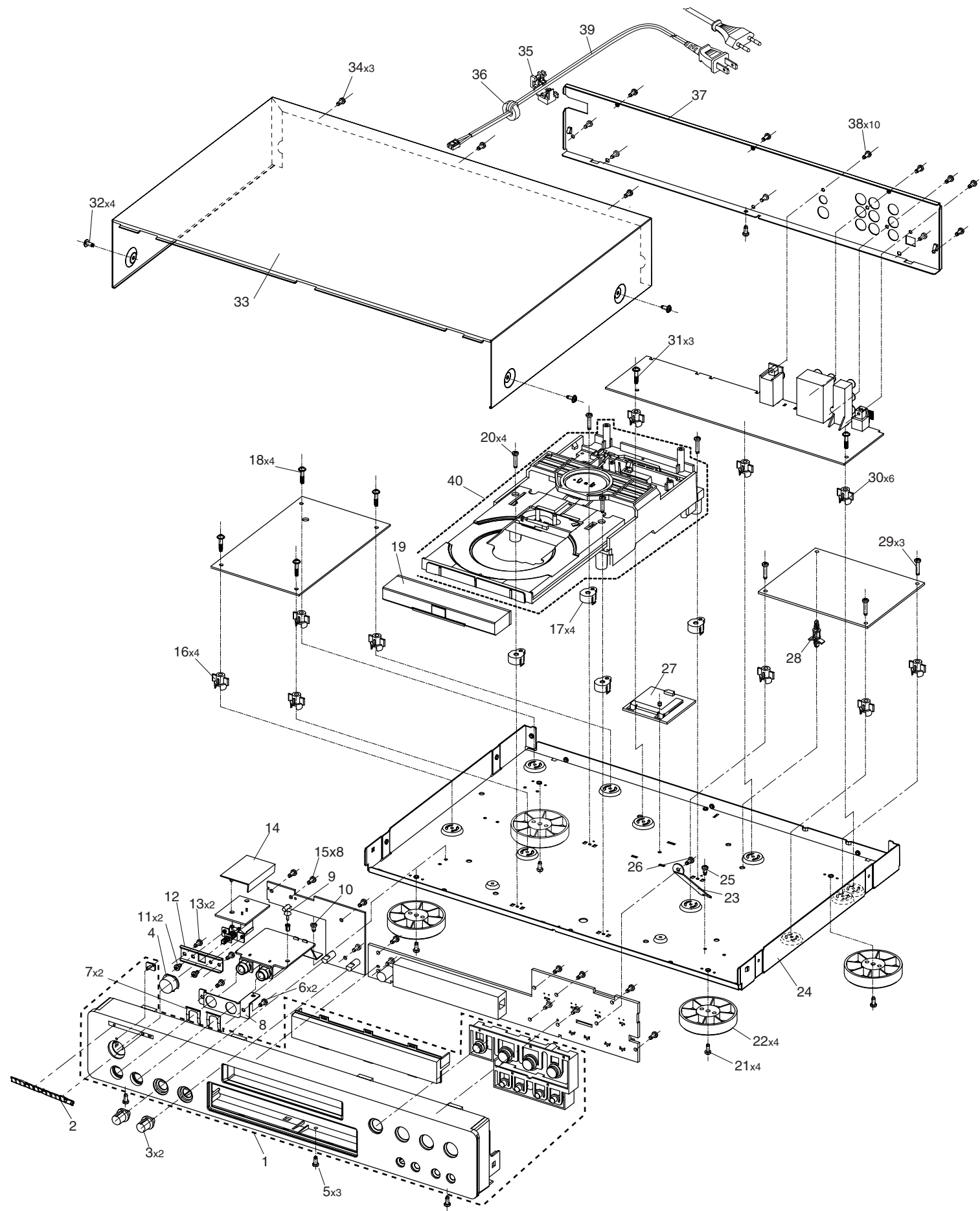
Symbol	Type	Direction	Description
Digital Video Port (24pins)			
Y[7:0]	3-S	O	In 16-bit video mode (<i>Video8</i> ^b = 0) these lines are the luminance outputs. In 8-bit mode (<i>Video8</i> = 1) they are luminance/chrominance outputs, multiplexed in time according to the CCIR656 standard (with or without SAV and EAV sync codes).
C[7:0]	3-S	I/O	In 16-bit video mode (<i>Video8</i> ^b = 0) these lines are the chrominance outputs. In 8-bit mode (<i>Video8</i> = 1) the 3 m.s. lines (C[7:5]) are not used, and the 5 l.s. lines (C[4:0]) are defined as possible inputs from an external OSD device:
OSDPEL[3:0] (C[3:0])			OSD pixel value inputs. These four signals are sampled and used as an entry to an on-chip OSD palette.
OSDPLT (C[4])			On-chip OSD palette selector. A low level selects <i>OSDPalette</i> ^b , a high level selects <i>OSDPalette</i> ^b .
VCLKx2	3-S	I/O	Main video clock input or output. 27.000MHz.
VCLK	3-S	I/O	A division by two of the VCLKx2 signal. This signal is used as data and sync qualifier.
HSYNC	3-S	I/O	Horizontal sync input/output. Polarity and duration are programmable.
VSYSN	3-S	I/O	Vertical sync input/output. Polarity and duration are programmable.
FI	3-S	I/O	Field indication input/output. Polarity is programmable.
CBLANK	O	O	Composite blank output. Waveform, including polarity, is programmable.
VMASTER	I	I	Video master/slave selection input. When this input is high, the ZR36710 is the video sync master (video SYNC signals and clocks are output). When it is low, the ZR36710 is a video Sync slave (video SYNC signals and clocks are input). This input may be changed only during RESET.
VDEN#	I	I	Video enable input (active low). When this input is active, the ZR36710 may output video data. When it is deasserted, the ZR36710 3-states the pixel outputs (although the sync signals and clocks are still active). This input may be changed at any time, taking effect at the next VCLKx2 .
Digital Audio Port (8 pins)			
AMCLK	3-S	I/O	Audio Master Clock input/output. 384, 256, 192 or 128 times the sampling frequency (programmable).
S/PDIF (AOUT[3])	O	O	S/PDIF transmitter output for digital coded or reconstructed audio data. Alternately can be used as a fourth audio output. After RESET this pin outputs low level.
AOUT[2:0]	O	O	Audio serial data output lines, 2 channels per line. After RESET these pins output low level until audio playback is performed.
AIN	I	I	Serial input of digital stereo audio.
ALRCLK	O	O	Digital audio left/right select output for the audio port. Square wave, at the sampling frequency. Programmable polarity interpretation for input and output.
ABCLK	O	O	Digital audio bit-clock output. Data on AOUT and AIN is output or latched, respectively, with the rising or falling edge of this clock. Data on AOUT and AIN can be latched on different edges of ABCLK .

Symbol	Type	Direction	Description
DVD-DSP Interface (12 pins)			
DVDREQ	O	O	DVD-DSP data request output. Programmable polarity.
DVDVALID	I	I	DVD-DSP data valid input. Programmable polarity.
DVDSSOS	I	I	DVD-DSP start of sector input. Programmable polarity.
DVDDAT[7:0]	I	I	DVD-DSP data input bus.
DVDSTRB	I	I	DVD-DSP data bit strobe (clock) input. Programmable polarity.
SDRAM Interface (35 pins)			
RAMDAT[15:0]	3-S	I/O	SDRAM bidirectional data bus.
RAMADD[11:0]	O	O	SDRAM address bus output.
RAMRAS#	O	O	SDRAM row select (active low) output.
RAMCAS#	O	O	SDRAM column select (active low) output.
PCLK	O	O	SDRAM clock output (Same as internal processing clock).
RAMDQM	O	O	SDRAM data masking (active high) output.
RAMCS0#	O	O	SDRAM chip select (active low) output for the lower 2MByte device.
RAMCS1#	O	O	SDRAM chip select (active low) output for the upper 2MByte device.
RAMWE#	O	O	SDRAM write enable (active low) output.
Test Signals (3 pins)			
SCNENBL	I	I	In normal operation this pin must be connected directly to GND.
TESTMODE	I	I	In normal operation this pin must be connected directly to V_{DD} .
ICEMODE	I	I	In normal operation this pin must be connected directly to V_{DD} .
Power Signals (35 pins)			
GND	ground		Digital ground.
V_{DD}	power		Digital power supply (3.3V).
PLLGND	ground		Ground plane of internal PLL circuit.
PLLV_{DD}	power		Power supply for internal PLL circuit (3.3V).

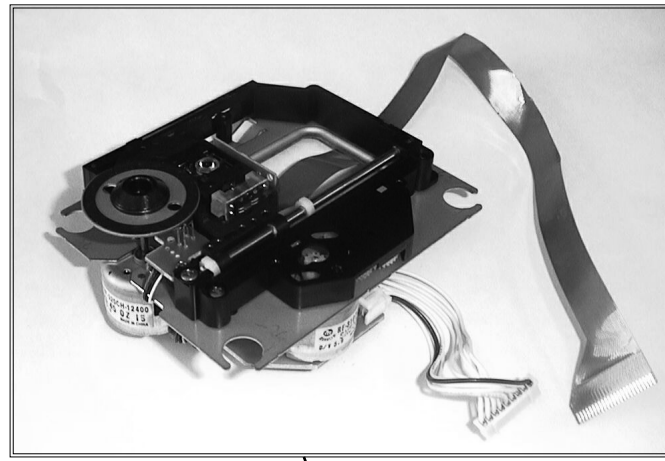
- a. See Section 4.3.2 gProtocol of Host Transfers - HTYPE h for an explanation on Type A and B host bus protocols.
- b. See Section 5.1 gGeneral Set-up Parameters and Microcode - Reg. 0x0 and 0x1 hfor an explanation on loading set-up parameters to the ZR36710.

Pin assignment and signal status during RESET, STNDBY and after RESET are described in Section 13. "Annex B: Pin Assignment and Signal Status".

8. EXPLODED VIEW AND PARTS LIST



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POS. NO	VERS. COLOR	PART NO. (FOR PCS)	PART NO. (MJI)	DESCRIPTION	
				EXPLODED VIEW PART(MECHANISM)	
1			01AW248500	FRONT PANEL A'SSY (FRONT PANEL, BUTTON, FL WINDOW, STANDBY LENS)	FKV6.178.137GD02
2			nsp	MARANTZ BADGE	344W251010
3			01AW154110	KNOB (MIC VOLUME1.2)	FKV8.337.183GD02
4			01AW270150	BUTTON (POWER)	FKV8.335.136GD02
5			nsp	SCREW (FOR BOTTOM OF FRONT PANEL)	S3X15PBTTHC
6			nsp	SCREW (FOR MIC JACK BRACKET)	S3X8BBTTHO
7			nsp	MIC JACK STOPPER	FKV8.667.020
8			nsp	MIC JACK Bracket	FKV8.038.074
9			nsp	PLASTIC BUSH	FKV8.085.011
10			nsp	SCREW (FOR MIC JACK PCB EARTH PLATE)	M3X6BMO
11			nsp	SCREW (POWER SW +BRACKET)	M3x6BMO
12			nsp	SW BRACKET	FKV8.038.082
13			nsp	SCREW (FOR POWER SW BRACKET)	S3X8BBTTHO
14			nsp	INSULATOR	FKV8.080.005
15			nsp	SCREW (FOR FRONT PCB)	S3X8BBTTHO
16			nsp	PCB SUPPORT	FKV8.078.052
17			nsp	MECHANISM SUPPORT	FKV8.078.086
18			nsp	SCREW (POWER SUPPLY PCB)	S3X15VWBTTTHC
19			01AW063110	DVD LOADER FRONT ESCUTCHEON	FKV8.082.104GD02
20			nsp	SCREW (DVD LOADER)	S3X15BBTTHO
21			nsp	SCREW (LEG)	S3X6BBTTHO
22			nsp	LEG (FRONT/REAR)	3120 001 00230
23			nsp	EARTH (FRONT PANEL/CHASSIS)	FKV7.725.040
24			nsp	CHASSIS	FKV8.031.050
25			nsp	SCREW (EARTH PLATE FOR CHASSIS)	S3X6BBTTHO
26			nsp	SCREW (EARTH PLATE FOR FRONT)	S3X8BBTTHO
27			nsp	FFC GUIDE	FKV8.078.084
28			nsp	PCB SUPPORT (MAIN PCB)	FKV8.078.064
29			nsp	SCREW (MAIN PCB)	S3X15PBTTHC
30			nsp	PCB SUPPORT	FKV8.078.052
31			nsp	SCREW (A/V OUT PCB)	S3X15VWBTTTHC
32			nsp	SCREW (TOP COVER SIDE)	S3X8PWBTTTHCu@
33			nsp	TOP COVER GOLD	FKV8.040.259GD02
34			nsp	SCREW (TOP COVER BACK)	S3X8BBTTHCu
35			nsp	AC CORD BUSH	FKV8.085.010
36			nsp	MAGNET φ 25 * 15 * 12	ERF550BH
37	/K		nsp	REAR PANEL	FKV8.040.249K1G
	/S		nsp	REAR PANEL	FKV8.040.249S1G
38			nsp	SCREW (REAR PANEL)	S3X8BBTTHO
▲	/K		*ZC000180R	MAINS Cord RVVZ-2P(180)	VJA18010012
	/S		*ZC000190R	MAINS Cord	VJA18030013
40			01AW304500	DVD MECHANISM LOADER A'SSY	CD11FTVA4
41			01AW304600	PICK-UP	DV33FS
				DVD MECHANISM LOADER (40)	
M01			01AW058010	GEAR DRIVE	1EA2511A21200
M02			01AW262010	PULLEY GEAR	1EA2524A02800
M03			01AW264010	BELT FRAME	1EA2563A03400
M04			01AW163010	TABLE LOADING	1EA2761A02500
M05			01AW051010	GEAR SLIDE	1EA2511A26100
M06			01AW262020	PULLEY MOTOR	1EA2523A02000
M07			01AW005010	HOLDER MAGNET	1EA2451A15700
M08			*MM002000R	LOADING MOTOR	1EA4M10A07402

NOTE : *nsp* PART IS LISTED FOR REFERENCE ONLY, MARANTZ WILL NOT SUPPLY THESE PARTS.

9. ELECTRICAL PARTS LIST

ASSIGNMENT OF COMMON PARTS CODES.

RESISTORS

R***: 1) GD05xxx 140, Carbon film fixed resistor, ±5% 1/4W

R***: 2) GD05xxx 160, Carbon film fixed resistor, ±5% 1/6W

① Resistance value

Examples ;

① Resistance value

0.1 Ω 001 10 Ω 100 1 kΩ 102 100 kΩ 104
 0.5 Ω 005 18 Ω 180 2.7 kΩ 272 680 kΩ 684
 1 Ω 010 100 Ω 101 10 kΩ 103 1 MΩ 105
 6.8 Ω 068 390 Ω 391 22 kΩ 223 4.7 MΩ 475

Note : Please distinguish 1/4W from 1/6W by the shape of parts used actually.

CAPACITORS

C***: CERAMIC CAP.

3) DD1xxx 370, Ceramic capacitor
 Disc type
 Temp.coeff.P350 ~N1000, 50V
 ② Capacity value
 ③ Tolerance

Examples ;

② Tolerance (Capacity deviation)

±0.25 pF 0
 ±0.5 pF 1
 ±5% 5

* Tolerance of COMMON PARTS handled here are as follows :

0.5 pF ~ 5 pF ±0.25 pF
 6 pF ~ 10 pF ±0.5 pF
 12 pF ~ 560 pF ±5%

③ Capacity value

0.5 pF 005 3 pF 030 100 pF 101
 1 pF 010 10 pF 100 220 pF 221
 1.5 pF 015 47 pF 470 560 pF 561



C***: CERAMIC CAP.

4) DK16xxx 300, High dielectric constant ceramic capacitor
 Disc type
 Temp.chara. 2B4, 50V
 ④ Capacity value

Examples ;

④ Capacity value

100 pF 101 1000 pF 102 10000 pF 103
 470 pF 471 2200 pF 222

C***: 5) ELECTROLY CAP. () , 6) FILM CAP. ()

5) EAxxx 10, Electrolytic capacitor
 One-way lead type, Tolerance ±20%
 ⑤ Working voltage
 ⑥ Capacity value

Examples ;

⑤ Capacity value

0.1 μF 104 4.7 μF 475 100 μF 107
 0.33 μF 334 10 μF 106 330 μF 337
 1 μF 105 22 μF 226 1100 μF 118
 2200 μF 228

⑥ Working voltage

6.3V 006 25V 025
 10V 010 35V 035
 16V 016 50V 050

6) DF15xxx 350 Plastic film capacitor
 DF15xxx 310 One-way type, Mylar ±5% 50V
 DF16xxx 310 Plastic film capacitor
 One-way type, Mylar ±10% 50V
 ⑦ Capacity value

Examples ;

⑦ Capacity value

0.001 μF (1000 pF) 102 0.1 μF 104
 0.0018 μF 182 0.56 μF 564
 0.01 μF 103 1 μF 105
 0.015 μF 153

NOTE : 1) The above CODES (R***, R*** , C*** , C*** and C***) are omitted on the schematic diagram in some case.

2) On the occasion, be confirmed the common parts on the parts list.

3) Refer to "Common Parts List" for the other common parts (RI05, DD4, DK4).

NOTE ON SAFETY FOR FUSIBLE RESISTOR :

The suppliers and their type numbers of fusible resistors are as follows;

1. KOA Corporation

Part No. (MJL)	Type No. (KOA)	Description
NH05 xxx 140	RF25S xxx ΩJ	(±5% 1/4W)
NH05 xxx 120	RF50S xxx ΩJ	(±5% 1/2W)
NH85 xxx 110	RF73B2A xxx ΩJ	(±5% 1/10W)
NH95 xxx 140	RF73B2E xxx ΩJ	(±5% 1/4W)

* Resistance value Resistance value (0.1 Ω - 10 kΩ)

2. Matsushita Electronic Components Co., Ltd

Part No. (MJL)	Type No. (MEC)	Description
NF05 xxx 140	ERD-2FCJ xxx	(±5% 1/4W)
RF05 xxx 140		
NF02 xxx 140	ERD-2FCG xxx	(±2% 1/4W)
RF02 xxx 140		

* Resistance value * Resistance value

Examples ;

* Resistance value

0.1 Ω 001 10 Ω 100 1 kΩ 102 100 kΩ 104
 0.5 Ω 005 18 Ω 180 2.7 kΩ 272 680 kΩ 684
 1 Ω 010 100 Ω 101 10 kΩ 103 1 MΩ 105
 6.8 Ω 068 390 Ω 391 22 kΩ 223 4.7 MΩ 475



ABBREVIATION AND MARKS

ANT. : ANTENNA	BATT. : BATTERY
CAP. : CAPACITOR	CER. : CERAMIC
CONN. : CONNECTING	DIG. : DIGITAL
HP. : HEADPHONE	MIC. : MICROPHONE
μ-PRO : MICROPROCESSOR	REC. : RECORDING
RES. : RESISTOR	SPK : SPEAKER
SW. : SWITCH	TRANSF. : TRANSFORMER
TRIM. : TRIMMING	TRS. : TRANSISTOR
VAR. : VARIABLE	X'TAL : CRYSTAL


NOTE ON FUSE :

Regarding to all parts of parts code **FS20xxx2xx**, replace only with Wickmann-Werke GmbH, Type 372 non glass type fuse.

NOTE ON SAFETY :

Symbol  Fire or electrical shock hazard. Only original parts should be used to replaced any part marked with symbol  . Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

安全上の注意 :

 がついている部品は、安全上重要な部品です。必ず指定されている部品番号の部品を使用して下さい。

POS. NO	VERS. COLOR	PART NO. (FOR PCS)	PART NO. (MJI)	DESCRIPTION		
				POWER SUPPLY P.C.B		
▲		CP01	nsp	Capacitor	275VAC-0.22μF	MKT61275VAC0.22μFK ECQA3224KB
▲		CP02	*DK100710R	Capacitor	250VAC-10nF	CT7-250VAC-2F-103Z ECDA103BZAFHF
▲		CP03,CP04	*DK100720R	Capacitor	400VAC-470pF	CT7-400VAC-2B-471M ECDB471HMBDHF
		CP05	nsp	Ele. Cap.	400V-68μF	CD2942G680S10S2025 ECEP2GUJ680MR
		CP07	nsp	Capacitor	1kV-47pF	CC81-1KV-47pF-K-06a ECHB4703A06SKA
		CP08	nsp	Ele. Cap.	50V-1uF	CD1101H010T5S0511 ECEA1HAE010MB
▲		CP09,CP13	*DK100730R	Capacitor	63V-0.1uF	CT4-2F4-63V-104-S-A ECMB1J104BST
		CP10	nsp	Ele. Cap.	16V-47μF	CD1101C470T5S0511 ECEA1CAE470MB
▲		CP11	*DK100740R	Capacitor	400VAC-1000p	CT7-400VAC--2F-102Z ECDB102HZADHF
		CP14,CP15,CP16	nsp	Ele. Cap.	16V-1000μF	CD288H1C102T5S1220 ECEQ1CFU102MP
		CP17	nsp	Ele. Cap.	25V-100uF	CD288H1E101T5S0812 ECEQ1ECF101MB
		CP18	nsp	Ele. Cap.	50V-220uF	CD288H1H221S5S1220 ECEQ1HFU221MP
		CP19	nsp	Ele. Cap.	25V-220μF	CD288H1E221S5S1013 ECEQ1EDG221MP
		CP20	nsp	Ele. Cap.	6.3V-100μF	CD1100J101T2S0511 ECEA0JAE101MI
		CP21,CP23,CP24	nsp	Ele. Cap.	16V-470μF	CD1101C471S5S1013 ECEA1CDG471MP
		CP25,CP26	nsp	Ele. Cap.	25V-100uF	CD1101E101T5S0812 ECEA1ECF101MB
		CP27	nsp	Ele. Cap.	50V-22uF	CD1101H220T2S0612 ECEA1HQF220MI
		CP28	nsp	Ele. Cap.	25V-47uF	CD1101E470T2S0612 ECEA1EQF470MI
		DP01	*HD201670R	Diode		RU2Yx ODIRU2Yx
		DP02,DP03	*HD201680R	Diode		RU4Z ODIRU4Z
		DP04,DP05,DP06	nsp	Diode		RGF15G ODIRGP15G
		DPP1,DPP2,DPP3,DPP4	*HD201650R	Diode		1N4007 ODI1N4007
		DPP5	*HD201660R	Diode		UF4006 ODIUF4006
		DPP6	HD20002000	Diode		1N4148 ODI1N4148
		DZP1	*HD302060R	ZenerDiode		P6KE200 ODIP6KE200
		DZP2	HD30431000	ZenerDiode	4.3V	MTZJT-774.3B ODIMTZJ4R3BT77
▲		FP01	*FS000920R	Fuse	1.6A	50T-T1.6A-250V VSF1R625001A
		JP01	nsp	CONN. WEFER	8P	PH8A-20 VJS08PH01
		JP02	nsp	CONN. WEFER	4P	PH4A-20 VJS04PH01
		JP03	nsp	CONN. WEFER	7P	PH7A-20 VJS07PH01
		JPP1,JPP2	nsp	Fuse Holder		H0460 VJFH0460
▲		LP01	*FN000170R	Filter	20uH	T68-1 20uH ELFT68120uH
▲		LP02	*FN000180R	Filter	20mH	LQ0002A3(20mH) ELFLQ0002A3
		LP04,LP05	nsp	EMI Filter		RH356008 ERF5RH356008
		QP01,QP02,QP03	*HT900070R	Transistor		2SD1913R OTR2SD1913R
		QP04	*HT200420R	Transistor		2SB1240Q OR R OTR2SB1240Q
		QP05,QP10	HT317402F0	Transistor		2SC1740S OTR2SC1740S
		QP06,QP09	BA20017210	Transistor		DTC114TSA OTRDTC114TSA
		QP07	HT109332B0	Transistor		2SA933AS OTR2SA933AS
		QP08	HT418622A0	Transistor		2SD1862Q OTR2SD1862Q
		RP01	nsp	Resister	3W-2.2kΩ	RY18-2.2KΩJ ERYC03J222B
		RP02	nsp	Resister	1/4W-20Ω	RT14-T26B-20ΩJ ERD14TJ200T
		RP03	nsp	Resister	1/6W-100Ω	RT13-T26B-100ΩJ ERD16TJ101T
		RP05	nsp	Resister	1/6W-3.3kΩ	RT13-T26B-3.3KΩJ ERD16TJ332T
		RP06,RP21	nsp	Resister	1/6W-2.2kΩ	RT13-T26B-2.2KΩJ ERD16TJ222T
		RP07,RP12,RP13,RP25	nsp	Resister	1/6W-1kΩ	RT13-T26B-1KΩJ ERD16TJ102T
		RP08,RP28	nsp	Resister	1/6W-100kΩ	RT13-T26B-100KΩJ ERD16TJ104T
		RP09	nsp	Resister	1/4W- 0.47Ω	RF10-1/4W-0.47ΩJ-T26 B ERQ14AJR47T
		RP10	nsp	Resister	1/2W-100Ω	MO-1/2W-100ΩJ ERYC12J101V
		RP100	nsp	Resister	1/4W-6.8Ω	RT14-T26B-6.8ΩJ ERD14TJ6R8T
		RP11	nsp	Resister	1/4W-10Ω	RT14-T26B-10ΩJ ERD14TJ100T
		RP14,RP15,RP16,RP17,RP30,RP31	nsp	Resister	1/6W-1kΩ 1%	MF-T26B-1KΩF ERX16BF102T
		RP18,RP19,RP23	nsp	Resister	1/6W-22kΩ	RT13-T26B-22KΩJ ERD16TJ223T
		RP20	nsp	Resister	1/6W-18kΩ	RT13-T26B-18KΩJ ERD16TJ183T
		RP22	nsp	Resister	1/6W-2.4kΩ	RT13-T26B-2.4KΩJ ERD16TJ242T
		RP24	nsp	Resister	1/6W-2.7kΩ	RT13-T26B-2.7KΩJ ERD16TJ272T
		RP26	nsp	Resister	1/6W-220Ω	RT13-T26B-220ΩJ ERD16TJ221T
		RP27	nsp	Resister	1/6W-10kΩ	RT13-T26B-10KΩJ ERD16TJ103T
		RP29	nsp	Resister	1/6W-4.7kΩ	RT13-T26B-4.7KΩJ ERD16TJ472T
		RP32	nsp	Resister	1/6W-330Ω	RT13-T26B-330ΩJ ERD16TJ331T
		SK01	nsp	CONN. WEFER	2P	TH2A-80 VJS02TH01
▲		TP01	*TS001640R	Transf.		BCK2801-100/BCK2801 -148 VTPCK9161/VTPCK 9162
		UP01	nsp	Heat sink		FKV7.308.051

NOTE : "nsp" PART IS LISTED FOR REFERENCE ONLY, MARANTZ WILL NOT SUPPLY THESE PARTS.

POS. NO	VERS. COLOR	PART NO. (FOR PCS)	PART NO. (MJI)	DESCRIPTION		
UP01			*HC107910R	IC	TOP223Y	OICTOP223Y
UP01			nsp	Screw		S3*6BBTTHO
▲ UP02			*HW100560R	IC	PC817A	OICPC817A
UP03			HC33036590	IC	TL431CLP/KA431AZ	OICTL431CLP /OICKA431AZ
UP04			HC10015270	IC	LM324	OICLM324
WPX1,WPX2,WPX3			nsp	earth lug		FKV7.725.008
MAIN P.C.B						
C1,C3,C12,C48			nsp	Capacitor	390pF50V	C0603COG1H391JT ECUV1H391JCVW
C53			nsp	Capacitor	0.01µF50V	CT41-0603F103Z500NT ECUV1H103ZJV
C75,C76,C178			nsp	Capacitor	15pF50V	C0603COG1H150JT ECUV1H150JCVW
PR11			nsp	Res. Array	0603 4.7kΩ1/16W	RCM-L08W-4.7KΩ-J-T ERPI3G472J08AT
PR7,PR8			nsp	Res. Array	0603 10kΩ1/16W	RCM-L08W-10KΩ-J-T ERPI3G103J08AT
R166,R246,R199,R200, R204,R214			nsp	Resistor	1kΩ1/16W	RC03K102JT ERJ3GSKJ102V
R217,R162,R163			nsp	Resistor	100Ω1/16W	RC03K101JT ERJ3GSKJ101V
R49			nsp	Resistor	750Ω1/16W	RC03K751JT ERJ3GSKJ751V
U17			*HC107900R	IC	QFP160	ZR36710TQC OICZR36710TQC
U2,U16			HC36J3321F	Regulator		BA033T/RT9164-33CK OICBA033T /OICRT916433CK
C17,C64			nsp	Capacitor	0.015µF50V	CT41-0603F153Z500NT ECUV1H153ZJV
C18,C86,C87,C88			nsp	Capacitor	100pF50V	C0603COG1H101JT ECUV1H101JCVW
C19,C52,C136			nsp	Capacitor	47pF50V	C0603COG1H470JT ECUV1H470JCVW
C2			nsp	Capacitor	4700pF50V	CT41-0603B472K500NT ECUV1H472KBV
C20,C68,C69			nsp	Capacitor	150pF50V	C0603COG1H151JT ECUV1H151JCVW
C21,C41,C45,C47			nsp	Capacitor	1000pF50V	C0603B1H102KT ECUV1H102KBVW
C210			nsp	Capacitor	0.22µF 50V	CT41-0603F224Z500NT ECUV1H224ZJV
C32,C43,C50			nsp	Capacitor	10pF50V	C0603COG1H100JT ECUV1H100JCVW
C39B,C40B,C42B,C44B,C51			nsp	Capacitor	1µF10V	CT41-0603F105Z100NT ECUV1A105ZJV
C4,C5,C6,C7,C8,C13,C14, C15,C16,C22,C23,C24,C25, C26,C27,C28,C29,C30,C31, C33,C34,C35,C36,C37,C46, C55,C56,C61,C65,C66,C67, C70,C73,C74,C77,C78,C79, C80,C97,C99,C104,C105, C106,C107,C108,C109, C110,C119,C120,C121, C123,C128,C129,C131, C132,C137,C139,C140, C141,C142,			nsp	Capacitor	0.1µF 50V	CT41-0603F104Z500NT ECUV1H104ZJV
C49,C101			nsp	Capacitor	0.047µF50V	CT41-0603F473Z500NT ECUV1H473ZJV
C62,C63,C143			nsp	Capacitor	330pF50V	C0603COG1H331JT ECUV1H331JCVW
C96,C98,C211,C212,C224			nsp	Capacitor	22pF50V	C0603COG1H220JT ECUV1H220JCVW
D2			HD20002000	Diode		1N4148 OD1N4148
E1,E5,E6,E8,E9,E12,E13, E18,E19,E20,E43,E61,E62			nsp	Ele. Cap.	16V-47µF	CD11C1C470T2S0507 ECEG1CAB470MI
E3,E14,E15,E17,E27			nsp	Ele. Cap.	16V-100µF	CD11C01C101T2S0607 ECEG1CQB101MI
E21			nsp	Ele. Cap.	16V-10µF	CD11C1C100T2S0407 ECEG1CTB100MI
E23			nsp	Ele. Cap.	6.3V-47µF	CD11C0J470T2S0407 ECEG0JTB470MI
E26,E30,E32,E35			nsp	Ele. Cap.	6.3V-100µF	CD11C0J101T2S0507 ECEG0JAB101MI
E4,E10,E11			nsp	Ele. Cap.	10V-220µF	CD11C1A221T2S0607 ECEG1AQB221MI
E66,E40			nsp	Ele. Cap.	16V-22µF	CD11C1C220T2S0407 ECEG1CTB220MI
FB1,FB2,FB3,FB19,FB20, FB27,FB28,FB30,FB38,FB44			nsp	EMI Filter	2200Ω100MHz	BLM21P222S ELVBPB222T
FB21,FB22,FB24,FB25,FB26			nsp	EMI Filter	120Ω100MHz	MBW3216-120T ELVMC121T
FB37 //K			nsp	Resistor	0Ω1/16W	RC03K000JT ERJ3GSKJ000V
FB43 //S			nsp	Resistor	0Ω1/16W	RC03K000JT ERJ3GSKJ000V
FB43			nsp	Resistor	4.7Ω1/16W	RC03K4R7JT ERJ3GSKJ4R7V
J10,J11			nsp	FFC connector	18PIN	FAASD1862 VJS18FC01
J1B			nsp	FFC connector	24PIN	FABSD2452 VJS24FB01
J2			nsp	CONN. WEFER	9P	PH9A-20 VJS09PH01
J3			nsp	CONN. WEFER	5P	PH5A-25 VJS05PH01
J5			nsp	FFC connector	12PIN	FABSD1252 VJS12FB01
J8			nsp	CONN. WEFER	8P	PH8A-20 VJS08PH01
J9			nsp	CONN. WEFER	7P	PH7A-20 VJS07PH01

NOTE : *nsp* PART IS LISTED FOR REFERENCE ONLY, MARANTZ WILL NOT SUPPLY THESE PARTS.

POS. NO	VERS. COLOR	PART NO. (FOR PCS)	PART NO. (MJI)	DESCRIPTION			
JP8,R10,JP18,JP19,JP20,JP30,JP31,JP35B,R121,R125,JP25,JP27,R48,R189,R249,R252,R253,R256,R257,C225,C228,C231			nsp	Resister	0Ω1/16W	RC03K000JT	ERJ3GSKJ000V
L1,L2			nsp	Inductor	10μH	LGA0307-10μH-K-T26B	ELEPS100K01
PR1,PR2,PR3,PR4,PR5,PR6,PR9			nsp	Res. Array	0603 33Ω 1/16W	RCM-L08W-33Ω-J-T	ERPI3G330J08AT
Q1,Q2			*HT200430R	Transistor		2SB1132Q	OTR2SB1132Q
Q3,Q4,Q5B			HX324122A0	Transistor		2SC2412K	OTR2SC2412K
Q6B,Q7B			*HF200290R	Transistor		2SK3019	OTR2SK3019
R11,R34			nsp	Resister	18kΩ1/16W	RC03K183JT	ERJ3GSKJ183V
R123			nsp	Resister	1MΩ1/16W	RC03K105JT	ERJ3GSKJ105V
R13,R47,R52,R53,R54,R55			nsp	Resister	20kΩ1/16W	RC03K203JT	ERJ3GSKJ203V
R169,R170,R171			nsp	Resister	75Ω 1%/16W	RC03K750FT	ERJ3GSKF750V
R177,R178			nsp	Resister	200kΩ1/16W	RC03K204JT	ERJ3GSKJ204V
R2,R15,R17,R18,R19,R20,R62,R122			nsp	Resister	33kΩ1/16W	RC03K333JT	ERJ3GSKJ333V
R21,R22,R23,R25			nsp	Resister	27kΩ1/16W	RC03K273JT	ERJ3GSKJ273V
R24,R245			nsp	Resister	47kΩ1/16W	RC03K473JT	ERJ3GSKJ473V
R247			nsp	Resister	196Ω 1%/16W	RC03K1960FT	ERJ3GSKF1960V
R27,R26			nsp	Resister	5.1kΩ1/16W	RC03K512JT	ERJ3GSKJ512V
R3,R14,R59,R241B,R244B			nsp	Resister	100kΩ1/16W	RC03K104JT	ERJ3GSKJ104V
R30,R37,R56			nsp	Resister	15kΩ1/16W	RC03K153JT	ERJ3GSKJ153V
R35,R36,R46,R51,R67,R68,R197,R198,R201,R202,R203,R242B,R243B			nsp	Resister	10kΩ1/16W	RC03K103JT	ERJ3GSKJ103V
R38,R39,R41,R57			nsp	Resister	22Ω1/16W	RC03K220JT	ERJ3GSKJ220V
R4,R16,R126,R33			nsp	Resister	39kΩ1/16W	RC03K393JT	ERJ3GSKJ393V
R42,R43,R44,R45			nsp	Resister	1Ω1/16W	RC03K1R0JT	ERJ3GSKJ1R0V
R50,R58,R12,R164,R165			nsp	Resister	220Ω1/16W	RC03K221JT	ERJ3GSKJ221V
R66			nsp	Resister	330Ω1/16W	RC03K331JT	ERJ3GSKJ331V
R8,R9			nsp	Resister	12kΩ1/16W	RC03K123JT	ERJ3GSKJ123V
R91			nsp	Resister	2.2Ω1/16W	RC03K2R2JT	ERJ3GSKJ2R2V
R92,R105,R106,R107,R108,R109,R206,R207,R210,R215,R216,R130,R255			nsp	Resister	4.7kΩ1/16W	RC03K472JT	ERJ3GSKJ472V
R94,R93,R175,R176			nsp	Resister	33Ω1/16W	RC03K330JT	ERJ3GSKJ330V
U1			*HC107790R	IC		MT1366F	OICMT1366F
U10			*HC107800R	IC		BR24C02F	OICNM24C02M8
U12			*HC107810R	IC		ZR36703TQC	OICZR36703TQC
U20			*HC107820R	IC		GM72V161621ET8/M1216161	OICGM72V161621ET8 /OICGM72V161621C0
U28			*HC107830R	IC		AV2188E	OICAV2188E
U29			*HC107840R	IC		AV3168	OICAV3168
U3			*HC107850R	IC		MT1388E	OICMT1388E
U4			*HC107860R	IC		BA5954FPE2	OICBA5954FPE2
U7			*HC107870R	IC		SST39SF010A	OICSST39SF010AP LCC
U8			*HC107880R	IC		V53C16258LK50/GL448BL16-50J4	OICV53C16258LK50
U9			*HC107890R	IC		BA6208	OICBA6208
Y2			*JX000910R	Ceramic Resonator		CSA33.86MXZ040/QZ33R86M	EFOCSA33R86MXZ06 /EFOQZ33R86M
Y3			*JX000920R	X'tal		HC-49/US12R5MHZ18pF	VSXEN1255A18B5S
Y4			*JX000930R	X'tal		HC-49/US27MHZ20pF	VSXEN2705A20B5S /VSXEN2705A20B4B /VSXEN2705A20B5L

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POS. NO	VERS. COLOR	PART NO. (FOR PCS)	PART NO. (MJI)	DESCRIPTION					
				Audio/Video OUTPUT P.C.B					
LRA1,LRA5,LRA6,LRA7, LRA8,LRA9,LRA10,LRA12, LRA13,LRA14,LRA25, LRA18,LRA19,LRA26, RA58,RA149,RA151,RA152 RA153,RA154			nsp	Resister	0Ω	1/	16W	RC03K000JT	ERJ3GSKJ000V
RA114,RA73,			nsp	Resister	33Ω	1/	16W	RC03K330JT	ERJ3GSKJ330V
RA117,RA116			nsp	Resister	68Ω	1/	16W	RC03K680JT	ERJ3GSKJ680V
LRA16			nsp	Resister	75Ω	1/	16W	RC03K750JT	ERJ3GSKJ750V
RA126			nsp	Resister	91Ω	1/	16W	RC03K910JT	ERJ3GSKJ910V
RA84,RA85,RA86,RA87, RA88,RA89			nsp	Resister	100Ω	1/	16W	RC03K101JT	ERJ3GSKJ101V
RA143			nsp	Resister	180Ω	1/	16W	RC03K181JT	ERJ3GSKJ181V
RA115			nsp	Resister	270Ω	1/	16W	RC03K271JT	ERJ3GSKJ271V
RA121,RA135			nsp	Resister	330Ω	1/	16W	RC03K331JT	ERJ3GSKJ331V
RA67,RA68,RA69,RA70, RA71,RA72			nsp	Resister	470Ω	1/	16W	RC03K471JT	ERJ3GSKJ471V
RA76,RA77,RA78,RA79, RA80,RA81			nsp	Resister	680Ω	1/	16W	RC03K681JT	ERJ3GSKJ681V
RA56,RA57,RA59,RA60			nsp	Resister	1kΩ	1/	16W	RC03K102JT	ERJ3GSKJ102V
RA15,RA129,RA47,RA49, RA50,RA53,RA54,RA90, RA46			nsp	Resister	2kΩ	1/	16W	RC03K202JT	ERJ3GSKJ202V
RA113			nsp	Resister	2.7kΩ	1/	16W	RC03K272JT	ERJ3GSKJ272V
RA110			nsp	Resister	3.3kΩ	1/	16W	RC03K332JT	ERJ3GSKJ332V
RA44,RA45,RA48,RA51, RA52,RA55			nsp	Resister	3.9kΩ	1/	16W	RC03K392JT	ERJ3GSKJ392V
RA112,RA111			nsp	Resister	4.7kΩ	1/	16W	RC03K472JT	ERJ3GSKJ472V
RA1,RA2,RA3,RA4,RA5, RA6,RA7,RA8,RA9,RA10, RA11,RA14,RA18,RA131, RA12,RA13,RA19,RA17			nsp	Resister	10kΩ	1/	16W	RC03K103JT	ERJ3GSKJ103V
RA109			nsp	Resister	12kΩ	1/	16W	RC03K123JT	ERJ3GSKJ123V
RA128			nsp	Resister	15kΩ	1/	16W	RC03K153JT	ERJ3GSKJ153V
RA16			nsp	Resister	18kΩ	1/	16W	RC03K183JT	ERJ3GSKJ183V
RA36,RA37,RA38,RA39, RA40,RA41			nsp	Resister	22kΩ	1/	16W	RC03K223JT	ERJ3GSKJ223V
RA105,RA106			nsp	Resister	68k	1/16W		RC03K683JT	ERJ3GSKJ683V
RA107,RA108			nsp	Resister	47kΩ	1/	16W	RC03K473JT	ERJ3GSKJ473V
RA95,RA96,RA97,RA98, RA99,RA100,RA101,RA102, RA127			nsp	Resister	100kΩ	1/	16W	RC03K104JT	ERJ3GSKJ104V
CA86,CA87,CA88			nsp	Capacitor	22pF		50V	C0603COG1H220JT	ECUV1H220JCVW
CA20,CA21			nsp	Capacitor	150pF		50V	C0603COG1H151JT	ECUV1H151JCVW
CA19,CA22,CA23,CA24			nsp	Capacitor	200pF		50V	C0603COG1H201JT	ECUV1H201JCVW
CA74,CA75,CA76			nsp	Capacitor	270pF		50V	C0603COG1H271JT	ECUV1H271JCVW
CA80,CA81,CA82			nsp	Capacitor	330pF		50V	C0603COG1H331JT	ECUV1H331JCVW
CA71			nsp	Capacitor	470pF		50V	C0603COG1H471JT	ECUV1H471JCVW
CA70,CA35,CA36,CA37, CA40,CA41,CA42			nsp	Capacitor	1000pF		50V	C0603B1H102KT	ECUV1H102KBVW
CA27,CA28,CA29,CA30, CA31,CA32			nsp	Capacitor	2200PF		50V	CT41-0603B222K500NT	ECUV1H222KBV
CA65			nsp	Capacitor	4700pF		50V	CT41-0603B472K500NT	ECUV1H472KBV
CA10,CA11,CA12,CA13, CA14,CA15,CA16,CA18			nsp	Capacitor	0.01μF		50V	CT41-0603F103Z500NT	ECUV1H103ZFV
CA63,CA64,CA66,CA67, CA101,CA102,CA129			nsp	Capacitor	0.1μF		25V	CD41-C0603F104Z250N	ECUV1E104ZFV
CA69			nsp	Capacitor	1μF		10V	CD41-C0603F105Z100N	ECUV1A105ZFV
CA91			nsp	Ele. Cap.	16V-100μF			CD11C1C101T2S0607	ECEG1CQB101MI
CA53			nsp	Ele. Cap.	16V-4.7μF			CD1101C4R7T2S0511	ECEA1CAE4R7MI
CA72,CA68			nsp	Ele. Cap.	16V-10μF			CD1101C100T2S0511	ECEA1CAE100MI
CA1,CA2,CA3,CA4,CA5, CA6,CA7,CA106,CA107, CA109,CA200			nsp	Ele. Cap.	16V-47μF			CD1101C470T2S0511	ECEA1CAE470MI
CA113,CA128			nsp	Ele. Cap.	16V-470μF			CD1101C471T5S0812	ECEA1CCF471MB
CA73			nsp	Ele. Cap.	16V-330μF			CD1101C331T5S0812	ECEA1CCF331MI

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POS. NO	VERS. COLOR	PART NO. (FOR PCS)	PART NO. (MJI)	DESCRIPTION			
CA58,CA59,CA60,CA43,CA44,CA45,CA46,CA47,CA48,CA49,CA50,CA51,CA52,CA54,CA55			nsp	Ele. Cap.	16V-22 μ F		CD1101C220T2S0511 ECEA1CAE220MI
CA135			nsp	Ele. Cap.	50V-4.7 μ F		CD1101H4R7T2S0511 ECEA1HAE4R7MI
LA1,LA2,LA3,LA7			nsp	Inductor	1.8 μ H		LGA0307-1.8 μ H-K-T26B ELEPS1R8K01
LRA21,LRA23,LRA24			nsp	EMI Filter	2500 Ω	100MHz	BLM11B252SD ELVPA252T
DA1,DA2,DA3,DA5,DA6,DA7,DA8,DA9,DA10,DA11			HD20002000	Diode			1N4148 ODI1N4148
QA1,QA2,QA3,QA4,QA5,QA6,QA7,QA8,QA9			HT317402F0	Transistor			2SC1740S OTR2SC1740S
QA12,QA13,QA15,QA17			HT109332B0	Transistor			2SA933AS OTR2SA933AS
UA1,UA2,UA3,UA4			*HC400030R	IC			NJM4580M OICNJM4580M
UA6			HC700400Z0	IC	SOP		TC74HCU04AF OICTC74HCU04AF
UA7			YJ15000090	Optical terminal			GP1F32T/TOTX178 OPTTGP1F32T /OPTTTOTX178
CONA3			nsp	6RCA Audio out terminal			AV6-8.4-16 VJJ01609A
CONA1			nsp	3RCA Audio out terminal			AV3-8.4-13 VJJ01315A
CONA2			nsp	VIDEO, S-VIDEO terminal			CS-01 VJJ12101A
JA1			nsp	CONN. WEFER	5P		PH5A-20 VJS05PH01
JA2,JA3			nsp	FFC connector	18PIN		FAASD1862 VJS18FC01
GA1,GA2			nsp	Earth lug			FKV7.725.008
				FRONT P.C.B			
CF1,CF6,CF7			nsp	Ele. Cap.	16V-47 μ F	5.0mm	CD1101C470T5S0511 ECEA1CAE470MB
CF11,CF12,CF13,CF14,CF15			nsp	Capacitor	100pF	50V	C0805COG1H101JT ECUV1H101JCNW
CF2,CF3,CF5,CF8			nsp	Capacitor	0.1 μ F	50V	CT41-0805F104Z500NT ECUV1H104ZFN
CF9			nsp	Capacitor	470pF	50V	C0805COG1H471JT ECUV1H471JCNW
DF1,DF2			HD20015210	Diode			1SS133T77 ODI1SS133T77
JF1			nsp	FFC connector	12PIN	1.0mm	FABSE1252 VJS12FB11
JF2			nsp	CONN. WEFER	2P	2.0mm	PH2A-20 VJS02PH01
KF01A,KF02A,KF03A,KF04A,KF05A,KF06A,KF07A,KF08A			nsp	Tact SW			EVQ11505R EVQ11505R
RF1,RF16			nsp	Resister	100 Ω	1/ 10W	RC05K101JT ERJ6GEKJ101V
RF15			nsp	Resister	470 Ω	1/ 10W	RC05K471JT ERJ6GEKJ471V
RF2,RF3,RF6,RF7,RF8,RF9,RF10,RF11,RF12,RF13,RF14			nsp	Resister	10k Ω	1/ 10W	RC05K103JT ERJ6GEKJ103V
RF4			nsp	Resister	100k Ω	1/ 10W	RC05K104JT ERJ6GEKJ104V
RF5			nsp	Resister	47k Ω	1/ 10W	RC05K473JT ERJ6GEKJ473V
UF01			*HQ300550R	FL Display			VFD20-0604A VSLVFD200604A
UF02			*HC107920R	IC			PT6312 OICPT6312
UF03			*HW100570R	R/C Receiver			GP1838-4 RMPIC12042
				MIC P.C.B			
CM1,CM2,CM9,CM10,CM13,CM16			nsp	Ele. Cap.	16V-4.7 μ F	2.5mm	CD1101C4R7T2S0511 ECEA1CAE4R7MI
CM11,CM14			nsp	Capacitor	1000pF	50V	C0805B1H102KT ECUV1H102KBNW
CM17,CM22			nsp	Capacitor	0.1 μ F	50V	CT41-0805F104Z500NT ECUV1H104ZFN
CM3,CM4,CM18,CM19,CM20			nsp	Capacitor	0.01 μ F	50V	CT41-0805F103Z500NT ECUV1H103ZFN
CM5,CM6			nsp	Capacitor	100pF	50V	C0805COG1H101JT ECUV1H101JCNW
CM7,CM8,CM12,CM15			nsp	Ele. Cap.	50V-10 μ F	2.5mm	CD1101H100T2S0511 ECEA1HAE100MI
JM1,JM2			nsp	CONN. WEFER	5P	2.0mm	PH5A-20 VJS05PH01
JM3			nsp	CONN. WEFER	4P	2.0mm	PH4A-20 VJS04PH01
LRM1,LRM2,LRM3,LRM4,LRM5,LRM6,LRM7,LRM8			nsp	EMI Filter	2200 Ω	100MHz	BLM21P222S ELVPB222T
MIC1,MIC2			nsp	MIC jack			CK3-6.25-19G VJJ02401
QM1,QM2			nsp	IC			NJM4580M OICNJM4580M
RM1,RM2			nsp	Resister	6.8k Ω	1/ 10W	RC05K682JT ERJ6GEKJ682V
RM11,RM12			nsp	Resister	470 Ω	1/ 10W	RC05K471JT ERJ6GEKJ471V
RM13,RM14,RM23			nsp	Resister	1k Ω	1/ 10W	RC05K102JT ERJ6GEKJ102V

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POS. NO	VERS. COLOR	PART NO. (FOR PCS)	PART NO. (MJI)	DESCRIPTION					
RM15, RM16, RM19			nsp	Resister	4.7kΩ	1/	10W	RC05K472JT	ERJ6GEKJ472V
RM17			nsp	Resister	10kΩ	1/	10W	RC05K103JT	ERJ6GEKJ103V
RM18, RM21			nsp	Resister	100Ω	1/	10W	RC05K101JT	ERJ6GEKJ101V
RM20			nsp	Resister	15kΩ	1/	10W	RC05K153JT	ERJ6GEKJ153V
RM22			nsp	Resister	47kΩ	1/	10W	RC05K473JT	ERJ6GEKJ473V
RM3, RM4			nsp	Resister	3.3kΩ	1/	10W	RC05K332JT	ERJ6GEKJ332V
RM5, RM6			nsp	Resister	2.2kΩ	1/	10W	RC05K222JT	ERJ6GEKJ222V
RM7, RM8			nsp	Resister	2kΩ	1/	10W	RC05K202JT	ERJ6GEKJ202V
RM9, RM10			nsp	Resister	150kΩ	1/	10W	RC05K154JT	ERJ6GEKJ154V
				MIC VOLUME P.C.B					
DL1			nsp	L.E. Diode				HFR203TP2	ODISLR342VCTB
JL1			nsp	CONN. WEFER	2P		2.0mm	PH2A-20	VJS02PH01
JL2			nsp	CONN. WEFER	5P		2.0mm	PH5A-25W	VJS05PH11
VRL1, VRL2			nsp	Volume Res.			10kΩ	RK09K11300103BJF15	EVN1BF15B103
				POWER SWITCH P.C.B					
▲ CFP1			*DK100710R	Capacitor	250VAC-10nF	10mm		CT7-250VAC-2F-103Z	ECDA103BZAFHF
▲ SWP1			*SP001170R	Power SW				PS4E-B-039	ESBPS4EB03901
▲ JFP1			nsp	Lug	2P/8.0mm	280mm		T-A02A280-01	VEV4B280JT05

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