

SERVICE MANUAL



MSD309

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.

Chapter 1: General Information

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1-2. General Guidelines

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

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

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

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

1-3. Important Notice

1-3-1. Follow the regulations and warnings

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

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

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

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

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

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

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. The following techniques should be used to help reduce the incidence of component damage caused by electrostatic discharge (ESD).

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

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

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

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

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

Safety Component

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

1-3-6 Safety Check after Repairment

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

General Servicing Precautions

1. Always unplug the receiver AC power cord from the AC power source before;
 - a. Removing or reinstalling any component, circuit board module or any other receiver assembly.
 - b. Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
 - c. Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.

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

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

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

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

CAUTION: This is a flammable mixture.

Unless specified otherwise in this service manual, lubrication of contacts is not required. Capacitors may result in an explosion hazard.

5. Do not defeat any plug/socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.
6. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
7. Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead.

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

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

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

9. Remove the antenna terminal on TV and turn on the TV.
10. Insulation resistance between the cord plug terminals and the external exposure metal should be more than Mohm by using the 500V insulation resistance meter.
11. If the insulation resistance is less than M ohm, the inspection repair should be required. If you have not the 500V insulation resistance meter, use a Tester. External exposure metal: Antenna terminal Headphone jack

Electrostatically Sensitive (ES) Devices

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

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed to prevent potential shock reasons prior to applying power to the unit under test.
 2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
 3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
 4. 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.
 5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
 6. 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).
 7. 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.
8. 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 of each product and the Software Version can be found at the Spare Parts List.

2. Spare Part No. and Description

You can find them in the Spare Parts List

1-3-8. Photo used in this manual

The illustration and photos used in this 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

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.

3-2-1 Function Description:

Main Board

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

3-2-2 Connector definition

Main board connector

Power connectors (CN4,CN2)

CN4		CN2	
Pin number	Signal name	Pin number	Signal name
1	+5V	1	GND
2	BL	2	GND
3	DIM	3	+5V
4	high voltage	4	+5V
5	GND	5	POWER ON/OFF
		6	+5VSTB
		7	+5V
		8	+5V
		9	GND
		10	GND
		11	GND
		12	+12V
		13	+12V

Notes:

CN4-Pin 2: Backlight on/off:

The system can turn on or turn off the backlight of TFT LCD Panel through the power supply unit path.

CN2-Pin 5: System power on / standby

System board will use this pin to control system power.

CN4 T-Pin 3: Control the luminance of backlight

The system can generate the PWN signal to control the strength of TFT LCD Panel's backlight through this connector

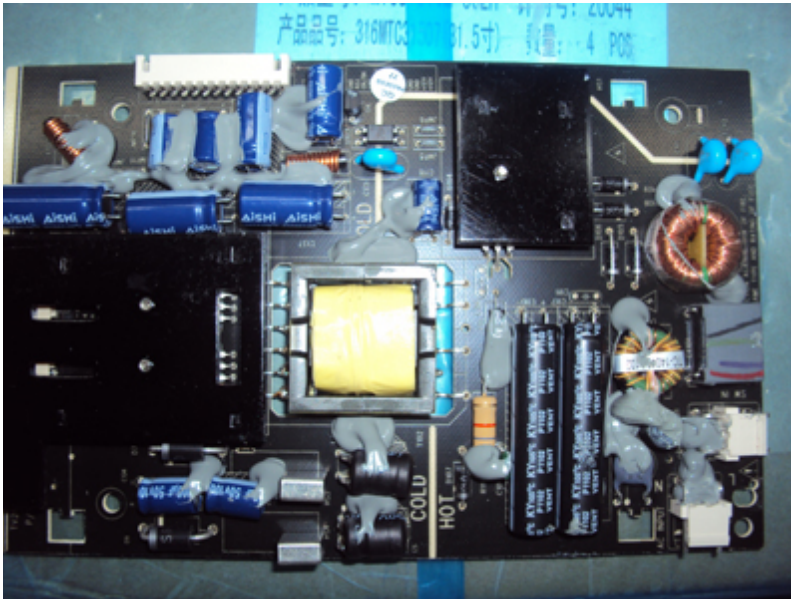
Keypad and remote connector (CN5)

Pin number	Signal name	Description
1	KEY1	
2	KEY0	
3	GND	
4		
5	LED_R	LAMP RED
6	LED_G	LAMP GREEN
7		
8	IR	REMOTE CONTROL
9	GND	GND
10	5V	POWER FOR REMOTE

Speaker connector J26

Pin number	Signal name	Description
1	RSPK+	RSPK+
2	RSPK-	RSPK-
3	LSPK-	LSPK-
4	LSPK+	LSPK+

3-3. Power Board



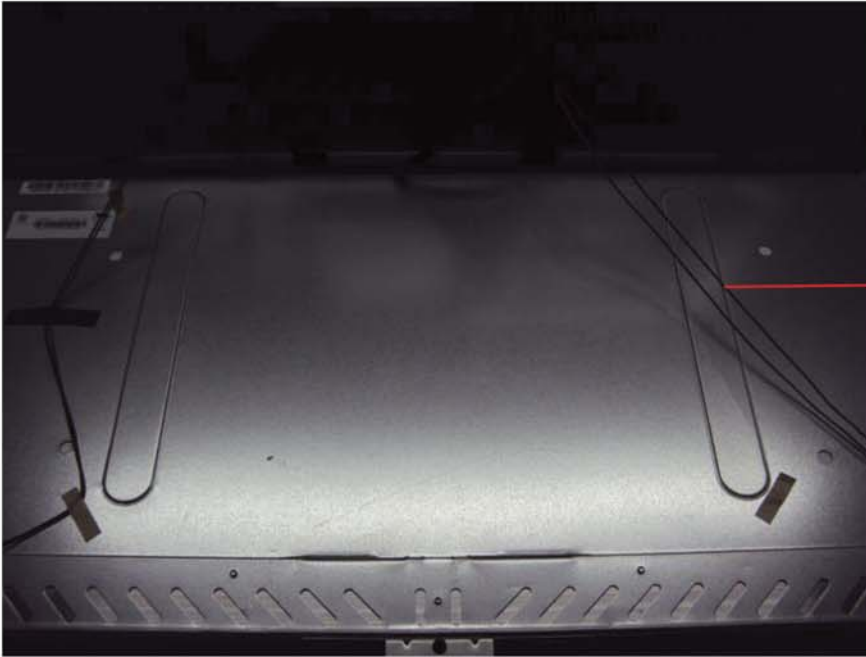
3-3-1 Function Description:

Supply power for Main board, Panel.

3-3-2 Connector definition

CON5	
Pin number	Signal name
1	GND
2	GND
3	ADJ
4	ON/BK
5	ON/OFF
6	+5VSB
7	+5V
8	+5V
9	GND
10	GND
11	GND
12	+12V
13	+12V

3-4. LCD Panel



3-4-1 Function Description: Display the signal.

3-4-2 Connector definition.

CNF1 Connector Pin Assignment

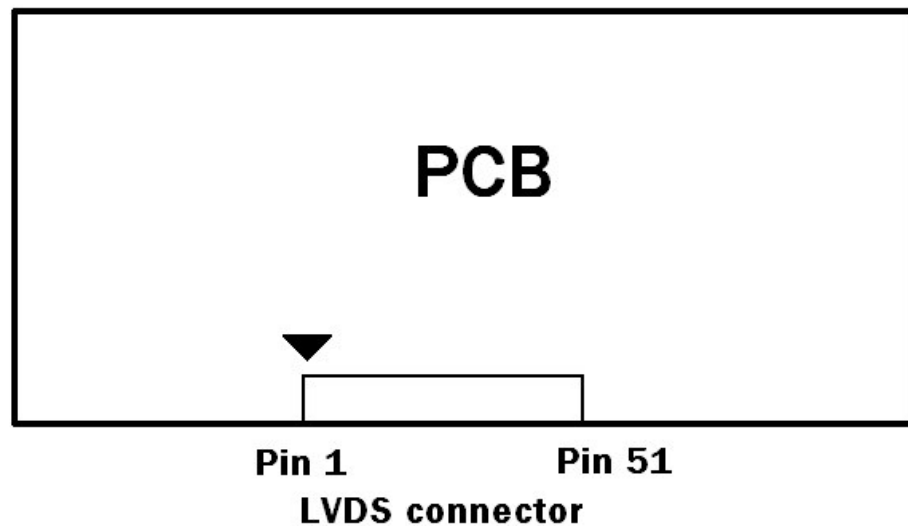
Pin	Name	Description	Note
1	VCC	+12V power supply	
2	VCC	+12V power supply	
3	VCC	+12V power supply	
4	VCC	+12V power supply	
5	VCC	+12V power supply	
6	GND	Ground	
7	GND	Ground	
8	GND	Ground	
9	GND	Ground	

10	ORX0-	Odd pixel Negative LVDS differential data input. Channel 0	(1)
11	ORX0+	Odd pixel Positive LVDS differential data input. Channel 0	
12	ORX1-	Odd pixel Negative LVDS differential data input. Channel 1	
13	ORX1+	Odd pixel Positive LVDS differential data input. Channel 1	
14	ORX2-	Odd pixel Negative LVDS differential data input. Channel 2	
15	ORX2+	Odd pixel Positive LVDS differential data input. Channel 2	
16	GND	Ground	
17	OCLK-	Odd pixel Negative LVDS differential clock input	(1)
18	OCLK+	Odd pixel Positive LVDS differential clock input.	
19	GND	Ground	
20	ORX3-	Odd pixel Negative LVDS differential data input. Channel 3	(1)
21	ORX3+	Odd pixel Positive LVDS differential data input. Channel 3	
22	N.C.	No Connection	(3)
23	N.C.	No Connection	
24	GND	Ground	
25	ERX0-	Even pixel Negative LVDS differential data input. Channel 0	(1)
26	ERX0+	Even pixel Positive LVDS differential data input. Channel 0	
27	ERX1-	Even pixel Negative LVDS differential data input. Channel 1	
28	ERX1+	Even pixel Positive LVDS differential data input. Channel 1	
29	ERX2-	Even pixel Negative LVDS differential data input. Channel 2	
30	ERX2+	Even pixel Positive LVDS differential data input. Channel 2	
31	GND	Ground	
32	ECLK-	Even pixel Negative LVDS differential clock input.	(1)
33	ECLK+	Even pixel Positive LVDS differential clock input.	

34	GND	Ground	
35	ERX3-	Even pixel Negative LVDS differential data input. Channel 3	(1)
36	ERX3+	Even pixel Positive LVDS differential data input. Channel 3	
37	N.C.	No Connection	(3)
38	N.C.	No Connection	
39	GND	Ground	
40	N.C.	No Connection	(3)
41	N.C.	No Connection	
42	N.C.	No Connection	
43	N.C.	No Connection	
44	N.C.	No Connection	
45	SELLVDS	High(3.3V) or open for VESA, Low (GND) for JEIDA	(4)(5)
46	N.C.	No Connection	(3)
47	N.C.	No Connection	
48	N.C.	No Connection	
49	N.C.	No Connection	
50	N.C.	No Connection	
51	N.C.	No Connection	

Note (1) Two pixel data send into the module for every clock cycle. The first pixel of the frame is odd pixel and the second pixel is even pixel

Note (2) LVDS connector pin order defined as follows



Note (3) Reserved for internal use. Please leave it open.

Note (4) Low: JEIDA LVDS Format (Connect to GND), High or open: VESA Format. (Connect to +3.3V)

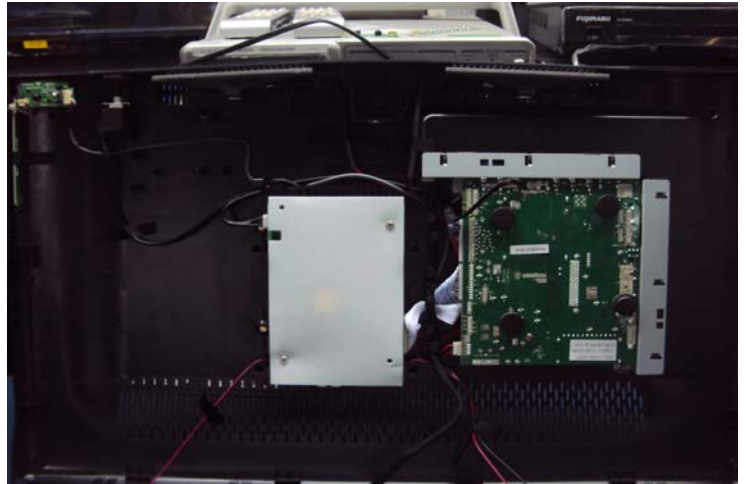
4. Disassemble and assemble

4-1 Remove the Pedestal



4-3. Remove the adhesive tape

(The location of the adhesive tape as follows)



Remove the adhesive tape indicated on the figure above

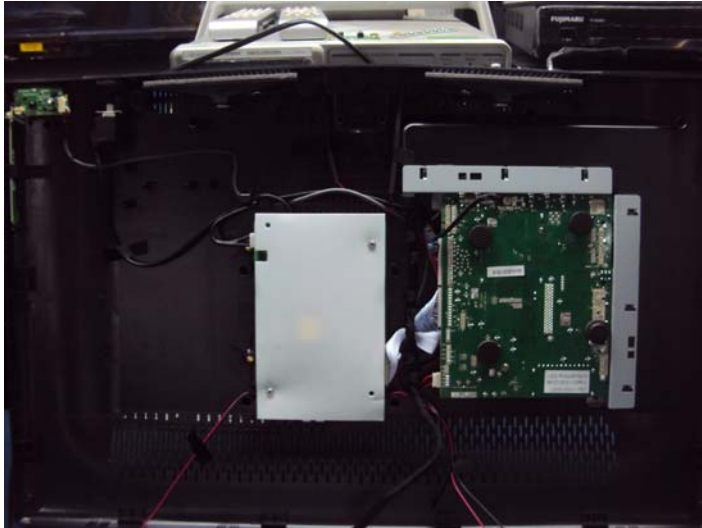
- ☐ Lay down the unit so that rear cover faces upward
- ☐ Remove the four screw from the rear cover indicated with ○
- ☐ Then remove the pedestal

4-2 Remove the Back Cover

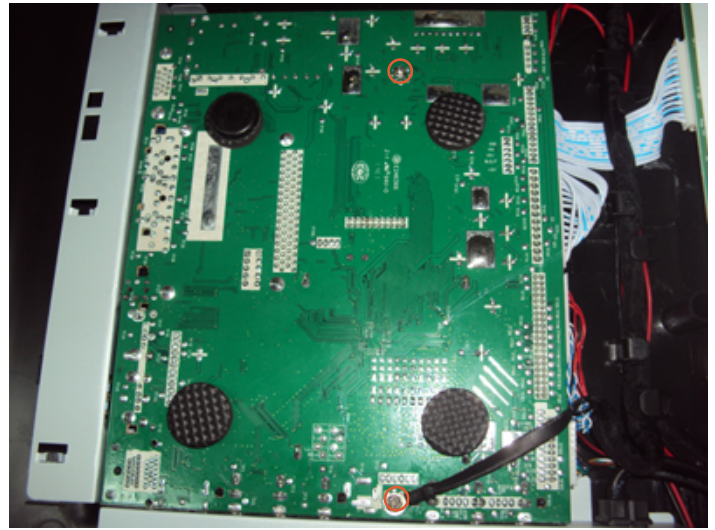


- ☐ Remove the these screw indicated on figure above by ○
- ☐ Then remove the back cover from the unit.

4-4 Remove the Terminal Bracket



- ☐ Then put the terminal bracket to the side

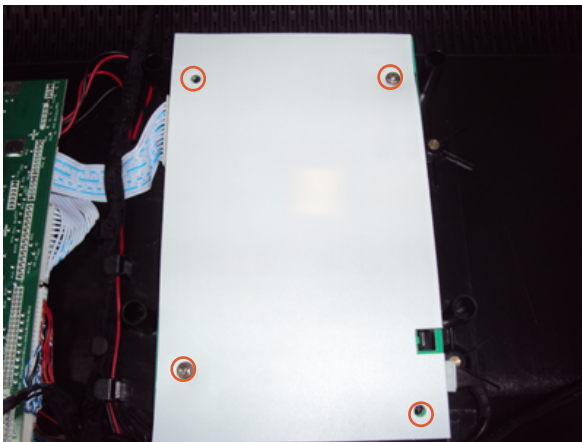


- ☐ Remove the two screw indicated on the figure above by ○

Disconnected the coupler CN3 CN5 CN2
CN30 CN4

- ☐ Remove the Main board

4-5 Remove the power module



- ☐ Remove the four screw indicated on the figure above by ○
- ☐ Then remove the power module

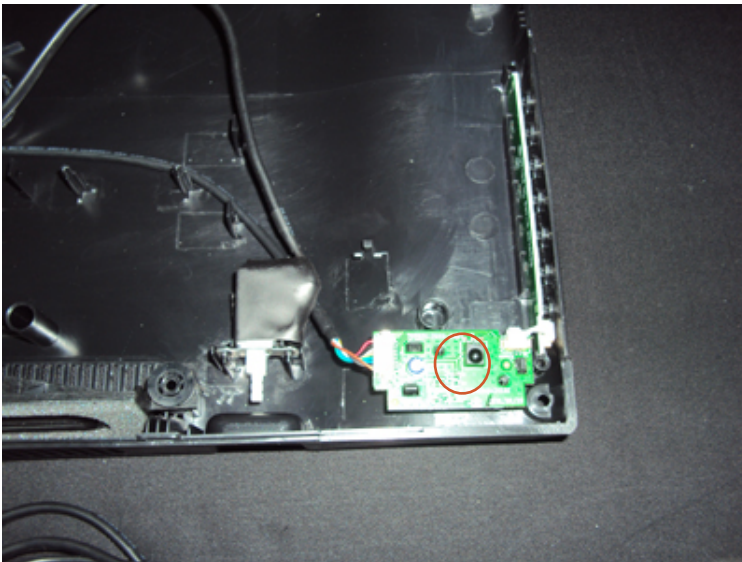
4-6 Remove the Main board

4-7 Remove the speaker



Take out the speaker

4-8 Remove the remote control



take out the remote control board

5. Installation Instructions

5-1 External Equipment Connections

Accessories



Remote Control

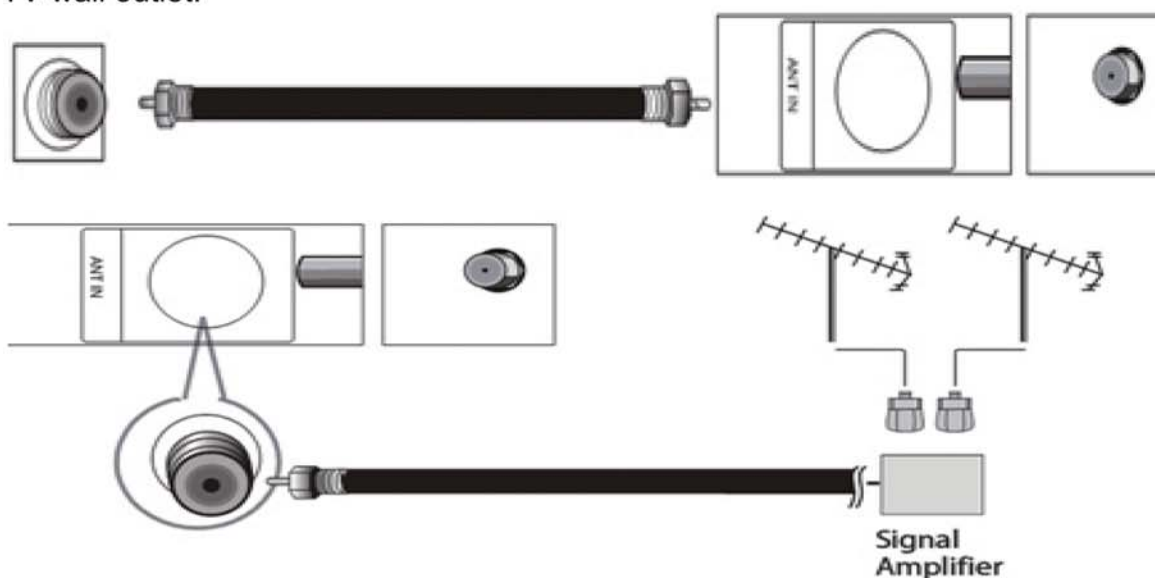
User GUIDE



Battery

Antenna Connection

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



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

If you need to split the antenna signal to connect two TVs, install a two-way splitter.

5-2 HDMI Connections

When the source device 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 1280x720p.

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 1280x720p.

Select HDMI input source in input source option of Select Main source menu.

When the source device 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 PC port.

How To Use

If the source device supports Auto DVI function, the output resolution of the source device will be automatically set to 1280x720p.

If the source device does not support Auto DVI, you need to set the output resolution appropriately.

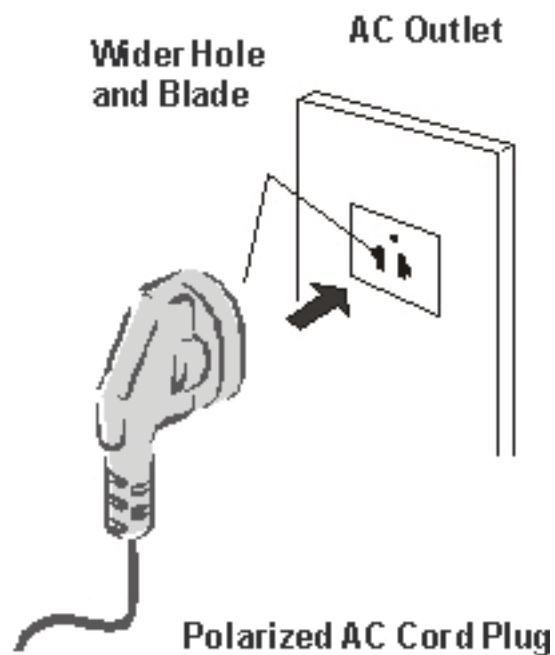
To get the best picture quality, adjust the output resolution of the source device to 1280x720p.

Press the INPUT button to select HDMI input source in input source option of Select Main source menu.

Installation

Cable sample

	HDMI Cable (not supplied with the product)
	HDMI to DVI Cable (not supplied with the product)
	Analog Audio Cable (Stereo to RCA type) (not supplied with the product)



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.

NOTES:

- Never connect the AC line cord plug to other than the specified voltage.

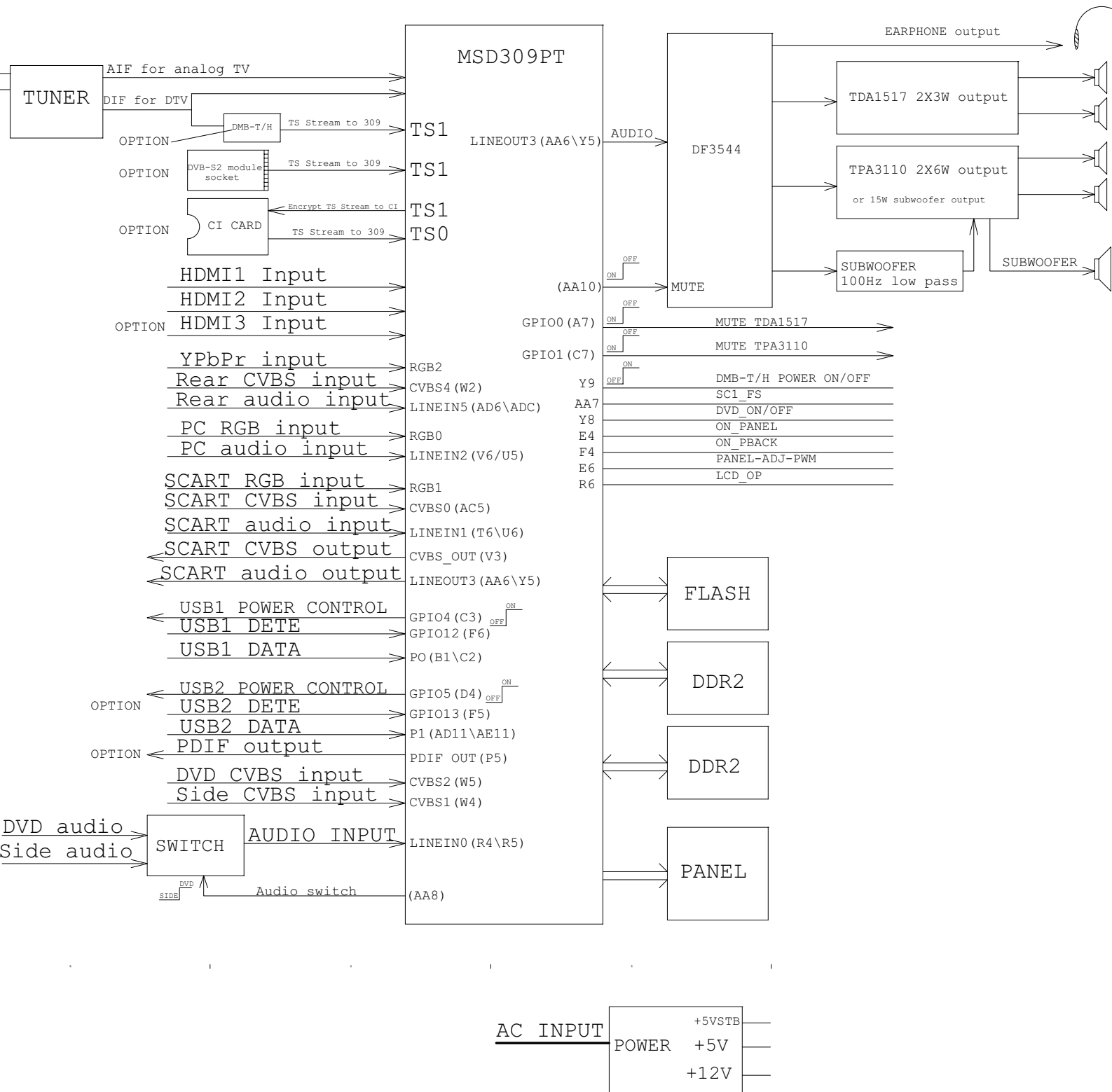
Use the attached power cord only.

- 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.

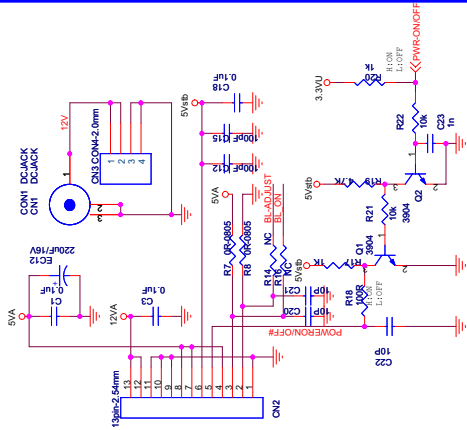
- If you cause a static discharge when touching the unit and the unit fails to function, simply unplug the unit from the AC outlet and plug it back in. The unit should return to normal operation.

7. Electrical parts

7-1. Block diagram

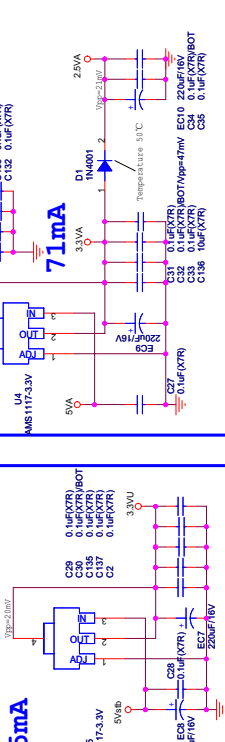


Power Input

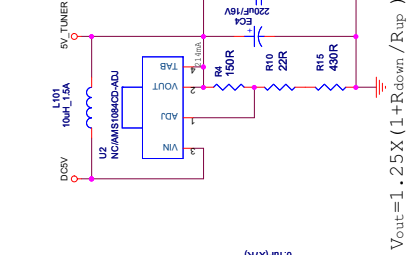
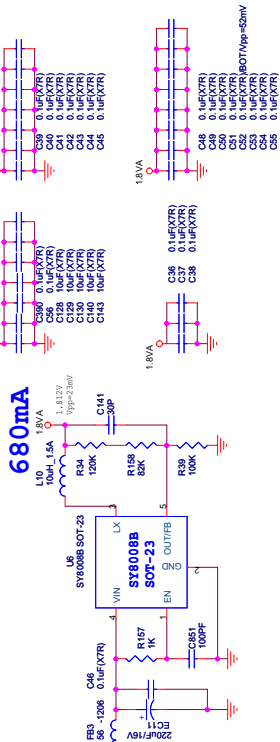


MST Power supply

45mA



680mA

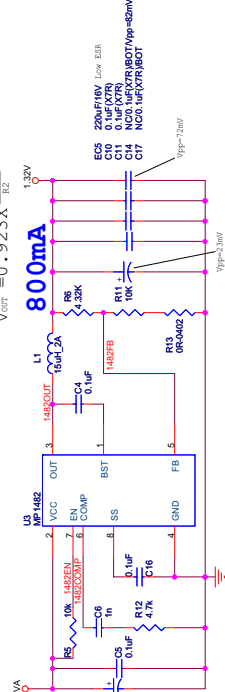


$V_{out} = 1.25 \times (1 + R_{down} / R_{up})$

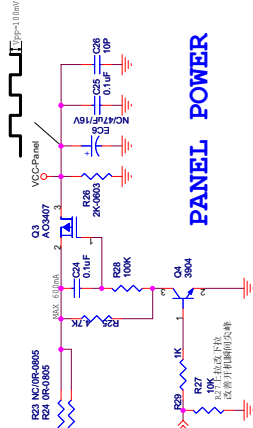
$V_{out} = 0.6 \times (1 + R_{up} / R_{down})$

1.32V DC-DC

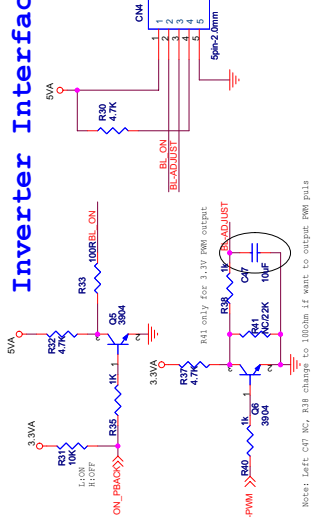
$V_{out} = 0.923 \times \frac{R1+R2}{R2}$



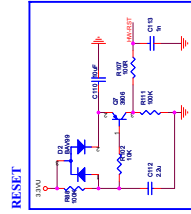
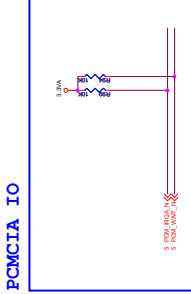
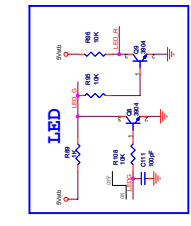
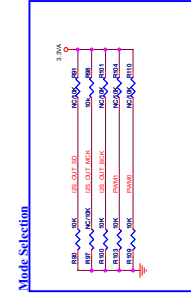
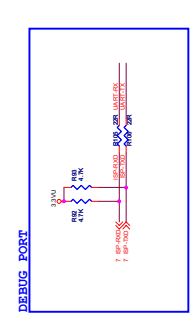
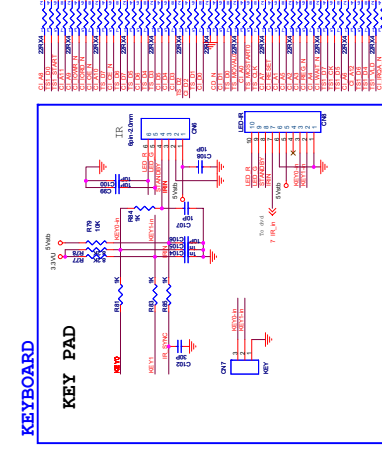
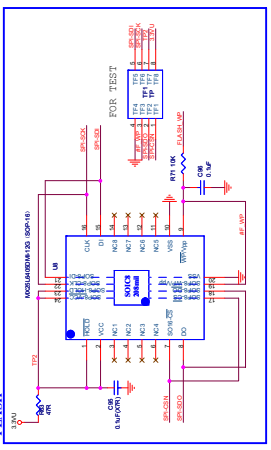
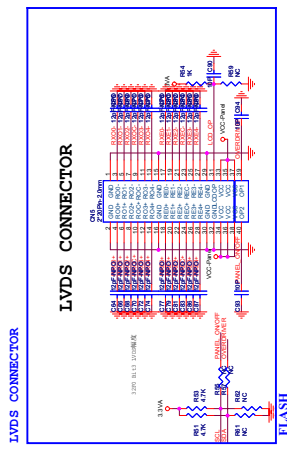
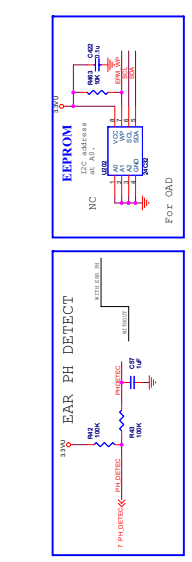
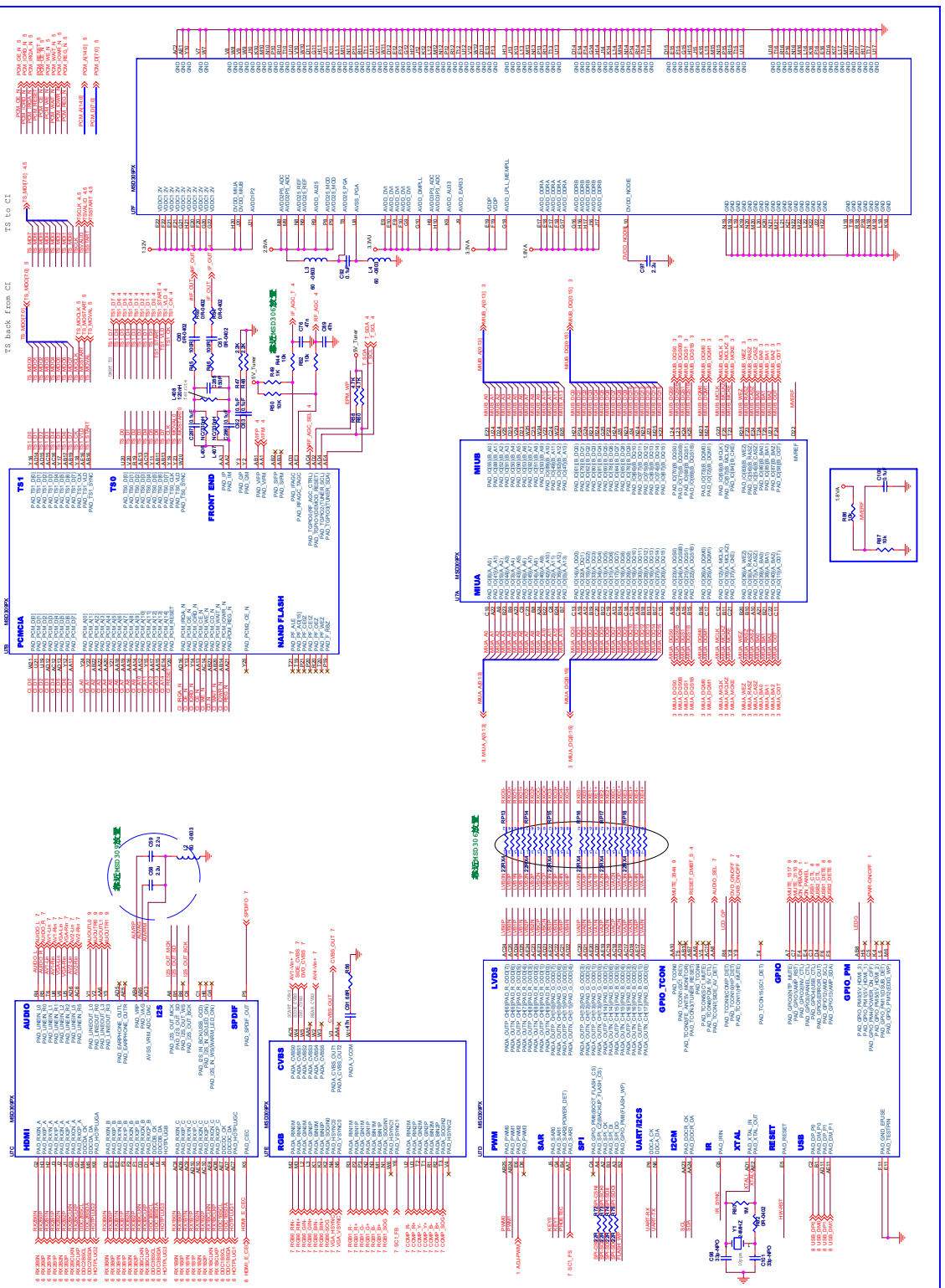
PANEL POWER

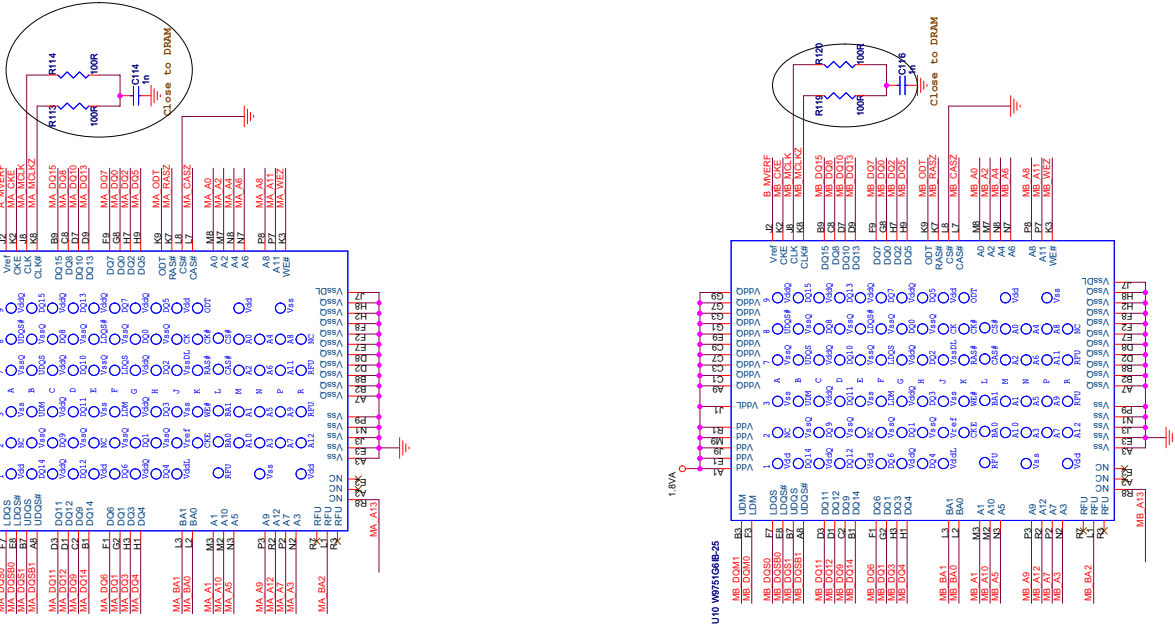


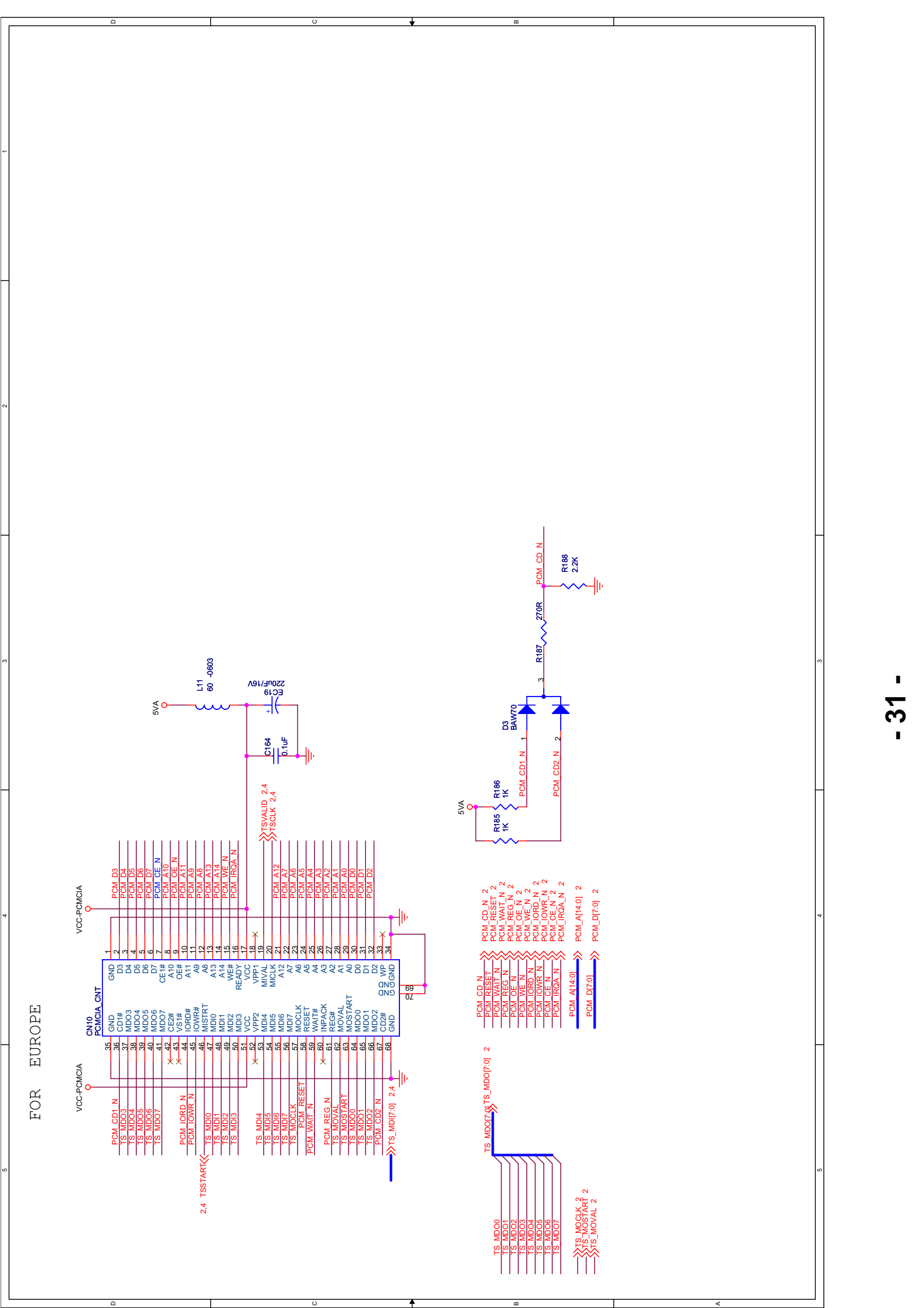
Inverter Interface



Note: Left COT NC, R38 change to 100kΩ if want to output PWM pins







SIDE HDMI

The diagram illustrates a side HDMI connection circuit. It features a CN12 connector with pins 1 through 19. The circuit includes an HDMI REC connector with pins 1 through 19. The circuit also includes an HDMI/ISV connector. The circuit is powered by a 5V regulator and a 10K resistor (R198). The circuit is labeled with component values and pin numbers.

Component values and pin numbers:

- 10K (R198)
- 1K (R190)
- 3004 (D4)
- 7K (R197)
- 5V
- 10K (R198)
- 1K (R190)
- 3004 (D4)
- 7K (R197)
- 5V

Pin numbers:

- 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19

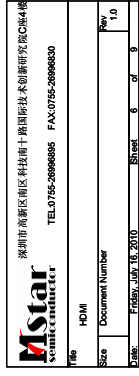
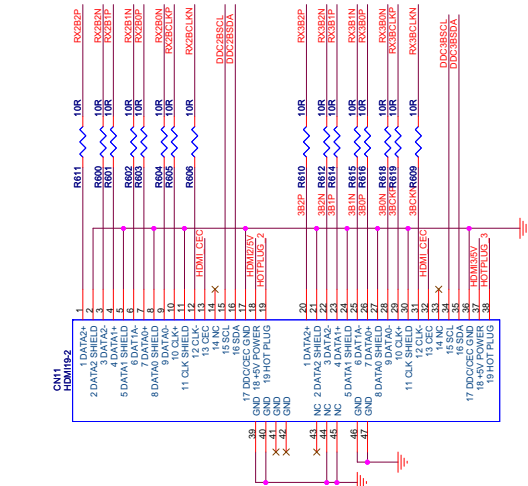
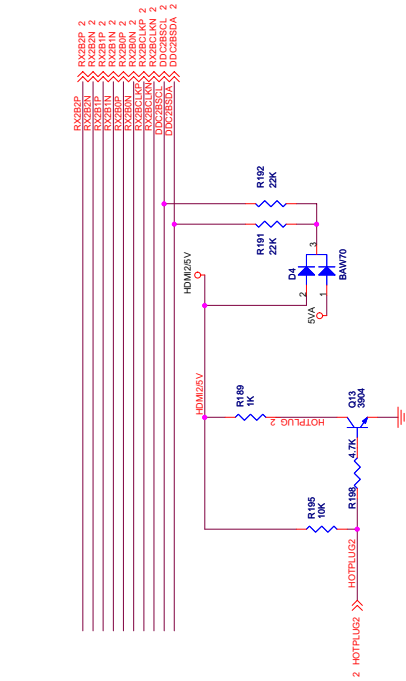
Labels:

- CN12
- HDMI REC
- HDMI/ISV
- BAV70
- 5V
- 10K (R198)
- 1K (R190)
- 3004 (D4)
- 7K (R197)

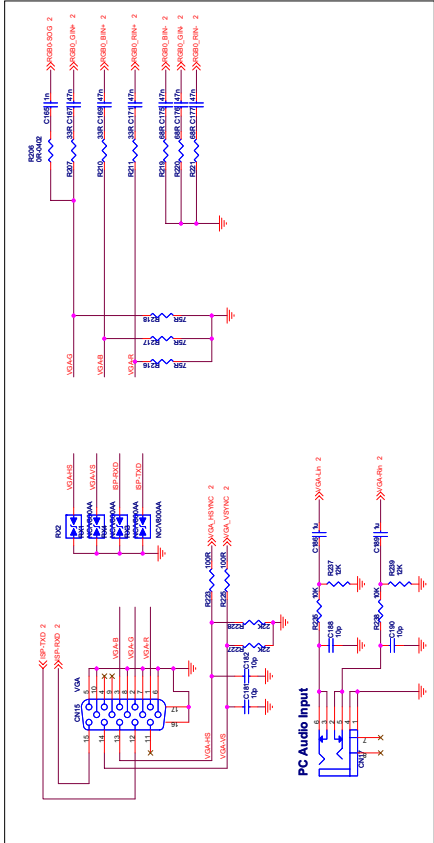
Other labels:

- 10K (R198)
- 1K (R190)
- 3004 (D4)
- 7K (R197)
- 5V

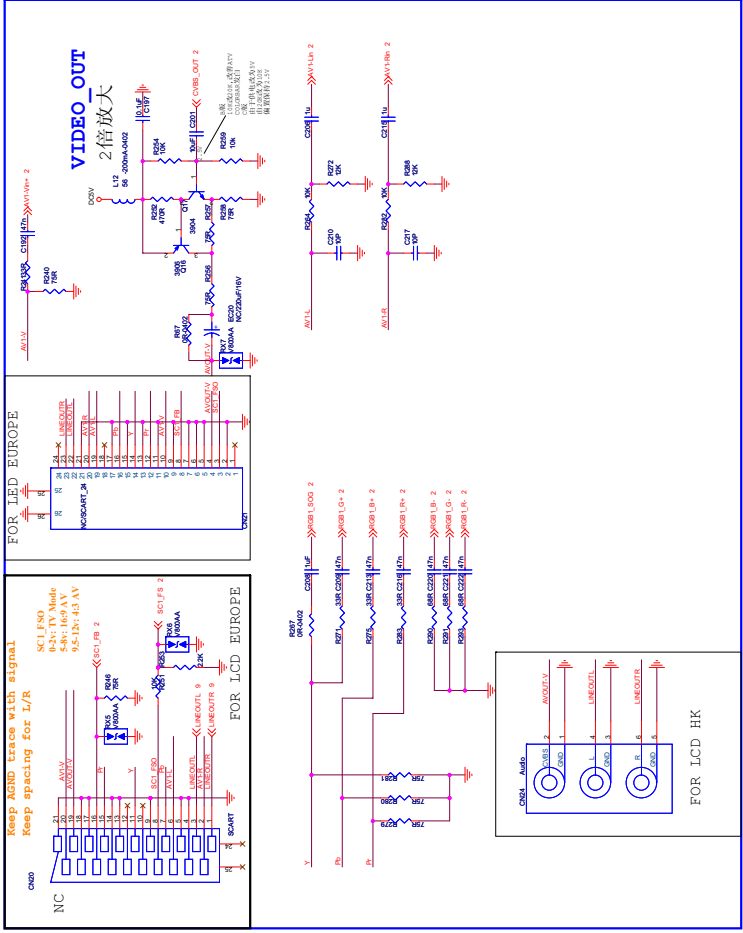
NC



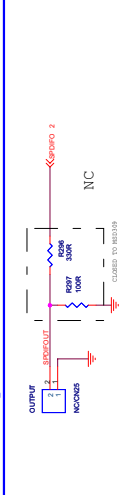
VGA INPUT



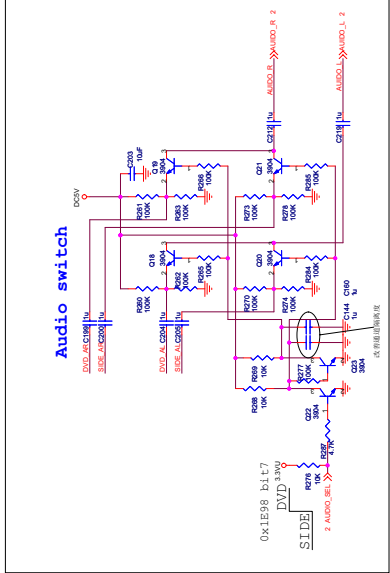
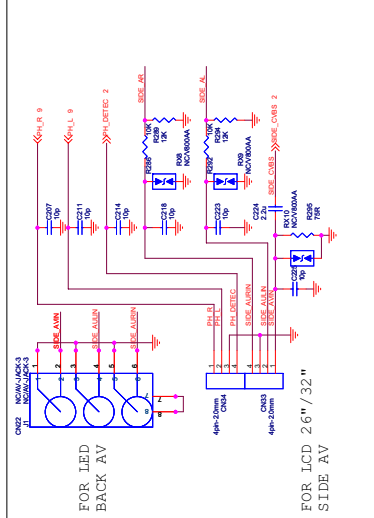
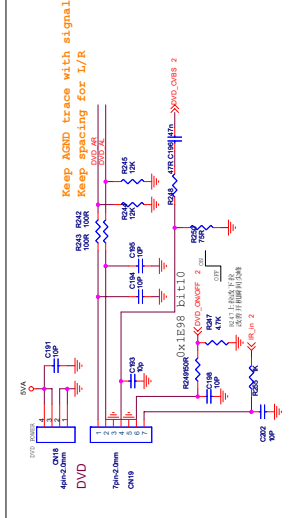
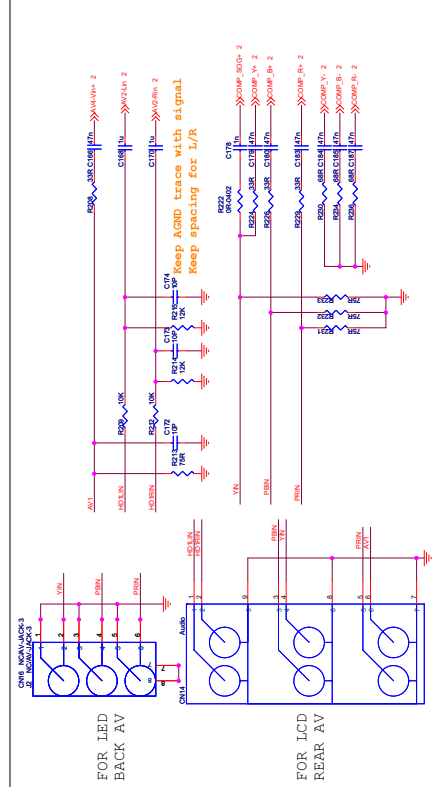
FULL SCART



SPDIF Output



SIDE CVBS+S_Video Input



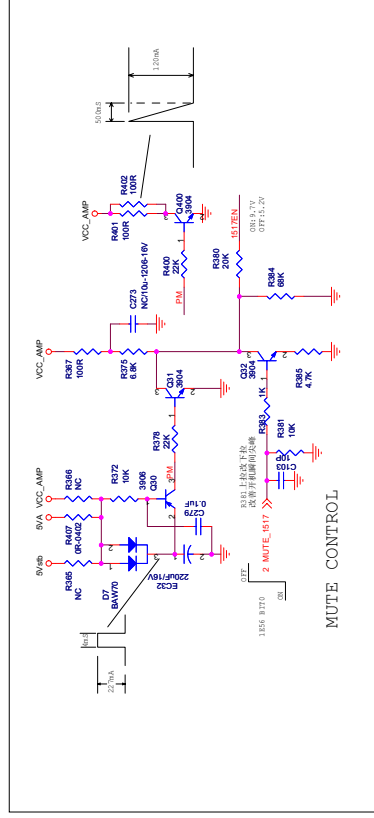
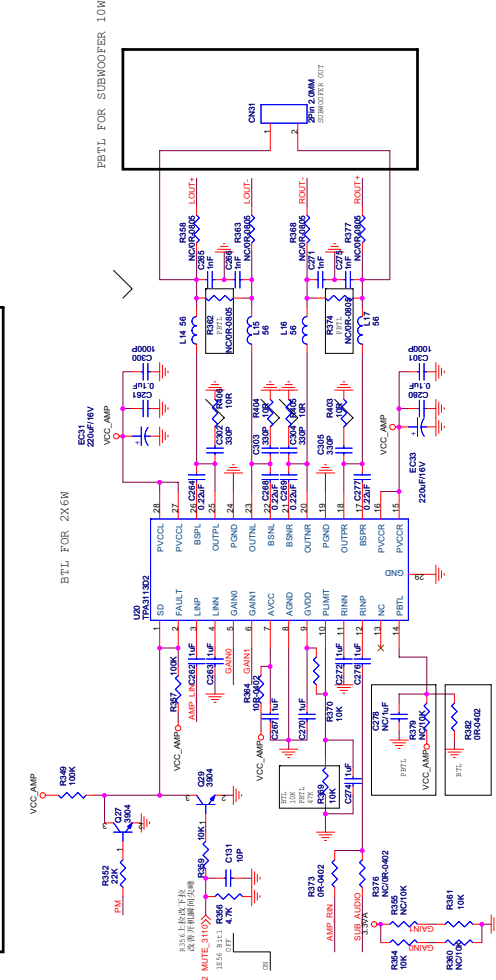
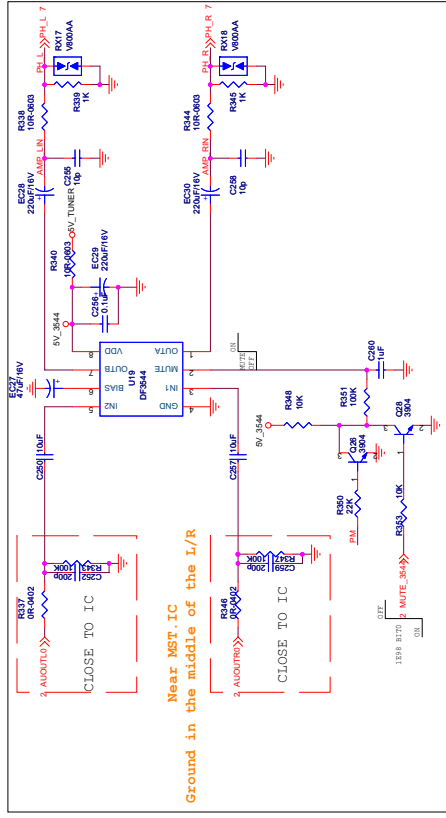
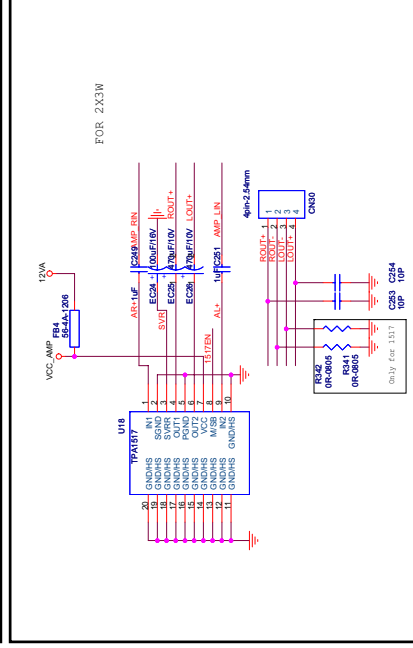
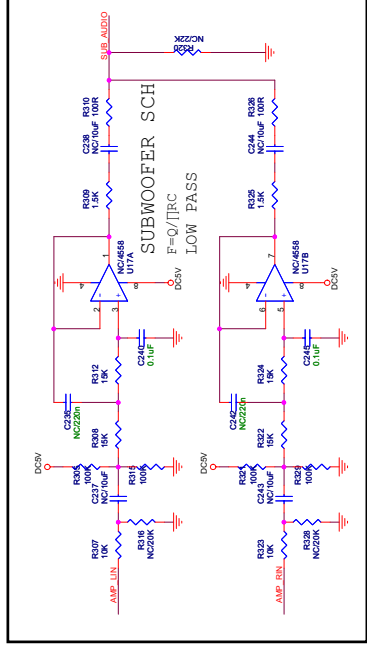
Star
TEL: 0755-2686868 FAX: 0755-2686860
FPC AIN
Document Number
P155-125-16, 2017

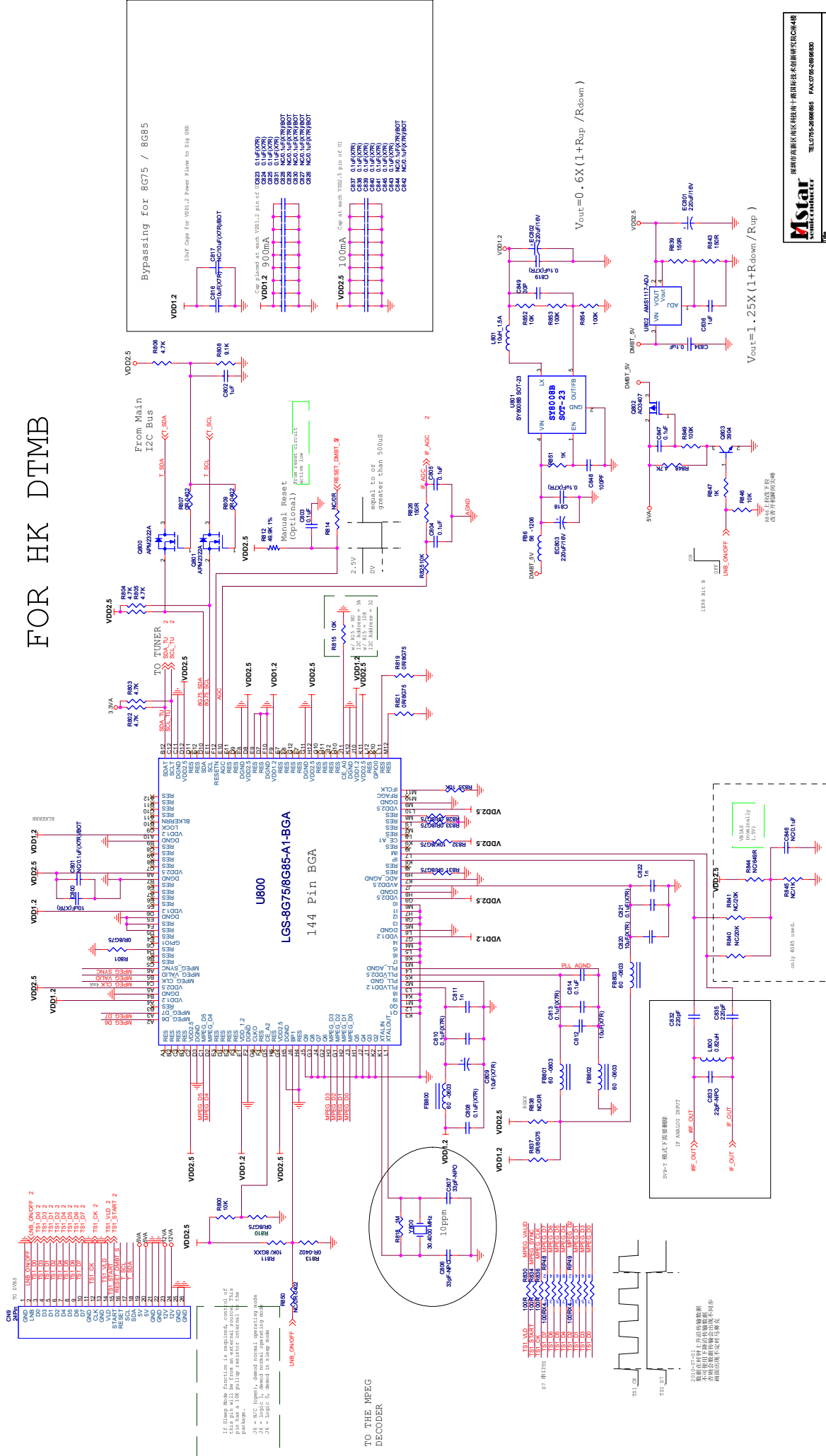
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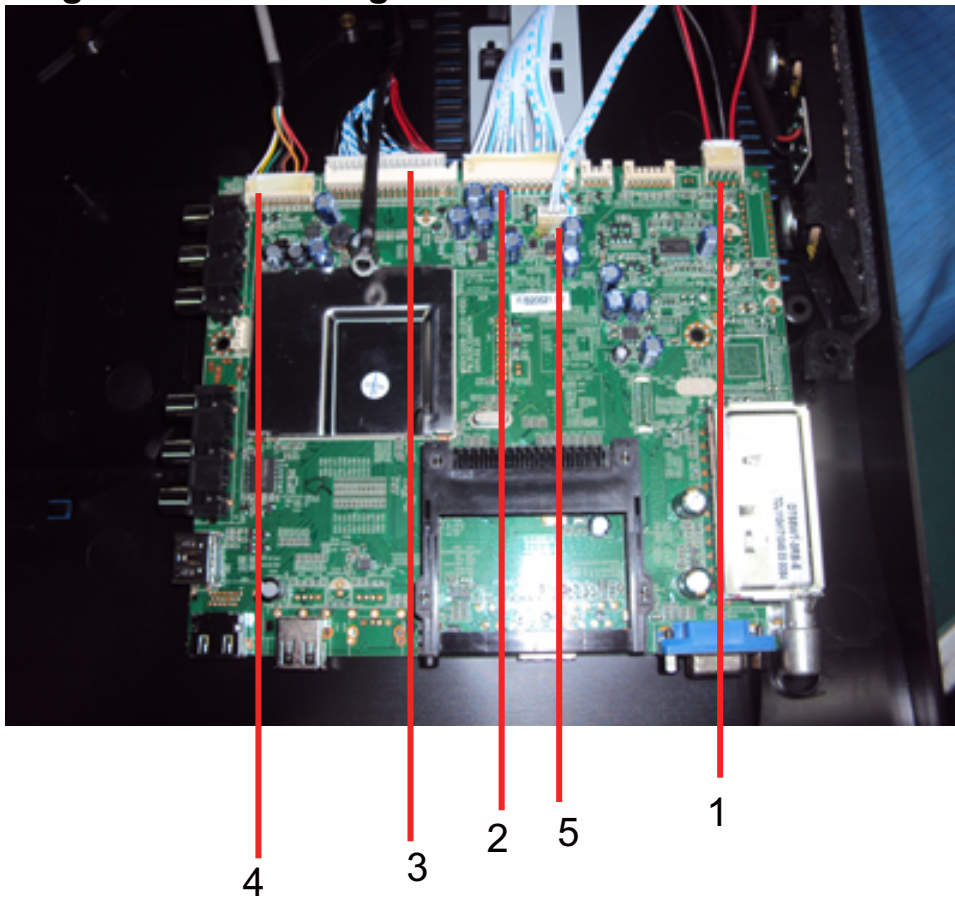
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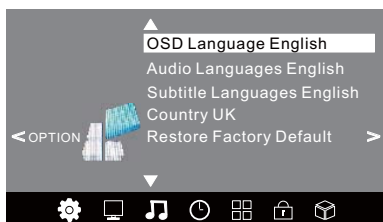
7-3 .Wiring Connection Diagram



NO.N	ame
1	Connection Wire(For Speaker)
2	Connection Wire(Power For Mainboard)
3	LVDS Wire
4	Connection Wire(For Remote and Keyboard)
5	Connection Wire(Control for Backlight on/off)

5.OPTION MENU

The fifth item of the MENU is the OPTION MENU. You can adjust the Menu language, Audio language, Subtitle language etc.

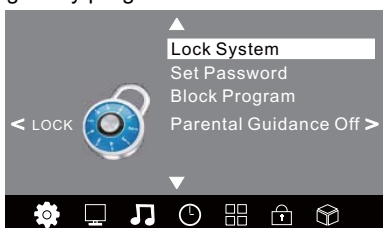


NOTE:

Restore factory default will clear all the programs and password.

6.LOCK MENU

The sixth item of the menu is the LOCK MENU. You can lock system, set password, block program and set parental guidance. Once you set the lock system to on, you can not search the channels or change any programs.



NOTE:

The default pass word is 6666.

Block program: Press ▼▲ to choose the program, press teletext green button to block the program. If you want unblock the program, pls enter the main menu, input the password, then press green button again. Parental guidance: Press ◀▶ to choose rating.

7.EPG Menu(Electronic Program Guide).

The EPG menu is used to look at what is being broadcasted on DTV or Radio channel in the day. To access the EPG menu, press the EPG button, the following menu will be displayed:

PROGRAMME GUIDE	TIME
28 Apr 04:39	
800 SZTVM01	No Information
801 SZTVM02	No Information
802 SZTVM03	No Information
803 SZTVM04	No Information
804 Date	No Information
INFO Schedule Remind INDEX	

1. INFO

Use ◀▶ to choose the programs, Press INFO key, you can display the highlight program's information.

2. Schedule

Press the teletext yellow key, It can list all the reminder schedule, press ▼▲ to choose the list, press red key DELETE to delete the schedule list, Press EPG to return to EPG menu.

Schedule List		04:55 28th Apr	Delete
Time	Date	Programme Title	Channel Name

3. Remind

Press the blue key to choose one program and set up one reminder time, the TV screen will skip to the chosen program in the reminder time automatically.

Reminder setting		
◀ -	802 SZTVM03	+ ▶
08 Minute		
05 Hour		
Apr Month		
28 Date		
★ Once Mode		
OK	BACK	

8.1 How to enter into the factory model

1. You can press "source-2-5-8-0" to go into factory setting. Press the key "exit" to shut the factory setting.



content:

1: ADC setup: set ADC value of YUV,VGA. It can also be auto-set. Adopt 100% color bar to yuv and Checkerboard signal to vga.

2:Adjust the brightness and contrast ratio of each signal, which do not affect the value of user's menu.

3: adjust the color temperature and white balance of each signal source.

4: SSC to adjust the spectrum for passing the EMC test.

5:special set

1)2hour off-- for Aging test

2)WDT --watch dog

3)white pattern --set pure color output for the panel, used at the checking and aging test for panel.

4)reset

5)set the recorder

6)set power-on screen display.

6:QMAP adjust :adjust color quality.

7:PEQ set sound EQ

8:sw information: to check the software information

9:UART DEBUG : Access to serial port and connect a computer if set to HK.

10:BMTEST :cpu check the CPU

The last line is SW Ver.No

8.2 How to update software

Haier MSD309 F/W upgrade with USB SOP

Step 1: Ready for F/W Upgrade

1.1 Prepare a USB memory .

1.2 Copy the software file (merg.bin) from your computer to the USB memory, and remove it from computer's USB port!

Step 2: F/W Upgrade

2.1 AC ON



2.2,then input USB , press "MENU" and choose "update software", and then press "OK".



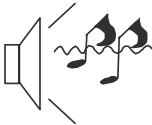
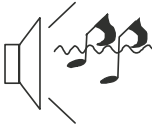
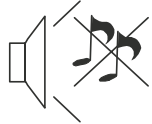
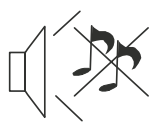
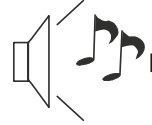
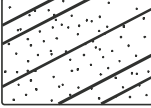
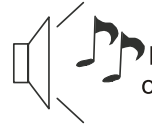
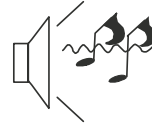
2.3,Now you should choose "Yes",TV begin to update.You should reset TV after update.



Note: When Upgrade on the process, please don't Power-Off!

9. Trouble shooting

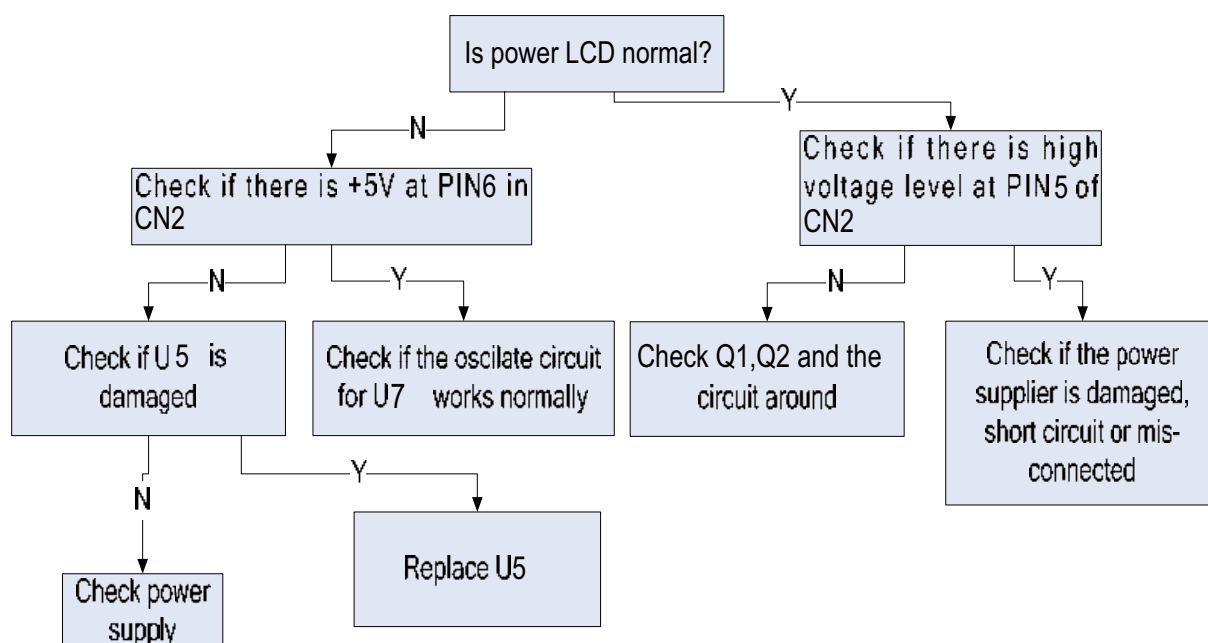
9-1. Simple check

Trouble phenomenon		Inspection
Picture	Audio	
 Snow	 Noise	antenna position, direction or connection
 Ghost	 Normal audio	antenna position, direction or connection
 Interfere	 Noise	electronic equipment, car/ motorcycle, fluorescent light
 Normal Picture	 Mute	Volume (inspect whether the mute function on the remote control are started, or audio system are correct or not)
 No picture	 Mute	Power cord is not inserted Power switch is not opened Contrast and brightness/volume setup Press standby key on the remote control for inspecting
 No color	 Normal audio	color control
 Scramble	 Normal audio or weak	retune channel
 No color	 Noise	Audio system

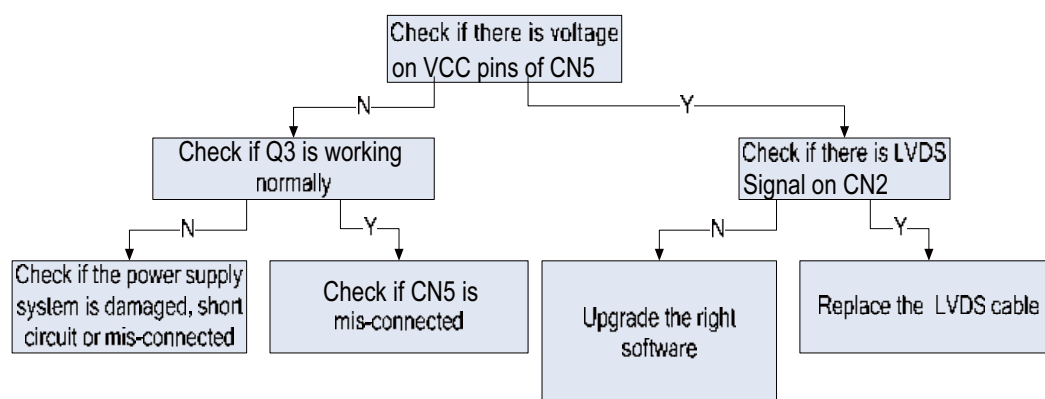
Special Explanation: The accessories such as remote control is not belongs to the guarantee.

9-2. Main board failure check

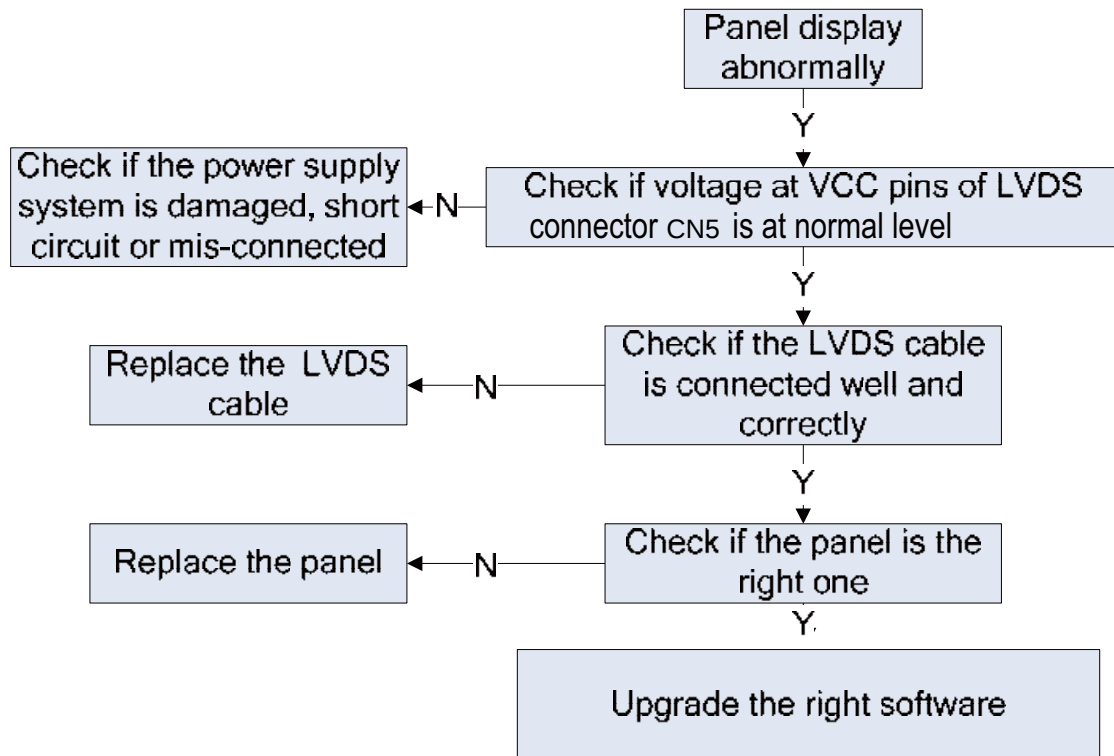
1) Black creen



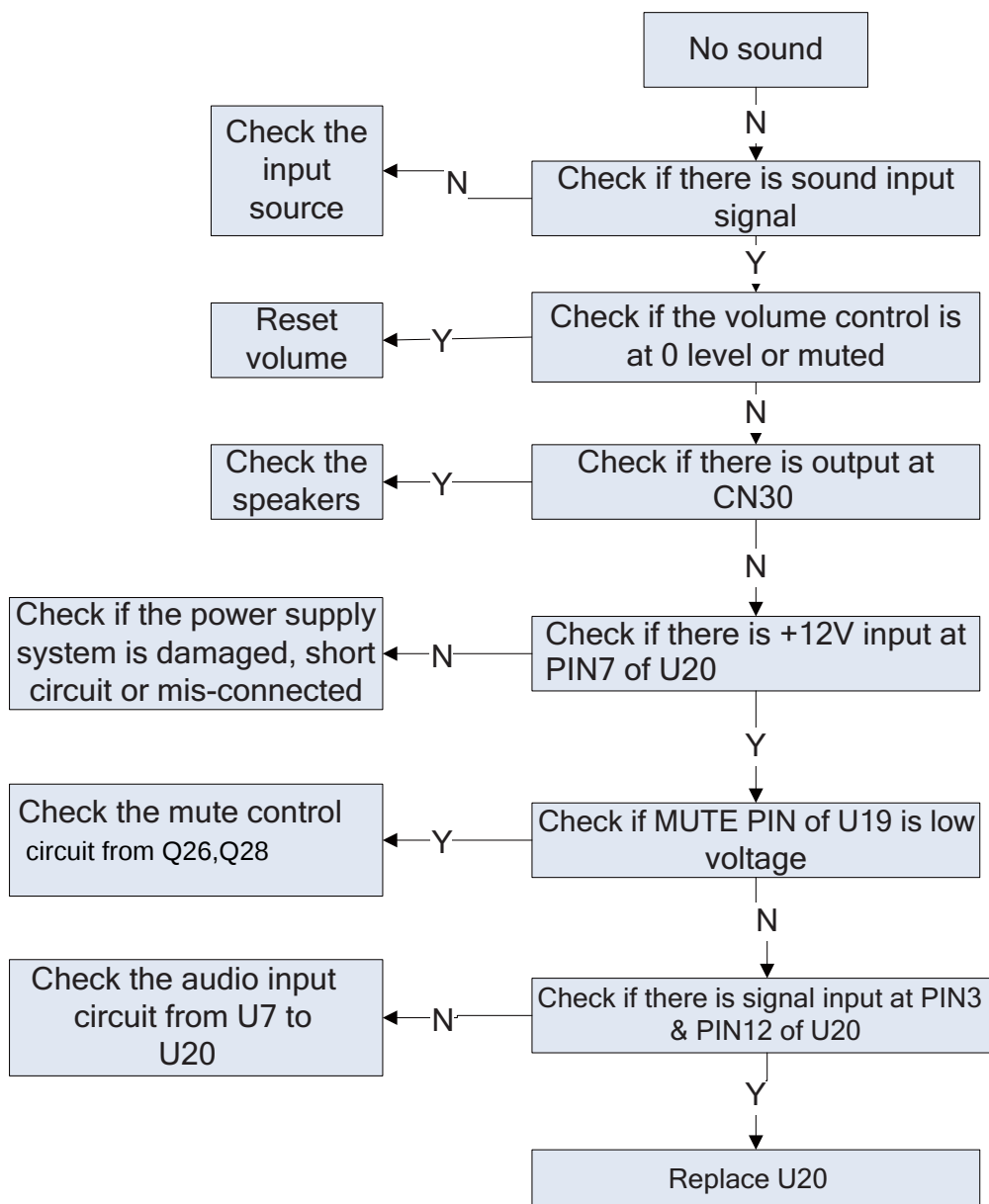
2) White screen



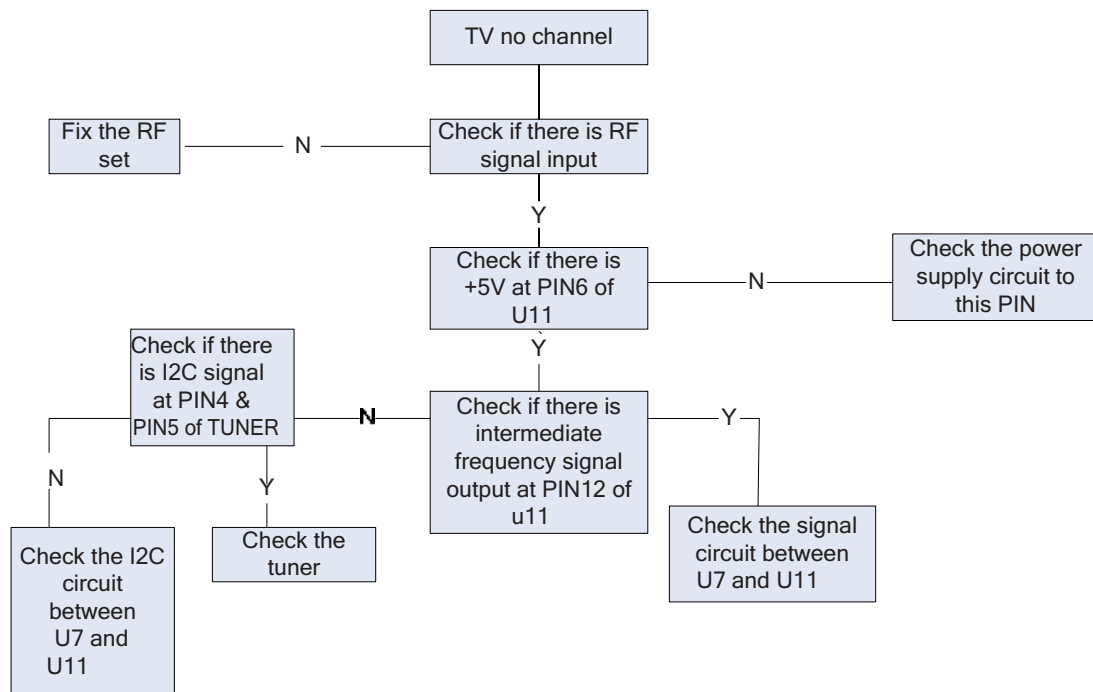
3) Panel display abnormally



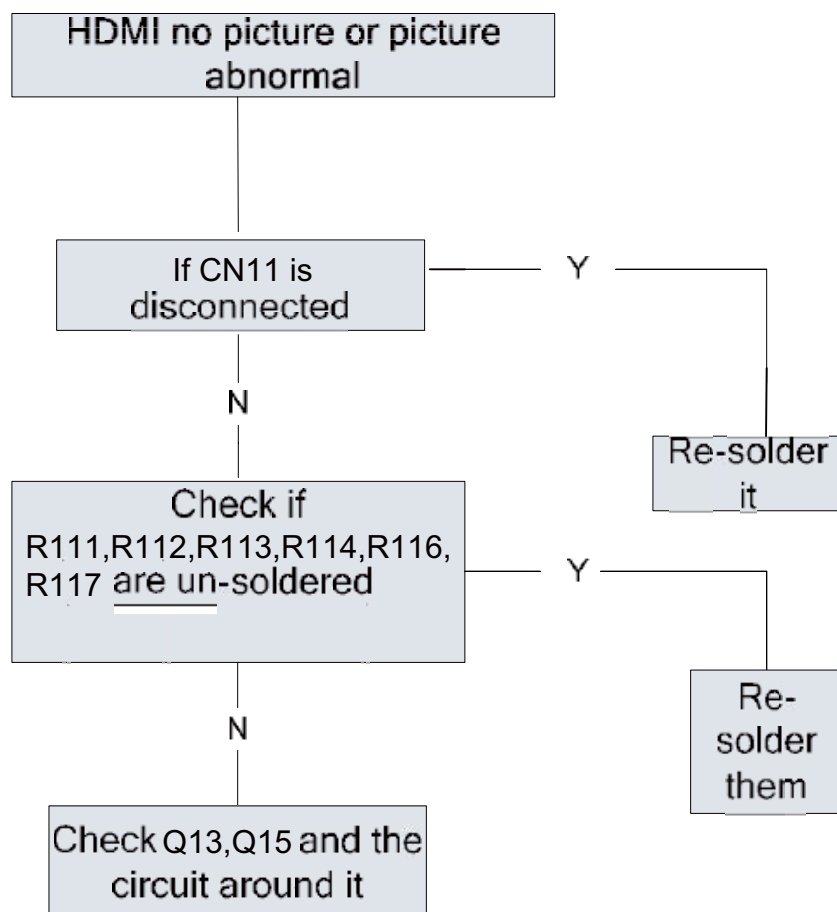
4) No sound

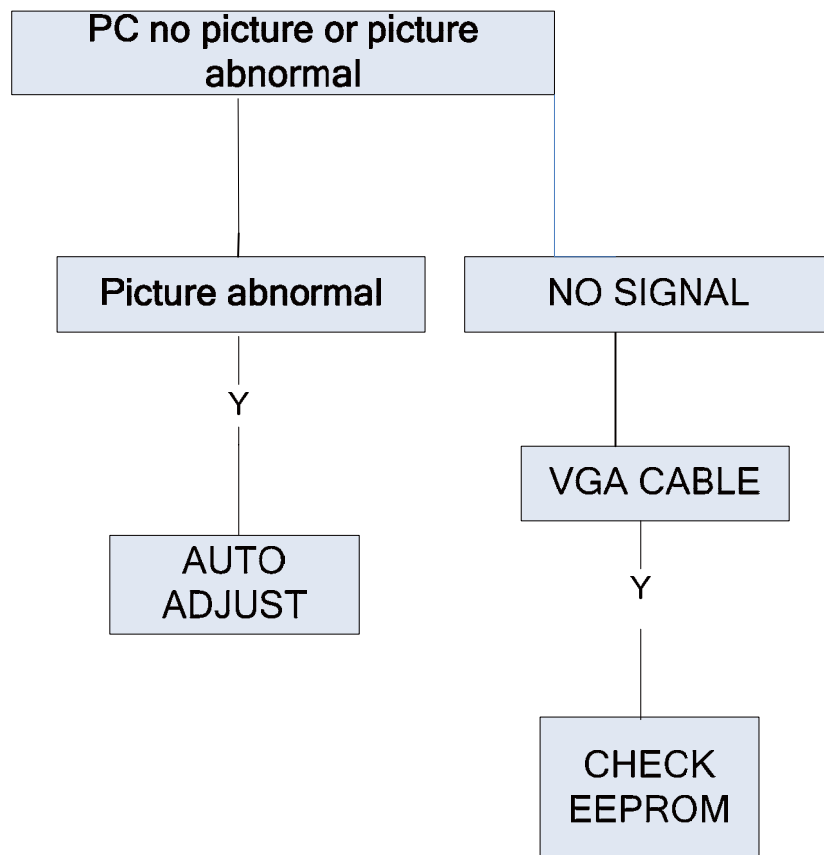


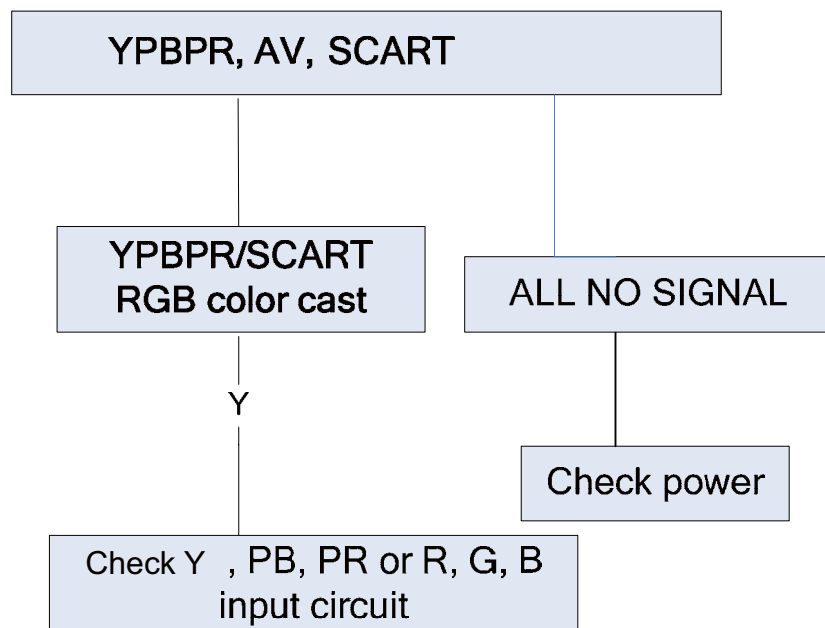
5) TV failure



6) HDMI no picture or picture abnormal

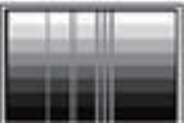
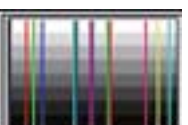
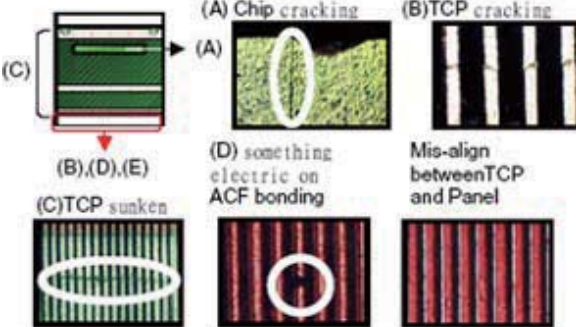


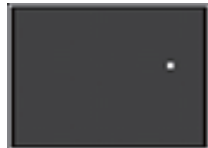
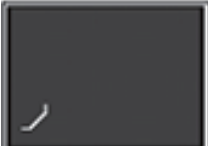
7) PC no picture or picture abnormal

8) YPBPR, AV, SCART no picture or picture abnormal

9-3. 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 Polarizer	Dot Defect	Bright dot dark dot in pannel		Incoming Inspection Standard
	Polarizer Bubble	Bladder in Polarizer		Bladder between Polarizer and top glass
	Polarizer Scratch	Polarizer Scratch		Tine or rigidity arose
	F / M 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		

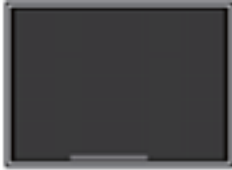
Failure Mode

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

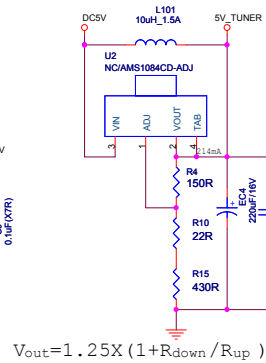
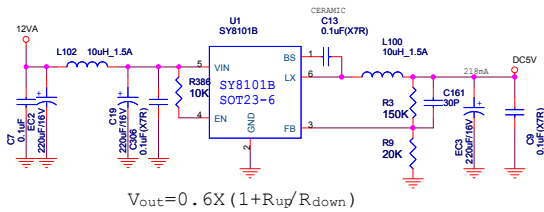
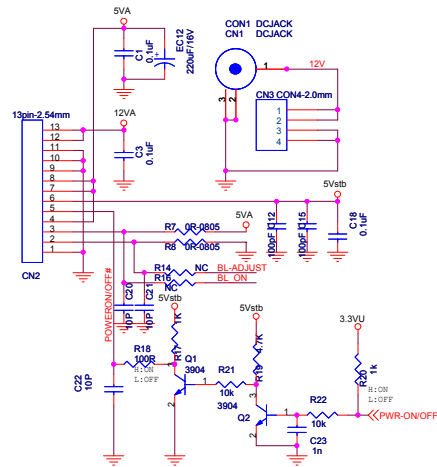
Failure Mode

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

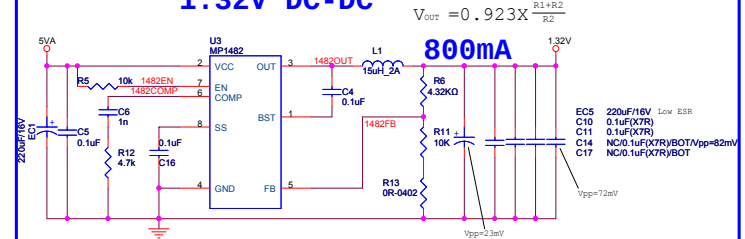
Failure Mode

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

Power Input

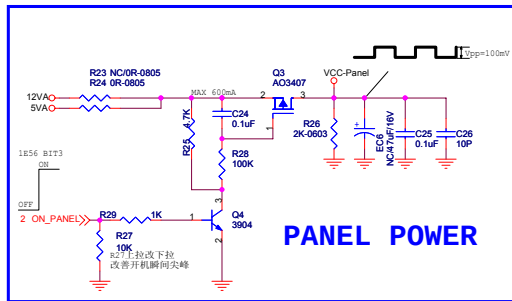
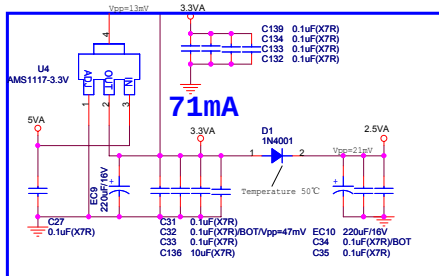
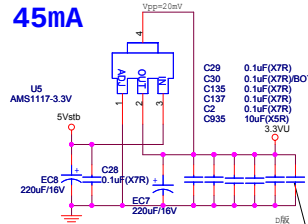


1.32V DC-DC



MST Power supply

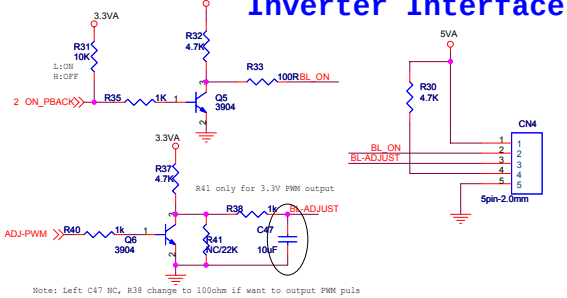
45mA



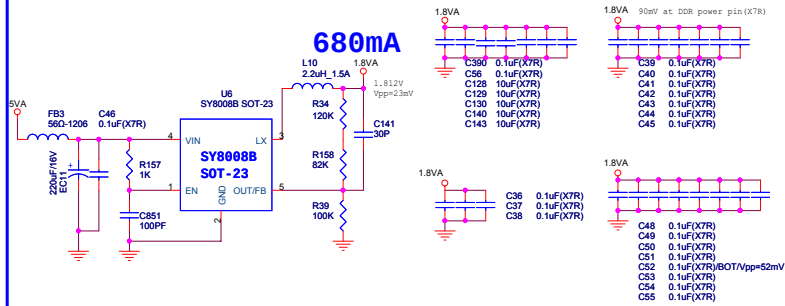
升级为d版，基于MSDV3209-ZC01-01(C) 0722有如下变更：
NOTE1:删R1,C283; 增加L102,C19
NOTE2:增加C935; 靠近主芯片(板底)

d版改板，基于MSDV3209-ZC01-01(C) 2010.12.29变更：
NOTE1:C19由贴片(10uF)改为电解电容(220uF)

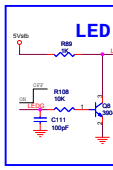
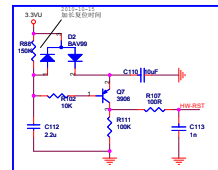
Inverter Interface

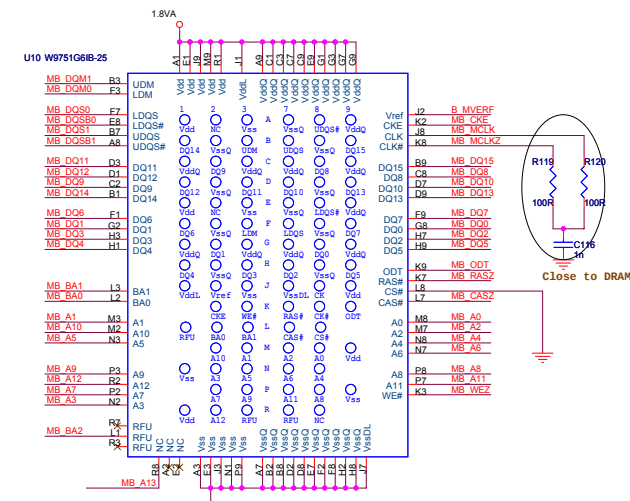
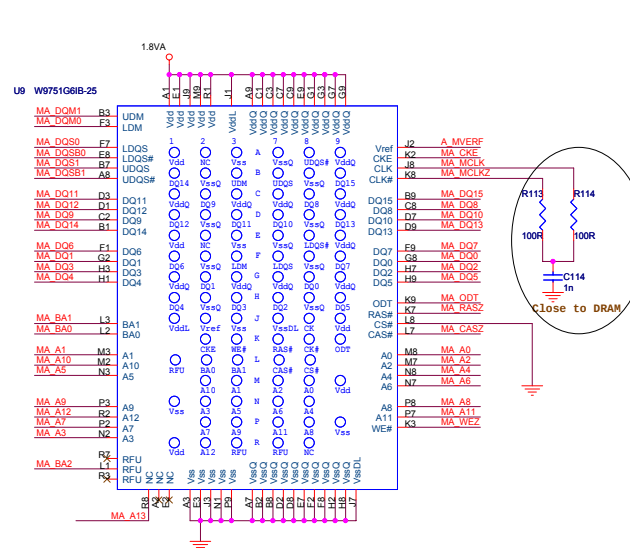
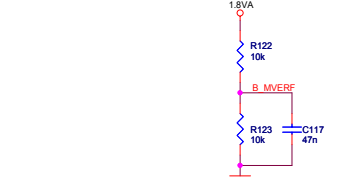
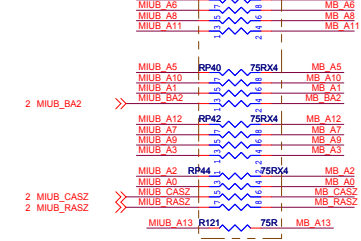
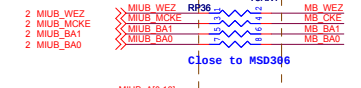
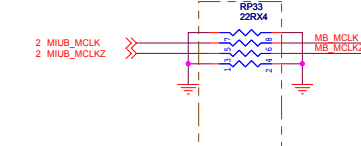
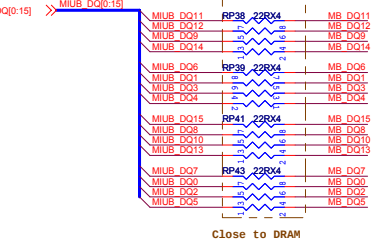
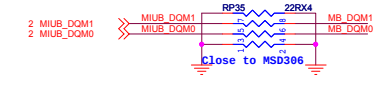
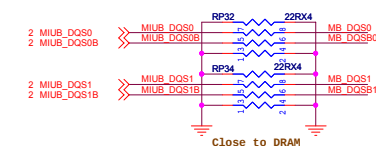
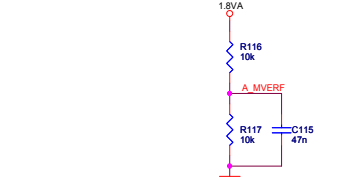
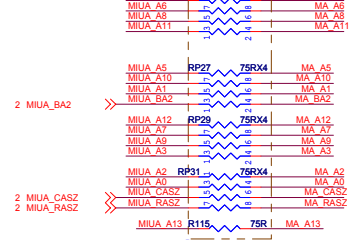
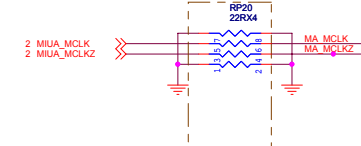
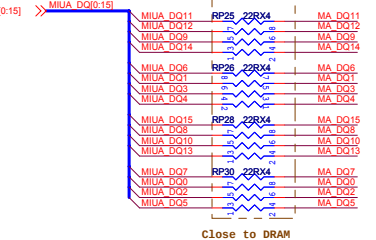
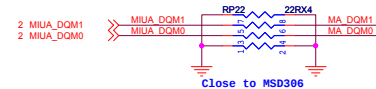
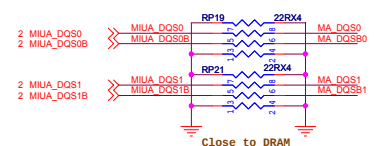


680mA



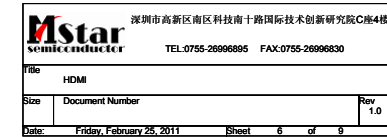
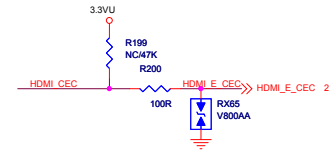
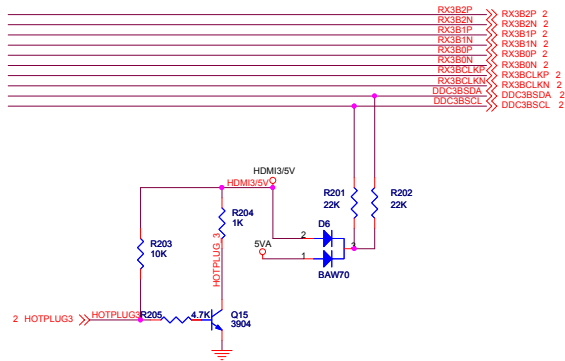
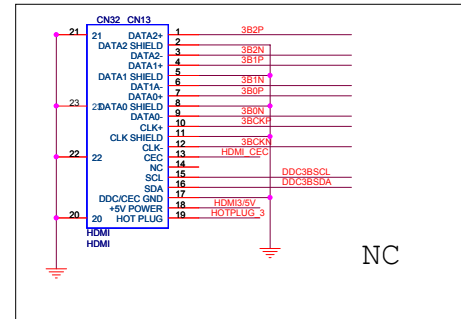
Mstar semiconductor			深圳市高新区南区科技南十路国际技术创新研究院C座4楼 TEL:0755-26096805 FAX:0755-26096830
Title	POWER		Rev 1.0
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Date:	Tuesday, February 22, 2011	Sheet 1 of 9	





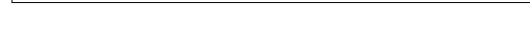
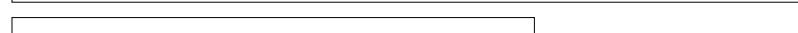
10







OUTPUT

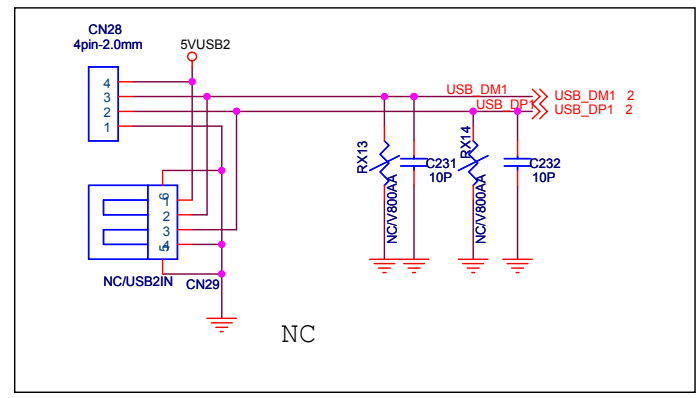


100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0%

USB Interface

FOR LCD USB

FOR LED USB



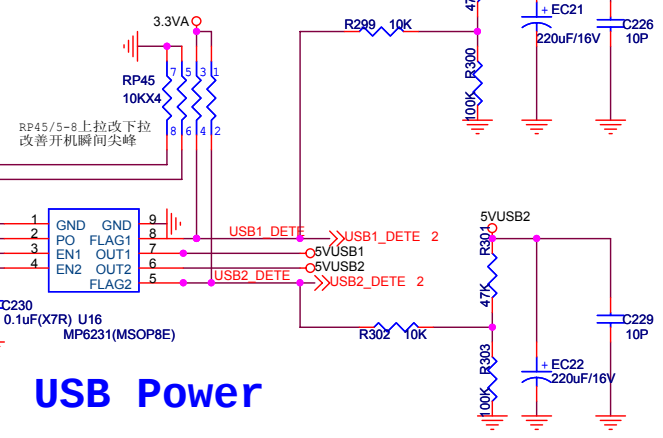
RT1972的USB1_CTL:
1E56 Bit4 置低;

USB Power

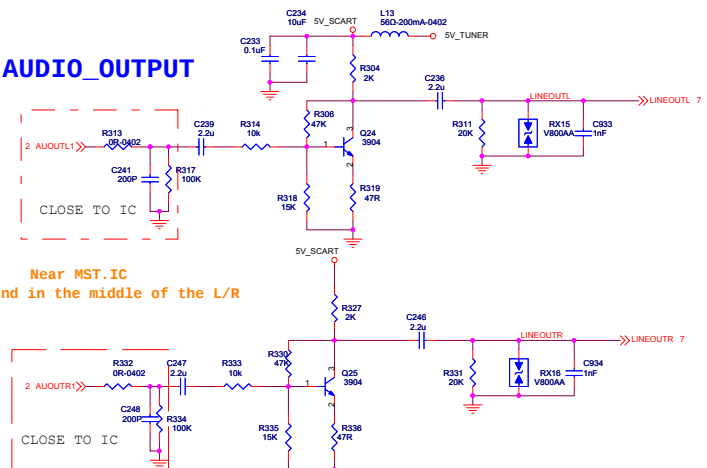
深圳市高新区南区科技南十路国际技术创新研究院C座4楼

TEL:0755-26996895 FAX:0755-26996830

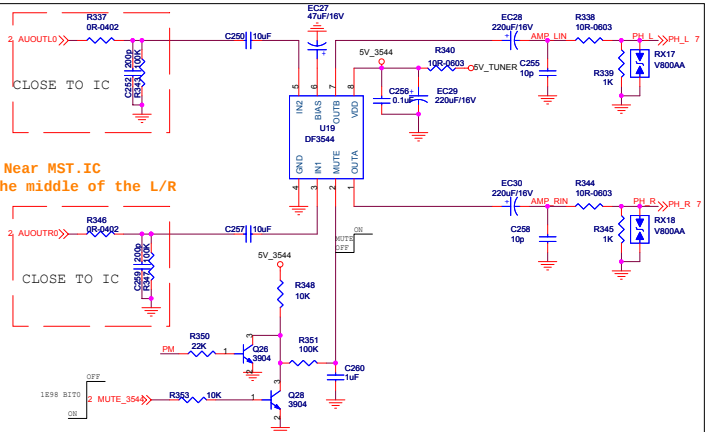
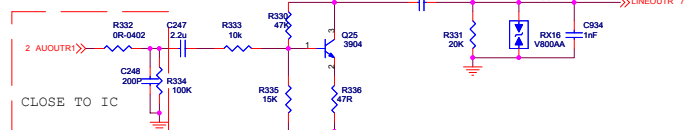
Title USB		
Size	Document Number	Rev 1.0
Date:	Monday, February 21, 2011	Sheet 8 of 9



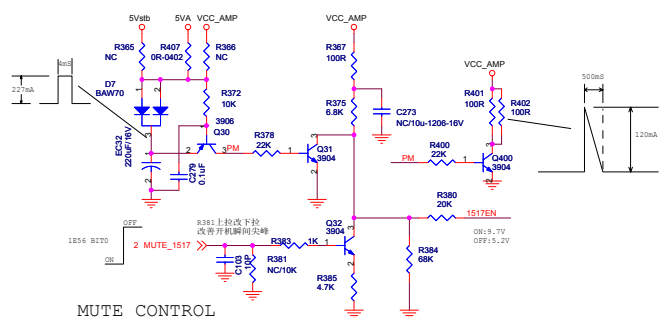
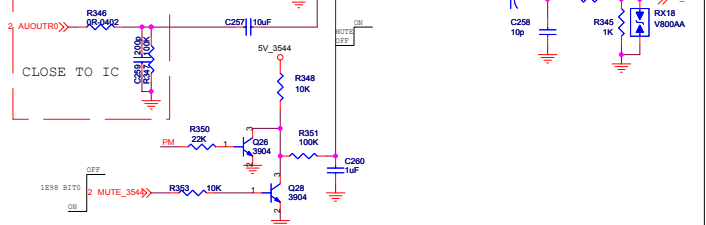
AUDIO_OUTPUT



Near MST.IC
Ground in the middle of the L/R

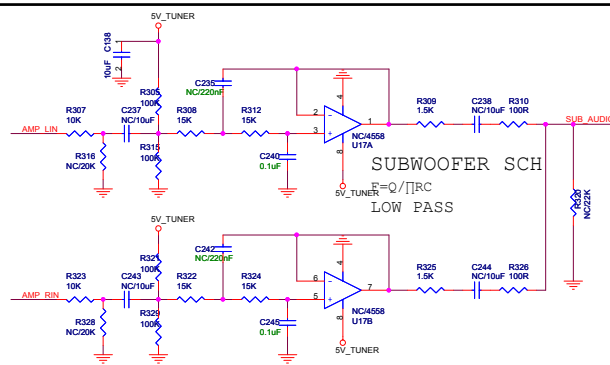


Near MST.IC
Ground in the middle of the L/R

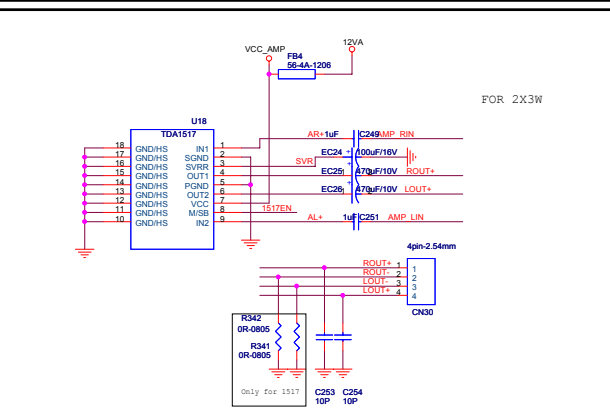


MUTE CONTROL

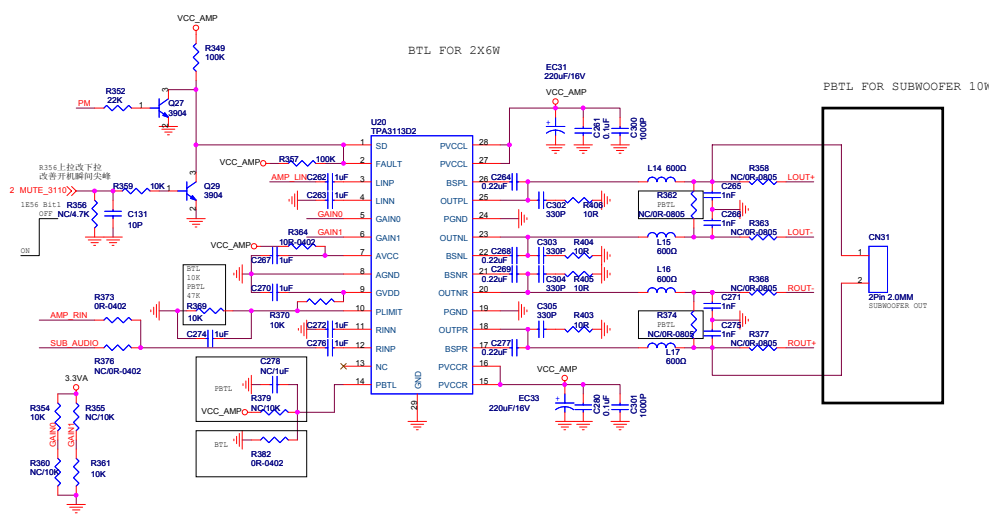
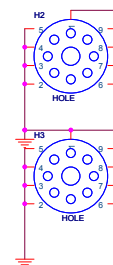
升级为D版，基于MSDV3209-ZC01-01(C)0722有如下变更：
NOTE1:增C933,C934 (1nF-0402)



SUBWOOFER SCH
F=Q/ΠRC
LOW PASS

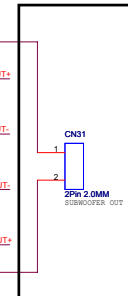


FOR 2X3W



BTL FOR 2X6W

PBTB FOR SUBWOOFER 10W



升级为D版，基于MSDV3209-ZC01-01 (C) 0722有如下变更：
NOTE1:删FB6；增L105

