Haier SERVICE MANUAL

LED LCD TV

Model HL46XSL2/HL46XSLW2

Service model. HL46XSL2a/HL46XSLW2a

MTK5305 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.

©2010 Qingdao Haier Electronics Co., Ltd.
All rights reserved. Unauthorized copying and distribution is a violation of law.

Haier Group

CONTENTS

Chapter 1.General Information

1-1. Document Information 3
1-2. General Guidelines 3
1-3. Important Notice 3
1-3-1. Follow the regulations and warnings 3
1-3-2. Be careful to the electrical shock 3
1-3-3. Electro static discharge (ESD) 3
1-3-4. About lead free solder (PbF) 4
1-3-5. Use the genewing parts (specified parts) 4
1-3-6. Safety check after repairment 4
1-3-7. Ordering Spare Parts 6
1-3-8. Photo used in this manual 6
1-4. How to Read this Service Manual 7
1-4-1. Using icons: 7

Chapter 2. Specification

2-1. Specification list 8
2-2. External pictures (four faces) 9

Chapter 3. Disassemble and Assemble

3-1. Remove the Stand 10
3-2. Remove the Power Cord 11
3-3. Remove the Back Cover 11
3-4. Remove the Mainboard 11
3-5. Remove the speaker 11
3-6. Remove the Keypad 12
3-7. Remove the Remote Control Board 12
3-8. Remove the Stand backstop 12
3-9. Remove the indicator light 12

Chapter 4. Location of Controls and Components

4-1. Board Location 13
4-2. Main Board 13
4-2-1. Function Description: 14
4-2-2. Connector definition 14
4-3. Power Supply Board 14

4-3-1. Function description:.....14
4-3-2. Connector definition:.....14
4-4. LCD Panel.....15
4-4-1. Function Description: Display the signal.....16
4-4-2. Connector definition:.....16

Chapter 5. Installation Instructions

5-1. External Equipment Connections.....20
5-2. HDMI Connections.....24

Chapter 6. Operation Instructions

6-1. Get to know your TV.....27
6-2. Get to know your remote control.....28

Chapter 7. Electrical Parts

7-1. Block Diagram.....29
7-2. Circuit Diagram.....31
7-3. Wiring Connection Diagram.....45

Chapter 8. Measurements and Adjustments

8-1. Service Mode.....46
8-1-1.How to enter into Service Mode.....46
8-1-2.How to exit.....46
8-2. Measurements and Adjustments.....46
8-2-1. The Main Menu.....46
8-2-2. Video.....47
8-2-3. Audio.....48
8-2-4. Software UpDate.....48

Chapter 9. Trouble shooting

9-1. Simple check.....49
9-2. Power Supply Board Failure Check......50
9-3. Mainboard Failure Check.....51
9-4. Pannel Failure.....52

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 literture 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 electros static 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 ncidence 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 eternal 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, loose 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	LEA46T3
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\I\L
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)	18.4
Gross weight(KG)	26
Net dimension(MM)	1122*31*706
Packaged dimension(MM)	1255*245*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

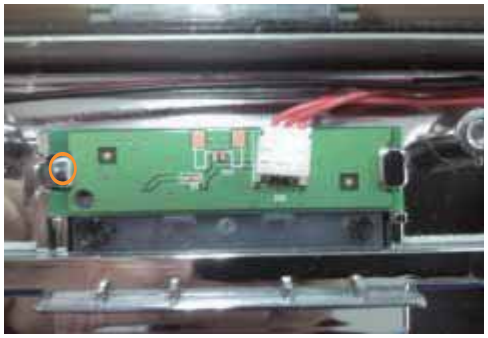
Remove the six screws indicated by the red circles in below picture.

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.

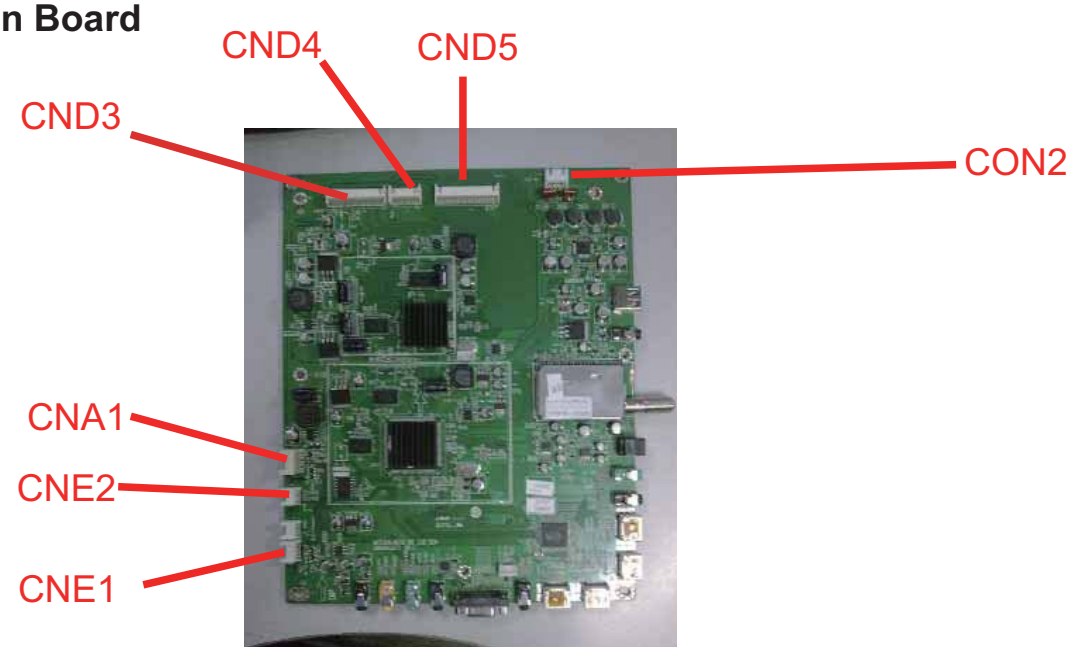


Chapter 4. Location of Controls and Components

4-1. Board Location

No.	Parts number	Description
A Board	0094001116AB	PANEL
B Board	////	Power Board
C Board	DC1AK0E0100M	Mainboard (0090724287)

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

Rom 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:

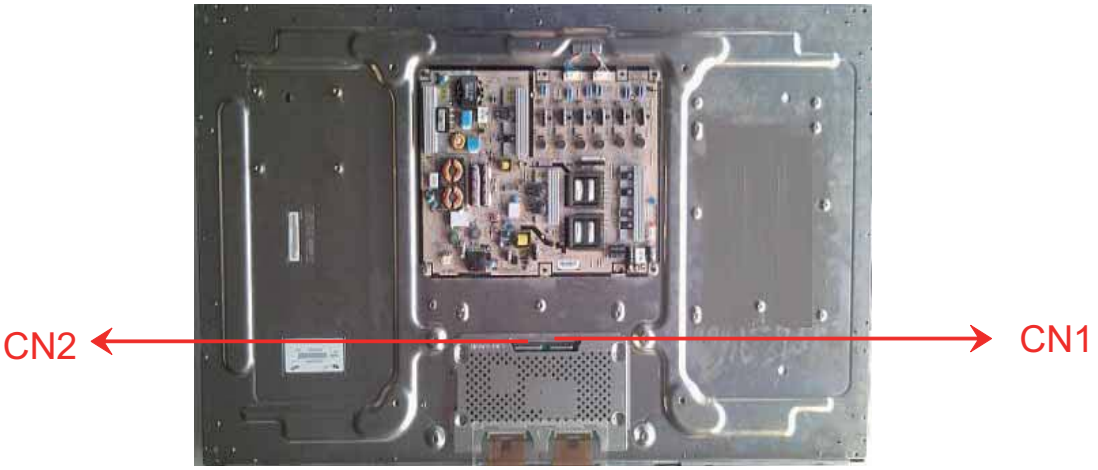
To supply power for Mainboard, Panel.

4-3-2. Connector definition:

INPUT CONNECTOR (CN10)

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

4-4. LCD Panel



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

4-4-2. Connector definition:

CND5 Connector

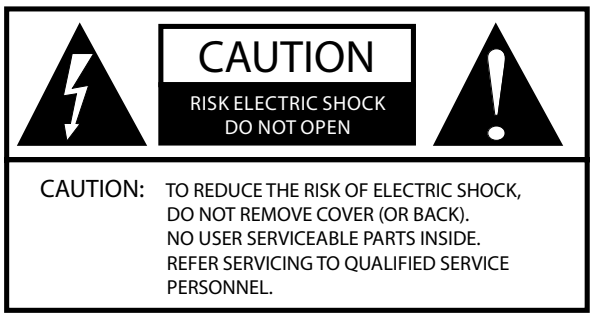
Pin number	Symbol	Description
1	12V	DC Power Supply
2	12V	DC Power Supply
3	12V	DC Power Supply
4	12V	DC Power Supply
5	12V	DC Power Supply
6	NC	NC
7	GND	Ground
8	GND	Ground
9	GND	Ground
10	Rx1[0]N	1^{st} ,5^{th} LVDS Signal -
11	Rx1[0]P	1^{st} ,5^{th} LVDS Signal +
12	Rx1[1]N	1^{st} ,5^{th} LVDS Signal -
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	3rd,7th LVDS Signal -
26	Rx3[0]P	3rd,7th LVDS Signal +
27	Rx3[1]N	3rd,7th LVDS Signal -
28	Rx3[1]P	3rd,7th LVDS Signal +
29	Rx3[2]N	3rd,7th LVDS Signal -
30	Rx3[2]P	3rd,7th LVDS Signal +
31	GND	Ground
32	Rx3CLK-	3rd,7th LVDS Clock -
33	Rx3CLK+	3rd,7th LVDS Clock +
34	GND	Ground
35	Rx3[3]N	3rd,7th LVDS Signal -
36	Rx3[3]P	3rd,7th LVDS Signal +
37	Rx3[4]N	3rd,7th LVDS Signal -
38	Rx3[4]P	3rd,7th 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



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

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

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION: TO PREVENT ELECTRIC SHOCK DO NOT USE THIS POLARIZED PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

⚠ Caution:

- These servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/ Apparatus combination to avoid injury from tip-over.

13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.
16. The mains plug or appliance inlet is used as the disconnect device, remain it readily operable during the apparatus normal use.

FCC STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rule. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, use and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However there is no guarantee that interference will not occur in particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encourage to try to correct the interference by one or more of the following measures:

*Reorient or relocate the receiving antenna.
*Increase the separation between the equipment and receiver.
*Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
*Consult the dealer or an experienced radio/TV technician for help.

This device compiles with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may be not cause harmful interference.
(2) This device must accept any interference received, including interference that may cause undesired operation.

FCC CAUTION:
To assure continued compliance and possible undesirable interference, the provided ferrite cores must be used when connecting this LCD display to video equipment; and maintain at least 40cm spacing to other peripheral device.

CANADIAN NOTICE:
This Class B digital apparatus compiles with Canadian ICES-003.

ENERGY STAR

Energy Star compliant
By being Energy Star compliant you are assured that your Haier model is helping the environment by using less energy while saving you money. ENERGY STAR is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy promoting energy efficiency.

SAVE THESE INSTRUCTIONS

Thank you for purchasing the Haier product. This easy-to-use manual will guide you in getting the best use of your product. Remember to record the model and serial number. They are on label in back of the unit.

Model number

serial number

Date of purchase

Staple your receipt to your manual. **You will need it to obtain warranty service.**

Contents

Warning 1

Safety Instructions 3

Introduction 5

Controls 5
Connection Options 6
Universal Remote control 7

Installation 8

External Equipment Connections 8
Accessories 8
Antenna Connection 8
Choose Your Connection 9
Connecting a VCR 9
External AV Source Setup 9
Component Setup 9
Connecting a DTV (digital TV) 10
Connecting a digital audio output 10
Connecting a computer 10
HDMI and DVI input 11
Connecting Headphones 12
Power source 12
Removing the table stand and installing a wall mount bracket 12

Operation 13

Switching On/Off the TV set 13
Choose the Menu Language 13
Choose the Input source 13
Channel menu 13
Channel Scan 13
Channel Skip 14
Channel Labels 14
Time Shifting Mode 14
Select the desired program 15
Select the desired sound 15
Mute 15
Video menu 15
How to select picture mode 15
How to customize your own picture status 16
PC Set 17
Audio menu 17
How to select audio mode 17
How to Customize your own audio status 17
SAP Broadcasts Setup 18
Function menu 18
Menu Language 18
OSD Timeout 18
OSD Transparency 18
DPMS 19
Blue Screen 19
DCR 19
Time Setup 19
Close Caption 19
Lock Menu 20
Parental Control rating and categories 20
Lock setup 21
Other Functions 23
Brief Info 23
Using the Guide 23
Quick program view 24
CC (Closed Caption Display) 24
USB Input 25
To play pictures 25
To play music 26
To play video 26

Universal Remote Control 27

Setting Up Your Remote Control 27
Remote Control Codes 29

Maintenance 35

Specification 35

Troubleshooting 35

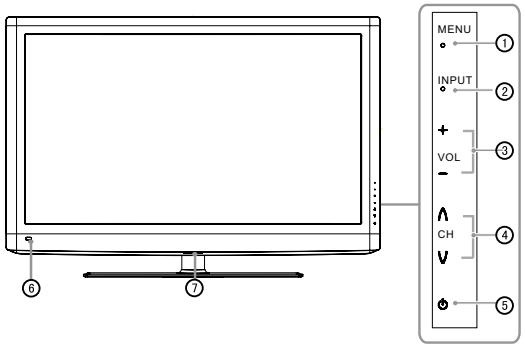
Warranty 36

Introduction

Controls

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

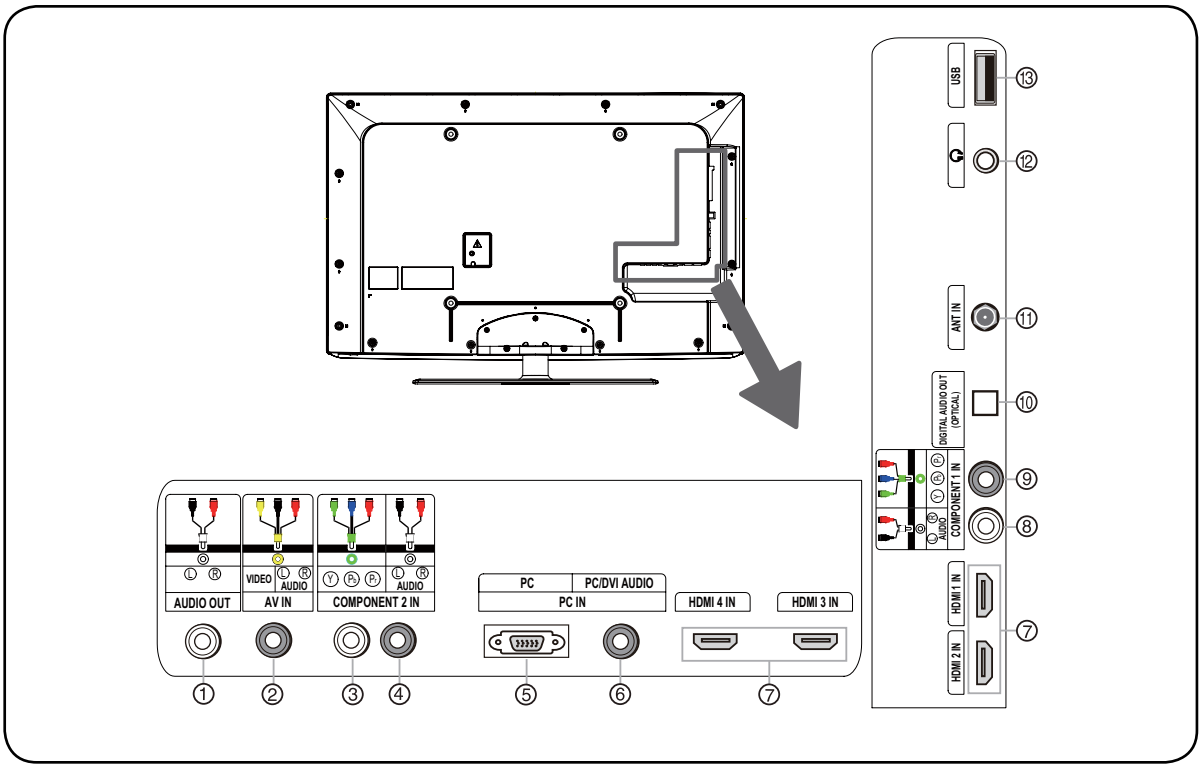
TV Side panel controls and connections



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**	

Connection Options

Back panel connections



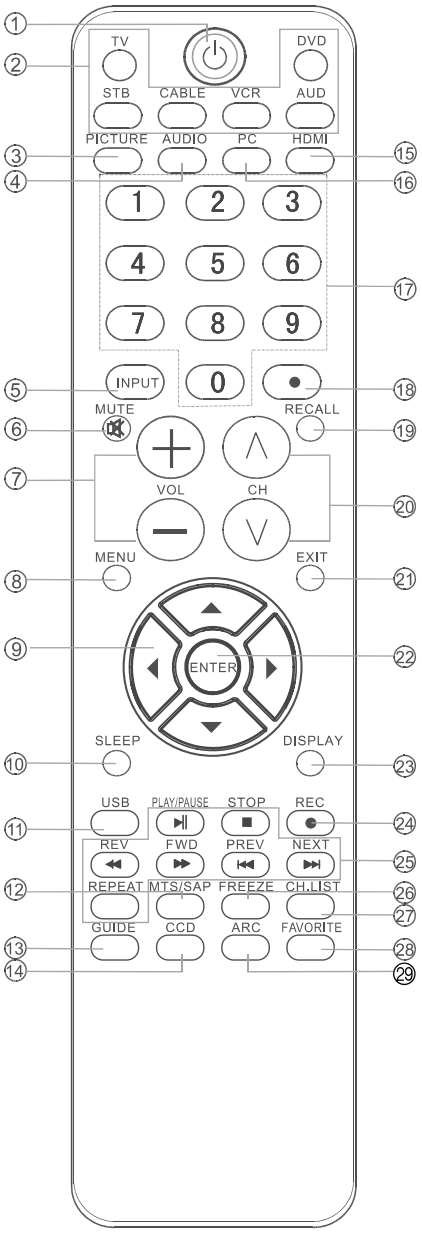
①	**AUDIO Out**	Connect the audio L/R cables to your audio equipment.
②	**VIDEO In**	Connects the video signal from a video device.
③	**Component Video In**	Connect a component video device to these jacks.
④	**COMPONENT AUDIO In**	Connect the audio L/R cables from the component video signal source to 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** ❏ 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 jack**	Headphone audio output terminal.
⑬	**USB input**	Connect a USB flash drive to view MPEG2 videos, JPEG images or listen to MP3 songs.

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



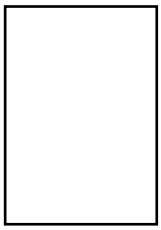
①	**POWER**	Press to turn on and off the TV.
②	**TV DVD SETBOX CABLE VCR AUD**	To select one of the system modes in which the remote control can be used.
③	**PICTURE**	Press repeatedly to cycle through the available picture modes.
④	**AUDIO**	Press to cycle through different sound settings.
⑤	**INPUT**	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 ■ Stop ⏯ 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.

Installation

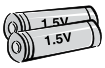
External Equipment Connections

Accessories

Remote control



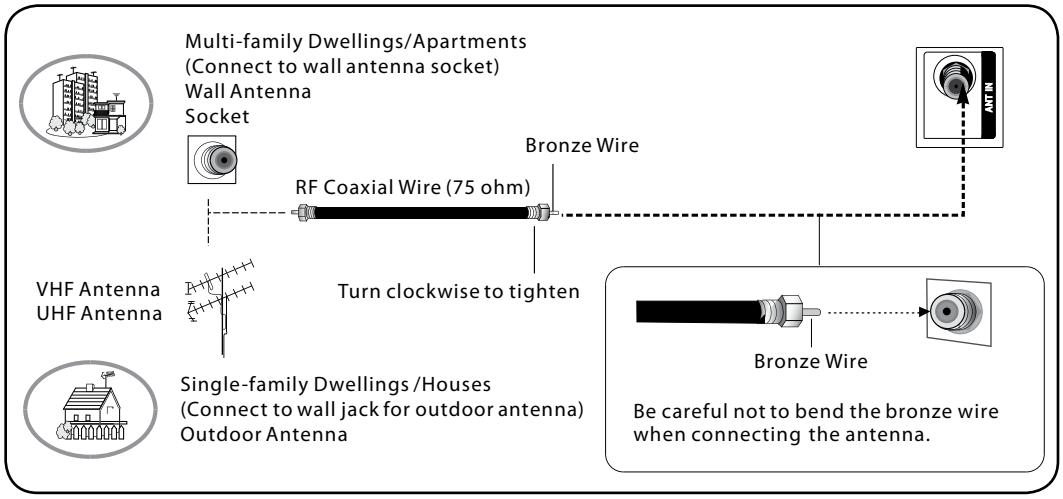
Owner's manual

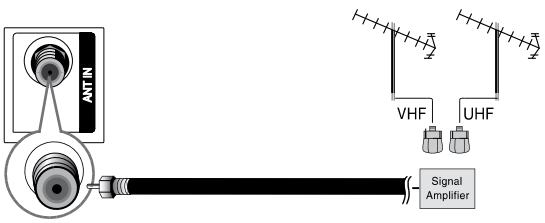


Alkaline battery (AAA) x2

Antenna Connection

Over-the-air TV reception quality will depend on your antenna type, antenna location and antenna positioning.





- To improve the picture quality in a poor signal area, please purchase a signal amplifier and install properly.
- If the antenna needs to be split for two TV's, install a "2-Way Signal Splitter" in the connections.
- To install the antenna properly please contact a professional in your area.

Note

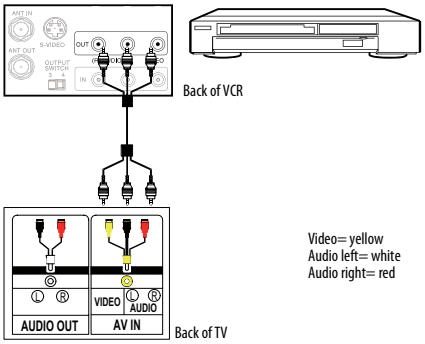
❏ All cables shown are not included with the TV.

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.

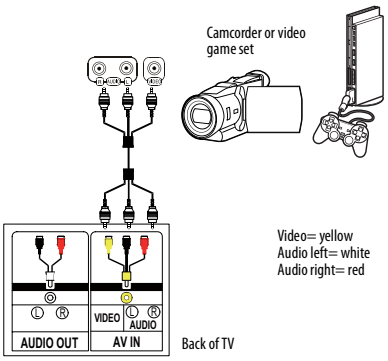
Connection Option 2

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).



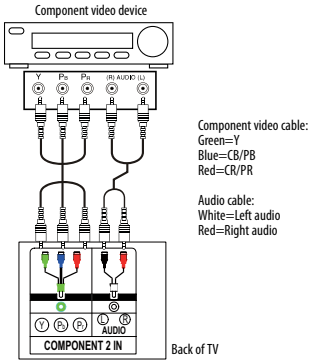
How to use

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 Y Y Y	Pb B-Y Cb P_B	Pr R-Y Cr 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 amplifers 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

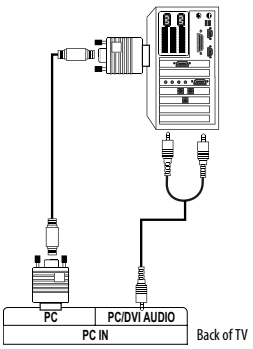
How to connect

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

output analog and digital RGB simultaneously, connect only one of either VGA IN or HDMI IN to display the VGA on the TV.

- If the graphic card on the computer does output analog and digital RGB simultaneously, set the TV to either VGA or HDMI; (the other mode is set to Plug and Play automatically by the TV.)

3 Then, make the corresponding audio connection. If using a sound card, adjust the VGA sound as required.



How to use

1 Turn on the computer and the TV.

2 Use INPUT on the remote control to select VGA or HDMI source.

3 Check the image on your TV. There may be noise associated with the resolution, vertical pattern, contrast or brightness in VGA mode. If noise is present, change the VGA mode to another resolution, change the refresh rate to another rate or adjust the brightness and contrast on the menu until the picture is clear. If the refresh rate of the VGA graphic card can not be changed, change the VGA graphic card or consult the manufacturer of the VGA graphic card.

Note

❏ Use a DVI cable.

❏ Avoid keeping a fixed image on the TV's screen for a long period of time. The fixed image may become permanently imprinted on the screen.

❏ The synchronization input form for Horizontal and Vertical frequencies is separate.

❖ Resolution

Mode	Resolution	Frame frequency (Hz)
VGA	640×480	60 Hz
SVGA	800×600	60 Hz
		75 Hz
XGA	1024×768	60 Hz
		75 Hz

HDMI and DVI input

When the source device (DVD player or Set Top Box) supports HDMI

How To Connect

1 Connect the source device to HDMI port of this TV with an HDMI cable (not supplied with this product).

2 No separated audio connection is necessary.

How To Use

- If the source device supports Auto HDMI function, the output resolution of the source device will be automatically set to 1280×720 p.
- If the source device does not support Auto HDMI, you need to set the output resolution appropriately. To get the best picture quality, adjust the output resolution of the source device to 1280×720 p.
- Select HDMI input source in input source option of Select Main source menu.

When the source device (DVD player or Set Top Box) supports DVI

How To Connect

1 Connect the source device to HDMI port of this TV with a HDMI-to-DVI cable (not supplied with this product).

2 A separated audio connection is necessary.

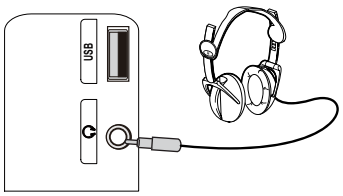
3 If the source device has an analog audio output connector, connect the source device audio output to DVI Audio In port located on the left side of HDMI port.

How To Use

- If the source device supports Auto DVI function, the output resolution of the source device will be automatically set to 1280×720 p.
- If the source device does not support Auto DVI, you need to set the output resolution appropriately. To get the best picture quality, adjust the output resolution of the source device to 1280×720 p.
- Press the **INPUT** button to select HDMI input source in input source option of Select Main source menu.

Connecting Headphones

You can connect a set of headphones to your set if you wish to watch a TV programme without disturbing the other people in the room.



Back of TV

Plug a set of headphones into the 3.5 mm mini-jack socket on the side panel of the set.

Note

❏ Prolonged use of headphones at a high volume may damage your hearing.

❏ You will not receive sound from the speakers when you connect headphones to the system.

Power source

TO USE AC POWER SOURCE

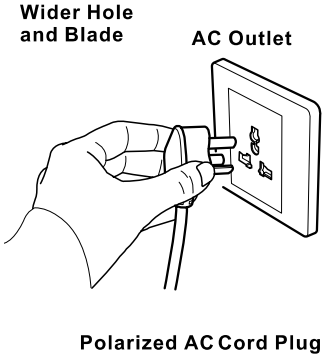
- Use the AC polarized line cord provided for operation on AC. Insert the AC cord plug into a standard polarized AC outlet.

Note

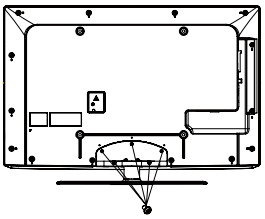
❏ Never connect the AC line cord plug to other than the specified voltage. Use the attached power cord only.

❏ If the polarized AC cord does not fit into a non-polarized AC outlet, do not attempt to file or cut the blade. It is the user's responsibility to have an electrician replace the obsolete outlet.

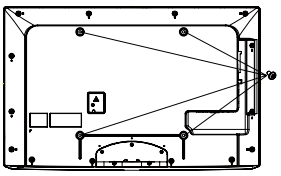
❏ If you cause a static discharge when touching the unit and the unit fails to function, simply unplug the unit from the AC outlet and plug it back in. The unit should return to normal operation.



Removing the table stand and installing a wall mount bracket



Remove 5 × M4 screws securing the stand to the TV, then remove the stand.



Use 4 × M8 screws to secure the wall bracket (not supplied) to the back of your TV.

Operation

In the manual, the OSD (on screen display) may be different from your TV's, because it is just an example to help you with the TV operation.
There are several options you might need to set up in order for your TV to work properly. Read the instructions that follow.
Initial Setup: Set according to the screen display.

Switching On/Off the TV set

1. First, connect power cord correctly.
2. Select the viewing source by using **INPUT** button on the remote control.
3. When finished using the TV, press **POWER** button on the remote control. The TV reverts to standby mode.
4. If you intend to be away on vacation, disconnect the power plug from the wall power outlet.

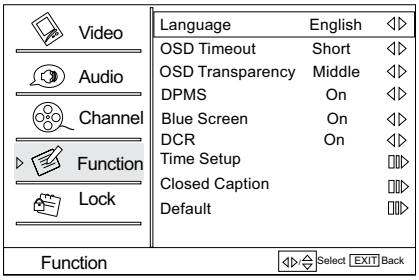
Note

❏ If the TV in power on , the screen show information according the type of input signal, the information will disappear. If there is no signal, "No Signal" will display on the screen.

Choose the Menu Language

When you start using your set for the first time, you must select the language which will be used for displaying menus and indications.

1. Choose **TV** Input and then press **MENU** button.
2. Press ▲ / ▼ button to select **Function** menu.
3. Press ▶ / **ENTER** button and then use ▲ / ▼ button to select **Language**.
4. Press ◀ / ▶ button to select language.
(**English, Spanish or French**)



Choose the Input source

Change the picture source so you can watch your TV, VCR, DVD, Cable , or any other devices that are connected to your TV.

1. Press **INPUT** button to enter the Select Source menu and then use ▲ / ▼ button to select the desired items (TV, Video , Component 1, Component 2, PC, HDMI 1, HDMI 2, HDMI 3, HDMI 4).
2. Press **ENTER** button to confirm .

Channel menu

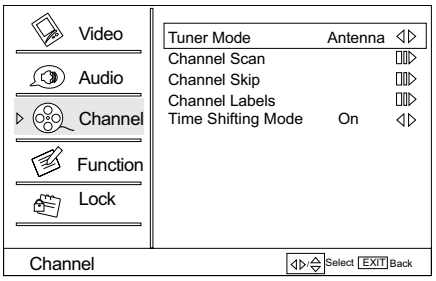
- This TV set has two methods to set channels, which are respectively Channel Scan, Channel Skip.
- In this section, how to use the remote control to set channel is explained. You can also use buttons on the TV to set channel.

Note

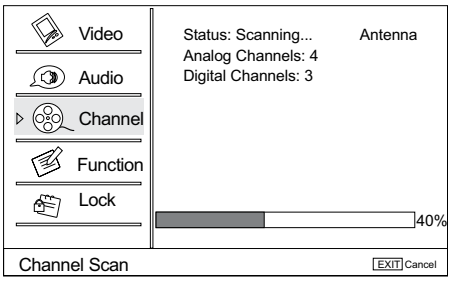
❏ The Channel menu will be only operated in normal TV mode.

Channel Scan

1. Press **MENU** button and then use ▲ / ▼ button to select **Channel** menu.
2. Press ▶ **/ ENTER** button to select **Tuner**.
3. Press ◀ / ▶ button to select **Cable** or **Antenna** mode.
4. Press ▲ / ▼ button to select **Channel Scan**.



5 Press ▶ **/ ENTER** button to start searching.



6 To cancel searching, press **EXIT** button.

Note

- ❏ When **Antenna** is selected, the TV will detect antenna signals and will search for antenna TV (NTSC and ATSC) channels available in your local area.
- ❏ When **Cable** is selected, the TV will detect cable company supplied signals and will search for cable TV (NTSC, QAM modulated) channels available in your Area.

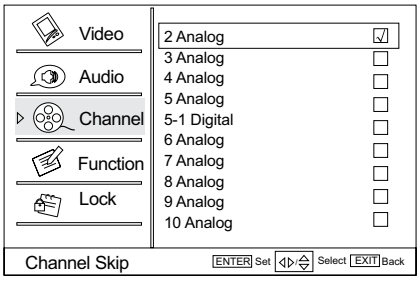
Channel Skip

A skip channel is skipped when using ▲ / ▼ button to browse the channels. A skip channel can be watch by key-in the channel number or select by list. Default un-scanned analog channels are skip. Channel with a check icon √ is a skipped channel.

1 Press **MENU** button and then use ▲ / ▼ button to select **Channel** menu.

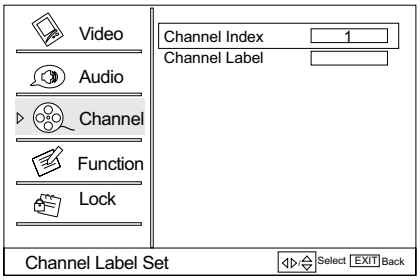
2 Press ▶ **/ ENTER** button and then use ▲ / ▼ button to select **Channel Skip**.

3 Press ▲ / ▼ button to select a channel, then press **ENTER** button to toggle between ☑ and ☐.



Channel Labels

Allows you to name the channel that is selected.
Press ▶ /**ENTER** button to enter the submenu.
Then press ▲ / ▼ to select **Channel Index** and **Channel Labels** and ◀ / ▶ to select the position of the item that you want to change, afterward press **INPUT** to input the numbers and symbols and **ENTER** button to confirm.

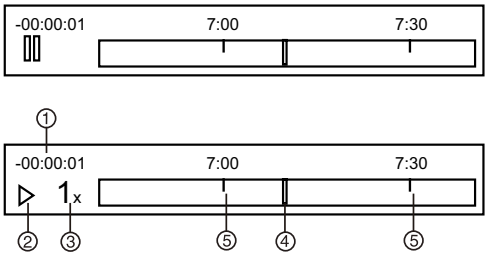


Time Shifting Mode

To turn the Time Shifting Mode on or off.

1 Set the Time Shifting On, then insert the USB drive in the USB input.

2 Press **PLAY/PAUSE** to play or pause the program. If you want to stop time shift function, press the **STOP** button.



1.Time shift time. The time delay to the current program time.

2.Playback status: It shows the playback status (Play, Pause, Fast Forward, Rewind).

▶	**Play**	▶▶	**Fast forward**
⏸	**Pause**	◀◀	**Fast reverse**

3.Playback speed: playback speed can be changed - 1x,2x,4x,8x,16x,32x.

4.Playback position: The playback position is always at the center of the time bar.

5.Time scale:shows the time in half hour increments.

Note

- ❏ Time Shift function is only available in DTV mode.
- ❏ The maximum recording duration is determined by the memory size of the USB drive and the signal resolution. Please use a high-speed USB 2.0 drive with a minimum of 1GB capacity.
- ❏ Time shift only supports FAT32 file-system.
- ❏ Time shift supports more than 4GB recording by using multi-file storage.
- ❏ When the maximum recording duration is reached, the oldest program would be deleted and the latest program is recorded.
- ❏ When changing channel or changing input source, the timeshift would stop automatically.
- ❏ Time shift record will store the fact of no signal.
- ❏ Time shift will store the video, audio and data service. we only support:

Video streams: Max 1 stream

Audio streams: Max 8 streams

CC stream: No limited.

- ❏ In recording, the data is not guaranteed to be stored in the disk. If the timeshift playback plays a corrupted data block, it would show "Data lost" message to indicate that the current data is not stored correctly.
- ❏ Please connect the TV antenna or Cable TV coaxial cable to the Antenna input on the TV. Then please complete the channel scan. The Time Shift feature is available when using your ATSC tuner and QAM cable tuner.

Select the desired program

1. Using **CH+/-** buttons.
   - Press **CH+** button to select a channel number in number increasing direction.
   - Press **CH-** button to select a channel number in number decreasing direction.

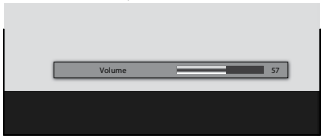
Note

- ❏ If skip is ON on one channel, press **CH+/-** button, the channel will not appear.

2. Also can enter channel number directly, eg:2-0.

Select the desired sound

Press **VOL-/+** buttons on the remote or the front of the TV set to adjust the volume level. The range is 0~100. When the volume buttons are pressed the volume level is displayed automatically on the TV screen.



Mute

1. Press **MUTE** button on the remote control and " " type face will display on the screen. At this time, the sound of the TV set is turned off.

2. If you want to recover the sound, press **MUTE** button again or directly press **VOL+** button.

Video menu

The TV menu gives you an overview of the menus you can select.

Note

- ❏ Depending on the input signal, one or more menu items may not be selectable.

How to select picture mode

The picture mode provides the pre-defined images settings: Standard, Vivid, Custom and Mild .

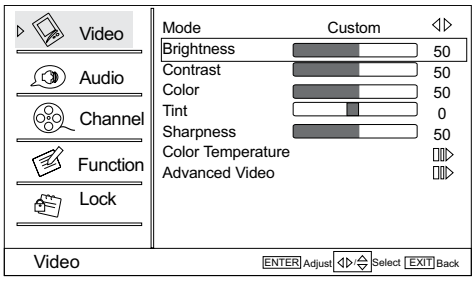
1. Press **MENU** button and then use ▲ / ▼ button to

select **Video** menu.

2. Press ▶ / **ENTER** button and then use ▲ / ▼ button to select **Mode**.

3. Press ◀ / ▶ button to select the option Standard, Vivid, Custom and Mild.

You can also press **PICTURE** button on the remote control to select the option Standard, Vivid, Custom and Mild.



How to customize your own picture status

1. Press **MENU** button and then use ▲ / ▼ button to select **Video** menu.

2. Press ▶ / **ENTER** button and then use ▲ / ▼ button to select the desired items.

3. Press ▶ / **ENTER** button and then use ◀ / ▶ button to adjust the setting.

❖ Mode

Select the mode of picture (Standard/ Vivid/ Custom/ Mild).

❖ Brightness

This will adjust the light output of the complete picture, which will mainly affect the darker areas of the picture.

❖ Contrast

This will adjust the intensity of bright parts in the picture but keep the dark parts unchanged.

❖ Color

This will adjust the saturation level of the colors to suit your personal preference.

❖ Tint

Allows you to select the color mix (Tint) of the picture.

❖ Sharpness

This will adjust the sharpness of fine details in the picture.

Note

❏ Only when the item of mode is custom, the Brightness, Contrast, Color, Tint, Sharpness and Color Temperature can be set by user. In other mode the value of them are preset.

❖ Color temperature

This will increase or decrease Warm (red) and Cool (blue) colors to suit personal preferences.
Select Cool to give the white colors a blue tint, Standard to give the white colors a neutral tint, Warm to give the white colors a red tint.

❖ Advanced Video

To adjust the picture in advanced: DNR, Black Level Extender, White Peak Limiter, CTI, Flech Tone, Adaptive Luma Control.

- **DNR:** Digital Noise Reduction, to adjust to reduce the appearance of digitizing errror caused by the compressin: Medium/Strong/Auto/off/Low.

- **MPEG NR:** To adjust the MEPG Noise Reduction: Medium, Strong, Off and Low.

- **Adaptive Luma Control:** To adjust changes in the luminance of the picture On or Off.

- **Flesh Tone:** To adjust the flesh colors: High, Off, Low or Medium.

- **Blue Stretch:** To set Blue Stretch: On and Off.

- **Game Mode:** To set Game Mode: On and Off.

- **MJC:** Motion judder cancellation (MJC), capable of solving film judder and motion blur.

Effect:To set the MJC level: Off, Low ,Middle, High.

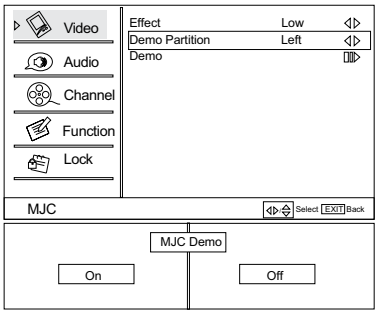
Demo Partition:To set the effective area of MJC: Left, All, Right.

1. Press **MENU** button and then use ▲ / ▼ button to select **Video** menu.

2. Press ▶ / **ENTER** button and then use ▲ / ▼ button to select **Advanced Video**.

3. Press ▶ / **ENTER** button and then use ▲ / ▼ button to select **MJC**.

4. Press ▶ / **ENTER** button and then use ▲ / ▼ button to select the desired items.



PC Set

When you select the PC input, this function is used.
Adjustment for screen Position, Clock, Phase, Setting
Display adjust menu by pressing **INPUT** button then use ▲ / ▼ button to select the source of PC item.

❖ **Auto sync:**

Automatically adjust display of the picture (Only available in PC source).

❖ **H Position:** Press ▲ / ▼ button and then press ◀ / ▶ button to adjust the horizontal position of the picture.

❖ **V Position:**Press ▲ / ▼ button and then press ◀ / ▶ button to adjust the vertical position of the picture.

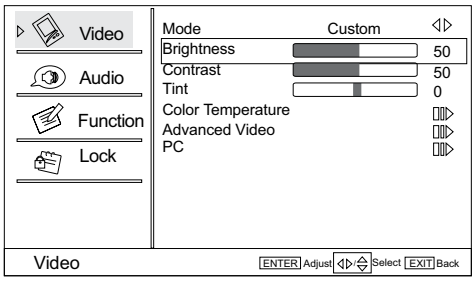
❖ **Phase :**

Adjust the phase of Pixel clock.

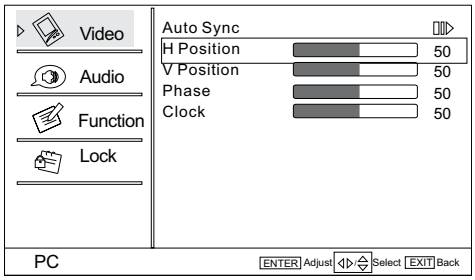
❖ **Clock :**

Adjust the clock of input signal.

1. Press **MENU** button and then use ▲ / ▼ button to select **Video** menu.



2. Press ▶ / **ENTER** button and then use ▲ / ▼ button to select **PC**.



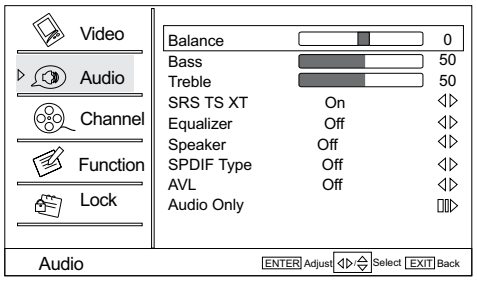
3. Press ▶ / **ENTER** button and then use ◀ / ▶ button to adjust the setting.

Audio menu

How to select audio mode

1. Press **MENU** button and then use ▲ / ▼ button to select **Audio** menu.

2. Press ▶ / **ENTER** button and then use ▲ / ▼ button to select **Mode**.



3. Press ▶ / **ENTER** button to select the option Off, Concert, Living Room, Hall, Bathroom, Cave, Arena and Church.
   - You can also press **AUDIO** button on the remote control to select the Audio Mode Off, Concert, Living Room, Hall, Bathroom, Cave, Arena and Church.

How to Customize your own audio status

1. Press **MENU** button and then use ▲ / ▼ button to select **Audio** menu.

2. Press ▶ / **ENTER** button and then use ▲ / ▼ button to select desired items.

3. Press ▶ / **ENTER** button and then use ◀ / ▶ button to adjust the setting.

❖ **Balance**

Adjust to emphasize left or right speaker balance.

❖ **Bass**

Adjust to increase or decrease lower-pitched sounds.

❖ **Treble**

Adjust to increase or decrease higher-pitched sounds.

❖ **SRS TS XT**

To turn the simulated surround sound on and off.

❖ **Equalizer**

To adjust the equalizer: Off, Rock, Pop, Live, Dance, Techno, Classic and Soft.

❖ **Speaker**: To adjust the speaker on or off.

❖ **SPDIF Type**

To adjust the SPDIF output: Off, Dolby Digital and PCM.

❖ **AVL (Automatic Volume Control)**

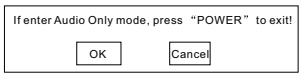
This will reduces the differences in volume level among broadcasters.

❖ **Audio Only**

Press ▶ / **ENTER** button to confirm, the following display will appear on the screen.

Press ◀ to select **OK**, then press **OK** to confirm. The TV screen will be black and no picture , but the sound is still normal.

You can press **POWER** button to reveal the picture on the screen.



SAP Broadcasts Setup

This TV can receive MTS stereo programs and SAP (Secondary Audio Program) that accompanies the stereo program; if the station transmits an additional sound signal as well as the original one.
When having selected **SAP** button on the remote control, this TV can only receive the signal when the TV station transmits the proper signals.
Mono sound is automatically received if the broadcast is only in Mono; even though Stereo or SAP has been selected. Select Mono if you want to listen to mono sound during stereo/ SAP broadcasting. Stereo or SAP can be received in a Analog channel.

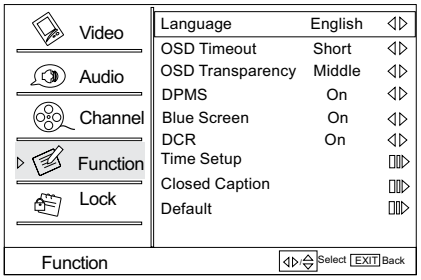
1. Use **SAP** button to select your desired MTS mode in a analog signal.
   - Each time you press **SAP** button, Mono, Stereo or SAP appear. If other languages are available on the digital signal, select them with the **SAP** button.
2. Press **EXIT** button to save and return to TV viewing.

Function menu

Menu Language

When you start using your set for the first time, you must select the language which will be used for displaying menus and indications.

1. Press **MENU** button and then use ▲ / ▼ button to select **Function** menu.
2. Press ▶ / **ENTER** button and then use ▲ / ▼ button to select **Language**.
3. Press ◀ / ▶ button to select language. (**English**, **Spanish** or **French**)



OSD Timeout

1. Press **MENU** button and then use ▲ / ▼ button to select **Function** menu.
2. Press ▶ / **ENTER** button and then use ▲ / ▼ button to select **OSD Timeout**.
3. Press ◀ / ▶ button to select **Short**, **Middle** or **Long**. (Short is for 5 seconds; Middle is for 10 seconds; Long is for 15 seconds)

OSD Transparency

1. Press **MENU** button and then use ▲ / ▼ button to select the **Function** menu.
2. Press ▶ / **ENTER** button and then use ▲ / ▼ button to select **OSD transparency**.
3. Press ◀ / ▶ button to select **Low**, **Middle** or **High**.

DPMS

PC Power Management. When set On, the set will be put in standby mode automatically if there is no signal received for 2 minutes.

Note

❏ DPMS is useful only in VGA source.

Blue Screen

1. Press **MENU** button and then use ▲ / ▼ button to select **Function** menu.
2. Press ▶ / **ENTER** button and then use ▲ / ▼ button to select **Blue Screen**.
3. Press ◀ / ▶ button to select **On** or **Off**.

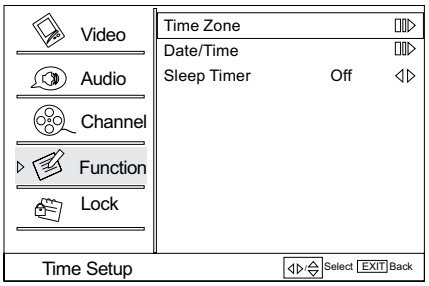
DCR

Dynamic Contrast Ratio. Press **VOL+/-** button to select On or Off.

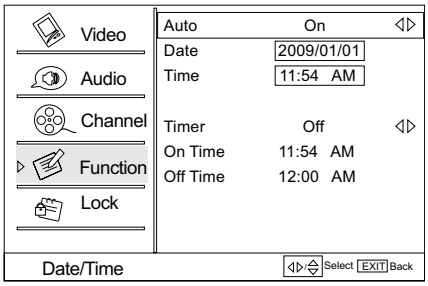
Time Setup

This function allows you to select your local time zone. Broadcasted time information will correct the clock display for your local time.

❖ **Time Zone:** Press **VOL+/-** button to select the appropriate time zone.



❖ **Date/Time:** Press **VOL+/ ENTER** button to enter the submenu.



Auto: Press **VOL+/-** button to select On or Off . When Auto mode on , the time can not be adjusted. Select Off , you can operate to set the time manually.

Date: Press **VOL+/-** button to select the position and digits button to set the date.

Time: Press **VOL+/-** button to select the position and digits button to set the time.

Timer: Press **VOL+/-** button to select On or Off . To select Off, the time can not be adjusted.

On Time/Off Time: Press **VOL+/-** button to select the position and digits button to set the time. Press **ENTER** button to switch on **AM** and **PM**.

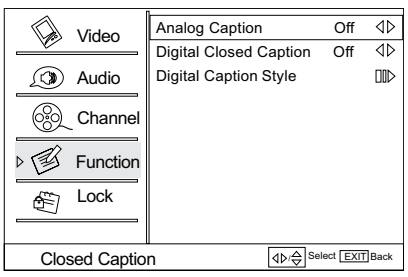
❖ **Sleep Timer:** Press **VOL+/-** button to select the number of minutes: To select Off, 5Min, 10Min,15Min,30 Min,45Min,60Min,90Min,120Min,180Min or 240Min.

- You can also press **SLEEP** button to select quickly the sleep timer.

Close Caption

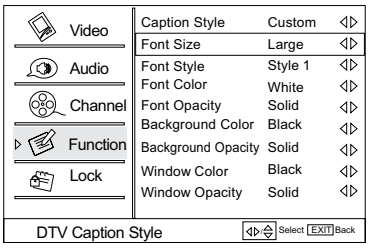
This allows you to modify how digital captions are displayed on your TV. Select from the following options to change the visual characteristics of your TV's digital captioning. Customize the DTV/CADTV captions that appear on your screen.

Press **VOL+/ ENTER** button to enter the submenu.



❖ **Analog Caption** Press **VOL+/-** button to select

the Closed Caption options. It helps the hearing impaired with the broadcast program, as well as helping children learn how to read. A built in decoder displays the audio portion of a program as text on the screen when this option is selected.



CC1: When CC1is displayed on TV means CC mode is turned on.

CC2 to CC4: For other modes of video related broadcast information.

Text1: For program guide and other information displayed by broadcasters. (This blocks a large portion of the picture on your screen).

Text2 to Text4 :For other modes of information displayed by broadcasters. (This blocks a large portion of the picture on your screen).

IMPORTANT:Closed captioning availability entirely depends on broadcasters supplying the signal. Therefore, closed captioning might not always be available and language availability will differ by broadcast.

Select CC1 for full translation of the primary language such as English in your area. Select CC2 for secondary language translation such as French or any other language that may be broadcast in your area.

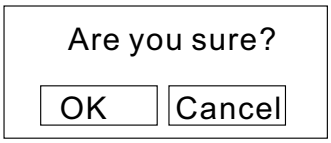
❖ **Digital Closed Caption:**Press **VOL+/-** button to select Service1/Service2/Service3/Service4/ Service5/Service6/Off.

❖ **Digital Caption Style:** Press **VOL+**/ **ENTER** button to enter the submenu.

Caption Style: To display the digital closed caption automatically or by Custom mode.
Font Size :To adjust the font size: Large, Small or Medium.
Font Style :To adjust the font style: Style1, Style2, Style3,Style4, Style5, Style6 and Style7.
Font Color: To adjust the font color: White, Green, Blue, Red, Cyan, Yellow, Magenta and Black.
Font Opacity: To adjust the font opacity: Solid, Translucent and Transparent.
Background Color: To adjust the background color: Black, White, Green, Blue, Red, Cyan, Yellow and Magenta.
Background Opacity: To adjust the background opacity: Solid, Translucent and Transparent.
Window Color**:** To adjust the window color: Black, White, Green, Blue, Red, Cyan, Yellow and Magenta.
Window Opacity: To adjust the window opacity: Translucent, Transparent or Solid.

Default

Press VOL+/ **ENTER** button to enter the submenu.



Press **VOL+/-** button to select OK or Cancel, then press **OK** to confirm. If **OK** the parameter will return to the factory set.

Lock Menu

Parental Control can be used to block specific channels, ratings and other viewing sources.

The parental control function is used to block program viewing based on the ratings sent by the broadcasting station. The default setting is to allow all programs to be viewed. Viewing can be blocked by choosing the type of the program and the categories.

Parental Control rating and categories

Rating guidelines are provided by broadcasting stations. Most television programs and television movies can be blocked by TV Rating or Individual Categories. Movies that have been shown at the theaters or direct-to-video movies use the Movie Rating System (MPAA) only.

Ratings for Television programs:

Parental Guide:	
TV-Y	(All children)
TV-Y7	(Children 7 years older)
TV-G	(General audience)
TV-PG	(Parental guidance suggested)

TV-14	(Parents strongly cautioned)
TV-MA	(Mature audience only)

Ratings for Movies previously shown in theaters:

MPAA Rating:	
G	(General audience)
PG	(Parental guidance suggested)
PG-13	(Parents strongly cautioned)
R	(Restricted)
NC-17	(No one 17 and under admitted)
X	(Adult only)

If you set PG-13 : G and PG movies will be available, PG-13, R, NC-17 and X will be blocked.

CA Eng Rating:	
C	Children
C8+	Children eight years and older
G	General Programming, suitable for all audiences
PG	Parental Guidance
14+	Viewers 14 years and older
18+	Adult Programming

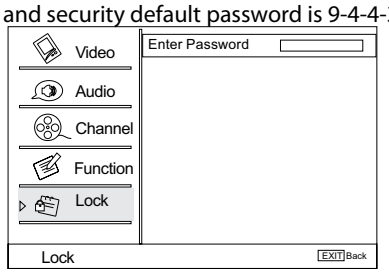
CA Fren Rating:	
G	General
8 ans+	Not recommended for young children
13 ans+	Programming may not be suitable for children under the age of 13
16 ans+	Programming is not suitable for children under the age of 16
18 ans+	Programming restricted to adults

TV Rating:	
A (Age)	(applies to TV-Y, TV-Y7, TV-G, TV-PG, TV-14, TV-MA)
D (Dialogue - sexual dialogue)	(applies to TV-PG, TV-14)
L (Language - adult language)	(applies to TV-PG, TV-14, TV-MA)
S (Sex - sexual situations)	(applies to TV-PG, TV-14, TV-MA)
V (Violence)	(applies to TV-PG, TV-14, TV-MA)
FV (Fantasy Violence)	(applies to TV-Y7)

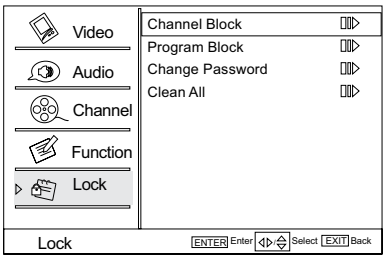
Lock setup

Set up blocking schemes to block specific channels, ratings, and external viewing sources.
A password is required to gain access to this menu.

1. Press **MENU** button and then use ▲ / ▼ button to select **Lock** menu. Then, press ▶ button.
   - The TV is set up with the initial password "0-0-0-0" and security default password is 9-4-4-3.



2. Use ▲ / ▼ button to select the desired items, and press ▶ or **ENTER** button to enter the next menu. Once the option is selected, change the settings to your preference.



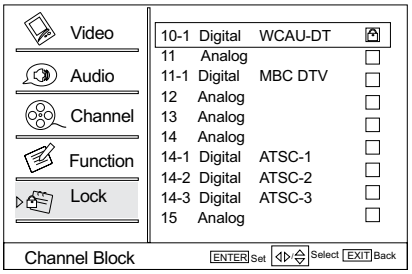
Password

- Change the password by inputting a new password twice.

Channel Block

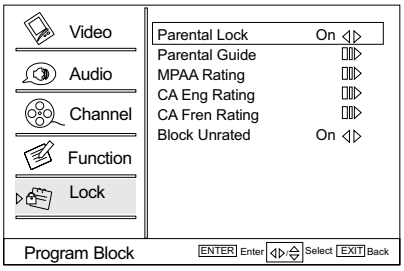
1. Press **MENU** button and then use ▲ / ▼ button to select **Lock** menu.
2. Press ▶ / **ENTER** button and then use ▲ / ▼ button to select **Channel Block**.

3 Press ▲ / ▼ button to select the item, press **OK** button to set.



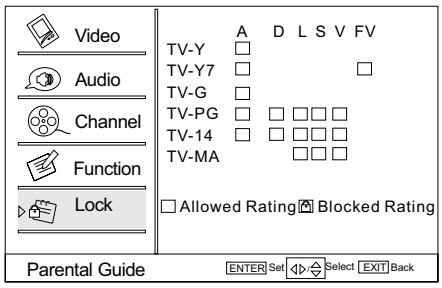
Program Block

Press **VOL+/ ENTER** button to enter the submenu as follows.



❖ **Parental Lock**: Press **VOL+/-** button to select On or Off. Used to lock all the system following. To set Off, the system following can not be available.

❖ **Parental Guide:** Press VOL+/ ENTER button to enter the submenu as follows. To clearly understand TV program rating codes, read the following information:



Note

❏ The Parental control will automatically block certain categories that are "more restrictive". For example, if you block "TV-Y" category, then all the categories in the "young adult" group will be blocked (TV-Y, TV-Y7, TV-G, TV-PG, TV-14 and TV-MA).

❏ The sub-ratings (A, D, L, S, V, FV) work together similarly.

❖ How to set the A, D, L, S, V and FV sub-ratings

- First, press ▲ / ▼ button select one of these Ratings: TV-Y, TV-Y7, TV-G, TV-PG, TV-14, or TV-MA, and press ◀ / ▶ button.
- A symbol "□" will be displayed for each sub-rating.
- While "□" is selected, press **ENTER** button to go to a sub rating. To select a different Rating, press ▲ / ▼ buttons and then repeat the process.

Note

❏ The V-chip will automatically block certain categories that are "More restrictive". For example, if you block "🔒" sub-rating in TV-PG, then the "🔒" sub-ratings in TV-14 and TV-MA will automatically be blocked.

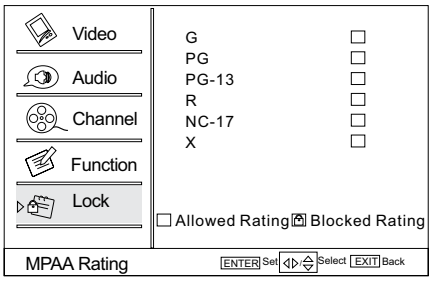
MPAA Rating

- Blocks movies according to the movie ratings limits specified, so children cannot view certain movies. You can set the ratings limit by blocking out all the movies with the ratings above a specified level. Keep in mind that the movie ratings limit only applies to movies shown on TV, not TV programs, such as soap operas.

1 Press ▲ / ▼ button to select **MPAA Rating** item.

2 Press ▶ / **ENTER** button and then use ▲ / ▼ button to select the rating.

3 Press **ENTER** button to set block or unblock.



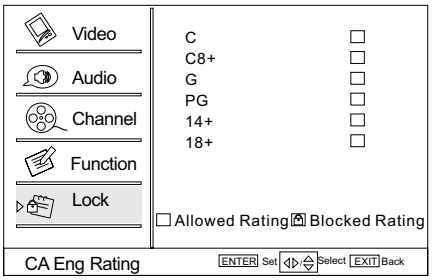
CA Eng Rating

❖ Canadian English Language Rating

1 Press ▲ / ▼ button to select **CA Eng Rating** item.

2 Press ▶ / **ENTER** button and then use ▲ / ▼ button to select the rating.

3 Press **ENTER** button to confirm.



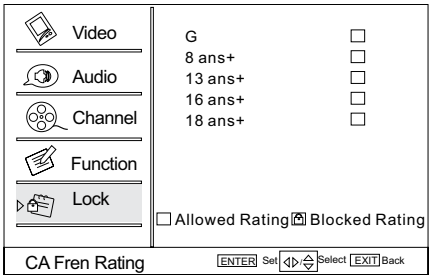
CA Fren Rating

❖ Canadian French Language Rating

1 Press ▲ / ▼ button to select **CA Fren Rating** item.

2 Press ▶ / **ENTER** button and then use ▲ / ▼ button to select the rating.

3 Press **ENTER** button to confirm.

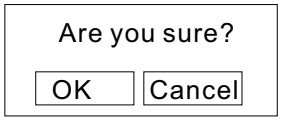


Change Password

Press **VOL+**/ **ENTER** button to enter the submenu, press digits button to input the number of 0-9 twice in the New Password and Confirm Password. Then you can change the password when you input the same number twice.

Clean All

Press **VOL+**/ **ENTER** button to enter the submenu:



Press **VOL+/-** button to select OK or Cancel then **OK** to confirm. If OK, the parameter will return to the factory set.

Note

❏ If there is any lock mark on the top of the set such as channel lock, parental lock and so on, you can press OK to resume it .(Press OK to display password menu and input your password.)

Other Functions

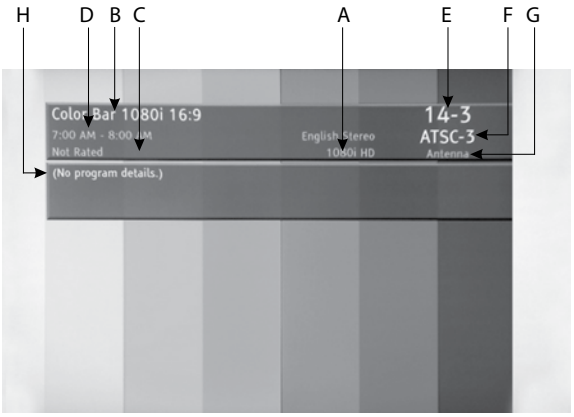
Brief Info

Brief Info shows the present screen information.

- Press **DISPLAY** button to show the Brief Info on the screen.
- Press **DISPLAY** button or **EXIT** button to exit.

Function

- Show the present screen information.
- Press **DISPLAY** button or **EXIT** button to exit.



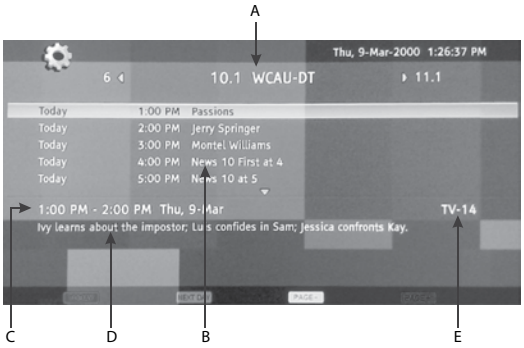
A: Video resolution
B: Program name
C: Program rating categories
D: Program show time
E: Program title
F: Channel label
G: Tuner mode
H: Program details

Using the Guide

The guide allows you to select the channels from a channel list.
The guide allows provides information about the current program being shown on each channel (if information is available from the station).

Note

❏ Program information in the guide is provided by the broadcasters. As a result, it may sometimes include only the channel number, without a program title or description.



A: Program title

B: Program options

C: Program show time

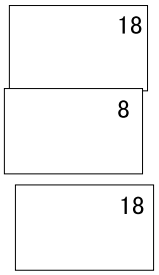
D: Program details

E: Program rating categories

Quick program view

Press to jump back and forth between two channels. The TV alternates between the current channel and the last channel that was selected.

1. Suppose the channel number you used just now is 8 and the channel number you are using is 18 (as shown in the figure).
2. If you want to return to the last watched program channel 8, you can simply press **RECALL** button.
3. If you want to return to channel 18, press the button again.



CC (Closed Caption Display)

Closed Captions

- Closed captioning is a process which converts the audio portion of a television program into written words which then appear as subtitles on the television screen. Closed captions allow viewers to read the dialogue and narration of television programs.

Using Closed Captions

- Captions are the subtitles of the dialogue and narration of television programs. For prerecorded programs, program dialogue can be arranged into captions in advance. Its possible to caption a live program by using a process called real-time captioning, which creates captions instantly.
- Real-time captioning is normally done by professional reporters using a machine shorthand system and computer for translation into English. Captioning is an effective system for the hearing-impaired, and it can also aid in teaching language skills.
- In ATV mode CCD function allows you to configure the way you choose to view the digital captioning (Off, CC 1, CC 2, CC 3, CC 4, Text 1, Text 2, Text 3 or Text 4).

❖ CAPTION

The term for the words that scroll across the bottom of the TV screen; usually the audio portion of the program provided for the hearing impaired.

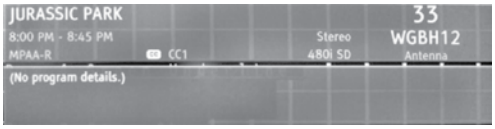
❖ TEXT

The term for the words that appear in a large black frame and almost cover the entire screen; usually messages provided by the broadcaster.

- In DTV mode allows you to configure the way you choose to view the digital captioning (Off, service 1, service 2, service 3, service 4, service 5 or service 6).
- Select one of the digital service channels made available by the caption provider.
- There are 6 standard services. Service 1 is designated as the Primary Caption Service. This service contains the verbatim, or near-verbatim captions for the primary language being spoken in the accompanying program audio. Service 2 is designated as the Secondary Language Service. This service contains captions in a secondary language which are translations of the captions in the primary Caption Service. The other service subchannels are not pre-assigned. It is up to the discretion of the individual caption provider to utilize the remaining service channels.

Note

❑ The captions do not always use correct spelling and grammar. Not all TV programs and product commercials are made for broadcast with Closed Caption information included. Refer to your area's TV program listings for the TV channels and times of Closed Caption shows. The captioned programs are usually noted in the TV listings with service marks such as "CC".



USB Input

1. Supporting media and file format: Digital pictures (.JPG/.JPEG/.BMP(Baseline & Progressive)/.PNG), digital music (.MP3(8~320kbps)) and Video(.avi/.mpg/.mpeg/.vro/.vob/.ts coded with MPEG-1 or MPEG-2 standard) files.
   - Due to differences in the file code and file mode, It is possible that some files cannot be read.
2. Before starting operation, verify USB storage device is of FAT32 file system format. At present, this television does not support NTFS and the file systems of other format.
3. Supports USB/Memory Card Plug & Play (don't need to reset TV system),USB Hard-drive support - only support the class of USB HD that follows USB power consumption spec.
4. The television operation may be halted due to excessive rate of information code errors. In such case, restart the system. Please note - there are many nonstandard USB mobile devices in the market. If a nonstandard device is used then an identification problem may occur.

USB Media Menu operation

1. Plug-in an external storage device into USB port.
2. Press **USB** button on the remote to display multimedia.
3. Press **ENTER** button on the remote to display the sub page.
4. Press **EXIT** button on the remote to return to the previous menu.

To play pictures

1. Press **USB** button on the remote to enter USB media system.The system start up takes about 3 seconds.
   - Then insert the USB drive in the USB input.

2. Press **MENU** button, and the press ▲ / ▼ to select Media Type , Press **ENTER** and press ▲ / ▼ to select Photo.

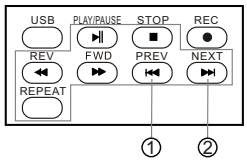
3. Press ▲ / ▼ / ◀ / ▶ button to select folder or file, and then press **ENTER** button to enter the play interface.

1.	**Play mode:** None/Dissolve/Wipe right/ Wipe left/Wipe up/Wipe down/Box in/Box out/ Random	3.	**File name**
		4.	**Pause**
		5.	**Duration**
2.	**Play time:** Short/Medium/Long	6.	**Effect**
		7.	**Information**

4. Press **MENU** button to display the option list.

1.	Play/Pause	4.	Duration
2.	Repeat	5.	Effect
3.	Shuffle	6.	Information

5 Press the button on the remote control to select the adjusted item, press **ENTER** button to confirm.



1.	Play previous picture
2.	Play next picture

6 Press **EXIT** button to return to the previous menu. Press **USB** button to exit the USB mode.

Note

❏ You may play the pictures among selected.

To play music

1 Press **USB** button on the remote to enter stream media system.

2 Press **MENU** button, and the press ▲ / ▼ to select Media Type , Press **ENTER** and press ▲ / ▼ to select Music.

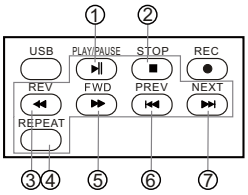
3 Press ▲ / ▼ / ◀ / ▶ button to select folder or file, and then press **ENTER** button to enter the play interface.

1.	Play Time	4.	Shuffle On or Off
2.	File Name	5.	Audio Only
3.	Repeat	6.	Information

4 Press **MENU** button to display the option list.

1.	Play/Pause	4.	Show Info
2.	Repeat	5.	Show Spectrum
3.	Shuffle On or Off	6.	Audio Only

5 Press the button on the remote control to select the adjusted item, press **ENTER** button to confirm.



1.	Play or pause
2	Stop
3.	Fast reverse
4.	Repeat
5.	Fast forward
6.	Play previous music
7.	Play next music

6 Press **EXIT** button to return to the previous menu. Press **USB** button to exit the USB mode.

Note

❏ You may play the music among selected.

To play video

1 Press **USB** button on the remote to enter stream media system.

2 Press **MENU** button, and the press ▲ / ▼ to select Media Type , Press **ENTER** and press ▲ / ▼ to select

Video.

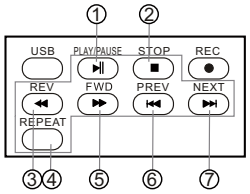
3 Press ▲ / ▼ / ◀ / ▶ button to select desired video folder, and then press **ENTER** button to enter the play interface.

1.	Play Time	4.	Shuffle On or Off
2.	File Name	5.	Audio Only
3.	Repeat	6.	Information

4 Press **MENU** button to display the option list.

1.	Play/Pause	4.	Picture Mode
2.	Repeat	5.	Screen Mode
3.	Show Info		

5 Press the button on the remote control to select the adjusted item, press **ENTER** button to confirm.



1.	Play or pause
2	Stop
3.	Fast reverse
4.	Repeat
5.	Fast forward
6.	Play previous music
7.	Play next music

6 Press **EXIT** button to return to the previous menu. Press **USB** button to exit the USB mode.

Note

❏ Do not remove USB device from the TV until you have exited the USB mode otherwise you may damage the USB device.

Universal Remote Control

Setting Up Your Remote Control

After it has been set up properly, your remote control can operate in six different modes: TV, DVD, VCR, SETBOX, CABLE or AUDIO.

Note

❏ The remote control might not be compatible with all DVD Players, VCRs and Cable boxes.

Control Operation

1 Program the Controller to work with your device.

2 Changing device mode by pressing the TV, DVD, STB, CABLE, VCR, AUD key. When device is set, related device LED will be on for 1 second and then be off.

3 Aim the remote at the device.

4 Use the other Controller buttons to operate the device. Device LED will blink if user presses any key (if the key has data in current mode.). If the key has no data, then LED will not blink.

5 Default init status: TV/Haier codeset.

❖ Manually Programming the Control

Check the code no. from the code list.

1 Choose the device you want to program.

2 While Press and holding **ENTER** key, press **INPUT** key, and device LED will be ON. Keep the status for about 3 seconds and the LED will blink, indicating that the Controller is ready for programming, then release both keys.

3 Led will blink once when you enter a digit key, indicating the digit key is programmed. If 3 digits are programmed successfully, device LED will be ON for about 3 seconds and then blink twice per second. Then User now can:

A) Try to operate the device by using power key.
B) If operation can be done, press **ENTER** key to save current 3-digits code brand to EEPROM and exiting manually programming mode.
C) Return to beginning of step 3. Reprogram the control.

4. If user's input is incorrect, LED will blink 6 times in 3 seconds (2 HZ). And then keep 2 HZ blink, user now can return to step 3 and re-program the device. Within 30 seconds, user should enter the 3-digit brand code corresponding to your device. If time out or any key other than Power and digits is pressed, LED will be off and manually programming process is exit.

❖ Manually scan mode

With manually scan programming, the Controller tests all the codes available in the codeset database and assign the correct one for the selected device. Although this method is more time consuming, it saves you the trouble of looking up the brand codes necessary for manual programming.
To manually-scan program the Controller:

1. Manually turn OFF the device for manually scan mode. (TV, VCR, DVD, STB, cable box or audio equipment).
2. Choose the device you want to program.
3. While Press and holding **ENTER** key, press **INPUT** key, and device LED will be ON. Keep the status for about 3 seconds and the LED will blink, indicating that the Control is ready for programming, then release both keys.
4. Press and release the **CH+**/**CH-** key. it will emit the next or the previous POWER key code. The LED blinks with 10 HZ freq, indicating that the Remote is in manually scan mode.
5. Press **CH+**/**CH-** key repeatedly until the device switches ON (**CH+** key conducts a upward search while the **CH-** key conducts a downward search in the code set database). When the device turns ON, press and release the **ENTER** key to program the Controller with the new code, saving the code to EEPROM and exit.
6. After saving the new code, press **POWER** key. If the device responds, no further programming is required. If the device does not respond, repeat step 3 through 5. And searching will start from current code set.

To exit without programming, press any key or no key was pressed in 30 seconds, manually scan mode will be automatically exit. The code can not be saved to EEPROM.
After searching the entire data base, this mode will be automatically exited and led will blink for 3 times in 1.5 seconds. The code can not be saved to EEPROM.

❖ Automatic Scan Programming the Controller

To automatic scan program the Controller:

1. Manually turn OFF the device you wish to power scan. (TV, VCR, DVD,STB, cable box or audio equipment).
2. Choose the device you wish to program.
3. While Press and holding ENTER key, press the INPUT key and device LED will be ON. Keep the status for about 3 seconds and the LED will blink, indicating that the Controller is ready for programming, then release both keys.
4. Press and release the Mute key to enter automatic scan mode. And the remote will automatically sending codes to the device per 2 seconds.
5. When the device turns ON, press **ENTER** key to program the Controller with the new code, saving it to EEPROM and exit.
6. Press **POWER** key, If the device responds, no further programming is required. If the device does not respond repeat steps 1 through 5.
7. After searching the entire data base, this mode will be automatically exited and led will blink for 3 times. The codeset is not saved to EEPROM.

In automatic scan mode, press any key other than **ENTER** key will exit without programming.

Display mode

1. Choose the device you wish to program.
2. To enter display mode, while press and holding **ENTER** key, press the **INPUT** key and device LED will be ON, keep the status for about 3 seconds and the LED will blink, indicating that the Controller is ready for programming, then release both keys.
3. Sequence press 9, 8, 0 to enter display mode.
4. Press digit 1 key to get the first digit of current codeset. For example, if the first digit of codeset is 1, so then led will blink once and remains OFF. Digit "0" in codeset will not be displayed. Blink Freq is 1 HZ.
5. Press digit 2 key to get the second digit of current codeset. For example, if the second digit of codeset is 3, so then led will blink three times and remains OFF. Blink Freq is 1 HZ.

6 Press digit 3 key to get the third digit of current codeset. Blink Freq is 1 HZ.

7 Only digit 1, 2, 3 are valid in this mode. And the sequence is not fixed.

Controller will not send out data in this mode if user presses any keys other than digit 1, 2, 3, or no key was pressed in 30 seconds, display mode is ended.

Punch-Through Features

The Controller provides two punch-through features that allow users to control TV volume and DVD or VCR operation while the Controller is in another device mode control certain features of another device.

❖ Volume Punch-Through

The TV Volume/Mute punch-through feature allows you to control the volume and mute function of your TV while the Controller is in another device mode. The feature is applicable for all devices and brands that do not use the volume control buttons for other purposes.

❖ Transport Key Punch-Through

The DVD or VCR transport key punch through feature lets you control the PLAY, STOP, PAUSE, REWIND, FF and RECORD functions of your DVD or VCR while the Control operates in other modes. The feature is applicable for all devices and brands that do not use the transport keys for other purposes.

Fast Programming Haier default TV codeset

Press and holding the **ENTER** key and then press **POWER** key for 3 seconds, the LED will blink 3 times and turn off, default Haier codeset (001) will be programmed to the control.

Remote Control Codes

TV

NO.	Brand	Code
1	Haier	001 002 003 004 005 006 007 008 009 010 240 241 297 307 355
2	Abex	077
3	Acer	267
4	Addison	333
5	Admiral	057 078 334 338
6	Advent	324
7	Adventura	079
8	Aiko	066 333
9	Aiwa	165
10	Akai	038 058 258 271 279 331 350
11	Albatron	321 325
12	Alleron	068
13	America Action	335
14	Ampro	323
15	Amtron	067
16	Anam	335
17	Anam National	059 067
18	AOC	060 061 062 222 331 349 350 353
19	Apex	092 135 151 195 339
20	Archos	308
21	Astar	259
22	Audiovox	067 189 191 207 256 333 335 337
23	Aventura	053
24	Axion	280
25	Bang & Olufsen	345 346
26	Baur	058
27	Belcor	060 349
28	Bell & Howell	057
29	Benq	245 246 284 329
30	Bradford	067 335
31	Brillian	342
32	Brockwood	060 349
33	Broksonic	197 335 338
34	byd:sign	310
35	Candle	060 062 063 079 331 350
36	Carnivale	331 350
37	Carver	055 320
38	CCE	239 351
39	Celebrity	058
40	Celera	339
41	Centurion	064
42	Changhong	339
43	Ching Tai	333
44	Chun Yun	333 335 361 374
45	Chung Hsin	335 364
46	Citizen	060 062 063 066 067 074 076 331 333 350 352 354 380
47	Clarion	335
48	Coby	210
49	Colortyme	060 062
50	Colt	377
51	Commercial Solutions	332
52	Concerto	060 062
53	Contec	335
54	Contec/Cony	065 067
55	Craig	067 335
56	Crosley	055 293 320
57	Crown	067 071 335 352
58	CTX	235
59	Curtis Mathes	038 055 056 060 062 074 076 088 320 331 332 334 337 340 350 352 354
60	CXC	067 335
61	Cytron	238 278
62	Daewoo	060 061 062 066 076 093 117 125 152 333 337 349 352 380
63	Daytron	060 062 076 349
64	Dell	251 285 304
65	Denon	340
66	DiamondVision	311 317 319
67	Dimensia	056 088
68	Disney	132
69	Dumont	031 060 330 349
70	Durabrand	053 097 137 341 335 338
71	Dwin	322 334
72	Electroband	058
73	Electrograph	243
74	Electrohome	058 059 060 062
75	Element	228
76	Emerson	053 060 062 065 067 068 076 093 137 266 292 335 338 349 352 380
77	Emprex	314
78	Envision	060 062 222 331 350
79	Epson	225
80	Erres	347
81	ESA	053
82	Ether	362
83	Firstar	372
84	Fujitsu	068 216
85	Funai	053 067 068 335
86	Furi	368
87	Futuretech	067 335
88	Gateway	243 274 341 360
89	GE	027 056 059 060 062 069 070 085 088 107 116 332 337 378
90	GFM	051 305
91	Gibralter	031 060 330 331 349 350
92	Go Video	328
93	Goldstar	060 061 062 065 076 077 331 349 350 379
94	Gradiente	242
95	Grundig	351
96	Grunpy	067 068 335
97	Hallmark	060 062
98	Hankook	335 362 371
99	Harman/Kardon	055
100	Harvard	067 335

NO.	Brand	Code
101	Havermy	334
102	Hello Kitty	337
103	Hewlett Packard	175 204 219
104	Hisense	250 370 375
105	Hitachi	032 060 062 065 126 127 134 149 150 186 200 340
106	HP	204 219
107	Hyundai	327
108	Ilo	174 254 266 312
109	IMA	067
110	Infinity	055 071 320
111	InFocus	275
112	Initial	277
113	Innova	351
114	Insignia	097 237 298 299 300 306 313
115	Inteq	330
116	Janeil	079
117	JBL	055 071 320
118	JC Penney	056 060 061 062 063 069 070 074 076 077 088
119	JCB	058
120	Jean	333 363 370 372
121	Jensen	060 062 236
122	Jinxing	365 368 370
123	JVC	047 048 049 065 070 114 154 172 199 201
124	Kawasho	058 060 062
125	Kaypani	353
126	KEC	335
127	Kenwood	060 062 331 349 350
128	Kioto	055
129	KLH	339
130	Kloss Novabeam	067 079
131	Kolin	335 369
132	KTV	067 076 331 335 350 352
133	LG	030 060 061 182 224 257 302 321 350
134	Loewe	071
135	Logik	057
136	Luxman	060 062
137	LXI	055 056 062 071 088 151 320 332
138	M & S	055
139	Magnasonic	380
140	Magnavox	052 055 060 062 063 071 090 105 108 110 163 174 176 218 320 331 350
141	Magnin	378
142	Majestic	057
143	Marantz	055 060 062 071 231 272 320 331 350 351
144	Matsushita	336
145	Maxent	243 252 301
146	Mediator	374
147	Megapower	321
148	Megatron	062 340
149	Memorex	057 061 062 137 181 338 376 379
150	MGA	060 061 062 331 349 350 378
151	Midland	031 070 076 077 330 332 352
152	Mintek	174
153	Minutz	069
154	Mitsubishi	060 061 062 119 159 170 334 349
155	Monivision	321 325
156	Montgomery Ward	057
157	Motorola	059 078 334
158	MTC	060 061 062 074 331 349 350 354
159	Multitech	067 335
160	Multivision	072
161	NAD	062 151 351
162	NEC	059 060 061 062 234 268 331 349 350
163	Netsat	351
164	NET-TV	243 247
165	Newave	333 367 371
166	Nikko	062 066 331 333 350
167	Norcent	222
168	Noshi	348
169	NTC	066 333
170	Olevia	138 192 221 357 358
171	Onwa	067 335
172	Oppo	282
173	Optimus	336 376
174	Optoma	276
175	Optonica	073 078 334
176	Orion	097 338
177	Otto Versand	058
178	Panasonic	021 022 023 024 025 026 059 070 071 086 103 122 144 147 155 168 183 185 336 376
179	Penney	151 331 332 348 349 350 352 354 378 379
180	Philco	055 059 060 061 062 063 065 071 181 320 331 349 350
181	Philips	040 041 042 043 044 045 046 055 059 060 063 065 071 089 090 091 096 160 162 164 169
		174 177 179 190 208 291 320 347 351
182	Philips Magnavox	042 045 089 090 096
183	Phonola	347
184	Pilot	060 076 331 349 350 352
185	Pioneer	060 062 156 157 205 212
186	Plasmsync	269
187	Polaroid	211 217 220 228 315 339
188	Portland	060 061 062 066 076 333 349 352
189	Price Club	074
190	Prima	281 324
191	Princeton	321
192	Prism	070
193	Proscan	027 056 088 332
194	Proton	060 062 065 353
195	Protron	196 262
196	Proview	263 343
197	Pulsar	031 060 330 349
198	Pye	347
199	Quasar	022 059 070 336 376
200	Quelle	058
201	Radio Shack/Realistic	056 060 062 065 067 073 076 077
202	Radiola	347
203	Radio Shack	088 331 332 335 349 350 352
204	RCA	027 028 029 056 059 060 061 062 082 088 095 098 332 348 349 354 378
205	Realistic	088 331 335 349 350 352
206	Runco	031 330 331 350
207	Sampo	060 062 076 077 243 283 331 350 352 353
208	Samsung	037 038 039 060 061 062 065 074 076 077 129 130 140 143 158 166 178 193 194 209 213
		229 232 286 294 295 331 349 350 351 354
209	Samsux	352
210	Sansui	097 338
211	Sanyo	060 249 270 378
212	SBR	347
213	Sceptre	264
214	Scimitsu	349
215	Scotch	062
216	Scott	060 062 065 067 068 255 335 349
217	Sears	053 055 056 060 062 068 080 088 151 244 320 332 379
218	SEI	058
219	Sharp	033 034 035 036 060 062 065 073 076 078 083 112 131 139 142 145 167 171 180 198 202
		203 334 352
220	Shen Ying	333
221	Sheng Chia	334 367
222	Shogun	060 349
223	Signature	057
224	Simpson	063
225	Sinudyne	058
226	SKY	351
227	Skygiant	335
228	Sony	011 012 013 014 015 016 058 087 094 101 102 118 124 128 136 148 153 184 206 226 287
		288
229	Soundesign	060 062 063 067 068 335
230	Sowa	366 370
231	Squareview	053 080
232	SSS	060 067 335 349
233	Starlite	067 335
234	Studio Experience	325
235	Superscan	052 260 334 356
236	Supre-Macy	079
237	Supreme	058
238	SVA	230 355
239	Sylvania	046 050 051 052 053 054 055 060 062 063 071 137 141 161 289 320 331 350
240	Symphonic	053 067 080 141 335
241	Synco	333 337 361 366 367 371
242	Syntax	138 192 344 357 358
243	Syntax-Brillian	192 244
244	Tacico	333 371
245	Tandy	078 334
246	Tatung	059 253 273 341 360 363 366 370
247	Technics	070 336
248	Techview	326
249	Techwood	060 062 070
250	Teco	363 367 371
251	Teknika	055 057 060 061 062 063 065 066 067 068 074 076 320 333 335 349 352 354
252	Telecaption	075
253	Telefunken	038
254	Thomson	088
255	TMK	060 062
256	TNCi	330
257	Toshiba	017 018 019 020 074 075 099 100 104 106 109 111 113 115 120 123 146 151 173 227 354
258	Totevision	076 352
259	Trutech	248

NO.	Brand	Code
260	Tuntex	333 362
261	TVS	338
262	Universal	069
263	Vector Research	331 350
264	Victor	065
265	Vidikron	055 320
266	Vidtech	060 061 062 349
267	Viewsonic	133 214 218 223 233 243 316 356
268	Viking	079
269	Viore	254
270	Visco	309
271	Vizio	133 257 261 296 318 341 356 359 360
272	Wards	055 056 057 060 061 062 068 069 071 073 088 320 331 349 350
273	Waycon	151
274	Westinghouse	133 187 188 195 215 290 303 337
275	White Westinghouse	093 338
276	Yamaha	060 061 062 331 349 350
277	Yapshe	373
278	Zenith	030 031 032 057 060 081 084 093 121 330 333 338

DVD

NO.	Brand	Code
1	Accele Vision	250
2	Accurian	355
3	Advent	330
4	Aiwa	307
5	Akai	280 323 361
6	Alco	328
7	Allegro	349
8	Alpine	257
9	Amphion MediaWorks	258
10	AMW	258
11	Apex	025 026 027 028 078 117 172 192 342 343
12	Apple	319
13	Arrgo	351
14	Aspire	332
15	Astar	252
16	Audiovox	164 167 223 328
17	Axion	281
18	Bang & Olufsen	344
19	Blaupunkt	249 343
20	Blue Parade	340
21	BOSE	062 079
22	BOSS	251
23	Boston Acoustics	381
24	Broksonic	123 323
25	California Audio Labs	325
26	CambridgeSoundWorks	290
27	Changhong	326 375
28	CineVision	196 349 350
29	Clarion	262
30	Classic	236
31	Coby	082 129 143 237 331
32	Curtis	129
33	Curtis Mathes	352
34	CyberHome	029 048 351 368 373 374 377
35	Cytron	279
36	Daewoo	113 349 361
37	Denon	070 182 198 209 299 300 325
38	Desay	268
39	DiamondVision	320 321 322
40	Disney	100 132
41	Dual	312
42	Durabrand	353
43	DVD2000	337
44	Eclipse	227
45	Emerson	063 248 324 345 385
46	Enterprise	345
47	ESA	259 354
48	Fisher	305 346
49	Funai	354 385
50	Gateway	376 378 384
51	GE	101 195 338 343
52	GFM	204
53	Go Video	118 349 382 384
54	Goldstar	120
55	GPX	194
56	Gradiente	270 325
57	Greenhill	343
58	Grundig	339

NO.	Brand	Code
59	Haier	334
60	Harman/Kardon	224 347
61	Hitachi	014 136 203 244
62	Hiteker	342
63	iLive	293
64	Ilo	213
65	iLuv	314
66	Initial	278 343
67	Insignia	274 289 298 303 354
68	Integra	326 340
69	Irradio	174
70	iSymphony	294
71	Jamo	308
72	JBL	162 347
73	Jensen	311 331
74	JVC	030 031 032 033 034 035 036 037 038 086 087 095 103 122 141 142 161 173 214 218 243 306 341
75	Jwin	309
76	Kawasaki	328
77	Kenwood	325
78	KLH	115 272 328 343
79	Konka	359 360
80	Koss	153 286 327 334
81	Landel	363
82	Lasonic	263 348
83	Lenoxx	333 353
84	Lexicon	357
85	LG	102 151 165 185 189 201 211 242 256 283 345 349
86	Liquid Video	334
87	Liteon	158 219 355 384
88	Loewe	356 365
89	Magnavox	068 071 124 156 179 213 298 324 336 339 354
90	Marantz	245 301 302 339
91	Memorex	100 133 323
92	Microsoft	338
93	Mintek	213 278 343
94	Mitsubishi	106 177 190 337
95	NAD	264
96	Nakamichi	310
97	Nesa	343
98	Next Base	363
99	Nexxtech	271
100	Norcent	129 246
101	Onkyo	145 188 197 206 207 326 336
102	Oppo	273 284
103	Oritron	327 334
104	Panasonic	017 018 019 020 021 022 023 024 051 059 067 070 072 073 077 080 083 091 099 135 138 160 181 183 184 199 205 233 234 235 325 336 387 388
105	Philco	328
106	Philips	007 041 042 071 098 137 144 152 157 168 174 176 178 208 213 336 339 357 385
107	Pioneer	043 044 045 046 047 058 110 150 200 229 247 340 390
108	Polaroid	028 241 277
109	Polk Audio	339
110	Portland	361
111	Presidian	385
112	Prima	282 383
113	Princeton	358
114	Proceed	342
115	Proscan	069 338
116	Pye	276
117	Qwestar	327
118	RCA	039 040 069 090 166 191 328 338 340 343
119	Regent	333
120	Rio	349
121	Rotel	341
122	Rowa	329
123	Sampo	119 265 370 372
124	Samsung	012 013 014 015 016 054 064 066 074 075 085 104 105 108 111 121 125 134 154 193 210 226 325 389
125	Sansui	228 275 323
126	Sanyo	287 323 346
127	Sensory Science	384
128	Sharp	093 119 187 202 220 291 295 296 297
129	Sharper Image	368
130	Sherwood	292 361
131	Shinco	260
132	Shinsonic	213 335
133	Sigma Designs	358
134	Sonic Blue	349
135	Sony	000 001 002 003 004 005 006 049 052 055 056 057 060 061 065 076 081 092 094 097 109 112 114 126 127 128 146 147 148 155 230 231 232 316 317 318 335
136	Sungale	267

NO.	Brand	Code
137	Superscan	124 324
138	SVA	364
139	Sylvania	042 063 124 133 159 204 225 285 324 354 385 386
140	Symphonic	133 159 385
141	Teac	266 328 371 379 380
142	Technics	325
143	Techwood	261
144	Terapin	366
145	Theta Digital	340
146	Toshiba	007 008 009 010 011 050 053 084 088 089 096 107 130 131 140 163 169 170 171 175 186 212 215
		216 217 221 238 239 240 254 255 323 336
147	Tredex	362
148	Trutech	296
149	Tview	313
150	Urban Concepts	336
151	US Logic	213
152	Venturer	288 328
153	Vizio	367 369
154	Vocopro	315
155	Westinghouse	222
156	Xbox	338
157	Yamaha	180 253 325 339
158	Zenith	102 116 120 139 149 336 345 349

VCR

NO.	Brand	Code
1	ABS	111
2	Adventura	008 032
3	Aiwa	008 032 095 112
4	Akai	019
5	Alienware	111
6	American High	031
7	Apex	115
8	Asha	012 029
9	Audio Dynamics	016
10	Audiovox	030 082 112
11	Bang & Olufsen	113
12	Beaumark	012 029
13	Bell & Howell	028
14	Broksonic	074 099 114
15	Calix	030 112
16	Candle	029 030
17	Canon	031
18	CineVision	094
19	Citizen	029 030 112 121
20	Colortyme	016
21	Colt	118
22	Craig	012 029 030 112
23	Curtis Mathes	016 029 031
24	Cybernex	012 029
25	Cyperpower	111
26	Daewoo	018 032 051 093 121
27	Davidson	008
28	DBX	016
29	Dell	111
30	Denon	013
31	DiamondVision	107
32	DIRECTV	110 122 124 125 129 130 134 136
33	Dishpro	133
34	Durabrand	025
35	Dynatech	008 032
36	Echostar	133
37	Electrohome	010 030 112
38	Electrophonic	030 112
39	Emerson	008 010 020 030 031 032 105 112 116 121
40	ESA	101
41	Expressvu	133
42	Fisher	028 073
43	Fuji	031
44	Funai	008 020 032 105 116
45	Garrard	008 032
46	Gateway	111
47	GE	012 029 031 055 119
48	Go Video	012 072
49	GOI	133
50	Goldstar	016 030 106 112 120
51	Gradiente	008 032
52	Harley Davidson	032
53	Harman/Kardon	016
54	Headquarter	028
55	Hewlett Packard	111
56	Hitachi	008 013 048
57	HNS	110
58	Howard Computers	111
59	HP	111
60	HTS	133
61	Hughes Network Systems	013 110 122 124 125 130
62	Humax	110 122
63	Hush	111
64	iBUYPOWER	111
65	Insignia	081
66	Instant Replay	031
67	JC Penney	016 028 029 030 031
68	JCL	031
69	JVC	014 015 016 028 040 059 060 083 084 085 086 122 133
70	KEC	112
71	Kenwood	016 028
72	Kodak	030 031 112
73	LG	030 081 091
74	Linksys	111
75	Lloyd's	008 032
76	LXI	030 112
77	Magnasonic	020 121
78	Magnavox	008 020 021 025 027 031 044
79	Magnin	012 030 119
80	Marantz	016 028 031
81	Marta	030 112
82	Matsushita	031
83	Media Center PC	111
84	MEI	031
85	Memorex	008 012 025 028 029 030 031 032 100 108 112 114 117 120
86	MGA	010 012 119
87	MGN Technology	012 029
88	Microsoft	111
89	Mind	111
90	Minolta	013
91	Mitsubishi	010 041
92	Motorola	031
93	MTC	008 012 029
94	Multitech	008 029 032
95	NEC	016 028
96	Nikko	030 112
97	Niveus Media	111
98	Noblex	012 029
99	Northgate	111
100	Olympus	031
101	Optimus	020 030 112 117
102	Optonica	023
103	Orion	045 108
104	Panasonic	000 001 002 003 031 035 037 056 063 079 089 098 109 117 128
105	Penney	012 013 112 119 120
106	Pentax	013
107	Philco	031
108	Philips	023 031 044 071 087 110 116 122 124 125 126
109	Philips Magnavox	044
110	Pilot	030 112
111	Polaroid	104 115
112	Presidian	116
113	Profitronic	012
114	Proscan	069 070 134
115	Pulsar	025
116	Pye	103
117	Quarter	028
118	Quartz	028
119	Quasar	031 076 117
120	Radio Shack	008 023 030
121	Radio Shack/Realistic	023 028 029 030 031 032
122	Radix	030 112
123	Randex	030 112
124	RCA	011 012 013 029 031 034 058 067 097 110 119 122 124 134 136
125	Realistic	008 023 028 029 030 031 032 112
126	ReplayTV	109 127
127	Ricavision	111
128	Runco	025
129	Samsung	012 017 018 019 029 043 049 050 068 080 110 124
130	Sanky	025
131	Sansui	008 045 102 108 114
132	Sanyo	012 028 029 073 119
133	Scott	010 018
134	Sears	008 013 028 030 031 112 120
135	Sharp	022 023 052 090 096

NO.	Brand	Code
136	Shogun	012 029
137	Singer	031
138	Sonic Blue	109 127
139	Sony	004 005 006 007 008 033 036 038 039 046 064 065 066 075 111 123 131 135
140	Stack	111
141	STS	013 031
142	Superscan	021
143	Sylvania	008 010 020 021 031 032 048 062 088 116
144	Symphonic	008 020 021 032 105 116
145	Systemax	111
146	Tagar Systems	111
147	Tandy	028
148	Tashiko	030
149	Teac	008 032
150	Technics	031
151	Teknika	008 030 031 032 112
152	Thomas	008
153	Tivo	110 122 123 124 126 130 131 135
154	TMK	012 029
155	Toshiba	009 010 018 042 047 053 054 057 061 077 111 132
156	Totevision	012 029 030 112
157	Touch	111
158	UltimateTV	136
159	Unitech	012 029
160	Vector	018
161	Vector Research	016
162	Video Concepts	016 018
163	Videomagic	112
164	Videosonic	012 029
165	Viewsonic	111
166	Villain	008
167	Voodoo	111
168	Wards	008 012 013 023 029 030 031 032
169	White Westinghouse	105
170	XR-1000	008 031 032
171	Yamaha	016 028
172	Zenith	008 024 025 026 078 092
173	ZT Group	111

SETBOX

NO.	Brand	Code
1	AccessHD	076
2	Alpha Digital	076
3	Alphastar	036
4	Artec	072
5	CaptiveWorks	067
6	Channel Master	078
7	Chaparral	027
8	Coolsat	066
9	Coship	083
10	Crossdigital	099
11	Digital Stream	077
12	DIRECTV	006 007 008 009 010 011 012 017 022 023 024 025 026 040 043 047 048 049 050 052 053 055 057
		085 086 088 091 096 097
13	Dish Network	000 001 002 003 013 014 087 089 092 095
14	Dishpro	087 089 092 095
15	Drake	028
16	Echostar	000 013 014 087 089 092 095 098
17	Expressvu	089 095 098
18	GE	004 005 080
19	General Instrument	029 093
20	GOI	095
21	Goodmind	081
22	Hisense	094
23	Hitachi	023 037
24	HTS	095
25	Hughes Network Systems	008 011 016 017 019 024 040 052 085
26	Humax	068
27	Ilo	094
28	Insignia	075
29	Jerrold	093
30	JVC	000 013 014 095
31	Lasonic	082
32	LG	059 071
33	Magnavox	022 073
34	Memorex	022
35	MicroGem	074
36	Mitsubishi	017 063
37	Motorola	090 093
38	Next Level	093
39	Panasonic	009 057 060 061
40	Pansat	064
41	Paysat	022
42	PCT	078
43	Philco	073
44	Philips	008 016 017 019 021 022 049 050 085
45	Pioneer	008
46	Primestar	035
47	Proscan	004 005 051 088
48	Proton	094
49	Radio Shack	093
50	RCA	004 005 006 019 025 039 041 044 045 046 047 048 051 069
51	Realistic	030
52	Samsung	008010 018 019 020 053 056 058
53	Sharp	062
54	Sony	007 015 042 043 054 055 086
55	Star Choice	090 093
56	STS	038
57	STS1	031
58	STS2	032
59	STS3	033
60	STS4	034
61	Tivax	0776
62	Tivo	008 019
63	Toshiba	011
64	UltimateTV	086
65	Uniden	022
66	US Digital	094
67	Viewsat	065
68	Voom	093
69	Zenith	012 070 079
70	Zentech	084

CABLE

NO.	Brand	Code
1	ABC	009 010 011 013 031 044
2	Adelphia	007
3	Americast	050
4	Antronix	015 016
5	Archer	016
6	AT&T	003
7	Bell South	050
8	Cable Vision	006
9	Cabletenna	015
10	Cableview	014
11	Clearmaster	049
12	ClearMax	049
13	Colour Voice	018
14	Comcast	000 005
15	Comtronics	019
16	Contec	020
17	Coolmax	049
18	COX	005
19	Daeryung	057
20	Director	043
21	Dumont	056
22	Eastern	021
23	Everquest	045
24	Focus	048
25	GC Electronics	016
26	GE	009 010
27	Gehua	055
28	Gemini	045
29	General Instrument	005 008 010 040 042 043
30	Goldstar	046
31	Hamlin	022
32	Hitachi	010
33	Jasco	045
34	Jerrold	008 010 031 032 040 042 043 045
35	LG	053
36	Magnavox	025
37	MegaCable	005
38	Memorex	024 044
39	Motorola	000 003 005 008 039 040 042 043
40	Movie Time	025
41	Multitech	049
42	NEC	012
43	NET Brazil	036
44	NSC	025
45	Oak	020

NO.	Brand	Code
46	Pace	001 047
47	Panasonic	028 030 044
48	Paragon	044
49	Philips	017 018 023
50	Pioneer	002 026 033 038 046
51	Popular Mechanics	048
52	Proscan	009 010
53	Pulsar	044
54	Quasar	044
55	Radio Shack	045 049
56	RCA	014 030
57	Realistic	016
58	Recoton	048
59	Regal	020
60	Regency	021
61	Rembrandt	010
62	Runco	044
63	Samsung	001 026 035 046
64	Scientific Atlanta	001 002 003 007 013 037 038 041
65	Signal	045
66	Signature	010
67	Sony	006 051
68	Sprucer	030
69	Standard Component	027
70	Starcom	031 045
71	Stargate	045
72	Starquest	045
73	Supercable	040
74	Supermax	049
75	TIME WARNER	004
76	Tocom	011
77	Torx	052
78	Toshiba	044
79	Trans PX	054
80	Tristar	049
81	TS	052
82	Tusa	045
83	Tv86	025
84	Unika	015 016
85	United Cable	031
86	Universal	015 016
87	V2	049
88	View Star	020 023 025
89	Viewmaster	049
90	Vision	049
91	Vortex View	049
92	Zenith	029 034 044 050
93	Zentek	048

AUDIO

NO.	Brand	Code
1	Accuphase	292
2	Acurus	266
3	ADC	319
4	Adcom	208 219
5	Admiral	308
6	ADS	309
7	Aiwa	118 126 168 318
8	Akai	310
9	Alco	332
10	Altec Lansing	301
11	Amphion Media Works	325
12	AMW	325
13	Anam	321
14	Angstrom	267
15	Apex	195
16	Arcam	294 311
17	AudioSource	268
18	Audiotronic	322
19	Audiovox	190 214 220 332
20	B & K	213 236
21	Bang & Olufsen	336
22	Bel Canto Design	269
23	Biamp	270
24	BOSE	071 088 285
25	Boston Acoustics	305
26	California Audio Labs	271
27	Cambridge Sound Works	241
28	Capetronic	319
29	Carver	318 322
30	Cary Audio Design	272
31	Casio	329
32	Chase Technologies	273
33	Clarinette	329
34	Classe	297
35	Classic	221
36	Coby	147 331
37	Creative	274 302
38	Curtis	207
39	Curtis Mathes	283
40	Dell	312
41	Denon	053 054 055 056 057 133 134 156 157 158 160 161 163 164 165 171 172 176 180 185 187 188 189 206
42	Digital Audio Control	275
43	Dual	258
44	Durabrand	299
45	Eclipse	218
46	Elan	295
47	Emerson	229
48	Fisher	326
49	Fonmix	303
50	Fosgate	276
51	GE	048 282
52	Glory Horse	331
53	Go Video	306
54	GPX	196
55	Gradiente	235 313
56	Harman/Kardon	177 224 286 318
57	Hitachi	326
58	iLive	244
59	Inkel	314
60	Insignia	233 240
61	Integra	317
62	iSymphony	245
63	Jamo	256
64	JBL	186 193
65	Jensen	257
66	JVC	032 033 034 035 036 037 104 121 150 182 211 284 331
67	Kenwood	038 039 040 041 042 073 082 089 095 115 122 130 135 323
68	KLH	332
69	Knoll Systems	277
70	Koss	237 324
71	Krell	225
72	Left Coast	386
73	Lenoxx	299 333
74	LG	175
75	Linn	318
76	Lloyd's	329
77	Logitech	278
78	Luxman	279 288
79	Magnavox	075 191 318 319 322 329
80	Marantz	215 228 260 286 291 318 322 328
81	Mark Levinson	298
82	McIntosh	227
83	MCS	328
84	Memorex	315
85	Midiland	280
86	Mitsubishi	184 194
87	Modulaire	329
88	NAD	261 335
89	Nakamichi	291 334
90	NEC	290
91	Nikko	281
92	Onkyo	043 044 045 046 047 080 018 087 094 097 119 124 127 146 166 167 178 181 203 217
93	Optimus	283 293 319 320 321 330
94	Oritron	324
95	Panasonic	019 020 201 022 023 024 069 076 077 091 098 107 113 144 151 209 328
96	Parasound	230
97	Penney	329
98	Philco	332
99	Philips	183 210 286 294 318 322
100	Pioneer	025 026 027 028 029 030 031 062 068 072 090 100 101 105 123 132 148 149 162 212 246 247 248 249 250 251 252 253 254 283 287 319 320
101	Polaroid	222 226
102	Polk Audio	216 286 318
103	Prima	307
104	Proscan	048
105	Qisheng	304
106	Quasar	328
107	RadioShack	331
108	RCA	048 049 050 051 151 137 234 283 319 320 321 332

NO.	Brand	Code
109	Realistic	293 329
110	Regent	333
111	Rio	327
112	Rotel	231
113	Samsung	084 103 138 143
114	Sansui	291 318
115	Sanyo	238 326
116	Sharp	205 242 296
117	Sharper Image	331
118	Sherwood	145 243
119	Shure	290
120	Sonic Blue	327
121	Sony	000 001 002 003 004 005 006 007 058 058 059 060 061 063 064 065 066 067 070 074 079
		085 093 108 109 110 111 112 117 125 128 129 131 140 170 262 263 264 265
122	Soundesign	282 289 330
123	Soundmatters	232
124	Soundstream	316
125	Stereophonics	320
126	Sunfire	323
127	Teac	223 321 332
128	Technics	052 086 114 116 141 328
129	Thorens	322
130	Toshiba	152
131	Tview	259
132	Venturer	239 332
133	Victor	284
134	Wards	282 287 289 318
135	Xantech	300
136	Yamaha	008 009 010 011 012 013 014 015 016 017 018 078 083 092 096 099 102 106 120 139 142
		153 154 155 169 173 174 179 192 197 198 199 200 201 202 204 255 317
137	Yorx	329
138	Zenith	136 159

Maintenance

Maintenance

Early malfunctions can be prevented. Careful and regular cleaning can extend the amount of time you will have your new TV. Be sure to turn the power off and unplug the power cord before you begin any cleaning.

Cleaning the Screen

1. Here's a great way to keep the dust off your screen for a while. Wet a soft cloth in a mixture of lukewarm water and a little fabric softener or dish washing detergent. Wring the cloth until it's almost dry, and then use it to wipe the screen.
2. Make sure the excess water is off the screen, and then let it air-dry before you turn on your TV.

Cleaning the Cabinet

To remove dirt or dust, wipe the cabinet with a soft, dry, lint-free cloth. Please be sure not to use a wet cloth.

Extended Absence

If you expect to leave your TV dormant for a long time (such as a vacation), it's a good idea to unplug the power cord to protect against possible damage from lightning or power surges.

Specification

Product Specification

Resolution	42"46"
	1920X1080 (Dot)
Power requirement	120 V~ , 60 Hz
Stand-by Consumption	less than 1 W (models - HL26R1/ HL32R1/HL26K1/HL32K1/HL32XK1/ HL32P1)
Color system	NTSC, ATSC, Clear QAM
External Antenna Impedance	75 ohm
Color	16,770,000 (256 steps of each R, G and B)
Operating Temperature Range	32~104 °F (0~40 °C)
Operating Humidity Range	Less than 80%
Maximum Elevation	6561 feet (2000 m)

MODEL	Dimensen (WXDXH) Unit:inches/ mm (Including stand)	Weight (pounds/kg)
42"	26.1X7.9 X19.7 inches 662X200X501 mm	22.0/10.0
46"	26.1X7.9 X19.6 inches 662X200X500 mm	18.1/8.2

Troubleshooting

Troubleshooting

- For the sake of time and cost, it is strongly recommended that you check out the problem by yourself according to the instructions listed hereunder before contacting the after-sales service for technical assistance.

No picture, no sound	Verify if the television is properly plugged. Verify if the television is properly supplied power. Verify if electricity is available.
Blank screen	Verify if correct signals are input. Press **INPUT** button to change signal input to TV input. Restart the television of power supply is interrupted.
No sound	Press **Mute** button and verify if Mute mode is set. Switch to other channel and verify if the same problem happens. Press **VOL+** button to see if the problem can be solved.
Poor sound	Verify if sound system is correct. Refer to Page 20 for adjustments.
No picture in some channel	Verify if correct channel is selected. Adjust the antenna. Make adjustments by Fine Tune and Manual Scan.
No color for some channel program (black and white)	Verify if the same problem exists in other channels. Check out of picture and sound systems. Refer to relative instructions in the Manual for color adjust.
Spots with some or all pictures	Verify if the antenna is correctly connected. Verify if the antenna is in good condition. Make fine adjustment of channel.
Horizontal/ vertical bars or picture shaking	Check for local interference such as an electrical appliance or power tool.
Television out of control	Disconnect the television from power supply and, 10 seconds later, connect the television to the power supply. If the problem still exists, contact authorized after-sales service for technical assistance.

Note

❏ Do not leave the television with static picture in an extended period as the image may become permanently burned.

Note

❏ Production of the LCD screen requires high and precision technologies. However, there might be some dark or bright (red, blue or green) spots, or some anomalistic stripes or spots. This is not defect. If the TV set is used in an area 2,400 meters above the sea level where the air pressure is below 750 hpa, the picture on the LCD screen may be affected and a muffled sound might be produced. These phenomena might happen in the area 1,500 meters above the sea level. This is resulted from difference between air pressures inside and outside the display. This is not a defect covered by the limited warranty.

Warranty

Warranty

This Haier brand product, when shipped in its original container, will be free from defective workmanship and materials, and agrees that it will, at its option, either repair the defect or replace the defective product with a new or remanufactured equivalent at no change to the purchaser, for parts or labor for the periods set forth below:

This warranty does not apply to the appearance of the product or the exterior of the product, which has been damaged or defaced, altered or modified in design or construction. It does not apply to the additional excluded items set forth below:

The warranty commences on the date the item was purchased and the original purchase receipt must be presented to the authorized service center before warranty repairs are rendered.

The limited warranty described herein is in addition to whatever implied warranties may be granted to purchasers by law. ALL IMPLIED WARRANTIES INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE ARE LIMITED TO THE PERIOD(s) FROM THE DATE OF PURCHASE SET FORTH BELOW. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

Neither the sales personnel of the seller nor any other person is authorized to make any warranties other than those described herein, or to extend the duration of any warranties beyond the time period described herein on behalf of Haier.

The warranties described herein shall be the sole and

exclusive warranties granted by Haier and shall be the sole and exclusive remedy available to the purchaser. Correction of defects in the manner and for the period of time described herein, shall constitute complete fulfillment of all abilities and

Responsibility of Haier to the purchaser with respect to the product, and shall constitute full satisfaction of all claims, whether based on contract, negligence, strict duality or otherwise. In no event shall Haier be liable, or in any way responsible for any damages or defects in the product which were caused by repairs or attempted repairs performed by anyone other than an authorized service center or dealer; nor shall Haier be liable, or in any way responsible for incidental or consequential economic or property damage. Some states do not allow the exclusion of incidental or consequential damages, so that above exclusion may not apply to you.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS. YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

Warranty period for this product: one year parts and labor.
Additional items excluded from warranty coverage: non-rechargeable batteries. Where to obtain service: For the location of the nearest Haier authorized service center or to obtain product literature, accessories, supplies or customer assistance, please call 1-877-337-3639.
What to do to obtain service: ship or carry in your product to an authorized service dealer or center. Be sure to have proof of purchase.
If you ship the product, be sure it is packaged carefully.
Haier America
New York, NY 10018

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	=>HDMI INT input,(H=normal,L=Int)
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	NC	
ADIN5	ADIN5	NC	
OPWR0_5V	OPWR0_5V	OPWR0_5V of HDMI	=>NC
OPCTRL0	OPCTRL0	OPWR1_5V--->24C32 WP(L=Write Enable)	=>DELETE OPWR1_5V =>24C32 WP
OPCTRL1	OPCTRL1	OPWR2_5V---->AMP MUTE(Hi=MUTE)	=>DELETE OPWR2_5V =>AMP MUTE
OPCTRL2	OPCTRL2	jtms/LED_red / System status LED	
OPCTRL3	OPCTRL3	strap[4]	=>NC
OPWM0	OPWM0	strap[1]	=>NC
OPWM1	OPWM1	strap[0] / HDMI_Switch_CTRL0	=>NC
OPWM2	OPWM2	jtdi(I)	=>NC
TP_VPLL	TP_VPLL	AMP Set:H	=>NC
OPWRSB	OPWRSB	Power Module ON/OFF(LO = > POWER_ON)	
ASPDIF	ASPDIF	strap[2]	=>OPITICAL OUT
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	=>FOR INNER BLUE-RAY COMMUNICATION
U1TX	U1TX	RESERVED FOR EXTEND FUNCTION	=>FOR INNER BLUE-RAY COMMUNICATION
LVDS_CTRL2	LVDS_CTRL2	RF_AGC	=>NC
LVDS_CTRL1	LVDS_CTRL1	PWM AMP_OTW(input,H:OTW)	=>NC

GPIO Modified list: 2009.10.13

MediaTek Confidential

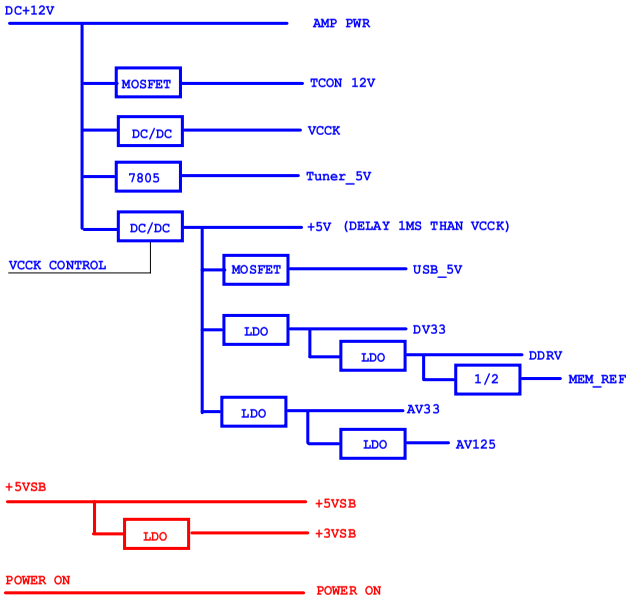
MediaTek Inc. No.1-2, Innovation Rd 1, SBIP, Hsin-Chu City 300
TEL:(03)567-0766 FAX:(03)578-7610

Title: GPIO Config/Modify List

Size	Document Number	Drawn	Rev
C	MT5305A P1V1		V1

Date: Tuesday, October 13, 2009 Sheet 1 of 15

POWER FOR BS_LED solution

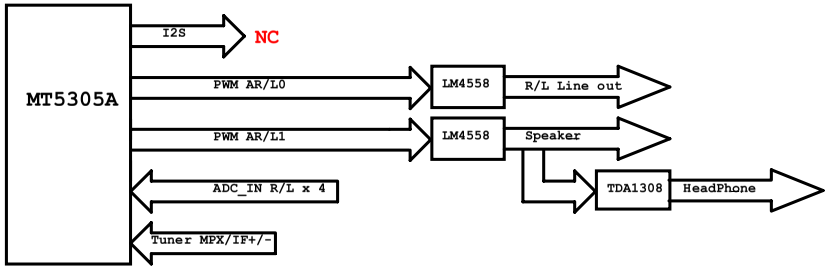


Audio System

For 19"/22"/24" model 4×AUDIO IN:

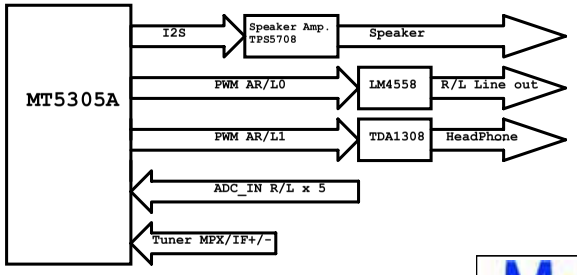
Source	Audio Mapping
AV1	AIN6
YPBPR#1	AIN3
INNER_DVD	AIN4
VGA/DVI	AIN5

DELETE S_VIDEO



For 40"/46" LED model 4×AUDIO IN:

Source	Audio Mapping
AV1	AIN6
YPBPR#1	AIN3
YPBPR#2	AIN4
VGA/DVI	AIN5



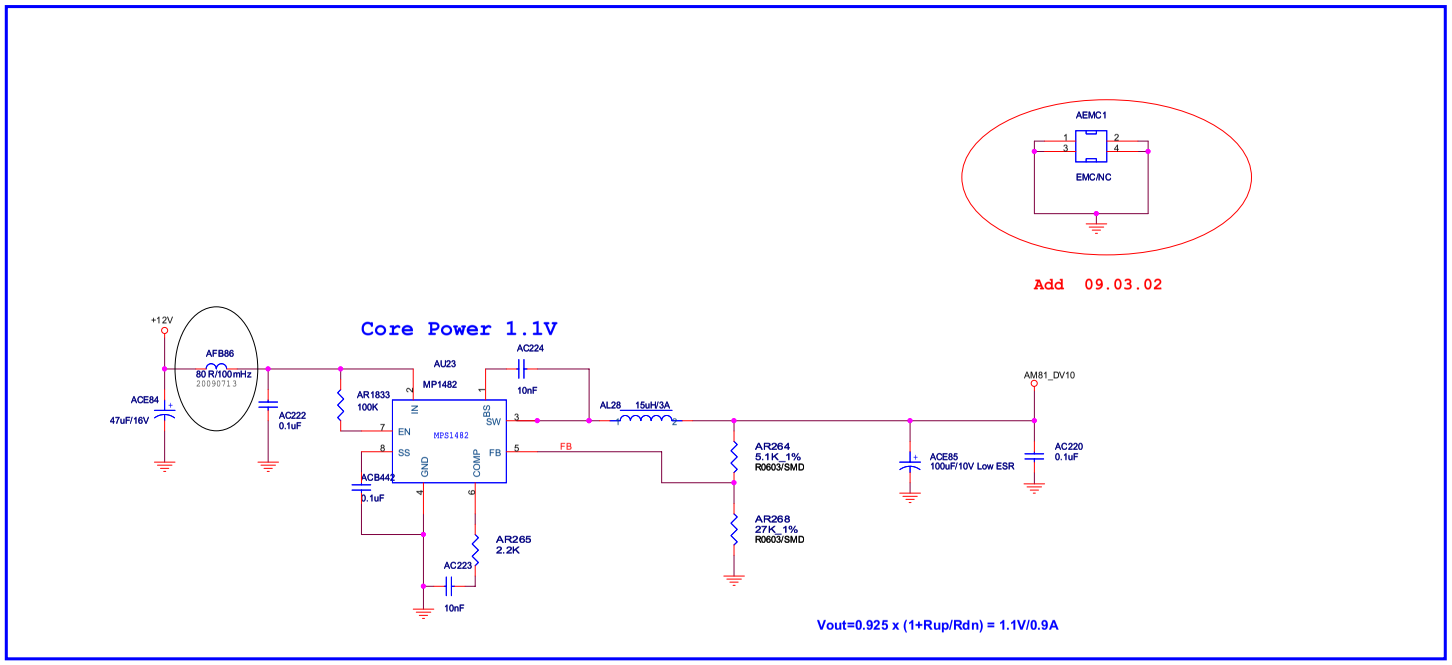
MediaTek Confidential

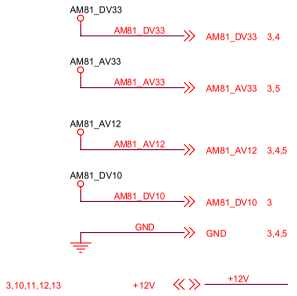
MediaTek Inc. No. 1-2, Innovation Rd 1, SBIP, Hsin-Chu City 300 TEL:(03)567-0766 FAX:(03)578-7610

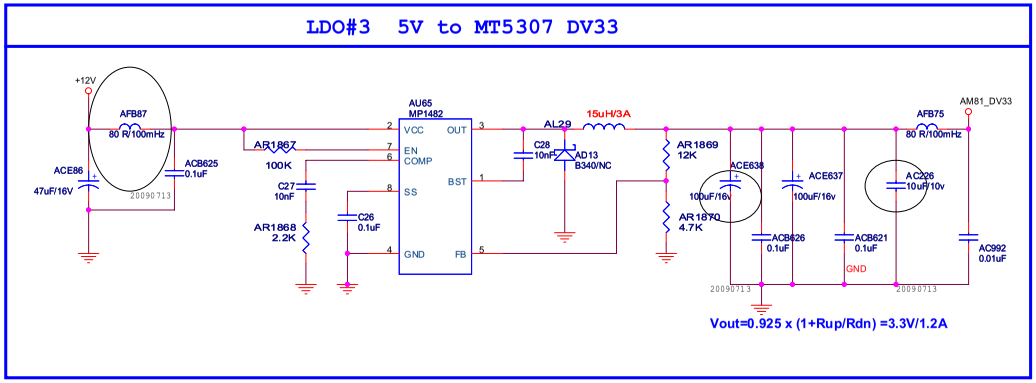
Title: Placement/SYS Flow

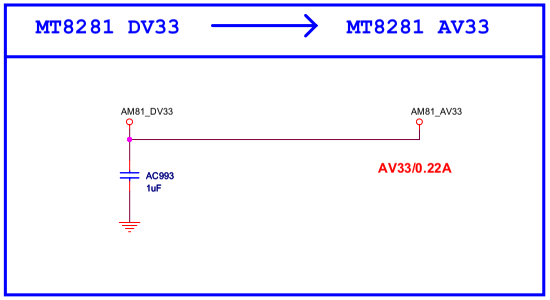
Size	Document Number	Drawn	Rev
C	MT5305A P1V1	By Ray	V1

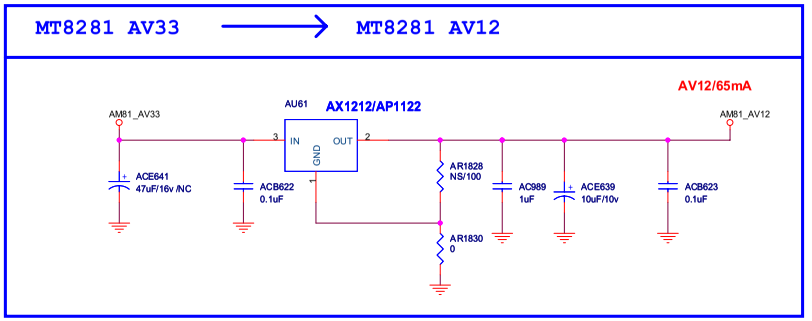
Date: Tuesday, October 13, 2009 Sheet 2 of 15











MediaTek Confidential

MediaTek Inc.
No. 1-2, Innovation Rd 1, SBIP, Hsin-Chu City 300
TEL:(03)567-0766 FAX:(03)578-7610

Title: Power

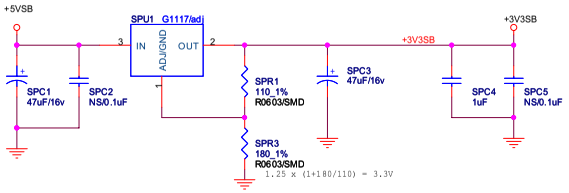
Size	Document Number	Drawn	Rev
C	MT8281_D2V1		

Date: Friday, October 16, 2009 Sheet 2 of 5

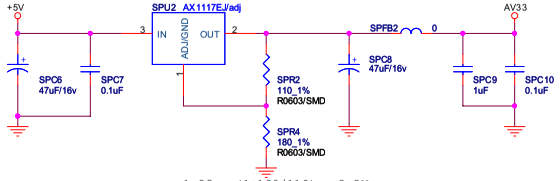
4,5,6,7,8,9,10,11,12,13,14 GND
6,8,10,12,14 +5V
6,9,14 +5VSB
6,8,9,12 +3V3SB
4,5,6,7,11,12 DV33
4,6,8,9,10,12,13 AV33
4,5,8,9,12 AV125
10,11,12,13,14 +12V
4 VCCK

GND
+5V
+5VSB
+3V3SB
DV33
AV33
AV125
+12V
VCCK

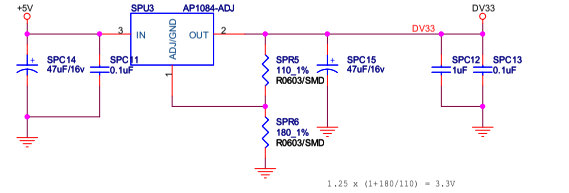
Stand By Power



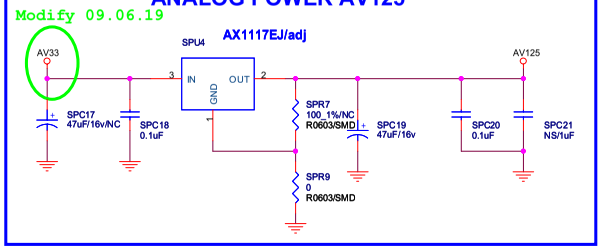
ANALOG POWER AV33



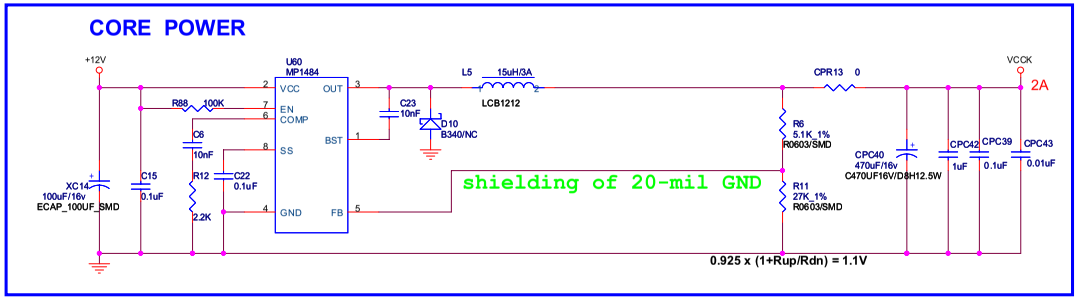
DIGITAL POWER DV33



ANALOG POWER AV125



CORE POWER



MediaTek Confidential

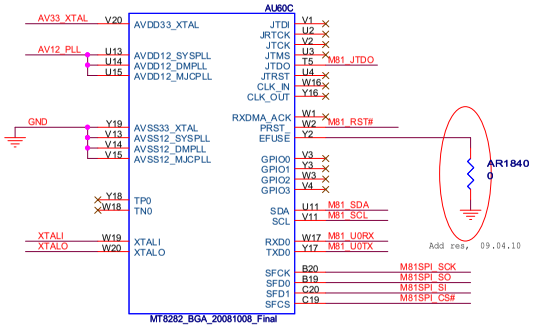
MediaTek Inc. No.1-2, Innovation Rd 1, SBIP, Hsin-Chu City 300 TEL:(03)567-0766 FAX:(03)578-7610

Title: Digital/Analog POWER

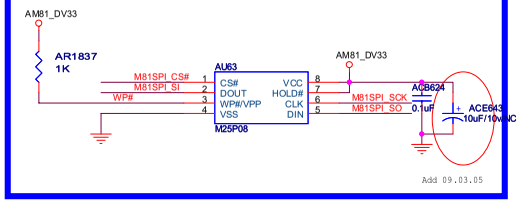
Size	Document Number	Drawn	Rev
C	MT5305A P1V1	By Ray	V1

Date: Wednesday, October 14, 2009 Sheet 3 of 15

Peripheral components



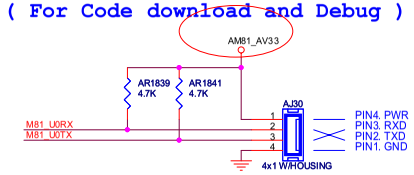
Serial Flash

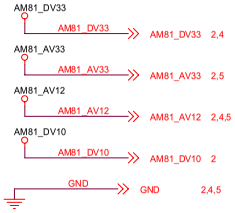


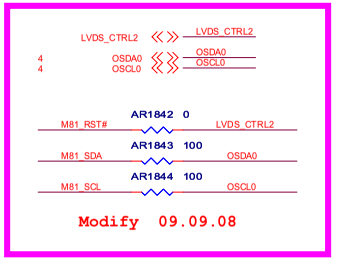
1st UART IF

modify net for layout 09/02/20

(For Code download and Debug)

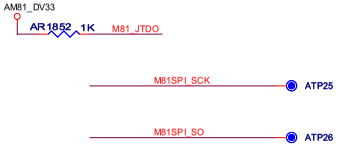






Trapping :

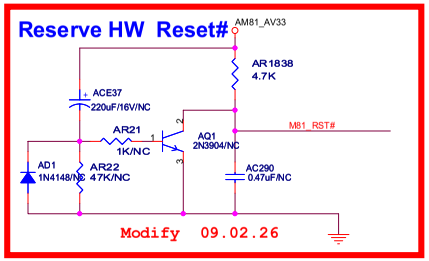
Default Low when no configuration external



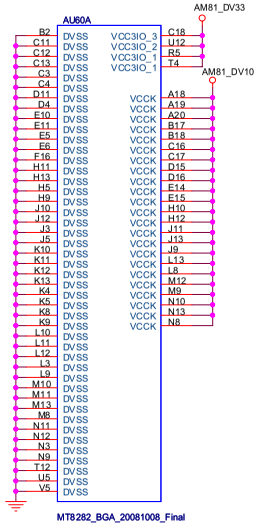
Pad_jtdo	Description
0	pad_jtdo tie 0 => dram boot
1	pad_jtdo tie 1 => flash boot

Crystal

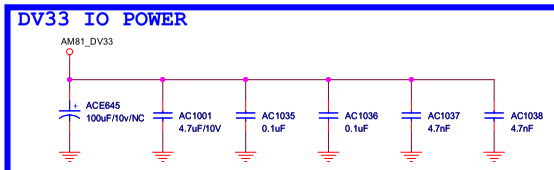
Reserve HW Reset#



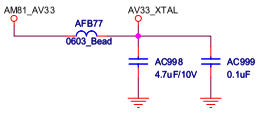
Core Powe 1.0V
IO Power 3.3V



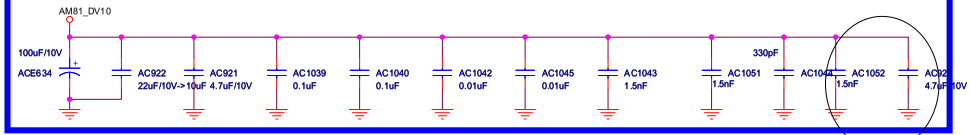
DV33 IO POWER



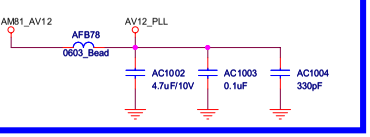
AV33 XTAL POWER



DV10 CORE POWER



AV12 PLL POWER



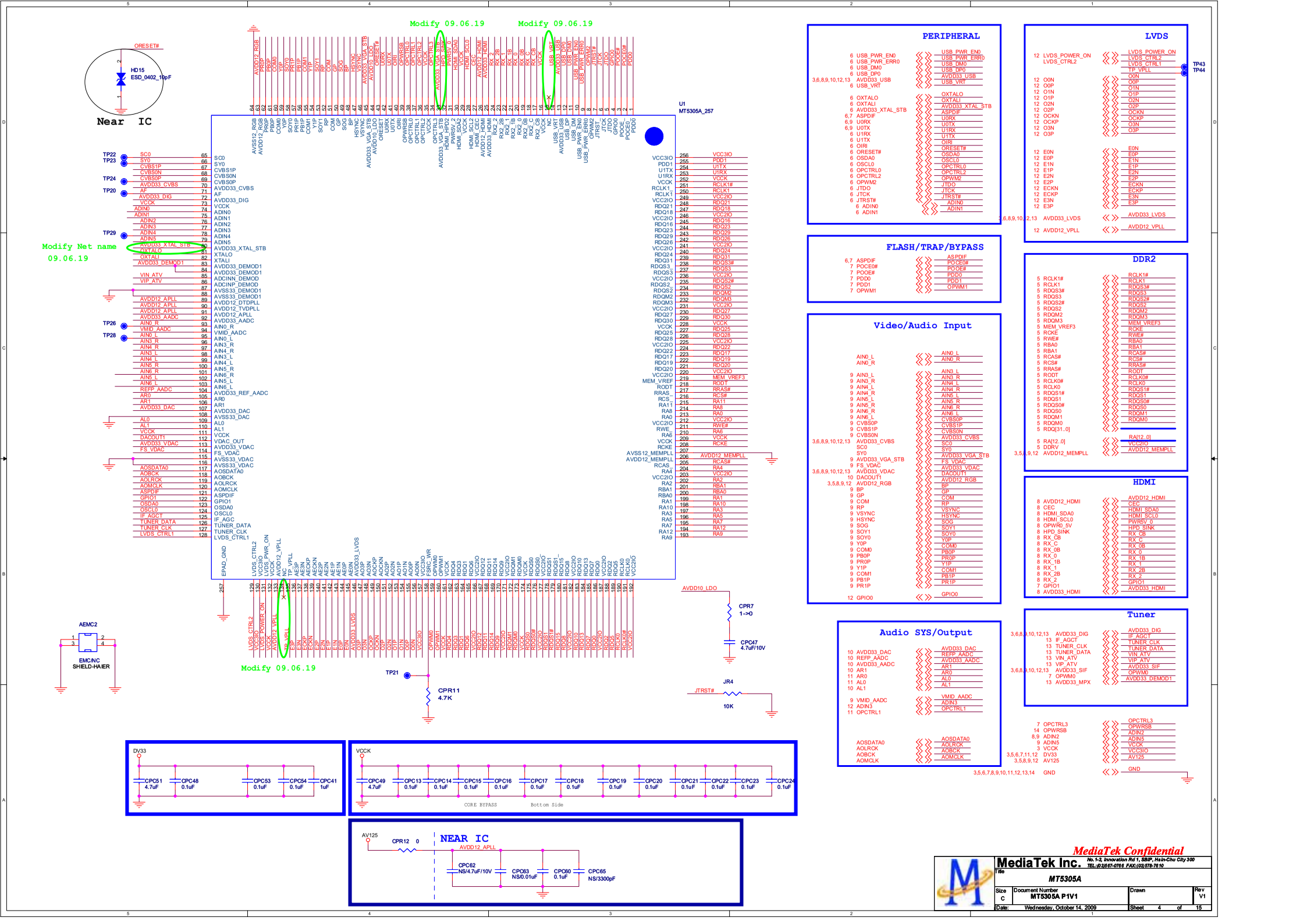
MediaTek Confidential

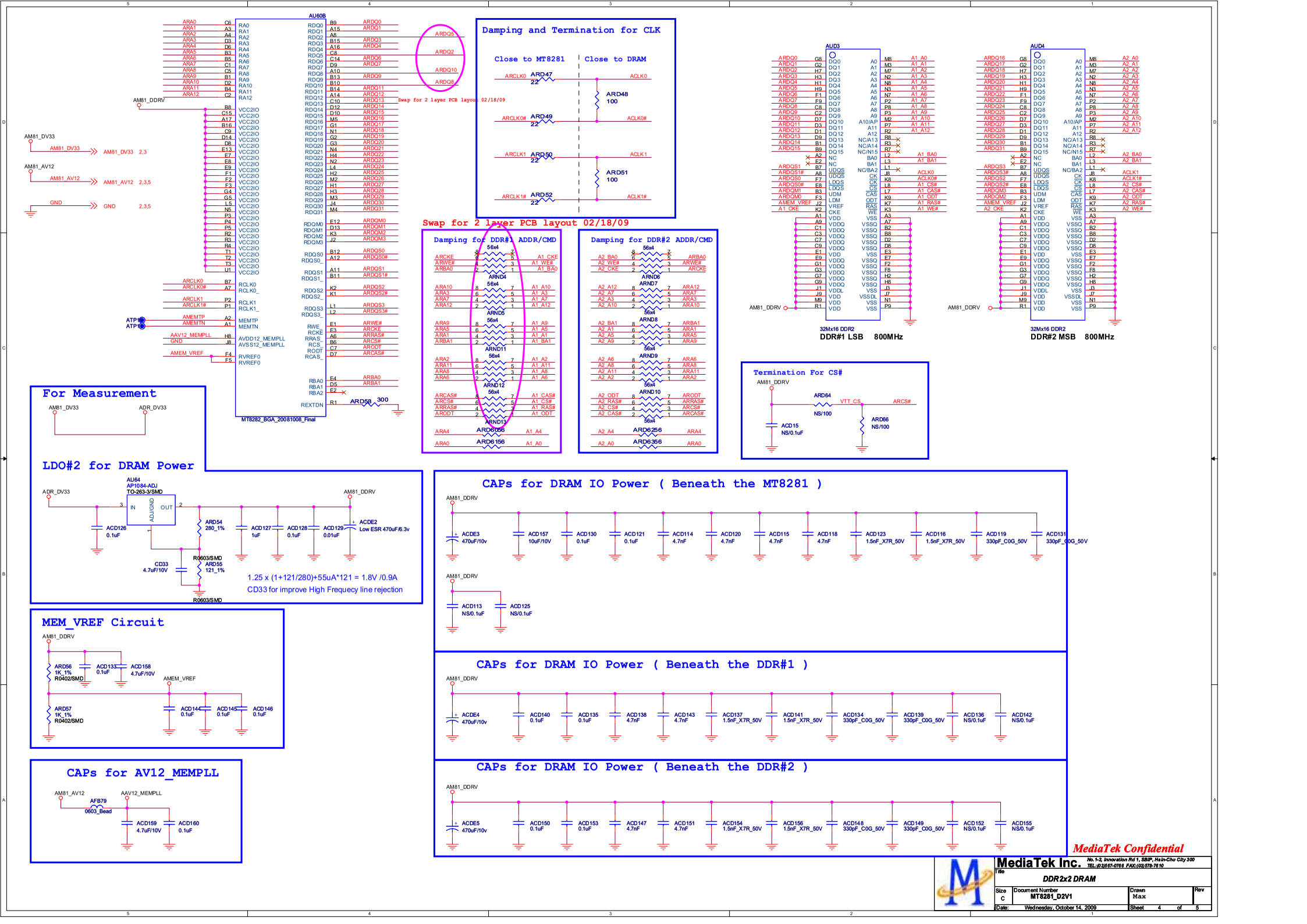
MediaTek Inc.
No.1-2, Innovation Rd 1, SBIP, Hsin-Chu City 300
TEL:(03)567-0766 FAX:(03)578-7610

Title: Peripheral

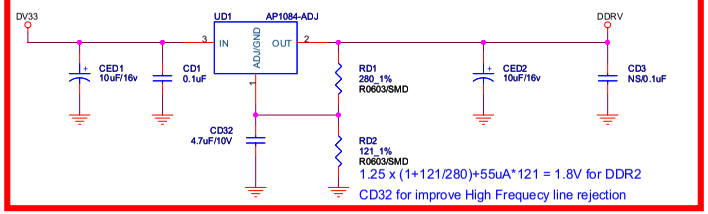
Size	Document Number	Drawn	Rev
C	MT8281_D2V1	Max	

Date: Wednesday, October 14, 2009 Sheet 3 of 5

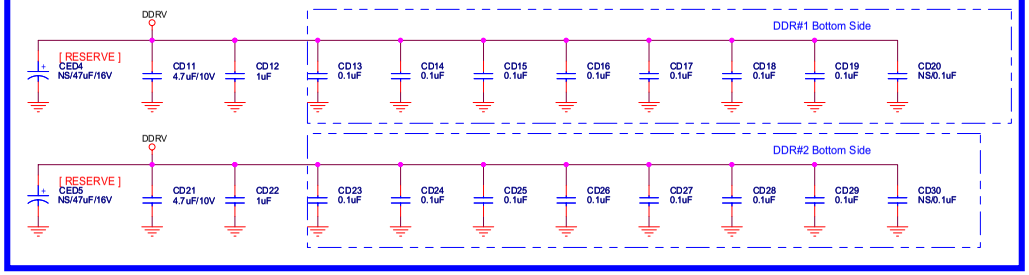

Modify 09.06.19
Modify 09.06.19
Modify Net name
09.06.19
Modify 09.06.19
Near IC
ORESET#
HD15
ESD_0402_100pF
U1
MT5305A_257
PERIPHERAL
FLASH/TRAP/BYPASS
Video/Audio Input
Audio SYS/Output
LVDS
DDR2
HDMI
Tuner
AEMC2
EMC/NC
SHIELD-HAIER
CPR7
1->0
CPC47
4.7uF/10V
CPR11
4.7K
JR4
10K
TP21
DV33
CPC51 4.7uF
CPC48 0.1uF
CPC53 0.1uF
CPC54 0.1uF
CPC41 1uF
VCCK
CPC49 4.7uF
CPC13 0.1uF
CPC14 0.1uF
CPC15 0.1uF
CPC16 0.1uF
CPC17 0.1uF
CPC18 0.1uF
CPC19 0.1uF
CPC20 0.1uF
CPC21 0.1uF
CPC22 0.1uF
CPC23 0.1uF
CPC24 0.1uF
CORE BYPASS
Bottom Side
AV125
CPR12 0
NEAR IC
AVDD12_APLL
CPC62 NS/4.7uF/10V
CPC63 NS/0.01uF
CPC80 0.1uF
CPC65 NS/3300pF
MediaTek Confidential
MediaTek Inc.
No. 1-2, Innovation Rd 1, SBIP, Hsin-Chu City 300
TEL:(03)567-0766 FAX:(03)578-7610
Title
MT5305A
Size C
Document Number MT5305A P1V1
Drawn
Rev V1
Date: Wednesday, October 14, 2009
Sheet 4 of 15


AU60B
MT8282_BGA_20081008_Final
Swap for 2 layer PCB layout 02/18/09
Damping and Termination for CLK
Close to MT8281
Close to DRAM
ARD47 22
ARD48 100
ARD49 22
ARD50 22
ARD51 100
ARD52 22
Swap for 2 layer PCB layout 02/18/09
Damping for DDR#1 ADDR/CMD
Damping for DDR#2 ADDR/CMD
AUD3
AUD4
32Mx16 DDR2
DDR#1 LSB 800MHz
DDR#2 MSB 800MHz
Termination For CS#
ARD64 NS/100
ARD66 NS/100
ACD15 NS/0.1uF
For Measurement
LDO#2 for DRAM Power
AU64
AP1084-ADJ
TO-263-3/SMD
ARD54 280_1%
ACD126 0.1uF
ACD127 1uF
ACD128 0.1uF
ACD129 0.01uF
ACDE2 Low ESR 470uF/6.3v
CD33 4.7uF/10V
ARD55 121_1%
1.25 x (1+121/280)+55uA*121 = 1.8V /0.9A
CD33 for improve High Frequecy line rejection
MEM_VREF Circuit
ARD56 1K_1% R0402/SMD
ACD133 0.1uF
ACD158 4.7uF/10V
ARD57 1K_1% R0402/SMD
ACD144 0.1uF
ACD145 0.1uF
ACD146 0.1uF
CAPs for AV12_MEMPLL
AFB79 0603_Bead
ACD159 4.7uF/10V
ACD160 0.1uF
CAPs for DRAM IO Power (Beneath the MT8281)
ACDE3 470uF/10v
ACD157 10uF/10V
ACD130 0.1uF
ACD121 0.1uF
ACD114 4.7nF
ACD120 4.7nF
ACD115 4.7nF
ACD118 4.7nF
ACD123 1.5nF_X7R_50V
ACD116 1.5nF_X7R_50V
ACD119 330pF_C0G_50V
ACD131 330pF_C0G_50V
ACD113 NS/0.1uF
ACD125 NS/0.1uF
CAPs for DRAM IO Power (Beneath the DDR#1)
ACDE4 470uF/10v
ACD140 0.1uF
ACD135 0.1uF
ACD138 4.7nF
ACD143 4.7nF
ACD137 1.5nF_X7R_50V
ACD141 1.5nF_X7R_50V
ACD134 330pF_C0G_50V
ACD139 330pF_C0G_50V
ACD136 NS/0.1uF
ACD142 NS/0.1uF
CAPs for DRAM IO Power (Beneath the DDR#2)
ACDE5 470uF/10v
ACD150 0.1uF
ACD153 0.1uF
ACD147 4.7nF
ACD151 4.7nF
ACD154 1.5nF_X7R_50V
ACD156 1.5nF_X7R_50V
ACD148 330pF_C0G_50V
ACD149 330pF_C0G_50V
ACD152 NS/0.1uF
ACD155 NS/0.1uF
MediaTek Confidential
MediaTek Inc.
DDR2x2 DRAM
Document Number MT8281_D2V1
Drawn Max
Date: Wednesday, October 14, 2009
Sheet 4 of 5

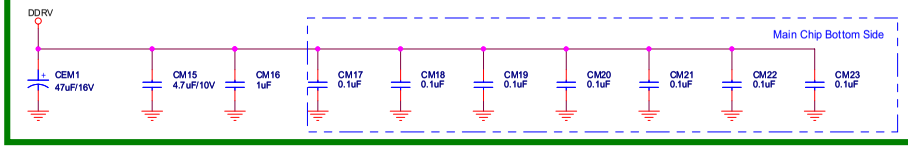
DRAM POWER DDRV



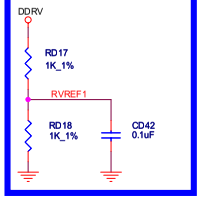
DRAM DE-CAP.



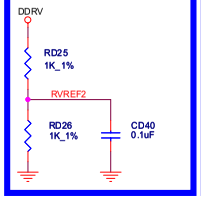
MT5305A DE-CAP.



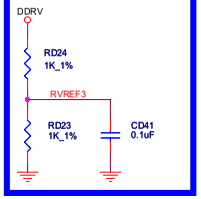
DDR#1 RVREF



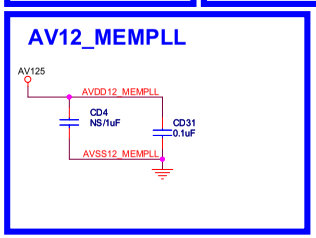
DDR#2 RVREF

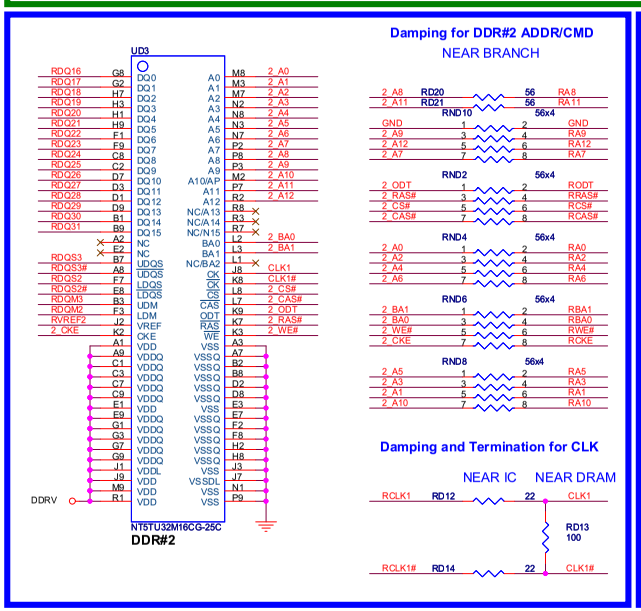


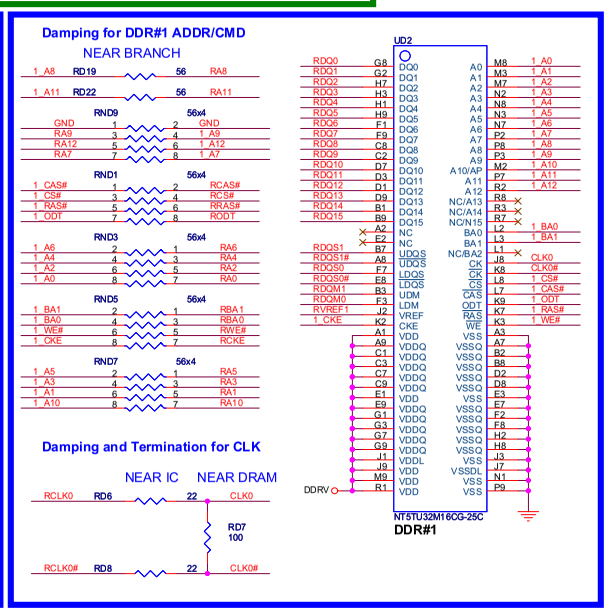
MT5305A RVREF



AV12_MEMPLL





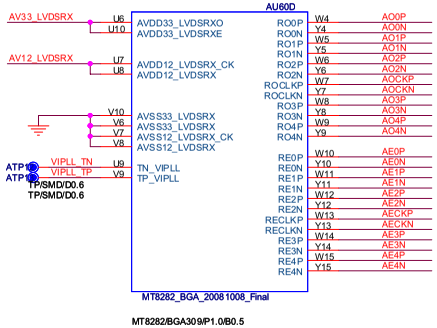


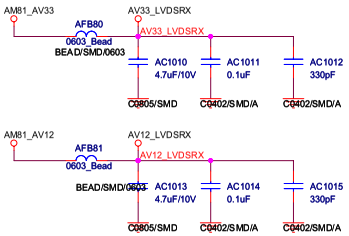
MediaTek Confidential

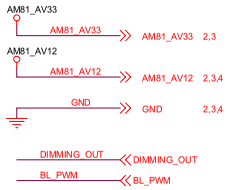
MediaTek Inc.
No.1-2, Innovation Rd 1, SBIP, Hsin-Chu City 300
TEL:(03)567-0766 FAX:(03)578-7610

Title	DDR2 x 2		
Size C	Document Number MT5305A P1V1	Drawn	Rev V1
Date: Wednesday, October 14, 2009		Sheet 5 of 15	

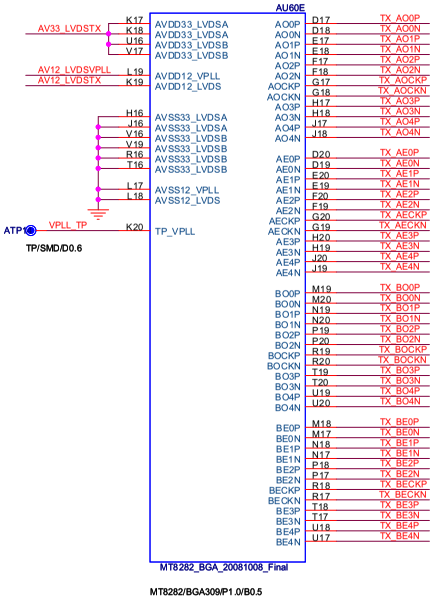
LVDS RX

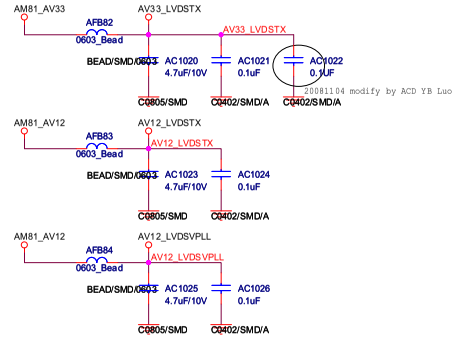




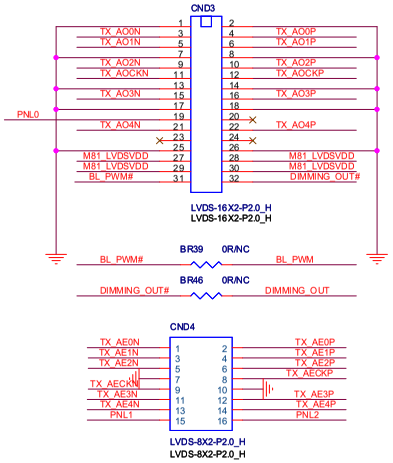


LVDS TX

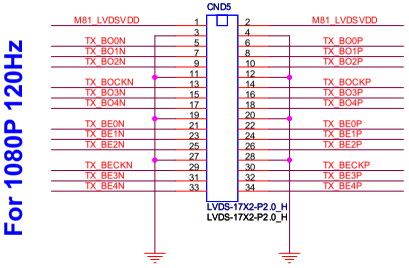


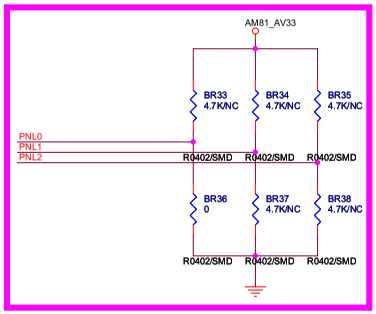


LVDS PORT A(HORIZONTAL)

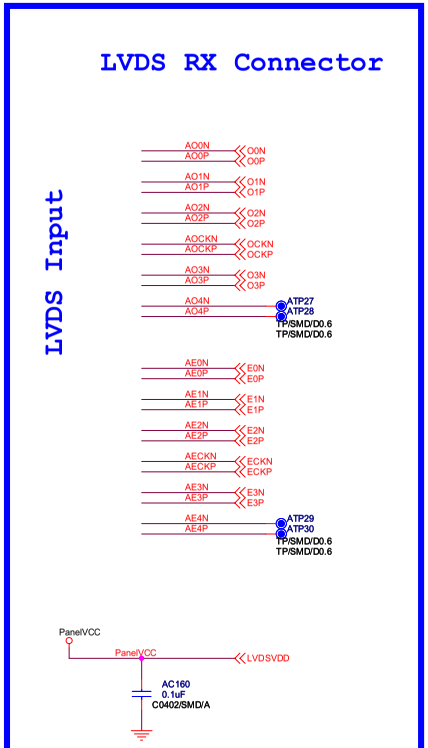


LVDS PORT B(HORIZONTAL)





LVDS RX Connector



MediaTek Confidential

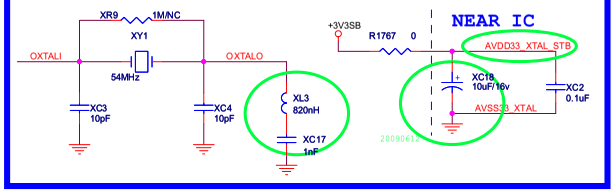
MediaTek Inc.
No. 1-2, Innovation Rd 1, SBIP, Hsin-Chu City 300
TEL:(03)567-0766 FAX:(03)578-7610

Title: LVDS TX / RX

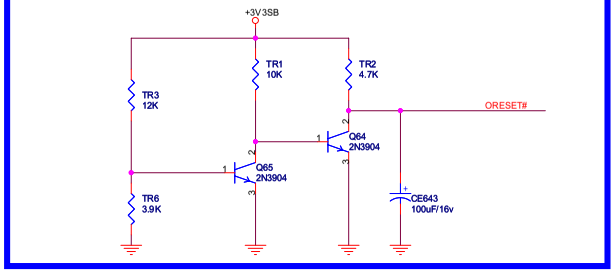
Size	Document Number	Drawn	Rev
C	MT8281_D2V1	Max	

Date: Wednesday, October 14, 2009 Sheet 5 of 5

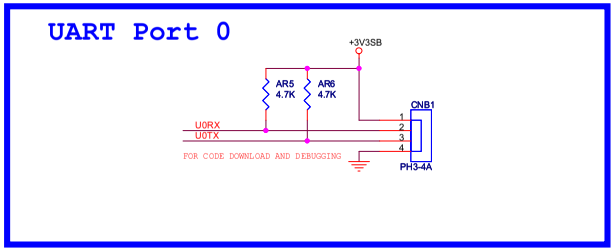
54MHz CRYSTAL



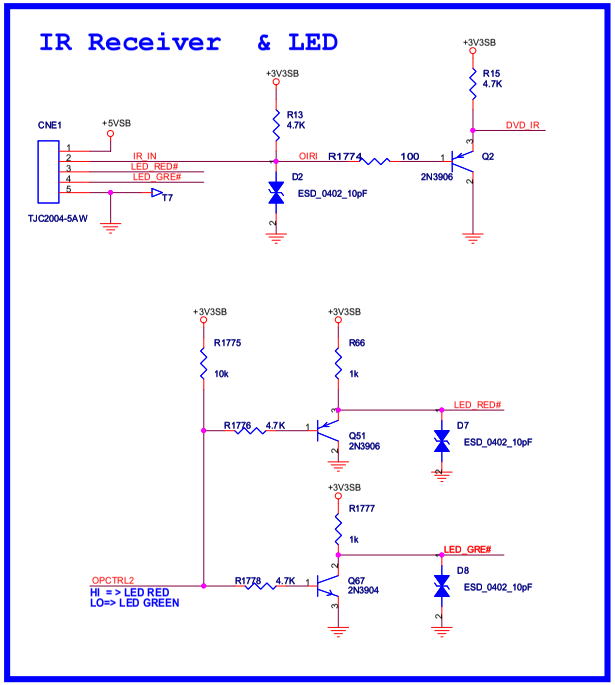
RESET#



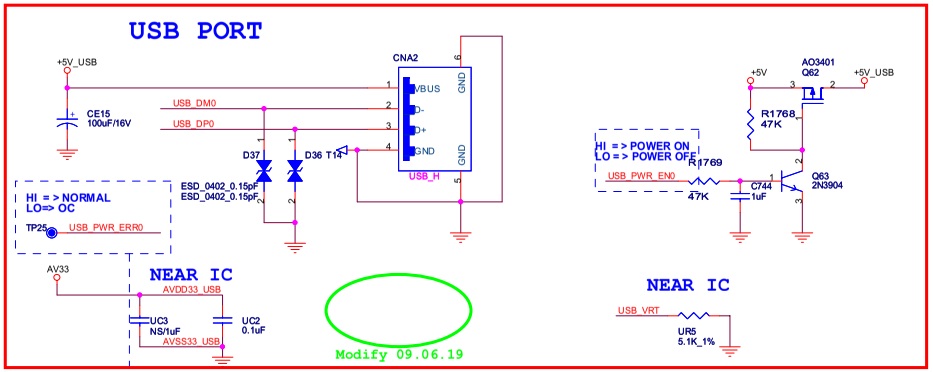
UART Port 0



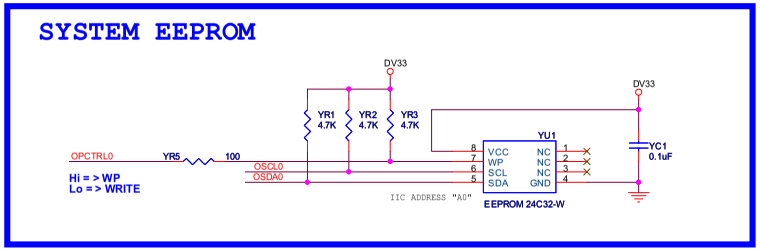
IR Receiver & LED



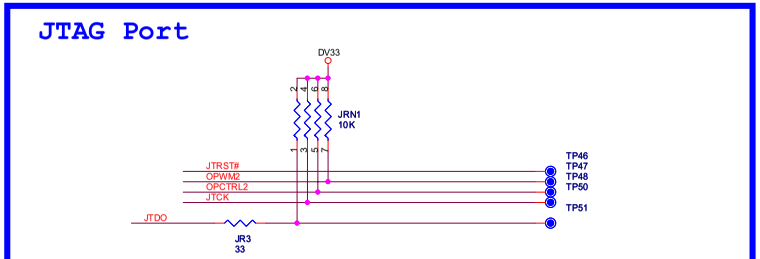
USB PORT



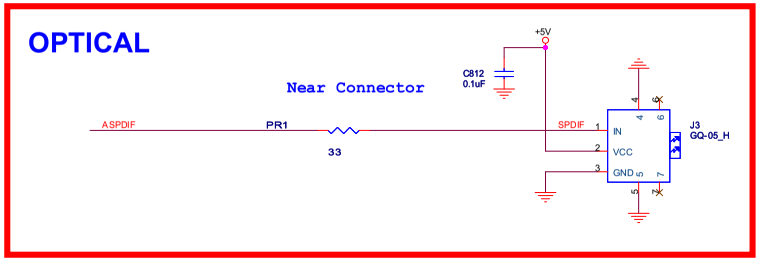
SYSTEM EEPROM



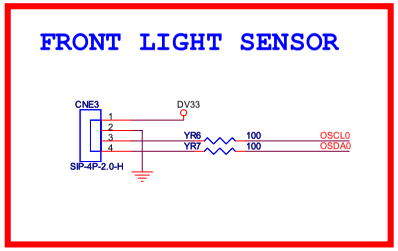
JTAG Port



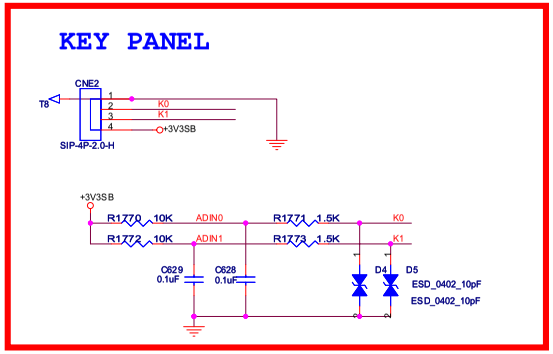
OPTICAL



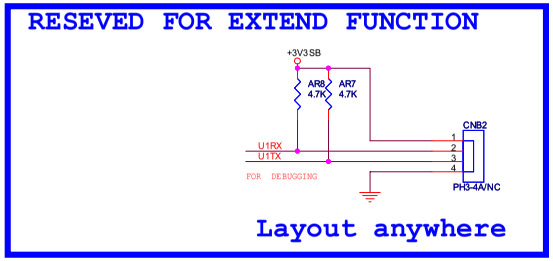
FRONT LIGHT SENSOR

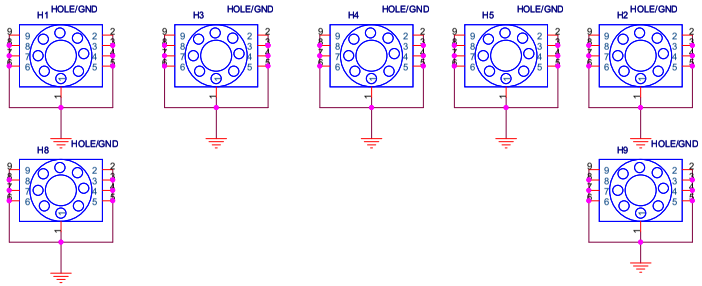


KEY PANEL



RESEVED FOR EXTEND FUNCTION





FM1 FM2 FM3 FM4 FM5 FM6 FM7 FM8

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 AV12S → AV12S
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

MediaTek Confidential

MediaTek Inc. No. 1-2, Innovation Rd 1, SBIP, Hsin-Chu City 300 TEL:(03)567-0766 FAX:(03)578-7610

Title: PERIPHERAL

Size	Document Number	Drawn	Rev
C	MT5305A P1V1	By Ray	V1
Date: Thursday, October 15, 2009		Sheet 6 of 15	

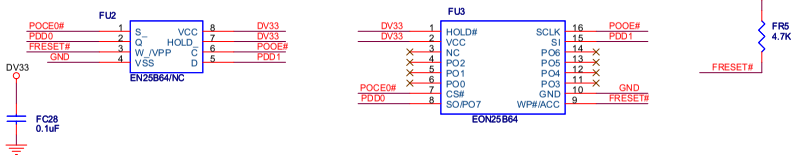
3,4,5,6,8,9,10,11,12,13,14 GND

GND

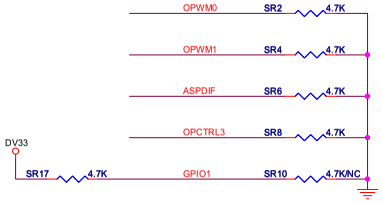
3,4,5,6,11,12 DV33
4 OPWM0
4,6 ASPDIF
4 OPCTRL3
4,6 ORESET#
4 GPIO1
4 POCE0#
4 POOE#
4 PDD0
4 PDD1
4 OPWM1

DV33
OPWM0
ASPDIF
OPCTRL3
ORESET#
GPIO1
POCE0#
POOE#
PDD0
PDD1
OPWM1

Serial Flash Dual-Layout - 8MB default



MT5305A STRAPPING MODE



Strapping Mode	ASPDIF(O)	OPWM0(O)	OPWM1(O)
ICE mode + Serial boot	0	0	0

Strapping Mode	GPIO1
XTAL 54M	1

Strapping Mode	OPCTRL3(O)
PDWNC Normal	0

MediaTek Confidential

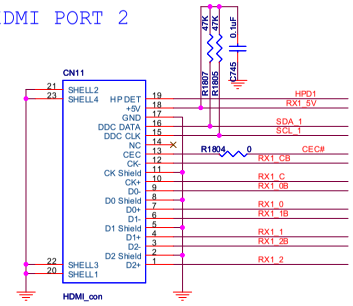
MediaTek Inc. No.1-2, Innovation Rd 1, SBIP, Hsin-Chu City 300
TEL:(03)567-0766 FAX:(03)578-7610

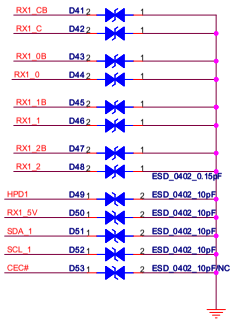
Title: FLASH/TRAP/BYPASS/FCI

Size	Document Number	Drawn	Rev
C	MT5305A P1V1	By Ray	V1

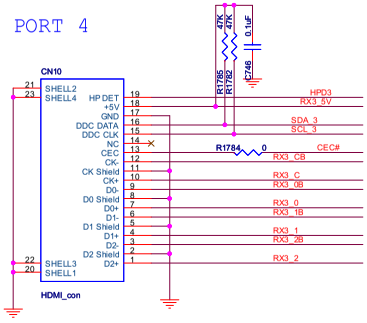
Date: Wednesday, October 14, 2009 Sheet 7 of 15

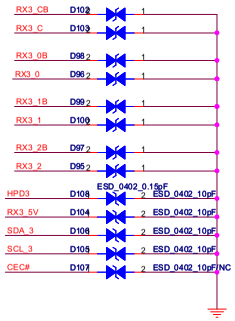
HDMI PORT 2

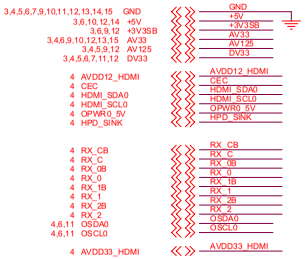




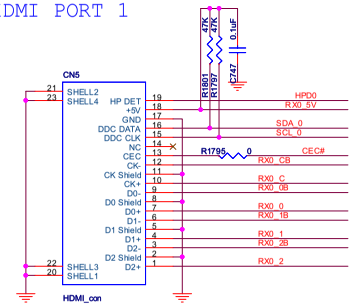
HDMI PORT 4

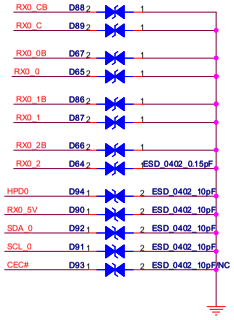




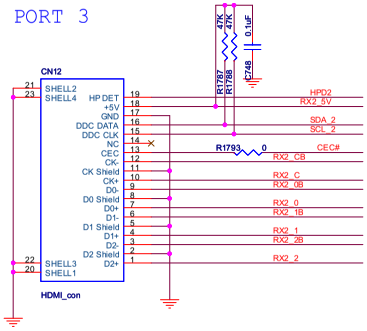


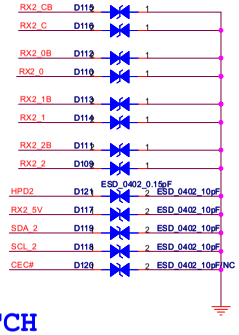
HDMI PORT 1

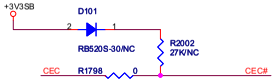




HDMI PORT 3





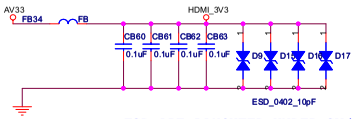


HORIZONTAL MOUNT

HORIZONTAL MOUNT

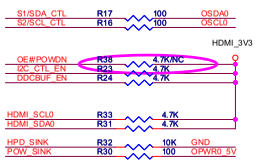
HDMI SWITCH

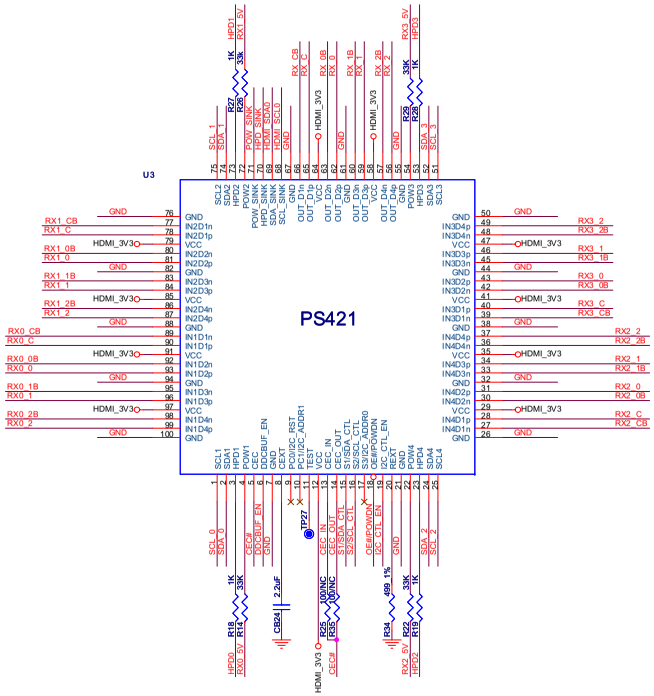
NEARLY SW IC



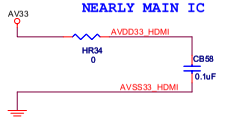
ESD ARE LAYOUTED UNDER SW(Square).

Pulled up to 3.3V on CPU side.
I2C CONTROL ADDRESS:0x9C/9D
EDID SHADOW ADDRESS:0x9E/9F

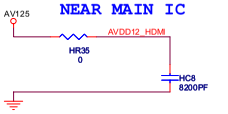




NEARLY MAIN IC



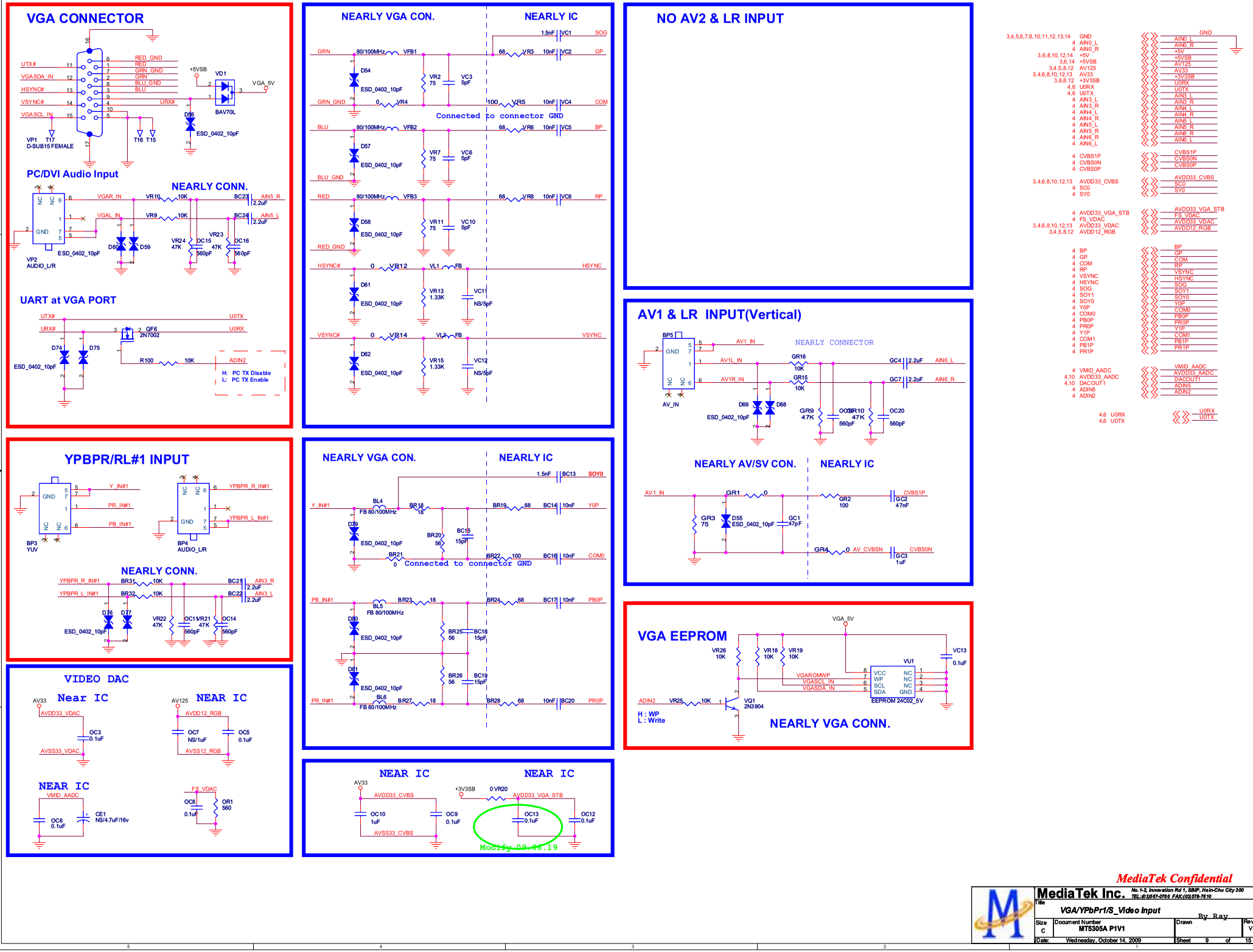
NEAR MAIN IC



MediaTek Confidential

MediaTek Inc.
No.1-2, Innovation Rd 1, S&IP, Hsin-Chu City 300
TEL:(03)567-0766 FAX:(03)578-7610

Title: HDMI			
Size: Custom	Document Number: MT5305A P1V1	Drawn	Rev: V1
Date: Wednesday, October 14, 2009		Sheet 8 of 15	

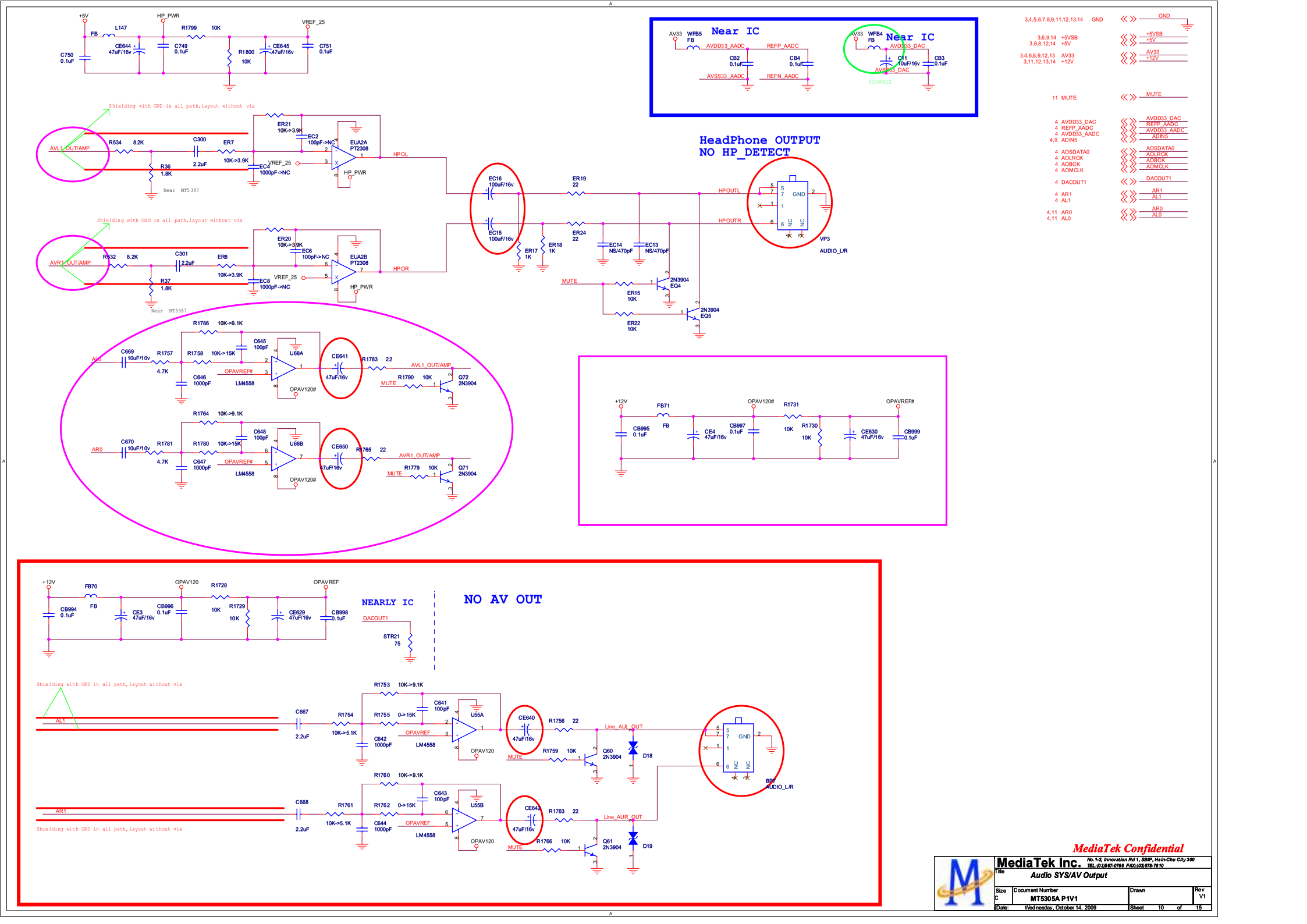


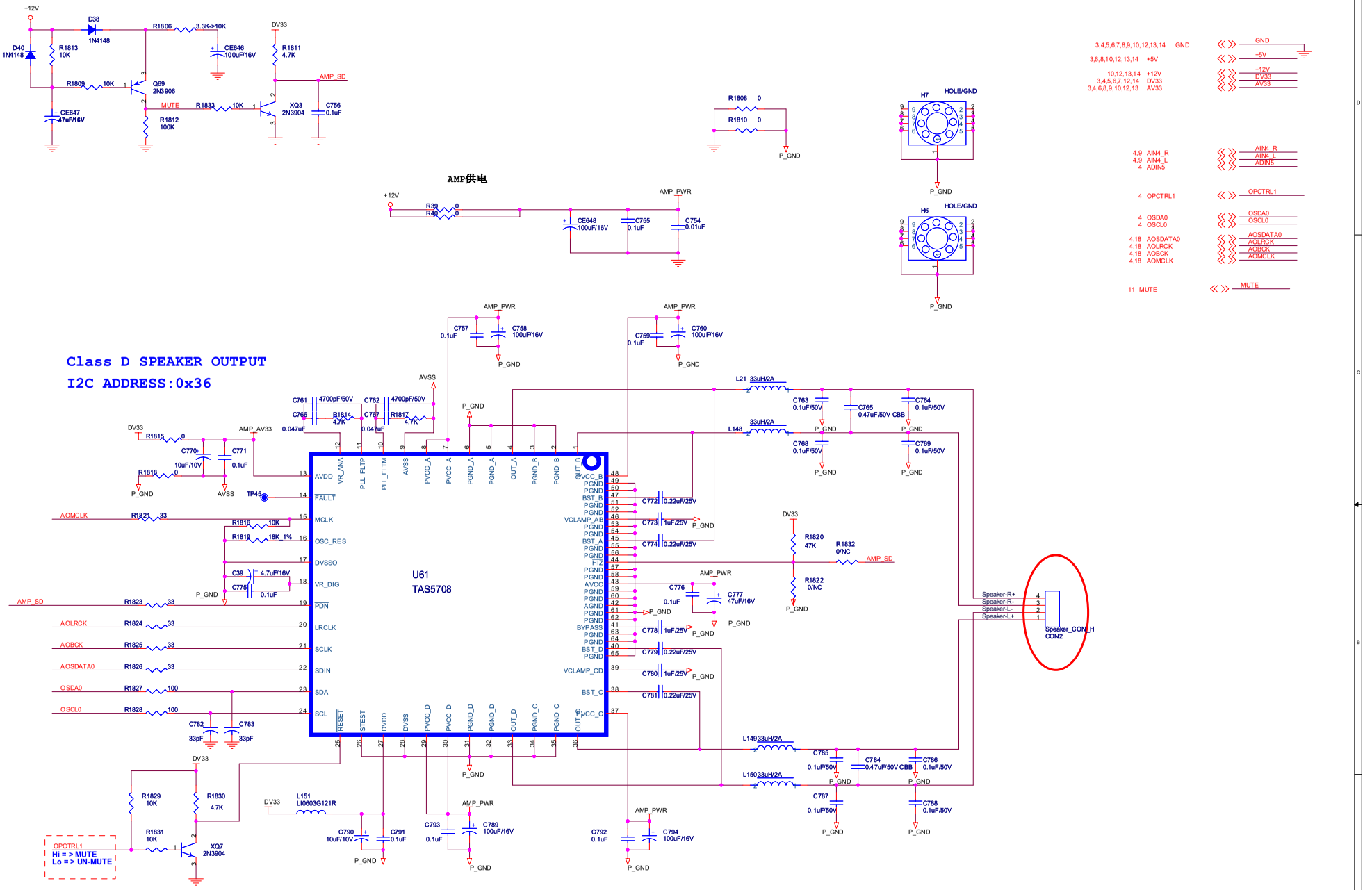
MediaTek Confidential

MediaTek Inc.
No. 1-2, Innovation Rd 1, SBIP, Hsin-Chu City 300
TEL:(03)567-0766 FAX:(03)578-7610

Title: VGA/YPbPr1/S_Video Input
By Ray

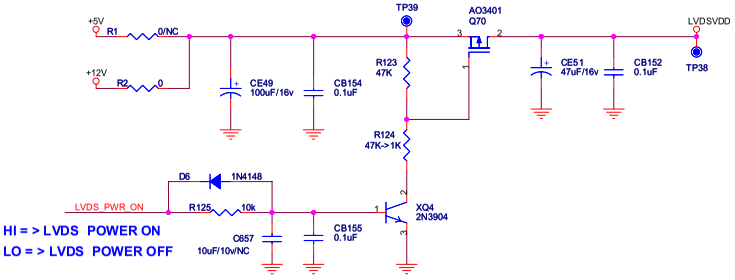
Size	Document Number	Drawn	Rev
C	MT5305A P1V1		V1
Date: Wednesday, October 14, 2009		Sheet 9 of 15	


+5V
HP_PWR
VREF_25
L147
R1799 10K
FB
C750 0.1uF
CE644 47uF/16v
C749 0.1uF
R1800 10K
CE645 47uF/16v
C751 0.1uF
Near IC
AV33 WFB5 FB
AVDD33_AADC
REFP_AADC
CB2 0.1uF
CB4 0.1uF
AVSS33_AADC
REFN_AADC
Near IC
AV33 WFB4 FB
AVDD33_DAC
C1 10uF/16v
CB3 0.1uF
AVSS33_DAC
20090612
3,4,5,6,7,8,9,11,12,13,14 GND
3,6,9,14 +5VSB
3,6,8,12,14 +5V
3,4,6,8,9,12,13 AV33
3,11,12,13,14 +12V
11 MUTE
4 AVDD33_DAC
4 REFP_AADC
4 AVDD33_AADC
4,9 ADIN5
4 AOSDATA0
4 AOLRCK
4 AOBCK
4 AOMCLK
4 DACOUT1
4 AR1
4 AL1
4,11 AR0
4,11 AL0
Shielding with GND in all path,layout without via
AVL1_OUT/AMP
R534 8.2K
C300 2.2uF
ER7 10K->3.9K
R36 1.8K
Near MT5387
ER21 10K->3.9K
EC2 100pF->NC
EC4 1000pF->NC
EUA2A PT2308
HPOL
HeadPhone OUTPUT
NO HP_DETECT
EC16 100uF/16v
EC15 100uF/16v
ER19 22
ER17 1K
ER18 1K
ER24 22
EC14 NS/470pF
EC13 NS/470pF
HPOUTL
HPOUTR
VP3
AUDIO_L/R
MUTE
ER15 10K
2N3904 EQ4
ER22 10K
2N3904 EQ5
Shielding with GND in all path,layout without via
AVR1_OUT/AMP
R532 8.2K
C301 2.2uF
ER8 10K->3.9K
R37 1.8K
Near MT5387
ER20 10K->3.9K
EC6 100pF->NC
EC8 1000pF->NC
EUA2B PT2308
HPOR
R1786 10K->9.1K
AL0
C669 10uF/10v
R1757 4.7K
R1758 10K->15K
C845 100pF
C646 1000pF
OPAVREF#
LM4558
U68A
OPAV120#
CE641 47uF/16v
R1783 22
AVL1_OUT/AMP
MUTE
R1790 10K
Q72 2N3904
R1764 10K->9.1K
AR0
C670 10uF/10v
R1781 4.7K
R1780 10K->15K
C848 100pF
C647 1000pF
U68B
CE650 47uF/16v
R1765 22
AVR1_OUT/AMP
R1779 10K
Q71 2N3904
+12V
FB71
CB995 0.1uF
CE4 47uF/16v
CB997 0.1uF
OPAV120#
R1731
10K
R1730 10K
CE630 47uF/16v
OPAVREF#
CB999 0.1uF
NO AV OUT
NEARLY IC
+12V
FB70
CB994 0.1uF
CE3 47uF/16v
CB996 0.1uF
OPAV120
R1728
10K
R1729 10K
CE629 47uF/16v
OPAVREF
CB998 0.1uF
DACOUT1
STR21 75
Shielding with GND in all path,layout without via
AL1
C667 2.2uF
R1754 10K->5.1K
R1753 10K->9.1K
R1755 0->15K
C641 100pF
C642 1000pF
OPAVREF
LM4558
U55A
OPAV120
CE640 47uF/16v
R1756 22
Line_AUL_OUT
MUTE
R1759 10K
Q60 2N3904
D18
AR1
C668 2.2uF
R1761 10K->5.1K
R1760 10K->9.1K
R1762 0->15K
C643 100pF
C644 1000pF
U55B
CE642 47uF/16v
R1763 22
Line_AUR_OUT
R1766 10K
Q61 2N3904
D19
Shielding with GND in all path,layout without via
GND
BP2
AUDIO_L/R
MediaTek Confidential
MediaTek Inc.
No.1-2, Innovation Rd 1, SBIP, Hsin-Chu City 300
TEL:(03)567-0766 FAX:(03)578-7610
Title
Audio SYS/AV Output
Size C
Document Number MT5305A P1V1
Drawn
Rev V1
Date: Wednesday, October 14, 2009
Sheet 10 of 15



MediaTek Confidential

MediaTek Inc.	No. 1-2, Innovation Rd 1, SBIP, Hsin-Chu City 300 TEL:(03)567-0766 FAX:(03)578-7610		
Title: SPEAKER AMP			
Size: C	Document Number: MT5305A P1V1	Drawn: Ray Lin	Rev: V1
Date: Thursday, October 15, 2009		Sheet 11 of 15	



3,4,5,6,7,8,9,10,11,13,14 GND — GND

3,10,11,13,14 +12V — +12V
3,6,8,10,14 +5V — +5V
3,6,8,9 +3V3SB — +3V3SB
3,4,6,8,9,10,13 AV33 — AV33
3,4,5,6,7,11 DV33 — DV33
3,4,5,8,9 AV125 — AV125
4 LVDS_POWER_ON — LVDS_PWR_ON

4 O0N — O0N
4 O0P — O0P
4 O1P — O1P
4 O1N — O1N
4 O2P — O2P
4 O2N — O2N
4 OCKP — OCKP
4 OCKN — OCKN
4 O3P — O3P
4 O3N — O3N

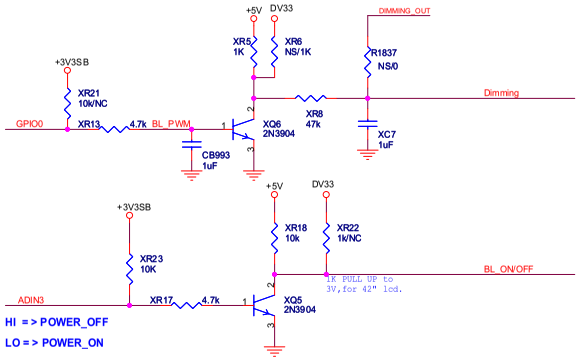
4 E0P — E0P
4 E0N — E0N
4 E1P — E1P
4 E1N — E1N
4 E2P — E2P
4 E2N — E2N
4 ECKP — ECKP
4 ECKN — ECKN
4 E3P — E3P
4 E3N — E3N

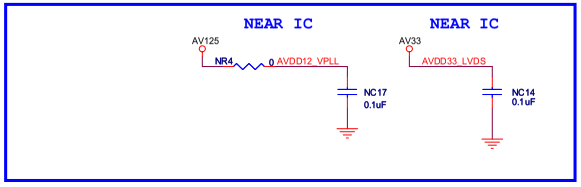
3,4,6,8,9,10,13 AVDD33_LVDS — AVDD33_LVDS

4 AVDD12_VPLL — AVDD12_VPLL

4,6 USB_PWR_EN0 — USB_PWR_EN0
4,6 USB_PWR_ERR0 — USB_PWR_ERR0

INVERTOR POWER





4 ADIN3 — ADIN3

4 GPIO0 — GPIO0

14 DIMMING — DIMMING

14 BL_ON/OFF — BL_ON/OFF

AO0N — O0N
AO0P — O0P
AO1N — O1N
AO1P — O1P
AO2N — O2N
AO2P — O2P
AOCKN — OCKN
AOCKP — OCKP
AO3N — O3N
AO3P — O3P
AE0N — E0N
AE0P — E0P
AE1N — E1N
AE1P — E1P
AE2N — E2N
AE2P — E2P
AECKN — ECKN
AECKP — ECKP
AE3N — E3N
AE3P — E3P
LVDSVDD — LVDSVDD
DIMMING_OUT — DIMMING_OUT
BL_PWM — BL_PWM

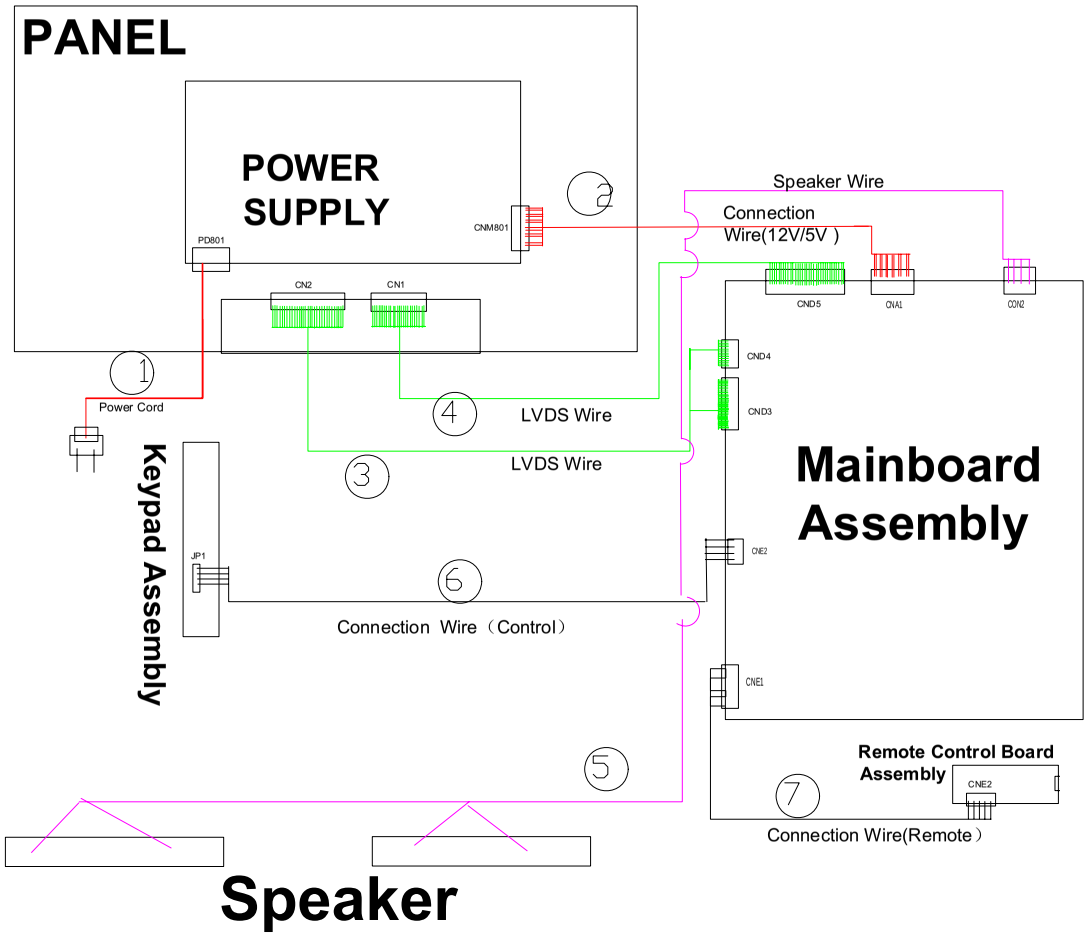
FOR MT8282

MediaTek Confidential

MediaTek Inc.
No.1-2, Innovation Rd 1, SBIP, Hsin-Chu City 300
TEL:(03)567-0766 FAX:(03)578-7610

Title: LVDS/BACKLIGHT

Size	Document Number	Drawn	Rev
C	MT5305A P1V1	By Ray	V1
Date: Wednesday, October 14, 2009		Sheet 12 of 15	



7	0090401643E	Connection Wire(Remote）	1
6	0090402553C	Connection Wire（Control）	1
5	0090400647J	Speaker Wire	1
4	0090402848	LVDS Wire	1
3	0090402850B	LVDS Wire	1
2	0090402846	Connection Wire(12V/5V)	1
1	0090401964	Power Cord	1
NO.	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

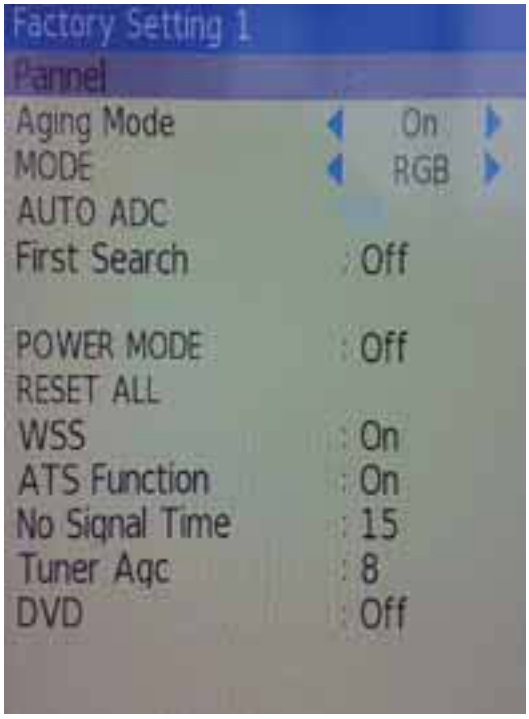
If you want to exit this factory menu, please press the button "Exit" on the remote.
system will be out the factory mode menu.

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.

MSD209 Factory Menu

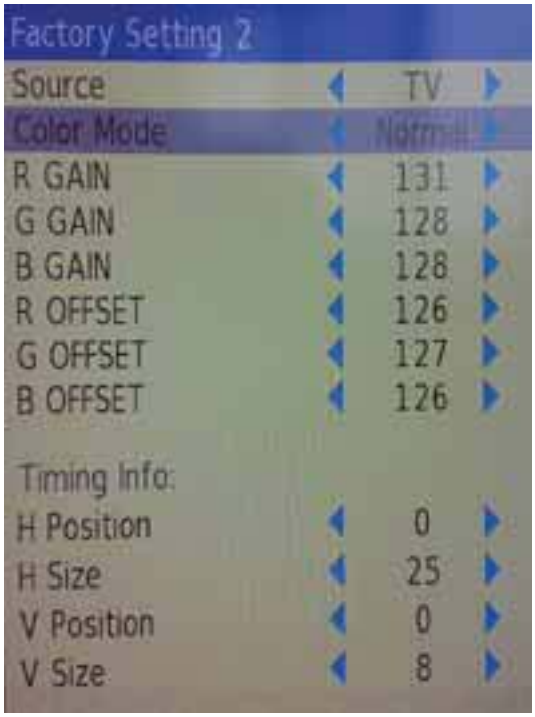


In this page, you just consider "RESET ALL" function.This function you can reset all date return to factory state.if you encounter inextricable problem,you can try this function.

Press up/down button to select "RESET ALL",press "OK" button.It needs a few secounds.

NOTE : After reset ,please shut off the power.
Be carefully use this function.

8-2-2. Video



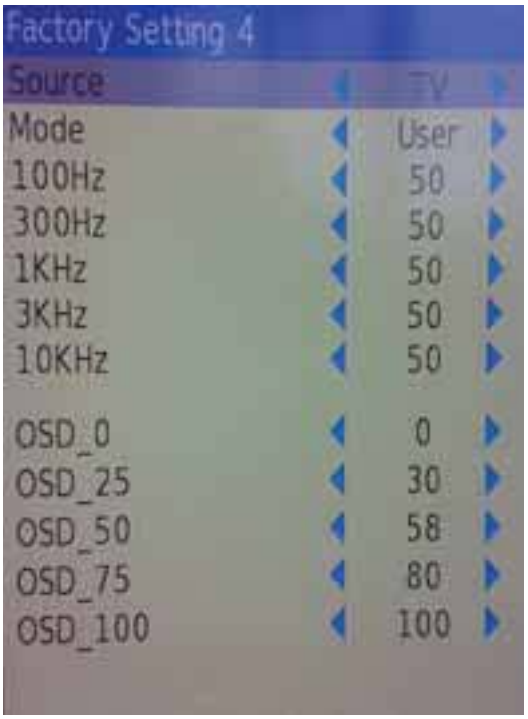
Color Temperature

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

Picture Mode

This page is control the picture effect , like Brightness,contrast,color,sharpness.

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.

NOTE : After software update ,turn to the Factory Setting 1 page reset all.

Chapter 9. Trouble shooting

9-1. Simple check

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

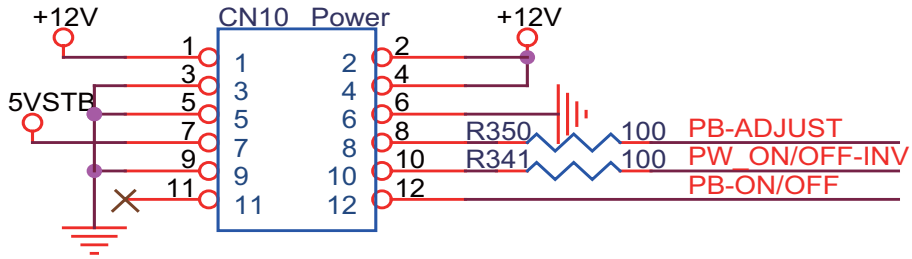
9-2. Power Supply Board Failure Check.

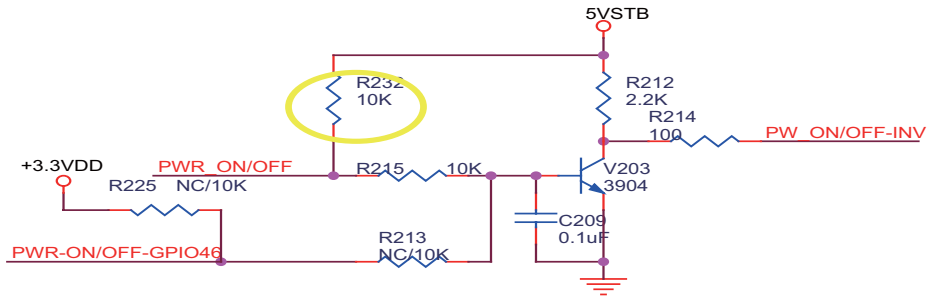
State:No picture

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

Check input voltage

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





State:No sound

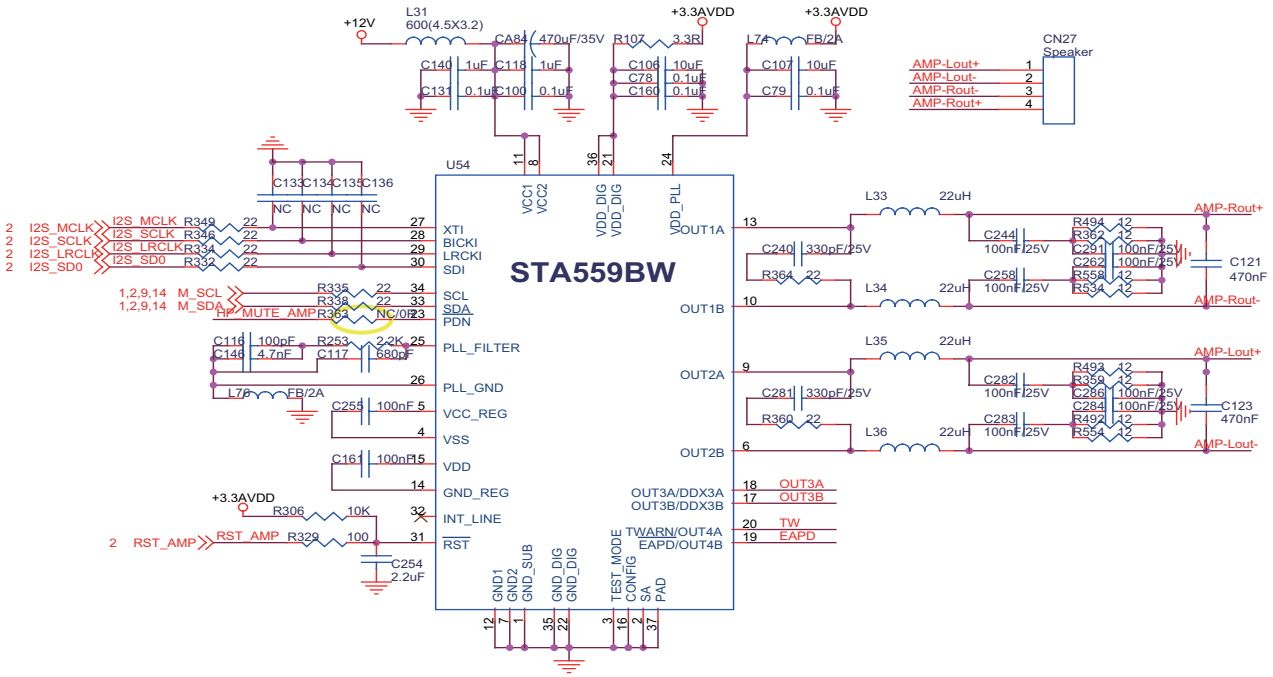
First,check cables which connect with PSU,then check as follows

1) Check input voltage as NO picture

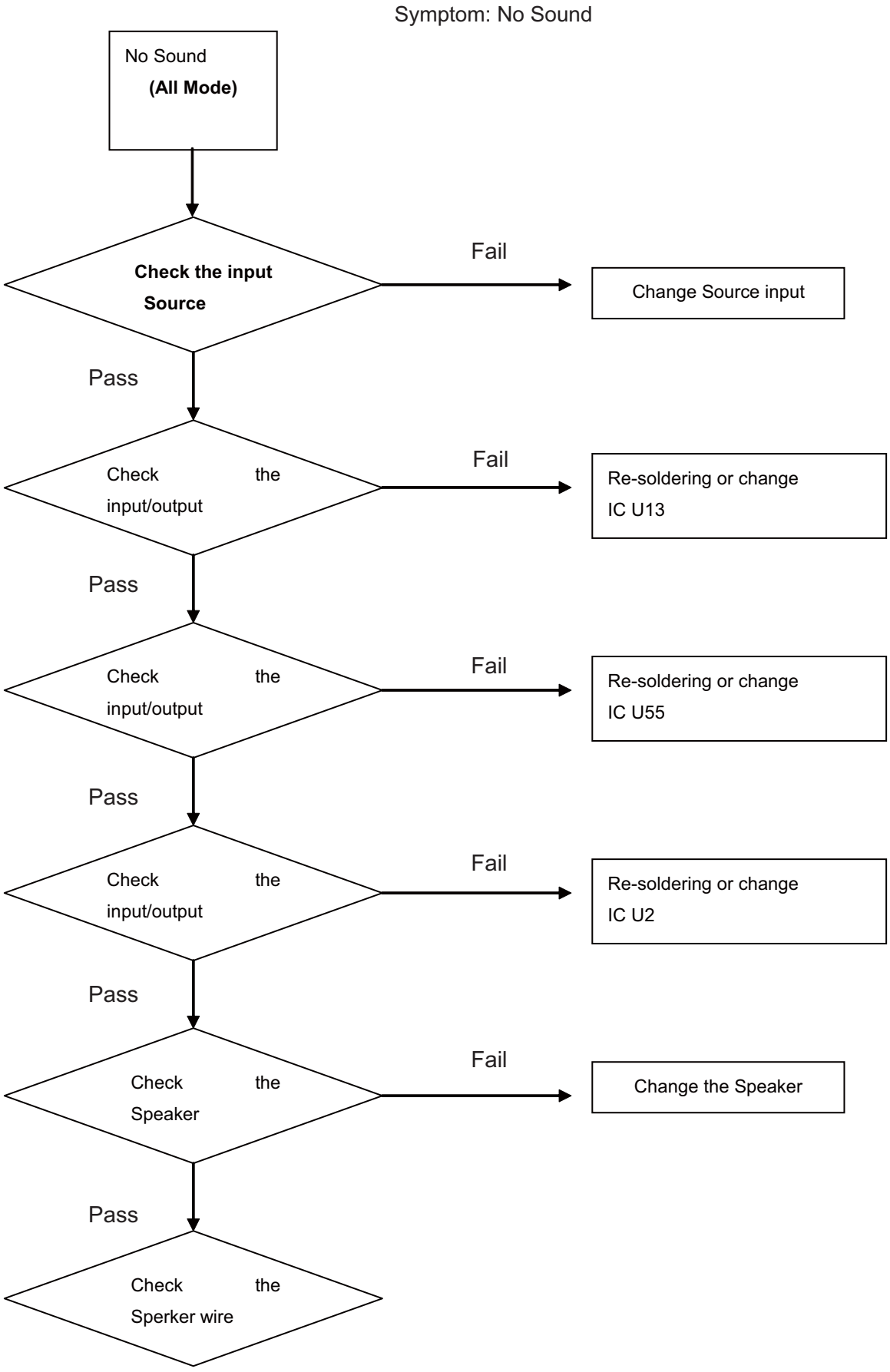
2) Check speaker output

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

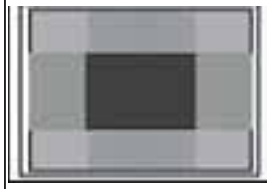


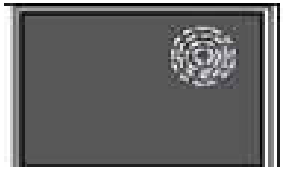
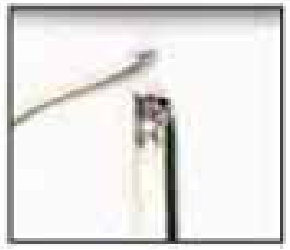
9-4. Pannel Failure

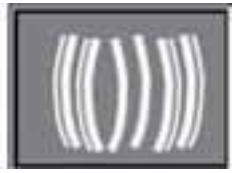
Failure Mode

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 :Panel failure :TCP failure
	V Dim	Vertal gray line		
	V L/D	Vertical color line(light or dark forever)		
	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 Polarlzer	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
Circuit	Abnormal Display	Abnormal Display		1.Chip lose action 2.IC ahort or jointiog bad 3.Pannel and vsc connect bad
	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		
	FIIcker	Crosstalk		LCD Vcom imbalance
	Abnormal Color	Only color abormal		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
	Mechanlcal Nolse	When turn panel,appear cacophony		Caused by Mechanica noise of backlight unit
	Ripple	Connectric circle		Causeed 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 bitween lamp housing and wire, Because consume power too much
	F/M	F/M inB/L ,white,balck Rotundity or wirelike		F/M in B/L unit

Part	Name	Description	Phenomena	Failure Cause
Mechanlcal 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

Haier Group

Haier Industrial Park, No.1, Haier Road
266101, Qingdao, China
http://www.haier.com

Printed in China