



AKAI

DVD PLAYER

Models:

DV-P4575SDK

DV-P4585MMD

SERVICE MANUAL

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1. PRECAUTIONS

1-1 Safety Precautions

1) Before returning an instrument to the customer, always make a safety check of the entire instrument, including, but not limited to, the following items:

(1) Be sure that no built-in protective devices are defective or have been defeated during servicing.

(1) Protective shields are provided to protect both the technician and the customer. Correctly replace all missing protective shields, including any remove for servicing convenience.

(2) When reinstalling the chassis and/or other assembly in the cabinet, be sure to put back in place all protective devices, including, but not limited to, nonmetallic control knobs, insulating fish papers, adjustment and compartment covers/shields, and isolation resistor/capacitor networks. Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning.

(2) Be sure that there are no cabinet opening through which adults or children might be able to insert their fingers and contact a hazardous voltage. Such openings include, but are not limited to, excessively wide cabinet ventilation slots, and an improperly fitted and/or incorrectly secured cabinet back cover.

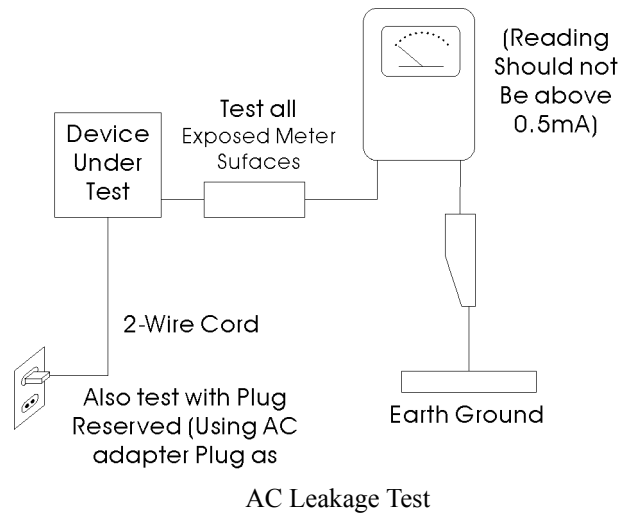
(3) Leakage Current Hot Check-With the instrument completely reassembled, plug the AC line cord directly into a 120V AC outlet. (Do not use an isolation transformer during this test.) Use a leakage current tester or a metering system that complies with American National Standards institute (ANSI) C101.1 Leakage.

Current for Appliances and underwriters Laboratories (UL) 1270 (40.7). With the instrument's AC switch first in the ON position and then in the OFF position, measure from a known earth ground (metal water pipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle brackets, metal cabinets, screwheads, metallic overlays, control shafts, etc.), especially and exposed metal parts that offer an electrical return path to the chassis.

Any current measured must not exceed 0.5mA.

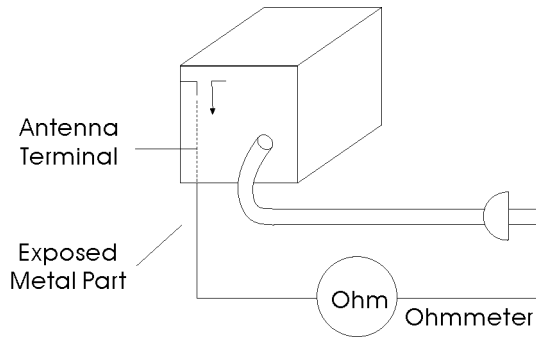
Reverse the instrument power cord plug in the outlet

and repeat the test.



Any measurements not within the limits specified herein indicate a potential shock hazard that must be eliminated before returning the instrument to the customer.

(4) Insulation Resistance Test Cold Check-(1) Unplug the power supply cord and connect a jumper wire between the two prongs of the plug. (2) Turn on the power switch of the instrument. (3) Measure the resistance with an ohmmeter between the jumpered AC plug and all exposed metallic cabinet parts on the instrument, such as screwheads, antenna, control shafts, handle brackets, etc. When an exposed metallic part has a return path to the chassis, the reading should be between 1 and 5.2 megohm. When there is no return path to the chassis, the reading must be infinite. If the reading is not within the limits specified, there is the possibility of a shock hazard, and the instrument must be re-pared and rechecked before it is returned to the customer.



Insulation Resistance Test

- 2) Read and comply with all caution and safety related notes non or inside the cabinet, or on the chassis.
- 3) Design Alteration Warning-Do not alter or add to the mechanical or electrical design of this instrument. Design alterations and additions, including but not limited to, circuit modifications and the addition of items such as auxiliary audio output connections, might alter the safety characteristics of this instrument and create a hazard to the user. Any design alterations or additions will make you, the service, responsible for personal injury or property damage resulting there from.
- 4) Observe original lead dress. Take extra care to assure correct lead dress in the following areas:
 - (1) near sharp edges, (2) near thermally hot parts (be sure that leads and components do not touch thermally hot parts), (3) the AC supply, (4) high

voltage, and (5) antenna wiring. Always inspect in all areas for pinched, out-of-place, or frayed wiring. Do not change spacing between a component and the printed-circuit board, Check the AC power cord for damage.

- 5) Components, parts, and/or wiring that appear to have overheated or that are otherwise damaged should be replaced with components, parts and/or wiring that meet original specifications. Additionally determine the cause of overheating and/or damage and, if necessary, take corrective action to remove and potential safety hazard.
- 6) Product Safety Notice-Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by shading, an (\triangle) or a (\triangle) on schematics and parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire and/or other hazards. Product safety is under review continuously and new instructions are issued whenever appropriate.

1-2 Servicing Precautions

CAUTION: Before servicing Instruments covered by this service manual and its supplements, read and follow the Safety Precautions section of this manual.



Note: If unforeseen circumstance create conflict between the following servicing precautions and any of the safety precautions, always follow the safety precautions. Remember; Safety First

1-2-1 General Servicing Precautions

- (1) a. Always unplug the instrument's AC power cord from the AC power source before (1) removing or reinstalling any component, circuit board, module or any other instrument assembly. (2) disconnecting any instrument electrical plug or other electrical connection. (3) connecting a test substitute in parallel with an electrolytic capacitor in the

instrument.

- b. Do not defeat any plug/socket B+ voltage interlocks with which instruments covered by this service manual might be equipped.
 - c. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
 - d. Always connect a test instrument's ground lead to the instrument chassis ground before connecting the test instrument positive lead. Always remove the test instrument ground lead last.
- Note:** Refer to the Safety Precautions section ground lead last.
- (2) The service precautions are indicated or printed on the cabinet, chassis or components. When servicing, follow the printed or indicated service precautions and service materials.

- (3) The components used in the unit have a specified flame resistance and dielectric strength.
When replacing components, use components which have the same ratings, by () or by () in the circuit diagram are important for safety or for the characteristics of the unit. Always replace them with the exact replacement components.
- (4) An insulation tube or tape is sometimes used and some components are raised above the printed wiring board for safety. The internal wiring is sometimes clamped to prevent contact with heating components. Install such elements as they were.
- (5) After servicing, always check that the removed screws, components, and wiring have been installed correctly and that the portion around the serviced part has not

been damaged and so on. Further, check the insulation between the blades of the attachment plug and accessible conductive parts.

1-2-2 Insulation Checking Procedure

Disconnect the attachment plug from the AC outlet and turn the power ON. Connect the insulation resistance meter (500V) to the blades of the attachment plug. The insulation resistance between each blade of the attachment plug and accessible conductive parts (see note) should be more than 1 Megohm.

Note: Accessible conductive parts include metal panels, input terminals, earphone jacks, etc.

1-3 ESD Precautions

Electrostatically Sensitive Devices (ESD)

Some semiconductor (solid static electricity) devices can be damaged easily by static electricity.

Such components commonly are called Electrostatically Sensitive Devices (ESD). Examples of typical ESD devices are integrated circuits and some field-effect transistors and semiconductor chip components. The following techniques of component damage caused by static electricity.

- (1) immediately before handling any semiconductor components or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
- (2) after removing an electrical assembly equipped with ESD devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
- (3) Use only a grounded-tip soldering iron to solder or unsolder ESD device.
- (4) Use only an anti-static solder removal devices. Some

solder removal devices not classified as “anti-static” can generate electrical charges sufficient to damage ESD devices.

- (5) Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESD devices.
- (6) Do not remove a replacement ESD device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive materials).
- (7) Immediately before removing the protective materials from the leads of a replacement ES device touch the protective material to the chassis or circuit assembly into which the device will be installed.

CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

- (8) Minimize bodily motions when handling unpackaged replacement ESD devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ESD device).

2. Reference Information

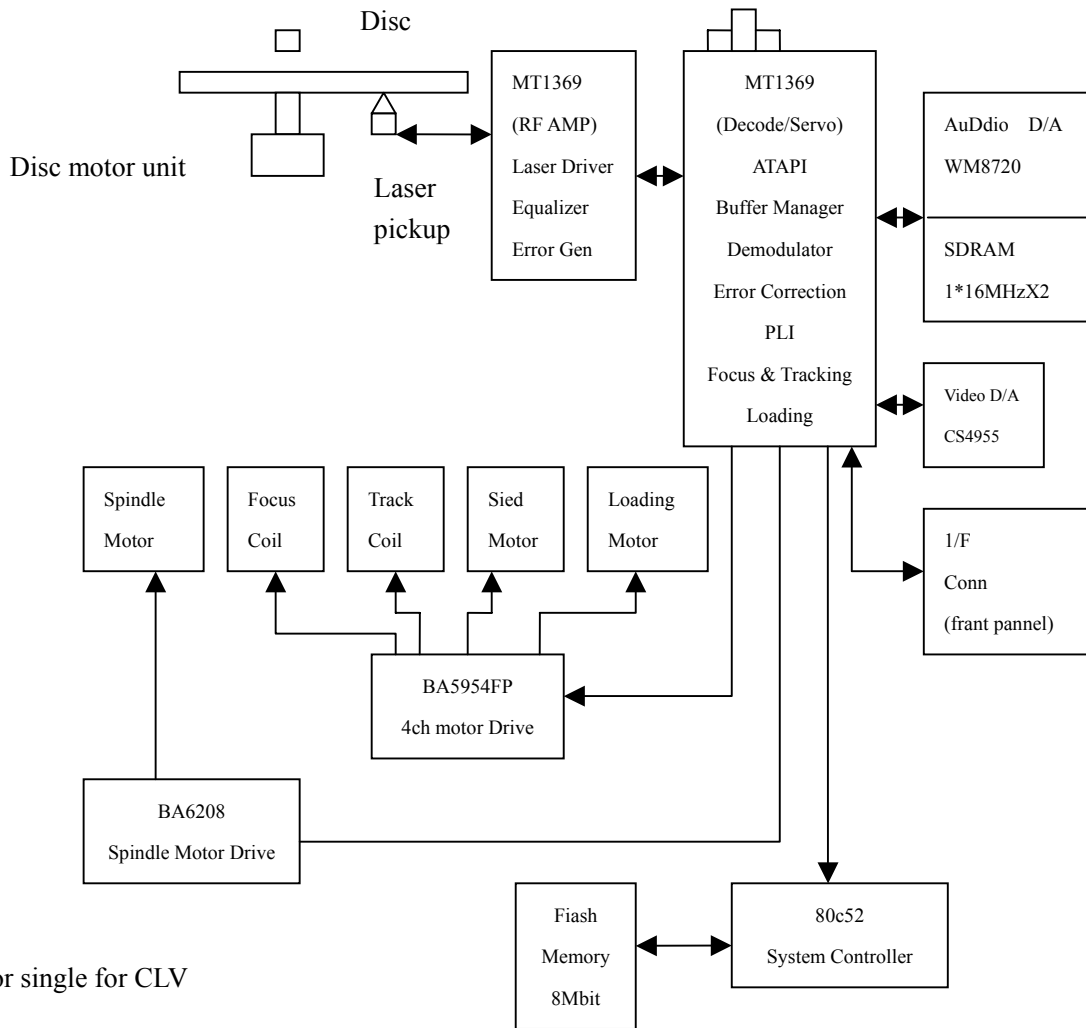
2-1 Component Descriptions

2-1-1 DVD SANYO HD60 PUH

Connector Pin Definition

I/F Signals	I/O Pin #
F-	1
F+	2
T+	3
T-	4
C	5
D	6
CD/DVD	7
RF	8
A	9
B	10
F	11
GND-PD	12
VC	13
VCC	14
E	15
NC	16
VR-CD	17
VR-DVD	18
LD-CD	19
MD	20
HFM	21
NC	22
LD-DVD	23
GND-LD	24

4. Block Diagram

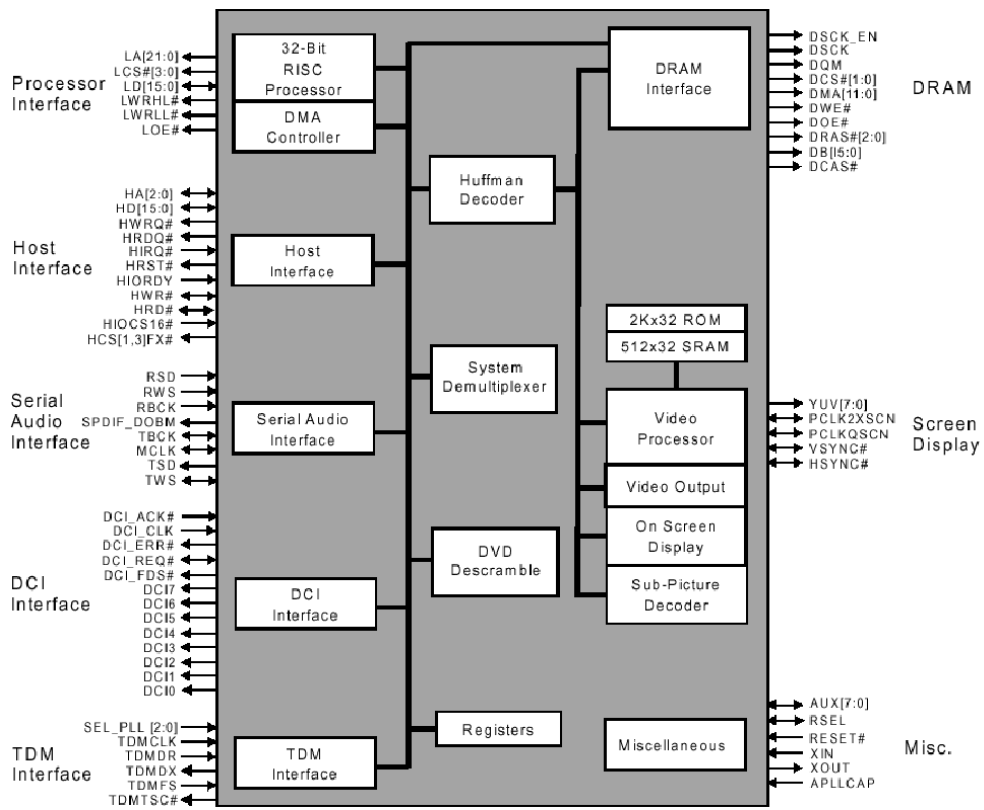


2-1-2 DVD Processor Chip (MTK1379) and Front-end IC MT1336

* Features

- Single-chip DVD video decoder in a 208-pin PQFP package
 - Supports MPEG-1 system and MPEG-2 program streams
 - Programmable multimedia processor architecture
 - Compatible with Audio CD, Video CD, VCD 3.0, and Super Video CD (SVCD)
 - DVD Navigation 1
 - Built-in content Scrambling System (CSS)
- Audio
- Built-in Karaoke key-shift function
 - DolbyTM Digital 2-channel down mix audio output for DolbyTM
 - Dolby Pro Logic
 - Linear PCM streams for 24 bit / 96KHz
 - Concurrent S/PDIF out and 2-channel audio output
 - Sensaura Dolby Digital Virtual Surround
 - DTS Digital Surround 2-channel down mix stereo output
 - S/PDIF output for encoded AC-3, DTS Digital output or Linear PCM
- Peripheral
- Glueless interface to DVD loaders (ATAPI or A/V bus I/F)
 - Bi-directional 12C audio interface
 - 8 general-purpose auxiliary ports
 - Single 27MHz clock input
- Smart Technology
- SmartZoomTM for motion zoom & pan
 - SmartZoomTM for NTSC to PAL conversion and vice versa
 - SmartZoomTM for video error concealment

* Functional Description



* Pinout Diagram

Pin	Signal	Pin	Signal
1	IREF	162	YUV0/CIN
2	PLLVSS	161	FS
3	LPIOP	160	VREF
4	LPION	159	DACVDDC
5	LPFON	158	ASDATA4
6	LPFIP	157	ASDATA3
7	LPFOP	156	ASDATA2
8	JITFO	155	ASDATA1
9	JITFN	154	ASDATA0
10	PLLVDD3	153	SPDIF
11	FOO	152	MC_DATA
12	TRO	151	ACLK
13	TROPENPWM	150	DVDD3
14	PWMOUT1	149	ALRCK
15	PWMOUT2	148	ABCK
16	DVDD2	147	RD16
17	DMO	146	RD17
18	FMO	145	DVSS
19	DVSS	144	RD18
20	FG	143	RD19
21	HIGHA0	142	RD20
22	HIGHA1	141	RD21
23	HIGHA2	140	DVDD2
24	HIGHA3	139	RD22
25	HIGHA4	138	RD23
26	HIGHA5	137	DQM2
27	DVSS	136	DQM3
28	HIGHA6	135	DVSS
29	HIGHA7	134	RD24
30	AD7	133	RD25
31	AD6	132	RD26
32	AD5	131	RD27
33	AD4	130	DVDD3
34	AD3	129	RD28
35	DVDD3	128	RD29
36	AD2	127	RD30
37	AD1	126	RD31
38	AD0	125	DVSS
39	IOA0	124	RA3
40	IOA1	123	RA2
41	DVDD2	122	RA1
42	IOA2	121	RA0
43	IOA3	120	DVDD2
44	IOA4	119	BA1
45	IOA5	118	DQM0
46	IOA6	117	DQM1
47	IOA7	116	DVSS
48	A16	115	RA4
49	A17	114	RA5
50	IOA18	113	RA6
51	IOA19	112	DVDD3
52	IOA20	111	RA7
53	APLLVSS	110	DMVSS
54	APLLVDD3	109	
55	ALE		
56	IOOE#		
57	IOWR#		
58	IOWR#		
59	IOWR#		
60	DVSS		
61	UP1_2		
62	UP1_3		
63	UP1_4		
64	UP1_5		
65	UP1_6		
66	DVDD3		
67	UP1_7		
68	UP3_0		
69	UP3_1		
70	INT0#		
71	IR		
72	DVDD2		
73	UP3_4		
74	UP3_5		
75	IWR#		
76	URD#		
77	DVSS		
78	RD7		
79	RD6		
80	RD5		
81	RD4		
82	DVDD2		
83	RD3		
84	RD2		
85	RD1		
86	RD0		
87	RWE#		
88	CAS#		
89	RAS#		
90	RCS#		
91	BA0		
92	DVSS		
93	RD15		
94	RD14		
95	RD13		
96	RD12		
97	DVDD3		
98	RD11		
99	RD10		
100	RD9		
101	RD8		
102	DVSS		
103	CLK		
104	CLE		
105	RA11		
106	RA9		
107	RA8		
108	DMVDD3		
109	DMVSS		
110	DVDD3		
111	RA7		
112	RA5		
113	RA4		
114	DVSS		
115	DQM1		
116	DQM0		
117	BA1		
118	RA10		
119	DVDD2		
120	RA0		
121	RA1		
122	RA2		
123	RA3		
124	DVSS		
125	RD31		
126	RD30		
127	RD29		
128	RD28		
129	DVDD3		
130	RD27		
131	RD26		
132	RD25		
133	RD24		
134	DVSS		
135	DQM3		
136	DQM2		
137	RD23		
138	RD22		
139	DVDD2		
140	RD21		
141	RD20		
142	RD19		
143	RD18		
144	DVSS		
145	RD17		
146	RD16		
147	ABCK		
148	ALRCK		
149	DVDD3		
150	ACLK		
151	MC_DATA		
152	SPDIF		
153	ASDATA0		
154	ASDATA1		
155	ASDATA2		
156	ASDATA3		
157	ASDATA4		
158	DACVDDC		
159	VREF		
160	FS		
161	YUV0/CIN		
162	DACVSSC		
163	YUV1C		
164	DACVDDB		
165	YUV2Y		
166	DACVSSB		
167	YUV3CVBS		
168	DACVDDA		
169	YUV4G		
170	DACVSSA		
171	YUV5B		
172	YUV6R		
173	ICE		
174	BLANK#		
175	VSYN		
176	YUV7		
177	DVSS		
178	HSYN		
179	SPMCLK		
180	SPDATA		
181	DVDD2		
182	SPLRCK		
183	SPBCK		
184	DVDD3		
185	XTALO		
186	PRST		
187	DVSS		
188	VFOT3		
189	IDGATE		
190	DVDD3		
191	UDGATE		
192	WOBSSI		
193	SDATA		
194	SPEN		
195	BDO		
196	ADCYSS		
197	ADIN		
198	RFSUBI		
199	TEZISLV		
200	CSO		
201	FEI		
202	RFRP_DC		
203	RFRP_AC		
204	HRFZC		
205	PWMVREF		
206	ADCVDD3		
207	RFDTSLVP		
208	RFDTSLVN		
209	RFIN		
210	RFIP		
211			
212			
213			
214			
215			
216			

MT1379_216

PIN DESCRIPTION

PIN	Symbol	Type	Description
1	IREF	Analog Input	Current reference input.it generate reference current for data PLL Connect an external 100K resistor to this pin and PLLVSS.
2	PLLVSS	Ground	Ground for data PLL and related analog circuitry
3	LPIOP	Analog output	Positive output of the low pass filter
4	LPION	Analog output	Negative output of the low pass filter
5	LPFON	Analog output	Negative output of loop filter amplifiter
6	LPFIP	Analog input	Positive input of loop filter amplifier
7	LPFIN	Analog input	Negative input of loop filter amplifier
8	LPFOP	Analog output	Positive output of loop filter amplifier
9	JITFO	Analog output	RF jitter meter output
10	JITFN	Analog input	Negative input of the operation amplifier for RF jigger meter
11	PLLVDD3	Power	Power for data PLL and related analog circuitry
12	FOO	Analog output	Focus servo output. PDM output of focus servo compensator
13	TRO	Analog output	Tracking servo output.PDM output of tracking servo compensator
14	TROPENPWM	Analog output	Tray open output,controlled by microcontroller. This is PWM output for TRWMEN _{27Hrw2} =1 or is digital output for TRWMEN _{27Hrw2} =0
16	PWMOUT2	Analog output	The general PWM output
17	DVDD2	Power	2.5V power
18	DMO	Analog output	Disk motor control output.PWM output
19	FMO	Analog output	Feed motor control. PWM output
20	FG	Inout, pull up	Motor Hall sensor input
21	DVSS	Ground	Ground
22	HIGHA0	Inout, pull up	Microcontroller address 8
23	HIGHA1	Inout, pull up	Microcontroller address 9
24	HIGHA2	Inout, pull up	Microcontroller address 10
25	HIGHA3	Inout, pull up	Microcontroller address 11
26	HIGHA4	Inout, pull up	Microcontroller address 12
27	HIGHA5	Inout, pull up	Microcontroller address 13
28	DVSS	Ground	Ground
29	HIGHA6	Inout, pull up	Microcontroller address 14
30	HIGHA7	Inout, pull up	Microcontroller address 15
31	AD7	Inout	Microcontroller address/data 7
32	AD6	Inout	Microcontroller address/data 6
33	AD5	Inout	Microcontroller address/data 5
34	AD4	Inout	Microcontroller address/data 4
35	DVDD3	Power	3.3V power
36	AD3	Inout	Microcontroller address/data 3
37	AD2	Inout	Microcontroller address/data 2
38	AD1	Inout	Microcontroller address/data 1
39	AD0	Inout	Microcontroller address/data 0
40	IOA0	Inout, pull up	Microcontroller address 0/GPIO0
41	IOA1	Inout, pull up	Microcontroller address 0/GPIO1
42	DVDD2	Power	2.5V power
43	IOA2	Inout, pull up	Microcontroller address 0/GPIO2
44	IOA3	Inout, pull up	Microcontroller address 0/GPIO3
45	IOA4	Inout, pull up	Microcontroller address 0/GPIO4
46	IOA5	Inout, pull up	Microcontroller address 0/GPIO5
47	IOA6	Inout, pull up	Microcontroller address 0/GPIO6
48	IOA7	Inout, pull up	Microcontroller address 0/GPIO7
49	A16	Output	Flash address 16
50	A17	Output	Flash address 17
51	IOA18	Inout	Flash address 18 / GPIO10
52	IOA19	Inout	Flash address 19 / GPIO11
53	IOA20	Inout	Flash address20 / GPIO12
54	APLVSS3	Ground	Ground

PIN	Symbol	Type	Description
55	APLLVDD3	Power	3.3V power
56	ALE	Inout,pull up	Microcontroller address latch enable
57	IIOE#	Inout	Flash output enable,active low /GPIO13
58	IOWR#	Inout	Flash write enable,active low /GPIO17
59	IOCS#	Inout,pull up	Flash chip select,active low /GPIO18
60	DVSS	Ground	Ground
61	UP1_2	Inout,pull up	Microcontroller port 1-2
62	UP1_3	Inout,pull up	Microcontroller port 1-3
63	UP1_4	Inout,pull up	Microcontroller port 1-4
64	UP1_5	Inout,pull up	Microcontroller port 1-5
65	UP1_6	Inout,pull up	Microcontroller port 1-6
66	DVDD3	Power	3.3V power
67	UP1_7	Inout,pull up	Microcontroller port 1-7
68	UP3_0	Inout,pull up	Microcontroller port 3-0
69	UP3_1	Inout,pull up	Microcontroller port 3-1
70	INT0#	Inout,pull up	Microcontroller interrupt 0,active low
71	IR	Input	IR control signal input
72	DVDD2	Power	2.5V power
73	UP3_4	Inout	Microcontroller port 3-4
74	UP3_5	Inout	Microcontroller port 3-5
75	UWR#	Inout,pull up	Microcontroller write strobe,active low
76	URD#	Inout,pull up	Microcontroller read strobe,active low
77	DVSS	Ground	Ground
78	RD7	Inout	DRAM data 7
79	RD6	Inout	DRAM data 6
80	RD5	Inout	DRAM data 5
81	RD4	Inout	DRAM data 4
82	DVDD2	Power	2.5V power
83	RD3	Inout	DRAM data 3
84	RD2	Inout	DRAM data 2
85	RD1	Inout	DRAM data 1
86	RD0	Inout	DRAM data 0
87	RWE#	Output	DRAM write enable,active low
88	CAS#	Output	DRAM column address strobe,active low
89	RAS#	Output	DRAM row address strobe,active low
90	RCS#	Output	DRAM chip select,active low
91	BA0	Output	DRAM bank address 0
92	DVSS	Ground	Ground
93	RD15	Inout,pull up/down	DRAM data 15
94	RD14	Inout,pull up/down	DRAM data 14
95	RD13	Inout,pull up/down	DRAM data 13
96	RD12	Inout,pull up/down	DRAM data 12
97	DVDD3	Power	Power3.3V
98	RD11	Inout,pull up/down	DRAM data 11
99	RD10	Inout,pull up/down	DRAM data 10
100	RD9	Inout,pull up/down	DRAM data 9
101	RD8	Inout,pull up/down	DRAM data 8
102	DVSS	Ground	Ground
103	CLK	Output	DRAM clock
104	CLE	Output	DRAM clock enable
105	RA11	Output	DRAM address bit 11 or audio serial data 3 (channel 7/8)
106	RA9	Output	DRAM address 9
107	RA8	Output	DRAM address 8
108	DMVDD3	Power	3.3V power
109	DMVSS	Ground	Ground
110	RA7	Output	DRAM address 7
111	DV33	Power	3.3V power
112	RA6	Output	DRAM address 6
113	RA5	Output	DRAM address 5

PIN	Symbol	Type	Description
114	RA4	Output	DRAM address 4
115	DVSS	Ground	Ground
116	DQM1	Output	Mask for DRAM input/output byte 1
117	DQM0	Output	Mask for DRAM input/output byte 0
118	BA1	Output	DRAM bank address 0
119	RA10	Output	DRAM address 10
120	DVDD2	Power	2.5V power
121	RA0	Output	DRAM address 0
122	RA1	Output	DRAM address 1
123	RA2	Output	DRAM address 2
124	RA3	Output	DRAM address 3
125	DVSS	Ground	Ground
126	RD31	Inout,pull up/down	DRAM data 31
127	RD30	Inout,pull up/down	DRAM data 30
128	RD29	Inout,pull up/down	DRAM data 29
129	RD28	Inout,pull up/down	DRAM data 28
130	DVDD3	Power	3.3V power
131	RD27	Inout,pull up/down	DRAM data 27
132	RD26	Inout,pull up/down	DRAM data 26
133	RD25	Inout,pull up/down	DRAM data 25
134	RD24	Inout,pull up/down	DRAM data 24
135	DVSS	Ground	Ground
136	DQM3	Output	Mask for DRAM input/output byte 3
137	DQM2	Output	Mask for DRAM input/output byte 2
138	RD23	Inout,pull up/down	DRAM data 23
139	RD22	Inout,pull up/down	DRAM data 22
140	DVDD2	Power	2.5V power
141	RD21	Inout,pull up/down	DRAM data 21
142	RD20	Inout,pull up/down	DRAM data 20
143	RD19	Inout,pull up/down	DRAM data 19
144	RD18	Inout,pull up/down	DRAM data 18
145	DVSS	Ground	Ground
146	RD17	Inout,pull up/down	DRAM data 17
147	RD16	Inout,pull up/down	DRAM data 16
148	ABCK	Output	Audio bit clock
149	ALRCK	Input,pull down	(1) Audio left/right channel clock (2)Trap value in power-on reset. 1:use external 373, 0:use internal 373
150	DVDD3	Power	3.3V power
151	ACLK	Inout	Audio DAC master clock (384/256 audio sample frequency)
152	MC_DAT	Input	Microphone serial input
153	SPDIF	Output	SPDIF output
154	ASDATA0	Input,pull down	Audio serial data 0 (left/right channel)
155	ASDATA1	Input,pull down	Audio serial data 1 (surround left/surround right channel)
156	ASDATA2	Input,pull down	Audio serial data 2 (center/LFE channel)
157	MUTE	Output	Audio Mute Signal
158	ASDATA4	Input,pull down	Audio serial data 4
159	DACV33C	Power	3.3V power
160	VREF	output	
161	FS		
162	YUV0/CIN		
163	DACVSSC	Ground	Ground
164	YUV1	Output	Video data output bit 1
165	DACVddb	Power	3.3V Power
166	YUV2	Output	Video data output bit 2
167	DACVSSB	Ground	Ground
168	YUV3/CVBS	Output	CVBS video output
169	DACV33A	Power	3.3V power
170	YUV4/G	Output	Video data output bit 4
171	DACVSSA	Ground	Ground
172	YUV5/B	Output	Video data output bit 5

PIN	Symbol	Type	Description
173	YUV6	Output	Video data output bit 6
174	ICE	Input,pull down	Microcontroller ICE mode enable
175	FS1	output	
176	VSYN	Inout	Vertical sync / GPIO16
177	YUV7	Output	Video data output bit 7
178	DVSS	Ground	Ground
179	HSYN	Inout	Horizontal sync / GPIO15
182	DVDD2	Power	2.5V power
185	DVDD3	Power	3.3 power
186	XTALO	Output	Crystal output
187	XTALI	Input	Crystal input,27MHz
188	PRST	Input,pull down	Power on reset input, active high
189	DVSS	Ground	Ground
195	SDATA	Output	RF serial data input
196	SDEN	Output	RF serial data latch enable
197	SLCK	Output	RF serial clock output
198	BDO	Input,pull down	Flag of defect data status input
199	ADCVSS	Ground	Ground
200	ADIN	Analog input	General A/D input
202	TEZISLV	Analog input	Tracking error zero crossing low pass input
203	TEI	Analog input	Tracking error input
204	CSO	Analog input	Central servo input
205	FEI	Analog input	Focus error input
206	RFLEVEL	Analog input	Sub beam add input or RFRP low pass input
207	RFRP_DC	Analog input	RF ripple detect input
208	RFRP_AC	Analog input	RF ripple detect input (through AC coupling)
209	HRFZC	Analog input	High frequency RF ripple zero crossing
210	PWMVREF	Analog input	A reference voltage input for PWM circuitry.A typical value of 2.8v
211	PWM2VREF	Analog input	A reference voltage input for PWM circuitry.A typical value of 1.4v
212	ADCVDD3	Power	3.3V power
215	RFIN	Analog input	Negative input of RF differential signal
216	RFIP	Analog input	Positive input of RF differential signal

MT1336

GENERAL DESCRIPTION

MT1336 is a high performance CMOS analog front-end IC for both CD_ROM driver up to 48xs and DVD-ROM driver up to 16xs. It also supports DVD-RAM read up to 4xs Version 2. It contains servo amplifiers to generate focusing error, 3-beam tracking error, 1 beam radial push-pull signal, RF level and SBAD for servo functions. It also includes DPD tracking error signal for DVD_ROM application. For DVD-RAM disks, there are also Differential Push-Pull (DPP) method for generating tracking signal and Differential Astigmatic Detection (DAD) for processing focusing signal. Programmable equalizer and AGC circuits are also incorporated in this chip to optimize read channel performance. In addition, this chip has dual automatic laser power control circuits for DVD-ROM (DVD-RAM) and CD-ROM separately and reference voltage generators to reduce external components. Programmable functions are implemented by the access of internal register through bi-directional serial port to configure modes selection.

FEATURES

- . RF equalizer with programmable f_c from 3MHz to 70MHz and programmable boost from 3db to 13db.
- . MT1336 supports at least eight different kinds of pick-up heads with versatile input configuration for both RF input stages and servo signal blocks.
- . Versatile on-line AGC.
- . 3 beams tracking error signal generator for CD_ROM application.
- . One beam differential phase tracking error (DPD) generator for DVD_ROM application.
- . Differential push pull tracking error (DPP) generator for DVD_RAM application.

- . Focusing error signal generator for CD-ROM, DVD-ROM and DVD-RAM (DAD method).
- . RF level signal generator.
- . Sub-beam added signal for 3 beams CD_ROM.
- . One beam push-pull signal generator for central servo application.
- . High speed RF envelop detection circuit with bandwidth up to 400KHz for CD-ROM.
- . Defect and Blank detection circuits
- . Dual automatic laser power control circuits with programmable level of LD monitor voltage.
- . Vref=1.4V voltage and V2ref=2.8V voltage generators.
- . V20=2.0V voltage for pick-up head reference.
- . Bi-directional serial port to access internal registers.
- . 128-pin LQFP

Block Diagram.....P.3

Pin Assignment and Description.....P.4-9

Functions

- 1.) RF Path Description.....P. 10-13
- 2.) Servo Signal.....P. 14-17
 - . Focusing Error
 - . Central Servo
 - . Tracking Error
 - . RFLVL & SBAD (LVL)
- 3.) ALPC & RFRP (RF Ripple).....P. 18
- 4.) WOBBLE Detection.....P. 19

Command Access Timings..... P. 20

Programmable I/OP. 21

Register

- 1.) Register Map.....P. 22-24
- 2.) Register Description.....P. 25-50

MT1336 PIN DESCRIPTIONS

Pin Numbers	Symbol	Type	Description
LQFP128			
RF Flag interface			
23	DEFECT	Digital input	Flag of bad data output status
RF SIO interface			
56	SCLK	Digital input	RF serial clock input
58	SDEN	Digital input	RF serial data enable
59	SDATA	Digital IO	RF serial data IO
60	RST	Digital input	Reset (active high)
55	XCK16M	Digital input	16.9MHz for verification
RF SERVO interface			
40	UDGATE	Digital input	Control signal for DVD-RAM
41	IDGATE	Digital input	Control signal for DVD-RAM
38	VFO13	Digital input	DVD-RAM Header signal
RF			
100	DVDA	Analog input	AC coupled DVD RF signal input A
99	DVDB	Analog input	AC coupled DVD RF signal input B
98	DVDC	Analog input	AC coupled DVD RF signal input C
97	DVDD	Analog input	AC coupled DVD RF signal input D
95	DVDRFIN	Analog input	AC coupled DVD RF signal input RFIN

96	DVDRFIP	Analog input	AC coupled DVD RF signal input RFIP
94	CDA	Analog input	AC coupled CD RF signal input A
93	CDB	Analog input	AC coupled CD RF signal input B
92	CDC	Analog input	AC coupled CD RF signal input C
91	CDD	Analog input	AC coupled CD RF signal input D
90	OSN	Analog	RF Offset cancellation capacitor connection
89	OSP	Analog	RF Offset cancellation capacitor connection
85	CEQP	Analog	RF Offset cancellation capacitor connection
84	CEQN	Analog	RF Offset cancellation capacitor connection
88	RFGC	Analog	RF AGC loop capacitor connecting for DVD-ROM
87	RFGCU	Analog	RF AGC loop capacitor connecting for DVD-ROM
86	RFGCI	Analog	RF AGC loop capacitor connecting for DVD-ROM
101	MA	Analog input	DC coupled DVD-RAM main-beam RF signal input A
102	MB	Analog input	DC coupled DVD-RAM main-beam RF signal input B
103	MC	Analog input	DC coupled DVD-RAM main-beam RF signal input C
104	MD	Analog input	DC coupled DVD-RAM main-beam RF signal input D
105	SA	Analog input	DC coupled DVD-RAM sub-beam RF signal input A
106	SB	Analog input	DC coupled DVD-RAM sub-beam RF signal input B
110	SC	Analog input	DC coupled DVD-RAM sub-beam RF signal input C
111	SD	Analog input	DC coupled DVD-RAM sub-beam RF signal input D
108	IR	Analog	External current bias resistor (R=20K)
119	AGC1	Analog	Wobble AGC loop1 capacitor
121	AGC2	Analog	Wobble AGC loop2 capacitor
122	AGC3	Analog	Wobble AGC loop3 capacitor
127	RFSUBO	Analog output	Header push-pull RF output signal
1	WOBSO	Analog output	Wobble signal output
6	RFOP	Analog output	RF positive output
7	RFON	Analog output	RF negative output
TRACKING ERROR			
32	DPFN	Analog	DPD amplifier negative input
33	DPFO	Analog	DPD amplifier output
61	DPDMUTE	Digital input	DPD mute control input
116	TNI	Analog input	3 beam satellite PD signal negative input
115	TPI	Analog input	3 beam satellite PD signal positive input
21	TEO	Analog Output	Tracking error output
FOCUSING ERROR & RF LEVEL & CENTRAL SERVO SIGNAL			
112	CDFOP	Analog input	CD focusing error positive input
113	CDFON	Analog input	CD focusing error negative input
18	FEO	Analog output	Focusing error output
19	LVL	Analog output	RF level output
20	CSO	Analog output	Central servo signal output
ALPC			
124	MDI1	Analog input	Laser power monitor input
125	LDO1	Analog Output	Laser driver output
123	MDI2	Analog input	Laser power monitor input
126	LDO2	Analog Output	Laser driver output
RF RIPPLE			
26	CRTP	Analog	RF top envelop filter capacitor connecting
27	CRTPLP	Analog	Defect level filter capacitor connecting
25	HRFRP	Analog output	High frequency RF ripple output or Blank detector's output
24	LRFRP	Analog output	Low frequency RF ripple output
POWER			
67,69	AVDD	Power	Master PLL Filter power
65,73	AGND	GND	GND for Master PLL Filter
64	AVDD	Power	DPD Power
62	AGND	GND	DPD GND
109	AVDD	Power	RF path Power
107	AGND	GND	RF path GND
114	SVDD	Power	Servo Power
117	SGND	GND	Servo GND
2,120	WAVDD	Power	Wobble Power

128,118	WAGND	GND	Wobble GND
5	AVDDO	Power	Power for RF output
8	AGNDO	GND	GND for RF output
14	AVDDT	Power	Power for trimming PAD
12	AGNDT	GND	GND for trimming PAD
22	VDDP	Power	Peak Detection Power
31	GNDP	GND	Peak Detection GND
37,54	VDD	Power	Serial I/O Power
39,57	GND	GND	Serial I/O GND
REFERENCE VOLTAGE			
16	VREFO	Analog output	Reference voltage 1.4V
15	V2REFO	Analog output	Reference voltage 2.8V
17	V20	Analog output	Reference voltage 2.0V
ALPC TRIMMING			
9	TM1	Analog input	Trimming pin for ALPC1
10	TM2	Analog input	Trimming pin for ALPC1
11	TM3	Analog input	Trimming pin for ALPC2
13	TM4	Analog input	Trimming pin for ALPC2
HIGH SPEED TRACK COUNTING			
29	TRLP	Analog	Low-pass filter capacitor connecting
28	TRLPA	Analog	Low-pass filter capacitor connecting
30	HTRC	Digital output	High speed track counting digital output
PCS			
74	HALLSIN	Analog input	Negative input of amplifier for hall sensor signal
75	REFSIN	Analog input	Positive input of amplifier for hall sensor signal
76	SINPHI	Analog output	Amplifier output for hall sensor signal
71	HALLCOS	Analog input	Negative input of amplifier for hall sensor signal
72	REFCOS	Analog input	Positive input of amplifier for hall sensor signal
70	COSPHI	Analog output	Amplifier output for hall sensor signal
FOR MONITOR ONLY			
81	MON	Analog output	
80	MOP	Analog output	
66	VCON	Analog output	
77	SWO	Analog output	Output from mux of SW1 & SW2
78	SW2	Analog input	External input for servo input select
79	SW1	Analog input	External input for servo input select
FOR SERIAL I/O			
42	IO0		
43	IO1		
44	IO2		
45	IO3		
46	IO4		
47	IO5		
48	IO6		
49	IO7		
50	IO8		
51	IO9		
52	IOA		
53	IOB		

2-1-3 28-Pin, 24-Bit, 192kHz D/A with Volume Control (DA1196)

Description

DA1196 is a digital to analog converter especially designed to work with MPEG2/AC3 decoded data. In applications such as DVD player, home theatre, set-top box, and digital TV, etc. DA1196 integrated 6 DA channels providing customers a solution of both simplicity and excellent performance.

Features

High Resolution:

16/18/20/24/32 Bit Selectable

High Performance:

THD+N: -98 dB

Dynamic Range: 100dB

S/N Ratio: 108dB

Channel Separation: 100dB

High Integration:

- 6 Audio Channels, each contains:
 - Oversampling Digital Filter
 - High-Resolution Delta Sigma DAC
 - Analog Low Pass Filter
 - Output Amplifier

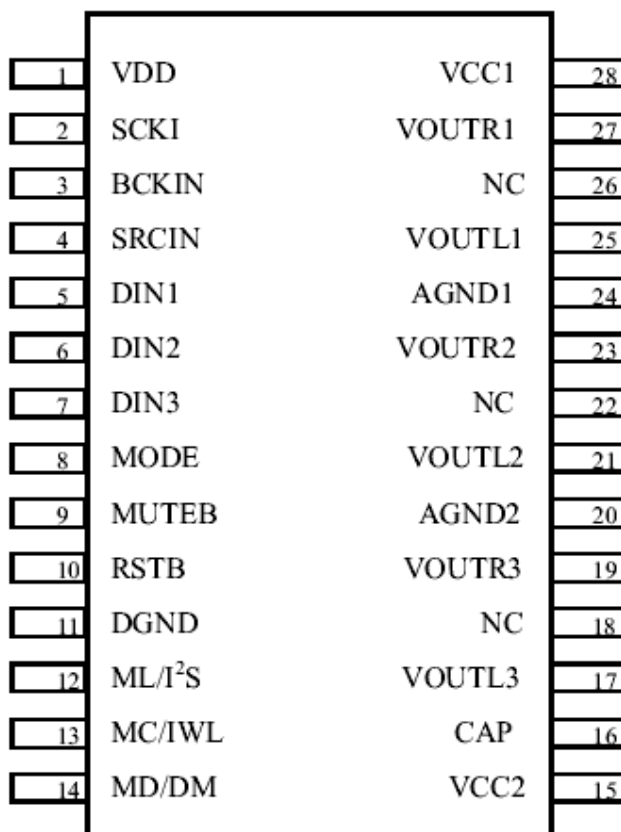
High Versatility

- Control via 3-Wire Interface or Hardware Pins
- Left/Right-justified/IIS Format Selectable
- Selectable De-emphasis Sampling Rate:
 - 16KHz, 22.05KHz, 24KHz
 - 32KHz, 44.1KHz, 48KHz
 - 64KHz, 88.2KHz, 96KHz
- Selectable Multiple Functions:
 - Soft Mute
 - Attenuation
 - De-emphasis
 - Zero Detection On/Off Control
- Selectable Output Operation Mode:
 - Left, Right, Mono, Mute

APPLICATIONS

- . CD, DVD audio
- . Home theatre systems
- . Set top boxes

PIN DESCRIPTIONS



Note:

Digital input pins have Schmitt trigger input buffers.

Pin	Name	I/O	Description
1	VDD	PWR	Digital Power Supply
2	SCKI	IN	Crystal Oscillator Input or External Master/System Clock Input
3	BCKIN	IN	Bit Clock Input for Audio Data
4	SRCIN	IN	Sample Rate Clock Input
5	DIN1	IN	Audio Data Input
6	DIN2	IN	Audio Data Input
7	DIN3	IN	Audio Data Input
8	MODE	IN	Mode Control, "0"= Software Mode;"1"= Hardware Mode.
9	MUTE	IN	Mute Control, Active "High". "0"= Normal Operation;"1"= Mute.
10	RSTB	IN	Reset, Active "Low"
11	DGND	GND	Digital Ground
12	ML/I2S	IN	Latch for Serial Control in Software Mode or Input Format Selection in Hardware Mode.
13	MC/IWL	IN	Clock for Serial Control Data in Software Mode or Input Word Length Selection in Hardware Mode.
14	MD/DM	IN	Serial Control Data Software Mode or De-emphasis Selection in Hardware Mode.
15	VCC2	PWR	Analog Power
16	CAP	-	Analog Common Mode Pin
17	VOU3L3	OUT	R-Channel Output3
18	NC		Not Connected
19	VOU3R3	OUT	L-Channel Output3
20	AGND2	GND	Analog Ground
21	VOU2L2	OUT	R-Channel Output2
22	NC		Not Connected
23	VOU2R2	OUT	L-Channel Output2
24	AGND1	GND	Analog Ground
25	VOU1L1	OUT	R-Channel Output1
26	NC		Not Connected
27	VOU1R1	OUT	L-Channel Output1
28	VCC1	PWR	Analog Power

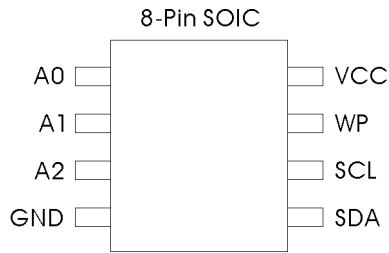
2-1-4 Serial EEPROM, 16K (2048 x 8) (24C16)

* Features

- Low-Voltage and Standard-Voltage Operation
 - 5.0 (V_{CC} = 4.5V to 5.5V)
 - 2.7 (V_{CC} = 2.7V to 5.5V)
 - 2.5 (V_{CC} = 2.5V to 5.5V)
 - 1.8 (V_{CC} = 1.8V to 5.5V)
- Internally Organized 128 x 8 (1K), 256 x 8 (2K), 512 x 8 (4K), 1024 x 8 (8K) or 2048 x 8 (16K)
- 2-Wire Serial Interface
- Schmitt Trigger, Filtered Inputs for Noise Suppression
- Bi-directional Data Transfer Protocol
- 100 kHz (1.8v, 2.5V, 2.7V) and 400 kHz (5V) Compatibility
- Write Protect Pin for Hardware Data Protection
- 8-Byte Page (1K, 2K), 16-Byte Page (4K, 8K, 16K) Write Modes
- Partial Page Writes Are Allowed
- Self-Timed Write Cycle (10 ms max)
- High Reliability
 - Endurance: 1 Million Write Cycles
 - Data Retention: 100 Years
 - ESD Protection: >3000V

- Automotive Grade and Extended Temperature Devices Available
- 8-Pin and 14-Pin JEDEC SOIC, 8-Pin PDIP, 8-Pin MSOP, and 8-Pin TSSOP Packages

*** Pin Configurations**



*** Pin Description**

Pin Name	Function
A0-A2	Address Inputs
SDA	Serial Data
SCL	Serial Clock input
WP	Write Protect
NC	No Connect

2-1-5 8M-BIT [1Mx8/512Kx16] CMOS FLASH MEMORY

FEATURES

- 1,048,576 x 8/524,288 x 16 switchable
- Single power supply operation
- 5.0V only operation for read, erase and program

operation

- Fast access time: 70/90/120ns
- Low power consumption
- 50mA maximum active current
- 0.2uA typical standby current
- Command register architecture
- Byte/word Programming (7us/12us typical)
- Sector Erase (Sector structure 16K-Bytex1, 8K-Bytex2, 32K-Bytex1, and 64K-Byte x15)
- Auto Erase (chip & sector) and Auto Program
- Automatically erase any combination of sectors with

Erase Suspend capability.

- Automatically program and verify data at specified **address**
- Erase suspend/Erase Resume
- Suspends sector erase operation to read data from, or program data to, another sector that is not being erased, then resumes the erase.

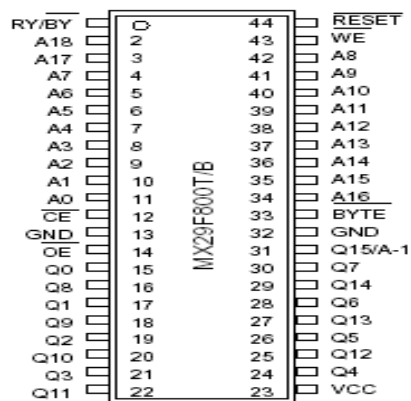
• Status Reply

- Data polling & Toggle bit for detection of program and erase operation completion.
- Ready/Busy pin (RY/BY)
- Provides a hardware method of detecting program or erase operation completion.

- Sector protection
- Sector protect/chip unprotect for 5V/12V system.
- Hardware method to disable any combination of sectors from program or erase operations
- Temporary sector unprotect allows code changes in previously locked sectors.
- 100,000 minimum erase/program cycles
- Latch-up protected to 100mA from -1V to VCC+1V
- Boot Code Sector Architecture
- T = Top Boot Sector
- B = Bottom Boot Sector
- Low VCC write inhibit is equal to or less than 3.2V
- Package type:
- 44-pin SOP
- 48-pin TSOP
- Compatibility with JEDEC standard
- Pinout and software compatible with single-power supply Flash

PIN CONFIGURATIONS

44 SOP(500 mil)



PIN DESCRIPTION

SYMBOL	PIN NAME
A0~A18	Address Input
Q0~Q14	Data Input/Output
Q15/A-1	Q15(Word mode)/LSB addr(Byte mode)
$\overline{\text{CE}}$	Chip Enable Input
$\overline{\text{WE}}$	Write Enable Input
BYTE	Word/Byte Selction input
$\overline{\text{RESET}}$	Hardware Reset Pin/Sector Protect Unlock
$\overline{\text{OE}}$	Output Enable Input
RY/ $\overline{\text{BY}}$	Ready/Busy Output
VCC	Power Supply Pin (+5V)
GND	Ground Pin

48 TSOP (Standard Type) (12mm x 20mm)



2-1-6 512K X 16 Bit X 2 Banks Synchronous DRAM (A43L0616)

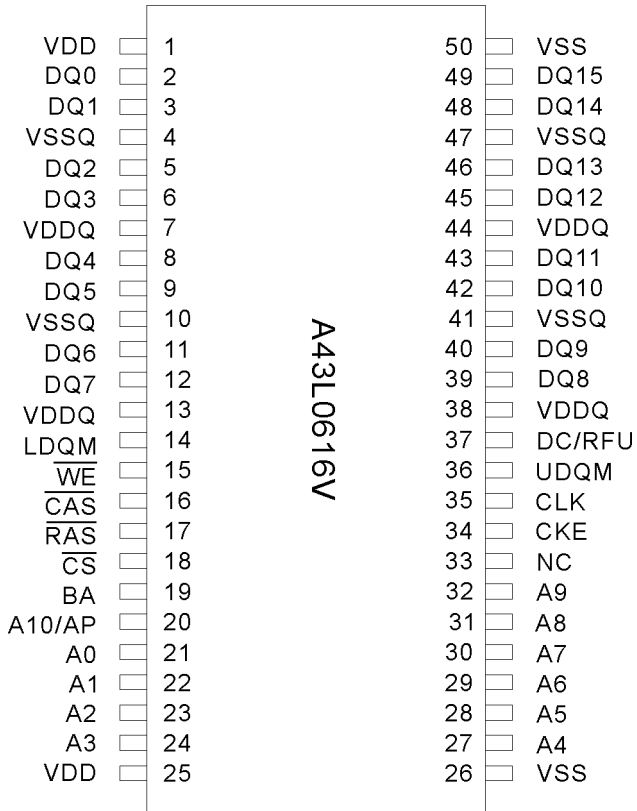
Features

- JEDEC standard 3.3V power supply
- LVTTL compatible with multiplexed address
- Dual banks / Pulse RAS
- MRS cycle with address key programs
 - CAS Latency (2,3)
 - Burst Length (1,2,4,8 & full page)

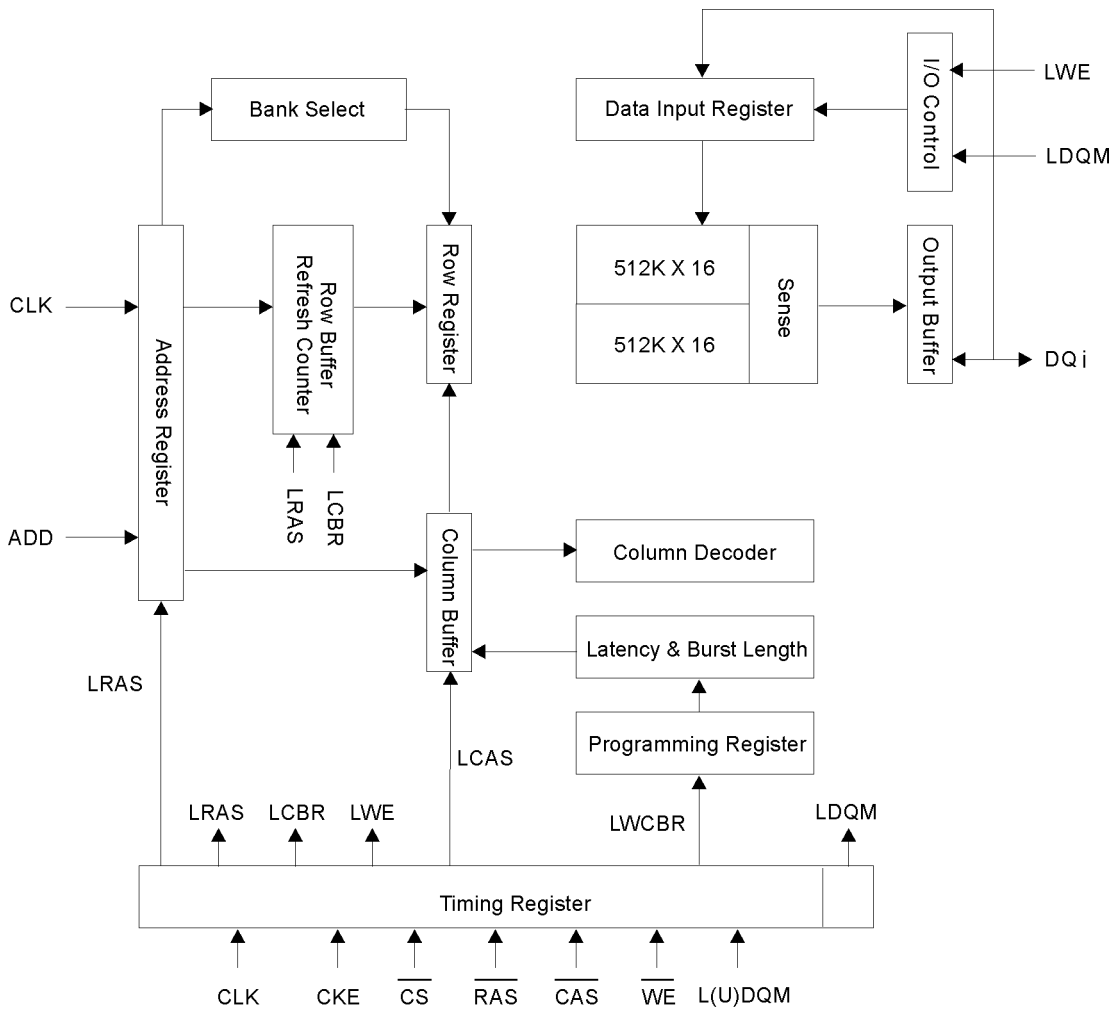
- Burst Type (Sequential & interleave)

- All inputs are sampled at the positive going edge of the system clock
- Burst Read Single-bit Write operation
- DQM for masking
- Auto & self refresh
- 64ms refresh period (4K cycle)
- 50 Pin TSOP (II)

Pin Configuration



Block Diagram



Pin Descriptions

Symbol	Name	Description
Clk	System Clock	Active on the positive going edge to sample all inputs
CS	Chip Select	Disables or Enables device operation by masking or enabling all inputs except CLK, CKE and L(U)DQM
CKE	Clock Enable	Masks system clock to freeze operation from the next clock cycle. CKE should be enabled at least one clock + tss prior to new command. Disable input buffers for power down in standby.
A0~A10/AP	Address	Row/Column addresses are multiplexed on the same pins. Row address: RA0 ~ RA10, Column address: CA0 ~ CA7
BA	Bank Select Address	Selects bank to be activated during row address latch time. Selects band for read/write during column address latch time.
RAS	Row address Strobe	Latches row addresses on the positive going edge of the CLK with RAS low. Enables row access & precharge.
CAS	Column Address Strobe	Latches column addresses on the positive going edge of the CLK with CAS low. Enables column access.
WE	Write Enable	Enables write operation and Row precharge.
L(U)DQM	Data Input/Output Mask	Makes data output Hi-Z, t SHZ after the clock and masks the output. Blocks data input when L(U)DQM active.
DW0-15	Data Input/Output	Data inputs/outputs are multiplexed on the same pins.

Symbol	Name	Description
VDD/VSS	Power Supply/Ground	Power Supply: +3.3V±0.3V/Ground
VDDQ/VSSQ	Data Output Power/Ground	Provide isolated Power/Ground to DQs for improved noise immunity.
NC/RFU	No Connection	

3. Product Specifications

Playback System

DVD Video
Video CD (1.1, 2.0, 3.0)
SVCD and CVD
CDDA
CD-ROM with MP3 data
PICTURE CD

Television Signal System

NTSC/PAL

Video Performance

Video Out	1 Vpp into 75 ohm
S-Video Out	Y: 1Vpp into 75 ohm C: 0.286 Vpp into 75 ohm
D/A Converter	27MHz/10bit

Audio Performance

Frequency Response	DVD: fs 48/96KHz, 4Hz~22/44KHz Video CD: fs 44.1KHz, 4Hz~20KHz Audio CD: fs 44.1KHz, 4Hz~20KHz
Output Level	Analog: 2Vrms(1KHZ) Digital: 1.15 Vpp
D/A Converter	96KHz/24bit
S/N Ratio	90dB

Connections

Coaxial digital out	X1
Audio Analog out for 2-channel	X1
S-Video out	X1

Power Supply

Power Source	AC100~255V, 50/60Hz
Power Consumption	<25 Watt

Set

Dimensions (W X H X D)	430 X 52 X 295 (mm)
Net Weight	2.6 Kg
Gross Weight	4.0 Kg

4. Upgrading System and Changing the Region Code

MTK upgrade:

1. Name upgrade file as "MTK.BIN"(must be in big caps)
2. Record it in a CD-R/W (It can be enclosed a sub-directory which size is about 30M, and the file content can be letter or non used file.)
disc Format: (advise to use the tool NERO burning ROM)
Disc volume: MEDIATEK, ISO9660 LEVEL1, MODE1, not JOILET.
3. Put the recorded disc into the DVD player, on the TV will show "upgrade?" after loading. Press PLAY button, the player will automatically upgrade.
4. Do not shut down the player during upgrade, it will restart automatically after upgrade.
5. Upgrade finish!

How to change the region code:

1. Power on the machine, and press OPEN button to push the tray out.
2. Press SETUP button to enter the SETUP menu, and go to the PREFERENCE item by pressing left button, then press 5 buttons in turn: 4,9,5,4,0
3. A edit box will be displayed, you can change the region code to 1-6 with UP/DOWN button, the num 0 means REGION FREE. And then press SETUP button to exit (FOR 1379)
4. A item named VERSION will be displayed, get into the page, you can change the region code to 1-6 with UP/DOWN button, the num 0 means REGION FREE. And then press SETUP button to exit (for 1369)

5. Operating Instruction

Please refer to the User's Manual for operation instruction of the system.

Maintenance & Troubleshooting

How to handle discs

To handle, clean and protect discs

- Do not touch the playing side of a disc



- Do not stick any paper or glue strip on a disc.



How to clean discs

- Finger prints and dust on surface can affect the sound and picture quality. Clean discs regularly with a soft cotton cloth from disc center to outside.



- Use a soft cotton cloth and with dry cloth, Any kind of solvent, such as diluting agent, gasoline, liquid detergent, gasoline liquid detergent anti – static aerosol used for vinylon LP, may cause disc damage.

How to protect discs

- Keep away from the direct sunshine or any heat source.
- Do not put discs in damp or dirty places, such as bathroom or near humidifiers. Store discs vertically in disc box and store in a dry place. Piling discs on to top of each other or excess weight load on disc box may cause the disc to warp.

Disc Compatibility

- Some DVD discs may have special requirements for playing, with which this player may not be compatible. Please refer to specifications on individual disc.

DISC TYPE	Content	Size	Total Play time
DVD	AUDIO/VIDEO	12CM	About 2hrs. (Single side & single layer)
			About 4hrs. (Single side & double layer)
			About 4hrs. (Double side & Single layer)
			About 8hrs. (Double side & double layer)
CD-DA	AUDIO	12CM	About 74 minutes
MP3	AUDIO	12CM	About 300 minutes

Discs types

This DVD player can play the following types of discs: Discs other than listed above cannot be player by this player.

This player uses NTSC/PAL color system. It cannot play discs recorded with other systems, such as SECAM.

Region code

The region code for this player is 5, which indicates the applicable. The disc with code number other than 5 cannot be player on this player and screen will indicate the unconformity.

Copyright

According to the related law, DVD discs without proper authorization are not allowed to be copied broadcast cable broadcast, played publicly or rented. As DVD discs are anti-piracy the copied content is distorted.

Problems and Solutions

If a fault occurs, first check the points listed below before taking the set for repair.

If you are unable to remedy a problem by following these hints, consult your dealer or service centre.

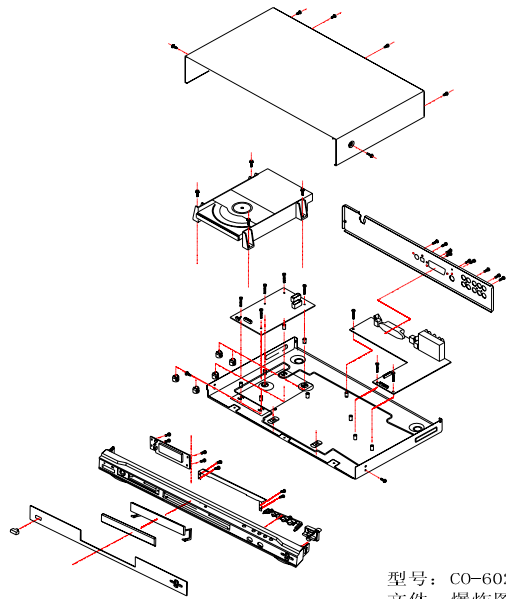
WARNING: Under no circumstances should you try to repair the set yourself, as this would invalidate the guarantee.

Problems	Cause	Solution
No power indication	Power plug not connected	Plug the power cord into the power supply
No picture	TV has not been set to the correct video input	Set correct TV video input format for receiving the player's output signals.
	Video cable not firmly connected.	Firmly insert the video cable ends to the related terminals.
No sound	Audio cable not connected tightly	Firmly insert the audio cable ends to the related terminals.
	Power of audio apparatus is off	Turn on the power of audio apparatus.
	Audio output setting is incorrect	Setup audio output correctly via the setup menu.
Picture distortion	Disc is dirty	Take out the disc and clean.
	Fast forward/backward is activated	The picture may be distorted during fast forward /backward playback.
Brightness unstable or noisy	Affected by anti-piracy circuit	Connect the player directly to TV.
The player does not work	No disc	Load a disc.
	Disc not compatible	Load a compatible disc (Check the disc format and its colour system).
	The disc is placed upside down	Load a compatible disc (Check the disc format and its colour system).
	The disc not put in the tray correctly	Check disc is put in correctly.
	Disc is dirty	Clean the disc.
	Player setting are incorrect	Change the setting via the setup menu.
	Parental lock is in effect	Disable this function or reset the rating level.
No response to key press	Interference of power wave or other factors such as static interference	Turn off the main switch or pull out the power plug, plug it in and turn on the power again.
Remote control does not work	The remote control not pointed at the remote sensor on the front panel of the player	Point the remote control at the remote sensor.
	The remote control is out of specified range	Make sure the remote control range within 7 meters to the remote sensor.
	Battery power exhausted	Replace with new batteries.

Note:

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6. Disassembly and Reassembly



型号：CO-602
文件：爆炸图

7. Troubleshooting

No power	Insert the AC power plug securely into the power outlet.
No picture	Make sure that the equipment is connected properly. Make sure that the input setting for TV is Video (AV).
No sound	Make sure that the equipment is connected properly.
Distorted sound	Make sure that the input settings for the TV and stereo system are correct.
No fast forward or fast reverse	Some discs may have sections that prohibit fast forward or fast reverse.
No proper aspect ratio	Select the correct setup for TV aspect ratio that matches your TV set.
No operations can be performed with the remote controller	Check the batteries are installed with the correct polarities. Point the remote control unit at the remote control sensor and operate. Remove the obstacles between the remote control unit and remote control sensor.
No button operation	Set the POWER button to OFF and then back to ON. Alternatively, turn off the power, disconnect the power plug and then reconnect it.
Audio soundtrack and/or Subtitle language is not the one you selected.	If the audio soundtrack and /or subtitle language does not exist on the disc, the language selected at the initial settings will not be seen.
No Angle change	This function is dependent on software availability. Even if a disc has a number of angles recorded, these angles may be recorded for specific scenes only.

8. Electrical Part List

Item	Name of Components	Specification	Qty.	Location
1	lines			
	A: line			
	24PIN/0.5mm	L=70mm	1	loader to MPEG board
	5PIN/2.0mm	L=140mm	1	loader to MPEG board
	6PIN/2.0mm	L=60mm	1	loader to MPEG board
	5PIN/2.54mm	L=500mm	1	MPEG board
	4PIN/2.54mm	L=120mm	1	control panel to power board
	6PIN/2.54mm	L=450mm	1	control panel to MPEG board
	13PIN/2.0mm	L=100mm	1	output board to MPEG board
	14PIN/2.0mm	L=150mm	1	output board to MPEG board
	2PIN/3.96mm	L=300mm	1	red, double insulated
	B: power supply wire	L=1700mm	1	(black, two-round-pin, double insulated, KS certificate)
2	other electronic components			
	power supply switch	TV-5	1	

	fastening wire	Nylon fastening wire	4		
	fastening wire	black,120mm	1		for fastening power supply wire
3	loader sets				
	CO-DJA1379XE+SANYO 5.1CH MPEG board	MTK1379GE 5.1channel	1		MTK1379GE_3.3V power supply
	DS-600MA DVD loader	SANYO DVD loader	1		
	power supply board	CO-DPA118	1		0320 transformer and TDA1522
	CO-301 AND CO-302 control panel	CO-DCA CO-301 AND CO-302 control panel	1		
	AV output board	CO-D0B1379-9	1		with SCART,Optical and KARAOKE, without earphone
4	plastical sets				
	front panel	CO-301 AND CO-302 front panel	1		
	power supply button	CO-301 AND CO-302	1		ABS silver
	MIC volume button	CO-301 AND CO-302	2		ABS silver
	8 keys set	CO-301 AND CO-302	1		ABS silver
	mirror	CO-301 AND CO-302	1		PVC
	transferring bar	CO-301 AND CO-302	1		for SANYO loader
	disc tray	CO-301 AND CO-302	1		ABS silver
	DVD logo stick		1		black ground silver chars
	PCB support	ABS 9.0mm			5 for power board,3 for output board

			8		
	plastical bolt cap		8		5 for power board,3 for output board
	rubber mat	Φ 12*2	2		hardness 64
	rubber mat	19.5*9.5*3.5	2		hardness 64
5	metals				
	upper cover	CO-301 AND CO-302 upper cover	1		siver
	bottom cover	CO-301 AND CO-302 DZ	1		silver-gray
	rear panel	CO-301 AND CO-302 HBA	1		black
	bolt	Φ 3*8BAUU	12		9 for control panel,2 for power botton,1 for bracket
	bolt	Φ 3*8BAUU	8		8 for Audio output jack
	bolt	Φ 3*15BBHE	8		5 for power board, 3 for AV output board
	bolt	Φ 3*6WBHE	11		4 for upper cover, 4 for rear panel,3 for front panel
	bolt	Φ 3*6WBHE	4		4 for loader
	bolt	Φ 3*6BBHE	2		2 for rear panel
	bolt	Φ 2.6*6CB	3		3 for MPEG board
	bolt	M3*6KMHE	—2		2 for front panel side
6	prints		—		
	A: package		—		
	foam		1set		foam(same with CO-301 AND CO-302)
	handle	white	1set		

	gift box		1		
	Carton	1	1		4 players in 1 Carton
	bag	05*80*160mm	1		for power supply wire
	bag	05*80*260mm	1		for remote control
	bag	0.5*180*260mm	1		for owner's manual
	bag	480*580mm	1		pearl cotton
	B: appendix				
	remote control		1		
	remote control batteries	7#	1 set		
	manual		1		
	Video connection wire	1.5M	1		
	Audio connection wire	1.5M	1		
	C: others				
	serial stick		3		-
7	others				
	solder tin		some		
	heat-melting-glue		some		
	red glue		some		
	yellow glue		some		
	black glue		some		
	heat-dissipating oil		some		

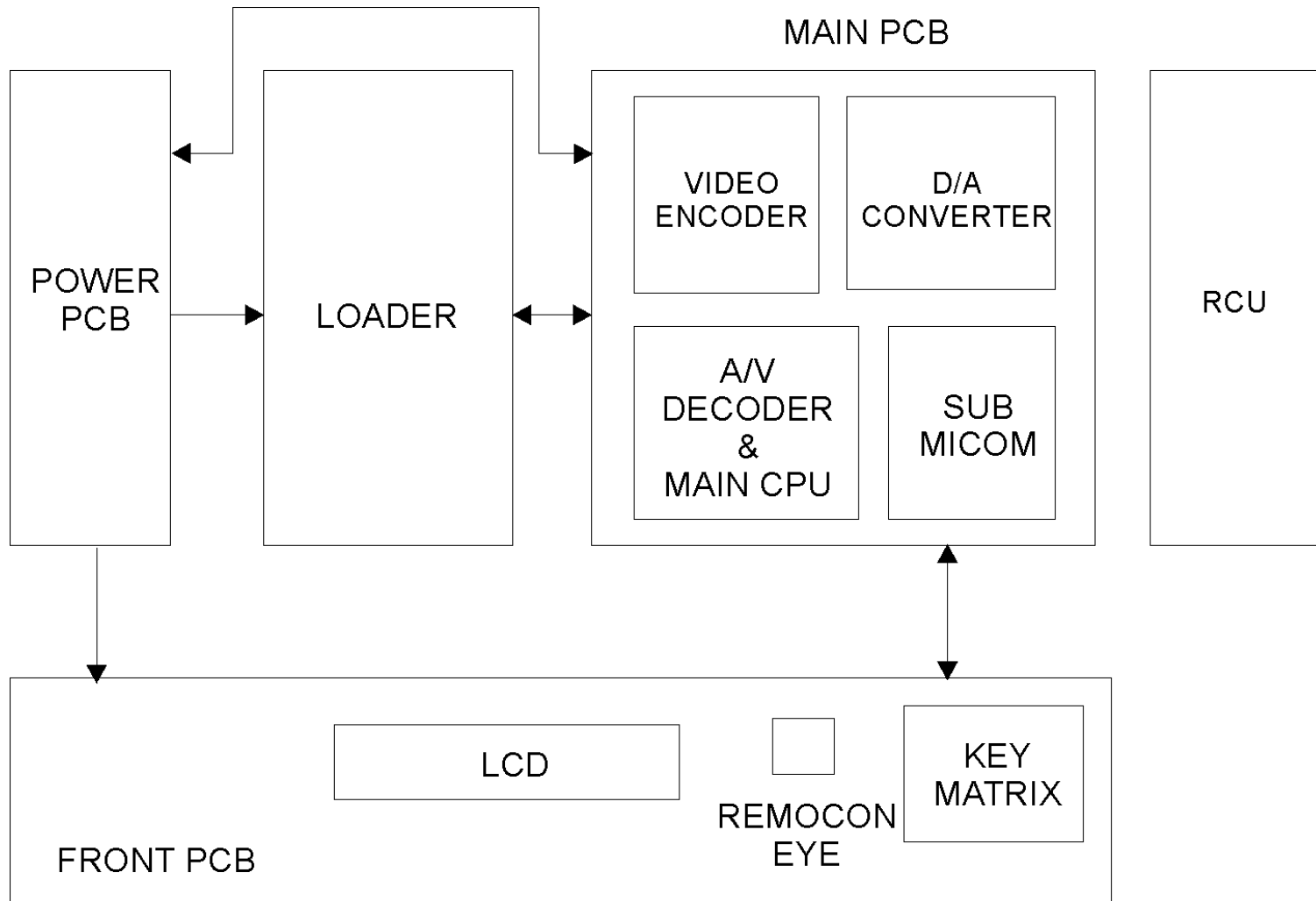
	glue paper		some		
	heat-contracting tube	4mmX15mm	2		
	heat-contracting tube	Φ 22X30mm	1		
	jumper (Φ 0.6mm)		1		
	double-color LED	Φ 3mm	1		
8	Components of Power Board				
	Jack	4PIN/2.54mm	1		CN1
	Jack	5PIN/2.54mm	1		CN5
	Jack	10PIN/2.54mm	1		CN3(4)
	Jack	3PIN/3.96mm	1		BCN1,BCN2
	Ceramic capacitor	330pF 63V +/-10% 5mm	1		C1
	Ceramic capacitor	0.1uF 63V +/-20% 5mm	1		C15
	Ceramic capacitor	100pF 63V +/-20% Y5P 5mm	3		C11,C12,C13
	Ceramic capacitor	10nF 1KV +/-20% 5mm	1		C8
	Electrolytic capacitor	220UF 16V +/-20% 6X11mm	1		C10(none HL-D116 VFD)
	Electrolytic capacitor	470UF 16V +/-20% 8X11mm	1		C24(none for co-dja1369 MPEG board)
	Electrolytic capacitor	330UF 25V +/-20% 8X14mm	2		C22,C23
	Electrolytic capacitor	470UF 25V +/-20% 8X12mm	2		C16,C18
	Electrolytic capacitor	100UF 50V +/-20% 8X14mm	2		C6,C7
	Electrolytic capacitor	47UF 400V +/-20% 22X23mm	1		C9
	Electrolytic capacitor(high frequency)	1000uF 10V +/-20%	2		C20,C21

	Safety Regulation capacitor	680UF 400V +/-20% Y1	1		BC6
	Safety Regulation capacitor	2200UF 400V +/-20% Y1 UL 10mm	2		BC3,BC4
	Safety Regulation capacitor	0.1UF 275V +/-10% 15mm	2		BC1,BC2
	Polyester capacitor	47nF 100V +/-10% Y5P 5mm	2		C2,C3
	Ceramic capacitor	0.1uF 50V +/-20% 5mm	2		C4,C5
	Diode	IN4007	4		D1,D2,D3,D4
	Diode	IN5404	2		D13,D14
	Diode	SR560	1		D10
	Schottky Diode	HER107	5		D6,D7,D8,D9,D12
	Schottky Diode	UF4007	1		D5
	Zener Diode	3.3V 1/2W	1		DZ1
	Fuse	T2A T-D 250V PL UL CSA VDE	1		F1
	Fuse Jack	BLX-A	1		F501
	Bead	3.5X4.7X0.8mm	2		L2,L3
	Inductor(I-shape)	1A 10UH P5MM D6MM	2		L4,L7
	Inductor(I-shape)	2A 10UH P5MM D6MM	1		L5
	Common-mode Inductor	>10mH R<4.5E	1		L1
	Transformer	CO-BYBYDAP118A/B/C KBEC28-21178	1		T1
	Carbon Film Resistor	2W 27K +/-5%	1		R7
	Carbon Film Resistor	1W 1E +/-5%	1		R6

	Carbon Film Resistor	1/4W 10K +/-5%	2		R12,R13
	Carbon Film Resistor	1/4W 300E +/-5%	1		R5
	Carbon Film Resistor	1/4W 3K +/-5%	1		R11
	Carbon Film Resistor	1/4W 470E +/-5%	1		R10
	Carbon Film Resistor	1/4W 4.7K +/-5%	1		R9
	Carbon Film Resistor	1/4W 5.1K +/-5%	1		R1
	Carbon Film Resistor	1/4W 6.8K +/-5%	1		R2
	Carbon Film Resistor	1/4W 75K +/-5%	1		R8
	Press-sensitive Resistor	07 471	1		RV1
	Grounding solder slice	D3.2 mm	3		1,2,3
	IC	TEA1523P	1		U1
	IC	TL431 TO-92 decal	1		U3
	Photo-electric Couple	PC817	1		U2
	Power Board PCB	C0-DPA118 2002-09-09	1		PCB
	Jumper	10mm	2		J1,J3
	Jumper	15mm	1		J4
	Jumper	16mm	1		J2
9	Components of Control Panel				
	Carbon Film Resistor	1/4W 10E +/-10%	2		R1、R9
	Carbon Film Resistor	1/4W 10K +/-10%	7		R2~R4、R6~R8、R10
	Carbon Film Resistor	1/4W 56K +/-10%	1		R5
	Ceramic capacitor	50V104 +80/-20%	1		C3

	Electrolytic capacitor	16V 47UF 20%	2		C1,C2
	Diode	1N4148 Axial 0.4	5		D1,D2,D3,D4,D5
	IC	16312 QFP44 (AD16312)	1		U1
	VFD	SAMSUNG	1		IC1
	R/M	TD138	1		RMC1
	Button	6*6*5	10		NEXT、STOP、PREV、OPEN、REV、FWD、 PAUSE、PLAY、STOP1、PLAY1
	Potentiometer	RV0902N-15FD1-A20K-P	2		VOL1,VOL2
	Jumper	6mm	4		JMP1、JMP3、JMP6、JMP17
	Jumper	7mm	2		JMP7、JMP8
	Jumper	8mm	3		JMP2、JMP15、JMP16
	Jumper	10mm	2		JMP5、JMP11
	Jumper	12mm	2		JMP4、JMP9
	Jumper	13mm	1		JMP10
	sponge mat for R/M	10*8*7mm	1		
	sponge mat for VFD	12*12*3mm	1		
	PCB	:CO-DCA602	1		

9. Block Diagram



10. Circuit Diagrams

1. Control Part

2. INDEX

3. SERVO&RF

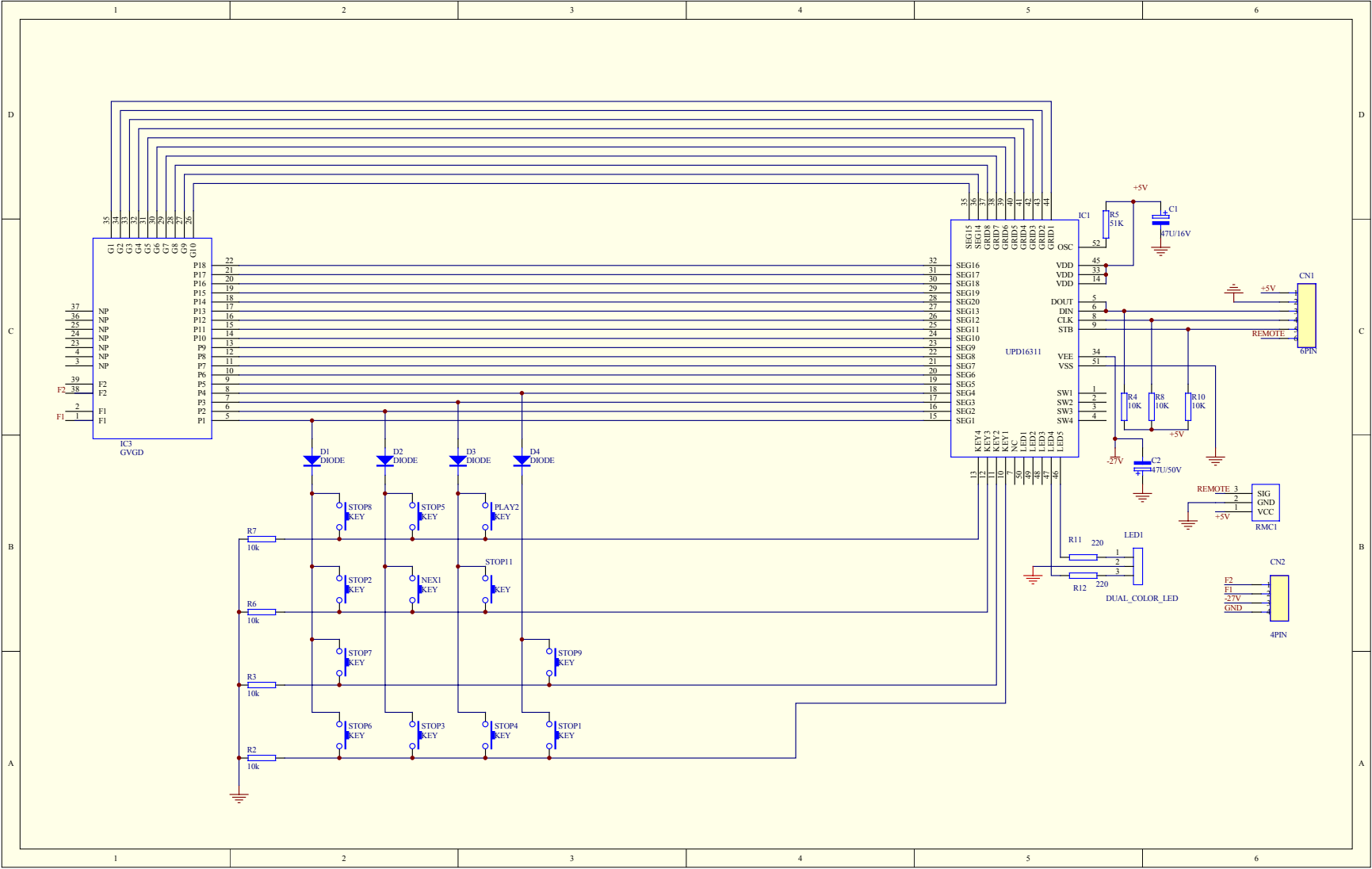
4. Servo-DSP MPEG & Memories

5. Audio&Video D/A

6. AV PORT

7. Power Part

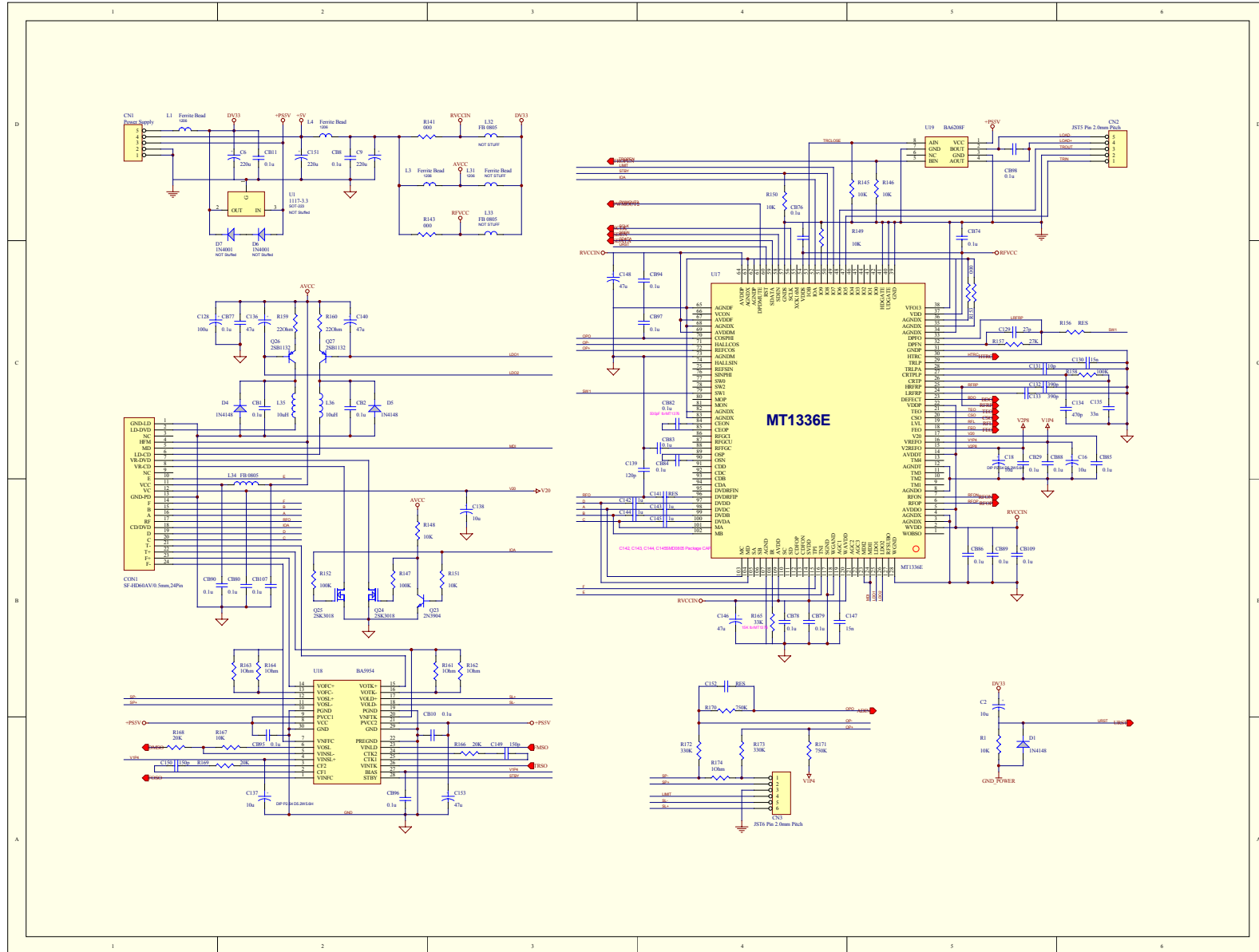
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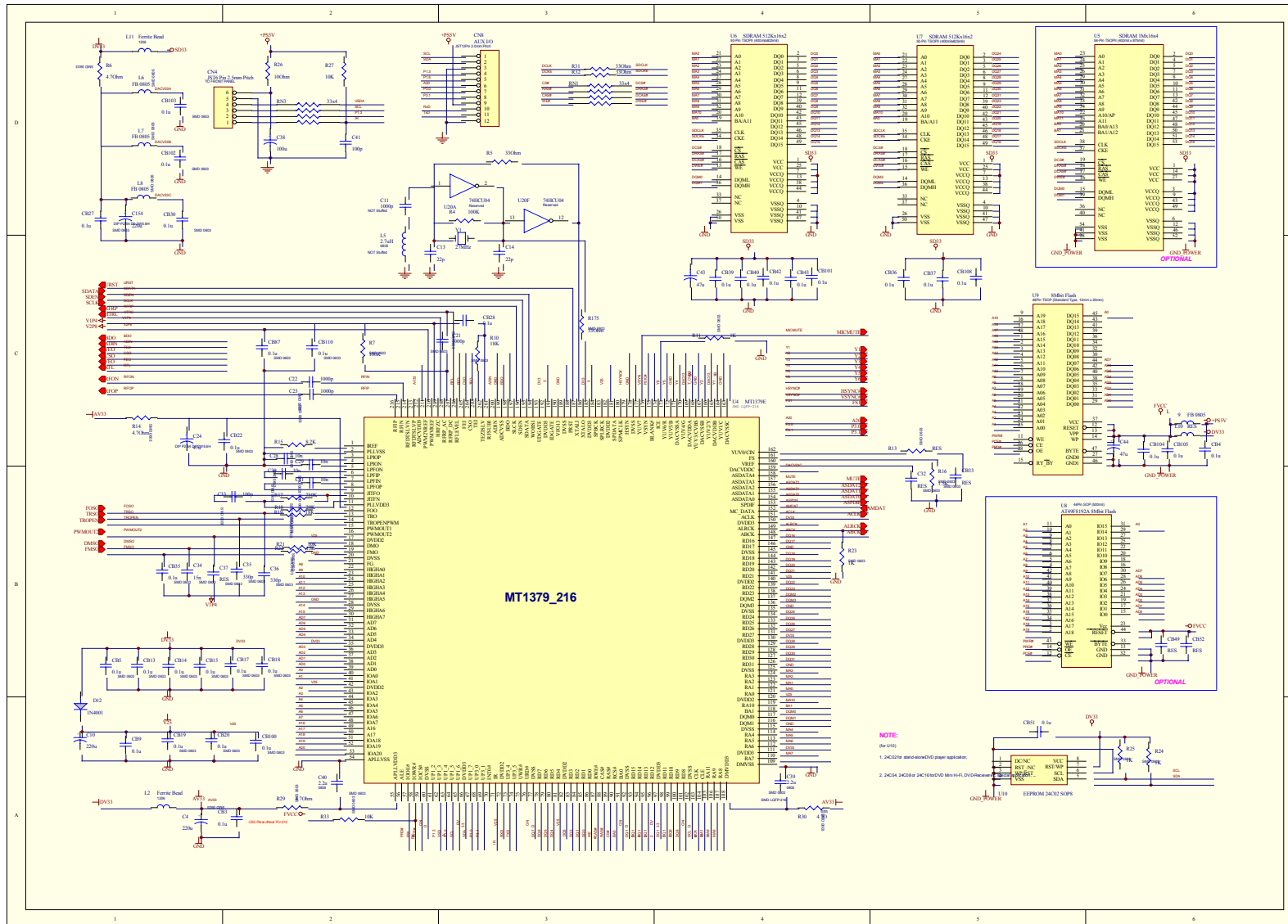
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	1	2	3	4	5	6																														
	Hermine GRANGER Revision-A3 Servo-MPEG Board of MAXITECH Complete Loader DCL34MK72/75MT1379xE for Cosmic DV-34 Pickup Loader Layout—Hermine GRANGER Revision-A3B2																																			
	Background This design is the Servo-MPEG Board of COSMIC Technology Co., LTD. DVD Complete Loader module DCL34MK72/75, which is the combination of this PCB & Cosmic DV-34 Pickup Loader. This design is based on MTK second generation MT1379xE super integration DVD chipset. The MT1379xE is built upon MTK's proven previous MT1369xE super integration chipset. It supported all MT1369xE generation features plus new features including Progressive Scan output with built-in very high performance 6-channel 12 bit TV-Encoder (Macrovision compliance) and Dolby ProLogic II surround sound processing. With the chip's highest integrity, a complete DVD design can now be implemented with minimum chip count & external components. FSG@COSMITEC.COM			Revision History Revision-A1 Base on MTK Reference Design COMMON79_HJ60_V2, Resized for Complete Loader PCB Dimension Requirement. Revision-A2 1. Add Audio ADC, DA1196 Software Control Mode Option. 2. 1Mx16 SDRAM Connection Data DQ[16:31] Changed. PCB Layout GRANGER-A2B1 Revision-A3 1. Based on Rev-A2, Video Output Buffer Added. 2. VFD Interface I/O Changed. 3. Fixed Some Known Errors. PCB Layout GRANGER-A3B2 Revision-A4 1. Based on Rev-A3, VFD Interface STB Signal Changed from P1.2 to P1.3. 1. Some Ferrite Beads on Power Supply Path Changed from SMD0805 to SMD1206. PCB Layout GRANGER-A4B3																																
	System Clock Requirement MT1379xE only requires a single 27MHz clock to operate. This clock can either be generated externally and feed into pin 187 or thru a 27MHz crystal attached to pin 186 and 187. This 27MHz will be used for all video processing reference. In addition, on chip PLL circuits generate all operating frequency for the integrated MPEG decoder RISC-DSP, Read Channel DSP-Servo circuitry, 8032 core system controller & audio clock.																																			
	Memories Required The current MT1379xE requires 8M bit Flash for DVD code storage & slow speed code running. For SDRAM, only 4M byte space is required. This provides a lower cost option to use 2 pieces 1Mx16 SDRAM with 32bit data width. The other option is to use one single piece of higher density 4Mx16 SDRAM & the extra memory space will be used as track buffer for better anti-shock function.																																			
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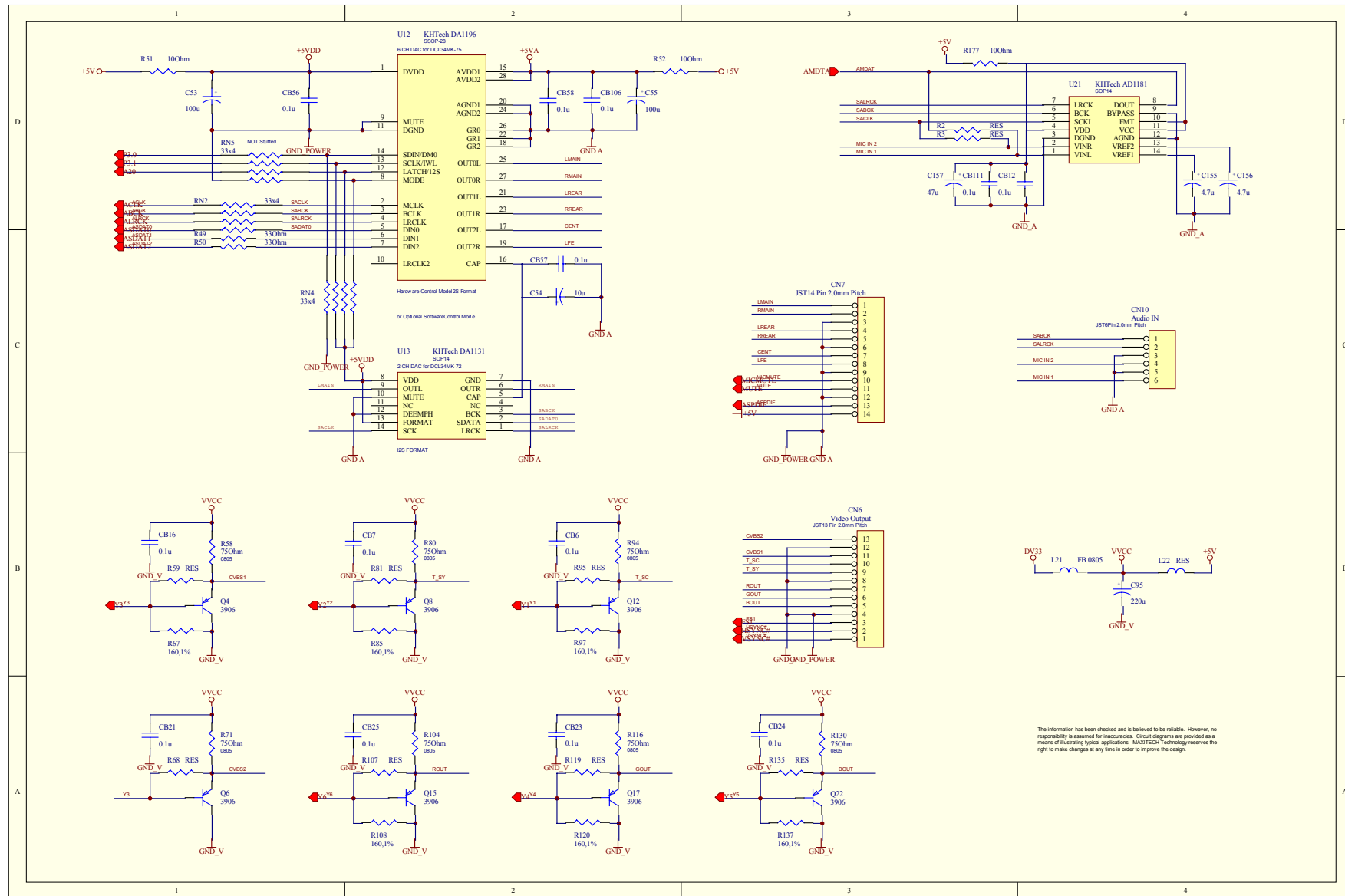
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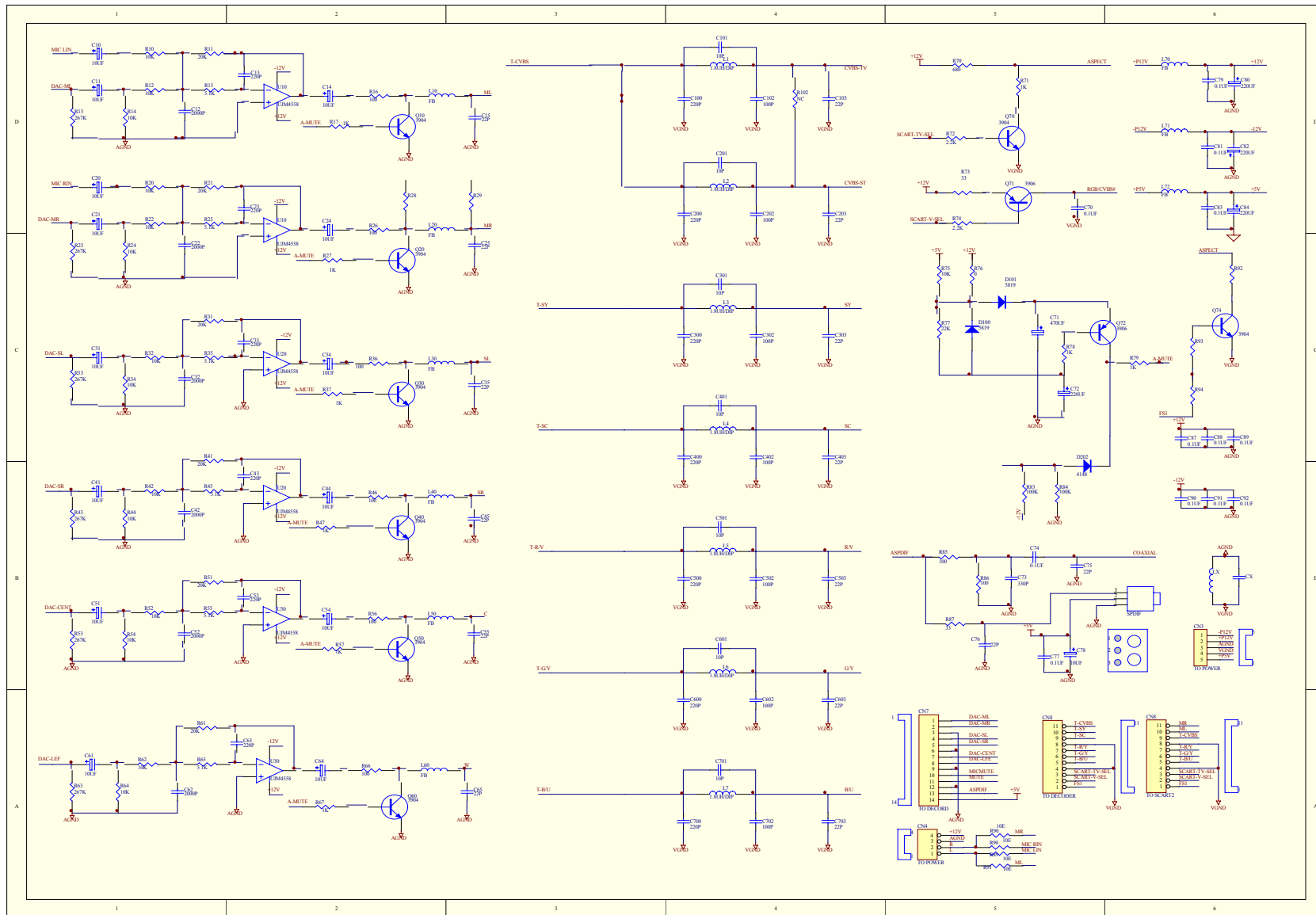
4.Servo-DSP MPEG & Memories



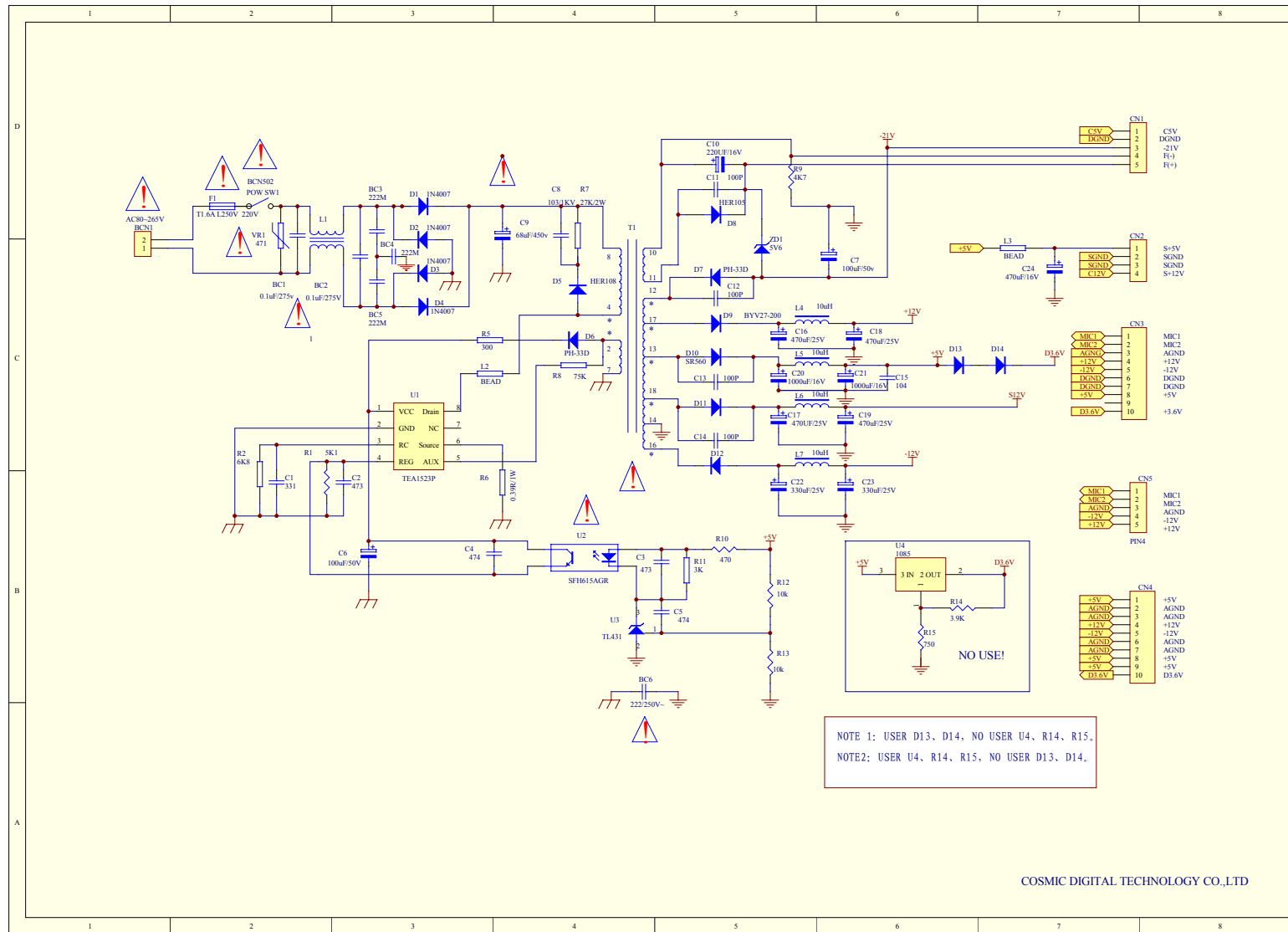
5. Audio & Video D/A



6.AV PORT



7. Power Part



11. Wiring Diagram

