Hisense

Liquid Crystal Display Television

Service Manual

Chassis： MST6E182VS

Product type: LEDN32K360

Ver 1.0

Hisense Electric Co.，Ltd.

August， 2012

Contents

Service Manual

1. Precautions and notices

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

USE ONLY MANUFACTURER SPECIFIED REPLACEMENT PARTS WHEN SERVICING.

USE OF NON-AUTHORIZED PARTS WILL VOID THE MANUFACTURE'S WARRANTY

Proper service and repair is important to the safe, reliable operation of all Hisense 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 is that improper service methods may damage the equipment and pose risk of personal injury

. It is also important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Service should only be performed by an experienced electronics

technician trained in the proper Television safety and service methods and procedures Hereafter throughout this manual, Hisense will be referred to.

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 non-manufacturer's recommended parts may create shock, fire, or other hazards. Under no circumstances should the original design be modified or altered without written permission from Hisense assumes no liability, express or implied, arising out of any unauthorized modification of design. Service tech 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.

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, be sure to use antistatic table mats and properly use a grounding wrist strap. Keep components and tools also at this same potential.

IMPORTANT:

Always disconnect the power cord from AC outlet before replacing parts or modules.

1.1.3

To prevent electrical shock, use only a properly grounded 3 prong outlet or extension cord.

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 and will void the manufacturer's warranty.

1.1.5

Safety regulations require that after a repair the set must be returned in its original condition. In addition, prior to closing set, check that:

>All wire harnesses and flex cables are properly routed and secured with factory tape and/or mounted cable clamps.

> All cables and connectors are properly insulated and do not have any bare wires/lead exposed.

1.1.6

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

(2) Do not use this product:

> High humidity areas

> In an area where any water could enter or splash into the unit.

High humidity and water could damage the product and cause fire.

(3) 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.

(4) 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.

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

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

(7) 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.

(8) 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.

(9) 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 may trip the main 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.

• 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.

• 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 insinuated 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:

LEDN32K310AMN

Model Name		LD32K31HD
Dimension	Without Stand	750.6 mm × 464.8 mm × 63.7 mm
	With Stand	750.6 mm × 516 mm × 200 mm
Weight	Without Stand	7.7 kg
	With Stand	9 kg
LCD Panel Minimum size (diagonal)		32 inches (80 cm)
Screen resolution		1366 × 768
Audio power		6 W + 6 W
Power consumption		40 W
Power supply		AC 100~240 V 50/60 Hz
Receiving systems	RF	PAL-M, PAL-N, NTSC-M
	AV	PAL, NTSC
Environmental conditions		Temperature: 5°C ~ 45°C Humidity: 20% ~ 80% RH Atmospheric pressure: 86 kPa ~ 106 kPa
Component Input		480 I / 60 Hz, 480 P / 60 Hz, 720 P / 60 Hz, 1080 I / 60 Hz, 1080 P / 60 Hz
VGA Input		VGA (640×480 / 60 Hz), SVGA (800×600 / 60 Hz), XGA (1024×768 / 60 Hz)
HDMI Input		RGB / 60 Hz (640×480, 800×600, 1024×768) YUV / 60 Hz (480 I, 480 P, 720 P, 1080 I, 1080 P)

2.1 Main board layout:

Main board: 4833

2.2 Chassis MST6E182VG includes products:

]Main board PCB Version	Instruction	Use TV
RSAG7.820.4785	MST6E182 original Version，apply for LCD，DLED TV	LEDN32D11,LEDN42D11P
RSAG7.820.4833	MST6E182 LED TV. woofer	LEDN32K300 LEDN32K310 LEDN32K310AM LEDN32K310AMN LEDN50K300P LEDN50K316P LEDN39K316P LEDN42K316P
RSAG7.820.4908	Modify audio amplify on 4833, but no woofer	LCD50C10P
RSAG7.820.4745	MST6E181 original Version，apply for LED TV	LED32K26K
RSAG7.820.4395	MST6E181 LCD TV	LCD32V88K

Product	Panel Mode	LVDS(Main-Panel)	Main board
LEDN32D11	LC320DXN-SER1\JK\ROH	HX-0147\ROH	RSAG7.820.4785
LCD50C10P	V500HJ1-L01\JK\ROH	HX2-2X20KLB500P-HS\ROH	RSAG7.820.4908
LEDN32K310	HE315FH-E58\PW1\ROH	FFC-30-332\ROH	RSAG7.820.4833
LEDN32K310AMN	HE315FH-E78\ROH	FFC-30-332\ROH	RSAG7.820.4833
LEDN32K300	HE315FH-E58\PW1\ROH	FFC-30-332\ROH	RSAG7.820.4833
LEDN50K300P	V500HJ1-LE1\JK\ROH	HX2-2×22KLB500P-CMO-4\ROH	RSAG7.820.4833
LEDN39K316P	HE390GF-E01\PW1\ROH	HX2-2x22KLB450P-CMO\ROH	RSAG7.820.4833
LEDN42K316P	HE420FF-B57(1000)\ROH	HX2-2x22KLB450P-CMO\ROH	RSAG7.820.4833

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.
2. Press “Menu” button and enter factory OSD menu.
3. Press “▲”/“▼” button select the function menu, press “►”/“◄” enter the selected function menu. Press “►”/“◄” 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

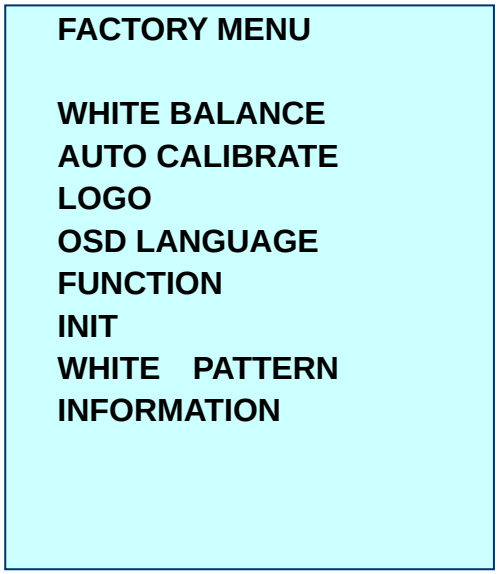
b. With user’s RC

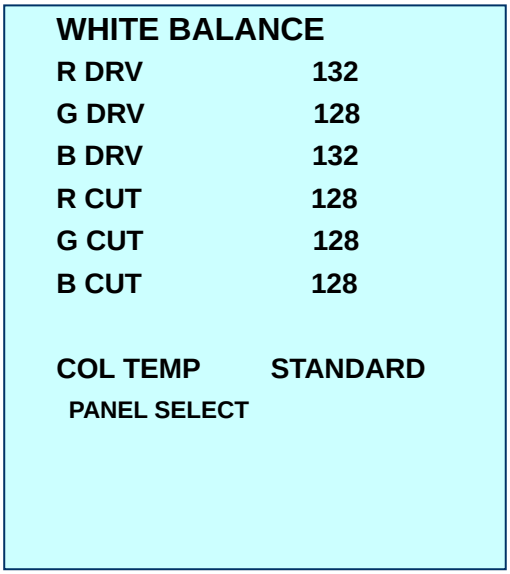
1. Power TV On
2. Press Menu button and call up User OSD Menu
3. Select Sound-> Balance
4. When Balance value is “0”, Enter 1->9->6 ->9 in sequence.
   Note: If necessary, re-do number keys.
5. Factory OSD appears.
6. Press “Exit” button can exit factory OSD menu.

3.2 Factory OSD Menu

The Factory OSD Menu comprises Factory Menu and Design Menu .

3.2.1、Factory Menu





AUTO CALIBRATE

Only in component and VGA SOURCE ,The “ADC Adjust” Can be chosen.

LOGO

NULL
HISENSE
WELCOME
LLOYD
…
…

FUNCTION
TOFAC M

Software Upgrade
Save NTSC Channel 0
Channel change Freeze
Panel Life 0
IT6633EQ 7
HDMI Cable Normal
HDCP IN

INIT
[Hisense]
QINGDAO
HUANGDAO
GUIYANG
SHUNDE
…….
CLEAR PROTECTLY
CLEAR UNPROTECTLY

WHITE PATTERN
(Red; Green ;White)

INFORMATION

BULLD TIME:
PANEL TYPE:

3.2.2、Design Menu

DESIGN MENU

PICTURE MODE
AUDIO MODE
PICTURE CURVE
AUDIO CURVE
SSC ADJUST
SAVING MODE
OVERSCAN
VD NONSTAND
VIF NONSTAND
AUDIO NONSTAND
PQ1
PQ2

PICTURE MODE

MODE	STANDARD
BRIGHTNESS	62
CONTRAST	53
COLOUR	53
SHARPNESS	70

AUDIO MODE

MODE	USER
120HZ	50
500HZ	50
1.5KHZ	50
5KHZ	50
10KHZ	50

PICTURE CURVE	
MODE	CONTRAST
CURVE 0	40
CURVE 25	88
CURVE 50	135
CURVE 75	145
CURVE 100	10

AUDIO CURVE	
MODE	VOLUME
CURVE 0	0
CURVE 25	25
CURVE 50	50
CURVE 75	75
CURVE 100	100
PRESCALE	158
AVCTHRESHOLD	1C

SSC ADJUST	
SSC MIU	OFF
MIU SPAN	35
MIU STEP	10
SSC LVDS	ON
LVDS SPAN	350
LVDS STEP	100

SAVING MODE	
USER_ MIN	100
BRIGHT	2
SOFT	100

OVER SCAN	
H_POS	26
H_SIZE	44
V_POS	15
V_SIZE	26

Note：

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

4. Software Upgrading

Before upgrading, read the following.

1、Before upgrading，Write down the ADC Calibration values of the channel of VGA and component。

2、Upgrade the software.

3、To clear the EEPROM .

A Select the item “Clear Unprotected”.

B Press VOL+ button to clear the EEPROM data.

C Close the OSD menu after 5 seconds.

D Restart the TV.

4 Write the ADC Calibration values copied just now into the channels of VGA and component.

5、After the operation above all, necessarily, Renew search the channels for the users.

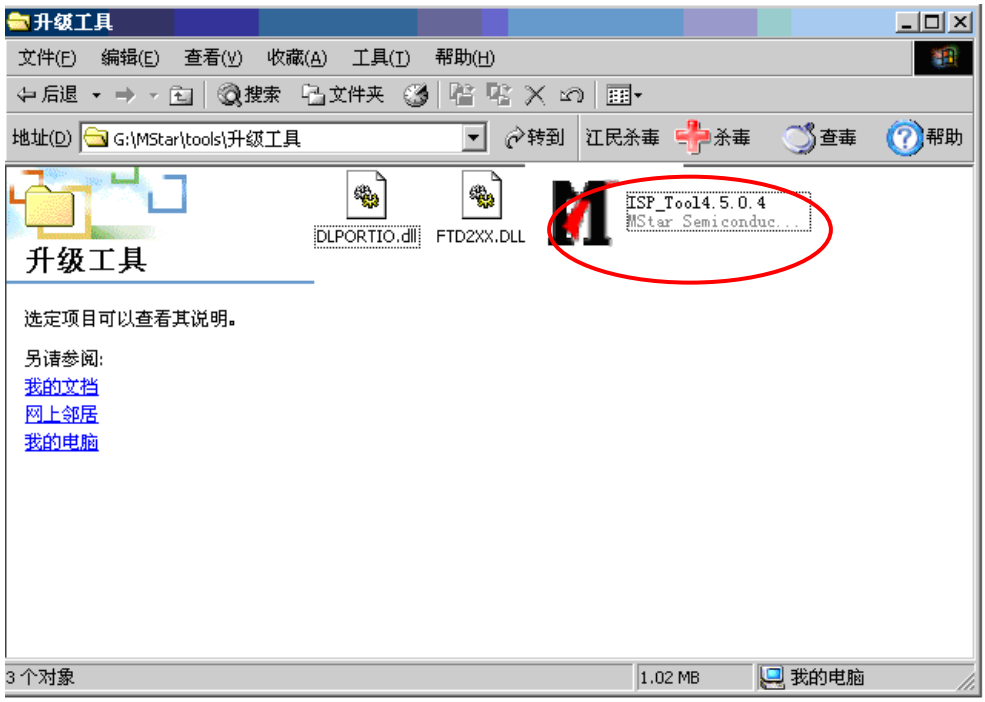
4.1 Get ready for upgrading

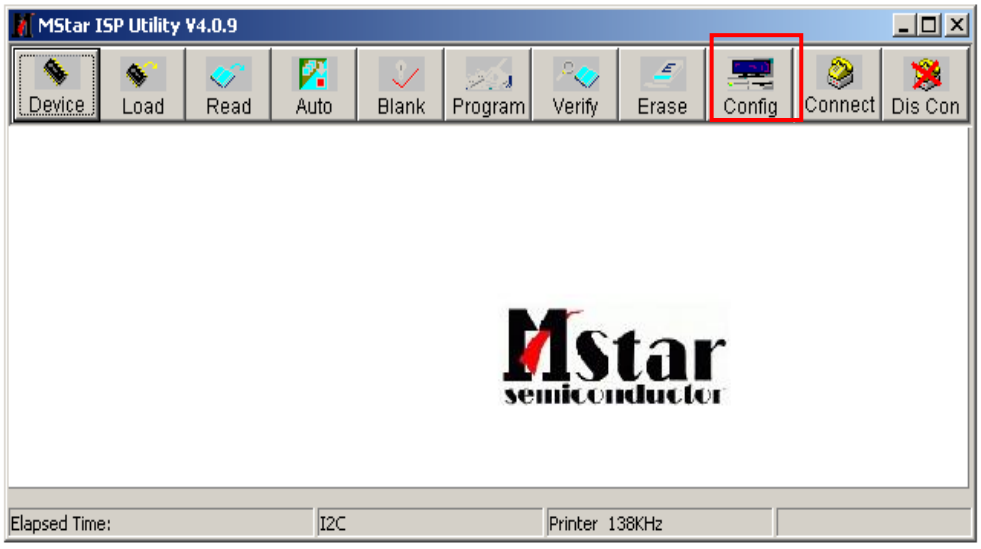
1、The software is upgraded by a burning tool- ISP_TOOL.exe

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

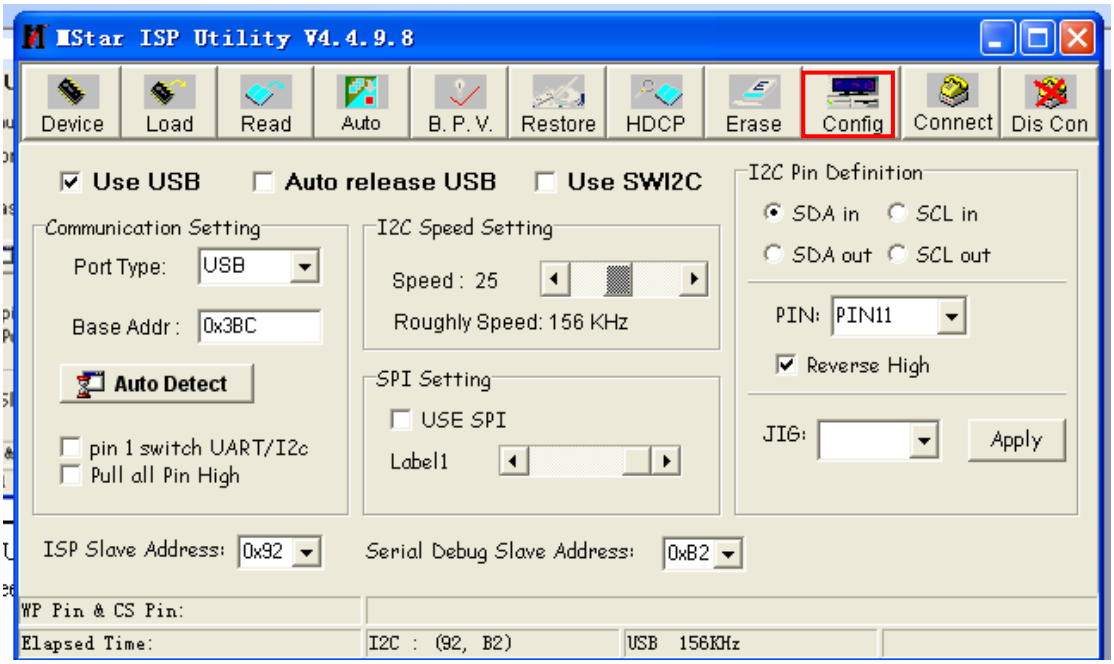
2、 Find the folder where the ISP_TOOL4.5.0.4 lies in.
There are three folders/files in this folder together.
DLPORTIO.dll and FTD2XX.DLL must be in the same folder

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





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，
As following

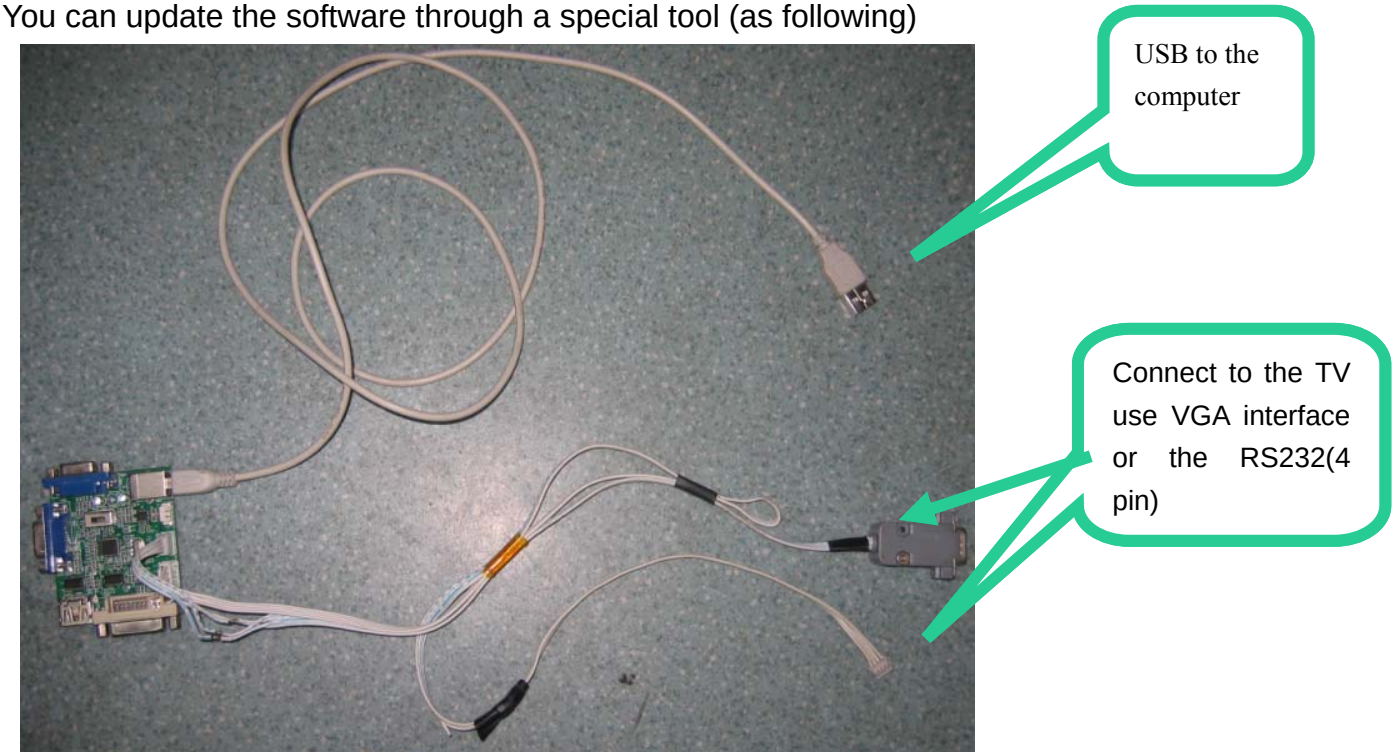


Click the “Connect” button，if appear the following figure, It indicates that the ISP_TOOL has connected.

If appear the following figure，It indicates that the ISP_TOOL has not connected. Please click the “Dis Con” button and “Connect” button to connect..

4.1.2 Hardware connecting

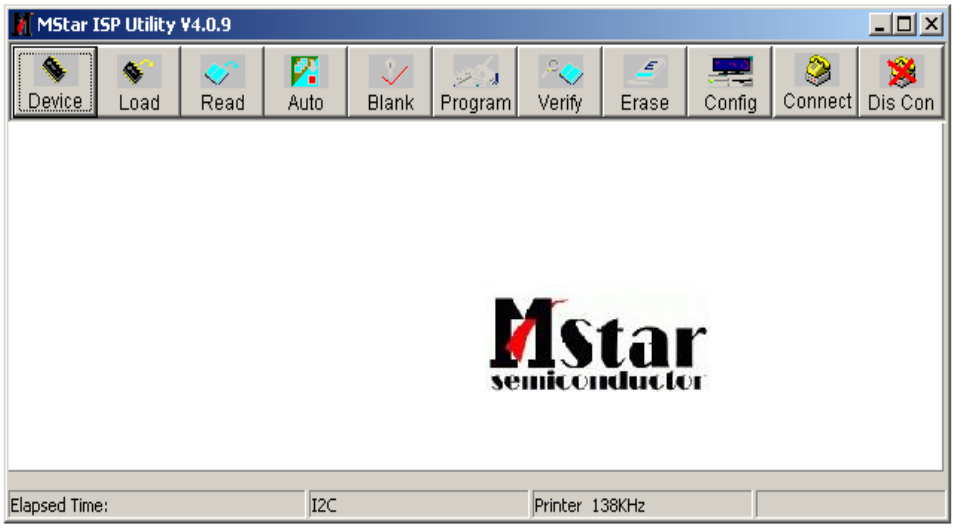
You can update the software through a special tool (as following)



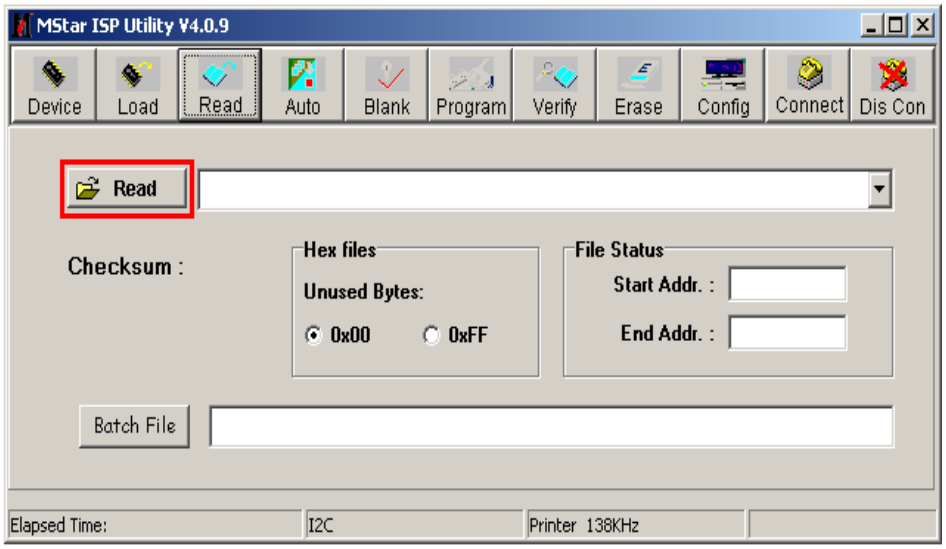
Connect the Debug board to the TV use VGA interface or the RS232 (4 pin), the other USB port to the compute.

4.2 Upgrading with the ISP_TOOL4.5.0.4

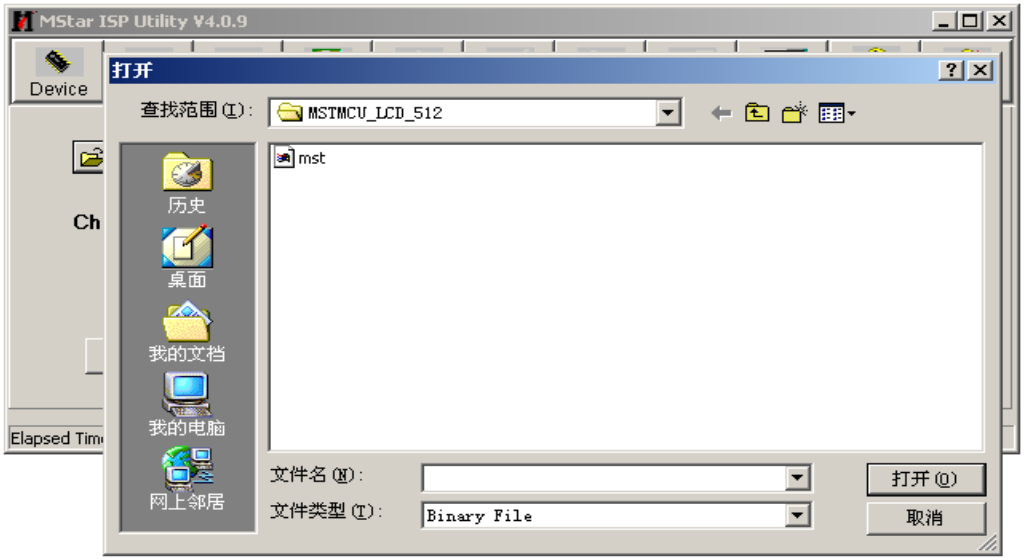
4.2.1 Double click the ISP_TOOL4.5.0.4 icon and a dialog window will show as following。

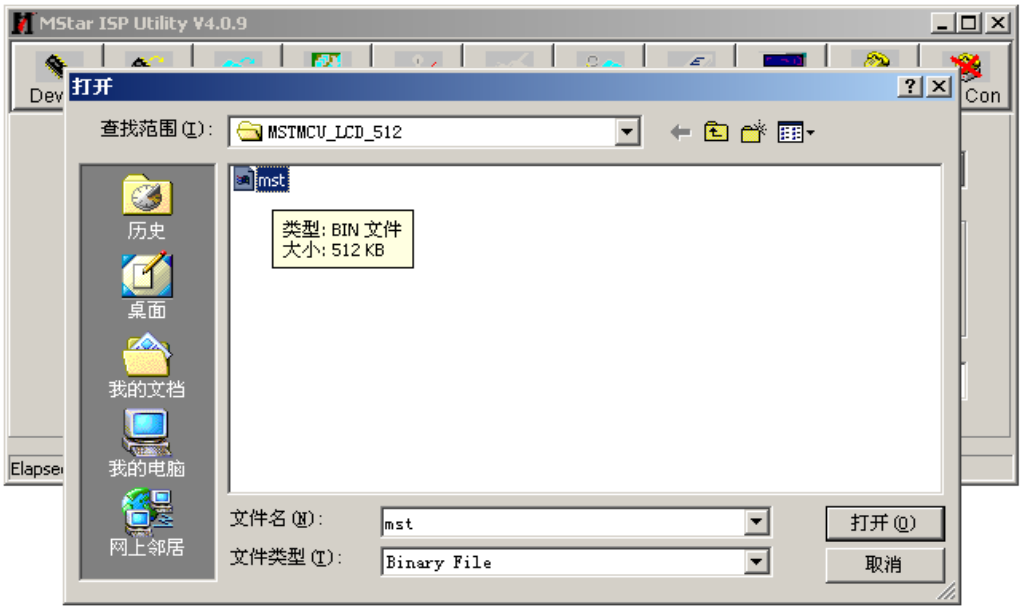


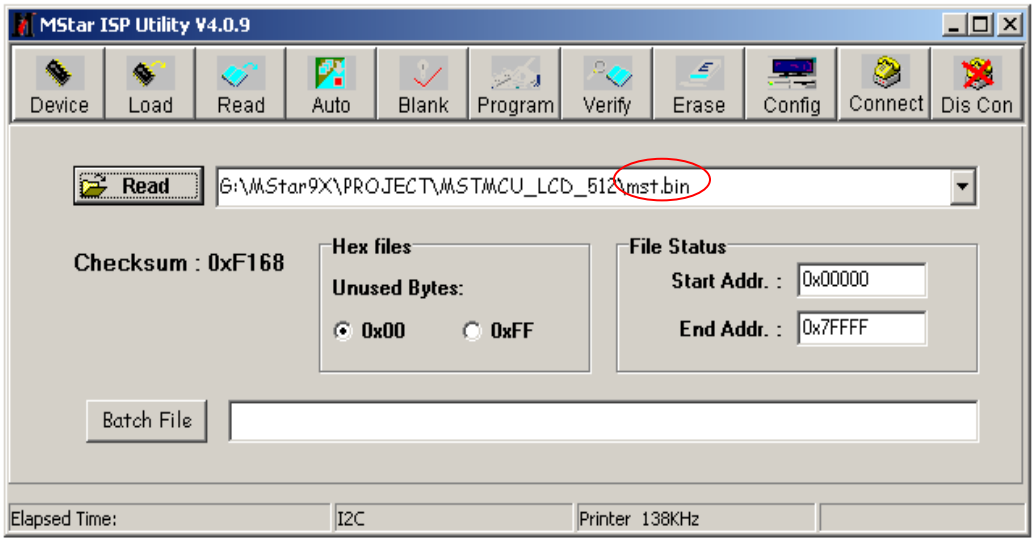
Click the“**Read** ”button。



Choose the update file from the folder。

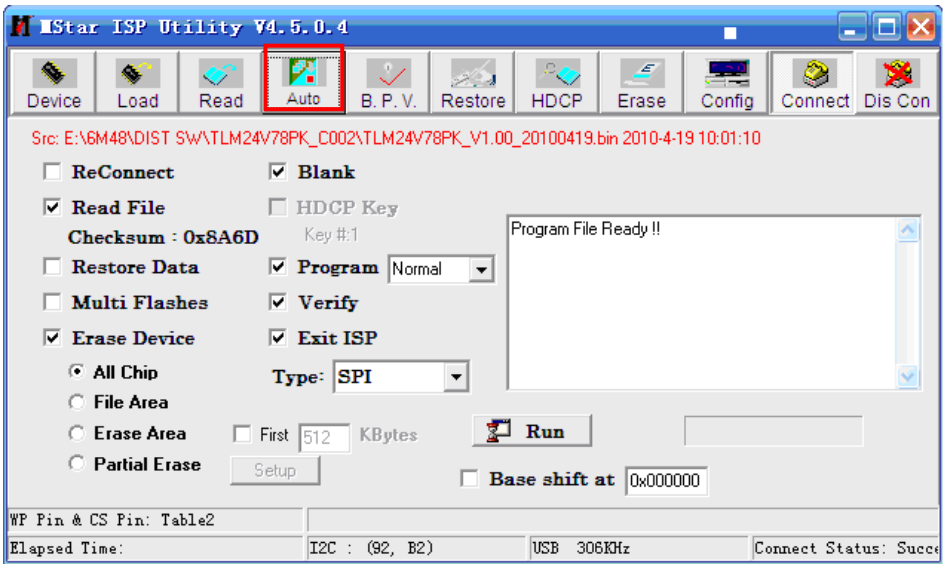




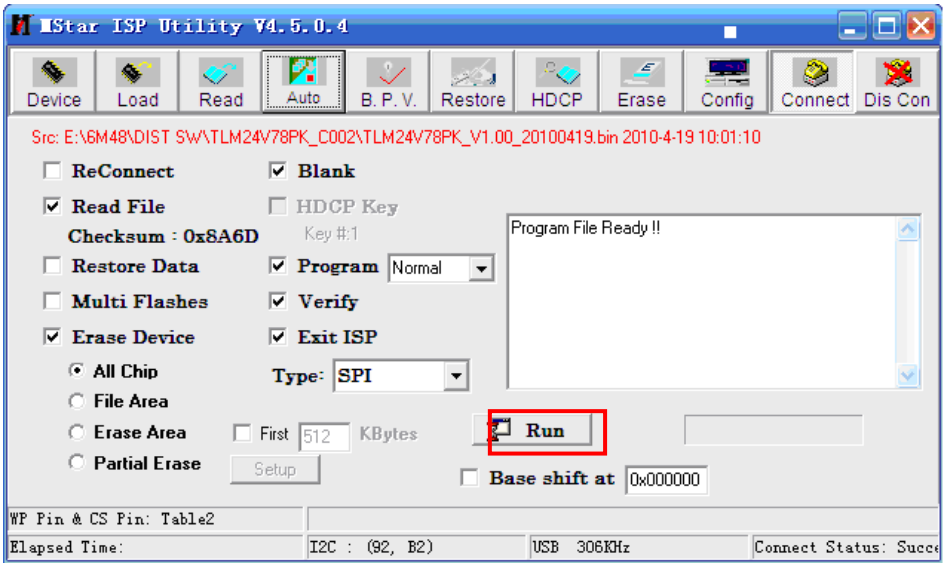


The update file has been chosen successfully。

Click the“**Auto**”button and choose parameters as following。

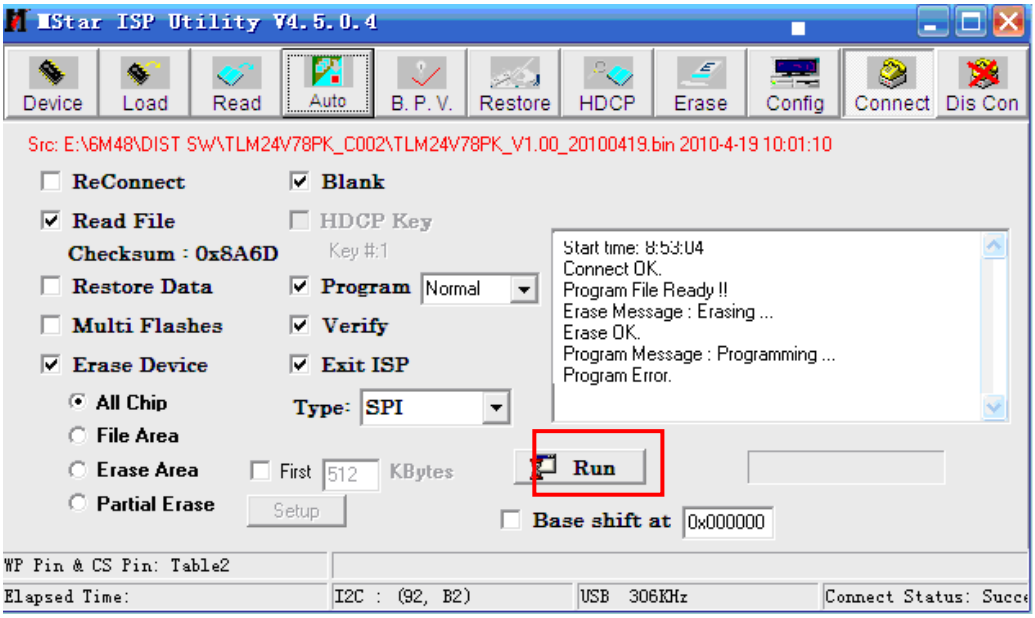


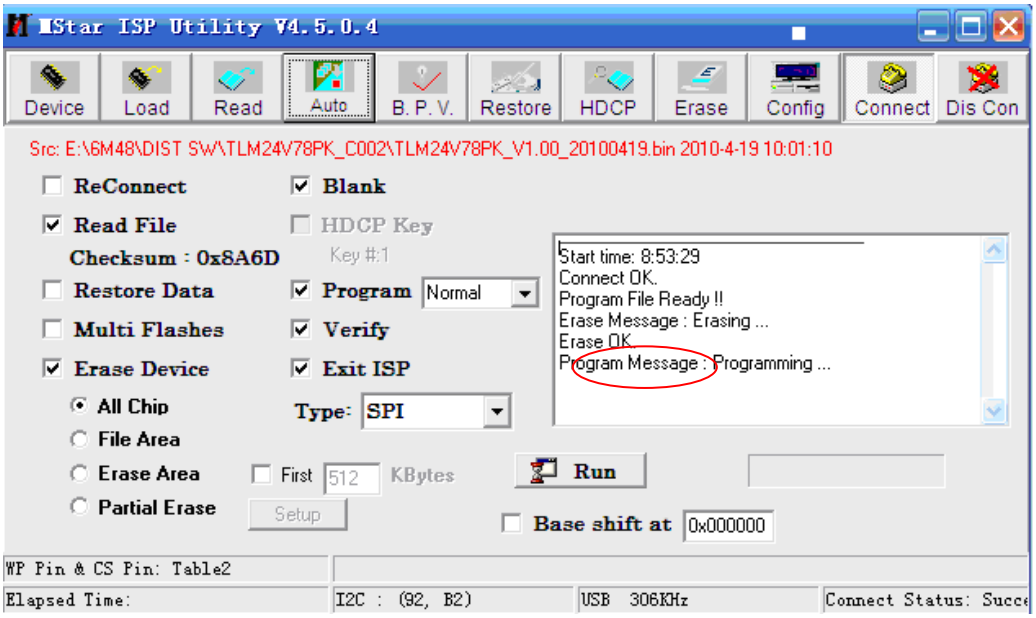
Click the “**Run” button**

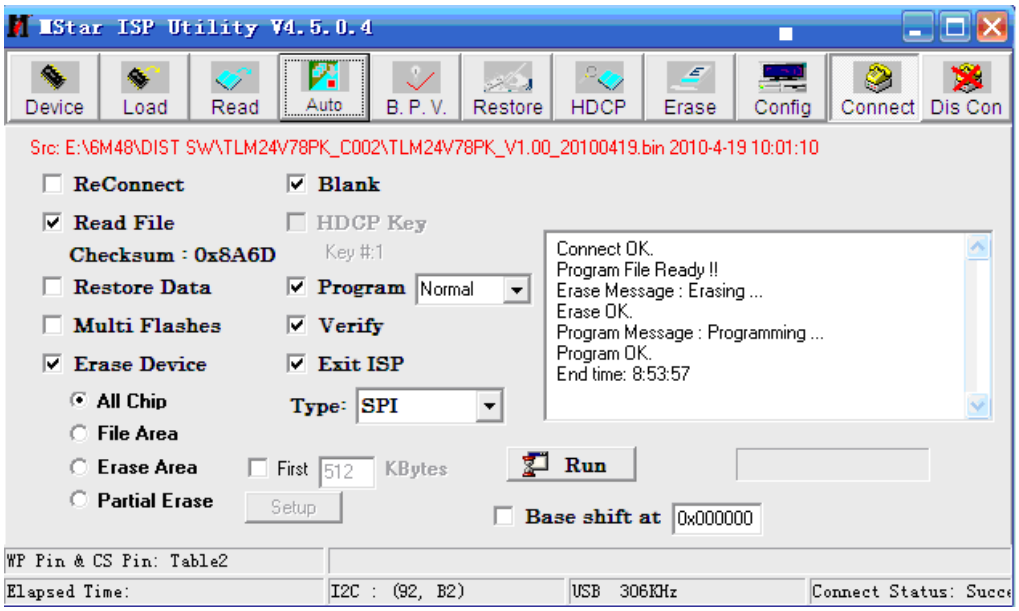


If appear green ”PASS”, it indicates that the “software written” is successful .

If show” error message “then click the “Run” button again and again，till show the following dialog window。


ISP Utility V4.5.0.4
Device
Load
Read
Auto
B. P. V.
Restore
HDCP
Erase
Config
Connect
Dis Con
Src: E:\6M48\DIST SW\TLM24V78PK_C002\TLM24V78PK_V1.00_20100419.bin 2010-4-19 10:01:10
ReConnect
Blank
Read File
HDCP Key
Checksum : 0x8A6D
Key #:1
Restore Data
Program
Normal
Multi Flashes
Verify
Erase Device
Exit ISP
All Chip
Type:
SPI
File Area
Erase Area
First
512
KBytes
Partial Erase
Setup
Run
Base shift at
0x000000
Start time: 8:53:04
Connect OK.
Program File Ready !!
Erase Message : Erasing ...
Erase OK.
Program Message : Programming ...
Program Error.
WP Pin & CS Pin: Table2
Elapsed Time:
I2C : (92, B2)
USB 306KHz
Connect Status: Succe


ISP Utility V4.5.0.4
Device
Load
Read
Auto
B. P. V.
Restore
HDCP
Erase
Config
Connect
Dis Con
Src: E:\6M48\DIST SW\TLM24V78PK_C002\TLM24V78PK_V1.00_20100419.bin 2010-4-19 10:01:10
ReConnect
Blank
Read File
HDCP Key
Checksum : 0x8A6D
Key #:1
Restore Data
Program
Normal
Multi Flashes
Verify
Erase Device
Exit ISP
All Chip
Type:
SPI
File Area
Erase Area
First
512
KBytes
Partial Erase
Setup
Run
Base shift at
0x000000
Start time: 8:53:29
Connect OK.
Program File Ready !!
Erase Message : Erasing ...
Erase OK.
Program Message : Programming ...
WP Pin & CS Pin: Table2
Elapsed Time:
I2C : (92, B2)
USB 306KHz
Connect Status: Succe

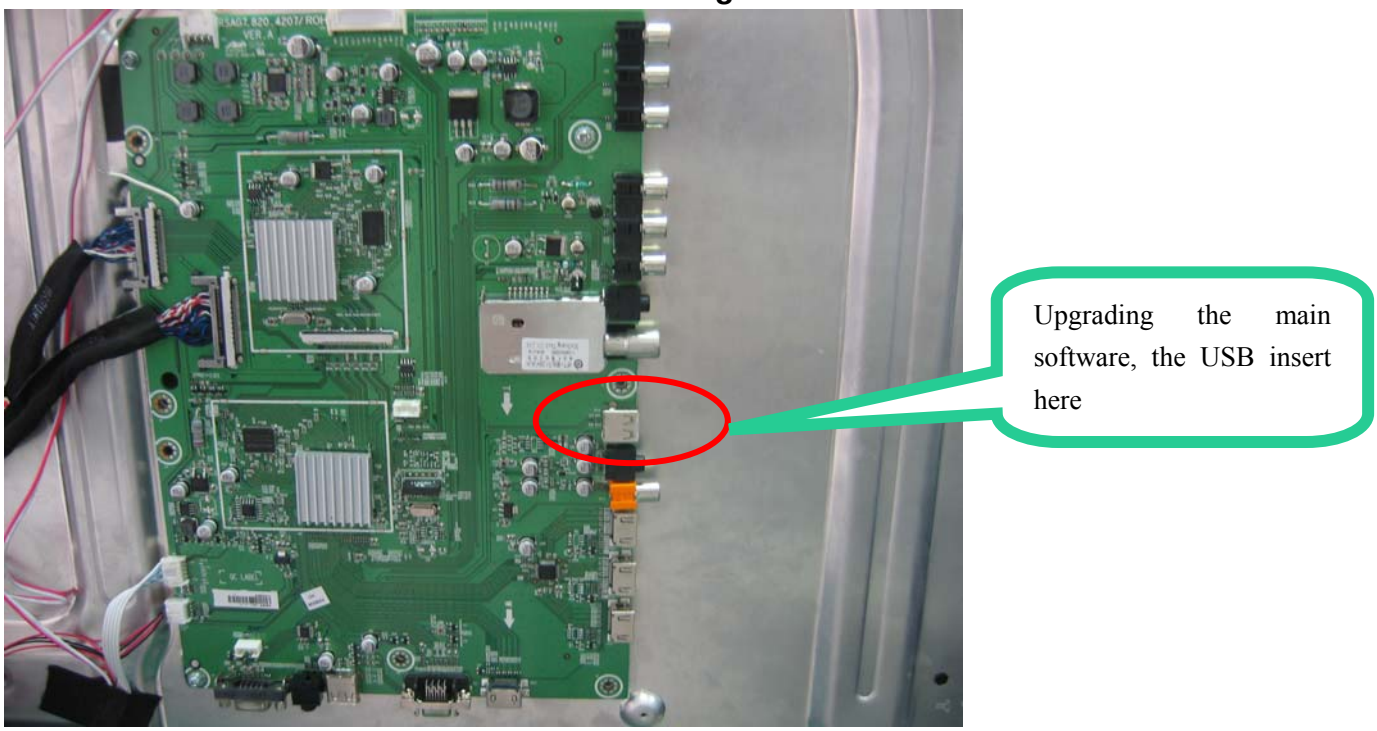


The above appears on the screen-the word “PASS” shows in the information displaying window, indicating upgrading is over。

4.3 USB Software upgrading

Upgrade the main software:

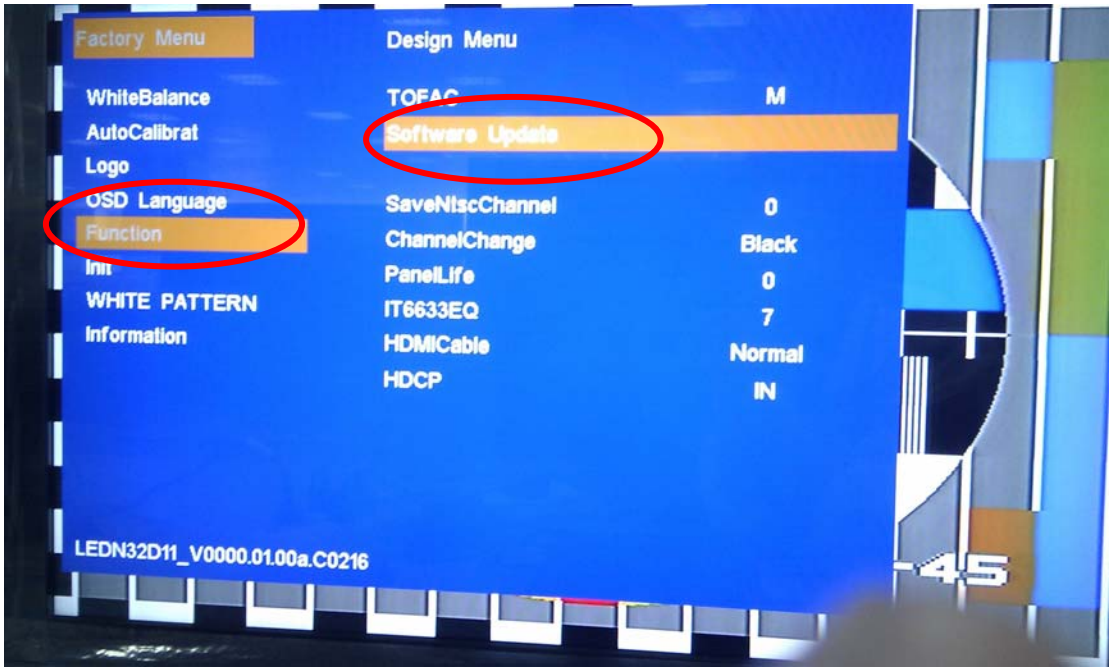
Copy the Updating software to the USB root directory, the software named *.bin. for example the TV LCD32V88K named LCD32V88K.bin. insert the USB disk to the side of the USB interface of the main board. As figure:



Note: the main board is only for reference.

Turn on the TV and enter the factory memu, when balance is “0”, press the password “1969”.
As figure:

Then choose “FUNCTION”----“Software update”--- enter ” ok* to begin upgrade. As figure:



Next

After update success, had better AC power off and restart the TV.

Confirm the software Version in the Version Menu. If the update is successful, enter Factory Init Menu and select “Clear Unprotectly”

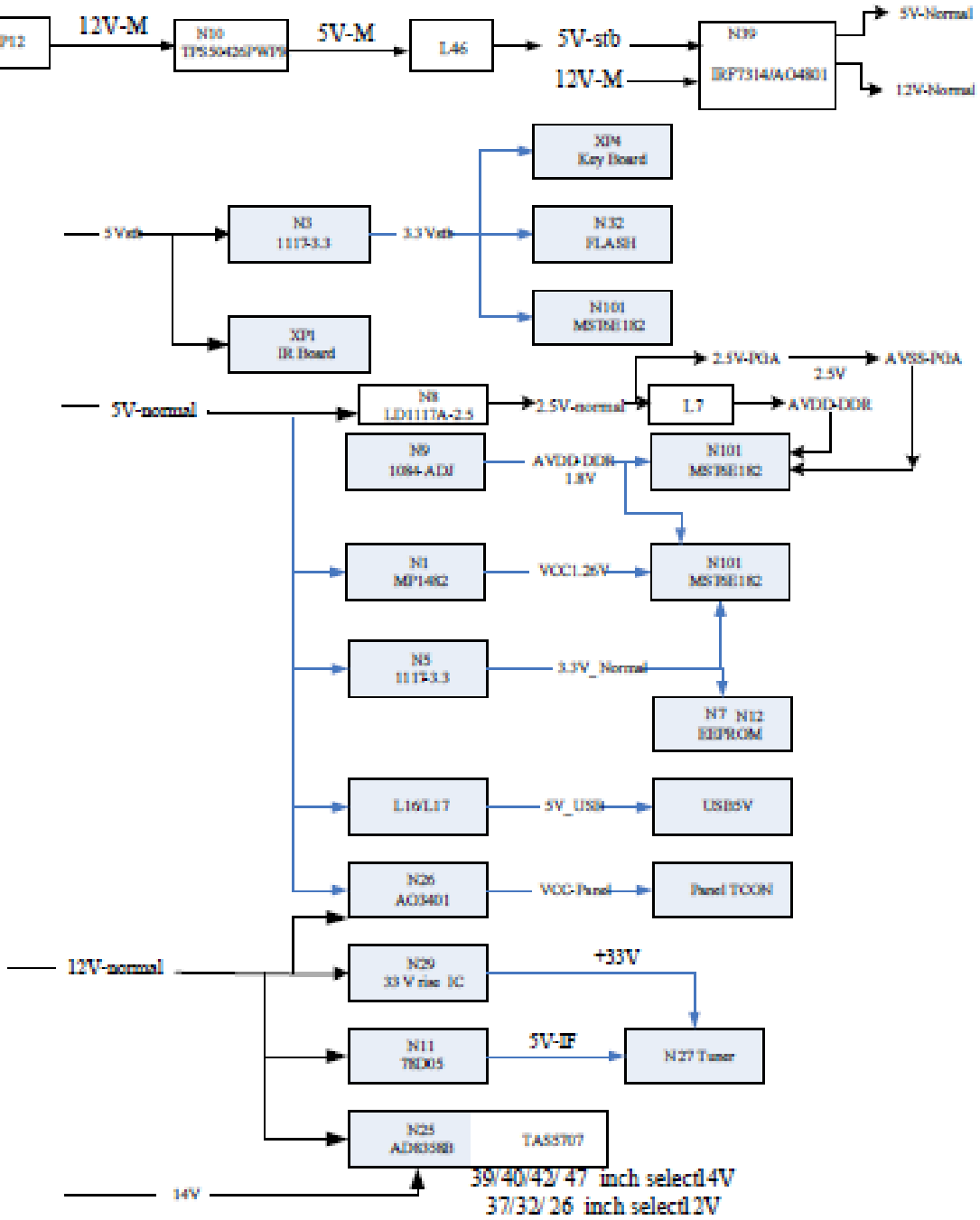
a. Press VOL+ button to clear the EEPROM data.

b. When the “Clear Unprotectly ” button becomes white, turn off the power.

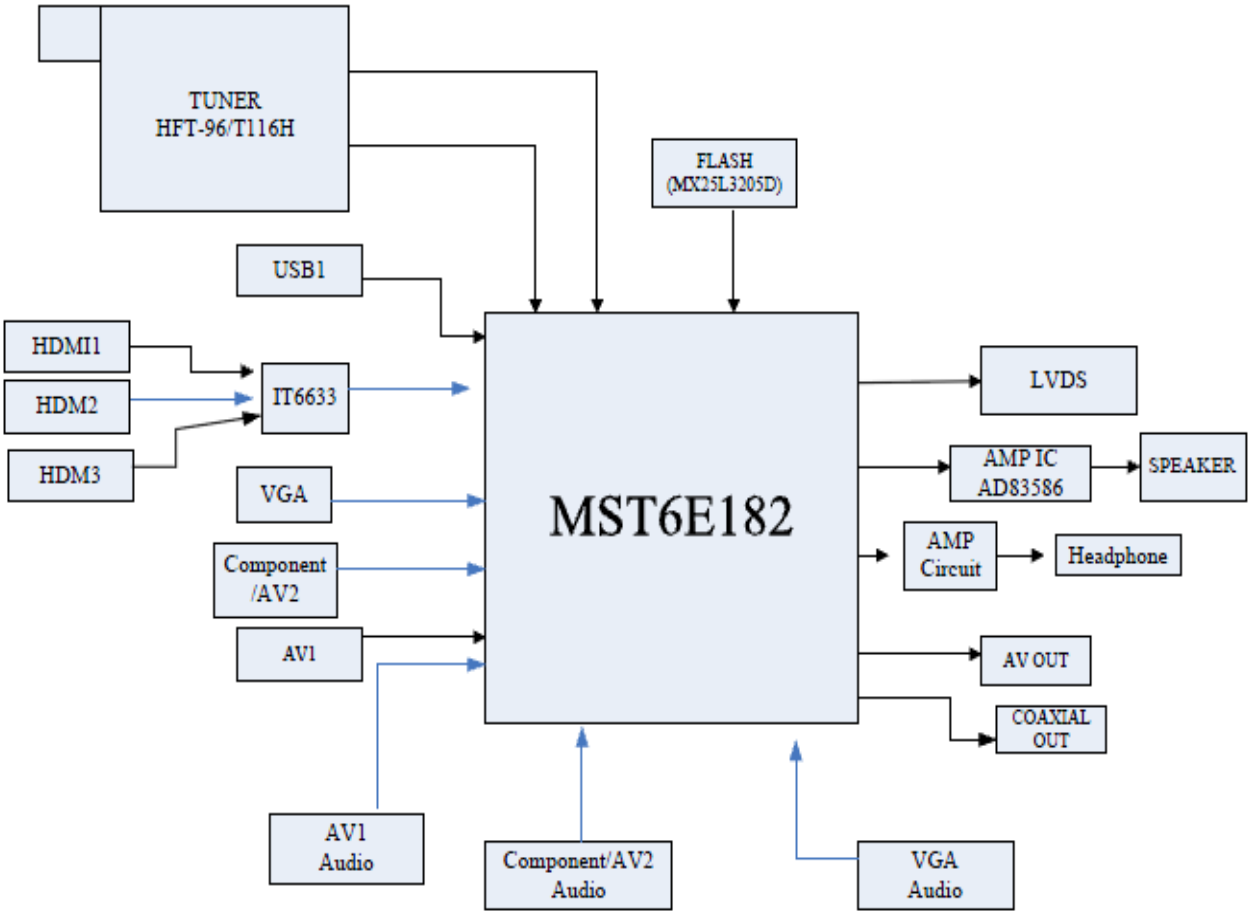
c. Restart the TV.

5. Power assign & Signal process

5.1 MST6E182VG Power assign



5.2 MST6E182VG Signal process

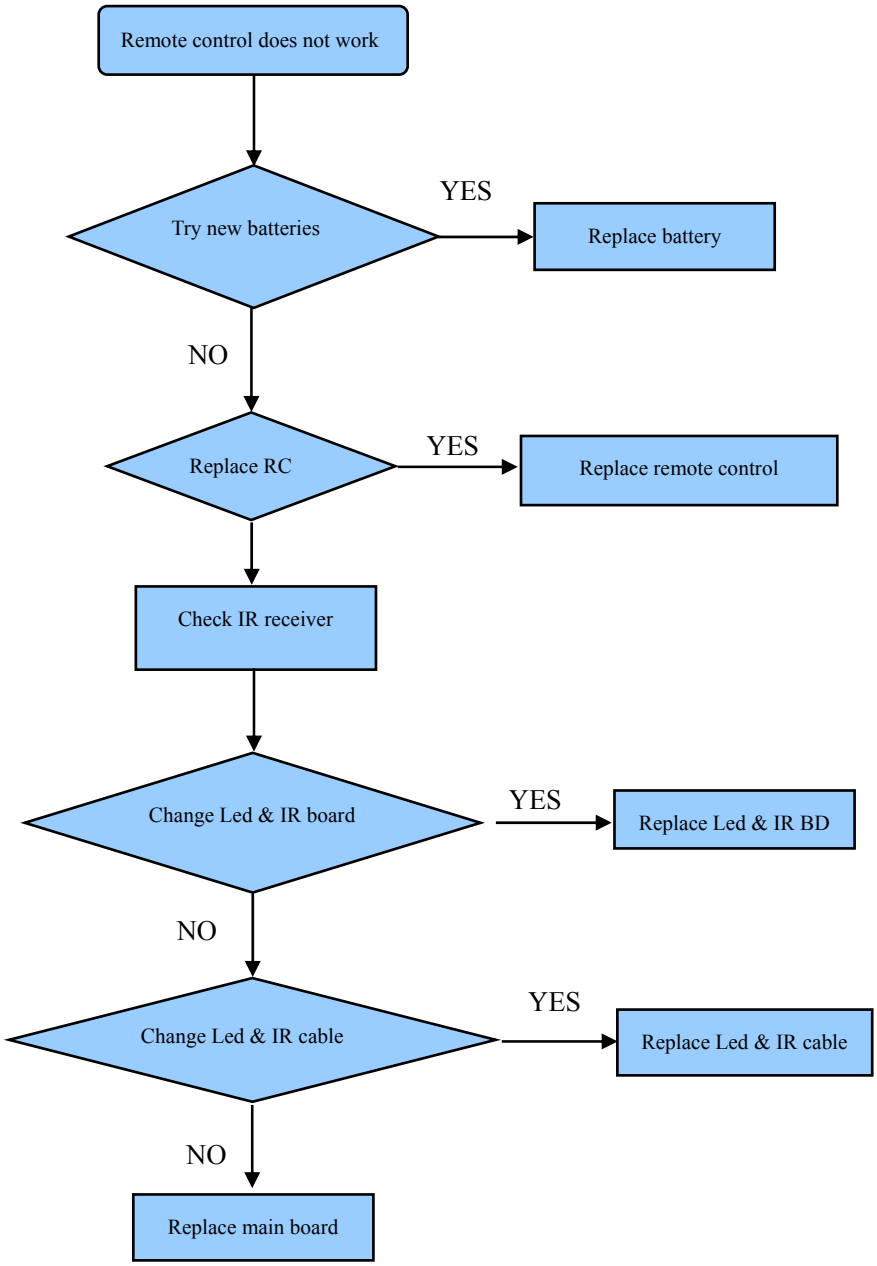


Note:

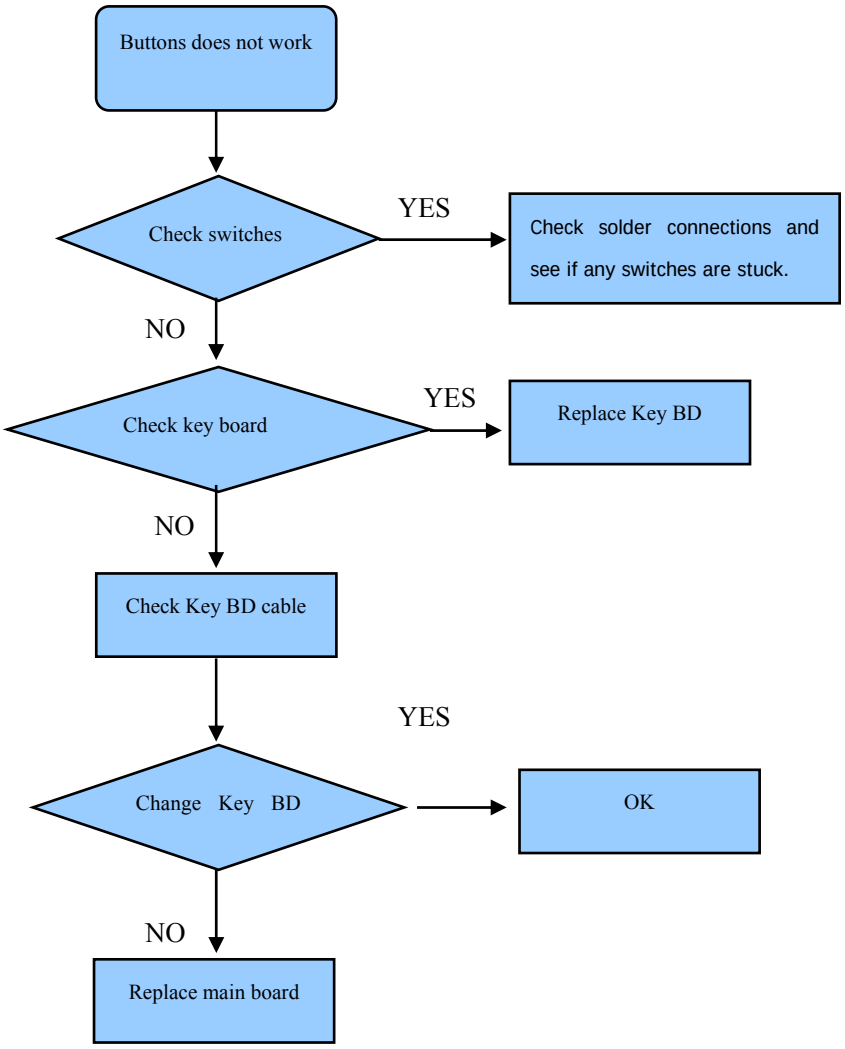
The above signal process is only for reference. Because different size has little difference .as terminals audio amplifier IC.

6. Troubleshooting

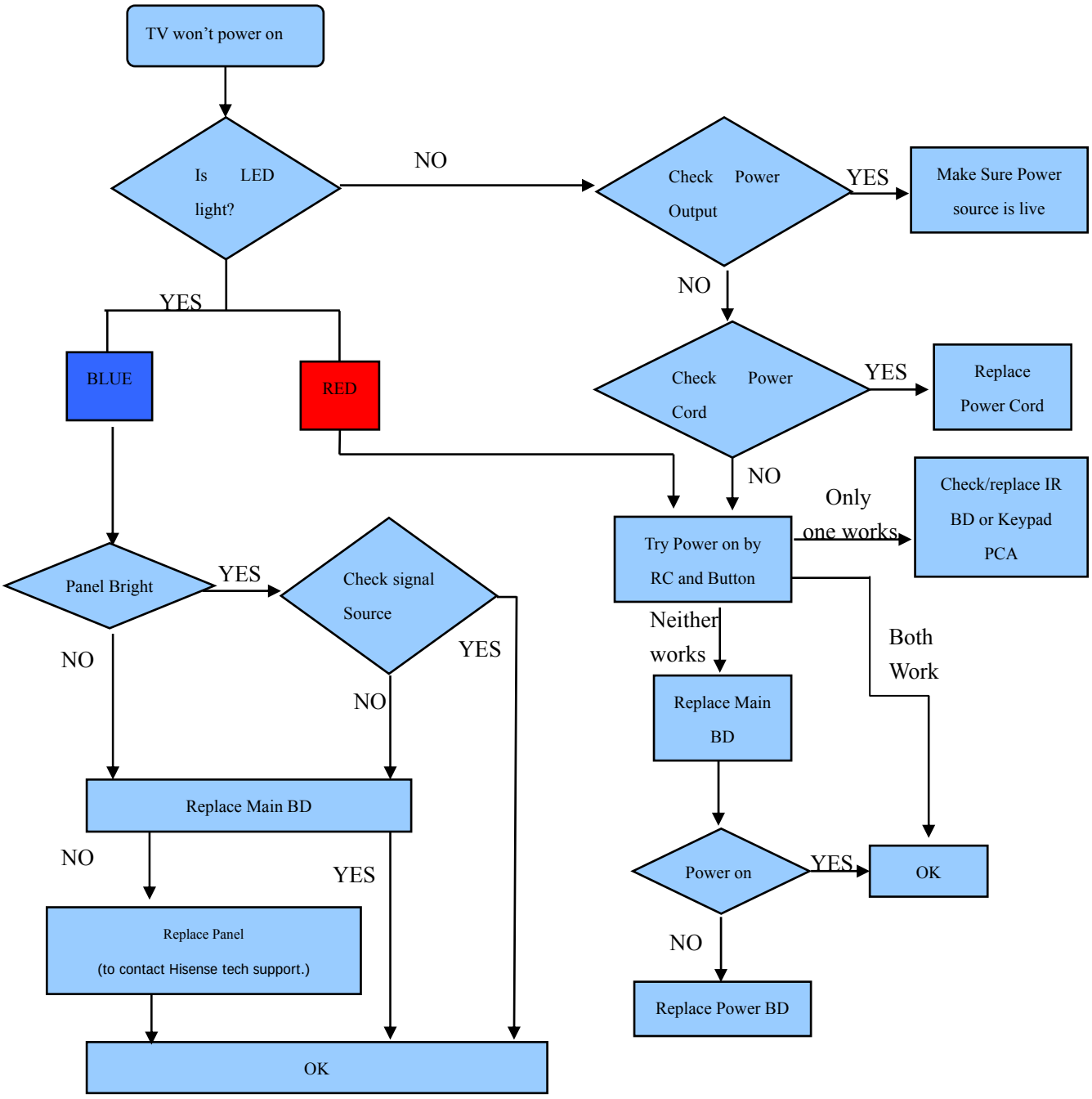
6.1 Troubleshooting for Remote Control



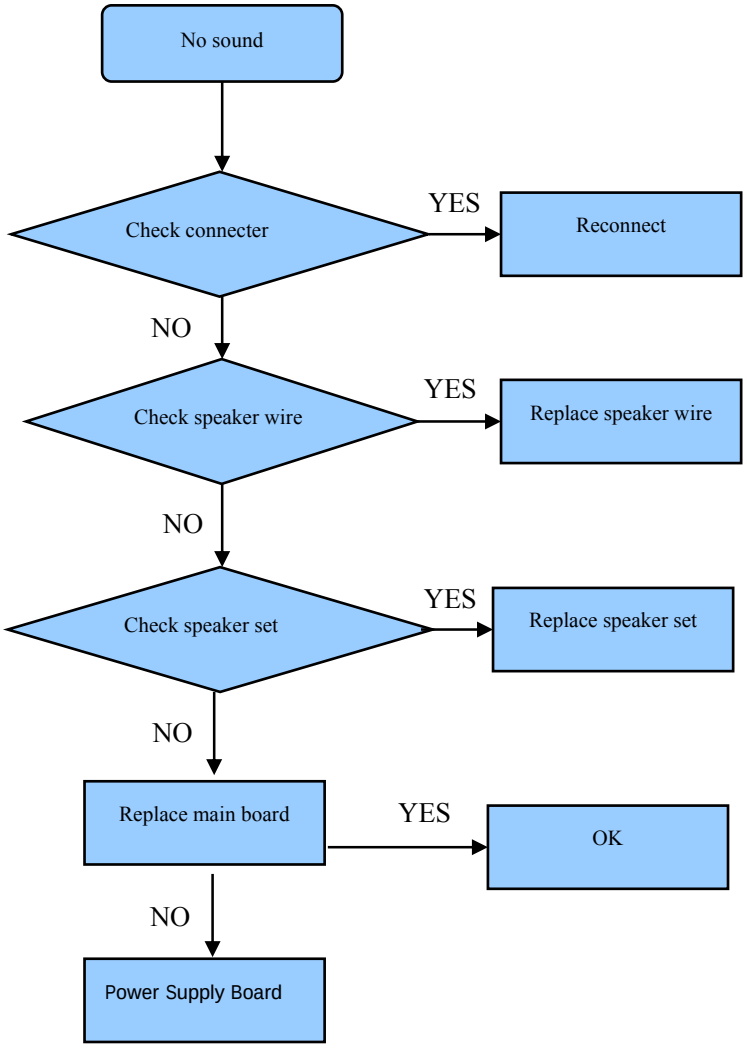
6.2 Troubleshooting for Function Key



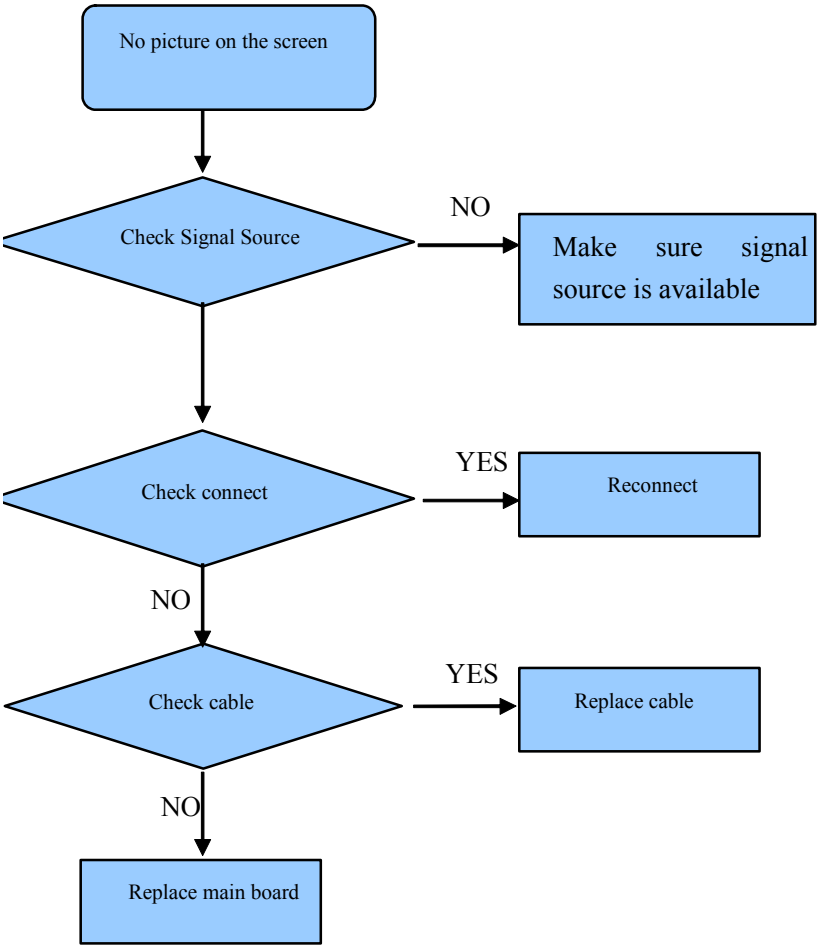
6.3 TV won't Power On



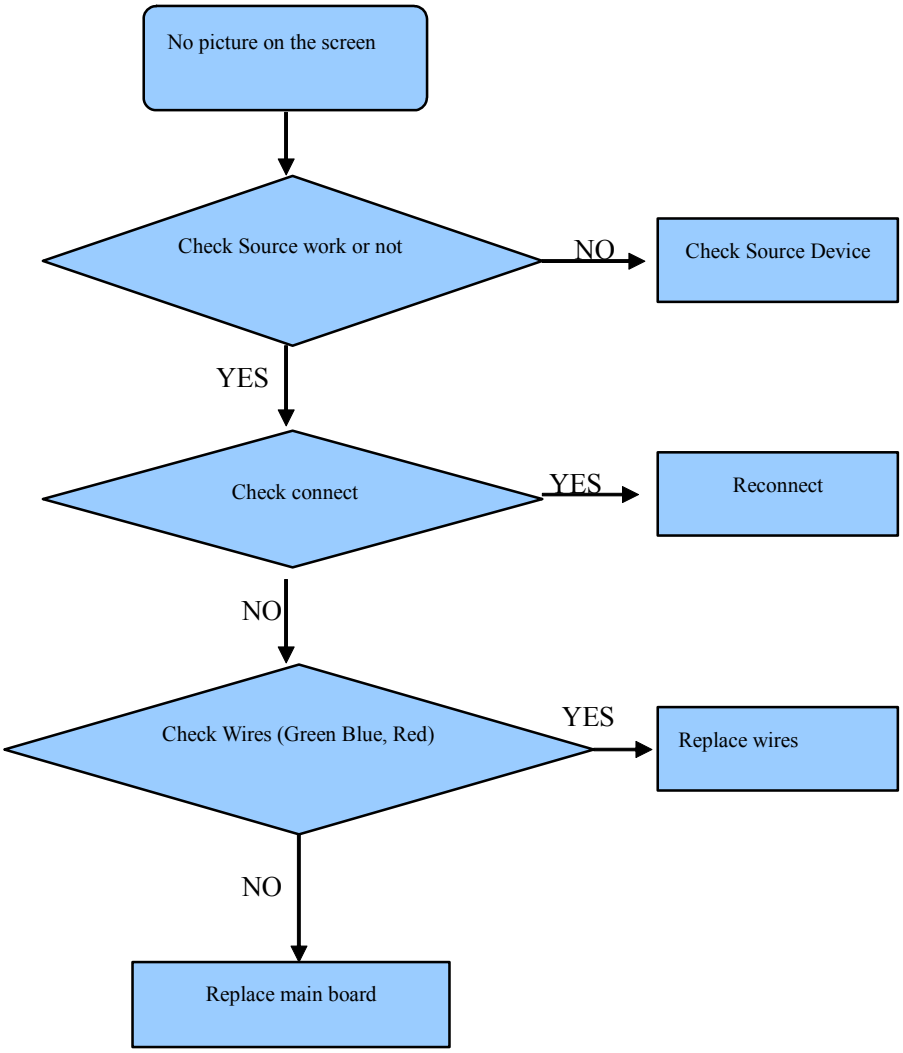
6.4 Troubleshooting for Audio



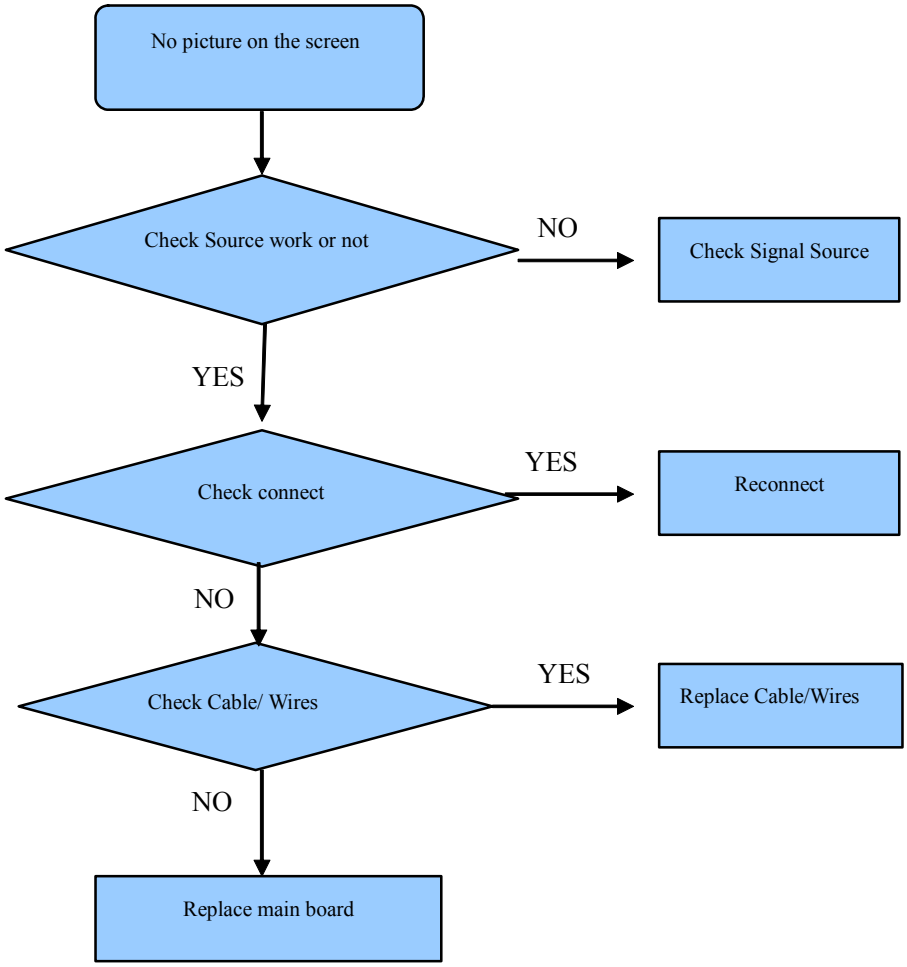
6.5 Troubleshooting for TV/VGA/HDMI input



6.6 Troubleshooting for YPbPr input



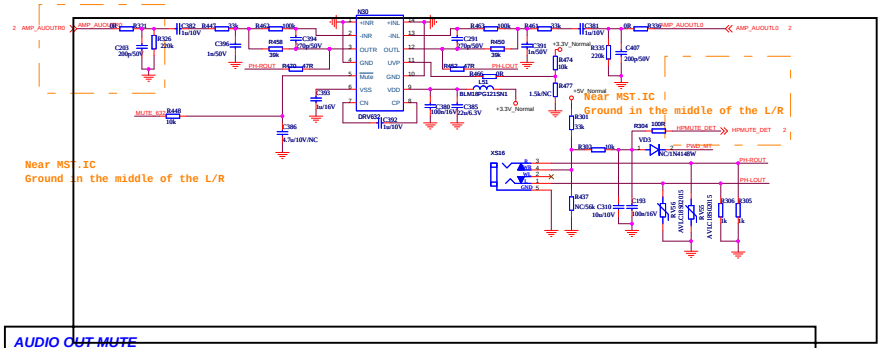
6.7 Troubleshooting for Video/ input



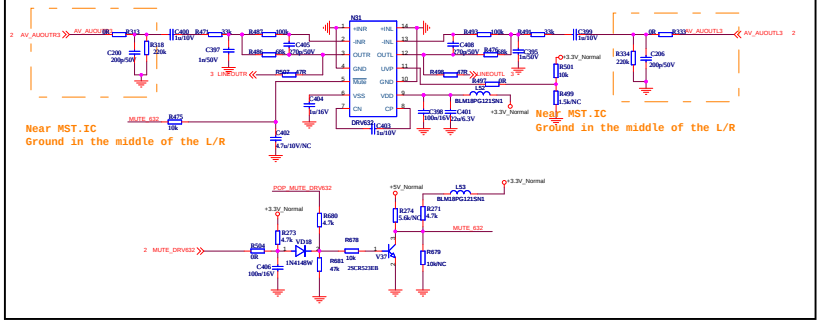
7 Schematic circuit diagram

8 Explode view

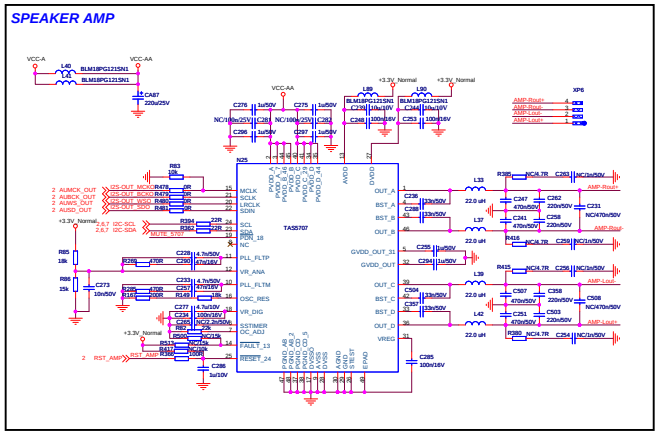
HEADPHONE MUTE



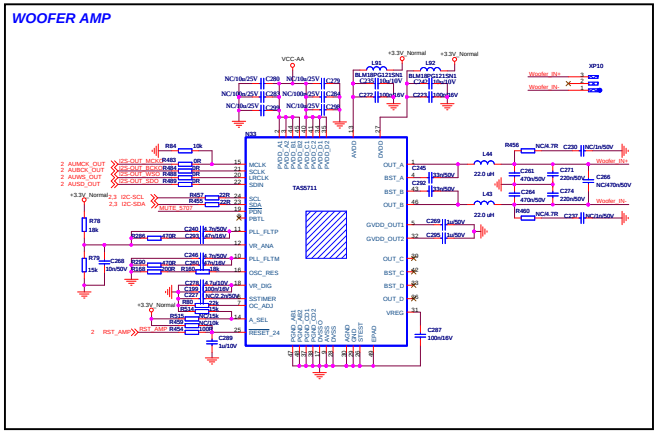
AUDIO OUT MUTE



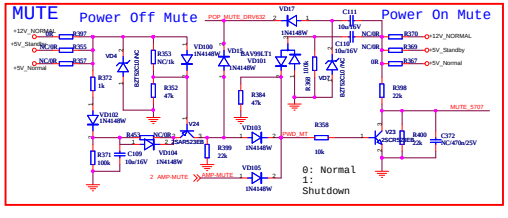
SPEAKER AMP



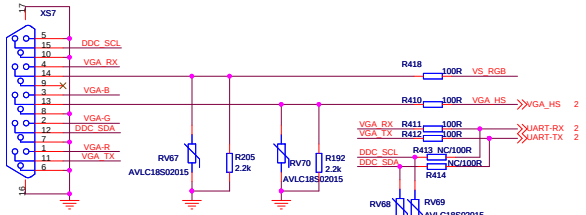
WOOFER AMP

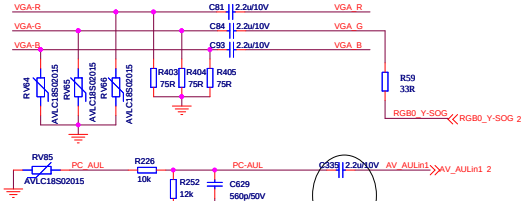


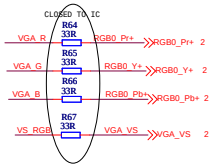
静音控制



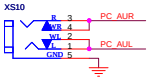
VGA INPUT



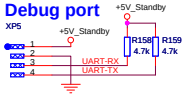


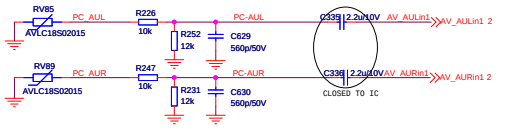


VGA 声音输入



Debug port





主IC为MST6M181VG、MST6M182VG时，
BALL D5到BALL B4为NC PIN;
只有MST6M161LG这些PIN 才为HDMI INPUT

主IC为MST6M181VG、MST6M182VG时，
R104、R106、C114要焊接；
主IC为MST6M161LG时，
R104、R106、C114不焊接。

DDR2 VREF

R104 1k
R106 1k
C113 100n/16V
C114 1n/50V

DDR2 1.26V
DDR2 1.8V
2.5V
3.3V

GPIO define

MST6M161LG/MST6M181VG
MST6M182VG

MST6M181VG
MST6M182VG
MST6M161LG

主IC为MST6M181VG、MST6M182VG时，
GPIO4(BALL N8)和GPIO7(BALL N9)为NC PIN。

LVDS Connector

Normal Power 1.26V

Normal Power 2.5V

250mA

DDR power

Normal Power 3.3V

Standby Power 3.3V

3D Connector

Chip Config

Audio

Close to IC
width trace

Debug port

RESET

IR/LED

SERIAL FLASH

System XTAL

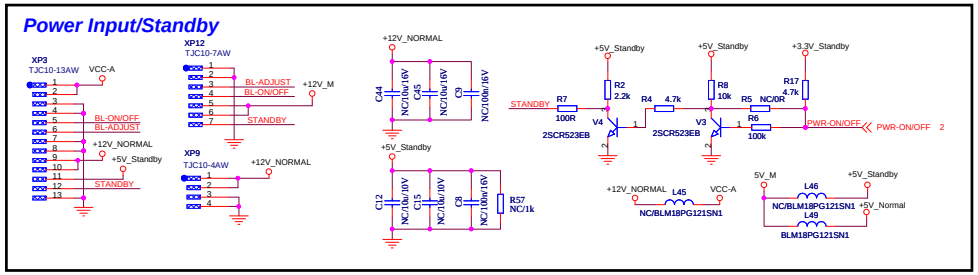
Tuner

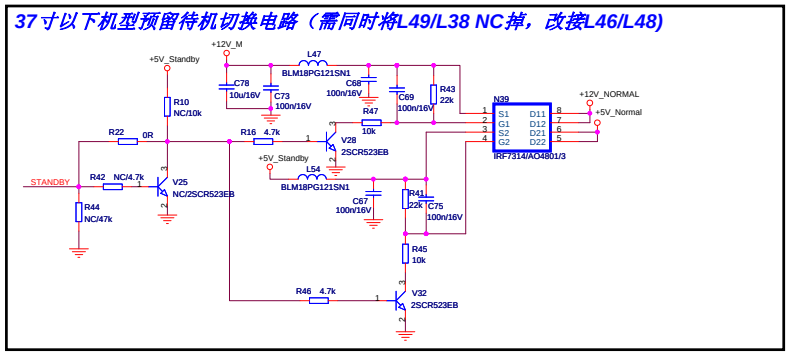
Close to IC

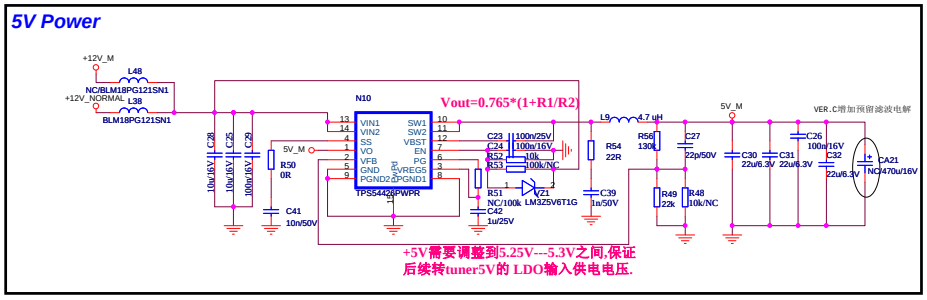
KEY IN

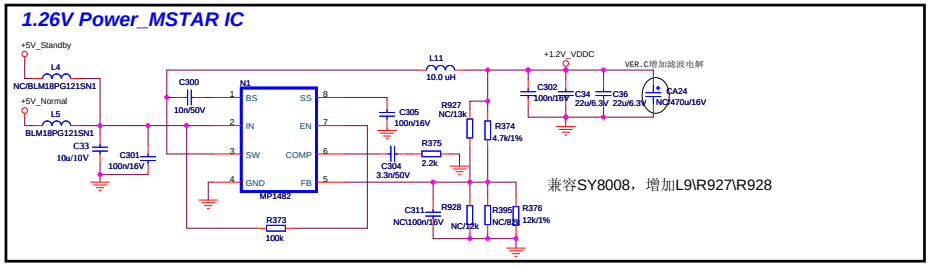
3D Sync

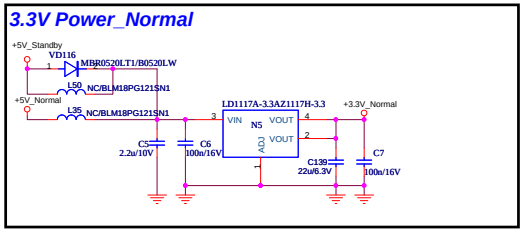
预留卧式LVDS插座

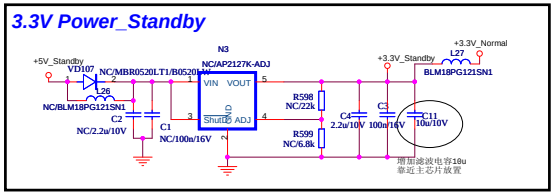


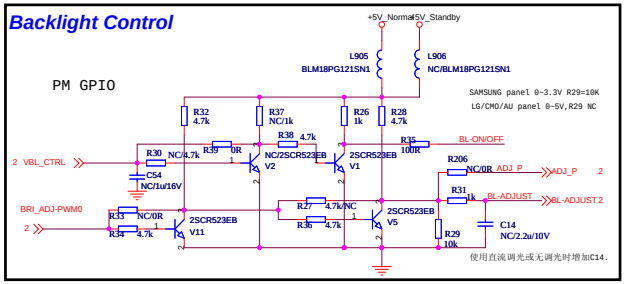


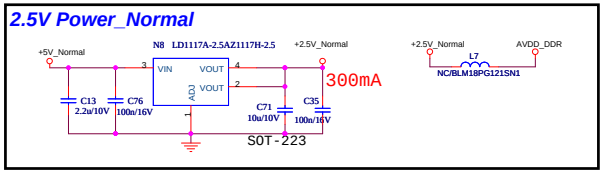




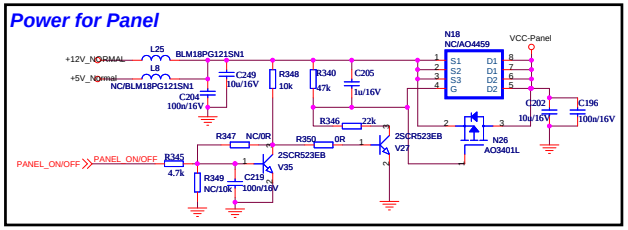


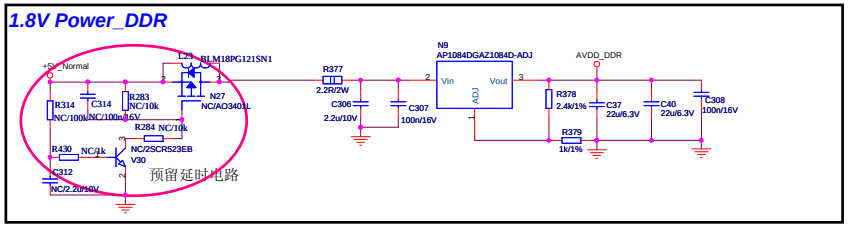




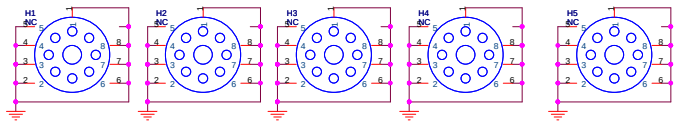


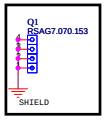
主IC为MST6M181VG、MST6M182VG，则L4、L7不焊接,但要焊接L5；
主IC为MST6M161LG，则L4、L7要焊接，但不焊接L5。
如果主IC为MST6M161LG，在使用过程中，N8温度太高无法满足要
求，则可已将L7不焊接，在N9上则可焊接一片AMS1117-2.5(1084-ADJ调出2.5V)。
N9为内存提供电源:
MST6M181VG/MST6M182VG:内存类型为DDR2,N9上
要焊接,输出为1.8V;L7不焊接。
MST6M161LG使用DDR1，供电电压为2.5V.
如果N8不热，N9可以不焊接。如果N8太热，这在N9上焊接1084，输出2.5V

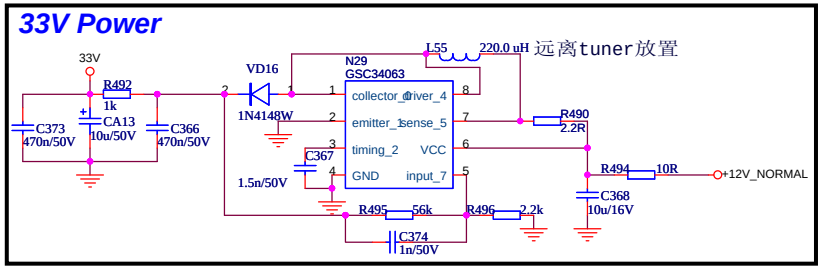


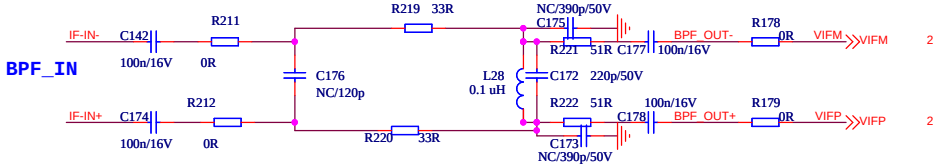


定位孔

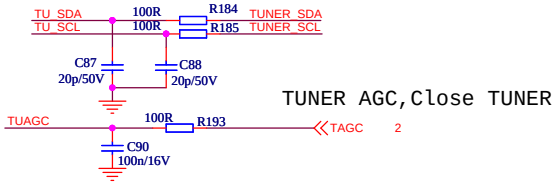




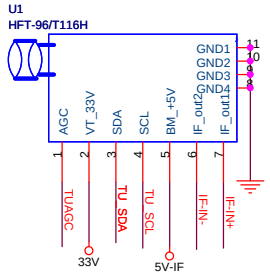


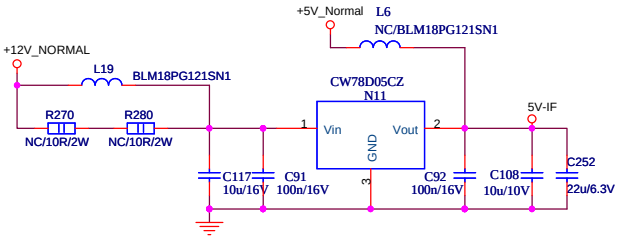


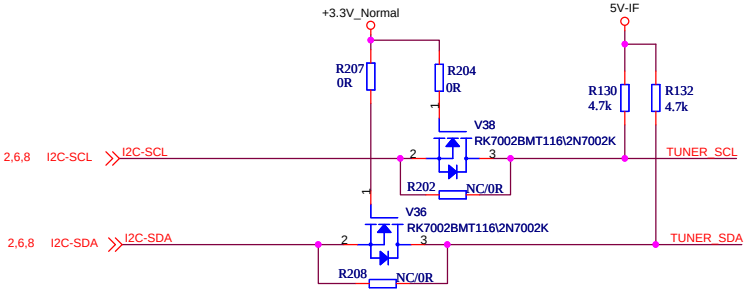
Tuner Connector



TUNER AGC,Close TUNER







MStar Semiconductor, Inc 4F-1, No. 26, Tai-Yuan St., ChuPei, Hsinchu Hsien, Taiwan 302, R.O.C		
Title: MST6M181VS DEMO BOARD		
Size: A3	Document Number: MST6M181VS	Rev: 1.0
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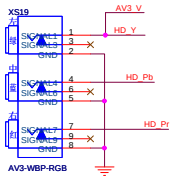
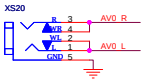
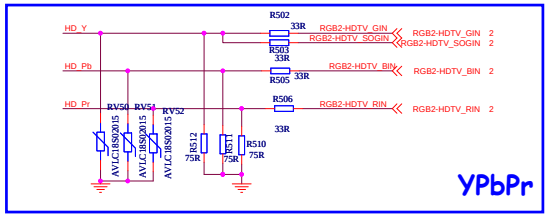
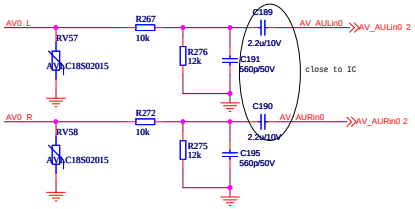
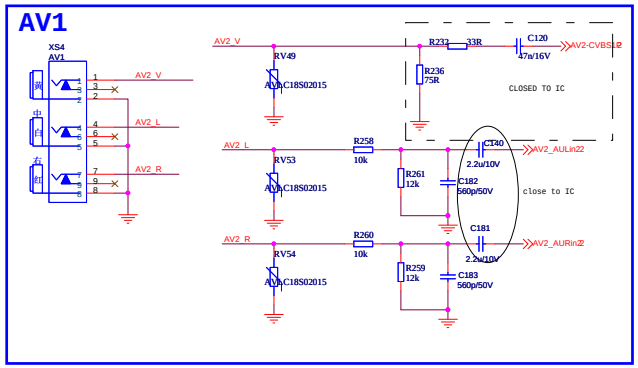
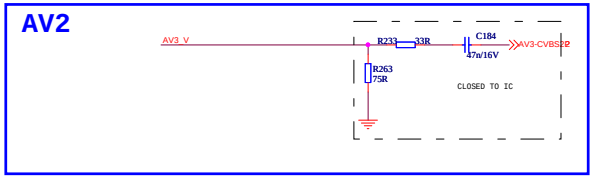


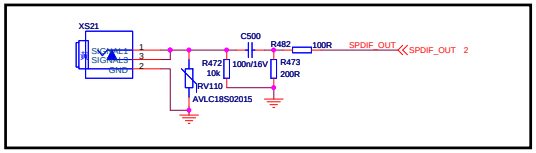


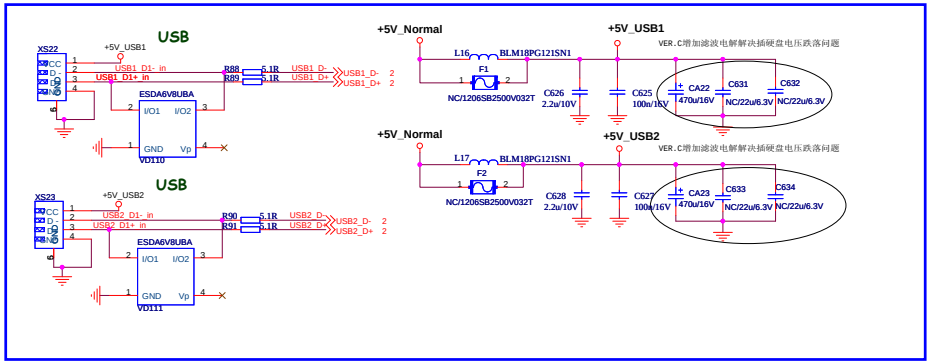




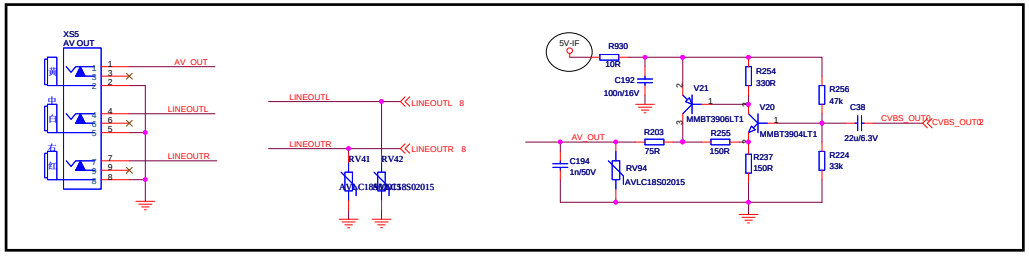








VIDEO OUT



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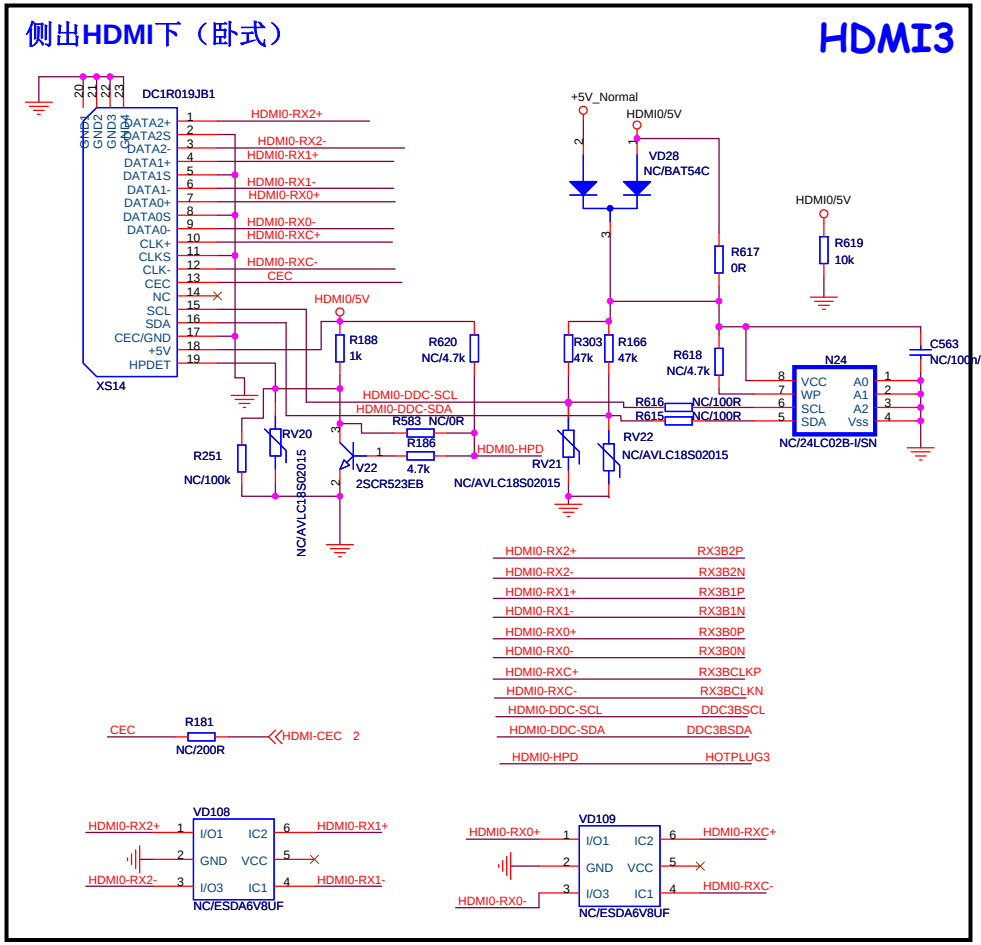
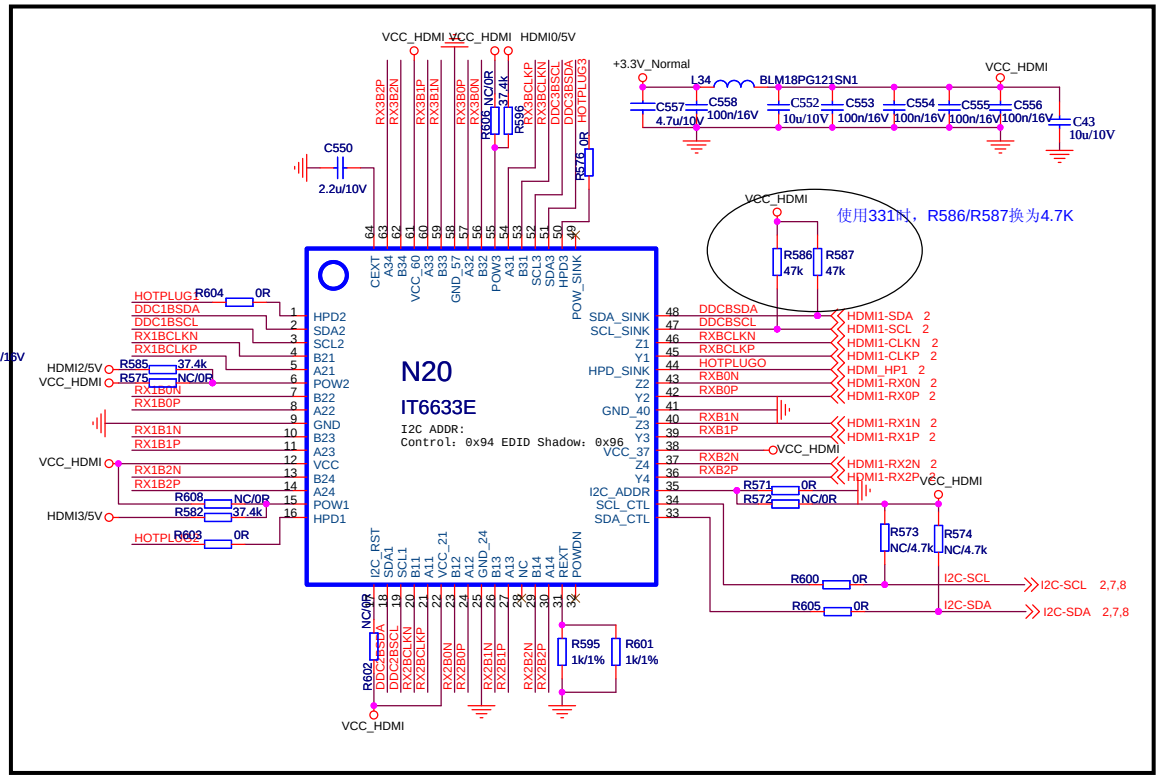
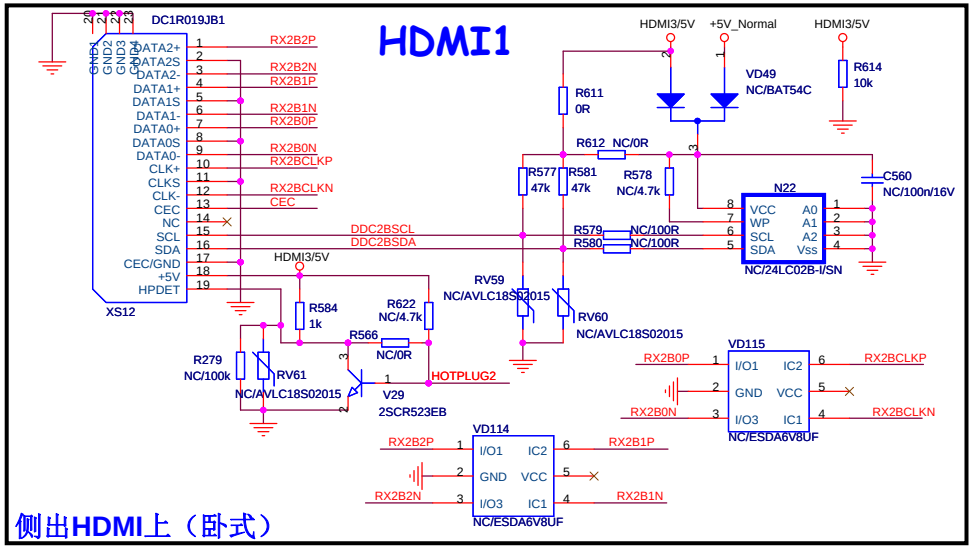
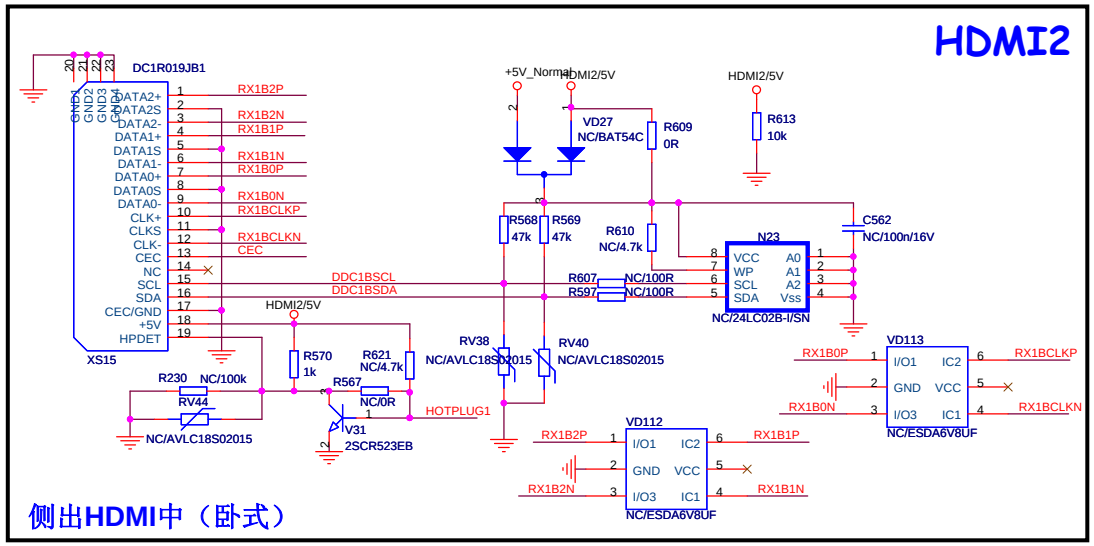
HDMI SWITCH 6633









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4F-1, No. 26, Tai-Yuan St., ChuPei,
Hsinchu Hsien, Taiwan 302, R.O.C

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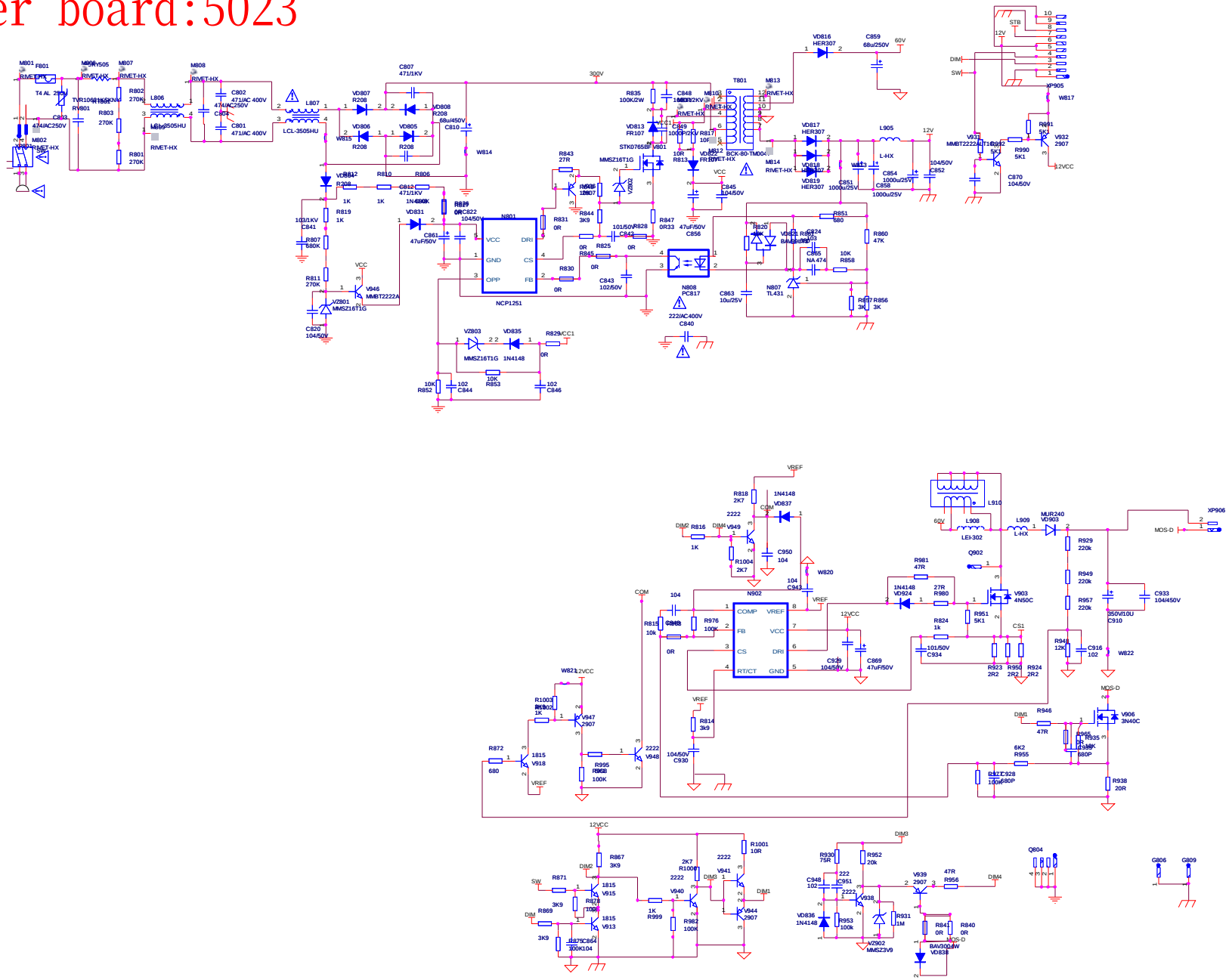
Date: Monday, January 30, 2012	Sheet 6 of 9	

Power board:5023



RSAG2.025.3727

更改履历	更改版本	更改内容	更改人	更改日期
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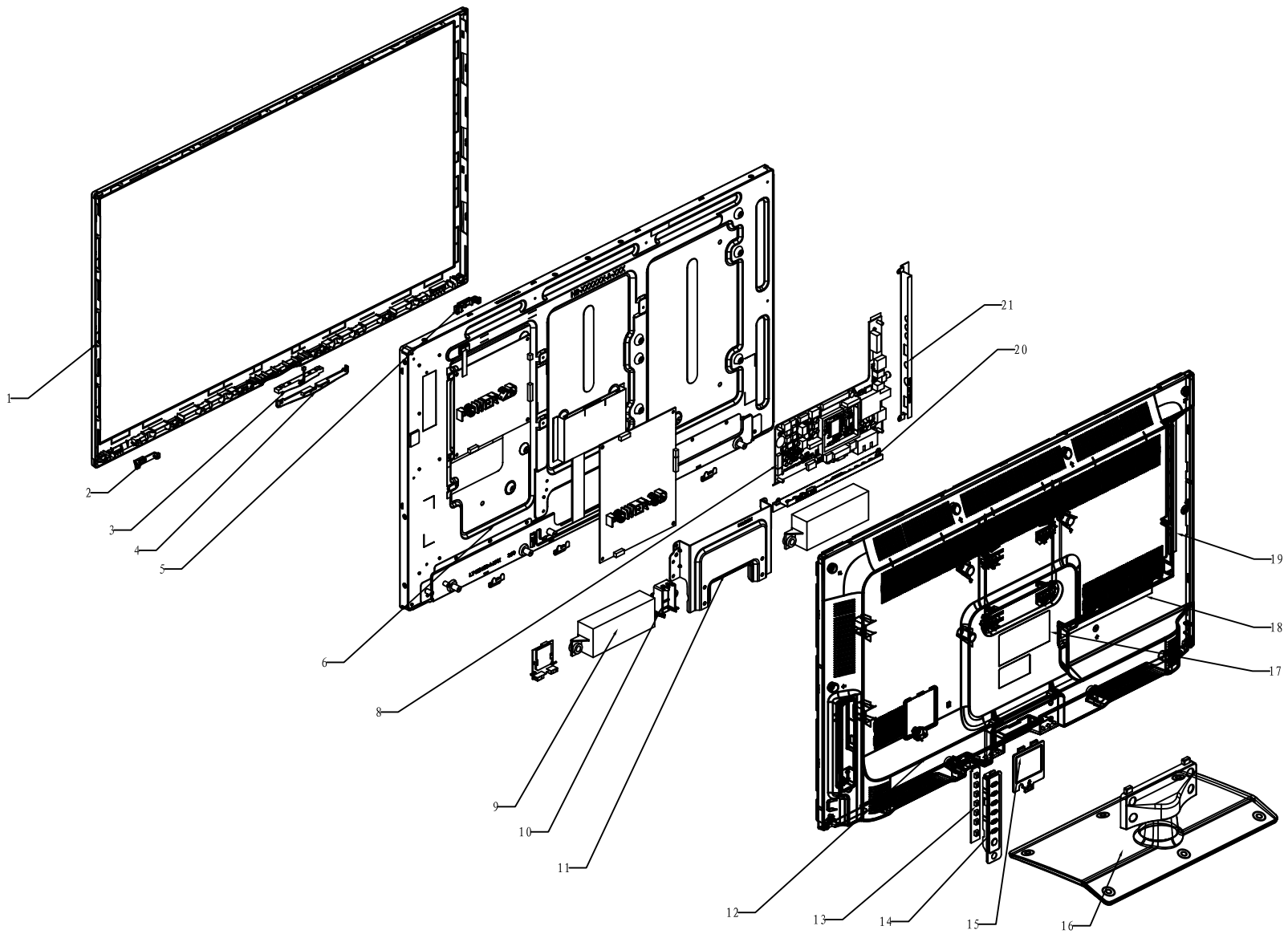
	V1.2			
	V1.3			
	V1.4			
	V1.5			



比例 1:4

No.	Part Name	Num.	Code No.	Remark
21	Side terminal	1	RSAG8.041.1033	
20	Bottom terminal	1	RSAG8.041.1034	
19	Side label	1	RSAG8.804.4589	
18	Bottom label	1	RSAG8.804.4590	
17	Rating label	1		
16	Stand	1	RSAG6.121.0298	
15	power Block	1	RSAG8.634.0221	
14	Button	1	RSAG6.356.0106	
13	Keypad board	1	RSAG2.908.5088	
12	Rear cover	1	RSAG8.074.1777	
11	Metal bracket	1	RSAG8.038.3805	
10	Plastic bracket	1	RSAG8.078.3216	
9	Speaker	2	VIT3016-8W8Ω-02	
8	Main board	1	RSAG2.908.4833-25	
7				
6	Panel	1	HE315GH-E71	
5	Led Lens	1	RSAG8.640.0333	
4	Led effect	1	GHW88X6-350-500	
3	Led Lens	1	RSAG8.640.0338	
2	Led Lens	1	RSAG8.640.0334	
1	Front cover	1	RSAG8.074.1778	

更改标记	数量	更改单号	签名	日期
未注公差标准 单位：mm		设计		
		审核		
		工艺		
		标准化		
		批准		

LEDN32K360
Explode view

RSAG2.025.3727

阶段标记	质量	比例

第 页 共 页

青岛海信电器股份有限公司

旧底图总号

底图总号

签名

格式(1) 幅面:A1