



LCD Television Service Manual

Chassis: MSD308PX

LTDN46K26CEU

Ver 1.0

Hisense Electric Co., Ltd.

October, 2011

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Service Manual

1. Precautions and notices

BEFORE SERVICING THE LCD TV, READ THE SAFETY PRECAUTIONS IN THIS MANUAL.

WHEN REPLACEMENT PARTS ARE REQUIRED, BE SURE TO USE REPLACEMENT PARTS SPECIFIED BY THE MANUFACTURER.

Proper service and repair is important to the safe, reliable operation of all Hisense Electric Co., Ltd Equipment. The service procedures recommended by Hisense and described in this Service Guide are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It is also important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Hisense could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Hisense has not undertaken any such broad evaluation. Accordingly, a serviceman that uses a service procedure or tools,

which are not recommended by Hisense, must first satisfy himself thoroughly that neither his safety nor the safe of the equipment will be jeopardized by the service method selected.

Hereafter throughout this manual, Hisense Electric Co., Ltd will be referred to as Hisense.

1.1 Warning

1.1.1

Critical components having special safety characteristics are identified with a ▲ by the Ref. No. in the parts list. Use of substitute replacement parts, which do not have the same specified safety characteristics, may create shock, fire, or other hazards.

Under no circumstances should the original design be modified or altered without written permission from Hisense. Hisense assumes no liability, express or implied, arising out of any unauthorized modification of design. Serviceman assumes all liability.

DANGER CAUTION

TO ENSURE THE CONTINUED RELIABILITY OF THIS PRODUCT, USE ONLY ORIGINAL MANUFACTURER'S REPLACEMENT PARTS, WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THIS SERVICE GUIDE.
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1.1.2.

All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. When repairing, make sure

that you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this same potential.

1. Never replace modules or other components while the unit is switched on.

2. When making settings, use plastic rather than metal tools. This will prevent any short circuits and the danger of a circuit becoming unstable.

1.1.3

To prevent electrical shock, do not use this polarized ac plug with an extension cord, receptacle, or the outlet unless the blades can be fully inserted to prevent blade exposure.

To prevent electrical shock, match wide blade or plug to wide slot, fully insert.

1.1.4

When replacement parts are required, be sure to use replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

1.1.5

Safety regulations require that after a repair the set must be returned in its original condition. In particular attention should be paid to the following points.

- Note: The wire trees should be routed correctly and fixed with the mounted cable clamps.

- The insulation of the mains lead should be checked for external damage.

1.1.6

- (1) Do not touch Signal and Power Connector while this product operates. Do not

touch EMI ground part and Heat Sink of Film Filter.

(2) Do not supply a voltage higher than that specified to this product. This may damage the product and may cause a fire.

(3) Do not use this product in locations where the humidity is extremely high, where it may be splashed with water, or where flammable materials surround it. Do not install or use the product in a location that does not satisfy the specified environmental conditions. This may damage the product and may cause a fire.

(4) If a foreign substance (such as water, metal, or liquid) gets inside the panel module, immediately turn off the power. Continuing to use the product may cause fire or electric shock.

(5) If the product emits smoke, and abnormal smell, or makes an abnormal sound, immediately turn off the power. Continuing to use the product, it may cause fire or electric shock.

(6) Do not disconnect or connect the connector while power to the product is on. It takes some time for the voltage to drop to a sufficiently low level after the power has been turned off. Confirm that the voltage has dropped to a safe level before disconnecting or connecting the connector.

(7) Do not pull out or insert the power cable from/to an outlet with wet hands. It may cause electric shock.

(8) Do not damage or modify the power cable. It may cause fire or electric shock.

(9) If the power cable is damaged, or if the connector is loose, do not use the product:

otherwise, this can lead to fire or electric shock.

(10) If the power connector or the connector of the power cable becomes dirty or dusty, wipe it with a dry cloth. Otherwise, this can lead to fire.

(11) 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.

1.2 Notes

Notes on Safe Handling of the LCD panel and during service

The work procedures shown with the Note indication are important for ensuring the safety of the product and the servicing work. Be sure to follow these instructions.

- Before starting the work, secure a sufficient working space.
- At all times other than when adjusting and checking the product, be sure to turn OFF the POWER Button and disconnect the power cable from the power source of the TV during servicing.
- To prevent electric shock and breakage of PC board, start the servicing work at least 30 seconds after the main power has been turned off. Especially when installing and removing the power board, start servicing at least 2 minutes after the main power has been turned off.
- While the main power is on, do not touch any parts or circuits other than the ones specified. If any connection other than the one specified is made between the measuring

equipment and the high voltage power supply block, it can result in electric shock or activation of the leakage-detection circuit breaker.

- When installing the LCD module in, and removing it from the packing carton, be sure to have at least two persons perform the work.
- When the surface of the panel comes into contact with the cushioning materials, be sure to confirm that there is no foreign matter on top of the cushioning materials before the surface of the panel comes into contact with the cushioning materials. Failure to observe this precaution may result in, the surface of the panel being scratched by foreign matter.
- When handling the circuit board, be sure to remove static electricity from your body before handling the circuit board.
- Be sure to handle the circuit board by holding the large parts as the heat sink or transformer. Failure to observe this precaution may result in the occurrence of an abnormality in the soldered areas.
- Do not stack the circuit boards. Failure to observe this precaution may result in problems resulting from scratches on the parts, the deformation of parts, and short-circuits due to residual electric charge.
- Routing of the wires and fixing them in position must be done in accordance with the original routing and fixing configuration when servicing is completed. All the wires are routed far away from the areas that become hot (such as the heat sink). These wires are fixed in position with the wire clamps so that the wires do not move, thereby ensuring

that they are not damaged and their materials do not deteriorate over long periods of time. Therefore, route the cables and fix the cables to the original position and states using the wire clamps.

- Perform a safety check when servicing is completed. Verify that the peripherals of the serviced points have not undergone any deterioration during servicing. Also verify that the screws, parts and cables removed for servicing purposes have all been returned to their proper locations in accordance with the original setup.



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 products 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 set.

2. Product Specifications:

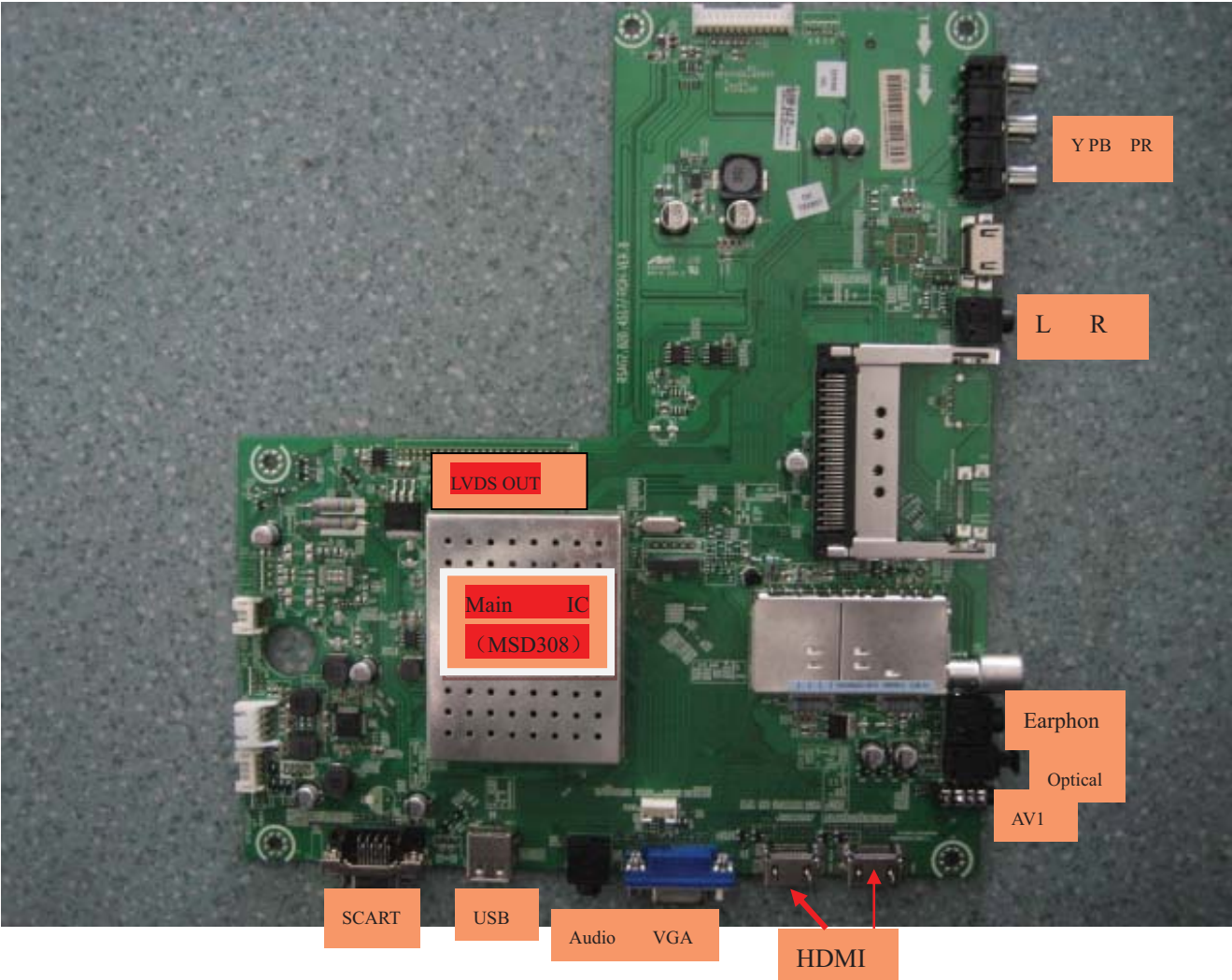
2.1 Specification:

LTDN46K26CEU:

Модель	RL-46L1004FTC
Диагональ экрана	46" (117 см) ЖК экран со светодиодной подсветкой
Разрешение экрана	1920x1080 пикселей FullHD
Мощность	100Вт
Энергопотребление	AC~100-242В, 50/60Гц
Система цвета	PAL, SECAM
Система звука	B/G, D/K, L, L/L'
Мощность динамиков	8Вт+8Вт
Сtereo	NICAM/A2 stereo
Антенный вход	1
USB	1
Компонентный вход (YPbPr)	1
Компонентные режимы	(480i/60Hz, 480p/60Hz, 576i/50Hz, 576p/50Hz, 720p/50Hz, 720p/60Hz, 1080i/50Hz, 1080i/60Hz, 1080p/50Hz, 1080p/60Hz)
VGA вход (PC)	1
VGA режимы	(640X480, 800X600, 1024X768, 1280x1024 60Hz)
HDMI вход	3
HDMI режимы	(480i, 480p, 720p, 1080i, 1080p 60Hz)(576i, 576p, 720p, 1080i, 1080p 50Hz) (640X480, 800X600, 1024X768)
Цифровой аудио выход	1 (оптический)
SCART	1 (CVBS вход/выход, RGB вход)
AV вход	2xCVBS Video, Audio
Наушники	1

2.2 Main Board:

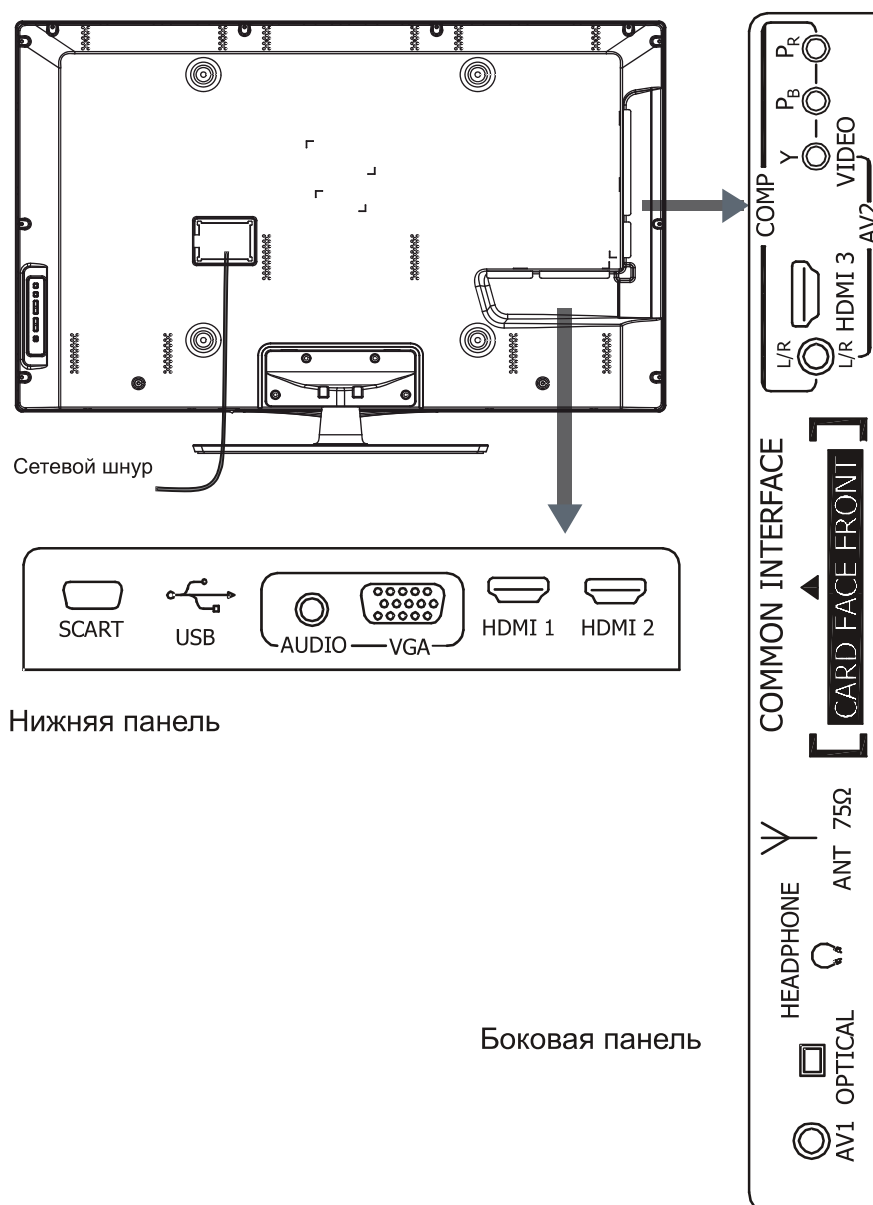
Take LTDN46K26CEU main board 4517 for example:



2.3 Rear Cover

Установка

Задняя сторона телевизора



Note:

Other MSD308PX products wiring please refer to the actual units to determine.

Model	Panel Mode	LVDS (Main-Panel)
LTDN24K15CEU	M236H3-LA2\V236H1-LE2	HX2-2X20KLB400P-CM0\ROH
LHDN32K15/K16CEU	HE315DH-E02 (S3) \ROH	HX2-2×15KLB400P-HS-1\ROH
LHDN32K15CEU (1)	HE315DH-E06\S3\ROH	Same to LHDN32K15
LEDN42K16CEU	HE420CF-E01\ROH	HX2-2X26KLBB500-HS-1
LTDN46K26CEU	LTA460HM06\ROH	HX2-2X26KLBB500-SAM\ROH

3. Factory/Service OSD Menu and Adjustment

3.1 To enter the Factory OSD Menu

a. With factory RC (remote control)

1. Press “M” button and enter factory mode.(Note1)
2. Press “Menu” button and enter factory OSD menu.
3. Press “CH+”/“CH-” button select the function menu, press “VOL+”/“VOL-” enter the selected function menu. Press “VOL+”/“VOL-” button adjust values in the menu.
4. Press “M” button exit factory mode in the factory OSD menu.

When TV outgoing factory, user can not enter factory OSD menu with Factory Remote

Note:

1. In the “Factory Menu”, item “Function”->”TOFAC” ,you can select “M” or “U”, default is “U”.
----M-Means you can enter factory mode with factory RC or user RC.
----U-Means you can enter factory mode only with user’s RC.
2. Mode “M” is only used for factory production.

b. With user’s RC

Power on the TV.

1. Press “Menu” button and call up User OSD Menu.
2. Select “ Sound” -> “Balance” item.
3. Press number key 1->9->6 ->9 in sequence when “Balance” item is focused.

Note: If necessary, re-do number keys.

4. Factory OSD appears.

Note: Press the standby button then AC turn off and restart the TV, which can exit factory OSD menu.

3.2 Factory OSD Menu

The Factory OSD Menu comprises Factory Menu and Design Menu .

3.2.1、 Factory Menu

Factory Menu

White Balance
ADC Calibration
Funtion
Lnit
Test Pattern
Version
Clear protectly
Clear unprotectly

Function

TO FAC : **M or U**
Power Mode **Save**
Software Update
LOGO: **Hisense**
OSD language: **English**
WDT: ON
UART Debug : **None**

White Balance

R-DRV:
G- DRV:
B- DRV
R-CUT:
G- CUT:
B- CUT:
Color Temp: Medium
Panel Set : B1

3.2.2、Design Menu

Design Menu

Picture Mode
Audio Mode
Picture Curve
Audio Curve
SSC Adjust
Saving Mode
Overscan
Not Stand

Note:

The above “Factory/Service OSD Menu” are reference only, please refer to the actual units to determine the appearances.

4. Software Upgrading

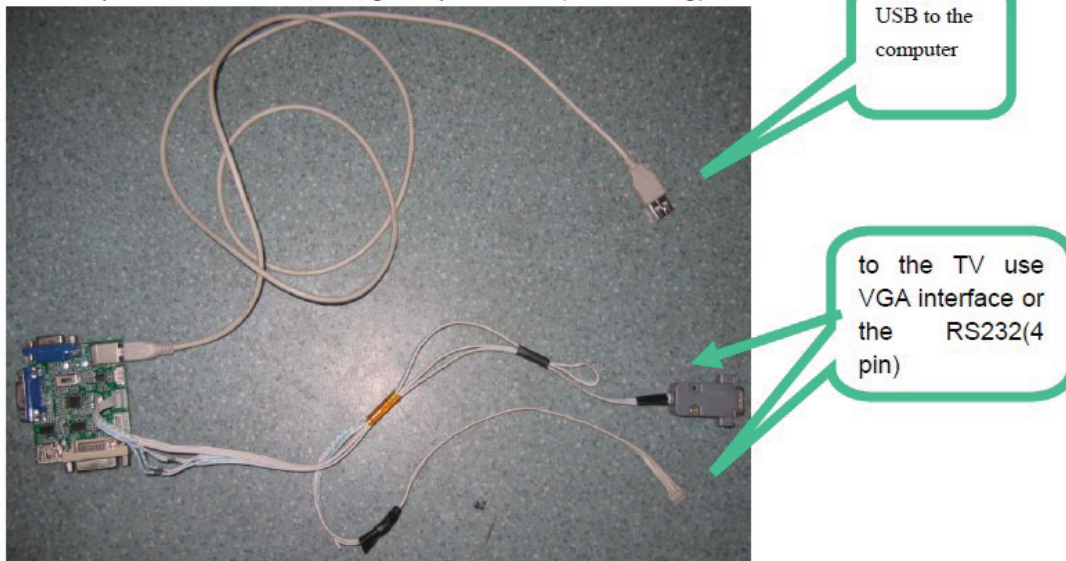
4.1 Upgrading with the ISP_TOOL

4.1.1 Hardware connecting

You can update the software through a special tool (as following)

Connect the Debug board to the TV use VGA interface or the RS232 (4 pin), the other USB port to the compute.

You can update the software through a special tool (as following)



4.1.2 Install the ISP_TOOL4.5.0.4-----only for the first time update.

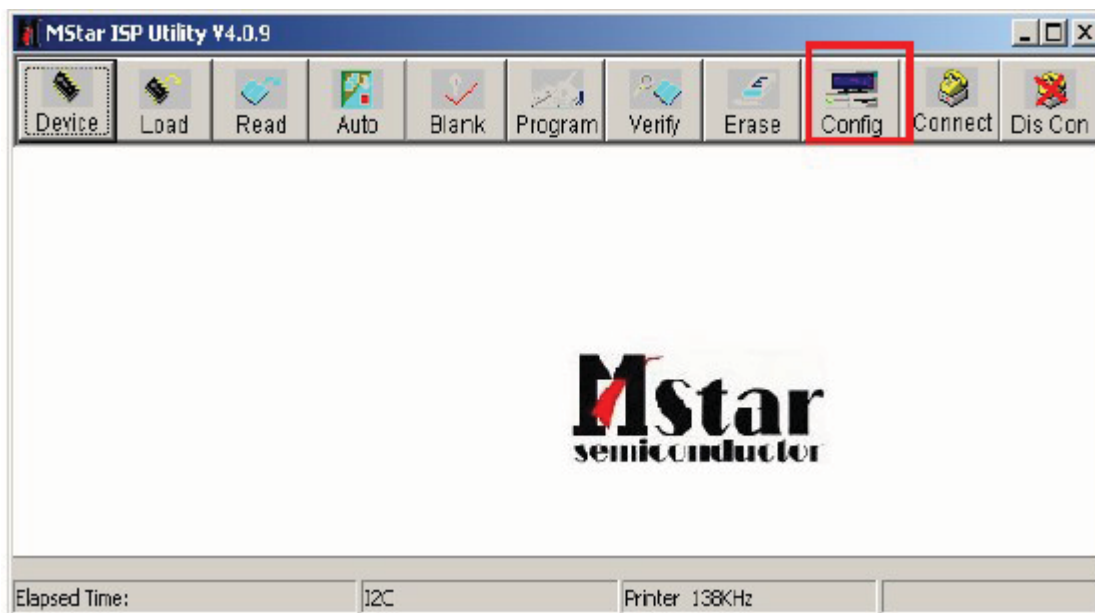
- 1、 The software is upgraded by a burning tool- ISP_TOOL.exe
- 2、 Find the folder where the ISP_TOOL4.5.0.4 lies in.



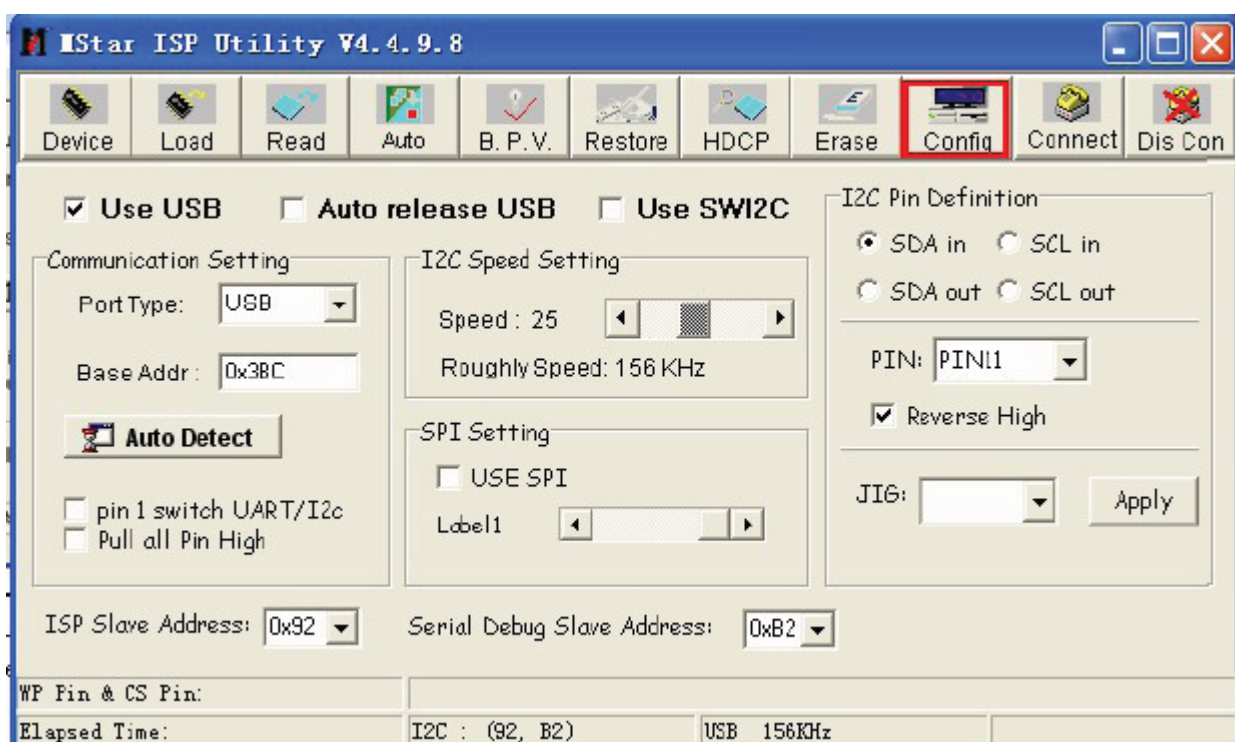
There are three folders/files in this folder together.

DLPORTIO.dll and FTD2XX.DLL must be in the same folder

- 3、 Double click the ISP_TOOL4.5.0.4 icon, and then a dialog window will show as below.



4、Click the” **Config** “button. And then a dialog window will show as below.



Draw on the front of “Use USB”

Port Type setting is USB

Base Addr setting is 0x38C

ISP Slave Address choose 0x92

Serial Debug Slave Address choose 0xB2,

5、Click the “Connect”button, if appear the following figure, It indicates that the ISP_TOOL has

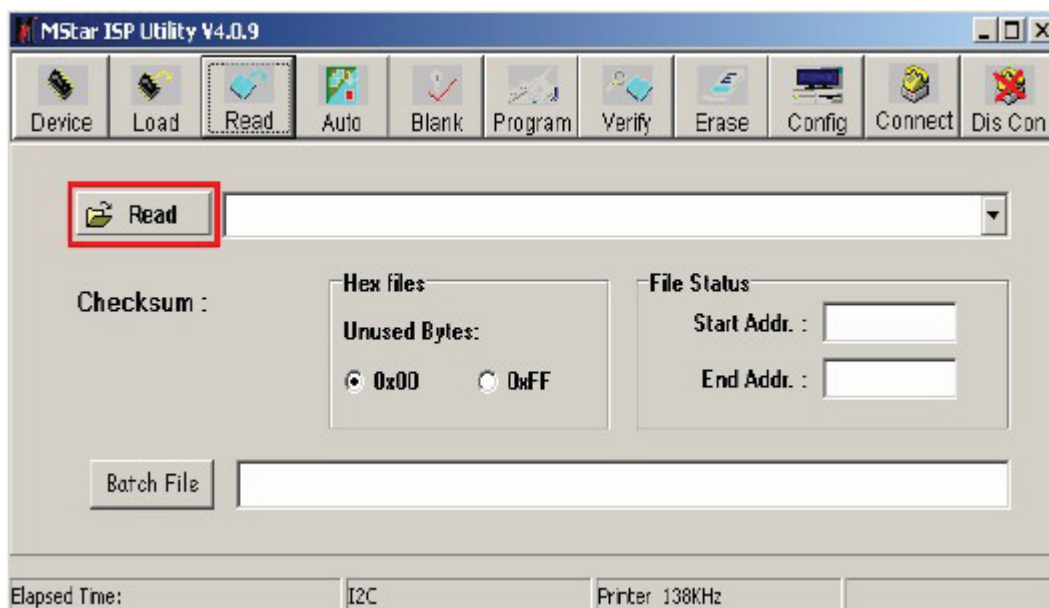
connected.(According to the tv set,"Device Type" maybe different.)



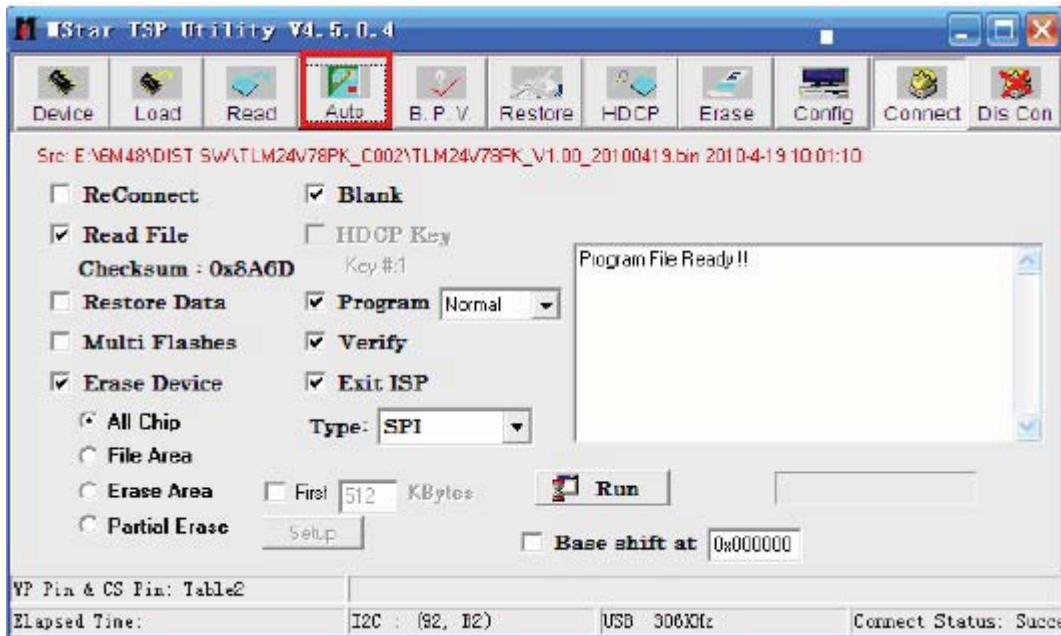
If appear the following figure, It indicates that the ISP_TOOL has not connected. Please click the "DisCon" button and "Connect" button to connect..



6、Click the **"Read"** button, **Choose the correct update file.**



7、After the update file has been chosen successfully。
Click the **"Auto"** button and choose parameters as following。



8、Click the “Run” button and wait update end.

If show any error message , then do “Dis Con” >> “Connect”, and click the “Run” button again, till show the following dialog window。

4.2 Upgrading with the USB

Software can update with USB device:

1. Copy the "*.BIN" file such as "MERGE.BIN" to the root directory of a USB disk.
2. Insert the USB disk into the USB slot of the TV SET.
3. Press "Menu" button and call up User OSD Menu, choose "Channel" -> "Software Update(USB)" item. (Note 1)
4. Press "OK", it will show a confirm message box, Press [◀] button to select "yes" in the confirm message box, to start automatic update.
5. Then it will update the software automatically, Please don't power off during the updating process.
6. After the software is successfully upgraded, TV SET will restart automatically.

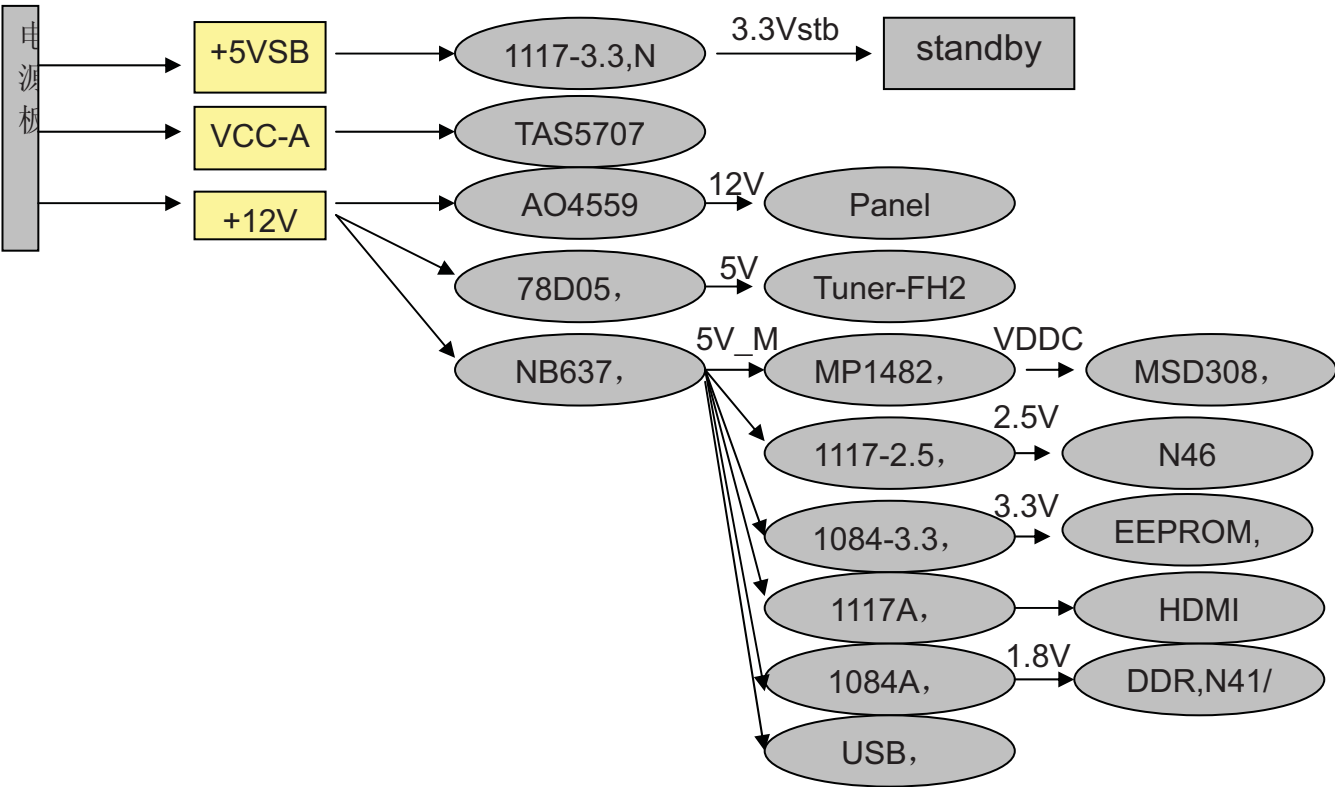
Note:

1. In some TV SET, "Software Update(USB)" item maybe in "OPTION" menu.
2. After updating, you must confirm the software version in the "Factory Menu" and you'd better do a " **UnProtected Clear**" in the "Factory Menu".

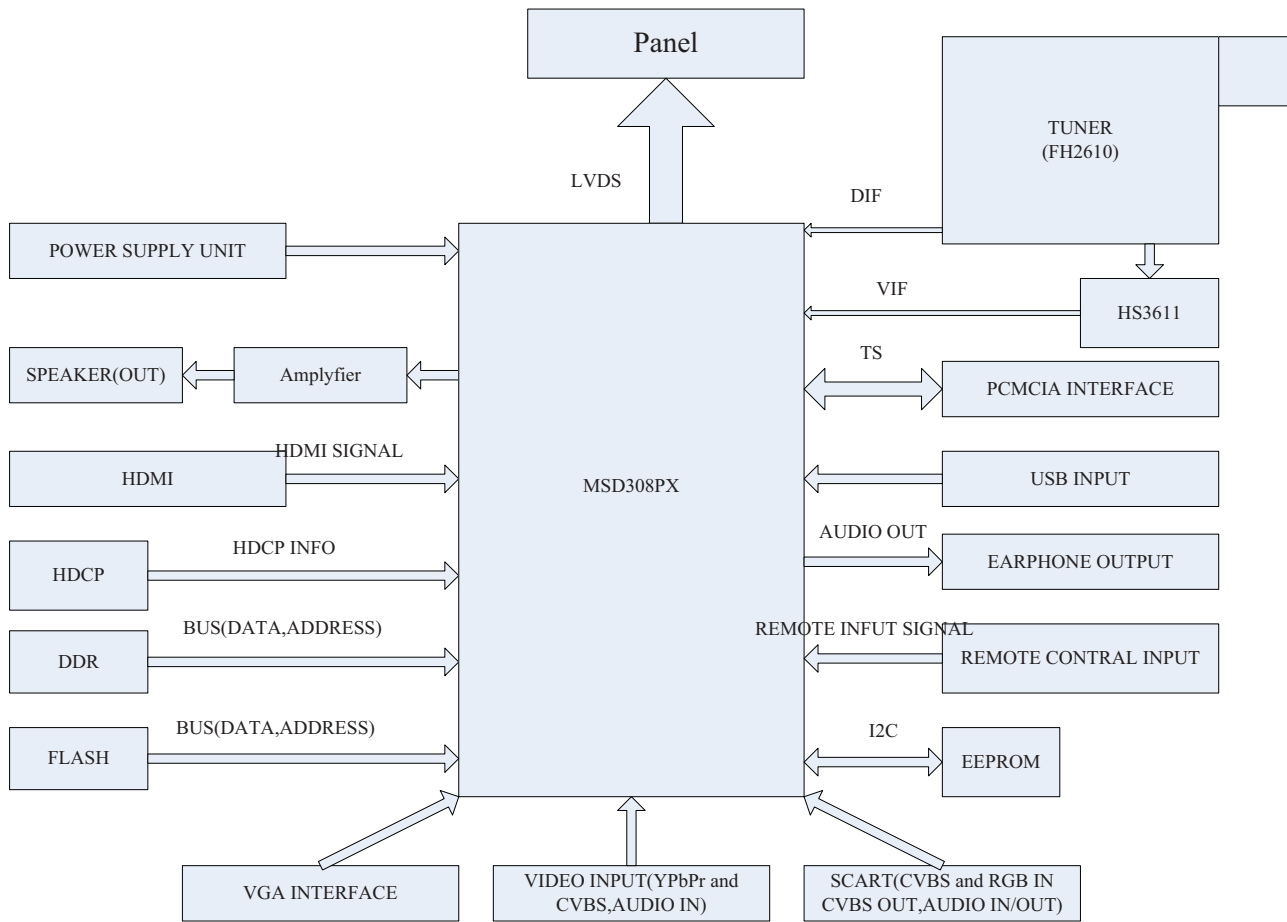
5. Circuit instruction

5.1 Power assign and block diagram

Block diagram:

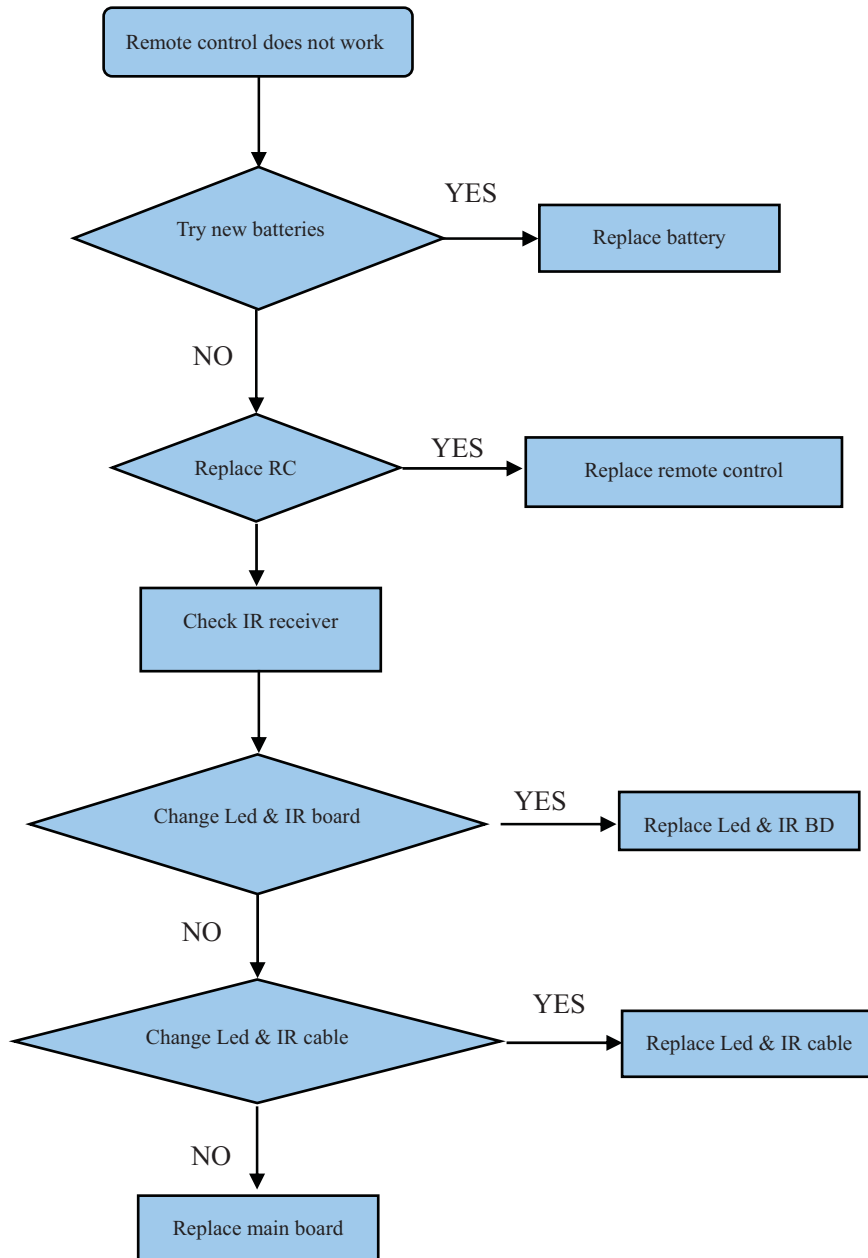


5.2 Image and signal process

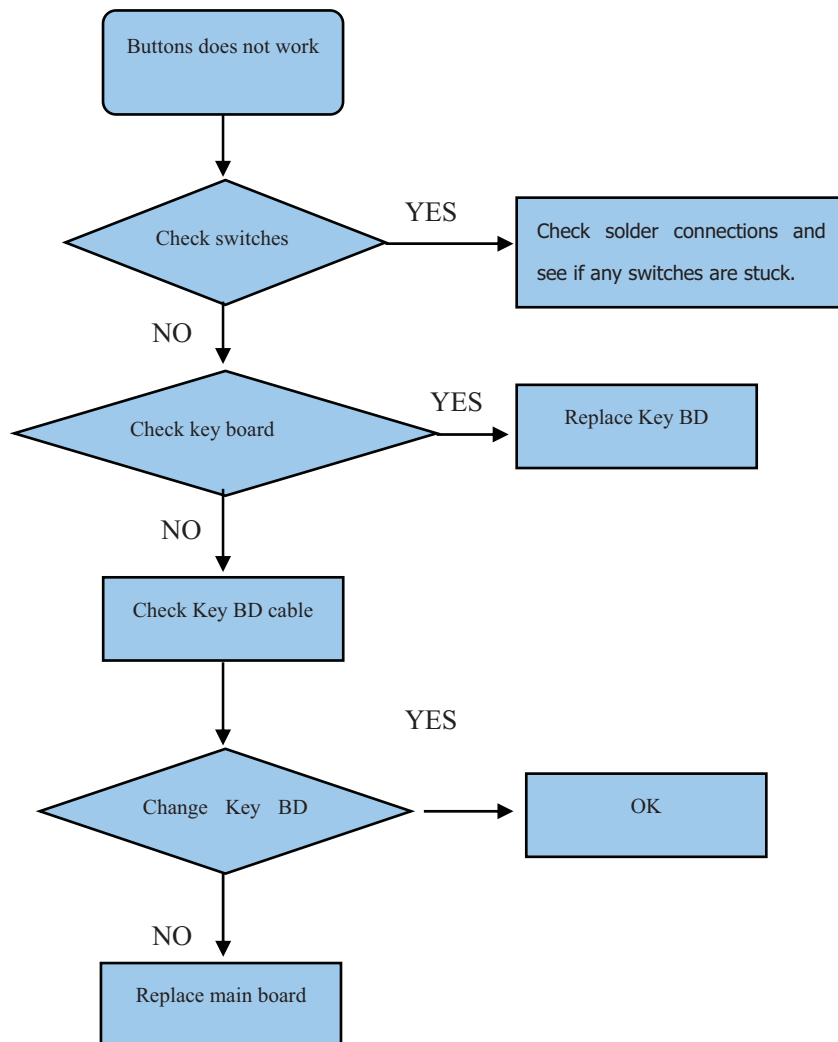


5.3 Troubleshooting

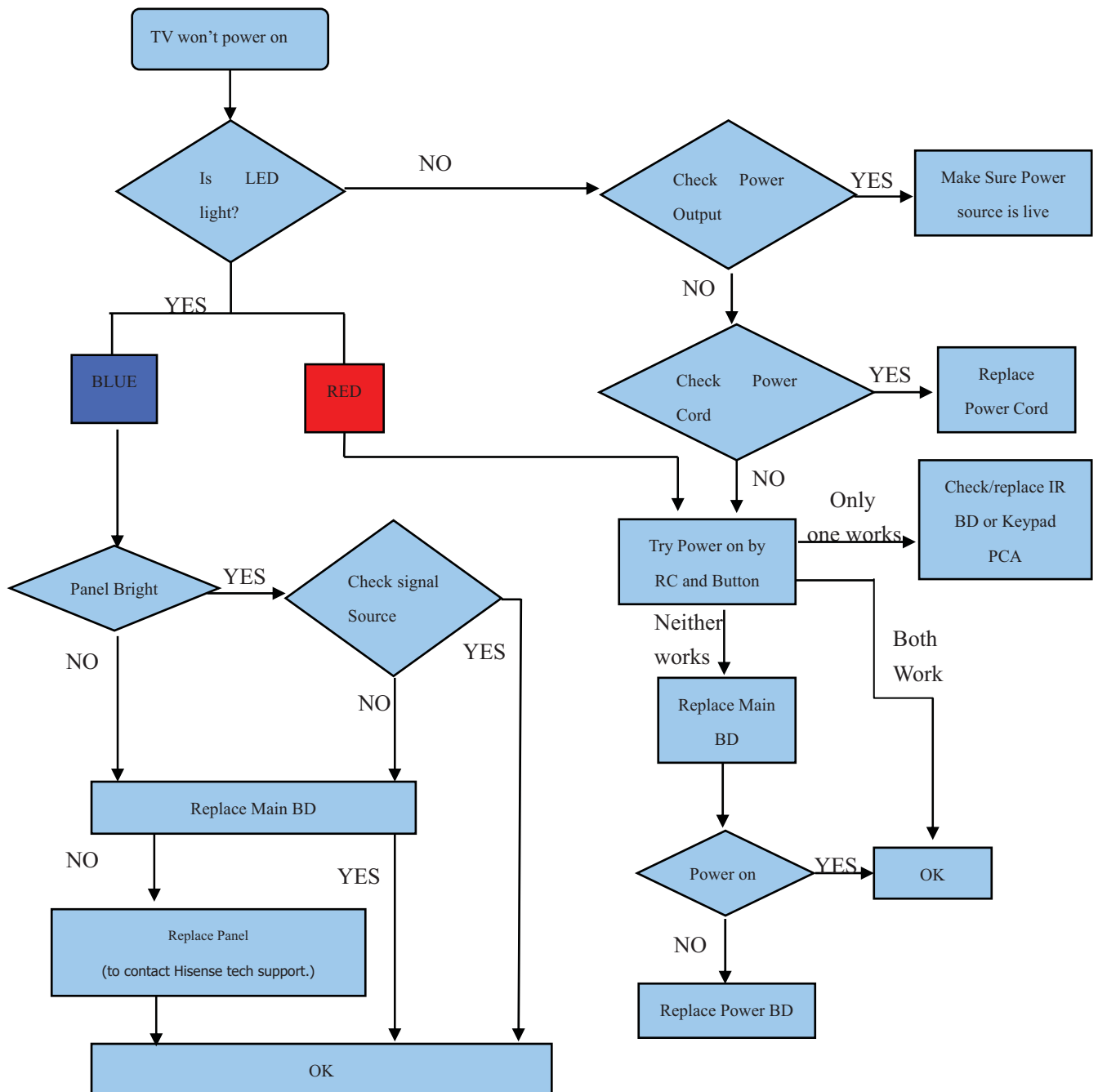
5.3.1 Troubleshooting for Remote Control



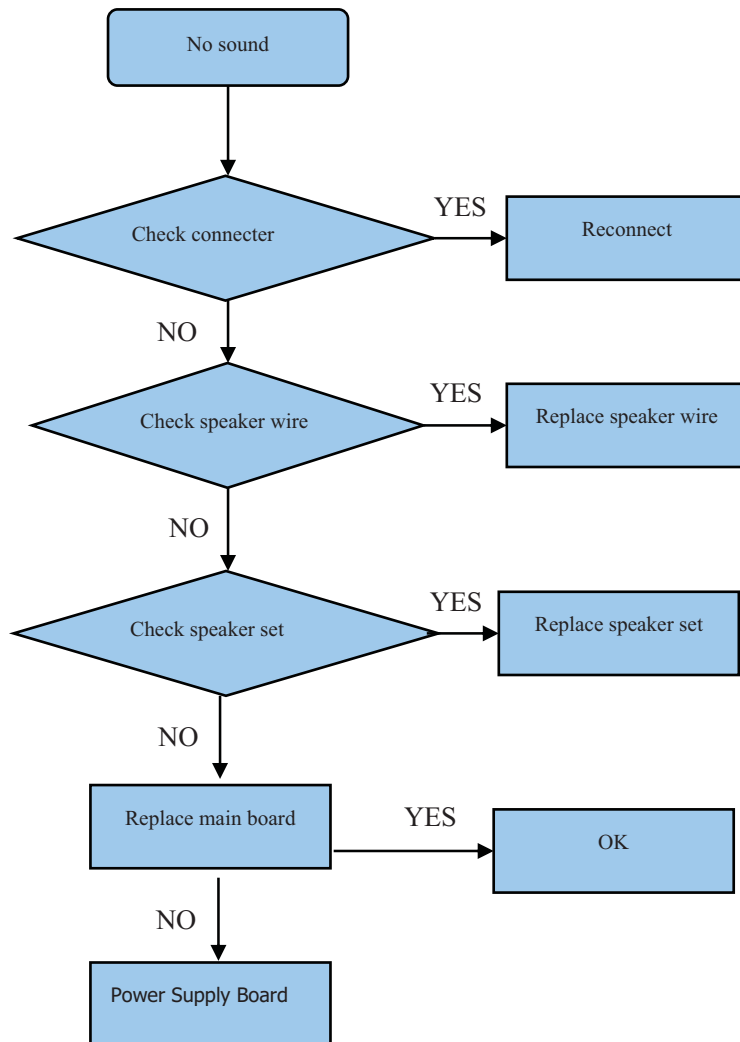
5.3.2 Troubleshooting for Function Key



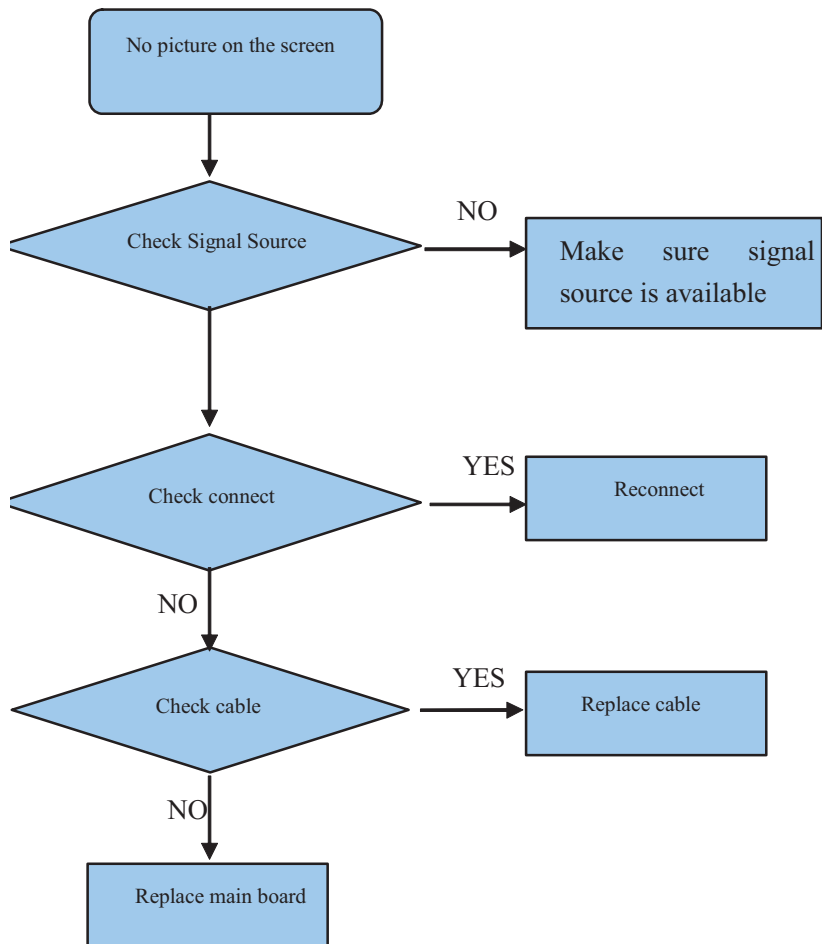
5.3.3 TV won't Power On



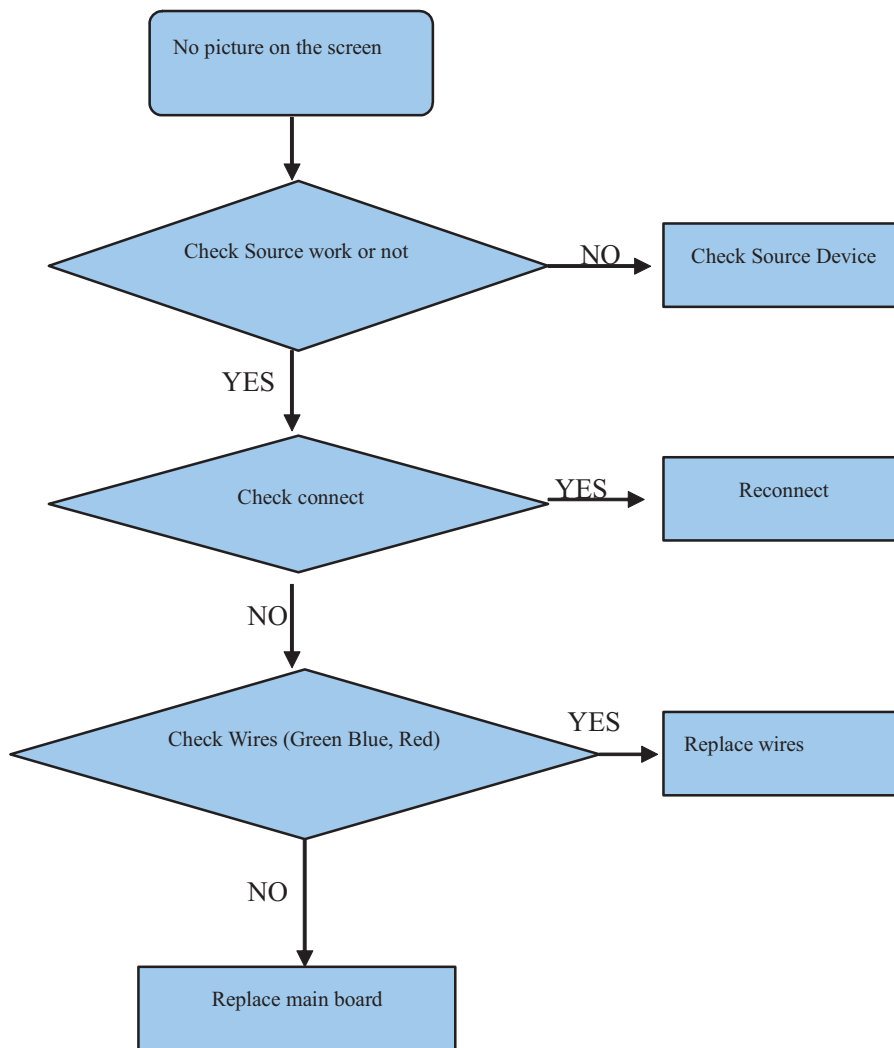
5.3.4 Troubleshooting for Audio



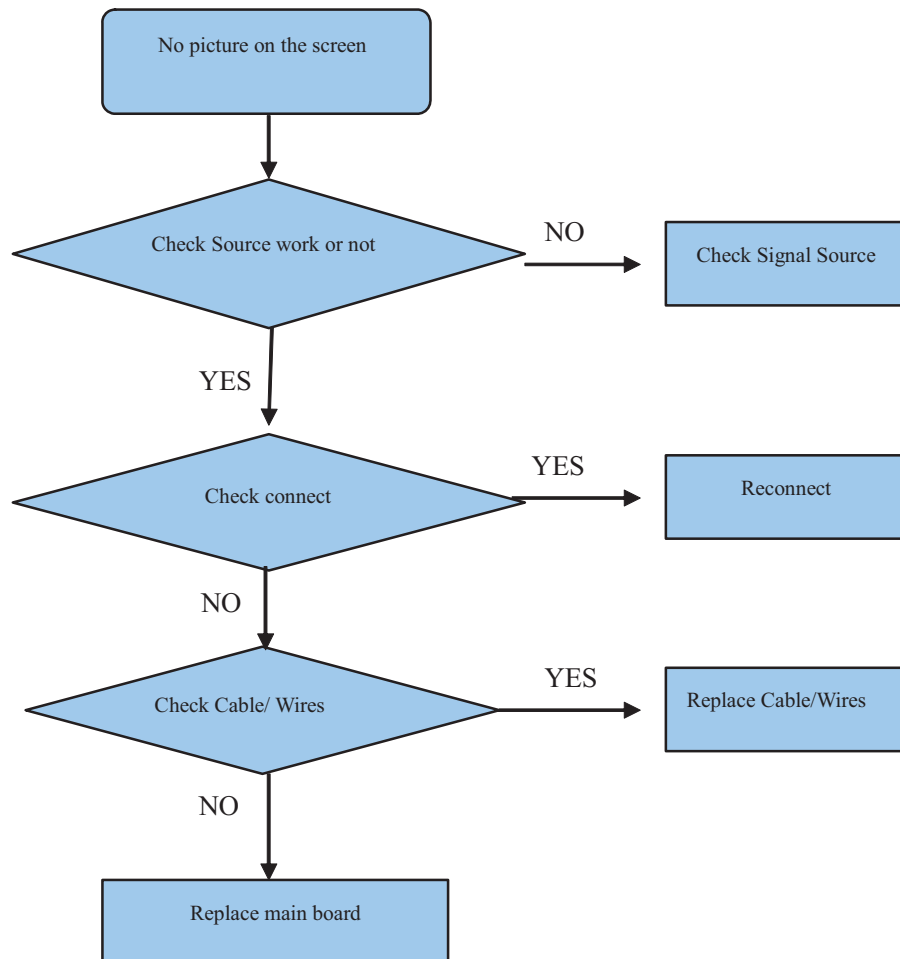
5.3.5 Troubleshooting for TV/VGA/HDMI input



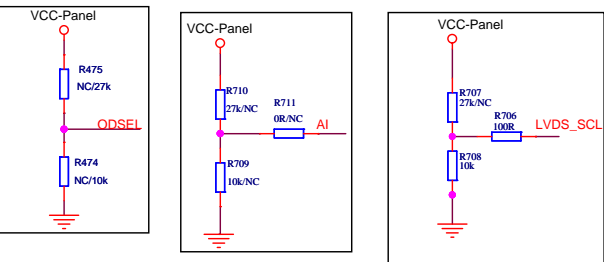
5.3.6 Troubleshooting for YPbPr input



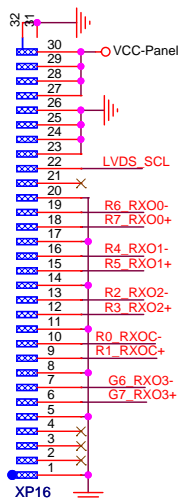
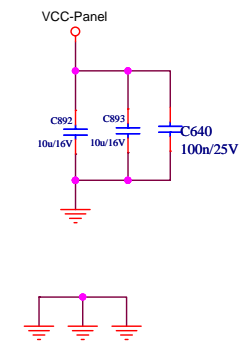
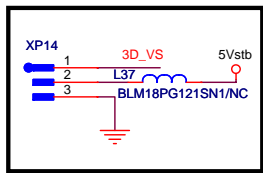
5.3.7 Troubleshooting for Video input



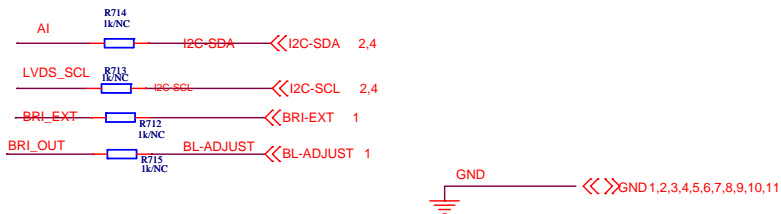
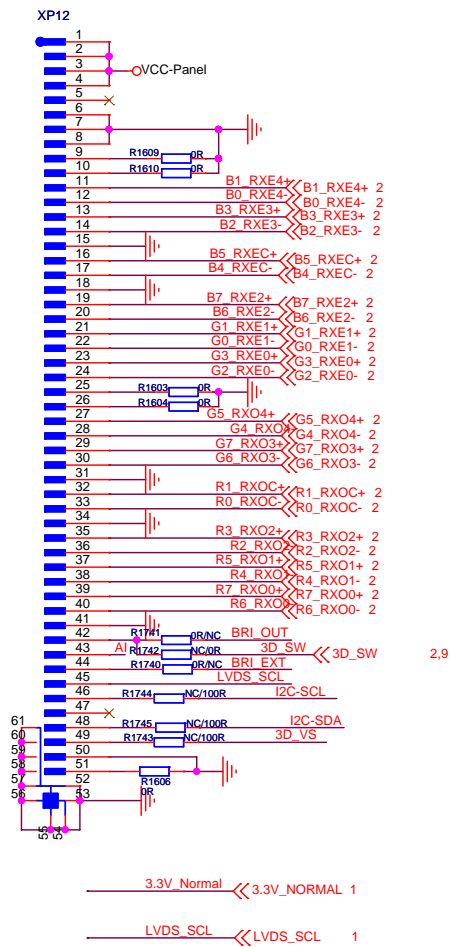
LVDS CONNECTOR



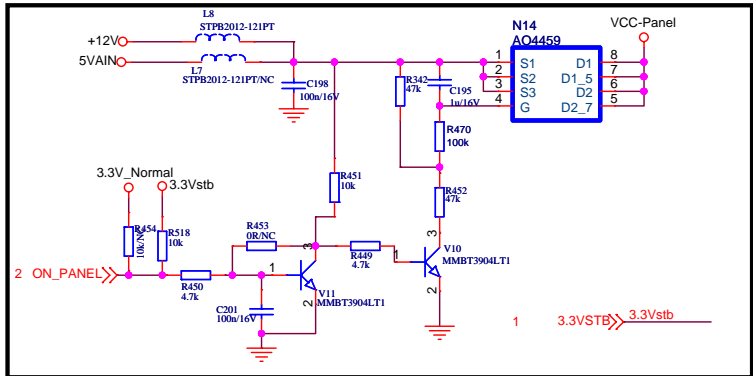
3D VSYNC



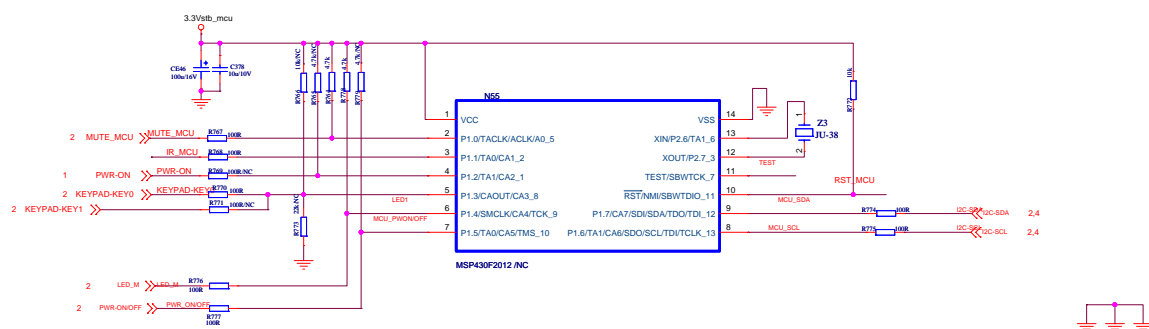
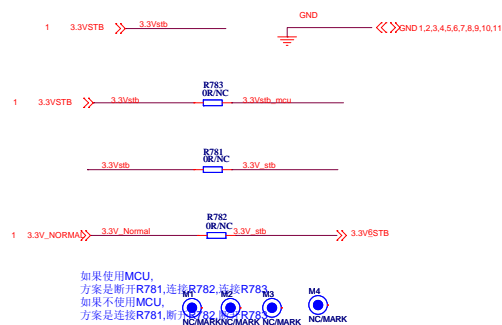
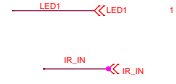
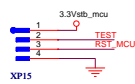
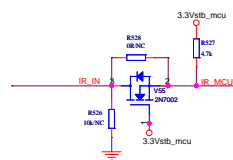
2011-08-24增加XP16插座, LHD32K21CEU(1)配模组屏
HE315FH-E56
去掉R1716/R1715/R1717/R1720, XP25等。

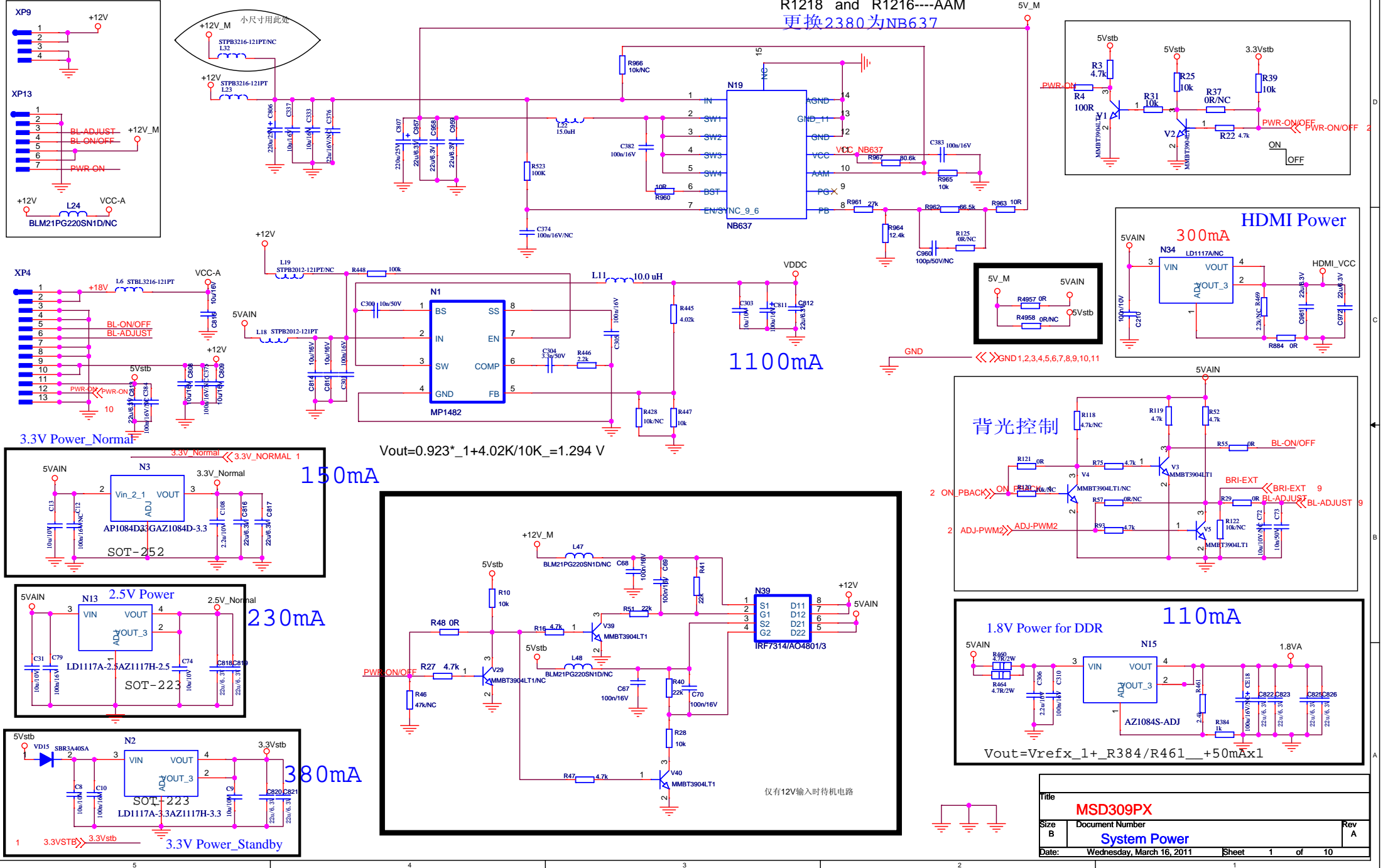


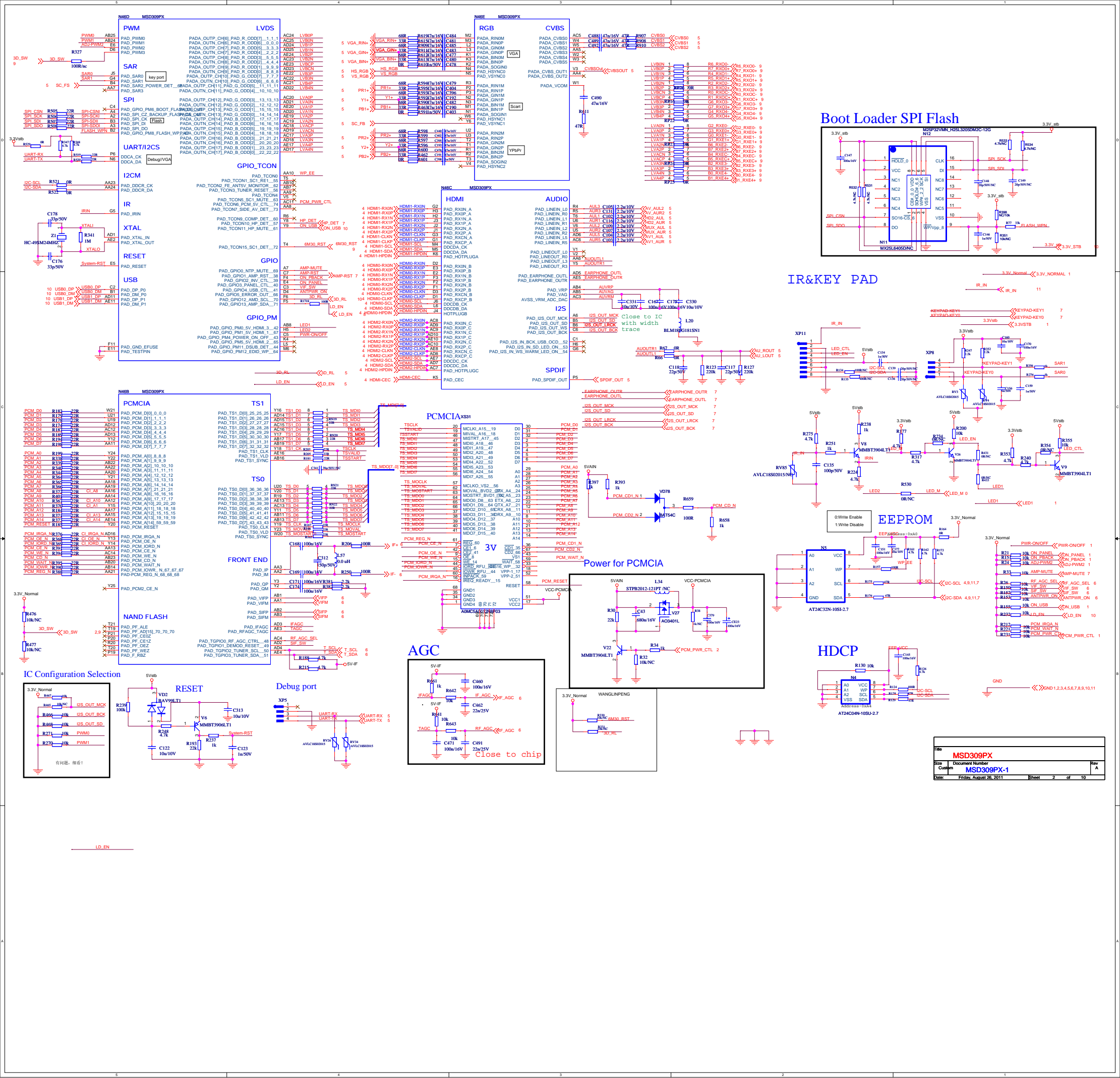
Power for Panel



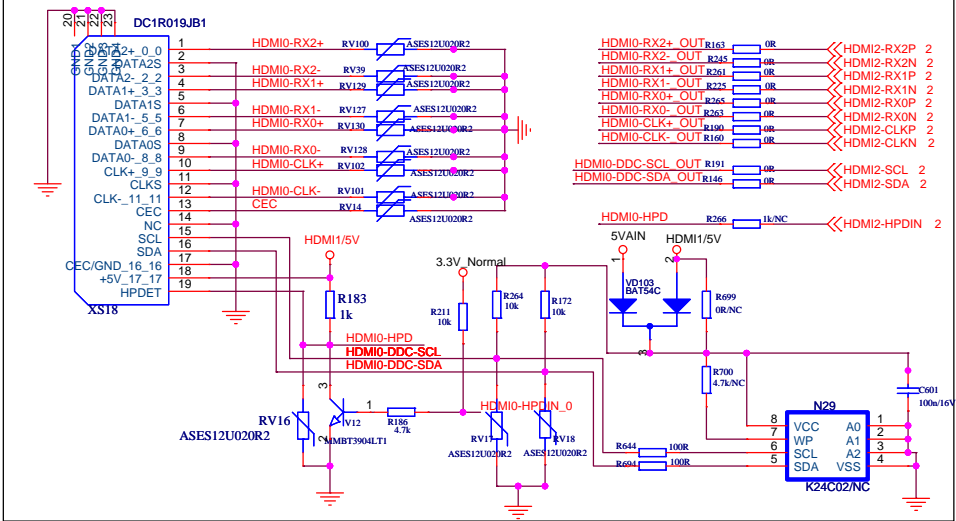
MCU FOR STANDBY CONTROL



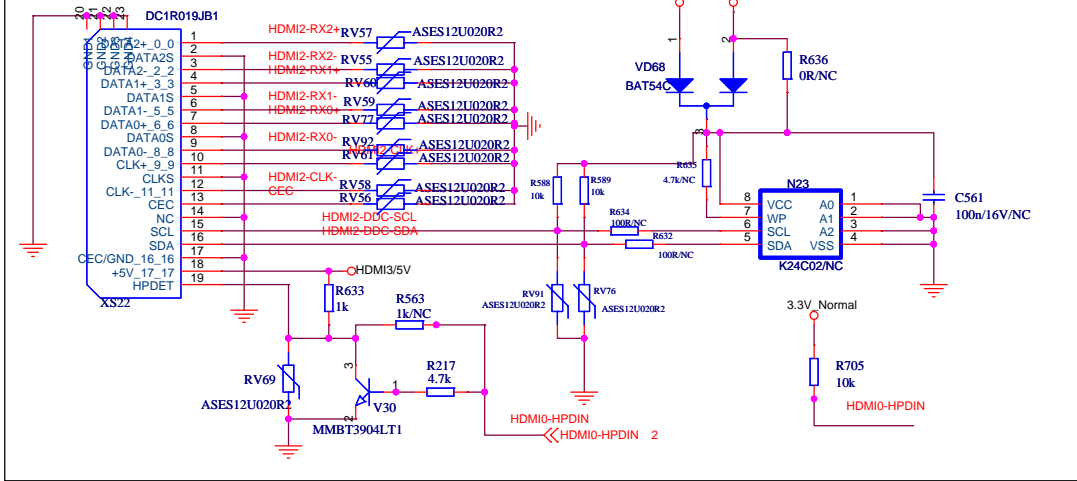




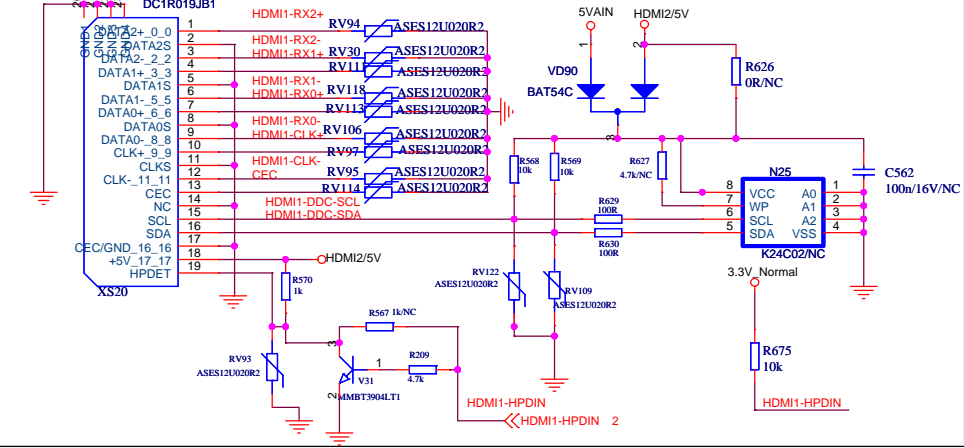
HDMI1（跟4开关）



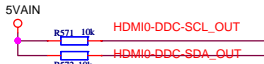
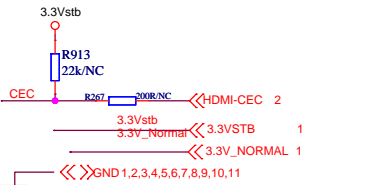
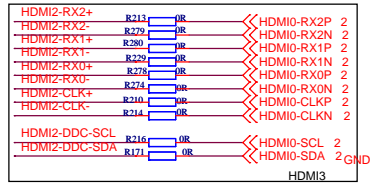
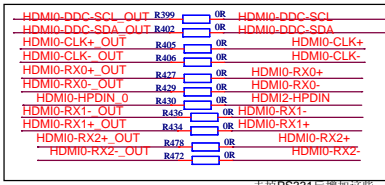
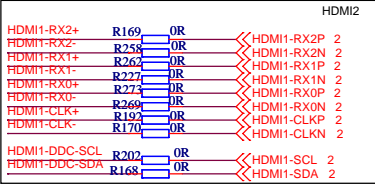
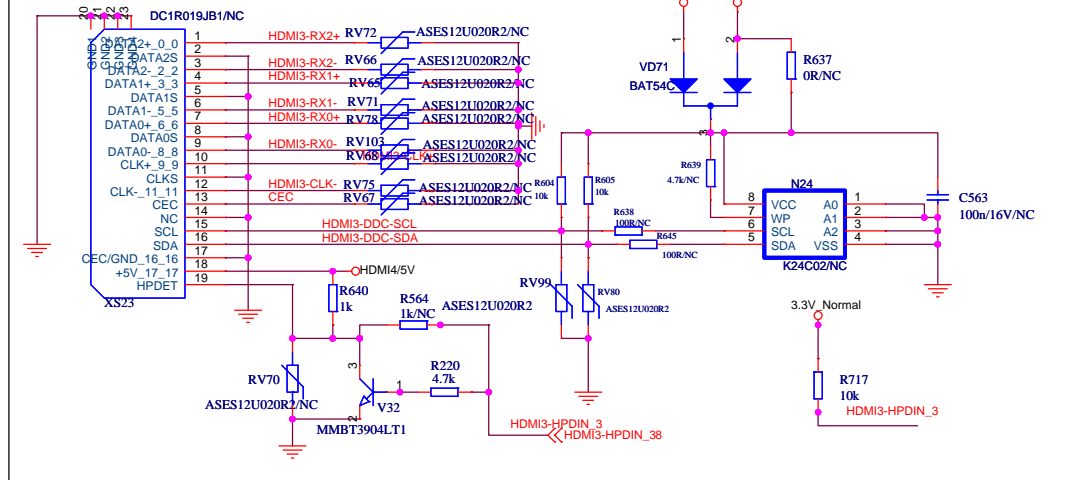
HDMI3 (下面)



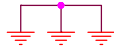
HDMI2 (下面)



HDMI 4 (下面)



HDMI0/3==>Main IC 2; HDMI1==>Main IC 1; HDMI2==>Main IC 0



2,8	HDMI3-RX2+	>>>	HDMI3-RX2+
2,8	HDMI3-RX2-	>>>	HDMI3-RX2-
2,8	HDMI3-RX1+	>>>	HDMI3-RX1+
2,8	HDMI3-RX1-	>>>	HDMI3-RX1-
2,8	HDMI3-RX0+	>>>	HDMI3-RX0+
2,8	HDMI3-RX0-	>>>	HDMI3-RX0-
2,8	HDMI3-CLK+	>>>	HDMI3-CLK+
2,8	HDMI3-CLK-	>>>	HDMI3-CLK-
2,8	HDMI3-DDC-SEL	>>>	HDMI3-DDC-SEL
2,8	HDMI3-DDC-SDA	>>>	HDMI3-DDC-SDA
2,8	HDMI3-HPDIN_3	>>>	HDMI3-HPDIN_3

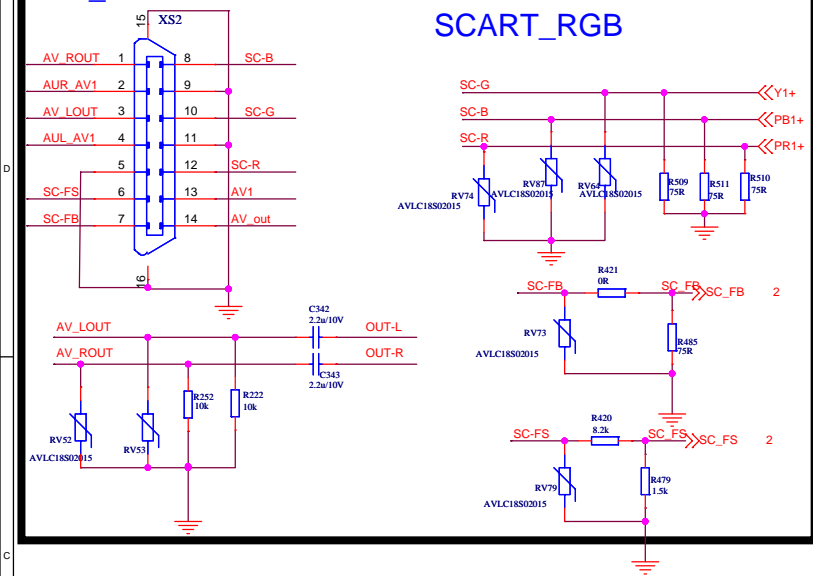
2.8	HDMI0-RX2+	»	HDMI0-RX2+
2.8	HDMI0-RX2-	»	HDMI0-RX2-
2.8	HDMI0-RX1+	»	HDMI0-RX1+
2.8	HDMI0-RX1-	»	HDMI0-RX1-
2.8	HDMI0-RX0+	»	HDMI0-RX0+
2.8	HDMI0-RX0-	»	HDMI0-RX0-
2.8	HDMI0-CLK+	»	HDMI0-CLK+
2.8	HDMI0-CLK-	»	HDMI0-CLK-
2.8	HDMI0-DDC-SCL	»	HDMI0-DDC-SCL
2.8	HDMI0-DDC-SDA	»	HDMI0-DDC-SDA
2.8	HDMI0-HPDIN_0	»	HDMI0-HPDIN_0

2.8	HDMI0-RX2+ _{OUT}	HDMI0-RX2+ _{OUT}
2.8	HDMI0-RX2- _{OUT}	HDMI0-RX2- _{OUT}
2.8	HDMI0-RX1+ _{OUT}	HDMI0-RX1+ _{OUT}
2.8	HDMI0-RX1- _{OUT}	HDMI0-RX1- _{OUT}
2.8	HDMI0-RX0+ _{OUT}	HDMI0-RX0+ _{OUT}
2.8	HDMI0-RX0- _{OUT}	HDMI0-RX0- _{OUT}
2.8	HDMI0-CLK+ _{OUT}	HDMI0-CLK+ _{OUT}
2.8	HDMI0-CLK- _{OUT}	HDMI0-CLK- _{OUT}
2.8	HDMI0-DDC-SCL _{OUT}	HDMI0-DDC-SCL _{OUT}
2.8	HDMI0-DDC-SDA _{OUT}	HDMI0-DDC-SDA _{OUT}
2.8	HDMI0-HPDIN _{OUT}	HDMI0-HPDIN _{OUT}

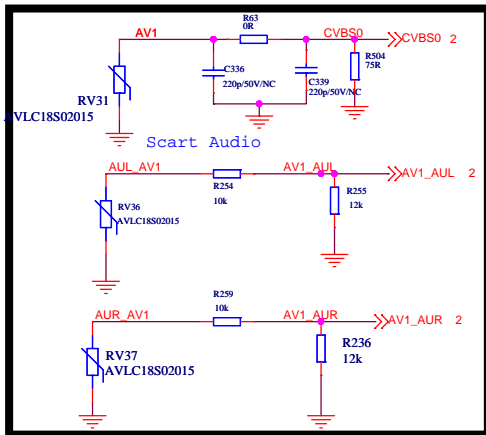
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MSD309PX			
Size	Document Number	Rev	
Custom	HDMI	A	
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FULL_SCART

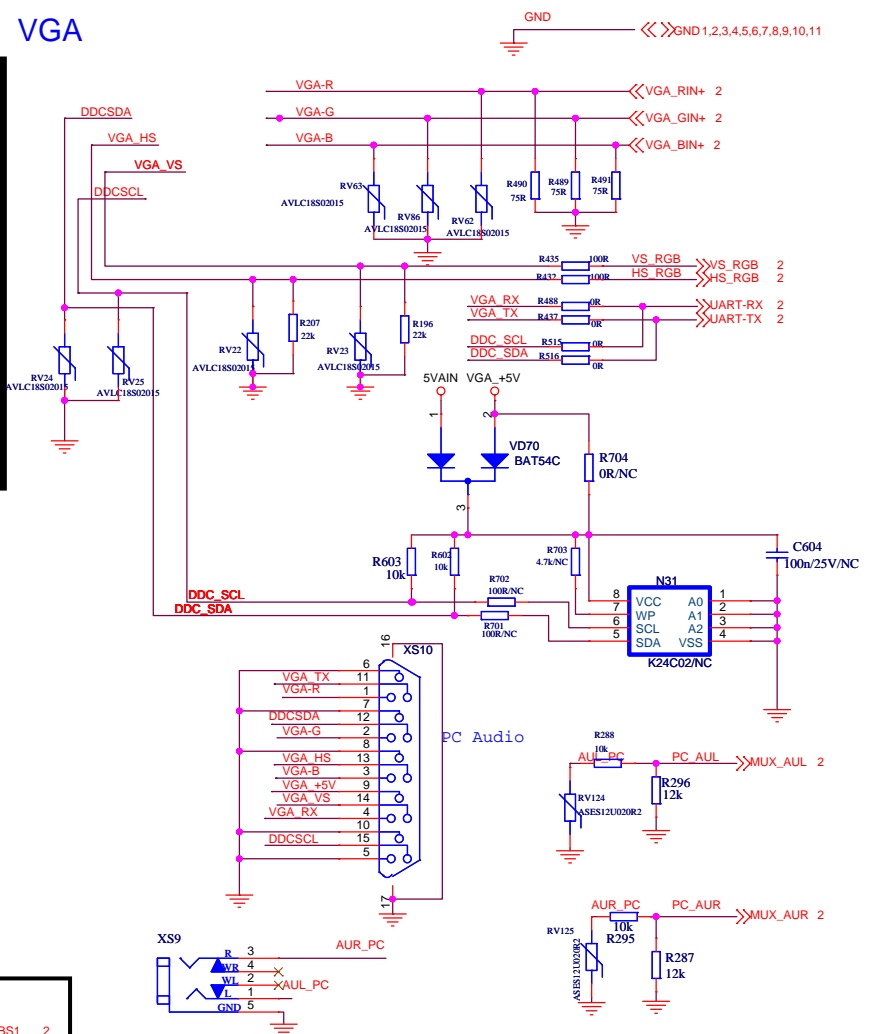
SCART_RGB



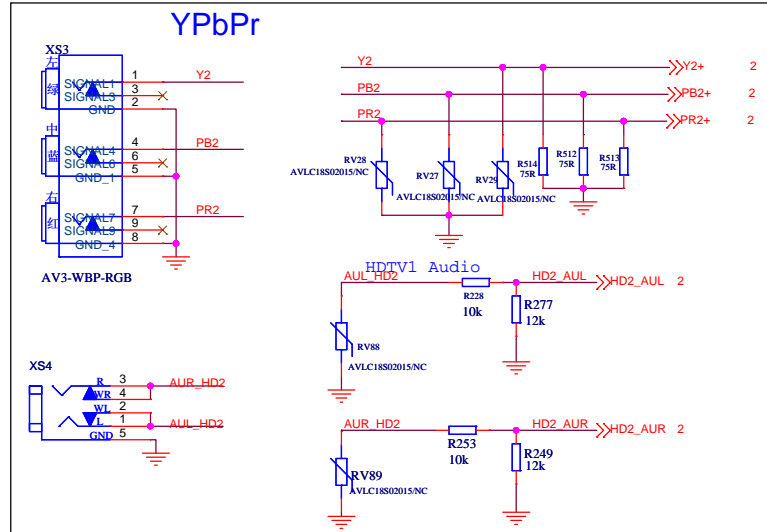
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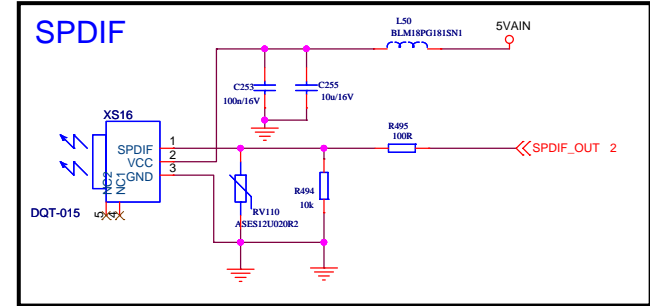
VGA



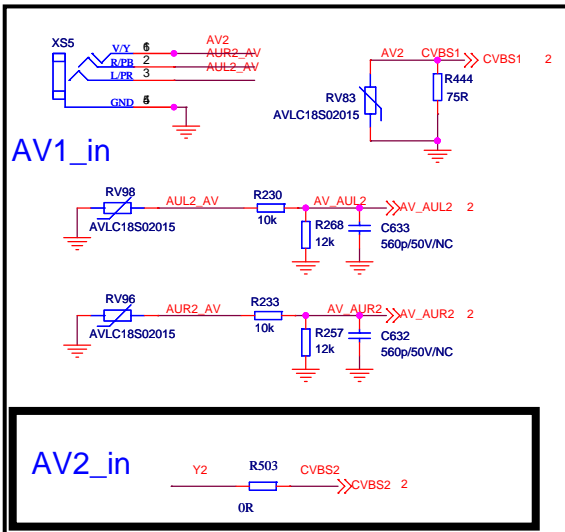
YPbPr



SPDIF



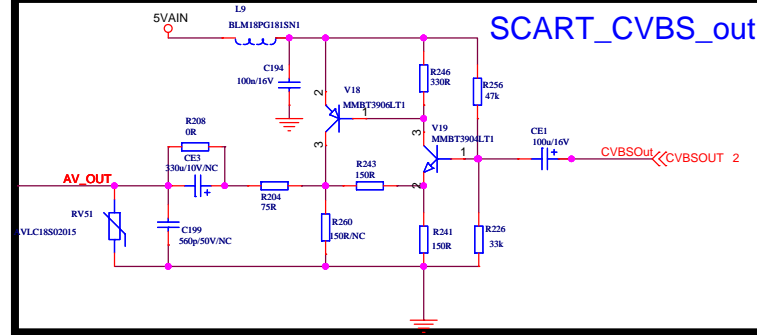
AV1_in



AV2_in

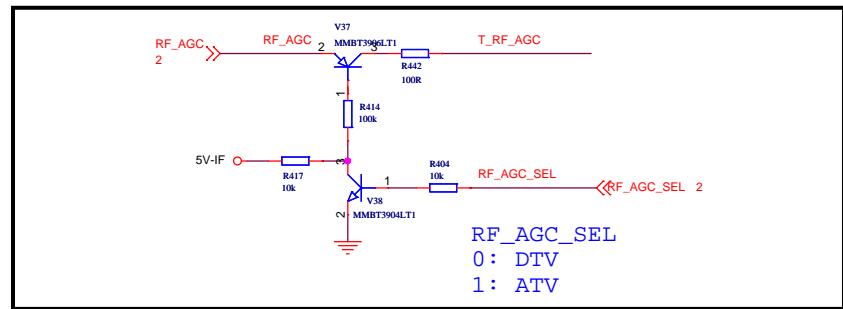


SCART_CVBS_out

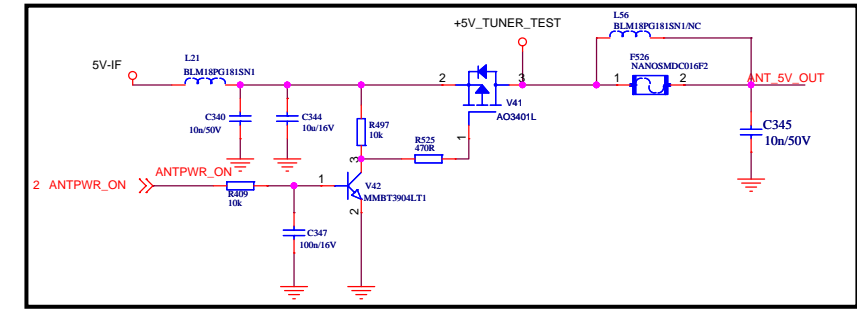


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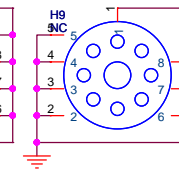
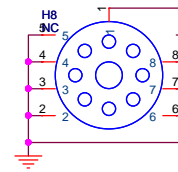
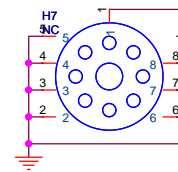
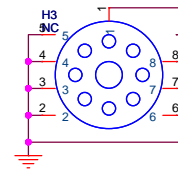
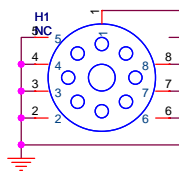
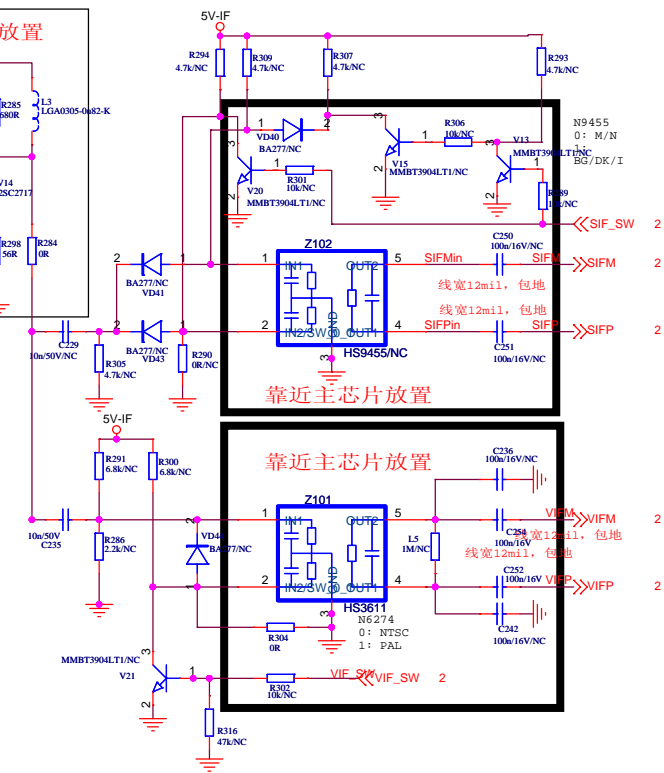
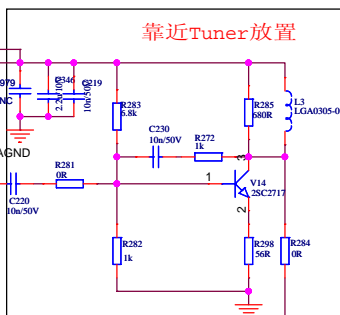
FR_AGC



ANT POWER

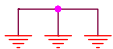
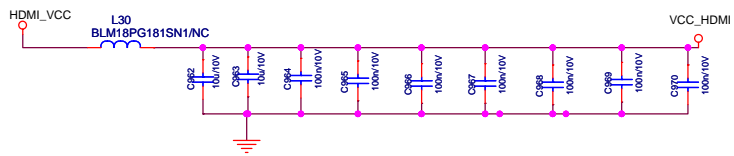
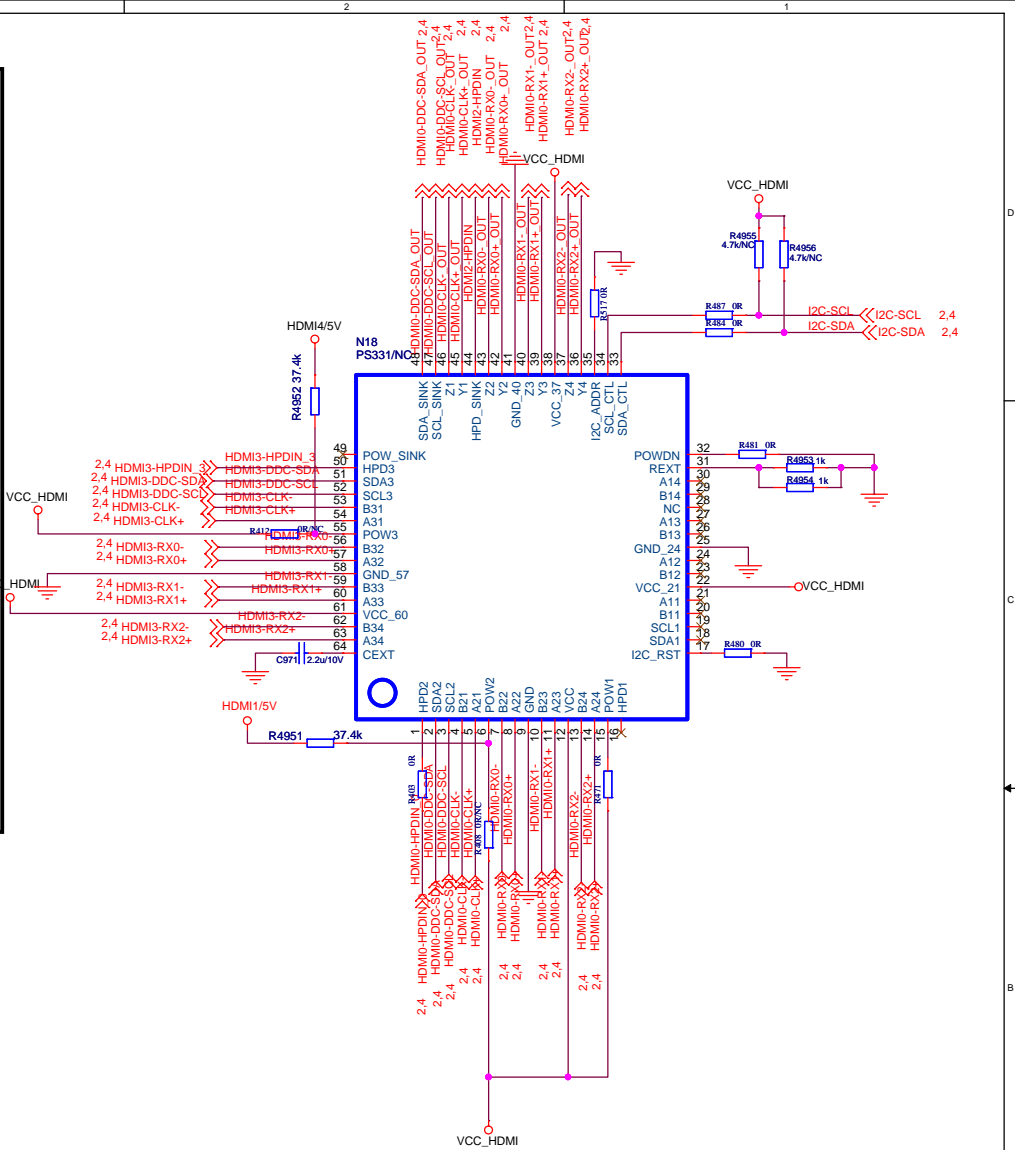
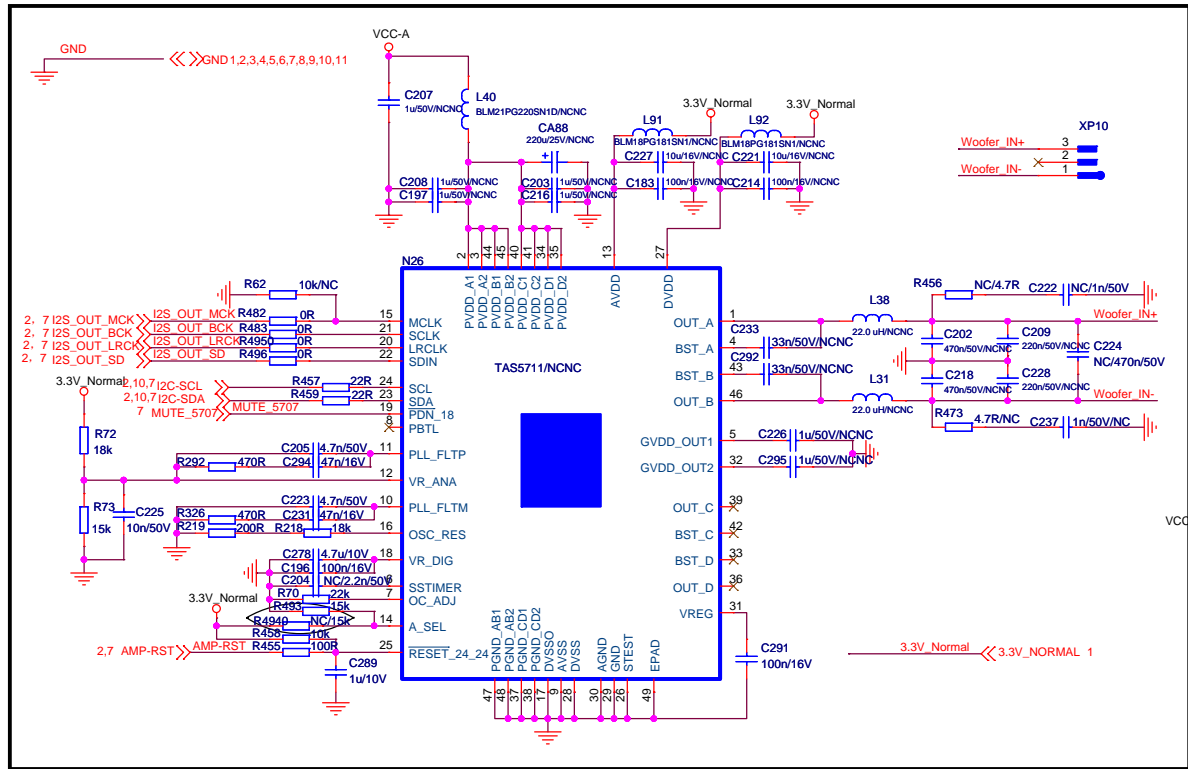


TUNER POWER



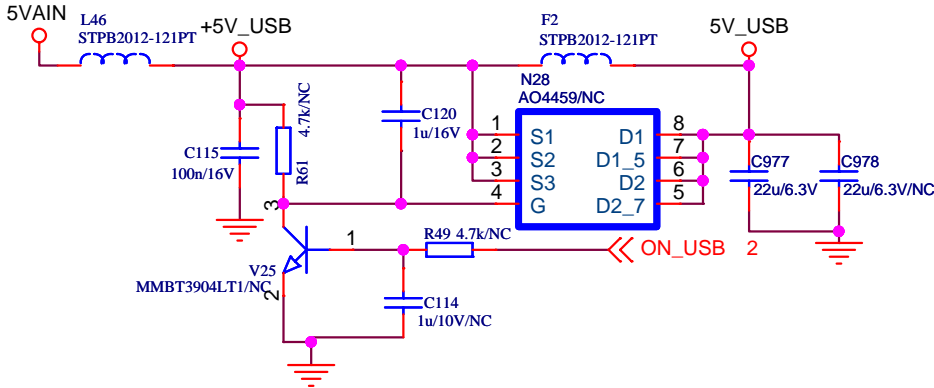
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Size	Document Number			Rev
Custom	TUNER			A
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WOOFER AMP

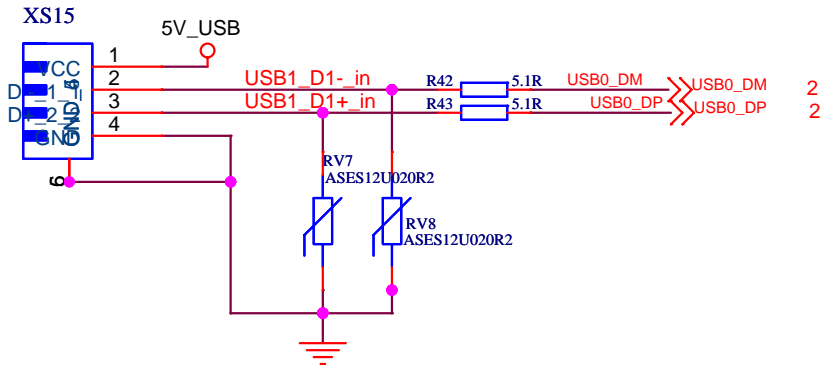


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MSD309PX				
Size	Document Number			Rev
Custom	Audio Amplifier			A
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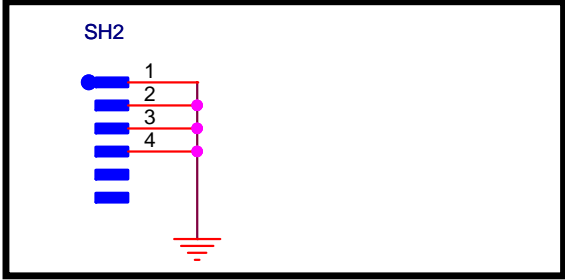
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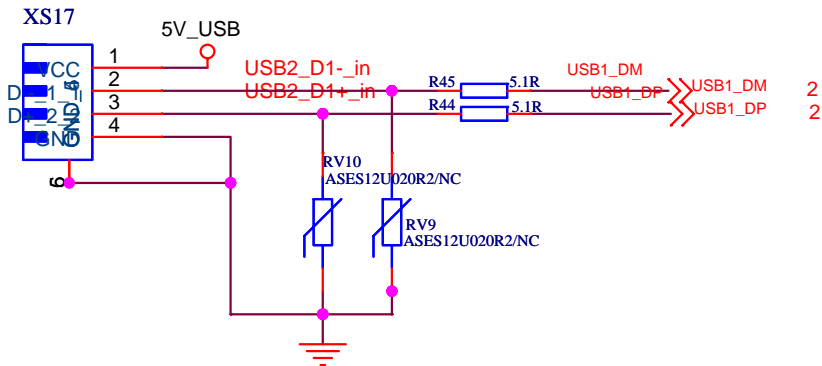
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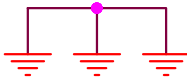
Shield



USB1 Input



跟大卡2选1复用



Title		
MSD309PX		
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A	USB	A
Date:	Tuesday, April 19, 2011	Sheet 10 of 10

6. Schematic circuit diagram

7. Explode View