LED COLOUR TV

MAINTENANCE MANUAL

MODEL: HLT57EJ CHASSIS（9206B）

PCB VERSION：JUC7.820.00117550-1

Please read this manual carefully before maintenance

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Chapter1 Safety and notes

1-1 Installation notes

(1) Please don't beat or rub, scratch the surface of the LED screen heavily, don’t touch it with your hand casually.

(2) When the screen is dirty, please clean it with absorbent cotton or cotton cloth slightly.

(3) Please clean it timely when water or other viscosity pollution fall, which may make the LED face or color change.

(4) Please don’t make the LED screen shaked by strong external force.

1-2 Attention points of operation and using

(1) Please unplug the power cable before moving the LED screen.

(2) Please don’t change the original setting of the mainboard’s, if not, the brightness and white balance etc. may not meet the specification.

(3) The radiation of a long time using in the room temperature is larger than the low temperature.

(4) Please note that the long displaying image may remain at the top when shutdown the machine.

(5) Please avoid the impact from the mobile phone to protect your TV.

1-3 Storage notes

(1)When stored for a long time, please keep the temperature between 0℃to 40℃,don’t expose the TV to the strong sunlight, the humidity should be less than 85％RH.

(2)Please don’t put your TV under high humidity and high temperature environment, for example, the temperature: 60℃, and the humidity: 85%RH.

(3)Please don’t put your TV under low temperature environment, for example, the temperature lower than -25℃.

1-4 Dismantling notes

(1)As LED screen is easy to be damaged, while dismantle, please attention to protect.

(2)Please attention the position of each screw when dismantle, in case to beat the wrong position when install, if not, it may lead to crack or slide of the face frame.

(3) If you need to dismantle the power board or the mainboard, please attention the position and direction of

each line, especially the direction of the screen line, in case of causing accident when install. Before dismantle, we can take some photos of the line route for the comparison of installing.

(4)After check and maintenance, please assure that there is no foreign body in the machine when install.

1-5 High-voltage warning

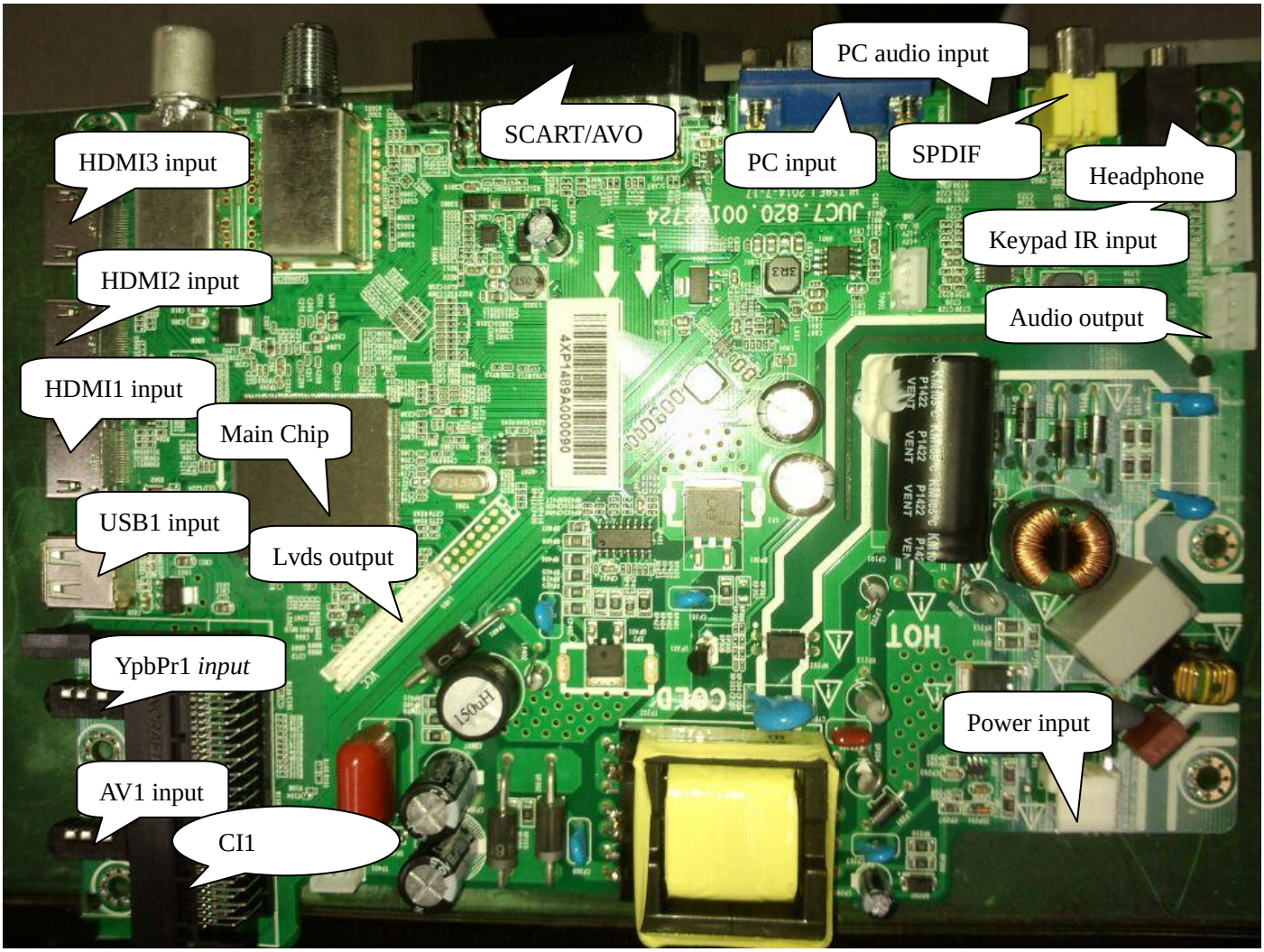
The high-voltage of the LED screen is generated by the power supply board, without attention to exposure to the high voltage, one may meet a serious electricity shock.

Chapter2 whole machine standard and terminal functions

2-1 Basic standard

Item		Standard	
TV function	sound system	B/G、D/K、I、M	
	color system	PAL / SECAM / NTSC	
Audio and video signal input	AV	AV x 1	Audio L/R x 2
	aberration signal	YPbPr x 1	support to1080P ， Audio L/R x 1,
	HDMI	HDMI x3	support to1080P
	USB	USB x1	support media player
	PC input	plug and use	
		input frequency	H: 31.5K -50KHz V: 60Hz
		recommend	1280x768(60HZ)
		Phone x 1	PC audio input
	SCART	SCART x 1	CVBS、RGB、AUDIO
Video output		Output CVBS signal	Output TV ,Audio L/R x 1
Audio output		Audio output L / R	8W inner speakers for each channel Support Dolby Pro Logic
SPDIF		Optical Fiber	Support Audio output
Power		power supply	AC100V~240V, 50/60Hz
requirement for environment		power achievement	<150W
		operation temperature storage temperature operation humidity	+ 0° ~ + 40° ， - 20 ° ~ + 60° 10% ~ 85%
appearance size		W x H x D	
net weight		no accessory	Kg

2-2 Introduction of terminals(practicality photos)



ATTENTION:

1.HDMI and YPbPr support to 1080P；

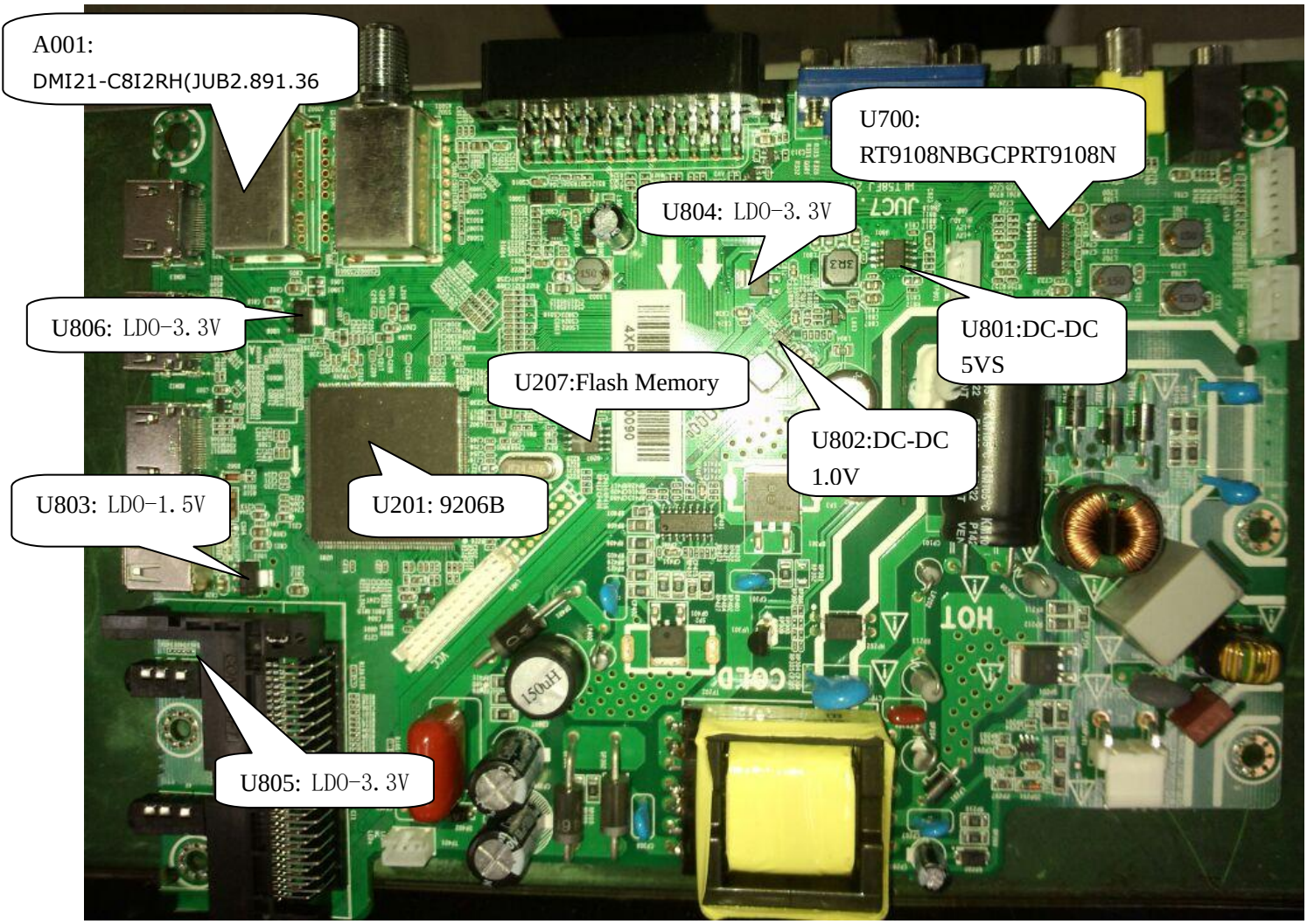
2.The recommendation resolving ratio of PC is 1280X768；

Chapter3 Main chip functions and the introductions of power supply

3-1 Main IC and functions of HLT57EJ

No.	Item no.	Model	Main function
1	A001	DMI21-C8I2RH(JUB2.891.367-1)	Tuner output IF signal Support PAL\NTSC\SECAM\DVB-T\DVB-C
2	AS001	EDS-11670FNPRB	Tuner output IF signal Support DVB-S/DVB-S2
3	U201	9206B	Video decoder, image processor, A/D and D/A conversion
4	U700	R-RT9108NBGCP	15W Stereo (BTL) Analog Input Audio Amplifier with Power Limiter and DC Detect

5	U207	GD25Q64BSIG	64 Mbit(8M x8bit), low voltage, Serial Flash memory
6	U802	MP1471	12V to 1.0V DC-DC/For COER
7	U801	TPS54428E	12V_standby to 5VS VDC-DC
8	U803	AMS1117-ADJ	5V to 1.5V LDO/For DDR3 & Main Chip
9	U805	AMS1117-3.3V	5V to 3.3V LDO/NORMAL
10	U804	AMS1117-3.3V	5V to 3.3V LDO/Standby
12	U806	AMS1117-ADJ	5V to 3.3V LDO/TUNER



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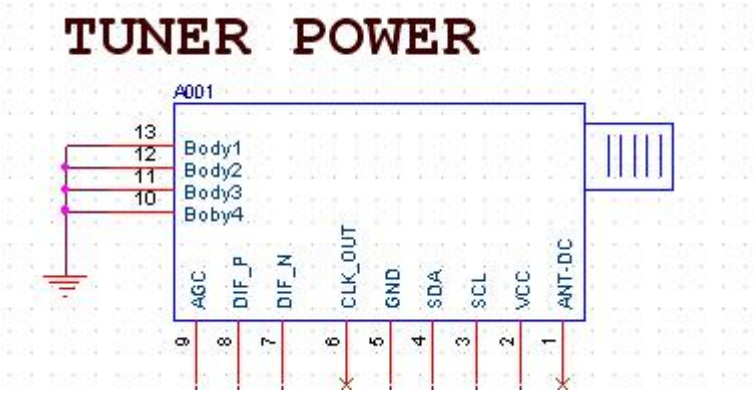
3-2 Pin function description of HTL57EJ chip

3-2-1 9206B recommended operating power conditons

(The Main Chip cancel 1.8V Supply Voltages because of DDR3 supplied by 1.5V)

3-2-2 Pin function of DMI21-C8I2RH(JUB2.891.367-1) tuner

PIN	SYMBOL	Description
1	Ant power	Not connect
2	VCC	+3.3V POWER
3	SCL	I2C Serial Clock
4	SDA	I2C Serial DATA
5	GND	Ground
6	CLK_OUT	Not connect
7	DIF_N	High level IF output2
8	DIF_P	High level IF output1
9	IF-AGC	IF AGC Control Voltage

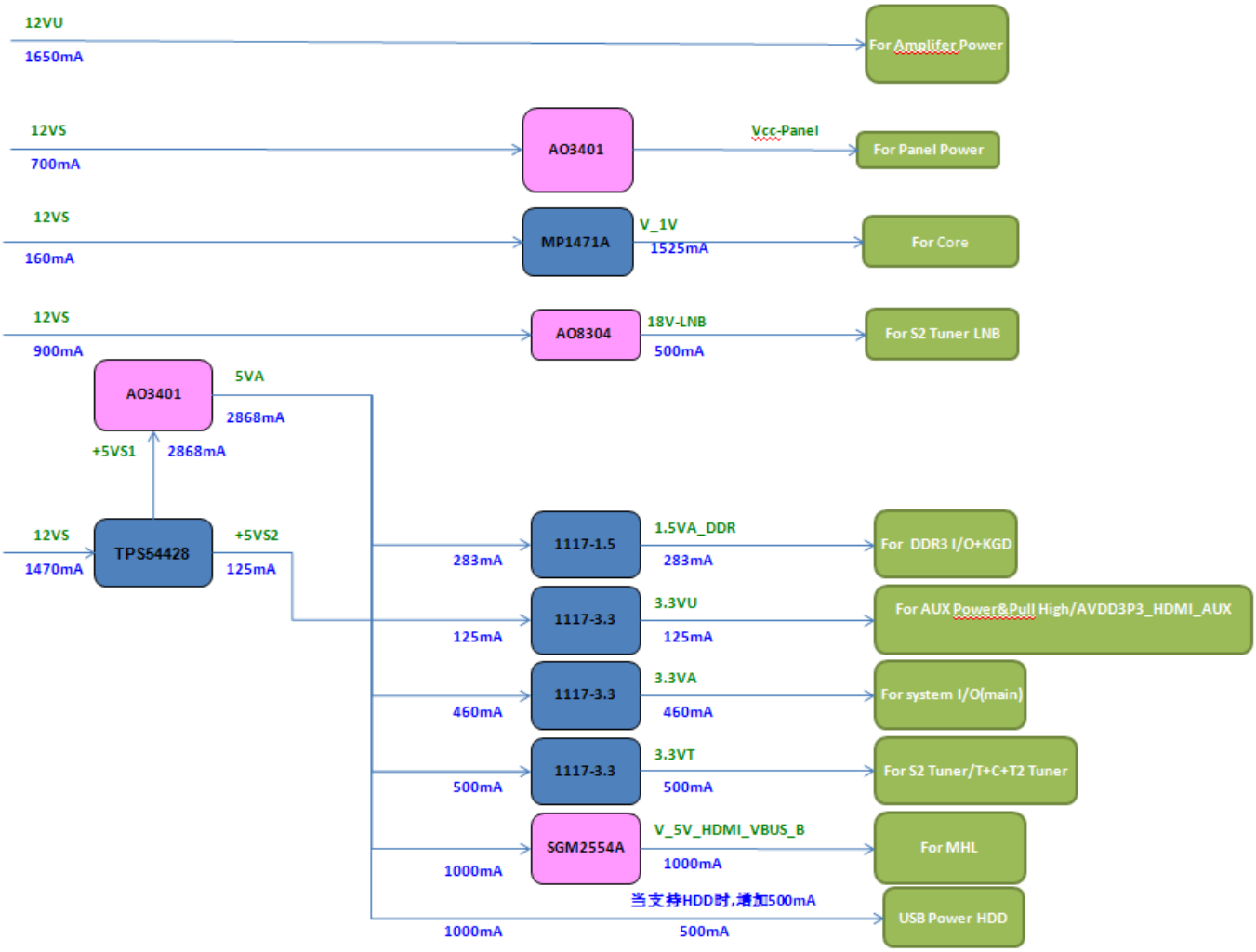


3-2-3 GD25Q64BSIG 64Mbit(8M x 8bit) brief introduction:

PIN DESCRIPTION

Pin Name	I/O	Description
CS#	I	Chip Select Input
SO (IO1)	I/O	Data Output (Data Input Output 1)
WP# (IO2)	I/O	Write Protect Input (Data Input Output 2)
VSS		Ground
SI (IO0)	I/O	Data Input (Data Input Output 0)
SCLK	I	Serial Clock Input
HOLD# (IO3)	I/O	Hold Input (Data Input Output 3)
VCC		Power Supply

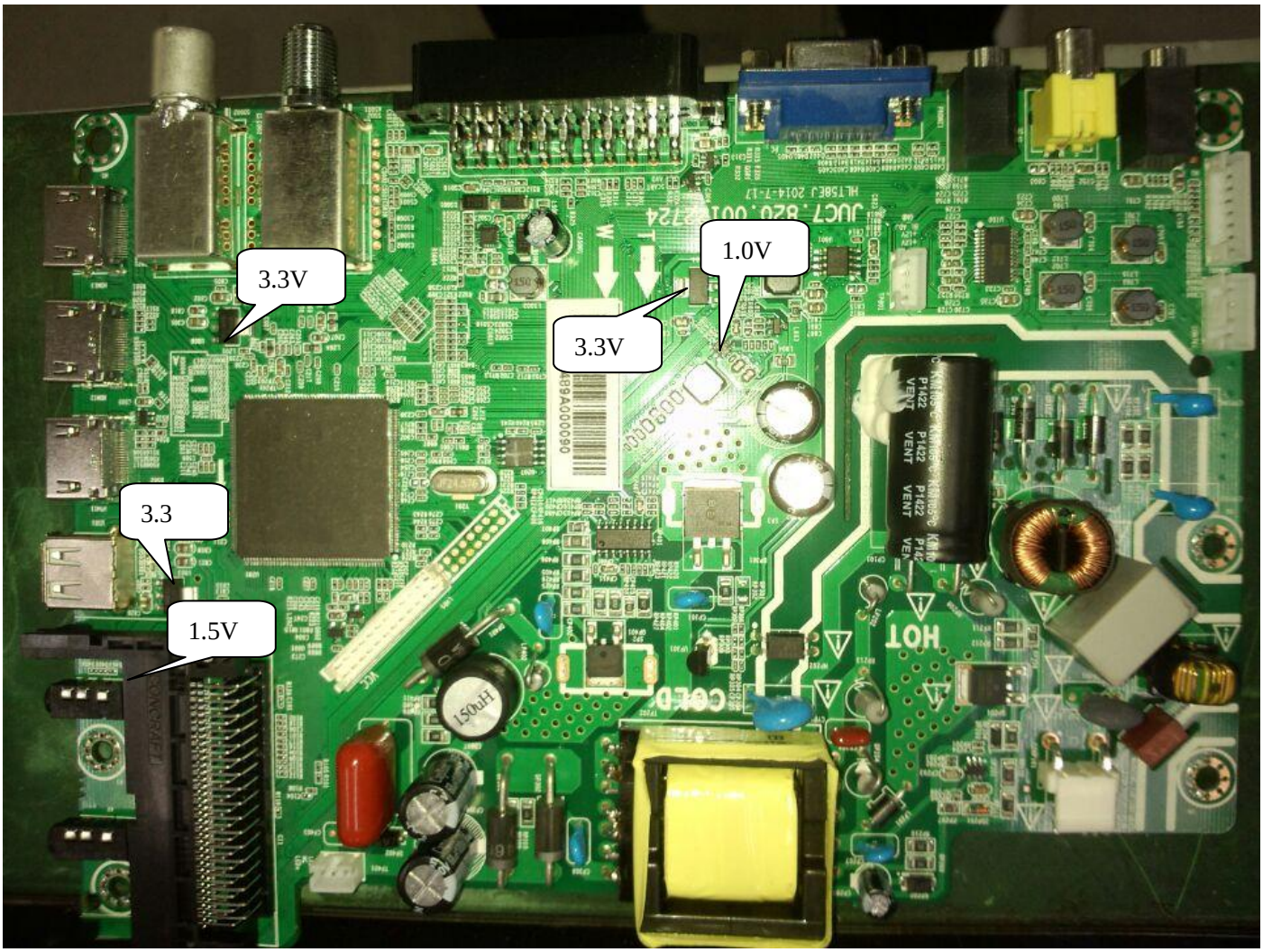
4-1 9206B Power Block Diagram



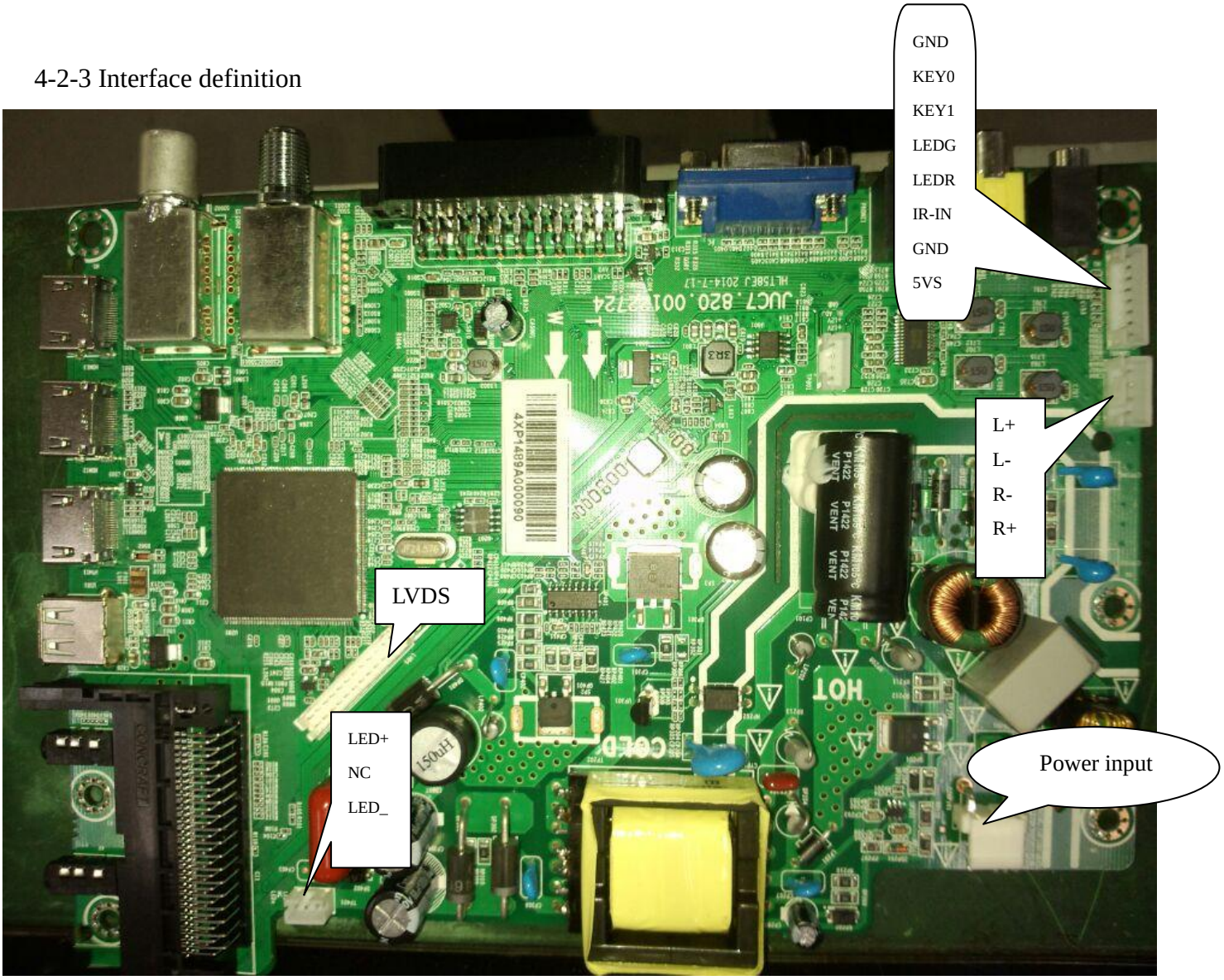
4-2 Power supply system

4-2-1 Pin voltage of the voltage adjustor on the mainboard

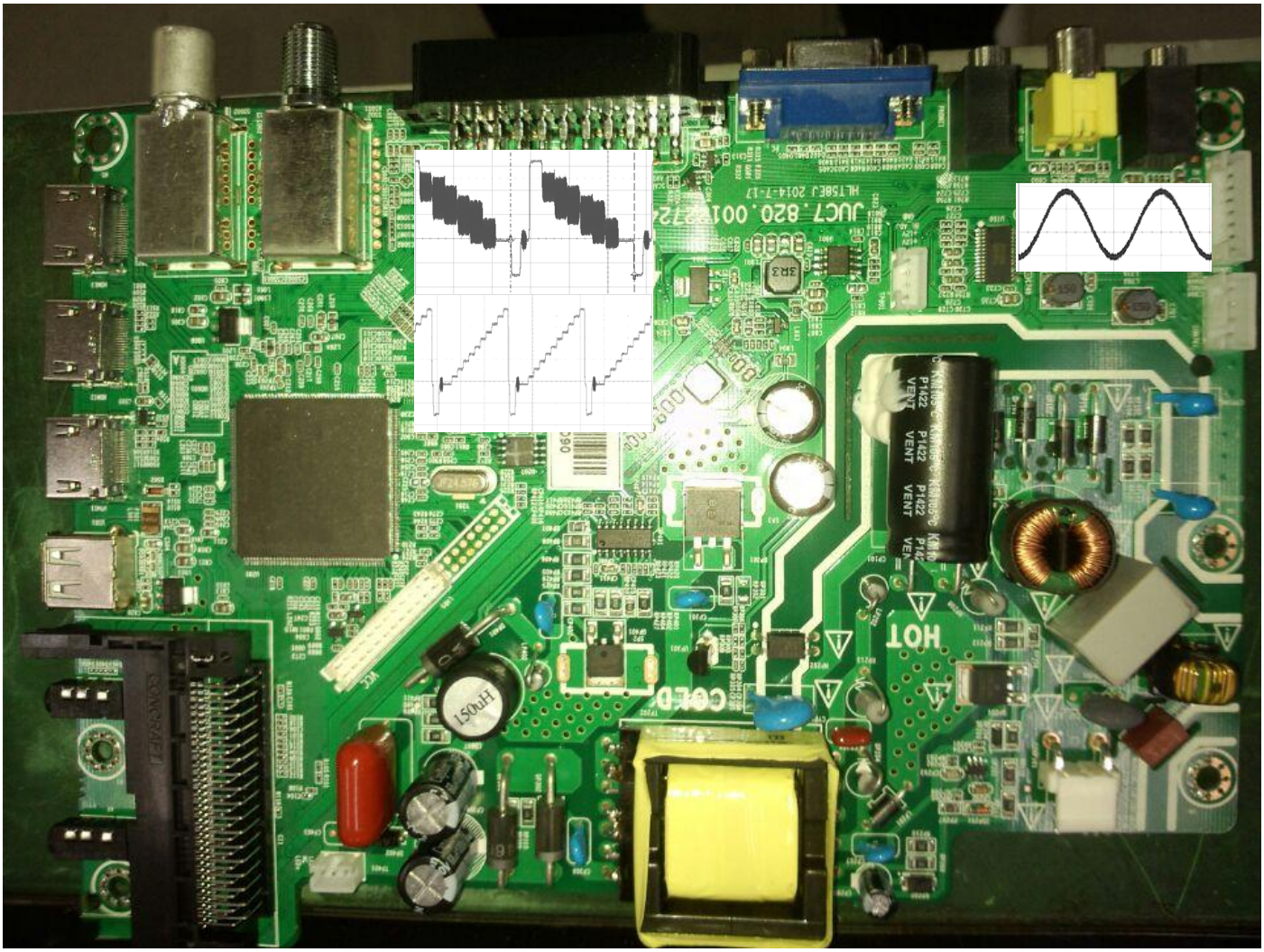
item No.	U802	U805	U806	U804	U803
output voltage	1.0V	1.5V	3.3V	3.3V	3.3


3.3V
1.0V
3.3V
3.3
1.5V

4-2-3 Interface definition



4-3 The waveform of key points



Chapter5 Software upgrade instructions

5-1 UART Upgrade

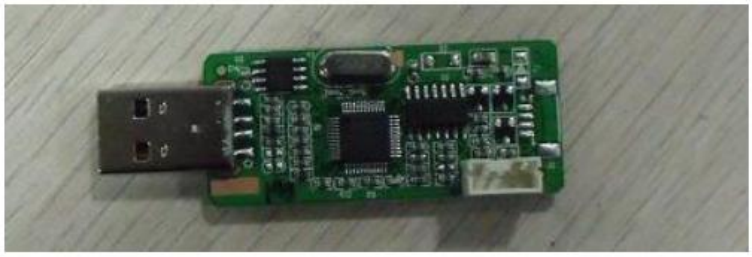
UART upgrade is very slow, about 15 minutes. If the main board is not dead, please do not use UART upgrade.

UART upgrade software tool is uart2spi_tool.

1) Tools prepare（the same as MSD30X）:

a) USB Cable

b) URAT Tool:B.CNSISP7A



c) 4-Pin Reverse Wire

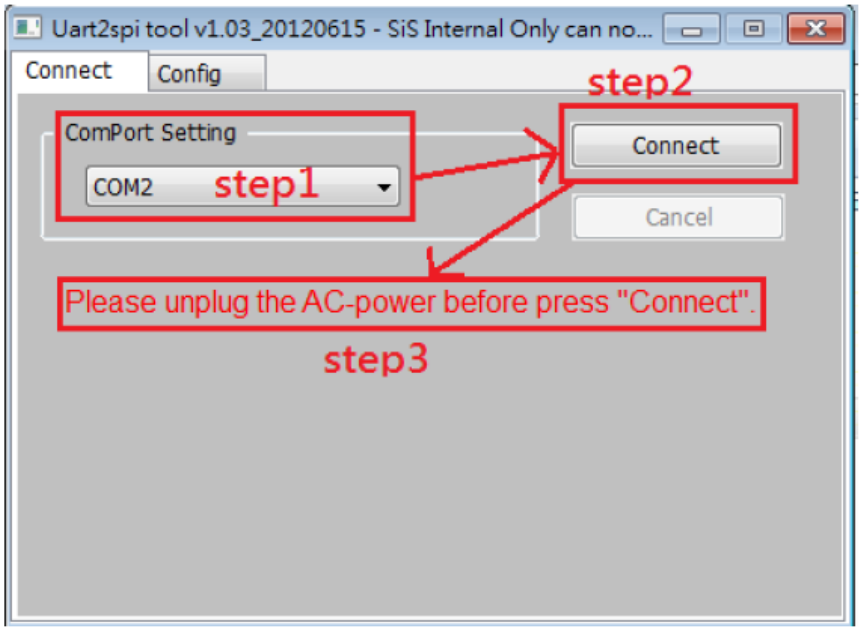
d) VGA Upgrade Tool

e) Connetion refers to picture:

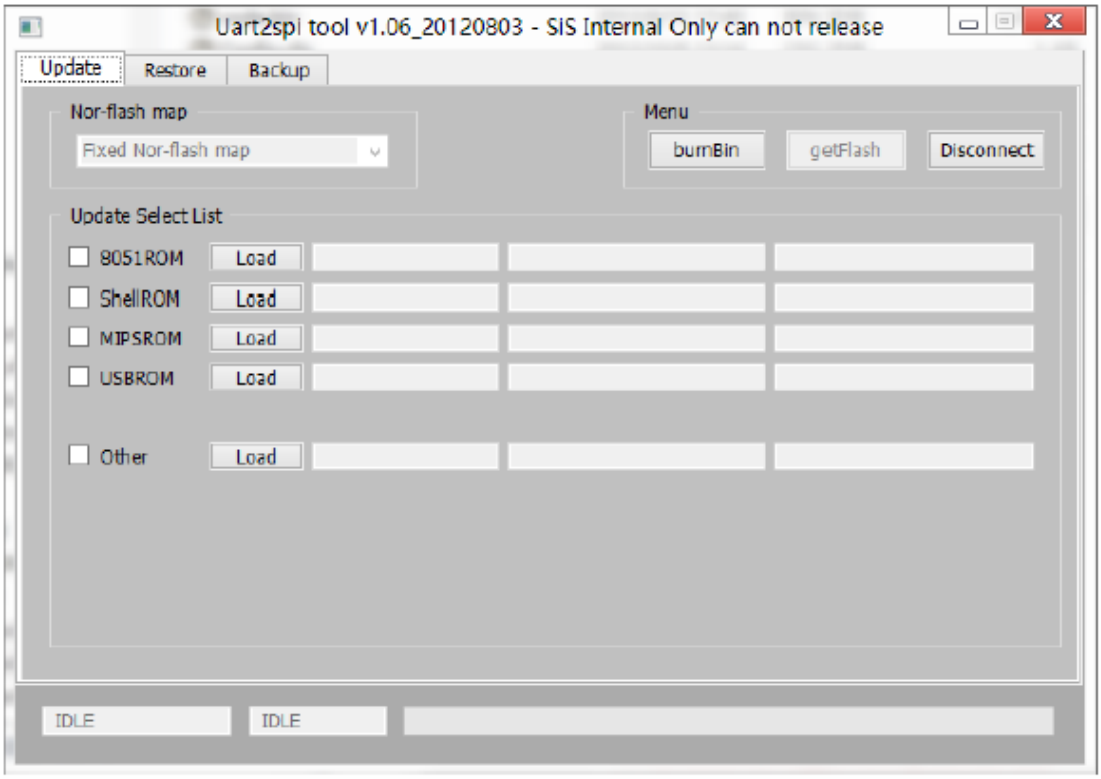
2) UART upgrade steps:

Make sure the main board is no power supply. Main board is in power down situation.

a) Open UART upgrade software tool: uart2spi_tool in PC. Select correct COM port.
b) Click “Connect”.
c) Power supply to the main board.

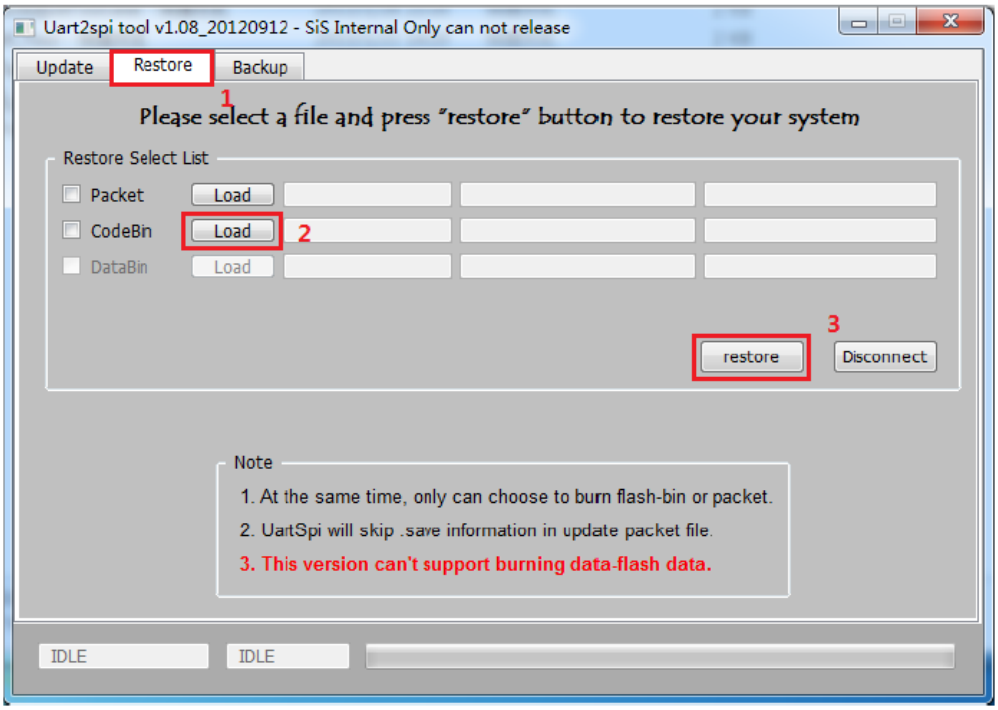


Normally following window will be shown:



d)

① Select "Restore" page:

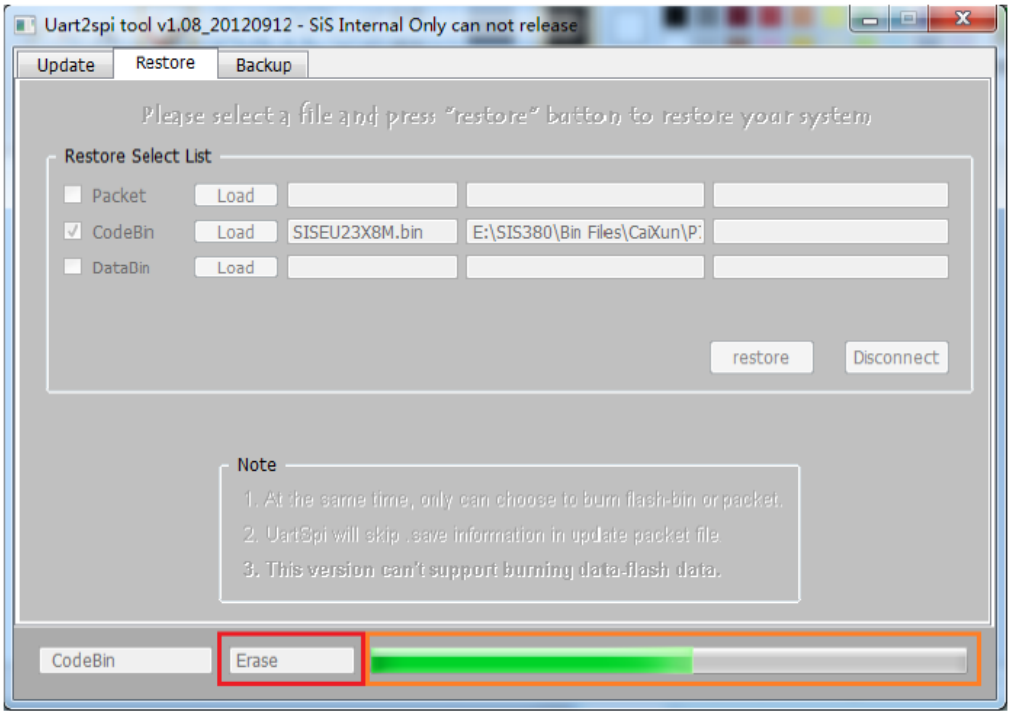


② Click "Load" button of CodeBin, load the upgrade bin file for upgrading.

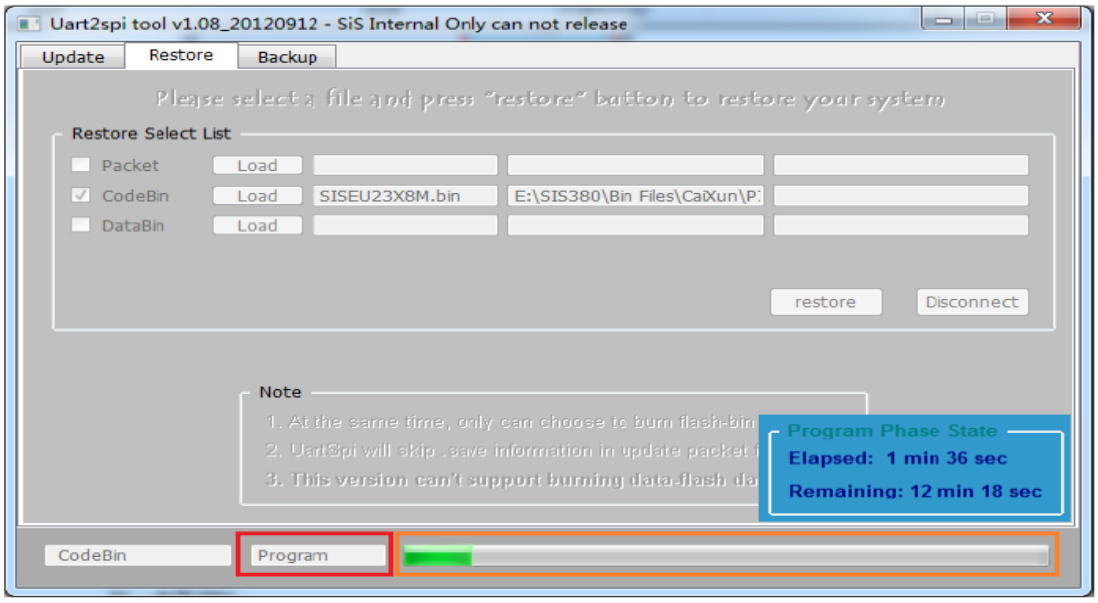
③ Click "restore".

④ Click "ENTER", start upgrading.

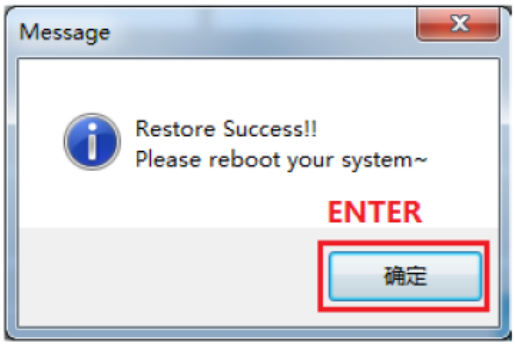
Then processing bar on the bottom will go:



First time is erasing the FLASH chip.



Second time is programing.



Wait programing is finish. Above window will show. Click “ENTER” to exit the window. Please power down the main board and power up.

That’s all.

5.2 USB Upgrade

Copy the bin file for upgrading to USB key root folder.

Main board supports two ways to upgrade:

1) Upgrade on power supplying
   a) Make sure the main board be in no power supply situation.
   b) Put USB key to main board USB terminal.(USB key has the upgrade bin file)
   c) Power supply to main board, then LED on IR receiver should be blinking slowly.
   d) Wait LED on IR receiver blinks quickly, which means upgrade is finish.
   e) Disconnect the power supply. Done!

   Because the initial time of some USB keys are longer, main board cannot detect the USB key when power supplying. If so, please upgrade the main board in factory menu.

P.S LED indication blinking when upgrading

When upgrading, LED blink slowly every 1 second.

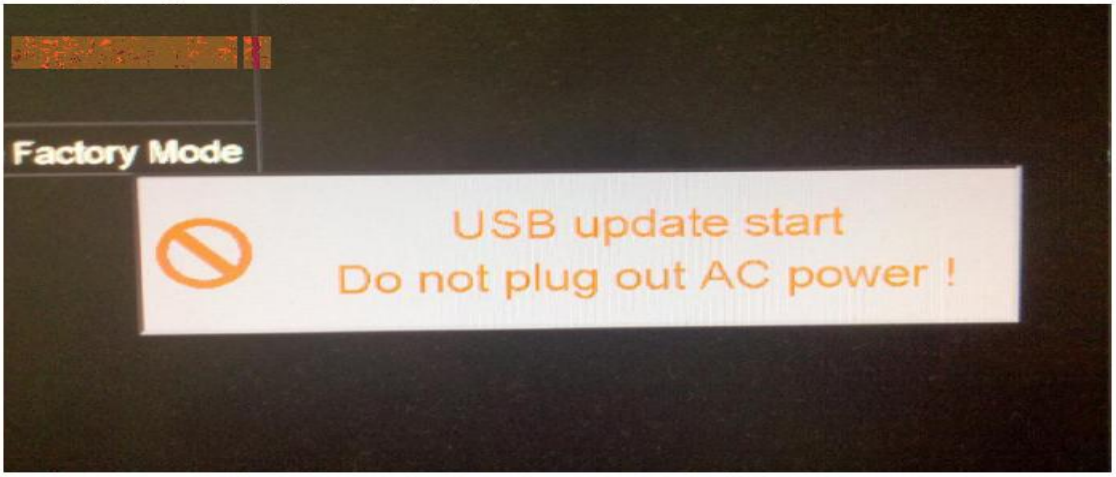
Upgrade success, LED blink quickly every 1/4 second.

Upgrade fail, red LED lights long time and green LED lights short time in cycle.

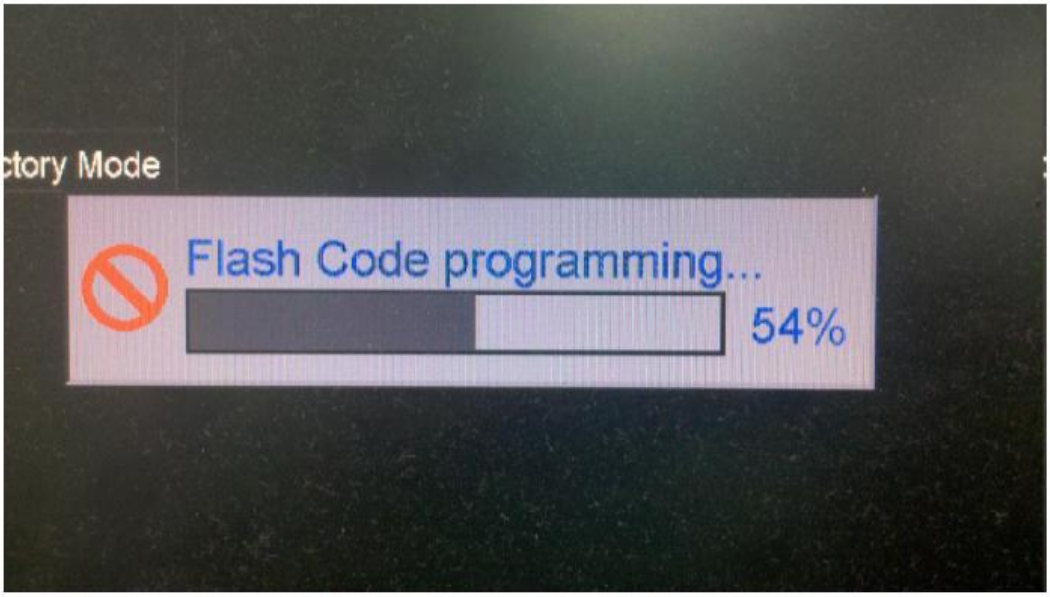
2) Upgrade in factory menu
   a) Power on TV set.
   b) Put USB key to main board USB terminal.(USB key has the upgrade bin file)
   c) Press remote control key -> SOURCE 3, 1, 3.8‹ Enter factory menu.
   d) Select Update -> USB Update -> USB Update Start.

P.S Factory menu upgrade OSD indication:

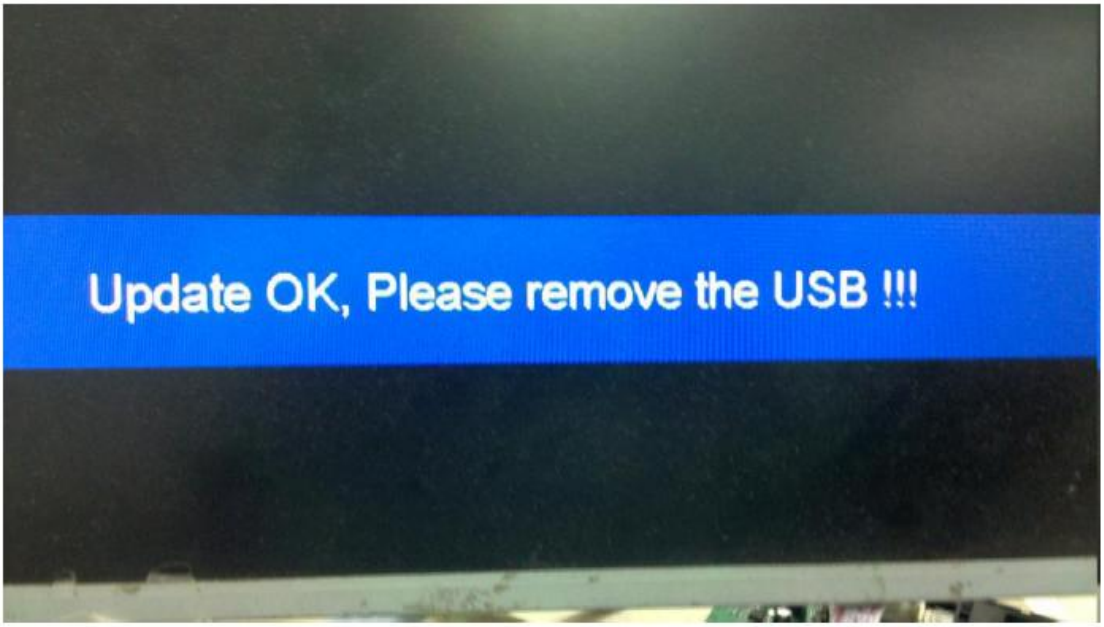
Start upgrading, following OSD will pop-up:



System auto loads the upgrade bin file and start upgrading. Processing bar will be shown and LED on IR receiver will blink.



When upgrade is finish， following OSD will be shown. Then power down the TV and power up again.



Chapter6: Classical accident maintenance procedures and examples

6-1 The thinking of don’t boot

The power is not connected.

6-2 Common problems for your reference

To speed you to dignose and solve problems, the following commom problems are offered for your reference.

Symptoms	Possible Reason	Solutions
No picture, no sound, and no indicator light on	1.The power cord is not plugged in 2.The power is off	1.Plug in the power cord 2.Turn the power on
abnormity Picture and sound with	1.Contrast, sharpness, and color are set improperly 2.Color system is improperly 3.Sound system is improperly	1.Adjust the numberical value of Contrast, sharpness, and color 2.Set the Color system to the country broadcasting standard 3.Set the Sound system to meet the country's broadcasting standard
Picture is spotted or with snow	Signal source is low-grade or the signal cord is in a lower quality	Use the qualified signal cord
No picture, no sound and indicator light is green	Contrast, brightness, color and volume are all in the minimum value or TV is in mute mode.	Adjust the value of contrast, brightness, color and volume
	The signal cable is not correctly connected.	Connect the signal cable correctly
Blue screen, AV or SVIDEO is displayed	There is no signal input or the video cable is not connected or incorrectly connected	Connect the video cable correctly
No sound	There is no audio signal input or audio cable is not connected correctly	Connect the audio cable correctly
VGA picture display with improper color	The color temp is adjusted incorrectly by user	Readjust the color temp, or select the original color setting
HDMI source, with snow pixel of full screen	The signal source is not normal	Plug the HDMI cable again
The remote control does not work	Batteries are improperly installed or exhausted	1. Make sure the positive and the negative polarities are correct. 2.Check if there is a loose contact between the batteries and the springs 3.Replace the batteries

Chapter7 High voltage and high current wearing parts list

The introduction of maintenance parts are for reference only, modification of parameters will not be informed any more. For accurate data and related specifications, please consult the newest data of our company.

Number	Name	Part number	Proportion of easy damage （‰）
1	Mainboard part	JUC6.690.00117679	2
2	Remote receiving board part	JUC6.695.00113324	0.5
3	Keyboard part	JUC6.694.00114533	0.5

4	Inner power module	Three in one	5
5	LED screen	C320X14-E1-H(G3)	0.1
6	Dynamic speaker	YDT35135-A3-10W-8Ω	2

Chapter8 Factory mode parameter setting instructions and notes

8-1 Enter into the factory mode

Switch on TV set, and make it works normally:

Press 【SOURCE】 key on the remote control

Press number keys “3”、“1”、“3”、“8” on remote control to enter password. Finish entering the factory mode.

If you want to quit the factory mode, Please. press【EXIT】key to exit source.

(1)Factory menu displays as bellow：

Factory Setting

Menu level	parameter values	secondary menu	parameter values	function declaration
Version				select version
System Config		Board Defined	Changhong_S2T512	
		Default Language	English	The default language setting
		Default Country	Germany	Set the default state
		OSD Language	→	OSD language settings
		DVD Android Option	→	DVD Android related settings
		6m20 6m30 Option	→	6m20 6m30 related settings
		Pre Channel Setting	→	Advanced Setup
		Power Show Logo	Show Logo	LOGO display switch
		AC Auto Power ON	LASTMemory	Selected by switch
		Input Source	→	channel switch
		Physical Input Setting	→	Channel Settings
		Use CI+ 1.2 Stack Only	False	
Picture Mode		ADC Adjust	→	ADC autocorrection
		W/B Adjust	→	Exposure Pro

		Picture	→	Image pattern parameters Settings
		Over Scan	→	A scan Settings
		Curve Setting	→	The linear parameter Settings
		Gamma Switch	Enable	Gamma switch
		Select PQ	None	PQ select
		Dynamic Contrast	→	Dynamic contrast parameter Settings
		Color LUT	→	LUT colour modulation setting in advance
		VIP	→	HDIM Levels set
		Backlight Mode	Home Mode	Backlight Mode
		Backlight	60	Backlit parameters
		Dynamic Backlight	OFF	Dynamic backlight switch
CVD2 Setting		Brightness	0	
		Contrast	0	
		LDLY	0	
		Filter	0	
Audio		Power Limiter	→	Power limit set
		Audio Effect	→	Sound Setting
		SRS Surround	→	SRS parameter setting
		AVL	→	AVL parameter setting
		Sound Mode	→	SOUND MODE
		Volume	→	Sound linear mode
		EQ Setting	→	Equalizer Settings
		PEQ1	→	Equilibrium parameter Settings 1
		PEQ2	→	Equilibrium parameter Settings 1
		PEQ3	→	Equilibrium parameter Settings 1
		Misc	→	Audio and video Settings
Burning Mode	Off			Aging model boot, According to the remote control0029or this TV POWER key exit
Shipping Mode				Reset
Reset all				Reset to reset the
Function		Panel Setting	→	Screen parameter

				Settings
		SSC Adjust	→	Spectrum extension set
		Preset Channel	→	preset channel
		Full TS Record	Stopped	Frequency point shows all burn
		Video Pattern	Off	Monochrome image mode selection
		Delete Same Services	Off	Delete the same program
Update		USB Update	→	software upgrading
		HDCP Update	→	HDCP_KEY data upgrade
		CI Plus Key Import	→	CI Plus Key read-in
		6m20 Update	→	
UART DEBUG	On			serial port switch
Factory Remote	Off			Remote control switch factory
Import/Export Data	→			import and export User Settings、Satellite program information

Notes：

Set Reset all will clear the memory data, So do not set it unless it is needed; other setting items do not need setting.

8-2 Setting method of factory menu

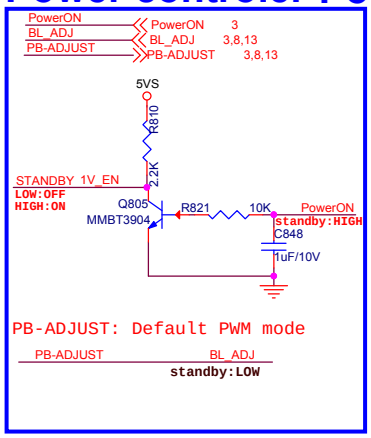
⑴Choose setting item

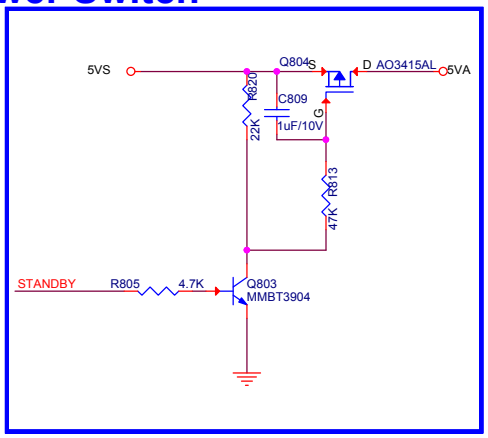
Operators can choose setting item orderly with【↑】and【↓】key, font having background display represents the item has been chosen. Press【→】key to enter sub directory. Use 【↑】and【↓】keys on remote control to make up or down option, and use【→】and【←】keys to set.

(2)All the menu functions are opened in factory mode, item checking and effect testing can be done by using menu if it is needed.

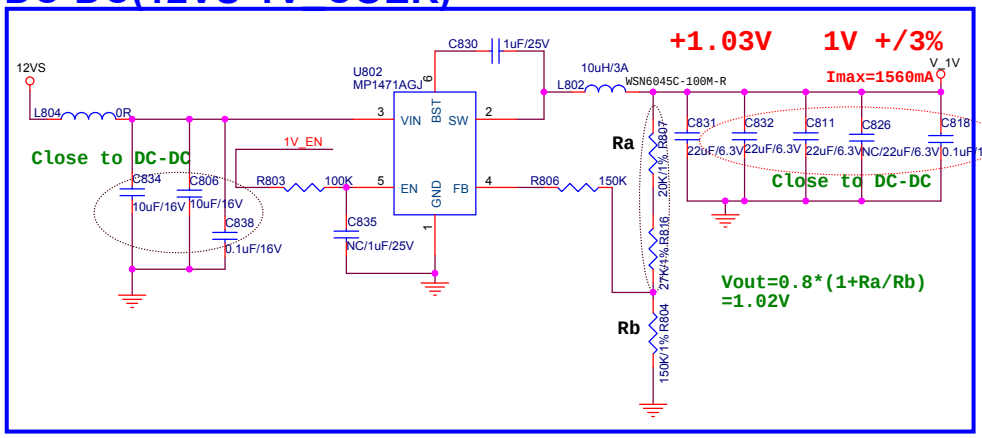
(3)Switching TV signal in factory mode can be done by directly pressing the number key. Press【MENU】key to back to the parent of working directory, press【EXIT】key to quit factory mode.

Power controler Power Switch

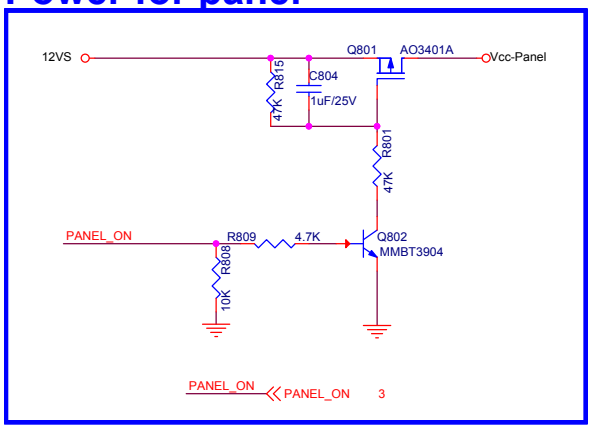




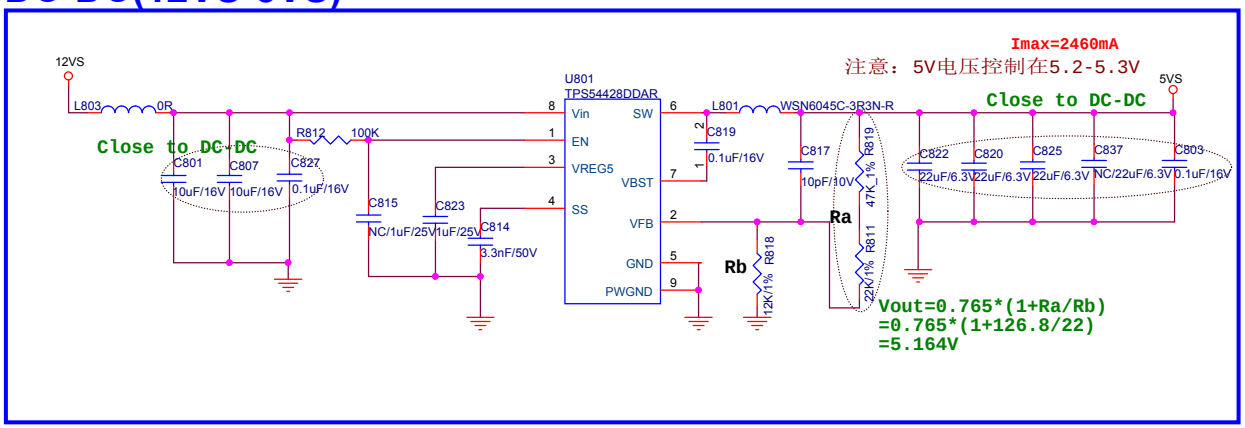
DC-DC(12VS-1V_COER)



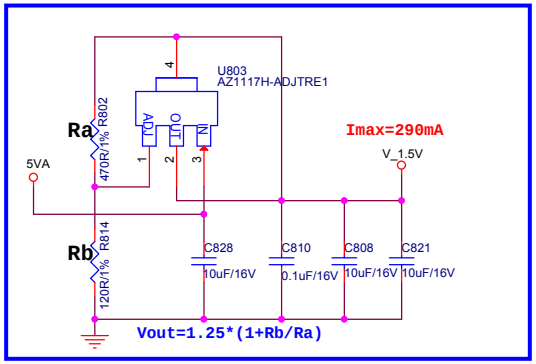
Power for panel



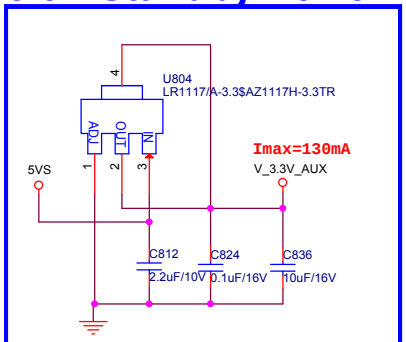
DC-DC(12VS-5VS)



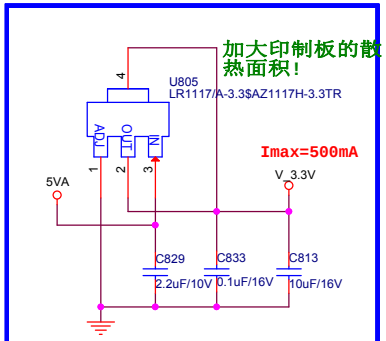
1.5V Normal Power for DDR3



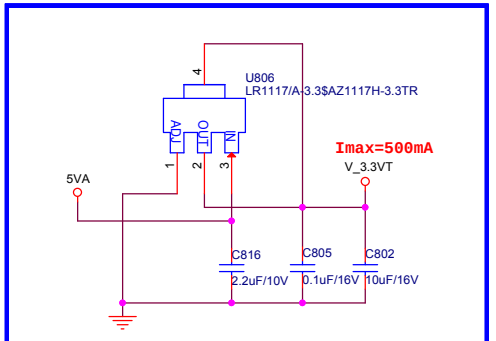
3.3V Standby Power



3.3V Normal Power



3.3V Tuner



CHANGHONG		
Title: System Power		
Size: Custom	Document Number: S2T512_APCKTVA	Rev: 0.1
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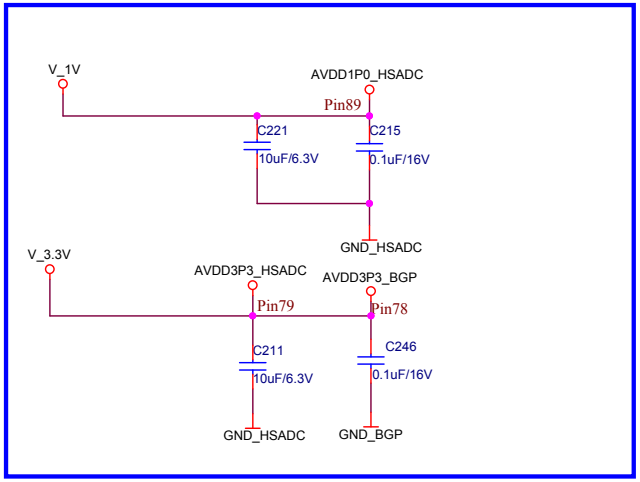
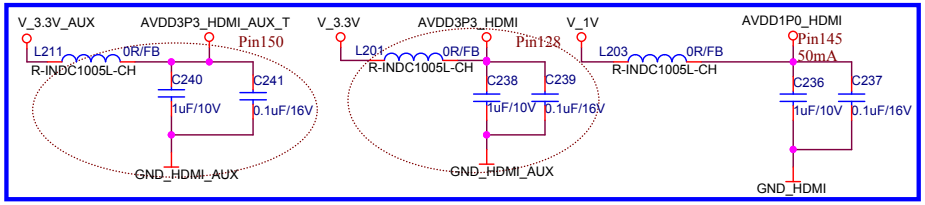
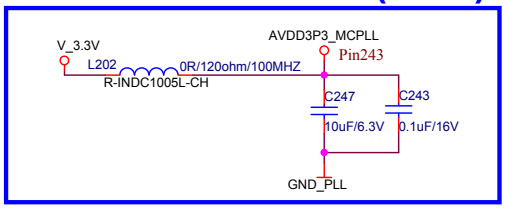
ADC POWER/GND (1.0V/3.3V)



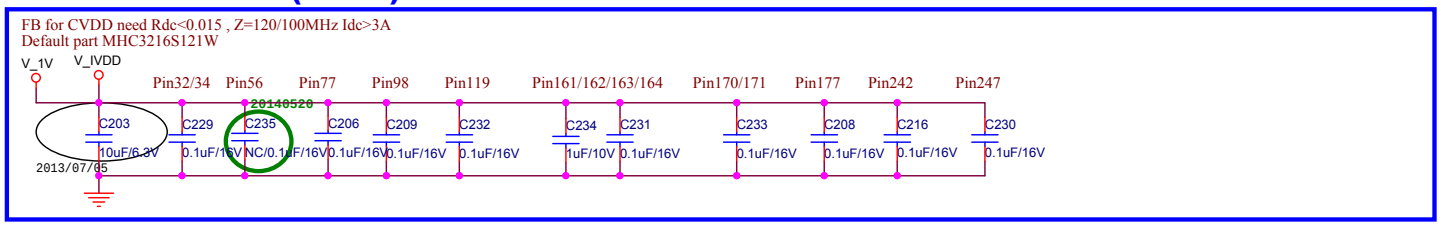
HDMI POWER/GND (1.0V/3.3V)



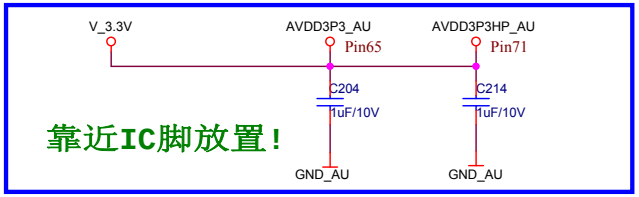
PLL POWER/GND (3.3V)



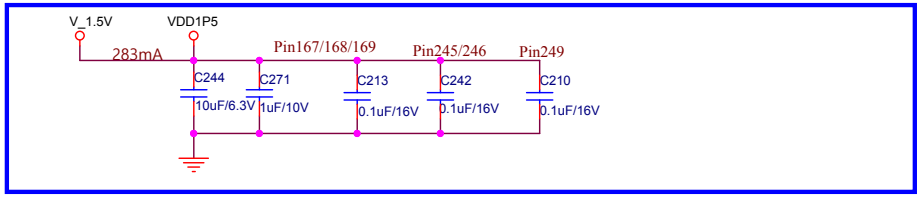
IVDD POWER (1.0V)



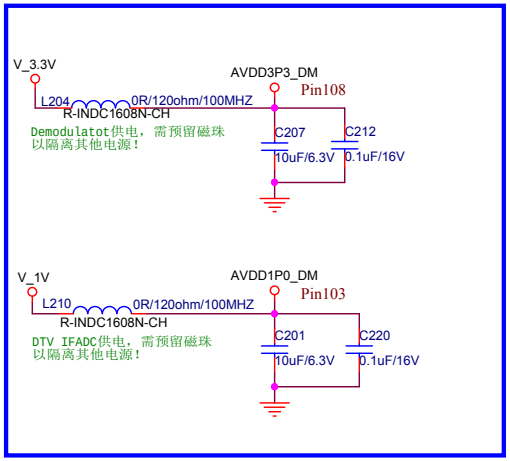
AUDIO POWER/GND (3.3V)



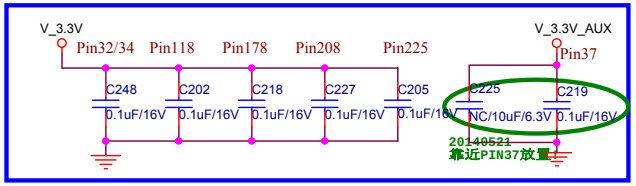
DDR POWER (1.5V)



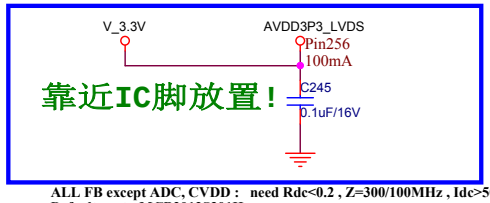
DEMOD POWER/GND (3.3V/1.0V)



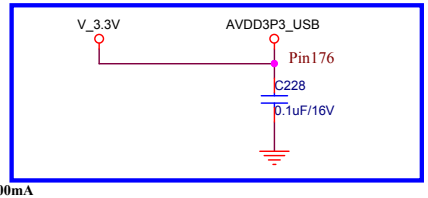
3.3V



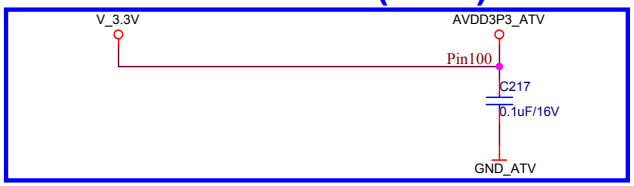
LVDS POWER/GND (3.3V)



USB POWER/GND (3.3V)



ATV POWER/GND (3.3V)



ALL FB except ADC, CVDD : need Rdc<0.2 , Z=300/100MHz , Idc>500mA
Default part : MCB2012S301H

GND_USB GND_LVDS GNDM GND_DEMOD GND_AUX GND_AU GND_ATV GND_HSADC GND_BGP GND_HDMI_AUX GND_HDMI GND_PLL GND_AMP

***Short these ground planes on PCB**

CHANGHONG		
Title: S2T512_256QFP_Power		
Size: B	Document Number: S2T512_APCKTVA	Rev: 0.1
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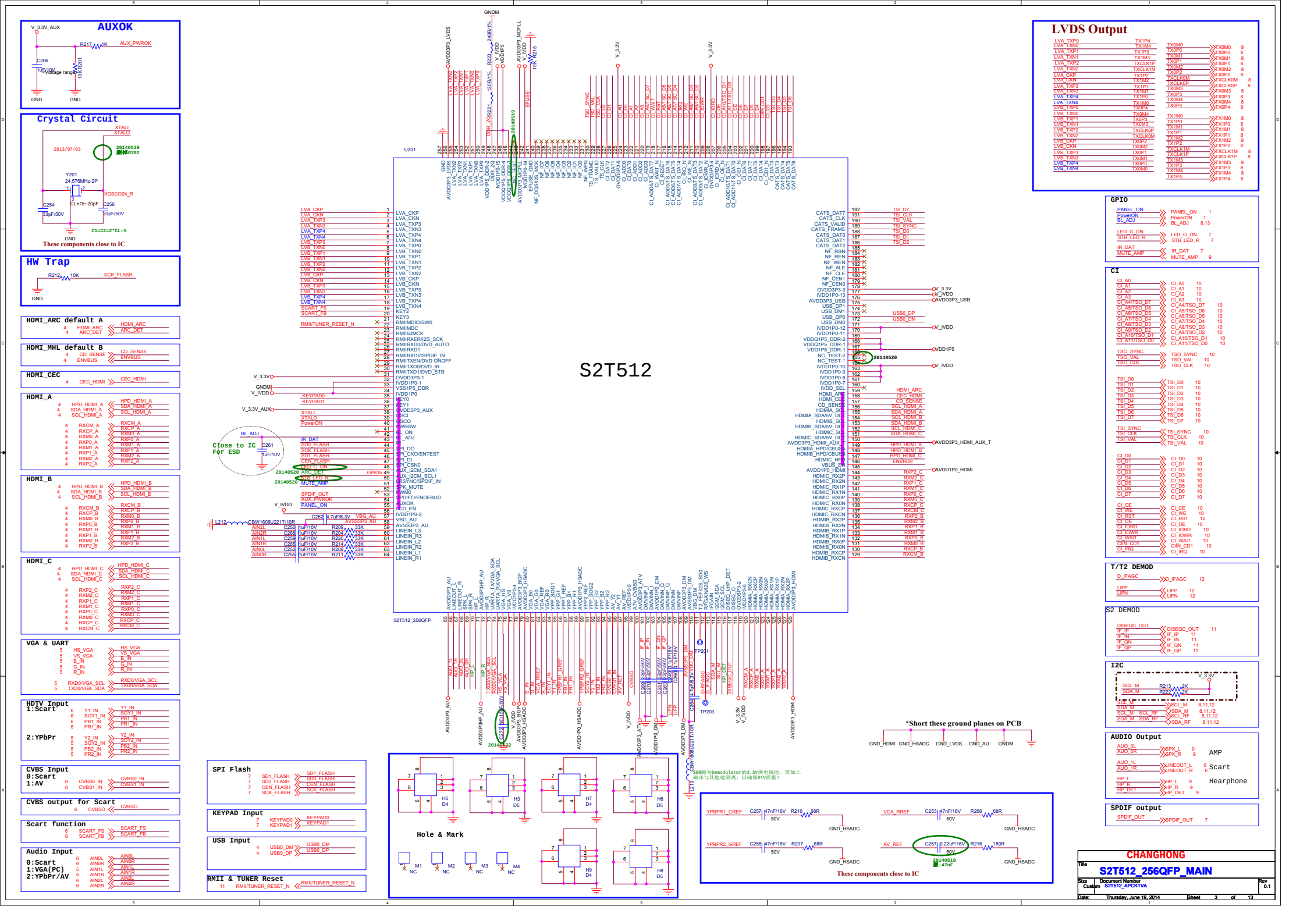
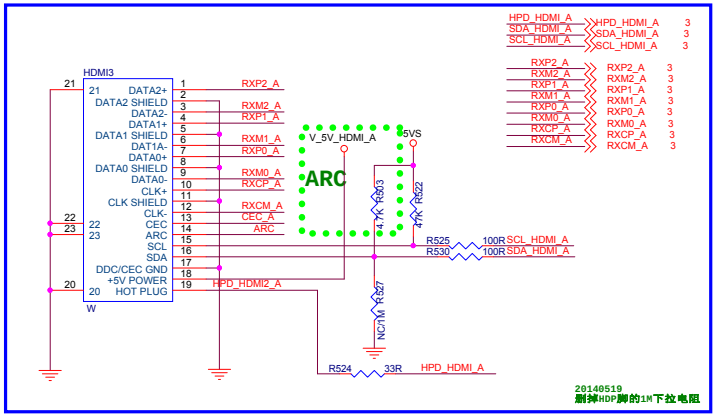
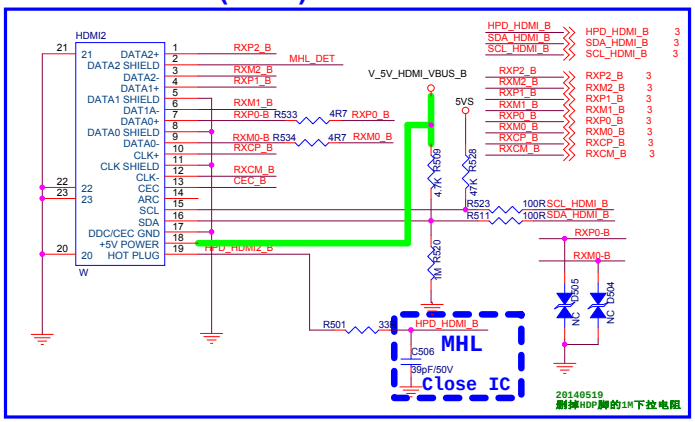

AUXOK
Crystal Circuit
These components close to IC
HW Trap
HDMI_ARC default A
HDMI_MHL default B
HDMI_CEC
HDMI_A
HDMI_B
HDMI_C
VGA & UART
HDTV Input
1:Scart
2:YPbPr
CVBS Input
0:Scart
1:AV
CVBS output for Scart
Scart function
Audio Input
0:Scart
1:VGA(PC)
2:YPbPr/AV
SPI Flash
KEYPAD Input
USB Input
RMII & TUNER Reset
S2T512
S2T512_256QFP
Close to IC For ESD
Hole & Mark
LVDS Output
GPIO
CI
T/T2 DEMOD
S2 DEMOD
I2C
AUDIO Output
SPDIF output
*Short these ground planes on PCB
These components close to IC
CHANGHONG
S2T512_256QFP_MAIN

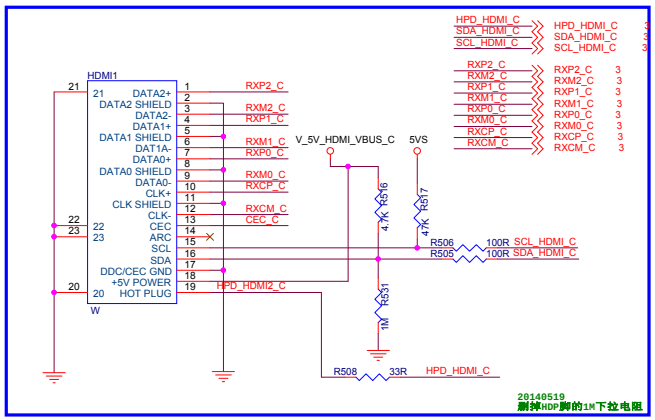
HDMI PORT-A



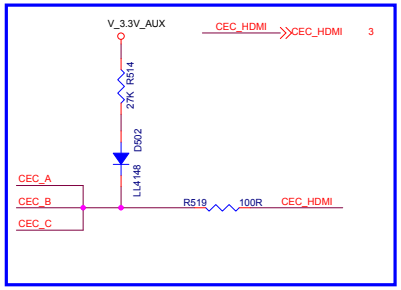
HDMI PORT-B(MHL)



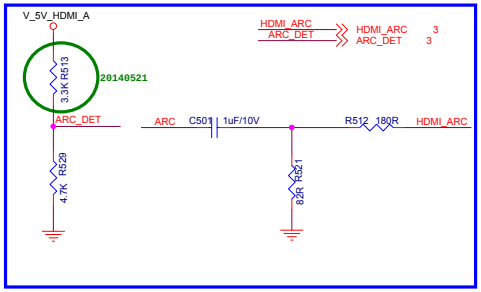
HDMI PORT-C



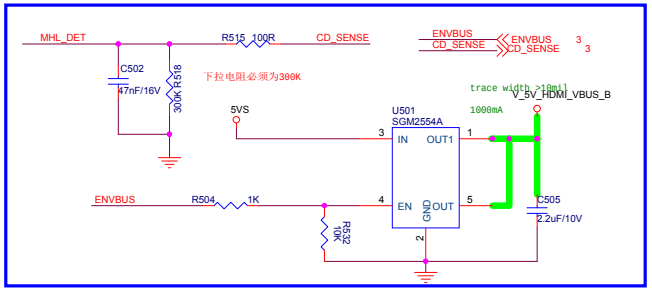
HDMI CEC



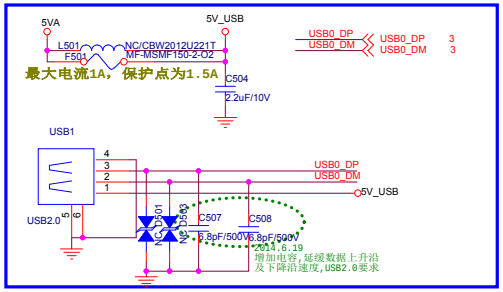
HDMI ARC



HDMI MHL



USB interface



CHANGHONG		
Title: Input1-HDMI&USB		
Size: Custom	Document Number: S2T512_APCKTVA	Rev: 0.1
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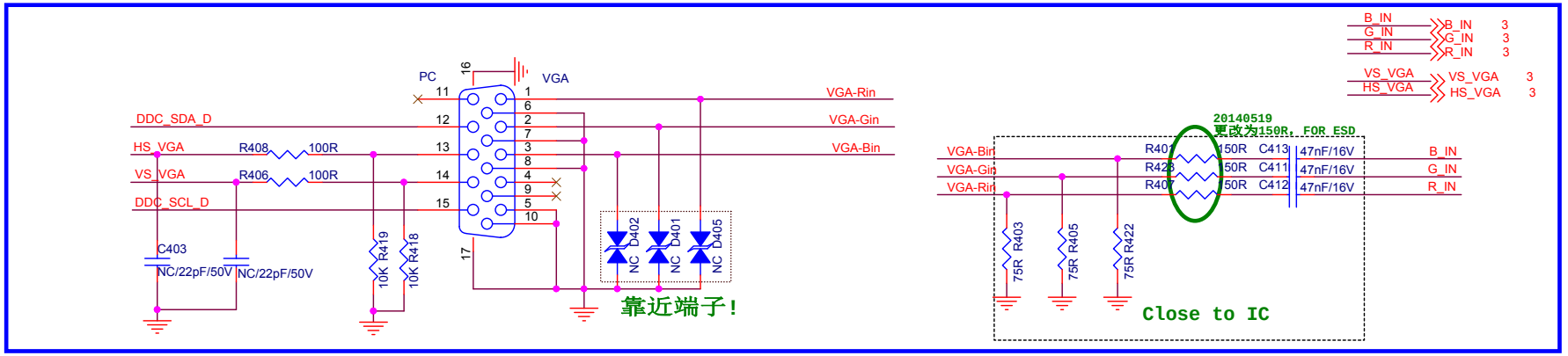
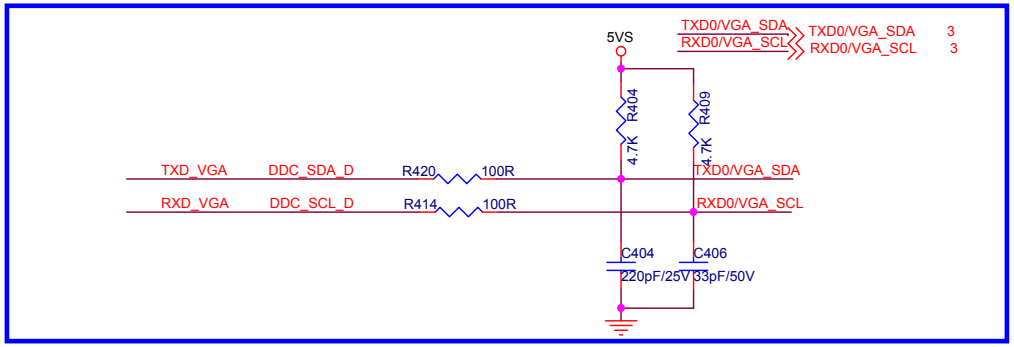
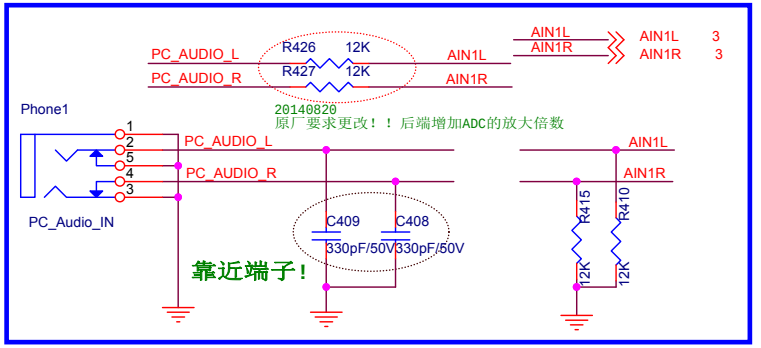
VGA INPUT



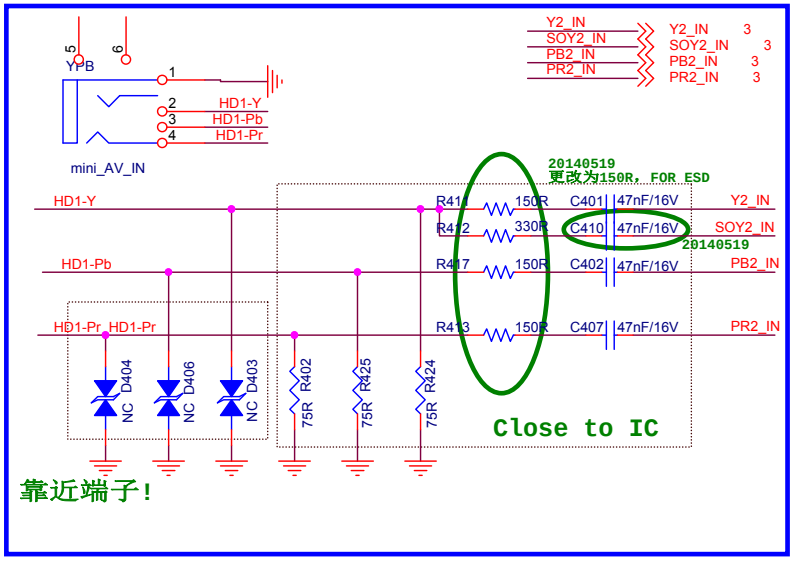
PC DDC



PC AUDIO IN



YPBPR INPUT



CHANGHONG

Title: Input2-PC&YPbPr

Size	Document Number	Rev
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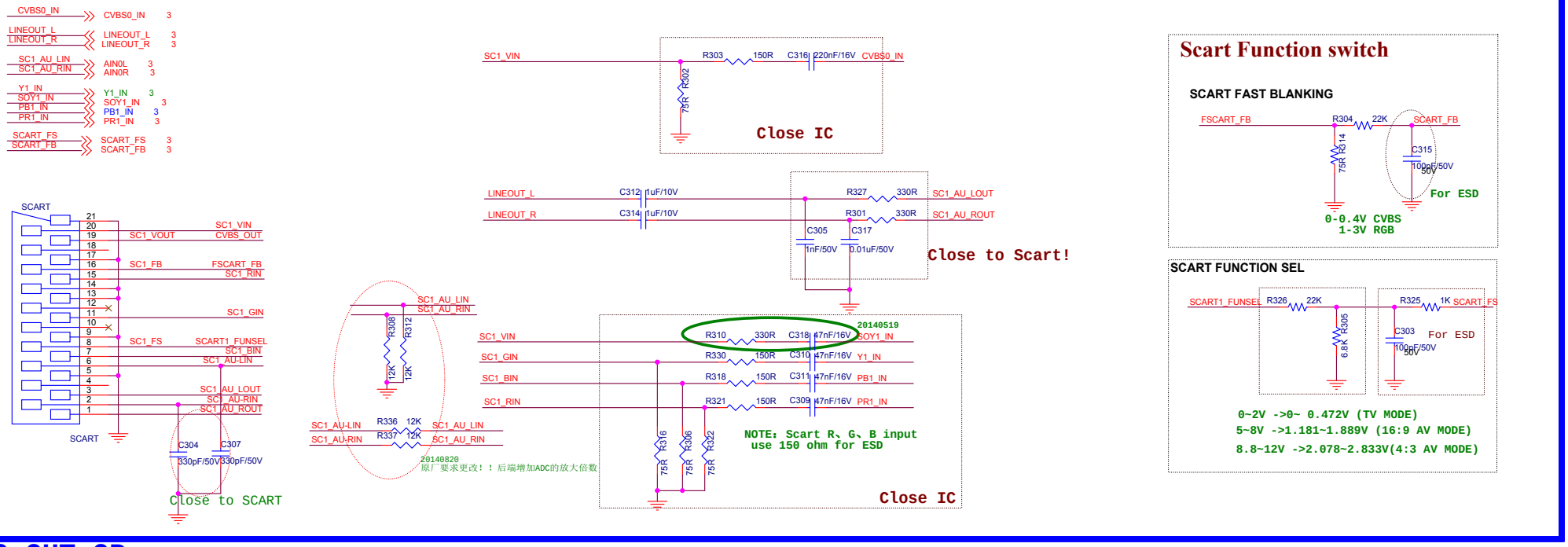
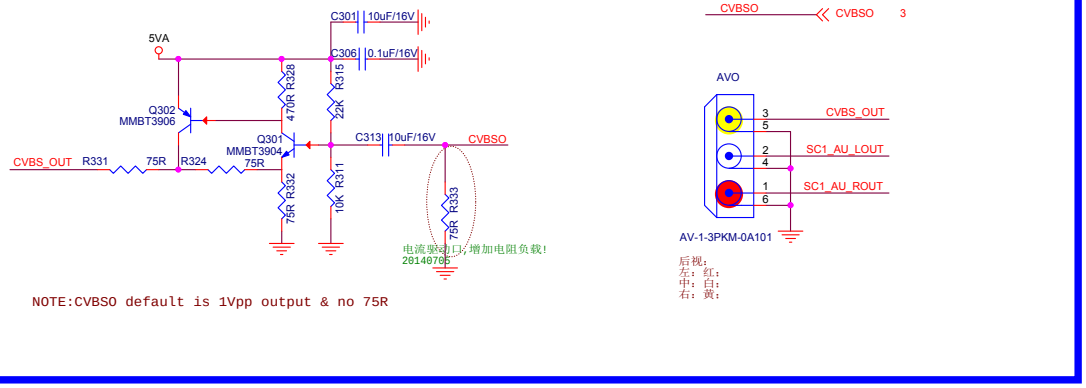
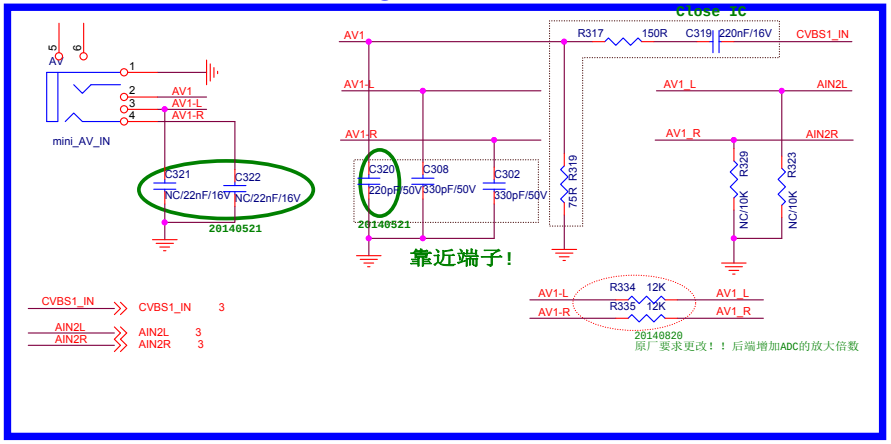
FULL SCART



VIDEO OUT OP

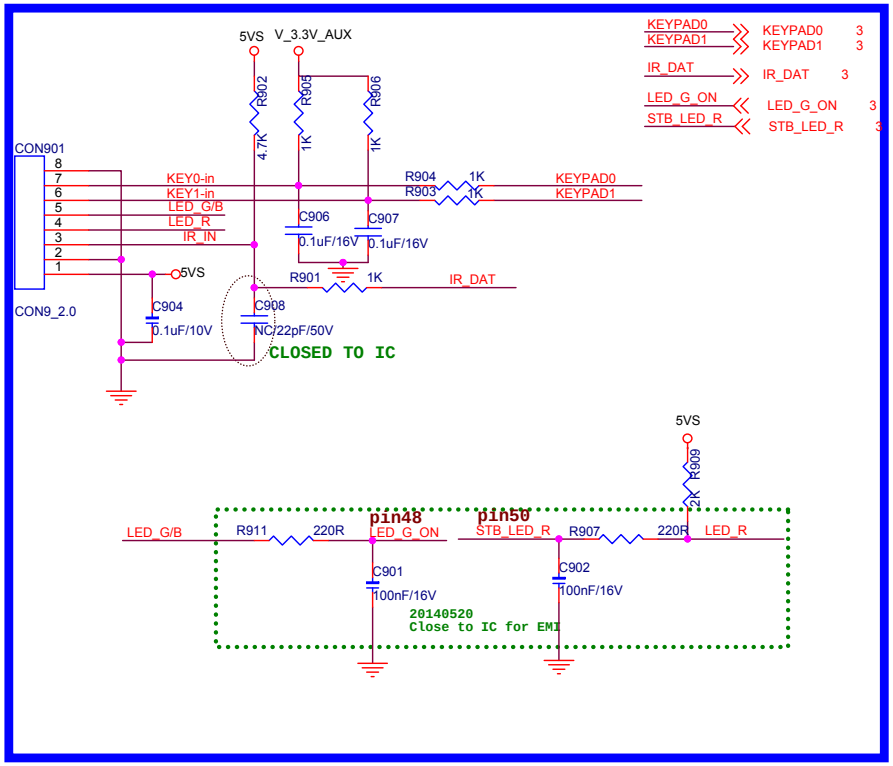


AV NPUT

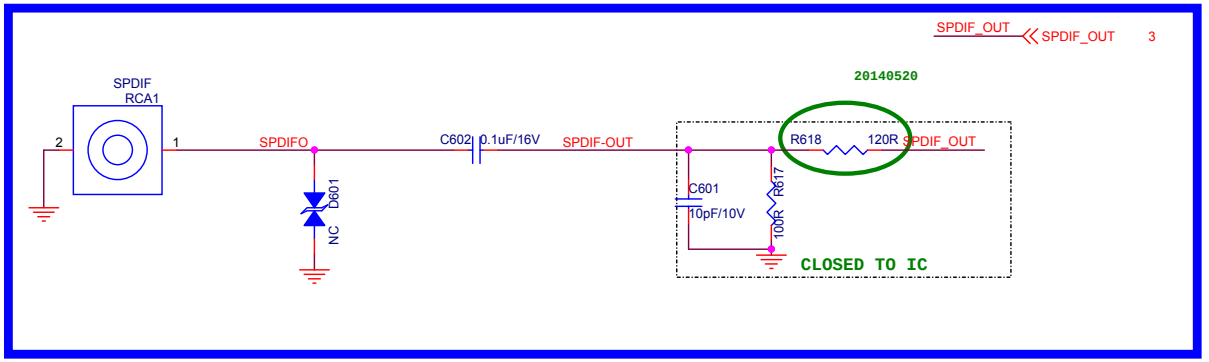


CHANGHONG		
Title: Input3-AV&SCART		
Size: Custom	Document Number: S2T512_APCKTVA	Rev: 0.1
Date: Wednesday, August 20, 2014	Sheet 6 of 13	

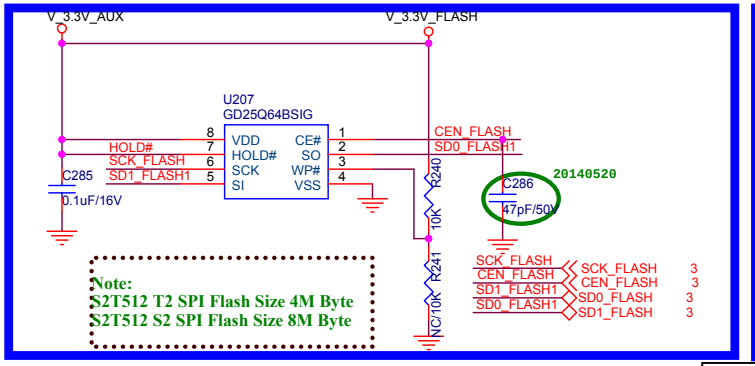
LED AND KEY



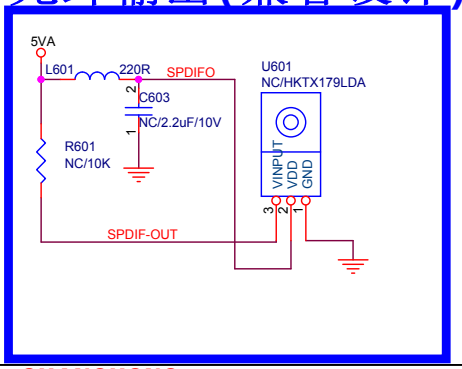
SPDIF OUTPUT



SPI FLASH



光纤输出(兼容设计)



CHANGHONG

Title: Input4-other

Size	Document Number	Rev
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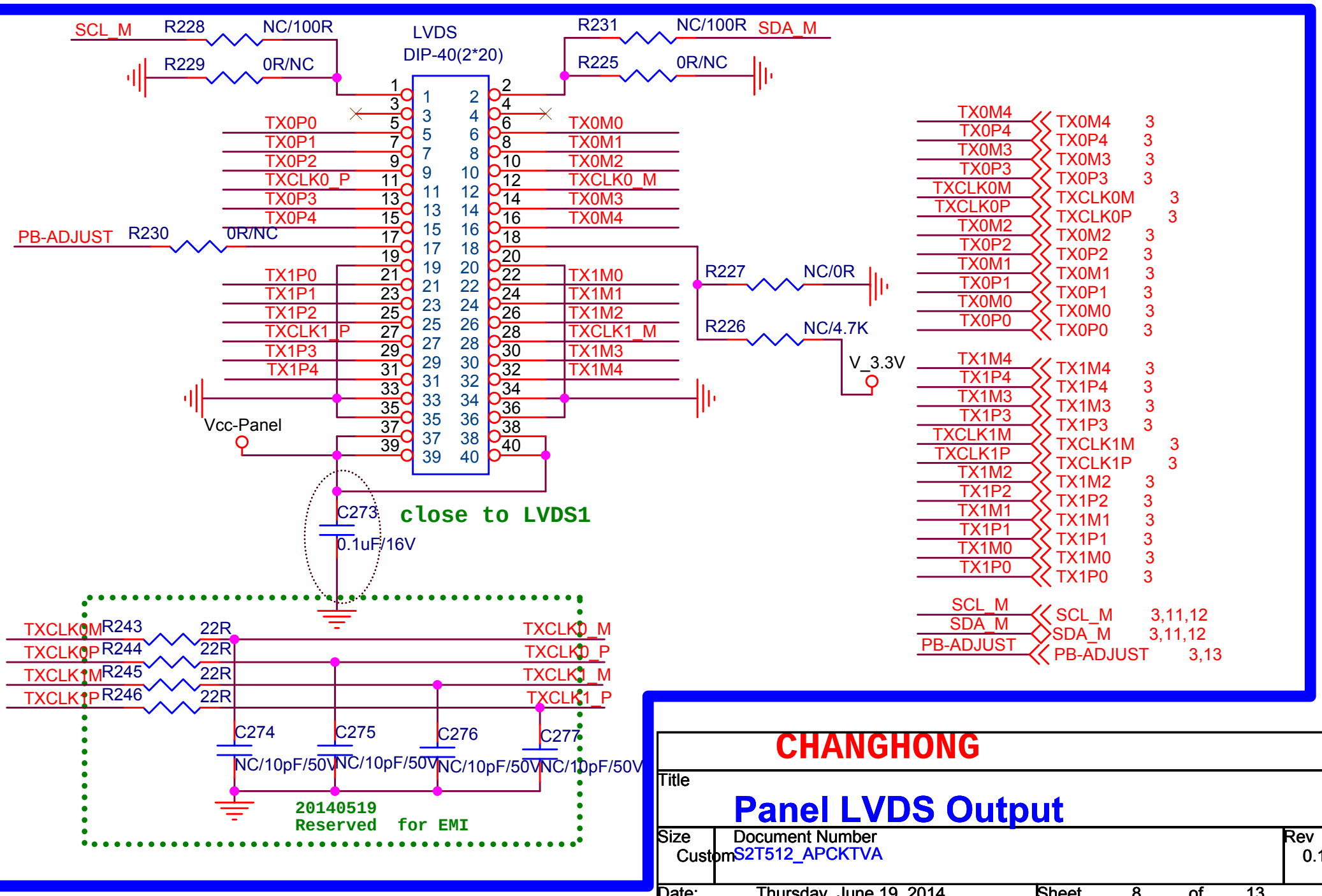


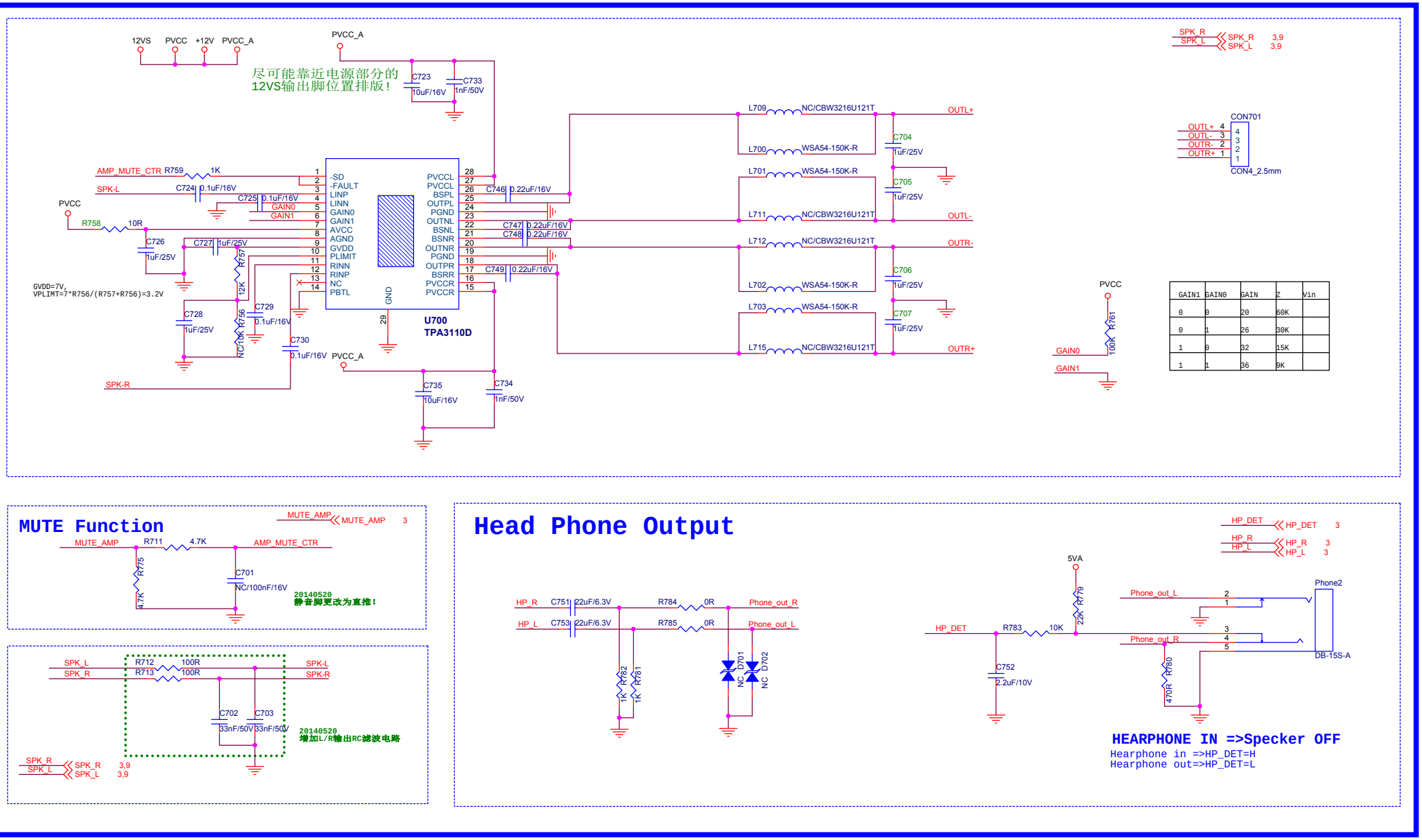
CHANGHONG

Title

Panel LVDS Output

Size	Document Number	Rev
Custom	S2T512_APCKTVA	0.1

Date: Thursday, June 19, 2014 Sheet 8 of 13



MUTE Function

Head Phone Output

HP_DET
HP_DET 3
HP_R
HP_L
HP_R 3
HP_L 3

HEARPHONE IN =>Specker OFF

Hearphone in =>HP_DET=H
Hearphone out=>HP_DET=L

Title	Amplifer		
Size: Custom	Document Number: S2T512_APCKTVA		Rev: 0.1
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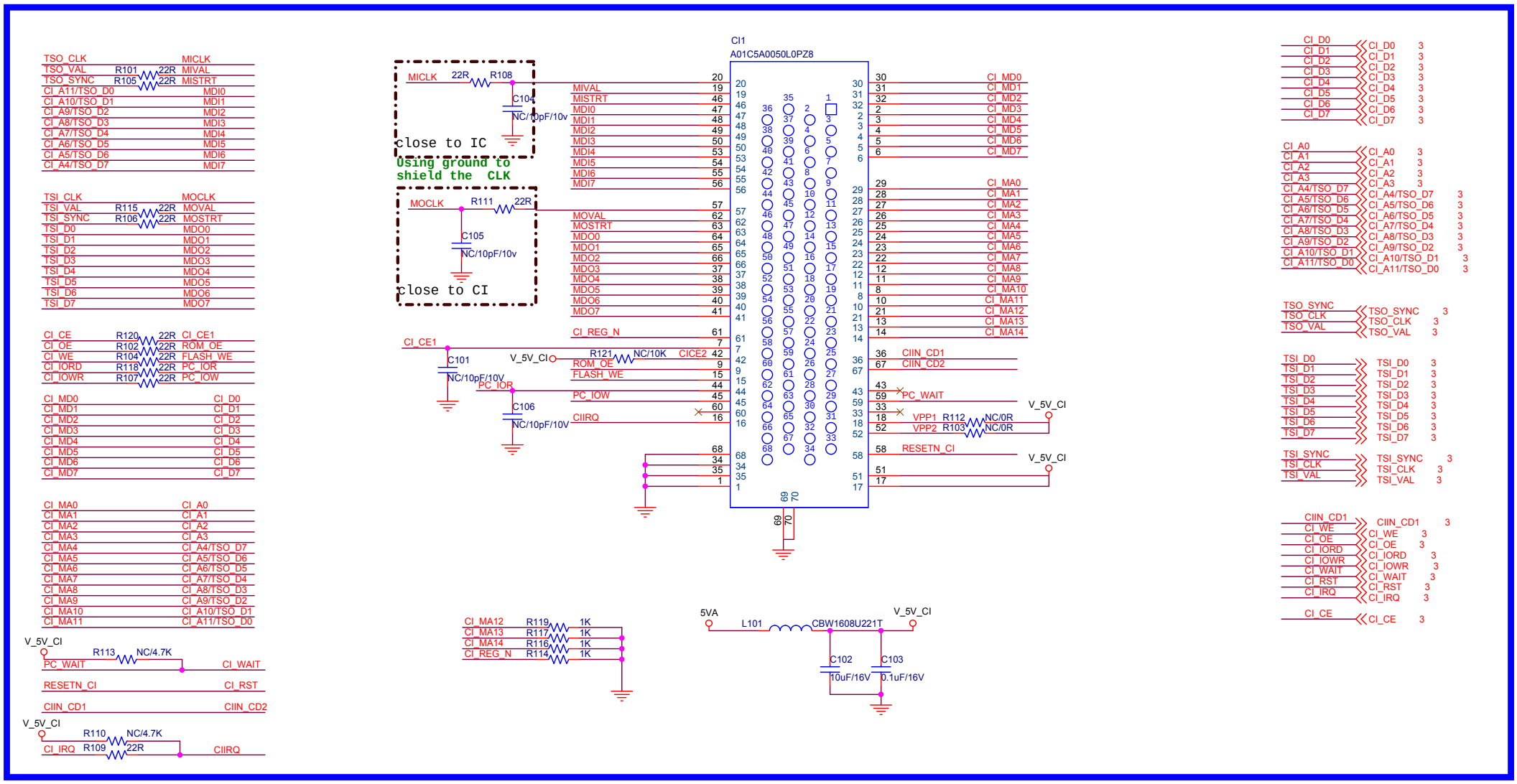
CHANGHONG

PCMCIA



CHANGHONG

Title: PCMCIA

Size	Document Number	Rev
Custom	S2T512_APCKTVA	0.1

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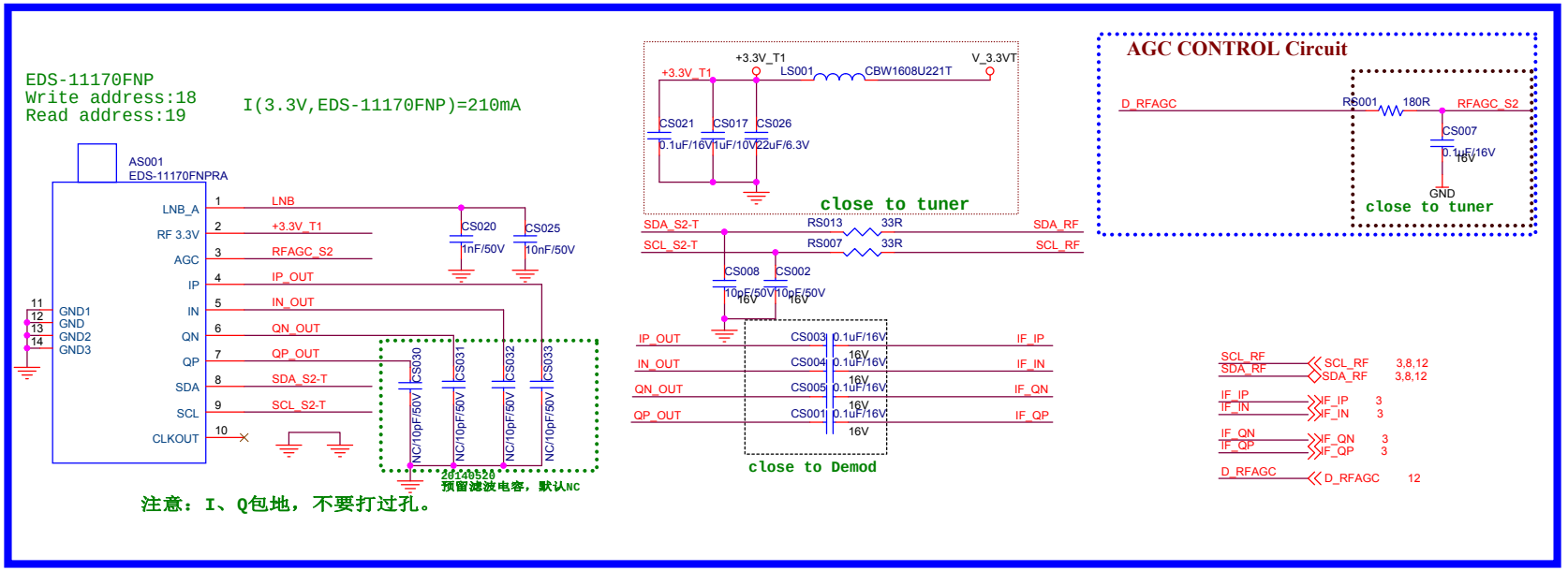
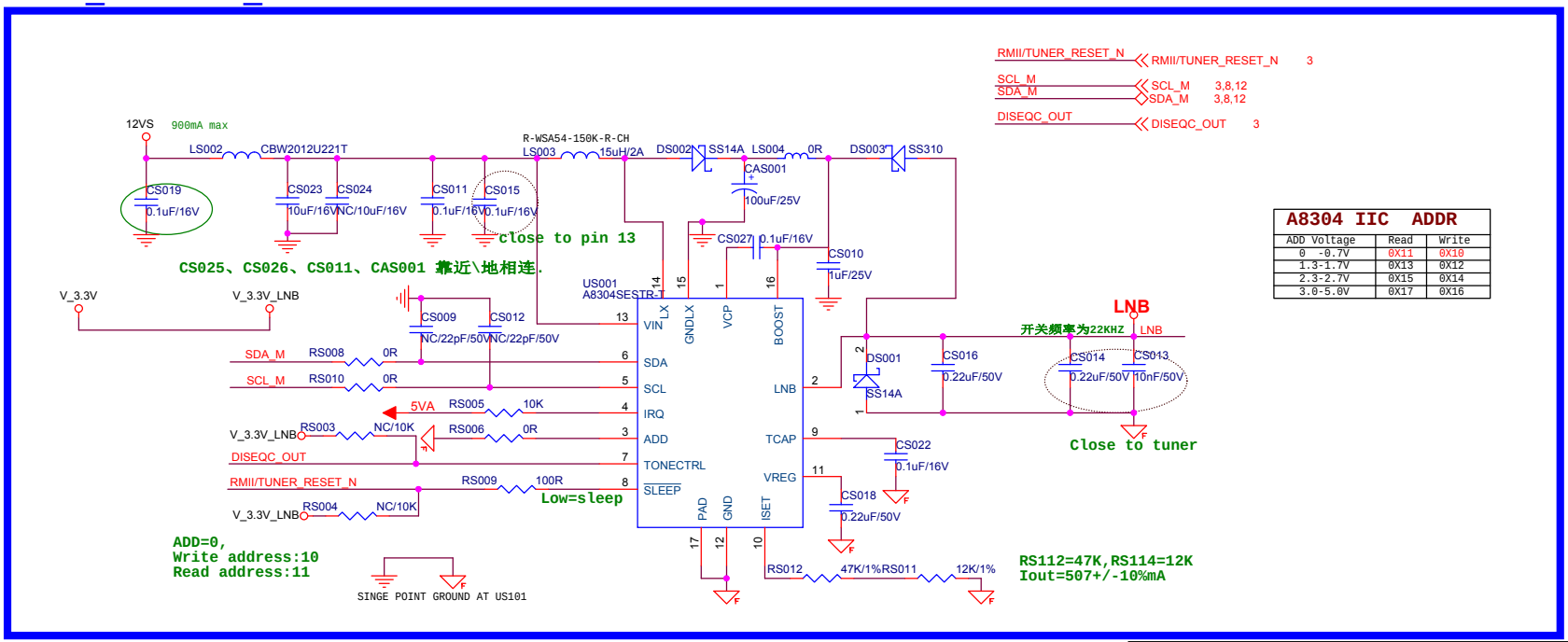
DVB-S/S2 tuner



LNB_POWER_CONTROL



CHANGHONG

Title: S2 Tuner

Size: Custom | Document Number: S2T512_APCKTVA | Rev: 0.1

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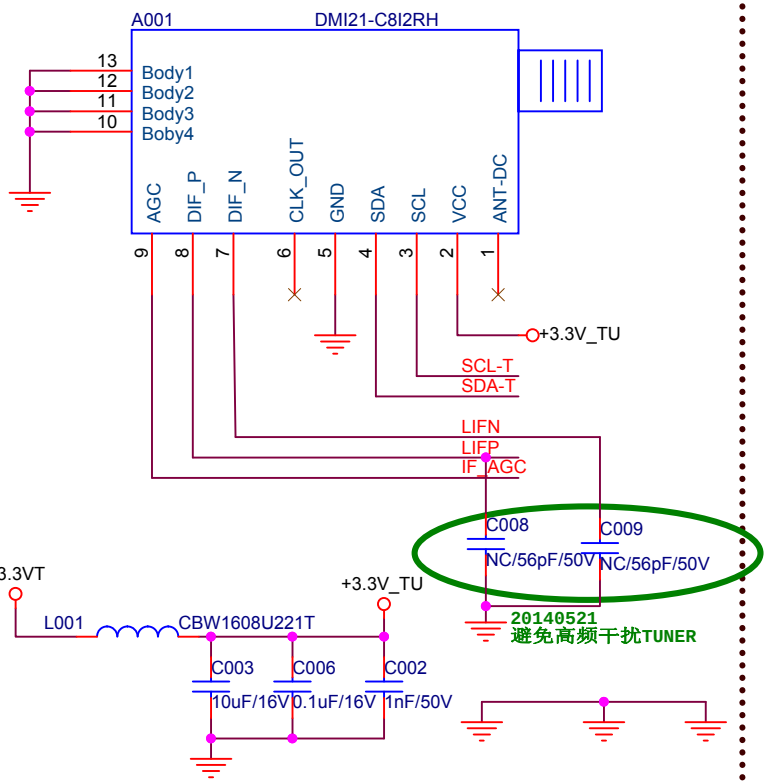
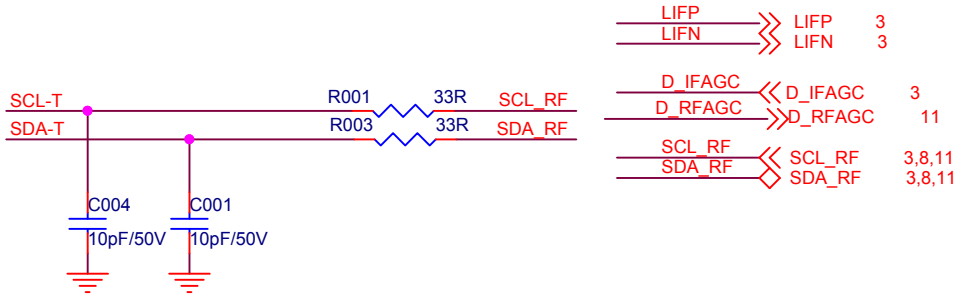
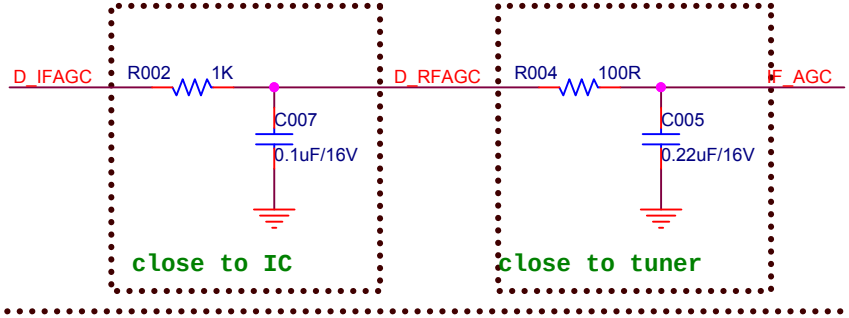
DVB-T/T2/C SILICON TUNER

TUNER POWER

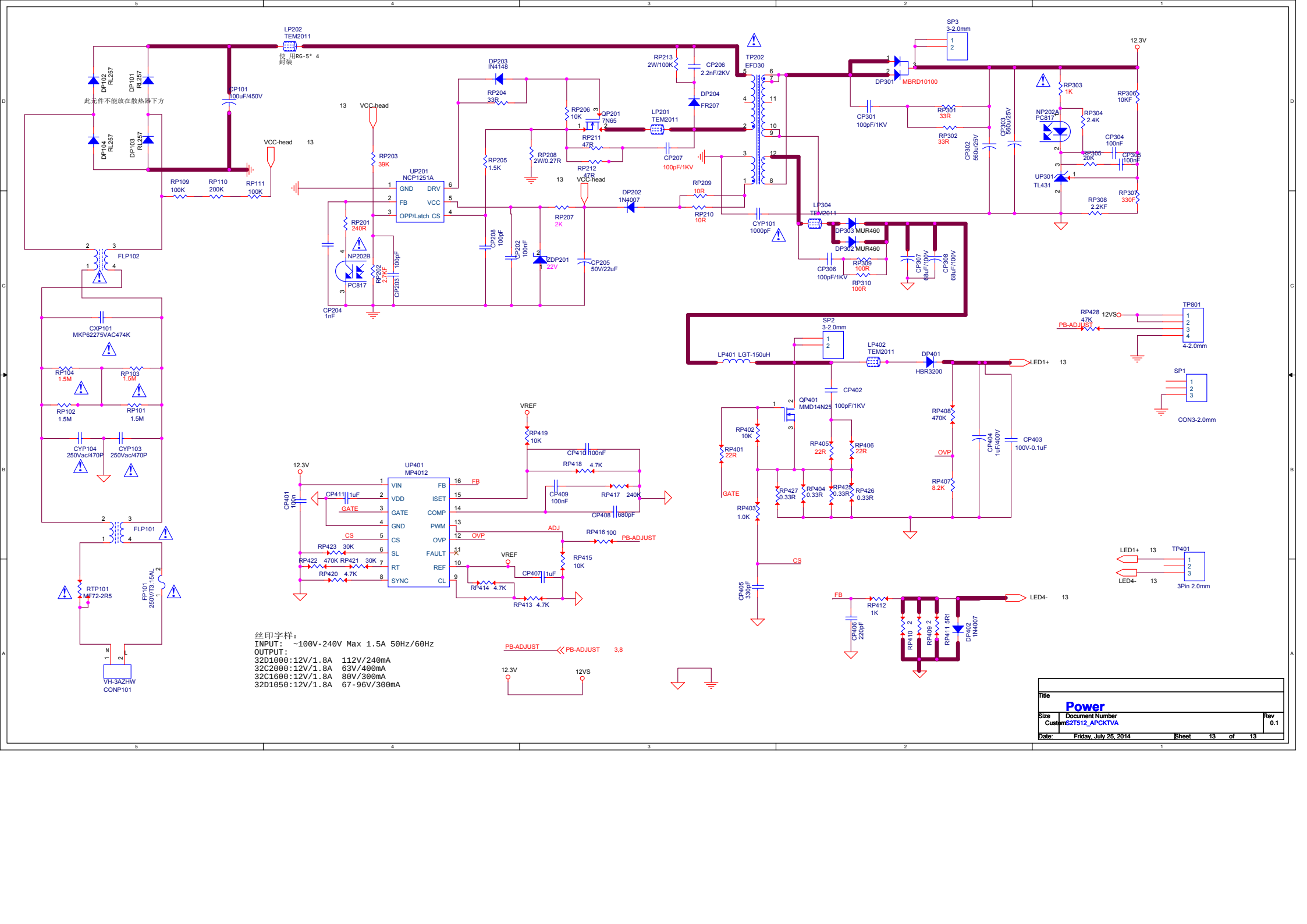




DTV IF AGC



CHANGHONG		
Title: T2+T+C Tuner		
Size: Custom	Document Number: S2T512_APCKTVA	Rev: 0.1
Date: Friday, July 18, 2014	Sheet 12 of 13	


LP202 TEM2011
使 用RG-5* 4 封装
DP102 RL257
DP101 RL257
此元件不能放在散热器下方
CP101 100uF/450V
DP104 RL257
DP103 RL257
VCC-head 13
RP109 100K
RP110 200K
RP111 100K
FLP102
CXP101 MKP62275VAC474K
RP104 1.5M
RP103 1.5M
RP102 1.5M
RP101 1.5M
CYP104 250Vac/470P
CYP103 250Vac/470P
FLP101
RTP101 NF72-2R5
FP101 250V/T3.15AL
VH-3AZHW
CONP101
DP203 IN4148
RP204 33R
RP206 10K
QP201 7N65
LP201 TEM2011
RP211 47R
RP208 2W/0.27R
RP212 47R
CP207 100pF/1KV
RP213 2W/100K
CP206 2.2nF/2KV
DP204 FR207
TP202 EFD30
RP205 1.5K
RP203 39K
UP201 NCP1251A
GND DRV
FB VCC
OPP/Latch CS
RP201 240R
NP202B PC817
RP202 2.7KF
CP203 100pF
CP204 1nF
CP208 100pF
CP202 100nF
ZDP201 22V
CP205 50V/22uF
RP207 2K
DP202 1N4007
RP209 10R
RP210 10R
CYP101 1000pF
LP304 TEM2011
DP303 MUR460
DP302 MUR460
CP306 100pF/1KV
RP309 100R
RP310 100R
CP307 68uF/100V
CP308 68uF/100V
SP3 3-2.0mm
DP301 MBRD10100
CP301 100pF/1KV
RP301 33R
RP302 33R
CP302 560u/25V
CP303 560u/25V
12.3V
RP303 1K
RP306 10KF
NP202A PC817
RP304 2.4K
RP305 20K
CP304 100nF
CP305 100nF
UP301 TL431
RP307 330F
RP308 2.2KF
SP2 3-2.0mm
LP401 LGT-150uH
LP402 TEM2011
DP401 HBR3200
LED1+ 13
CP402
QP401 MMD14N25 100pF/1KV
RP402 10K
RP401 22R
RP405 22R
RP406 22R
RP408 470K
OVP
RP407 8.2K
CP404 1uF/400V
CP403 100V-0.1uF
GATE
RP427 0.33R
RP404 0.33R
RP425 0.33R
RP426 0.33R
RP403 1.0K
CS
CP405 330pF
RP428 47K
12VS
PB-ADJUST
TP801
4-2.0mm
SP1
CON3-2.0mm
LED1+ 13
LED4- 13
TP401
3Pin 2.0mm
FB
RP412 1K
CP406 220pF
RP410 2
RP409 2
RP411 5R1
DP402 1N4007
LED4- 13
VREF
RP419 10K
CP410 100nF
RP418 4.7K
CP409 100nF
RP417 240K
CP408 680pF
UP401 MP4012
VIN FB
VDD ISET
GATE COMP
GND PWM
CS OVP
SL FAULT
RT REF
SYNC CL
CP401 100n
CP411 1uF
RP423 30K
RP422 470K
RP421 30K
RP420 4.7K
ADJ
RP416 100
PB-ADJUST
RP415 10K
CP407 1uF
RP414 4.7K
RP413 4.7K
丝印字样:
INPUT: ~100V-240V Max 1.5A 50Hz/60Hz
OUTPUT:
32D1000:12V/1.8A 112V/240mA
32C2000:12V/1.8A 63V/400mA
32C1600:12V/1.8A 80V/300mA
32D1050:12V/1.8A 67-96V/300mA
PB-ADJUST
PB-ADJUST 3,8
12.3V
12VS
Title
Power
Size
Custom
Document Number
S2T512_APCKTVA
Rev
0.1
Date: Friday, July 25, 2014
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