

# RCA

## LCD TV SERICER MANUAL MODEL : RC32LC2K



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# SPECIFICATION

NOTE : Specifications and others are subject to change without notice for improvement

## 1.Preface

### 1.1 Applicable area

This test manual is applicable for KL32QS18, KL42QS82, KL32QS62, KL42QSXXU , KLXXQSXXUXX-B, KL40QSXXU, KL32QSXXU, KL46QSXXU and so on LED TV.

### 1.2 Test notes

1.2.1 Please follow the pointed test steps and choose the proper test equipment to conduct adjustment, otherwise good effect of TV set could not be obtained. Pointed bias voltage value should be ensured during test to get satisfied test result.

1.2.2 Be sure that you have the static electricity –protective glove in before test.

## 2 .Test environment

- 1).Temperature 15 ~ 35°C
- 2).Relative humidity 45 ~ 75%
- 3).Air pressure: 86 ~ 106kPa

## 3 Test equipment

- 1) .Computer (With serial, parallel) 1 set
- 2). Multi-meter (VICTOR VC9801) 1 set
- 3).Video Signal Generator(Chroma Model 2227/2327/VG859) 1 set
- 4). Color Analyzer (Chroma Model 7120 ) 1 set
- 5) .TV Video Signal Generator (FLUKE PM54200) 1 set
- 6) .USB Mass Storage Device Only be used in sets with USB function 1 set
- 7). Remote controller with factory keys 1 set
- 8).AV, SCART, VGA, YPbPr/YCbCr, HDMI Signal line etc 1 set
- 9) .Burner such as all-11 or BeeProg 1 set

## 4.Test item and method

Test item	Equipments	Requirements	Procedure and S/E/C
1. M/B Voltage confirmation	Digital Multimeter		Please refer to appendix 4.1/4.2/4.3 if there is abnormal phenomenon.
2. Software writing and Upgrade	PC Debug Tool		Please refer to appendix 4.5/4.6 or follow the RD engineer guidance.
3. HDMI EDID writing			No need.
4. HDCP KEY writing	PC Debug Tool		Please refer to appendix 4.6.

5. Enter and exit the factory menu	Remote control		Method: press "MENU" button on the remote control and then press "2", "0", "0", "8" in 3 seconds, and enter the factory menu in success. Press MUTE button to exit the factory menu.
6. Initialization parameters ( Transferred to default values )			Enter the factory menu, and select "Reset" and click "OK" button, the confirmation pop-up menu, select "Yes", television began to reset and automatic re-starting.
7. Auto color	generator (VG859), Computer	Enter 75% color bar signal (SD: 576i or 480i formats; HD: 1080i format);  VGA: White-black checkerboard grid signal	meun as above, in the factory area menu, select "ADC ADJUST" and press "OK" button to enter. VGA access under the MODE select RGB; YPbPr channel SD signal MODE select YPbPr (SD), HD signals select YPbPr (HD). And then select "AUTO ADC" click "OK" button to begin adjusting. Successful show "SUCCESS", failed show "FAIL", to be re-adjusted. (YPbPr channels generally do not have to adjust, use the default value can be; VGA channels such as making adjustments, please note that the adjusted R, G, B values should not be that much difference)

8. Color temperature adjustment and white-balance calibration			This adjustment is getting better, can not do Auto Color action.
a. AV: 1. Color temperature adjustment 2. Brightness and black-balance calibration	TV Signal Generator, Color Signal Analyzer	Input gray step signal (100%)	1. Enter factory menu, select "COLOR TEMP", and select "COLOR TEMP NORMAL". 2. Test the second gray step signal and adjust R/G/B OFF to get black calibration; Test the eighth gray step signal and adjust R/G/B calibration.
b. YPbPr: 1. Color temperature adjustment 2. Brightness and black-balance calibration	High-definition video Signal Generator, Color Signal Analyzer	Input gray step signal (100%)	1. Enter factory menu, select "COLOR TEMP", and select "COLOR TEMP NORMAL". 2. Test the second gray step signal and adjust R/G/B OFF to get black calibration; Test the eighth gray step signal and adjust R/G/B GAIN to get white calibration.
c. VGA: 1. Color temperature adjustment 2. Brightness and black-balance calibration	High-definition video Signal Generator, Color Signal Analyzer	Input gray step signal	1. Enter factory menu, select "COLOR TEMP", and select "COLOR TEMP NORMAL". 2. Adjust R/G/B OFF to set black color temperature to 9300. Adjust R/G/B GAIN to set whiter temperature to 9300.

9. TV mode check	Factory TV Signal or TV Signal Generator	Output PAL Signal	<ol style="list-style-type: none"> <li>1. Enter User menu, Check whether the pictures normal or not, and snowflake points come forth in no signal background. It would enter standby state in 5 minutes if no signal inputs.</li> <li>2. Check Auto Search etc right or not.</li> </ol>
10. AV check	DVD Video cable	Play DVD  Set DVD to interlace/ progress output	Screen is clear and fluent. Audio checks if the output is normal.
11. SCART check	DVD SCART cable	Play DVD Set DVD to interlace/ progress output	Screen is clear and fluent. Audio checks if the output is normal.
12. YCbCr(480i/576i)	DVD Component Cable 720p/1080i DVD Player	Play DVD Set DVD to interlace output (Y/Cb/Cr)	Screen is clear and fluent. Audio checks if the output is normal.
13. YPbPr SDTV: 576P/480P HDTV: 720p/1080i/1080p	DVD Component Cable 720p/1080i DVD Player	Play SDTV/HDTV (Y/Pb/Pr)	Screen is clear and fluent. Audio checks if the output is normal.
14. VGA INPUT	PC VGA Cable TV BOX D-SUB cable	PC Mode	<ol style="list-style-type: none"> <li>1. Each Mode Screen is clear and fluent. Audio checks if the output is normal.</li> <li>2. Confirm PC can automatically identify TV model.</li> <li>3. Play TV BOX Screen is clear and fluent, Audio checks if the output is normal.</li> </ol>
15. HDMI check	SAMSUNG DVD-HD948 BuBuGao DVD ( or DVD with HDMI ) HDMI Cable	HDMI Mode	<ol style="list-style-type: none"> <li>1. Choose HDMI mode in the SOURCE menu.</li> <li>2. Each Mode Screen is clear and fluent. Audio checks if the output is normal.</li> </ol>

16. HDCP check	BuBuGao DVD (or DVD with HDMI) VGA859 or authorized equipment which is the same level	HDMI Mode	<ol style="list-style-type: none"> <li>1. Choose HDMI mode in the SOURCE menu.</li> <li>2. Check the test signal with HDMI/HDCP, that is output by signal generator. See show "PASS" or not.</li> </ol>
17. Earphone Output function check	Earphone、DVD	TV or play DVD IN	<ol style="list-style-type: none"> <li>1. Plug in the earphone, the main speaker silent, the sound of headphone normal. Press VOL+-, Audio checks if the output is normal.</li> <li>2. Unplug the earphone, the main speaker sound normal.</li> </ol>
18.USB check (Only be used in sets with USB function)	USB Mass Storage Device	Images, audio, video, text files	<ol style="list-style-type: none"> <li>1. Select SOURCE to the USB;</li> <li>2. insert U disk, should be able to quickly identify the corresponding letter on the screen;</li> <li>3. Select the file playing, should be able to play correctly</li> </ol>
19. Remote control function check	PC、DVD Pattern Generator TV Signal Generator HDTV Player		Use remote control to check whether each mode function is normal or not.

## 4.1 Accessories

### 4.1.1 Power Supply/M/B Voltage confirmation

### 4.1.2 The input and output characteristic test of power

### 4.1.3 Testing intention: Check input and output to find whether or not short circuit

## 4.2 checking method:

Use a multimeter set as resistance stalls, measure AC input of the power module, and check voltage inputs on the main board to find whether or not short circuit to ground.

No.	Items	Test Points	Normal
1	The resistance of 12V output on the main board	F803	no open circuit
2	The resistance of 5V <sub>stb</sub> output on the main board	F801	no open circuit
3	The resistance of 5VA output on the main board	V802 Pin5、 6、 7、 8	no short circuit
4	The resistance of 3.3V <sub>stb</sub> output on the main board	N813 Pin2	no short circuit
5	The resistance of 1.8V <sub>DDR2</sub> output of the main board	N808 Pin2	no short circuit
6	The resistance of 1.26V output of the main board	L818	no open circuit
7	The resistance of Tuner5V output of the mainboard	L806	No open circuit
8	The resistance of 2.5VA output of the main board	N810 Pin2	no short circuit
9	The resistance of VCC-Panel output of the mainboard	V801 Pin5、 6、 7、 8	no short circuit
10	The resistance of 3V3 <sub>Normal</sub> output of the main board	L830	no open circuit



# ADJUSTMENT INSTRUCTION

## 5.1 White Balance adjustment

5.1.1 Turn on the Color Signal Analyzer, then set detector to OCal model. After adjusting, set detector to Measure model. Press "Mode" button, set Color Signal Analyzer to Lv U V mode. The Lv shows brightness.

5.1.2 Enter the picture menu, set picture to normal mode, set backlight to 90.

5.1.3 Enter the factory menu,

Adjust R OFFSET 0-255 default: 128

G OFFSET 0-255 default:128

B OFF SET 0-255 default: 128

R GAIN 0-255 default: 128

G GAIN 0-255 default: 128

B GAIN 0-255 default: 128

### 5.1.4 Find the brightest point

Input white signal, keep R gain, B gain; R off, B off, G off, adjust G gain to find the brightest point.

Procedure:

Input 100% white signal, increase G gain until the bright don't change. This is the brightest point. For the default may be the brightest value, the bright don't change even increase default. In this case, first decrease G gain until the bright get down, then increase it.

5.1.5 Then set R gain, G gain, B gain, R off, G off, B off to the default, adjust R gain and B gain as same as the G gain shown above. Generally, the maximal value of R gain or B gain equals to G gain. So this step can be simplified.

### 5.1.6 Find the blackest point

Procedure:

Input black signal(0% white signal),keep the values that get in the fifth step. Then decrease G off until the bright don't change. This is the blackest point. If the bright don't change when decrease G off from 128, the value of the blackest point is 128.

### 5.1.7 Adjust black calibration

Procedure:

Record the values of R gain, G gain, B gain in the forth and fifth step, input 25% white signal, adjust R offset, G offset, B offset equally. Generally, increase values to the bright area.

Procedure:

Input 100% whit signal, refer to the forth and fifth step. Get the new values of R gain, G gain and B gain.

5.1.8 According demand, decrease the values of R gain, G gain, B gain synchronously from 5 to 10.

Procedure:

Input 75% white signal, adjust R gain, G gain, B gain until the color temperature meets demand.

Note: the values of R gain, G gain, B gain can't be more than the brightest values that get in the eighth step.

### 5.1.9 Adjust black-balance calibration

Procedure:

Input 20% or 25% white signal, adjust R off, G off, B off until the color temperature meets demand.

Note: the values of R off, G off, B off can't be less than the blackest values that get in the sixth step.

5.1.10 Adjust brightness and black-balance calibration again and again until they meet demand. Then according to picture character and demand, do fine tune. Input 100% gray step signal, measure parameter and do fine tune again. Then measure values again, the parameter of every gray should meet demand.

#### 5.1.11 Enter and exit the aging state

- (1) In TV mode, use the remote control to enter the factory menu, and press v/w button to choose "Burn" option.
- (2) Press y/y button on the remote control to enter the aging state.
- (3) Press "MUTE" button to exit the factory menu, and TV enters the aging status at once. At this point, Screen Saver function is closed, TV will not enter into standby mode automatically if no signal inputs.
- (4) Press "MUTE" button again and TV will exit the aging state. If Screen Saver is On and no signal inputs, TV will enter into standby mode automatically in 5 minutes; When Screen Saver is Off, TV will not enter into standby mode automatically even if no signal inputs.

## 5.2 Software Update

5.2.1 Copy the update software to a USB drive.

5.2.2 Change the software name to be MERGE.

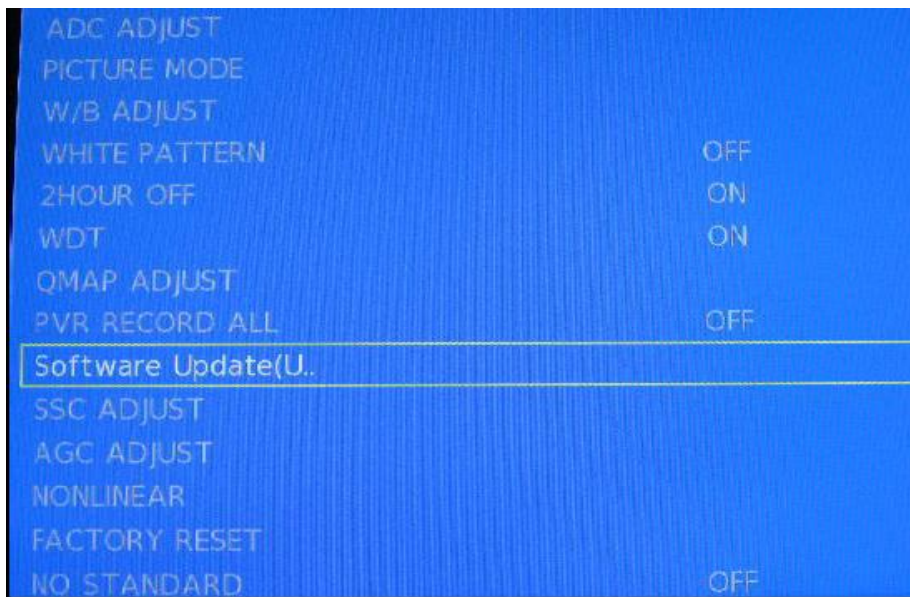


5.2.3 Turn on the TV set, not to input any signals, and switch to a channel, but except the USB

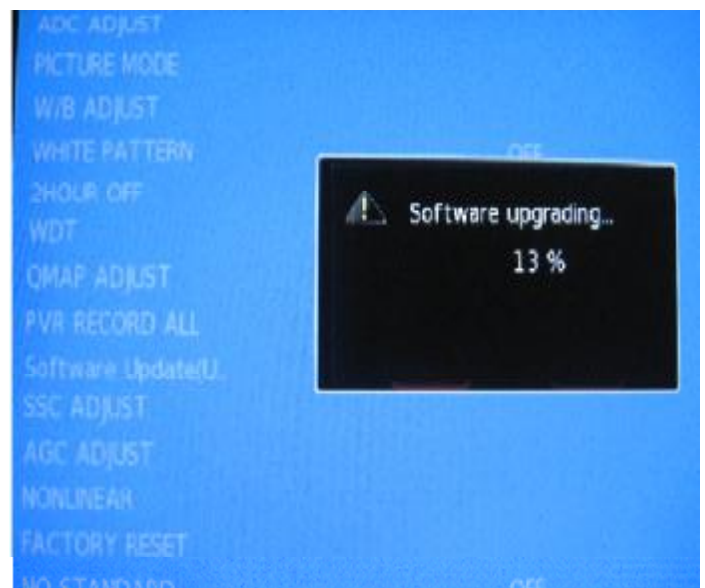
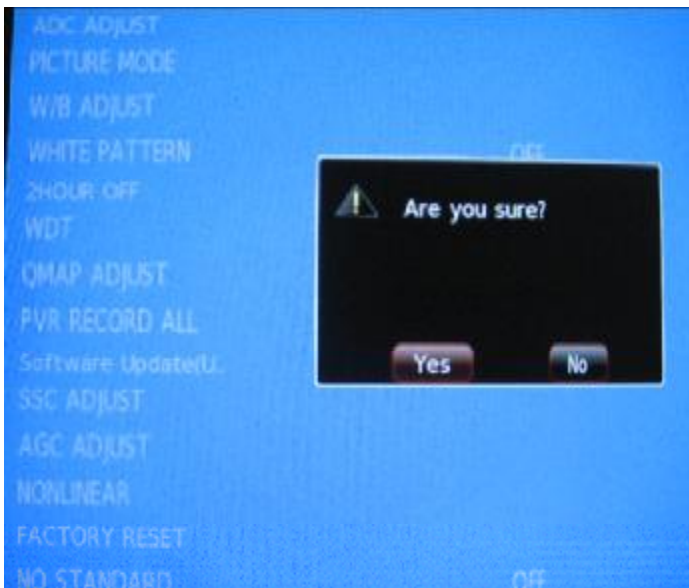


channel. then install the update USB drive to the TV set .

5.2.4 Press MENU button on the remote control, then press 2,0,0,8 button sequentially to enter into the factory menu. In factory menu, press ▲/▼ button to select the Software Update(USB),

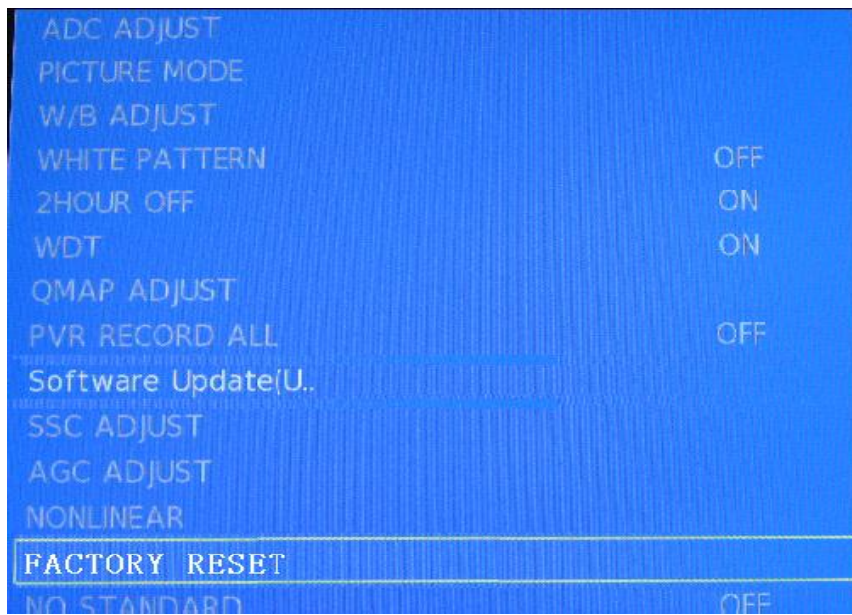


5.2.5 Press the Ok button or ► button to update the software, the system will popup dialog box select the Yes the software start to update.




5.2.6 After about one minute, the updating is over, then the TV set will restart itself.

5.2.7 Enter into the factory menu again. In factory menu, press ▲/▼ button to select the FACTORY RESET,

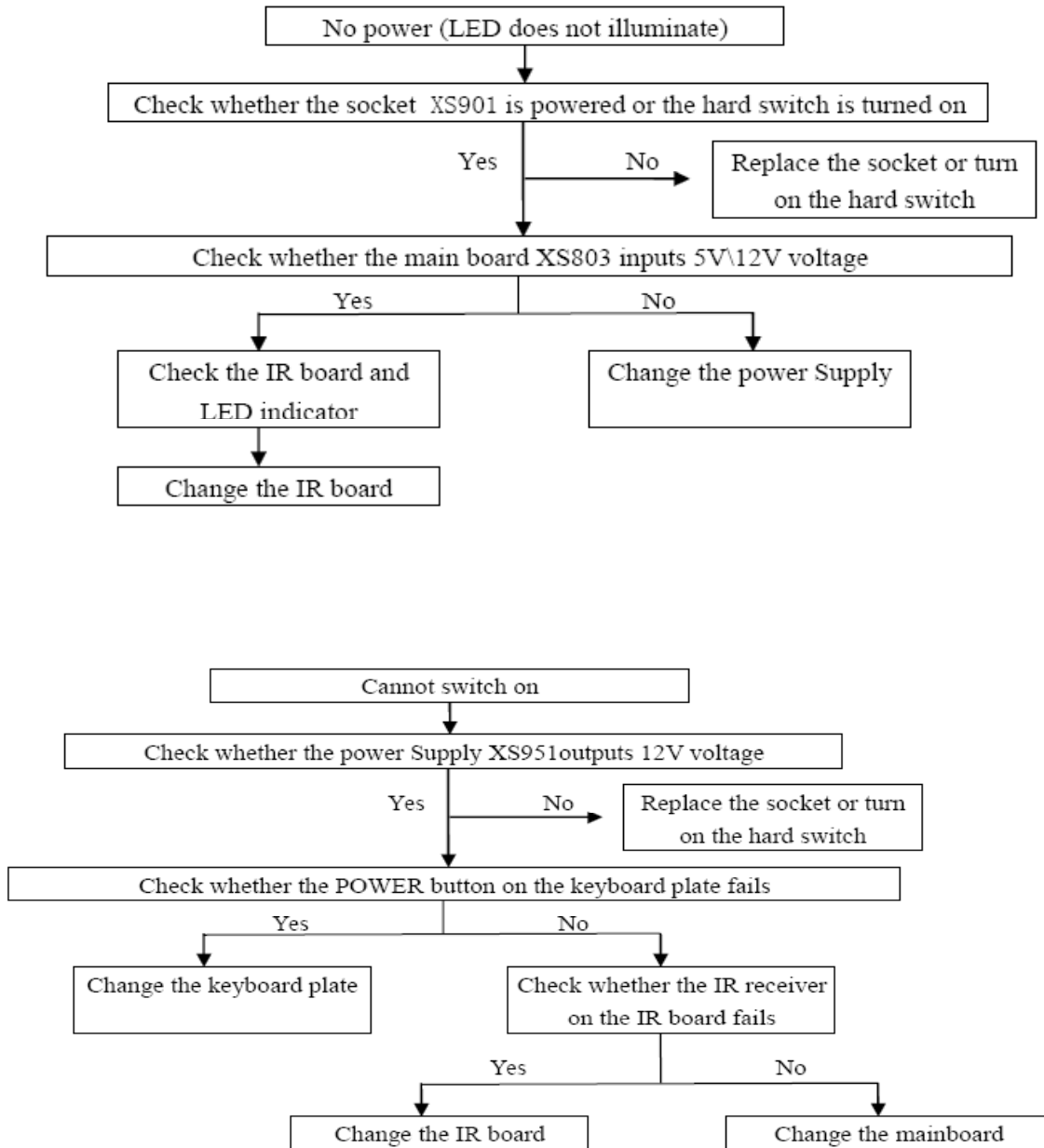


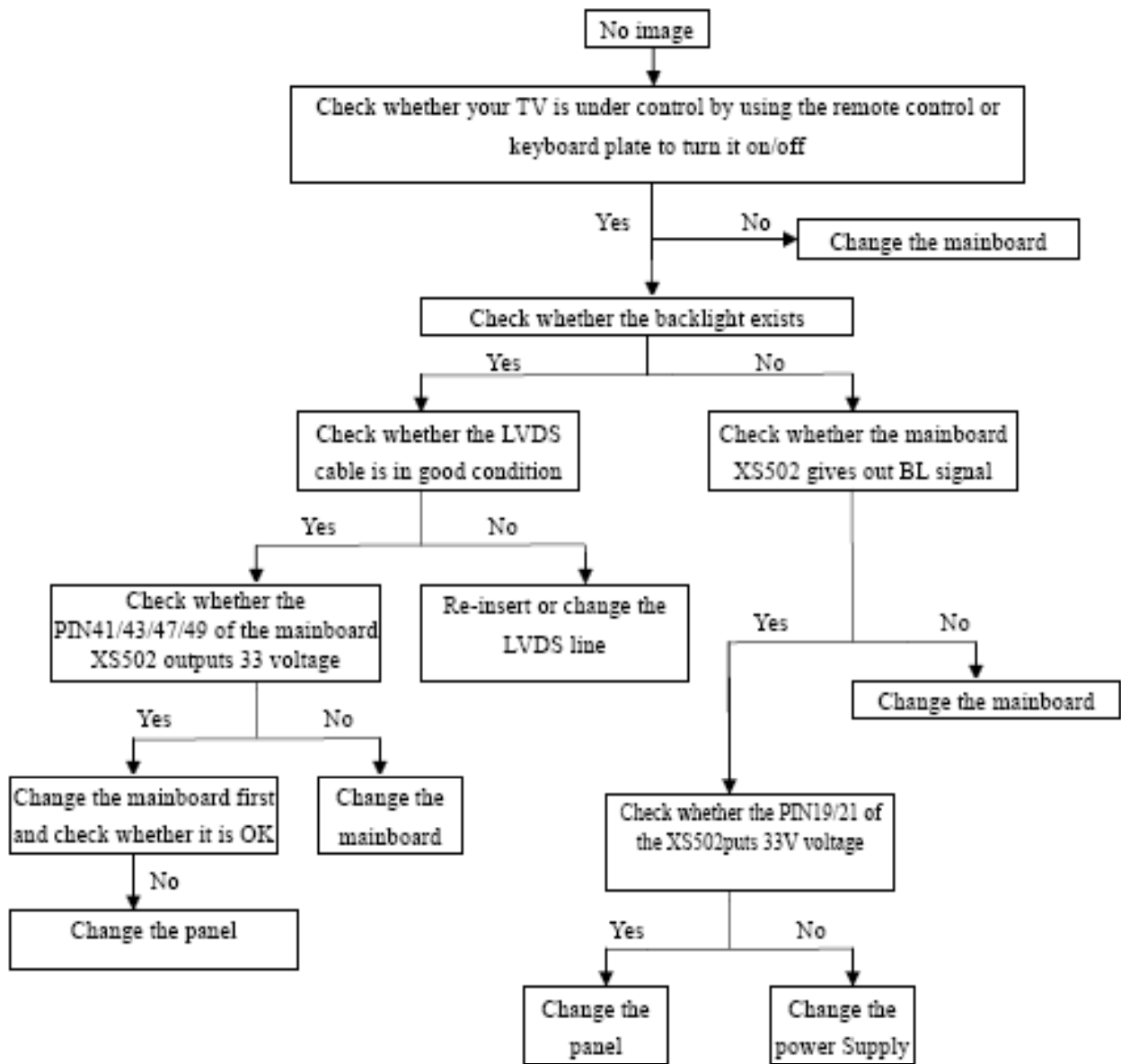
5.2.8 After about one minute, the updating is over, the TV set will restart itself.

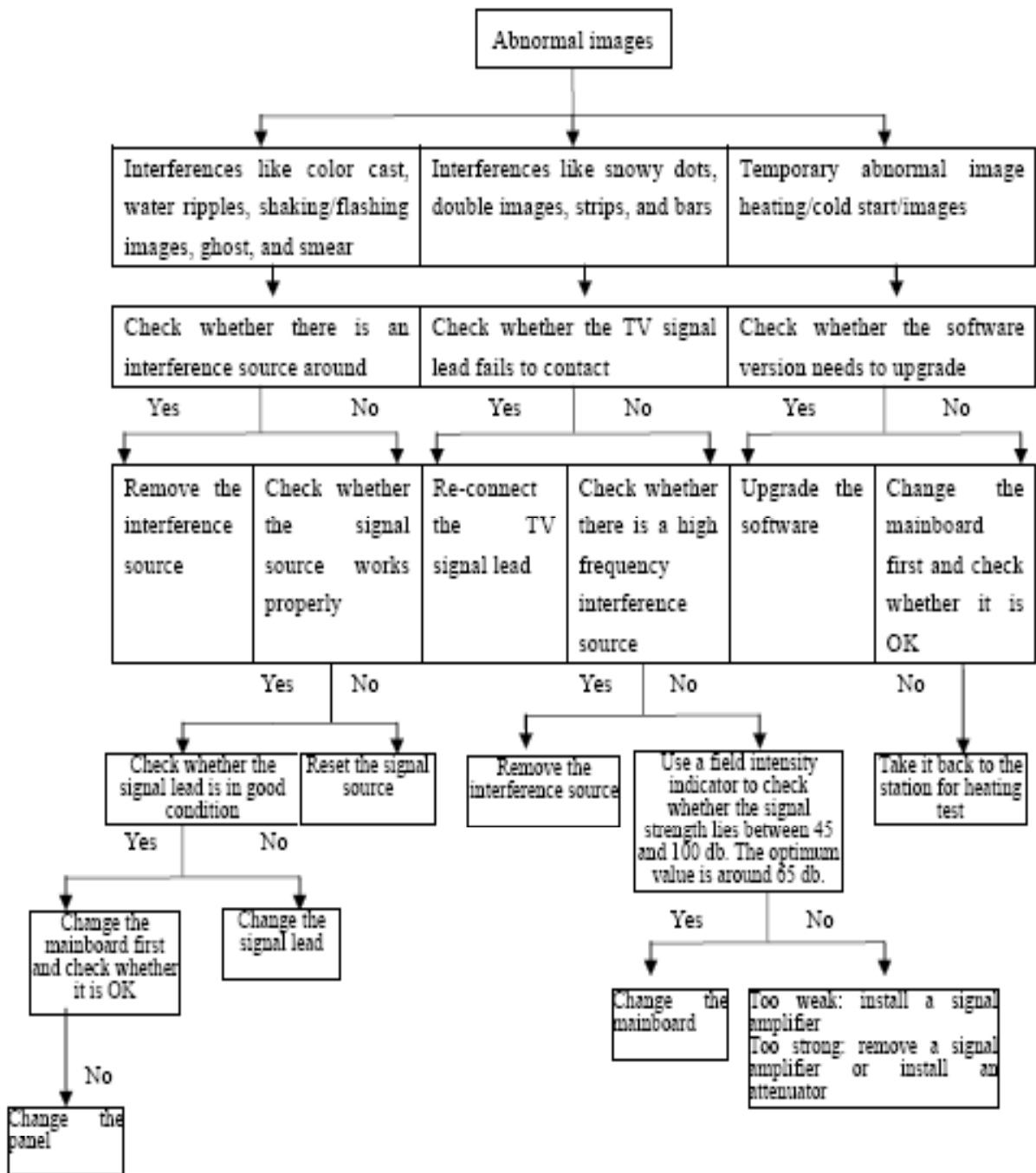
Finish all the above steps if the upgrade is complete success.

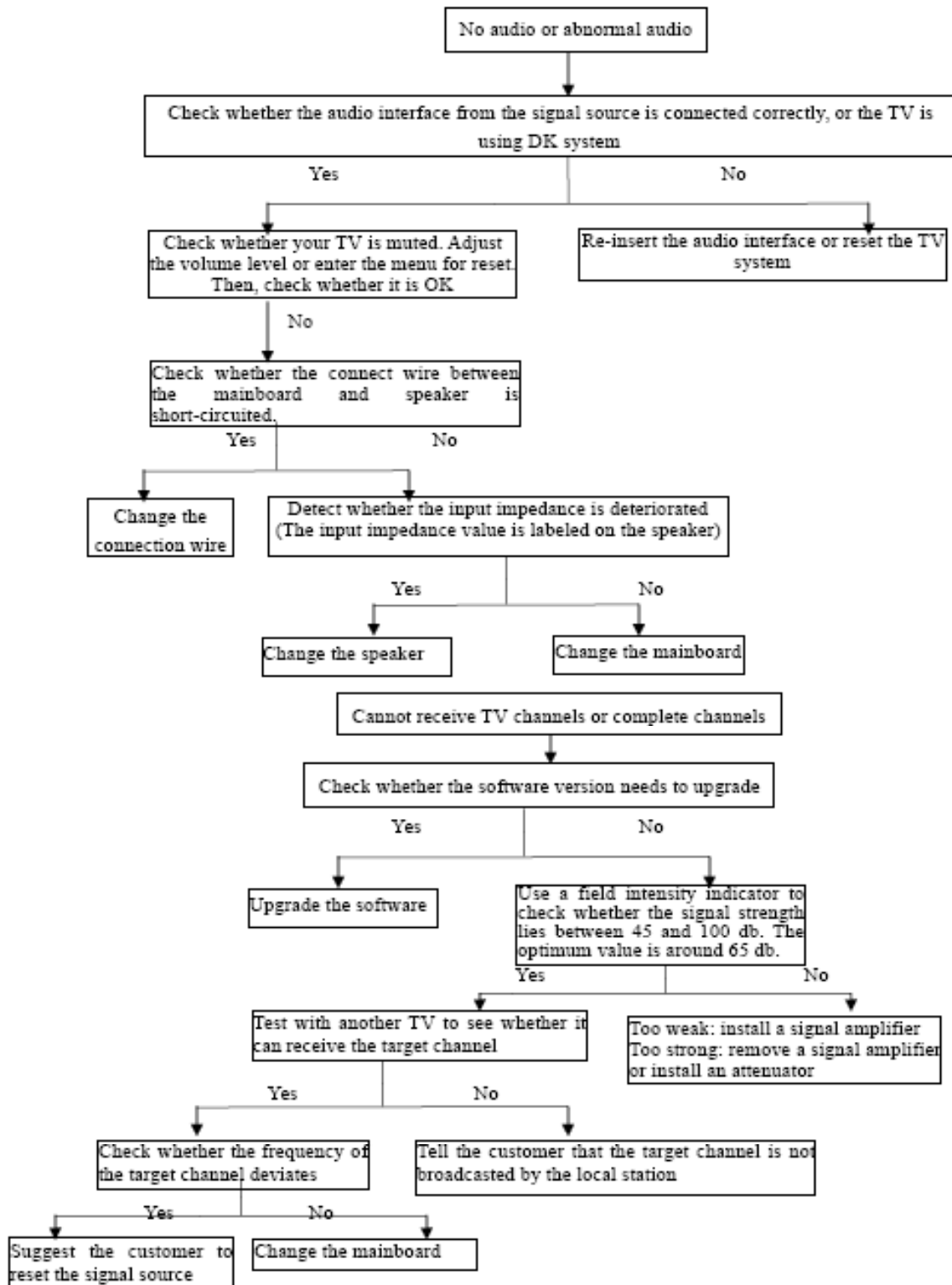
Green Gain 

# TROUBLESHOOTING

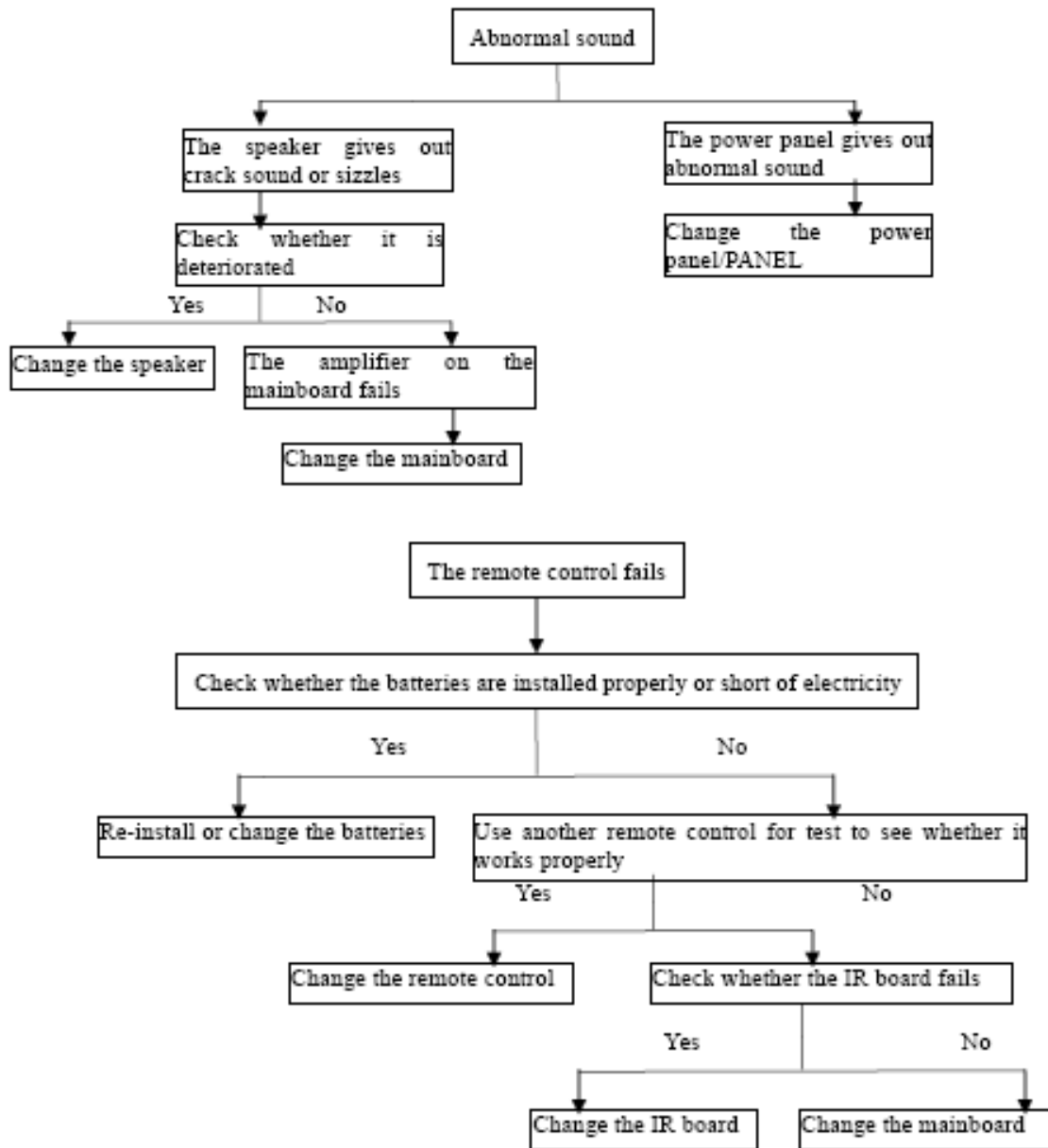


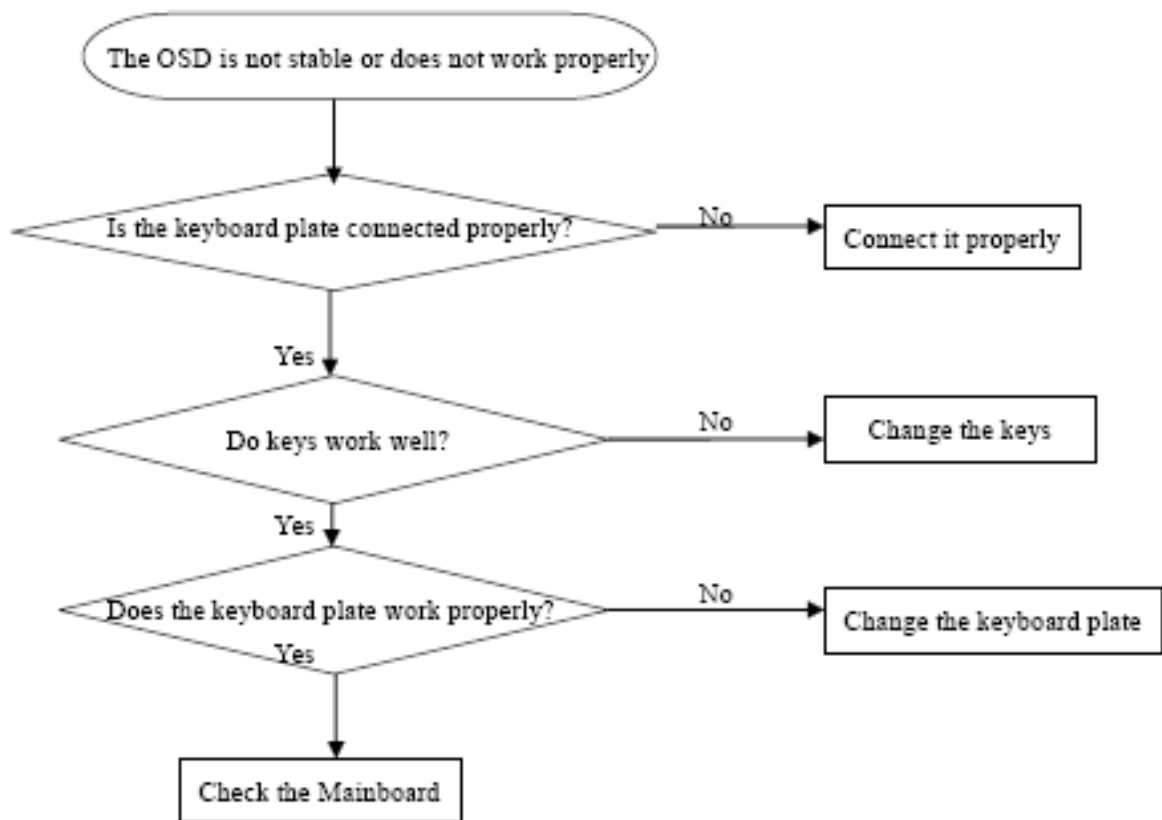




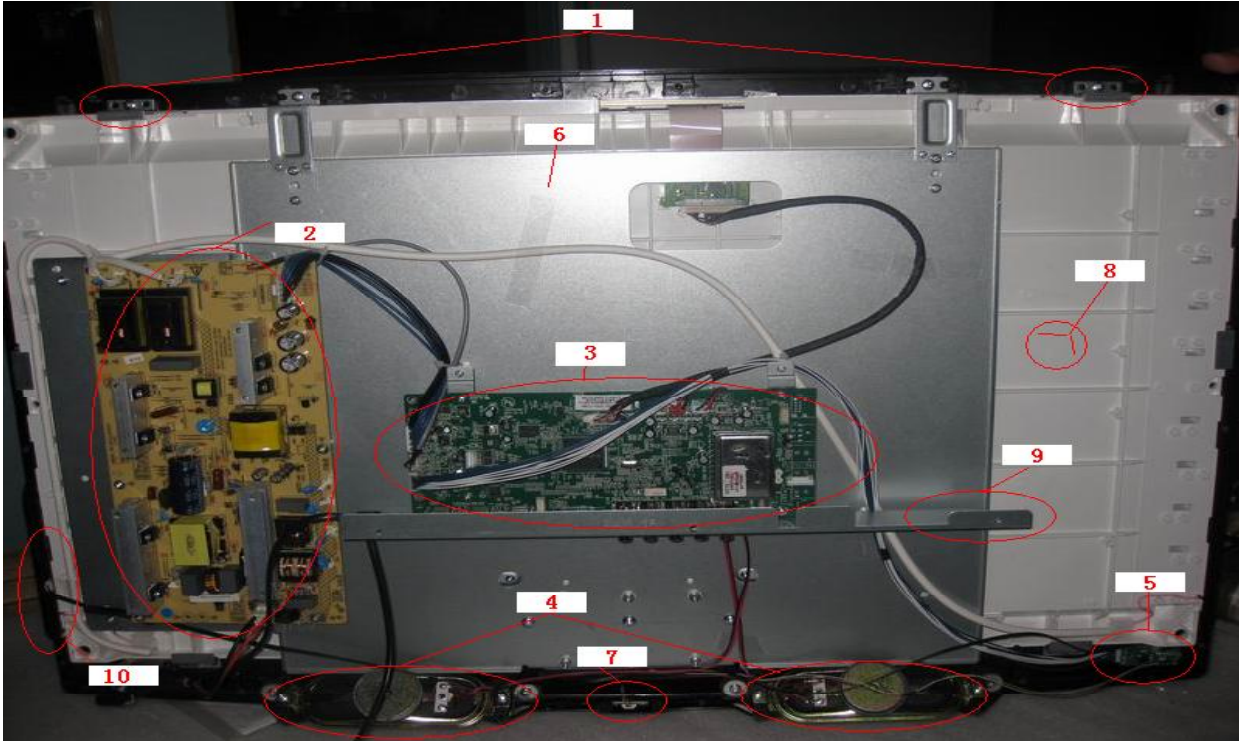








# Assembly Drawing



- 1,Pressure screen bracket
- 2,Power supply board
- 3,Main board
- 4,Speaker
- 5,Remote control receiver board

- 6,Panel bracket
- 7,Touch board
- 8,Panel
- 9,Terminal bracket
- 10,Key board

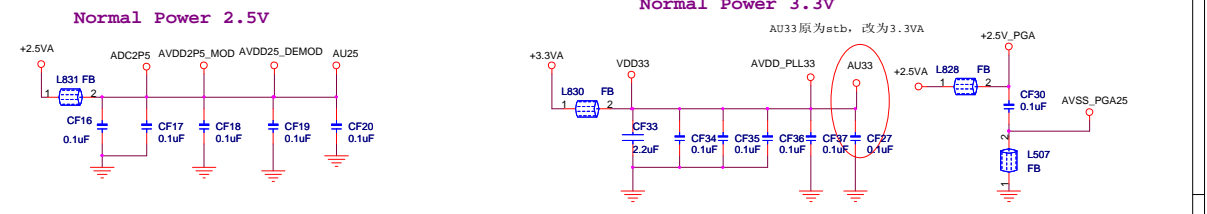
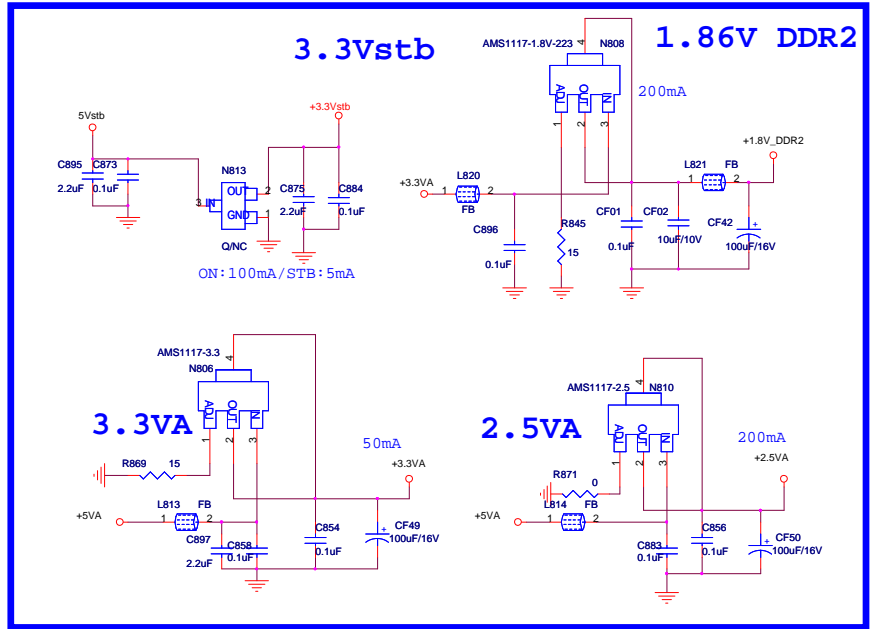
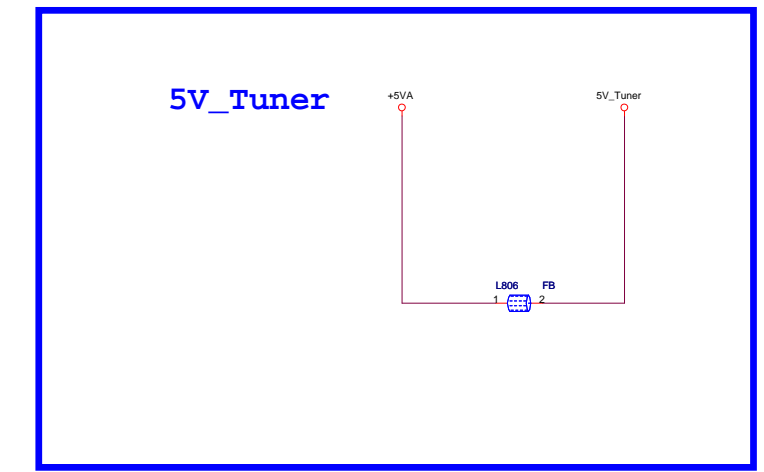
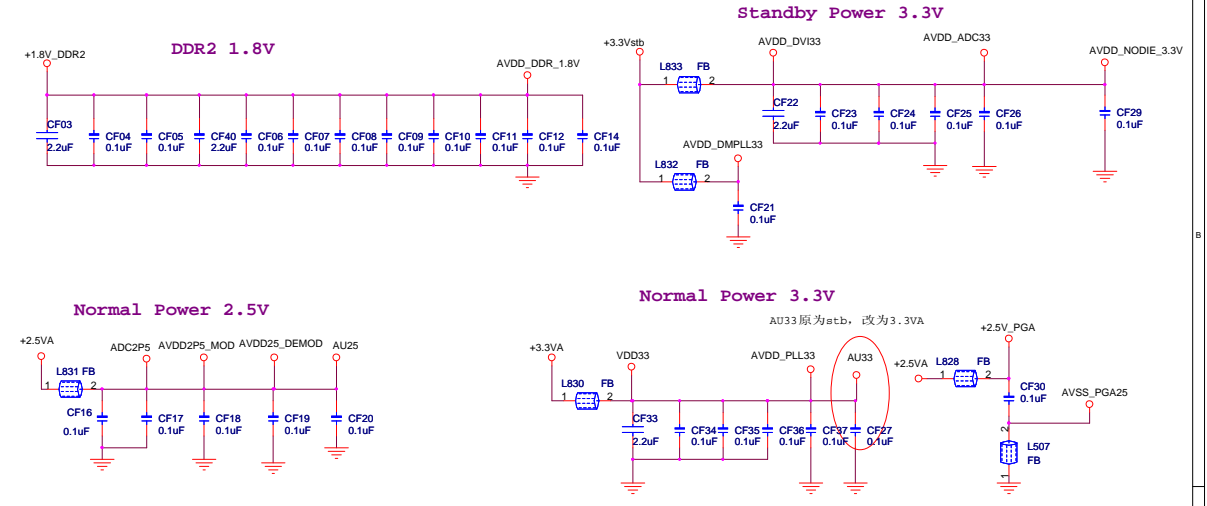
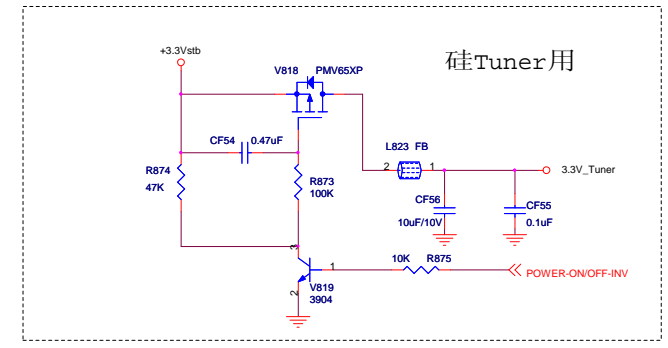
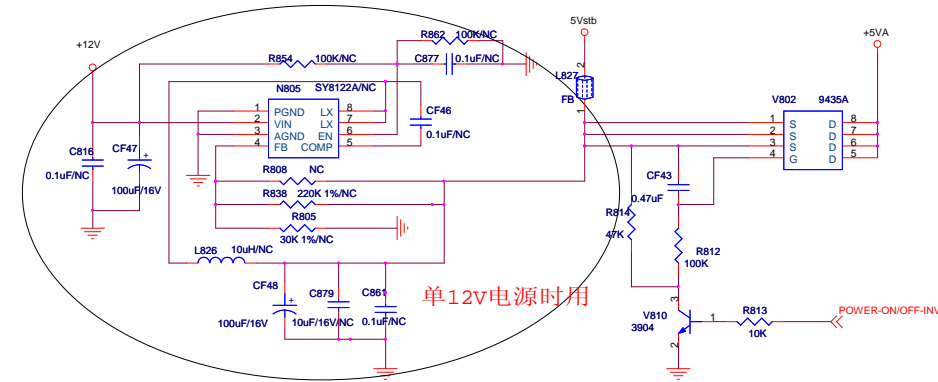
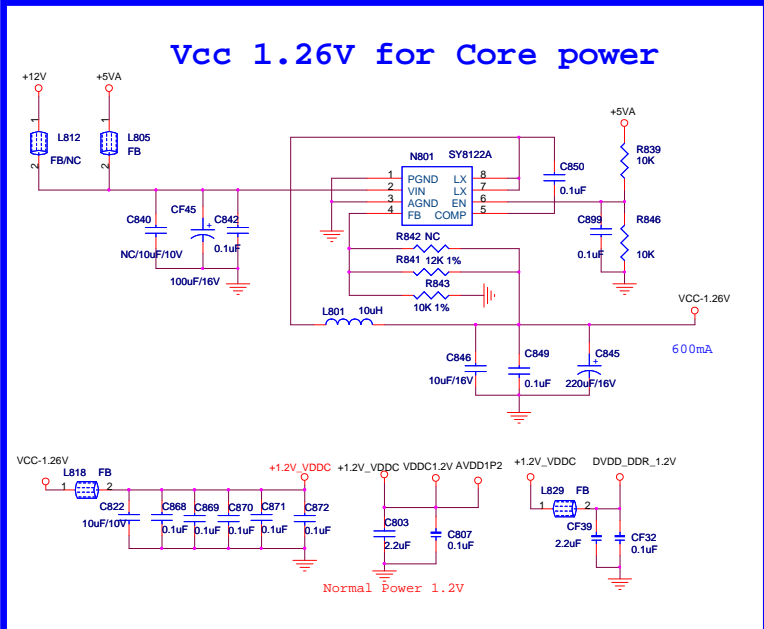
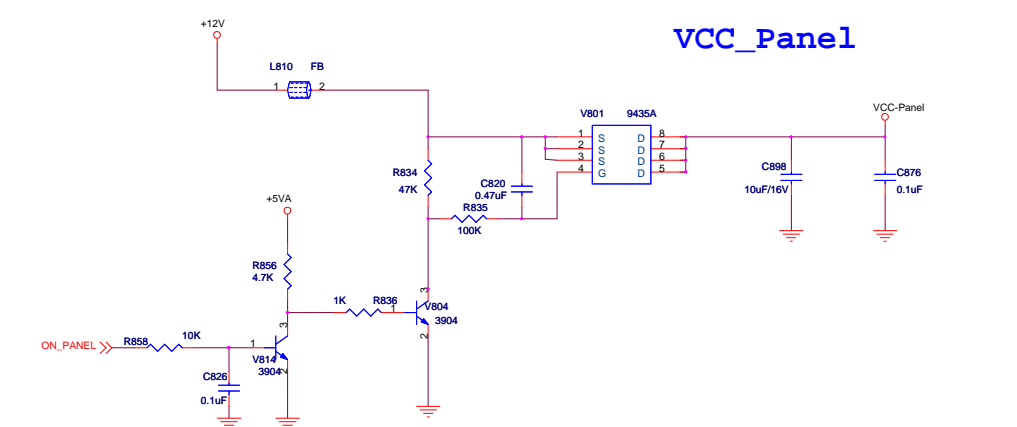
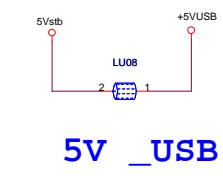
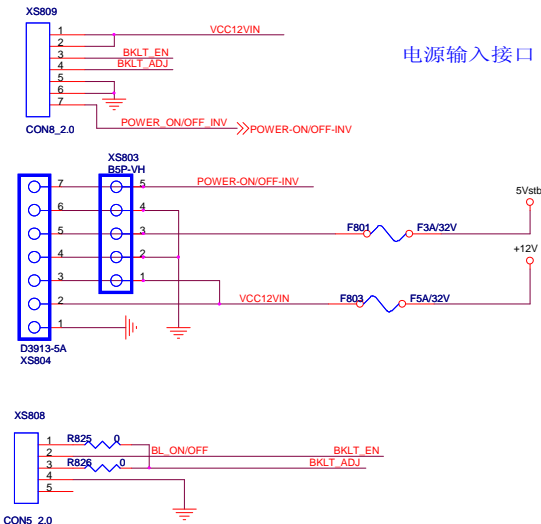
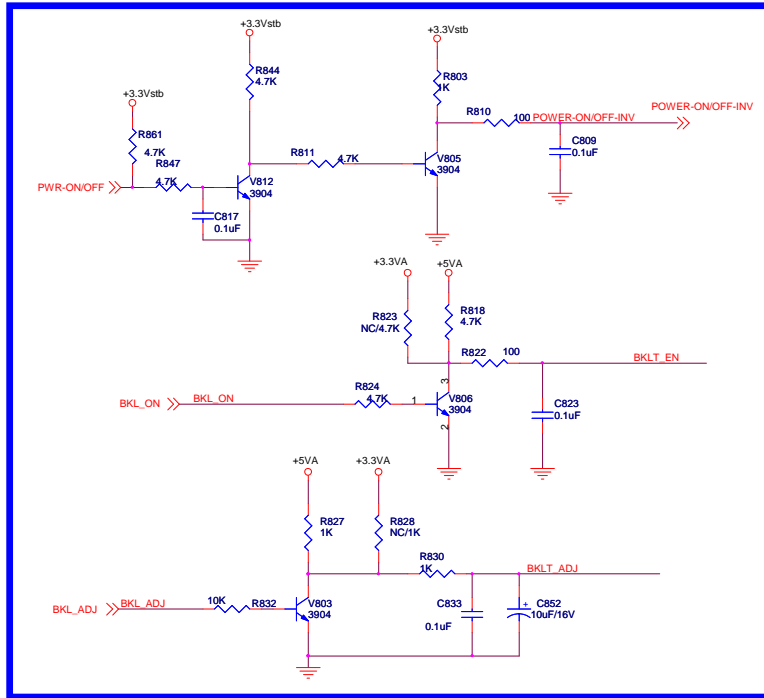
- 11,AV board
- 12,Base

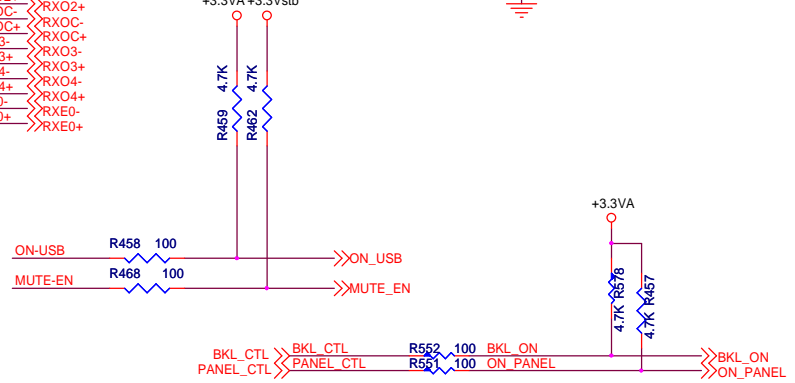
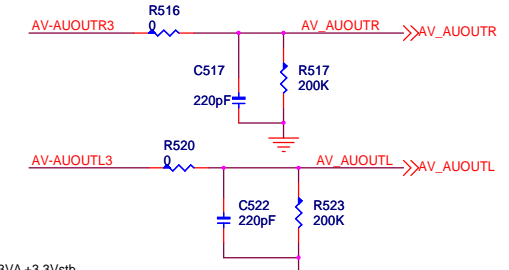
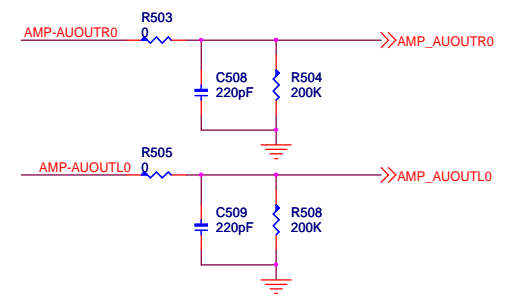
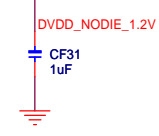
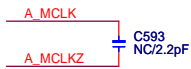
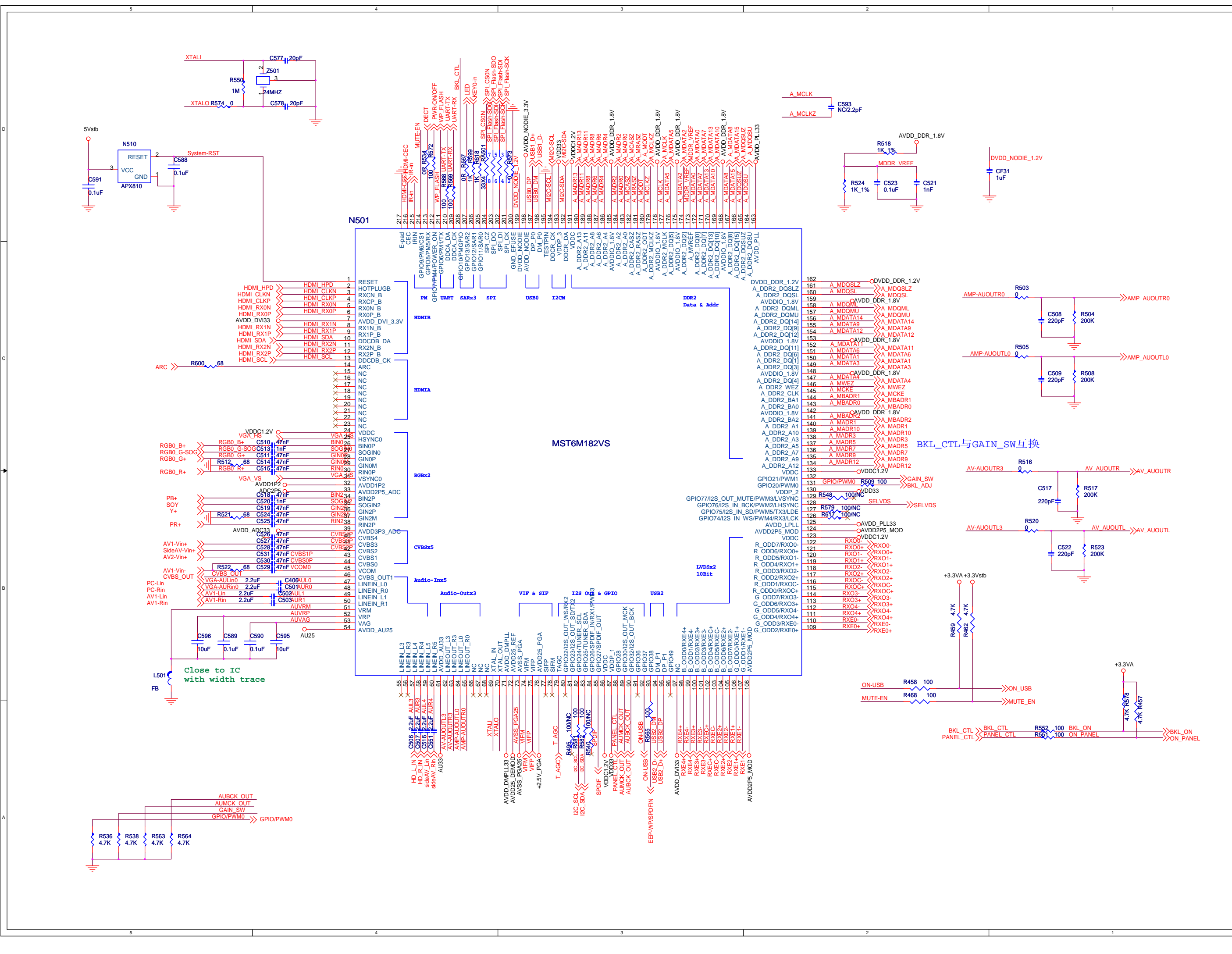
Only for training and service purposes

LGE Internal Use Only

# 1 Main Board Circuit Diagram

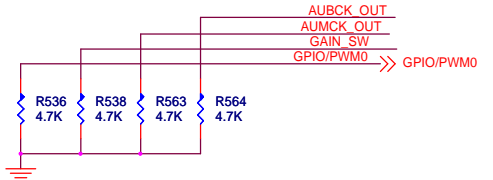
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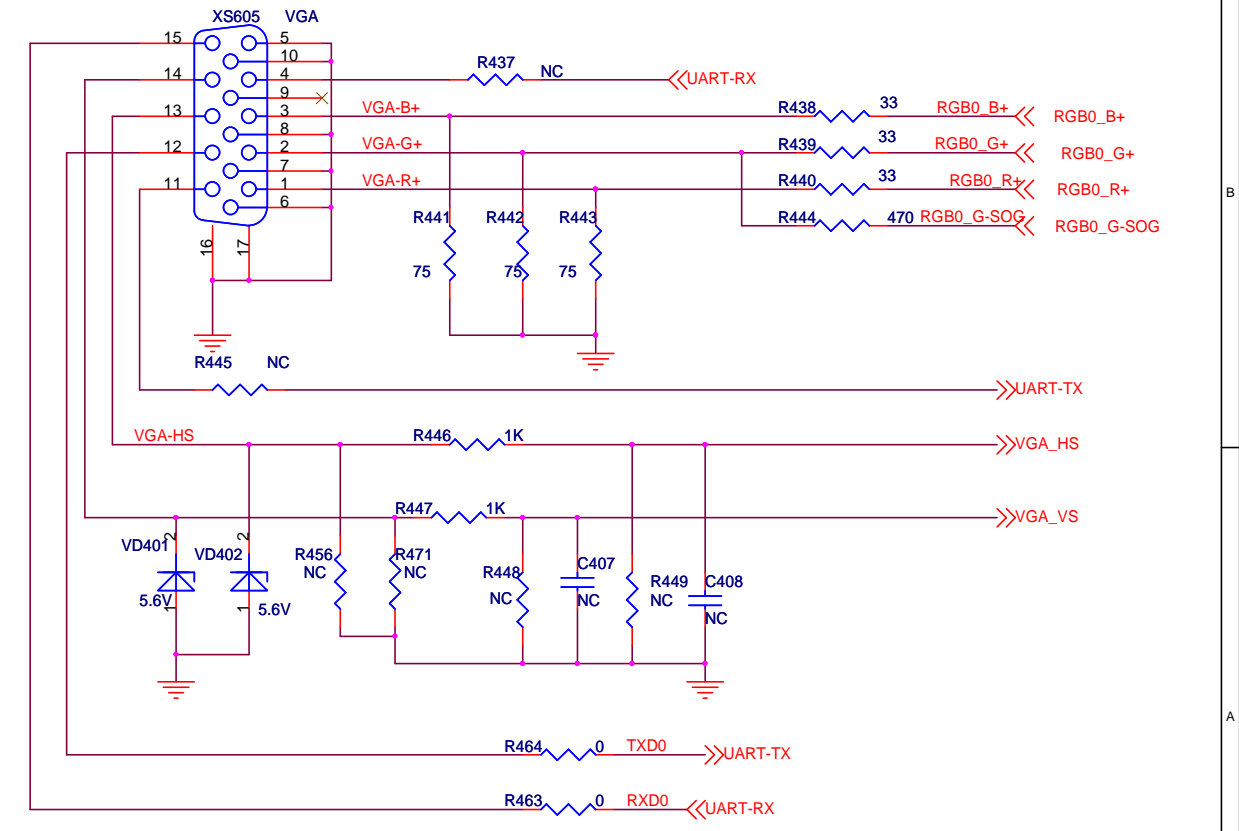
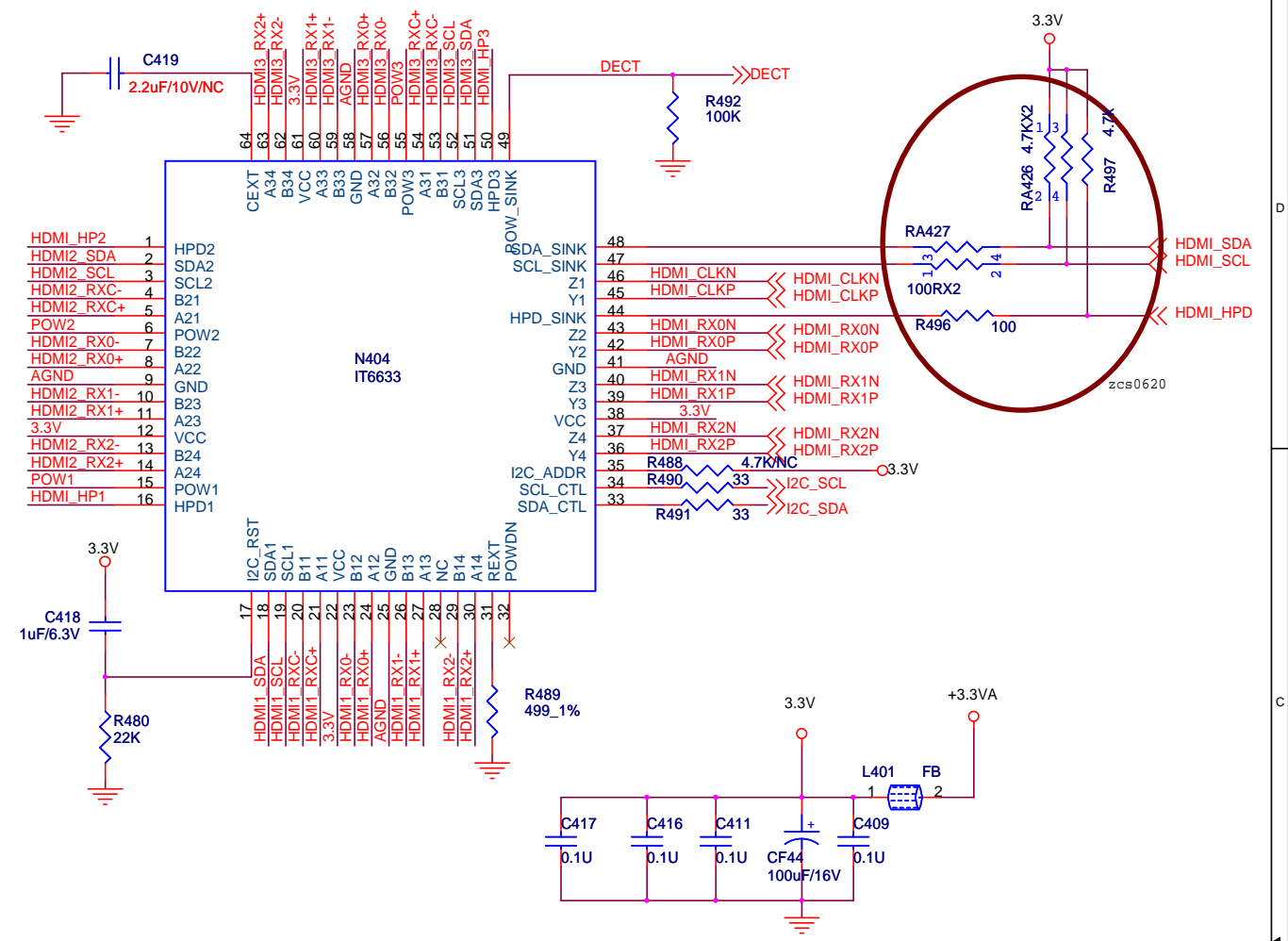
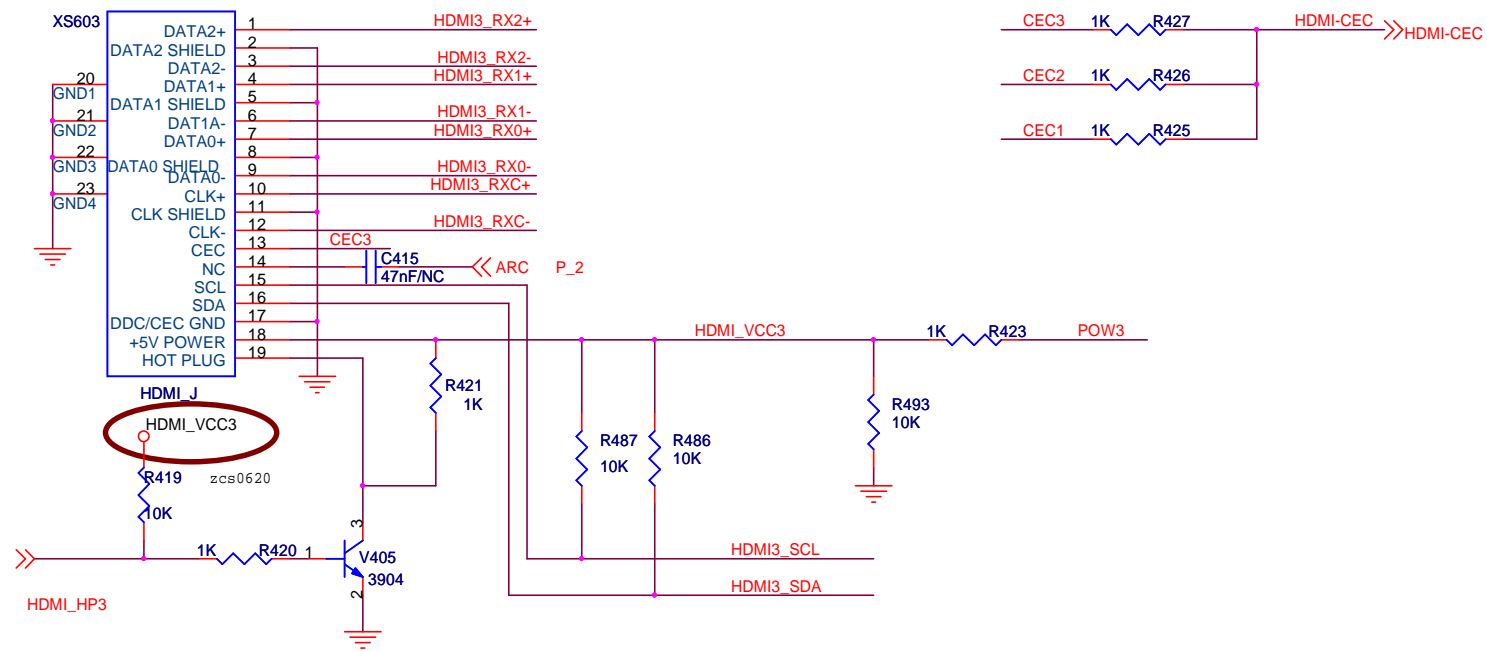
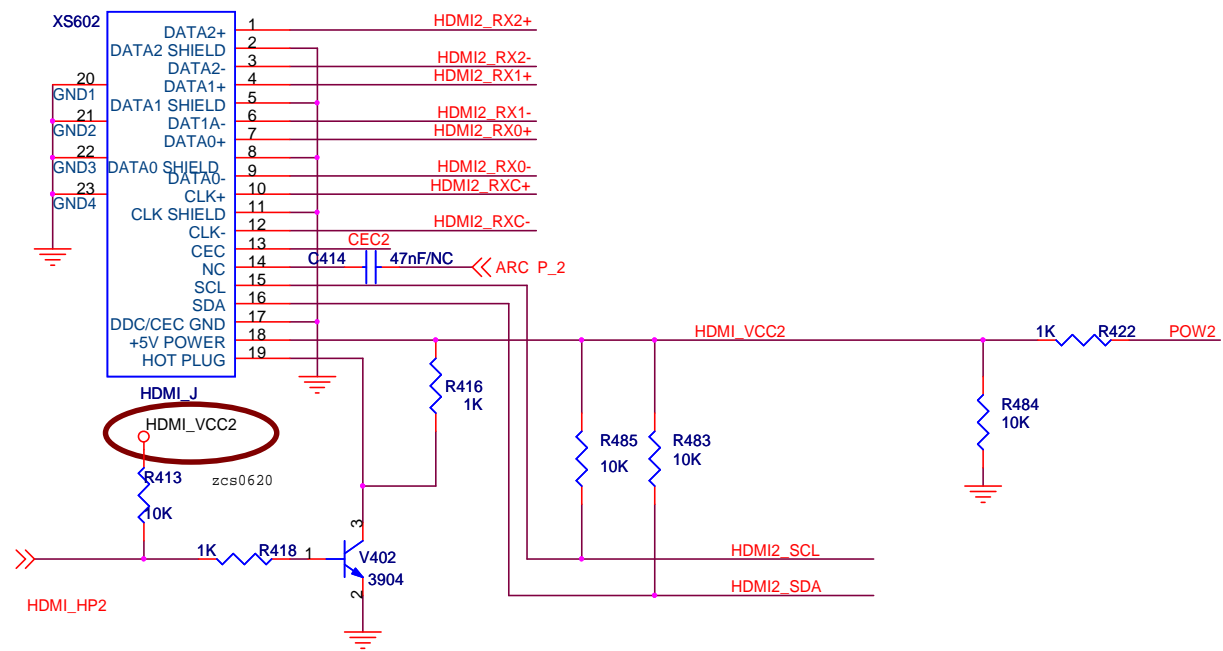
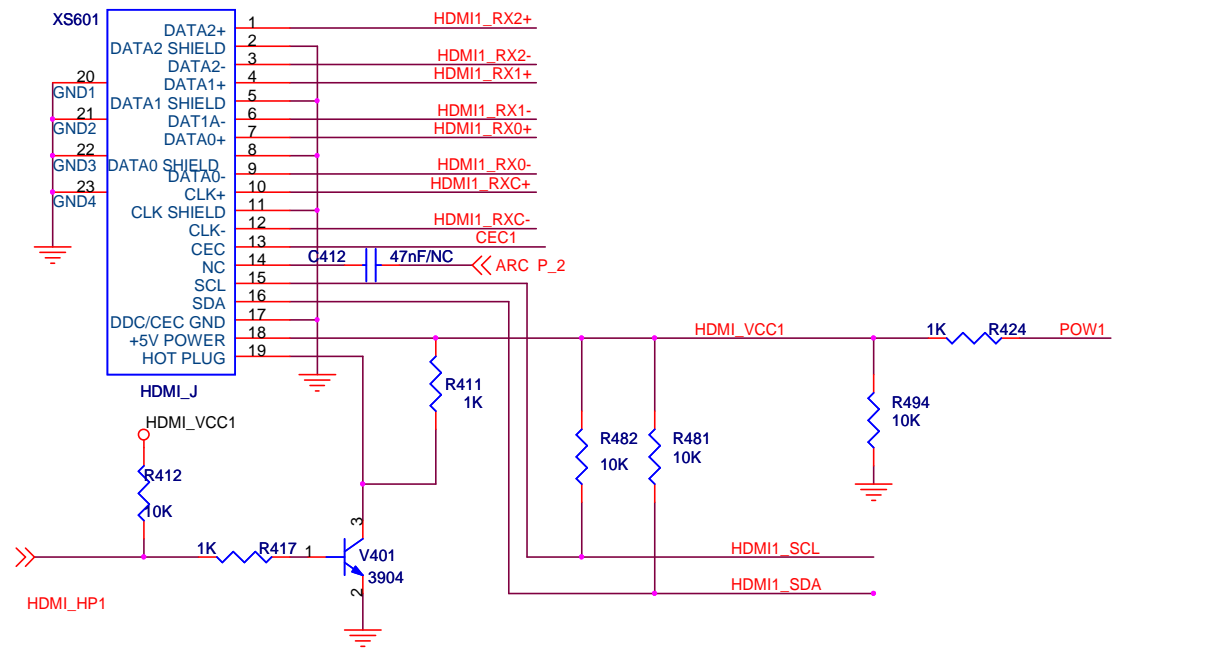


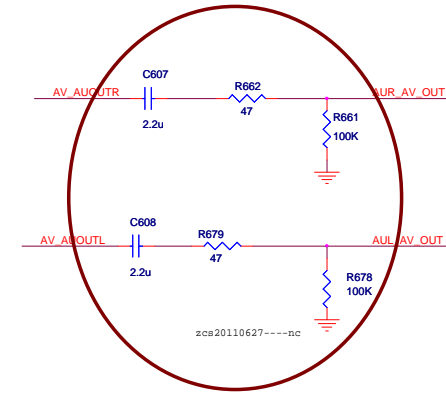
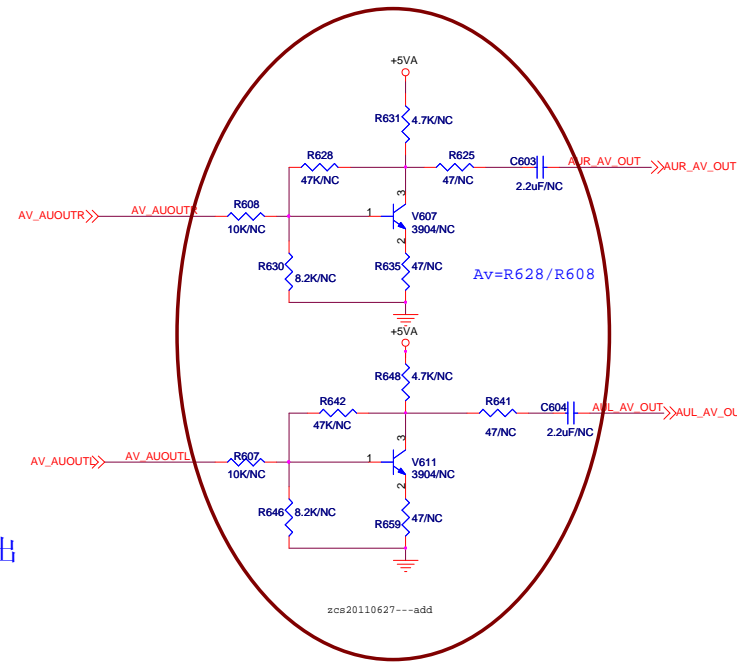
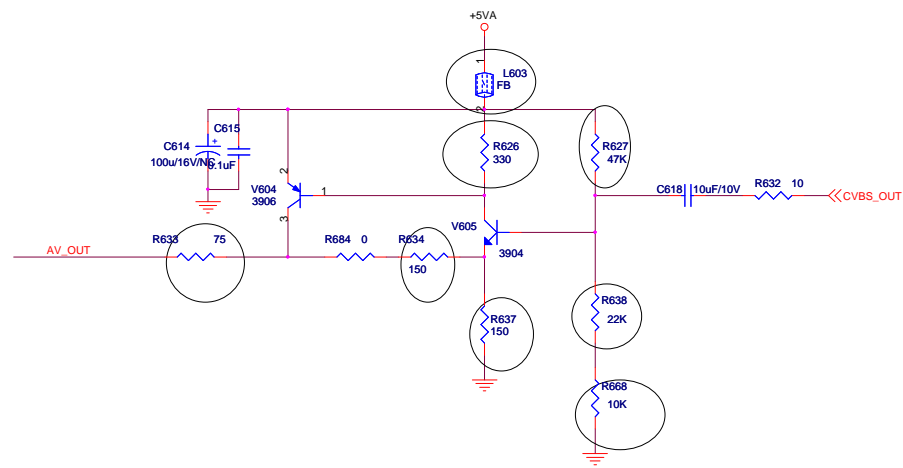


Close to IC with width trace

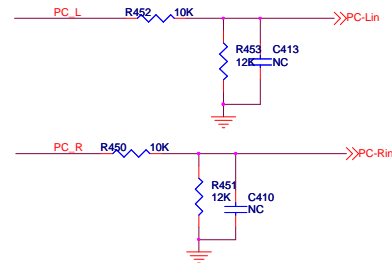
BKL\_CTL与GAIN\_SW互换



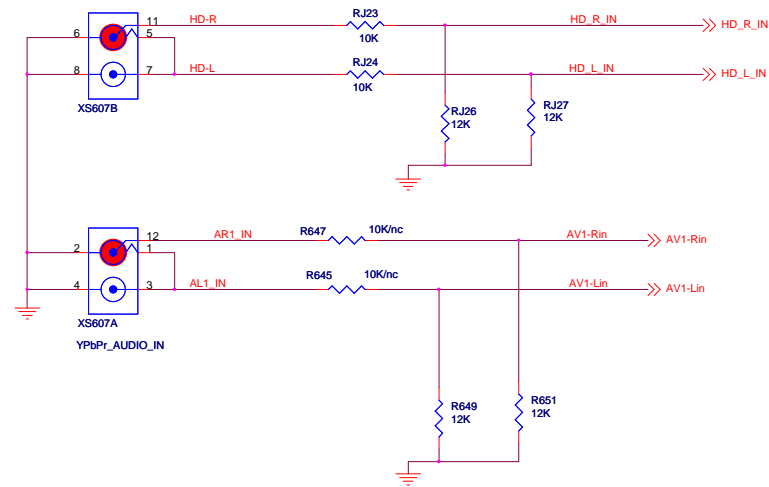
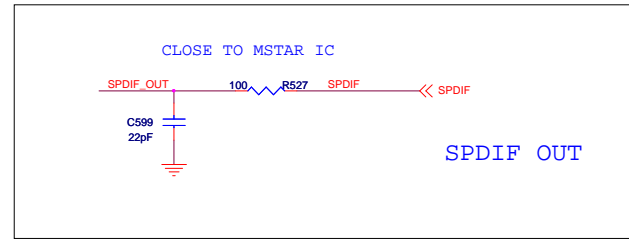
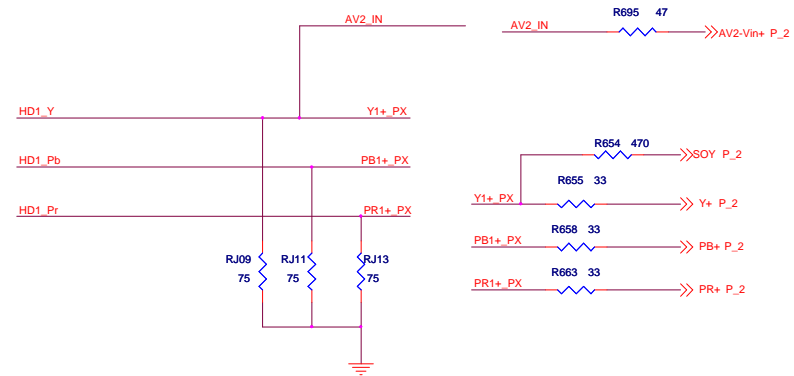
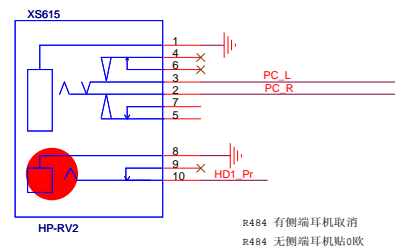
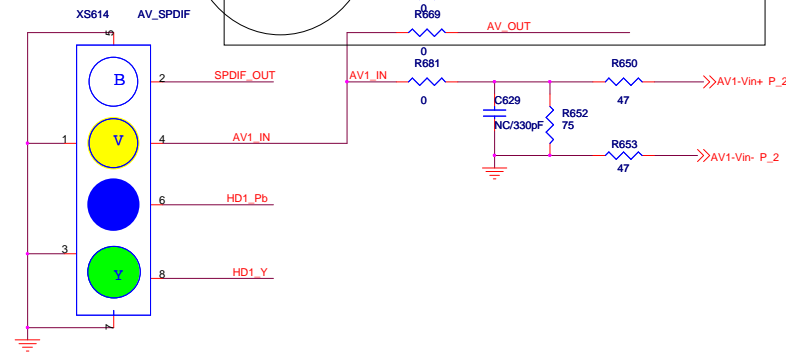
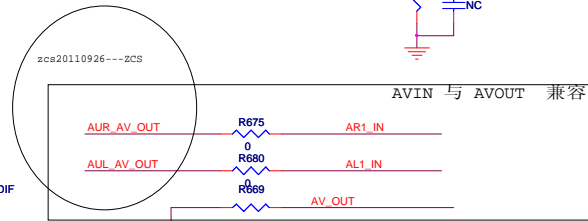




AV输出

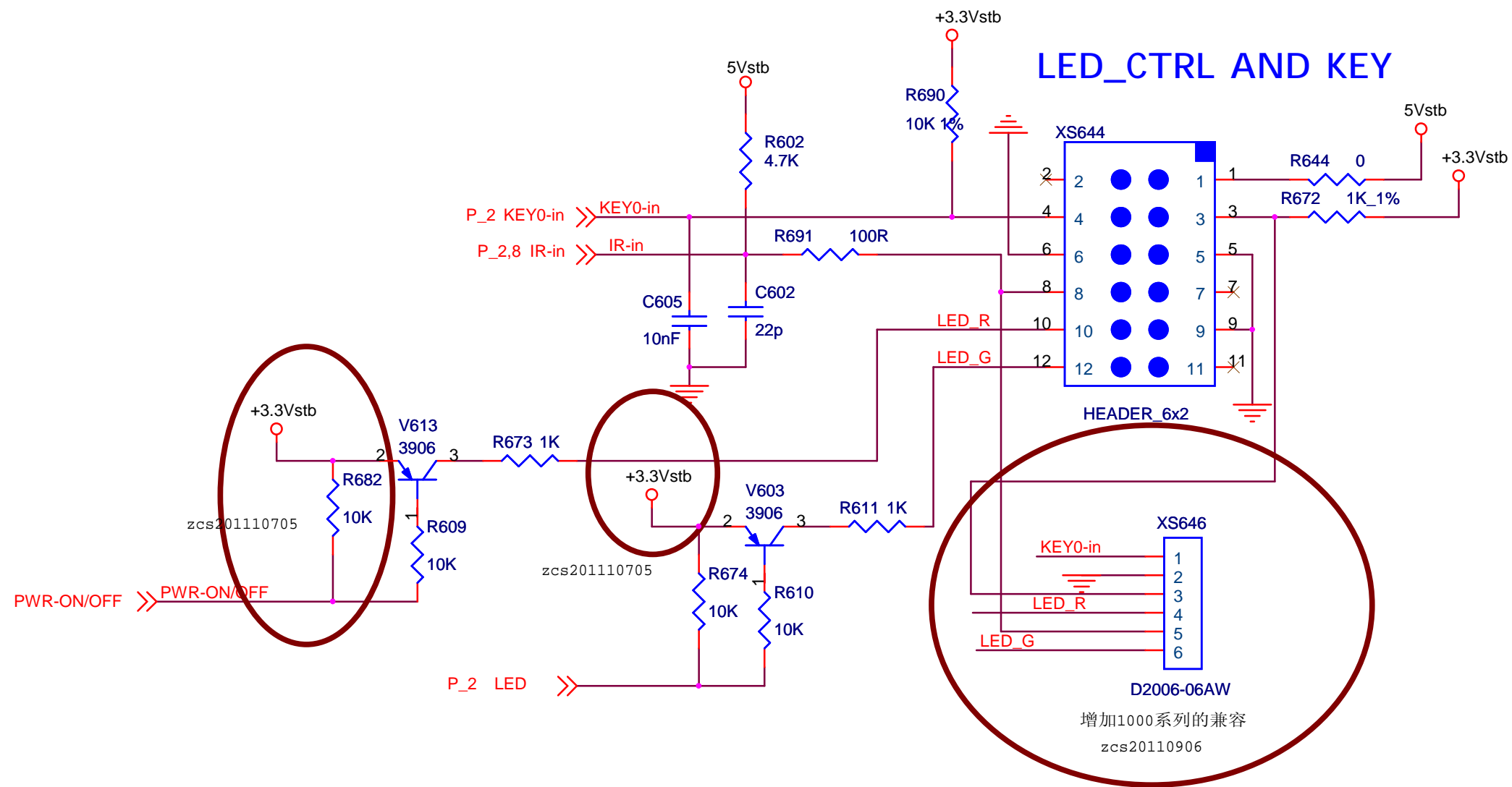


AV INPUT

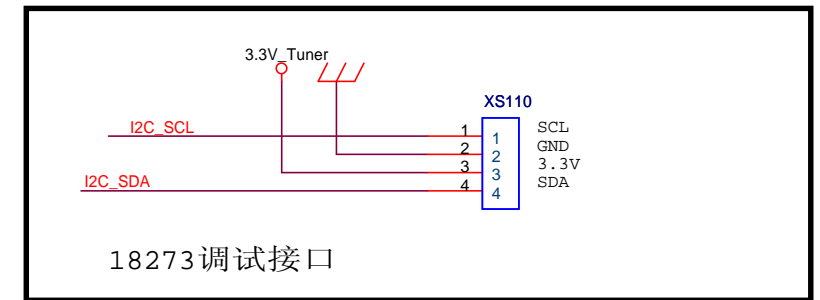
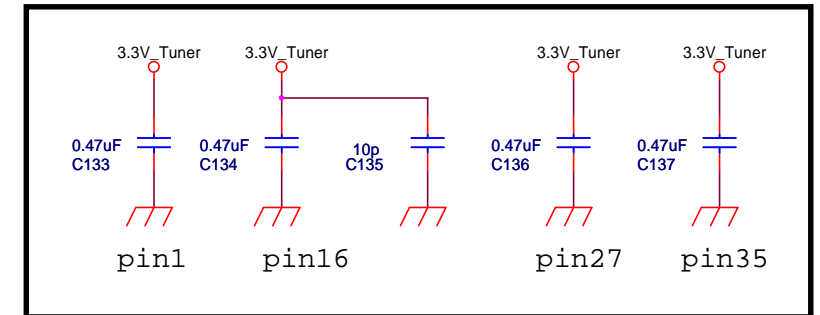
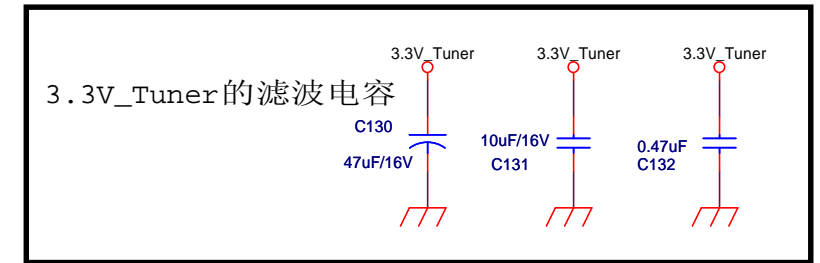
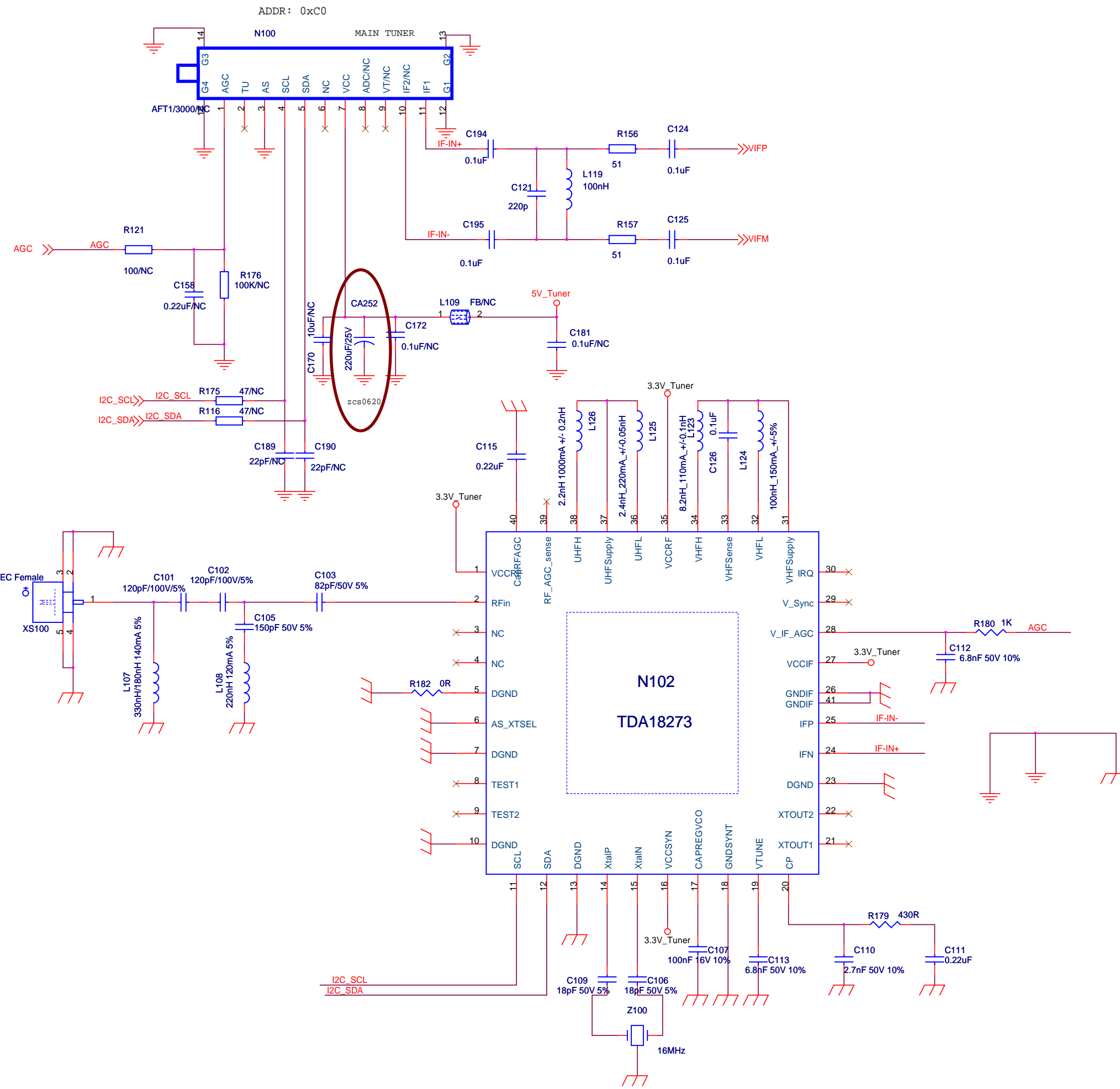


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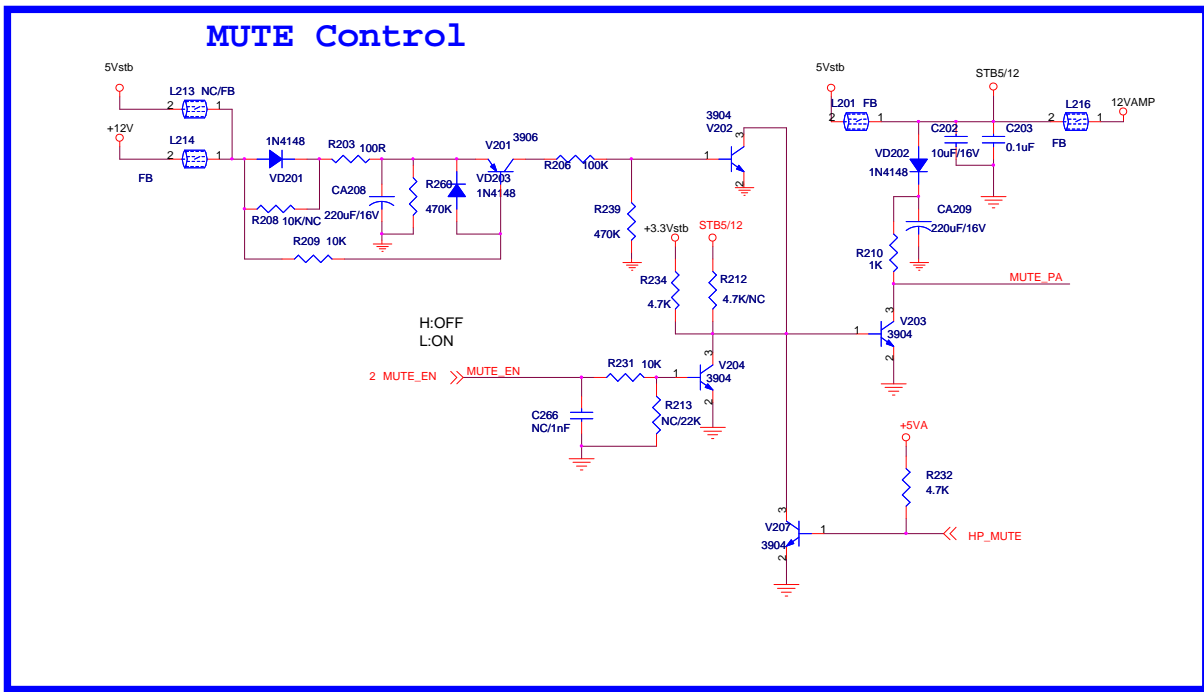




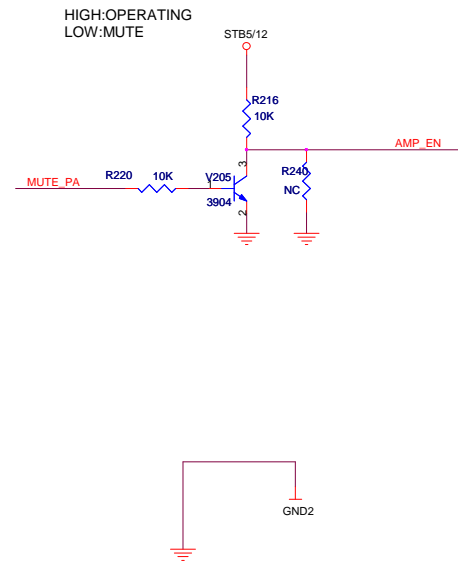
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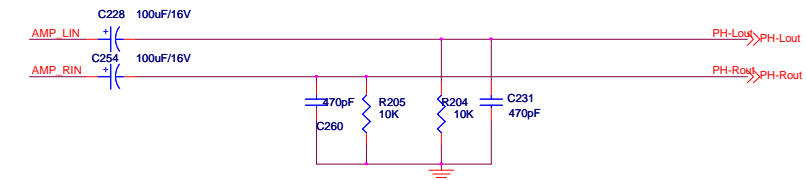
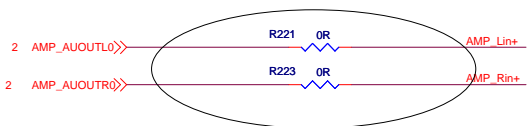
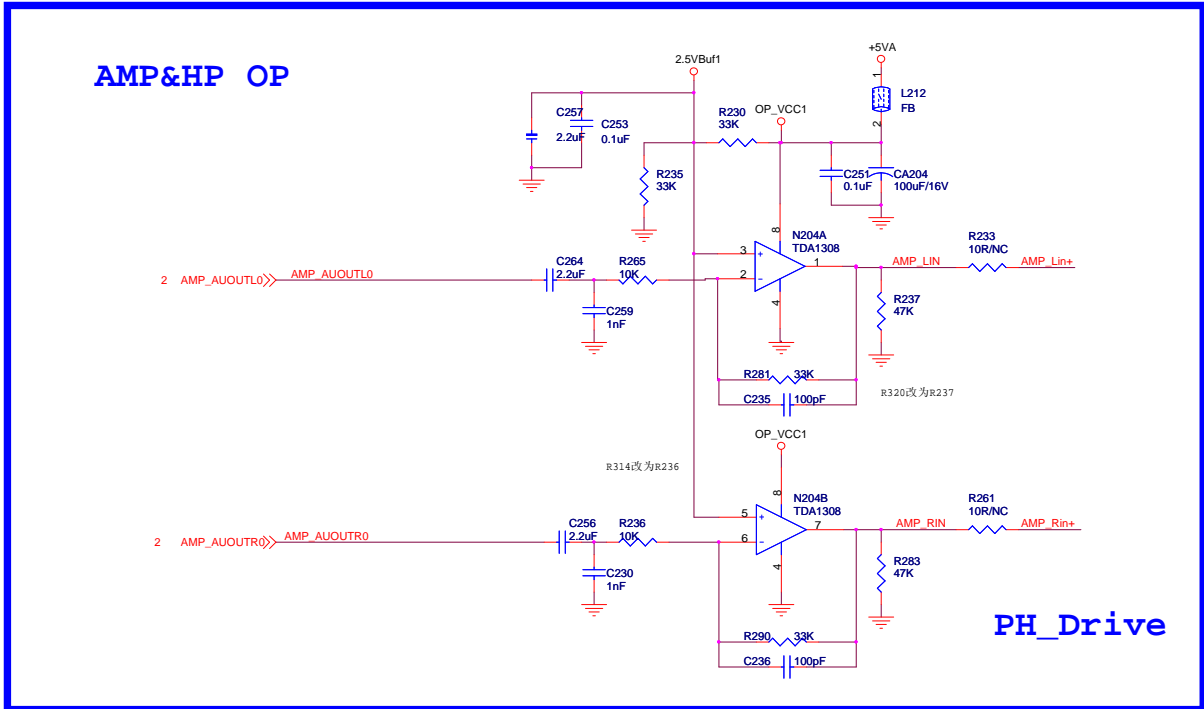
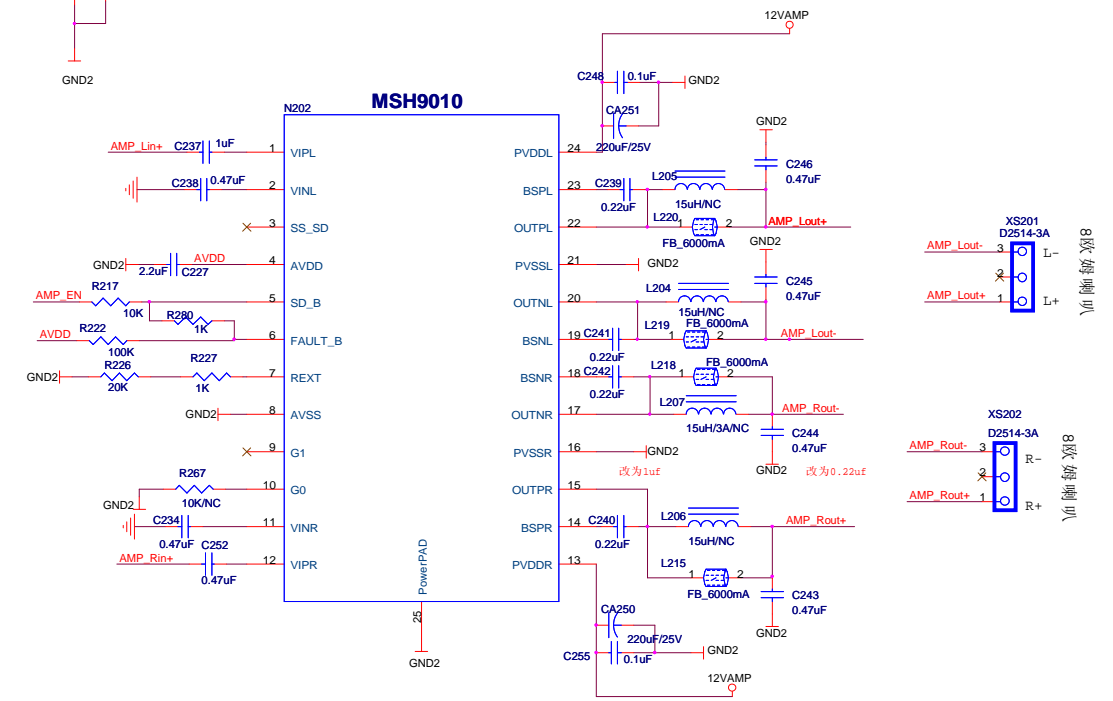
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报制													
审核													
工艺													
标准化													
批准													
MST6E182													
												第 7 张 共 10 张	

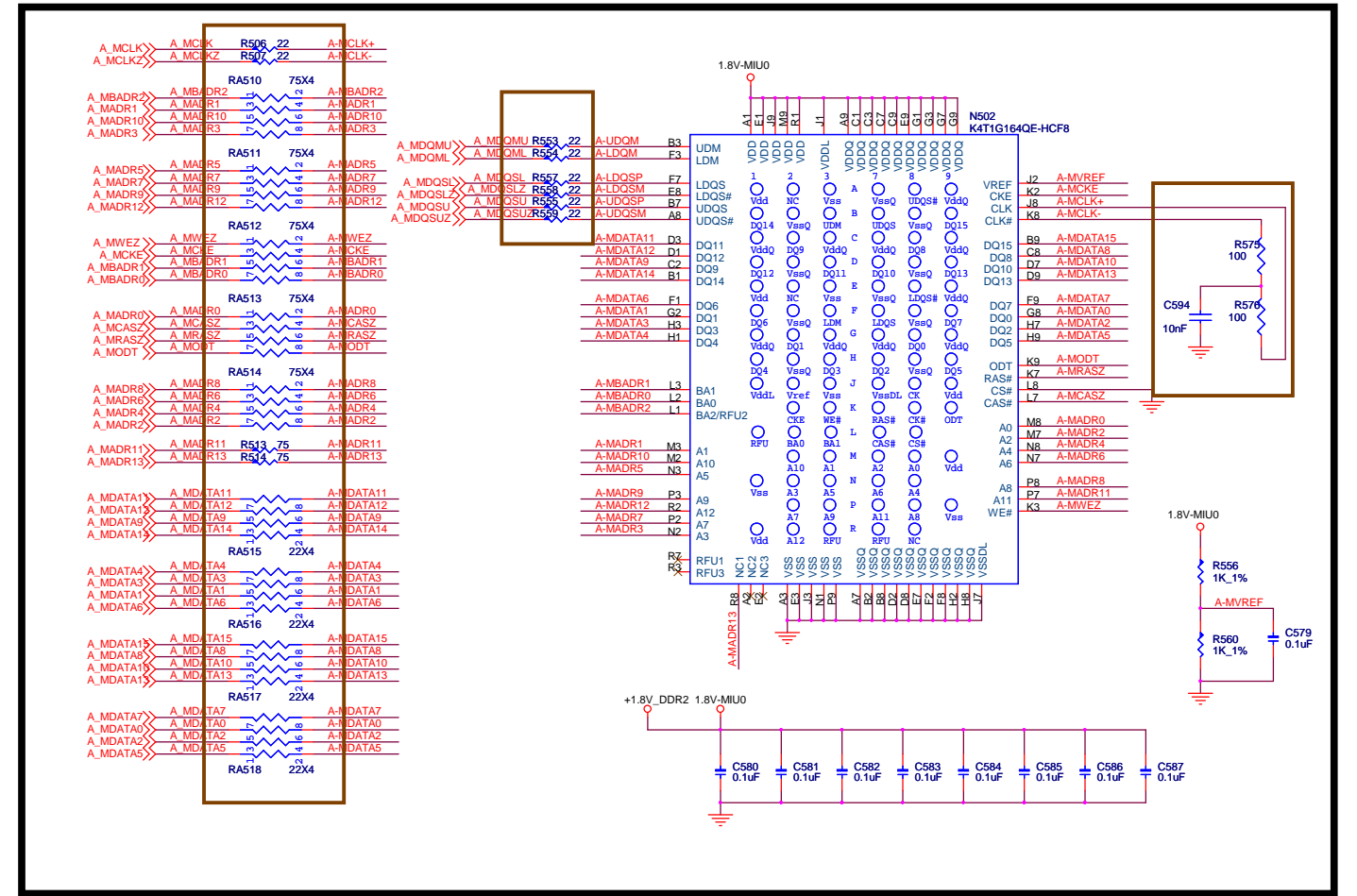
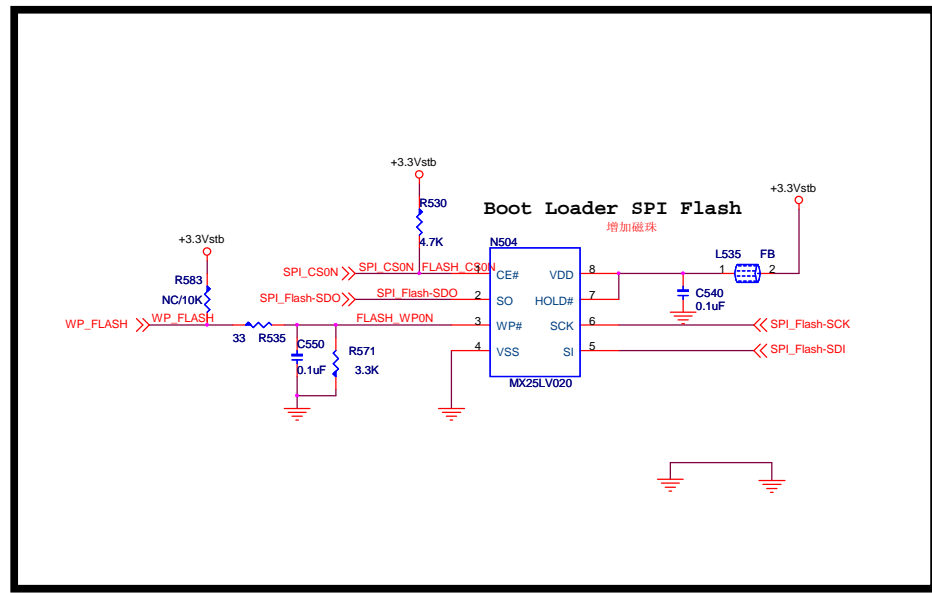


### AMP

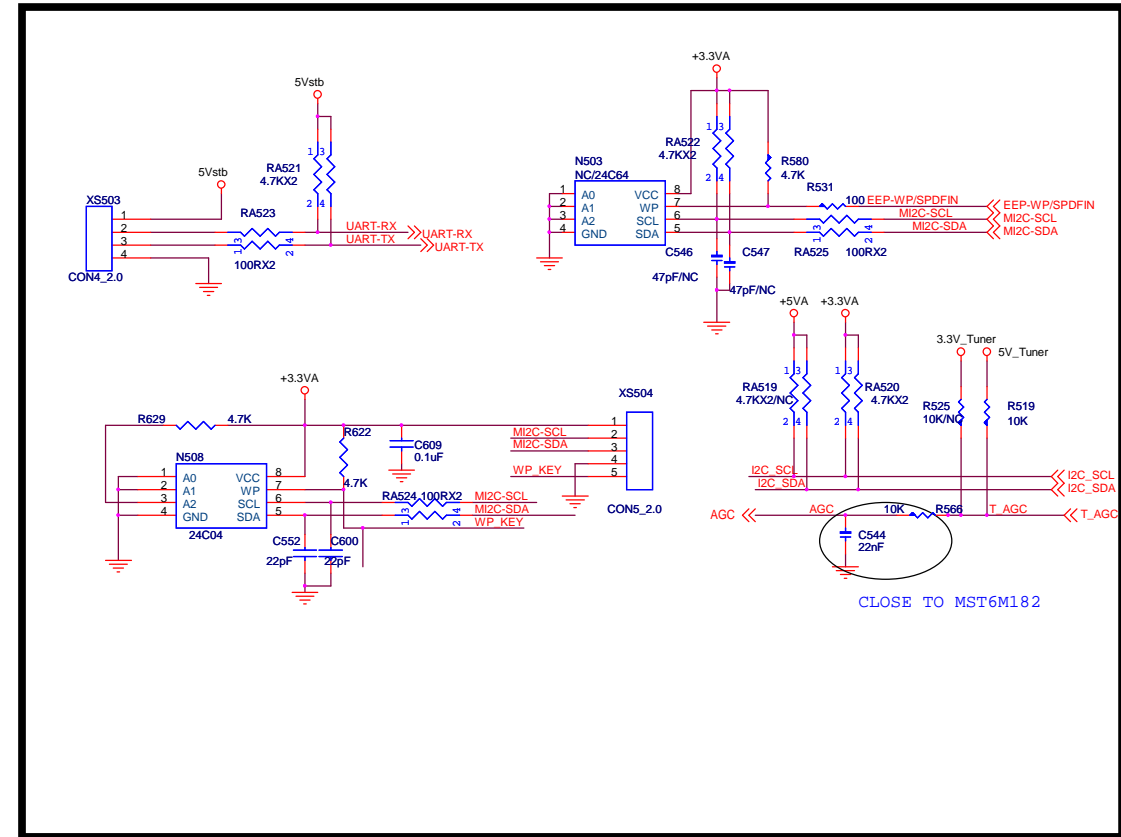
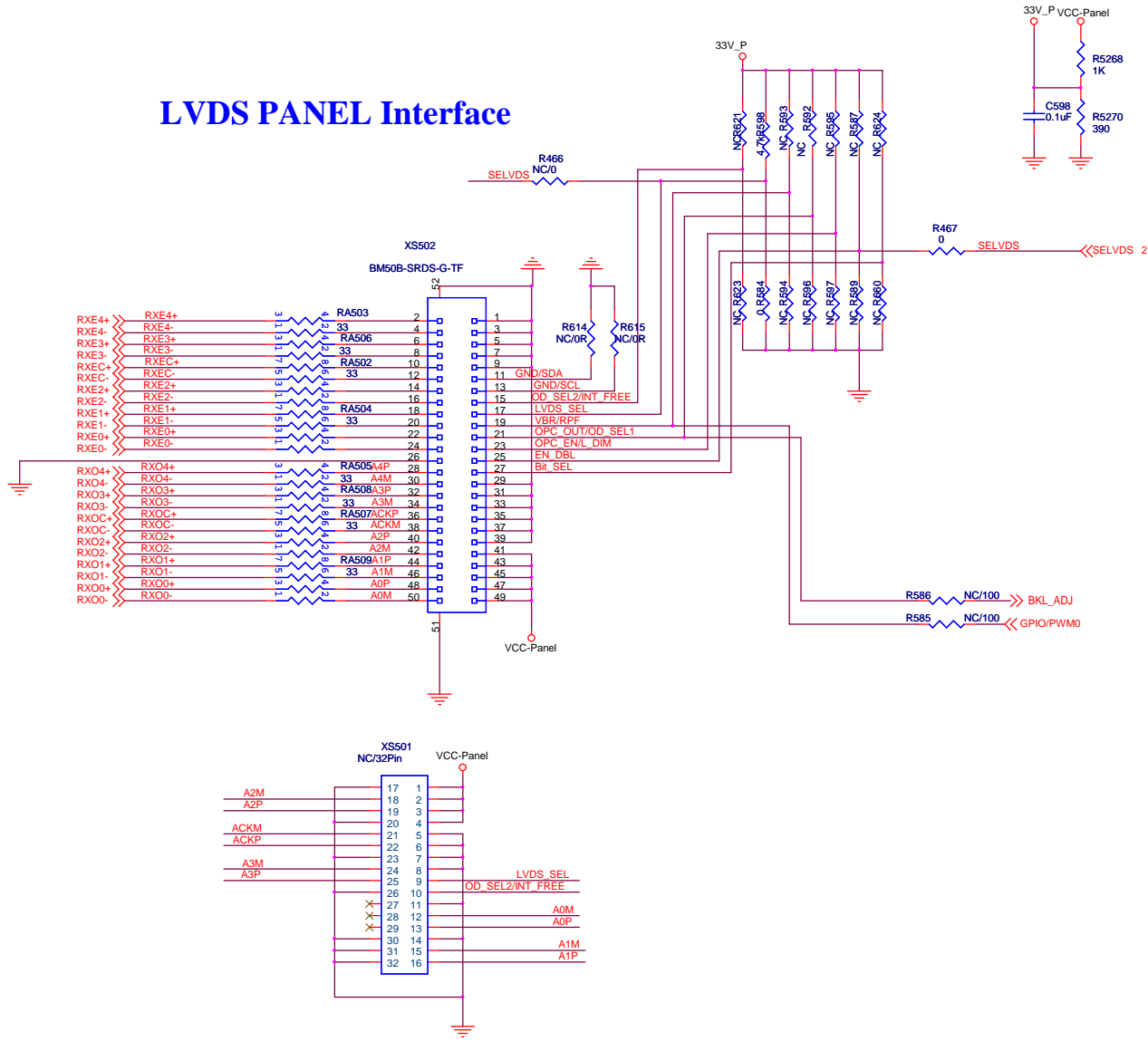


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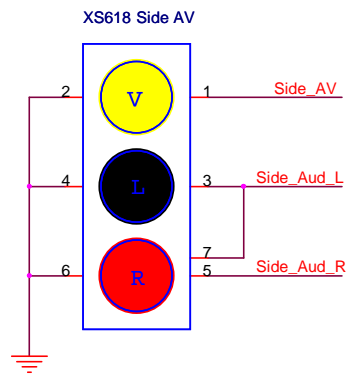




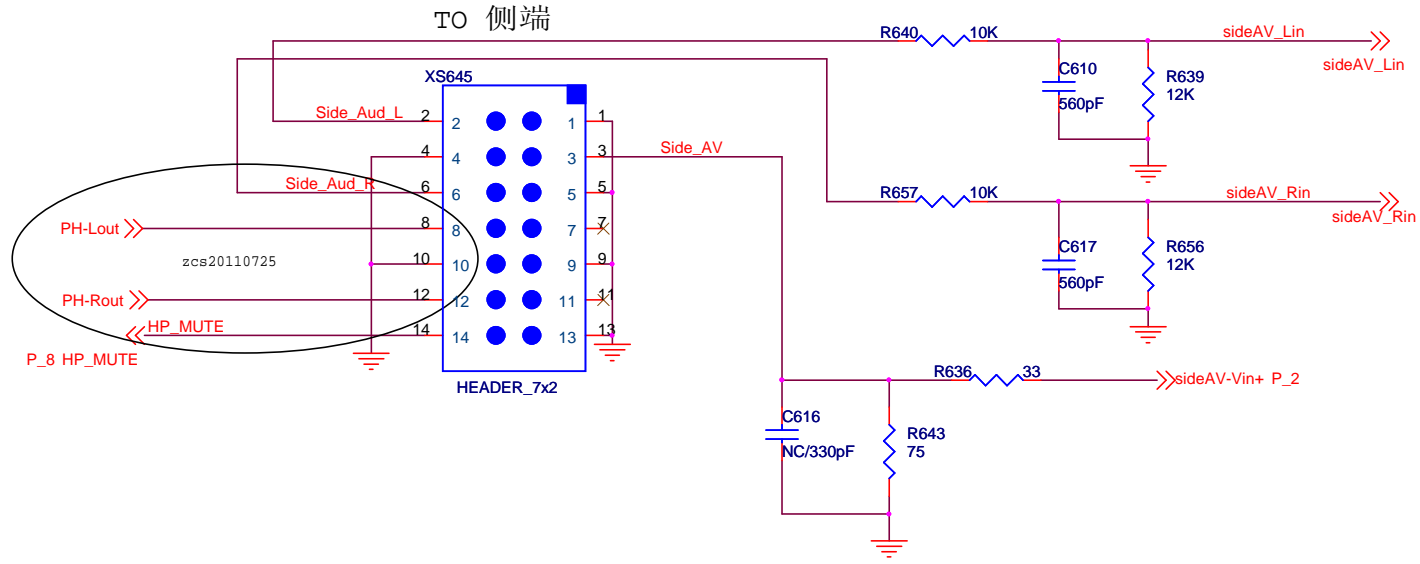
### LVDS PANEL Interface



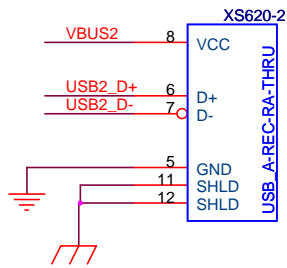
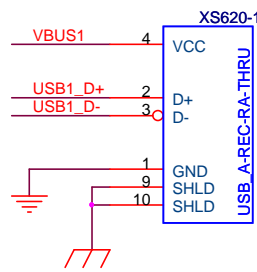
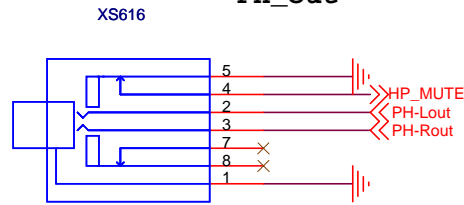
侧端子



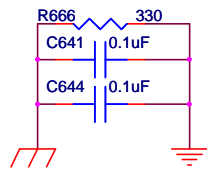
SUB AV (AV+Earphone) Input



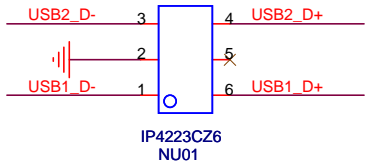
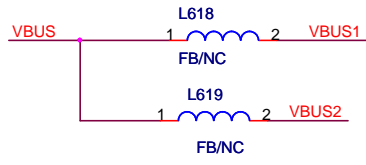
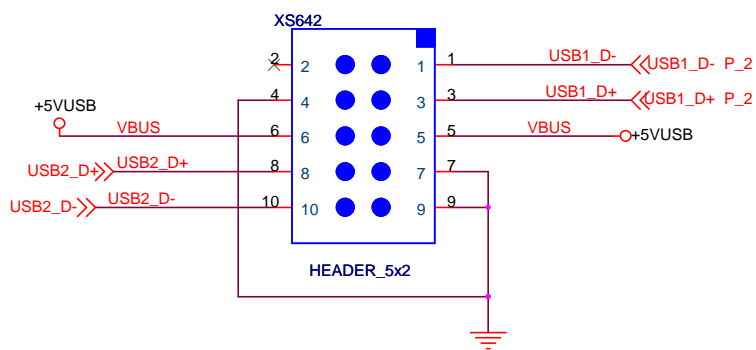
PH\_out



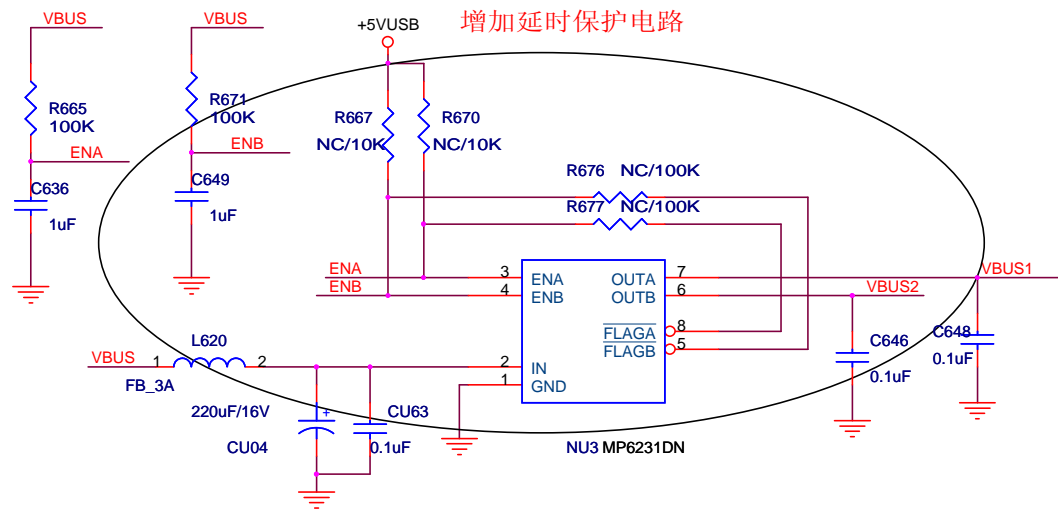
双USB



预留USB插座

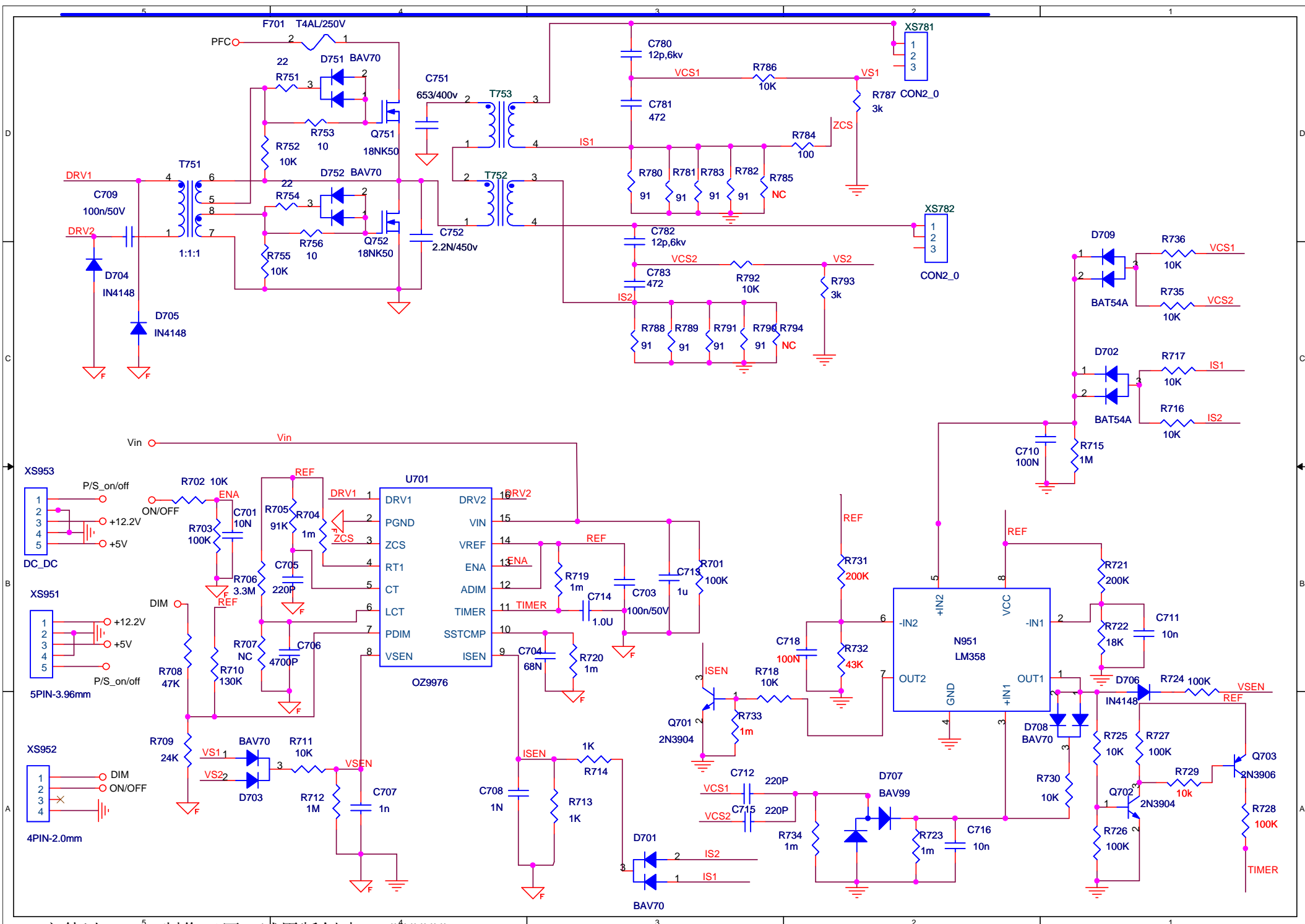


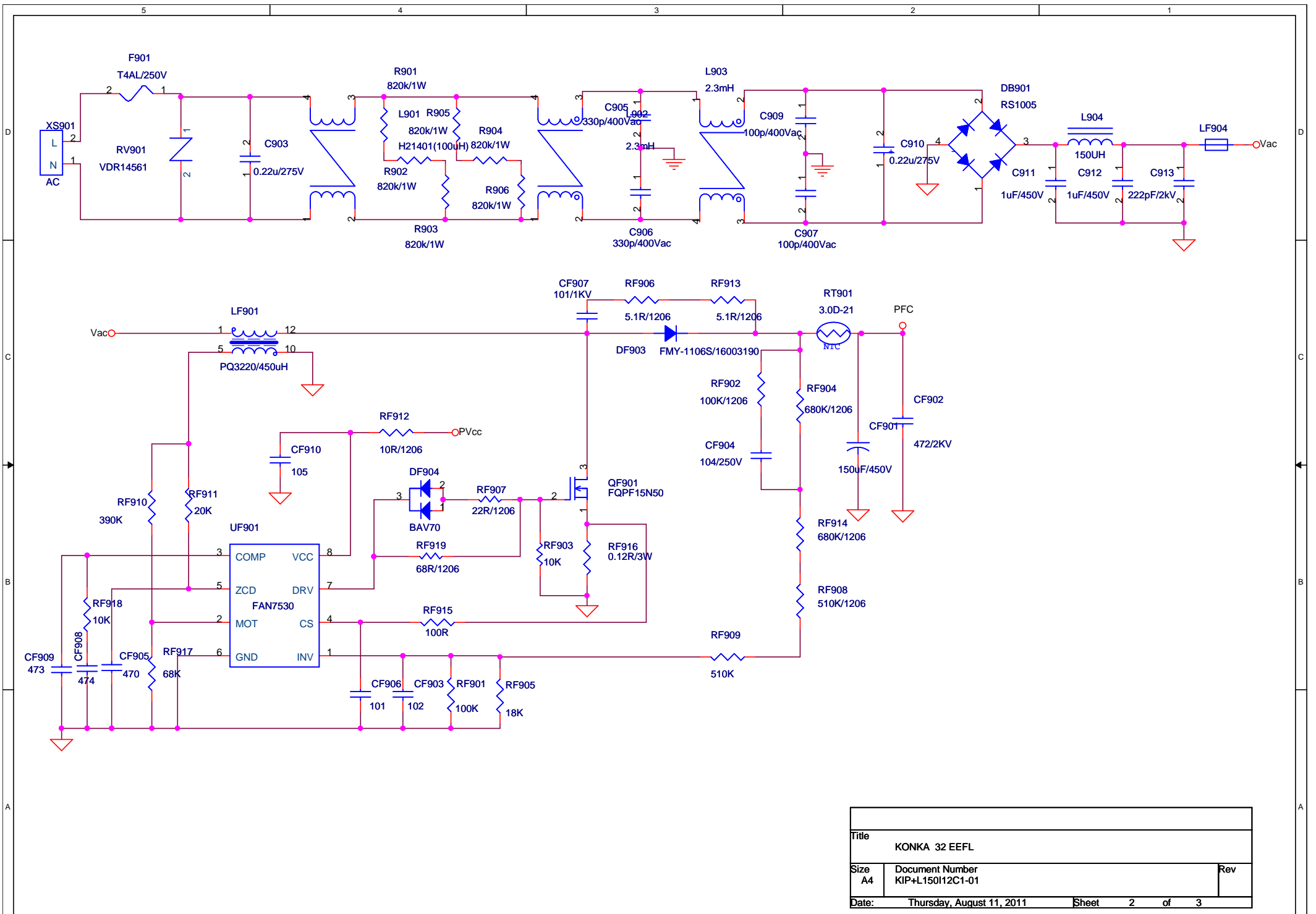
增加延时保护电路



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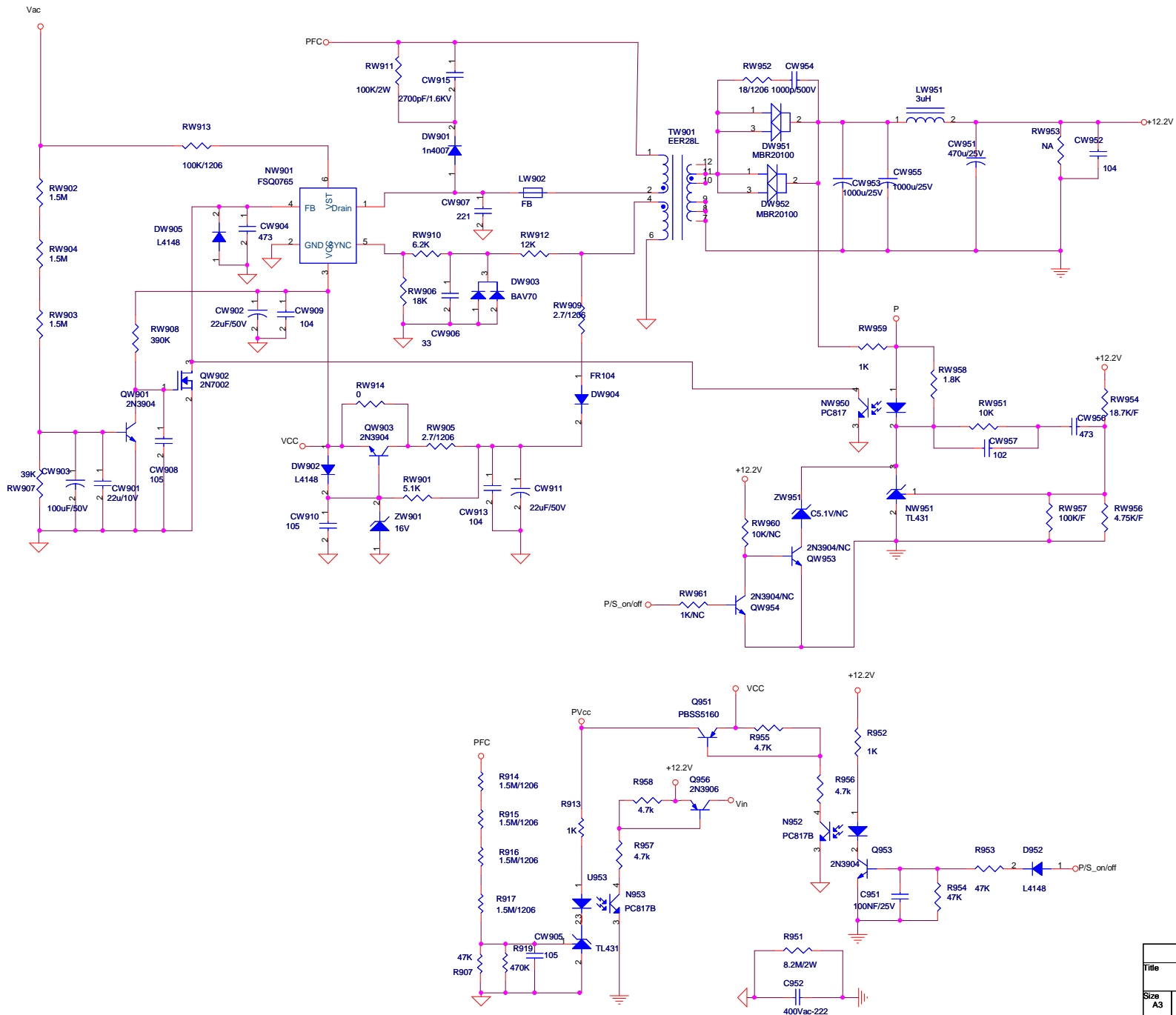
# 2 Power Supply Circuit Diagram





Title		
KONKA 32 EEFL		
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