SERVICE MANUAL

DVD 5.1 HOME THEATRE SYSTEM

HYUNDAI
H-HT5114

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1. PRECAUTIONS

1-1 Safety Precautions

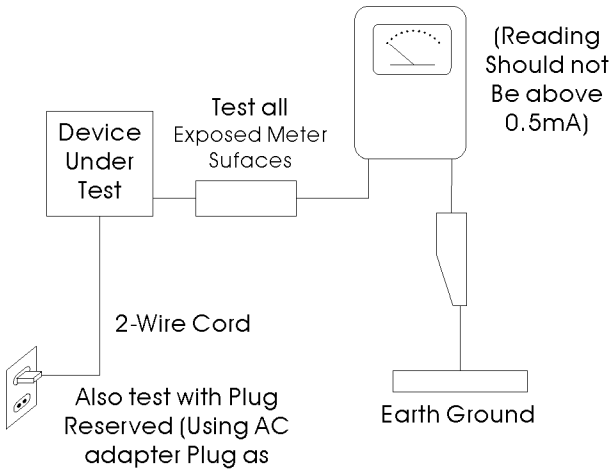
1) Before returning an instrument to the customer, always make a safety check of the entire instrument, including, but not limited to, the following items:

(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.

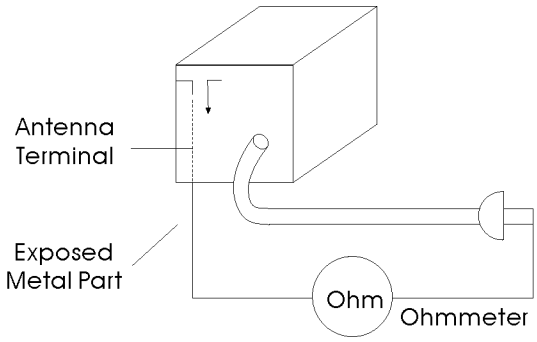
Current for Appliances and underwriters Laboratories (UL) 1270 (40.7). With the instrument's AC switch first in the ON position and then in the OFF position, measure from a known earth ground (metal water pipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle brackets, metal 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.



AC Leakage 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 wore 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 of 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 (⚠) or a (⚠) on schematics and parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might created 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 circument 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 Serving 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 plus 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 compo9nents 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.

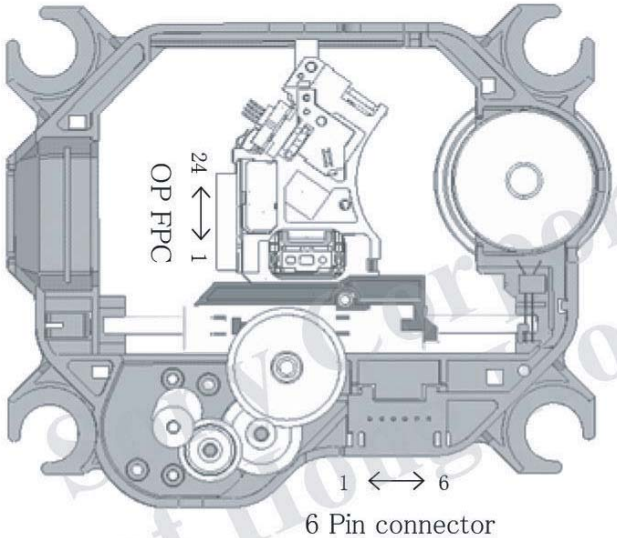
(8) Minimize bodily motions when handling unpackaged replacement ESD devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ESD device).

2. Reference Information

2-1 Component Descriptions

2-1-1 DVD SONY HM-313 PUH

Connector Pin Definition

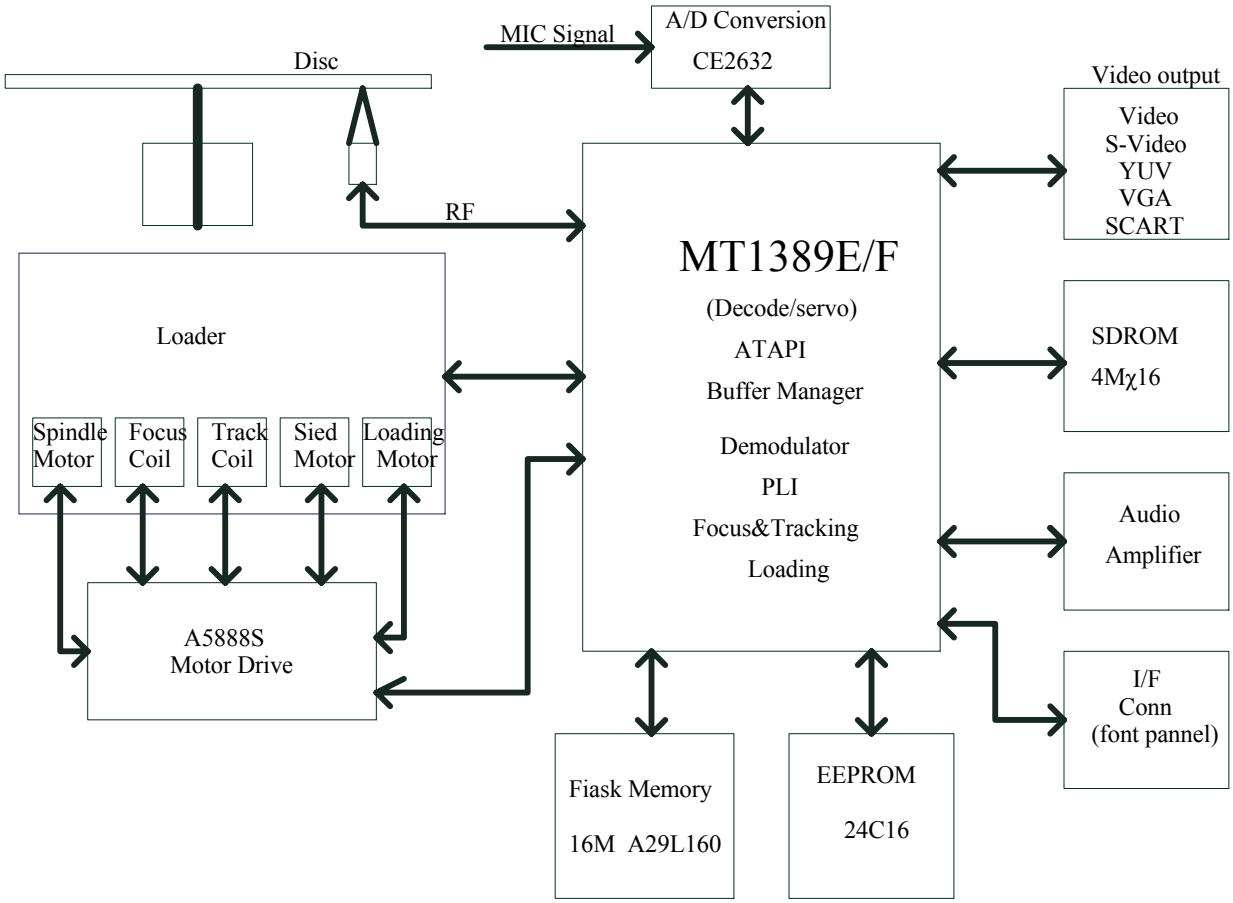


6 Pin connector

Terminal of FPC connector for OP

Pin No.	Name
1	FCS-
2	FCS+
3	TRK+
4	TRK-
5	C/c
6	D/d
7	MSW
8	RF
9	A/a
10	B/b
11	F
12	GND
13	Vc
14	Vcc
15	E
16	N/C
17	CD VR
18	DVD VR
19	CD LD
20	PD
21	N/C
22	N/C
23	DVD LD
24	LD GND

Block Diagram



2-1-2 DVD Processor Chip MTK1389E/F

Features

Super Integration DVD player single chip

- High performance analog RF amplifier
- Servo controller and data channel processing
- Disc compatibility: DVD, DVD-R, DVD-RW, DVD+R, DVD+RW, Audio CD, CD-R, CD-RW, VCD, SVCD, MP3-CD, MP3-DVD, PCM, JPEG-CD, JPEG-DVD
- Format compatibility:MPEG-1, MPEG-2, MPEG-4, DivX 3.11, DivX 4.x, DivX5.x (Need licence), Xvid, MP3, WMA, PCM, and JPEG & AVI
  Dolby Digital, DTS
- Unified memory architecture
- Versatile video scaling & quality enhancement
- OSD & Sub-picture
- 2-D graphic engine
- Global motion compensation (GMC)
- Quarter pixel accurate motion Compensation (Q-PEL)
- B-frame
- Higher bit-rate up to 10 Mbps
- Full function remote control
- Plays regional code encrypted (RCE) DVDs
- Selectable 4:3 Pan & Scan or 16:9 Widescreen format
- PAL & NTSC playback
- Multi-speed FF/ RW, slow motion & multi level zoom

High Performance Analog RF Amplifier

- Programmable fc
- Dual automatic laser power control
- Defect and blank detection
- RF level signal generato

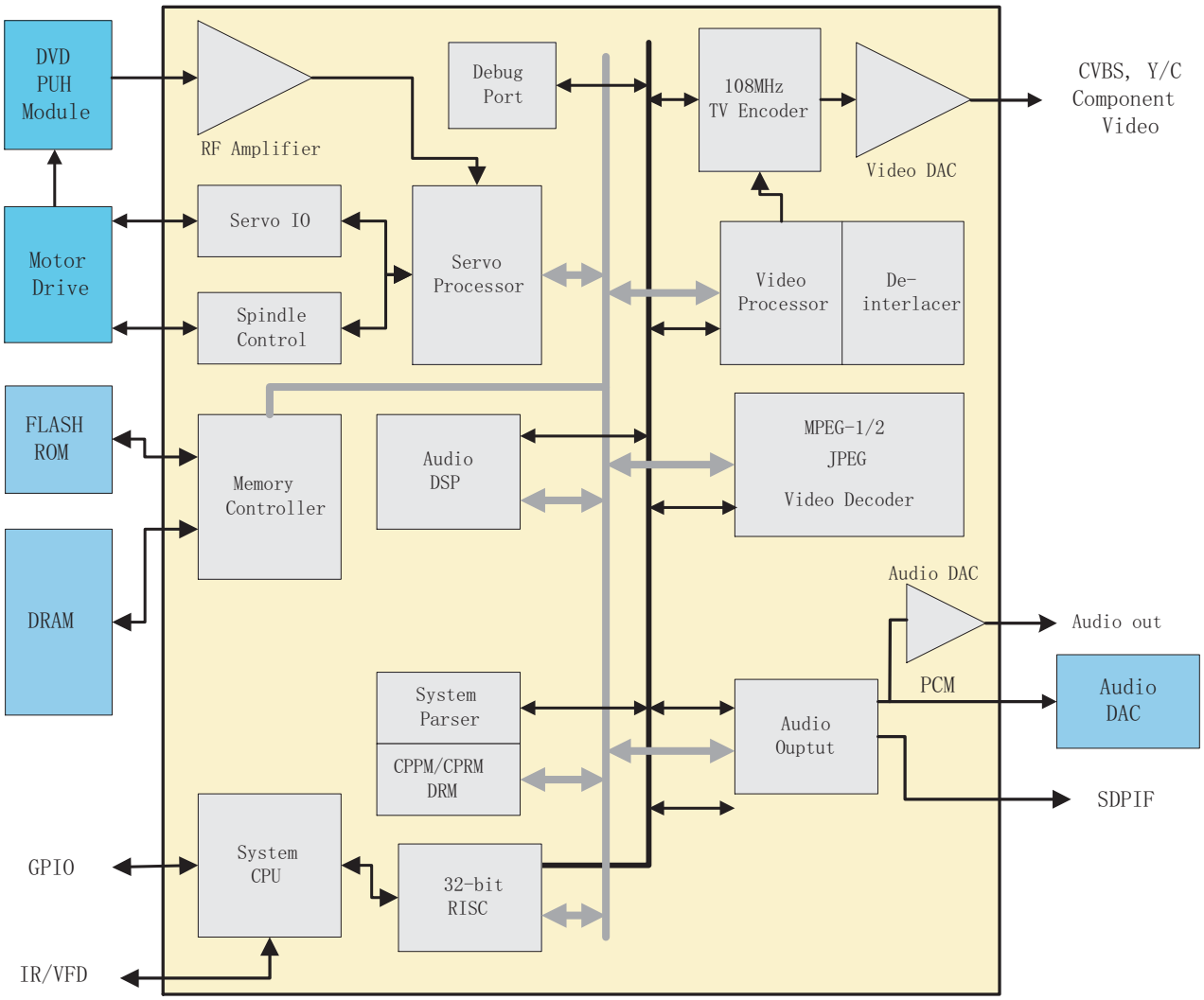
- Audio

- Dolby Digital (AC -3)/EX decoding
- DTS/DTS -ES decoding
- MLP decoding for DVD-Audio
- MPEG-1 layer 1/layer 2 audio decoding
- MPEG-2 layer1/layer2 2-channel audio
- High Definition Compatible Digital (HDCD)
- Windows Media Audio (WMA)
- Advanced Audio Coding (AAC)
- Dolby ProLogic II
- Concurrent multi-channel and downmix out
- IEC 60958/61937 output

-TV Encoder

- Six 108MHz/12bit DACs
- Support NTSC, PAL-BDGHINM, PAL-60
- Support 525p, 625p progressive TV format
- Automatically turn off unconnected channels
- Support PC monitor (VGA)
- Support Macrovision 7.1 L1, Macrovision 525P
- and 625P

Functional Block



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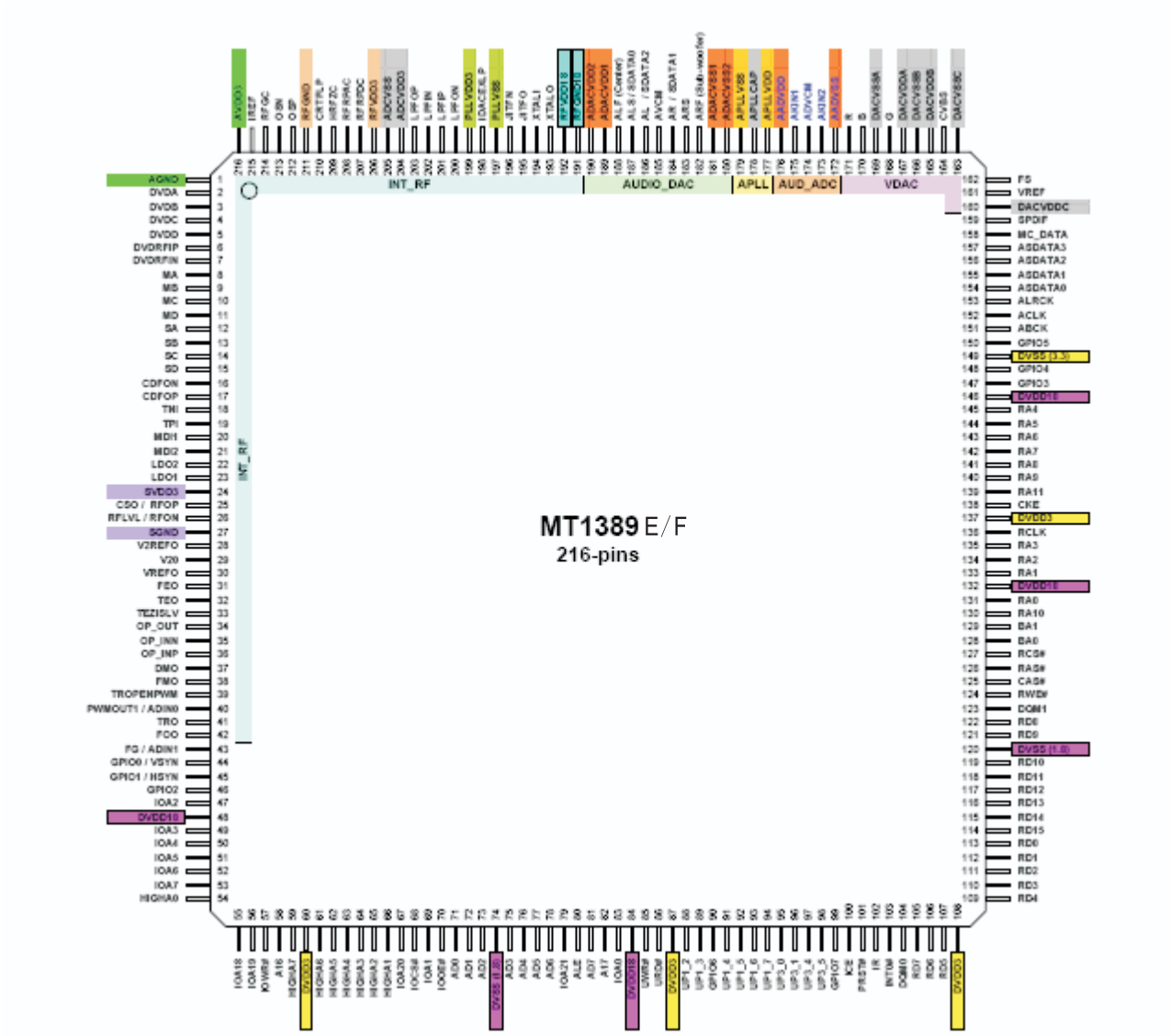
* Pinout Diagram



PIN DESCRIPTON

Abbreviations:

- SR: Slew Rate
- PU: Pull Up
- PD: Pull Down
- SMT: Schmitt Trigger
- 4mA~16mA: Output buffer driving strength.

Pin	Main	Alt.	Type	Description
RF Interface (26)				
191	RFGND18		Ground	Analog ground
192	RFVDD18		Power	Analog power 1.8V
212	OSP		Analog output	RF Offset cancellation capacitor connecting
213	OSN		Analog output	RF Offset cancellation capacitor connecting
214	RFGC		Analog output	RF AGC loop capacitor connecting for DVD-ROM
215	IREF		Analog Input	Current reference input. It generates reference current for RF path. Connect an external 15K resistor to this pin and AVSS
216	AVDD3		Power	Analog power 3.3V
1	AGND		Ground	Analog ground
2	DVDA		Analog Input	AC coupled input path A
3	DVDB		Analog Input	AC coupled input path B
4	DVDC		Analog Input	AC coupled input path C
5	DVDD		Analog Input	AC coupled input path D
6	DVDRFIP		Analog Input	AC coupled DVD RF signal input RFIP
7	DVDRFIN		Analog Input	AC coupled DVD RF signal input RFIN
8	MA		Analog Input	DC coupled main-beam RF signal input A
9	MB		Analog Input	DC coupled main-beam RF signal input B
10	MC		Analog Input	DC coupled main-beam RF signal input C
11	MD		Analog Input	DC coupled main-beam RF signal input D
12	SA		Analog Input	DC coupled sub-beam RF signal input A
13	SB		Analog Input	DC coupled sub-beam RF signal input B

Pin	Main	Alt.	Type	Description
14	SC		Analog Input	DC coupled sub-beam RF signal input C
15	SD		Analog Input	DC coupled sub-beam RF signal input D
16	CDFON		Analog Input	CD focusing error negative input
17	CDFOP		Analog Input	CD focusing error positive input
18	TNI		Analog Input	3 beam satellite PD signal negative input
19	TPI		Analog Input	3 beam satellite PD signal positive input
ALPC (4)				
20	MDI1		Analog Input	Laser power monitor input
21	MDI2		Analog Input	Laser power monitor input
22	LDO2		Analog Output	Laser driver output
23	LDO1		Analog Output	Laser driver output
Reference Voltage (3)				
28	V2REFO		Analog output	Reference voltage 2.8V
29	V20		Analog output	Reference voltage 2.0V
30	VREFO		Analog output	Reference voltage 1.4V
Analog Monitor Output (7)				
24	SVDD3		Power	Analog power 3.3V
25	CSO	RFOP	Analog output	1) Central servo 2) Positive main beam summing output
26	RFLVL	RFON	Analog output	1) RFRP low pass, or 2) Negative main beam summing output
27	SGND		Ground	Analog ground
31	FEO		Analog output	Focus error monitor output
32	TEO		Analog output	Tracking error monitor output
33	TEZISLV		Analog output	TE slicing Level
Analog Servo Interface (8)				
204	ADCVDD3		Power	Analog 3.3V power for ADC
205	ADCVSS		Ground	Analog ground for ADC

Pin	Main	Alt.	Type	Description
206	RFVDD3		Power	Analog power
207	RFRPDC		Analog output	RF ripple detect output
208	RFRPAC		Analog Input	RF ripple detect input (through AC-coupling)
209	HRFZC		Analog Input	High frequency RF ripple zero crossing
210	CRTPLP		Analog output	Defect level filter capacitor connecting
211	RFGND		Ground	Analog Power
RF Data PLL Interface (9)				
195	JITFO		Analog output	Output terminal of RF jitter meter
196	JITFN		Analog Input	Input terminal of RF jitter meter
197	PLLVSS		Ground	Ground pin for data PLL and related analog circuitry
198	IDACEXLP		Analog output	Data PLL DAC Low-pass filter
199	PLLVDD3		Power	Power pin for data PLL and related analog circuitry
200	LPFON		Analog Output	Negative output of loop filter amplifier
201	LPFIP		Analog Input	Positive input terminal of loop filter amplifier
202	LPFIN		Analog Input	Negative input terminal of loop filter amplifier
203	LPFOP		Analog Output	Positive output of loop filter amplifier
Motor and Actuator Driver Interface (10)				
34	OP_OUT		Analog output	Op amp output
35	OP_INN		Analog input	Op amp negative input
36	OP_INP		Analog input	Op amp positive input
37	DMO		Analog Output	Disk motor control output. PWM output
38	FMO		Analog Output	Feed motor control. PWM output
39	TROPENPWM		Analog Output	Tray PWM output/Tray open output
40	PWMOUT1	ADIN0	Analog Output	3) 1st General PWM output 4) AD input 0
41	TRO		Analog Output	Tracking servo output. PDM output of tracking servo compensator

Pin	Main	Alt.	Type	Description
42	FOO		Analog Output	Focus servo output. PDM output of focus servo compensator
43	FG (Digital pin)	ADIN1 GPIO	LVTTL 3.3V Input, Schmitt Input, pull up, with analog input path for ADIN1	1) Motor Hall sensor input 2) AD input 1 3) GPIO
General Power/Ground (11)				
48,84, 132, 146	DVDD18		Power	1.8V power pin for internal digital circuitry
74, 120	DVSS		Ground	1.8V Ground pin for internal digital circuitry
60,87, 108,137	DVDD3		Power	3.3V power pin for internal digital circuitry
149	DVSS		Ground	3.3V Ground pin for internal digital circuitry
Micro Controller and Flash Interface (48)				
54	HIGHA0		InOut 4~16mA, SR PU	Microcontroller address 8
66	HIGHA1		InOut 4~16mA, SR PU	Microcontroller address 9
65	HIGHA2		InOut 4~16mA, SR PU	Microcontroller address 10
64	HIGHA3		InOut 4~16mA, SR PU	Microcontroller address 11
63	HIGHA4		InOut 4~16mA, SR PU	Microcontroller address 12

Pin	Main	Alt.	Type	Description
62	HIGHA5		InOut 4~16mA, SR PU	Microcontroller address 13
61	HIGHA6		InOut 4~16mA, SR PU	Microcontroller address 14
59	HIGHA7		InOut 4~16mA, SR PU	Microcontroller address 15
81	AD7		InOut 4~16mA, SR	Microcontroller address/data 7
78	AD6		InOut 4~16mA, SR	Microcontroller address/data 6
77	AD5		InOut 4~16mA, SR	Microcontroller address/data 5
76	AD4		InOut 4~16mA, SR	Microcontroller address/data 4
75	AD3		InOut 4~16mA, SR	Microcontroller address/data 3
73	AD2		InOut 4~16mA, SR	Microcontroller address/data 2
72	AD1		InOut 4~16mA, SR	Microcontroller address/data 1
71	AD0		InOut 4~16mA, SR	Microcontroller address/data 0
83	IOA0		InOut 4~16mA, SR PU	Microcontroller address 0 / IO
69	IOA1		InOut 4~16mA, SR PU	Microcontroller address 1 / IO

Pin	Main	Alt.	Type	Description
47	IOA2		InOut 4~16mA, SR PU	Microcontroller address 2 / IO
49	IOA3		InOut 4~16mA, SR PU	Microcontroller address 3 / IO
50	IOA4		InOut 4~16mA, SR PU	Microcontroller address 4 / IO
51	IOA5		InOut 4~16mA, SR PU	Microcontroller address 5 / IO
52	IOA6		InOut 4~16mA, SR PU	Microcontroller address 6 / IO
53	IOA7		InOut 4~16mA, SR PU	Microcontroller address 7 / IO
58	A16		Output 4~16mA, SR PU	Flash address 16
82	A17		Output 4~16mA, SR PU	Flash address 17
55	IOA18		InOut 4~16mA, SR PD, SMT	Flash address 18 / IO
56	IOA19		InOut 4~16mA, SR PD, SMT	Flash address 19 / IO

Pin	Main	Alt.	Type	Description
67	IOA20	YUV0	InOut 4~16mA, SR PD, SMT	5) Flash address 20 / IO 6) While External Flash size <= 1MB: I)Alternate digital video YUV output 0
79	IOA21	YUV7 GPIO	InOut 4~16mA, SR PD, SMT	7) Flash address 21 / IO 8) While External Flash size <= 2MB: I)Digital video YUV output 7
80	ALE		InOut 4~16mA, SR PU, SMT	Microcontroller address latch enable
70	IOOE#		InOut 4~16mA, SR SMT	Flash output enable, active low / IO
57	IOWR#		InOut 4~16mA, SR PU, SMT	Flash write enable, active low / IO
68	IOCS#		InOut 4~16mA, SR SMT	Flash chip select, active low / IO
85	UWR#		InOut 4~16mA, SR PU, SMT	Microcontroller write strobe, active low
86	URD#		InOut 4~16mA, SR PU, SMT	Microcontroller read strobe, active low
88	UP1_2		InOut 4mA, SR PU, SMT	Microcontroller port 1-2
89	UP1_3		InOut 4mA, SR PU, SMT	Microcontroller port 1-3

Pin	Main	Alt.	Type	Description
91	UP1_4		InOut 4mA, SR PU, SMT	Microcontroller port 1-4
92	UP1_5		InOut 4mA, SR PU, SMT	Microcontroller port 1-5
93	UP1_6	SCL	InOut 4mA, SR PU, SMT	9) Microcontroller port 1-6 10) I^2C clock pin
94	UP1_7	SDA	InOut 4mA, SR PU, SMT	11) Microcontroller port 1-7 12) I^2C data pin
95	UP3_0	RXD	InOut 4mA, SR PU, SMT	13) Microcontroller port 3-0 14) 8032 RS232 RxD
96	UP3_1	TXD	InOut 4mA, SR PU, SMT	15) Microcontroller port 3-1 16) 8032 RS232 TxD
97	UP3_4	RXD SCL	InOut 4mA, SR PU, SMT	17) Microcontroller port 3-4 18) Hardwired RD232 RxD 19) I^2C clock pin
98	UP3_5	TXD SDA	InOut 4mA, SR PU, SMT	20) Microcontroller port 3-5 21) Hardwired RD232 TxD 22) I^2C data pin
102	IR		Input SMT	IR control signal input
103	INT0#		InOut 4~16mA, SR PU, SMT	Microcontroller external interrupt 0, active low
Audio interface (28)				

Pin	Main	Alt.	Type	Description
153	ALRCK	YUV1 GPO	InOut 4mA, PD, SMT	1) Audio left/right channel clock 2) Trap value in power-on reset: I)1: use external 373 II) 0: use internal 373 3) While internal audio DAC used: I)Digital video YUV output 1 II) GPO
151	ABCK	YUV0 GPIO	InOut 4mA	4) Audio bit clock 5) While internal audio DAC used: I)Digital video YUV output 0 II) GPIO
152	ACLK	YUV0 GPIO	InOut 4mA SMT	6) Audio DAC master clock 7) While internal audio DAC used: I)Alternate digital video YUV output 0 II) GPIO
154	ASDATA0	YUV2 GPO	InOut 4mA PD SMT	8) Audio serial data 0 (Front-Left/Front-Right) 9) Trap value in power-on reset: I)1: manufactory test mode II) 0: normal operation 10) While internal audio DAC used: I)Digital video YUV output 2 II) GPO
155	ASDATA1	YUV4 GPO	InOut 4mA PD SMT	11) Audio serial data 1 (Left-Surround/Right-Surround) 12) Trap value in power-on reset: I)1: manufactory test mode II) 0: normal operation 13) While only 2 channels output: I)Digital video YUV output 4 II) GPO
156	ASDATA2	YUV5 GPO	InOut 4mA PD SMT	14) Audio serial data 2 (Center/LFE) 15) Trap value in power-on reset: I)1: manufactory test mode II) 0: normal operation 16) While only 2 channels output: I)Digital video YUV output 5 II) GPO
157	ASDATA3	YUV6 GPIO	InOut 4mA PD SMT	17) Audio serial data 3 (Center-back/ Center-left-back/Center-right-back, in 6.1 or 7.1 mode) 18) While only 2 channels output: I)Digital video YUV output 6 II) GPIO
158	MC_DATA	INT2# YUV0 GPIO	InOut 2mA	19) Microphone serial input 20) While not support Microphone: I)Microcontroller external interrupt 2 II) Digital video YUV output 0 III) GPIO

Pin	Main	Alt.	Type	Description
159	SPDIF		Output 4~16mA, SR: ON/OFF	S/PDIF output
172	AADVSS		Ground	Ground pin for 2ch audio ADC circuitry
173	AKIN2		Analog	Audio ADC input 2
174	ADVCM		Analog	2ch audio ADC reference voltage
175	AKIN1		Analog	Audio ADC input 1
176	AADVDD		Power	3.3V power pin for 2ch audio ADC circuitry
177	APLLVDD3		Power	3.3V Power pin for audio clock circuitry
178	APLLCAP		Analog InOut	APLL external capacitance connection
179	APLLVSS		Ground	Ground pin for audio clock circuitry
180	ADACVSS2		Ground	Ground pin for audio DAC circuitry
181	ADACVSS1		Ground	Ground pin for audio DAC circuitry
182	ARF	GPIO	Output	21) Audio DAC sub-woofer channel output 22) While internal audio DAC not used: GPIO
183	ARS	GPIO	Output	23) Audio DAC right Surround channel output 24) While internal audio DAC not used: GPIO
184	AR	GPIO	Output	25) Audio DAC right channel output 26) While internal audio DAC not used: a. SDATA1 b. GPIO
185	AVCM		Analog	Audio DAC reference voltage
186	AL	GPIO	Output	27) Audio DAC left channel output 28) While internal audio DAC not used: a. SDATA2 b. GPIO
187	ALS	GPIO	Output	29) Audio DAC left Surround channel output 30) While internal audio DAC not used: c. SDATA0 d. GPIO
188	ALF	GPIO	Output	31) Audio DAC center channel output 32) While internal audio DAC not used: GPIO
189	ADACVDD1		Power	3.3V power pin for audio DAC circuitry
190	ADACVDD2		Power	3.3V power pin for audio DAC circuitry
Video Interface (12)				
160	DACVDDC		Power	3.3V power pin for video DAC circuitry

Pin	Main	Alt.	Type	Description
161	VREF		Analog	Bandgap reference voltage
162	FS		Analog	Full scale adjustment
163	DACVSSC		Ground	Ground pin for video DAC circuitry
164	CVBS		Output 4mA, SR	Analog composite output
165	DACVDDB		Power	3.3V power pin for video DAC circuitry
166	DACVSSB		Ground	Ground pin for video DAC circuitry
167	DACVDDA		Power	3.3V power pin for video DAC circuitry
168	Y/G		Output 4mA, SR	Green, Y, SY, or CVBS
169	DACVSSA		Ground	Ground pin for video DAC circuitry
170	B/CB/PB		Output 4mA, SR	Blue, CB/PB, or SC
171	R/CR/PR		Output 4mA, SR	Red, CR/PR, CVBS, or SY
MISC (12)				
101	PRST#		Input PU, SMT	Power on reset input, active low
100	ICE		Input PD, SMT	Microcontroller ICE mode enable
193	XTALO		Output	27MHz crystal output
194	XTALI		Input	27MHz crystal input
44	GPIO0	VSYN YUV1	InOut 4mA, SR SMT	33) General purpose IO 0 34) Vertical sync for video input 35) Digital video YUV output 1
45	GPIO1	HSYN INT4# YUV2	InOut 4mA, SR SMT	36) General purpose IO 1 37) Horizontal sync for video input 38) Microcontroller external interrupt 4 39) Digital video YUV output 2

Pin	Main	Alt.	Type	Description
46	GPIO2	SPMCLK	InOut 2mA	40) General purpose IO 2 41) Audio S/PDIF SPMCLK input
147	GPIO3	INT1# SPDATA	InOut 2mA	42) General purpose IO 3 43) Microcontroller external interrupt 1 44) Audio S/PDIF SPDATA input
148	GPIO4	SPLRCK	InOut 2mA	45) General purpose IO 4 46) Audio S/PDIF SPLRCK input
150	GPIO5	INT3# SPBCK	InOut 2mA	47) General purpose IO 5 48) Microcontroller external interrupt 3 49) Audio S/PDIF SPBCK input
90	GPIO6	YUVCLK	InOut 4mA, SR PD, SMT	50) General purpose IO 6 51) Digital video clock output
99	GPIO7	YUV3	InOut 4mA, PD, SMT	52) General purpose IO 7 53) Digital video YUV output 3
Dram Interface (38) (Sorted by position)				
145	RA4		InOut	DRAM address 4
144	RA5		InOut	DRAM address 5
143	RA6		InOut	DRAM address 6
142	RA7		InOut	DRAM address 7
141	RA8		InOut	DRAM address 8
140	RA9		InOut	DRAM address 9
139	RA11		InOut Pull-Down	DRAM address bit 11
138	CKE		Output	DRAM clock enable
136	RCLK		InOut	Dram clock
135	RA3		InOut	DRAM address 3
134	RA2		InOut	DRAM address 2
133	RA1		InOut	DRAM address 1
131	RA0		InOut	DRAM address 0

Pin	Main	Alt.	Type	Description
130	RA10		InOut	DRAM address 10
129	BA1		InOut	DRAM bank address 1
128	BA0		InOut	DRAM bank address 0
127	RCS#		Output	DRAM chip select, active low
126	RAS#		Output	DRAM row address strobe, active low
125	CAS#		Output	DRAM column address strobe, active low
124	RWE#		Output	DRAM Write enable, active low
123	DQM1		InOut	Data mask 1
122	RD8		InOut	DRAM data 8
121	RD9		InOut	DRAM data 9
119	RD10		InOut	DRAM data 10
118	RD11		InOut	DRAM data 11
117	RD12		InOut	DRAM data 12
116	RD13		InOut	DRAM data 13
115	RD14		InOut	DRAM data 14
114	RD15		InOut	DRAM data 15
113	RD0		InOut	DRAM data 0
112	RD1		InOut	DRAM data 1
111	RD2		InOut	DRAM data 2
110	RD3		InOut	DRAM data 3
109	RD4		InOut	DRAM data 4
107	RD5		InOut	DRAM data 5
106	RD6		InOut	DRAM data 6
105	RD7		InOut	DRAM data 7
104	DQM0		InOut	Data mask 0

Note:

1. The Main column is the main function, Alt. means alternative function.
2. The multi-function GPIO pins are set to green characters.
3. The multi-function GPO pins are ser to blue characters.
4. The external TV encoder mode only supports CCIR-656 mode.

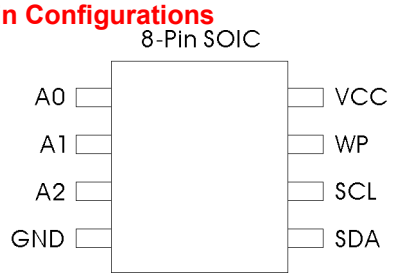
2-1-3 Serial EEPROM, 2K (256 x 8) (24C02) or 16 K (2048 x 8) (24C16)

24C02 is used for DVD player while 24C16 is for DVD receiver. The capacity is the only difference between two kinds of serial EEPROM. Both of them use same package and have same pin configuration.

*** 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

2-1-4: FLASH MEMORY(CMOS 16M (2M × 8/1M × 16) BIT)

GENERAL DESCRIPTION

The MBM29LV160TE/BE is a 16M-bit, 3.0 V-only Flash memory organized as 2M bytes of 8 bits each or 1M words of 16 bits each. The MBM29LV160TE/BE is offered in a 48-pin TSOP (I), 48-pin CSOP and 48-ball FBGA packages. The device is designed to be programmed in-system with the standard system 3.0 V V_{CC} supply. 12.0 V V_{PP} and 5.0 V V_{CC} are not required for write or erase operations. The device can also be reprogrammed in standard EPROM programmers.

The standard MBM29LV160TE/BE offers access times of 70 ns and 90 ns allowing operation of high-speed microprocessors without wait states. To eliminate bus contention the device has separate chip enable (CE), write enable (WE), and output enable (OE) controls.

The MBM29LV160TE/BE is pin and command set compatible with JEDEC standard E^2PROMs. Commands are written to the command register using standard microprocessor write timings. Register contents serve as input

to an internal state-machine which controls the erase and programming circuitry. Write cycles also internally latch addresses and data needed for the programming and erase operations. Reading data out of the device is similar to reading from 5.0 V and 12.0 V Flash or EPROM devices.
The MBM29LV160TE/BE is programmed by executing the program command sequence. This will invoke the Embedded Program™* Algorithm which is an internal algorithm that automatically times the program pulse widths and verifies proper cell margins. Typically, each sector can be programmed and verified in about 0.5 seconds.
Erase is accomplished by executing the erase command sequence. This will invoke the Embedded Erase™* Algorithm which is an internal algorithm that automatically preprograms the array if it is not already programmed before executing the erase operation. During erase, the device automatically times the erase pulse widths and verifies proper cell margins. (Continued)

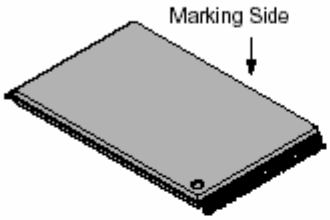
■ PRODUCT LINE UP

Part No.	MBM29LV160TE/160BE	
	70	90
Power Supply Voltage V_{CC} (V)	V_{CC} = 3.0 V $^{+0.6\ V}_{-0.3\ V}$	
Max Address Access Time (ns)	70	90
Max $\overline{CE}$ Access Time (ns)	70	90
Max $\overline{OE}$ Access Time (ns)	30	35

(Continued)
Any individual sector is typically erased and verified in 1.0 second (if already preprogrammed).
The device also features sector erase architecture. The sector mode allows each sector to be erased and reprogrammed without affecting other sectors. The MBM29LV160TE/BE is erased when shipped from the factory.
The device features single 3.0 V power supply operation for both read and write functions. Internally generated and regulated voltages are provided for the program and erase operations. A low V_{CC} detector automatically inhibits write operations on the loss of power. The end of program or erase is detected by Data Polling of DQ_7, by the Toggle Bit feature on DQ_6, or the RY/BY output pin. Once the end of a program or erase cycle has been completed, the device internally resets to the read mode.
The MBM29LV160TE/BE also has a hardware RESET pin. When this pin is driven low, execution of any Embedded
Program Algorithm or Embedded Erase Algorithm is terminated. The internal state machine is then reset to the read mode. The RESET pin may be tied to the system reset circuitry. Therefore, if a system reset occurs during the Embedded Program Algorithm or Embedded Erase Algorithm, the device is automatically reset to the read mode and will have erroneous data stored in the address locations being programmed or erased. These locations need re-writing after the Reset. Resetting the device enables the system's microprocessor to read the boot-up firmware from the Flash memory.
Fujitsu's Flash technology combines years of Flash memory manufacturing experience to produce the highest levels of quality, reliability, and cost effectiveness. The MBM29LV160TE/BE memory electrically erases all bits within a sector simultaneously via Fowler-Nordhiem tunneling. The bytes/words are programmed one byte/word at a time using the EPROM programming mechanism of hot electron injection.
*: Embedded Erase™ and Embedded Program™ are trademarks of Advanced Micro Devices, Inc.

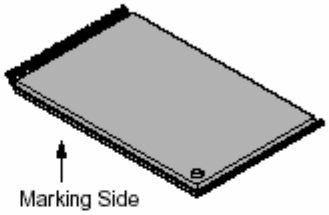
■ PACKAGES

48-pin plastic TSOP (I)



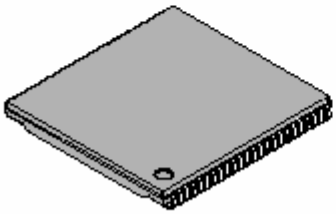
(FPT-48P-M19)

48-pin plastic TSOP (I)



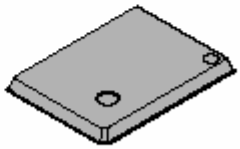
(FPT-48P-M20)

48-pin plastic CSOP



(LCC-48P-M03)

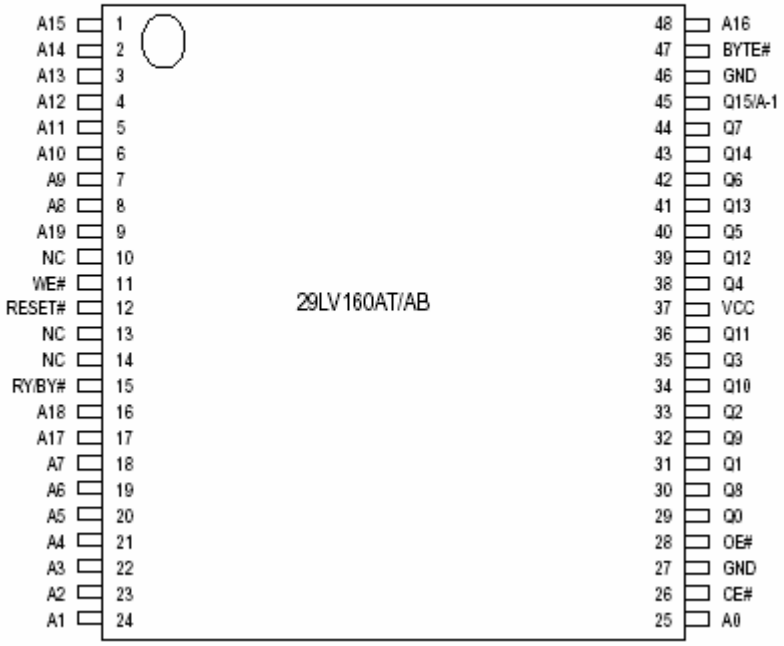
48-pin plastic FBGA



(BGA-48P-M11)

PIN CONFIGURATIONS

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



PIN DESCRIPTION

SYMBOL	PIN NAME
A0~A19	Address Input
Q0~Q14	Data Input/Output
Q15/A-1	Q15(Word mode)/LSB addr(Byte mode)
CE#	Chip Enable Input
WE#	Write Enable Input
BYTE#	Word/Byte Selection input
RESET#	Hardware Reset Pin/Sector Protect Unlock
OE#	Output Enable Input
RY/BY#	Ready/Busy Output
VCC	Power Supply Pin (2.7V~3.6V)
GND	Ground Pin

48-Ball CSP (Ball Pitch=0.8mm) Top View, Balls Facing Down

	A	B	C	D	E	F	G	H
6	A13	A12	A14	A15	A16	BYTE#	Q15/A-1	GND
5	A9	A8	A10	A11	Q7	Q14	Q13	Q6
4	WE#	RESET#	NC	A19	Q5	Q12	VCC	Q4
3	RY/BY#	NC	A18	NC	Q2	Q10	Q11	Q3
2	A7	A17	A6	A5	Q0	Q8	Q9	Q1
1	A3	A4	A2	A1	A0	CE#	OE#	GND

2-1-5 1M x 16 Bit x 4 Banks Synchronous DRAM *M12L64164A*

FEATURES

- JEDEC standard 3.3V power supply
- LVTTL compatible with multiplexed address
- Four banks operation
- 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
- DQM for masking
- Auto & self refresh
- 15.6 μ s refresh interval

ORDERING INFORMATION

54 Pin TSOP (Type II)
(400mil x 875mil)

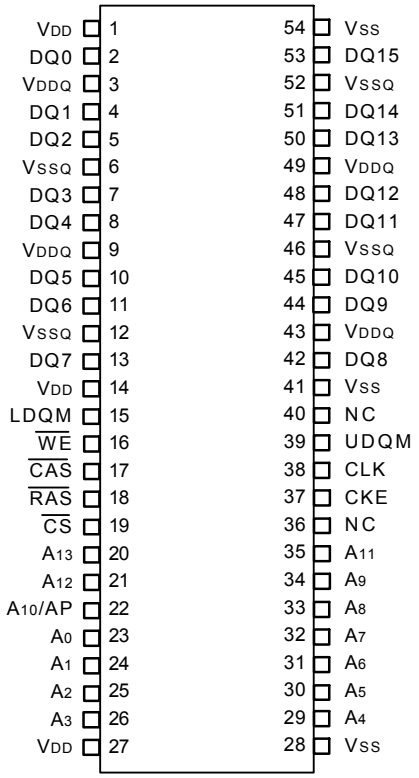
PRODUCT NO.	MAX FREQ.	PACKAGE	Comments
M12L64164A-5TG	200MHz	TSOP II	Pb-free
M12L64164A-6TG	166MHz	TSOP II	Pb-free
M12L64164A-7TG	143MHz	TSOP II	Pb-free

GENERAL DESCRIPTION

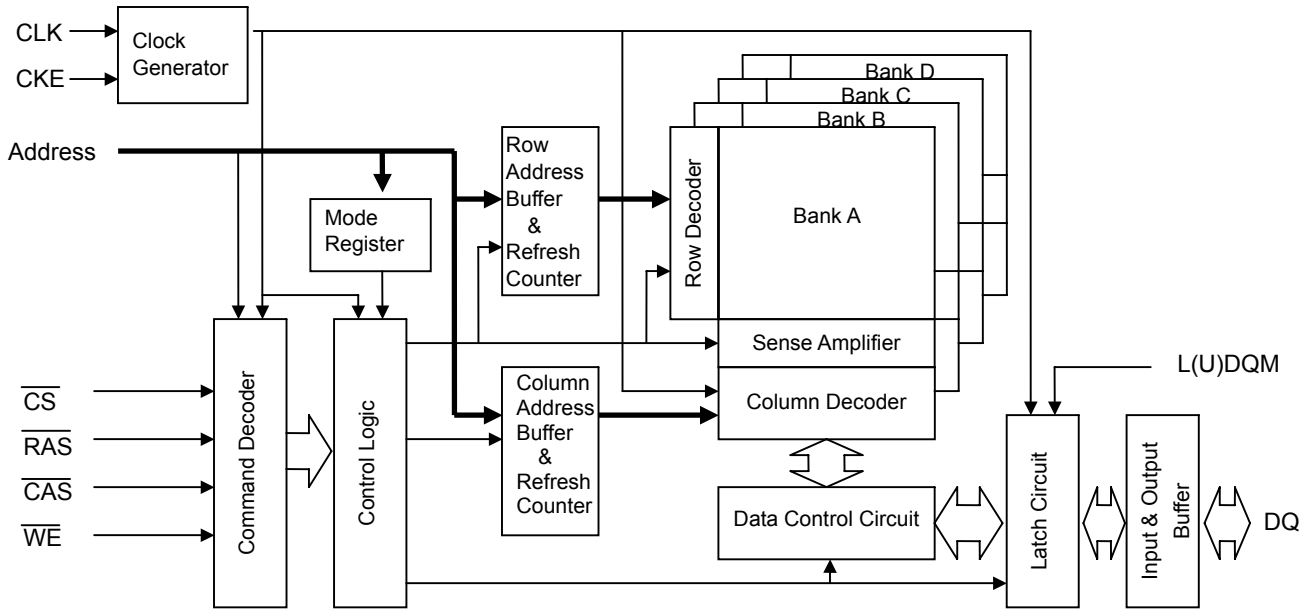
The M12L64164A is 67,108,864 bits synchronous high data rate Dynamic RAM organized as 4 x 1,048,576 words by 16 bits. Synchronous design allows precise cycle controls with the use of system clock I/O transactions are possible on every clock cycle. Range of operating frequencies, programmable burst length and programmable latencies allow the same device to be useful for a variety of high bandwidth, high performance memory system applications.

PIN ASSIGNMENT

Top View



FUNCTIONAL BLOCK DIAGRAM



PIN FUNCTION DESCRIPTION

PIN	NAME	INPUT FUNCTION
CLK	System Clock	Active on the positive going edge to sample all inputs
$\overline{CS}$	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 cycle prior new command. Disable input buffers for power down in standby.
A0 ~ A11	Address	Row / column address are multiplexed on the same pins. Row address : RA0~RA11, column address : CA0~CA7
A12 , A13	Bank Select Address	Selects bank to be activated during row address latch time. Selects bank for read / write during column address latch time.
$\overline{RAS}$	Row Address Strobe	Latches row addresses on the positive going edge of the CLK with $\overline{RAS}$ low. Enables row access & precharge.
$\overline{CAS}$	Column Address Strobe	Latches column address on the positive going edge of the CLK with $\overline{CAS}$ low. Enables column access.
$\overline{WE}$	Write Enable	Enables write operation and row precharge. Latches data in starting from $\overline{CAS}$, $\overline{WE}$ active.
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.
DQ0 ~ DQ15	Data Input / Output	Data inputs / outputs are multiplexed on the same pins.
VDD / VSS	Power Supply / Ground	Power and ground for the input buffers and the core logic.
VDDQ / VSSQ	Data Output Power / Ground	Isolated power supply and ground for the output buffers to provide improved noise immunity.
NC	No Connection	This pin is recommended to be left No Connection on the device.

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	UNIT
Voltage on any pin relative to V_{SS}	V_{IN}, V_{OUT}	-1.0 ~ 4.6	V
Voltage on V_{DD} supply relative to V_{SS}	V_{DD}, V_{DDQ}	-1.0 ~ 4.6	V
Storage temperature	T_{STG}	-55 ~ +150	°C
Power dissipation	P_D	1	W
Short circuit current	I_{OS}	50	mA

Note: Permanent device damage may occur if ABSOLUTE MAXIMUM RATING are exceeded.
Functional operation should be restricted to recommended operating condition.
Exposure to higher than recommended voltage for extended periods of time could affect device reliability.

DC OPERATING CONDITION

Recommended operating conditions (Voltage referenced to VSS = 0V, TA = 0 to 70 °C)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	NOTE
Supply voltage	V_{DD}, V_{DDQ}	3.0	3.3	3.6	V	
Input logic high voltage	V_{IH}	2.0		V_{DD}+0.3	V	1
Input logic low voltage	V_{IL}	-0.3	0	0.8	V	2
Output logic high voltage	V_{OH}	2.4	-	-	V	I_{OH} = -2mA
Output logic low voltage	V_{OL}	-	-	0.4	V	I_{OL} = 2mA
Input leakage current	I_{IL}	-5	-	5	μA	3
Output leakage current	I_{OL}	-5	-	5	μA	4

Note: 1. $V_{IH(max)}$ = 4.6V AC for pulse width ≤ 10ns acceptable.
2. $V_{IL(min)}$ = -1.5V AC for pulse width ≤ 10ns acceptable.
3. Any input 0V ≤ V_{IN} ≤ V_{DD} + 0.3V, all other pins are not under test = 0V.
4. D_{out} is disabled , 0V ≤ V_{OUT} ≤ V_{DD}.

CAPACITANCE (VDD = 3.3V, TA = 25 °C , f = 1MHZ)

PARAMETER	SYMBOL	MIN	MAX	UNIT
Input capacitance (A0 ~ A11, A13 ~ A12)	C_{IN1}	2	4	pF
Input capacitance (CLK, CKE, $\overline{CS}$, $\overline{RAS}$, $\overline{CAS}$, $\overline{WE}$ & L(U)DQM)	C_{IN2}	2	4	pF
Data input/output capacitance (DQ0 ~ DQ15)	C_{OUT}	2	5	pF

DC CHARACTERISTICS

Recommended operating condition unless otherwise noted，TA = 0 to 70 °C

PARAMETER	SYMBOL	TEST CONDITION	VERSION			UNIT	NOTE
			-5	-6	-7		
Operating Current (One Bank Active)	I_{CC1}	Burst Length = 1, $t_{RC} \geq t_{RC(min)}$, I_{OL} = 0 mA, tcc = tcc(min)	100	85	85	mA	1,2
Precharge Standby Current in power-down mode	I_{CC2P}	CKE ≤ $V_{IL(max)}$, tcc = tcc(min)	2			mA	
	I_{CC2PS}	CKE & CLK ≤ $V_{IL(max)}$, tcc = ∞	1				
Precharge Standby Current in non power-down mode	I_{CC2N}	CKE ≥ $V_{IH(min)}$, $\overline{CS}$ ≤ $V_{IH(min)}$, tcc = tcc(min) Input signals are changed one time during 2CLK	20			mA	
	I_{CC2NS}	CKE ≥ $V_{IH(min)}$, CLK ≤ $V_{IL(max)}$, tcc = ∞ input signals are stable	10				
Active Standby Current in power-down mode	I_{CC3P}	CKE ≤ $V_{IL(max)}$, tcc = tcc(min)	10			mA	
	I_{CC3PS}	CKE & CLK ≤ $V_{IL(max)}$, tcc = ∞	10				
Active Standby Current in non power-down mode (One Bank Active)	I_{CC3N}	CKE ≥ $V_{IH(min)}$, $\overline{CS}$ ≥ $V_{IH(min)}$, tcc = tcc(min) Input signals are changed one time during 2CLK	30			mA	
	I_{CC3NS}	CKE ≥ $V_{IH(min)}$, CLK ≤ $V_{IL(max)}$, tcc = ∞ input signals are stable	25			mA	
Operating Current (Burst Mode)	I_{CC4}	I_{OL} = 0 mA, Page Burst, All Bank active Burst Length = 4, CAS Latency = 3	180	150	140	mA	1,2
Refresh Current	I_{CC5}	$t_{RC} \geq t_{RC(min)}$, t_{CC} = tcc(min)	180	150	140	mA	
Self Refresh Current	I_{CC6}	CKE ≤ 0.2V	1			mA	

Note : 1. Measured with outputs open.
2. Input signals are changed one time during 2 CLKS.

3. Product S pecifications

Power supply		AC ~220 /50Hz
Power consumption		150W
Working environment	Temperature	-10~+40℃
	Relative humidity	5%~90%
Disc output	TV System	PAL/NTSC
	Frequency Reponse	±1.5dB(20Hz~20KHz)
	S/N(A weight)	＞80dB(1KHz)
	Dynamic Range	≥70dB(1KHz)
	THD+NOISE	≤ - 60dB(1KHz)
	WOW FLUTTER	Below the limit of apparatus measure
Tuner	AM frequency Range	520KHz~1620KHz
	FM band Range	64MHz ~108MHz
Power output (Max)		15WX5+30W
Video out		1V ± 0.2V
S-Video		Y:1V ± 0.2V C:0.28V ± 0.1V
Dimensions (W X H X D)		430 X 55 X 307 (mm)
Net Weight		3.5kg
Gross Weight (packed)		10.5kg

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 "1.3.6.9" buttons,the screen display “XXXX”, you can change the region code to 0-6 with 0-6 button, the number 0 means REGION FREE.

5. Operating Instruction

Please refer to the User's Manual for the operating 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.

- For sticky dust, wipe it with wet 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

When play the region disc with player unconf -ormity,the screen display "WRONG REGION", you can change the region code,please referr -ence the "How to change the region code".

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.

TV system

Connect this player to a PAL/NTSC compatible TV.

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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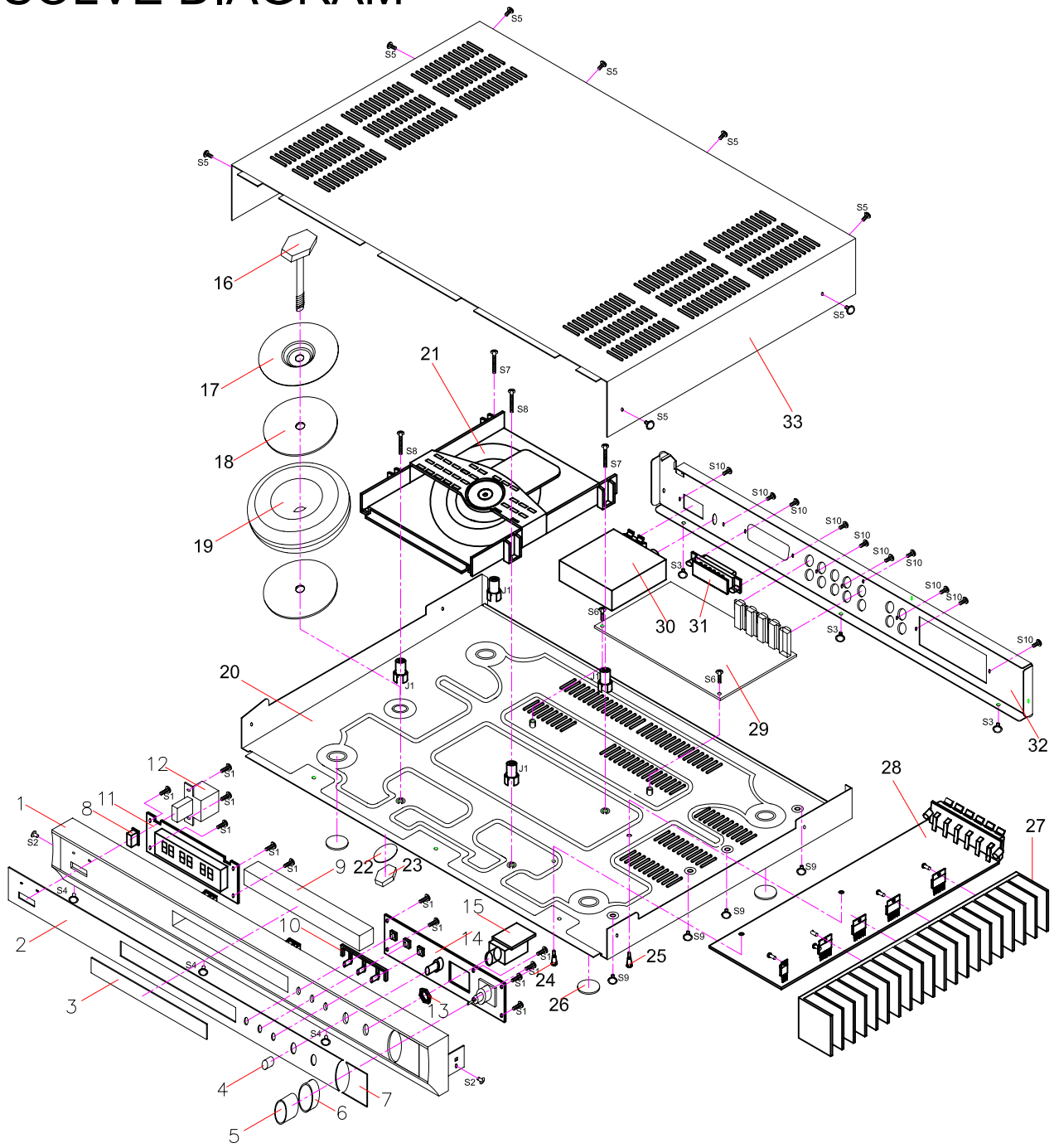
7.Troubleshooting

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.RESOLVE DIAGRAM



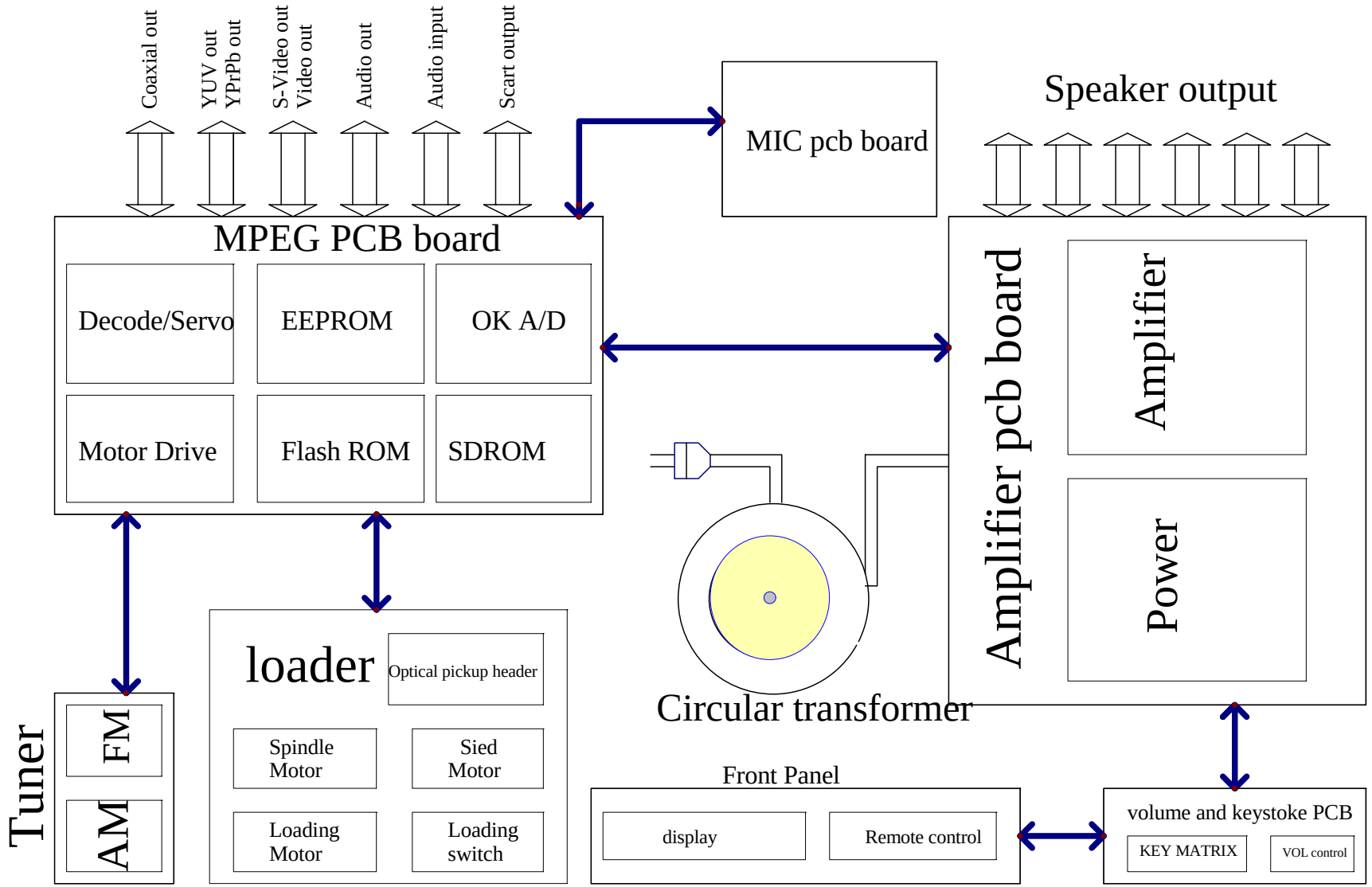
俄罗斯HYUNDAI

HYUNDAI

H-HT5114-N

Item	Description	Qty	Item	Description	Qty
25	PLANE UNDERPROP H=10	1		BOLT	
24	PLANE UNDERPROP H=5	1	S1	PT3× 8PBHNi+	12
23	CAP NUT	1	S2	3× 6FMHNi+	2
22	WASHER	1	S3	3× 4PWMHNi+	3
21	Mechanism Ass'y	1	S4	3× 6PWMHBNi+	3
20	MOTHERBOARD	4	S5	3× 6PWMHNi+	8
19	TRANSFORMER	1	S6	3× 6PMHNi+	2
18	RUBBER WASHER	2	S7	3× 13PWMHNi+	2
17	COVER	1	S8	3× 14PWMHNi+	2
16	BOLT	1	S9	4× 10PAHBNi+	4
15	MIC PCB	1	S10	PT3× 8PBHNi+	10
14	RIGHT DISPLAY PCB	1			
13	NUT M12	1		PLACTIC POLE	
12	MIC BRACKET	1	J1	H=6mm	4
11	LEFT DISPLAY PCB	1			
10	BUTTON	1			
9	CD DOOR	1			
8	POWER KEY	1	33	COVER	
7	SMALL LENS	1	32	BACKBOARD	
6	DECORATION	1	31	SCART	
5	MASTER VOL KEY	1	30	RECEIVER	1
4	VOLUME KEY	1	29	INPUT ASS'Y	1
3	CD D00R LENS	1	28	SPEAKER OUT PCB	1
2	LENS	1	27	RADIATOR	1
1	PANEL	1	26	FOOT PIECE	4

9.Block Diagram

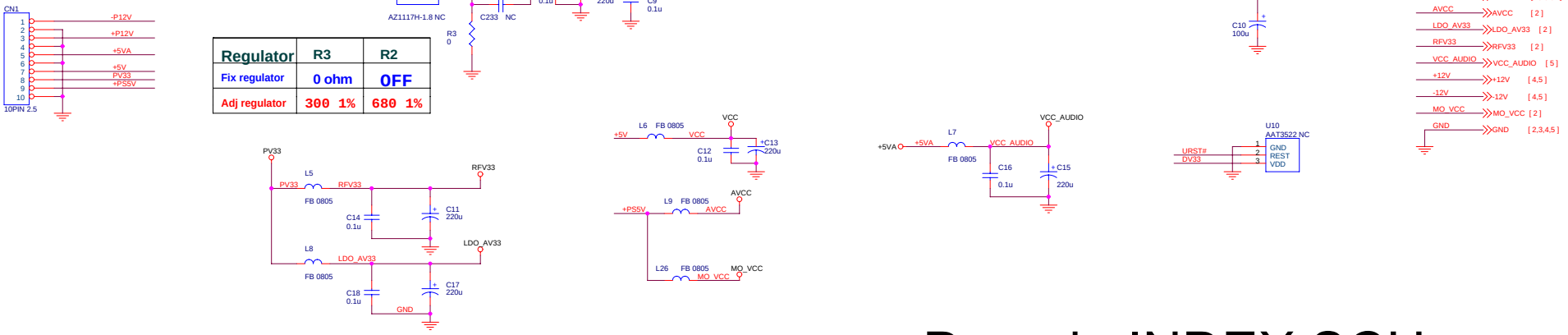


10.CIRCUIT DIAGRAMS

NAME	TYPE	DEVICE
VCC	Digital 5V	SUPPLY
DV33	Digital 3.3V	MT1389E
RFV33	Servo 3.3V	MT1389E
LDO_AV33	Laser Diode 3.3V	
AVCC	RF 5V	PICKUP HEADER
V18	Digital 1.8V	MT1389E
SD33	Digital 3.3V	SDRAM
+12V	Audio +12V	OP AMP.
-12V	Audio -12V	OP AMP.
AVDD	Audio 5V	Audio DAC
DVDD	Audio 5V	Audio DAC

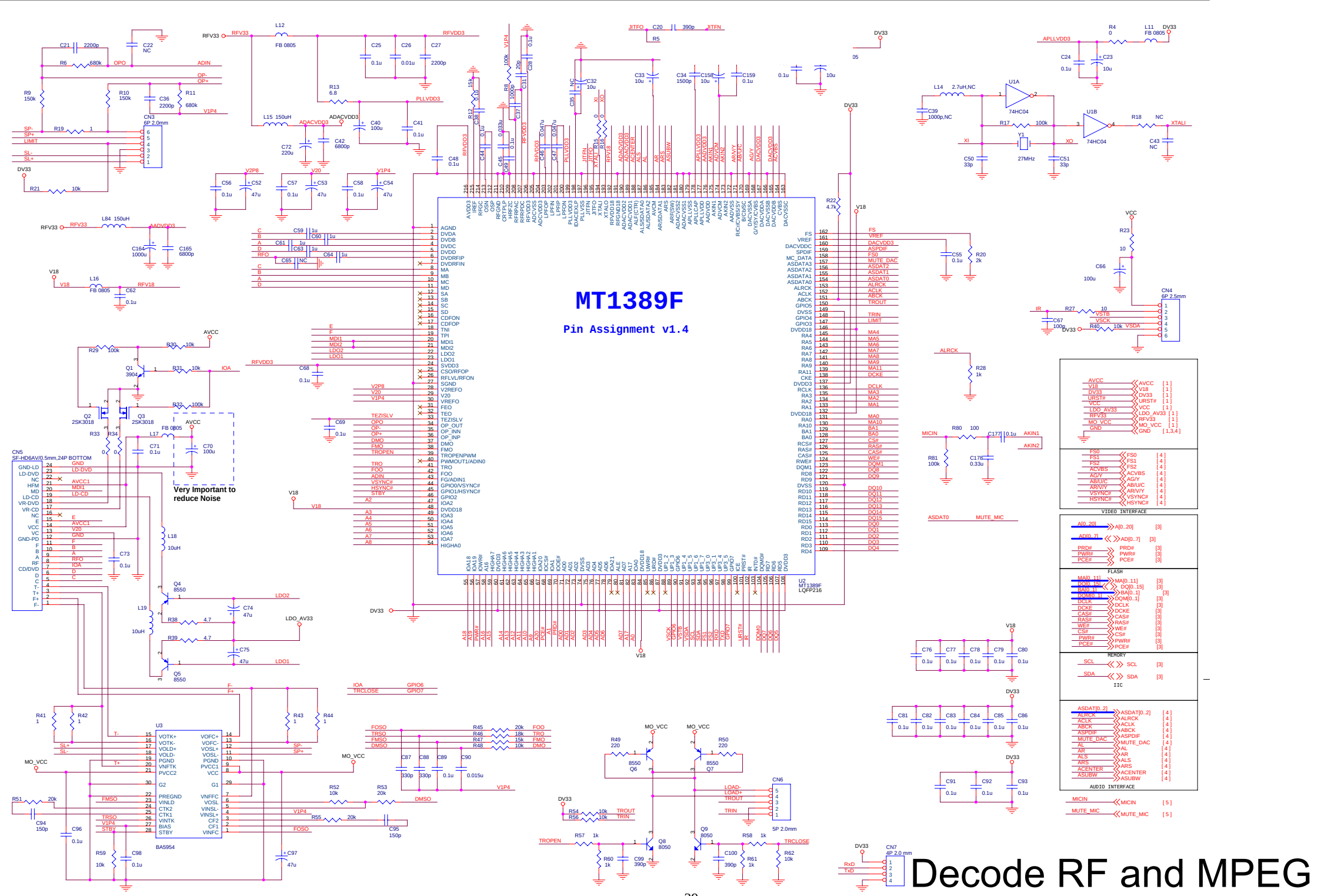
MT1389E DVD Demo Board for SONY KHM313 PUH

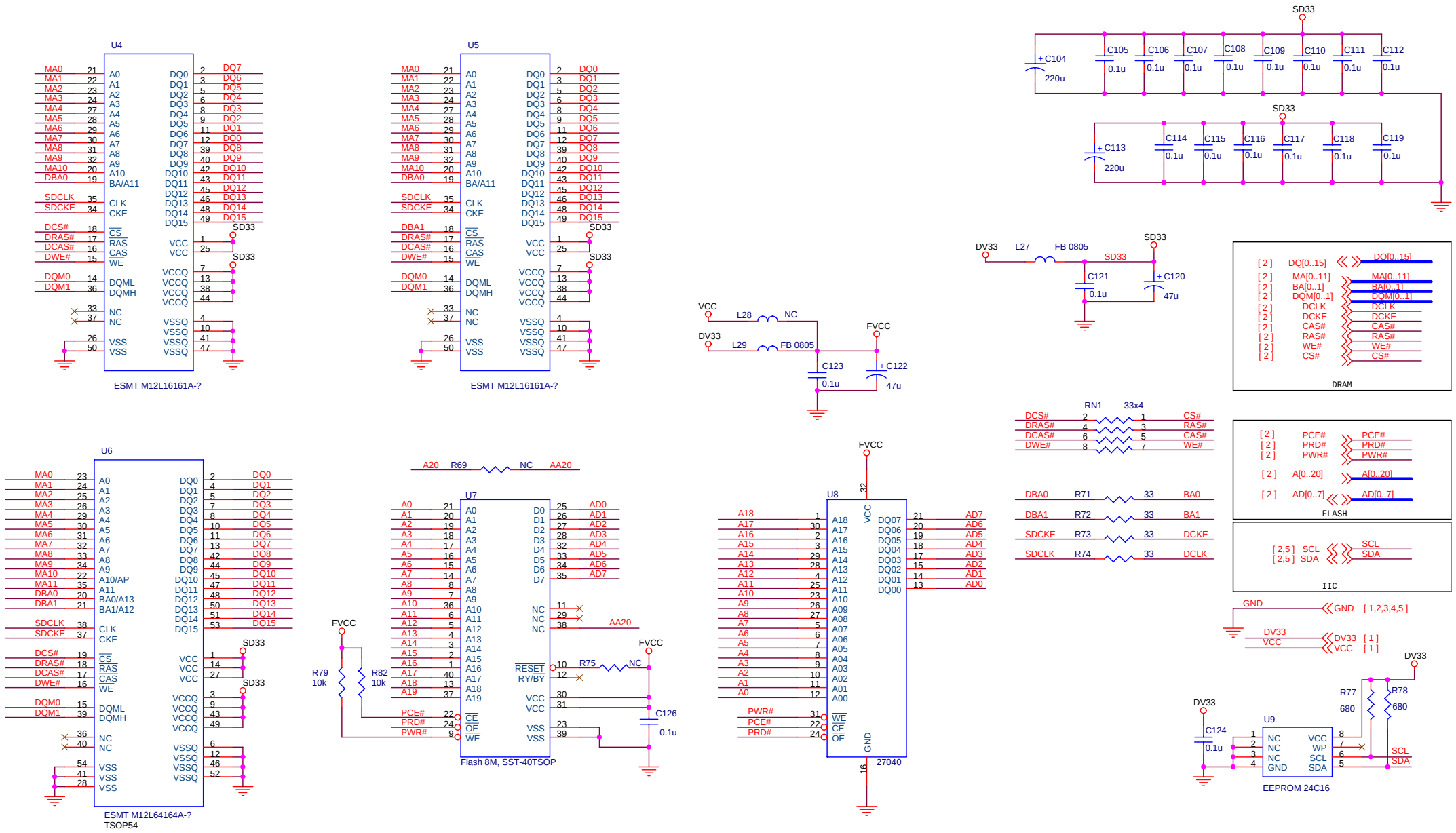
1	INDEX & POWER, RESET
2	MT1389E/F
3	SDRAM & FLASH
4	VIDEO OUT
5	AUDIO OUT

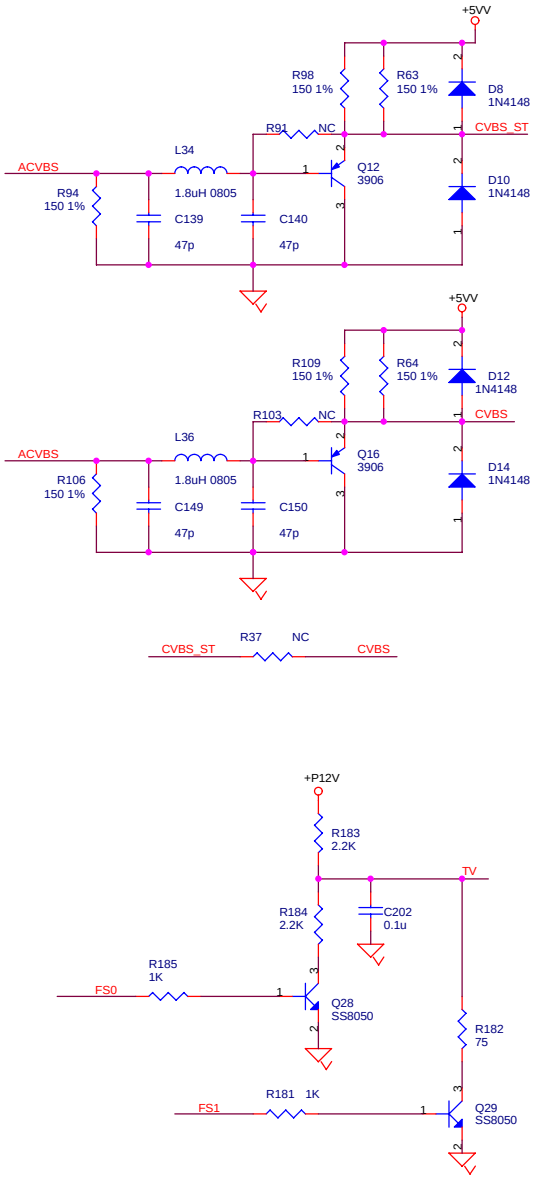


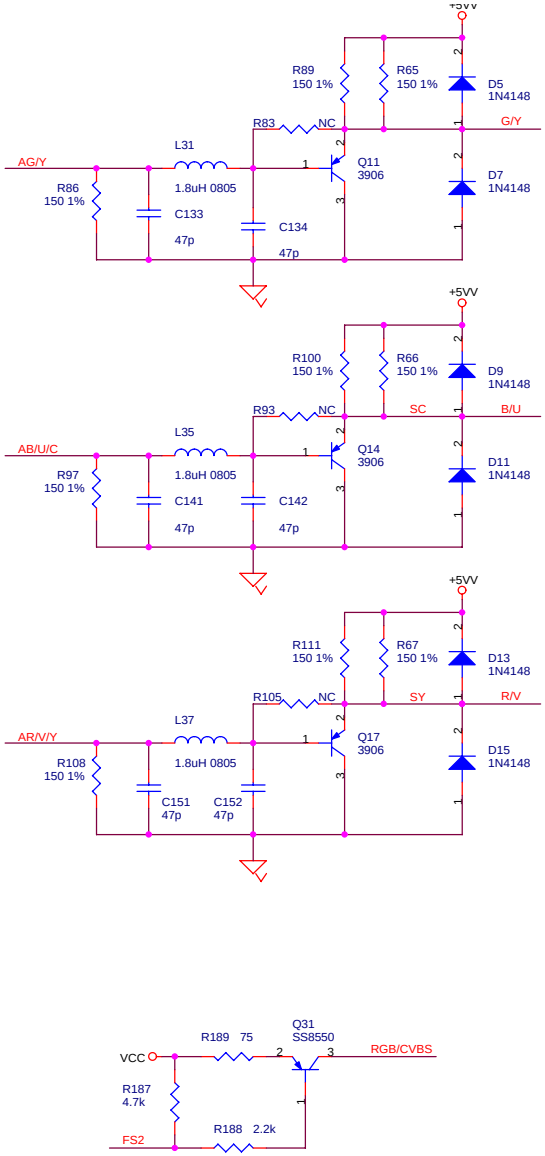
Regulator	R3	R2
Fix regulator	0 ohm	OFF
Adj regulator	300 1%	680 1%

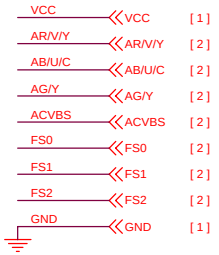
Decode INDEX SCH

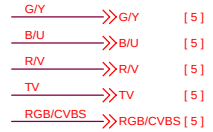

MT1389F
Pin Assignment v1.4
Very Important to reduce Noise
U2 MT1389F LQFP216
U3 BA5954
CN5 SF-HD6AV/0.5mm,24P BOTTOM
CN3 6P 2.0mm
CN4 6P 2.5mm
CN6 5P 2.0mm
CN7 4P 2.0 mm
VIDEO INTERFACE
FLASH
MEMORY
IIC
AUDIO INTERFACE
Decode RF and MPEG

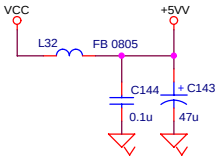

U4
ESMT M12L16161A-?
U5
ESMT M12L16161A-?
U6
ESMT M12L64164A-?
TSOP54
U7
Flash 8M, SST-40TSOP
U8
27040
U9
EEPROM 24C16
SD33
DV33
FVCC
VCC
L27
FB 0805
L28
L29
NC
C104
C105
C106
C107
C108
C109
C110
C111
C112
C113
C114
C115
C116
C117
C118
C119
C120
C121
C122
C123
C124
C126
0.1u
220u
47u
RN1
33x4
R69
R71
R72
R73
R74
R75
R77
R78
R79
R82
10k
680
33
DRAM
FLASH
IIC
EEPROM
Decode SDROM and FLASH

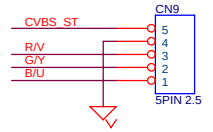


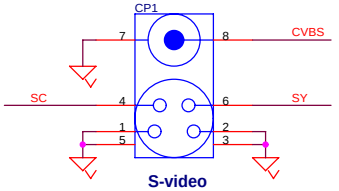




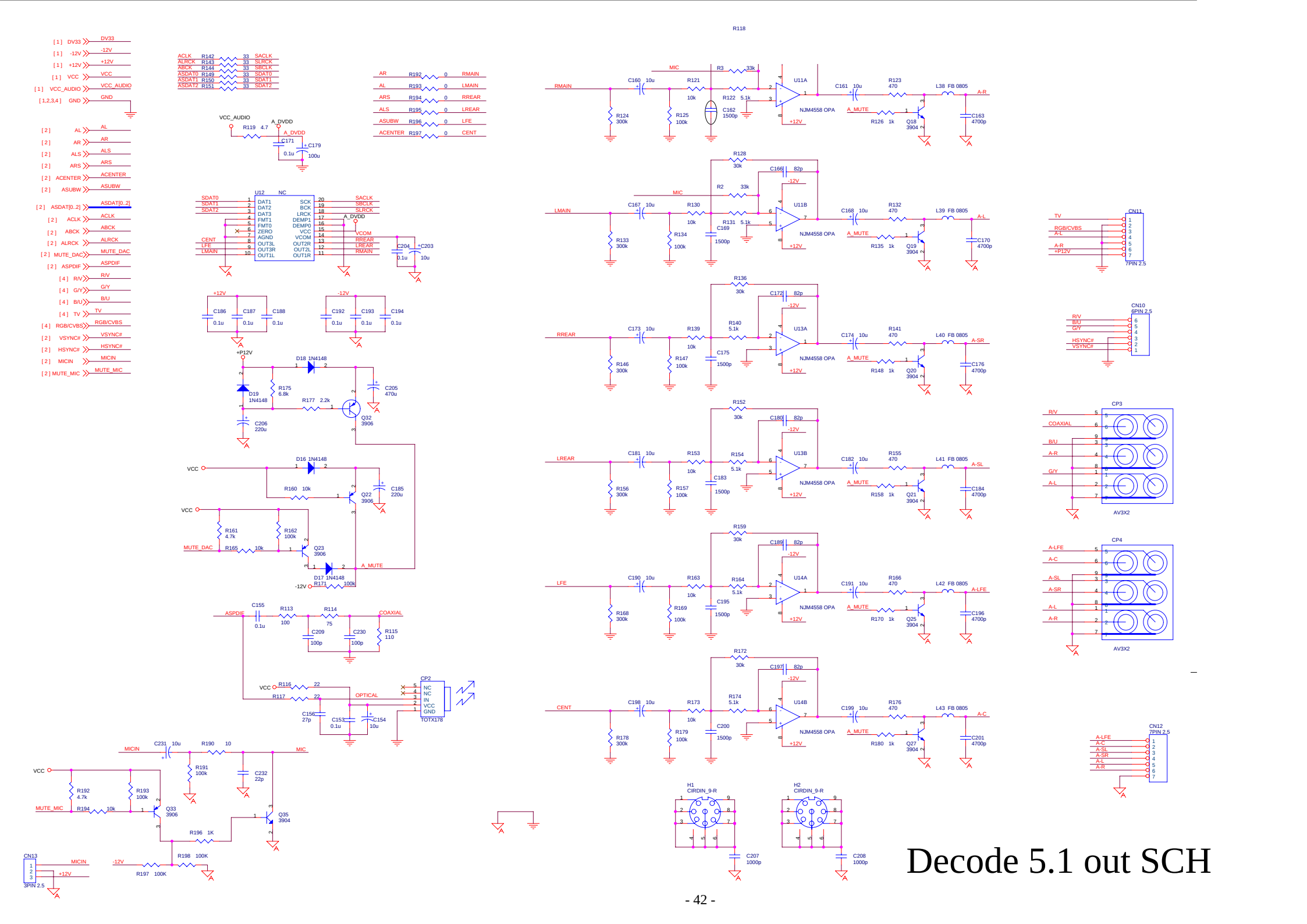


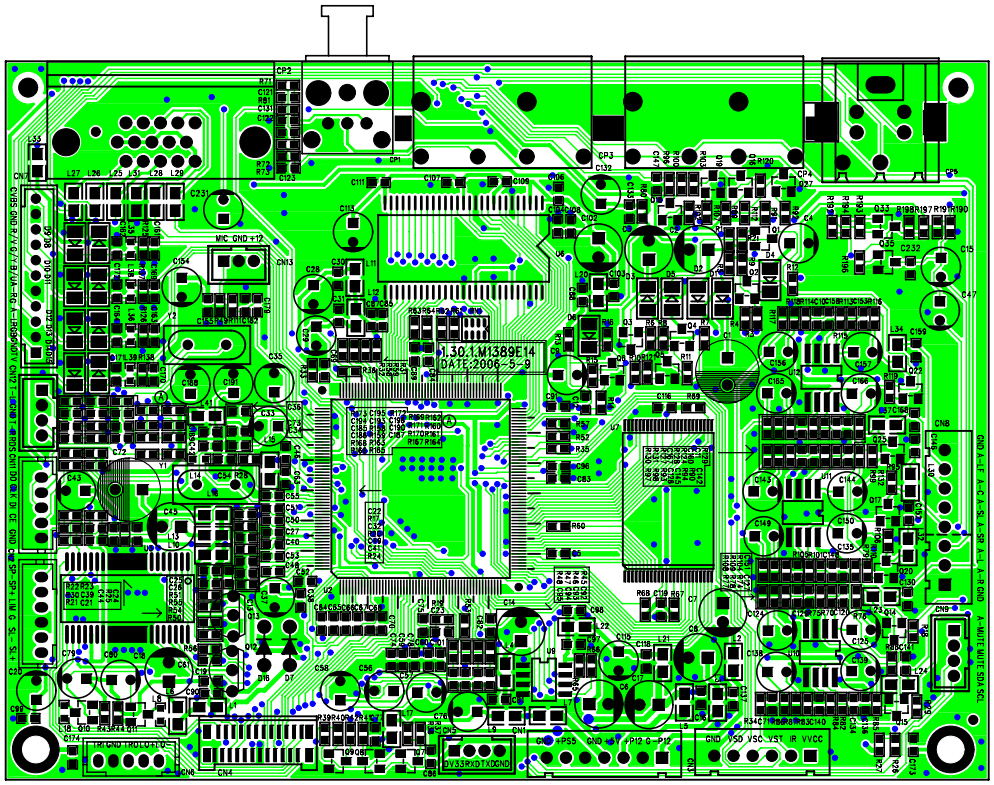




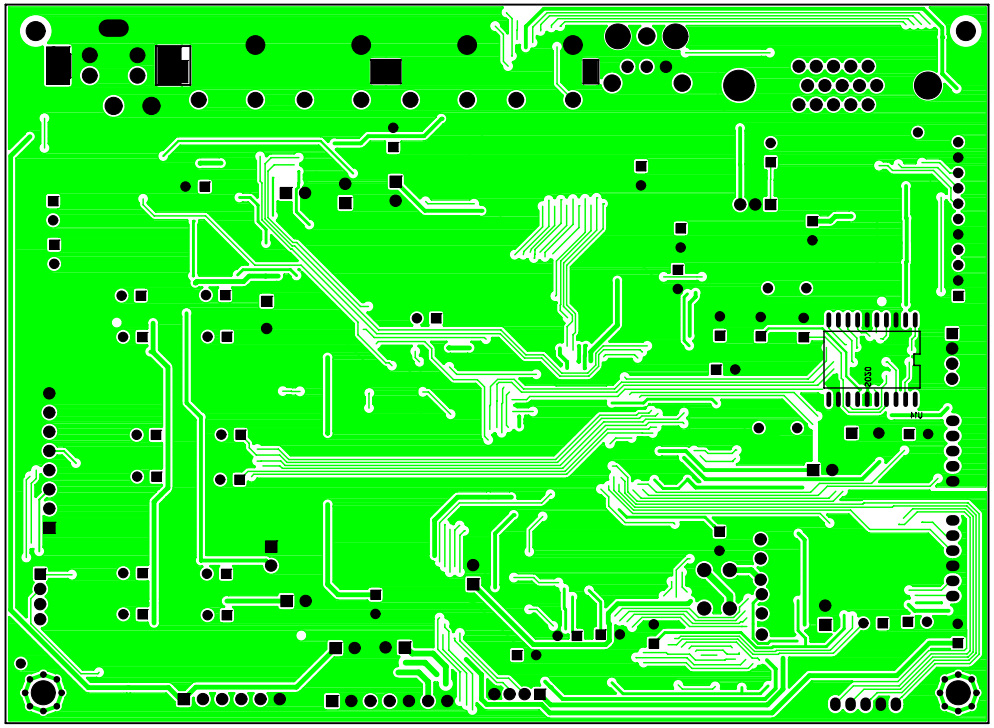


Decode video output SCH

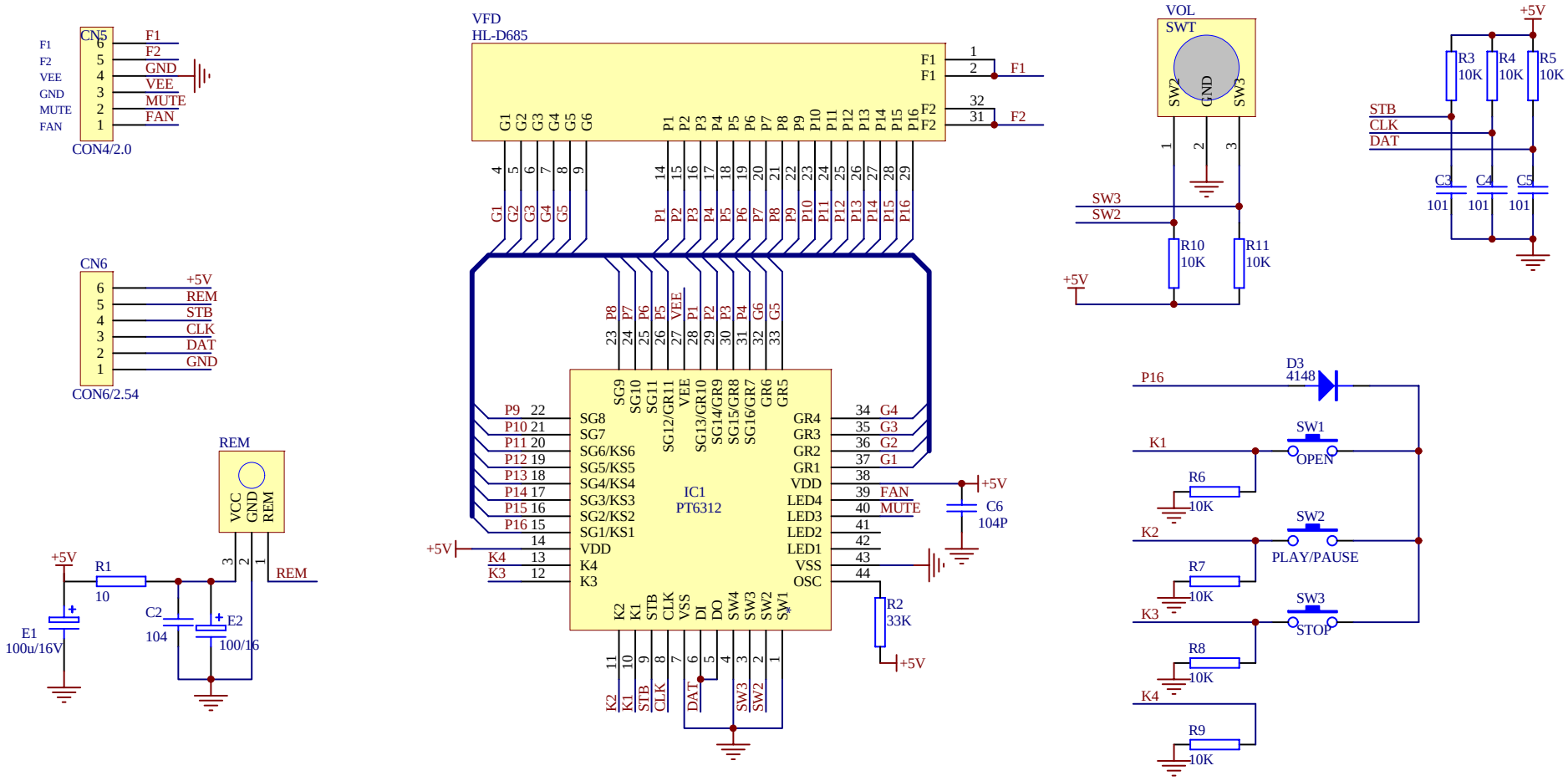

Decode 5.1 out SCH



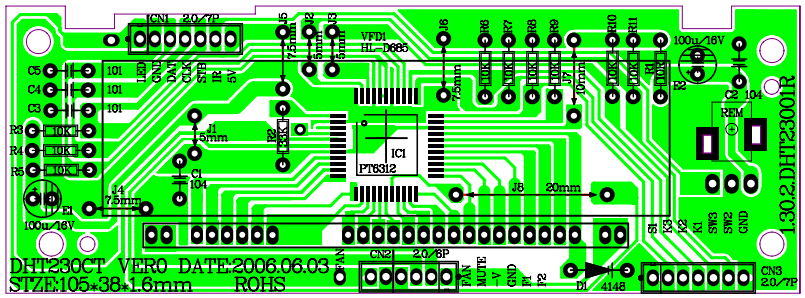
Decode Toplayout PCB picture



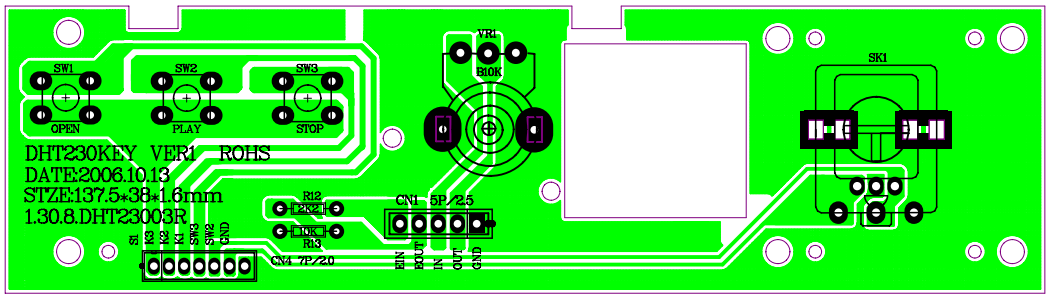
Decode Bottomlayout PCB picture



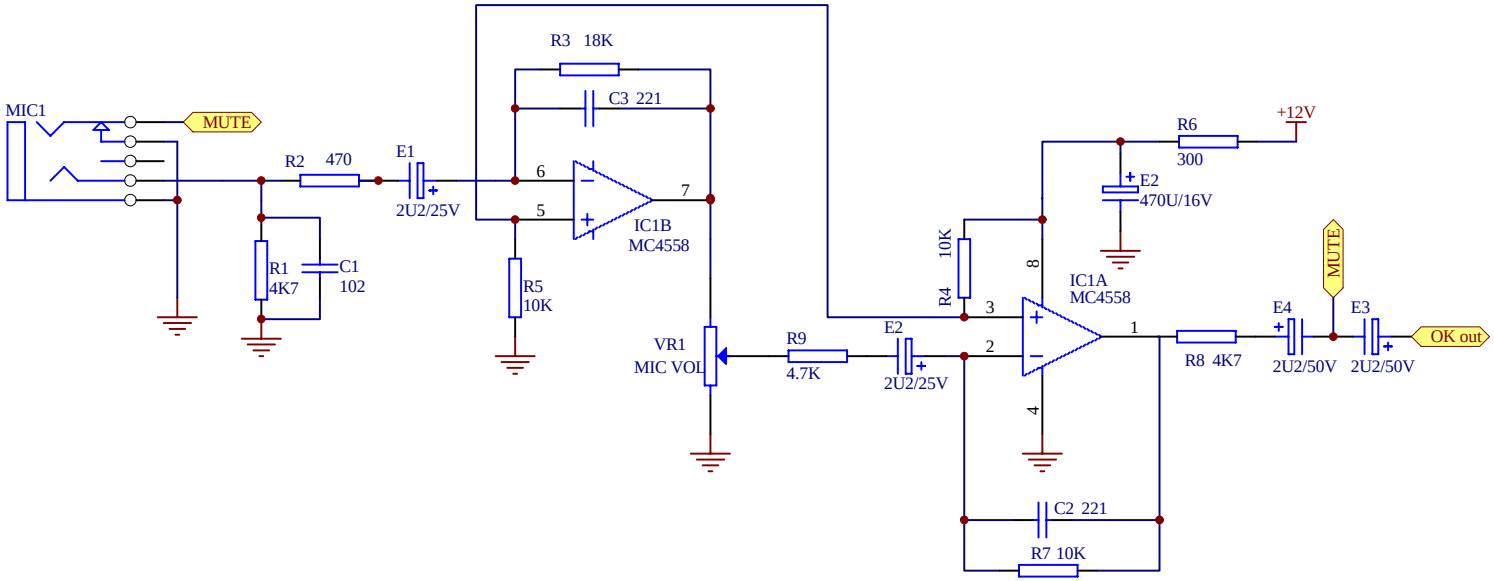
Front control SCH



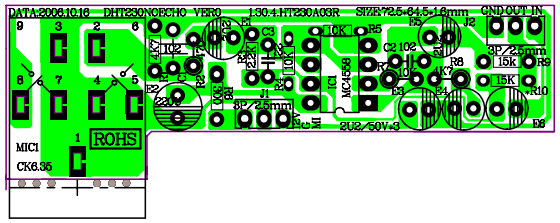
Front control PCB picture



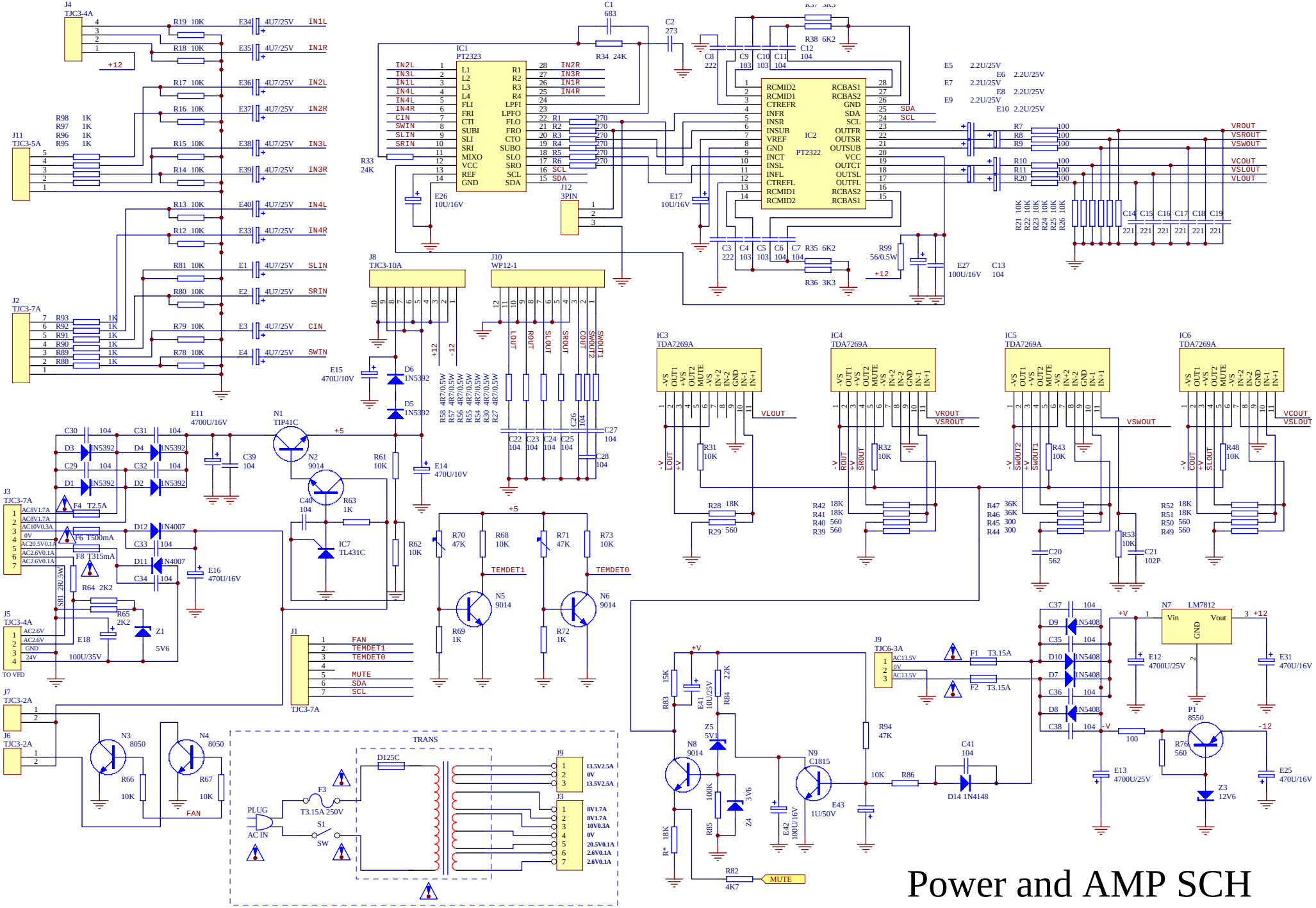
Key PCB picture

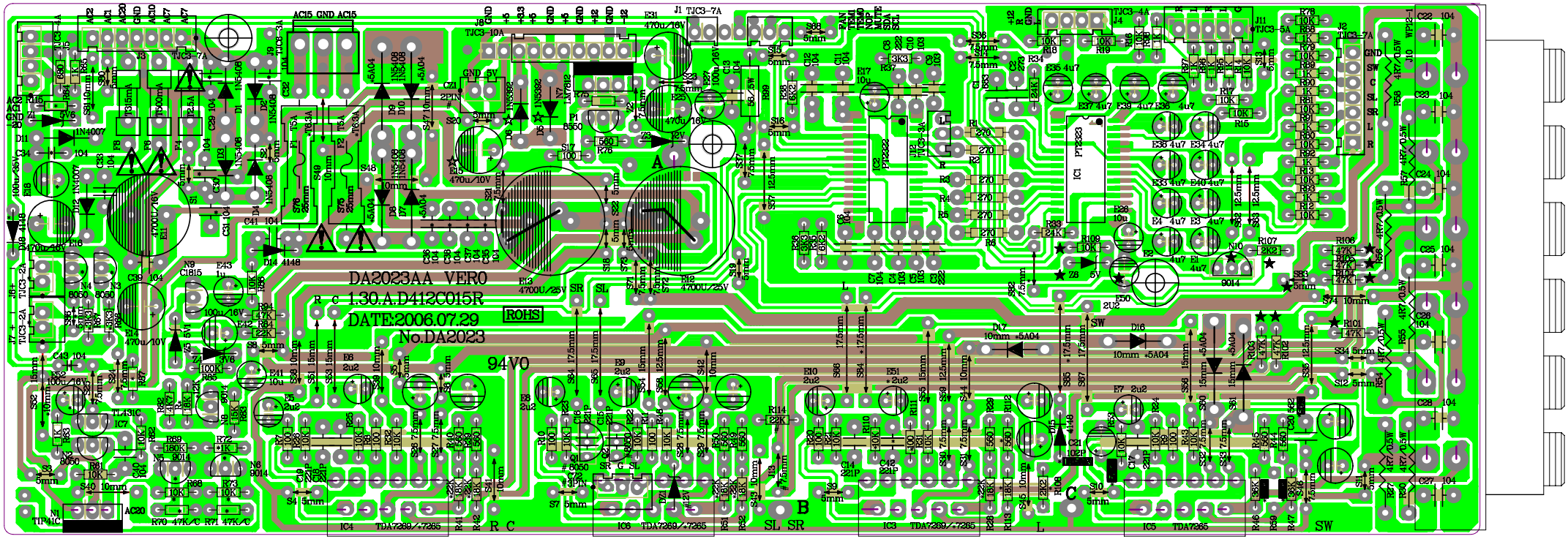

MIC1
MUTE
R2 470
E1
2U2/25V
R3 18K
C3 221
6
5
7
IC1B
MC4558
R1
4K7
C1
102
R5
10K
VR1
MIC VOL
R9
4.7K
E2
2U2/25V
R4
10K
8
3
2
4
IC1A
MC4558
1
R6
300
+12V
E2
470U/16V
MUTE
E4
2U2/50V
E3
2U2/50V
OK out
R8 4K7
C2 221
R7 10K

MIC SCH

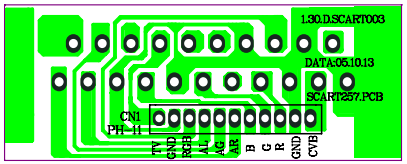


MIC PCB picture

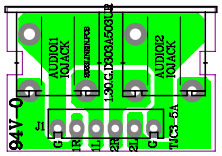

Power and AMP SCH

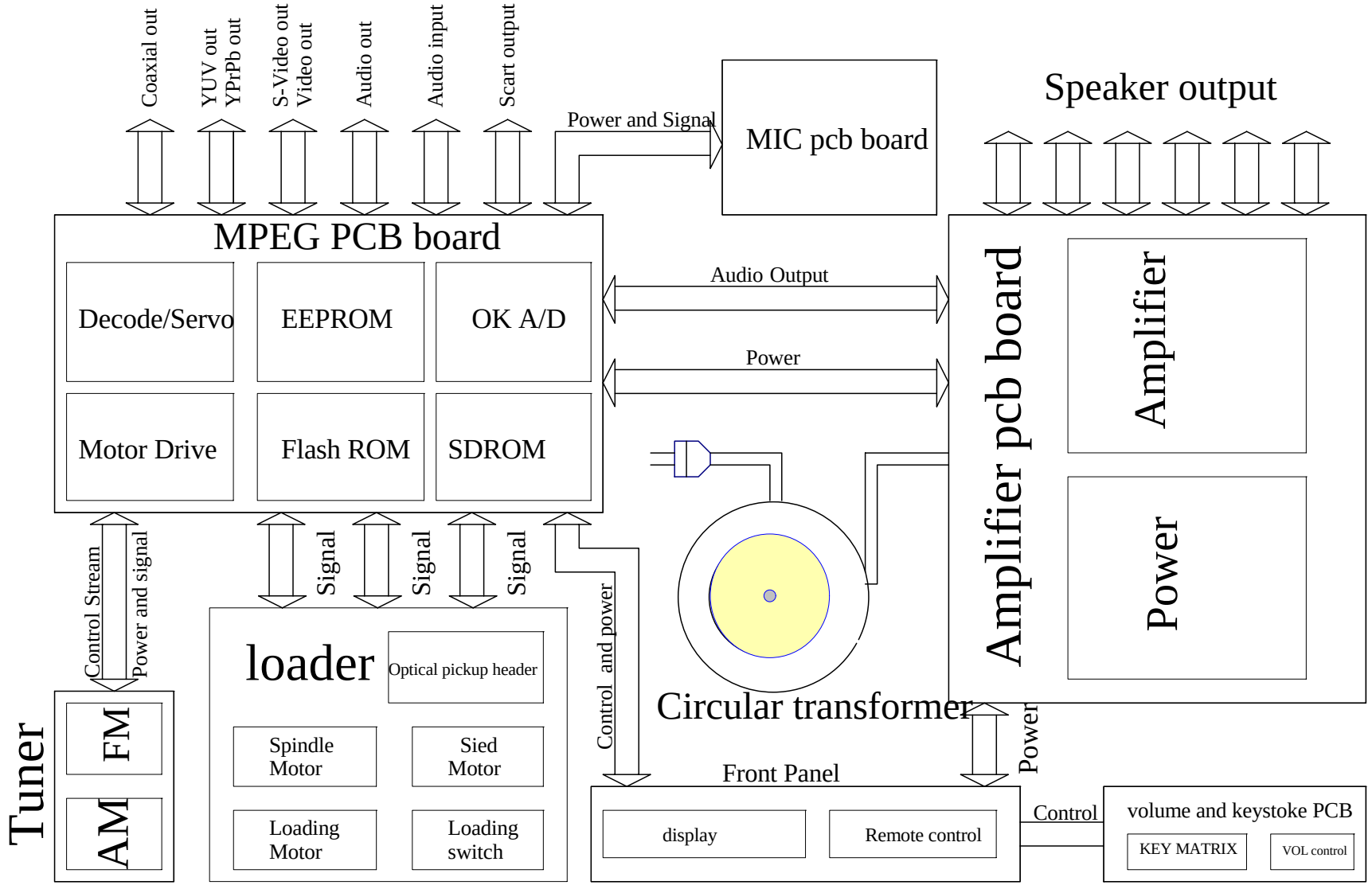


Power and AMP PCB picture



SCART PCB picture



Line in PCB picture

11.Wiring Diagram