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- 90'''Gzr mlf g'f tcy kpi (

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# 1. CAUTION

## CAUTION:

Use of controls, adjustments or procedures other than those specified herein may result in hazardous radiation exposure.

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**CAUTION**  
**RISK OF ELECTRIC SHOCK DO NOT OPEN.**



CAUTION: TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

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

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

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**WARNING: TO REDUCE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

# IMPORTANT SAFETY INSTRUCTIONS

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## CAUTION:

Read all of these instructions. Save these instructions for later use. Follow all Warnings and Instructions marked on the audio equipment.

1. Read Instructions-All the safety and operating instructions should be read before the product is operated.
2. Retain Instructions- The safety and operating instructions should be retained for future reference.
3. Heed Warnings- All warnings on the product and in the operating instructions should be adhered to.
4. Follow Instructions- All operating and use instructions should be followed.

## FOR YOUR PERSONAL SAFETY

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1. When the power cord or plug is damaged or frayed, unplug this television set from the wall outlet and refer servicing to qualified service personnel.
2. Do not overload wall outlets and extension cords as this can result in fire or electric shock.
3. Do not allow anything to rest on or roll over the power cord, and do not place the TV where power cord is subject to traffic or abuse. This may result in a shock or fire hazard.
4. Do not attempt to service this television set yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
5. Never push objects of any kind into this television set through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the television set.
6. If the television set has been dropped or the cabinet has been damaged, unplug this television set from the wall outlet and refer servicing to qualified service personnel.
7. If liquid has been spilled into the television set, unplug this television set from the wall outlet and refer servicing to qualified service personnel.
8. Do not subject your television set to impact of any kind. Be particularly careful not to damage the picture tube surface.
9. Unplug this television set from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- 10.1. Do not place this television set on an unstable cart, stand, or table. The television set may fall, causing serious injury to a child or an adult, and serious damage to the appliance. Use only with a cart or stand recommended by the manufacturer, or sold with the television set. Wall or shelf mounting should follow the manufacturer's instructions, and should use a mounting kit approved by the manufacturer.
- 10.2. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.



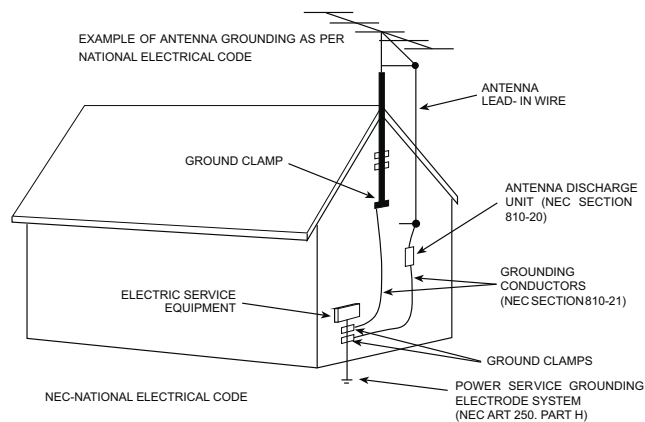
# PROTECTION AND LOCATION OF YOUR SET

11. • Do not use this television set near water ... for example, near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, etc.
  - Never expose the set to rain or water. If the set has been exposed to rain or water, unplug the set from the wall outlet and refer servicing to qualified service personnel.
12. Choose a place where light (artificial or sunlight) does not shine directly on the screen.
13. Avoid dusty places, since piling up of dust inside TV chassis may cause failure of the set when high humidity persists.
14. The set has slots, or openings in the cabinet for ventilation purposes, to provide reliable operation of the receiver, to protect it from overheating. These openings must not be blocked or covered.
  - Never cover the slots or openings with cloth or other material.
  - Never block the bottom ventilation slots of the set by placing it on a bed, sofa, rug, etc.
  - Never place the set near or over a radiator or heat register.
  - Never place the set in a "built-in" enclosure, unless proper ventilation is provided.

# PROTECTION AND LOCATION OF YOUR SET

- 15.1. If an outside antenna is connected to the television set, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges, Section 810 of the National Electrical Code, NFPA No. 70-1975, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrode, and requirements for the grounding electrode.

## EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE INSTRUCTIONS



### 15.2. Note to CATV system installer : (Only for the television set with CATV reception)

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

16. An outside antenna system should not be located in the vicinity of overhead power lines or other electric lights or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.
17. For added protection for this television set during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna. This will prevent damage due to lightning and power-line surges.

## **OPERATION OF YOUR SET**

18. This television set should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply at your home, consult your television dealer or local power company. For television sets designed to operate from battery power, refer to the operating instructions.
19. If the television set does not operate normally by following the operating instructions, unplug this television set from the wall outlet and refer servicing to qualified service personnel. Adjust only those controls that are covered in the operating instructions as improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the television set to normal operation.
20. When going on a holiday : If your television set is to remain unused for a period of time, for instance, when you go on a holiday, turn the television set " off " and unplug the television set from the wall outlet.

## **IF THE SET DOES NOT OPERATE PROPERLY**

21. If you are unable to restore normal operation by following the detailed procedure in your operating instructions, do not attempt any further adjustment. Unplug the set and call your dealer or service technician.
22. Whenever the television set is damaged or fails, or a distinct change in performance indicates a need for service, unplug the set and have it checked by a professional service technician.
23. It is normal for some TV sets to make occasional snapping or popping sounds, particularly when being turned on or off. If the snapping or popping is continuous or frequent, unplug the set and consult your dealer or service technician.

## **FOR SERVICE AND MODIFICATION**

24. Do not use attachments not recommended by the television set manufacturer as they may cause hazards.
25. When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.
26. Upon completion of any service or repairs to the television set, ask the service technician to perform routine safety checks to determine that the television is in safe operating condition.



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## PRODUCT SPECIFICATION RELEASE

Model: L32D2730A/MS08EP-LA/CSFGTA

Version: 1.0

Issued On: 2014-05-06

### Basic Information

Product Type	LCD Smart TV
Chassis	MS08EP-LA
CPU	1GHz
GPU	---
OS	Linux
Memory	256MB +128MB DDR3, 512MB NAND Flash
OSD Language	English/Portuguese/Spanish
TV System	ATV: NTSC-M, PAL DTV: ATSC
AV System	PAL,NTSC
TV Channels (Air)	2~69
TV Channels (Cable)	1~135
Power Supply	AC 110V-240V 50/60Hz
Power Consumption (TV On)	45W
Power Consumption (Standby)	≤0.5W
Certification	CB
Internet Link	Wired Network Default Built-in Wi-Fi

### Basic Function

Auto Source	---
EPG	Yes(at DTV)
Subtitle/Closed Caption	Yes
Parental Control	Yes (at DTV)
Sleep Timer	Yes
System Update	Yes
Hotel Mode	---
Input Method	Virtual keyboard
MHL	---
Teletext	---
Nicam	---
Lightsensor	---
3DTV Type	---
3D Format	---

### Picture

Natura Light Technology	---
DCC (Dynamic Contrast Control)	---
Backlight Adjustable	Yes (0~100)
Color Temperature	Normal/Cold/Warm
Picture Mode	Standard, Dynamic, Mild, User
Picture Size	Auto, 16:9, 4:3, Just Scan
Gamma Adjustable	---
Comb Filter	Yes
Dynamic Noise Reduction	Yes
Adaptive Deinterlacing	Yes
Motion Compensation	---

### Sound

Speakers	Integrated speakers (Bottom side)
Audio Power Output (THD=7%)	2x5W
Auto Volume	Yes
Sound Mode	Music, Movie, Sports, Standard, User
Sound Control	Balance
Sound Scene	---
SRS	No

### Media Format

Music	MP3, AC3, HE-AAC, LPCM, WMA
Picture	JPEG, PNG, BMP, MPO
Video	MPEG2, H.264, MPEG4 Motion JPEG WMV, VC1
File	---

### Signal Format Capability

Component Video Format	Up to 1080P
DVI Video Format	Up to XGA for HDMI-PC
HDMI Video Format	Up to 1080P
PC Compatibility	---

### Panel Specification

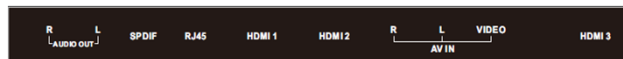
Backlight Unit	LED
Panel supplier	CSOT(ST3151A05-8)
Aspect Ratio	16:9
Panel Size (inch)	32"
Display Resolution	1366*768
Brightness (cd/m2)(typ.)	250
Contrast Ratio	4000:1
Response Time (G to G)	6.5ms
Viewing Angle (H/V)	178°/178°
Life Time(Typ.)	>30,000hrs
Color	16.7M (8 bit)
Refresh Rate	60Hz

### Terminals

Side



Back





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## Pre-Installed Application List

Opera TV Browser	Yes
Opera TV Store	(Optional according to OEM brand)
NetFlix	(Optional according to OEM brand)
YouTube	(Optional according to OEM brand)
Terra TV	(Optional according to OEM brand)
Twitter	Yes
Facebook	Yes
Picasa	Yes
File Share	Yes
E-Sticker	Yes

## Special Function

Dolby Virtual Surround	MS10 (DD+, DP)
GINGA	YES

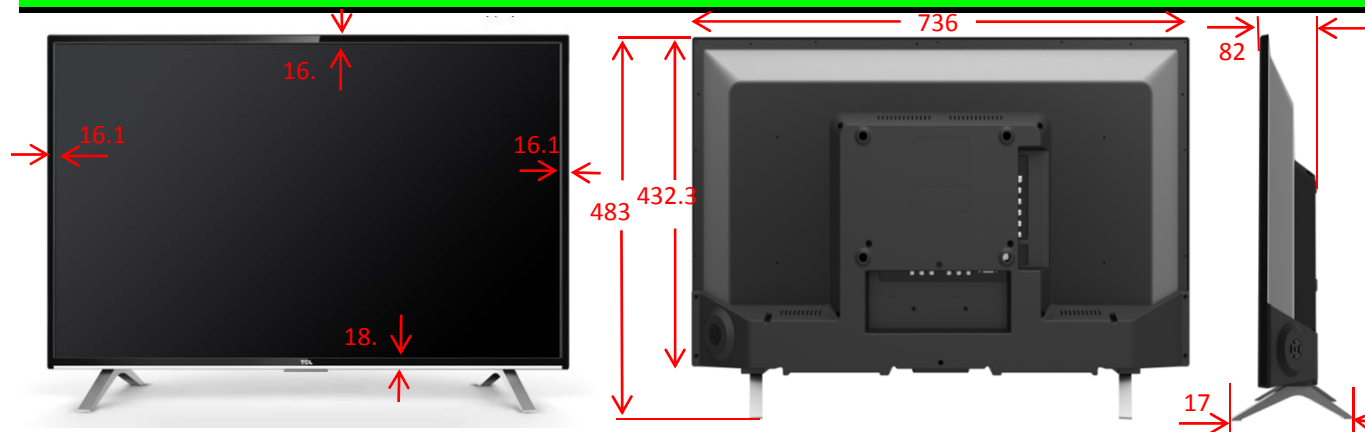
## Essential Accessories (Default)

Operation Manual	English (Default)
Remote Control	RC199
Base Stand	Integrated Packaging
AC power cord	1 pcs

## Optional Accessories

Wall Mount	WMB333
Wireless USB Dongle	---
Batteries	2 pcs

## Mechanical ID Picture



## Mechanical Key Specification

Carton Dimensions LxWxH (mm)	834*122*503
Container Loading---20 feet (pcs)	472
Container Loading---40 feet (pcs)	1004
Container Loading---40 feet High (pcs)	1180
Net Weight With Stand (Kg)	4.56
Net Weight Without Stand (Kg)	4.47
Gross Weight With Packaging (Kg)	5.88(普通纸箱)
VESA Mounting Dimensions LxH (mm)	200x150

## Remote ID Picture



Drafted by:

Approved by:

Design and specifications are subject to change without notice!

**TCL GMC IPC R&D**

**Factory Test & Alignment Specification  
(FTAS)  
for MS08EP-LA Series  
Version 1.0**

PREPARED BY : Gao Hongxin DATE : 2014-11-26

APPROVED BY : \_\_\_\_\_ DATE : \_\_\_\_\_

**Disclosure**



The information contained in this document is proprietary to TCL IPC and shall not be disclosed by the recipient to third persons without the written permission of the team leader or GM of R&D.

### Revision History

Version	Issue Date	Description of changes
v1.0	2014-11-26	

These chassis are designed for Latin America(LA) markets Ready for IPTV. The main chip is from Mstar and supports below features matrix:

Class	Item	MS08EP-LA
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<b>Inputs &amp; Outputs</b>	<b>ATV</b> ( PAL M/PAN N/ NTSC)	CABLE&ANTENNA
	<b>DTV</b> (ISDB-T)	ANTENNA
	<b>HDMI</b> (480i/p, 576i/p, 720p up to 1080i/p, compliant v1.4 with HDCP)	3
	<b>CMP</b> (YPrPb can support from 480i up to 1080p,audio)	1
	<b>AV</b> (CVBS, audio)	1
	<b>AV Audio Out</b>	1
	<b>USB Thumb Drive</b>	2 - Picture, Video, Audio Playback - Hub, Mouse, Keyboard rd
	<b>Headphone Output</b>	1
	<b>SPDIF Output</b>	1
<b>Functions</b>	<b>OAD</b>	√
	<b>WIFI</b>	Yes
	<b>DIVX</b>	Yes
	<b>FILE SHARE</b>	Yes
	<b>Internet</b>	Opera
	<b>3D (auto, top &amp; bottom, side by side, frame sequencing, ...)</b> 1920x2205@24Hz (1920x1080p x2) 1280x1470@50Hz (1280x720p x2) 1280x1470@60Hz (1280x720p x2)	NO
	<b>Audio Return Channel (ARC)</b>	Yes
	<b>Serial connector</b>	N/A
<b>Other</b>	<b>I2C connector of MEMC module</b>	N/A
	<b>Main SW Serial NAND Flash BIN image</b>	U501 V8-MS08EPBR-LF1V0**
<b>IC Details &amp; Position</b>	<b>Main EEPROM</b>	U500 Opera

### INFO:

⚡ All tests and measurements mentioned hereafter have to be carried out at a normal mains voltage (220 ~ 240 VAC)

⚡ All voltages have to be measured with respect to ground, unless otherwise stated

⚡ All final tests have to be done on a complete set including LCD panel in a room with temperature of 25+/-7°C

⚡ The Picture Performance assessment such as White Balance (luminance and color temperature) has to be performed into subdued lighted room after at least **45min** of warm-up in order to avoid any temperature drift influence (colorimetry vs time)

## 1. PCB/SKD Assembly: Test & Alignment

### 1.1. Pre-Conditions and DC/DC Check

Before power-on, please check the board according to the relevant block diagram and circuit diagram, and make sure that no serious issue or mistake can destroy the board. For example, the output of DC/DC and LDO should not be shorted to ground.

Supply a suited voltage and power-on, then check the voltage according to the relevant block diagram, circuit diagram and voltage spec. the error should less than 5%. For example, the voltage for main chip(+3V3, AV3.3, +1V2, CORE1V2, etc.), the voltage for DDR (DDRV), the voltage for amplifier (AMP\_VCC), etc...

Position	Value	Remark
UD90	5VSTB $\pm 5\%$	5VSTB
U175	3.3VSTB $\pm 5\%$	3V3STB
U201	3.3V $\pm 5\%$	TU_3V3
U201	3.3V $\pm 5\%$	3.3V
U174	1.5V $\pm 5\%$	1V5
UD60	1.2V $\pm 5\%$	1V2
Q10	5V	5V

### 1.2. SW Image download

### 1.3. Project ID Modification

There are different IDs stored into the NVM depending on different Panels settings and Models features, but there's only one key branching ProjectID that includes all. So, it's not recommended to modify Panel ID with Hyper terminal as other ID features may not change!

To modify Project ID, you need to go through “**Design menu**→**Service menu**→**Project ID**”, then spin left or right with RCU “**Zoom±**” keys to suitable ID (Project name is dynamically refreshed).

See Appendix ③ “How to change Project ID with RCU”

Here below is none exhaustive ProjectID table for reference:

MODEL	Project ID	Panel Name
L32B2800	006	ST3151A04-3

### 1.4. Functional Test

Once the boards (chassis, KB, IR, PSU...) and the panel are well interconnected, plug all external generator devices to relevant inputs/outputs below according to their respective test patterns

format and check picture content and sound quality accordingly:

Source	Test Signal	Test Pattern
<b>Analog /Digital Tuner</b> (VHF/UHF & CATV)	RF cable generator	2D - Movie 1280x720 2D - Static Picture 1920x1080 1. Frequency Range: full band 2. Standard: NTSC /PAL M 3. ISDB-T
<b>SPDIF</b> (optical)	Audio Amplifier	PCM or Dolby D+
<b>AV IN</b> (CVBS & AUDIO)	Chroma/Fluke generator	PAL Half Color & Gray bars
<b>CMP</b> (YPrPb & Audio)	Chroma/QuantumData generator	1920x1080i@60Hz Half Color & Gray bars
<b>HDMI</b> (Video & Audio)	with beyond HDMI 1.3 and HDCP compliant DVD/BD player	2D - Movie 1280x720i@60Hz 3D - Movie 1920x1080@p24Hz
<b>RJ45</b> (LAN)	DHCP Server	ICMP packets echo request
<b>Headphone</b> via mini jack adapter	RF signal	Suitable channel
<b>Loud Speakers</b> / Enclosures	RF signal	Suitable channel
<b>AV OUT</b> (Audio)	RF signal	Only for TV&AV

Audio tones can be defined by the factory (i.e. 1KHz & 3KHz, sweep ...).

Picture video formats can be changed by the factory according to their own standard.

Remark: 1. CMP Audio in shared with AV. AV Video in shared with YPbPr.

### **1.5. AD Calibration Test**

As SoC as built-in A/D self-calibration mechanism, there's not any ADC to perform.

### **1.6. DDC & EDID & T-Link Test**

The E-EDID data structures are according to VESA Enhanced EDID 1.3 (and EIA/CEA-861B for HDMI). CEA Timing Extension structure has been extended to support all 3D capable timings.

All HDMI structures have their own BIN profile which are part of main SW and uploaded at power-on into HDMI switch chipset:

For EDID check, it's needed to check whether the correct EDID is downloaded by checking corresponding EDID NVM Checksum or read them out to check bit by bit if it is in line with the released EDID bin file.

### **1.7. HDCP Test**

For HDCP compliancy, it's needed to check whether the HDCP key has been well set.

### **1.8. LAN/WLAN Test** (MAC address and Device/User ID codes)

#### **▪ MAC Address Upgrade**

See Appendix ⑥ **“How to upgrade MAC Address”**

▪ **DeviceID (DID) and UserID (UID)**

Purpose is to allow Other Network Download (OND) and further specific Services over dedicated portal based on UK.

**Description/Portal Links/Flow chart are welcome?**

For such, specific DID (32 bytes) and UID (8 bytes) needs to be paired and overwritten into memory for internal client encryption.

Here are below codes examples:

Device ID	User ID
BE4F255BBD106BC8F806AE456350D91F	3546187

Those DID/UID codes can only be set using UART commands following enclosed SIACP requirements (rev. v3.9).



See Appendix ⑧ **“Instructions of Updating DID,UID and MAC”**

▪ **LAN Test**

A rough LAN test can be done by connecting DHCP server to TV's RJ45 and check that IP, subnet mask, DNS addresses, ... are visible on **“User menu→Setting→Network Setting→Cabal Network→OK”** (ensure that “Internet Connection” is Enabled at first).

More in-depth test can be performed faster using suitable UART/IR commands following SIACP requirements. SW will internally manage Network ID (NID) flag controlling all MAC/DID/UID integrity to facilitate PA screening further.

Note: It's not necessary to check video and audio from DLNA server.

See Appendix ⑨ **“NETWORK CONNECTION AND TEST”**

## **2. Product Assembly (PA): Test & Alignment**

### **2.1. Factory Menu**

Follow the below steps to pop-up the Factory menu in case of **“FactoryKey”** is disabled:

- Press RCU **“MENU”** key to display main menu
- Select “Setting” and press **“OK”** key to enter into Setting submenu
- Select “Picture” and press **“OK”** key to enter into Picture submenu
- Scroll down to **“Contrast”** item
- Press the subsequence RCU keys **“9”, “7”, “3”** and **“5”**

In case of **“Factory Key”** is enabled, just press RCU **“Return”** key to pop-up again the Factory menu.

The status of “**Factory Key**” can be changed in **Factory Menu->Hotkey**.

Press RCU “**OK**” key or “**RIGHT**” key to enter the submenu.

Press RCU “**Menu**” key to go back to the root menu.

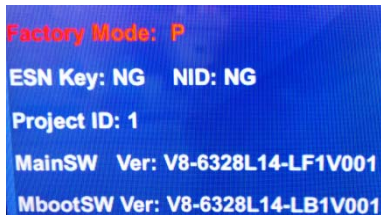
Press RCU “**RIGHT**” or “**LEFT**” key to change the values.

Press RCU “**OK**” key run the function.

Press RCU “**Exit**” key exit the Factory menu.

- **Factory Captions Info.**

While “**Factory Key**” is enabled, there’re some toggled display information relative to SW, Project ID, ADC Status, to facilitate 100% quick screening without accessing to whatever else menu:



**P** (Production/Factory mode flag)

Project ID

Main SW Version

Mboot SW Version

See Appendix ⑦ “**Factory Menu Description**”

## **2.2. Warm-up Test**

Following TCL standard and practices, it’s required minimum **15min** of **Warm-Up** that can be considered as Burn-In.

Additional Aging for White Balance alignment is no more necessary due to consistent Picture Performance with Cloning usage.

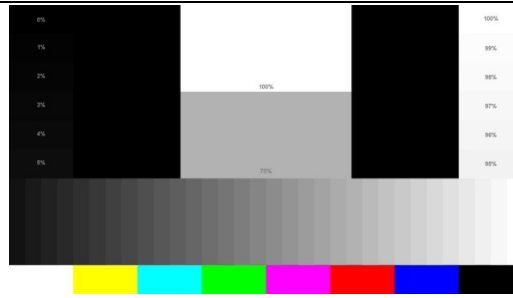
This function is accessible by selecting “**Factory menu →WARM-UP**”, pressing RCU “**Zoom+**” key and then leaving Factory menu. Other faster methods are available on above enclosed SIACP requirements (rev. v3.9).

## **2.3. White Balance (WB)**

- **White Balance Touch-Up**

As some color coordinates discrepancies can be noticed from panel batches to others, it may necessary to perform slight touch-up.

For Color temperature adjustment, switch TV on leading **HDMI** input where should be connected suitable generator providing following format **1280x720p@60Hz** test pattern. A 32 steps grey scale is recommended to assess relevant colorimetry tracking and low/high light saturation points.



Make sure that Picture Preset is set to “**VIVID**” mode, “**Contrast**” bargraph is set to maximum (100%) and “**Active Backlight**” is set to “**Off**”.

Ensure that TV is in Factory mode to access to “White Balance” adjustment submenu, then scroll down to toggle off “**Pic. Enhance**” flag.

**CMP YPrPb**, **RGB**, **CVBS\_PAL Gain/Offset** matrix offsets locations are relative to **HDMI/DTV**.

**CVBS\_SECAM** and **CVBS\_NTSC Gain/Offset** matrix offsets locations are relative to **CVBS\_PAL**.

**Warm** and **Cool** Tone are relatives to **Normal** mode.

- “**Gain**” registers set need to be adjusted at 70IRE.
- “**Offsets**” registers set can be adjusted at 30IRE, but it’s not recommended to keep them defaulted.

Note: All matrix offsets locations can be individually fine-tuned.

▪ **Targets and Tolerances for all inputs**

The measured parameters should be mainly “**x**”, “**y**” coordinates.

The “**Y**” peak luminance measurement at 100IRE is depending on achievable panel performance and less important than saturation on high light. If necessary, “**Scaling Contrast**” register can be adjusted.

The “**BlackLevel**” measurement need to be within **1% ±2**. If necessary, “**Scaling Brightness**” register can be adjusted.

The White Balance alignment should be performed using a well calibrated and contact less analyzer (ex: Minolta CA210 or CA310). The analyzer may not touch the screen surface, and measurement must be performed in a dark environment keeping the probe(s) at 90+/-2° from the panel center.

The result should fulfill TCL matching specification (Minolta CA210 reference with CH00):

MODEL	COOL(x/y)	NORMAL(x/y)	WARM(x/y)	ID
L32S4600	0.257/0.276	0.266/0.293	0.297/0.324	001

within below tolerances:

- **for Alignment: ± 0.003**
- **for Measurement: ± 0.015**

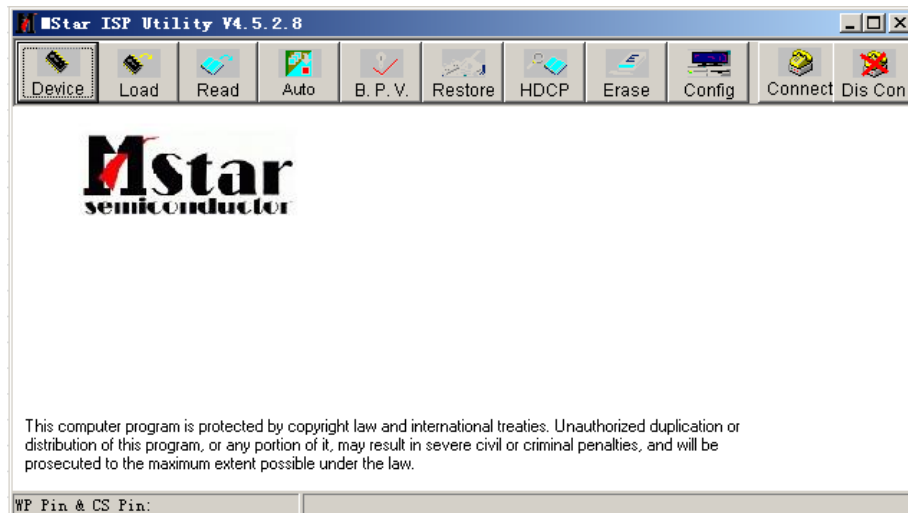
## **2.4. SHOP-END Test**

At final process stage, it’s necessary to perform “**Reset shop**” before any packing to leave Factory mode and restore User default presets.

This function is accessible by selecting “**Factory menu →SHOP init**”, then pressing RCU “**OK**” key. Other faster methods are available on above enclosed SIACP requirements (rev. v3.9).

## **Appendix ① “How to upgrade SW FLASH using Mstar tool”**

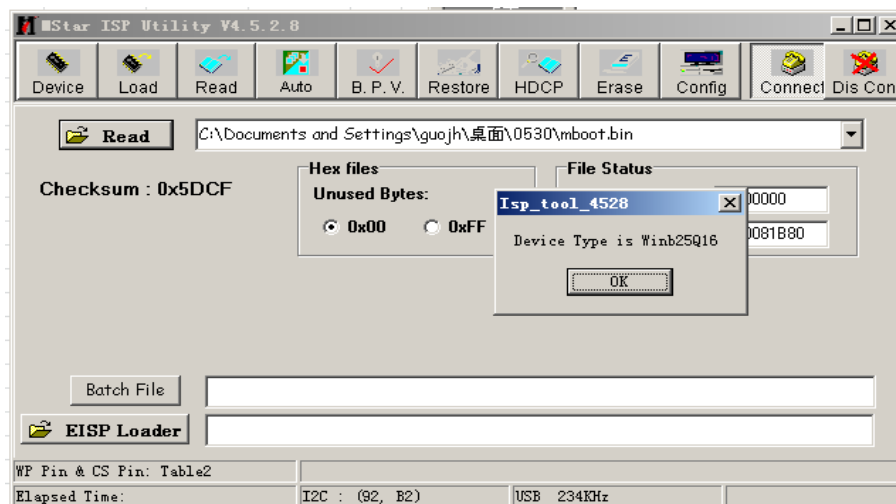
- Open Mstar “Mboot” software programming tool “ISP\_Tool\_4528”



- Click on “Read”, and select “mboot.bin” file

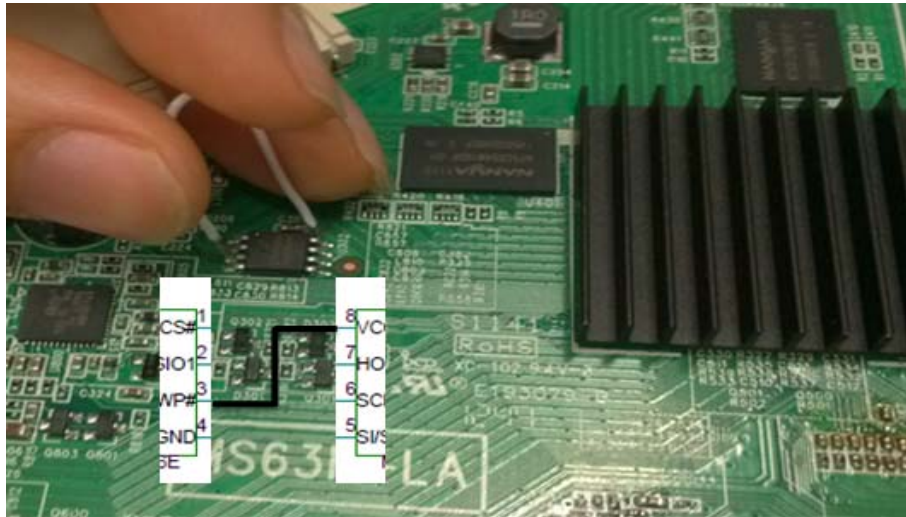


- Then click “Connect” ,it will check SPI FLASH’s tape----correct, it will display OK.

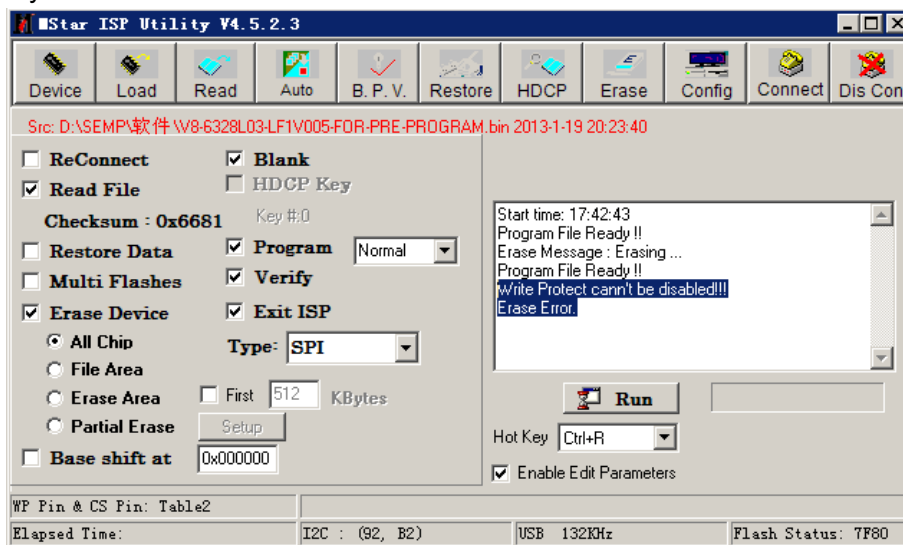


**Note:** If this is not the first time to upgrade, you must do as following  
Connect 8th pin and 3th pin by a wire.



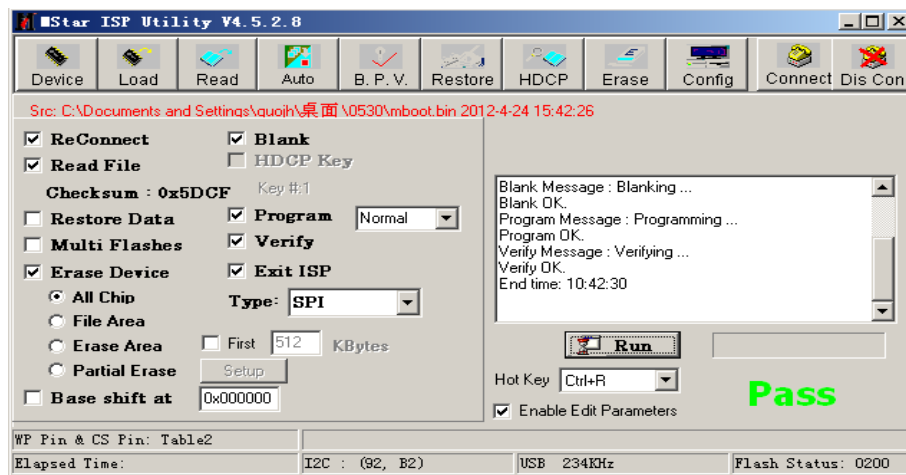


Otherwise you will see an error: **Write Protect can't be disabled!!!**



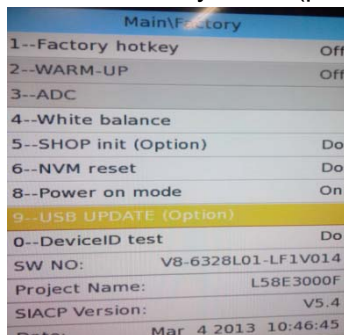
- Next, click on “Auto” menu, then click “Run”, it begin programming “Mboot.bin”, when programming success, it will display a word “Pass”.



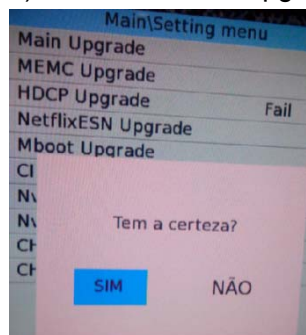


## See Appendix ② “How to upgrade MBOOT using USB”

- Copy the SW BIN image “V8-6328L01-LB1V0\*\*.bin” into the USB stick root path..
- Plug the USB stick to the TV
- Into the factory menu (picture1) and Select USB upgrade option.



picture1



picture2

- Into the upgrade menu and Select Mboot Upgrade. If the TV found the MBOOT BIN, Select YES upgrade is begin (see picture2).
- When update is successful (about 10 S). TV should restart automatically, Please wait the TV to finish the loading logo to display.

## Appendix ③ “How to upgrade FLASH SW using USB”

There are two methods to upgrade SW using USB, the first one like below:

- In the previous of upgrade SW using USB, should program mboot bin file” **V8-6328L14-LB1Vxxx.bin**” by ISP\_Tool or by USB. .
- Then switch off TV by removing AC cord.
- Copy the SW BIN image “**MS6328LA14\_FULL\_UPGRADE.bin**” into USB stick (pen drive) root path
  - Note: If there’s already other “**MS6328LA14\_FULL\_UPGRADE.bin**” into USB root, it needs to be deleted or renamed
- Plug USB stick to the TV
- Press and hold the power key of key board before reconnect AC cord to restart TV for 5-8seconds.
- Once USB stick starts blinking, TV is uploading SW BIN image.
- When update is successful, TV should restart automatically.
- Remember to perform “**Factory menu→NVM reset**” and then press RCU “**OK**” key
- Switch off TV by removing AC cord
- Reconnect AC cord to restart TV and wait few seconds for Eeprom update

## The second method:

- To use this method, there should be SW in mainboard to ensure TV can display normally.
- Copy the SW BIN image “**V8-6328L14-LF1VXXX.bin**” into USB stick (pen drive) root path
- Press RCU **MENU→Setting→Function→software upgrade→OK→By USB**
- TV display warning information, that means it is upgrading, almost 3minutes later, when upgrade successful, TV should restart automatically.

## Appendix ③ “How to change ProjectID with RCU”

- Process following subsequence IR codes to change project ID: **062598+MENU+xxx** (xxx: Project ID, ex: 001)
- Restart TV

## Appendix ④ “How to upgrade MAC Address

- Upgrading MAC address need to use the tool in factory and through serial command, the specific methods according to the operation of the factory guidance.

## Appendix ⑤ “Factory Menu Description”

### 1- Factory hotkey submenu

Item	Sub-item	Value	Note
<b>Factory hotkey</b>		Off/On	OFF: hotkey is invalid ON : hotkey(Return key) is availability

### 2-Warm-Up Mode submenu

Item	Sub-item	Value	Note
<b>Warm-UP Mode</b>		Off/On	Select panel On with left/right key, Press “EXIT” key to enter the burning mode; Press “Menu” key on keyboard to exit the burning mode

### 3-ADC submenu

As SoC as built-in A/D self-calibration mechanism, there's not any ADC to perform.

### 4-White Balance submenu

Item	Sub-item	Value	Note
<b>White Balance</b>	Source	HDMI,etc	Balance source are: HDMI, ATV, DTV, PAL, NTSC, CMP
	Color Temp	Normal /Warm/Cool	Warm and cool value is relative to Normal one. Normal is the default Tone mode
	R Gain	000..255	R White balance (-127..+128 for gain)
	G Gain	000..255	G White balance (-127..+128 for gain)

	B Gain	000..255	B White balance (-127..+128 for gain)
	R Offset	000..255	R Gray balance (-127..+128 for offset)
	G Offset	000..255	G Gray balance (-127..+128 for offset)
	B Offset	000..255	B Gray balance (-127..+128 for offset)
	White Balance Init	DO	Press "OK" key to initial the preset RGB Gain/Offset value
	YPbPr ADC Status	NG	

#### 5-Shop init submenu

Item	Sub-item	Value	Note
Shop Init		DO	Clear date of NVM in user menu, include the value related installation, and Clear date of factory menu except the item of Balance and sound ,set to default value

#### 6-NVM Reset submenu

Item	Sub-item	Value	Note
Reset ALL		DO	Clear NVM values , and set to default value

#### 7-Preset Factory Channel submenu-----NC

Item	Sub-item	Value	Note
Preset Factory Channel		HZ/CD/NM/W X/ <b>POLAND</b>	Preset the channel table of factory. To preset the channel table of certain factory, firstly choose the corresponding factory name, then press OK button of remote control and wait until the disappearance of Factory Menu.

#### 8-Power On Mode submenu

Item	Sub-item	Value	Note
Power On Mode		ON/LAST/STB	ON: The set will power on after switching on power STB: Force TV to start in standby Last: Force TV to start from last power status

#### 9-USB UPDATE submenu

Item	Sub-item	Value	Note
USB UPDATE	Main Upgrade		Upgrade software
	MEMC Upgrade		Upgrade MEMC
	HDCP Upgrade		Upgrade HDCP

	<b>Mboot upgrade</b>		Upgrade Mboot
	<b>NVM Upgrade</b>		Upgrade NVM
	<b>NVM backup</b>		Backup NVM
	<b>CH list Upgrade</b>		Upgrade CH list
	<b>CH list backup</b>		Backup CH list

**0- DeviceID test submenu**

Item	Sub-item	Value	Note
<b>DeviceID test</b>		OK/Fail	

**Appendix ③ “Instructions of Updating DID,UID and MAC”**

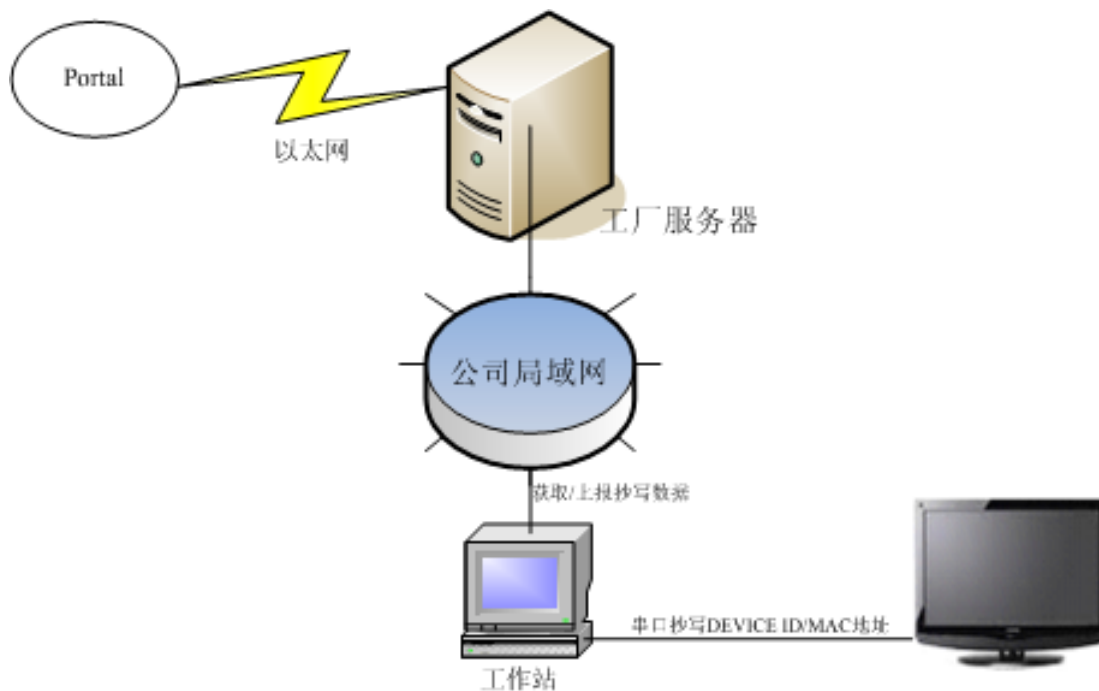
1,use the Uart command to sent DID and MAC using the command :

DID write: B2 DATA 0 TO DATA N(ASCII )

UID write:B8 DATA 0 TO DATA N(ASCII )

MAC write:B3 MAC address 6 (Binary)

The process is as the picture below:

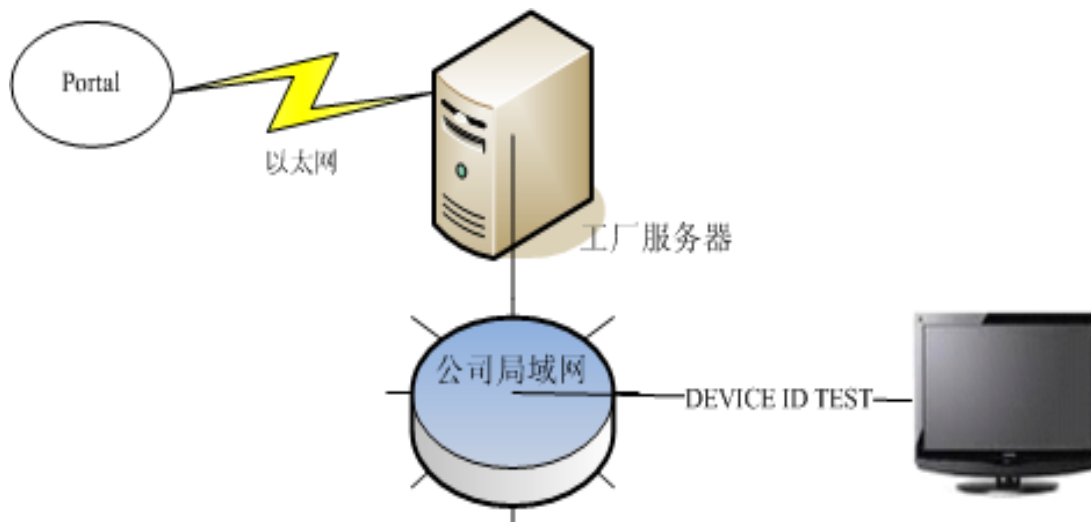


Portal give the UID and DID to the factory local service ,and the service connect to the factory LAN.

When product line produce the IPTV , there will be a work station (PC normally) down load the DID , UID and also MAC from the local service ,then using UART command sent them to the module.

2,How to test the function:

When there is a module need to test the Device function connect the set to the LAN use the device ID test the module will sent the device ID information and user ID information to the local service and compare with the data-base .so that the data is verified .



## **Appendix ⑨ "NETWORK CONNECTION AND TEST"**

### **1. Network connection**

You can set up your TV so that it can access the Internet through your local area network (LAN) using a wired or wireless connection.

#### **1.1 Connecting to a wired network**

You can attach your TV to your LAN using cable in three ways:

- You can attach your TV to your LAN by connecting the LAN port on your TV to an external modem using a Cat 5 cable.
- You can attach your TV to your LAN by connecting the LAN port on your TV to a IP Sharer which is connected to an external modem. Use Cat 5 cable for the connection.
- Depending on how your network is configured, you may be able to attach your TV to your LAN by connecting the LAN port on your TV directly to a network wall outlet using a Cat 5 cable. Note that the wall outlet is attached to a modem or router elsewhere in your house.

Select **Options > Network > Configuration > Interface**, then select **Ethernet** to connect to a wired network.

#### **1.2 Connecting to a wireless network**

To connect your TV to your network wirelessly, you need a wireless router or modem and a Wireless LAN Adapter. Connect your Wireless High Gain USB Adapter (USB dongle) delivered with your TV to your TV's **USB 1** port.

**1.2.1** Select **Options > Network > Configuration > Interface**, then select **Wireless** to connect to a wireless network.

**1.2.2.** Select **Wireless setting** and press **OK/▶** to enter.

**1.2.3. Connection Methods:** You can setup the wireless network connection three ways.

##### **1.2.3.1 Scan**

- Select **Wireless setting > Scan**, then press **OK/▶**, the TV will scan all access points within range. The access points found by the TV will be displayed.
- Select an available access point, then press **OK/▶** to connect the TV to it.

*Notes:*

- If you select a protected access point, you will have to enter the corresponding password. Press **Menu** on the remote control to display virtual keyboard to enable you to enter the password.
- This set has a memory function of available access point, which enables your set to be connected to the network even if you switch on TV after power off.

##### **1.2.3.2 Manual**

Select **Wireless setting > Manual**, then press **OK/▶**, you will be prompted to enter the correct SSID

of an available wireless router to setup the connection.

#### -1.2.3.3 **Auto**

If your AP supports WPS (Wi-Fi Protected Setup), you can connect to the network via PIN (Personal Identification Number) or PBC (Push Button Configuration). WPS will automatically configure the SSID and WPA key in either mode. Select **Wireless setting > Auto**, then press **OK/▶** to enter.

- **PIN:** Select **PIN** and press **OK/▶** to enter. Generate a random PIN code. Make sure this code is installed to the AP. (For the procedures, refer to your router manual.) Press **OK/▶** again to setup the connection.

- **PBC:** If your router has a PBC push button, select **PBC**, then press **OK/▶** to enter. Press PBC push button on your router within 2 **EN** 12 minutes after you press **OK/▶** again. Your TV will automatically acquire all the network setting values it needs and connect to your network.

#### **Network setup**

1. Press **Menu** on the remote control and select

**Options > Network > Configuration > Internet connection**. Press **◀/▶** to select **On**. Wait until the connection is automatically established.

2. Select **Options > Network > Configuration > Connection test**, then press **OK/▶** to check the Internet connectivity. If fail, follow below step to make sure the connectivity.

3. Select **Options > Network > Configuration > IP setting**, then press **OK/▶** to enter the **IP setting** menu.

- Set **Address type** to **Auto**, it will acquire and enter the needed IP address automatically.

- You can follow below steps to enter your IP address manually.

- Set **Address type** to **Manual**, then press **▼** to go to the first entry field.

- Enter the **IP address**, **Subnet mask**, **Default gateway**, **Primary DNS** and **Secondary DNS** values. Use the digit buttons to enter numbers and the arrow buttons to move from one entry field to another.

- After setting, select **Options > Network > Configuration > Connection test** to check the Internet connectivity again.

4. Select **Options > Network > Configuration > Information**, then press **OK/▶** to display the information on current connection, such as Interface, Address type, IP address, etc..

#### **Share & See**

*Note: This manual covers products with either **Share& See** or **DLNA** function. **Share & See** is DLNA compatible.*

#### **Connecting to your PC**

Make sure to set up a wired or wireless connection from your TV to a router first. Then connect your PC to your router either through a network cable or wirelessly. Follow the steps in turn specified hereafter, then you can enjoy recorded video, picture, music and/or text files saved on your PC.

#### **Adding media from your PC for sharing**

Install a DLNA media server in your PC. The simple and familiar server you may install is Microsoft Windows Media Player 11. Allow your TV to share the designated files on your PC.

1. Open Microsoft Windows Media Player 11.

- Select **Library > Media sharing**.

- Check the checkbox **Share my media to**.

- Select the icon of the TV set connected to your PC.

- Select **Allow** to allow the TV set to access your PC, and select **OK** to enable your allowing.

*Note: You can push **Settings** button to customize your desired settings.*

2. - Select **Library > Add to Library**.

- Select your personal folders or folders of other users that you can access for sharing.

- Select **Add** and press **OK** to enable your adding.

#### **Share & See application**

1. Select **Options > Network > Applications > Share & See**, then press **◀/▶** to select **On**.
2. Press **Menu** on the remote control and select **USB**, then press **OK** to launch **Share & See** applications.

#### Stopping Share & See function

1. Select **Options > Network > Configuration > Internet connection**, and set it to **Off**.
2. Or select **Options > Network > Applications > Share & See**, and set it to **Off**.

#### Opera browser

This feature brings desired contents and services directly from the web to your TV.

*Notes:*

- Configure the network settings before using this feature.
- Unsupported fonts within the provider's content will not display normally.
- Slow responses and/or interruptions may occur, depending on your network conditions.

1. Press **Option** on the remote control and select **Quick access > Opera**.
2. Press **OK** to display the homepage of your browser.
3. Use **▲/▼/◀/▶** on the remote control to navigate through the webpage, and press **OK** on the remote control to confirm an entry or selection. You can also press **Menu** on the remote control to access or exit virtual keyboard. Connect your wired or wireless mouse through your TV's USB jack. Use your mouse to navigate within the webpage.

**Home:** Click it to display the homepage.

**Back:** Return to the webpage you just left.

**Go to:** Select from the list to get back to a recently visited webpage.

**Refresh:** Click it to refresh the webpage.

**Bookmark manager:** Click it to display the Bookmark manager.

English

- **Add a folder:** Add folders to your **Bookmark manager** so as to organise your bookmarks into folders to include all the websites you visit frequently. Click **Add a folder** bar, type a name for the folder, and then click **Add**. Repeat this step until you have created as many folders as you'd like.
- **Visit a bookmark:** Go to a bookmark by simply clicking its name, instead of having to type its address.
- **Delete a bookmark:** Click the **Delete** icon after a link to delete the link if you want to.
- **Edit a bookmark:** Click the **Edit** icon after a link to edit the name and/or URL of the bookmark if you want to.
- Click **Close bookmark manager** bar to close.

**Add a bookmark:** Go to the webpage you want to add to your **Bookmark manager** and click **Type** a new name for the webpage if you want to, specify the folder that the bookmark should be created in, then click **Add**.

*Notes for password in Parental Control Lock function:*

- The default password is 1234. You can change it to a new one.
- The super password is 0423. If you forget your code, enter the super password to override any existing codes.

#### Appendix ⑧ "Instructions of Updating SW"

1. The following IC should be pre-copied before SMT process

Positon	PART TYPE	Part Number	SW
---------	-----------	-------------	----

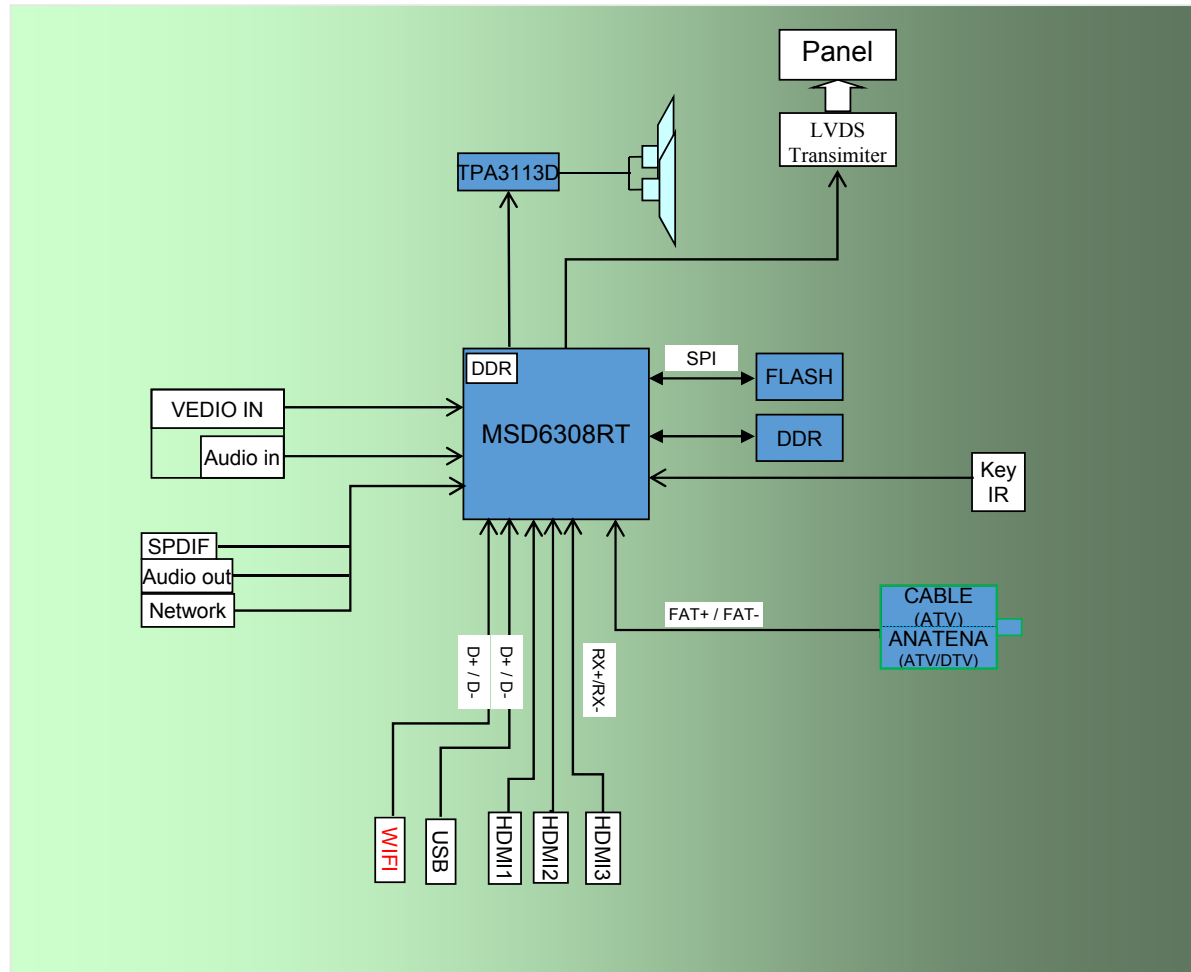


Factory Test & Alignment Specification For MS08EP-LA Series (V1.0)

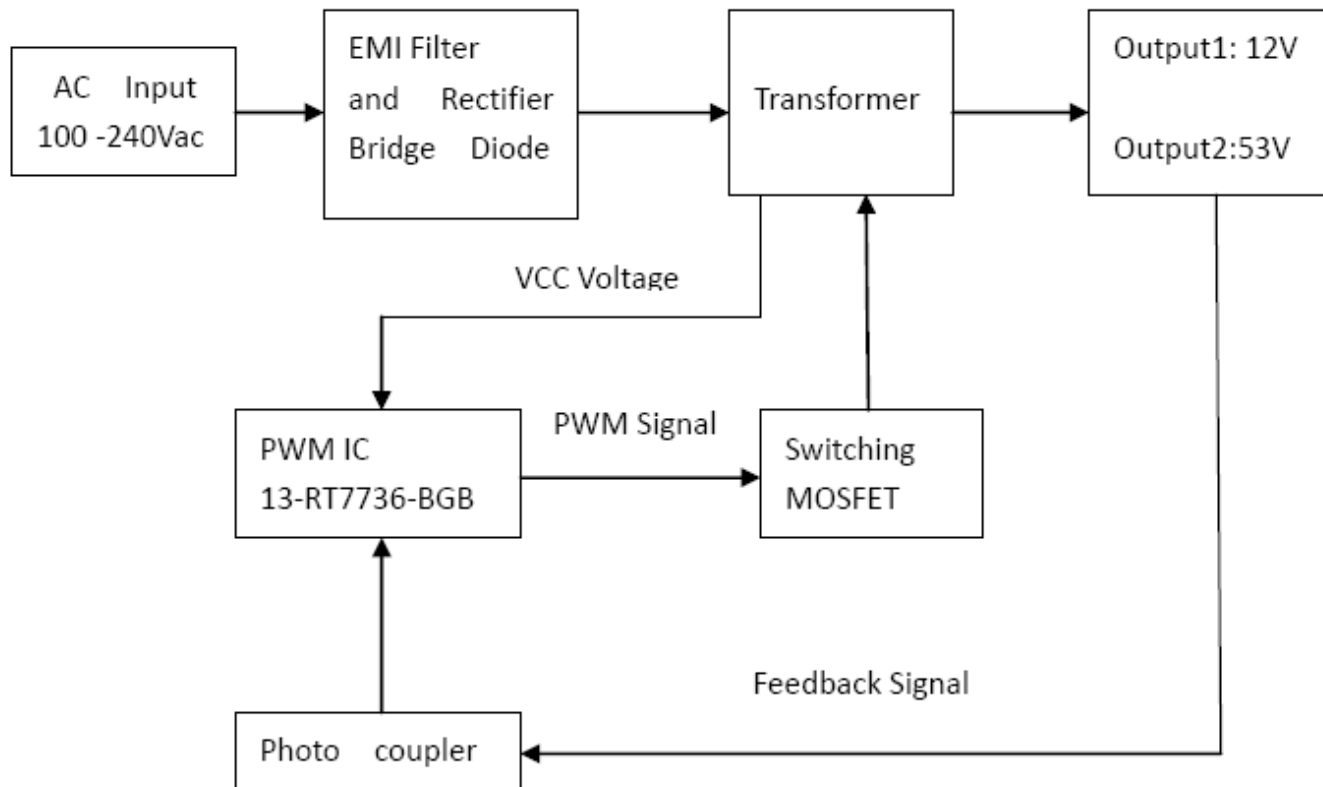
U302	SO-8	13-W25Q16-00B (CPP)	MBOOT: V8-6328L14-LB1Vxxx
U301	IC-TSOP48	13-FHMT29-4GB(CPP)	Main Software: V8-6328L14-LF1Vxxx

**2 The DEVICE ID/MAC Address/HDCP KEY/ESN KEY must be upgrade by debug port into U302.**

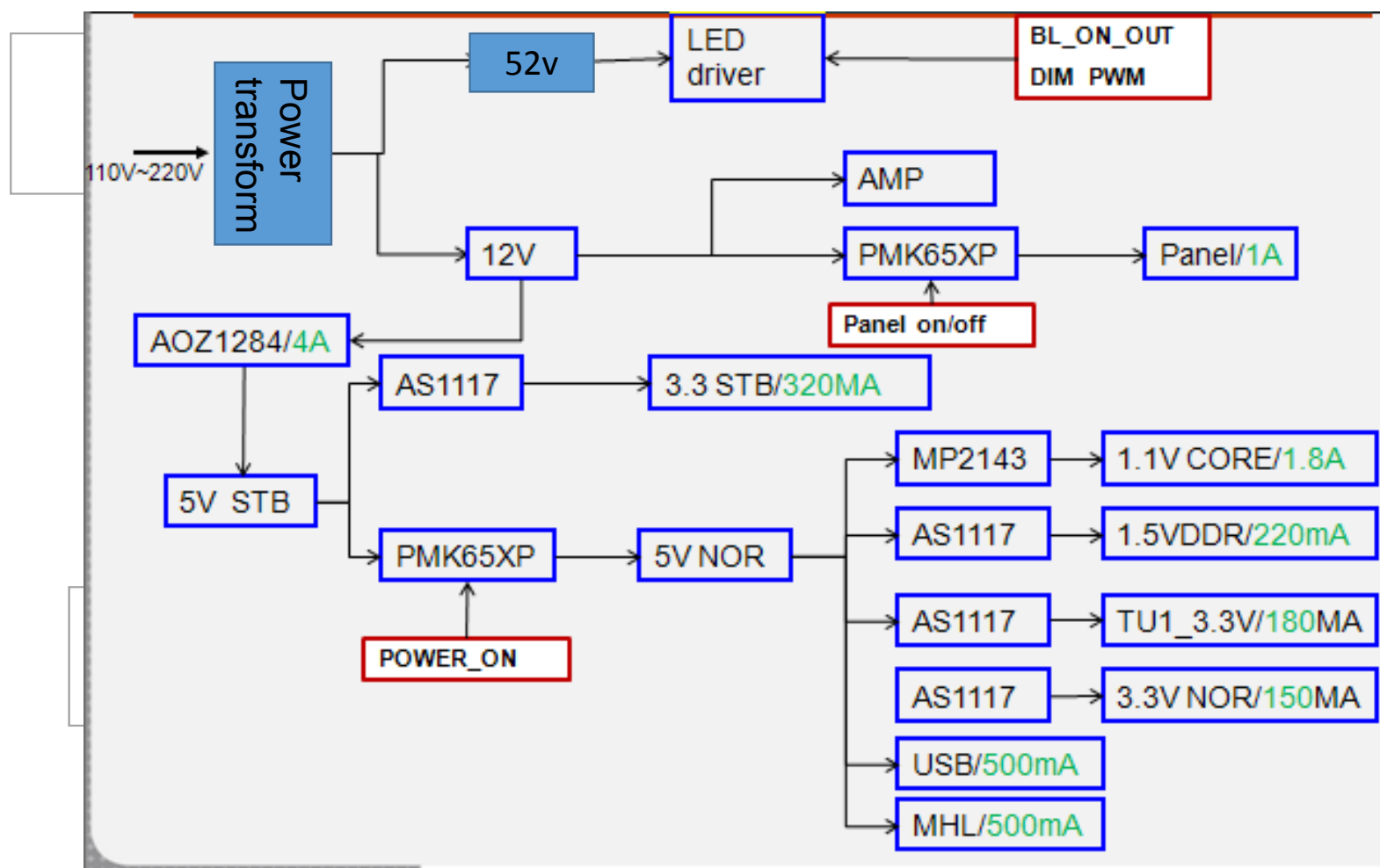
# Signal Flow Diagram



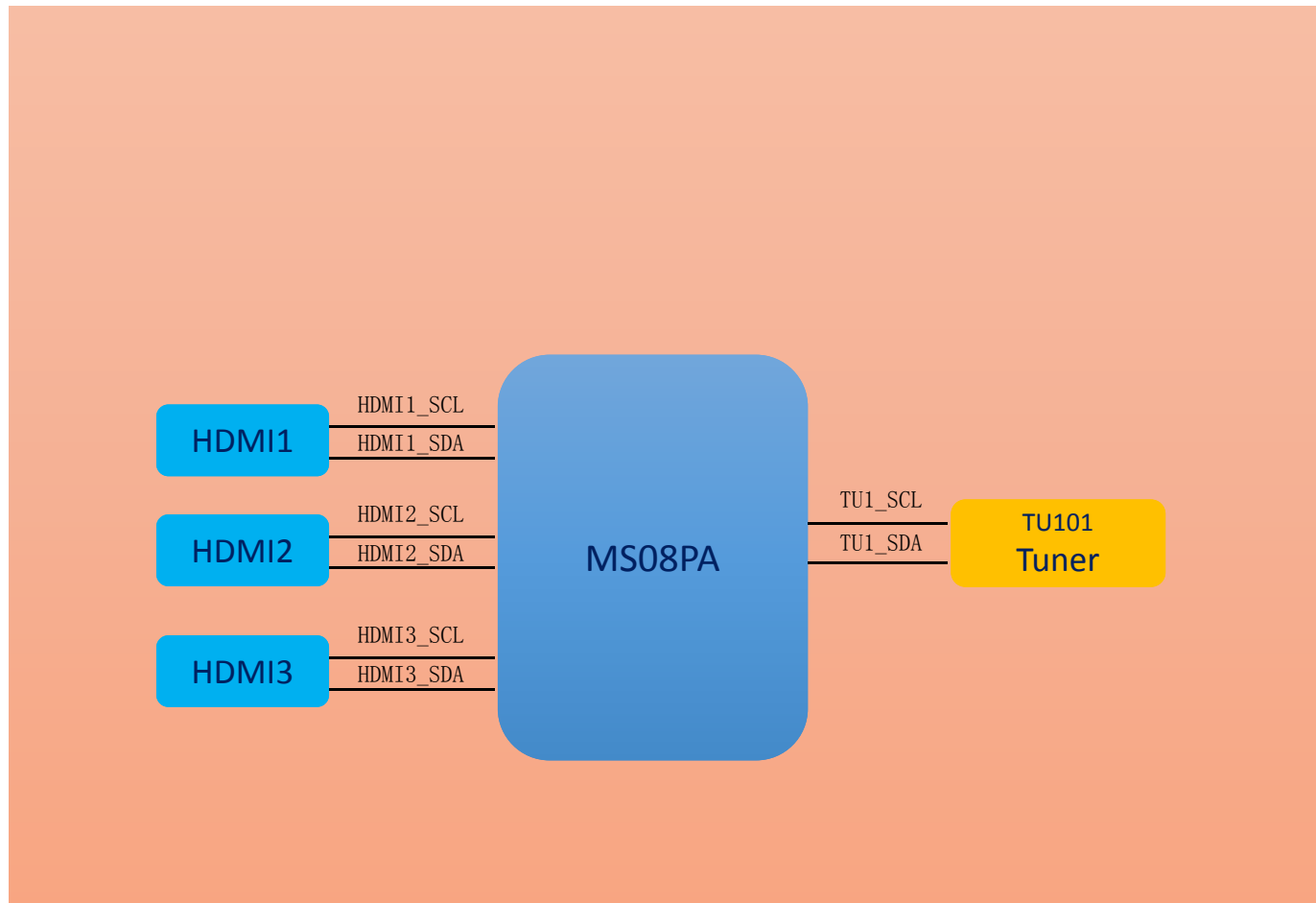
# Power Supply Block Diagram



# Power Supply Flow



## I<sup>2</sup>C Bus Block Diagram



7654321

D

C

B

A

MODEL:MS08EP/MS08FP

DESCRIPTION:

DRAWN:DATE:

CHECK:DATE:

APPR:DATE:

TCL

WW R&D CENTER TCL MULTIMEDIA TECHNOLOGY HOLDING LTD.  
5TH FLOOR.TCL BUILDING SOUTH NANHAI ROAD  
NANSHAN DISTRICT SHENZHEN GUANGDONG 518067 CHINA  
TEL:+86 755 33312403

NOTE:.....

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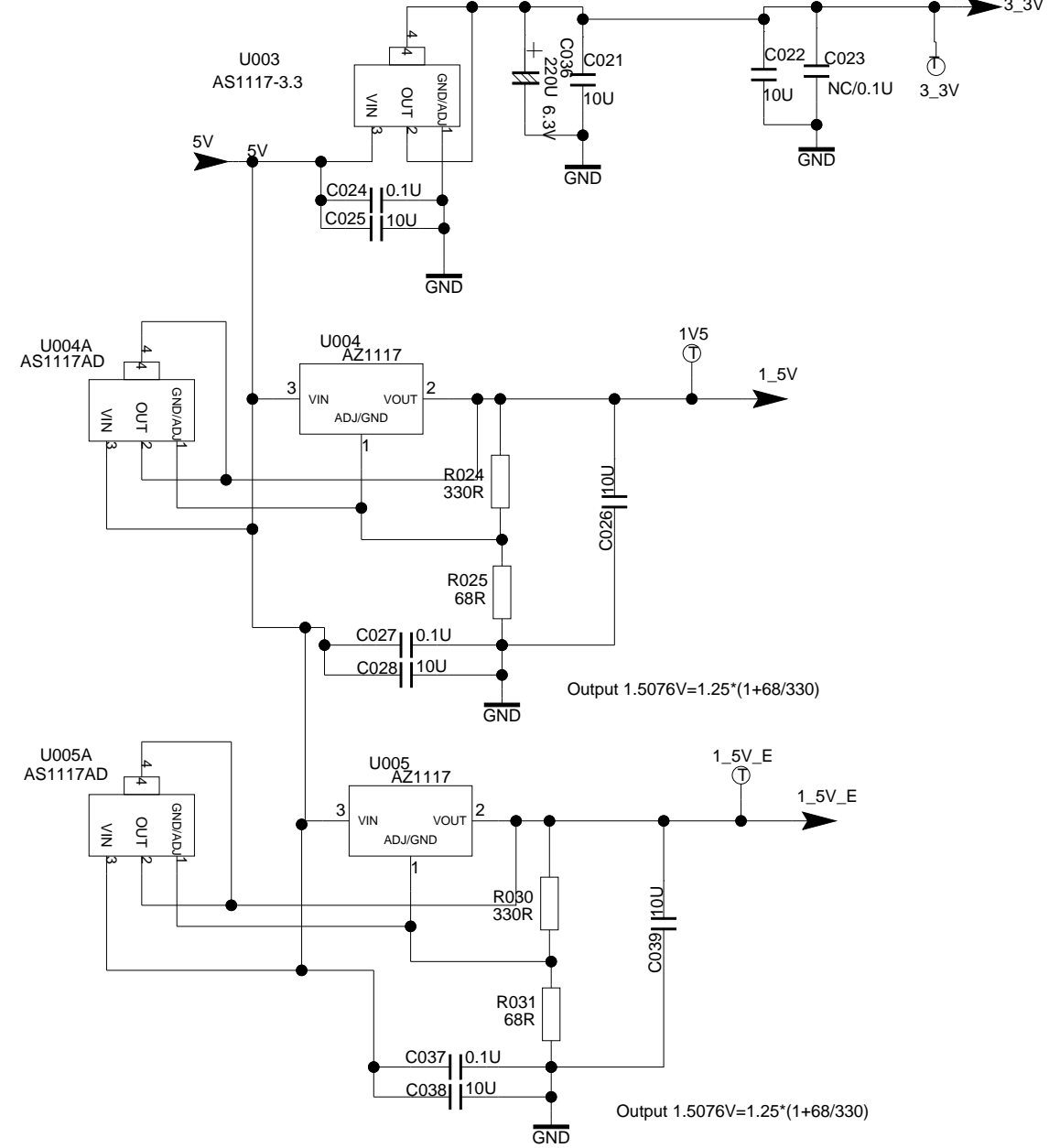
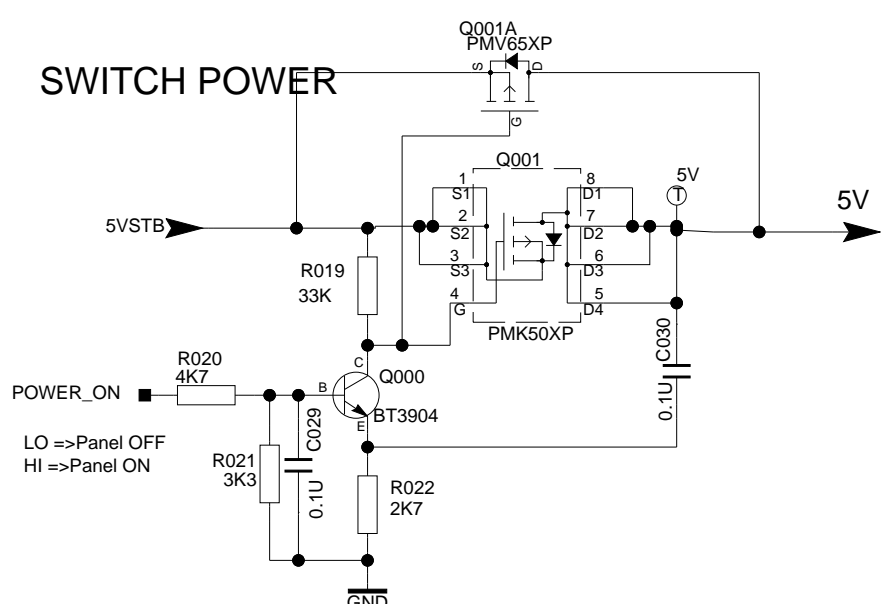
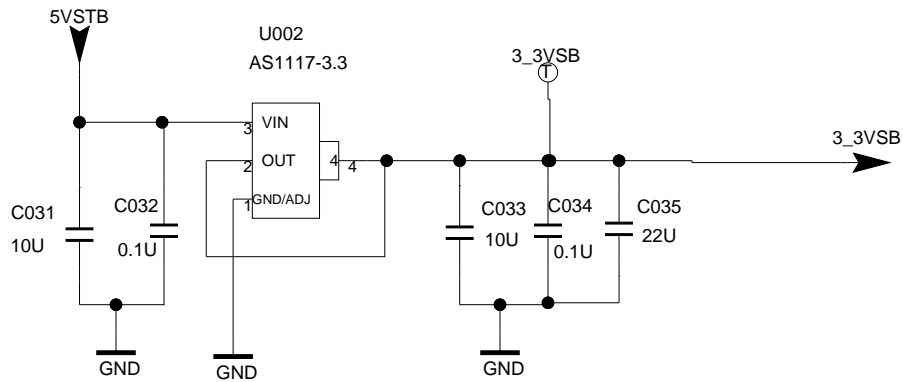
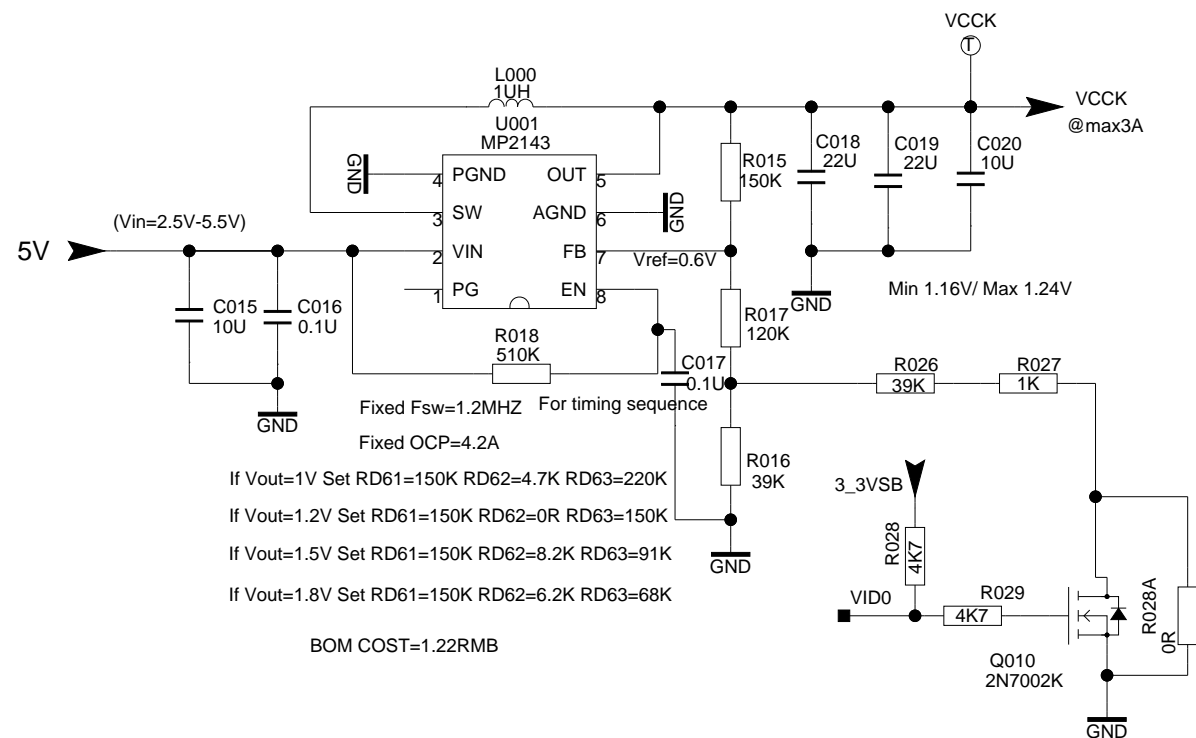
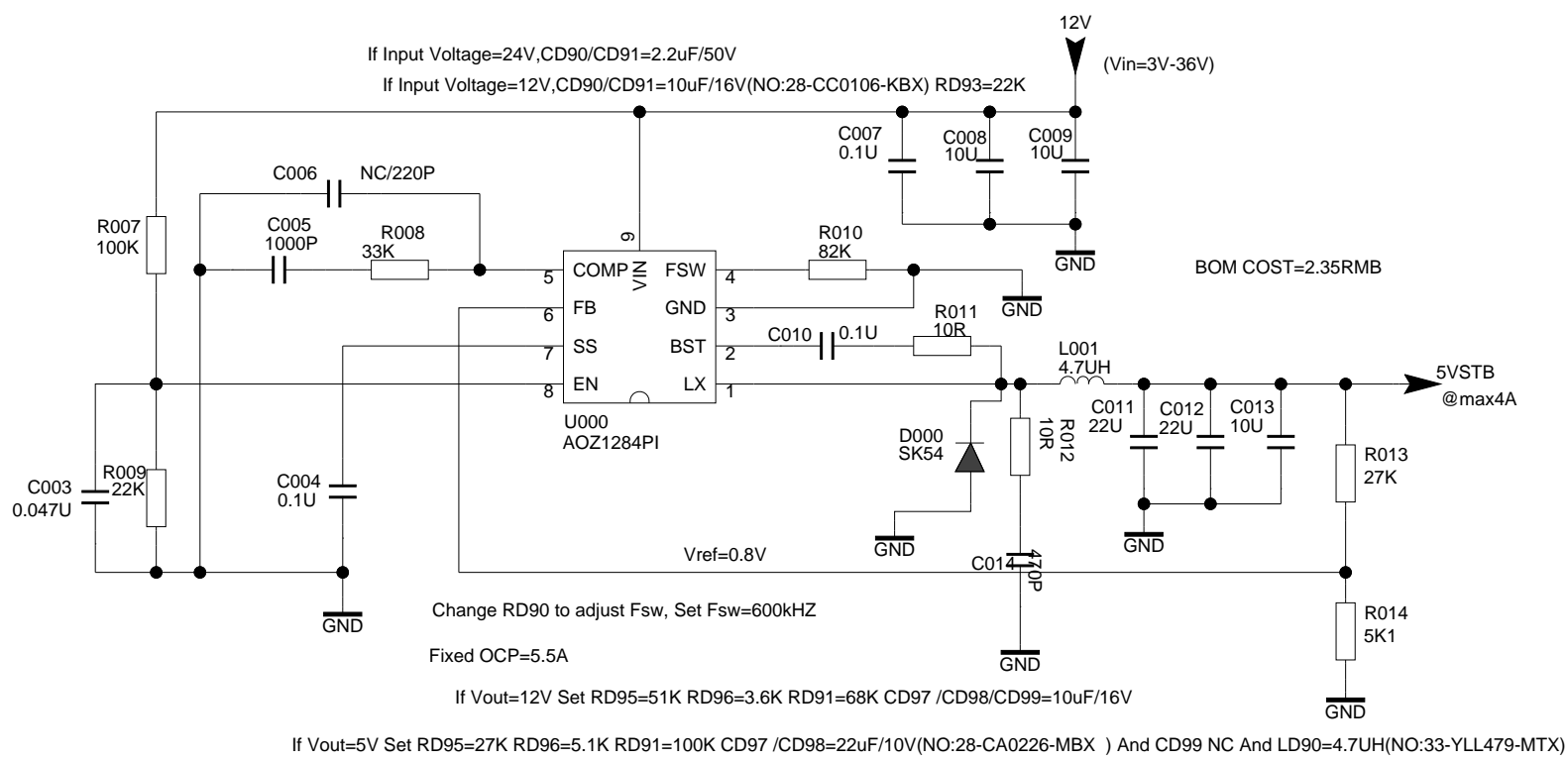
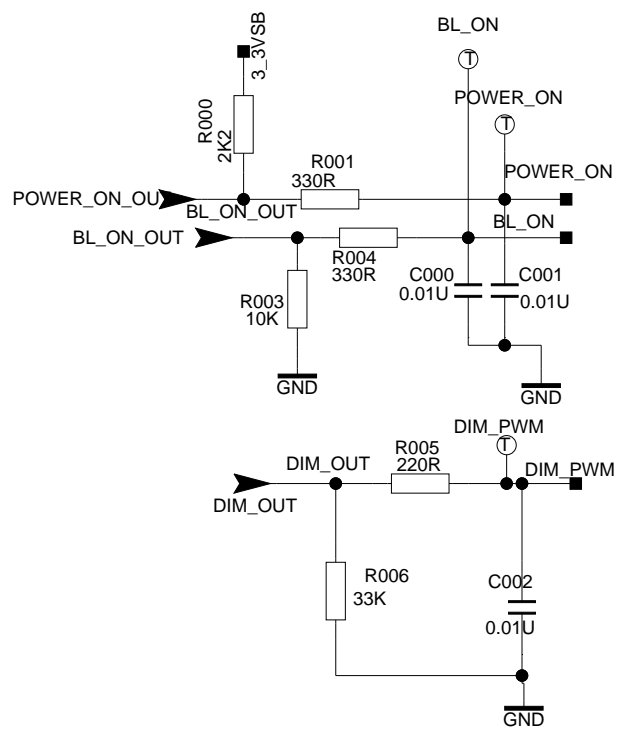
OF


7654321

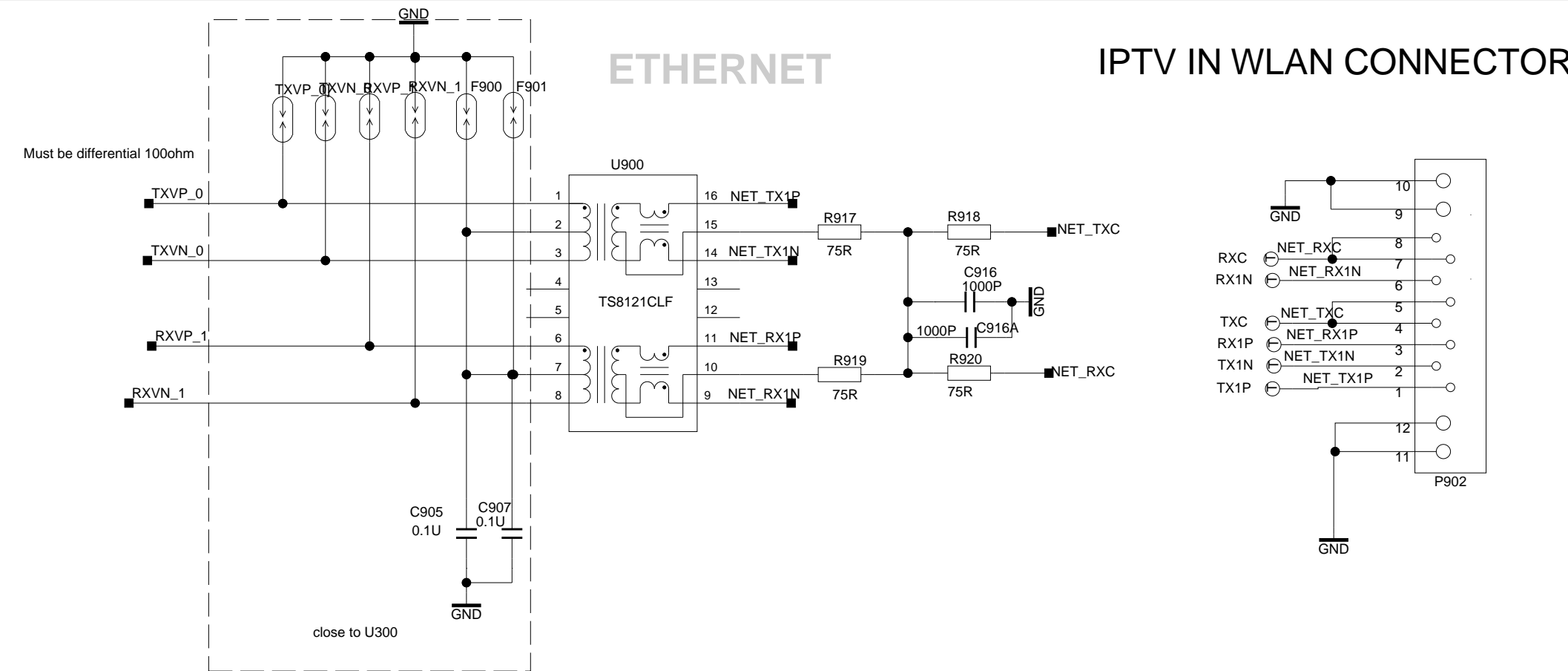
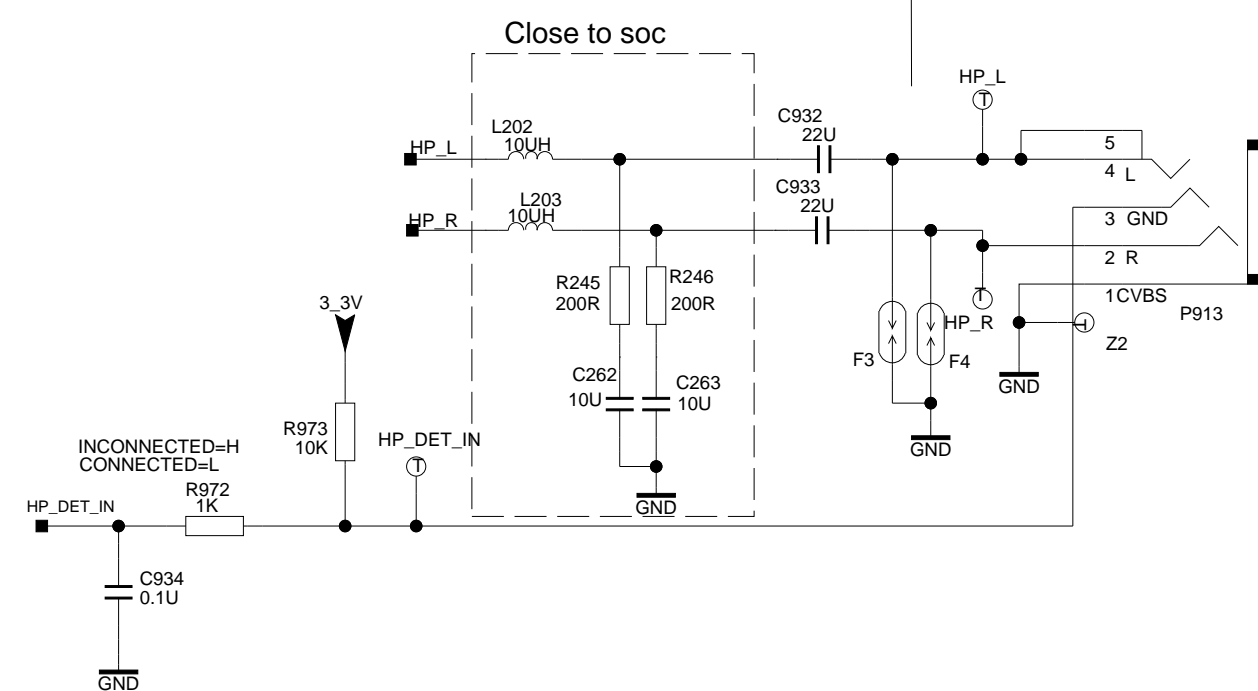
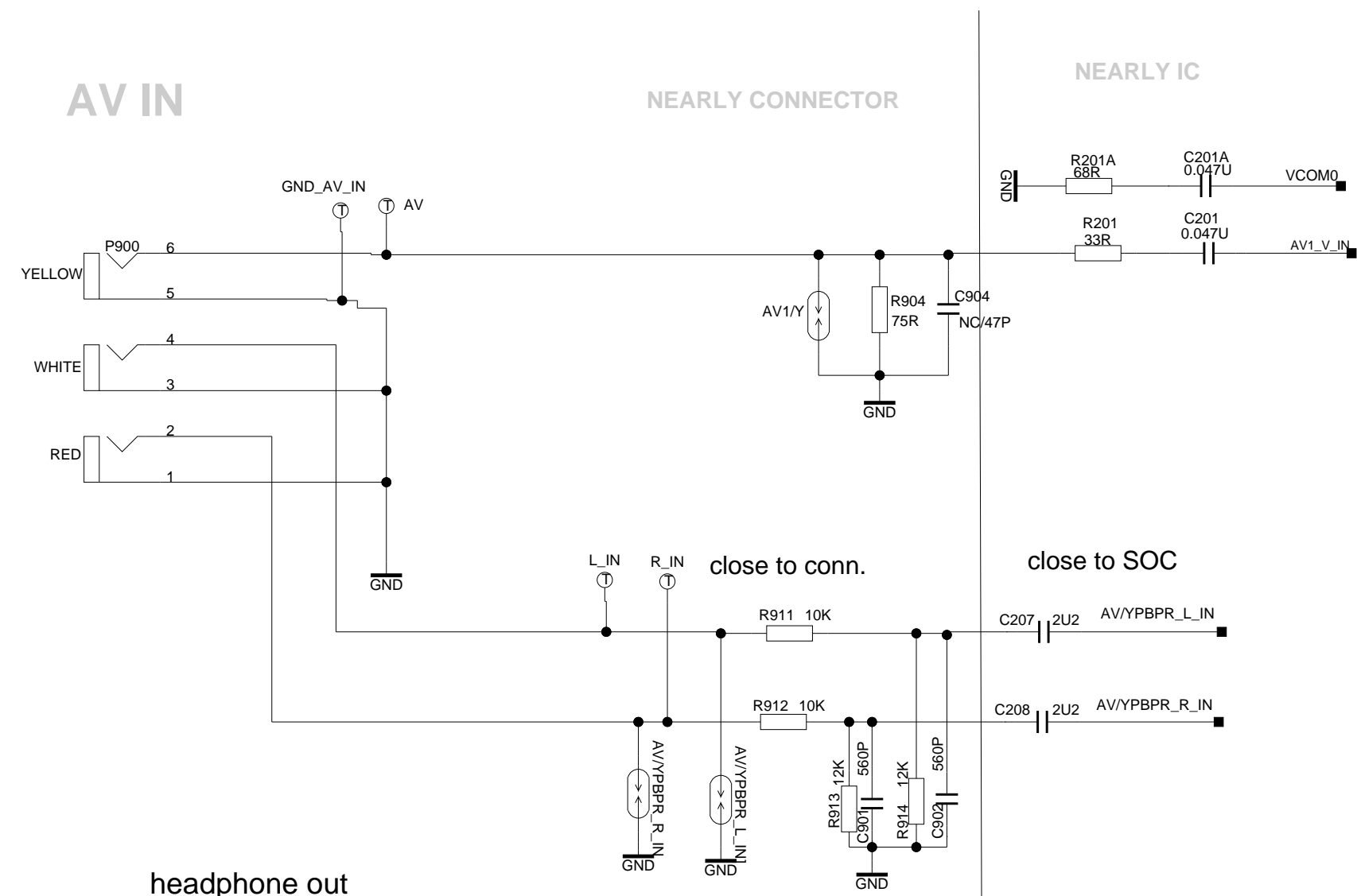
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FORMAT DIN A4

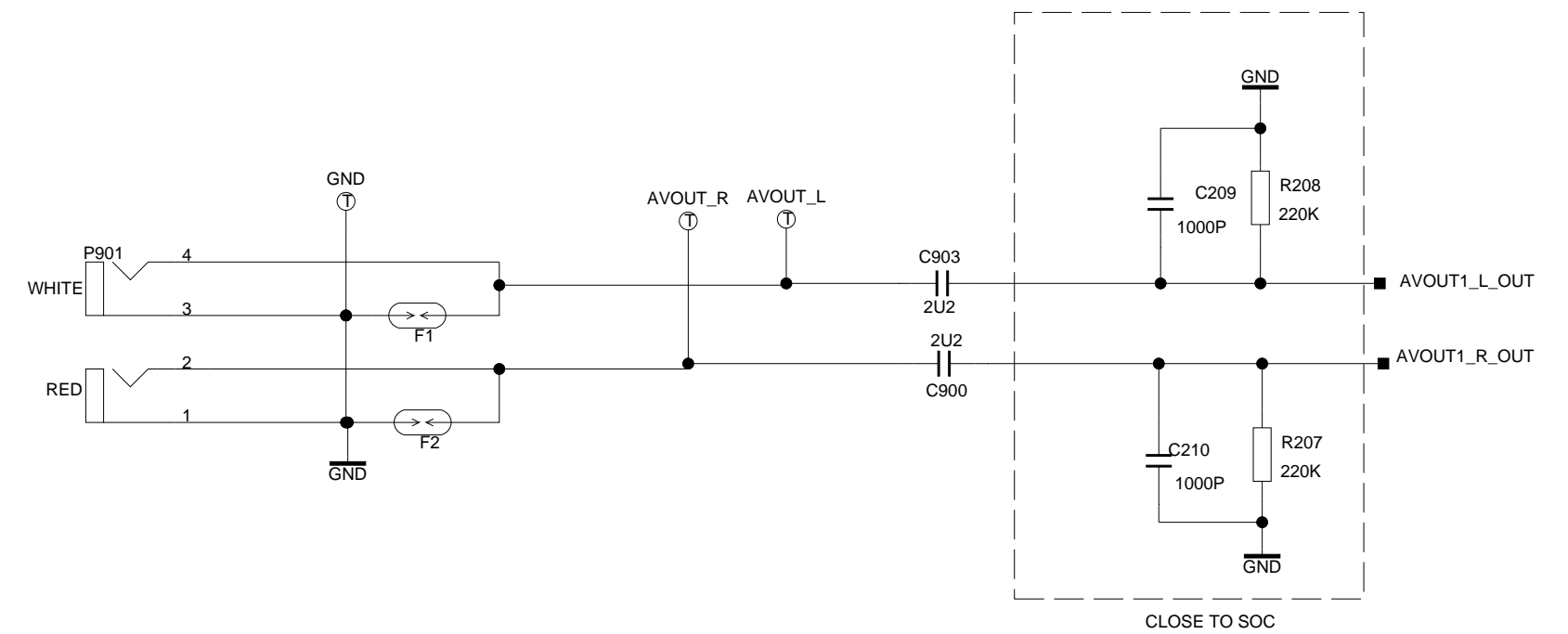
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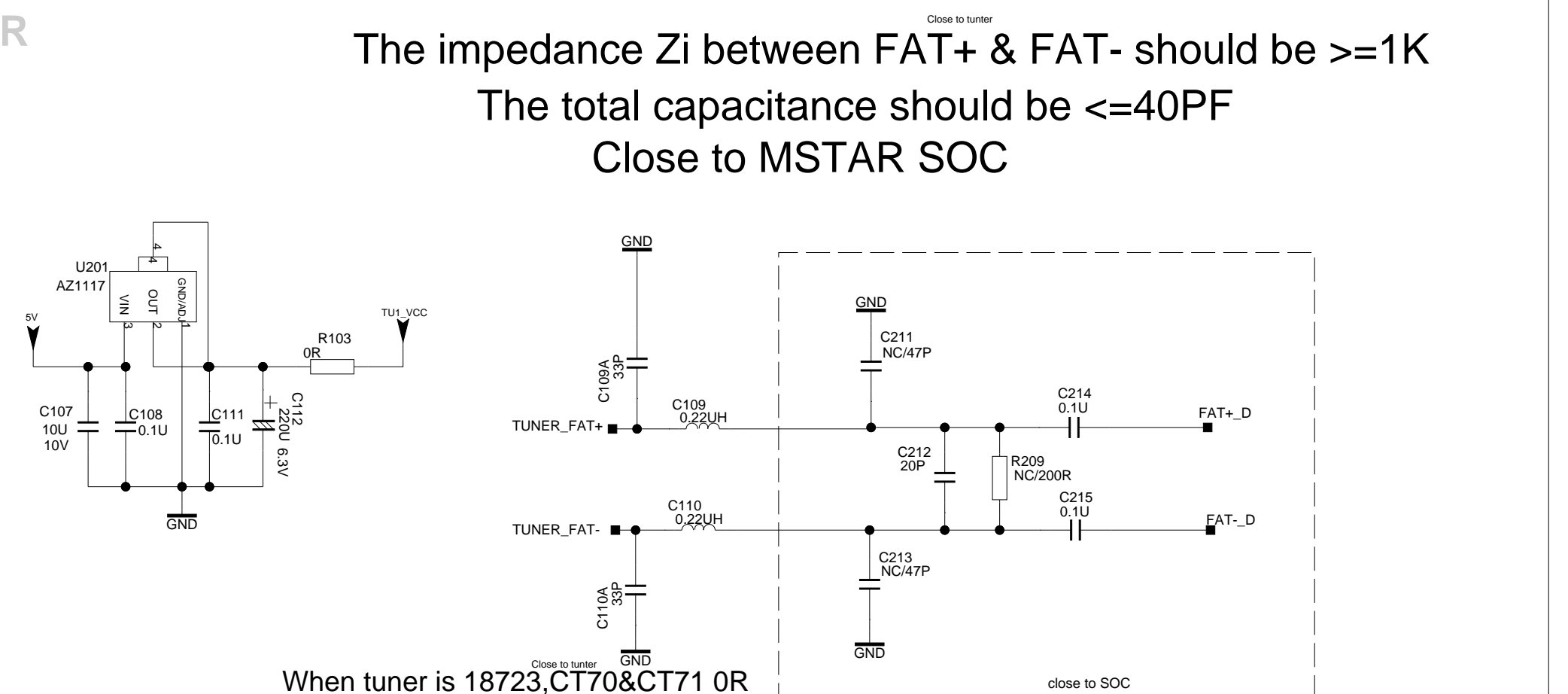
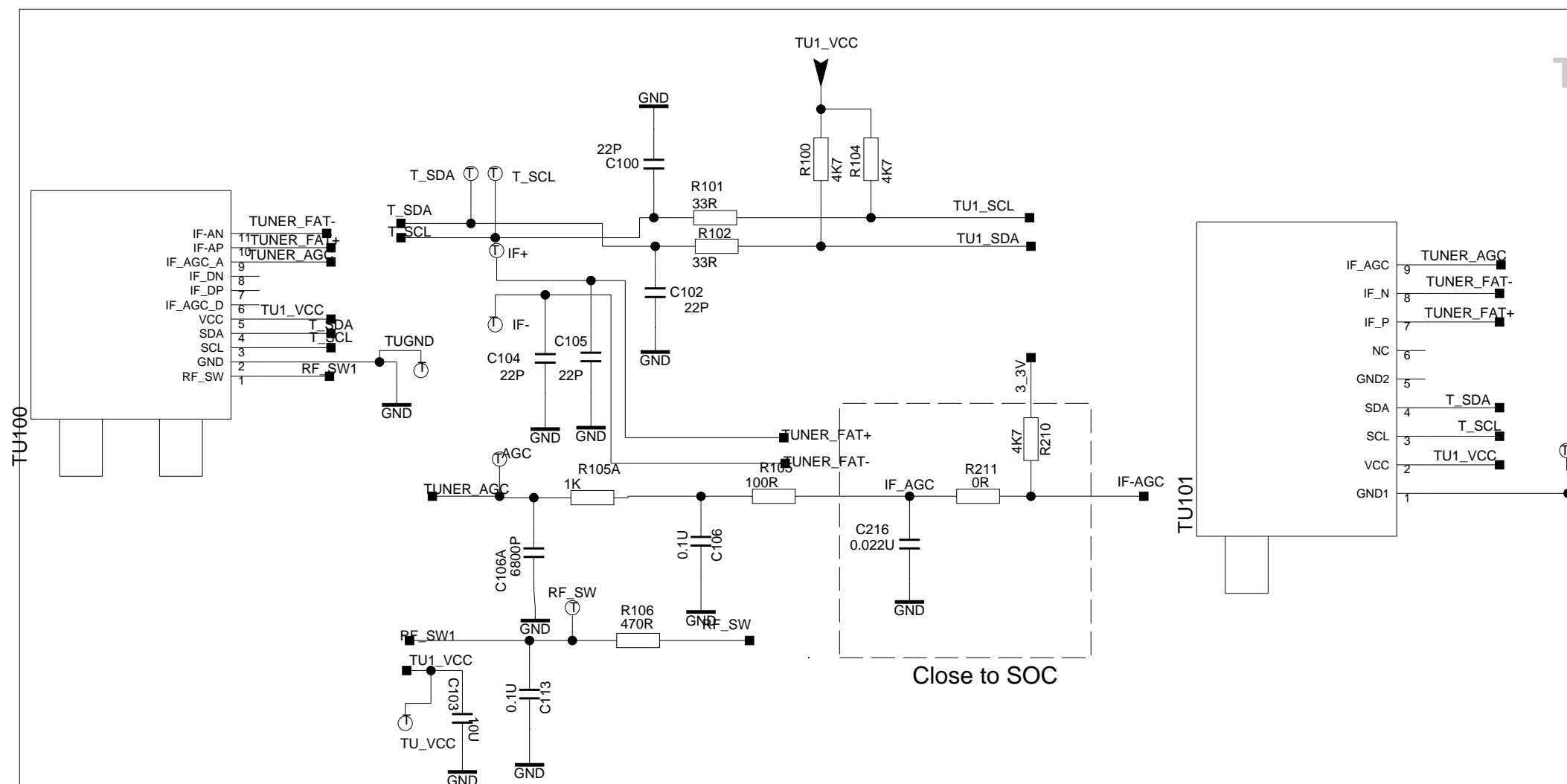
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## AUDIO Output

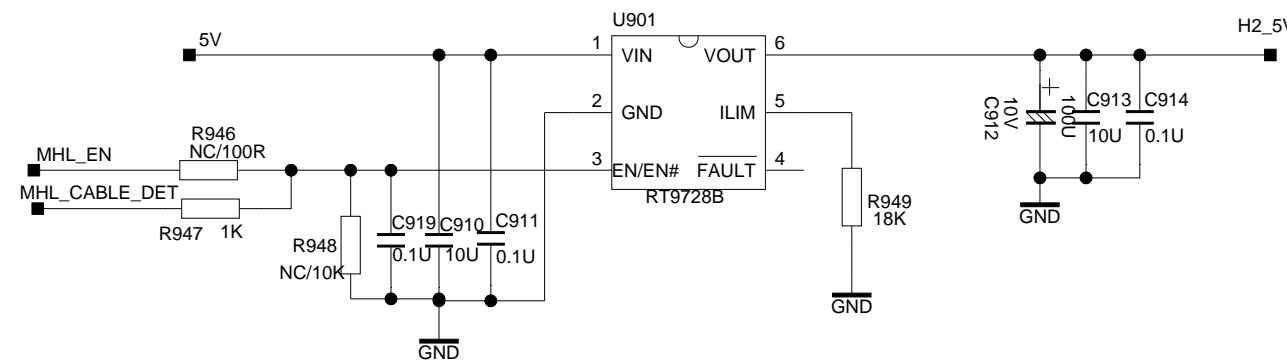
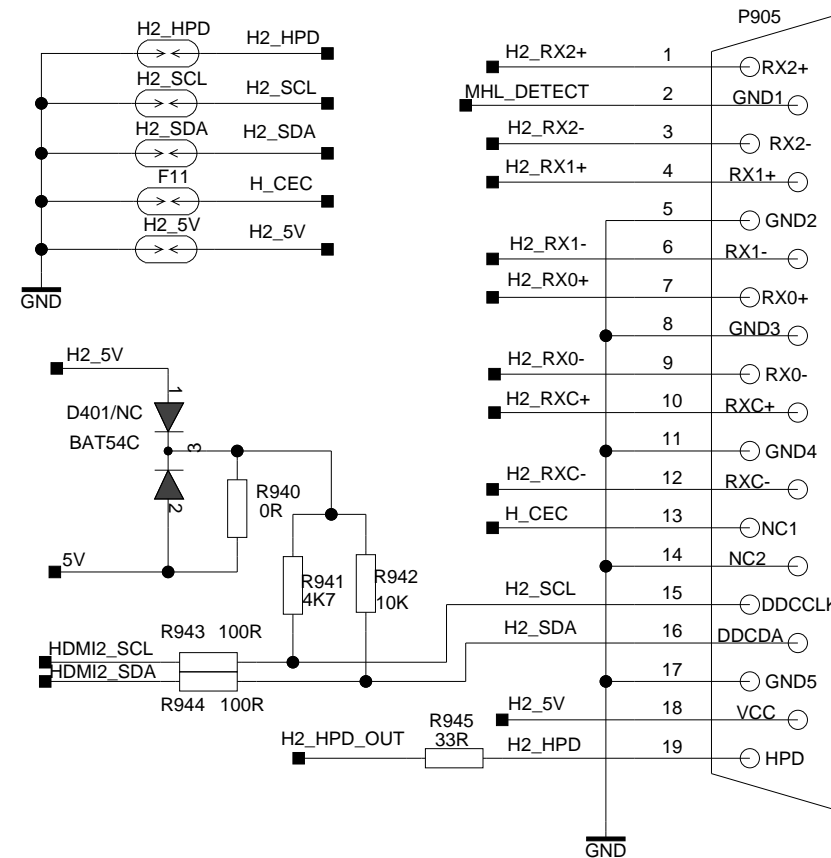
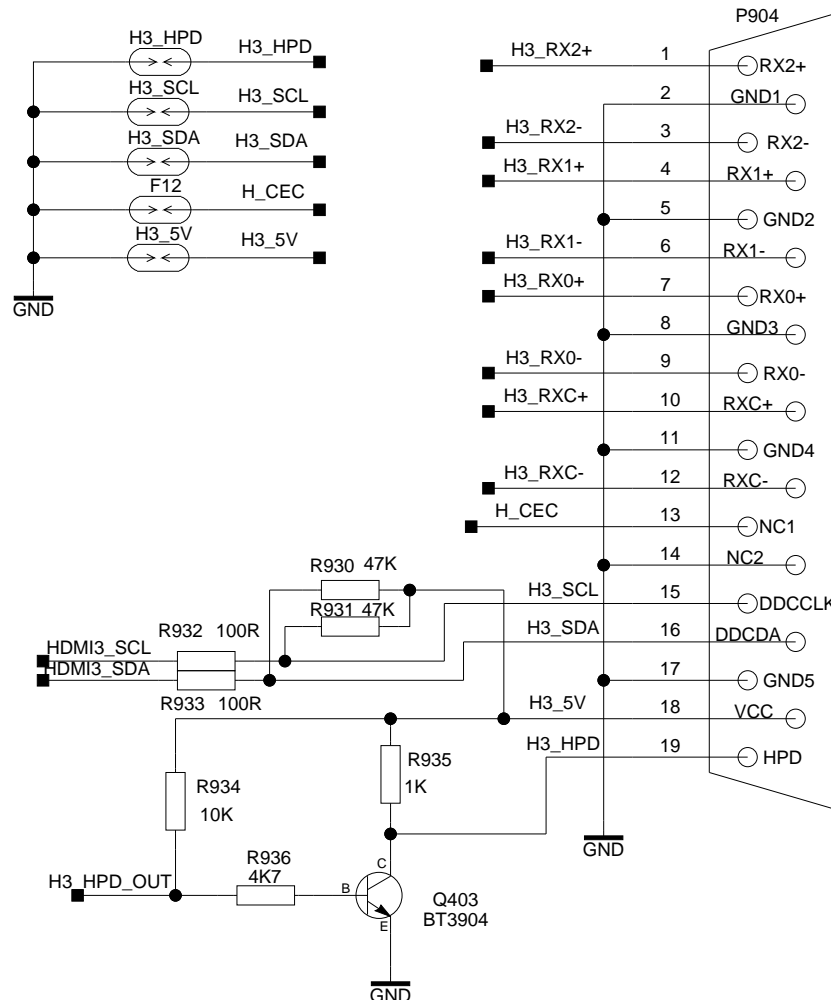
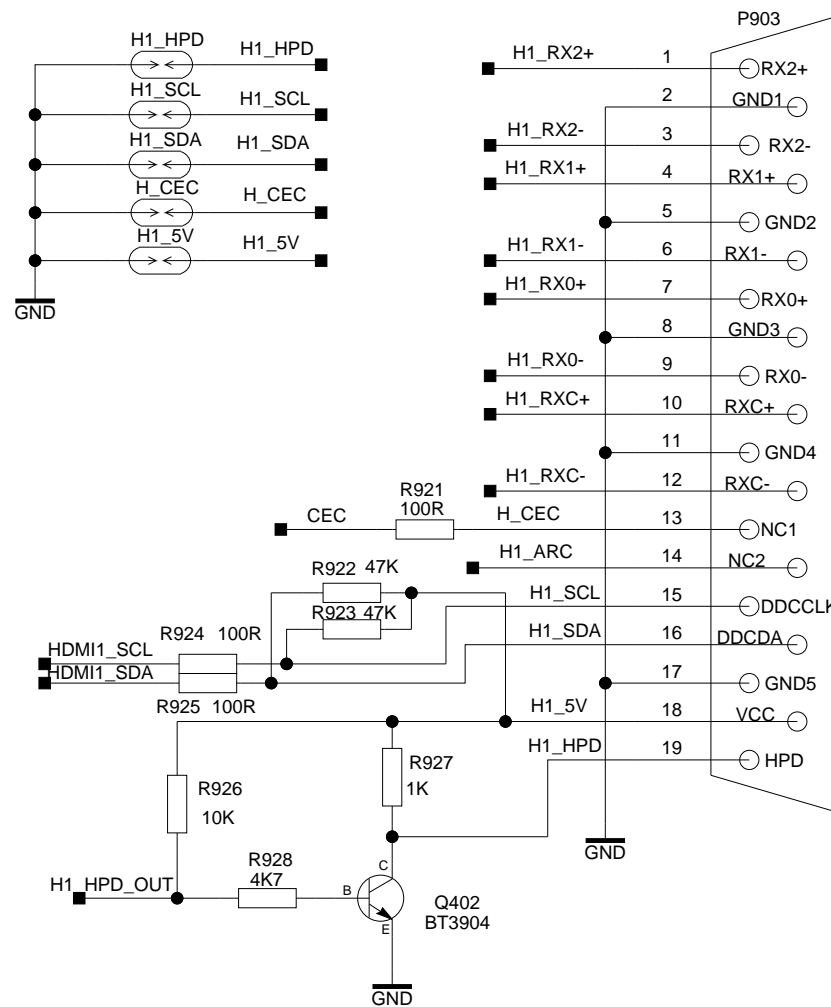


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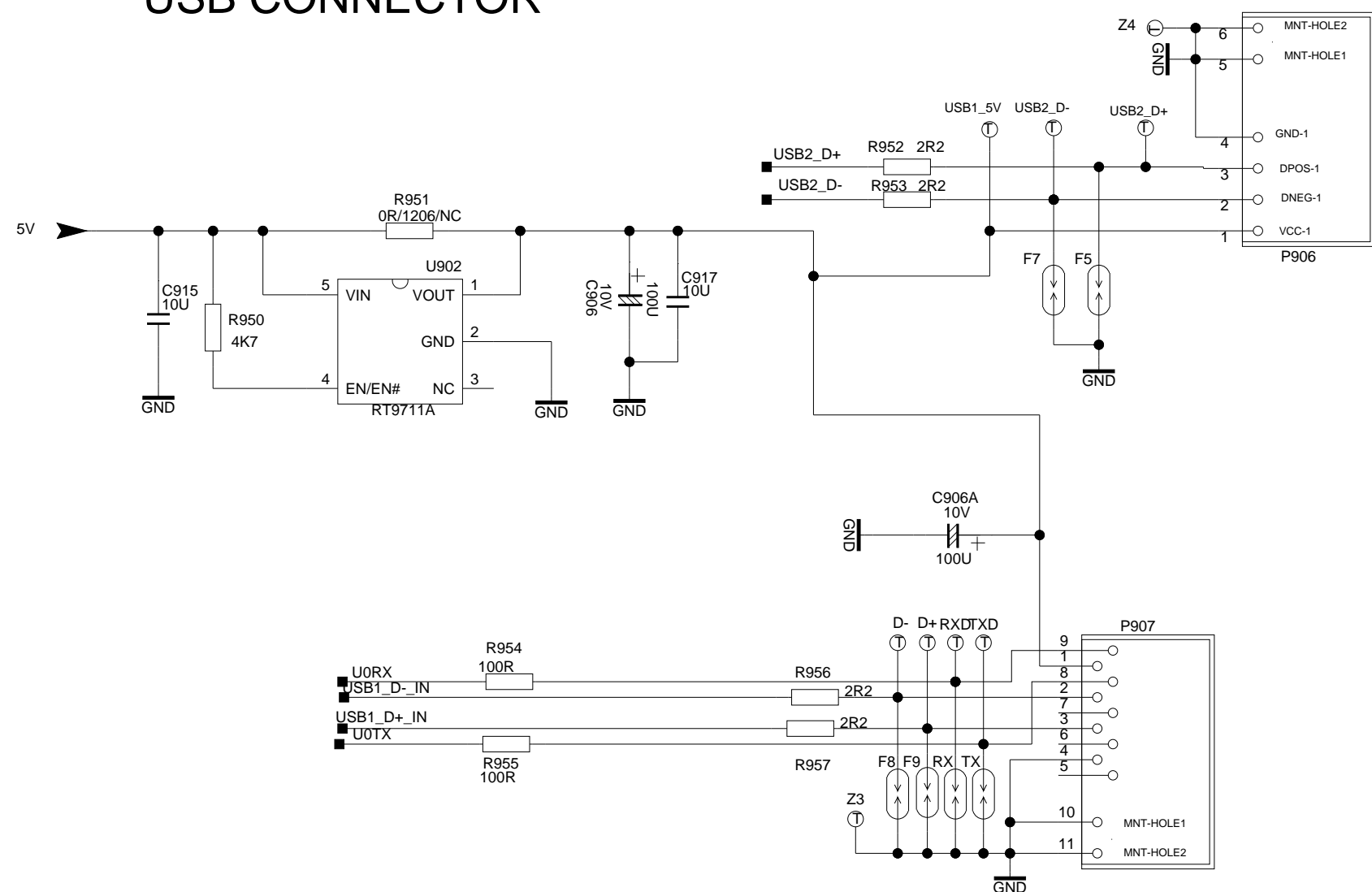




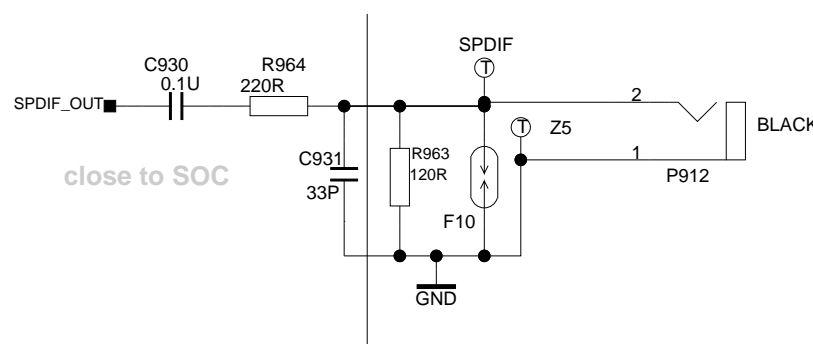
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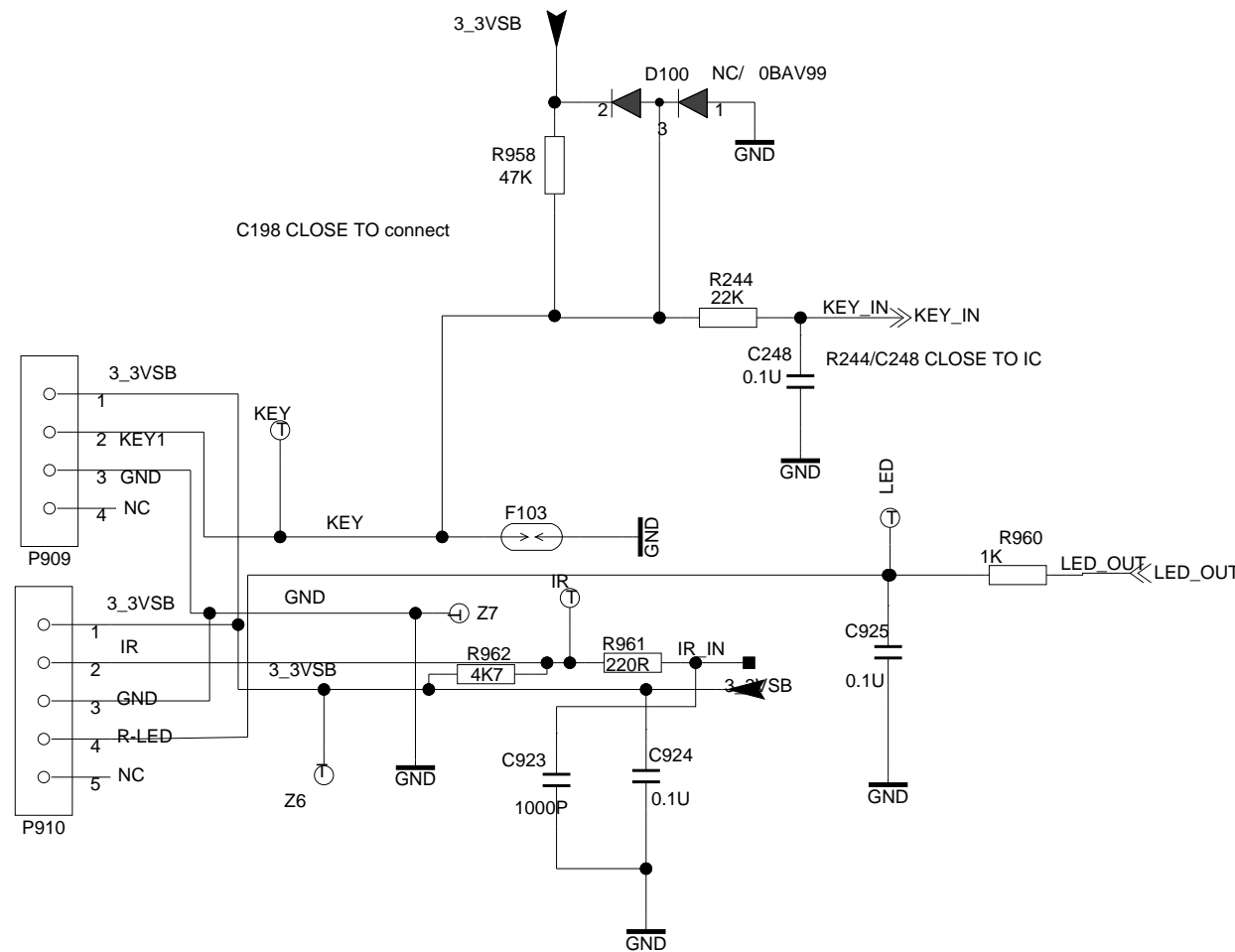
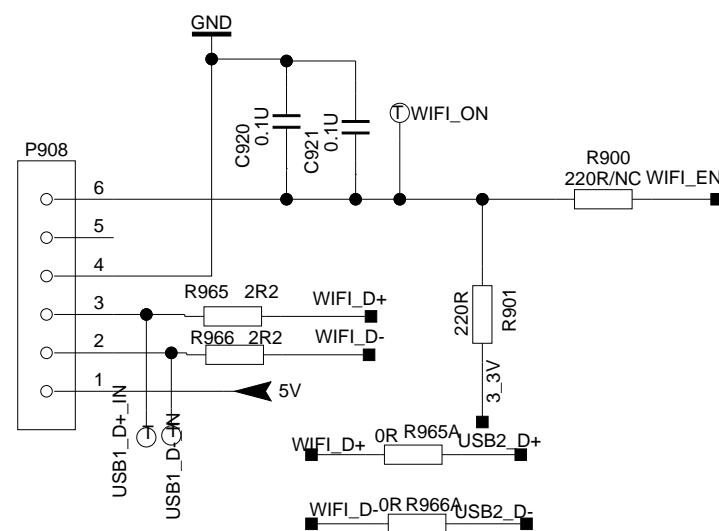
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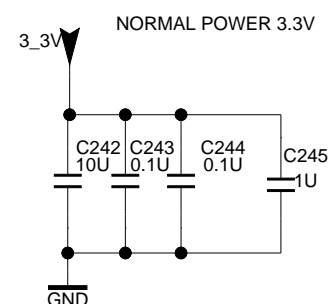
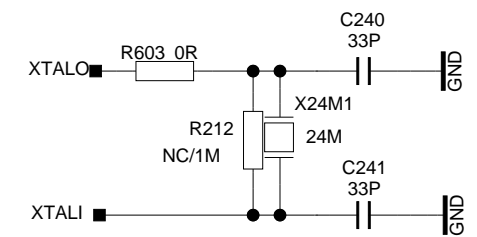
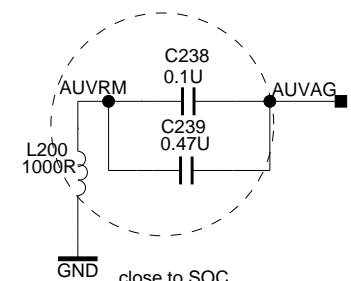
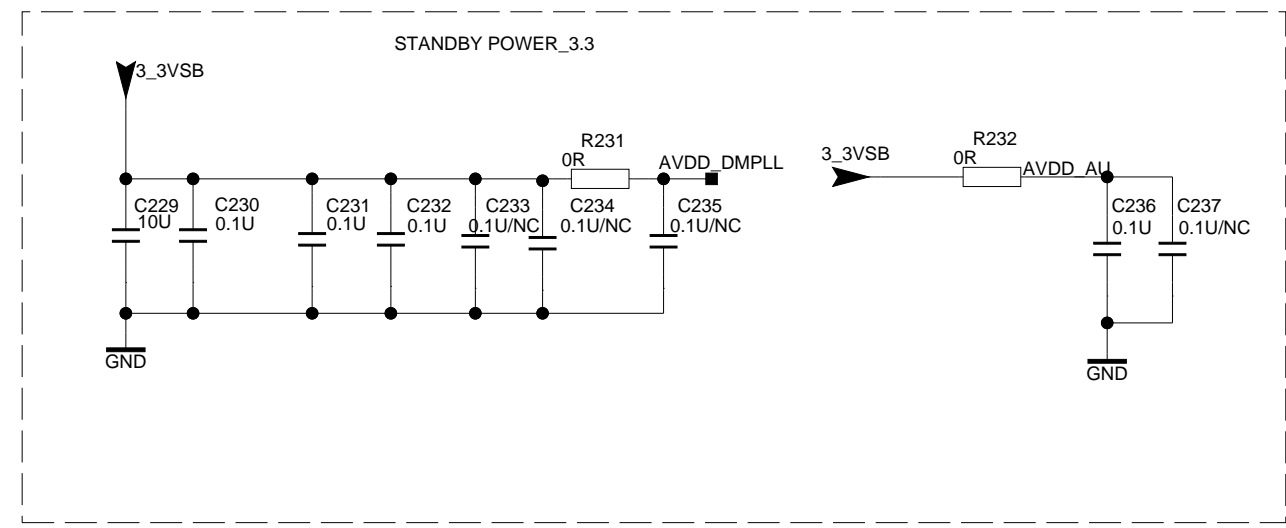
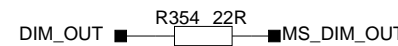
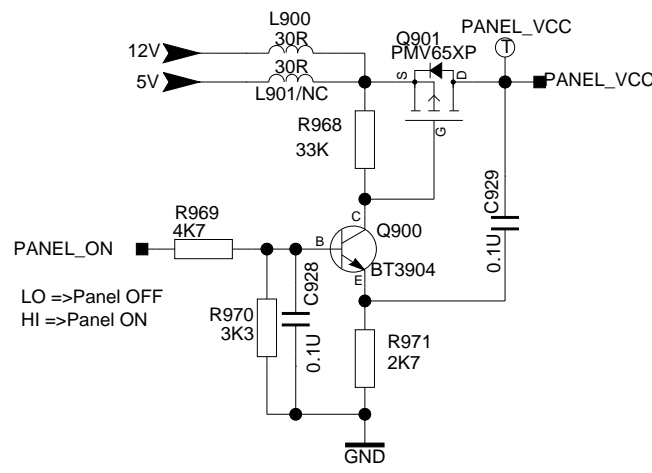
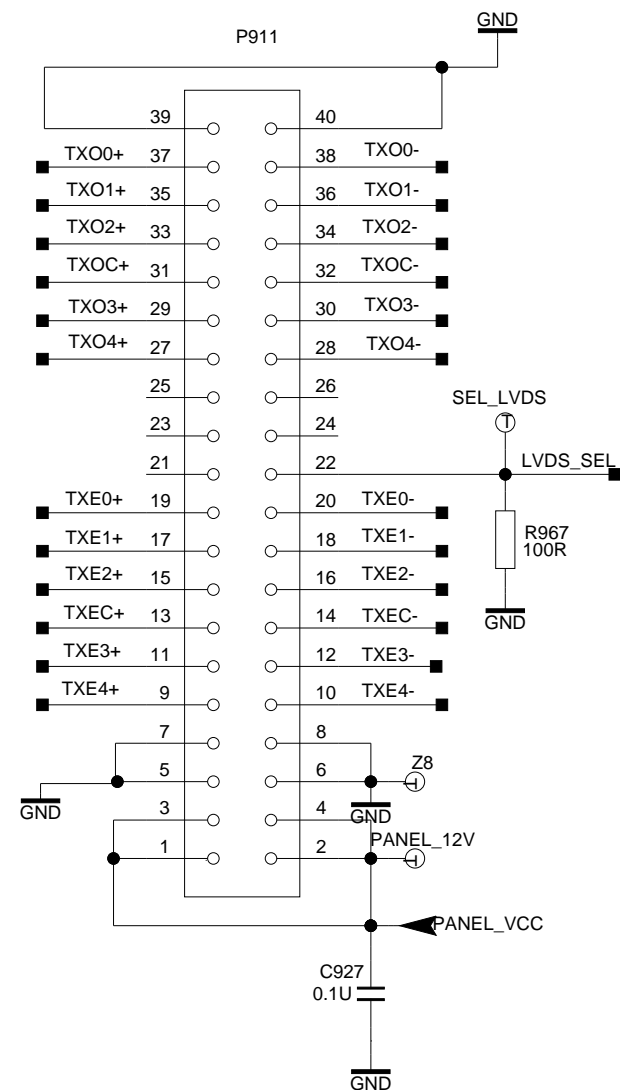
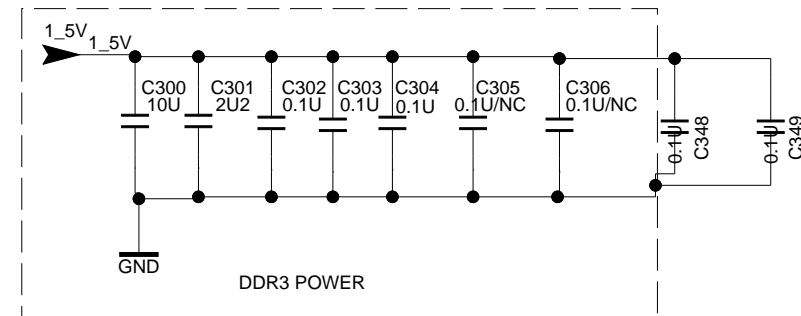
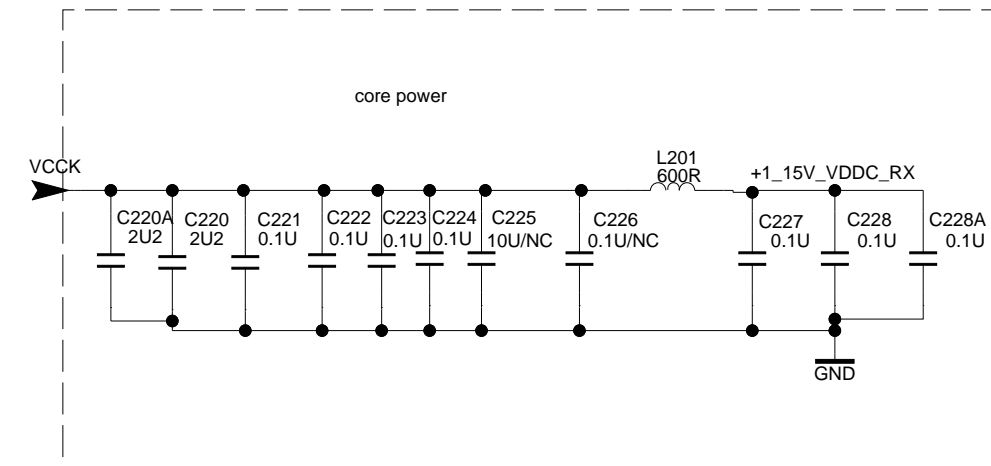
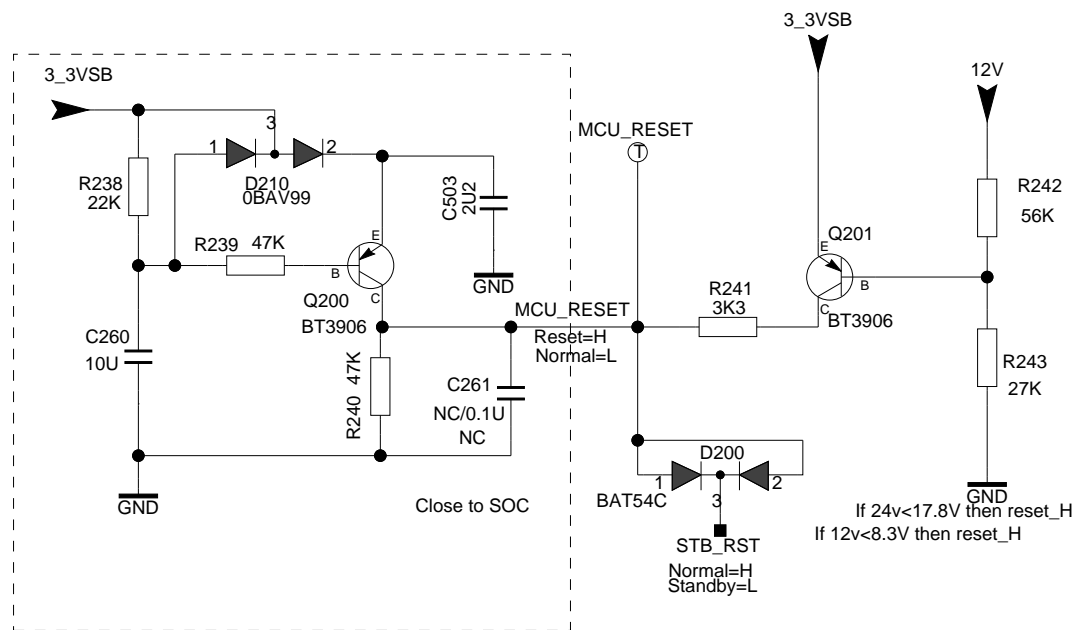


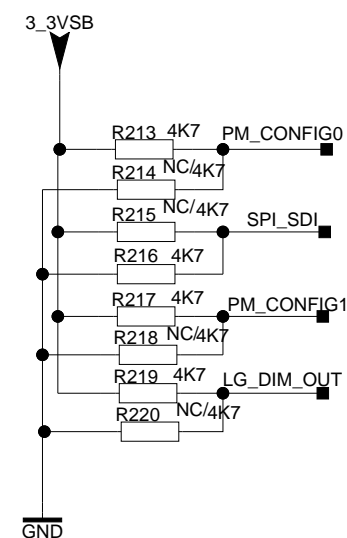
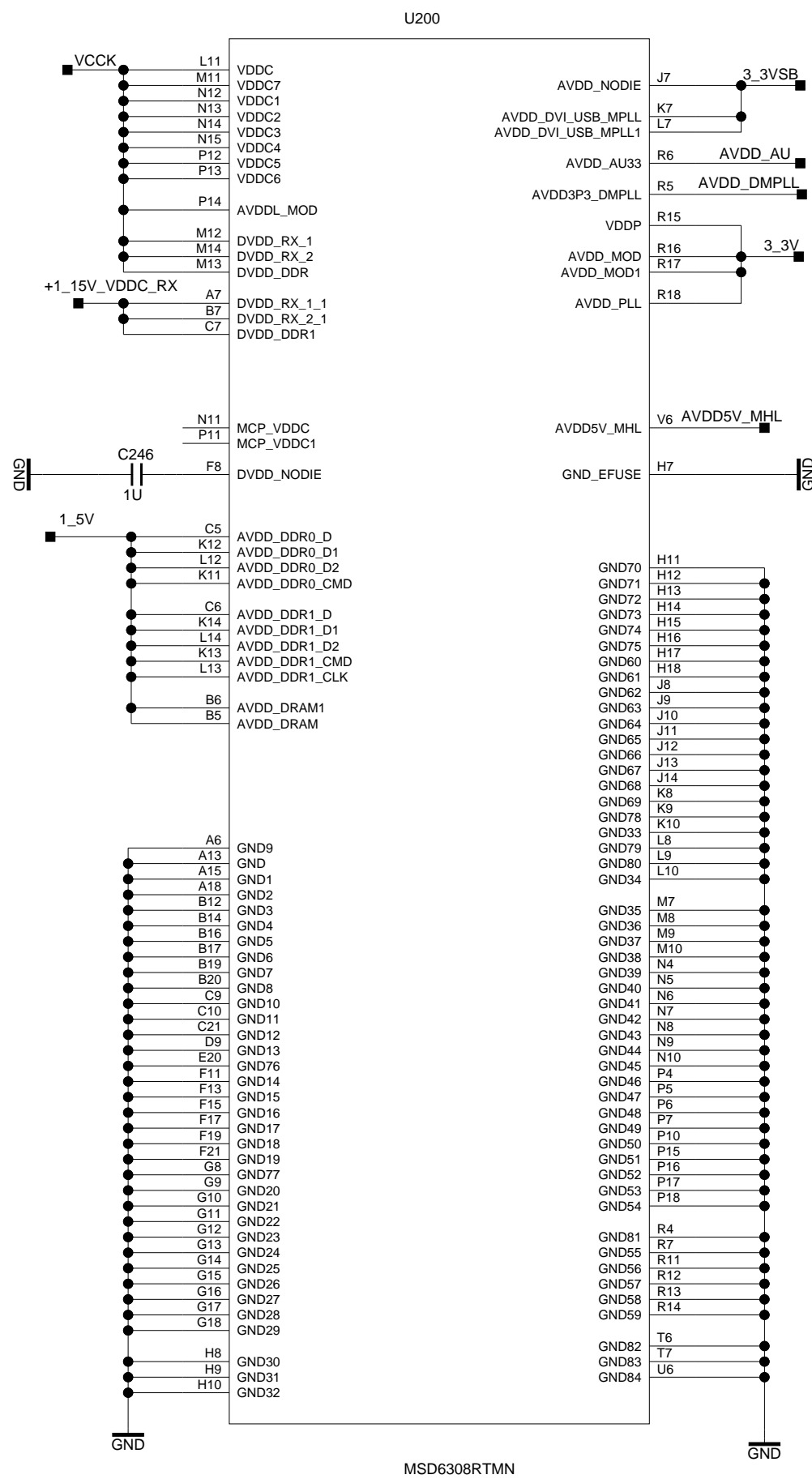
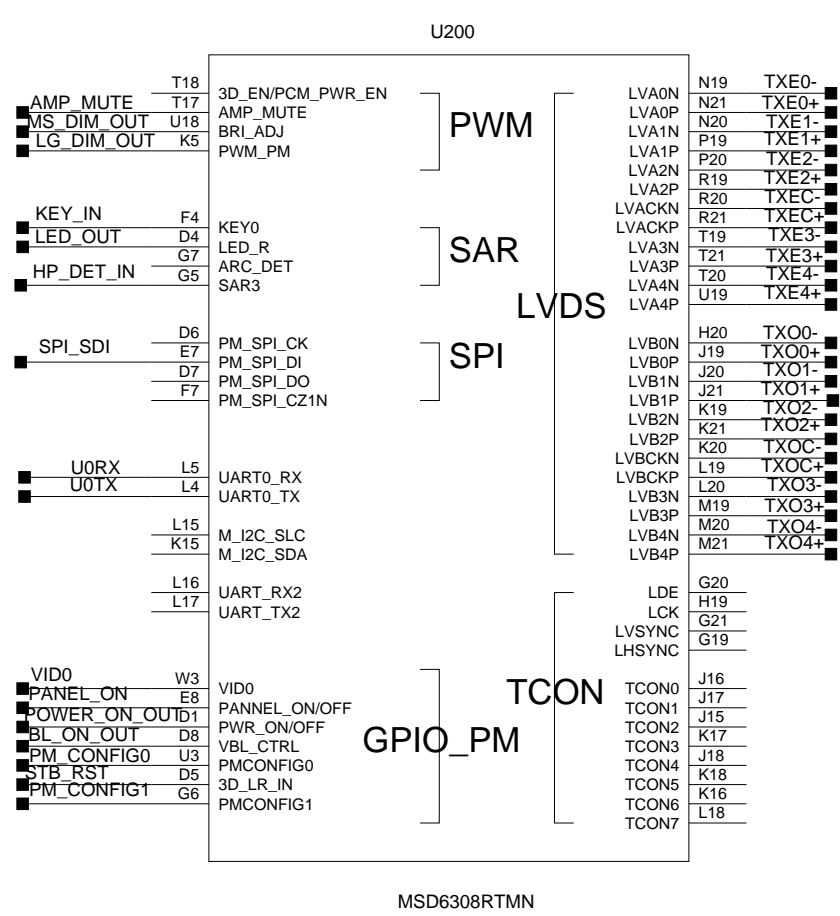
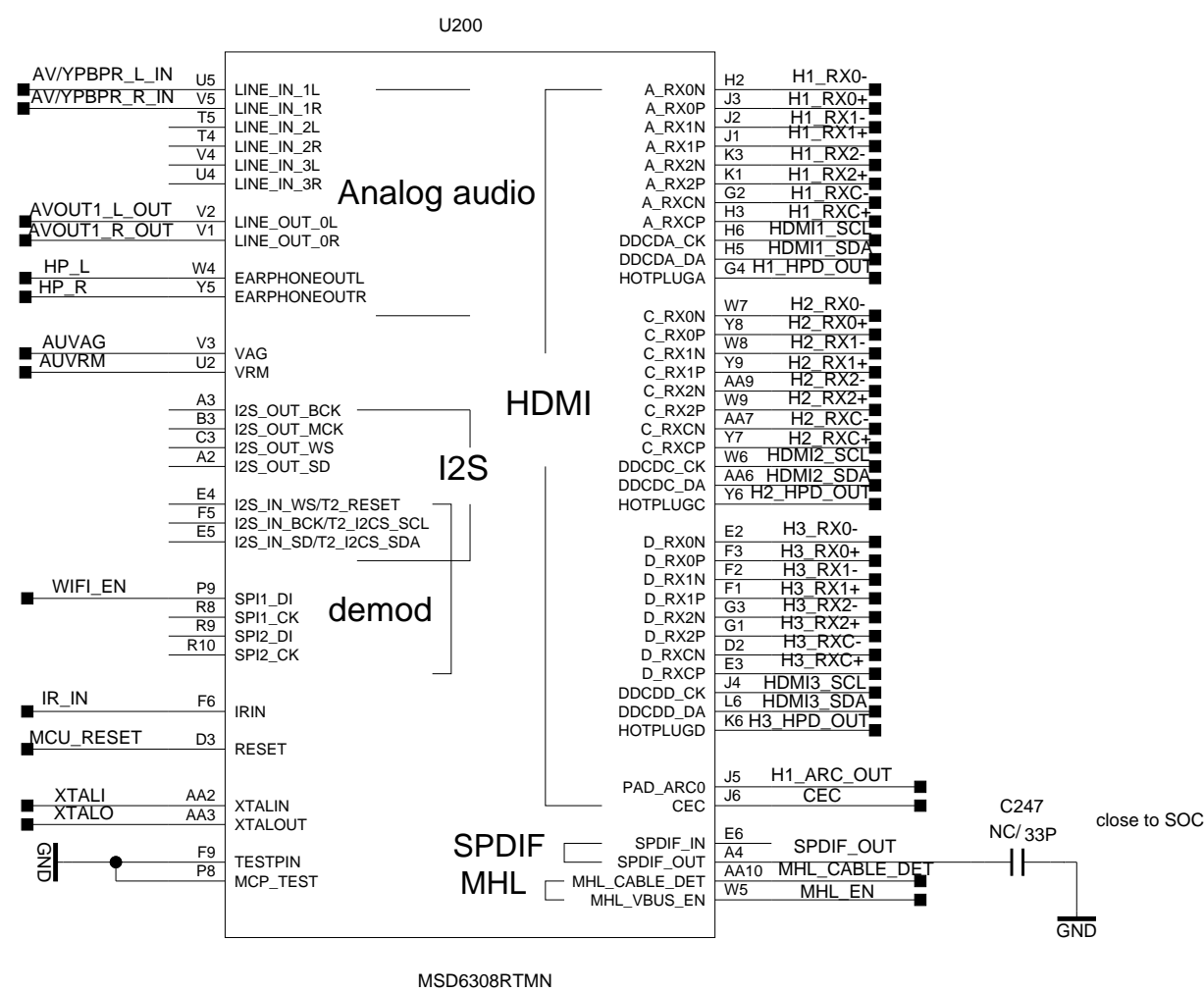
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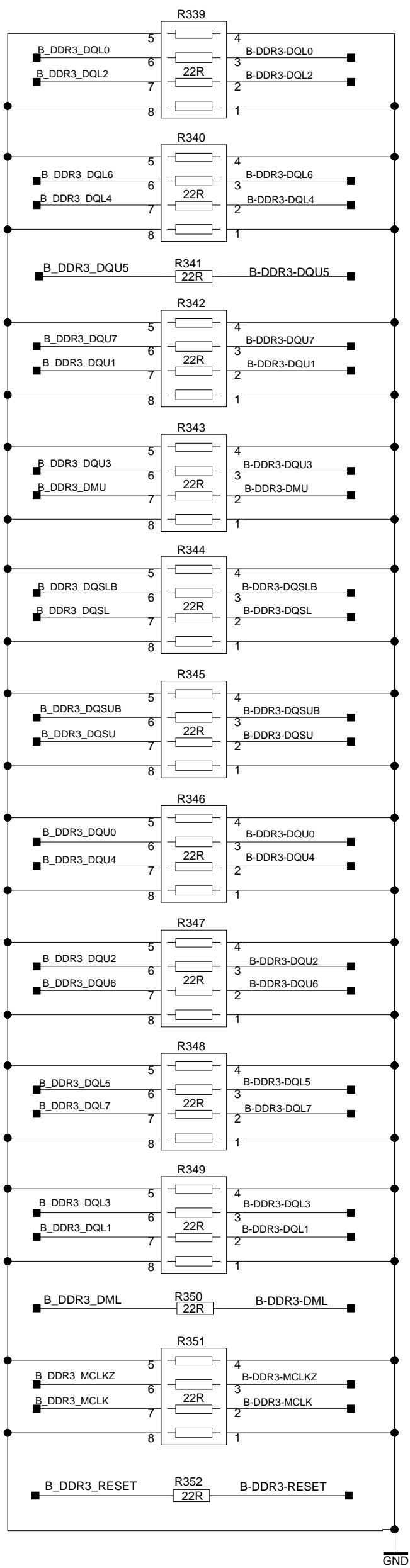
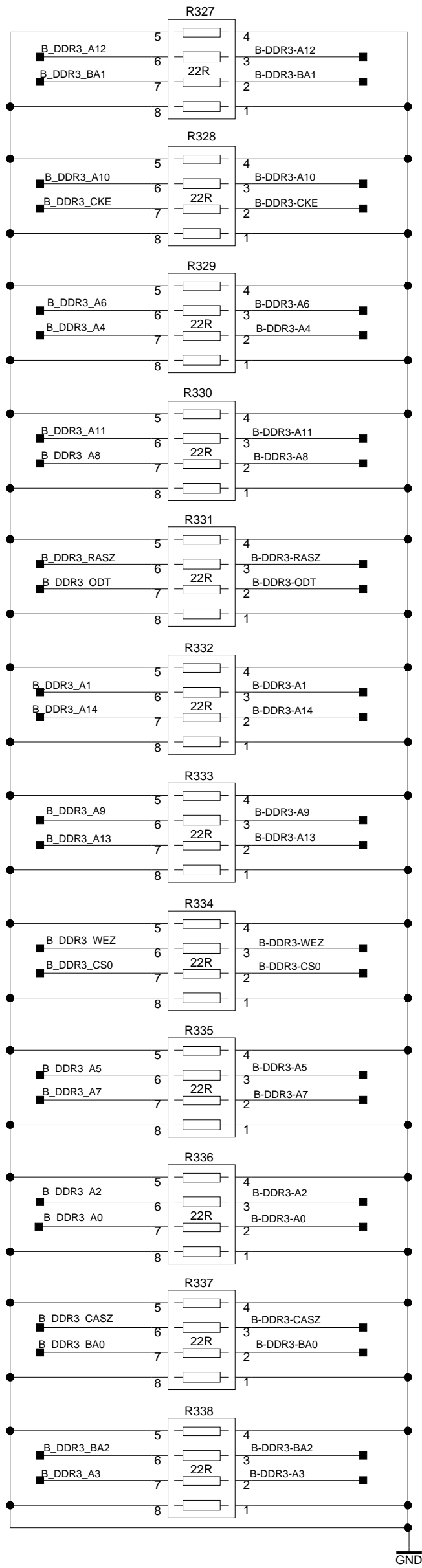


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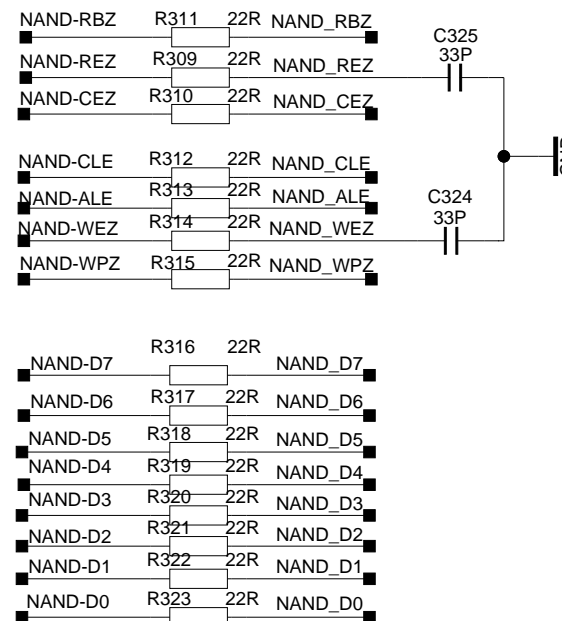
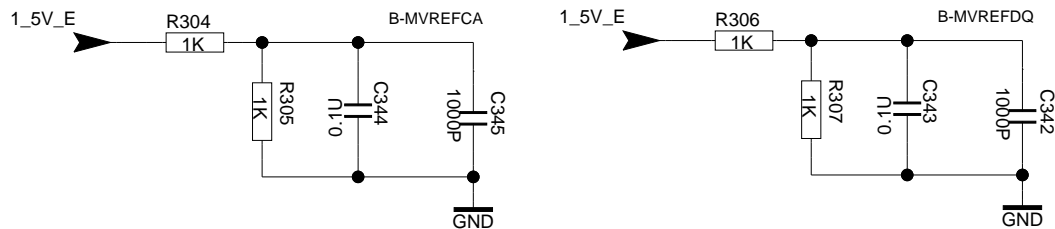
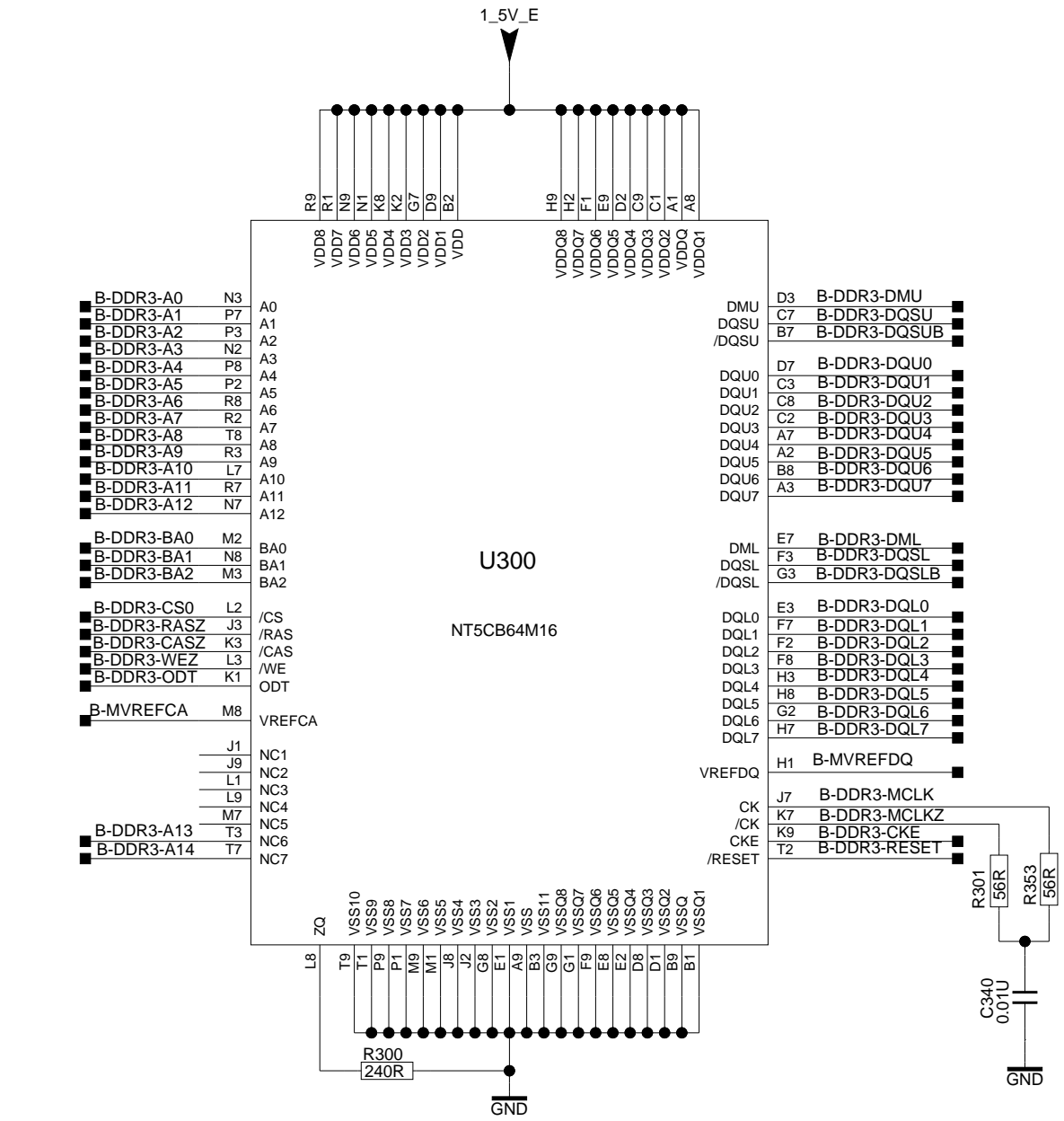
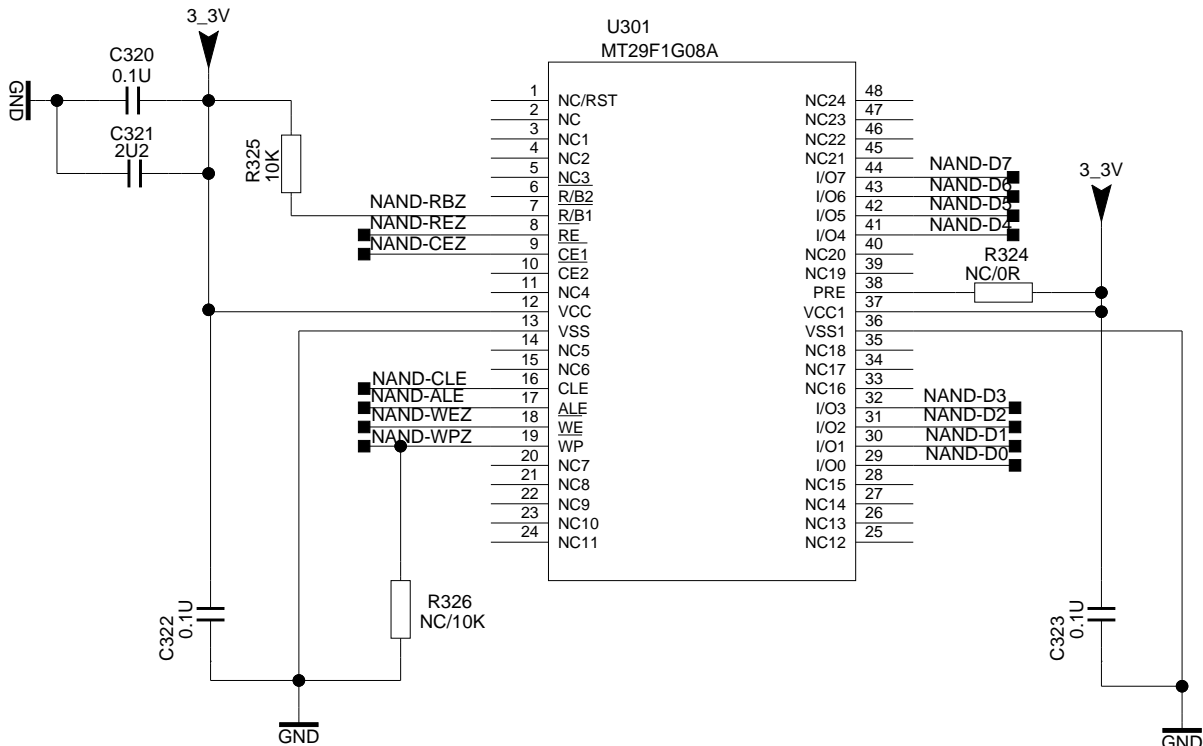
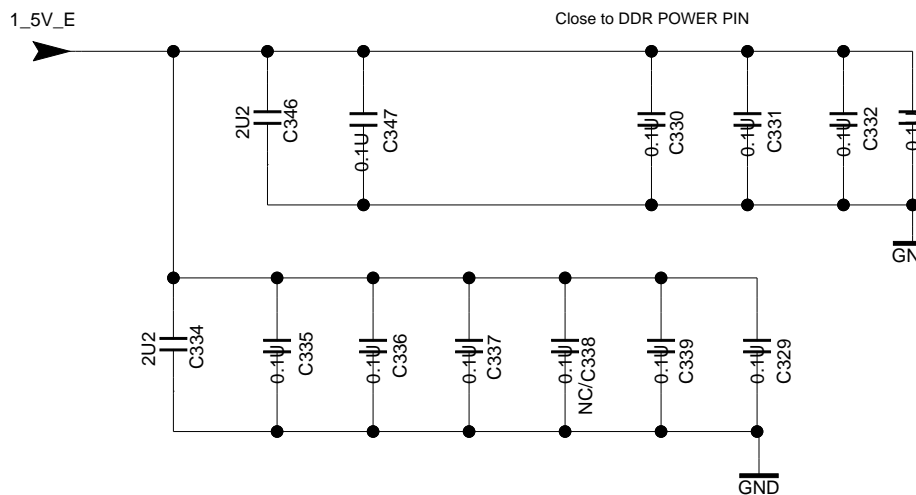
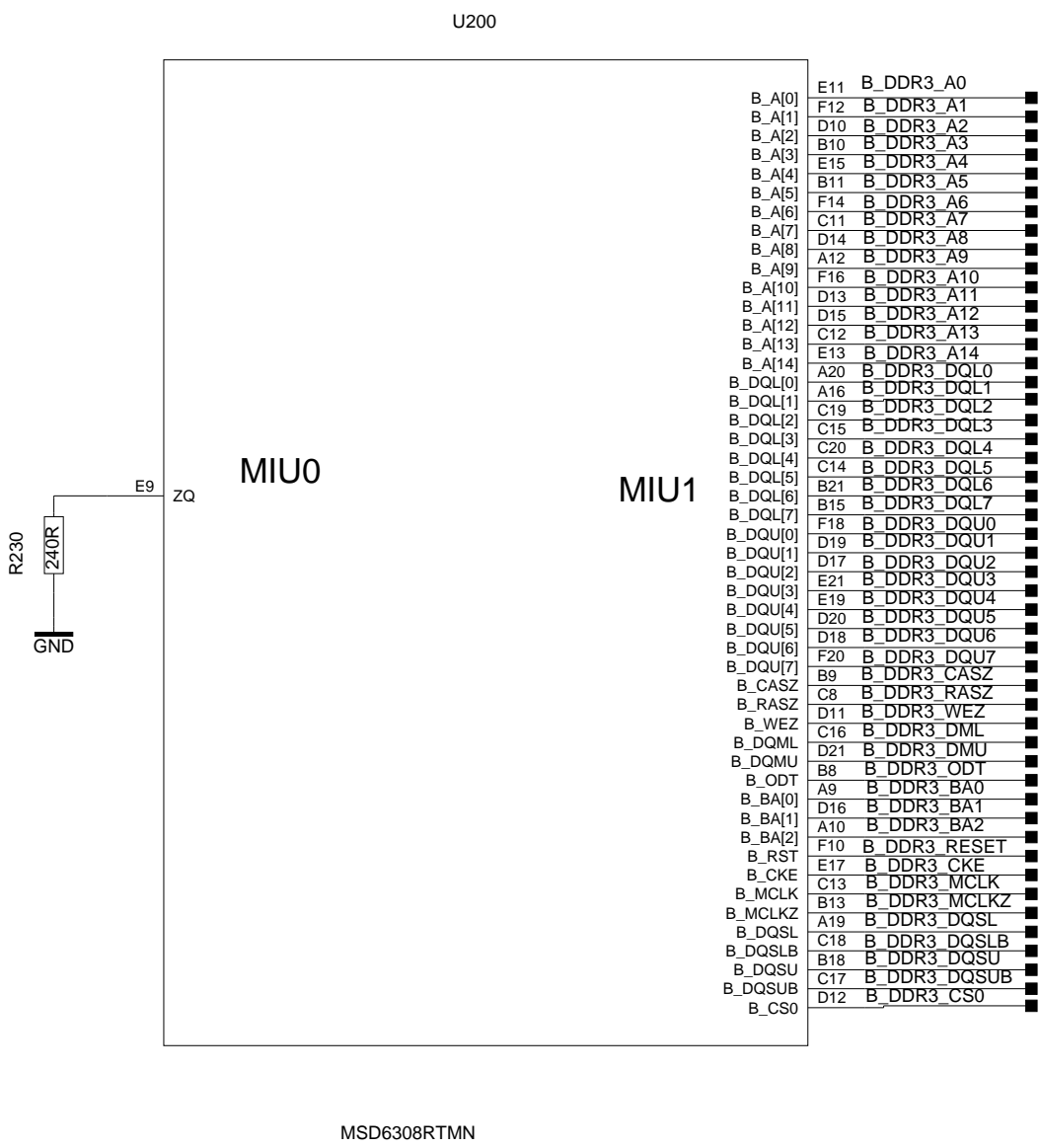


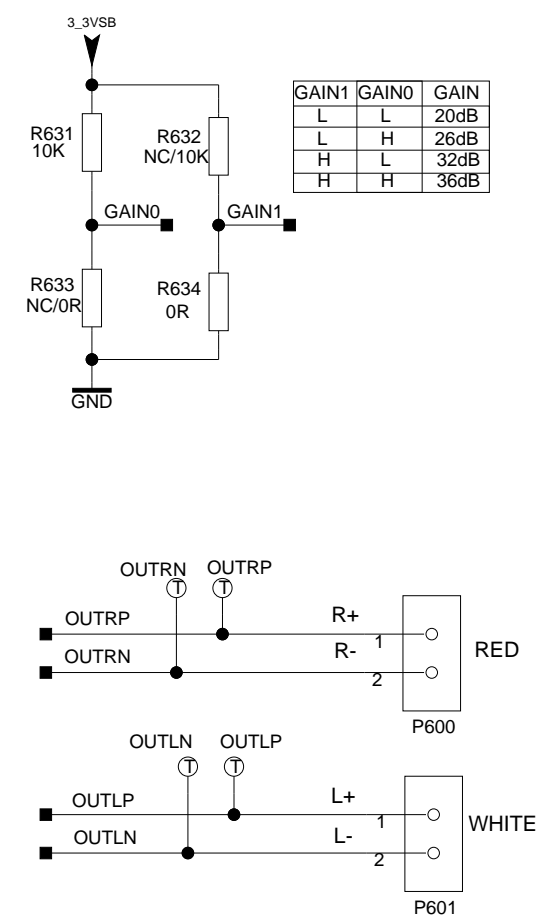


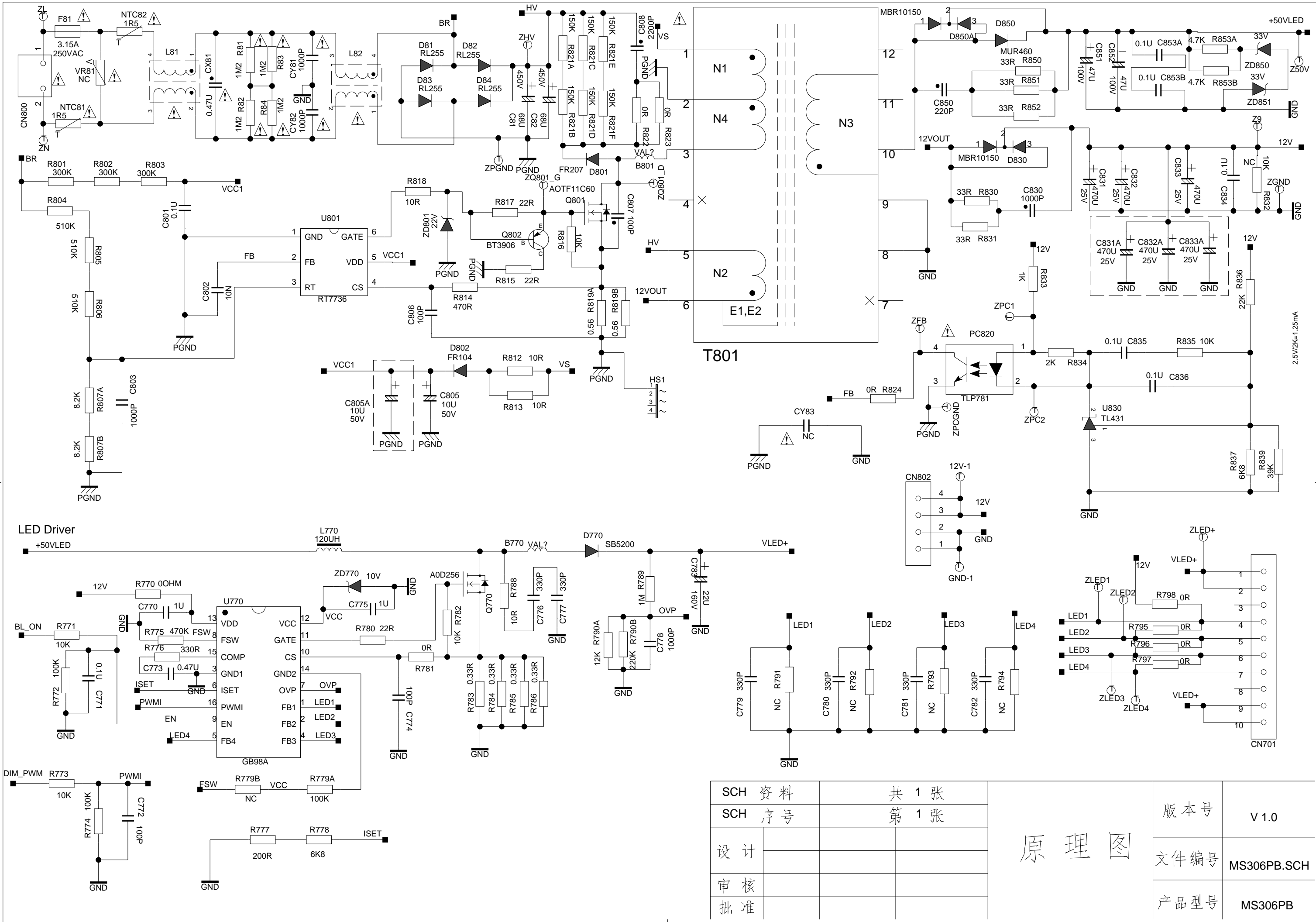




PART\_TYPE=RE-0402  
OUTLINE=0402



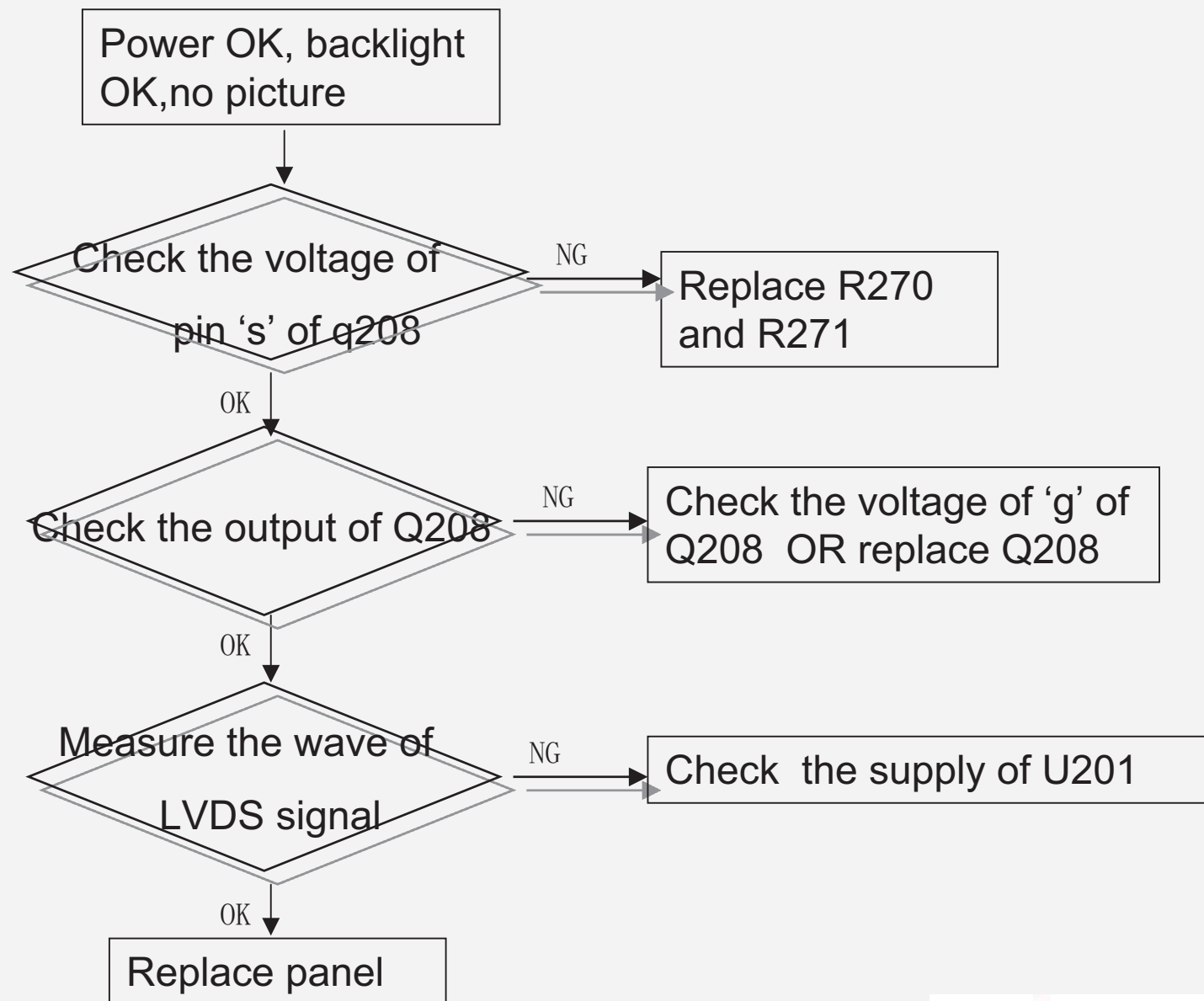


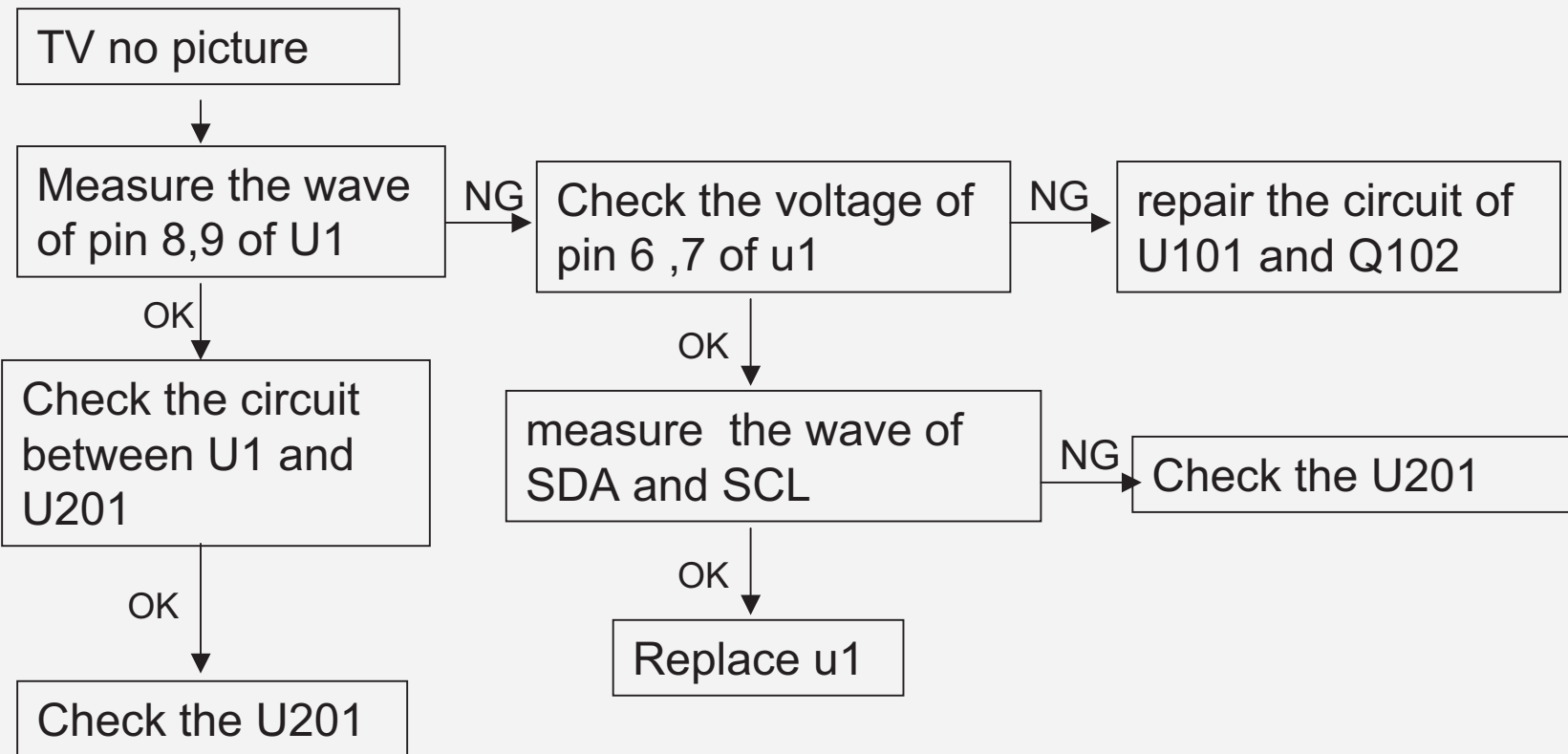


SCH 资料	共 1 张
SCH 序号	第 1 张
设计	
审核	
批准	

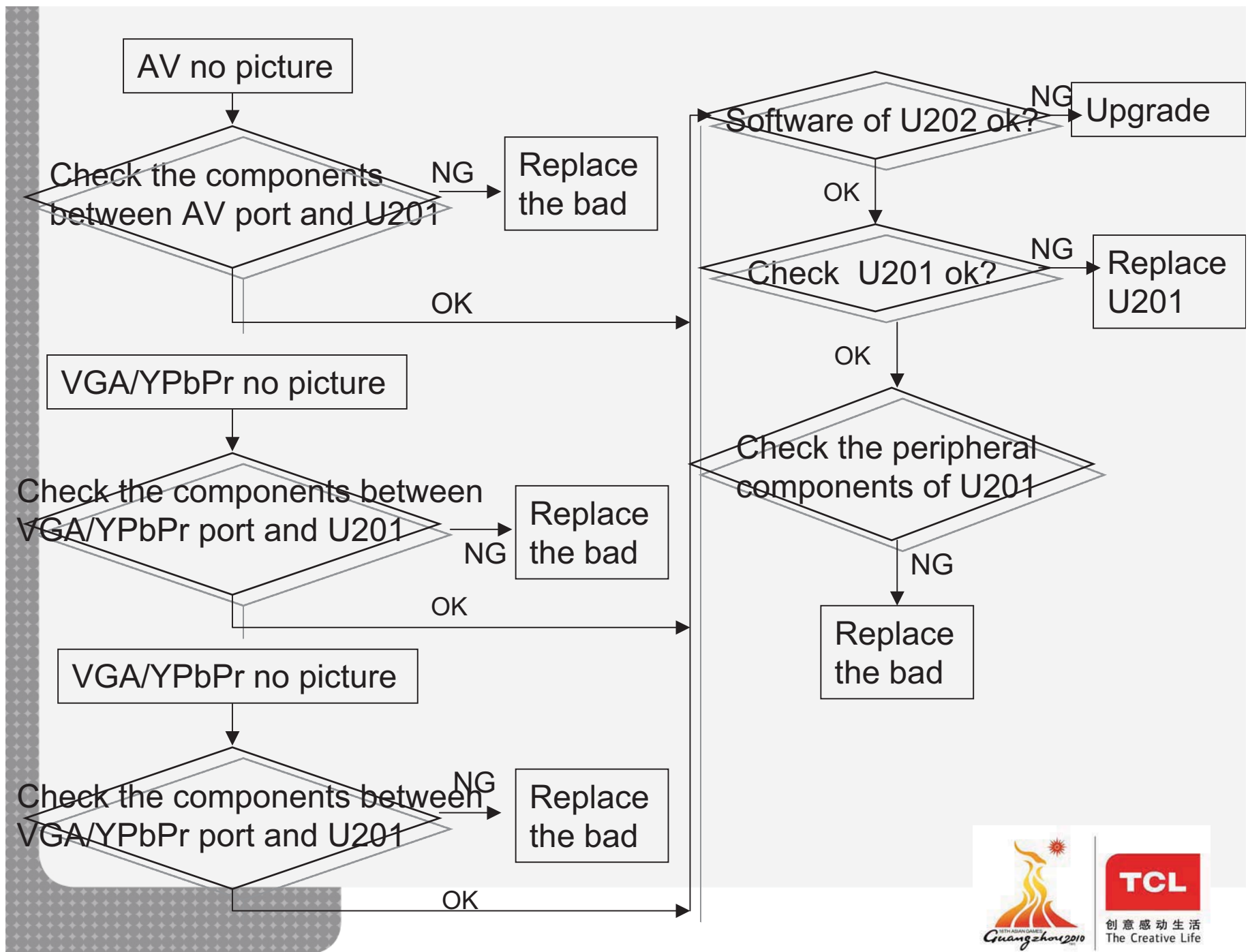
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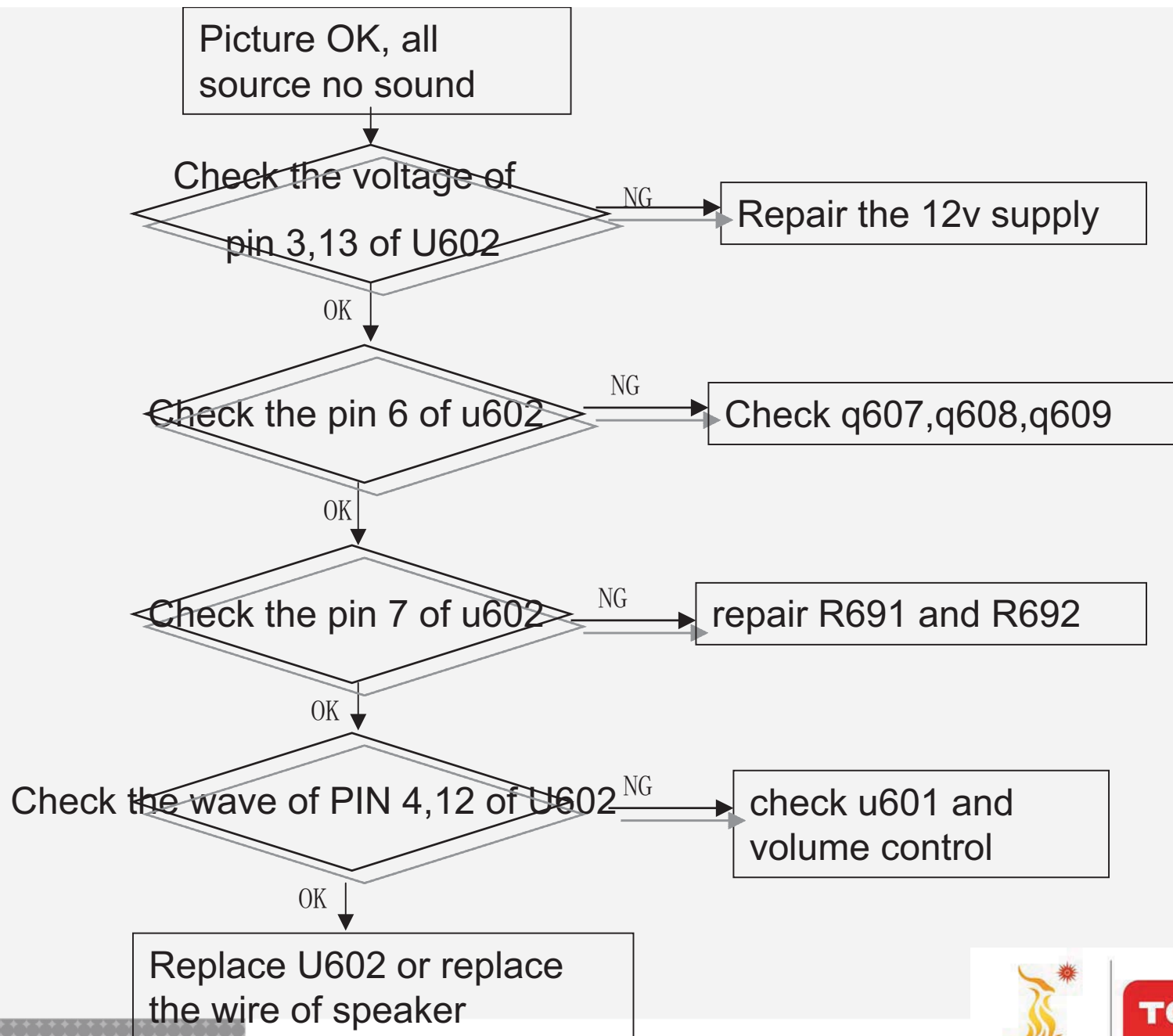
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文件编号	MS306PB.SCH
产品型号	MS306PB

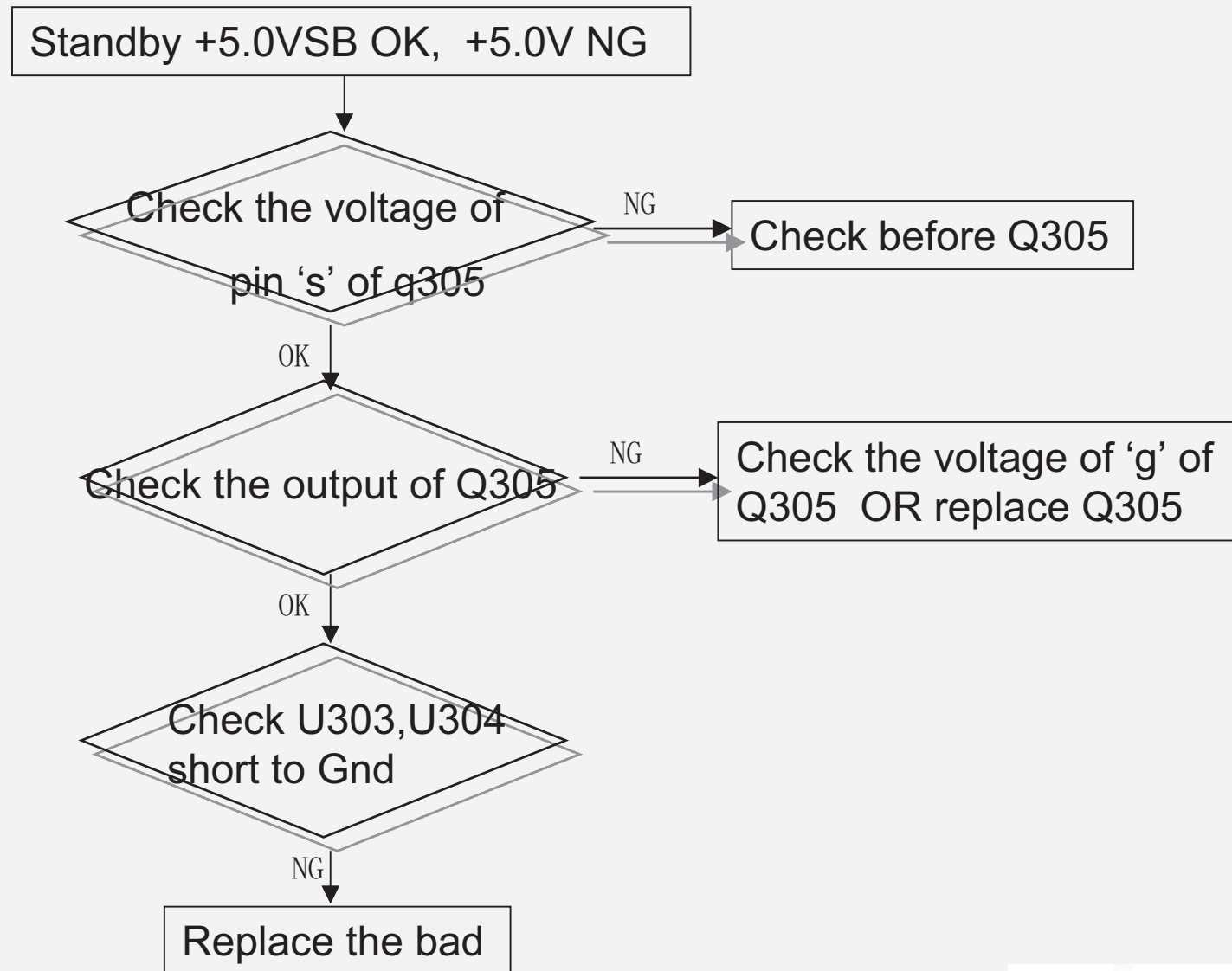


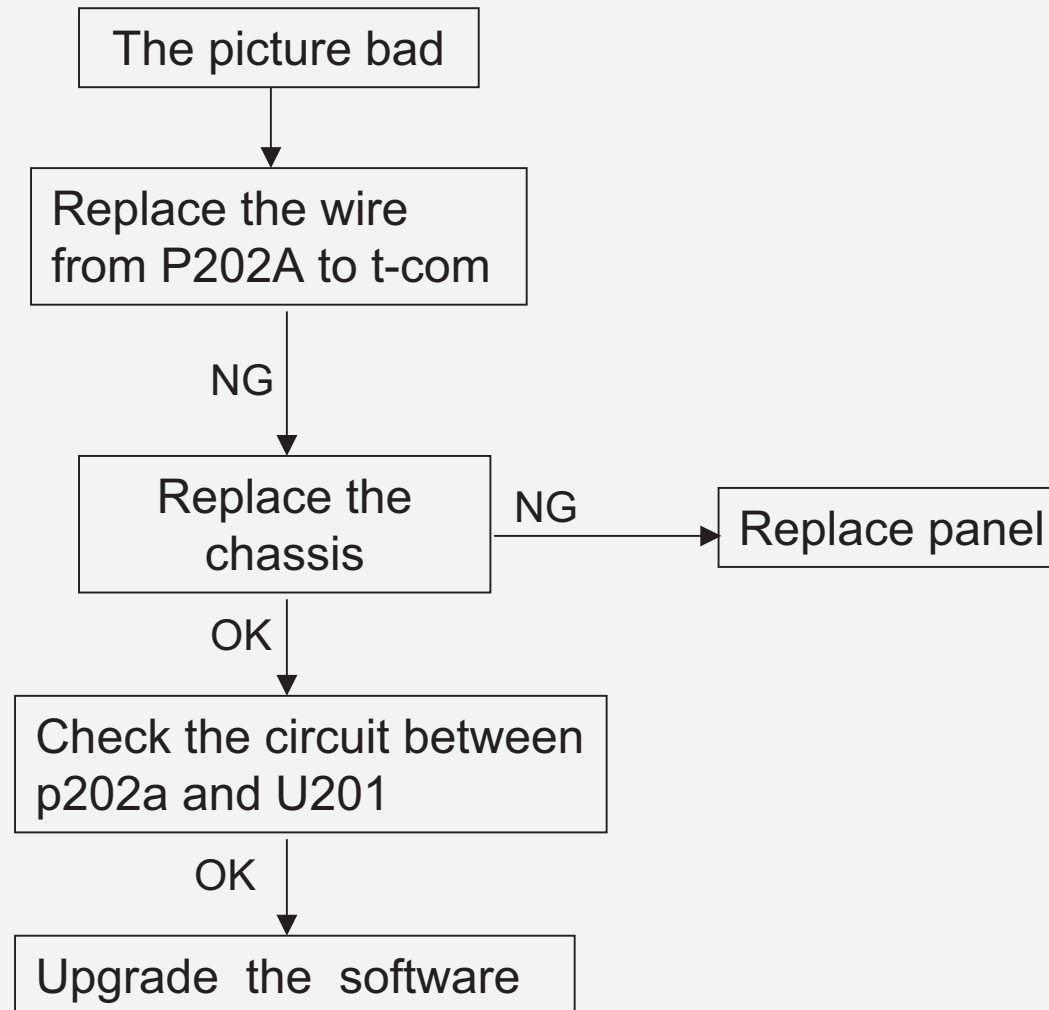






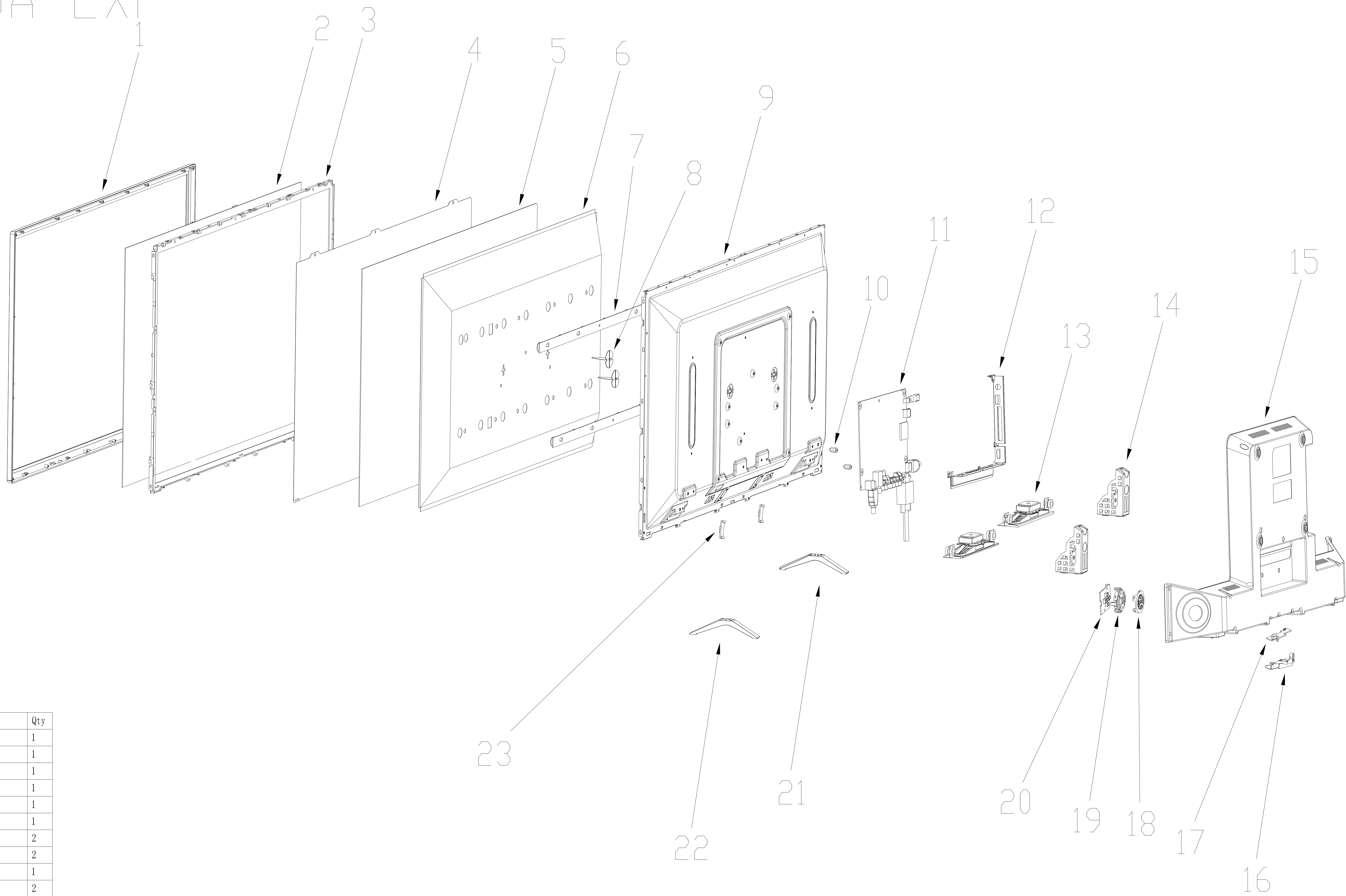






广州2010年亚运会合作伙伴

32D2730A-EXP



No.	Material Code	Describe	Qty
1	55-481550-OHJ	Front Cabinet	1
2	4A-LB205-CSPGTA	Opencell	1
3	62-526020-OLUF	Frame	1
4	4C-KF320T-YB3	Diffuse Sheet	1
5	4C-DP320T-TXT	Diffuse Plate	1
6	4C-RF320T-YB8	Reflect Sheet	1
7	4C-LB320T-YHL	Light Bar	2
8	62-526000-OVH	Support Pin	2
9	67-B25950-OGA	Back Cover	1
10	66-S30076-DE4	Screw	2
11	T8-32LA2M-MA1	Ms08ep Mainbord	1
12	67-735300-WG0	Side AV Support	1
13	42-51308G-XCING	Speaker	2
14	62-526010-OHJ	Base Connect	2
15	55-739880-7HL	Rear Cover	1
16	56-481580-OHH	Lens	1
17	***	IR BD	1
18	56-739870-OHA	Button Support	1
19	56-739860-OHA	Key Support	1
20	***	Key Board	1
21	55-481840-OHD	STD-Left	1
22	55-481850-OHD	STD-Right	1
23	59-481330-000	Rubber	2