SERVICE MANUAL

MODEL : 29LEM-5093/T2C
29LED-6094/T2C
29LEM-5095/T2C

(SOLUTION MSD308C)

CONTENTS

IMPORTANT SAFETY INSTRUCTIONS

This symbol indicates " dangerous voltage " inside the product that presents a risk of electric shock or personal injury.

This symbol indicates important instructions accompanying the product.

Please read this manual carefully before using this product.

- Before connecting the AC power cord ,make sure the voltage designation of the LCD TV corresponds to the local electrical supply .
  If you are unsure of your power supply , ask your local power company .

- Never insert anything metallic into the cabinet openings of the liquid crystal display LCD TV/monitor;otherwise it may create the danger of electric shock.

- To avoid electric shock, Never touch the inside of the LCD TV/monitor .
  Only a qualified technician should open the case of the LCD TV/monitor.

- Never use your LCD TV/monitor if the power cord has been damaged .
  Do not allow anything to rest on the power cord, and keep the cord away from place where people can trip over it .

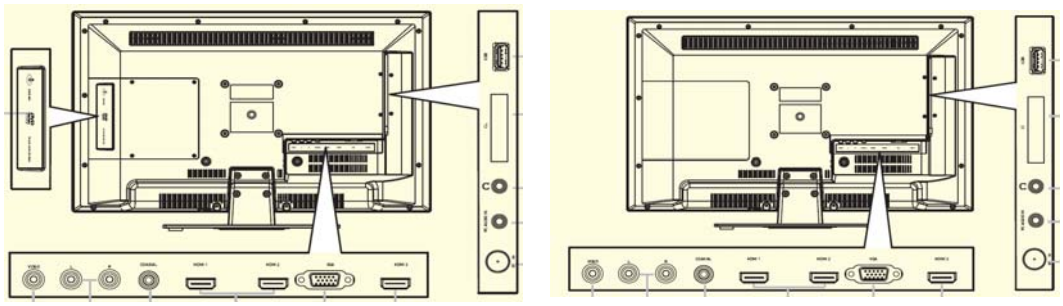
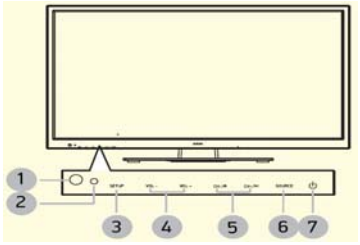
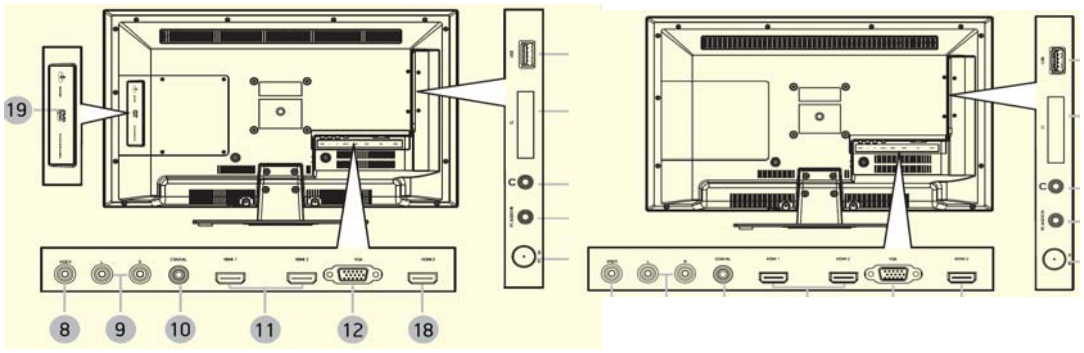
- Be sure to hold the plug, not the cord, when disconnecting the power cord from an electric socket.

- Openings in the LCD TV/monitor cabinet are provided for ventilation.
  To prevent overheating, these openings should not be blocked or covered. Also, avoid using the LCD TV/monitor on a bed ,sofa ,rug, or other soft surface. Doing so may block the ventilation openings in the bottom of the cabinet. If you put the LCD TV/monitor in a bookcase or some other enclosed space, be sure to provide adequate ventilation.

- Do not expose the LCD TV/monitor to extreme temperature conditions or to extreme humidity conditions.

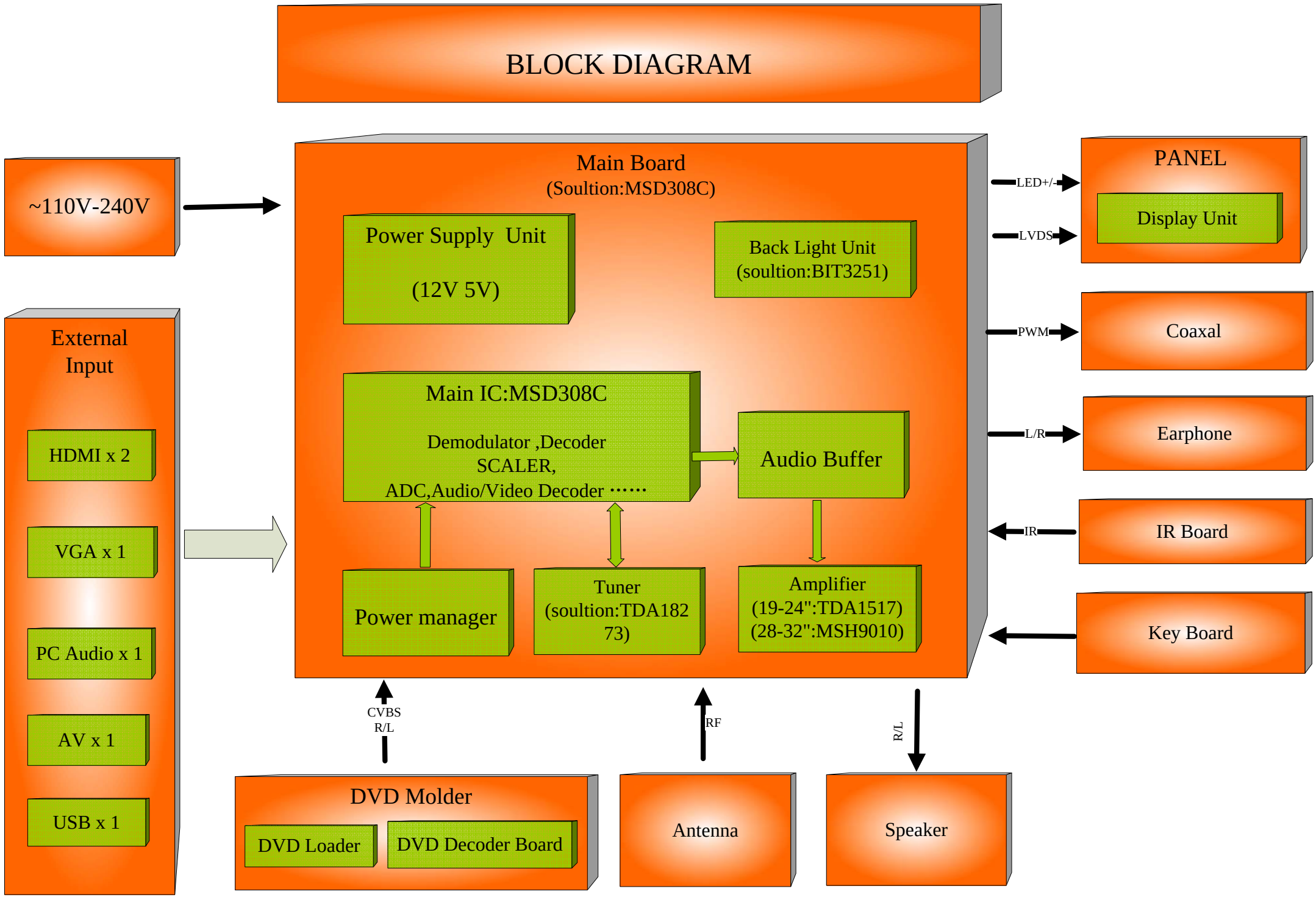
- The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids.

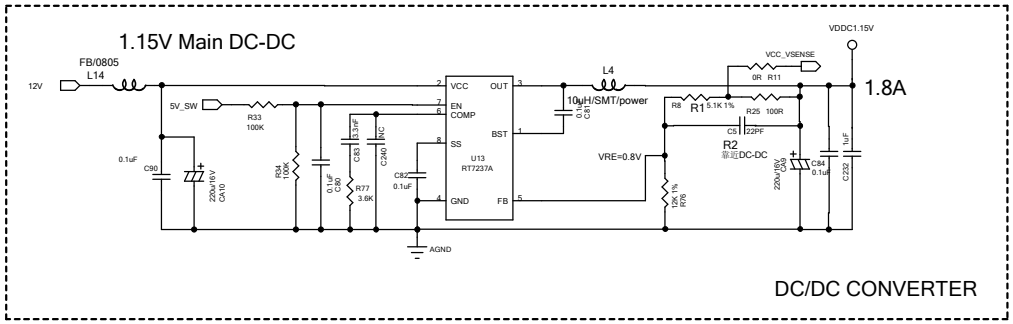
PRODUCT SPECIFICATION

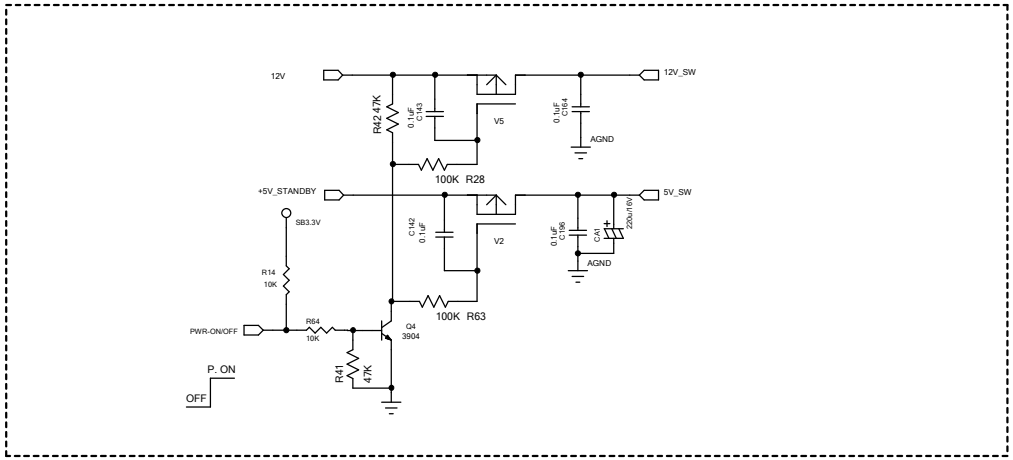
Model	29LED-6094/T2C(DVD);29LEM-5093/T2C;29LEM-5095/T2C(No DVD)		
Solution	MSD308C		
ATV System	PAL BG/DK/ I SECAM BG/DK/L		
	48.25~863.25 MHz		
	Picture I.F.	38.90MHz （BG,DK,I）	
	Sound I.F.	32.40MHz(DK,L)	
		32.90MHz(I)	
	Tuning System		FS With PLL
	Tuner Band		Standard system with hyper band
	Auto Channel Scanning		Yes
	Number Of Preset Channels		100
DTV System	DVB-T	COFDM 2K/8K QPSK, 16QAM, 64QAM	
	DVB-T2	COFDM 8K/32K QPSK, 16QAM, 64QAM, 256QAM	
	DVB-C	COFDM 8K/32K QPSK, 16QAM, 64QAM, 256QAM	
	Receiving	VHF (174MHz – 230MHz) UHF (474MHz - 862MHz)	
	Bandwidth	7MHz/8MHz	
	Video System	MPEG-2, MPEG-4,H.264 video decoding	
	Sound System	MPEG Audio,Dolby Digital	
AV	Color system	PAL/NTSC/SECAM	
	Video	1Vp-p@75ohm	
	Audio	500mV rms	
HDMI	Audio	500mVrms	
	Format	Max. 1080P	
Antenna Impedance	75 Ohm Unbalanced		
Power Supply	Power supply: AC 100V-240V, 50/60Hz		
Back Panel Viewing			
	TV KEY	STANDBY,SOURCE,CH+/CH-, VOL +/-, MENU	
	USB2.0 Socket		
Front Panel Viewing			
	LED Indicators (Red/Green)		Standby/On
Terminals			
	Image In	TV 75ohm Aerial	X 1
		HDMI Connector	X 3
		RCA Jack(CVBS) -Yellow	X 1

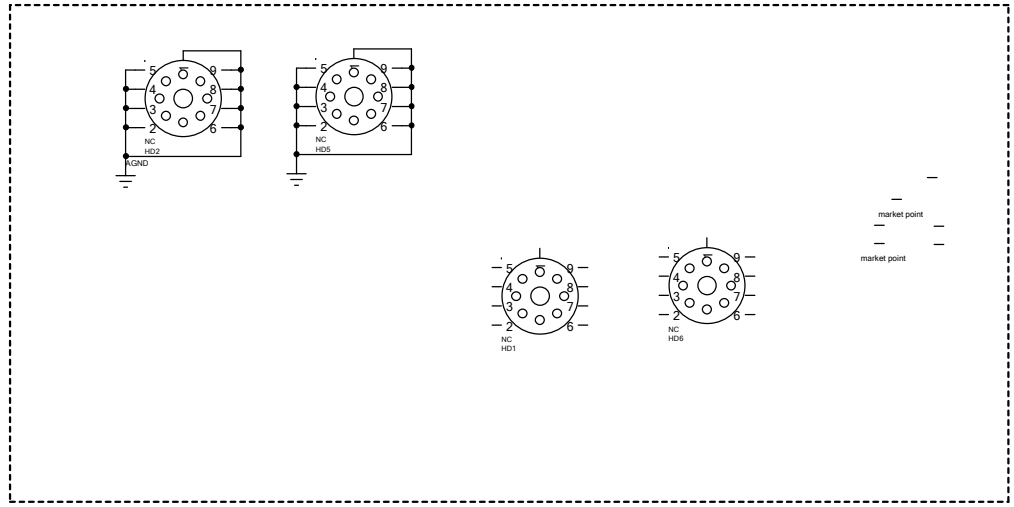
Terminals	Audio In	RCA Audio (L/R) Jack - White/Red		X 1
		φ3.5 Stereo Jack		X 1
	VGA In	D-sub 15 Pin VGA Connector		X 1
	USB	USB2.0 Host		X 1
	COAX Output	RCA Jack (Black) optional		X 1
	Audio Output	φ3.5 Earphone Jack		X 1
Audio	Output Power (1 KHz 10% THD)			3W
	NICAM / STEREO			Yes
	Bass			Yes
	Treble			Yes
	Balance			Yes
OSD Language	Russian , English			
LCD Panel (Only For Reference, Parameters according to panel model)		Brand		DSB
		Model		SK2921A
		Size		29”
		Backlight		LED
		Pixel Pitch		0.15 mm x 0.462mm
		Resolution	Horizontal (dots)	1366
			Vertical (Lines)	768
Support Resolution(For PC)	Horizontal (dots) (Max)			1920
	Vertical (Lines) (Max)			1080
Speaker	8 Ohm /5W			x2pcs
Power Consumption	On working			40W Max
	Standby			≦0.5W
Remote Control				
	Color	Black		
	Batteries	1.5V AAA X2		
	Customer Code	09F6		
	Remark	RC-LED100		

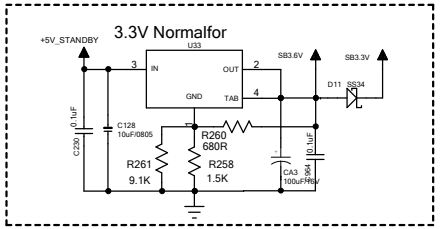
Note: Specifications are subject to change without notice

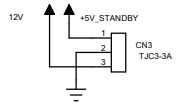

BLOCK DIAGRAM
~110V-240V
Main Board
(Soultion:MSD308C)
Power Supply Unit
(12V 5V)
Back Light Unit
(soultion:BIT3251)
Main IC:MSD308C
Demodulator ,Decoder
SCALER,
ADC,Audio/Video Decoder ……
Audio Buffer
Power manager
Tuner
(soultion:TDA182
73)
Amplifier
(19-24":TDA1517)
(28-32":MSH9010)
External
Input
HDMI x 2
VGA x 1
PC Audio x 1
AV x 1
USB x 1
PANEL
Display Unit
LED+/-
LVDS
Coaxal
PWM
Earphone
L/R
IR Board
IR
Key Board
CVBS
R/L
RF
R/L
DVD Molder
DVD Loader
DVD Decoder Board
Antenna
Speaker

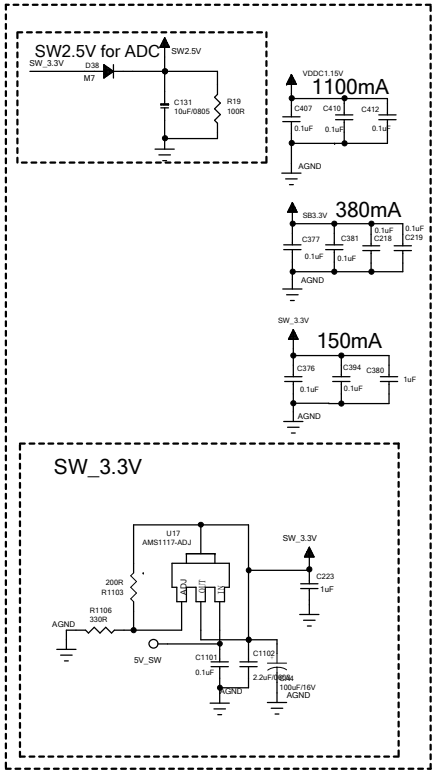


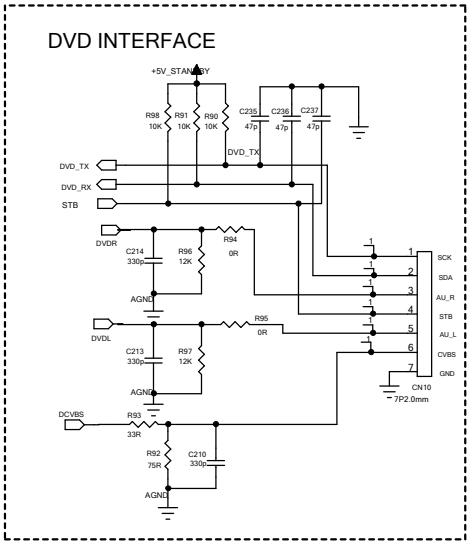


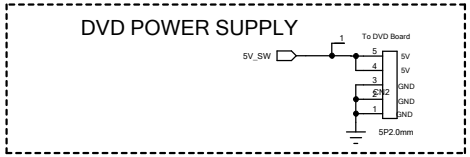


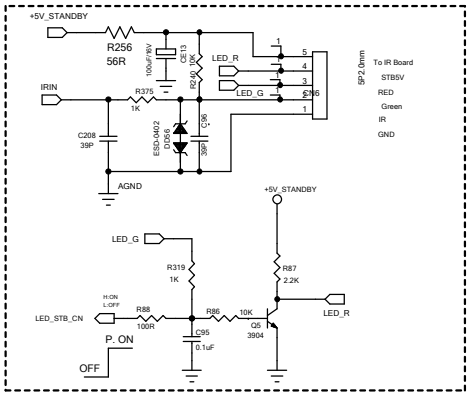


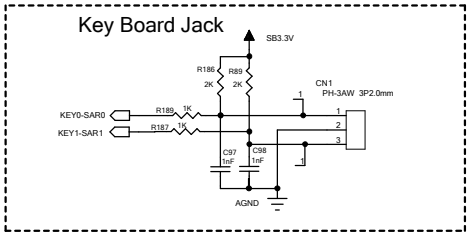












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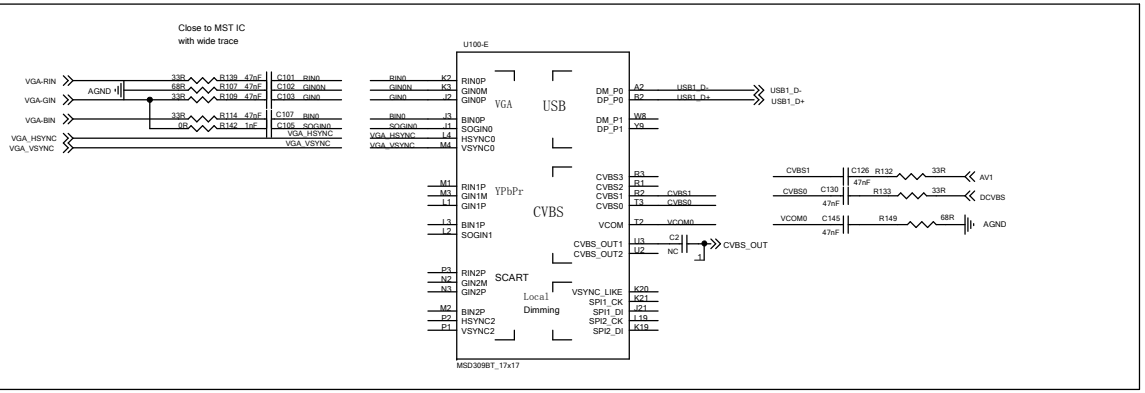
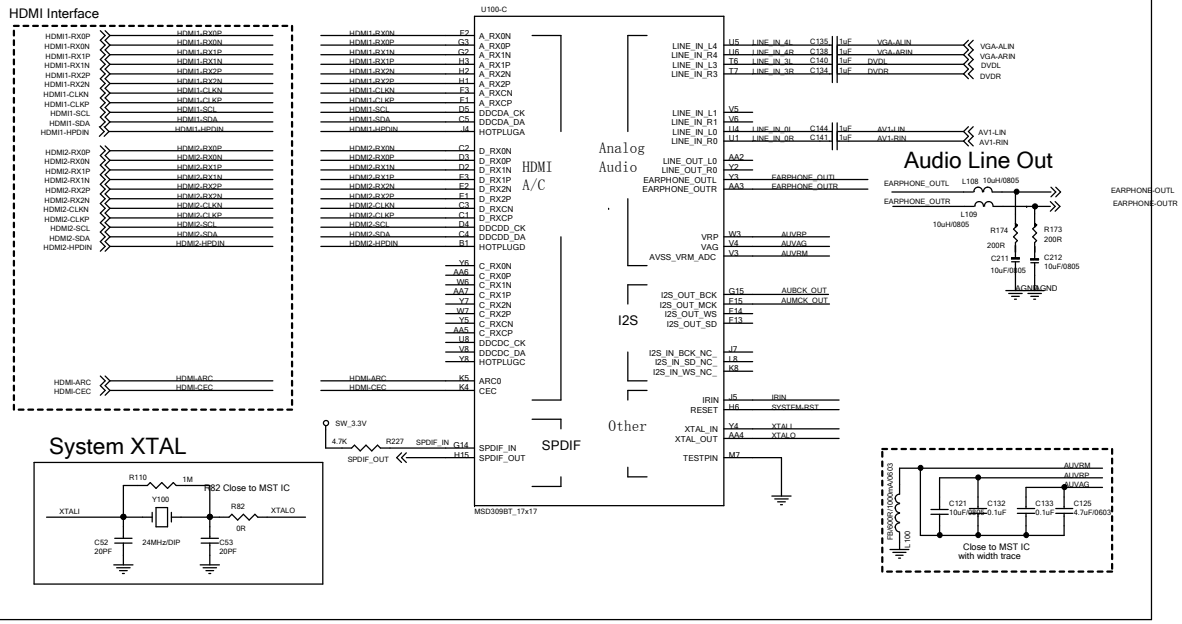
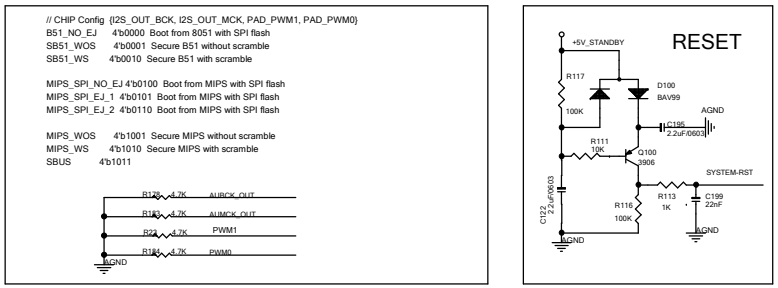
RGB & CVBS & USB



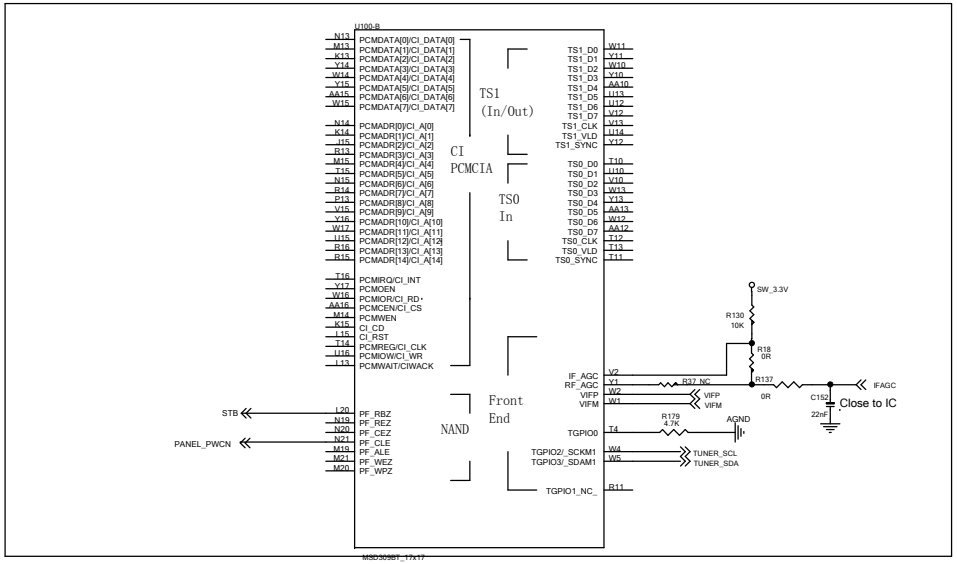
HDMI & Audio



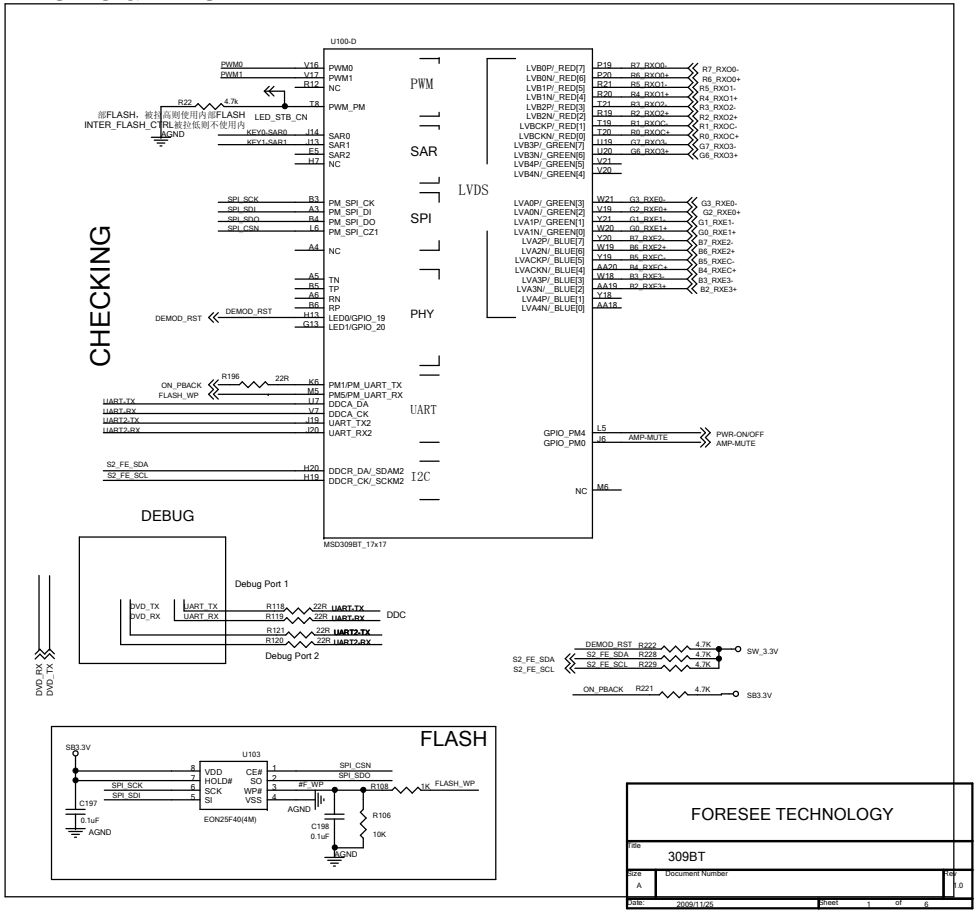
Mode Selection



CI & TS & Front End



GPIO & LVDS



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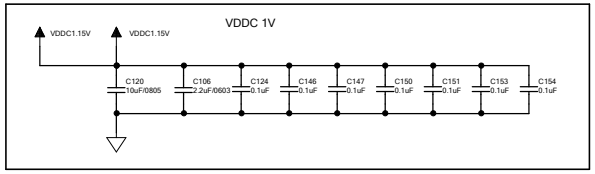
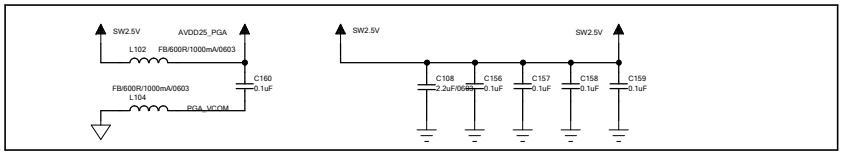
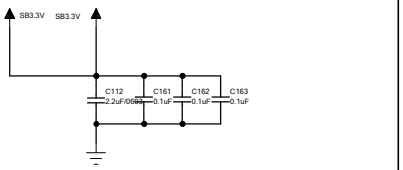
MSD39BT Power interface

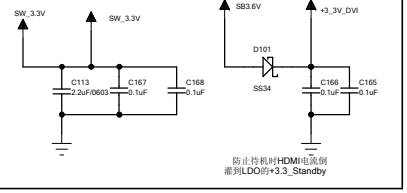




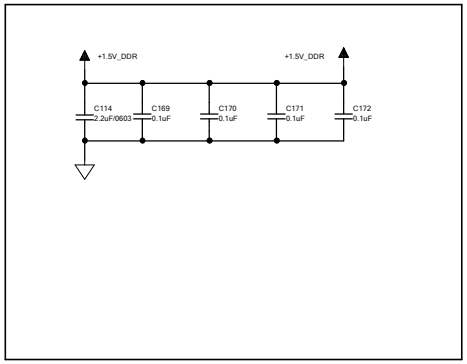
Standby Power 3.3V

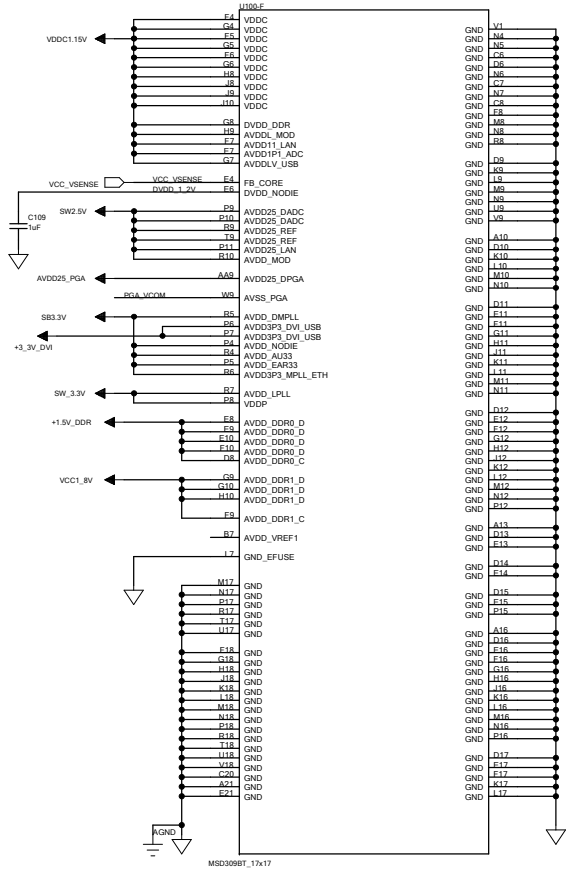


Normal Power 3.3V

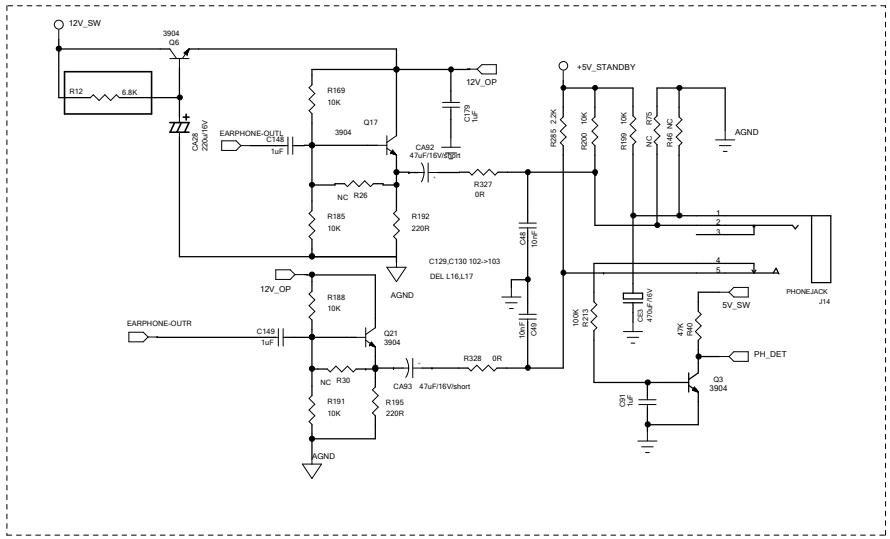


DDR3 1.5V

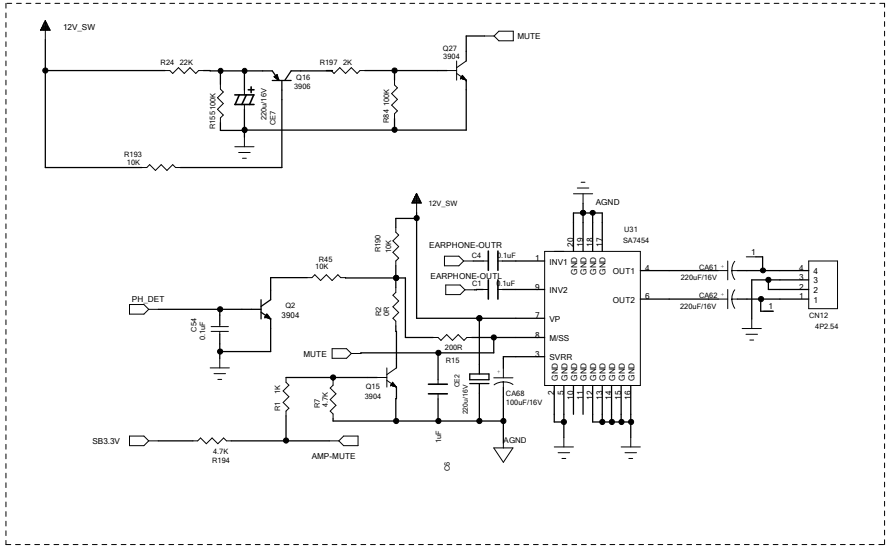




HEADPHONE



SA7454 AMPLIFIER



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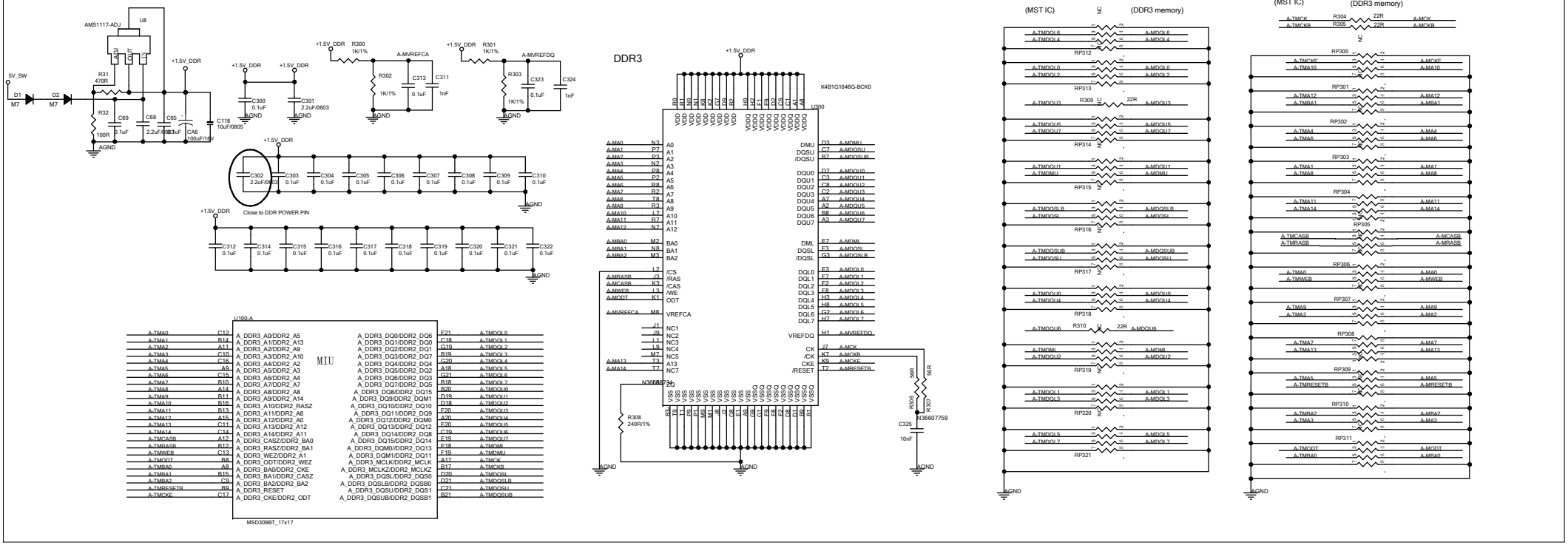
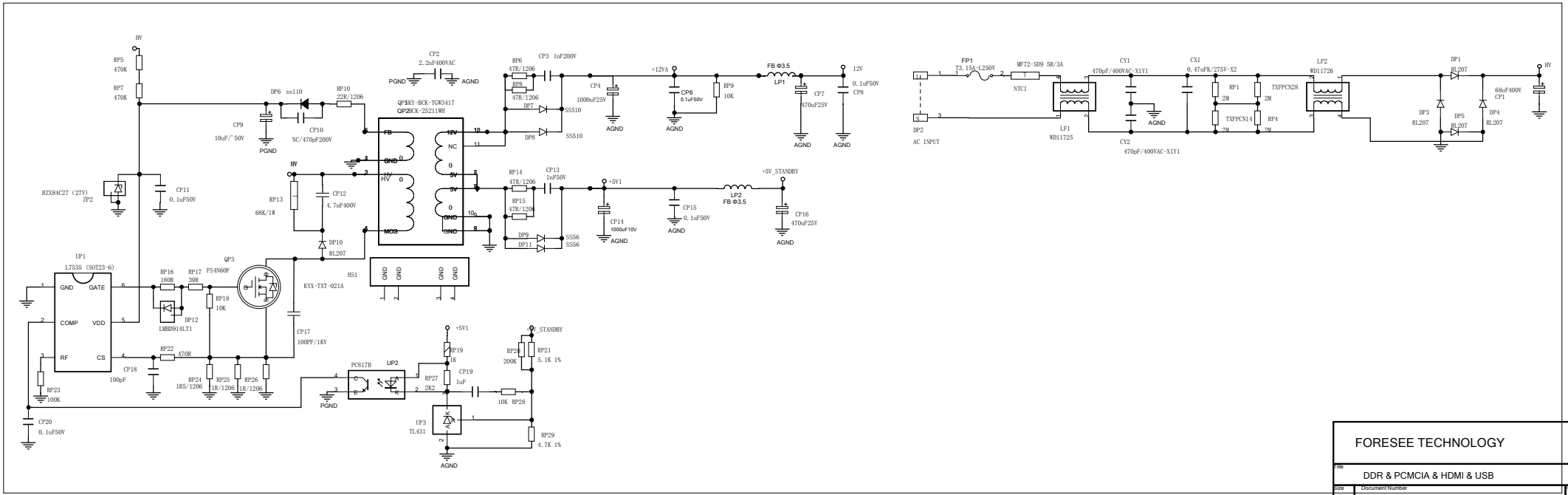
1.5V Normal Power for DDR3





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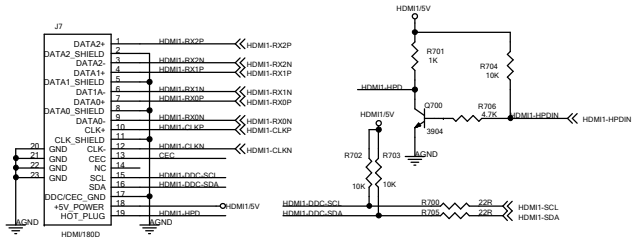
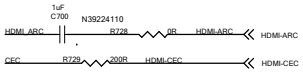
HDMI

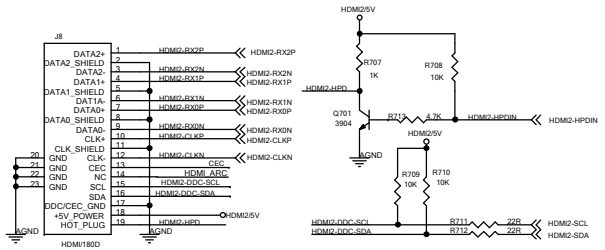
HDMI1



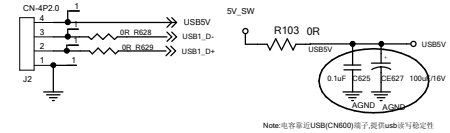
CEC & ARC



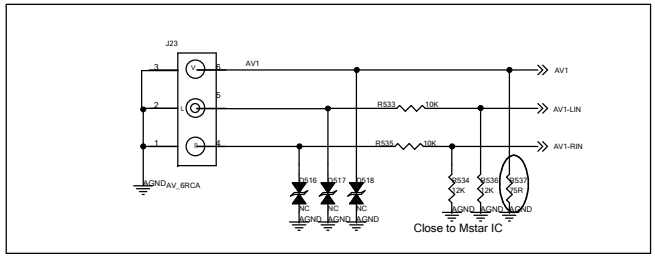
HDMI2



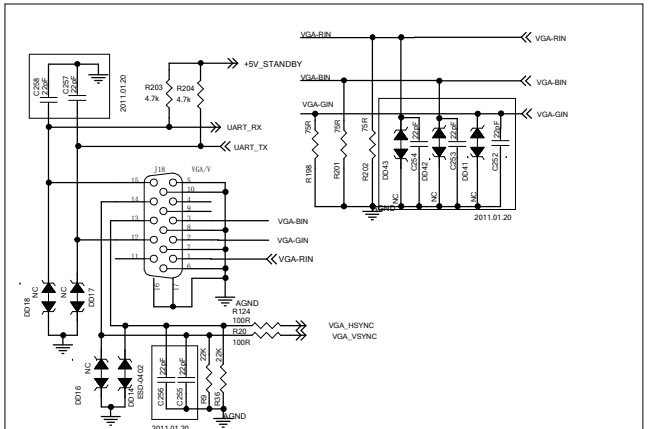
USB INTERFACE



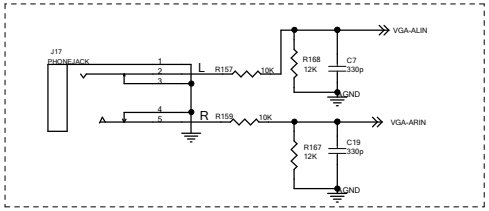
AVINPUT



VGA INPUT



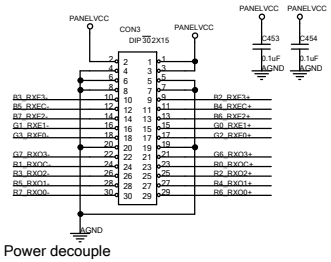
PC AUDIO INPUT



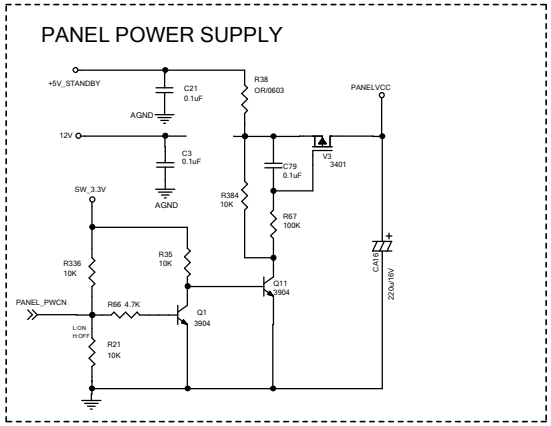
LVDS Connector

Note:靠近Panel端子

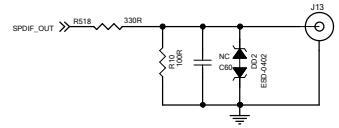
Net to other page



PANEL POWER SUPPLY



COAXIAL OUTPUT



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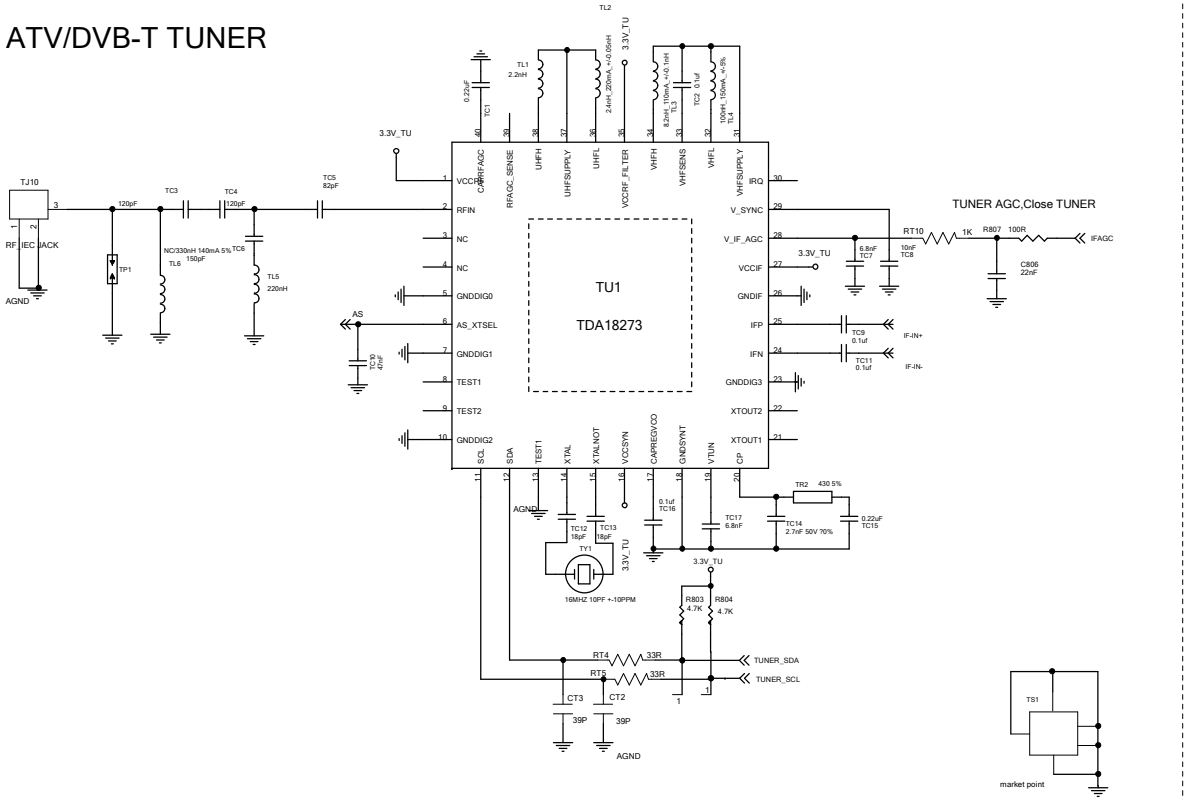
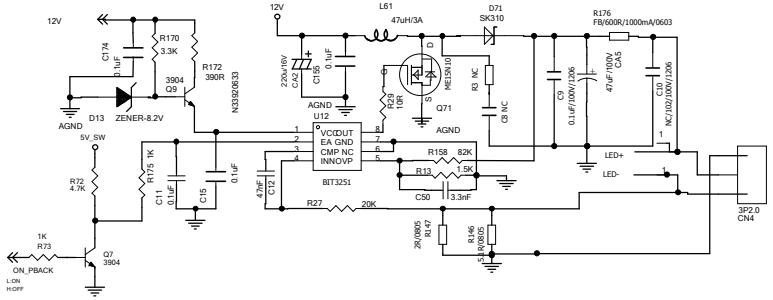
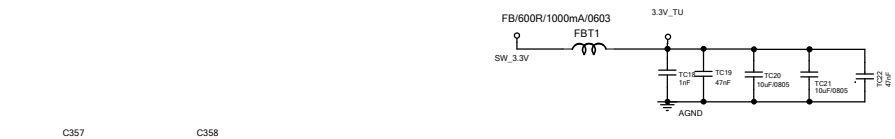
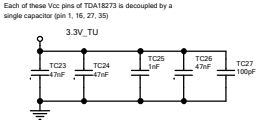
ATV/DVB-T TUNER



LED BACKLIGHT







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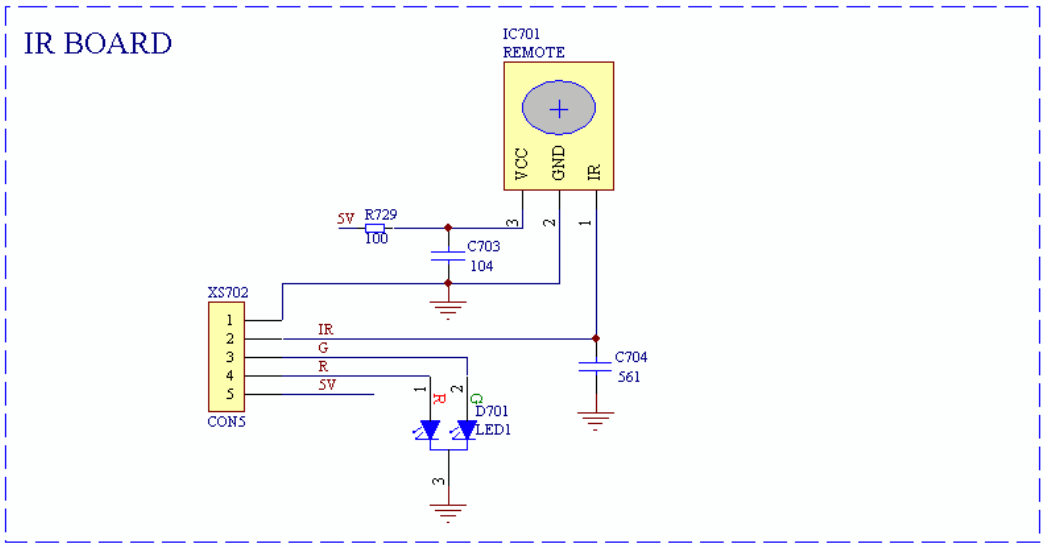
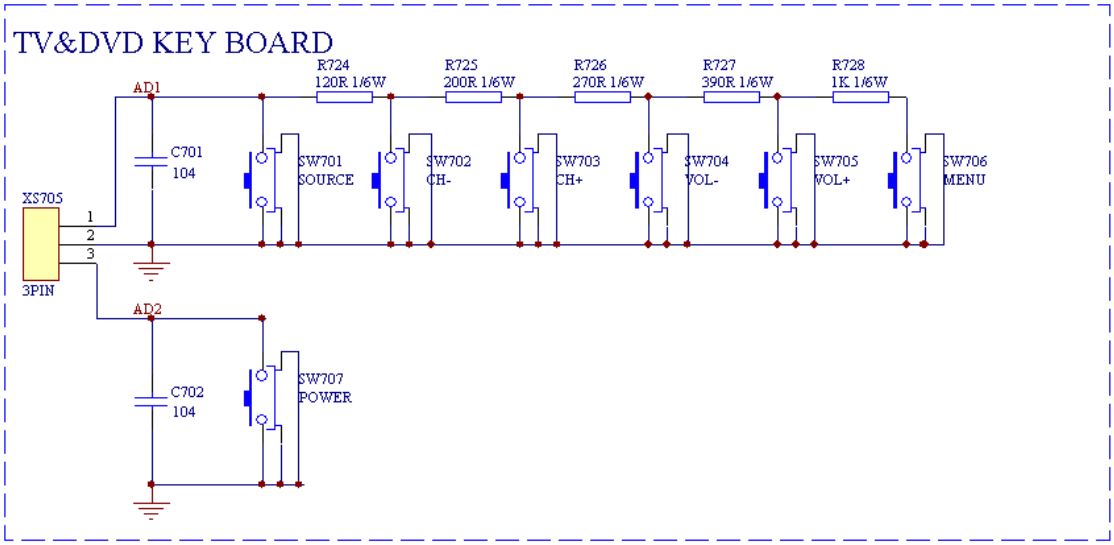
IR BOARD SCHEMATICS



TV&DVD KEY BOARD SCHEMATICS



1) How to enter service mode
   Press “Source” button on the remote control, then press”2580”, the service menu will be displayed.

Service mode description

Color Temp: select a color temperature mode that you want to adjust;
R Gain: red gain for white balance adjusting;
G Gain: green gain for white balance adjusting;
B Gain: blue gain for white balance adjusting;
R Offset: red offset for white balance adjusting;
G Gain: green offset for white balance adjusting;
B Gain: blue offset for white balance adjusting;
Aging: to turn on or off aging mode, optional setting: On /Off;
ADC ADJUST: adjust ADC channel difference, only available in VGA mode;
Restore Factory Default: rest seting data to factory default.
Panel Control: select different panel for factory;
DivX:USB Div function switch.

Main Board Software upgrade

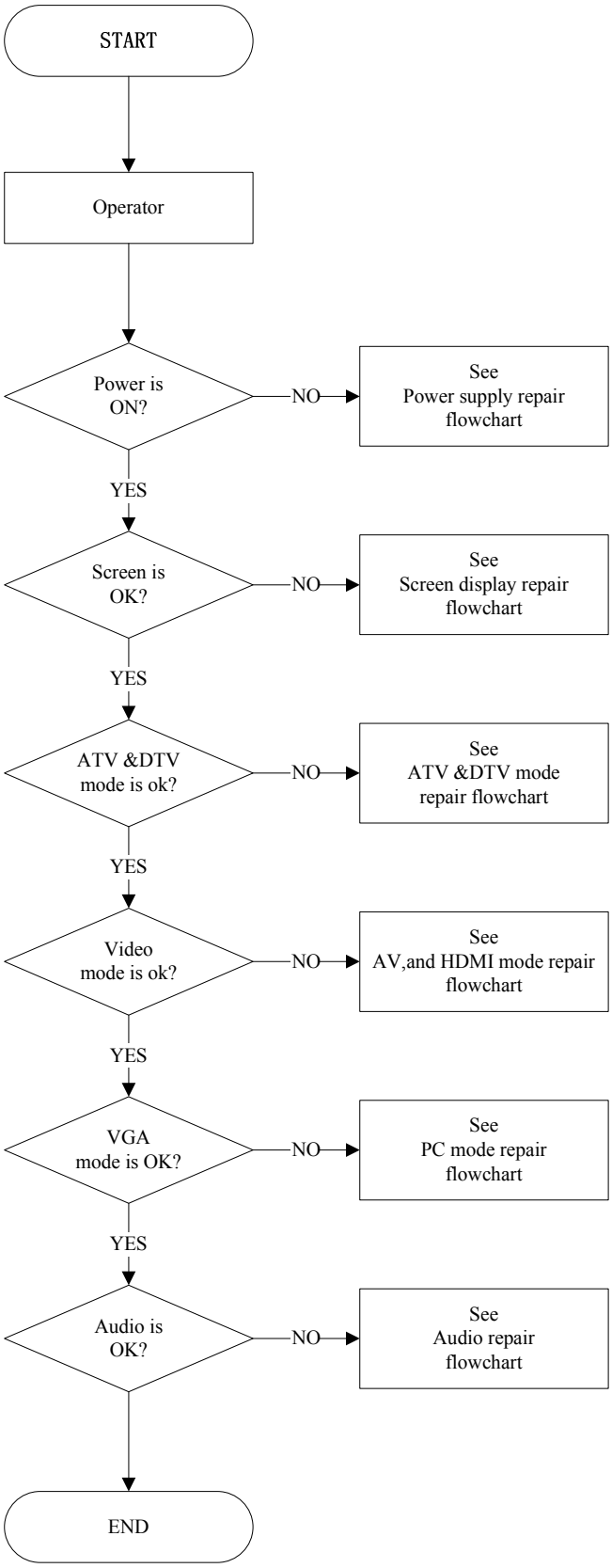
1 Please burn the software to USB device. Noted please, software name have to be MERGE309B.bin.

2 Power on TV, and switch source to ATV.

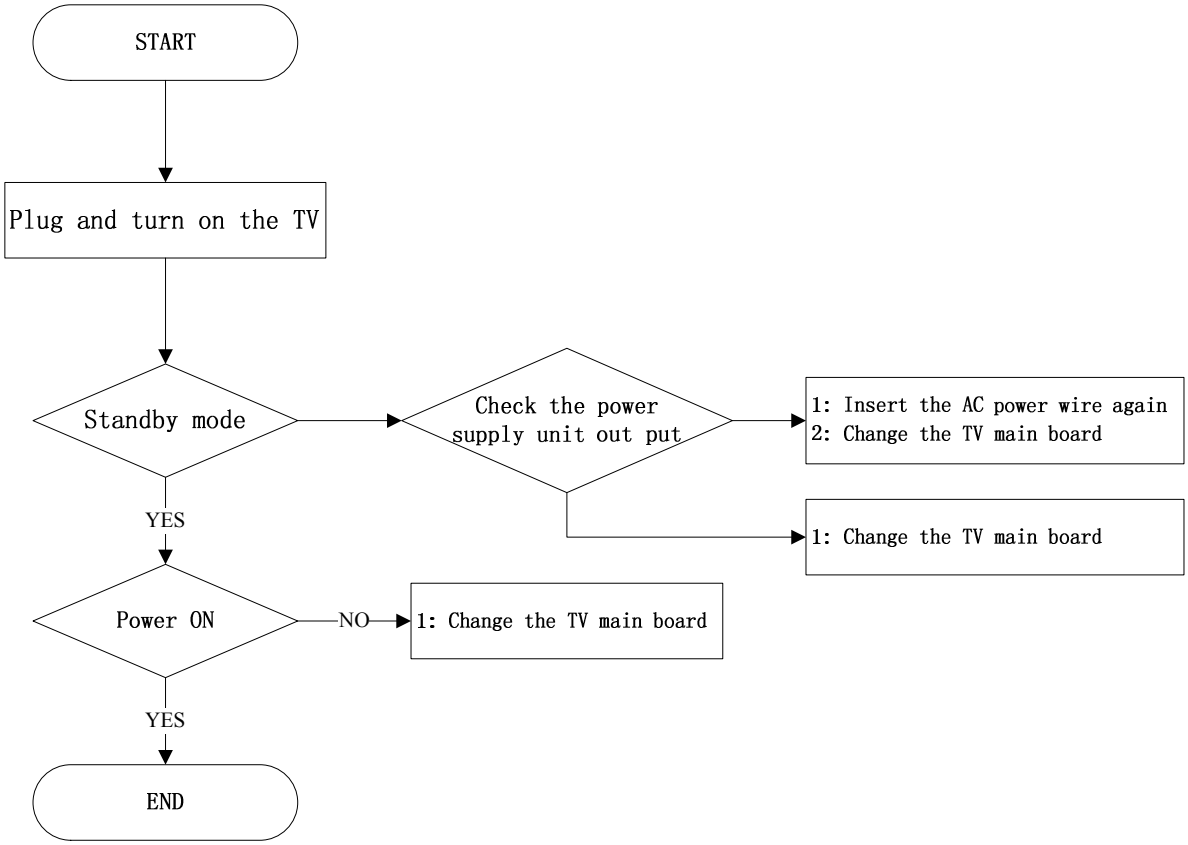
3 Insert USB device to TV, then screen will display a message window to inform you upgrade TV or not. Press” LEFT” direction button to upgrade

4 It will cost 40 seconds to upgrade. In this process, please don’t unplug USB device, don’t power off TV.

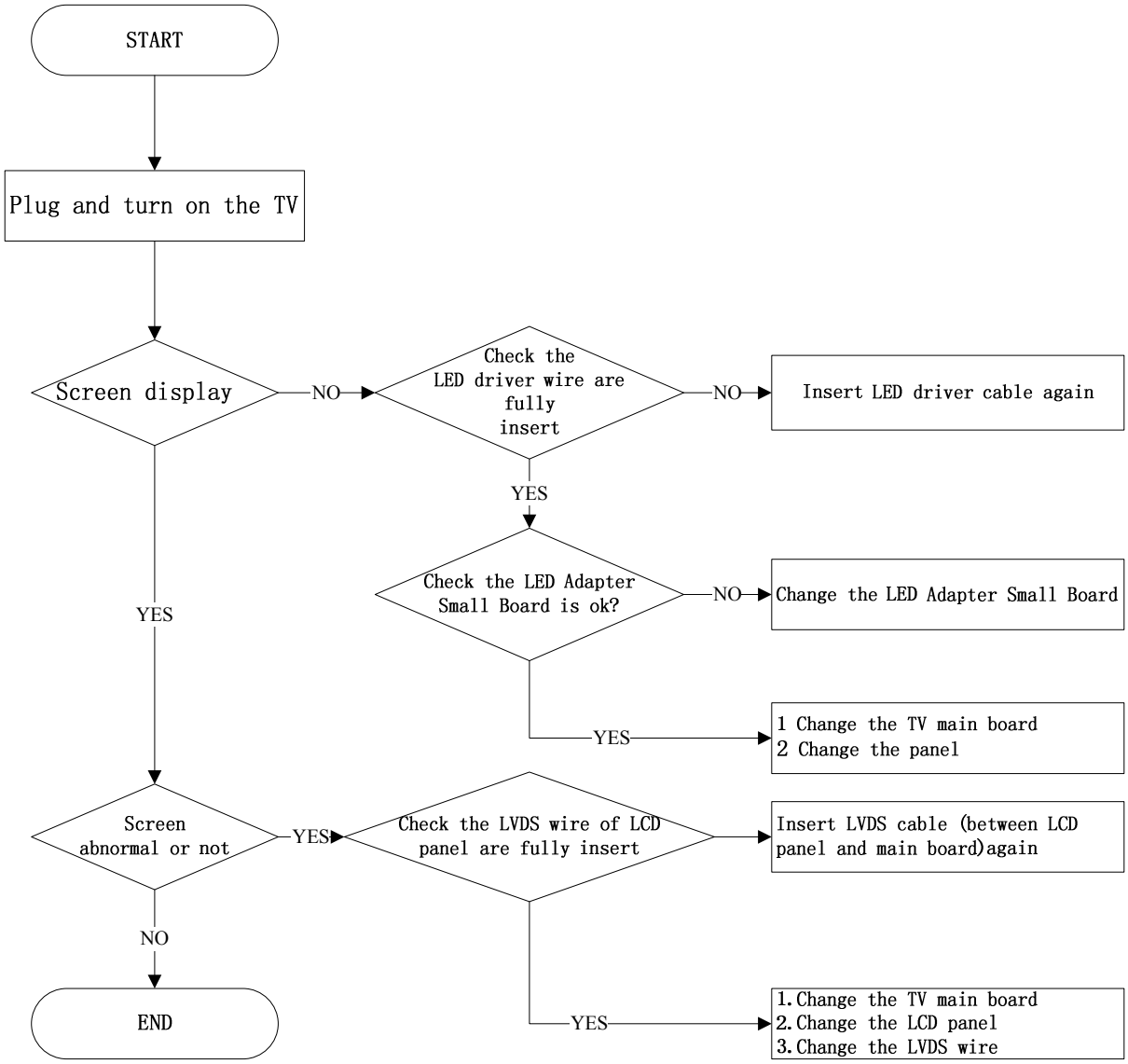
Fault finding tree



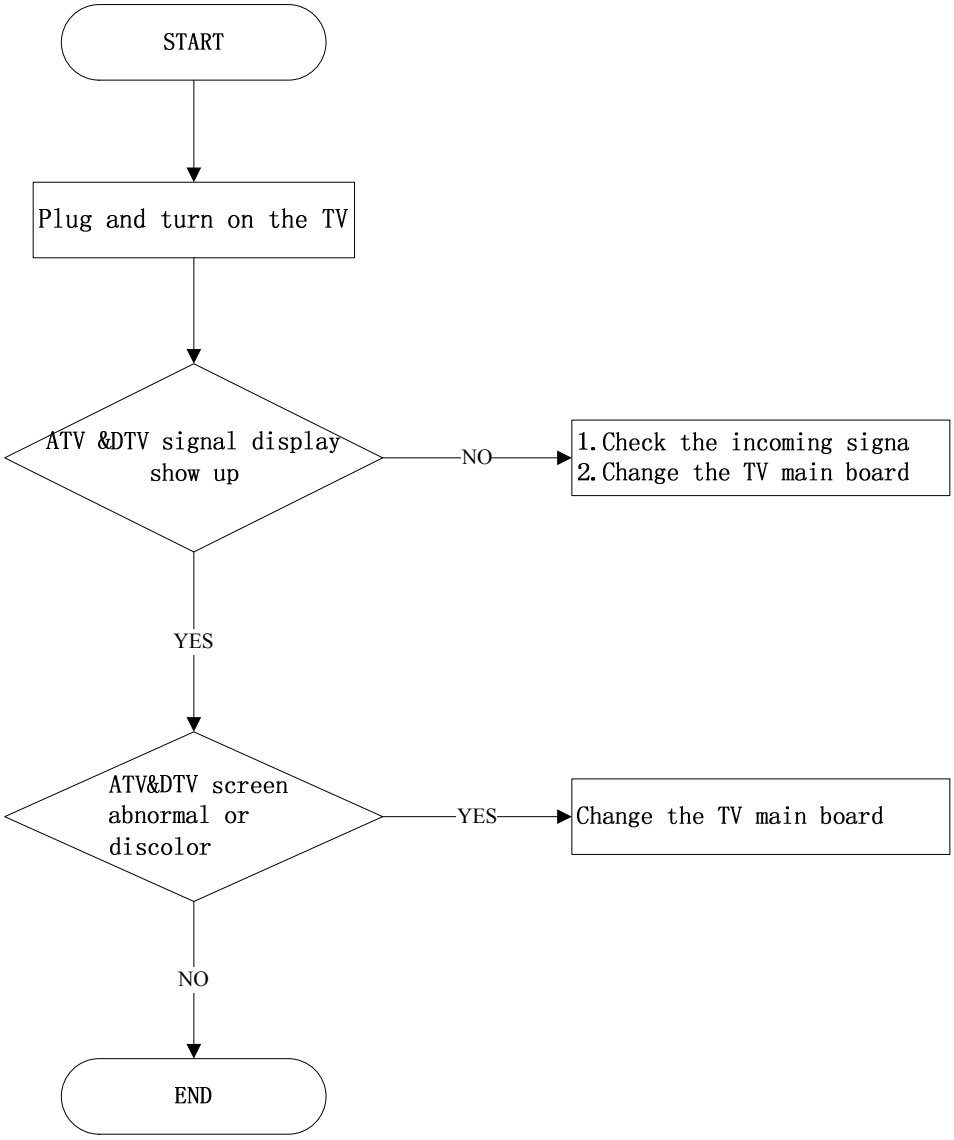
Power supply repair flowchart



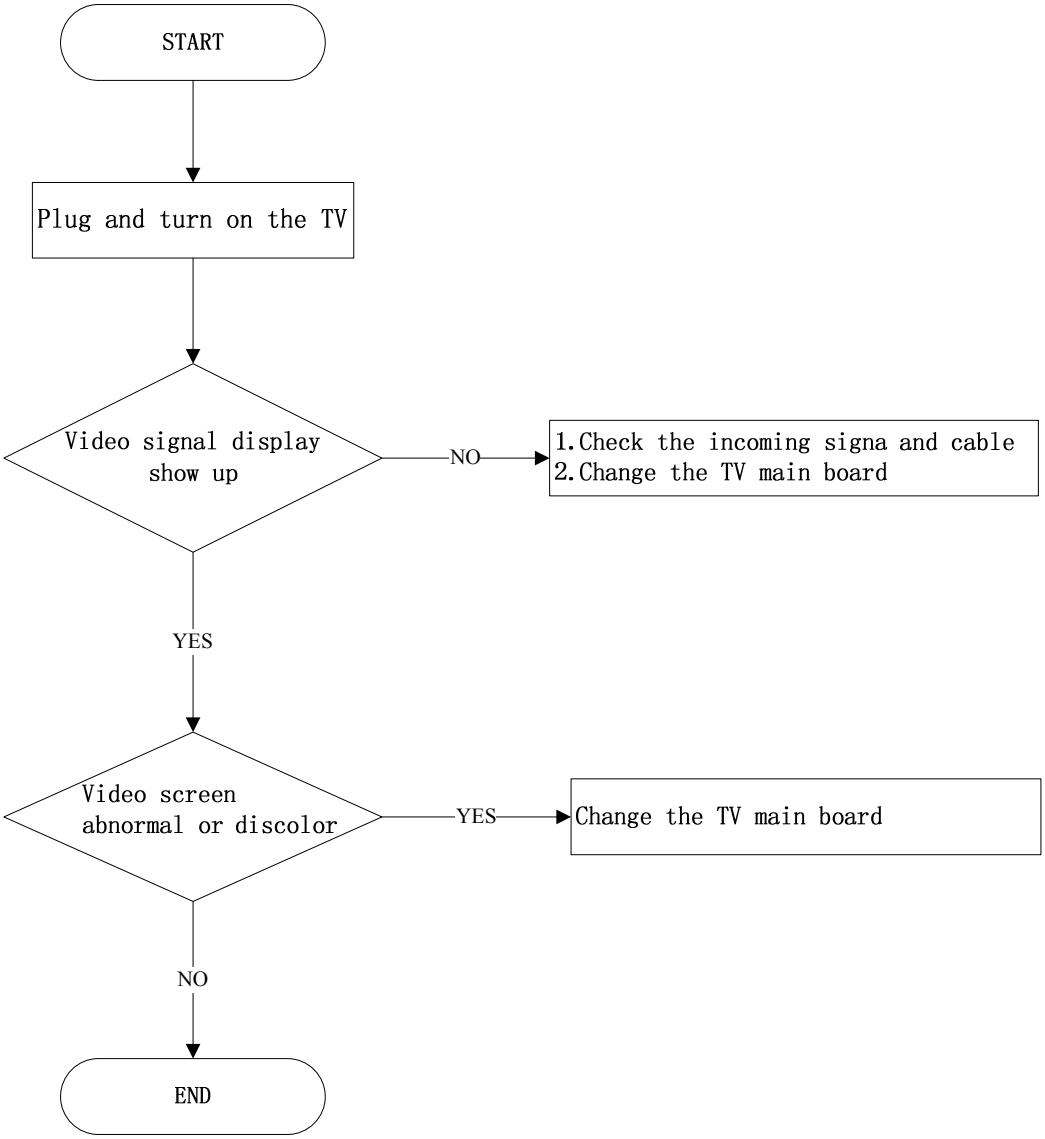
Screen Display repair flowchart



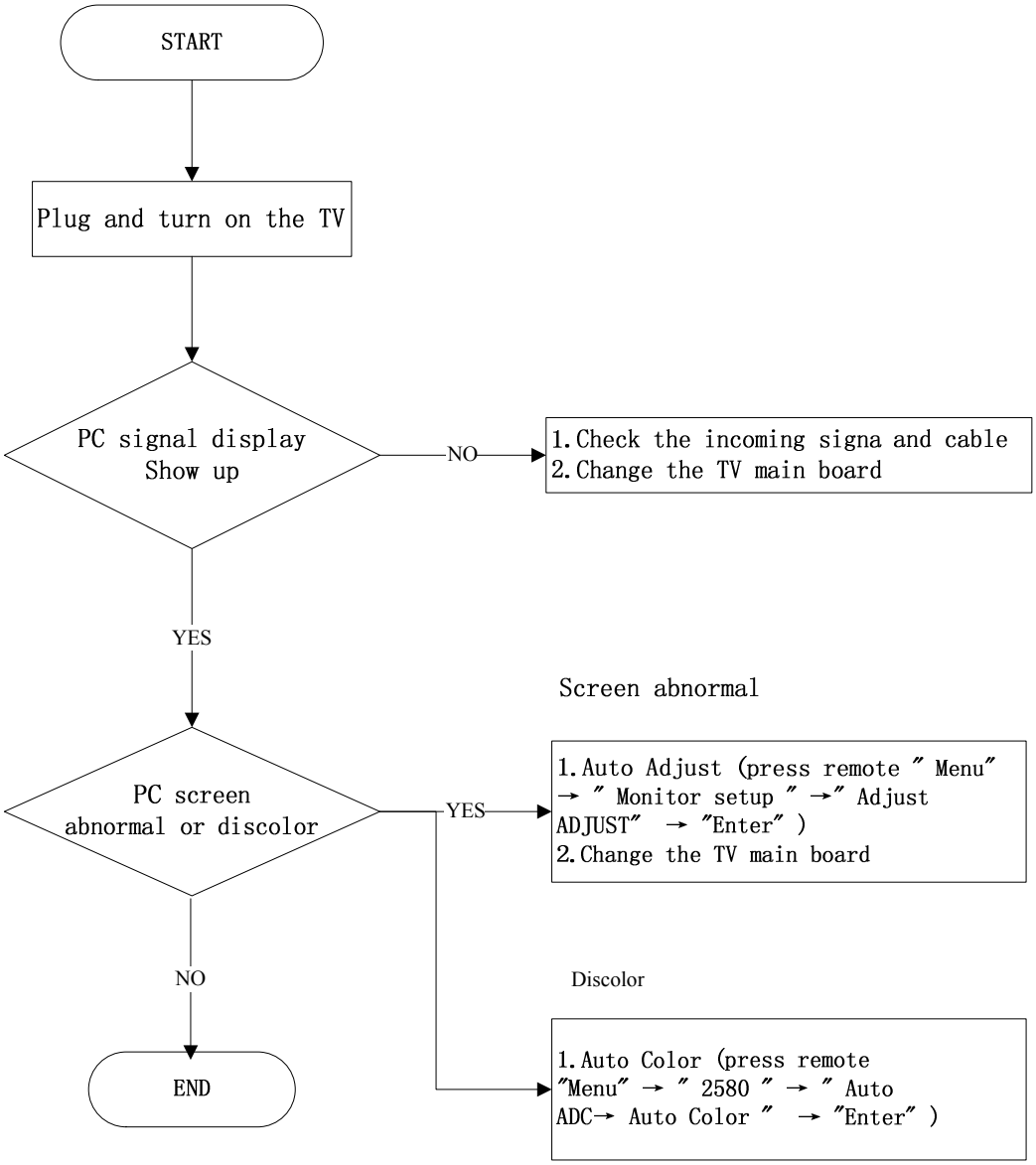
ATV&DTV mode repairflowchart



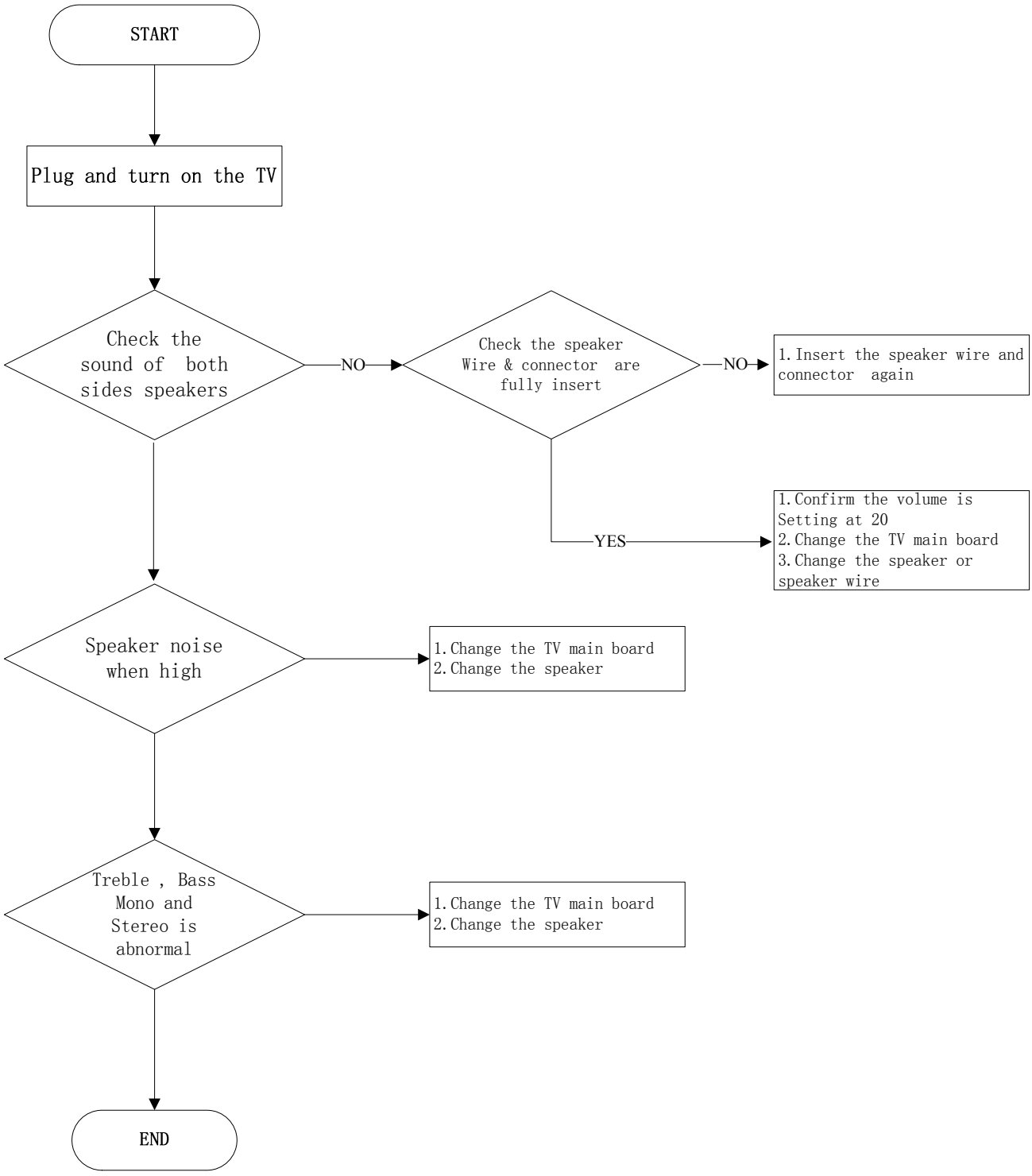
AV,and HDMI1&2 mode repair flowchart



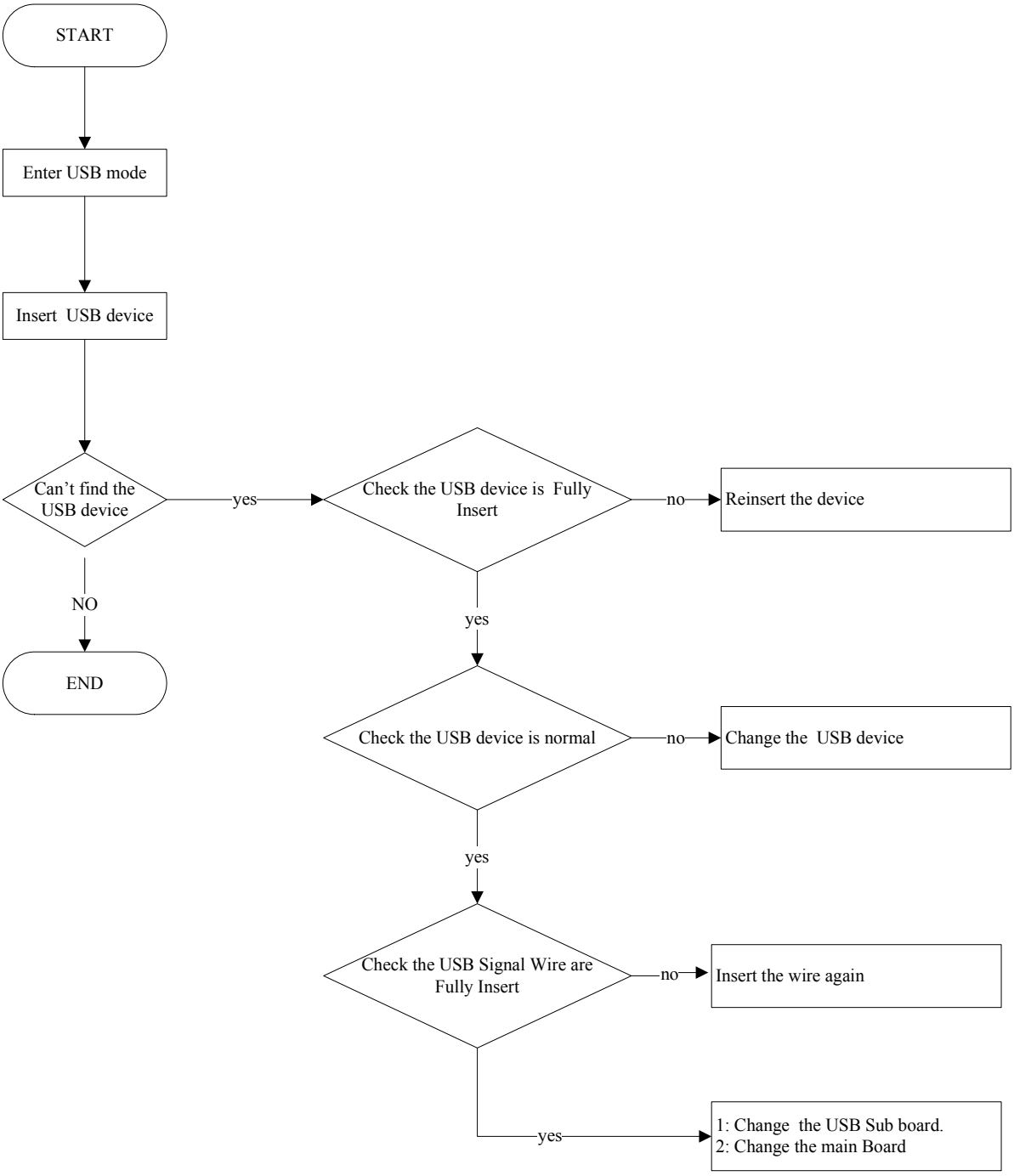
PC mode repairflowchart



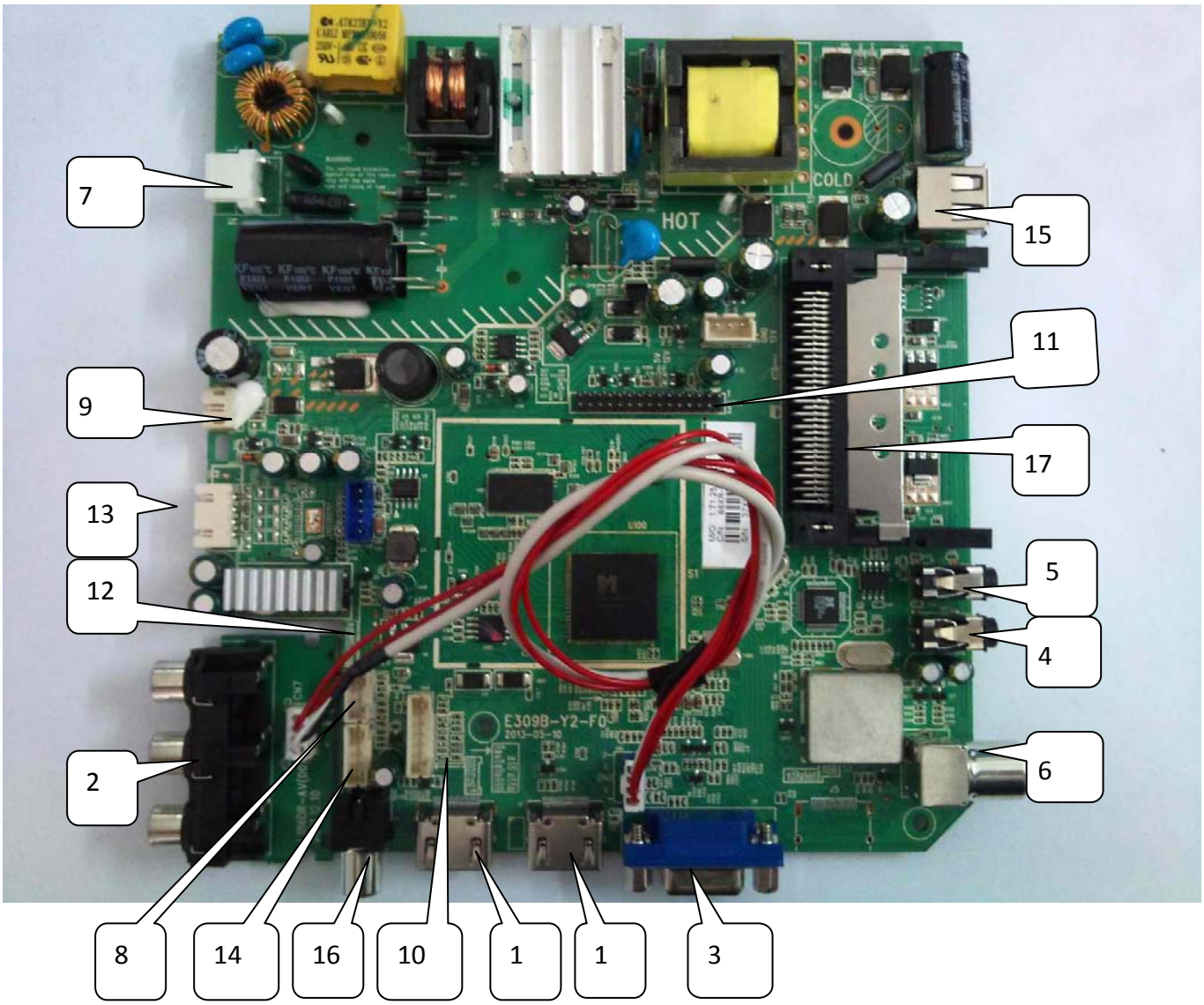
Audio repair flowchart



USB Repair Flowchart



Interface Description



NO	Ref	Description	NO	Ref	Description
1	J2, J4	HDMI Input	10	CN10	DVD Interface
2	CN6	AV Input	11	CON4	LVDS Interface
3	J18	VGA Input	12	CN2	DVD power supply jack
4	J17	PC Audio Input	13	CN12	Speaker Jack
5	J6	Headphone output	14	CN6	IR Jack
6	J11	RF Input	15	J22	USB 2.0 input
7	DP2	AC IN	16	J13	Coaxial output
8	CN104	Key Jack	17	CONN2	PCMCIA SLOT
9	CN4	LED Driver Jack			

★CN4(3PIN2.0) LED Driver Jack

NO.	Definition	Description
1	GND	GND
2	LED-	LED Driver Negative
3	LED+	LED Driver Positive

★CON12(4PIN2.54) Speaker jack

NO.	Definition	Description
1	R	Right Speaker Output
2	GND	GND
3	GND	GND
4	L	Left Speaker Output

★ CN104:(5PIN2.0) Key jack

NO.	Definition	Description
1	K1	Key 1 (ADC Input)
2	GND	GND
3	K2	Key 2 (ADC Input)
4	VCC	VCC5V

★CN10: (7PIN2.0) DVD INTERFACE

NO.	Definition	Description
1	SCK	SPI Communication Protocol SCL
2	SDA	SPI Communication Protocol SDA
3	DRIN	Right Channel of DVD Audio Input
4	STB	SPI Communication Protocol STB
5	DLIN	Left Channel of DVD Audio Input
6	CVBS	DVD Video Signal
7	GND	GND

★CN2: (5PIN2.0) DVD Power jack

NO.	Definition	Description
1	5V	DVD 5V Power Supply
2	5V	DVD 5V Power Supply
3	GND	GND
4	GND	GND
5	GND	GND

★CN6: IR&LED jack

NO.	Definition	Description
1	GND	GND
2	IR	Remote Receiver
3	LED-G	Green Indicator
4	LED-R	Red Indicator
5	5V	Power Supply

★DP2: (2PIN3.94mm) AC Power Input

NO.	Definition	Description
1	N	Internal AC220V Power Supply
2	L	Internal AC220V Power Supply

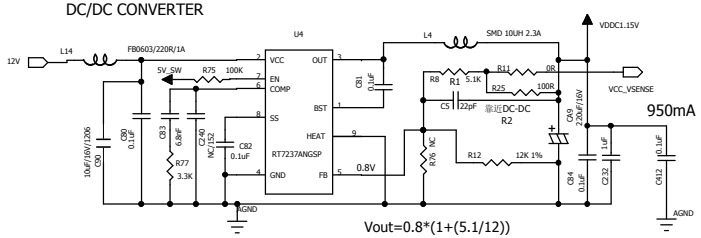
★J22: (4PIN2.0)

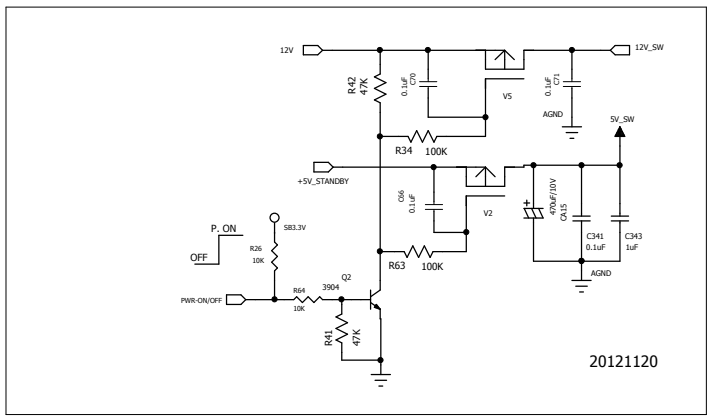
NO.	Definition	Description
1	5V	USB 5V Power Supply
2	D-	USB Negative Signal
3	D+	USB Positive Signal
4	GND	GND

★CON4: LVDS Interface

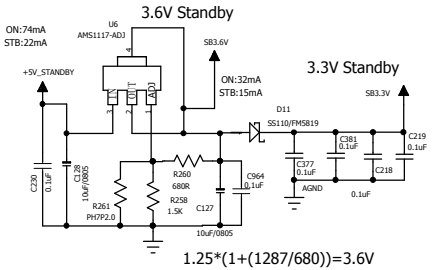
NO.	Definition	Description
1	LCD-VDD	Power for Panel
2	LCD-VDD	Power for Panel
3	LCD-VDD	Power for Panel
4	GND	GND
5	GND	GND
6	GND	GND
7	GND	GND
8	GND	GND
9	EDA3+	LVDS EVEN3+ Signal
10	EDA3-	LVDS EVEN3+ Signal
11	ECK+	LVDS EVEN Clock + Signal
12	ECK-	LVDS EVEN Clock - Signal
13	EDA2+	LVDS EVEN2 + Signal
14	EDA2-	LVDS EVEN2 - Signal
15	EDA1+	LVDS EVEN1 + Signal
16	EDA1-	LVDS EVEN1 - Signal
17	EDA0+	LVDS EVEN0 + Signal
18	EDA0-	LVDS EVEN0 - Signal
19	GND	GND
20	GND	GND
21	ODA3+	LVDS ODD3 + Signal
22	ODA3-	LVDS ODD3 + Signal
23	OCK+	LVDS ODD Clock + Signal
24	OCK-	LVDS ODD Clock - Signal
25	ODA2+	LVDS ODD2 + Signal
26	ODA2-	LVDS ODD2 - Signal
27	ODA1+	LVDS ODD1 + Signal
28	ODA1-	LVDS ODD1 - Signal
29	ODA0+	LVDS ODD0 + Signal
30	ODA0-	LVDS ODD0 - Signal

DC/DC CONVERTER

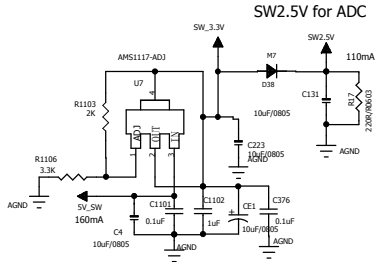




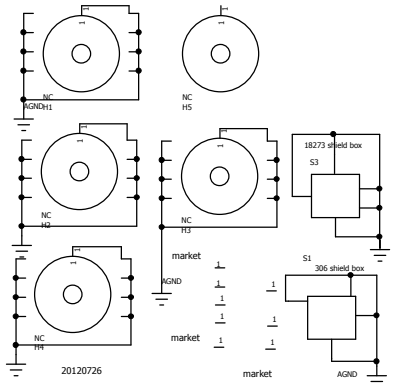
3.6V Standby



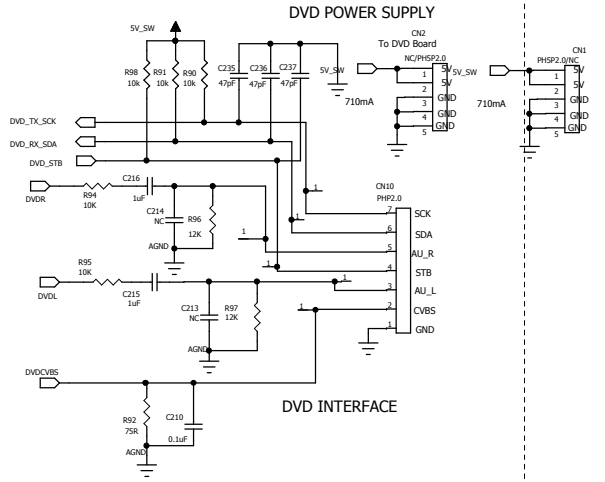
SW2.5V for ADC



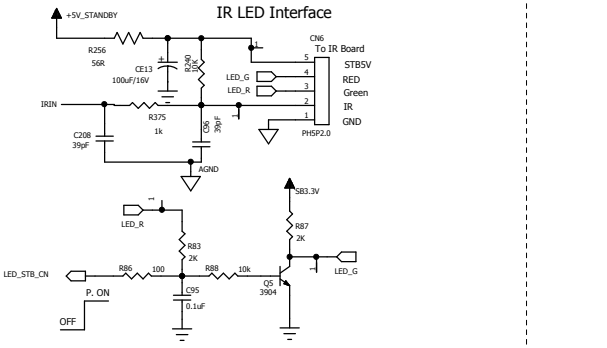
SCREW HOLE & SHIELD BOX



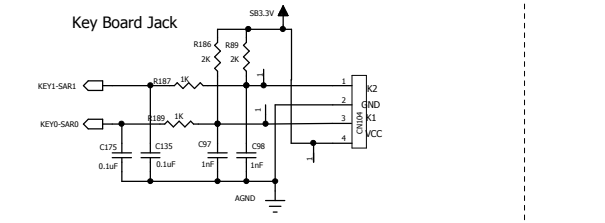
DVD POWER SUPPLY



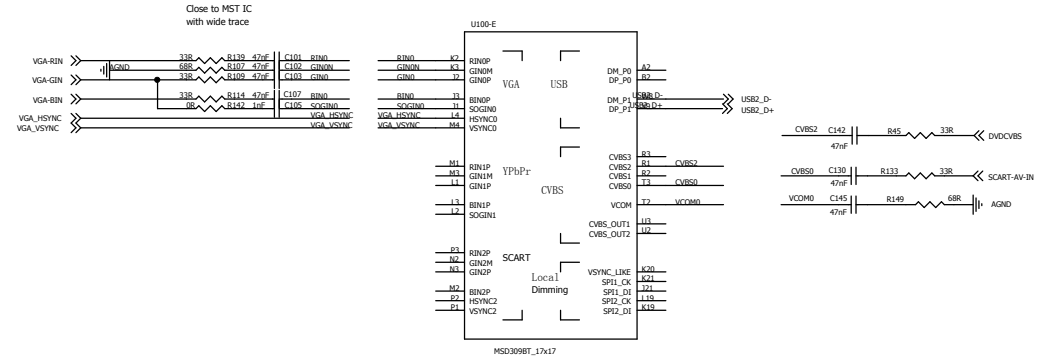
IR LED Interface



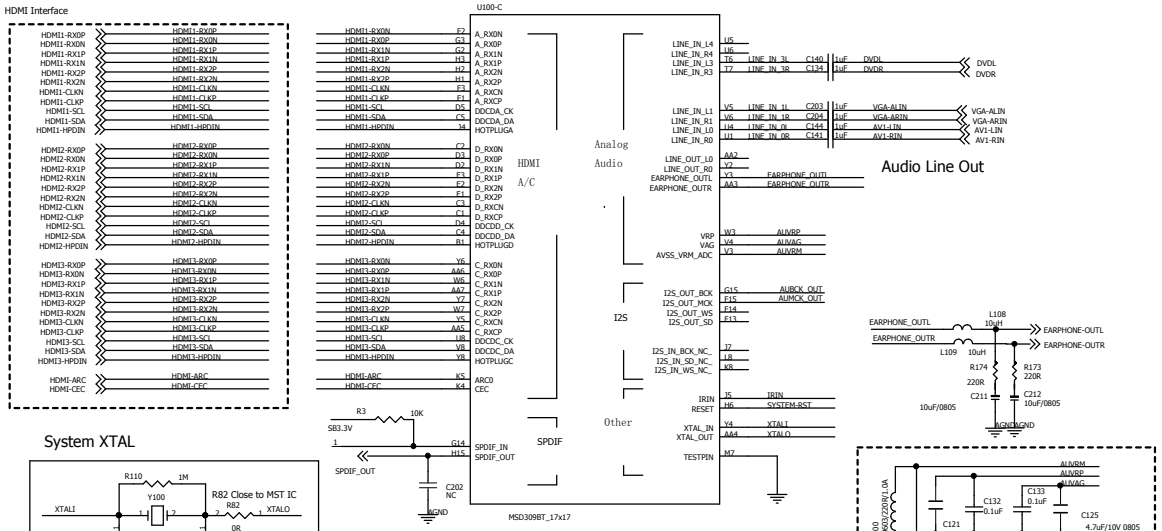
Key Board Jack



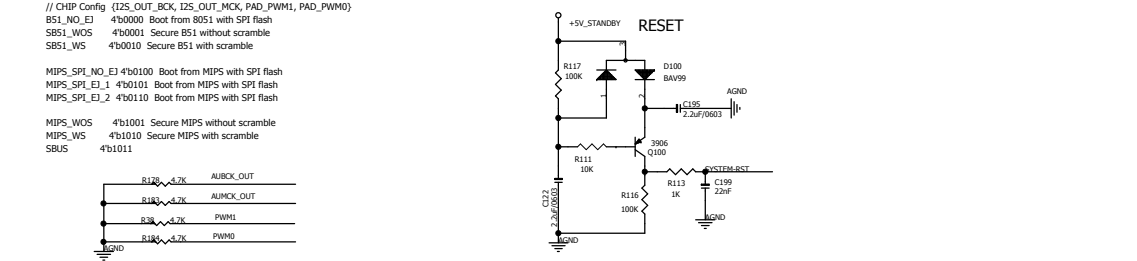
RGB & CVBS & USB



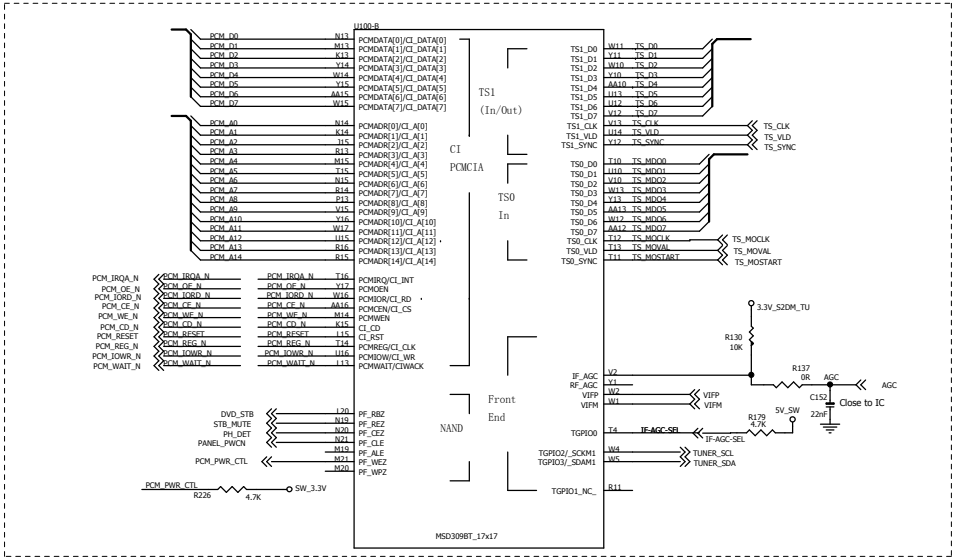
HDMI & Audio



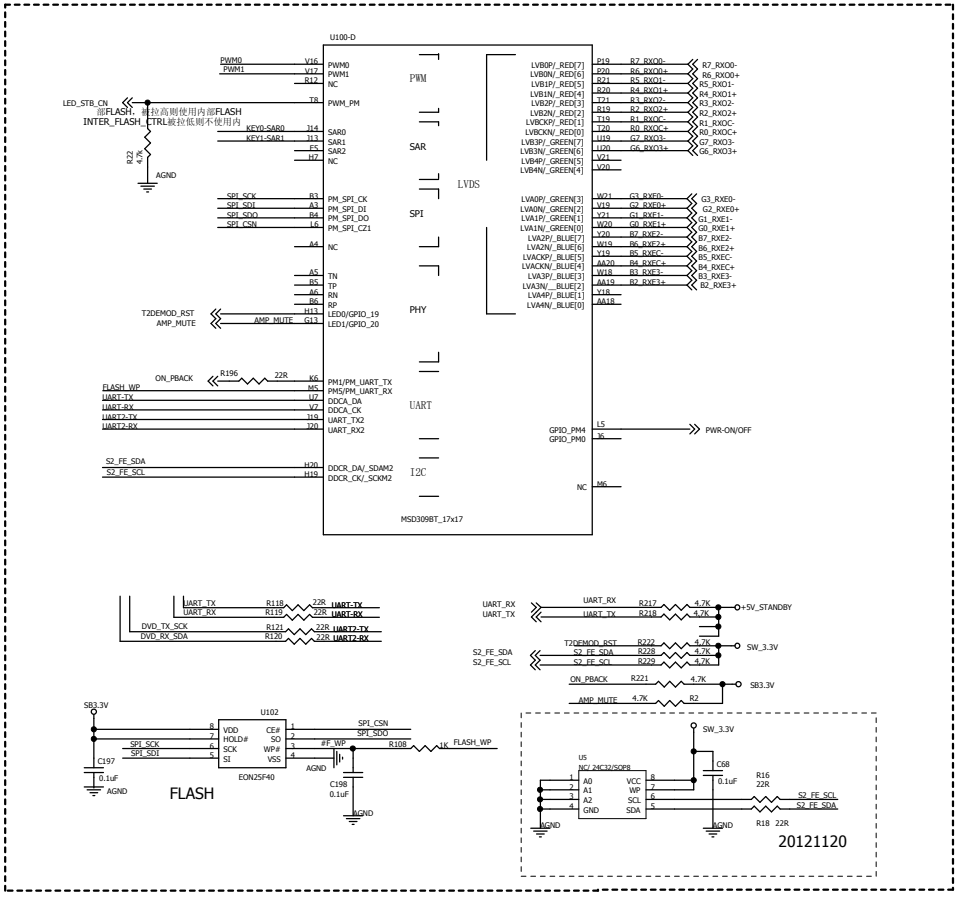
Mode Selection



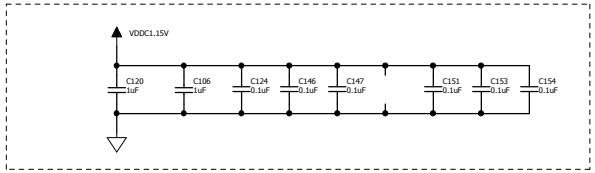
CI & TS & Front End



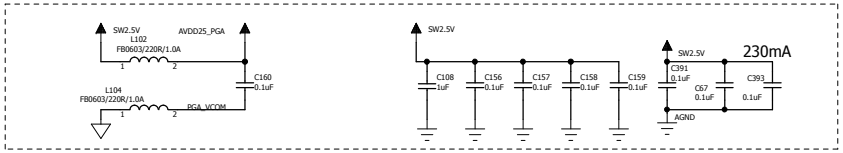
GPIO & LVDS

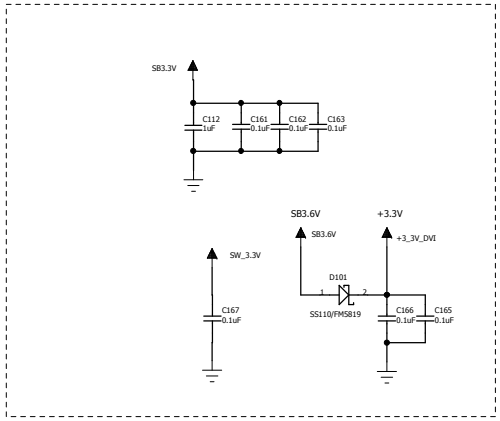


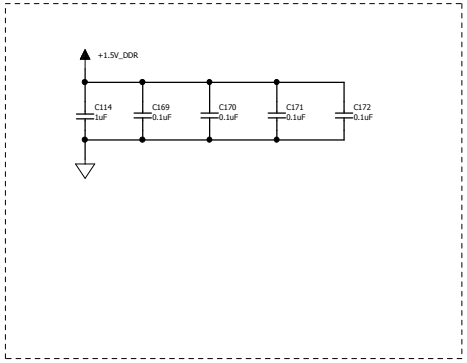
MSD39BT Power interface

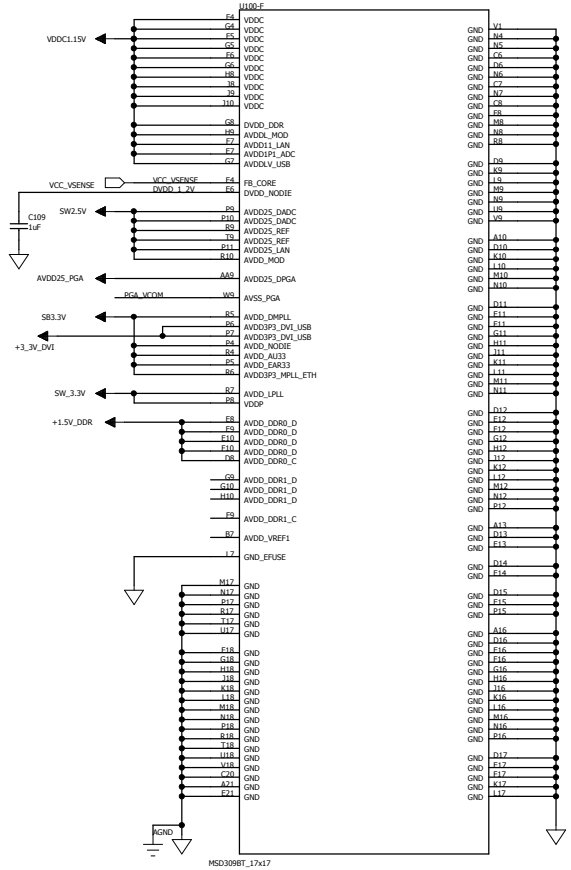


2.5V

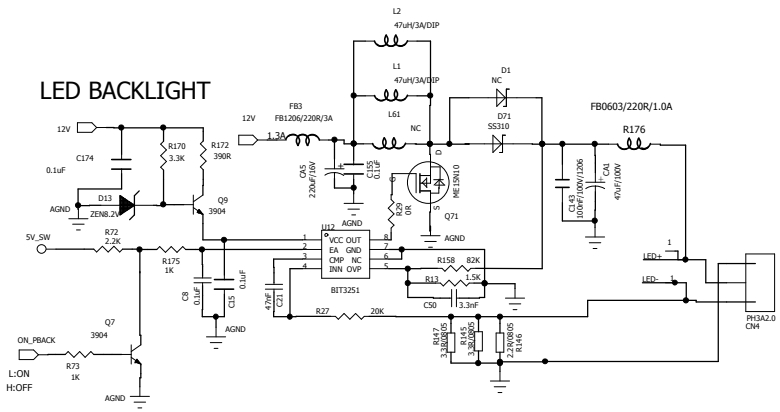


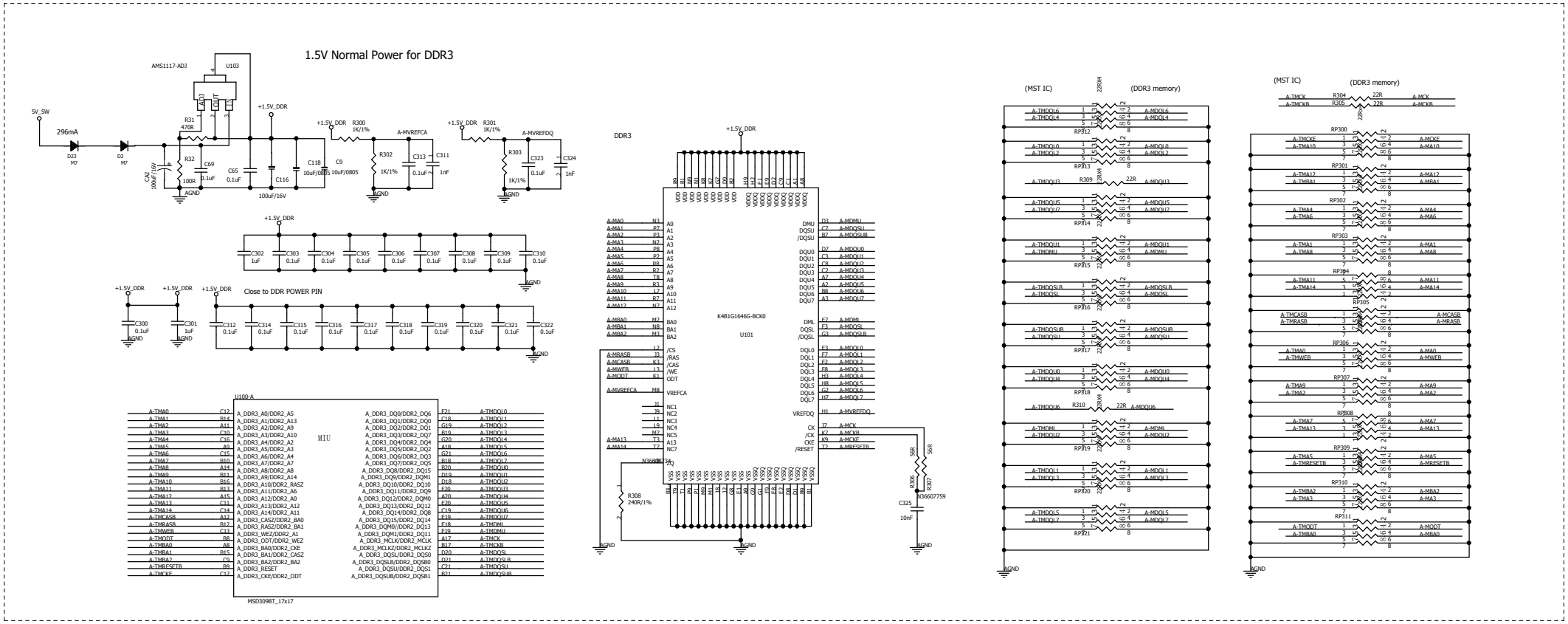


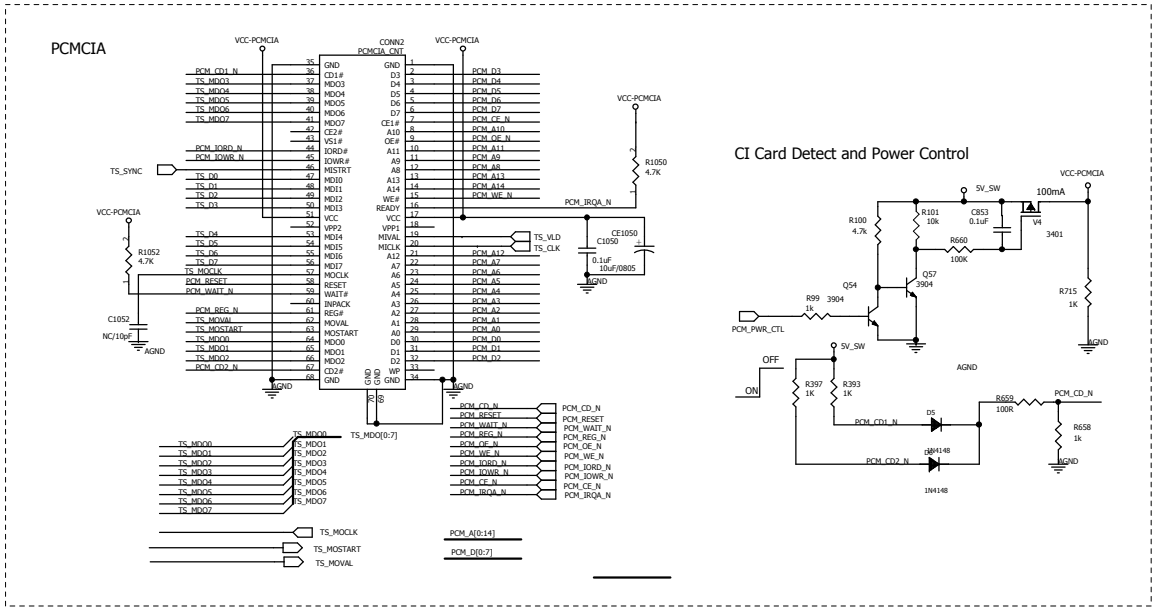


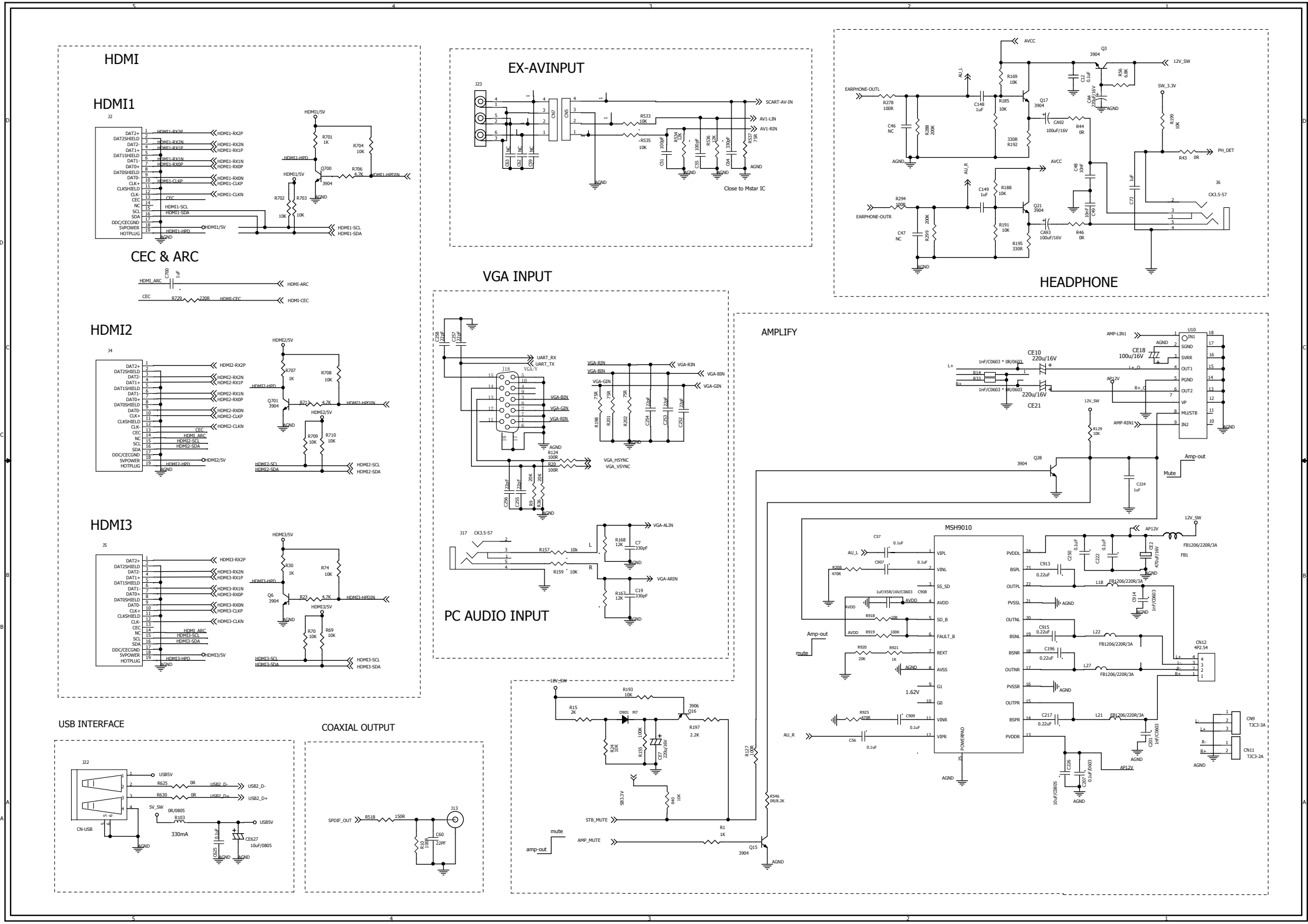


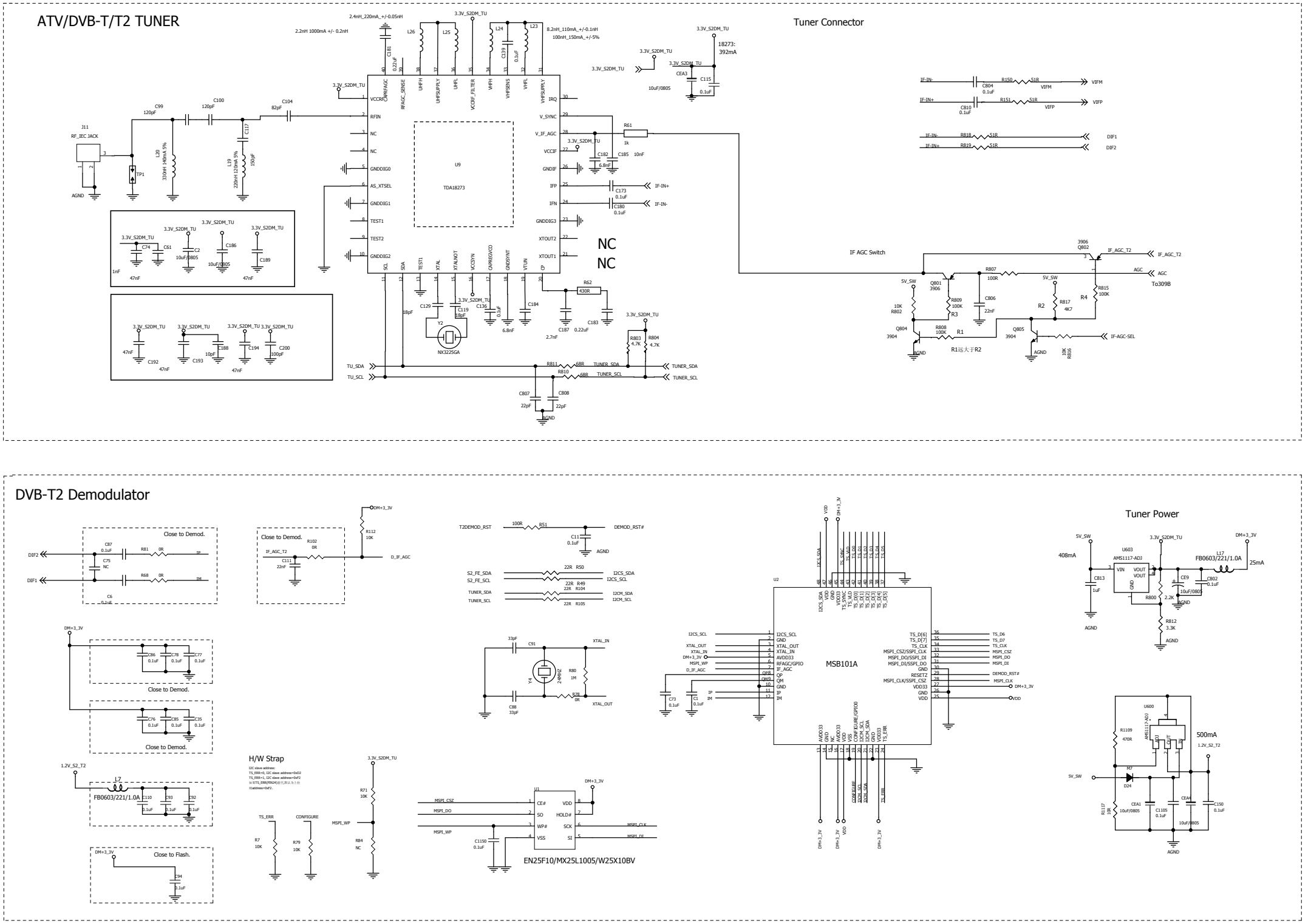
LED BACKLIGHT

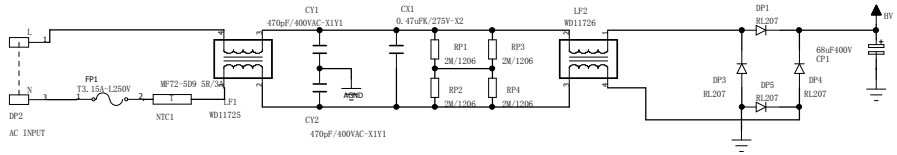


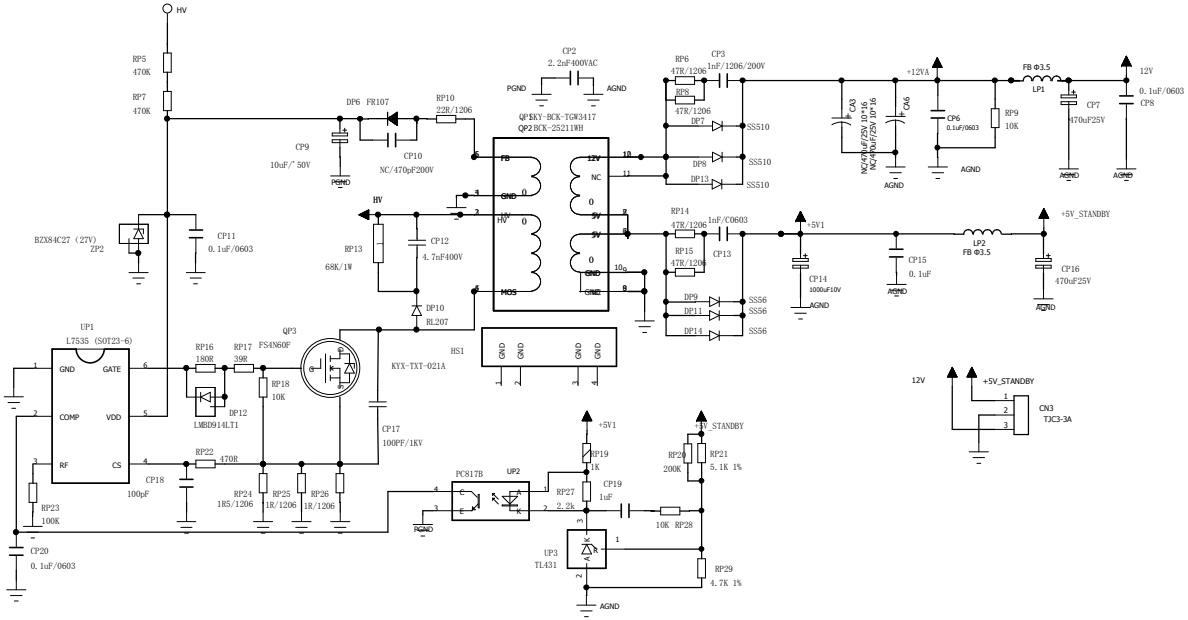

1.5V Normal Power for DDR3
AMS1117-ADJ
U103
5V_SW
296mA
+1.5V_DDR
R31 470R
R32 100R
C69 0.1uF
C65 0.1uF
C116 100uF/16V
C118 10uF/0805
C9 10uF/0805
R300 1K/1%
R302 1K/1%
C313 0.1uF
C311 1nF
A-MVREFCA
R301 1K/1%
R303 1K/1%
C323 0.1uF
C324 1nF
A-MVREFDQ
AGND
C302 1uF
C303 0.1uF
C304 0.1uF
C305 0.1uF
C306 0.1uF
C307 0.1uF
C308 0.1uF
C309 0.1uF
C310 0.1uF
Close to DDR POWER PIN
C300 0.1uF
C301 1uF
C312 0.1uF
C314 0.1uF
C315 0.1uF
C316 0.1uF
C317 0.1uF
C318 0.1uF
C319 0.1uF
C320 0.1uF
C321 0.1uF
C322 0.1uF
U100-A
MIU
MSD3098T_17x17
DDR3
K4B1G1646G-BCK0
U101
R308 240R/1%
N36607834
R306 56R
R307 56R
C325 10nF
N36607759
(MST IC)
(DDR3 memory)
228X4
22R
RP312
RP313
RP314
RP315
RP316
RP317
RP318
RP319
RP320
RP321
RP300
RP301
RP302
RP303
RP304
RP305
RP306
RP307
RP308
RP309
RP310
RP311


PCMCIA
VCC-PCMCIA
CONN2
PCMCIA_CNT
R1050 4.7K
R1052 4.7K
C1052 NC/10pF
CE1050 C1050 0.1uF 10uF/0805
TS_SYNC
TS_VLD
TS_CLK
PCM_IRQA_N
TS_MOCLK
TS_MOSTART
TS_MOVAL
TS_MDO[0:7]
PCM_A[0:14]
PCM_D[0:7]
CI Card Detect and Power Control
100mA
R100 4.7k
R101 10k
C853 0.1uF
R660 100K
V4 3401
Q54 3904
Q57 3904
R99 1k
PCM_PWR_CTL
R715 1K
OFF
ON
R397 1K
R393 1K
R659 100R
R658 1k
D5 1N4148
PCM_CD1_N
PCM_CD2_N
PANEL POWER SUPPLY
CMO185:420mA
+5V_STANDBY
12V
FB4
FB2
0R
PANELVCC
C79 0.1uF
V3 3401
SB3.3V
R384 4.7K
R67 100K
R336 10K
R35 10K
C3 0.1uF
Q11 3904
PANEL_PWCN
R66 1K
Q1 3904
R21 10K
L:ON
H:OFF
C465 220uF/16V
LVDS Connector
CON4
DIP-30
2X15
C453 0.1uF
Power decouple


HDMI
HDMI1
CEC & ARC
HDMI2
HDMI3
USB INTERFACE
COAXIAL OUTPUT
EX-AVINPUT
Close to Mstar IC
VGA INPUT
PC AUDIO INPUT
HEADPHONE
AMPLIFY
MSH9010


ATV/DVB-T/T2 TUNER
Tuner Connector
U9
TDA18273
NC
NC
IF AGC Switch
To309B
DVB-T2 Demodulator
Close to Demod.
Close to Flash.
H/W Strap
MSB101A
EN25F10/MX25L1005/W25X10BV
Tuner Power
FB0603/221/1.0A
AMS1117-ADJ
500mA
408mA
25mA





FORESEE TECHNOLOGY

Title	DDR & PCMCIA & HDMI & USB	
Size: A	Document Number	Rev: 1.0
Date: 2009/11/25	Sheet 1 of 6	