

Service
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4052S



Service Manual

Chassis name	Platform	Model name
4052S	MSD3463	32PHT4052S/67

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1. Product information

Product information is subject to change without notice.

For detailed product information, please visit www.philips.com/support

32PHT4052S/67

Display

Type

Diagonal screen size

- 32PHT4052S/67: 31.5 inch

Display resolution

- 32PHT4052S/67: 1366*768p

Input resolution

- 800 x 600p - 60 Hz
- 1024 x 768p - 60 Hz
- 1280 x 768p - 60 Hz
- 1360 x 765p - 60 Hz
- 1360 x 768p - 60 Hz
- 1280 x 1024p - 60 Hz
- 1920 x 1080p - 60 Hz23.5

Video formats Resolution — Refresh rate

- 480i, 480p, 576i, 576p, 720p, 1080i, 1080p(24/25/30/50/60Hz)

Computer formats Resolutions (amongst others)

- 720*400@70HZ
- 640*480@60HZ
- 800*600@60HZ
- 1024*768@60HZ
- 1360*768@60HZ

Dimensions and Weights

- without TV stand:

Width 730 mm - Height 430mm - Depth 77 mm - Weight 3.9kg

- with TV stand:

Width 730mm - Height 472mm - Depth 193mm - Weight 4kg

Connectivity

I/O port to be clearly indicated	TV*1/USB*1/VGA*1 /HDMI*2/YBPBR*1/AV-IN*1/Earphone*1
Playback	YES
Component (HD/SD)@24p/50/60	(HD/SD)@24p/50/60
HDMI Number	2
HDMI 1	HDMI 1.4 /up to 2k@60hz 4: 4: 4down
HDMI 2	HDMI 1.4 /up to 2k@60hz 4: 4: 4down
HDMI 3	NA
HDMI 4	NA
HDCP v2.2 (on HDMI 2.0 port)	YES
HDMI ARC	HDMI-2
PC input (VGA)	VGA
AV (input)	YES

Headphone	YES
Video and Audio out	NA
Digital audio out (SPDIF) co-axial/Optical	NA
RJ45	NA
DLNA/ Certification	NA
WiFi	NA
EasyLink (HDMI-CEC)	YES
Antenna Tuner /Satellite tuner	Antenna Tuner(down)
Wireless connections	N/A
Wi-Fi Band Concurrent	N/A
Bluetooth for subwoofer/RC (do not claim commercially)	N/A
MHL(Version)	HDMI-1

Sound

Mono/Stereo/Virtual Surround	Mono/Stereo/Virtual Surround
Output Power (10% THD) RMS (RMS Watts)	12W
Speaker configuration	6W+6W
Speaker system (Number of on board Speakers)	2.0
Speaker type	built-in(normal)
Auto Volume Levelier / Auto Volume Levelier +	N/A
Dolby Digital DecoderType(DD/DD+)	DD
DTS Studio Sound	N/A
DTS 2.0+ Digital out	N/A
SPL (>= 84dB @ 2m)	78dB @ 2m
Acoustic frequency range (160~8K HZ<=16dB)	160~8K HZ<=16dB

Multimedia

Video Playback Formats	MPEG-1/MPEG-2/MPEG-4 H.264 FLV/RV8/RV9/RV10
Subtitles Formats Support	SRT、ASS
Music Playback Formats	MP3 , AAC
Picture Playback Formats	JPG、JPEG、BMP、PNG
Pause TV/USB recording (PVR)	YES
Time shift	YES
PIP/POP	NA
USB	USB2.0(*1)
USB Harddisk Format (Power)	FAT/NTFS (500mA)

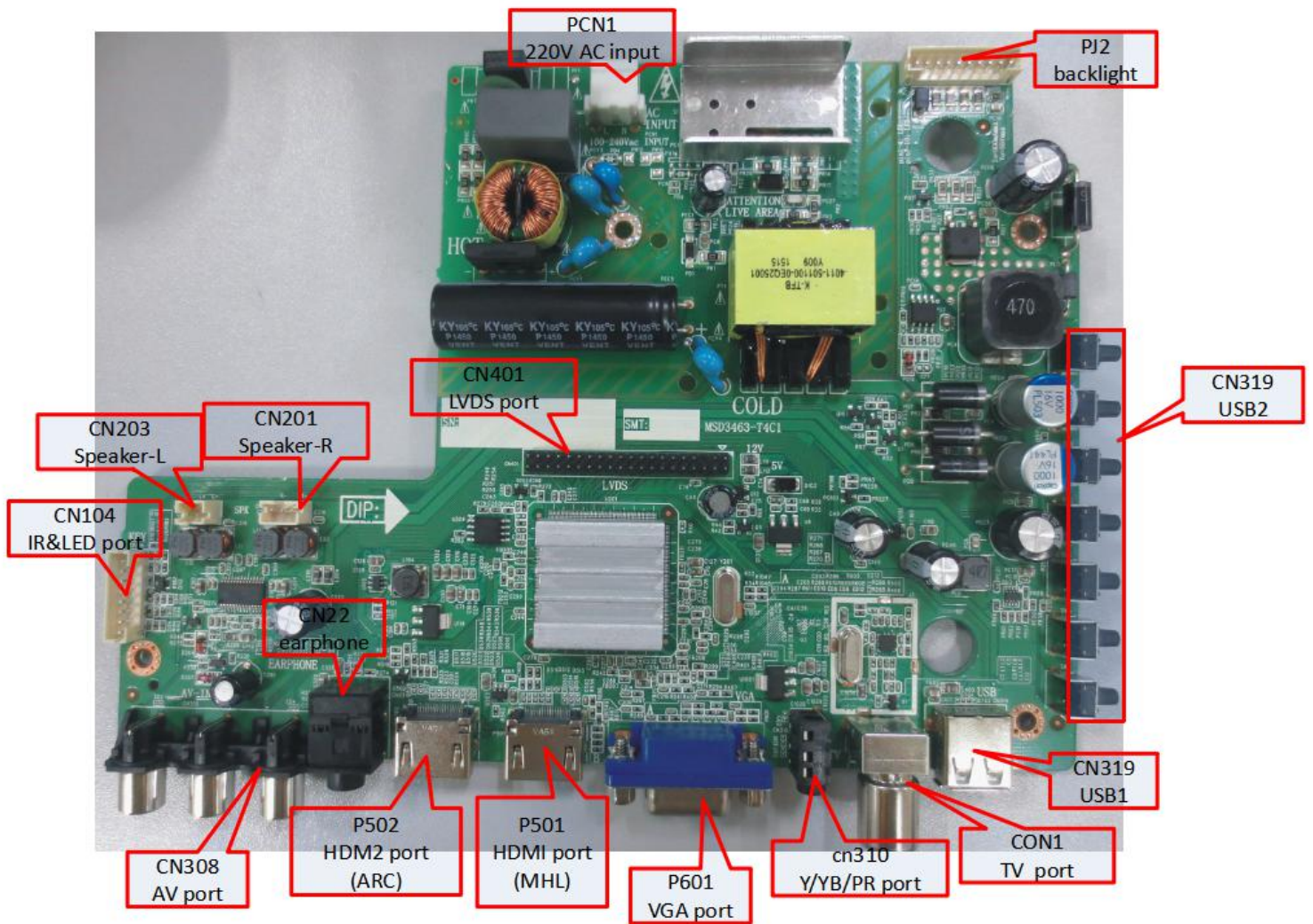
Power

Product specifications are subject to change without notice. For more specification details of this product, see www.philips.com/support

Power

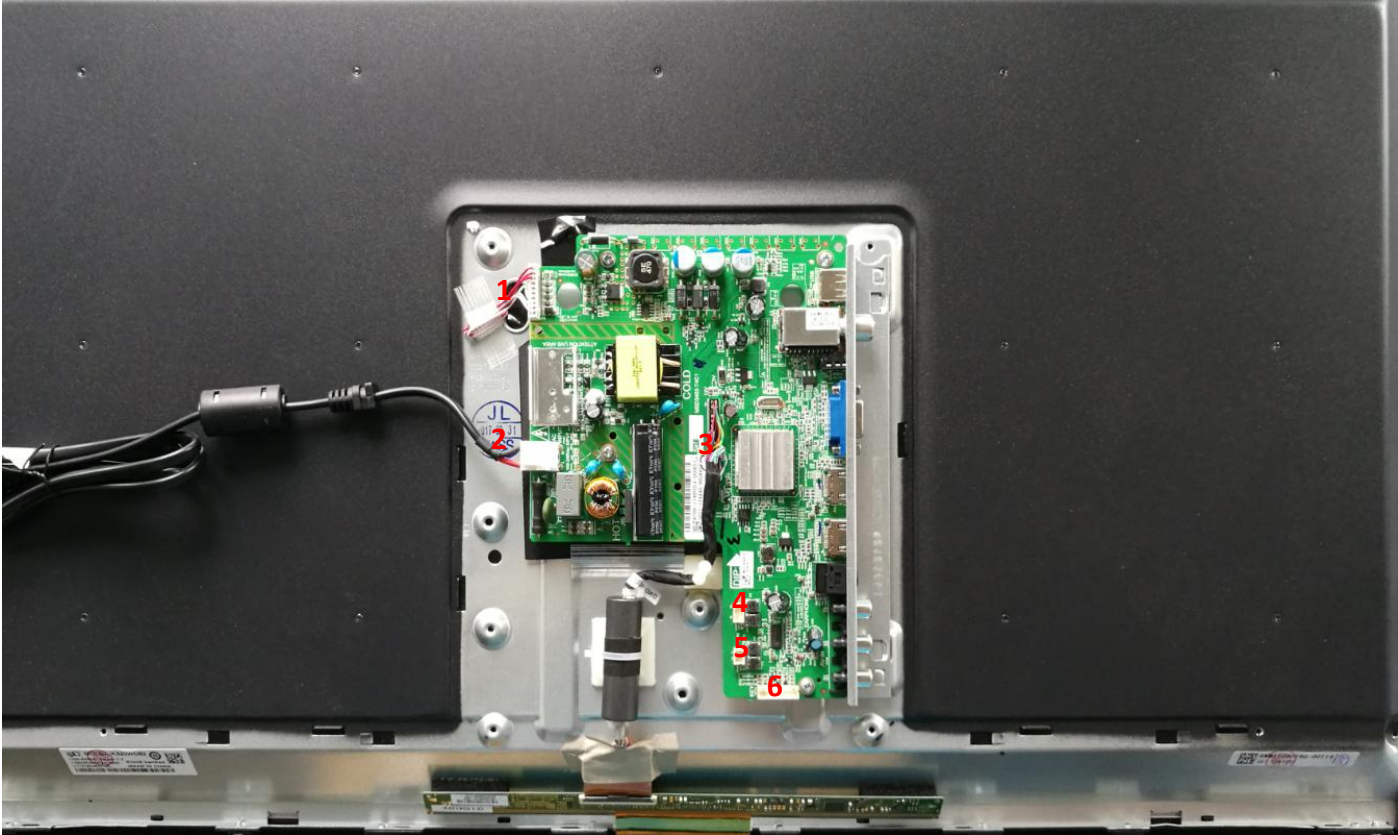
- Mains power : AC 100-240V 50/60Hz
- Standby Energy Consumption: $\leq 0.5\text{W}$
- Ambient temperature : 5°C to 40°C

2. Connections Overview



3. Mechanical Instructions

3.1 Cable Dressing



Serial no	part description	function
1	Backlight wire	Connect to PJ2
2	Power wire	Connect to PCN1
3	LVDS wire	Cn401 to T-CON board
4	Speaker wire	CN203 to speaker (yellow black wire)
5	Speaker wire	CN201 to speaker (red black wire)
6	two-terminal wire	CN104 to IR board and key board

Cable dressing (32” 4052S series)

3.2 Assembly/Panel Removal

3.2.1 Stand removal

1. Remove the fixation screws [1] 4pcs ,that secure the stand
2. Take the stand bracket out from the set.



3.2.2 IR board &key board

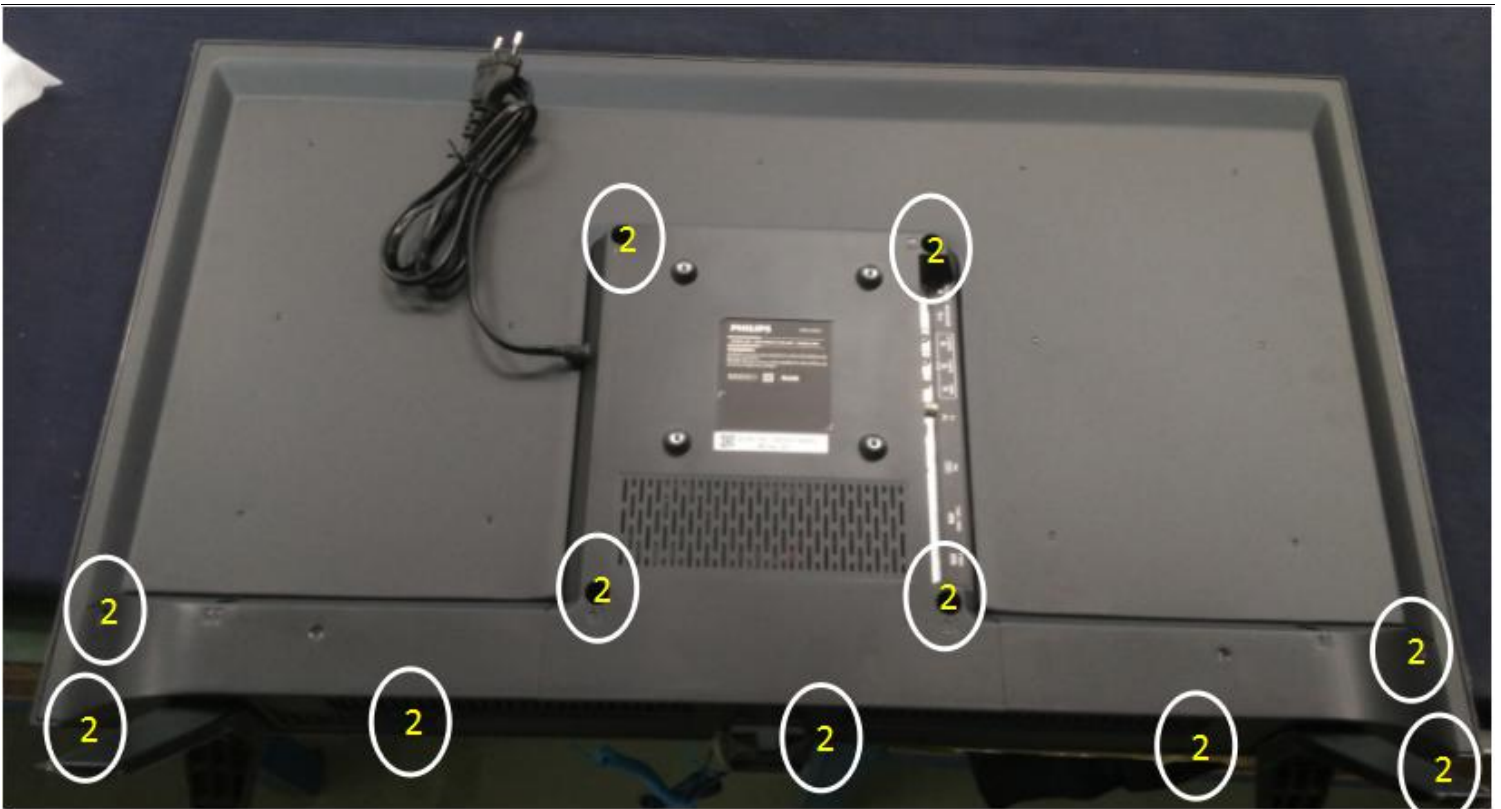
1. Unplug the connector from the SSB.
Caution: be careful, as these are very fragile connectors!
2. Remove all the fixation screws(5) ,from the IR board control unit. then Remove the fixation screws(6), the IR board control unit. When defective, replace the whole unit



3.2.3 Rear Cover

Warning: Disconnect the mains power cord before removing the rear cover.

1. Remove fixation screws [2] [3] and [4] that secure the back cover..
2. Gently lift the rear cover from the TV. Make sure that wires and cables are not damaged while lifting the rear cover from the set.
3. Remove fixation screws[2] [3] and [4] that secure the back cover.unplug connectors



3.2.4 Power Supply Unit (PSU)

Caution: it is mandatory to remount all different screws at their original position during re-assembly. Failure to do so may result in damaging the PSU.

1. Gently unplug all connectors from the PSU.
1. Remove all fixation screws from the PSU.
3. The PSU can be taken out of the set now.

3.2.5 Speakers

1. Gently release the tapes that secure the speaker cables.
2. Unplug the speaker connector from the SSB.
3. Take the speakers out.

When defective, replace the both units.

3.2.6 LCD Panel

3. Remove the SSB as described earlier.
2. Remove the PSU as described earlier.
3. Remove the keyboard control panel as described earlier.
4. Remove the stand bracket as described earlier.
5. Remove the IR/LED as described earlier.
6. Remove the fixations screws that fix the metal clamps to the front bezel. Take out those clamps.
7. Remove all other metal parts not belonging to the panel.
8. Lift the LCD Panel from the bezel.

When defective, replace the whole unit.

4. Factory Mode

Press the following key sequence on a standard RC transmitter: “1999” directly followed by MENU,

Purpose

- To perform extended alignments.

Primary menu	Secondary menu	Value,remark
ADC ADJUST	MDOE	VGA/YPBPR(SD)/YPBPR(HD) ,Selection
	R-GAIN	Front-end gain adjustment
	G-GAIN	
	B-GAIN	
	R-OFFSET	Clamp level adjustment
	G-OFFSET	
	B-OFFSET	
	AUTO ADC	ADC automatically adjust
PICTURE MODE	MODE	VGA/HDMI1/HDMI2/HDMI3/ DTV/ATV/AV/YPBPR
	PICTURE MODE	Dynamic/Standard/Soft/User
	BRIGHTNESS	BRIGHTNESS
	CONTRAST	CONTRAST
	COLOR	COLOR
	SHARPNESS	SHARPNESS
	TINT	TINT
	Copy all	No function
W/B ADJUST	Source	VGA/HDMI1/HDMI2/HDMI3/ DTV/ATV/AV/YPBPR
	TEMPERATURE	Cool, Standard, Warm
	R-GAIN	White level adjustment
	G-GAIN	
	B-GAIN	
	R-OFFSET	Black level adjustment
	G-OFFSET	
	B-OFFSET	
	Copy all	No function
SSC	MIU Enable	DDR spectrum enable
	MIU0 Span	Exhibition frequently wide
	MIU Step	Spread spectrum step
	LVDS enable	LVDS spectrum enable
	LVDS Span	Exhibition frequently wide
	LVDS Step	Spread spectrum step
	LVDS swing	LVDS swing
Spectral set	2HOUR OFF	2hours power off enable
	WDT	on/off
	WHITE PATTERN	OFF/White/Red/Green/Blue/Black/192Grey
	GE/GOP PATTERN	
	BMAP PATTERN	
	Restore user default	Factory reset
	PVR_RECORD ALL	PVR Record on/off
	Power	on/off/Mem
	Mirror Enable	Mirror Enable enable
	Ageing mode	Ageing mode enable
	Auto Volume	on/off
	PVR Encrypt	on/off
Qmap adjust	PQ setting	
PEQ	PEQsetting	
other	Test pattern	
	UART DEBUG	DEBUG ON/OFF
	HDMI CEC/ARC	CEC/ARC ON/OFF

	Backlight	Adjust backlight
OverScan	Overscan_resolution	Reselution select
	Overscan_hsize	Adjust overscan H size
	Overscan_hposition	Adjust overscan H position
	Overscan_vsize	Adjust overscan V size
	Overscan_vposition	Adjust overscal V position
HDCPKey usb upgrade	HDCPKey usb upgrade	
SW information	SW information	
Non-linear	MODE	Feature Selection
	OSD 0	Curve adjustment
	OSD 25	
	OSD 50	
	OSD 75	
	OSD 100	
Channel table1	KTC factory Frequecy table set	
Channel table2	KTC factory Frequecy table set	
Channel dvbt	KTC factory Frequecy table set	

5. Software Upgrading and Panel Code

5.1 Software Upgrading

Operations and procedure of software upgrading:

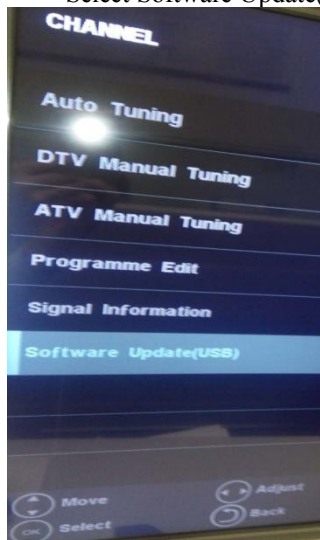
- 1). Changed the file name to "MERGE.bin", then stored software in the FAT32 format blank U disk.
- 2). Insert USB flash disk into the USB upgrade port, upgrade the software according to the following the operating instructions:
Select AIR or DTV signal source, press Menu key to pop up the main menu, then choose.



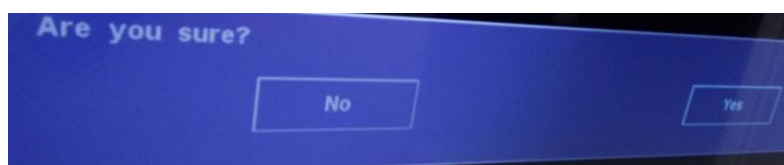
Select CHANNEL, press right key or OK key to enter.



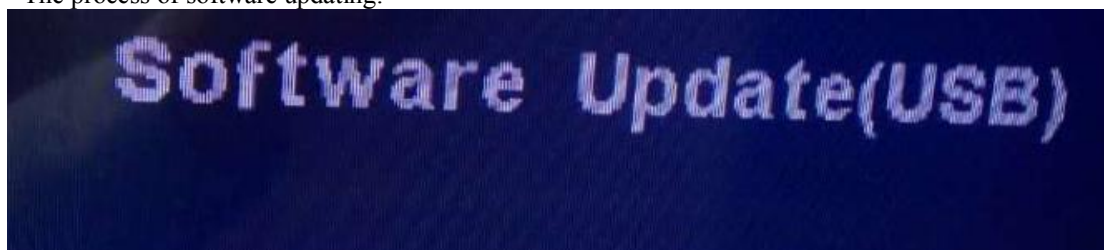
Select Software Update(USB), press right key or OK key to enter.



Software update menu will pop up when press confirm key, then select “Yes” to confirm:



The process of software updating:



Method 2 : Keep pressing VOL+ and CH+ keys on the machine panel, power on the machine, the standby light flashes quickly after about 5 seconds, standby light extinguish and turn into lighting after about a minute, means that the upgrade is completed.

5.1.4 Notice :

- ①. When the machine Upgrading (U disk light flash), do not remove U disk or switch off the power, otherwise it will destroy the software and lead can not upgrade.
- ②. The machine must be power off when inserted or pulled out U disk, to avoid U disk or damage the machine.

5.2 Panel Code

Press the following key sequence on a standard RC transmitter: “1999” directly followed by MENU, can see the panel type information from factory menu, see the Panel PN from the configuration table

CTN_ALT BOM#	Panel Type	Panel PN
32PHT4052S/67	K320WD82-SC240A2	7422-320SSK-335A8131-F

6. Circuit Descriptions

6.1 Introduction

The 4052S is covered by MSD3463 platform. The major deltas versus its predecessor support DVB-T, with also multi-media, Video out. The 4052S chassis comes with the following stylings:

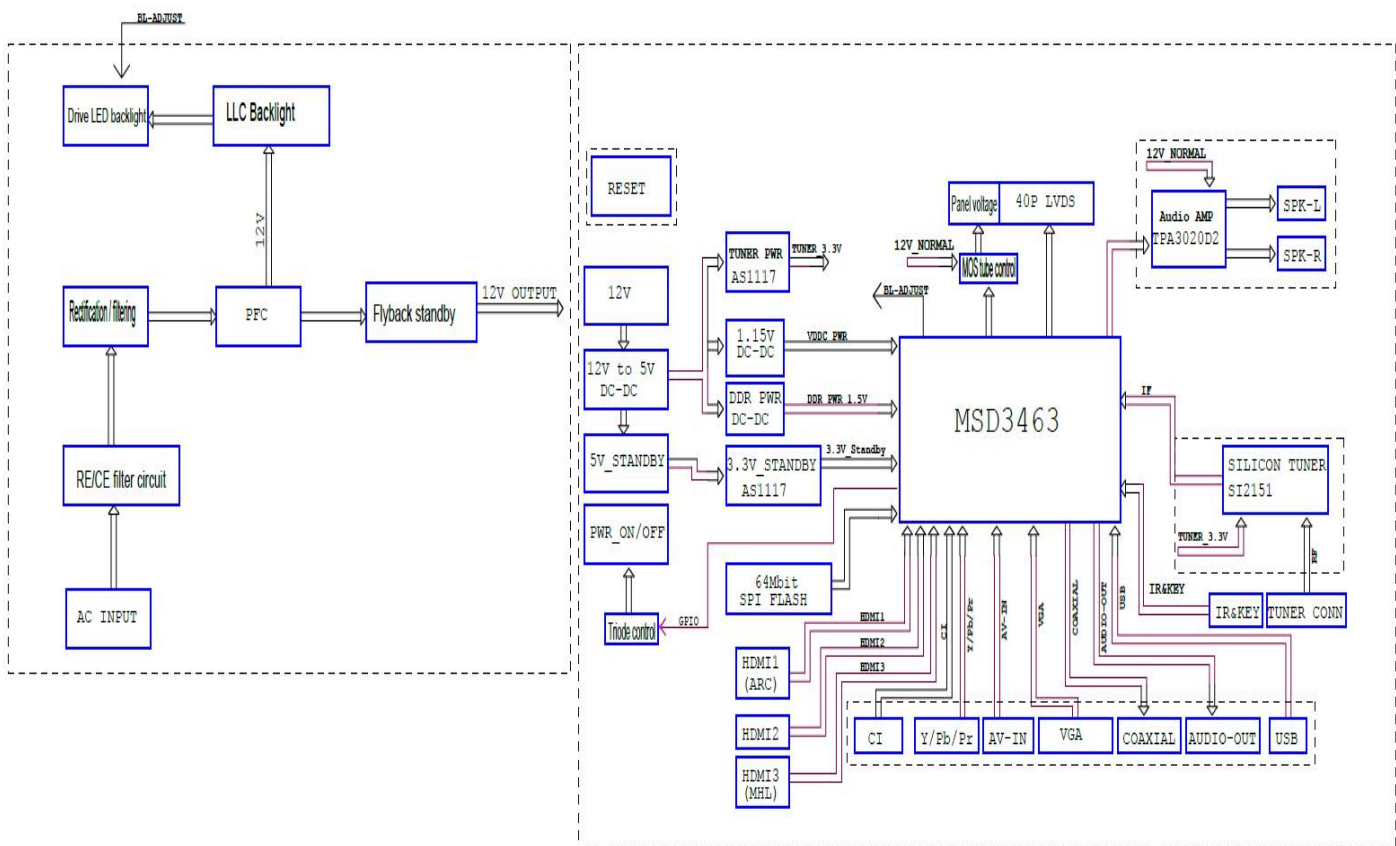
- Series 4052S 32PHT4052S/67

6.1.1 Implementation

Key components of this chassis are:

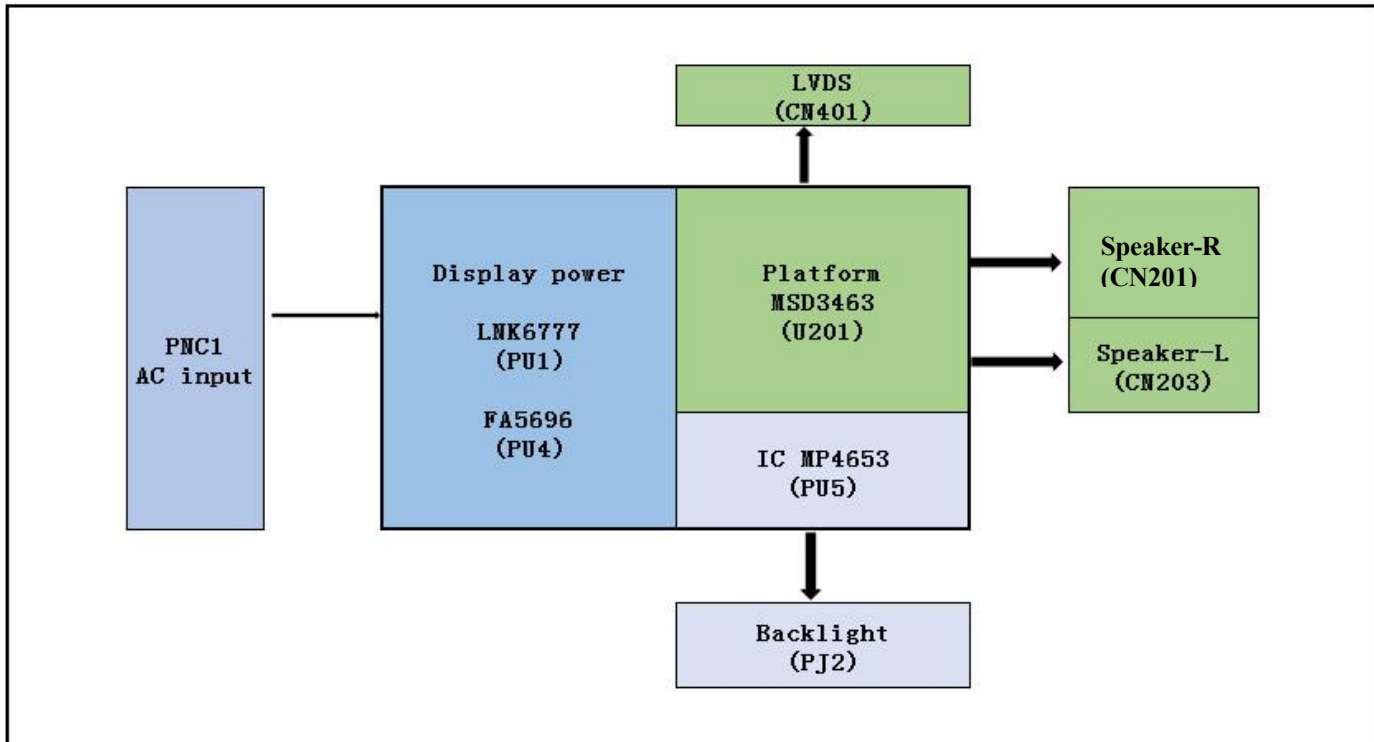
- TUNER POWER AS1117
- VDDC POWER
- MSD3463 T4C1
- DDR POWER 1.5V
- 3.3V STANDBY AS1117
- 64 Mbit SPI FLASH
- HDMI1 ARC
- HDMI2 PORT
- HDMI3 MHL

6.1.2 Block diagram



6.2 Power Supply

Power architecture of this platform.



6.2.1 Power Supply Unit

All power supplies are a black box for Service. When defective, a new board must be ordered and the defective one must be returned, unless the main fuse of the board is broken. Always replace a defective fuse with one with the correct specifications! This part is available in the regular market.

Consult the Philips Service web portal for the order codes of the boards.

Important delta's with the platform are:

- New power architecture for LED backlight
- “Boost”-signal is now a PWM-signal + continuous variable

The control signals are:

- PS-ON
- Lamp “on/off”
- DIM (PWM) (not for PSDL)

In this manual, no detailed information is available because of design protection issues.

- +12 output (on-mode)
- +12V_audio (audio AMP power)
- Output to the display; in case of
 - IPB: High voltage to the LCD panel
 - PSL and PSLs (LED-driver outputs)
 - PSDL (high frequent) AC-current.

6.2.2 Diversity

The diversity in power supply units is mainly determined by the diversity in displays.

The following displays can be distinguished:

- CCFL/EEFL backlight: power panel is conventional IPB
- LED backlight:
 - side-view LED without scanning: PSL power panel
 - side-view LED with scanning: PSLs power panel
 - direct-view LED without 2D-dimming: PSL power panel

- direct-view LED with 2D-dimming: PSDL power panel.

PSL stands for **P**ower **S**upply with integrated **L**ED-drivers.

PSLS stands for a **P**ower **S**upply with integrated **L**ED-drivers with added **S**canning functionality (added microcontroller).

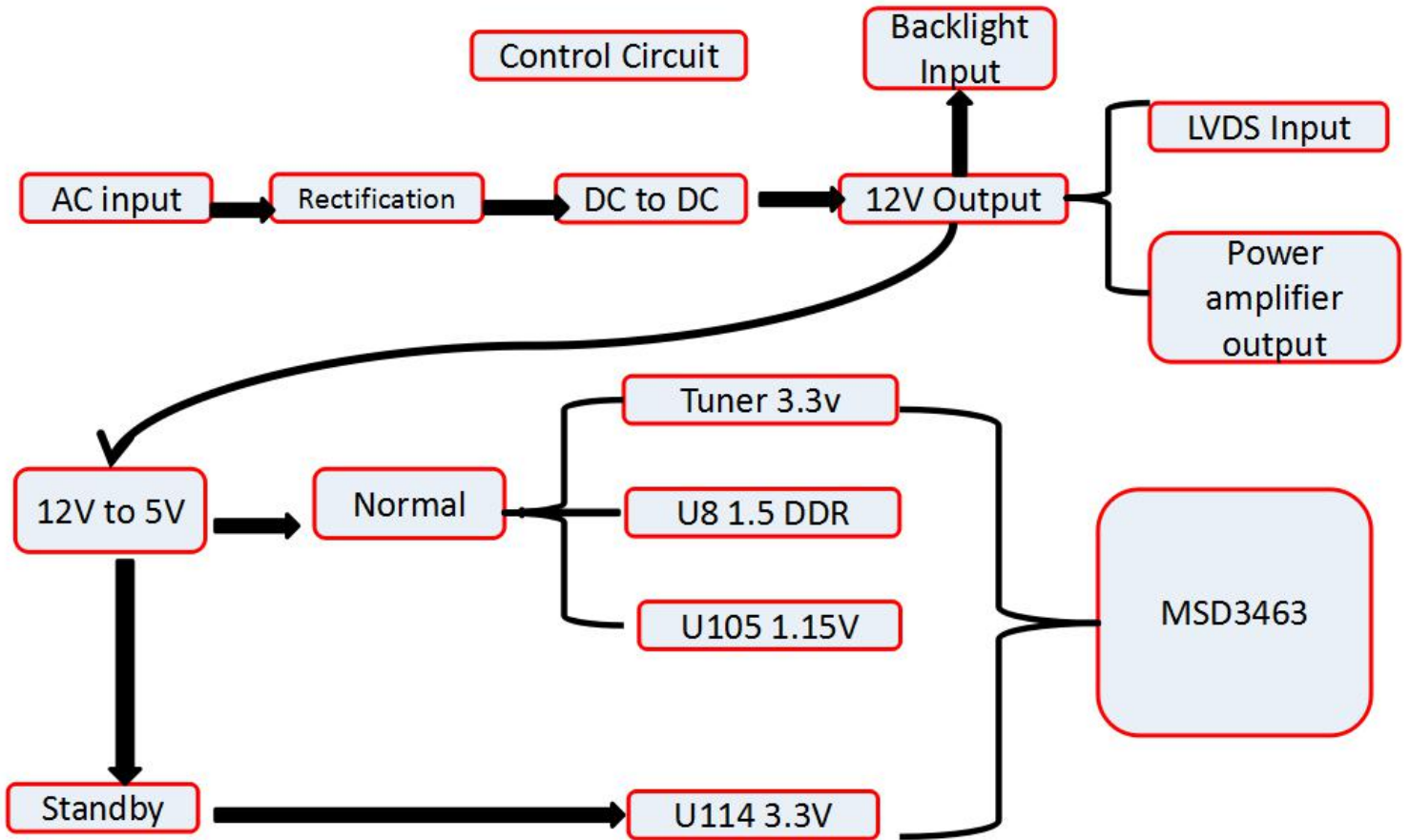
PSDL stands for a **P**ower **S**upply for **D**irect-view **L**ED backlight with 2D-dimming.

6.3 DC/DC Converters

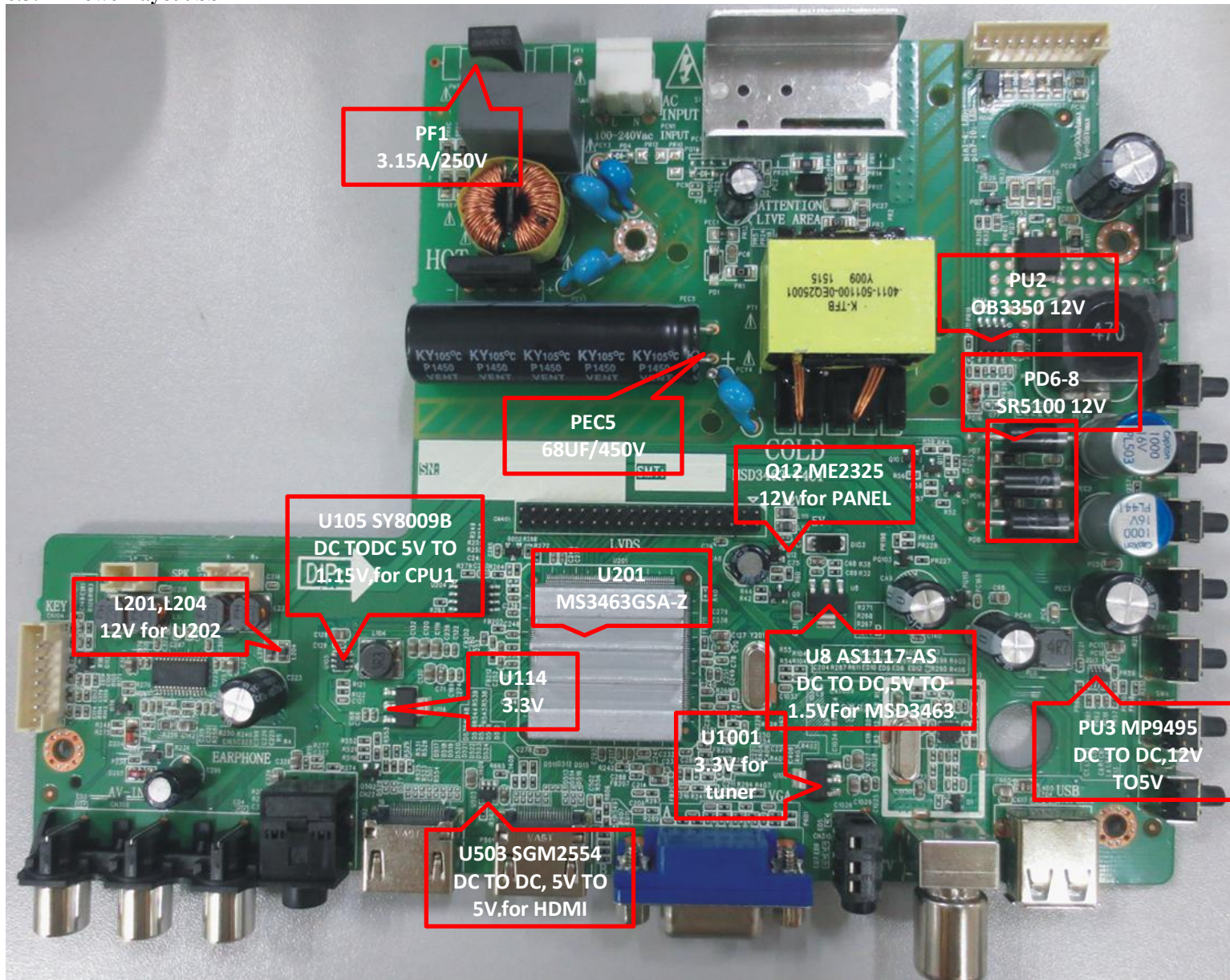
The on-board DC/DC converters deliver the following voltages(dependent on set execution):

- +5V-SB, permanent voltage for the Stand-by Power system
- +3V3-STANDBY, voltage for IR/Key board
- +12V, input from the power supply for the panel common(active mode)
- +3V3-EMMC, +V-EMMC-IO, voltage for EMMC when TV on
- +1V5-DDR, +VREF-A2-DQ,, +VREF-A2-CA, voltage for DDR
- TUNER_3V3, supply voltage for tuner
- +5V-SW, input intermediate supply voltage for USB Power
- +12V-AUDIO1 for the AUDIO AMP
- +3.3VA_T2, +1.2V_T2 voltage for Demodulator IC channel decoder

6.3.1 Power Tree



6.3.2 Power layout SSB



Power SSB Top View

6.4 Front-End Analogue and DVB-T; reception

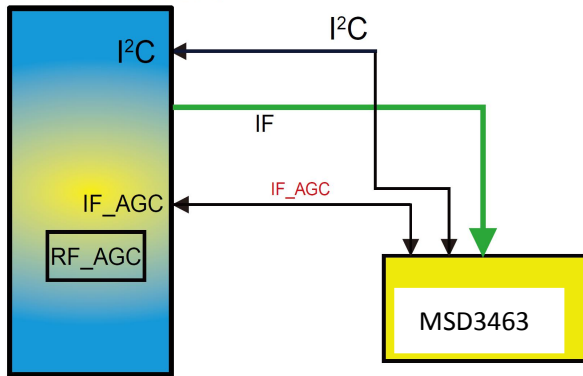
6.4.1 DVB-T part

The Front-End for analogue tuner consist of the following key components:

- TUNER POWER SUPPLY IC AMS1117-3.3V
- CPU MSD3463 Processor
- TUNER SI2151 Processor

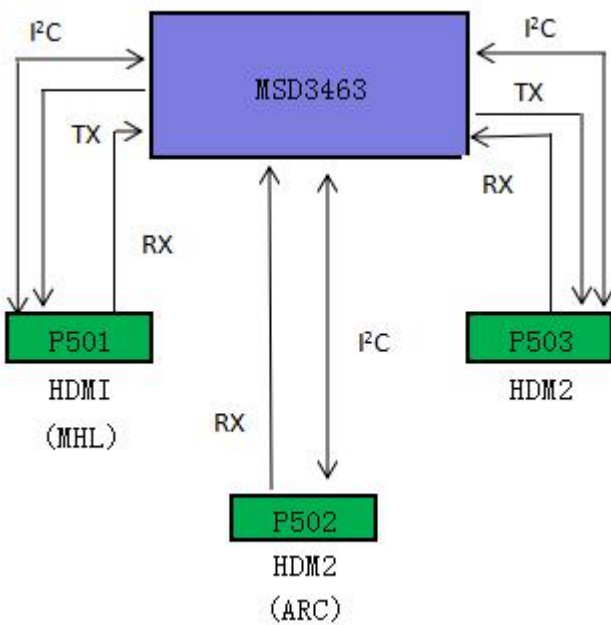
Below find a block diagram of the front-end application for CN1 part.

SI2151



6.5 HDMI

Refer to below for the application.



The following HDMI connector can be used:

- HDMI 1: HDMI input (TV digital interface support HDMI1.4a) with digital audio/PC DVI input/MHL/CEC
- HDMI 2: HDMI input (TV digital interface support HDCP) with digital audio/PC DVI input/CEC
- HDMI 3: HDMI input (TV digital interface support HDMI1.4a) with digital audio/PC DVI input/CEC/ARC
- +5V detection mechanism
- Stable clock detection mechanism
- HPD control
- Sync detection
- TMDS output control
- CEC control
- ARC control
- MHL control

6.6 Video and Audio Processing - MSD3463

The MSD3463 is the main audio and video processor (or System-on-Chip) for this platform. It has the following features:

1. Worldwide multi-standard analog TV demodulator
2. PAL/SECAM/DVB-T/DVB-T2 /DVB-C demodulators
3. 1920*1080@60Hz direct drive
4. Powerful CPU core
5. A transport de-multiplexer
7. A multi-standard video decoder
8. Rich format audio codec
10. HDMI1.4 receiver
11. MHL input
12. 2D converter
14. PWM dimming (LED backlight)
15. Two-link LVDS,

1 OVERVIEW

The MediaTek MSD3463 family consists of a DTV front-end demodulator, a backend decoder and a TV controller and offers high integration for advanced applications. It integrates a transport de-multiplexer, a high definition video decoder, an audio decoder, a -link LVDS transmitter, and a NTSC/PAL/SECAM TV decoder. The MSD3463 enables consumer electronics manufacturers to build high quality, low cost and feature-rich DTV.

World-Leading Audio/Video Technology: The MSD3463 supports Full MPEG2/4/H.264 video decoder standards, and JPEG. The MSD3463 also supports MediaTek MDDiTM de-interlace solution which can reach very smooth picture quality for motions.

The special color processing technology provides a natural, deep colors and true studio quality video. Moreover, the MSD3463 family has built-in high resolution and high-quality audio codec.

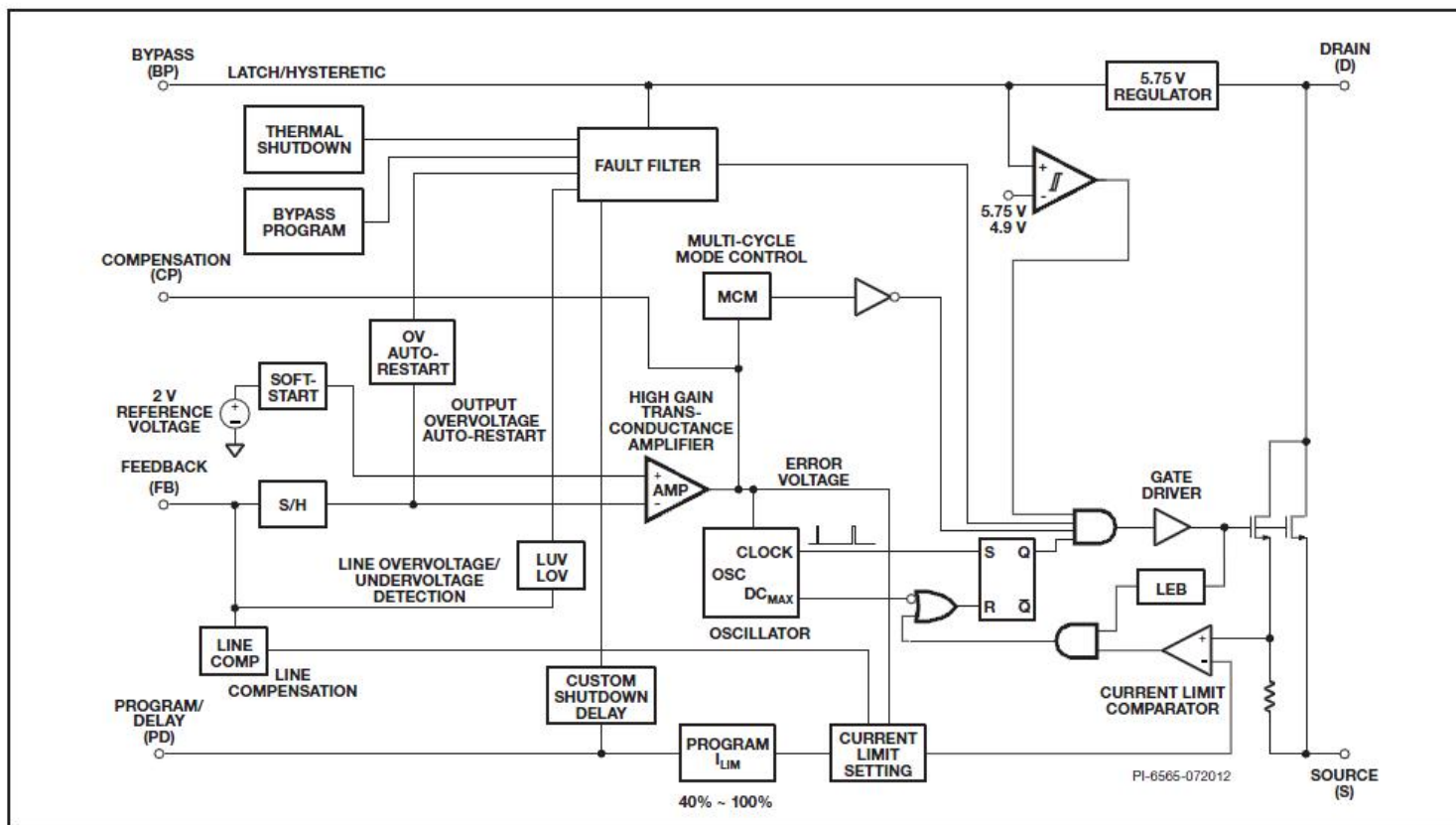
Rich Features for High Value Products: The MSD3463 family enables true single-chip experience. It integrates high-quality HDMI1.4, high speed VGA ADC, a-link LVDS, USB2.0 receiver, and ATSC/DVB-T/DVBC/DTMB/ISDB-T demodulators.

All New FHD@60Hz Experience: The MSD346 family provides consumers with FHD 60Hz direct drive.

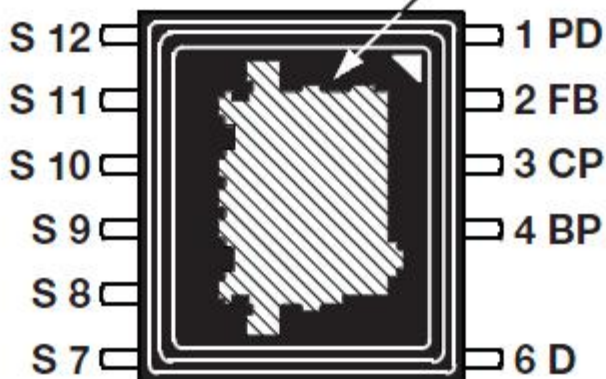
WW Common Platform Capability: The MSD3463 family supports ATSC, DVB-T, DVB-C, and ISDB-T demodulation functions. It reserves transport stream inputs for external demodulators for other countries or areas. TV maker can easily port the same UI to worldwide TV models. First-class adjacent and co-channel rejection capability grants excellent reception. Professional error-concealment provides stable, smooth and mosaic-free video quality.

7. IC Data Sheets

MSD3463



Exposed Pad Internally
Connected to SOURCE Pin
V Package
(eDIP-12B)

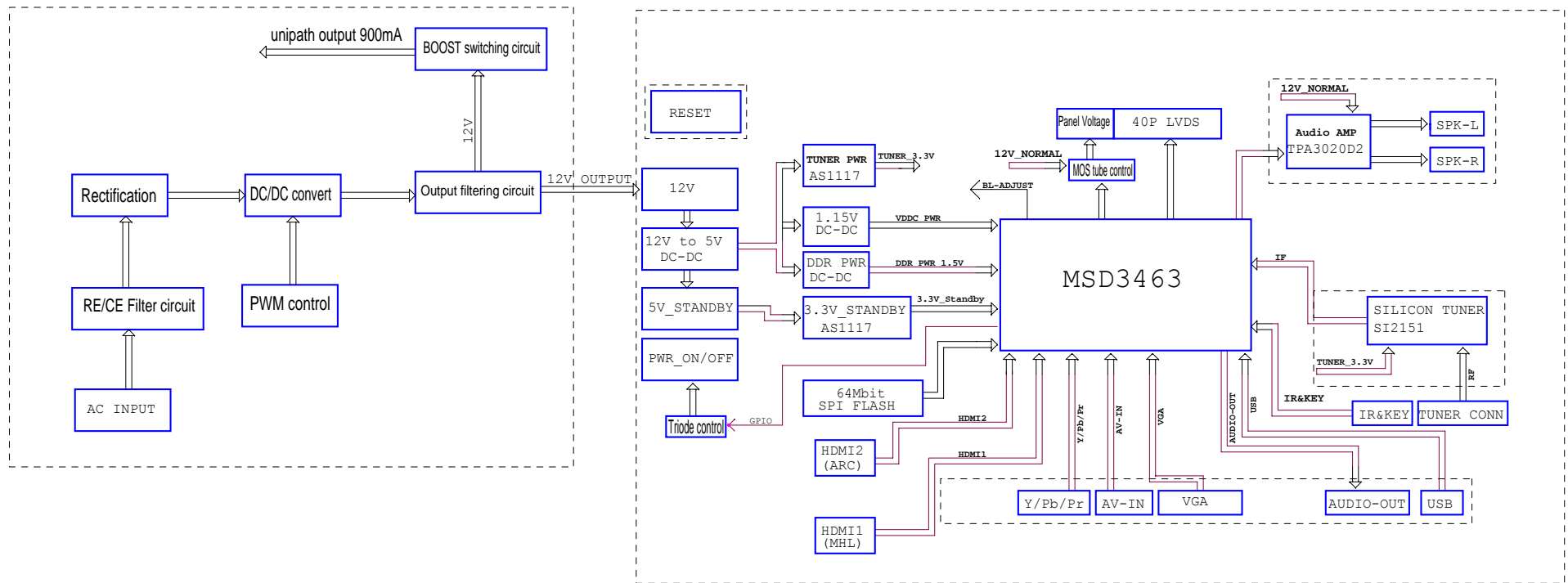


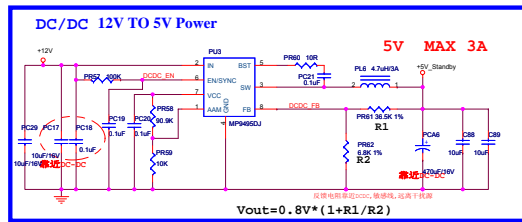
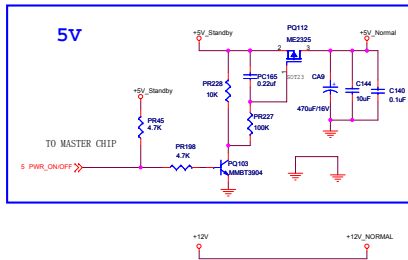
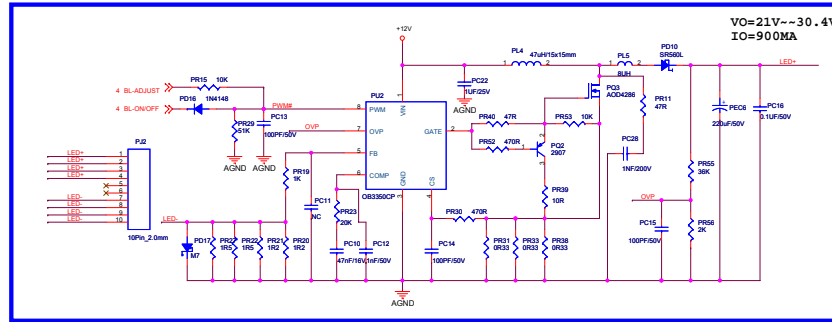
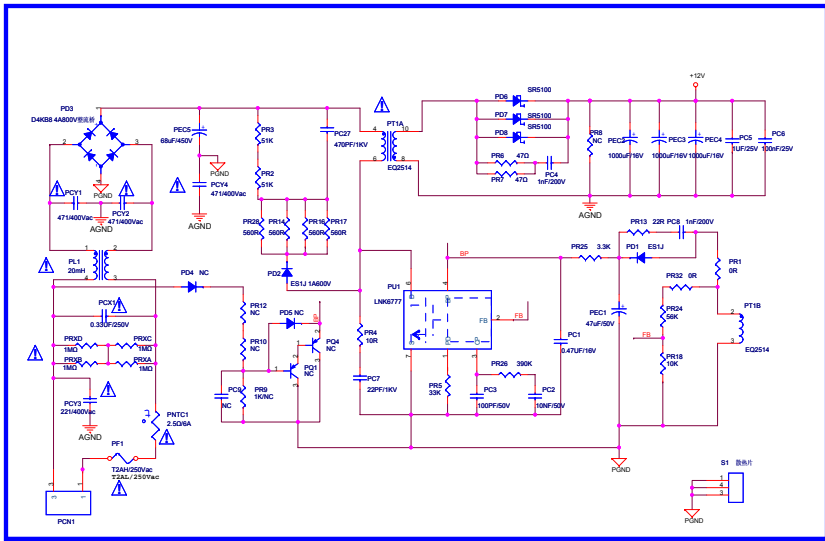
8. Circuit Diagrams

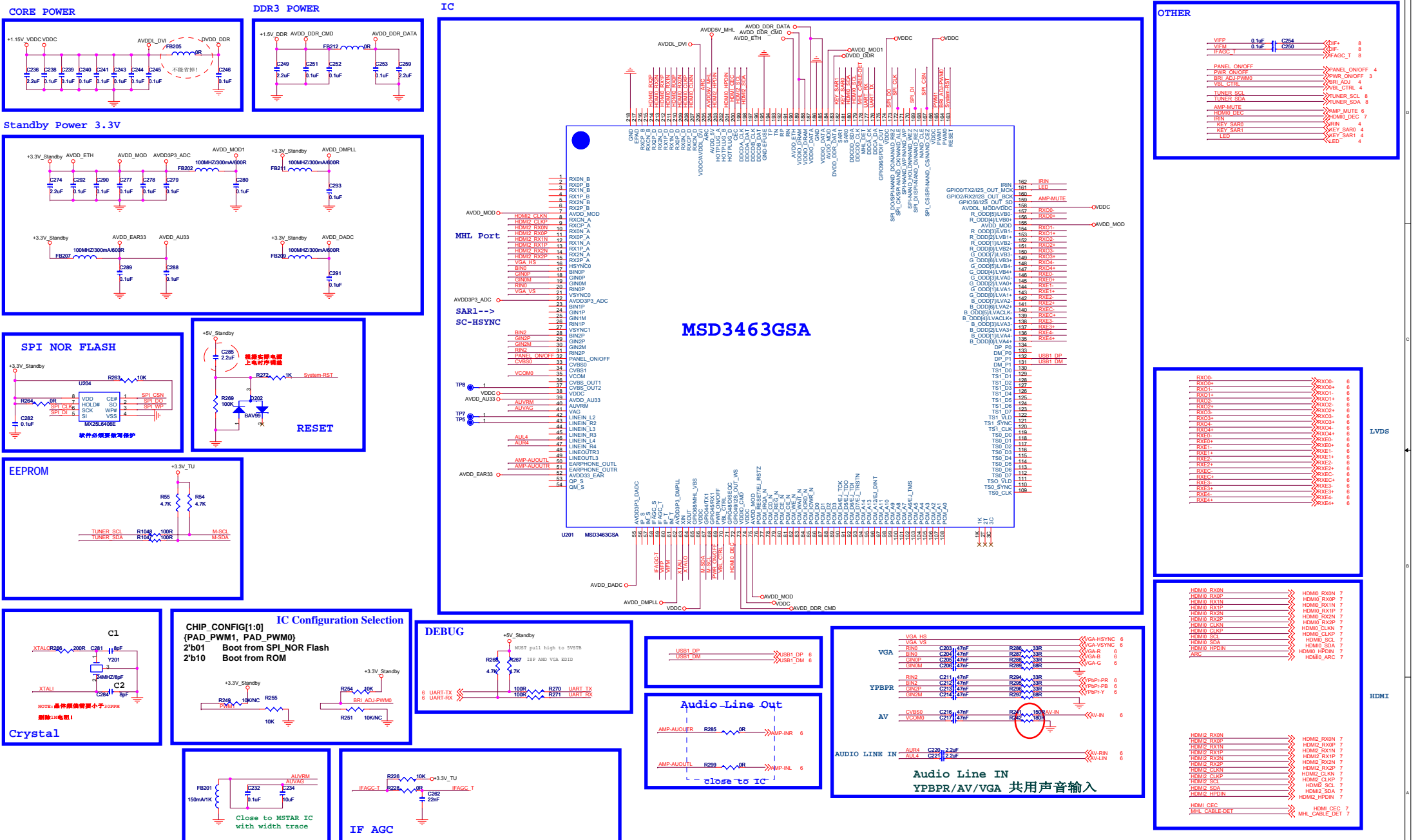
MSD3463-T4C1 (

PAGE	Content
1	Index&History Rev
2	Block Diagram
3	Power & LED Driver
4	System Power
5	MSD3463
6	Video&VGA&USB&Amplify &LVDSpage
7	HDMI page
8	Tuner page

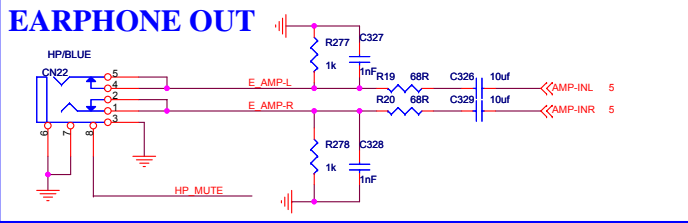
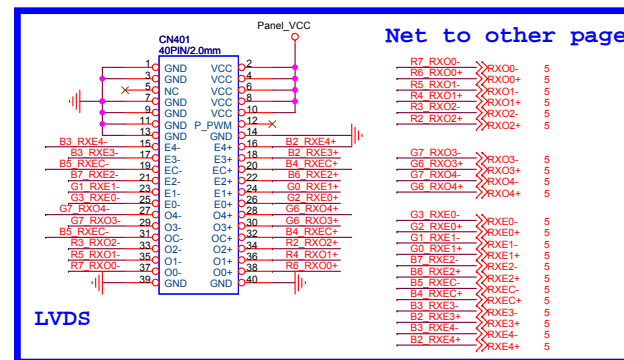
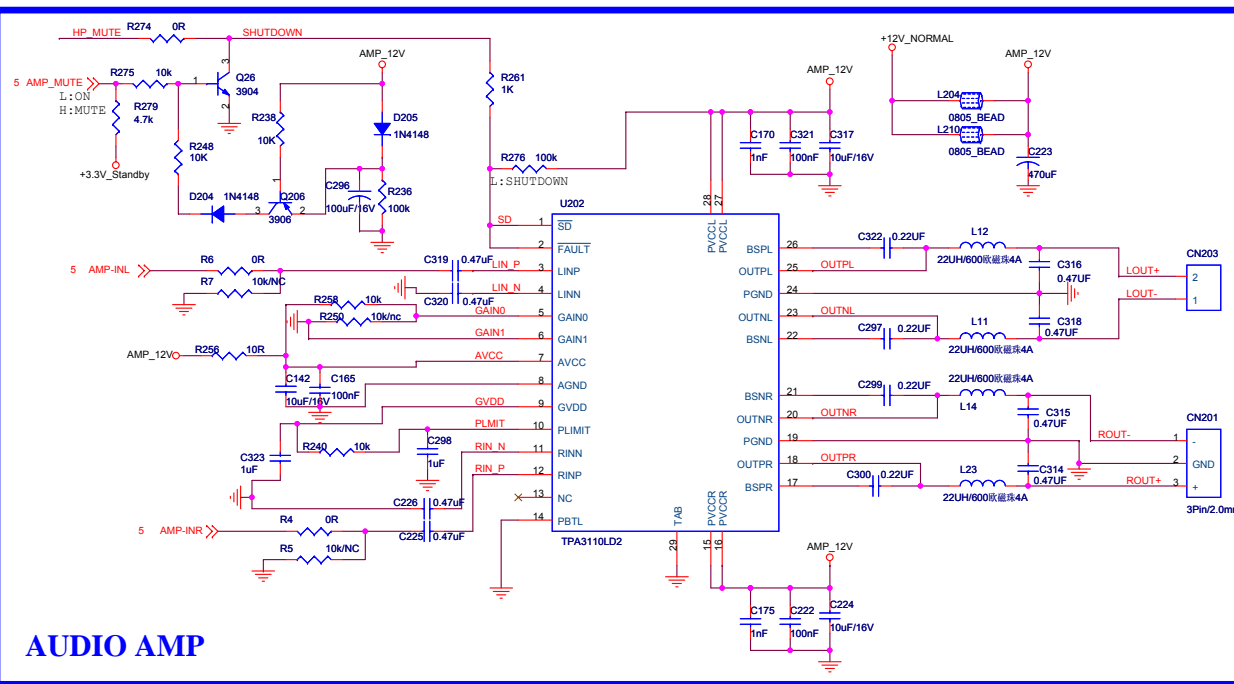
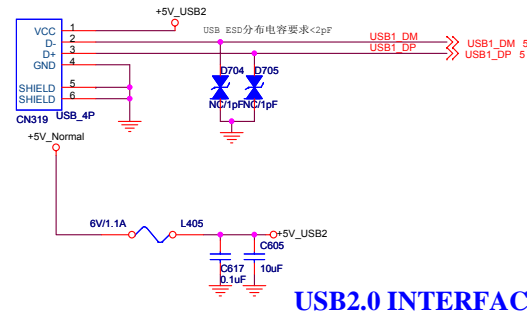
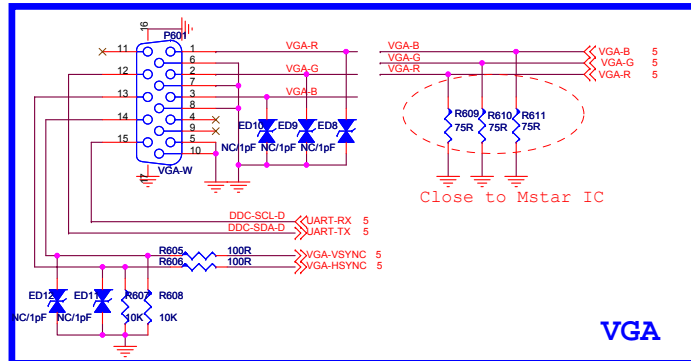
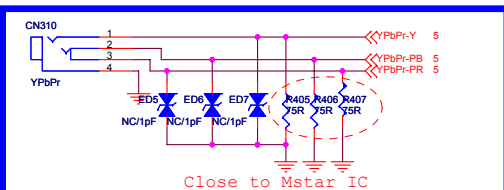
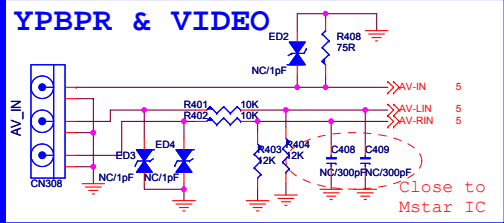
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DATE	Rev	Description	Author
7/2/2015	Ver:A1.0	First Version Release	ZHQING







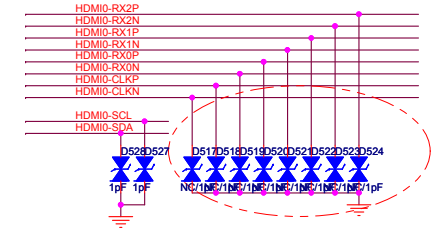
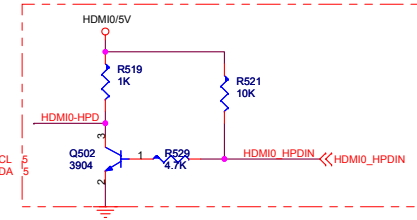
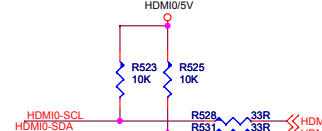
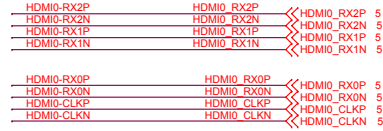
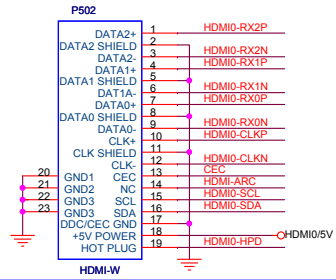
YPBPR & VIDEO



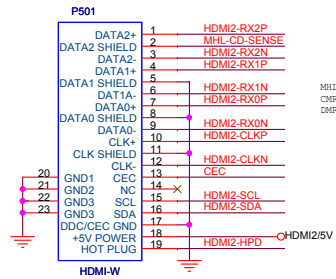
功放放大倍数调节

GAIN1 (PIN6)	GAIN0 (PIN5)	AMP GAIN (db)
0	0	20
0	1	26
1	0	32
1	1	36

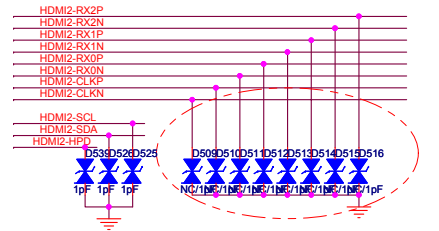
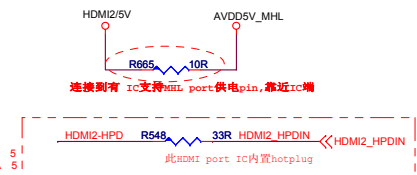
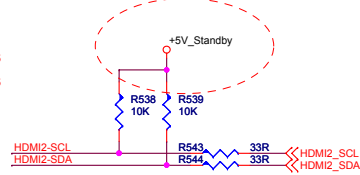
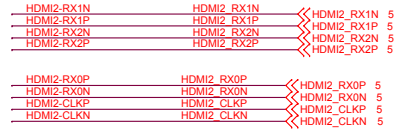
HDMI1 (ARC)



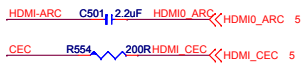
HDMI 3 (MHL)



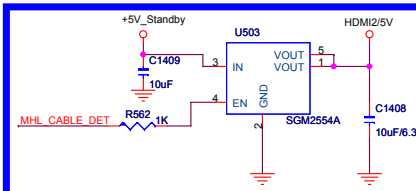
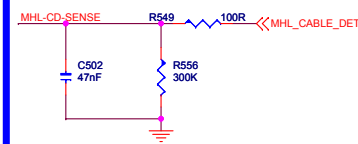
MHL Signal:
CMR:24.57 ~35.54G,
DMR:95.3~115



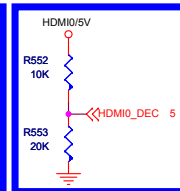
CEC & ARC



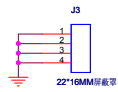
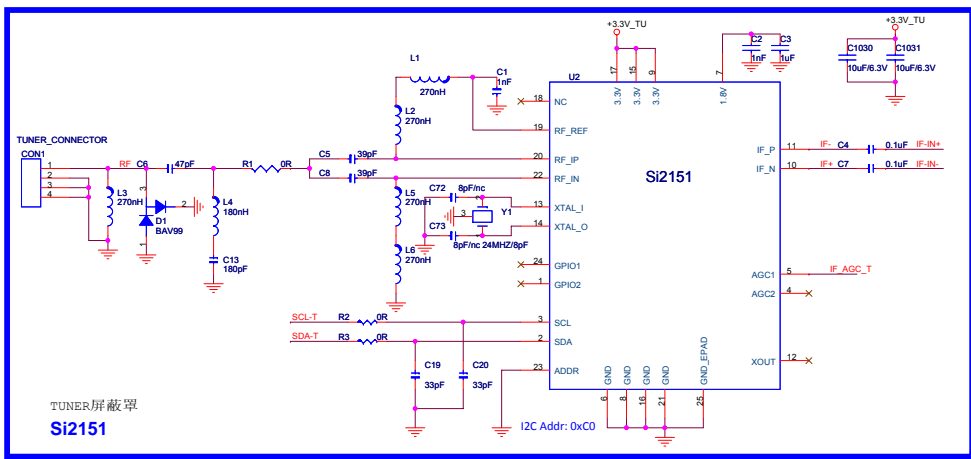
MHL



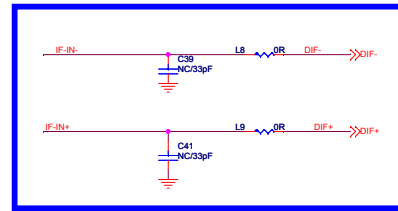
ARC DETECT



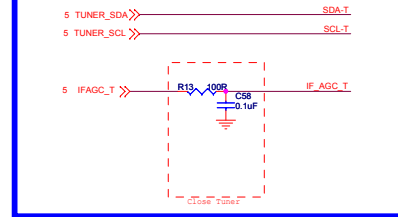
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DVB-C/T2 DIF



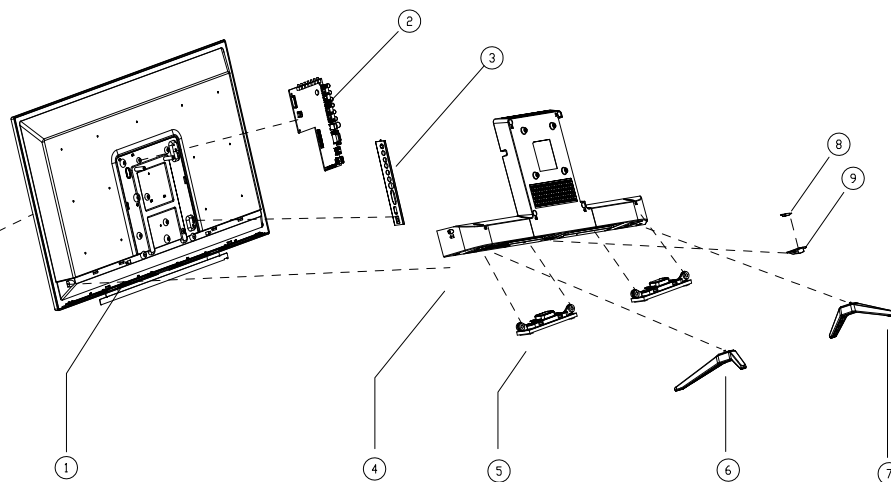
AGC RC Filter & I2C



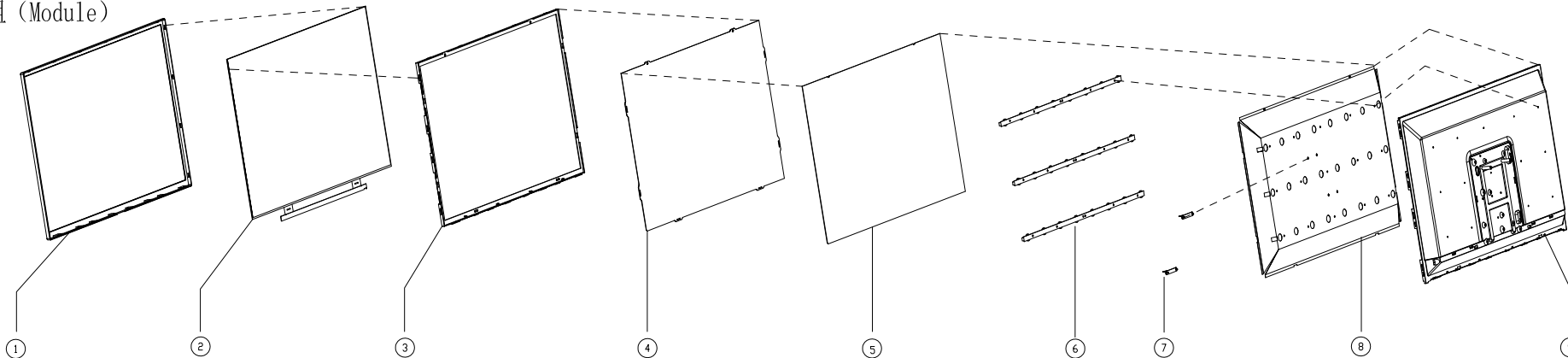
9. Styling Sheet

32" 4052S series

REV.	ECN.	NO.	APPD.	DATE



模组 (Module)



9	Remote control receive window	7034-32L82F-4U741101	1	9	Back plate	71Z2-32L81F-18000041	1
8	Remote control board	9015-112L82-01031021	1	8	Reflector	7821-K32WD8-0150Z013	2
7	Base_R	7003-32L91F-24B00001	2	7	Supporting bracket	70Z2-32L51F-12000001	1
6	Base_L	7003-32L91F-14B00001	1	6	LCM light	9044-113X80-01003011	2
5	Speaker	7711-22858A-50000011	2	5	Diffusion	7823-K32WD8-01R0Z021	1
4	Back cover	7002-32L82F-14B00001	1	4	Film	7822-K32WD8-02209013	2
3	Hardware baffle plate_side	7111-32L82F-42121601	1	3	Mid frame	70Z1-32L81F-114B0001	1
2	Mainboard	9011-114A45-883A4501	1	2	Glassboard	7432-320SS6-3300M01C-F	1
1	Module (Panel)	7422-320SSK-335A8131-F	1	1	Surface frame	7001-32L82F-0U7FLP11	1
Detail for whole structure				Detail for Module			
No.	Name	Vendor PN	QTY	No.	Name	Vendor PN	QTY

X± .200	X*± 0.050	32L82F (BCAS-02) Explosive View		KTC® 深圳市康冠技术有限公司 SHENZHEN KTC TECHNOLOGY CO., Ltd.	
.X± .100	.X*± 0.010				
.XX± .01	.XX*± 0.005	料号		材质	
.XXX± .005	.XXX*± 0.002	批准		日期	2016-07-13
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		绘图	林史彬	SCALE	1:1
				SHEET	1/1
				REV.	A