

Haier

SERVICE MANUAL

Order No. TV1007S005V0

LED TV

Model No.

HL46XSL2
HL46XSLW2

Service Model

HL46XSL2b
HL46XSLW2b



MTK 5305 Chassis



WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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Haier Group

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Chapter 1. General Information

1-1. Document Information

Document format: Adobe PDF

Author:

Compiler:

1-2. General Guidelines

When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.

After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.

After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

- 1) Leakage Current Cold Check
- 2) Leakage Current Hot Check
- 3) Prevention of Electro Static Discharge (ESD) to Electrostatically Sensitive

1-3. Important Notice

1-3-1. Follow the regulations and warnings

Most important thing is to list up the potential hazard or risk for the service personnel to open the units and disassemble the units. For example, we need to describe properly how to avoid the possibility to get electrical shock from the live power supply or charged electrical parts (even the power is off).

This symbol indicates that high voltage is present inside. It is dangerous to make any kind of contact with any inside part of this product.



This symbol indicates that there are important operating and maintenance instructions in the literature accompanying the appliance.



1-3-2. Be careful to the electrical shock

To prevent damage which might result in electric shock or fire, do not expose this TV set to rain or excessive moisture. This TV must not be exposed to dripping or splashing water, and objects filled with liquid, such as vases, must not be placed on top of or above the TV.

1-3-3. Electro static discharge (ESD)

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. The following

techniques should be used to help reduce the incidence of component damage caused by electrostatic discharge (ESD).

Electrostatically Sensitive (ES) Devices

Some semiconductor (solid-state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static by static electricity.

1. Immediately before handling any semiconductor component 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 to prevent potential shock reasons prior to applying power to the unit under test.

2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.

1-3-4. About lead free solder (PbF)

This product is manufactured using lead-free solder as a part of a movement within the consumer products industry at large to be environmentally responsible. Lead-free solder must be used in the servicing and repairing of this product.

1-3-5. Use the genewing parts (specified parts)

Special parts which have purposes of fire retardant (resistors), high-quality sound (capacitors), low noise (resistors), etc. are used.

When replacing any of components, be sure to use only manufacture's specified parts shown in the parts list.

Safety Component

- ☐ Components identified by mark have special characteristics important for safety.

1-3-6. Safety check after repairment

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the positions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

General Servicing Precautions

1. Always unplug the receiver AC power cord from the AC power source before:

- a. Removing or reinstalling any component, circuit board module or any other receiver assembly.
- b. Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
- c. Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.

CAUTION: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.

2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM, etc) equipped with a suitable high voltage probe.

Do not test high voltage by "drawing an arc".

3. Do not spray chemicals on or near this receiver or any of its assemblies.
4. Unless specified otherwise in this service manual, clean electrical contacts only by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable non-abrasive applicator; 10% (by volume) Acetone and 90% (by volume) isopropyl alcohol (90%-99% strength).

CAUTION: This is a flammable mixture.

Unless specified otherwise in this service manual, lubrication of contacts is not required.

Capacitors may result in an explosion hazard.

5. Do not defeat any plug/socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.

6. 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.

7. Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead.

Always remove the test receiver ground lead last. Capacitors may result in an explosion hazard.

8. Use with this receiver only the test fixtures specified in this service manual.

CAUTION: Do not connect the test fixture ground strap to any heat sink in this receiver.

9. Remove the antenna terminal on TV and turn on the TV.

10. Insulation resistance between the cord plug terminals and the external exposure metal should be more than Mohm by using the 500V insulation resistance meter.

11. If the insulation resistance is less than M ohm, the inspection repair should be required. If you have not the 500V insulation resistance meter, use a Tester. External exposure metal: Antenna terminal Headphone jack.

12. Use only a grounded-tip soldering iron to solder or unsolder ES devices.

13. Use only an anti-static type solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.

14. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.

15. Do not remove a replacement ES 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 material).

16. Immediately before removing the protective material 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.

17. Minimize bodily motions when handling unpackaged replacement ES 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 ES device.)

1-3-7. Ordering Spare Parts

Please include the following informations when you order parts. (Particularly the Version letter)

1. Model number, serial number and software version

The model number and serial number can be found on the back cover of each product. Software version can be found in the *Spare Parts List*.

2. Spare part No. and description

Spare part No. and description can be found in the *Spare Parts List*.

1-3-8. Photo used in this manual

The illustration and photos used in this Service Manual may not base on the final design of products, which may differ from your products in some way.

1-4. How to Read this Service Manual

1-4-1. Using icons:

Icons are used to attract the attention of the reader to specific information. The meaning of each icon is described in the table below:

Note:

A “note” provides information that is not indispensable, but may nevertheless be valuable to the reader, such as tips and tricks.



Caution:

A “caution” is used when there is danger that the reader, through incorrect manipulation, may damage equipment, lose data, get an unexpected result or has to restart (part of) a procedure.



Warning:

A “warning” is used when there is danger of personal injury.



Reference:

A “reference” guides the reader to other places in this binder or in this manual, where he/she will find additional information on a specific topic.



Chapter 2. Specification

2-1. Specification list

Model	HL46XSL2 / HL46XSLW2
Screen size	46 inch
Aspect ratio	16:9
Resolution	1920*1080
Response Time(ms)	6 ms
Angel of view	178
Contrast	5000:1
Brightness	450cd/m2
OSD language	English etc.
Color system	ATSC/NTSC
Audio system	BG\DK\IL
Audio output power(Built-in)(W)	9W*2
Audio output power(outer)(W)	No
Total power input(W)	160W
Voltage range(V)	90-240V
Power frequency(Hz)	50/60HZ
Net weight(KG)	22
Gross weight(KG)	30
Net dimension(MM)	1122*31*706
Packaged dimension(MM)	1420*290*830

2-2. External pictures (four faces)



Front Side



Left Side

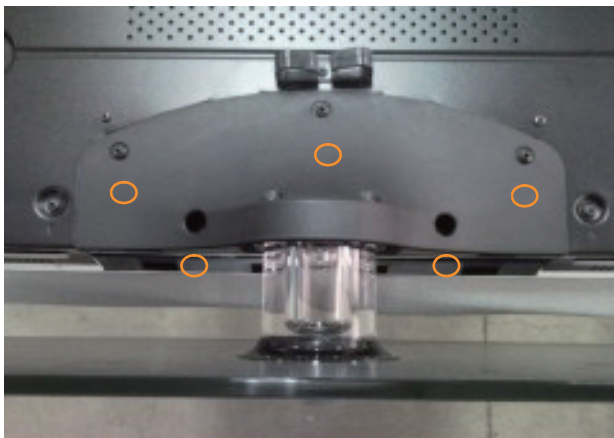


Back Side

Chapter 3. Disassemble and Assemble

3-1. Remove the Stand

1. Lay down the unit so that back cover faces upward



2. Remove the Five screws from the back cover which are indicated with the circles in the picture above.

3. Remove the stand



3-2. Remove the Power Cord

Remove the screw indicated by the red circles in below picture.



Then remove the power cord.



3-3. Remove the Back Cover

1. Remove the twenty-two screws indicated by the red circles in below picture.



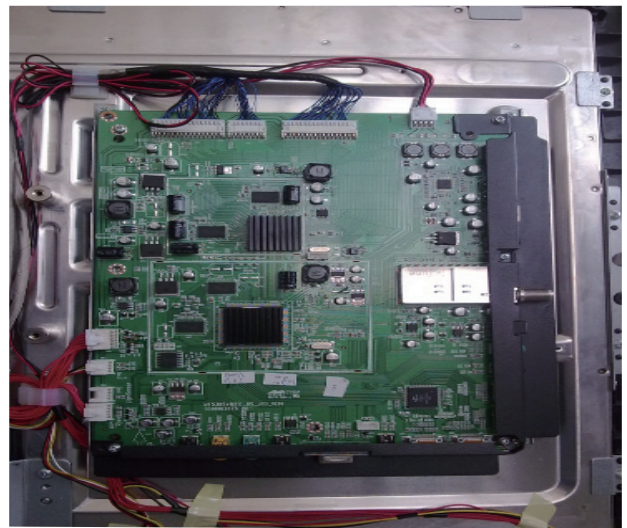
2. Then remove the back cover from the unit.



3-4. Remove the Mainboard

Remove the five screws indicated by the red circles in below picture.

Then remove the mainboard.



3-5. Remove the speaker

Remove the screw indicated by the red circles in below picture.

Then remove the speaker.



3-6. Remove the Keypad

The Keypad is conglutinated with front frame , just uncover the keypad gently.

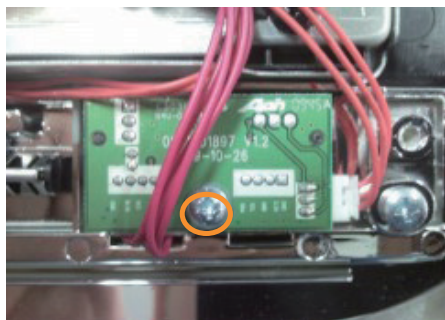
Then remove the keypad.



3-7. Remove the Remote Control Board

Remove the screw indicated by the red circles in below picture.

Take out the remote control board.



3-8. Remove the Stand backstop

Remove the six screws indicated by the red circles in below picture.

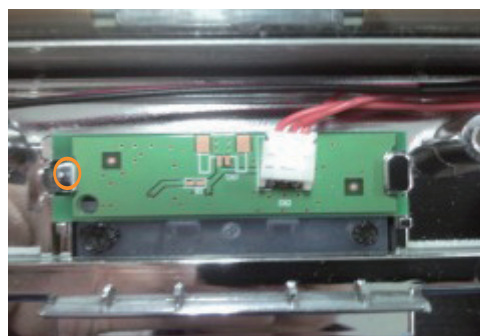
Take out the stand backstop.



3-9. Remove the indicator light

The indicator light is buckled into the front frame,remove the clasp indicated by the red circles in below picture.

Take out the indicator light.



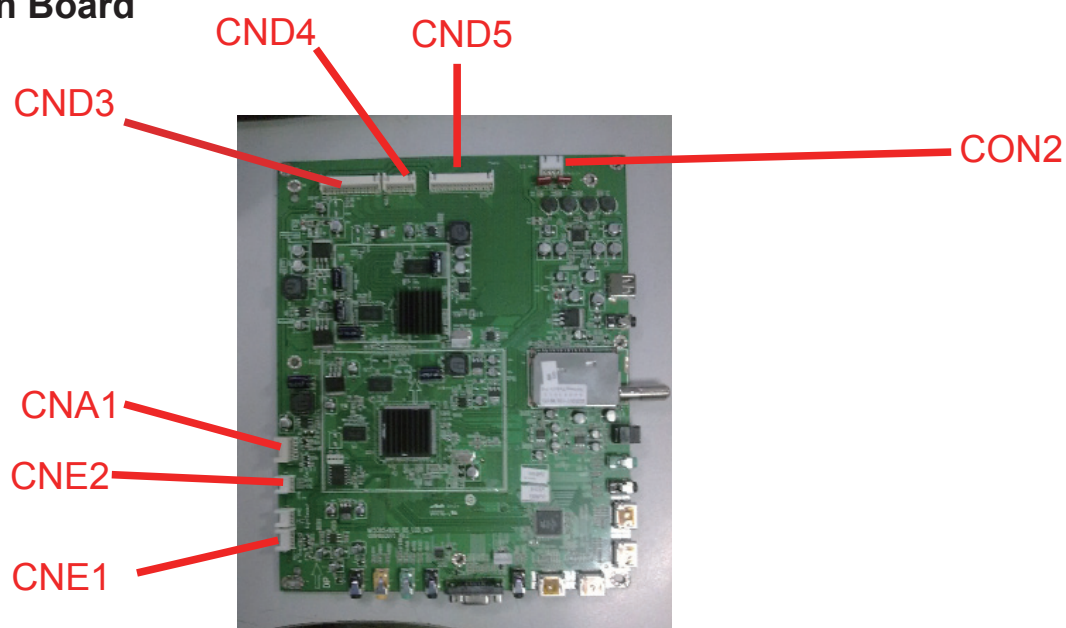
Chapter 4. Location of Controls and Components

4-1. Board Location



No.	Parts number	Description
A Board	0094001116AC	LED PANEL
B Board	0094001883	Power Supply
C Board	DC1AK0E0101M or DC1AK0E0201M	Mainboard (0090724915) is same with HL46SXL2b and HL46SXLW2b

4-2. Main Board



4-2-1. Function Description:

Main Board

Process signal which incept from exterior equipment then translate into signal that panel can display.

4-2-2. Connector definition

Main board connector

Speaker connector (CON2)

Pin number	Signal name
1	LOUT+
2	LOUT-
3	ROUT-
4	ROUT+

Keypad Connector (CNE2)

Pin number	Signal name
1	GND
2	KEY1
3	KEY0
4	3.3VS

12V/5V Connector (CNA1)

Pin number	Signal name
1	+12V
2	+12V
3	GND
4	+12V
5	GND
6	GND
7	5VSTB
8	/
9	GND
10	PW-ON/OFF
11	PB-ADJUS
12	PB-ON/OFF

Remote connector (CNE1)

Pin number	Signal name
1	5VS
2	IR
3	LED-R
4	LED-G
5	GND

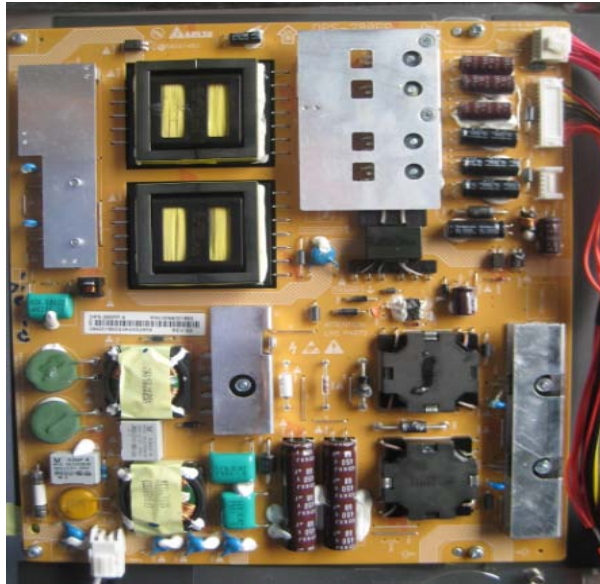
4-3. Power Supply Board

4-3-1. Function description:

To supply power for Mainboard, Panel.

4-3-2. Connector definition:

INPUT CONNECTOR (CN1)



← CN2

← CN3

CN2

Pin number	Signal name
1	+12V
2	+12V
3	GND
4	+12V
5	GND
6	GND
7	+5VSB
8	EXT_DIM
9	GND
10	PS-ON
11	INT_DIM
12	BL_ON

CN3

Pin number	Signal name
1-5	+24V
6-10	GND
11	NC
12	BL_ON/OFF
13	NC
14	INT_DIM

4-4. LCD Panel



CN2 ← → CN1

4-4-1. Function Description: Display the signal.

4-4-2. Connector definition:

CND5 Connector

Pin number	Symbol	Description
1	12V	DC Power Supply
2	12V	DC Power Supply
3	12V	DC Power Supply
4	12V	DC Power Supply
5	12V	DC Power Supply
6	NC	NC
7	GND	Ground
8	GND	Ground
9	GND	Ground
10	Rx1[0]N	1 st ,5 th LVDS Signal -
11	Rx1[0]P	1 st ,5 th LVDS Signal +
12	Rx1[1]N	1 st ,5 th LVDS Signal -
13	Rx1[1]P	1 st ,5 th LVDS Signal +
14	Rx1[2]N	1 st ,5 th LVDS Signal -
15	Rx1[2]P	1 st ,5 th LVDS Signal +
16	GND	Ground
17	Rx1CLK-	1 st ,5 th LVDS Clock -
18	Rx1CLK+	1 st ,5 th LVDS Clock +
19	GND	Ground
20	Rx1[3]N	1 st ,5 th LVDS Signal -
21	Rx1[3]P	1 st ,5 th LVDS Signal +
22	Rx1[4]N	1 st ,5 th LVDS Signal -
23	Rx1[4]P	1 st ,5 th LVDS Signal +
24	GND	Ground

Pin number	Symbol	Description
25	Rx3[0]N	3 rd ,7 th LVDS Signal -
26	Rx3[0]P	3 rd ,7 th LVDS Signal +
27	Rx3[1]N	3 rd ,7 th LVDS Signal -
28	Rx3[1]P	3 rd ,7 th LVDS Signal +
29	Rx3[2]N	3 rd ,7 th LVDS Signal -
30	Rx3[2]P	3 rd ,7 th LVDS Signal +
31	GND	Ground
32	Rx3CLK-	3 rd ,7 th LVDS Clock -
33	Rx3CLK+	3 rd ,7 th LVDS Clock +
34	GND	Ground
35	Rx3[3]N	3 rd ,7 th LVDS Signal -
36	Rx3[3]P	3 rd ,7 th LVDS Signal +
37	Rx3[4]N	3 rd ,7 th LVDS Signal -
38	Rx3[4]P	3 rd ,7 th LVDS Signal +
39	GND	Ground
40	NC	NC
41	NC	NC

CND3 Connector

Pin number	Symbol	Description
1	12V	DC Power Supply
2	12V	DC Power Supply
3	12V	DC Power Supply
4	12V	DC Power Supply
5	12V	DC Power Supply
6	NC	NC
7	GND	Ground
8	GND	Ground
9	GND	Ground
10	Rx2[0]N	2 nd ,6 th LVDS Signal -
11	Rx2[0]P	2 nd ,6 th LVDS Signal +
12	Rx2[1]N	2 nd ,6 th LVDS Signal -
13	Rx2[1]P	2 nd ,6 th LVDS Signal +
14	Rx2[2]N	2 nd ,6 th LVDS Signal -
15	Rx2[2]P	2 nd ,6 th LVDS Signal +
16	GND	Ground
17	Rx2CLK-	2 nd ,6 th LVDS Clock -
18	Rx2CLK+	2 nd ,6 th LVDS Clock +
19	GND	Ground
20	Rx2[3]N	2 nd ,6 th LVDS Signal -
21	Rx2[3]P	2 nd ,6 th LVDS Signal +
22	Rx2[4]N	2 nd ,6 th LVDS Signal -
23	Rx2[4]P	2 nd ,6 th LVDS Signal +
24	GND	Ground
25	Rx4[0]N	4 th ,8 th LVDS Signal -
26	Rx4[0]P	4 th ,8 th LVDS Signal +
27	Rx4[1]N	4 th ,8 th LVDS Signal -

Pin number	Symbol	Description
28	Rx4[1]P	4 th ,8 th LVDS Signal +
29	Rx4[2]N	4 th ,8 th LVDS Signal -
30	Rx4[2]P	4 th ,8 th LVDS Signal +
31	GND	Ground
32	Rx4CLK-	4 th ,8 th LVDS Clock -
33	Rx4CLK+	4 th ,8 th LVDS Clock +
34	GND	Ground
35	Rx4[3]N	4 th ,8 th LVDS Signal -
36	Rx4[3]P	4 th ,8 th LVDS Signal +
37	Rx4[4]N	4 th ,8 th LVDS Signal -
38	Rx4[4]P	4 th ,8 th LVDS Signal +
39	GND	Ground
40	NC	NC
41	NC	NC
42	NC	NC
43	NC	NC
44	NC	NC
45	LVDS_SEL	HIGH (3.3V) Normal LVDS Format LOW (GND) JEIDA LVDS Format
46	NC	NC
47	NC	NC
48	NC	NC
49	NC	NC
50	NC	NC
51	NC	NC

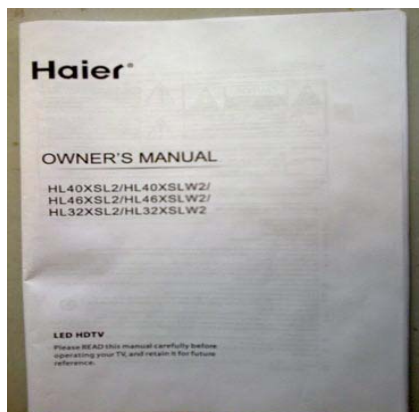
Chapter 5. Installation Instructions

5-1. External Equipment Connections

Accessories



Remote Control



User's Guide



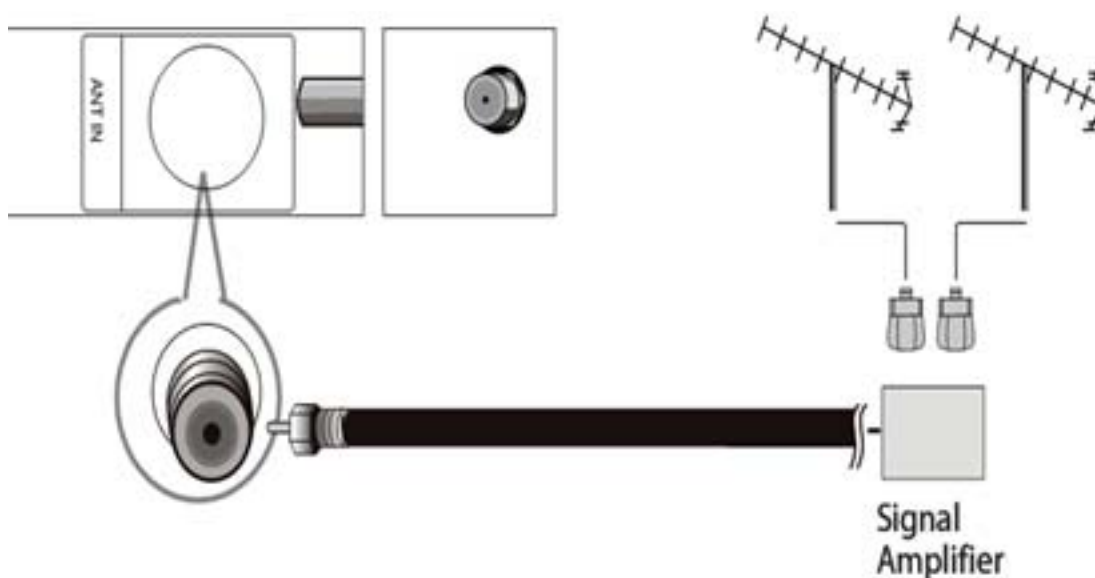
Batteries

Antenna Connection:

Connect one end of a coaxial cable (not included) to the ANT IN jack on the back of your TV/DVD combo, then connect the other end of the cable into the antenna or cable TV wall outlet.



To improve picture quality from an antenna in a poor signal area, install a signal amplifier.



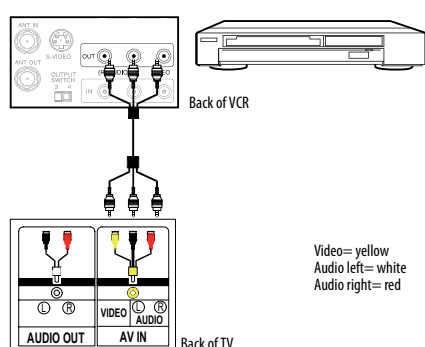
Installation

Choose Your Connection

There are several ways to connect your television, depending on the components you want to connect and the quality of the signal you want to achieve. The following are examples of some different ways to connect your TV with different input sources.

Connecting a VCR

To avoid picture noise (interference), leave an adequate distance between the VCR and TV.



Connection Option 1

Set VCR output switch to channel 3 or 4 and then turn the TV to the same channel number.

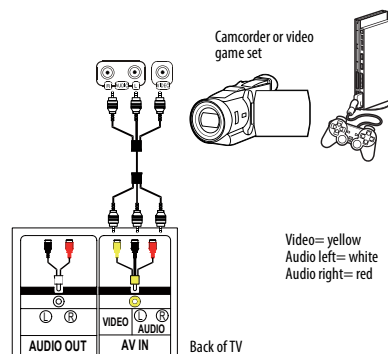
Connection Option 2

- 1 Connect the audio and video cables from the VCR's output jacks to the TV input jacks, as shown in the figure. When connecting the TV to VCR, match the jack colors (Video = yellow, Audio Left = white, and Audio Right = red). If you connect a S-VIDEO output from VCR to the S-VIDEO input, the picture quality is improved; compared to connecting a regular VCR to the Video input.
- 2 Insert a video tape into the VCR and press **PLAY** on the VCR. (Refer to the VCR owner's manual.)
- 3 Select the input source with using the **INPUT** button on the remote control, and then press **▲ / ▼** button to select the source, press **ENTER** button to confirm.

External A V Source Setup

How to connect

- Connect the audio and video cables from the external equipment's output jacks to the TV input jacks, as shown in the figure.
- When connecting the TV to external equipment, match the jack colors (Video = yellow, Audio Left = white, and Audio Right = red).



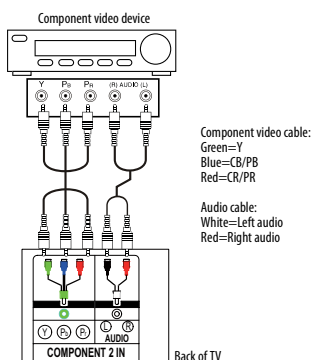
How to use

- 1 Select the input source with using the **INPUT** button on the remote control.
- 2 Press **▲ / ▼** button to select the desired source.
- 3 Press **ENTER** button to confirm.
- 4 Operate the corresponding external equipment.

Component Setup

How to connect

Connect the DVD video outputs (COMPONENT) to the Y Pb Pr jacks on the TV and connect the DVD audio outputs to the YPbPr Audio IN jacks on the TV, as shown in the figure.



How to use

- 1 Turn on the DVD player, insert a DVD disc.
- 2 Use **INPUT** button on the remote control to select component mode.

■ Component Input ports

To get better picture quality, connect a DVD player to the component input ports as shown below.

Component ports on the TV	Y	Pb	Pr
Video output ports on DVD player	Y	Pb	Pr
	Y	B-Y	R-Y
	Y	Cb	Cr
	Y	P _B	P _R

Connecting a DTV (digital TV)

This TV can receive Digital Over-the-air/Cable signals without an external digital set-top box. However, if you do receive Digital signals from a digital set-top box or other digital external device, refer to the figure as shown below. This TV supports HDCP (High-bandwidth Digital Contents Protection) protocol for Digital Contents (480 p, 720 p, 1080 i).

How to connect

- Use the TV's COMPONENT, VGA or HDMI jack for video connections, depending on your set-top box connector. Then, make the corresponding audio connections.

How to use

- 1 Turn on the digital set-top box. (Refer to the owner's manual for the digital set-top box.)

- 2 Use **INPUT** on the remote control to select COMPONENT, VGA or HDMI source.

Signal	COMPONENT	HDMI
480 i	Yes	Yes
480 p	Yes	Yes
720 p	Yes	Yes
1080 i	Yes	Yes
1080 p	Yes	Yes

Connecting a digital audio output

Send the TV's audio to external audio equipment (stereo system) via the Digital Audio Output (Optical) port.

How to connect

- 1 Connect one end of an optical cable to the TV Digital Audio (Optical) Output port.
- 2 Connect the other end of the optical cable to the digital audio (optical) input on the audio equipment. See the external audio equipment instruction manual for operation.

Note

- When connecting with external audio equipments, such as amplifiers or speakers, please turn the TV speakers off.

⚠ Caution:

- Do not look into the optical output port. Looking at the laser beam may damage your vision.

Connecting a computer

How to connect

- 1 To get the best picture quality, adjust the VGA graphics card to 1024×768.
- 2 Use the TV's VGA or DVI (Digital Visual Interface) Audio IN port for audio connections, depending on your computer connector.
 - If the graphic card on the computer does not

Chapter 6. Operation Instructions

6-1. Get to know your TV

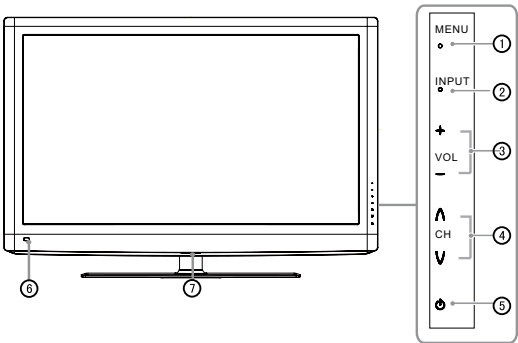
Introduction

Introduction

Controls

This is a simplified representation of the TV front panel, side panel control buttons and side inputs.

TV Side panel controls and connections



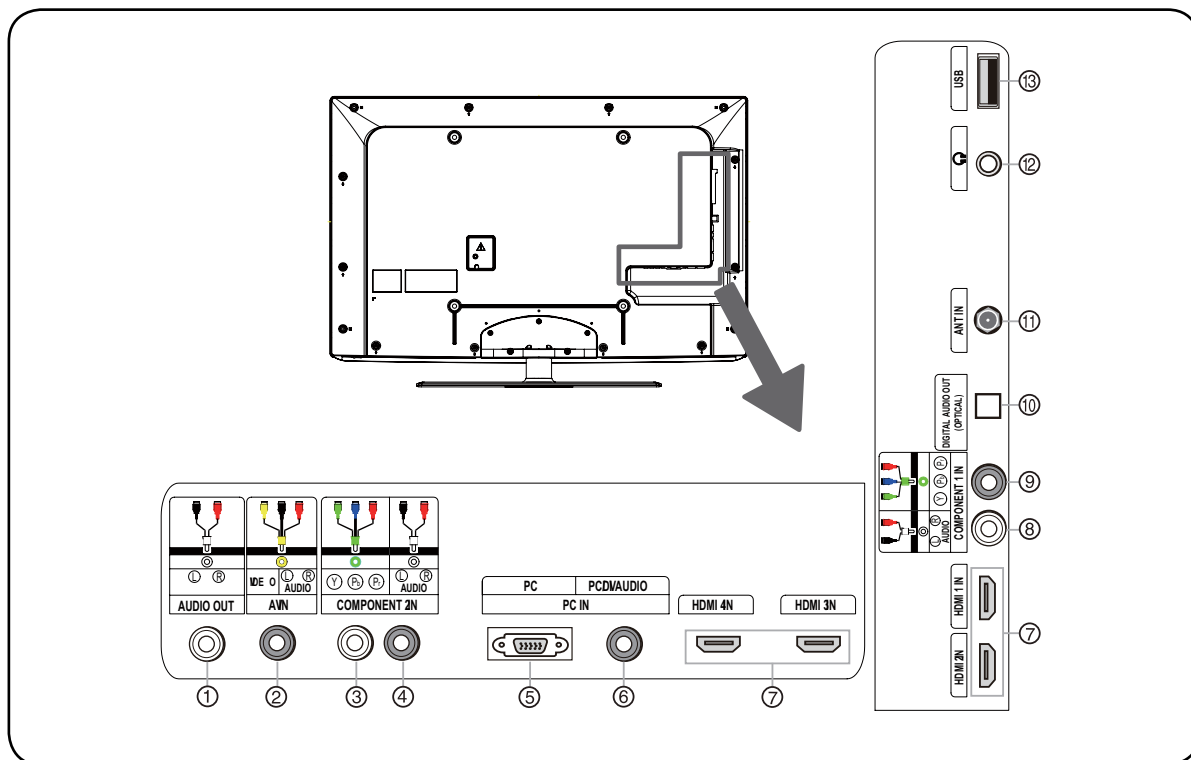
①	MENU	Menu display. Press to access the on-screen menu display.
②	INPUT	Press to access the input source mode. Press repeatedly to change the source to the one you want to watch. In the MENU screen, the INPUT button serves as the ENTER button.
③	VOL +/-	Press to adjust the volume. In the MENU screen, these buttons serve as left/right buttons.
④	CH +/-	Press to scan through channels. To scan quickly through channels, press and hold down either +/- . In the MENU screen, these buttons serve as up/down buttons.
⑤	POWER	Press to turn on and off the TV.
⑥	Remote Sensor	Receivers IR signals from the remote control. Do not put anything near the sensor, which may block the remote control signal.
⑦	Power indicator	

6-2. Back Panel control

Introduction

Connection Options

Back panel connections



- | | | |
|---|---------------------------|---|
| ① | AUDIO Out | Connect the audio L/R cables to your audio equipment. |
| ② | VIDEO In | Connects the video signal from a video device. |
| ③ | Component Video In | Connect a component video device to these jacks. |
| ④ | COMPONENT AUDIO In | Connect the audio L/R cables from the component video signal source to these jacks. |
| ⑤ | PC Video In | Connect a video cable from a computer to this jack. |
| ⑥ | PC Audio In | Connect the audio L/R cables from a computer to this jack. |
| ⑦ | HDMI In | Connect a HDMI device to receive digital audio and uncompressed digital video. |

- | | | |
|---|-----------------------------|--|
| ⑧ | COMPONENT AUDIO In | Connect the audio L/R cables from the component video signal source to these jacks. |
| ⑨ | Component Video In | Connect a component video device to these jacks. |
| ⑩ | Digital Audio Output | Connect various types of digital audio equipment.
Note
<input type="checkbox"/> In standby mode, these ports will not work. |
| ⑪ | Antenna Input | Connect cable or antenna signals to the TV, either directly or through your cable box. |
| ⑫ | Headphone Input jack | Headphone audio output terminal. |
| ⑬ | USB input | Connect a USB flash drive to view MPEG2 videos, JPEG images or listen to MP3 songs. |

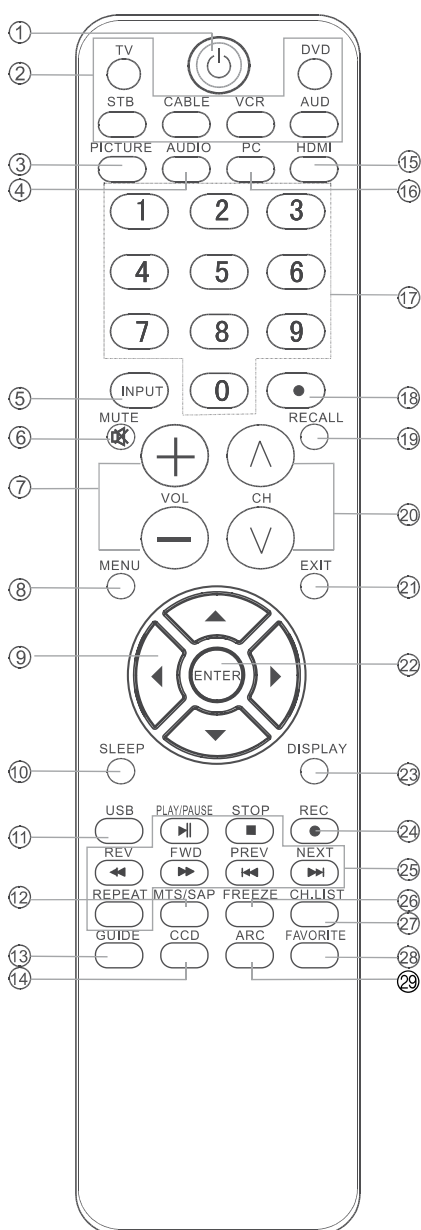
6-3. Get to know your remote control

Introduction

Universal Remote control

The remote control cannot be operated unless the batteries are properly loaded.
When using the remote control, aim it at the remote sensor on the TV.

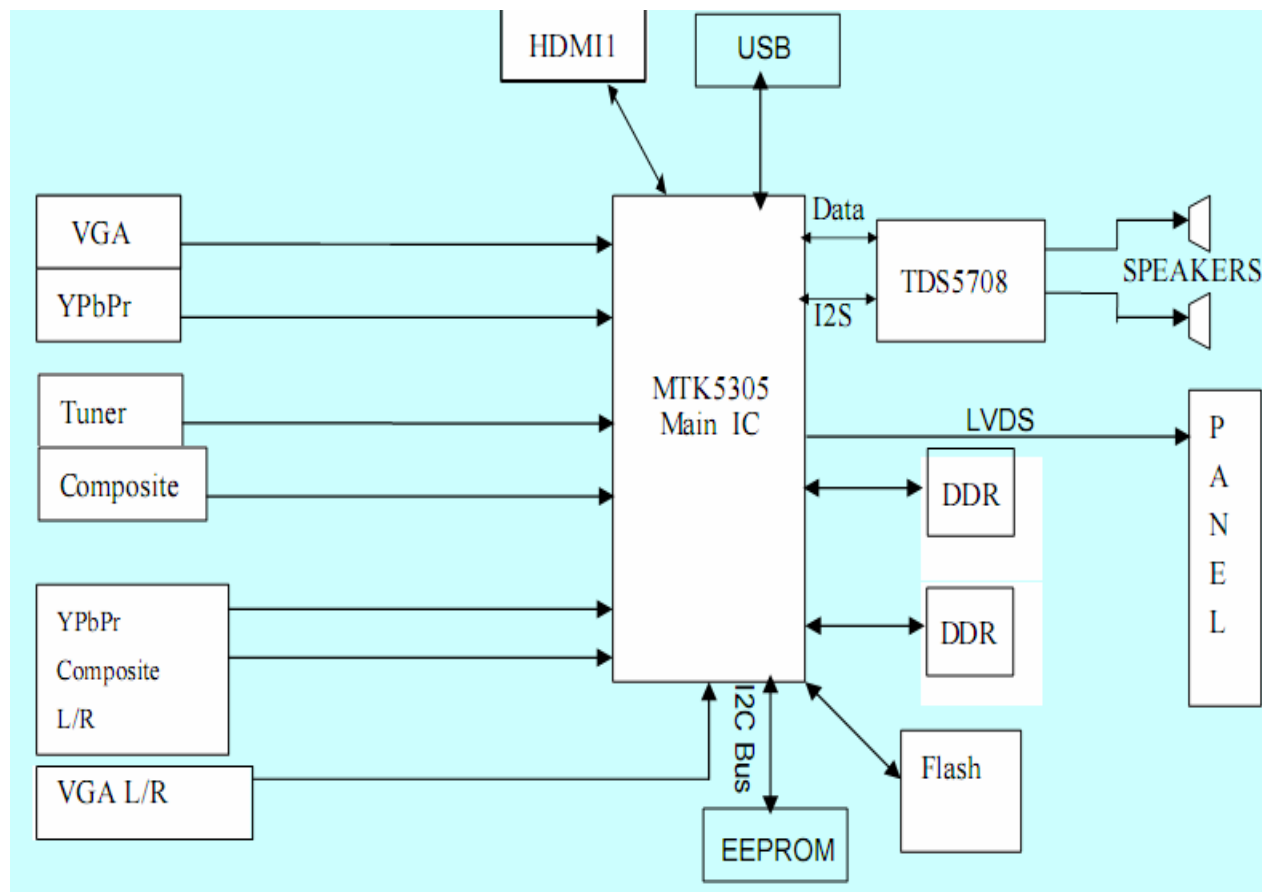
Function introduction



①	POWER	Press to turn on and off the TV.
②	TV DVD SETBOX CABLE VCR AUD	To select one of the system modes in which the remote control can be used.
③	PICTURE	Press repeatedly to cycle through the available picture modes.
④	AUDIO	Press to cycle through different sound settings.
⑤	INPUT	Show the input source.
⑥	MUTE	Switches the video sound on or off.
⑦	VOLUME UP/DOWN	Press to adjust the volume.
⑧	MENU	Press to open the on-screen menu.
⑨	THUMBSTICK (Up/Down/Left/Right)	Allows you to navigate the on-screen menus and adjust the system settings to your preference.
⑩	SLEEP button	Press to display the sleep timer option.
⑪	USB	Press to switch input source to USB in.
⑫	MTS/SAP	Selects MTS sound: Mono, Stereo, and SAP in Analog mode. Change the audio language in DTV mode.
⑬	GUIDE	Press to display the guide when you are watching analog or digital channels.
⑭	CCD(closed caption)	Select a closed caption.
⑮	HDMI	Press to select a device connected to the HDMI input
⑯	PC	Press to select the computer connected to the VGA input
⑰	Number buttons	Press to change a channel.
⑱	• button	Press to select digital channels. For example, to enter "54-3", press "54", ".", and "3".
⑲	● RECALL	Press to jump back and forth between two channels.
⑳	CHANNEL UP/DOWN	Press to scan through channels. To scan quickly between the last two channels, press and hold down either +/-.
㉑	EXIT	Clears all on-screen displays and returns to TV viewing from any menu.
㉒	ENTER	Accesses the highlighted item in the on-screen menu.
㉓	DISPLAY	Press to display the TV status information on the top of the TV screen.
㉔	REC	Press to start the recording process
㉕	USB Functions	Control the USB System. ◀◀/▶▶ Rewind / Fast Backward / Forward ▶▶ Play/Pause REPEAT
㉖	FREEZE	Press once to display a frozen image of the current program, but audio continues. Press again to return to the program.
㉗	CH.LIST	Open the channel list in TV.
㉘	FAV.LIST	Press to open the favorite channel list in TV.
㉙	ARC(Aspect Ratio Control)	Press to change the aspect ratio.

Chapter 7. Electrical Parts

7-1. Block Diagram



MT5305A (DDR2)- 2 LAYERS

MODEL NAME:MT5305A P1V1

5305A GPIO Definition

PIN NAME	NET NAME	Function define
GPIO_0	GPIO0	Dimming / PWM
GPIO_1	GPIO1	strap[3] / HDMI_Switch_CTRL1
ADIN0	ADIN0	keypad0
ADIN1	ADIN1	keypad1
ADIN2	ADIN2	VGA/HDMI E2 WP/Tx@VGA control(L : WP)
ADIN3	ADIN3	BL_on/off(LO => POWER_ON)
ADIN4	ADIN4	DVD /STANDBY (L=STANDBY)
ADIN5	ADIN5	HP_det#(L=insert)->DVD DETECT
OPWR0_5V	OPWR0_5V	OPWR0_5V of HDMI
OPCTRL0	OPCTRL0	OPWR1_5V-->24C32 WP(L=Write Enable)
OPCTRL1	OPCTRL1	OPWR2_5V---->AMP MUTE(Hi=MUTE)
OPCTRL2	OPCTRL2	jtms/LED_red / System status LED
OPCTRL3	OPCTRL3	strap[4]
OPWM0	OPWM0	strap[1]
OPWM1	OPWM1	strap[0] / HDMI_Switch_CTRL0
OPWM2	OPWM2	jtdi(i)
TP_VPLL	TP_VPLL	AMP Set:H
OPWRSB	OPWRSB	Power Module ON/OFF(LO => POWER_ON)
ASPDIF	ASPDIF	strap[2]
HPD2_HDMI	HPD_SINK	HPD_sink
LVDS_PWR_ON	LVDS_PWR_ON	LVDS_PWR_ON(HI => LVDS POWER ON)
U1RX	U1RX	RESERVED FOR EXTEND FUNCTION
U1TX	U1TX	RESERVED FOR EXTEND FUNCTION
LVDS_CTRL2	LVDS_CTRL2	RF_AGC
LVDS_CTRL1	LVDS_CTRL1	PWM AMP_OTW(input,H:OTW)

GPIO Modified list: 2009.08.06

=>HDMI INT input,(H=normal,L=Int)

=>DELETE PWM AMP_ERROR(input,H:error) => DVD/STANDBY CONTROL

=>DELETE HP_DET# =>DVD DETECT INPUT

=>NC

=>DELETE OPWR1_5V =>24C32 WP

=>DELETE OPWR2_5V =>AMP MUTE

=>ADD YPbPr2 & DVD VIDEO SWITCH(0=YpBPr2;1=DVD)

=>FOR 74LV4052 SWITCH

=>FOR 74LV4052 SWITCH

=>Lo :DVD PowerOn;Hi :DVD PowerOff

=>DELETE TP_VPLL

=>OPTICAL OUT

=>FOR INNER BLUE-RAY COMMUNICATION

=>FOR INNER BLUE-RAY COMMUNICATION

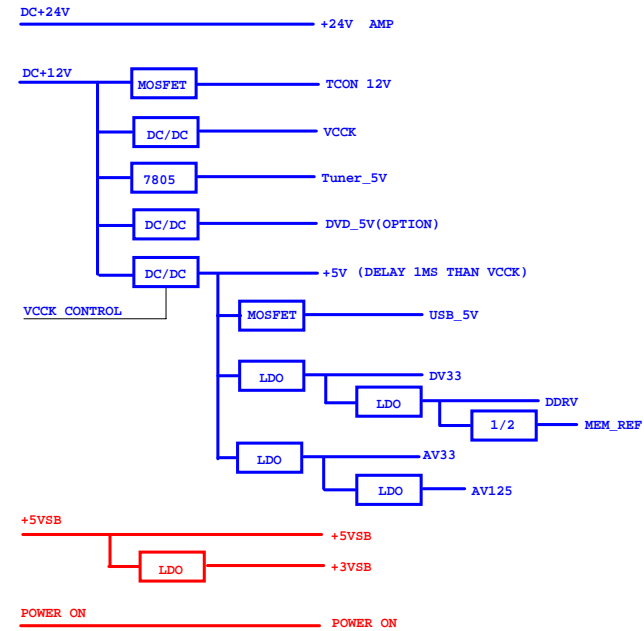
=>NC

=>NC

=> DELETE HPD_SINK

=> DELETE PWR5V_0

OPWM1/OPWM0=(0/0) YPbPr2 Audio=>AIN4_L/R;
OPWM1/OPWM0=(0/1) DVD Audio=>AIN4_L/R;
OPWM1/OPWM0=(1/0) S_Video Audio=>AIN4_L/R;

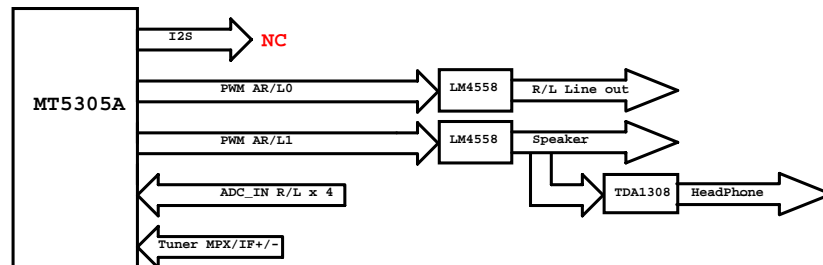


Audio System

For 19"/22"/24" model 4×AUDIO IN:

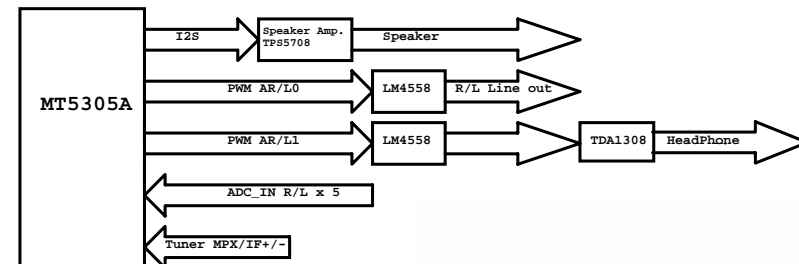
Source	Audio Mapping
AV1	AIN6
YPBPR#1	AIN3
INNER_DVD	AIN4
VGA/DVI	AIN5

DELETE S_VIDEO



For 32"/37"/42" model 5×AUDIO IN:

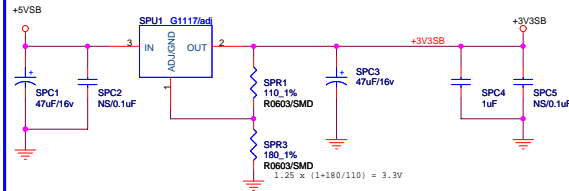
Source	Audio Mapping
AV1	AIN6
YPBPR#1	AIN3
YPBPR#2 INNER_DVD } 2:1	AIN4 } 2:1
AV2 S-VIDEO	AIN0
VGA/DVI	AIN5



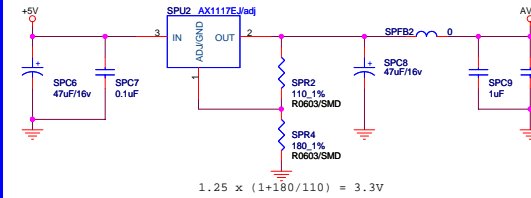


4,5,6,7,8,9,10,11,12,13,14	GND	<< >>	GND
6,8,10,12,14	+5V	<>	+5V
6,9,14	+5VSB	<>	+5VSB
6,8,9,12	+3V3SB	<>	+3V3SB
4,5,6,7,11,12	DV33	<>	DV33
4,6,8,9,10,12,13	AV33	<>	AV33
4,5,6,8,12	AV125	<>	AV125
10,11,12,13,14	+12V	<>	+12V
4	VCCX	<>	VCCX

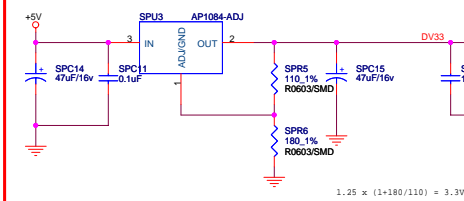
Stand By Power



ANALOG POWER AV33

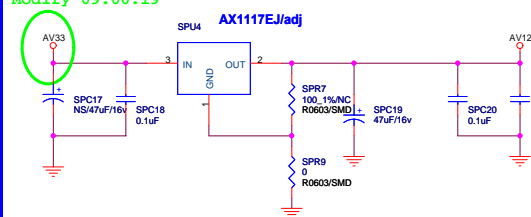


DIGITAL POWER DV33

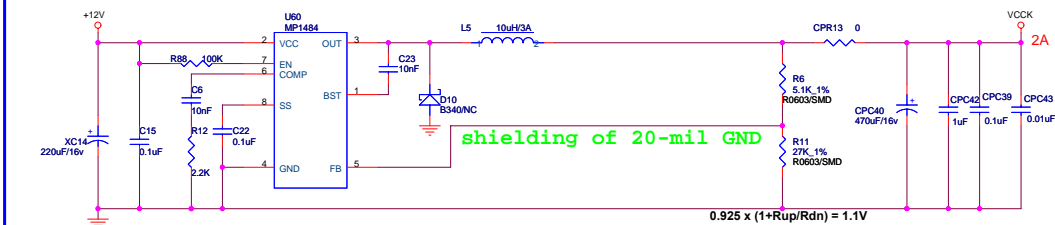


ANALOG POWER AV125

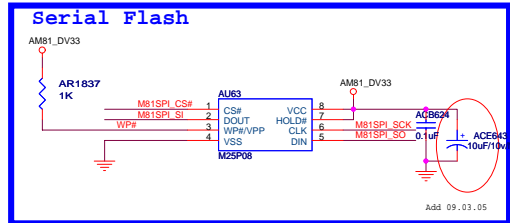
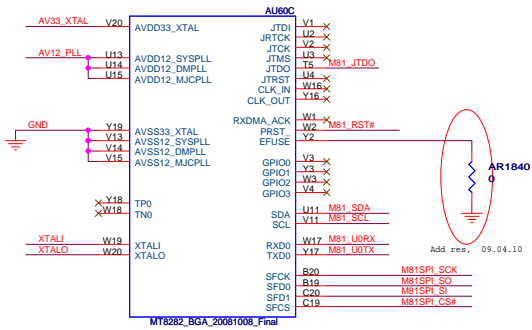
Modify 09.06.19



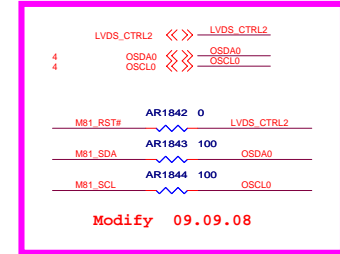
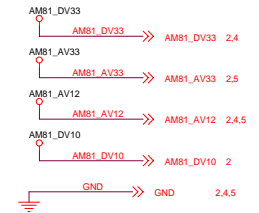
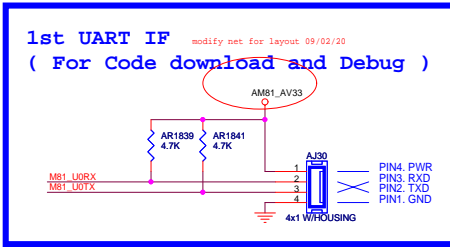
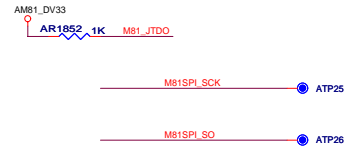
CORE POWER



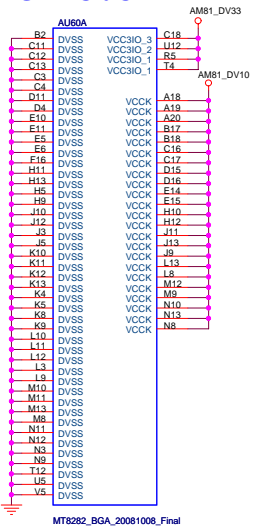
Peripheral components



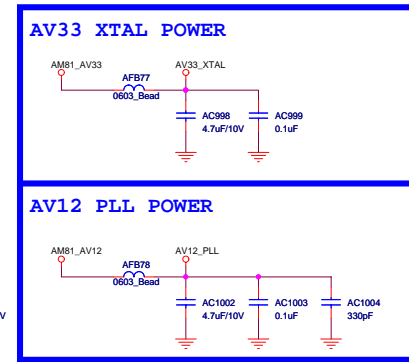
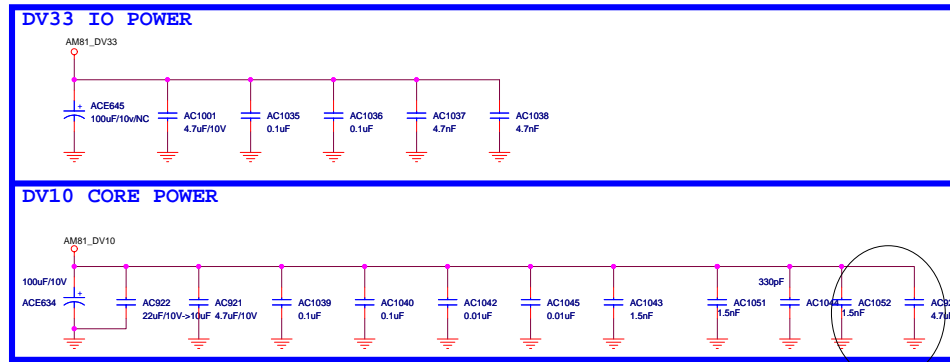
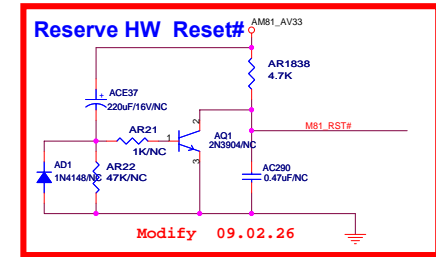
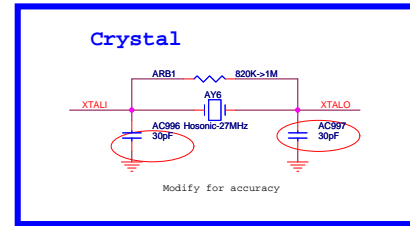
Trapping :
Default Low when no configuration external

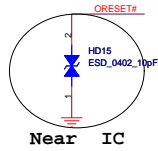


Core Powe 1.0V
IO Power 3.3V



Pad_jtdo ^o	Description ^o
0 ^o	pad_jtdo tie 0 => dram boot ^o
1 ^o	pad_jtdo tie 1 => flash boot ^o

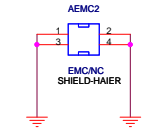




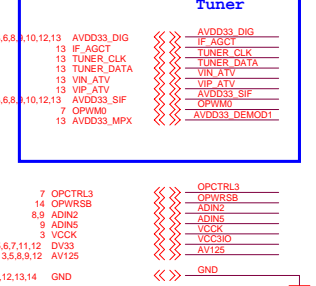
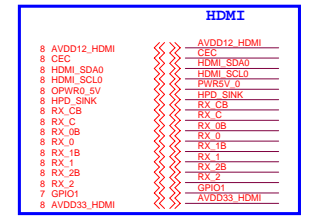
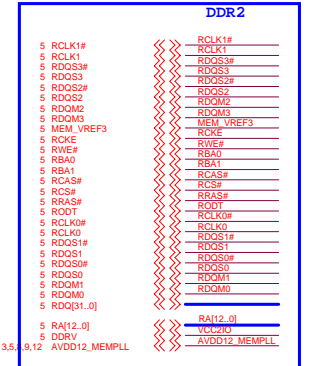
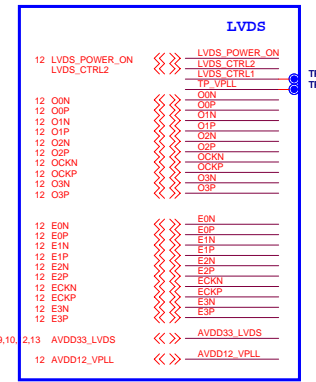
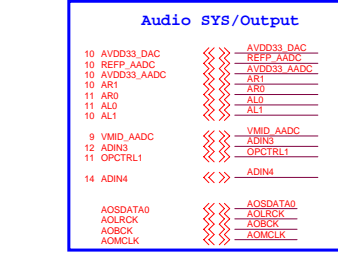
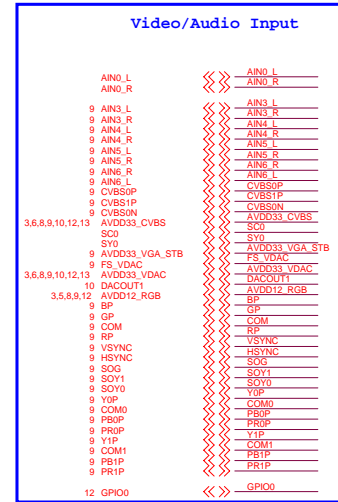
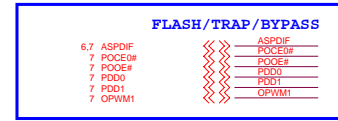
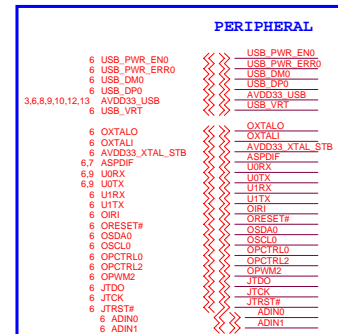
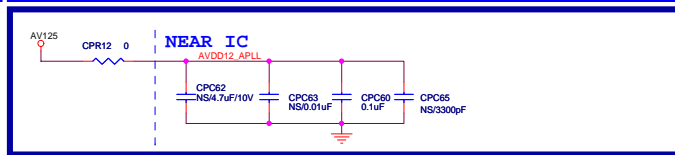
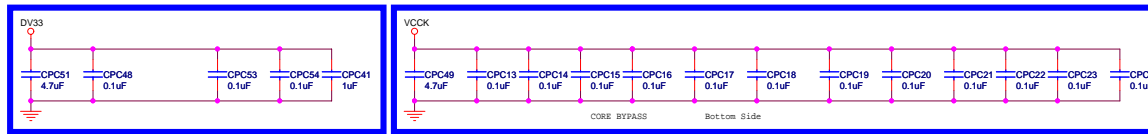
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09.06.19

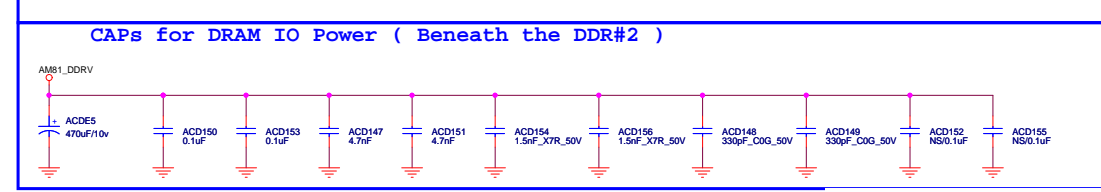
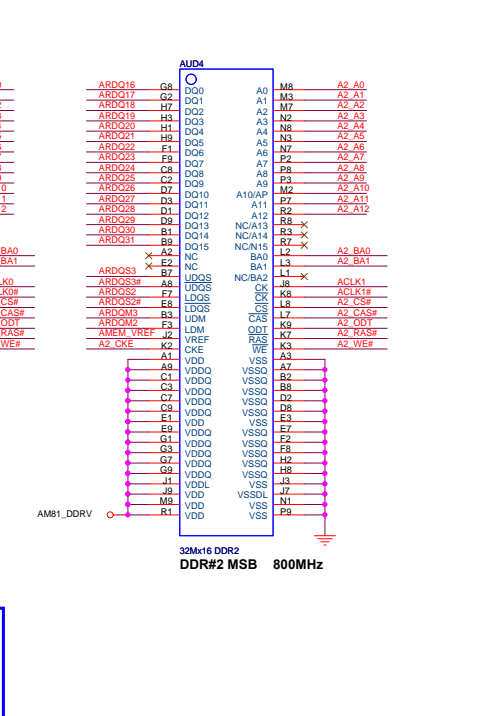
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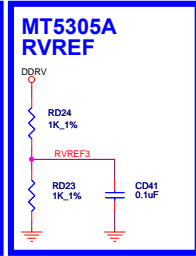
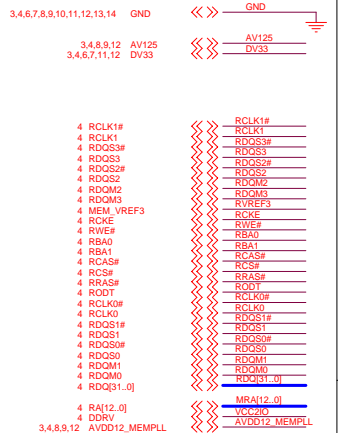
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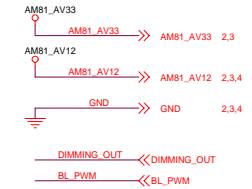
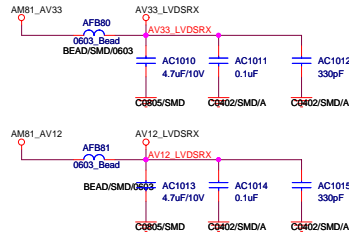
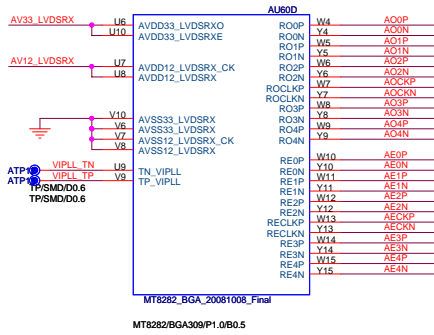
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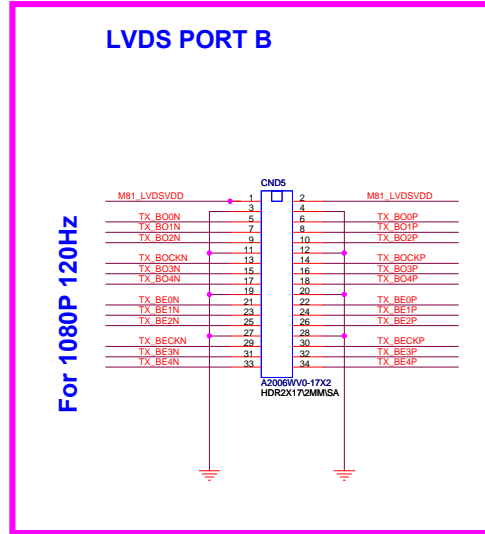
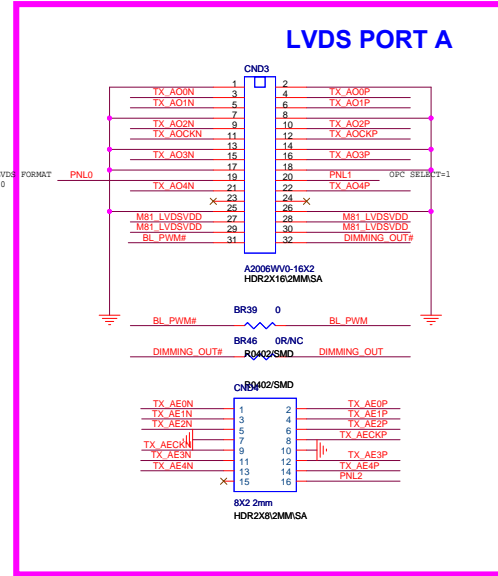
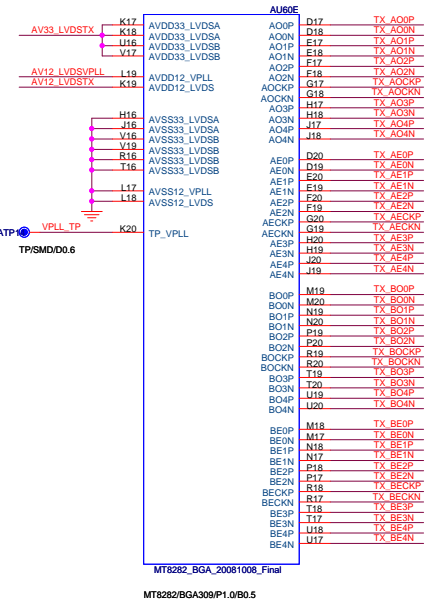




LVDS RX

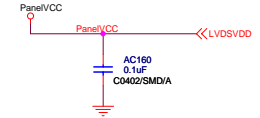
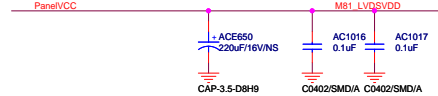
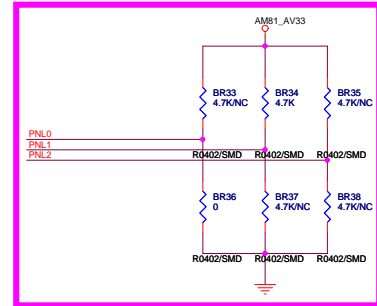
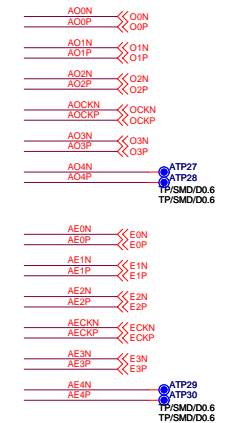


LVDS TX

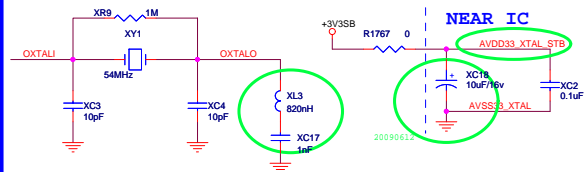


LVDS RX Connector

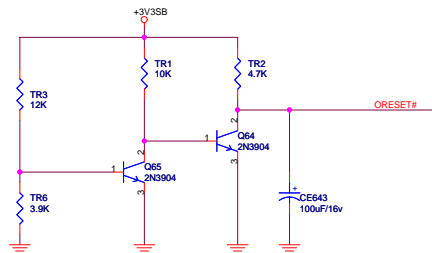
LVDS Input



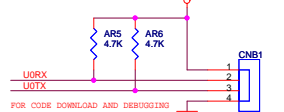
54MHz CRYSTAL



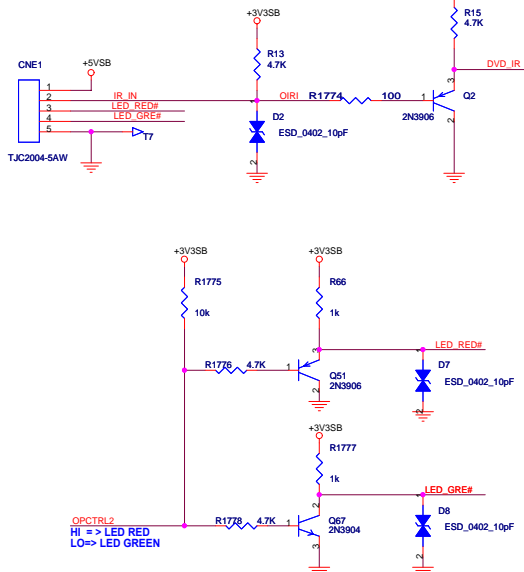
RESET#



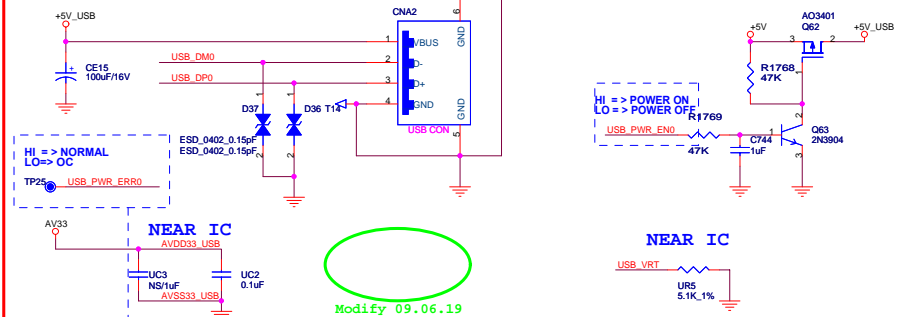
UART Port 0



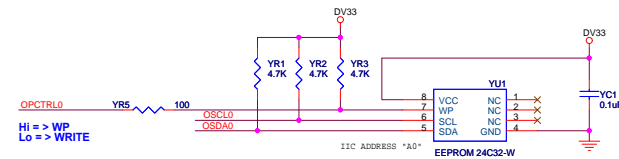
IR Receiver & LED



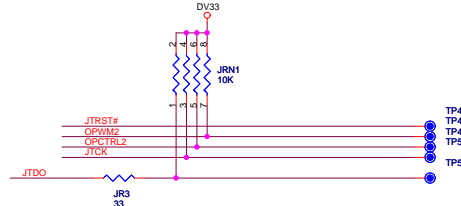
USB PORT



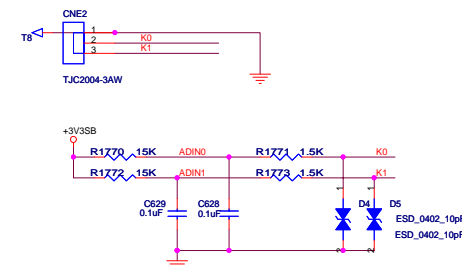
SYSTEM EEPROM



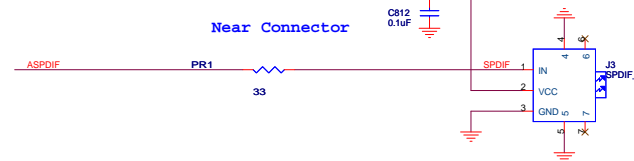
JTAG Port



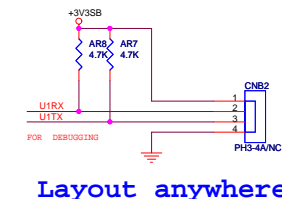
KEY PANEL



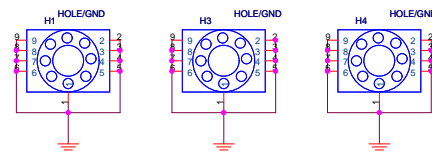
OPTICAL



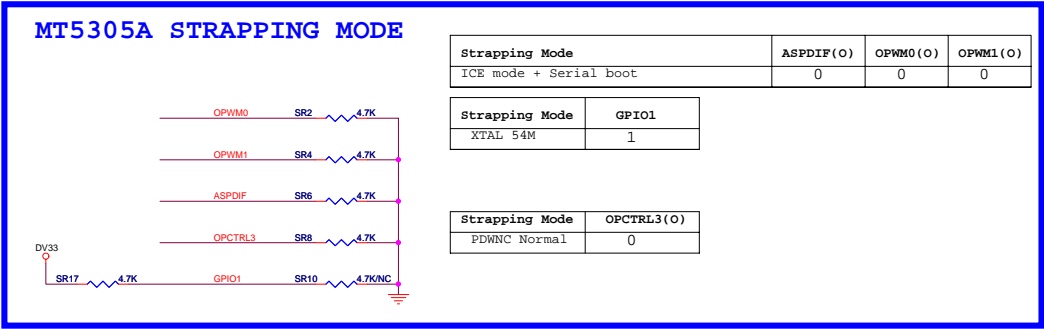
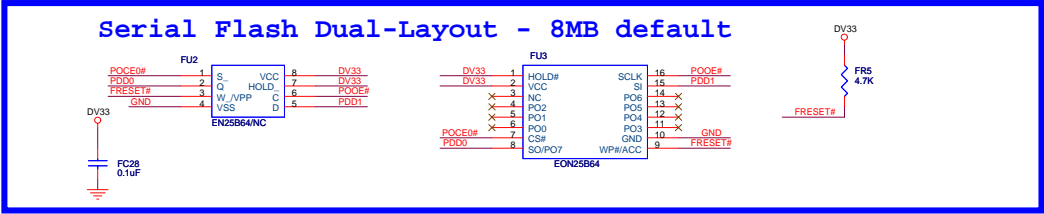
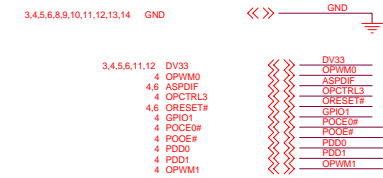
RESEVED FOR EXTEND FUNCTION



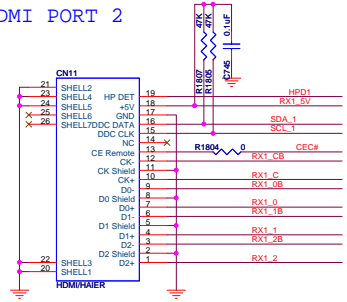
Layout anywhere



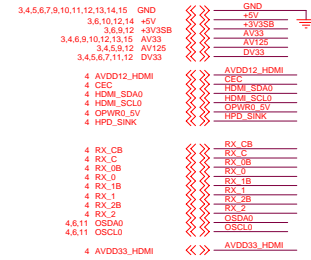
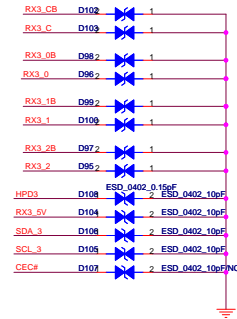
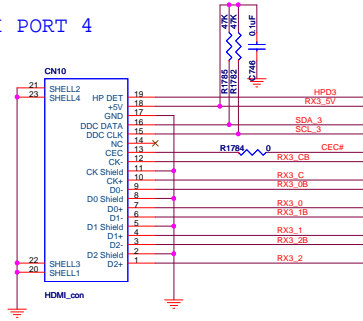
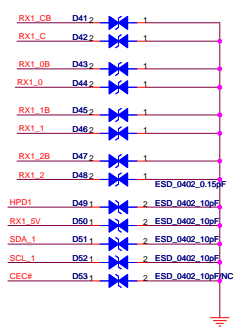
3,4,5,7,8,9,10,11,12,13,14	GND	<<>>	GND
3,9,14	+5VSB	<<>>	+5VSB
3,8,9,12	+3V3SB	<<>>	+3V3SB
3,4,5,7,11,12	DV33	<<>>	DV33
3,4,8,9,10,12,13	AV33	<<>>	AV33
3,4,5,8,9,12	AV125	<<>>	AV125
3,8,10,12,14	+5V	<<>>	+5V
4,9	U0RX	<<>>	U0RX
4,9	U0TX	<<>>	U0TX
4,7	ASPDIF	<<>>	ASPDIF
4	U1RX	<<>>	U1RX
4	USB_PWR_EN0	<<>>	USB_PWR_EN0
4	USB_PWR_ERR0	<<>>	USB_PWR_ERR0
4	USB_DM0	<<>>	USB_DM0
4	USB_DP0	<<>>	USB_DP0
4	USB_VRT	<<>>	USB_VRT
4	ORESET#	<<>>	ORESET#
4	OXTALO	<<>>	OXTALO
4	OXTALI	<<>>	OXTALI
4	OSDA0	<<>>	OSDA0
4	OSCL0	<<>>	OSCL0
4	AVDD33_XTAL_STB	<<>>	AVDD33_XTAL_STB
4	OIRI	<<>>	OIRI
4	OPWM2	<<>>	OPWM2
4	JTDO	<<>>	JTDO
4	JTCK	<<>>	JTCK
4	JTRST#	<<>>	JTRST#
4	OPCTRL2	<<>>	OPCTRL2
3,4,8,9,10,12,13	AVDD33_USB	<<>>	AVDD33_USB
4	ADIN0	<<>>	ADIN0
4	ADIN1	<<>>	ADIN1
9	DVD_IR	<<>>	DVD_IR
4	OPCTRL0	<<>>	OPCTRL0
4	U1RX	<<>>	U1RX
4	U1TX	<<>>	U1TX



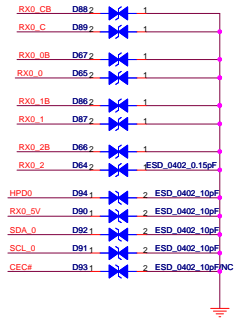
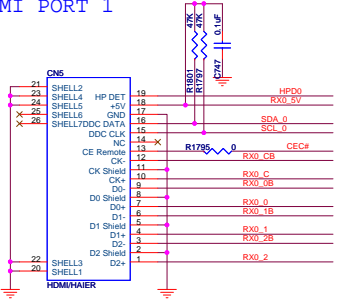
HDMI PORT 2



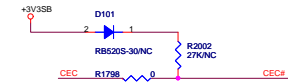
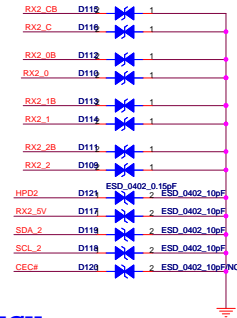
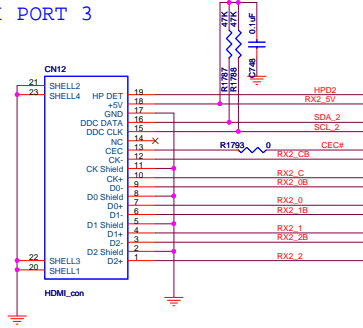
HDMI PORT 4



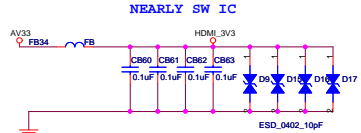
HDMI PORT 1



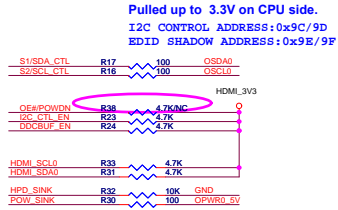
HDMI PORT 3



VERTICAL MOUNT

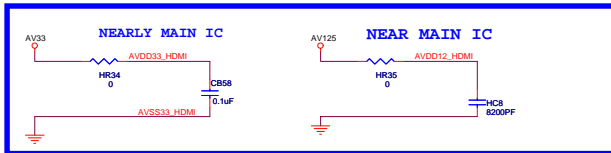
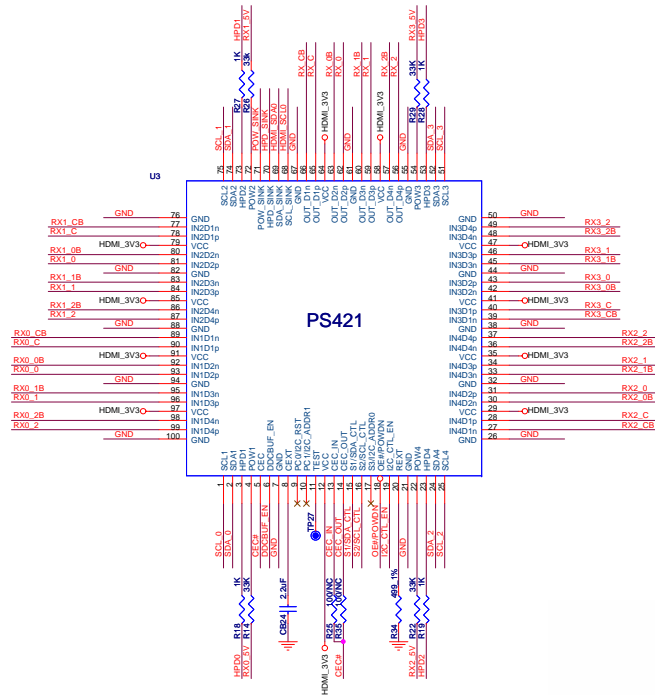


ESD ARE LAYOUTED UNDER SW(Square).

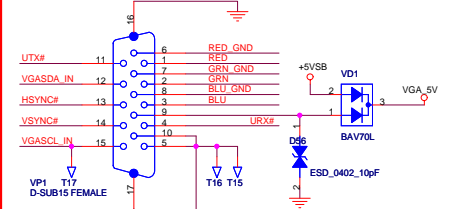


HORIZONTAL MOUNT

HDMI SWITCH

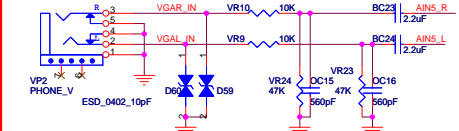


VGA CONNECTOR

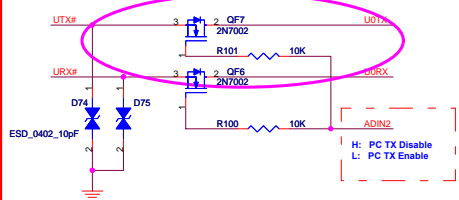


PC/DVI Audio Input

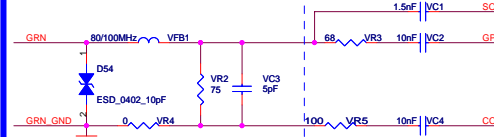
NEARLY CONN.



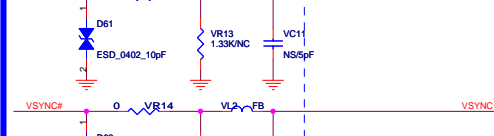
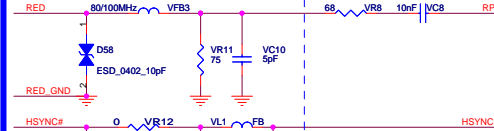
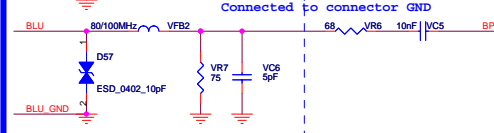
UART at VGA PORT



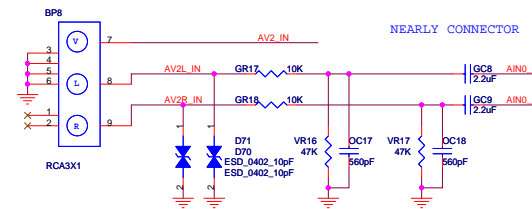
NEARLY VGA CON.



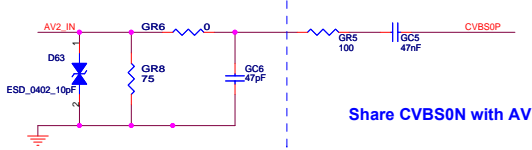
NEARLY IC



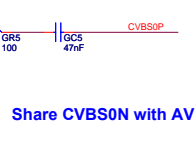
AV2 & LR SIDE INPUT(Horizontal)



NEARLY AV/SV CON.

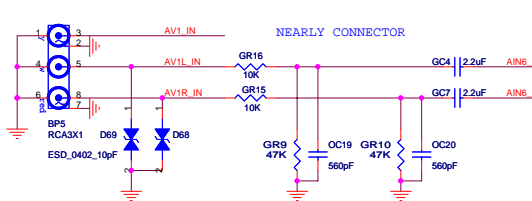


NEARLY IC

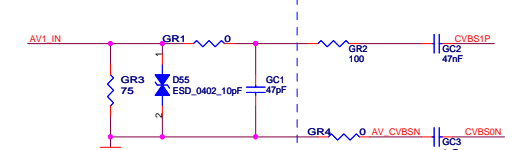


Share CVBS0N with AV1

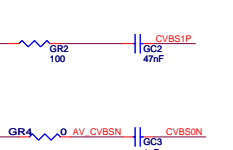
AV1 & LR INPUT(Vertical)



NEARLY AV/SV CON.



NEARLY IC

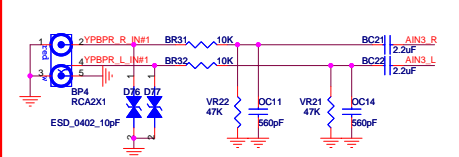


3,4,5,6,7,8,10,11,12,13,14	GND	AIN0_L	GND
4	AIN0_L	AIN0_R	
4	AIN0_R		
3,6,8,10,12,14	+5V	AV125	
3,6,8,10,12,14	+5VSB	AV125	
3,4,5,8,12	AV125	AV125	
3,4,5,8,10,12,13	AV33	AV33	
3,6,8,12	+3VSSB	AV33	
4,6	U0RX	U0RX	
4,6	U0TX	U0TX	
4	AIN3_L	AIN3_R	
4	AIN3_R		
4	AIN4_L	AIN4_R	
4	AIN4_R		
4	AIN5_L	AIN5_R	
4	AIN5_R		
4	AIN6_L	AIN6_R	
4	AIN6_R		
4	CVBS1P	CVBS1P	
4	CVBS0N	CVBS0N	
4	CVBS0P	CVBS0P	
3,4,6,8,10,12,13	AVDD33_CVBS	AVDD33_CVBS	
4	SC0	SC0	
4	SY0	SY0	
4	AVDD33_VGA_STB	AVDD33_VGA_STB	
4	FS_VDAC	FS_VDAC	
3,4,6,8,10,12,13	AVDD33_VDAC	AVDD33_VDAC	
3,4,5,8,12	AVDD12_RGB	AVDD12_RGB	
4	BP	BP	
4	GP	GP	
4	COM	COM	
4	RP	RP	
4	VSYNCL	VSYNCL	
4	HSYNCL	HSYNCL	
4	SOG	SOG	
4	SOY1	SOY1	
4	SOY0	SOY0	
4	YOP	YOP	
4	COM0	COM0	
4	PBOP	PBOP	
4	PROP	PROP	
4	YIP	YIP	
4	COM1	COM1	
4	PB1P	PB1P	
4	PR1P	PR1P	
4	VMD AADC	VMD AADC	
4	AVDD33_AADC	AVDD33_AADC	
4	DACOUT1	DACOUT1	
4	ADIN5	ADIN5	
4	ADIN2	ADIN2	
4,6	U0RX	U0RX	
4,6	U0TX	U0TX	

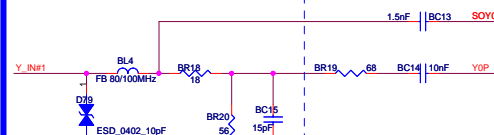
YPBPR/RL#1 INPUT



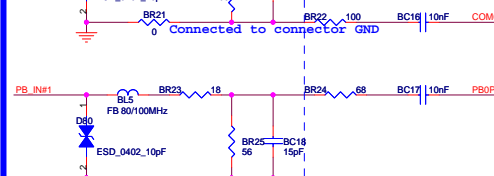
NEARLY CONN.



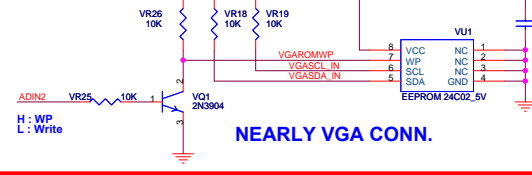
NEARLY VGA CON.



NEARLY IC



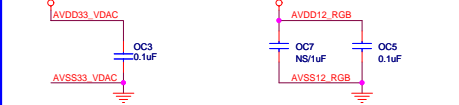
VGA EEPROM



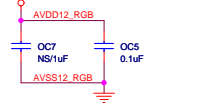
NEARLY VGA CONN.

VIDEO DAC

Near IC



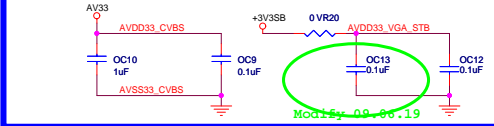
NEAR IC



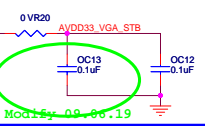
NEAR IC

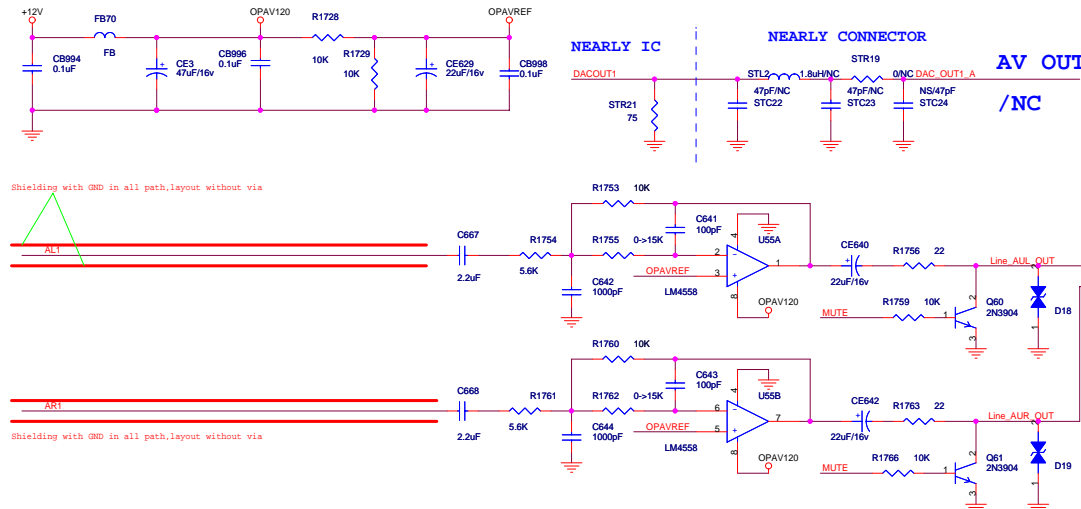
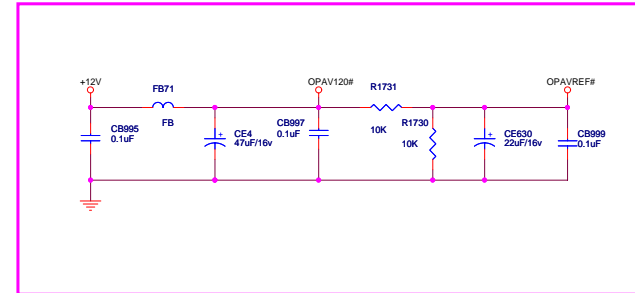
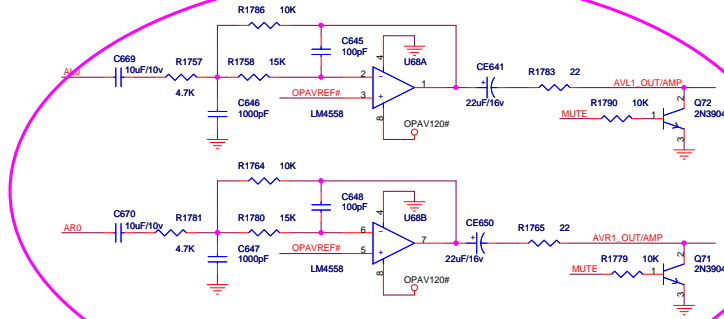
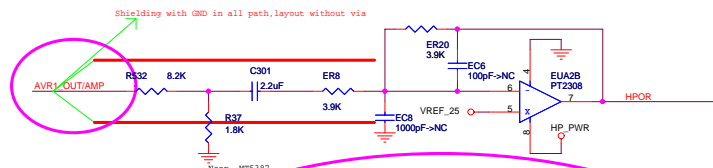
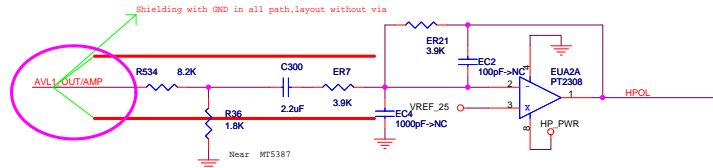
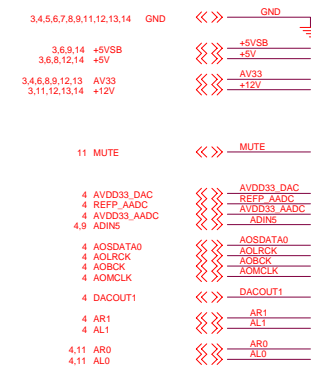
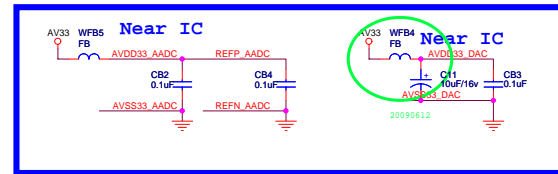
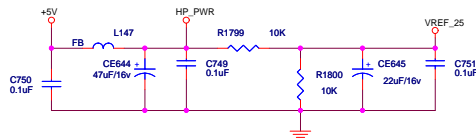


NEAR IC



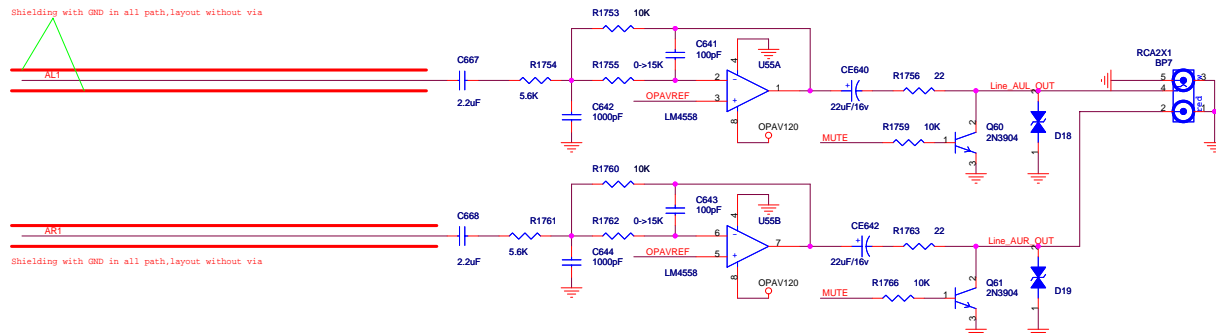
NEAR IC

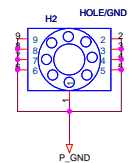
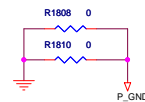
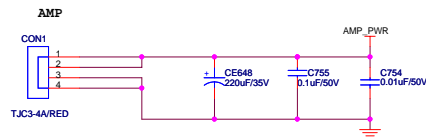
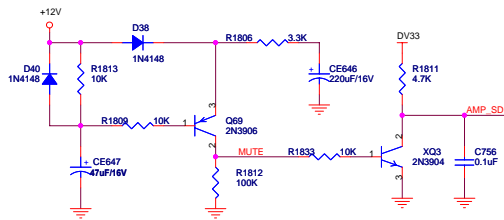




HeadPhone OUTPUT
NO HP_DETECT

SIDE Horizontal



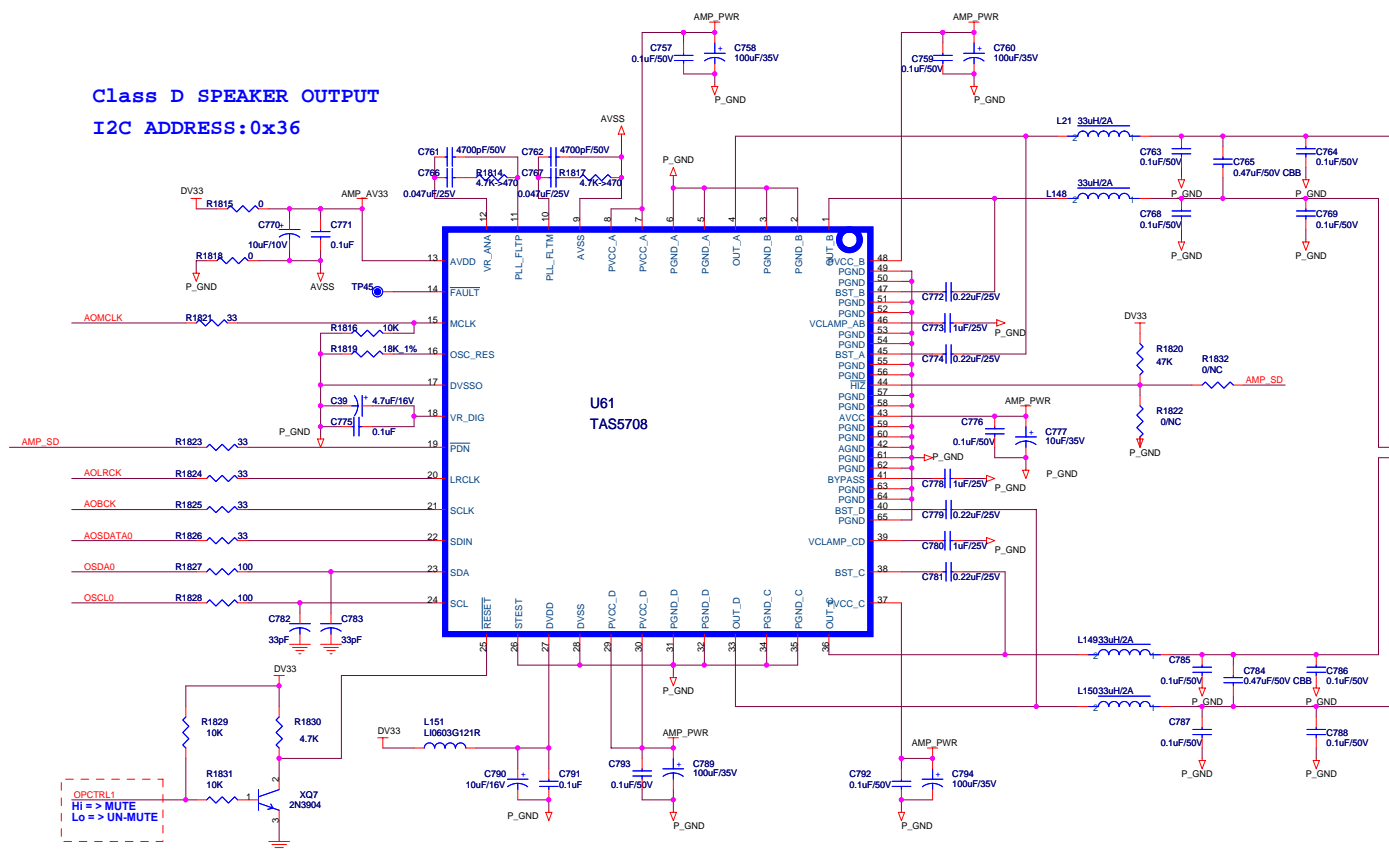


3,4,5,6,7,8,9,10,12,13,14 GND
3,6,8,10,12,13,14 +5V
10,12,13,14 +12V
3,4,5,6,7,12,14 DV33
3,4,6,8,9,10,12,13 AV33

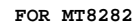
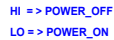
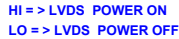
4,9 AIN4_R
4,9 AIN4_L
4 ADIN5
4 ADIN4
4 OPCTRL1
4 OSDA0
4 OSCL0
4,18 AOSDATA0
4,18 AOLRCK
4,18 AOBCK
4,18 AOMCLK

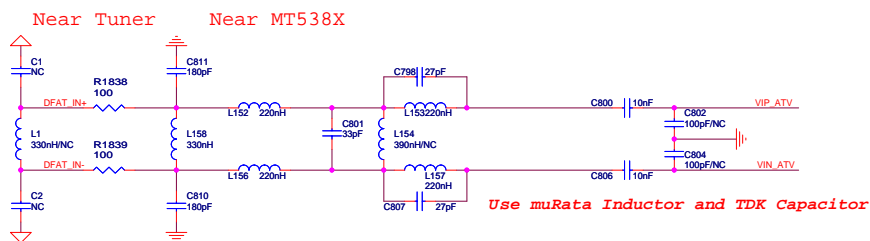
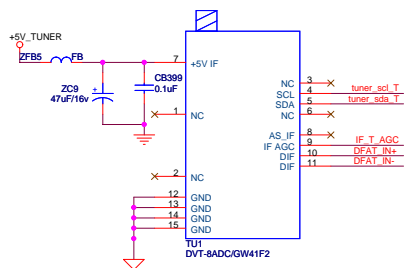
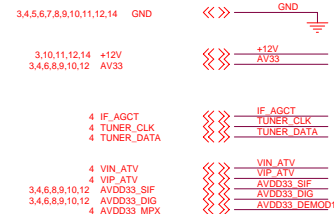
11 MUTE

Class D SPEAKER OUTPUT I2C ADDRESS:0x36

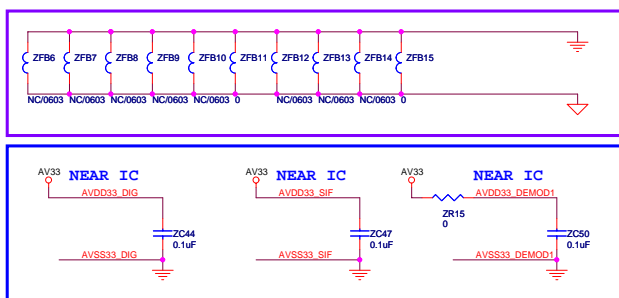
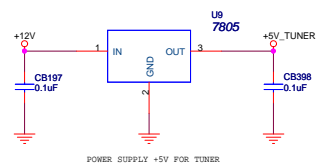


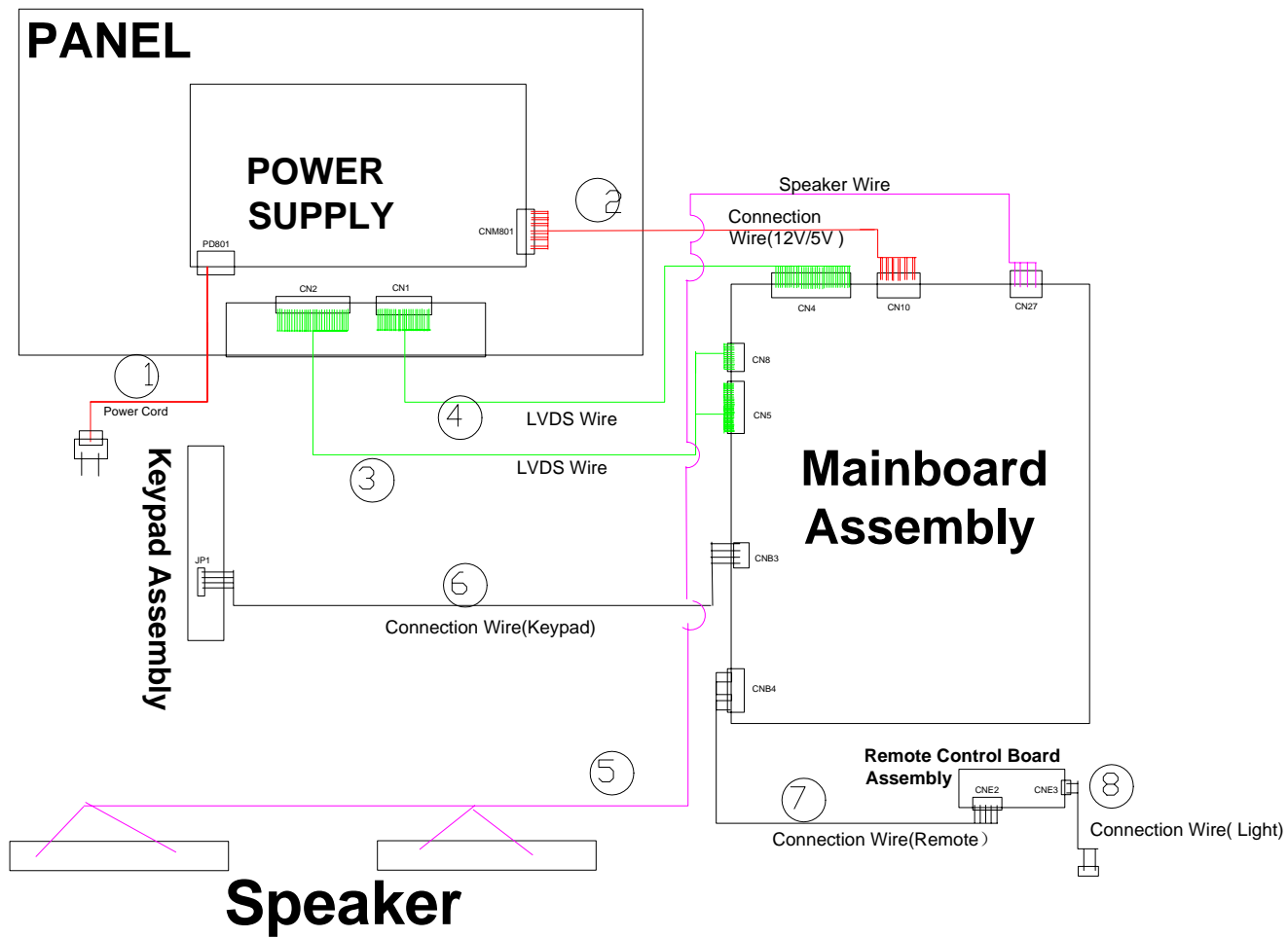
SW change C/D by Regsiter.





muRata: LQM18NNR22K00 和 LQM18NNR39K00





8	0090402750	Connection Wire(Light)	1
7	0090401643E	Connection Wire(Remote)	1
6	0090402553C	Connection Wire(Keypad)	1
5	0090400647J	Speaker Wire	1
4	0090402848	LVDS Wire	1
3	0090402850B	LVDS Wire	1
2	0090402846A	Connection Wire(12V/5V)	1
1	0090401964	Power Cord	1
N0.	Parts number	NAME	QTY

Chapter

8. Measurements and Adjustments

8-1. Service Mode

8-1-1. How to enter into Service Mode

The way to the factory mode menu:

1st, press menu,

2en, input 8893,

Finished these operations ,system will be into the factory mode menu.

At the end of the main factory menu, you can see the edition of the software, like this" L_MSD209_AU32 ".

8-1-2. How to exit

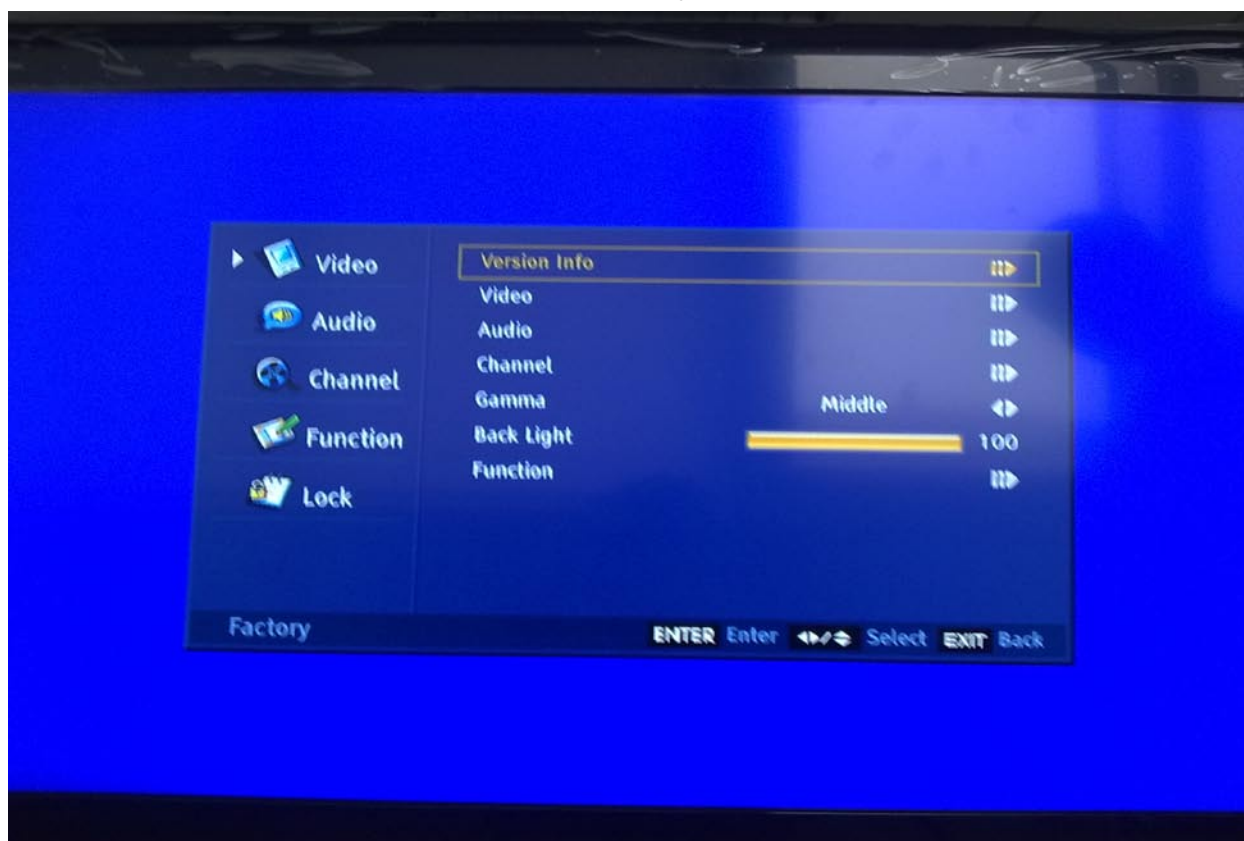
If you want to exit this factory menu, please press the button "Exit" on the remote. system will be out the factory mode menu.

8-2. Measurements and Adjustments

8-2-1. The Main Menu

In factory mode menu,press up/down button to choose the up/down item,press left/right button to the submenu,press "OK"button to affirm .press MENU button go to the next page.

MTK5305 Factory Menu



8-2-2. Video



Color Temperature

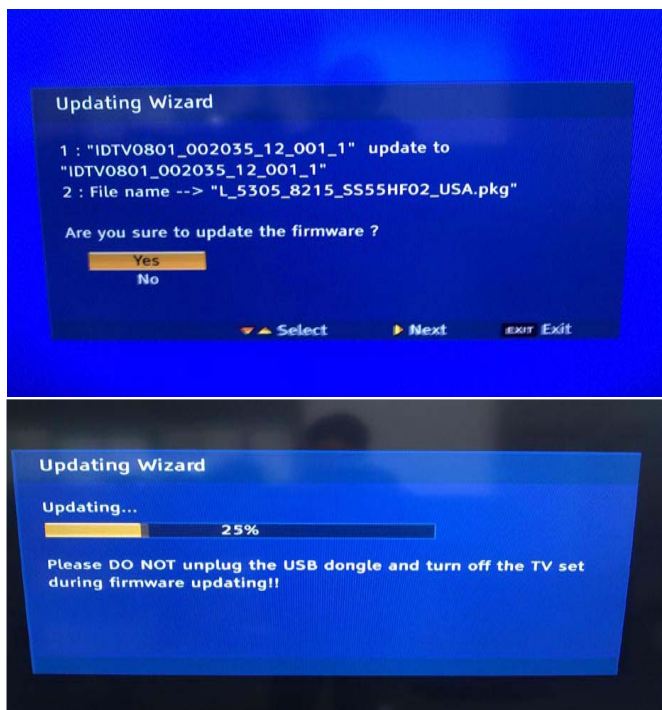
This page is control the Color Temperature, and the picture size.

8-2-3. Audio

This page is control the sound effect ,from 100Hz to 10KHz.



8-2-4. Software UpDate



In this page , you just consider the software update function.Plug USB into the 1st USB port ,select "SOFTWARE UPDATE" press "OK", Then flip the other window,perss "OK",The update is going work.

Chapter 9. Trouble shooting

9-1. Simple check

No picture/ No sound	<p>Verify if the television is properly plugged</p> <p>Verify if the television is properly supplied power</p> <p>Verify if electricity is available.</p>
Blank screen	<p>Verify if correct signals are input</p> <p>Press INPUT button to change signal input to TV input</p> <p>Restart the television if power supply is interrupted</p>
No sound	<p>Press Mute button and verify if Mute mode is set.</p> <p>Switch to other channel and verify if the same problem happens.</p> <p>Press VOL+ button to see if the problem can be solved.</p>
Poor sound	<p>Verify if sound system is correct. Refer to some chapter for adjust.</p>
No picture in some channel	<p>Verify if correct channel is selected.</p> <p>Adjust the antenna.</p> <p>Make adjustments by Fine Tune and MANUAL Scan.</p>
No color for some channel program (black and white)	<p>Verify if the same problem exists in other channels.</p> <p>check out of picture and sound system.</p> <p>Refer to relative instructions in the Manual for color adjust.</p>
Spots with some or all pictures	<p>Verify if the antenna is correctly connected.</p> <p>Verify if the antenna is in good condition.</p> <p>Make fine adjustment of channel.</p>
Horizontal/ vertical bars or picture shaking	<p>Check for local interference such as an electrical appliance or power tool.</p>
Television out of control	<p>Disconnect the television from power supply and 10 seconds later, connect the television to the power supply.</p> <p>If the problem still exists, contact authorized after-sales service for technical assistance.</p>

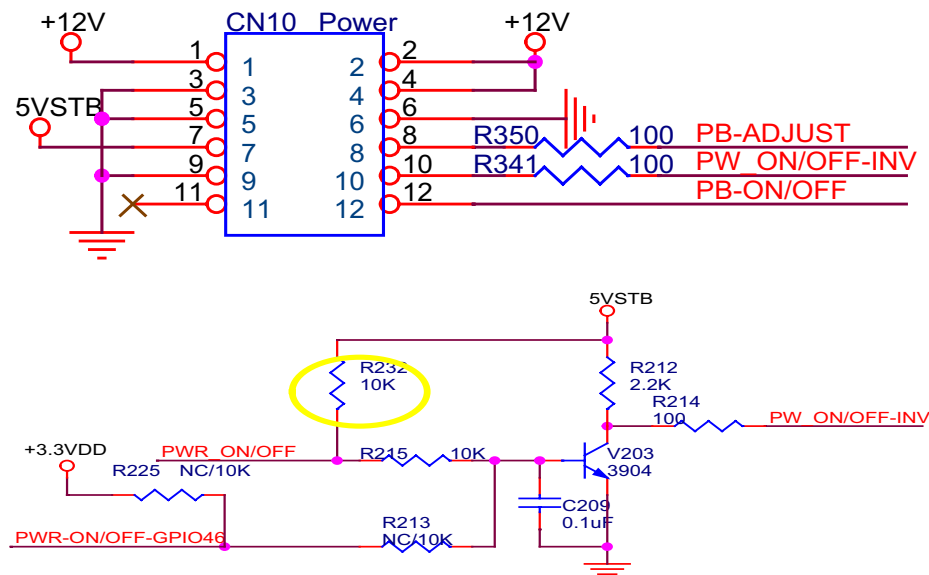
9-2. Power Supply Board Failure Check.

State: No picture

First, check cables which connect with PSU, then check as follows

Check input voltage

voltage: +5VSB----POWER ON(2.6V) -----+12V



State: No sound

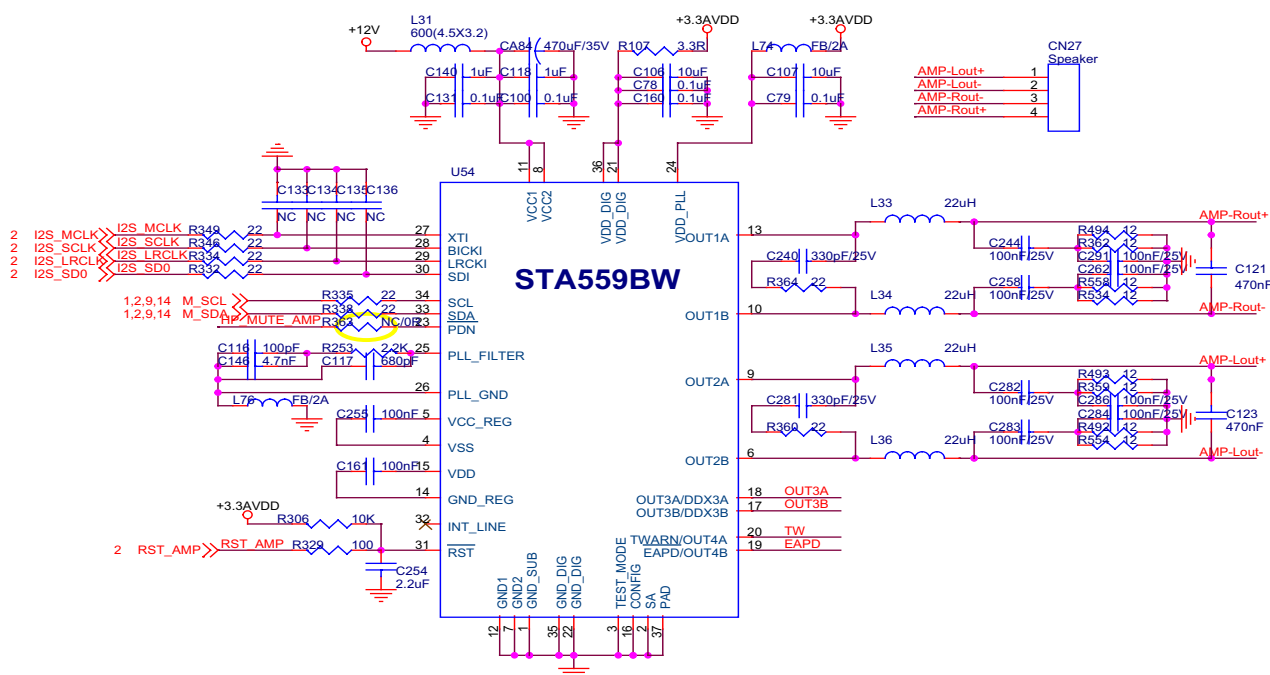
First, check cables which connect with PSU, then check as follows

1) Check input voltage as NO picture

2) Check speaker output

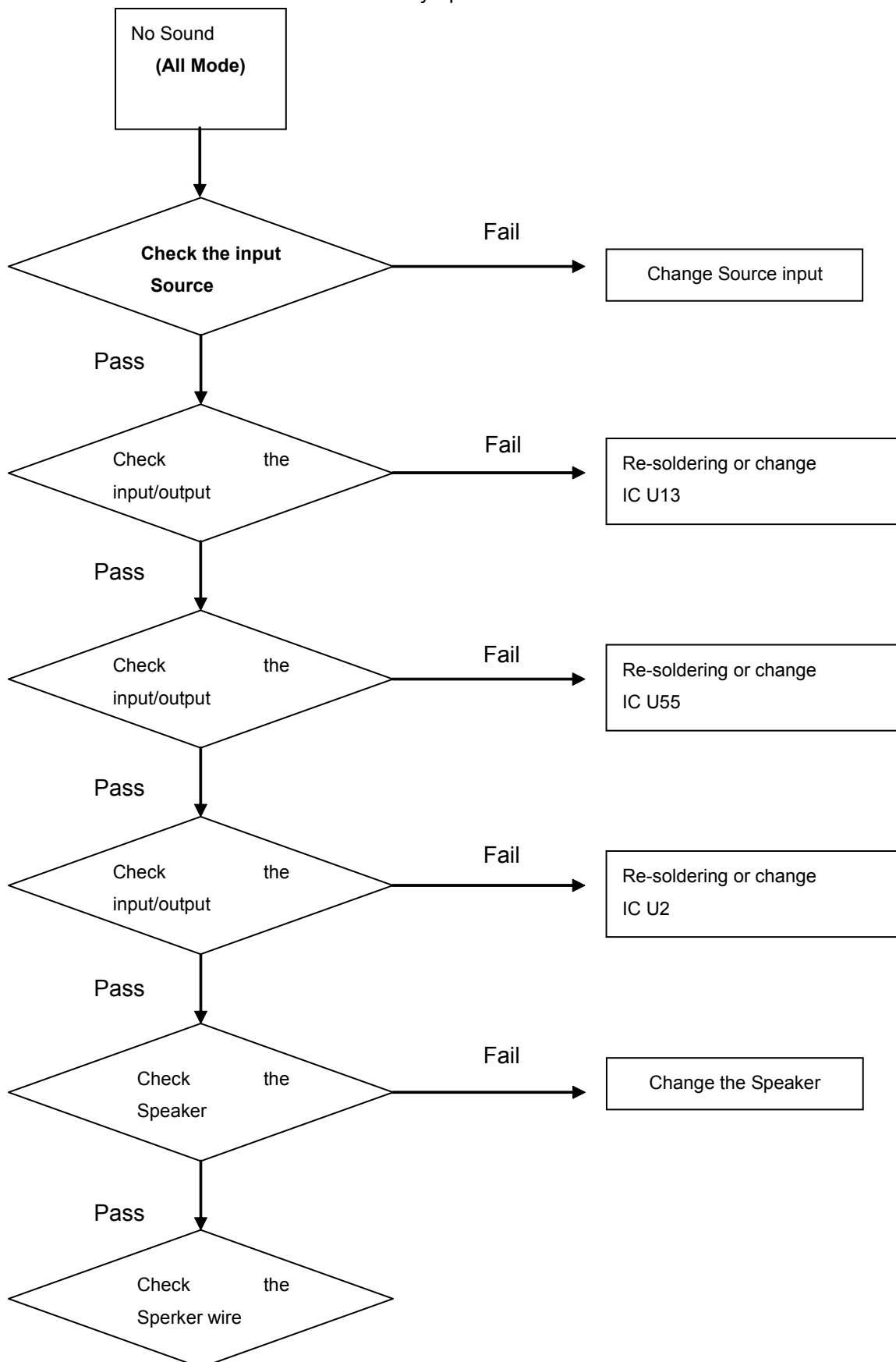
First, check speaker anode(+) and cathode(-), confirm speaker short or not. If short, replace speaker.

Second, check CN27 with oscillograph, confirm wave output or not.



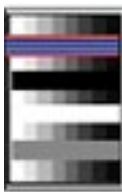


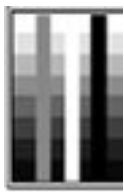

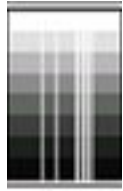
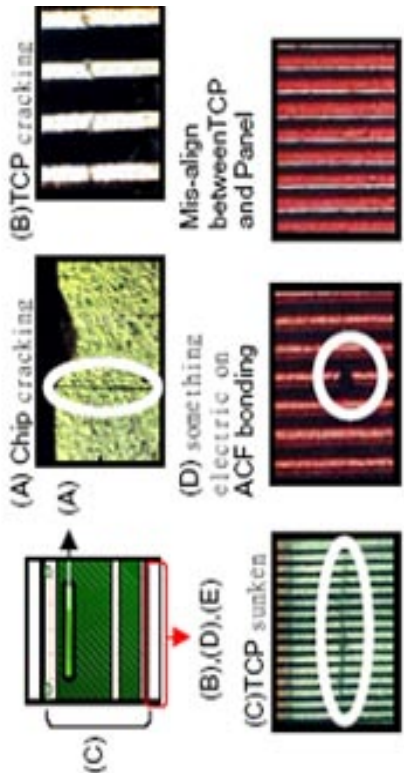
9-3. Mainboard Failure Check





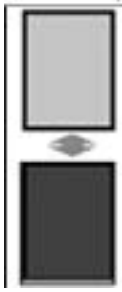
Symptom: No Sound




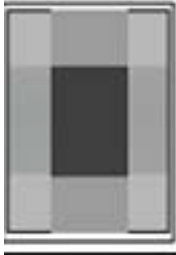


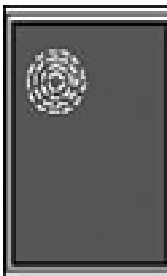



9-4. Pannel Failure



Failure Mode

Part	Name	Description	Phenomena	Failure cause
TCP	V B/D	Vertical bar		Block Defect :TCP cracking or cracking Dim or L/D :TCP Sunken :TCP lead cracking :ACF bonding short :Awful environment and something electric enter into LCD :Mis-align between TCP and Panel
	V Dim	Vertal gray line		
	V L/D	Vertical color line(light or dark forever)		: Panel failure : TCP failure
	H B/D	Horizontal bar		
	H Dim	Horizontal gary line		
	H L/D	Horizontal line(light or dark forever)		
				

Part	Name	Description	Phenomena	Failure Cause
Panel or Polarizer	Dot Defect	Bright dot dark dot in pannel		Incoming Inspection Standard
	Polarizer Bubble	Bladder in Polarizer		Bladder between Polarizer and top glass
	Polarizer Scratch	Polarizer Scratch		Tine or rigidity arose
	F/inside Polarizer	Eyewinker inside Polarizer		Eyewinker inside Polarizer
	Abnormal Display	Abnormal Display		1. Chip lose action 2. IC ahort or jointiog bad 3. Pannel and vsc connect bad
Circuit	Flashing	Bright and dark display alternately		

Part	Name	Description	Phenomena	Failure Cause
Circuit	White Screen	B/L normal, only white screen display		Maybe caused by surge current and EDS
	Black Screen	B/L normal, only Black screen display		
	Flicker	Crosstalk		LCD Vcom imbalance
	Abnormal Color	Only color abnormal		Capacitance improper bring crosstalk inside LCD pannel
	Abnormal Color	Only color abnormal		1. Chip lose action 2. IC short or jointion bad 3. Pannel and vsc connect bad

Part	Name	Description	Phenomena	Failure cause
	Mechanical Noise	When turn panel, appear cacophony		Caused by Mechanica noise of backlight unit
	Ripple	Connectric circle		Caused by between mechanism and pannel
	B/L off	B/L lose action		*Connect badness between wire and electrode
	B/L dark	B/L brightness darker than normal		*Connect badnessShort between wire and electrode
	B/L wire damaged	B/L wire damaged		Operation abnormal or systemic noise
	B/L wire open	Without backlight		Operation abnormal or systemic noise
	B/L shut down	B/L shutdown in sometime		Short between lamp housing and wire, Because consume power too much
	F/M	F/M in B/L ,white, balck Rotundity or wirelike		F/M in B/L unit

Part	Name	Description	Phenomena	Failure Cause
Mechanical or B/L	Light leakage	Brightness at bottom of LCM brighter than normal		B/L unit badness
	Uniformity	B/L brightness asymmetric		Sheet in B/L unit is uneven
	Mount hole	Lack screw or screw damage		*Lack screw Screw damage

Sincere Forever



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