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# PLASMA TV

# SERVICE MANUAL

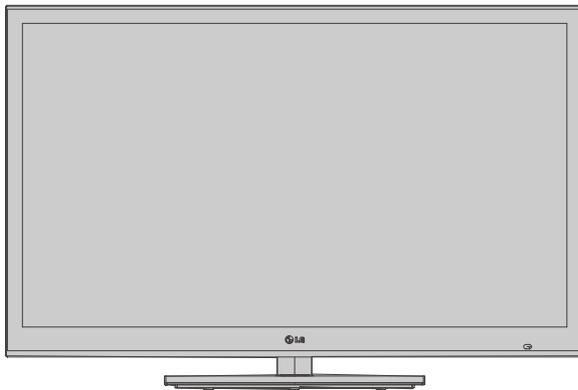
CHASSIS : PD12A

**MODEL : 60PZ950**

**60PZ950-ZA**

## CAUTION

BEFORE SERVICING THE CHASSIS,  
READ THE SAFETY PRECAUTIONS IN THIS MANUAL.



P/NO : MFL66982504(1103-REV00)

Printed in Korea

# CONTENTS

<b>CONTENTS .....</b>	<b>2</b>
<b>SAFETY PRECAUTIONS .....</b>	<b>3</b>
<b>SPECIFICATION .....</b>	<b>4</b>
<b>ADJUSTMENT INSTRUCTION .....</b>	<b>6</b>
<b>BLOCK DIAGRAM .....</b>	<b>11</b>
<b>EXPLODED VIEW .....</b>	<b>12</b>
<b>SCHEMATIC CIRCUIT DIAGRAM .....</b>	

# SAFETY PRECAUTIONS

## IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by  $\triangle$  in the Schematic Diagram and Exploded View.

It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent X-RADIATION, Shock, Fire, or other Hazards.

Do not modify the original design without permission of manufacturer.

### General Guidance

An **isolation Transformer should always be used** during the servicing of a receiver whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks.

It will also protect the receiver and its components from being damaged by accidental shorts of the circuitry that may be inadvertently introduced during the service operation.

If any fuse (or Fusible Resistor) in this monitor is blown, replace it with the specified.

When replacing a high wattage resistor (Oxide Metal Film Resistor, over 1W), keep the resistor 10mm away from PCB.

Keep wires away from high voltage or high temperature parts.

Due to high vacuum and large surface area of picture tube, extreme care should be used in **handling the Picture Tube**. Do not lift the Picture tube by its Neck.

### Leakage Current Cold Check(Antenna Cold Check)

With the instrument AC plug removed from AC source, connect an electrical jumper across the two AC plug prongs. Place the AC switch in the on position, connect one lead of ohm-meter to the AC plug prongs tied together and touch other ohm-meter lead in turn to each exposed metallic parts such as antenna terminals, phone jacks, etc.

If the exposed metallic part has a return path to the chassis, the measured resistance should be between  $1M\Omega$  and  $5.2M\Omega$ .

When the exposed metal has no return path to the chassis the reading must be infinite.

An other abnormality exists that must be corrected before the receiver is returned to the customer.

### Leakage Current Hot Check (See below Figure)

Plug the AC cord directly into the AC outlet.

**Do not use a line Isolation Transformer during this check.**

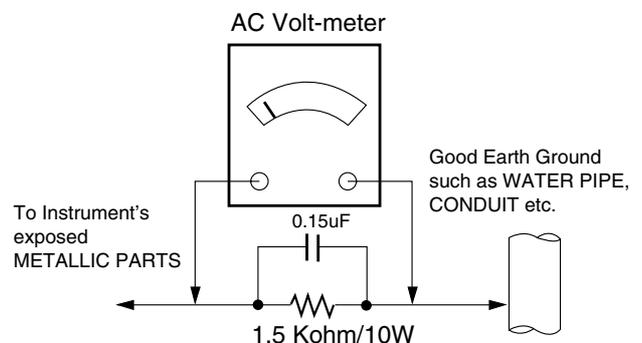
Connect 1.5K/10watt resistor in parallel with a 0.15uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.

Measure the AC voltage across the resistor using AC voltmeter with 1000 ohms/volt or more sensitivity.

Reverse plug the AC cord into the AC outlet and repeat AC voltage measurements for each exposed metallic part. Any voltage measured must not exceed 0.75 volt RMS which is corresponds to 0.5mA.

In case any measurement is out of the limits specified, there is possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

### Leakage Current Hot Check circuit



# SPECIFICATIONS

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

## ■ Application Range

This spec is applied to PDP TV used PD12A Chassis.

Model Name	Market Place	Brand
60PZ950-ZA	Albania, Austria, Belgium, Bosnia, Bulgaria, Coratia, Czech, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Kazakhstan, Latvia, Lithuania, Luxembourg, Morocco, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, UK	LG

## ■ Specification

Each part is tested as below without special appointment.

- (1) Temperature : 25 °C ± 5 °C (77 °F ± 9 °F), CST : 40 ± 5
- (2) Relative Humidity: 65 % ± 10 %
- (3) Power Voltage: Standard Input voltage (100 V - 240 V ~, 50 / 60 Hz)  
\* Standard Voltage of each product is marked by models.
- (4) Specification and performance of each parts are followed each drawing and specification by part number in accordance with SBOM.
- (5) The receiver must be operated for about 20 minutes prior to the adjustment.

## ■ Test Method

- (1) Performance : LGE TV test method followed.
- (2) Demanded other specification  
Safety : CE, IEC specification  
EMC : CE, IEC

Model Name	Market	Remark
60PZ950-ZA	Albania, Austria, Belgium, Bosnia, Bulgaria, Coratia, Czech, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Kazakhstan, Latvia, Lithuania, Luxembourg, Morocco, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, UK	Safety : IEC/ EN60065, EMI : EN55013 EMS : EN55020

## ■ Module Specification

- (1) 60" - 3D FHD

No	Item	Specification	Remark
1	Display Screen Device	152 cm (60 inch) wide Color Display Module	PDP
2	Aspect Ratio	16:9	
3	PDP Module	PDP60R3####, RGB Closed (Well) Type, Glass Filter (43%) Pixel Format: 1920 horiz. By 1080 ver.	
4	Operating Environment	1) Temp. : 0 deg ~ 40 deg 2) Humidity : 20 % ~ 80%	LGE SPEC
5	Storage Environment	3) Temp. : -20 deg ~ 60 deg 4) Humidity : 10 % ~ 90 %	
6	Input Voltage	AC 100 V ~ 240 V, 50 / 60 Hz	Maker LG

## ■ Model General Specification

No	Item	Specification	Remarks
1	Market	Albania, Austria, Belgium, Bosnia, Bulgaria, Coratia, Czech, Denmark, Estonia, Finland, , France, Germany, Greece, Hungary, Ireland, Italy, Kazakhstan, Latvia, Lithuania, Luxembourg, Morocco, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovenia, Spain, Sweden, Slovakia, Switzerland, Turkey, Ukraine, UK	36 Country
2	Broadcasting system	1) PAL/SECAM BG 2) PAL/SECAM DK 3) PAL / 4) SECAM L/L' 5) DVB T / T2 6) DVB C 7) DVB S	EU (PAL Market)  Supporting T2 is only for **PZ***T./W  Supporting S is only for **PZ***S/G
3	Receiving system	Analog : Upper Heterodyne Digital : COFDM	<p>▶ DVB-T</p> <ul style="list-style-type: none"> <li>- Guard Interval(Bitrate_Mbit/s)</li> <li>- Guard Interval(Bitrate_Mbit/s) 1/4, 1/8, 1/16, 1/32</li> <li>- Modulation : Code Rate QPSK : 1/2, 2/3, 3/4, 5/6, 7/8 16-QAM : 1/2, 2/3, 3/4, 5/6, 7/8 64-QAM : 1/2, 2/3, 3/4, 5/6, 7/8</li> </ul> <p>▶ DVB-C</p> <ul style="list-style-type: none"> <li>- Symbolrate : 4.0Msymbols/s to 7.2Msymbols/s</li> <li>- Modulation : 16QAM, 64-QAM, 128-QAM and 256- QAM</li> </ul> <p>▶ DVB-S</p> <ul style="list-style-type: none"> <li>- symbolrate DVB-S2 (8PSK / QPSK) : 2 ~45Msymbol/s DVB-S (QPSK) : 2 ~ 45Msymbol/s</li> <li>- viterbi DVB-S mode : 1/2, 2/3, 3/4, 5/6, 7/8 DVB-S2 mode : 1/2, 2/3, 3/4, 3/5, 4/5, 5/6, 8/9, 9/10</li> </ul>
4	Scart Jack (1EA)	PAL, SECAM	Scart 1 Jack is Full scart and support RF-OUT(Analog), MNT-OUT
5	Video Input (1EA)	PAL, SECAM, NTSC	Side AV
6	Component Input (1EA)	Y/Cb/Cr, Y/ Pb/Pr	
7	RGB Input	RGB-PC	Analog (D-Sub 15Pin)
8	HDMI Input (4EA)	HDMI-PC	HDMI/DTV, HDMI2, HDMI3, HDMI4 HDMI-DTV
9	Audio Input (3 EA)	RGB/DVI Audio, Component, AV	L/R Input
10	SPDIF Out(1 EA)	SPDIF Out	
11	USB(2EA)	For SVC, S/W Download, X-Studio, DivX	
12	Ethernet LAN		

# ADJUSTMENT INSTRUCTION

## 1. Application Range

This spec sheet is applied to all of the PD12A chassis.

## 2. Specification

- (1) Because this is not a hot chassis, it is not necessary to use an isolation transformer. However, the use of isolation transformer will help protect test instrument.
- (2) Adjustment must be done in the correct order.
- (3) The adjustment must be performed in the circumstance of 25 °C ± 5 °C of temperature and 65 % ± 10 % of relative humidity if there is no specific designation.
- (4) The input voltage of the receiver must keep 100 V ~ 240 V, 50 / 60 Hz.
- (5) The receiver must be operated for about 5 minutes prior to the adjustment when module is in the circumstance of over 15 °C
  - In case of keeping module is in the circumstance of 0 °C, it should be placed in the circumstance of above 15 °C for 2 hours
  - In case of keeping module is in the circumstance of below -20 °C, it should be placed in the circumstance of above 15 °C for 3 hours,.

- After RGB Full White in HEAT-RUN Mode, the receiver must be operated prior to the adjustment.
- Enter into HEAT-RUN MODE
  - 1) Press the POWER ON KEY on R/C for adjustment.
  - 2) OSD display and screen display PATTERN MODE.
    - Set is activated HEAT run without signal generator in this mode.
    - Single color pattern ( WHITE ) of HEAT RUN MODE uses to check panel.
    - Caution : If you turn on a still screen more than 20 minutes (Especially digital pattern, cross hatch pattern), an after image may be occur in the black level part of the screen.

## 3. PCB assembly adjustment method

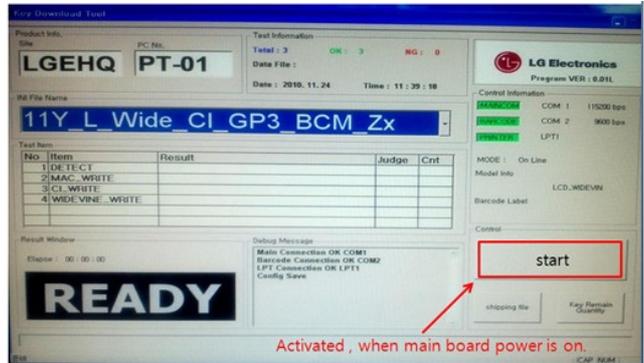
Caution: Using 'power on' button of the control R/C power on TV.

### 3-1. Download MAC Address, CI+ Key and widevine Key.

\* Connect TV SET and PC which download keys Writing program by RS232C-Cable

- (1) Start Program and Click 'start' Button to connect TV and PC.
- (2) When download succeed, you can see "OK" on the screen.

\* Each Chassis has it' own MAC Address. Please be careful of download.



### 3-2. ADC Adjustment

- Auto-control adjustment protocol(RS-232C)

Order	Command	Set response
1. Inter the Adjustment mode	aa 00 00	a 00 OK00x
2. Change the Source	XB 00 40 XB 00 60	b 00 OK40x (Adjust 480i Comp1 ) (Adjust 1080p Comp1) b 00 OK60x (Adjust 1080p RGB)
3. Start Adjustment	ad 00 10	
4. Return the Response		OKx ( Success condition ) NGx ( Failed condition )
5. Read data Adjustment data	( main ) ad 00 20 ( main ) ad 00 30	(main : component1 480i, RGB 1080p) 00000000000000000000000000000007c007b006dx (main : component1 480i, RGB 1080p) 00000007000000000000000000000007c00830077x
6. Confirm Adjustment	ad 00 99	NG 03 00x (Failed condition) NG 03 01x (Failed condition) NG 03 02x (Failed condition) OK 03 03x (Success condition)
7. End of Adjustment	ad 00 90	d 00 OK90x

#### (1) Adjustment of RGB

- 1) Convert to PC in Input-source.
- 2) Signal equipment displays
  - Output Voltage: 700 mVp-p
  - Impress Resolution FHD (1920 x 1080 @ 60Hz)
  - Model : 225 in Pattern Generator
  - Pattern : 65 in Pattern Generator (MSPG-925 SERISE)



- 3) Adjust by commanding AUTO\_COLOR\_ADJUST

(2) COMPONENT input ADC

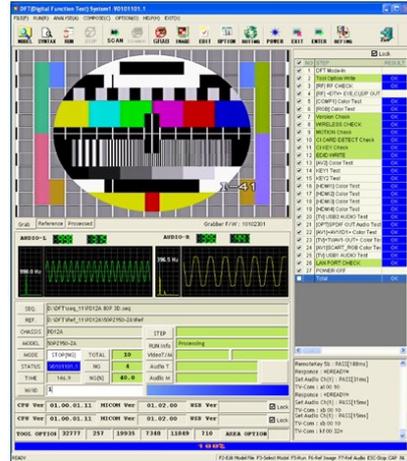
- Convert to Component in Input-source.
- Signal equipment displays

Impress Resolution 480i

MODEL: 209 in Pattern Generator(480i Mode)  
 PATTERN : 65 in Pattern Generator  
 (MSPG-925 SERISE)

Impress Resolution 1080i

MODEL: 225 in Pattern Generator(1080P Mode)  
 PATTERN: 65 in Pattern Generator  
 (MSPG-925 SERISE)



3-3. DFT Process.

\* Depend on situation, Step can be changed.

No	STEP
1	DFT Mode-In
2	Tool Option Write
3	AREA Option Write
4	[RF]RF CHECK
5	[RF]<DTV>EYE
6	[COMP1]Color Test
7	[RGB]Color Test
8	Version Check
9	Wireless Check
10	Motion Check
11	CI Card detect Check
12	CI Key Check
13	EDID Write
14	[AV2]Color Test
15	KEY1 Test
16	KEY2 Test
17	[HDMI1]Color Test
18	[HDMI2]Color Test
19	[HDMI3]Color Test
20	[HDMI4]Color Test
21	[TV]USB2 Audio Test
22	SPDIF OUT Audio Test
23	[AV1]Color Test
24	[TV]<AV1-OUT>Color Test
25	[AV1]Scart_RGB Color Test
26	[TV]USB1 Audio Test
27	LAN Port Check
28	3D Check

3-4. Insert Tool OPTION and Model Name download.

- (1) Press IN\_START key on R/C to insert Tool OPTION
- (2) On the " Tool Option ", Insert Tool Option by a number key
- (3) Press the ENTER(■)
- (4) Press ENTER(■) again.
- (5) Select "OK to Download" by using ◀▶(VOL +/-) and press ▶(VOL +)

Model Name		PZ950	PZ750	PZ570
Tool Option 1	50 INCH	32777	32793	32809
	60 INCH	32781	32797	32813
Tool Option 2	50 INCH	65	130	195
	60 INCH	65	130	195
Tool option 3		19807	19807	19743
Tool option 4		7348	7348	7348
Tool option 5		14921	14921	14920
Tool option 6		857	857	857

3-5. EDID(The Extended Display Identification Data) download

- (1) Press the ADJ KEY on R/C and enter EZ ADJUST.
- (2) Select "5.EDID D/L" by using ▲/▼(CH +/-) and press ENTER(■).
- (3) Select "Start" and press navigation key(▶).
- (4) EDID download is executed automatically.
- (5) Press EXIT key on R/C

\* Caution  
 - Never connect HDMI & D-sub Cable when the user download EDID .

\* EDID DATA

(1) RGB

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	00	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01	01
10	01	15	01	03	68	10	09	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	01	01	81	C0	81	00	81	80	95	00
30	90	40	A9	C0	B3	00	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	A0	5A	00	00	00	1E	66	21	50	B0	51	00	1B	30
50	40	70	36	00	A0	5A	00	00	00	1E	00	00	00	FD	00	3A
60	3E	1E	53	10	00	0A	20	20	20	20	20	20	00	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	00	47

Model Name

(2) HDMI

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	00	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01	01
10	01	15	01	03	80	10	09	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	01	01	81	C0	81	00	81	80	95	00
30	90	40	A9	C0	B3	00	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	A0	5A	00	00	00	1E	66	21	50	B0	51	00	1B	30
50	40	70	36	00	A0	5A	00	00	00	1E	00	00	00	FD	00	39
60	3F	1F	52	10	00	0A	20	20	20	20	20	00	00	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	7F
00	02	03	38	F1	4F	02	03	11	12	13	84	15	16	05	14	10
10	1F	22	00	01	26	15	07	50	09	57	07	78	03	0C	00	10
20	00	88	2D	20	C0	0E	01	40	3F	30	D8	10	98	10	88	10
30	48	10	58	10	E3	05	03	01	1A	36	80	A0	70	38	1F	40
40	30	20	35	00	40	84	53	00	00	1A	01	10	80	18	71	1C
50	16	20	58	2C	25	00	40	84	63	00	00	9E	01	1D	00	72
60	51	00	1E	20	5E	23	55	00	40	84	63	00	00	1E	00	00
70	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	E4

Model Name

3-6. Confirmation

- (1) Press 'InStart' Key on Factory SVC Remote Controller. And MUST check ADC & EDID ADJ status is OK.

4. SET assembly adjustment method

\* Caution : Each PCB assembly must be checked by check JIG set. (Because power PCB Assembly damages to PDP Module, especially be careful)

4-1. POWER PCB Assembly Voltage adjustment (Va/Vs Voltage Adjustment)

Test equipment : D.M.M 1EA  
 Connection Diagram for Measuring : refer to fig.4  
 Adjustment method

- (1) Va adjustment
  - 1) Connect + terminal of D. M.M. to Va pin of P811, connect -terminal to GND pin of P811.
  - 2) After turning VR901, voltage of D.M.M adjustment as same as Va voltage which on label of panel right/top (deviation; ±0.5V)
- (2) Vs adjustment
  - 1) Connect + terminal of D. M..M. to Vs pin of P811, connect -terminal to GND pin of P811.
  - 2) After turning VR951, voltage of D.M.M adjustment as same as Vs voltage which on label of panel right/top ( deviation ; ±0.5V)

4-2. Download Serial number (RS-232C)

- Press "Power on" key of service R/C. (Baud rate : 115200 bps)
- Connect RS232 Signal Cable to RS-232 Jack.
- Write Serial number by use RS-232.
- Must check the serial number at the Diagnostics of SET UP menu. (Refer to below '6.SET INFORMATION').

4-3. Adjustment of White Balance

Required Equipment

- Remote controller for adjustment
- Color Analyzer ( CS-1000, CA-100,100+,CA-210 or same produc: CH 10 (PDP)
  - \* Please adjust CA-210, CA-100+ by CS-1000 before measuring
- Auto W/B adjustment instrument(only for Auto adjustment)
- 9 Pin D-Sub Jack(RS232C) is connected to the AUTO W/B EQUIPMENT.

Before Adjust of White Balance, Please press POWER ONLY key

Adjust Process will start by execute RS232C Command.

- Color temperature standards according to CSM and Module

CSM	PLASMA
Cool	11000K
Medium	9300K
Warm	6500K

- CS-1000/CA-100+/CA-210(CH 10) White balance adjustment coordinates and color temperature.

CSM	Color Coordinate		Temp	±Color Coordinate
	x	y		
Cool	0.276	0.283	11000K	0.002
Medium	0.285	0.293	9300K	0.002
Warm	0.313	0.329	6500K	0.002

- \* Manual W/B process (using adjusts Remote control)
  - Please Adjust in AV 1 MODE, Turn off Energy Saving Mode.
  - (1) Enter 'PICTURE RESET' on Picture Mode, then turn off Fresh Contrast and Fresh colour in Advanced Control
  - (2) After enter Service Mode by pushing "ADJ" key,
  - (3) Enter White Pattern off of service mode, and change off -> on.
  - (4) Enter "W/B ADJUST" by pushing "▶" key at "3. W/B ADJUST".

\* Gain Max Value is 192. So, Never make any Gain Value over 192 and please fix one Value on 192, between R, G and B.

	Min	Tpy	Max
R-GAIN	0	192	192
G-GAIN	0	192	192
B-GAIN	0	192	192

\* Auto-control interface and directions

- (1) Adjust in the place where the influx of light like floodlight around is blocked. (Illumination is less than 10ux).
- (2) Measure and adjust after sticking the Color Analyzer (CA-100+, CA210 ) to the side of the module.
- (3) Aging time  
After aging start, keep the Power on (no suspension of power supply) and heat-run over 5 minutes

#### 4-4. Serial number download & Model name D/L and Check Tool Option.

- (1) Press "Power on" button of a service R/C.(Baud rate : 115200 bps)
- (2) Connect RS232-C Signal Cable and start 'Option Check Program Ver3.8'
- (3) Scan serial Number and press 'F5' button.
- (4) Check 'OK' on program (1) program.
- (5) Press 'In start' button on SVC R/C, check Serial Number and Model Name.

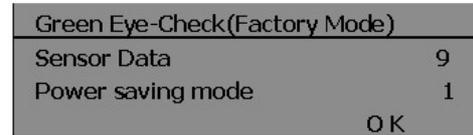


#### 4-5. Check Tool Option and write Country Group & Area Code(OPTION) D/L

Model Name		PZ950	PZ750	PZ570
Tool Option 1	50 INCH	32777	32793	32809
	60 INCH	32781	32797	32813
Tool Option 2	50 INCH	65	130	195
	60 INCH	65	130	195
Tool option 3		19807	19807	19743
Tool option 4		7348	7348	7348
Tool option 5		14921	14921	14920
Tool option 6		857	857	857
Area option / Code		0	0	0

#### 4-6. Checking the EYE-Q Operation.

- (1) Press the EYE Key on the adjustment remote controller.
- (2) Check the Sensor DATA ( It must be under 10) and keep the data longer than 1.5s
- (3) Check 'OK'



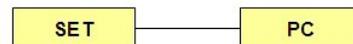
(Sensor DATA 0 ~ 4095, Power Saving Mode 0 ~ 12)

\* IF you press IN-STAP Button, change Green Eye-check OSD.

#### 4-7. Ping TEST

\* This test is to check Network operation.

Connect: SET-> LAN Port == PC-> LAN Port



##### (1) Equipment Setting

- 1) Play the LAN Port Test PROGRAM.
- 2) Input IP set up for an inspection to Test  
\*IP Number : 12.12.2.2

##### (2) LAN PORT inspection (PING TEST)

- \* In this case Network setting is on Manual Setting.
- 1) Play the LAN Port Test Program.
  - 2) connect each other LAN Port Jack.
  - 3) Play Test (F9) button and confirm OK Message.
  - 4) remove LAN CABLE



##### (3) Check Wireless function.

- 1) Connect set and Dongle of Wireless to Cable of HDMI & TTA 20Pin
- 2) At OSD of SET, check the message like Fig 3.
- 3) Detach Cable of Wireless Dongle



Fig.3 Connect the Dongle .

## 4-8. Magic Motion Remote Controller test

Required Equipment

- RF Remote Controller for test, IR-KEY-Code Remote Controller for test

\* You must confirm the battery power of Remote Controller before test

(Recommend that change the battery per every lot)

- (1) If you select the 'start key(Mute)' on the controller, you can pairing with the TV SET.
- (2) You can check the cursor on the TV Screen, when select the 'OK Key' on the controller
- (3) You must remove the pairing with the TV Set by select 'Vol+(STOP) Key' on the controller

## 4-9. 3D Function Test

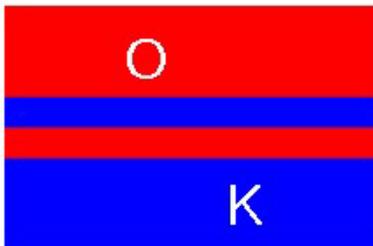
Required Equipment

● Pattern Generator : MSHG-600, MSPG-6100 [SUPPORT HDMI1.4]

MODE : HDMI mode NO. 872

Pattern No.83

- (1) Please input 3D test pattern like below (HDMI mode NO. 872 , pattern No.83)



- (2) When 3D OSD appear automatically, then press OK button on ADJ Remote Controller.
- (3) Check the picture. The picture must be same as below. (Don't have to wear 3D glasses.)



## 4-10. Check RF Emitter.

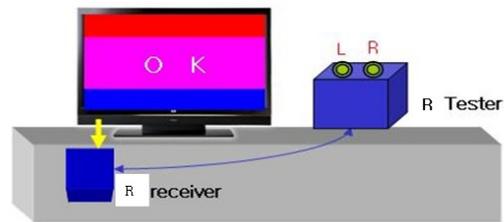
Required Equipment

- Pattern Generator : 3D-GT002, MSHG-600, MSPG-6100 [SUPPORT HDMI1.4]

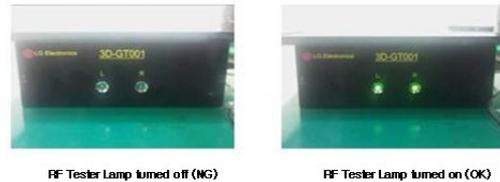
MODE : HDMI mode NO. 872

Pattern No.83

- (1) On 3D Mode, Check the picture like below.



- (2) If RF Emitter is correctly working, you can see that the lamp of RF tester turns on.



## 5. Set Information (Serial No & Model name)

### 5-1. Check the serial number & Model Name

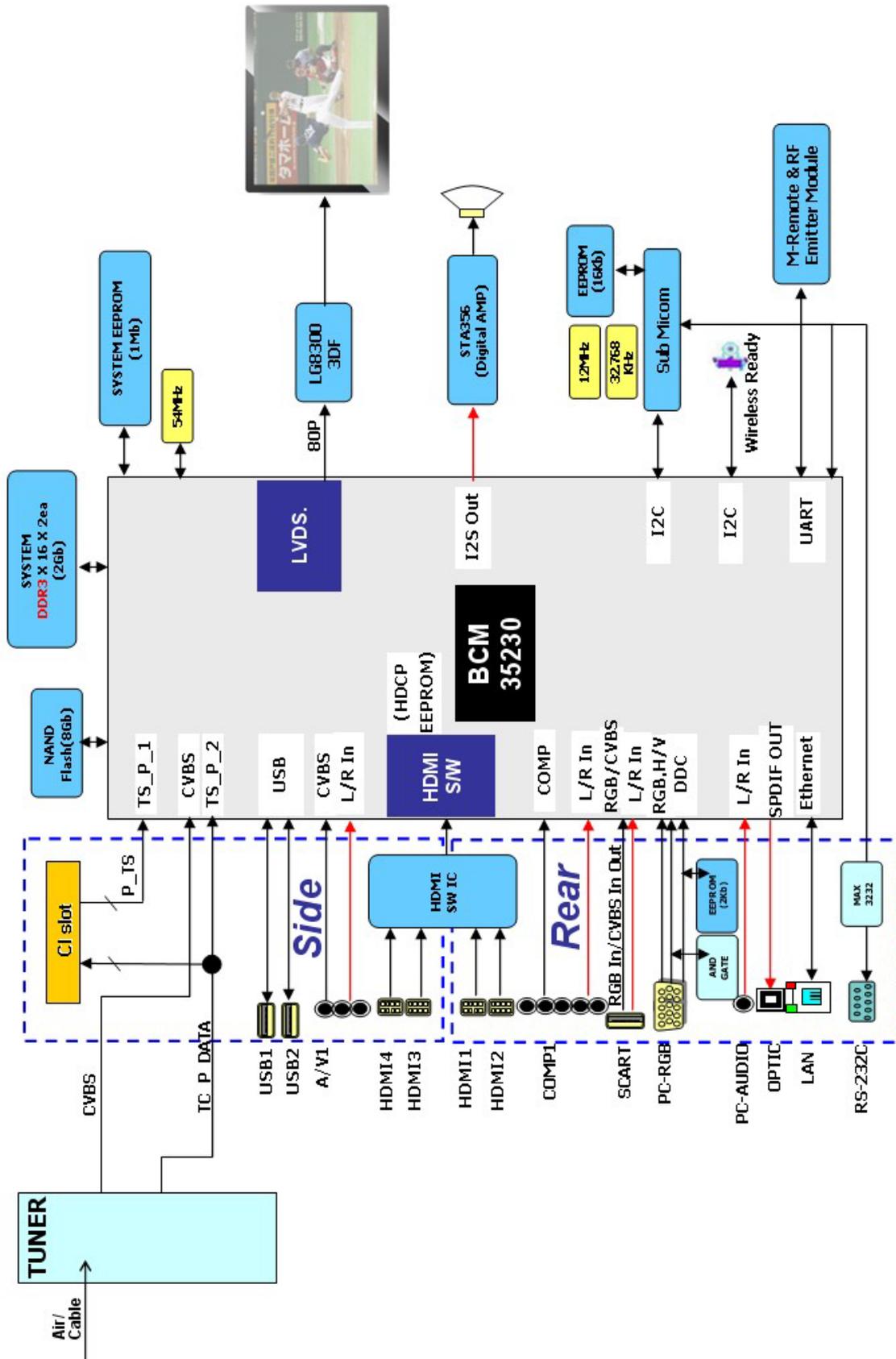
- (1) Push the menu button in DTV mode.
- (2) Check the Serial Number  
Select the STATION -> Diagnostics -> To set

## 6. SW Download Guide.

\* Put a \*.bin to USB Stick and Turn on TV

- (1) Put the USB Stick to the USB socket
- (2) Automatically detecting update file in USB Stick  
\* If your downloaded program version in USB Stick is Low, it didn't work.  
But your downloaded version is High, USB data is automatically detecting.
- (3) Show the message "Copying files from memory"
- (4) Updating is starting.
- (5) Updating Completed, The TV will restart automatically.  
After turn on TV, Please press 'IN-STOP' button on ADJ Remote-control.  
\* IF you don't have ADJ R/C, enter 'Factory Reset' in OPTION MENU.
- (6) When TV turn on, check the Updated version on Diagnostics MENU.

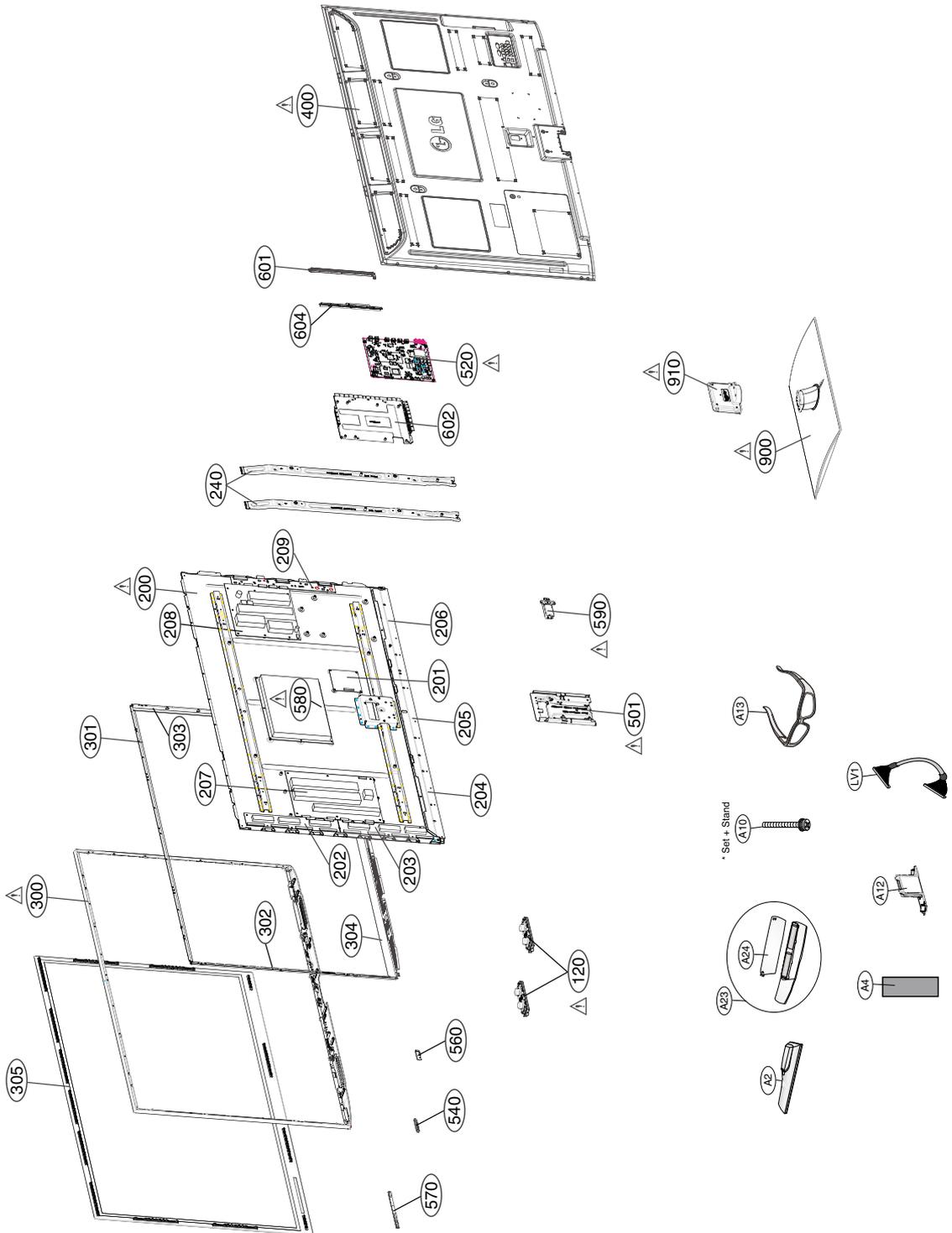
# BLOCK DIAGRAM



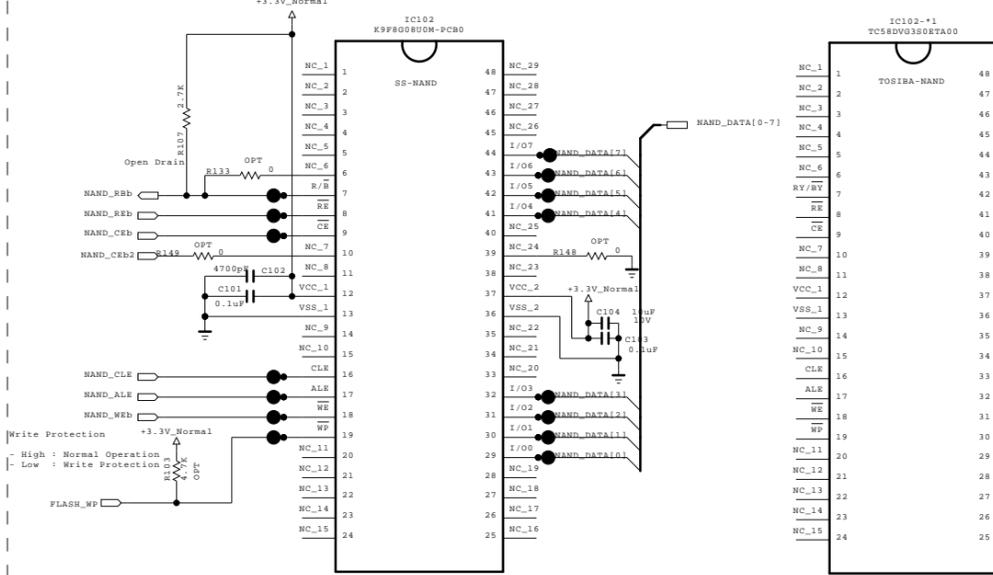
# EXPLODED VIEW

## IMPORTANT SAFETY NOTICE

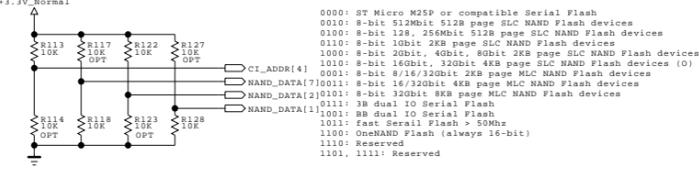
Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by  $\Delta$  in the Schematic Diagram and EXPLODED VIEW. It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent X-RADIATION, Shock, Fire, or other Hazards. Do not modify the original design without permission of manufacturer.



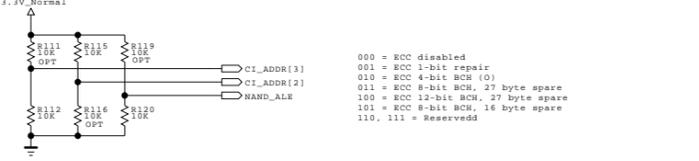
### NAND FLASH MEMORY 8Gbit



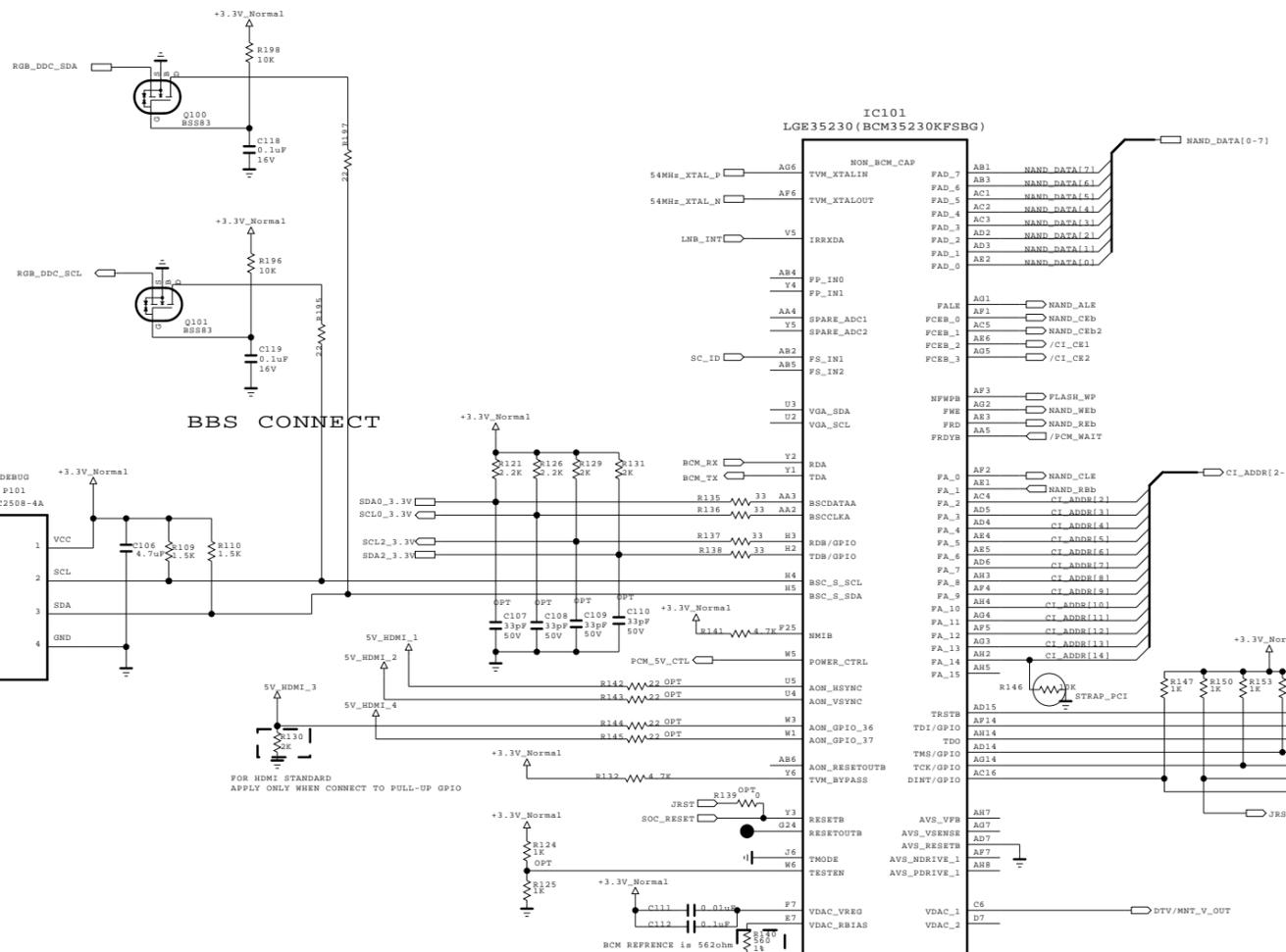
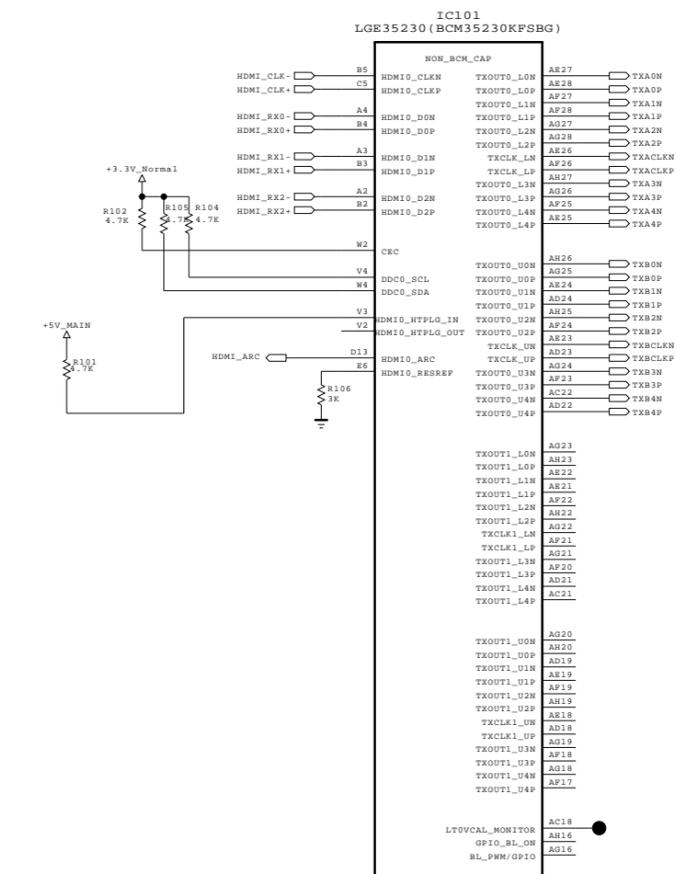
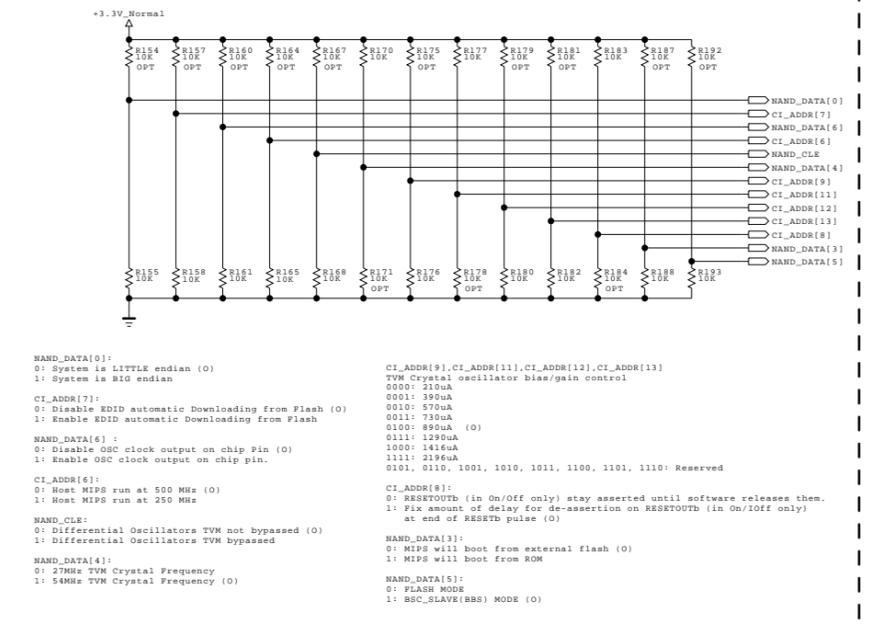
### Boot ROM Device Select - (FA4, FAD7, FAD2, FAD1)



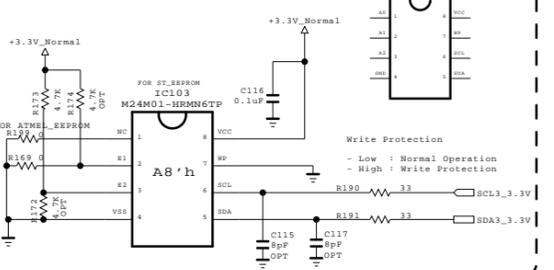
### NAND ECC (FA3, FA2, FA1E)



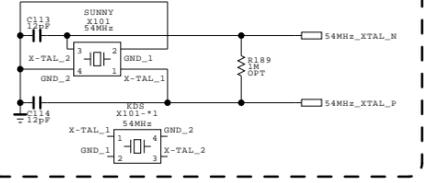
### Strap Setting



### NVRAM



### 54MHz X-TAL

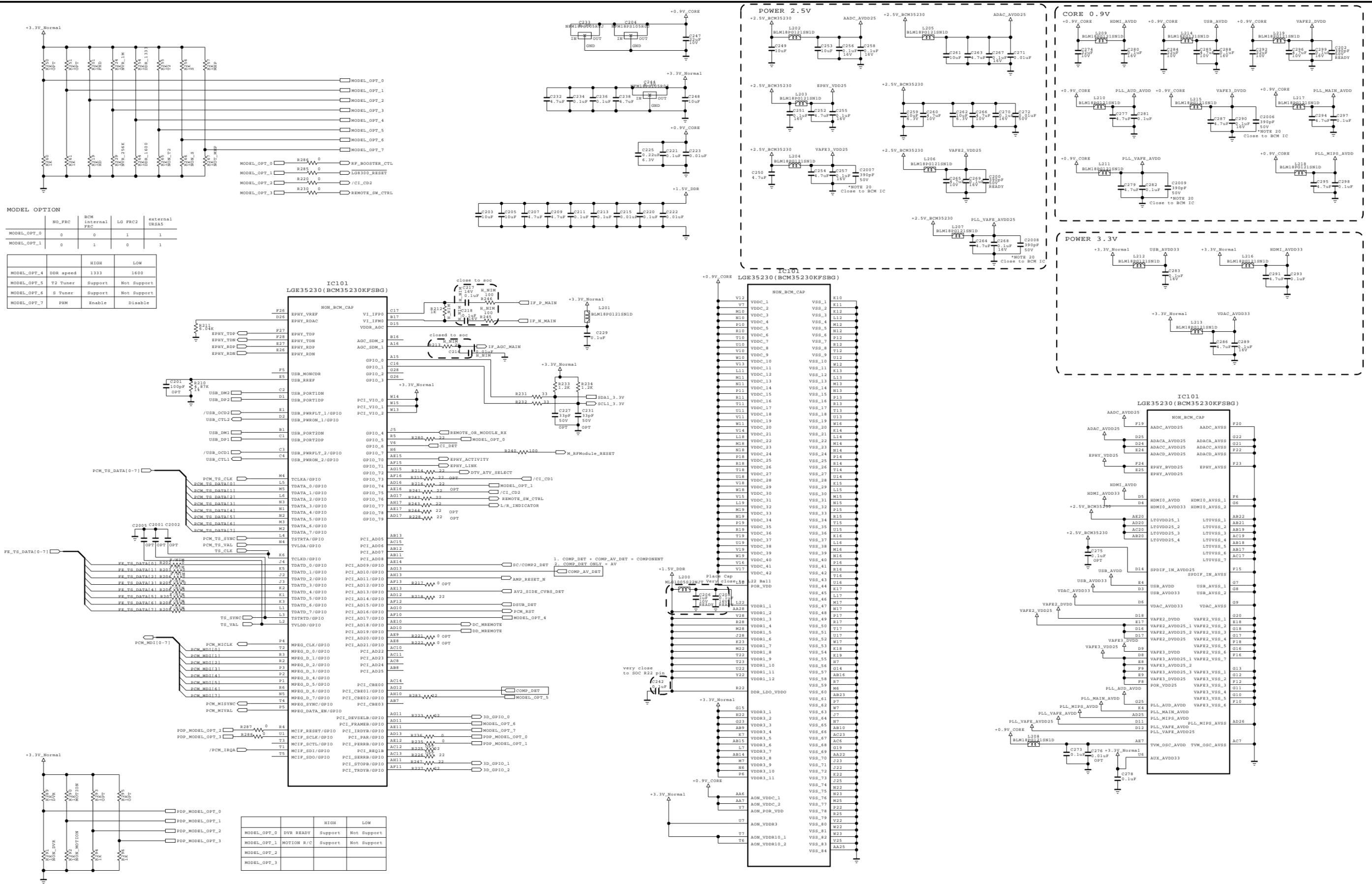


THE SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SYMBOL MARK OF THE SCHEMATIC.

**SECRET**  
LGElectronics



MODEL	EAX63525101	DATE	
BLOCK	MAIN & NAND FLASH	SHEET	1 / 19

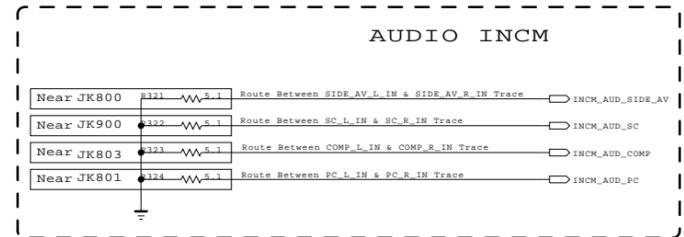
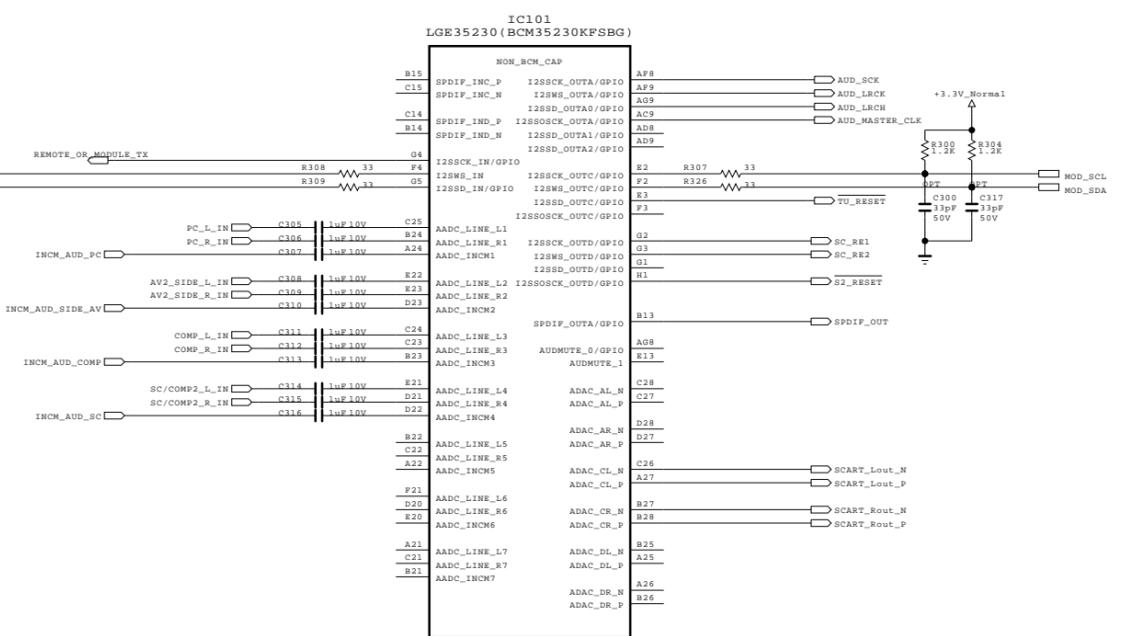
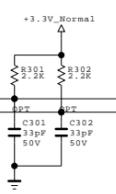
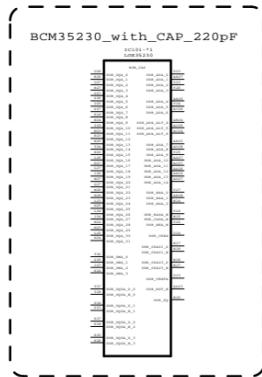
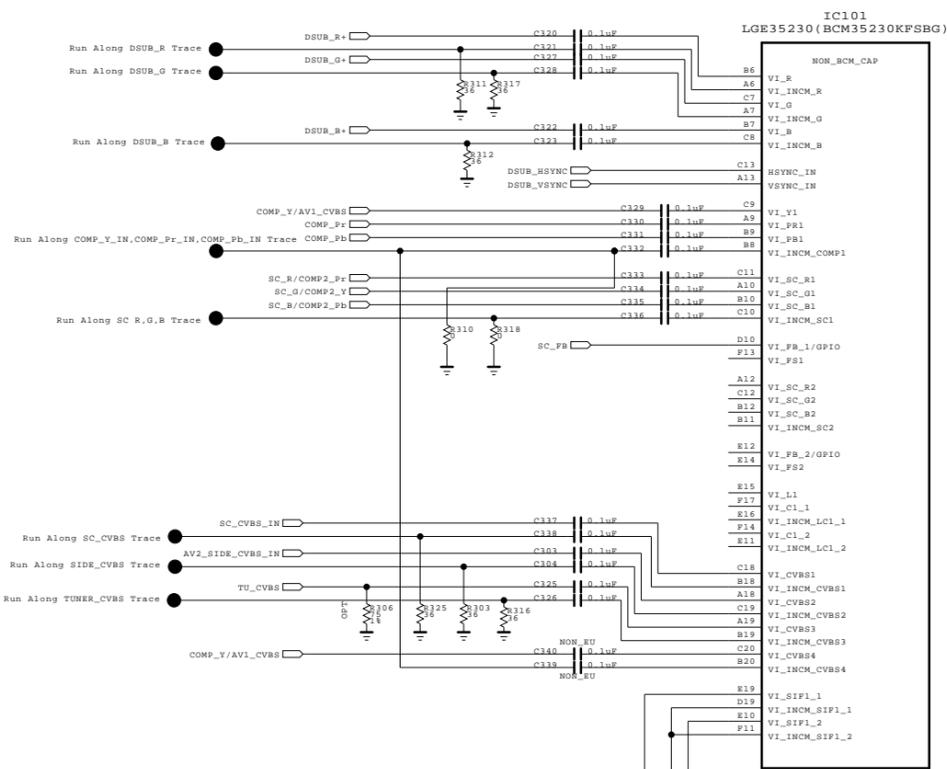


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**SECRET**  
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MODEL	EAX63525101	DATE	
BLOCK	MAIN POWER	SHEET	2 / 19

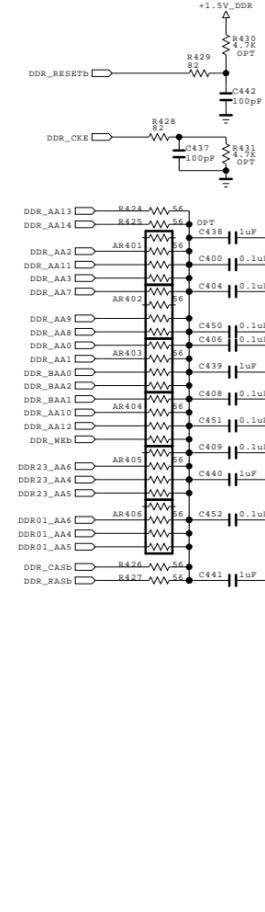
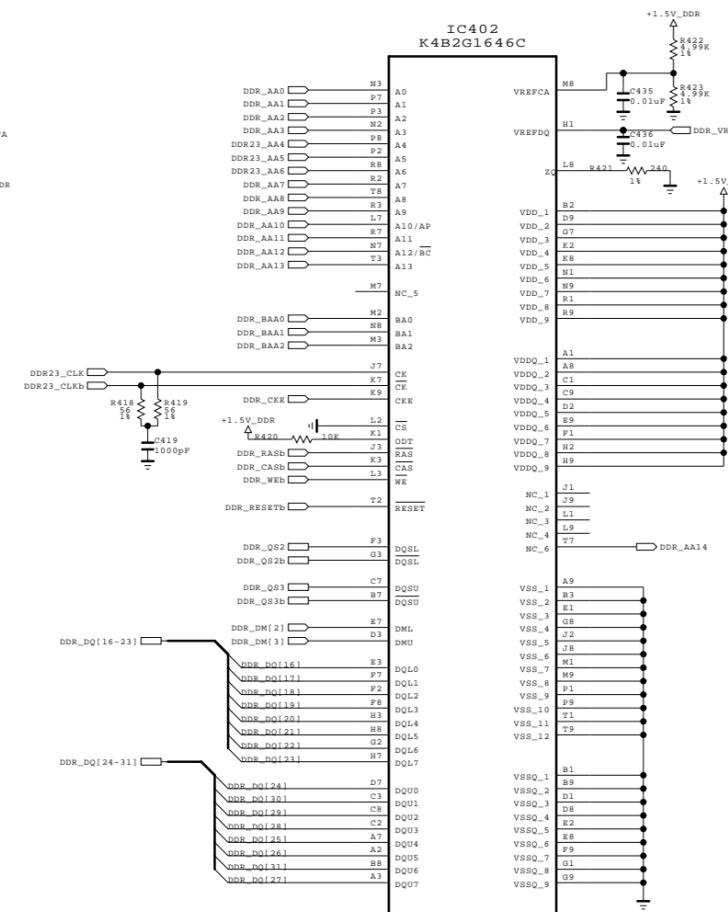
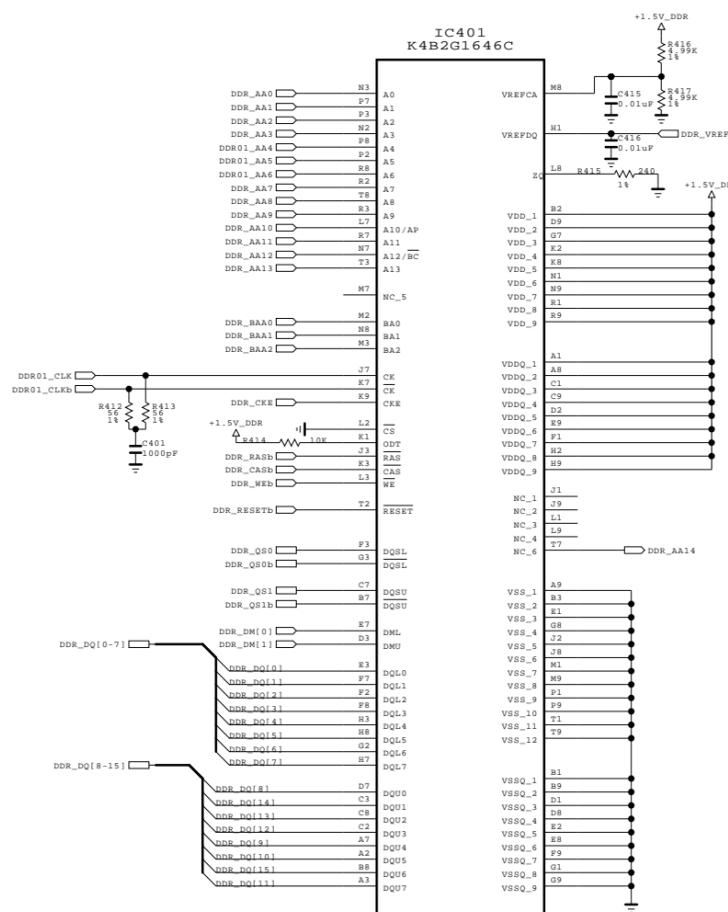
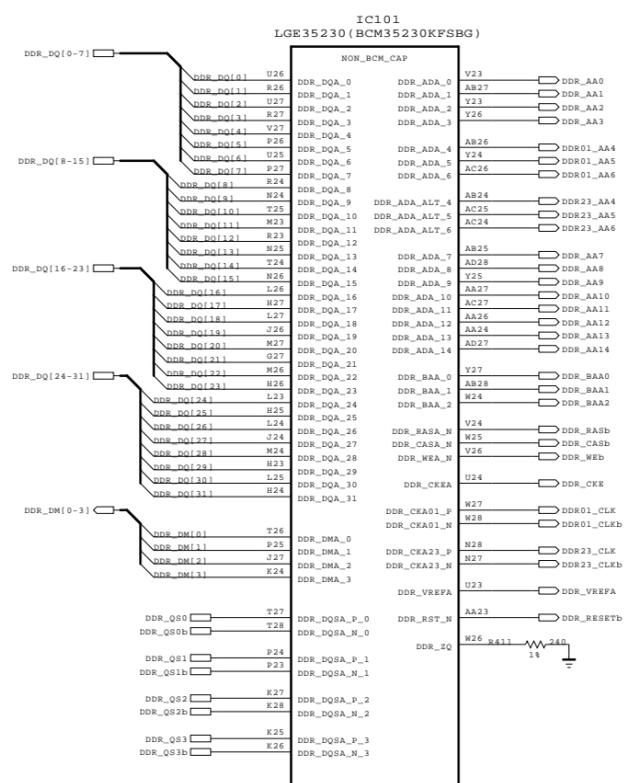
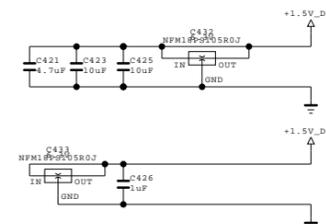
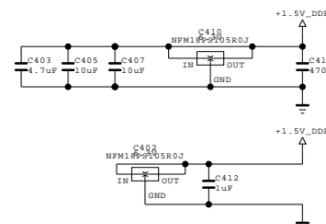
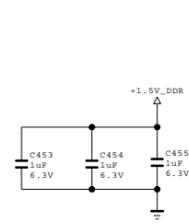
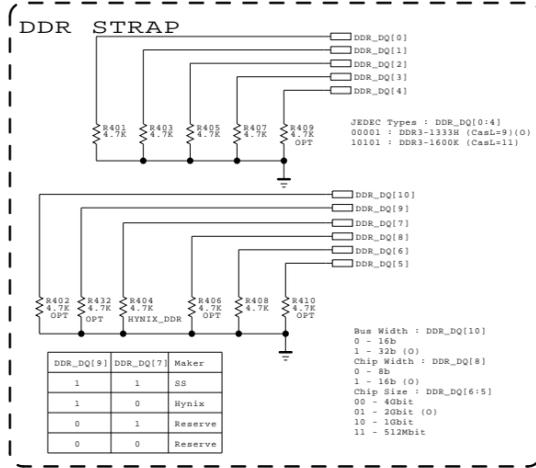


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MODEL	EAX63525101	DATE	
BLOCK	MAIN AUDIO/VIDEO	SHEET	3 / 19



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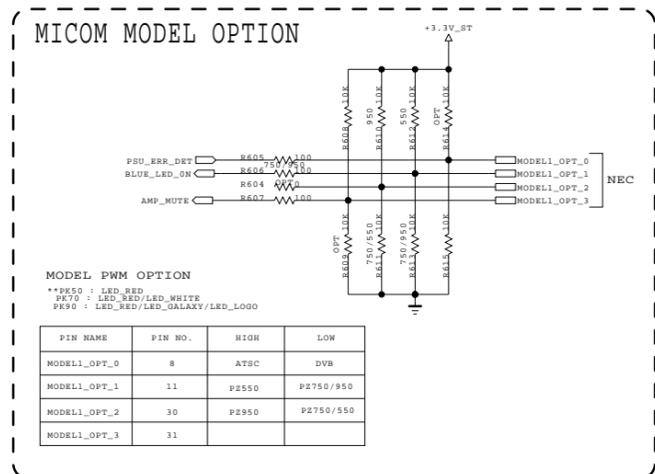
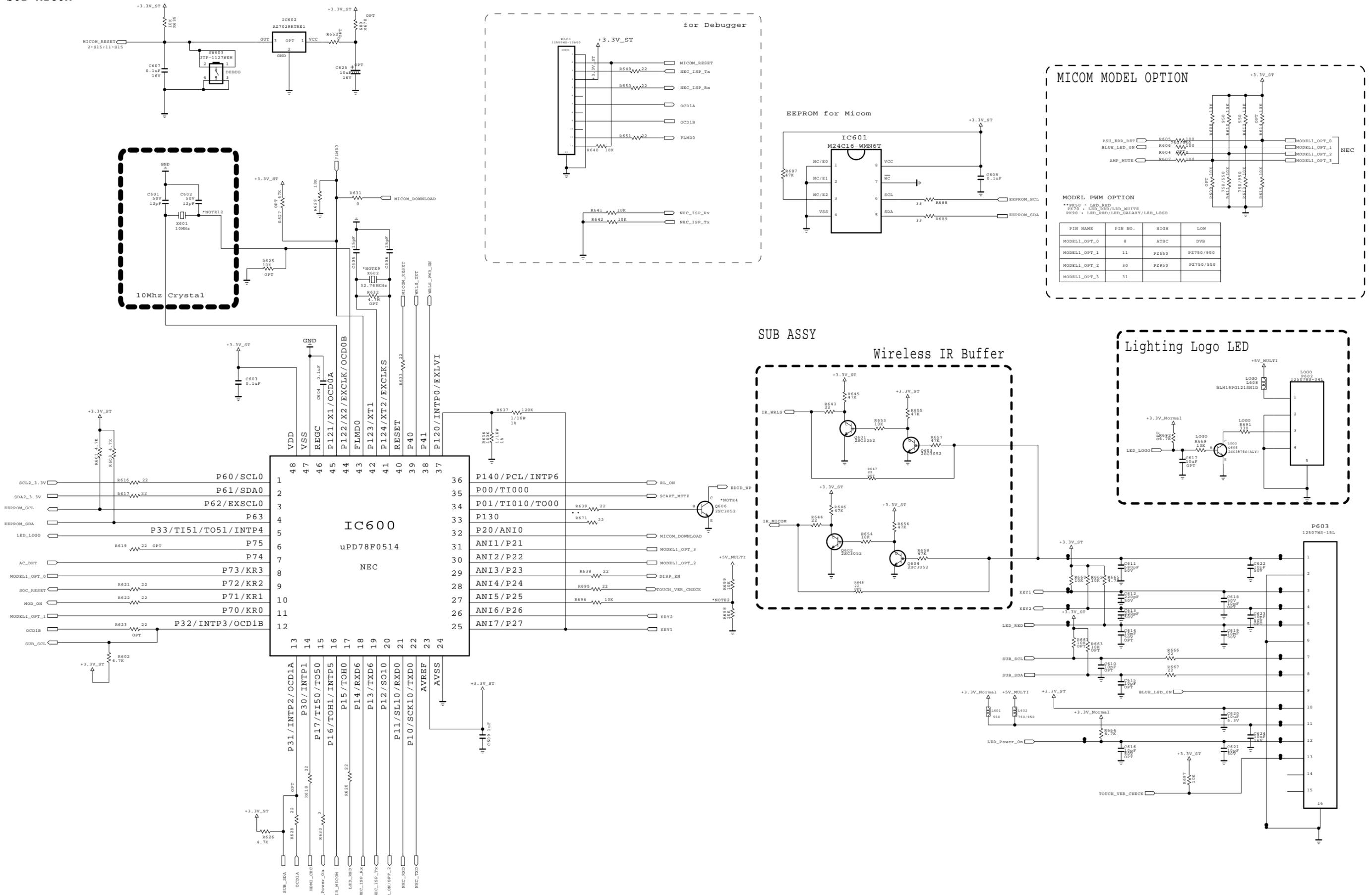
**SECRET**  
LGElectronics



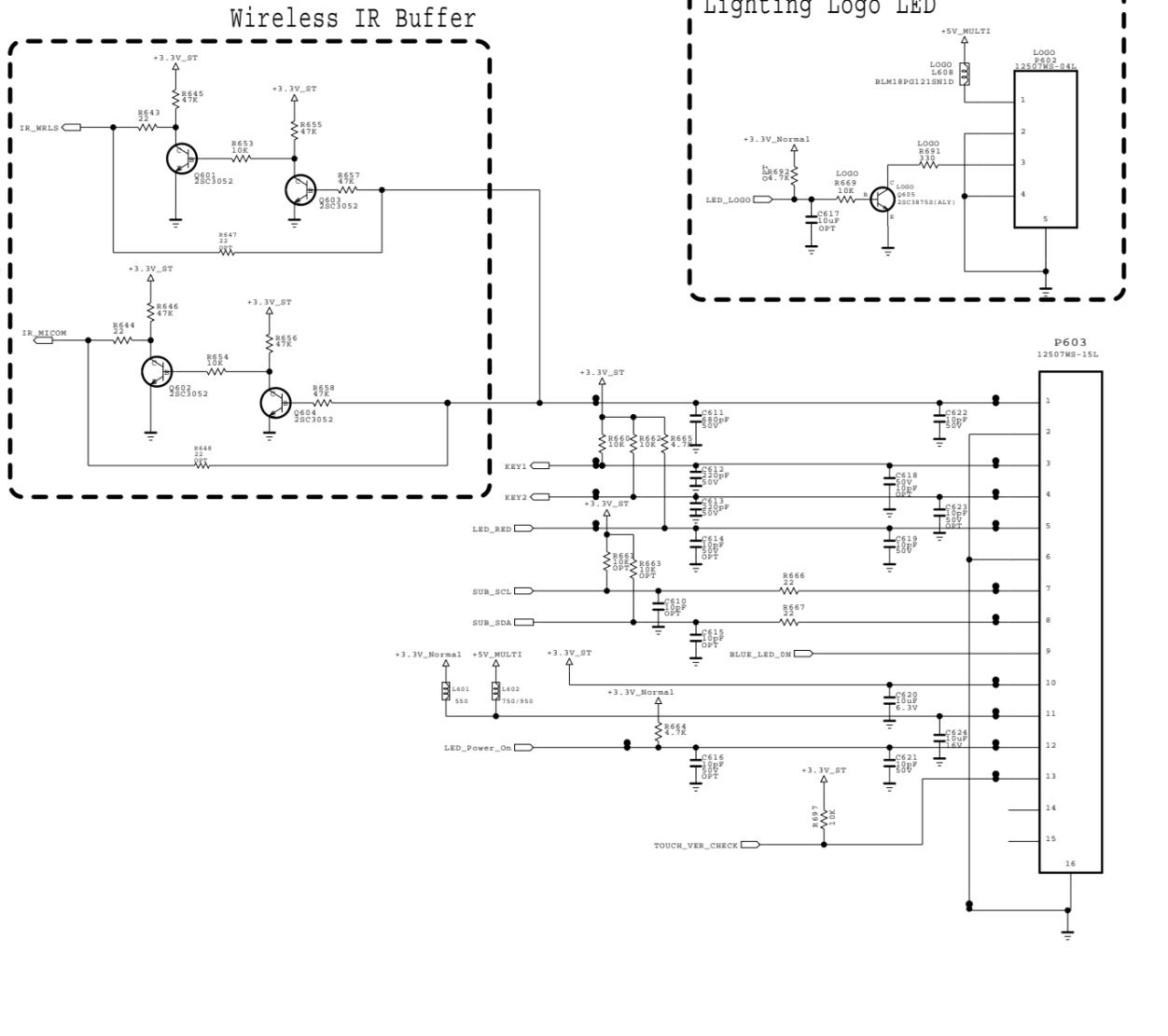
MODEL	EAX63525101	DATE	
BLOCK	MAIN DDR	SHEET	4 / 19



SUB MICOM



SUB ASSY

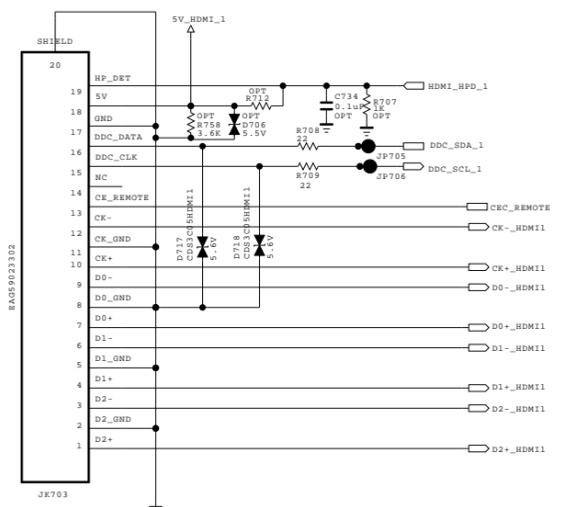


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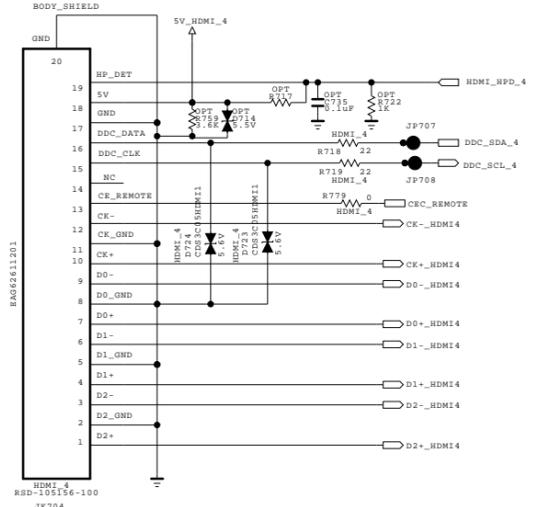
**SECRET**  
 LG Electronics



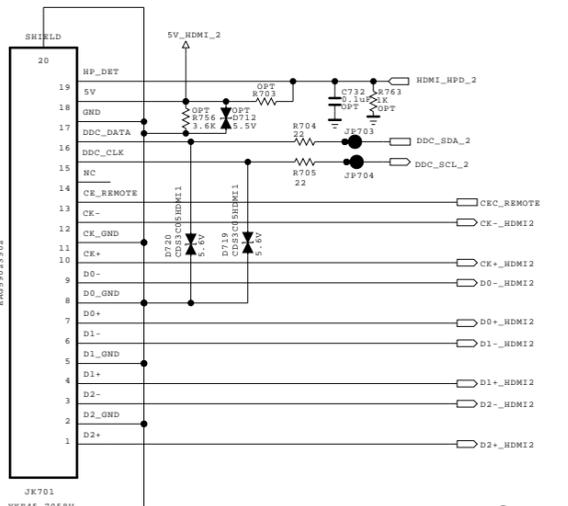
MODEL	EAX63525101	DATE	
BLOCK	MICOM/IR	SHEET	6 / 19



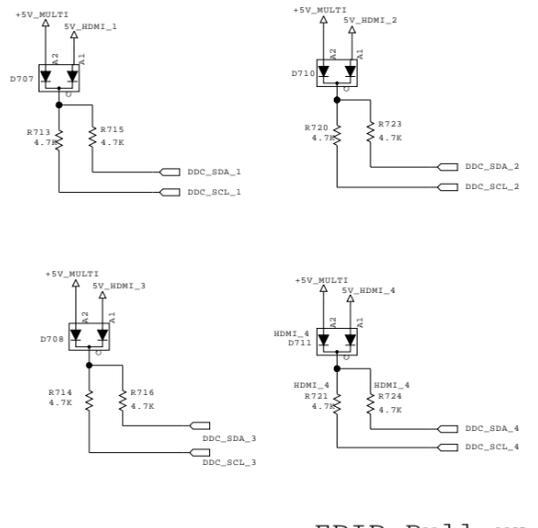
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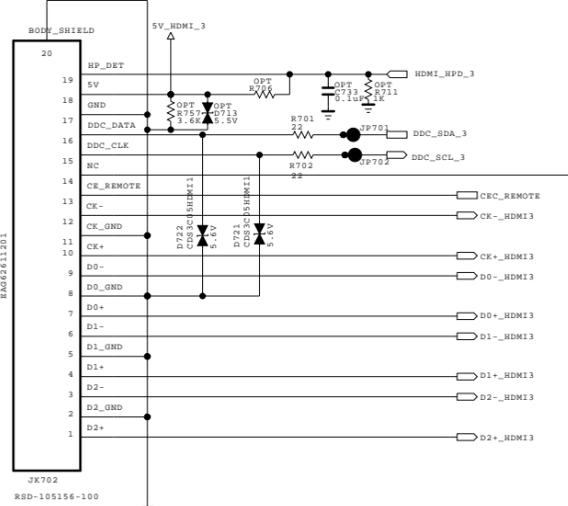
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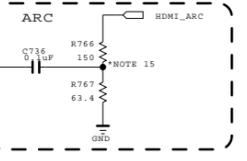
HDMI 2



EDID Pull-up

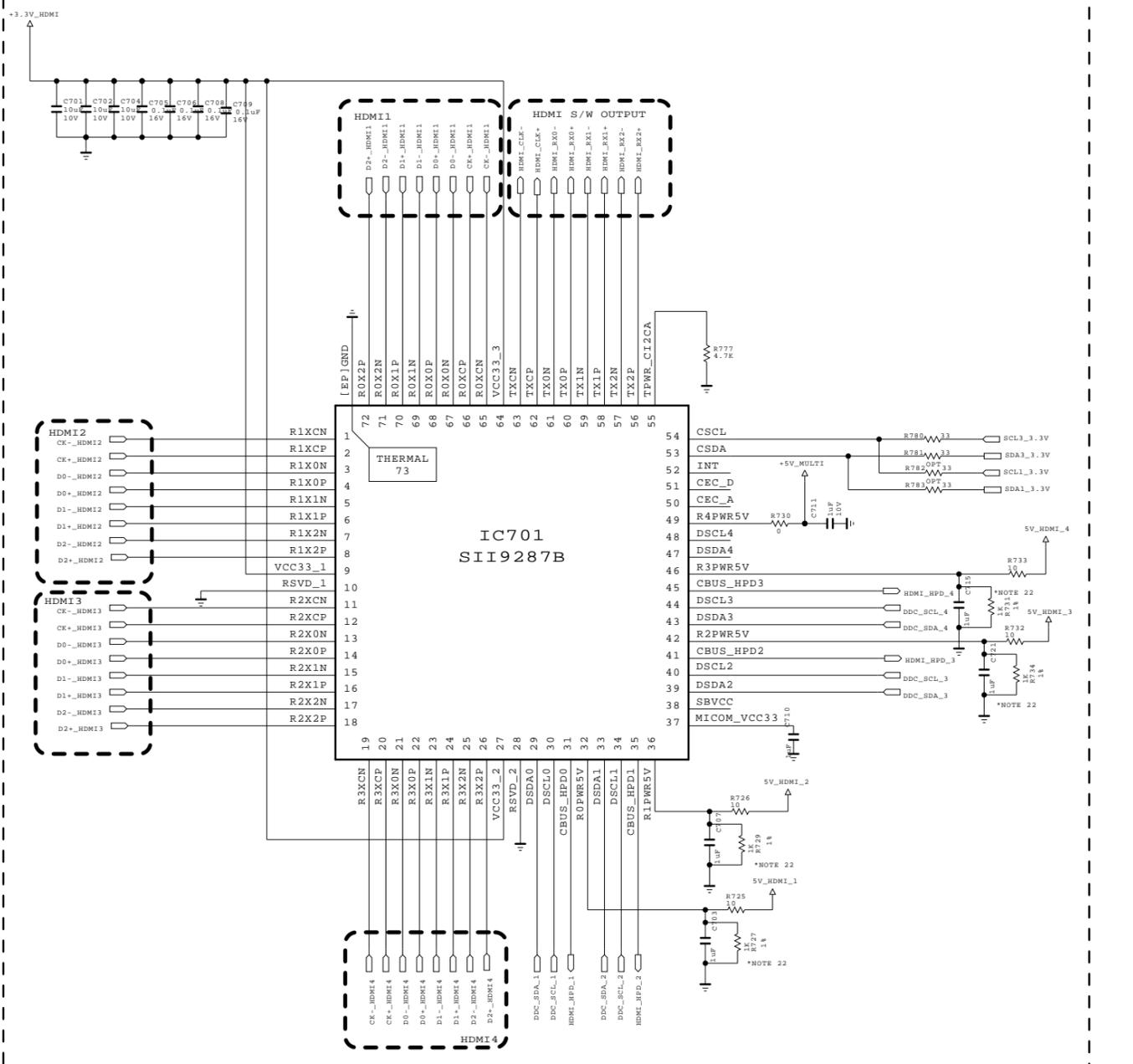
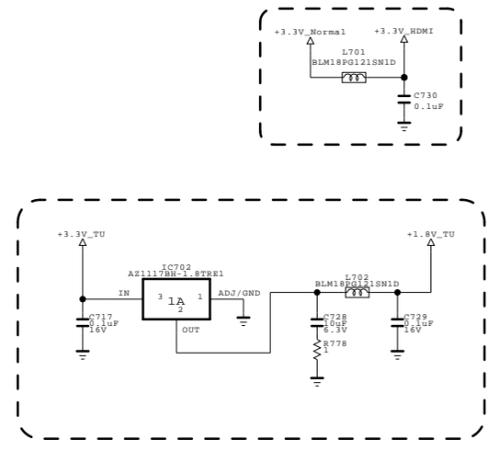
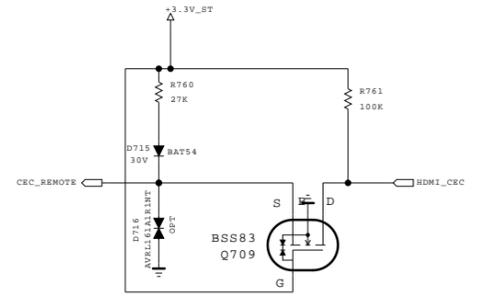


HDMI 3-SIDE



ARC

\* HDMI CEC



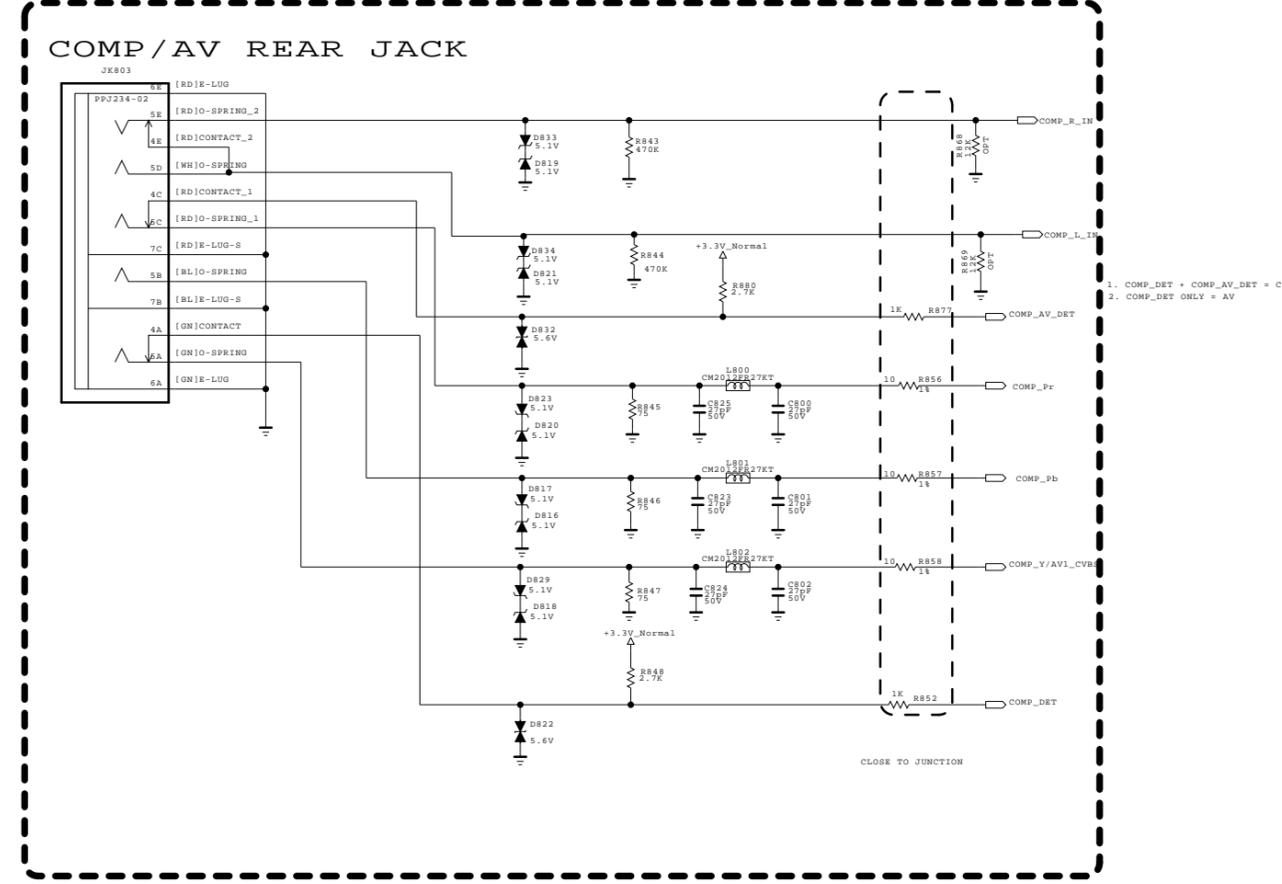
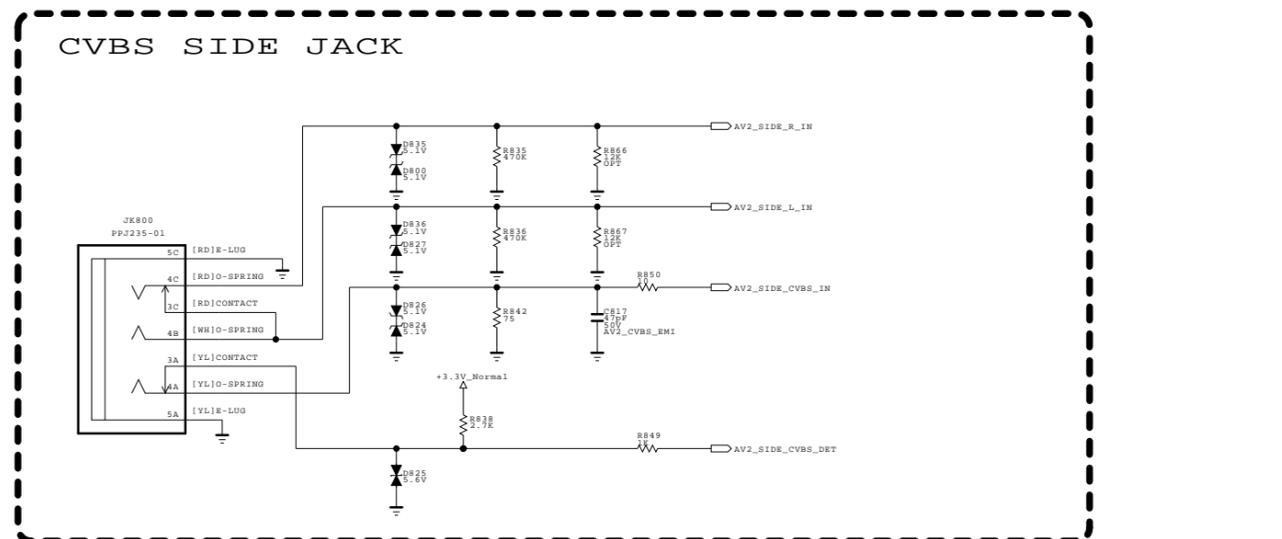
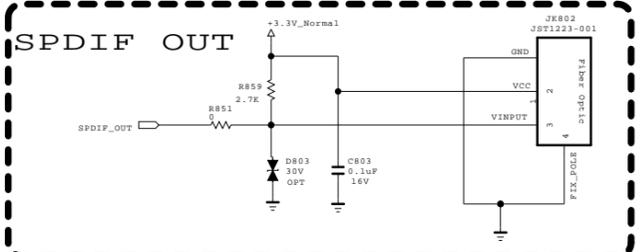
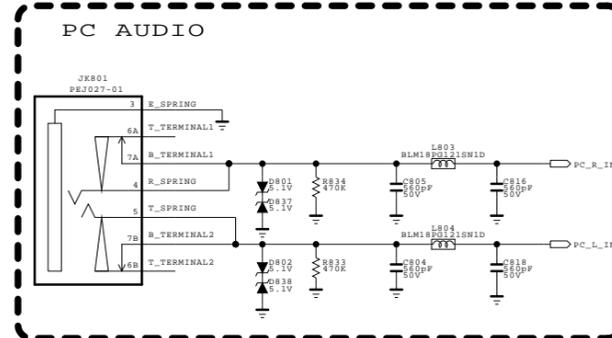
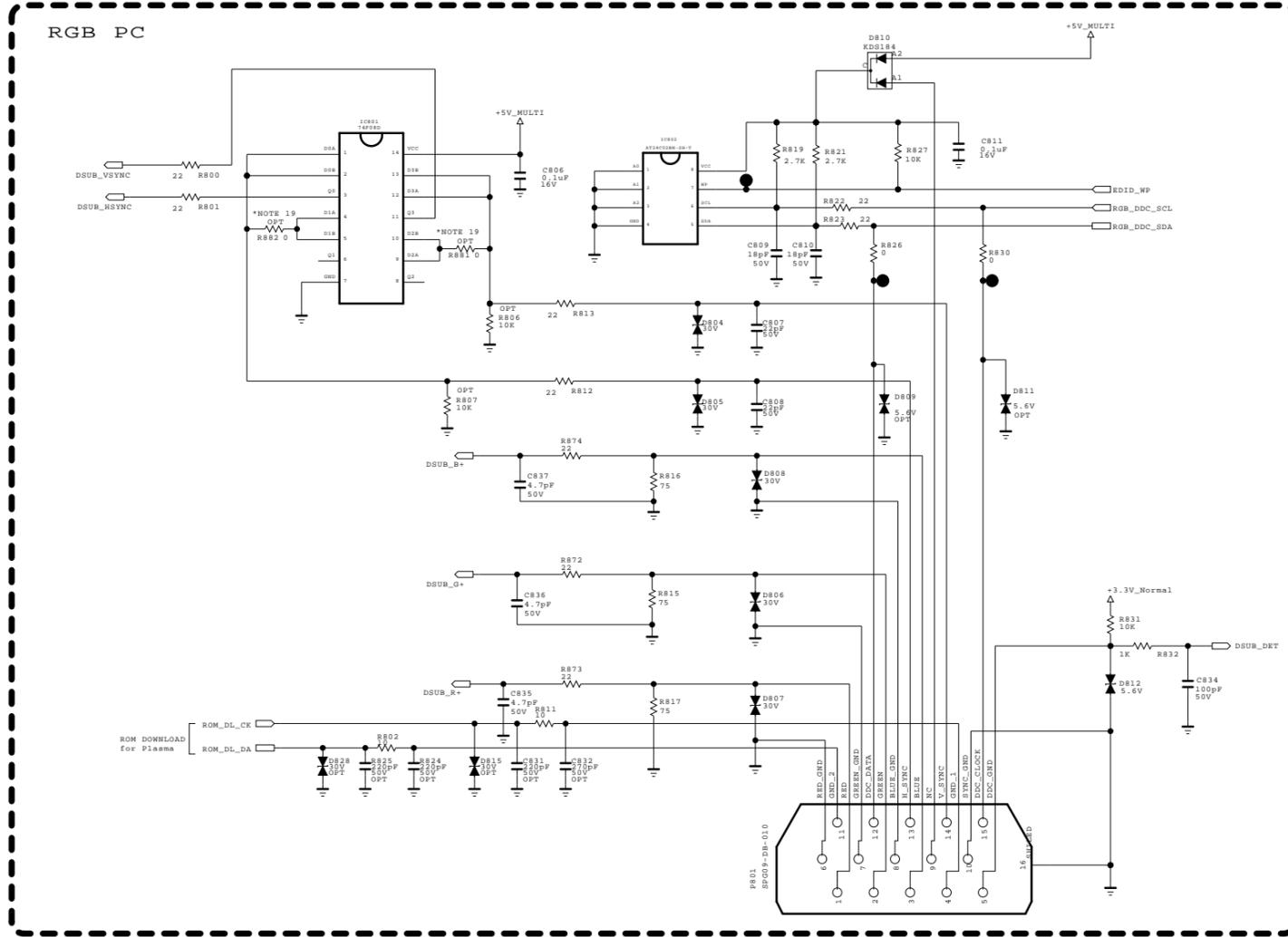
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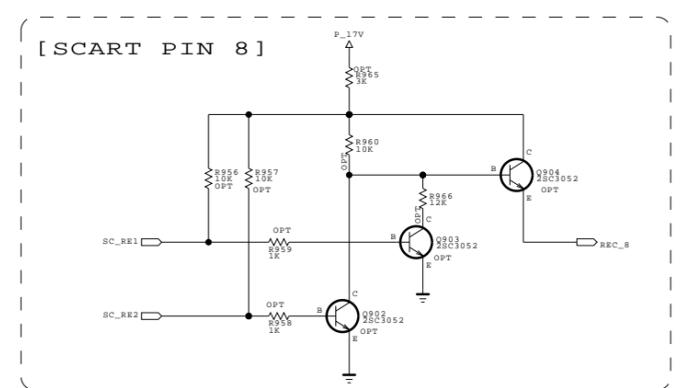
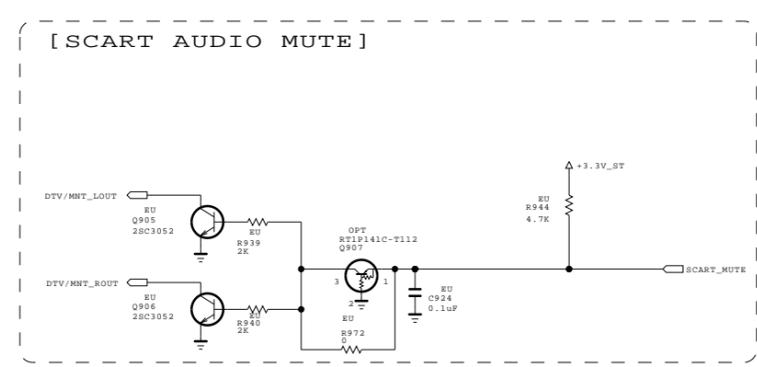
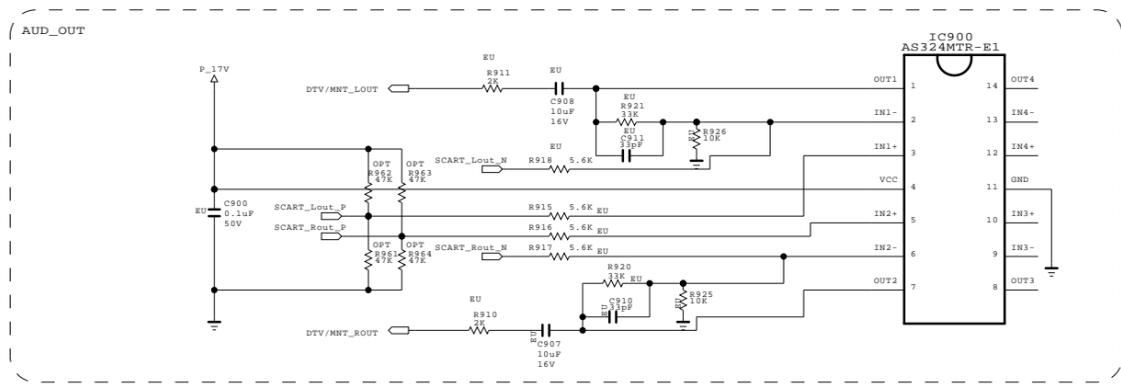
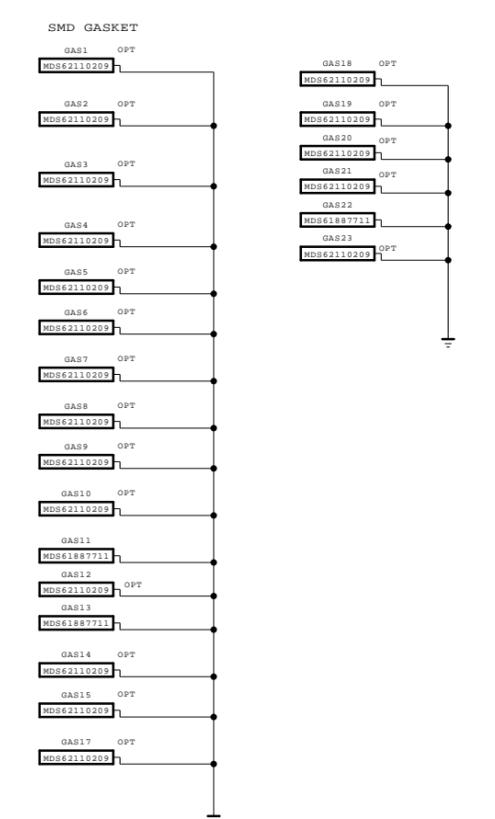
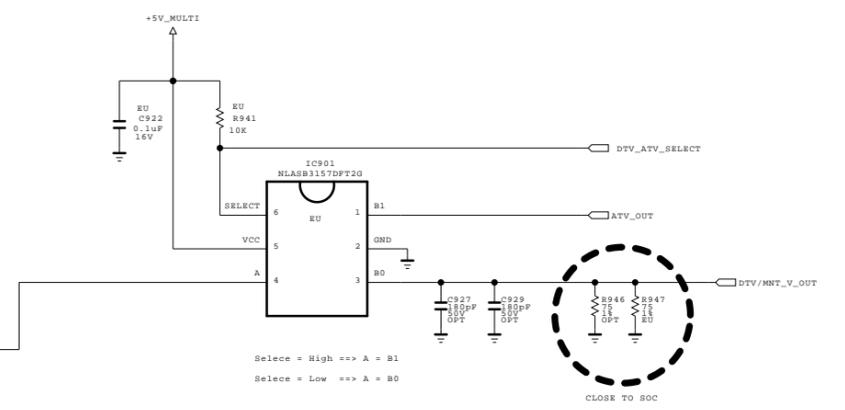
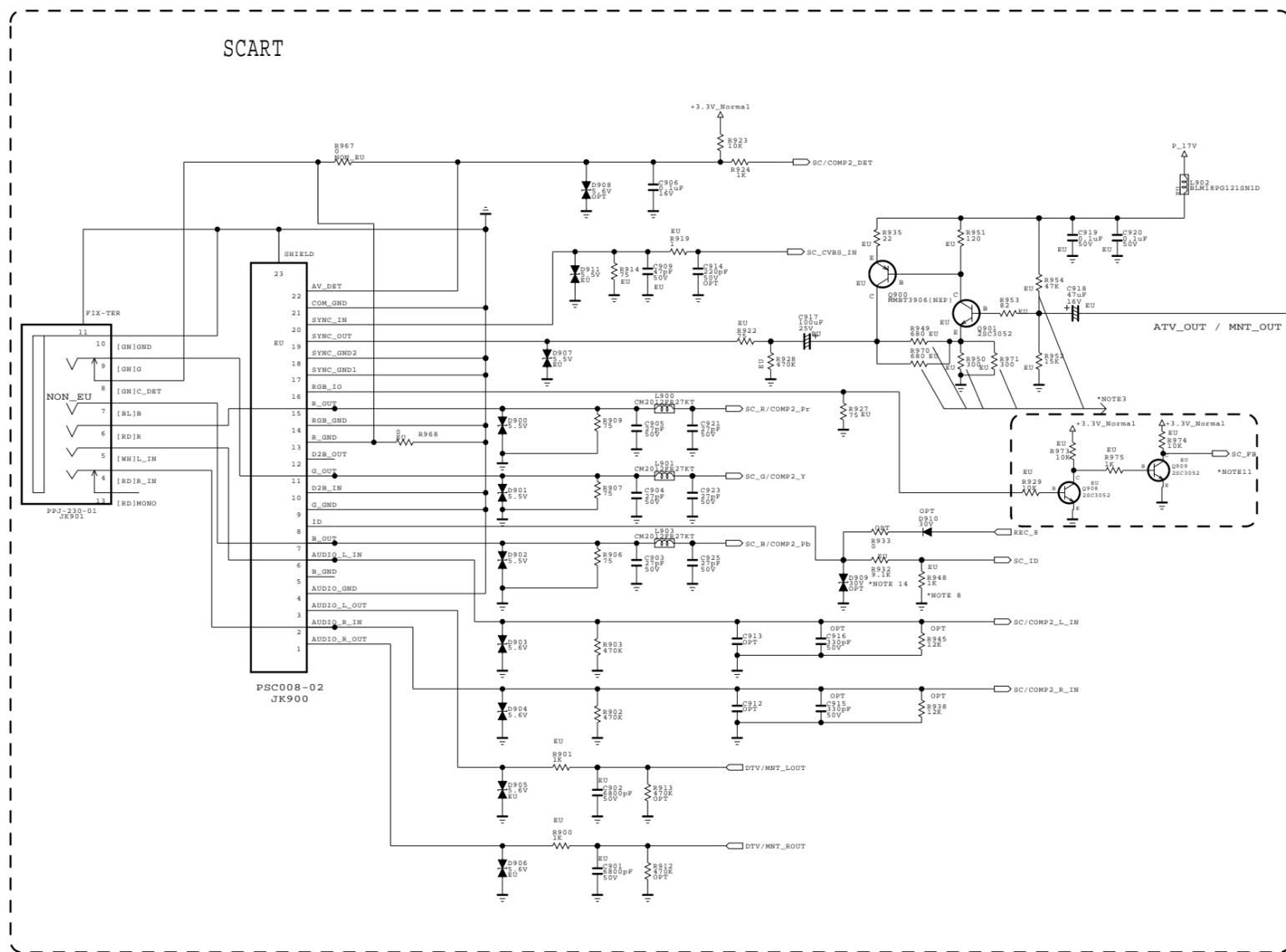
SECRET  
LGElectronics



MODEL	EAX63525101	DATE	
BLOCK	HDMI	SHEET	7 / 19

# RGB/ PC AUDIO/ SPDIF/ CVBS / COMP / RS232C





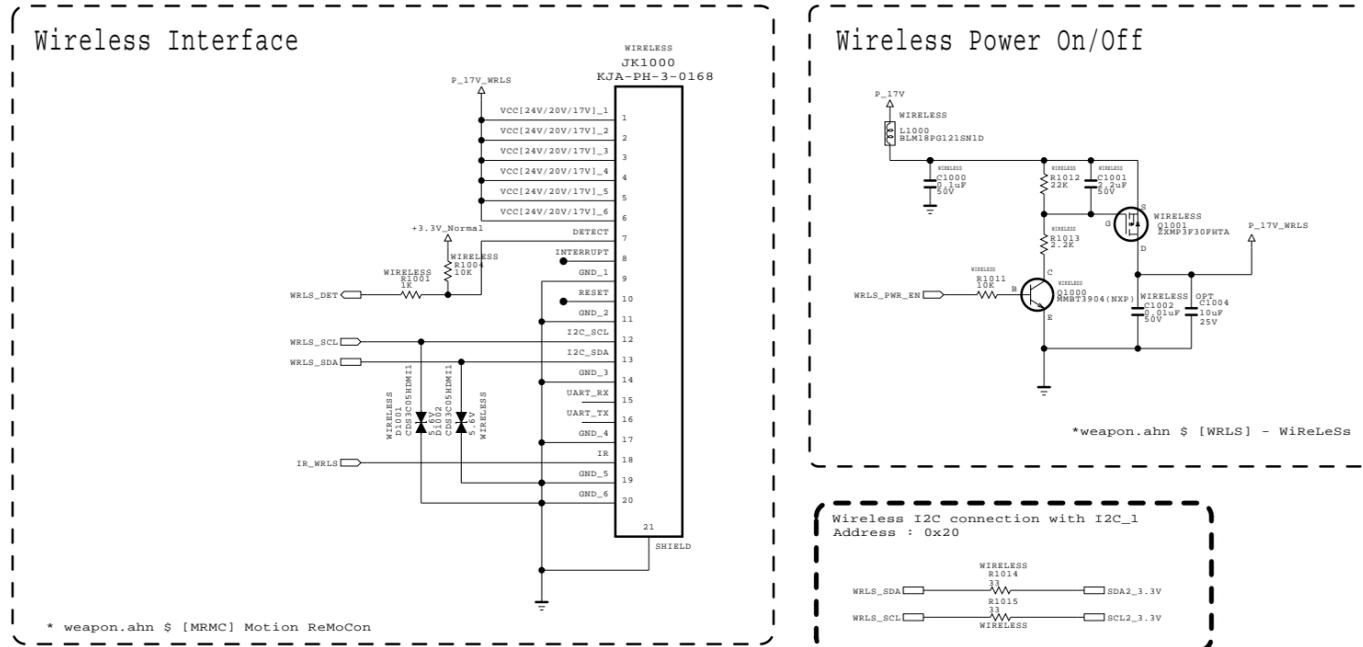
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MODEL	EAX63525101	DATE	
BLOCK	SCART	SHEET	09 / 19

# WIRELESS READY MODEL

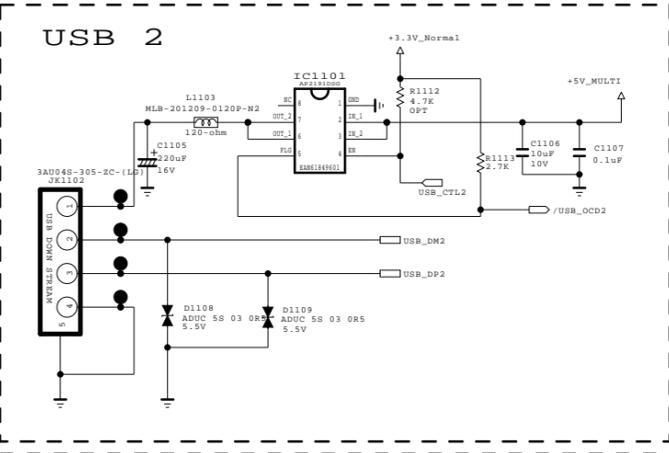
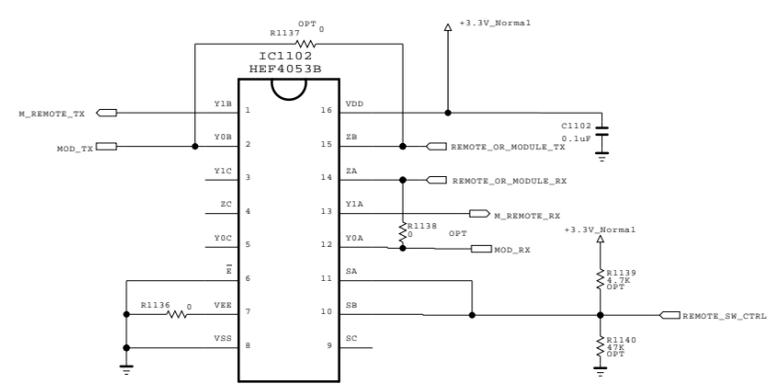
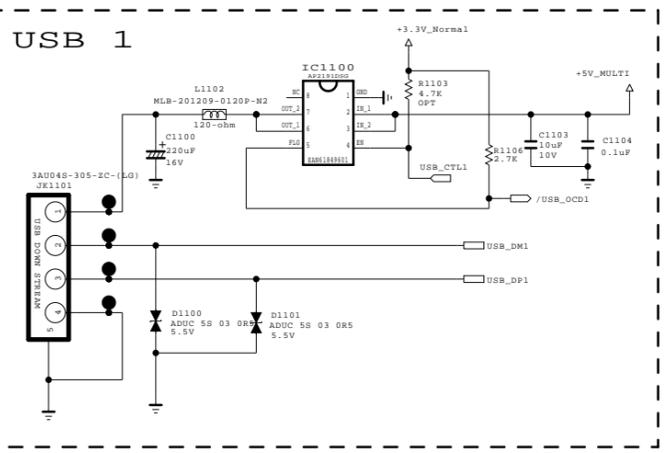


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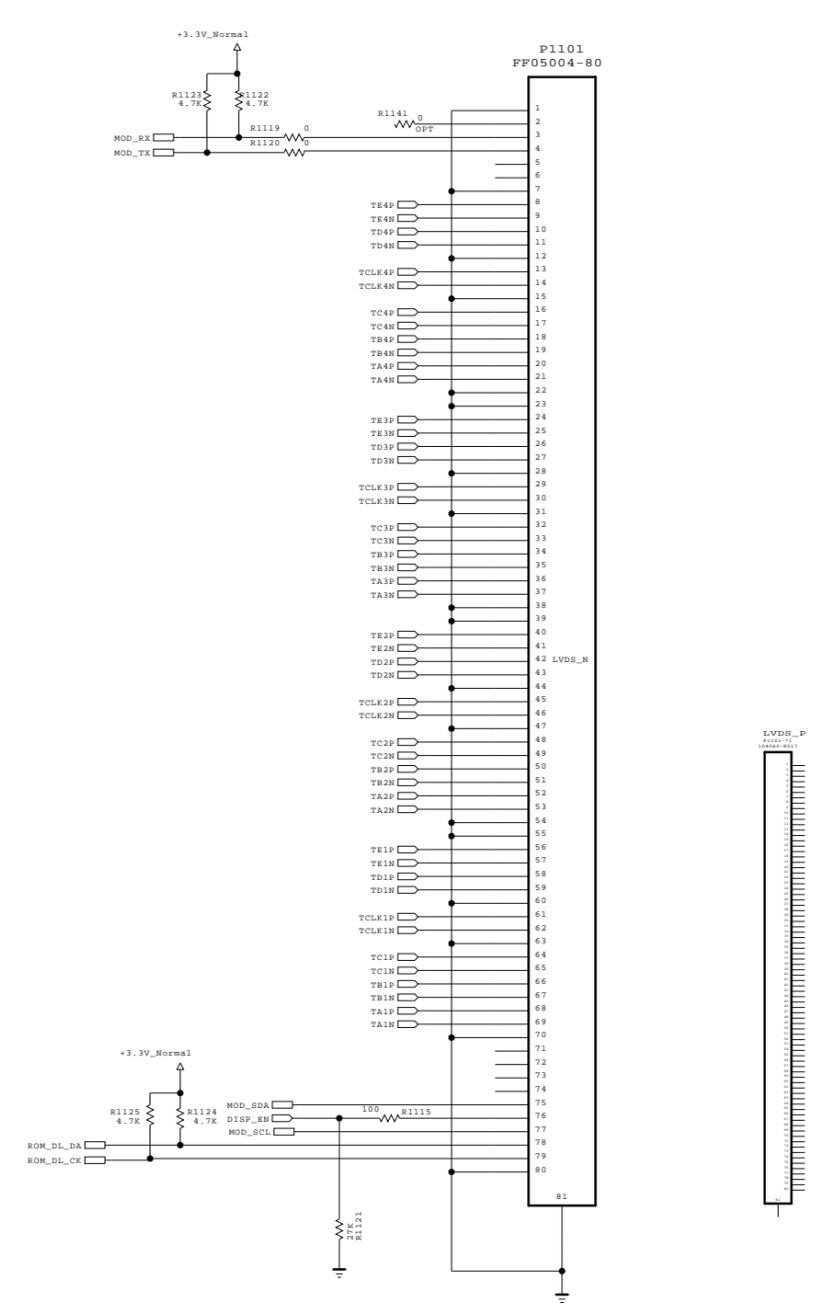
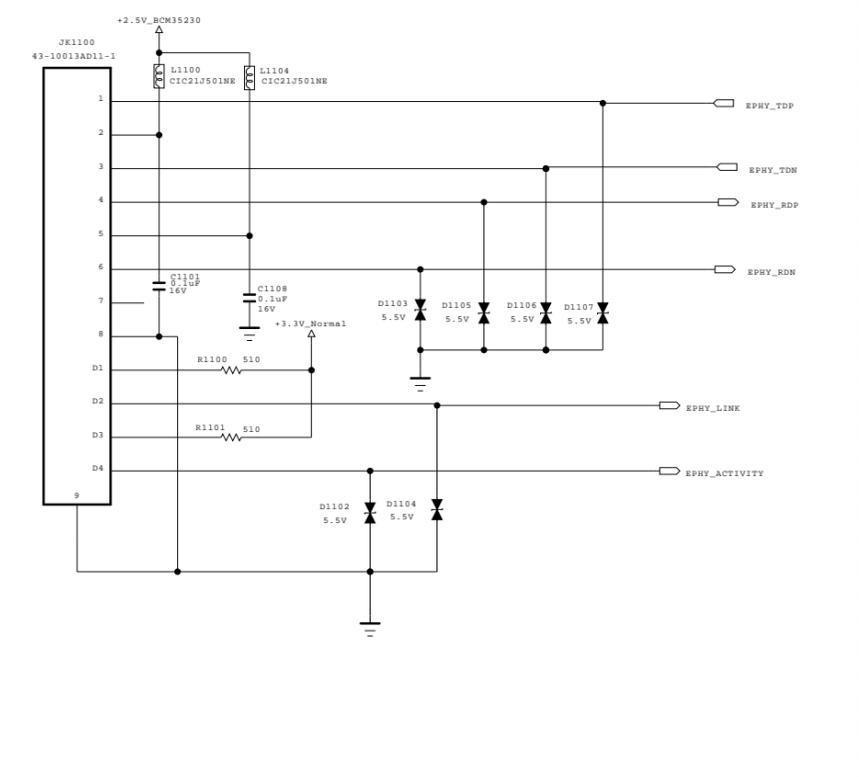
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MODEL	EAX63525101	DATE	
BLOCK	WIRELESS	SHEET	10 / 19



## Ethernet Block



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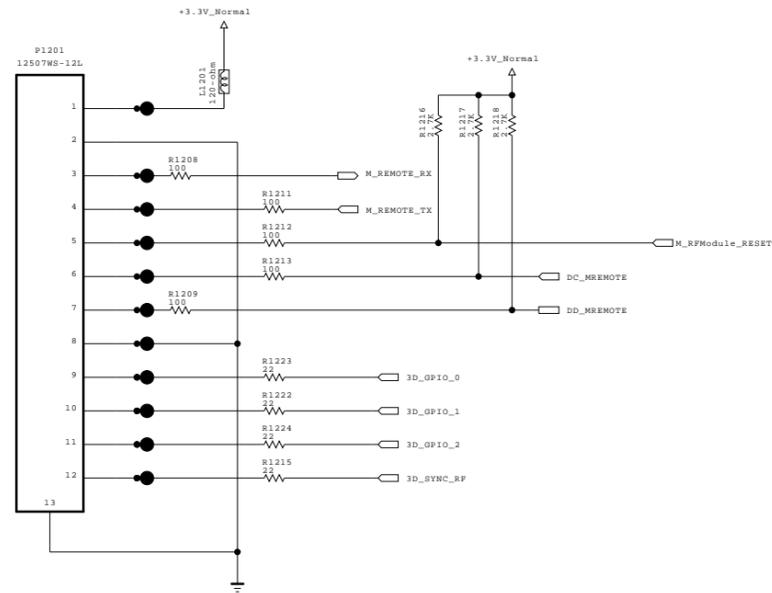
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MODEL	EAX63525101	DATE	
BLOCK	USB/Ethernet/LVDS	SHEET	11 / 19

Motion Remote controller

TI solution M\_REMOTE OPTION



ALL M\_REMOTE OPTION

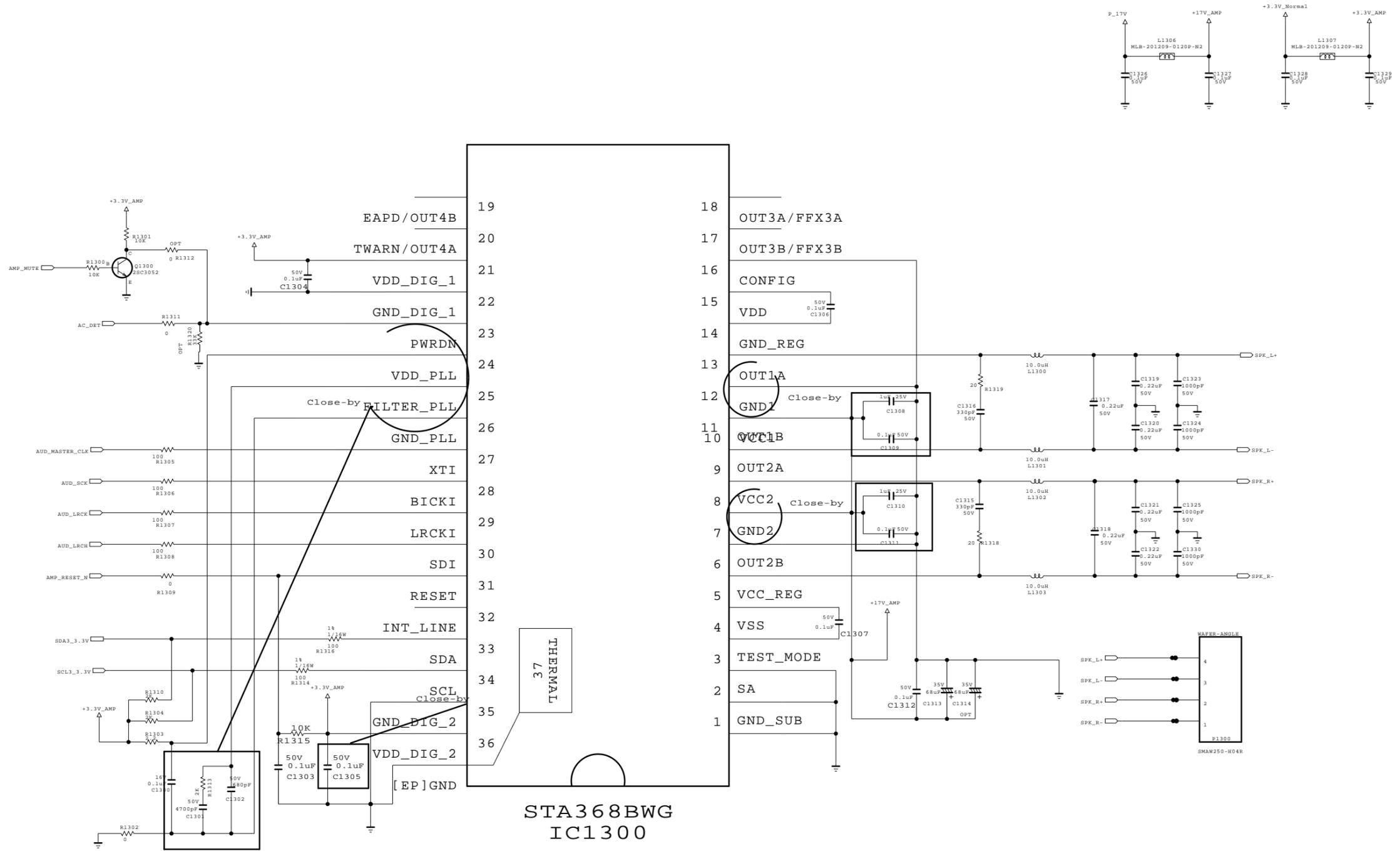
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MODEL	EAX63525101	DATE	
BLOCK	M_REMOCON	SHEET	12 / 19

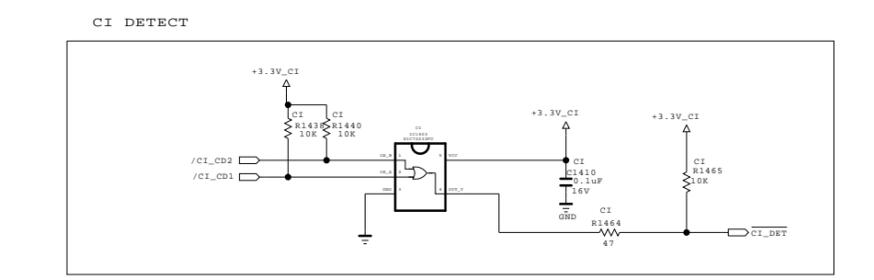
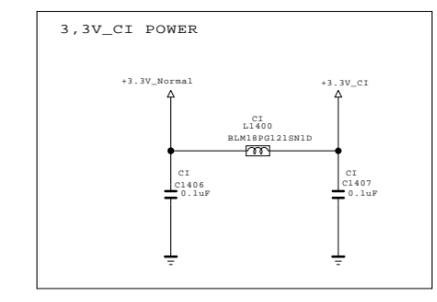
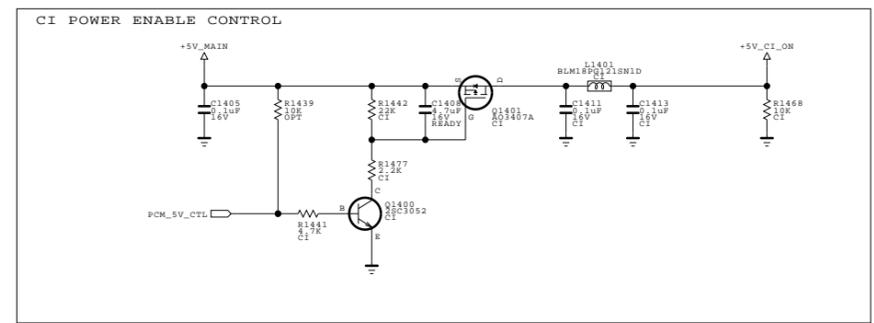
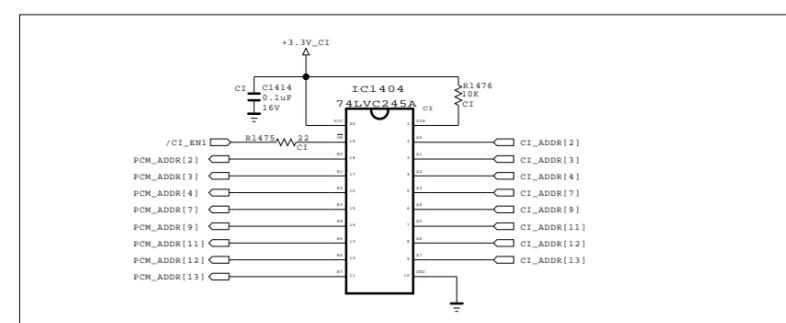
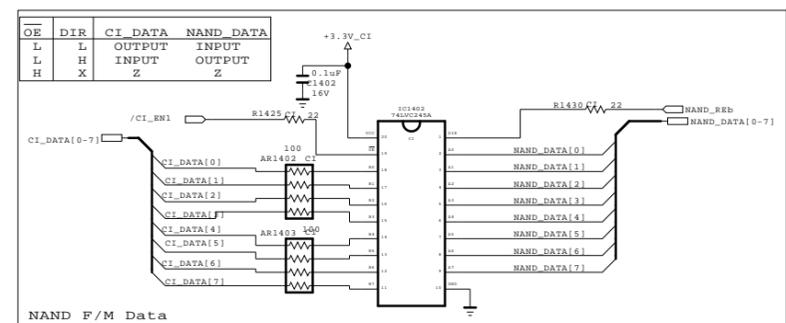
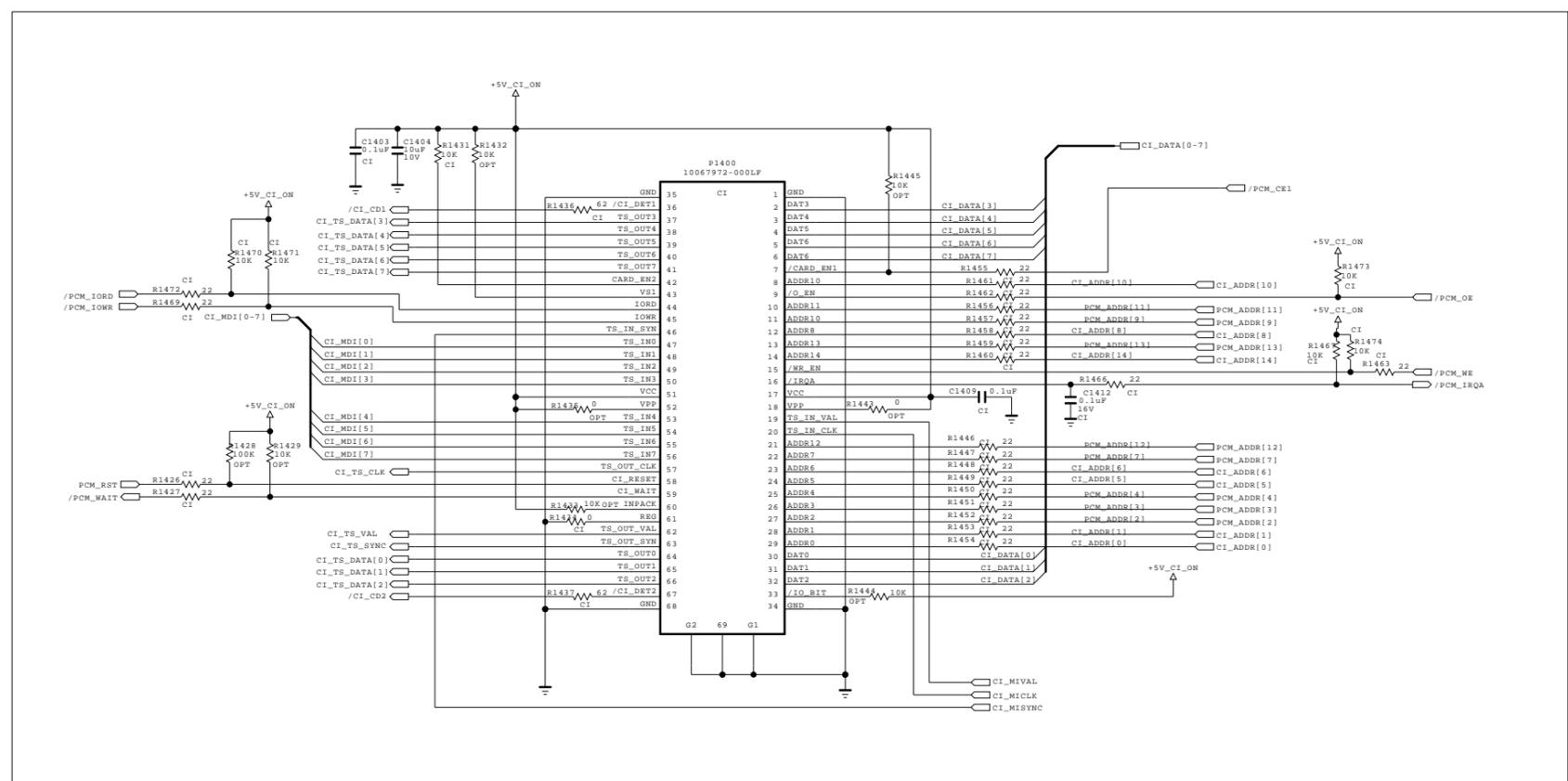
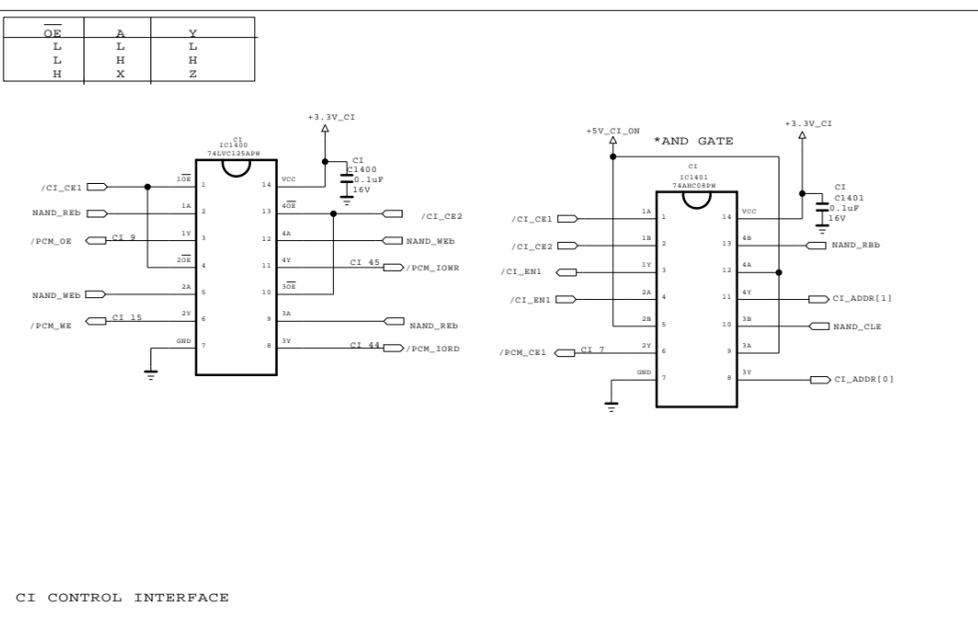
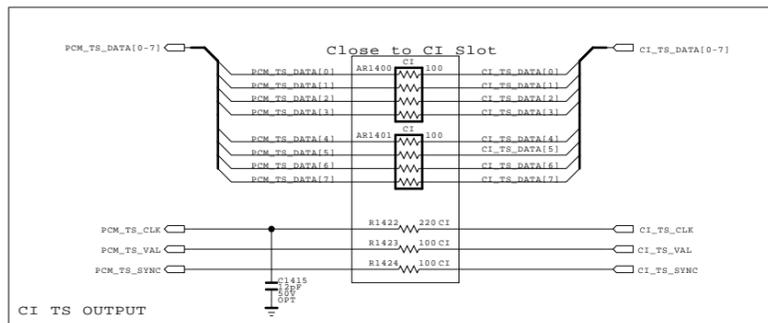
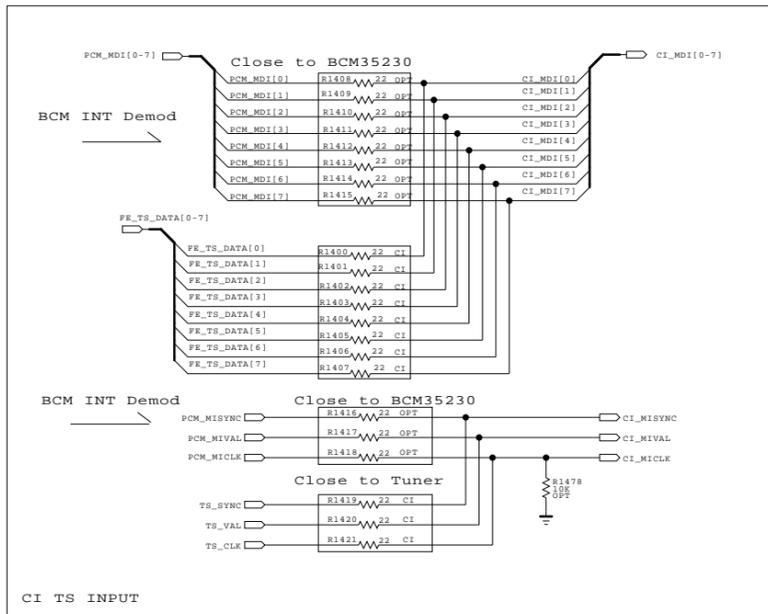
# AUDIO AMP



**SECRET**  
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MODEL	EAX63525101	DATE	
BLOCK	AUDIO[ST]	SHEET	13 / 19



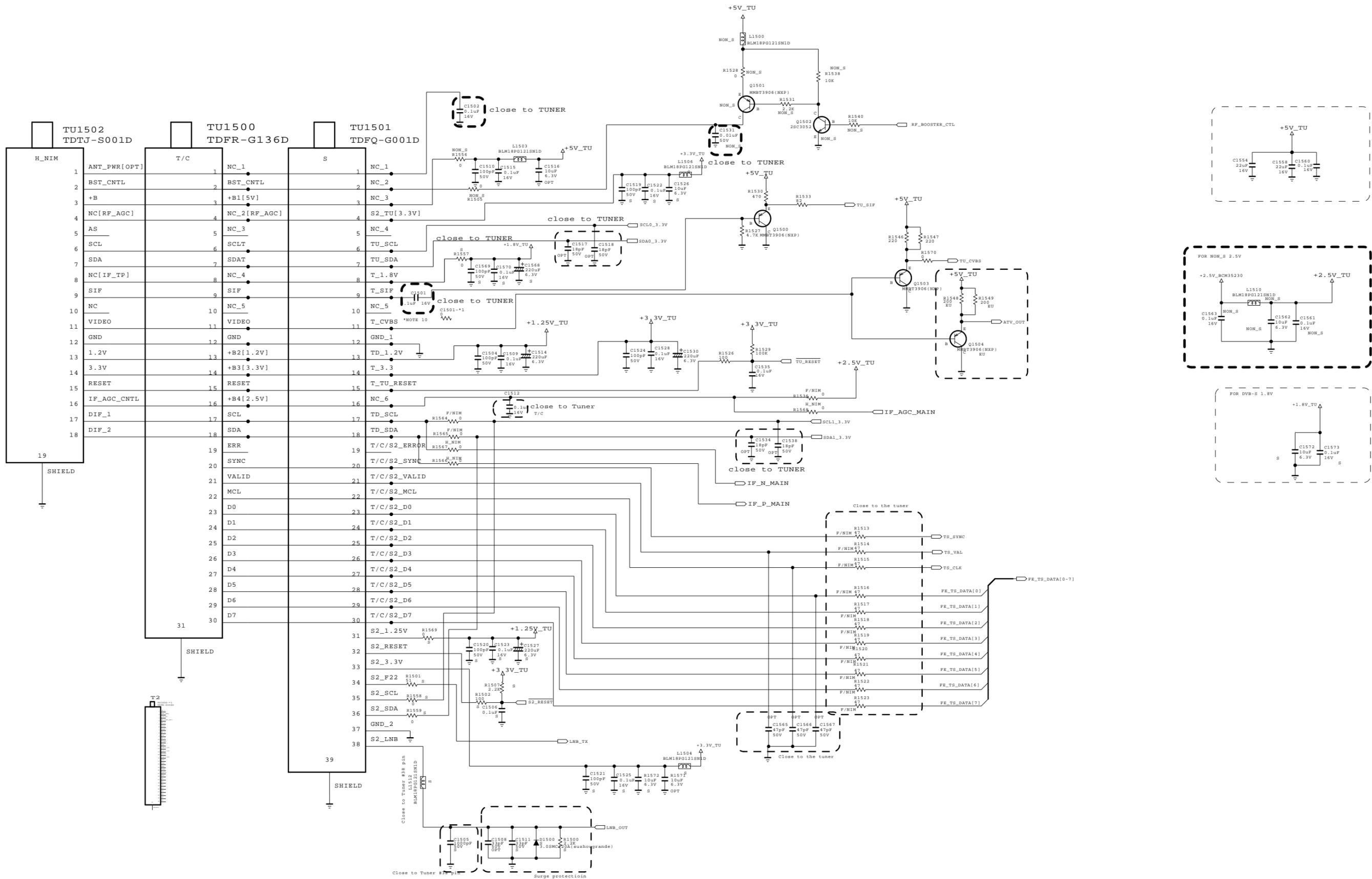
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MODEL	EAX63525101	DATE	
BLOCK	CI	SHEET	14 / 19

# F/NIM & T/C/S2 Combo Tuner



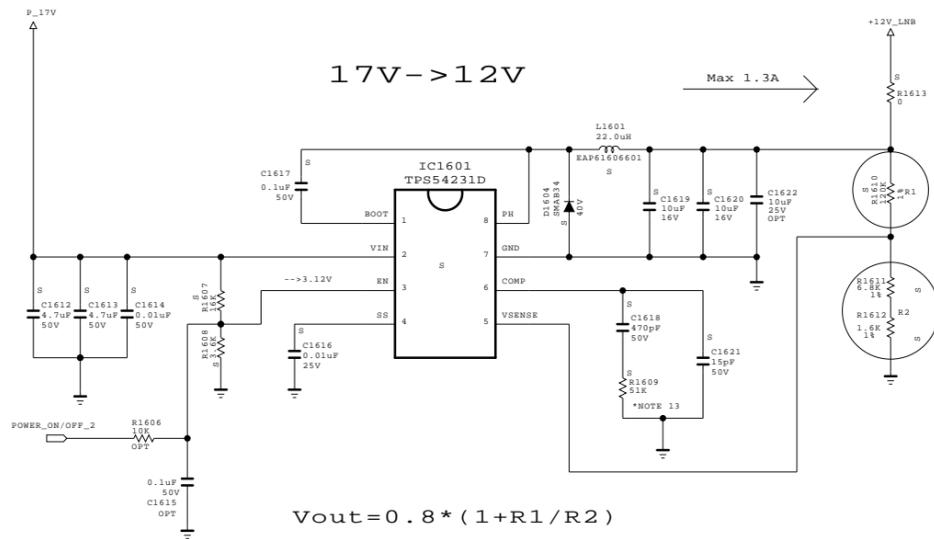
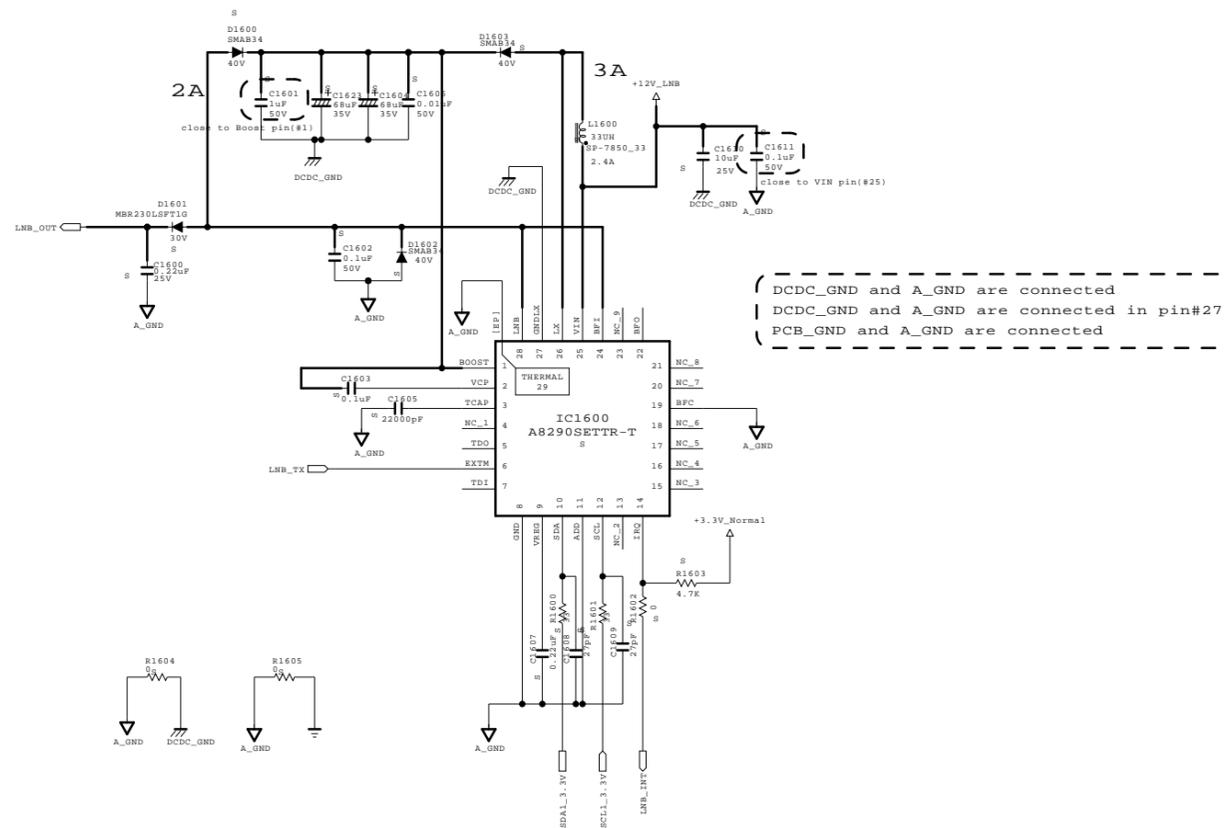
THE SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURERS SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SYMBOL MARK OF THE SCHEMATIC.

**SECRET**  
LGElectronics



MODEL	EAX63525101	DATE	
BLOCK	TUNER	SHEET	15 / 19

# DVB-S2 LNB Part\_Allegro



THE SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SYMBOL MARK OF THE SCHEMATIC.

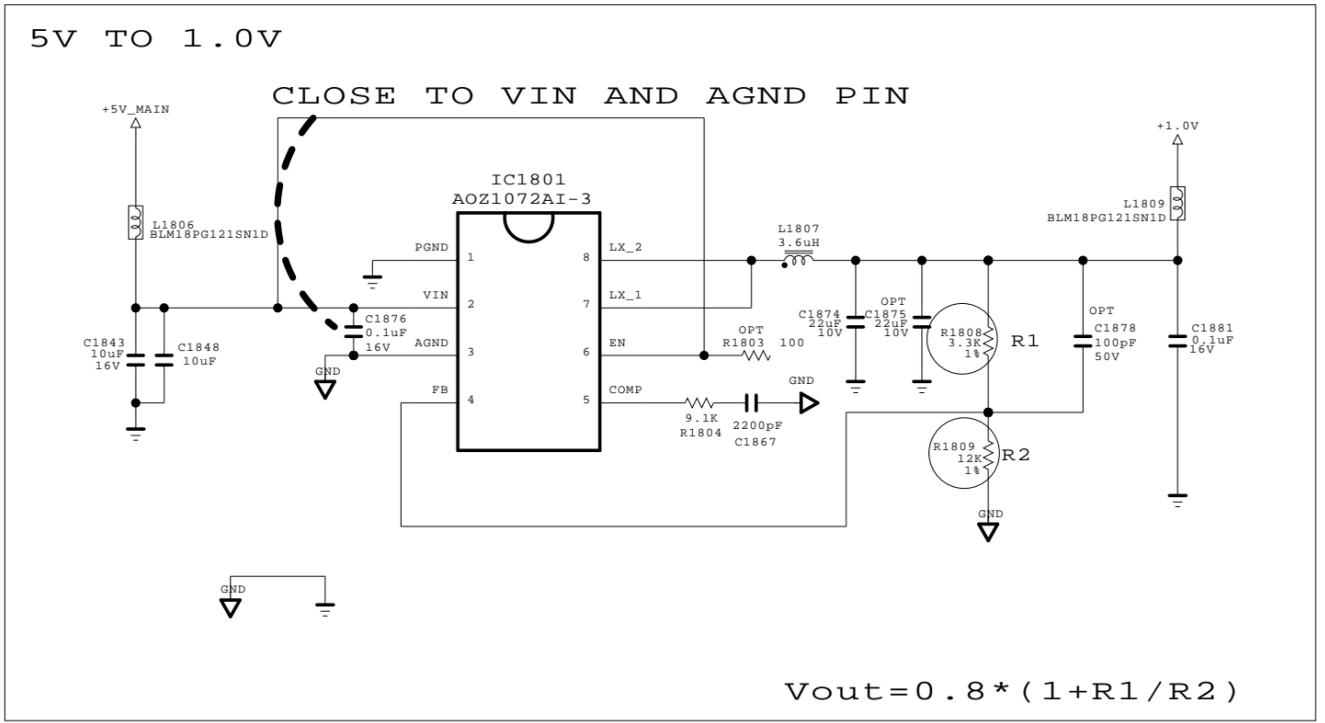
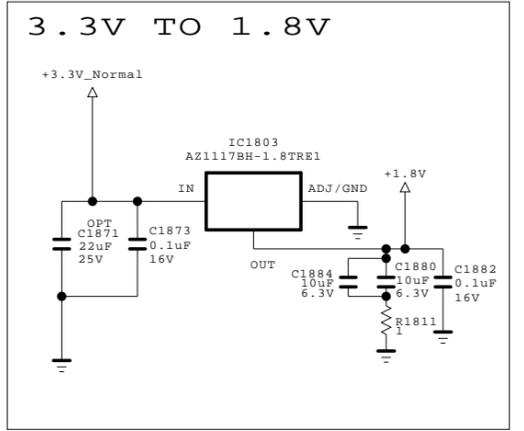
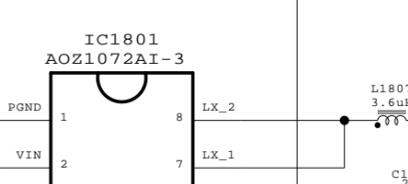
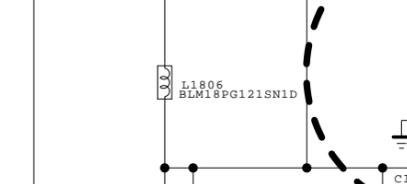
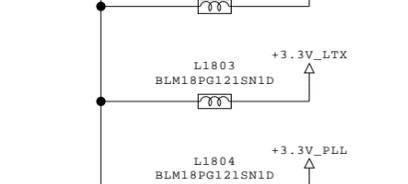
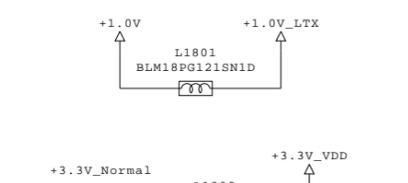
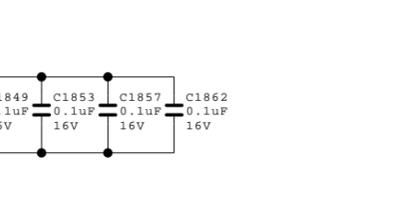
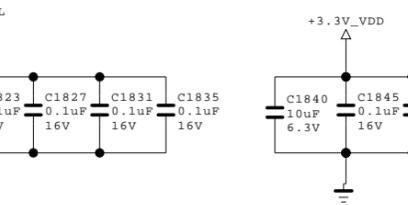
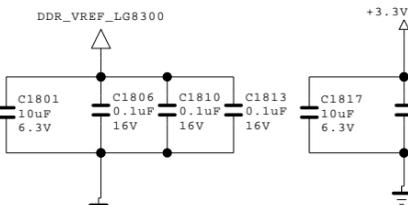
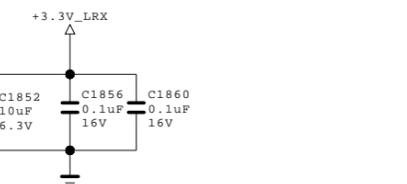
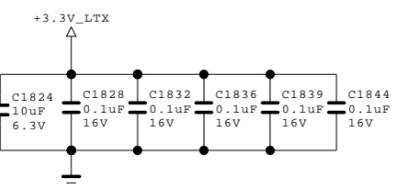
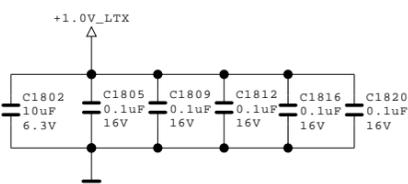
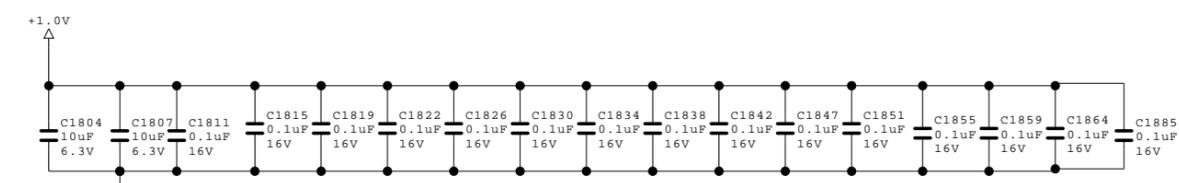
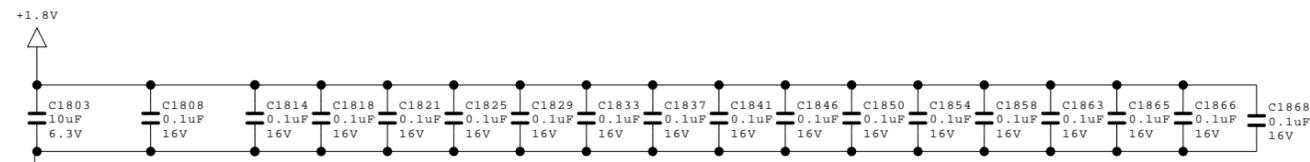
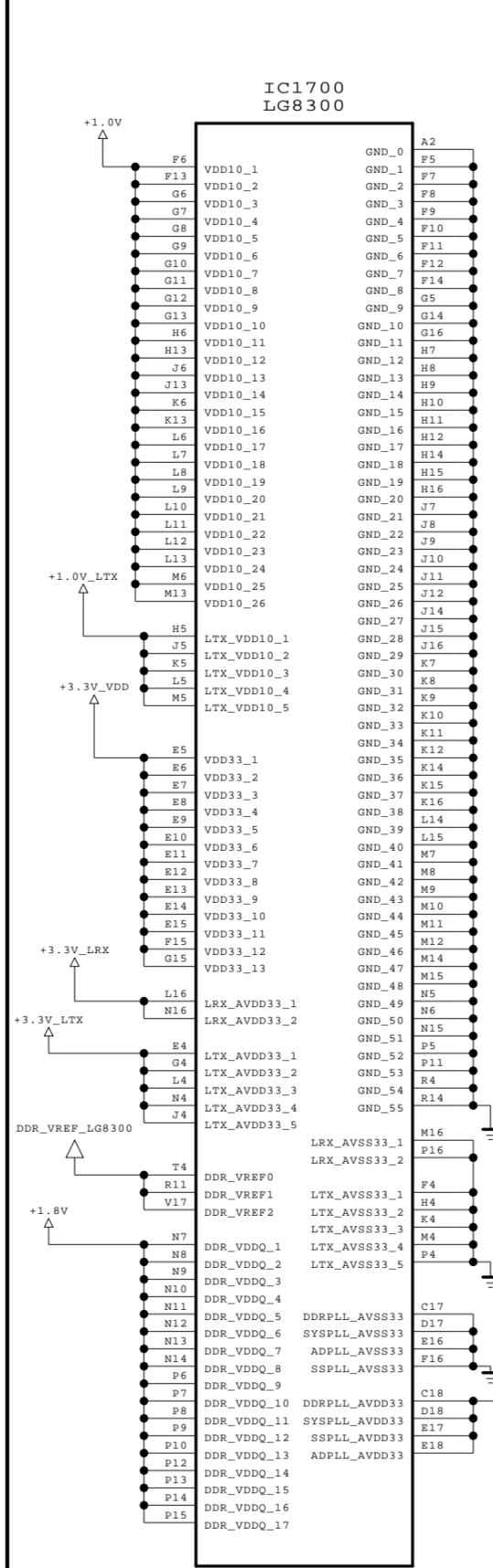
**SECRET**  
LGElectronics



MODEL	EAX63525101	DATE	
BLOCK	LNB	SHEET	16 / 19



IC1700  
LG8300

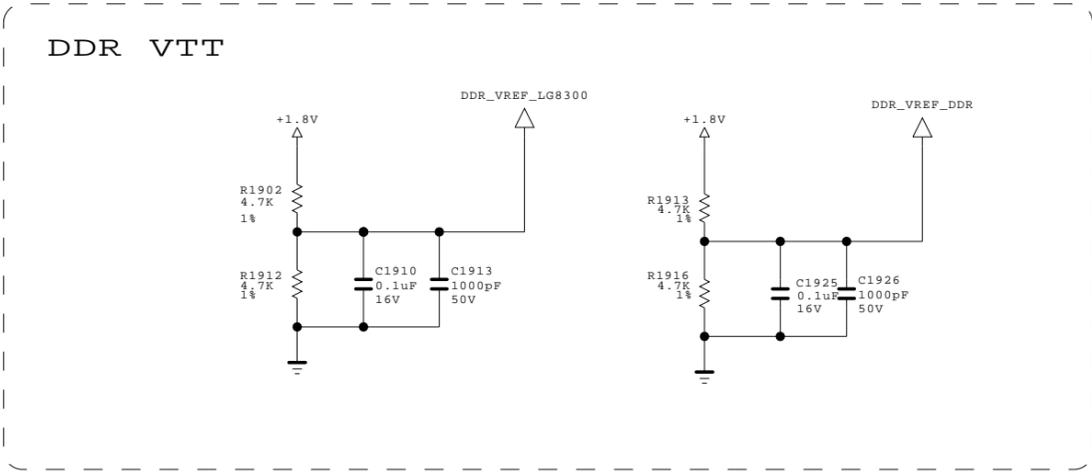
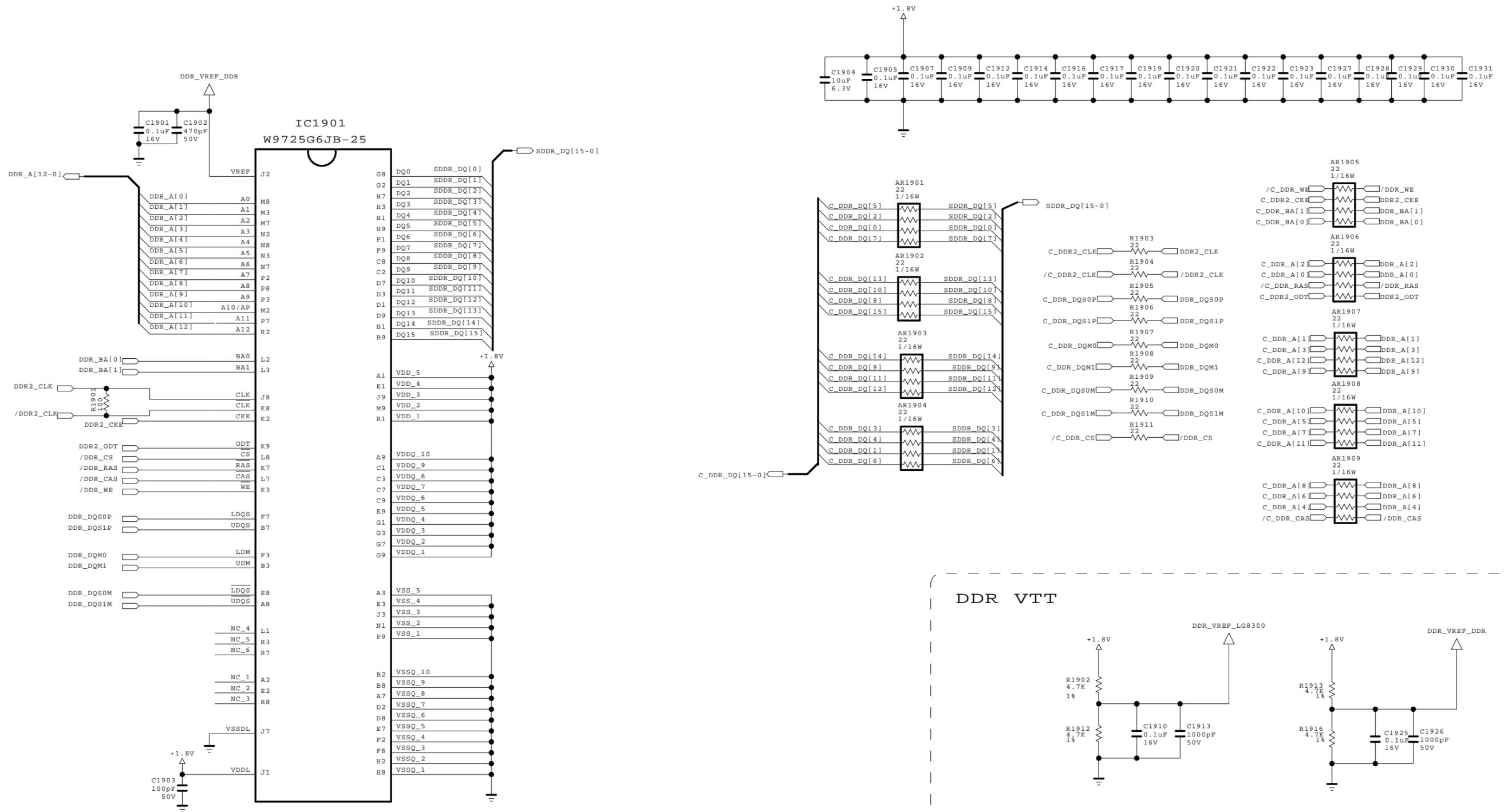


THE ⚠ SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMATIC.

SECRET  
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MODEL	EAX63525101	DATE	
BLOCK	LG8300_POWER	SHEET	18 / 19



THE ⚠ SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FILRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE ⚠ SYMBOL MARK OF THE SCHEMATIC.

**SECRET**  
LGElectronics



MODEL	EAX63525101	DATE	
BLOCK	LG8300_DDR	SHEET	19 / 19



# PDP TV Repair Guide

< Applicable Model >  
- PD12A/B/C



# PDP TV Repair Process Index

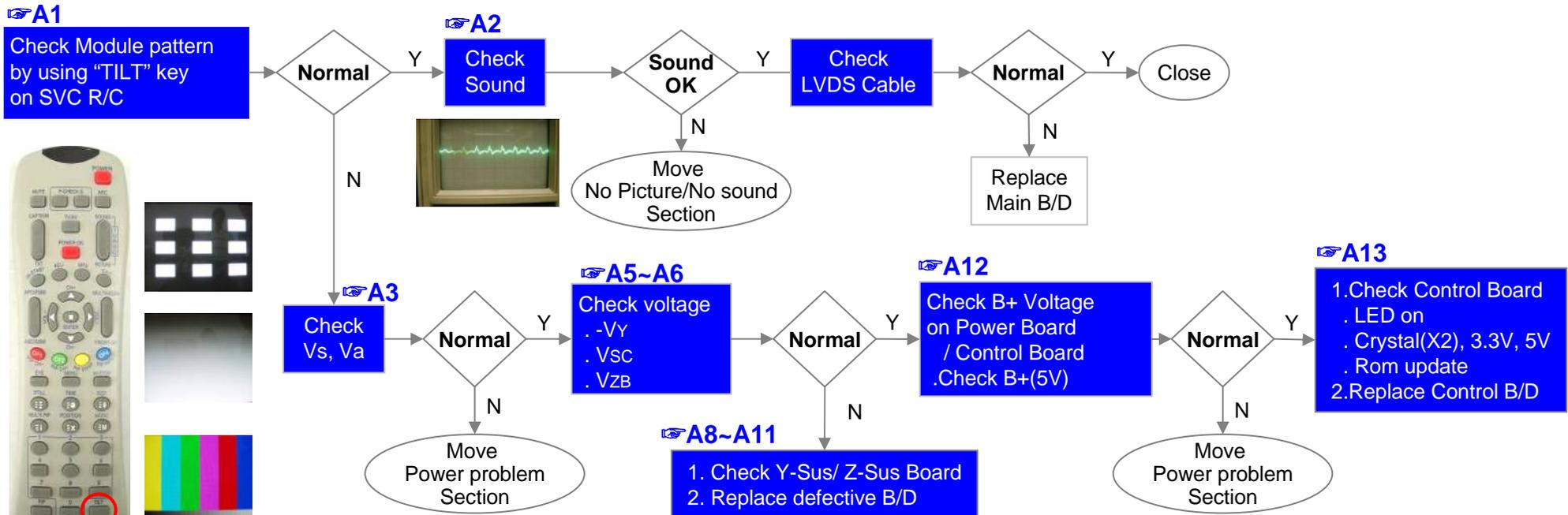
No.	Symptom (L)	Symptom (M)	Page	Remark
1	A. Picture Problem	No Picture/Sound OK	1	
2		No Picture/No sound	2	
3		Mal-discharge/Noise/dark picture	3	
4		Picture broken/Freezing	4	
5		Vertical bar/ Horizontal Bar	5	
6	B. Power Problem	No Power (Not turn on)	6	
7		Turn off (Instant, under watching)	7	
8	C. Sound Problem	No sound/ Sound distortion	8	
9	E. General function Problem	Remote control & Local Key checking	9	

First of all, Check whether there is SVC Bulletin in GCSC System for these model.

# Repair Process

PDP TV	Symptom	A. Picture Problem	Making	2010. 12 . 24	
		No Picture/Sound OK	Revision		1/9

**First of all, Check whether all of cable between board was inserted properly or not.  
(Main B/D ↔ Power B/D, Power B/D ↔ Y-sus B/D, Y-Sus B/D ↔ Z-Sus B/D, LVDS Cable, Speaker Cable, IR B/D Cable,,)**



<SVC R/C & Pattern>

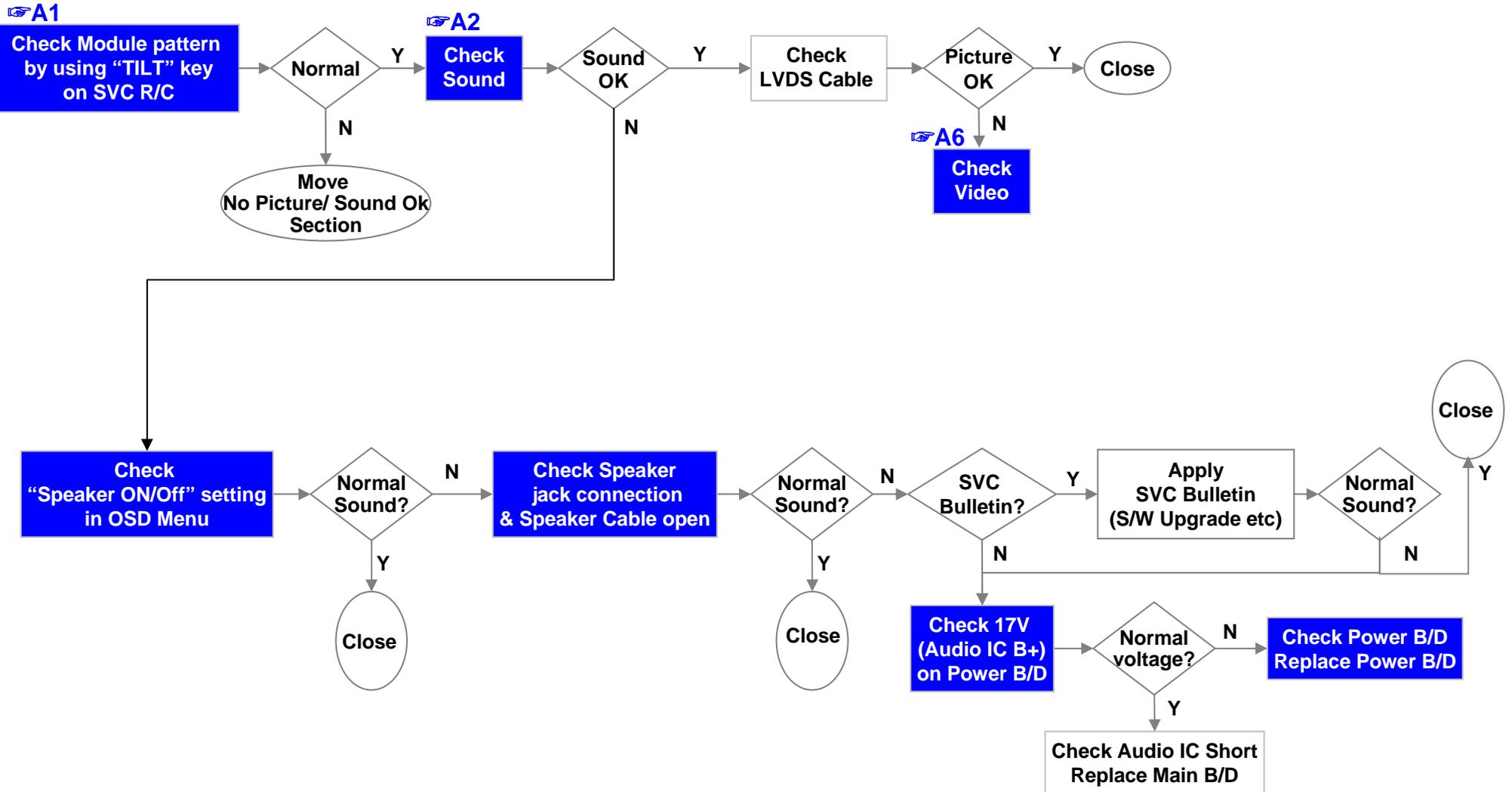
※ Refer to the Module label for each voltage **A4**



-VY    VSC    VZB  
1

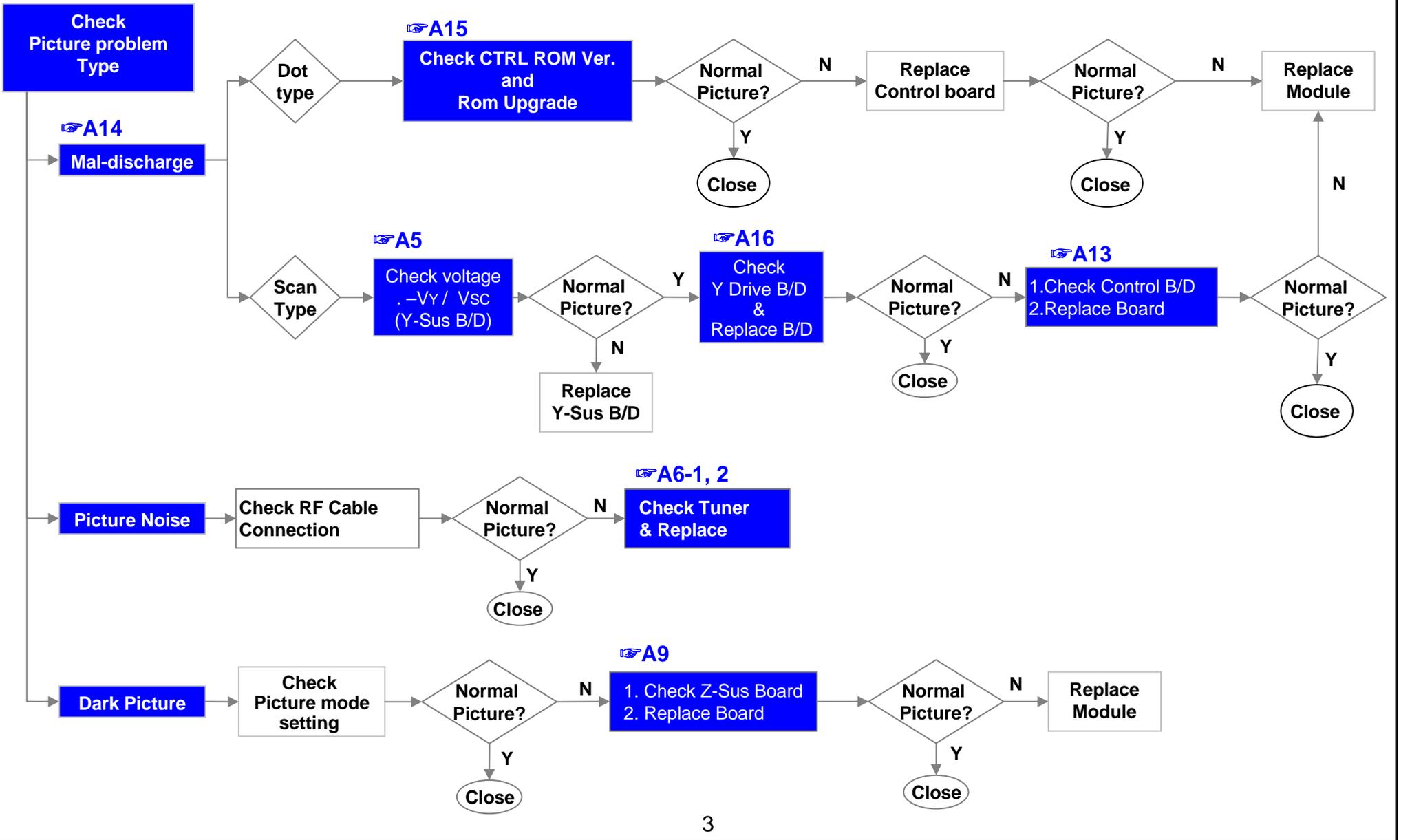
# Repair Process

PDP TV	Symptom	A. Picture Problem	Making	2010. 12 . 24	
		No Picture/No Sound	Revision		2/9



# Repair Process

PDP TV	Symptom	A. Picture Problem	Making	2010. 12 . 24	
		Mal-discharge/Noise/dark picture	Revision		3/9



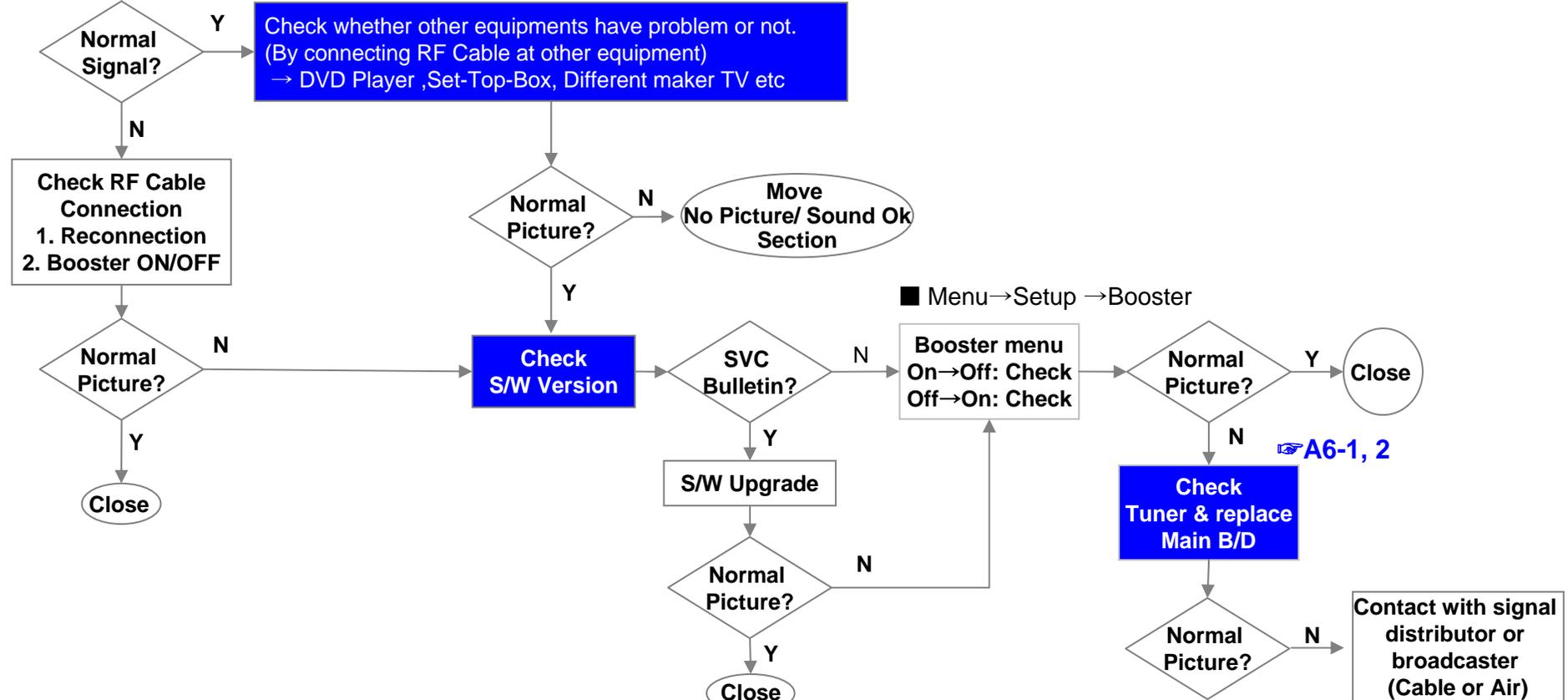
# Repair Process

PDP TV	Symptom	A. Picture Problem	Making	2010. 12 . 24	
		Picture broken/Freezing	Revision		4/9

☞ A21

**Check RF Signal level**

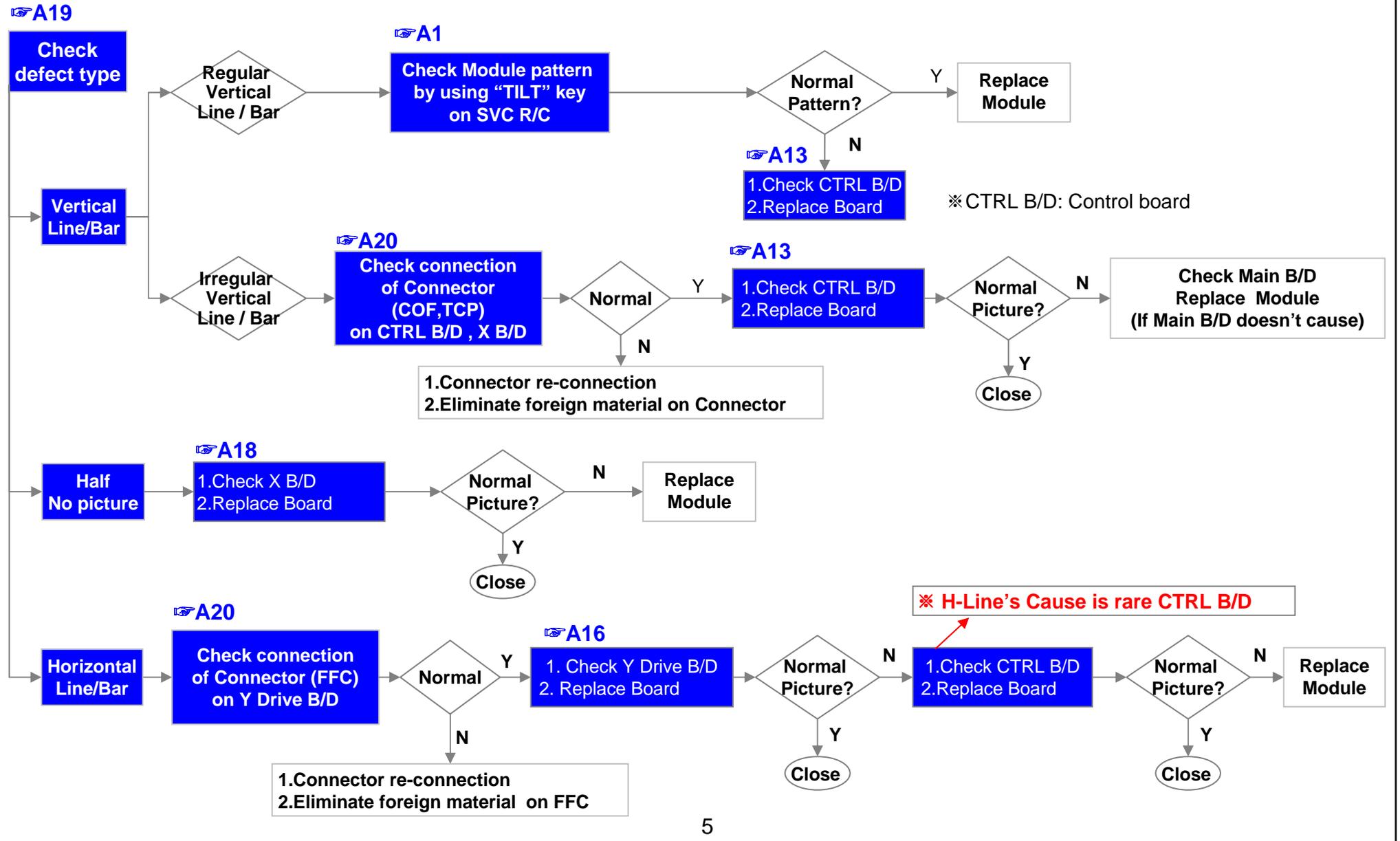
- . By using Digital signal level meter
- . By using Diagnostics menu on OSD  
( Menu→SUPPORT→Signal TEST)
- Signal strength (Normal : over 50%)
- Signal Quality (Normal: over 50%)



※In case of Models, Booster function isn't supported.

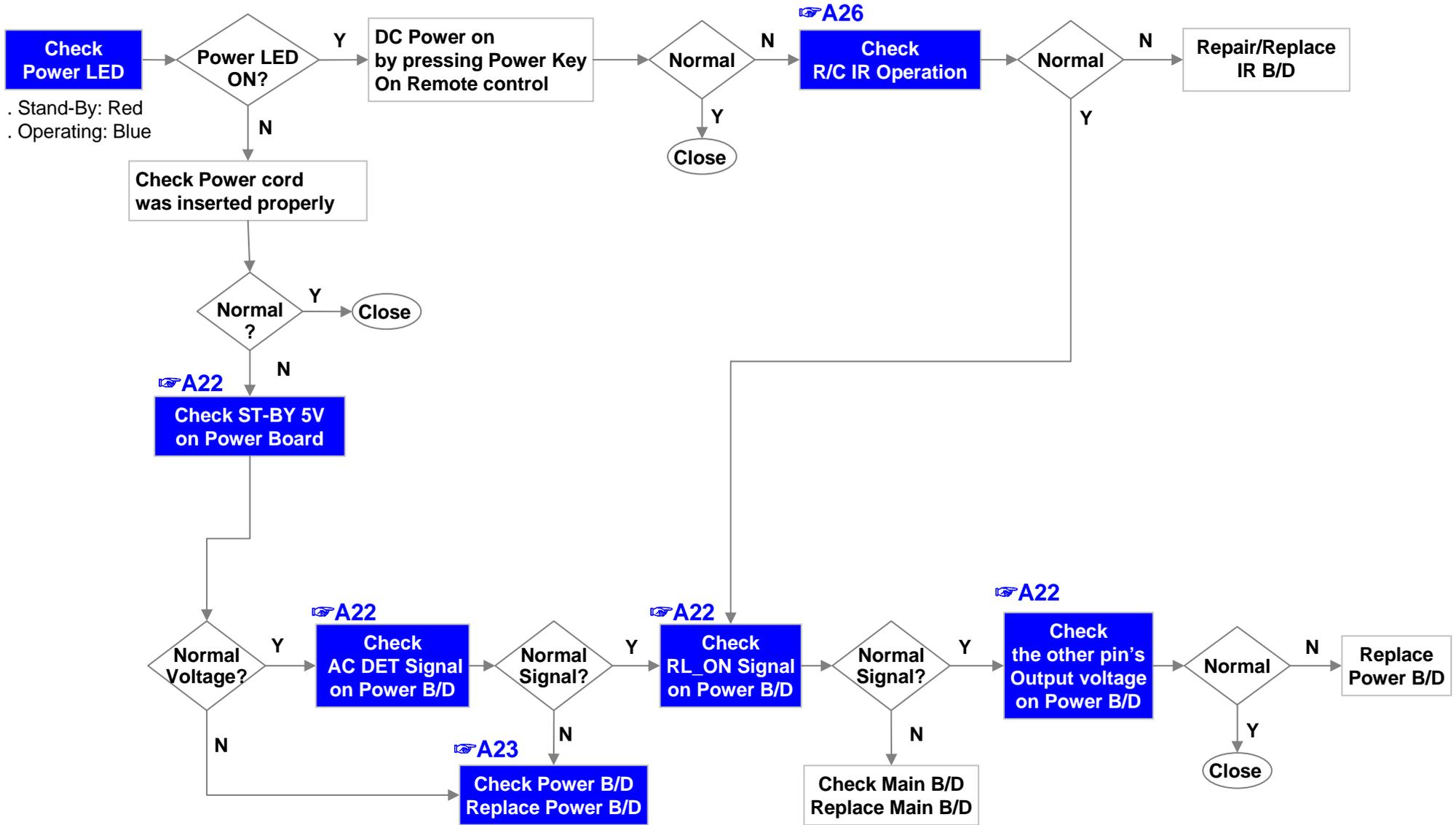
# Repair Process

PDP TV	Symptom	A. Picture Problem	Making	2010. 12 . 24	
		Vertical bar/ Horizontal Bar	Revision		5/9



# Repair Process

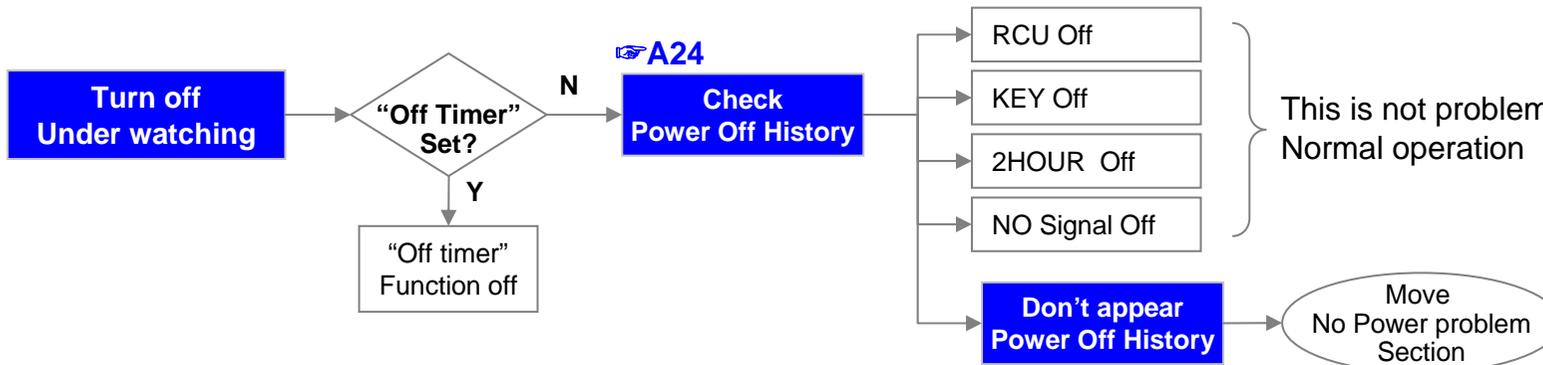
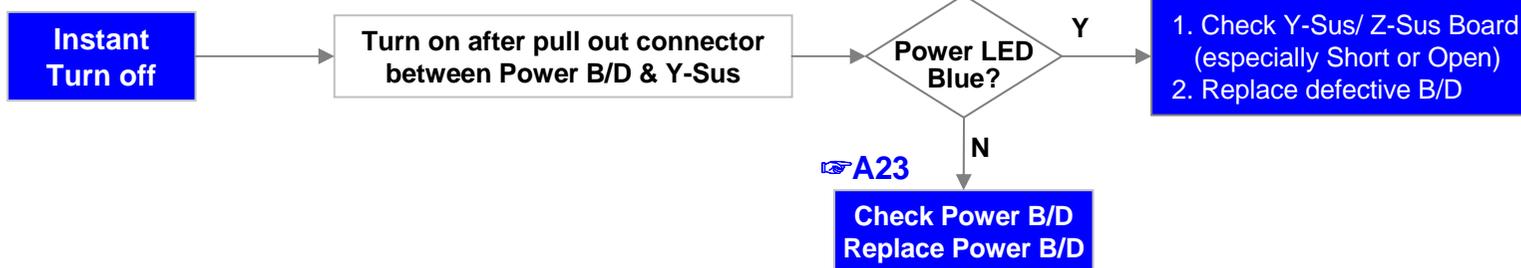
PDP TV	Symptom	B. Power Problem	Making	2010. 12 . 24	
		No Power (Not turn on)	Revision		6/9



# Repair Process

PDP TV	Symptom	<b>B. Power Problem</b>	Making	2010. 12 . 24	
		Turn off (Instant, under watching)	Revision		7/9

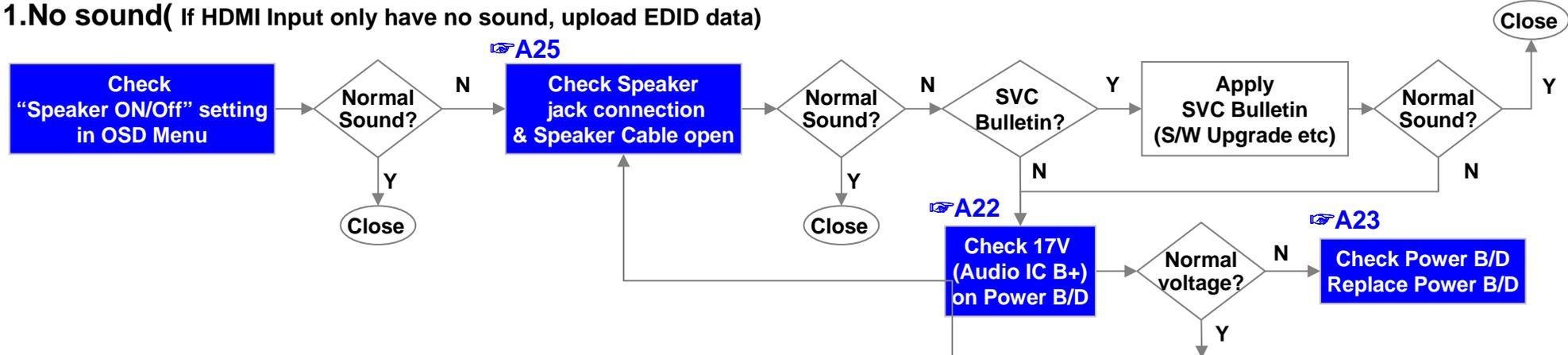
※ To check Power B/D Protection



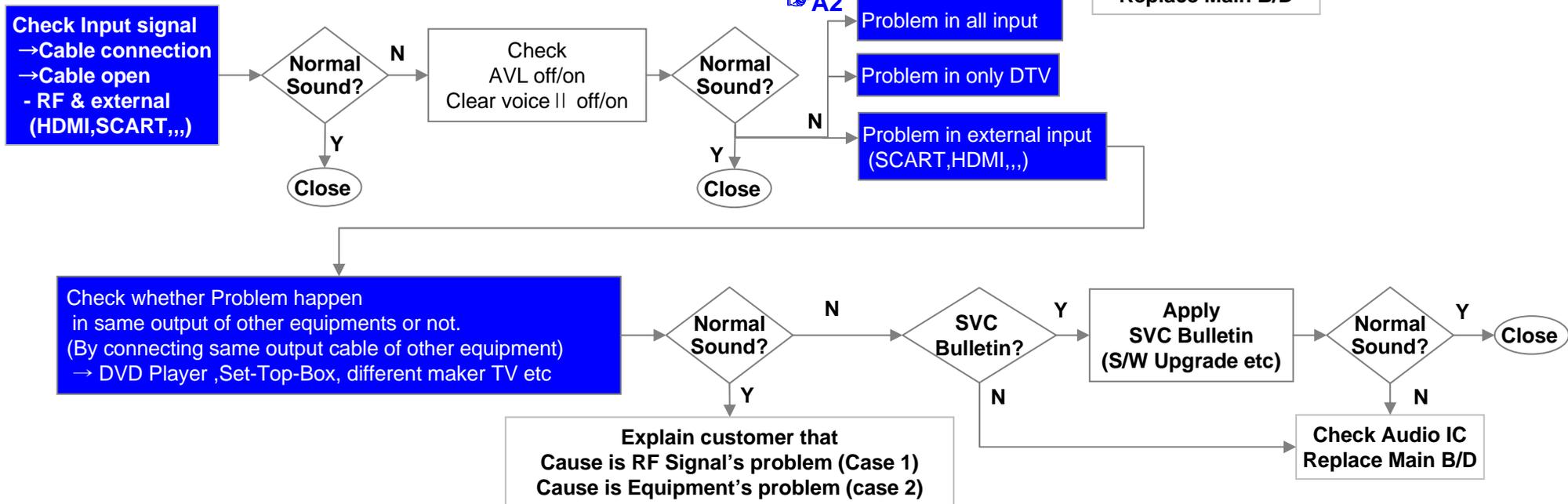
# Repair Process

PDP TV	Symptom	C. Sound Problem	Making	2010. 12 . 24	
		No sound/ Sound distortion	Revision		8/9

## 1.No sound( If HDMI Input only have no sound, upload EDID data)



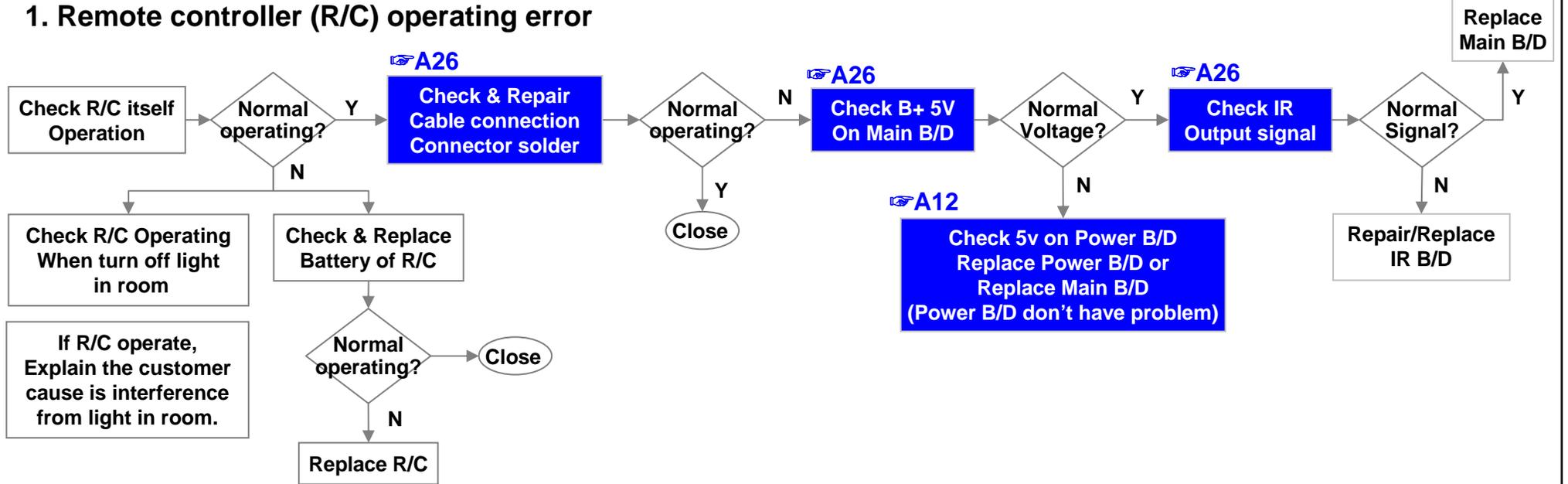
## 2.Sound distortion & sound drop



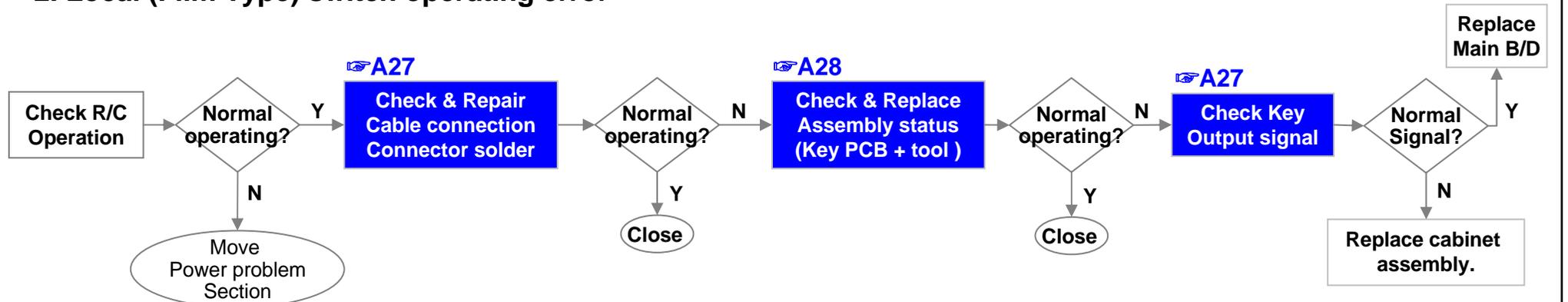
# Repair Process

PDP TV	Symptom	D. General Function Problem	Making	2010. 12 . 24	
		Remote control & Local Key checking	Revision		9/9

## 1. Remote controller (R/C) operating error



## 2. Local (Film Type) switch operating error



# PDP TV Repair Process Reference data Index

No.	Symptom	Detail	Page	Remark
1		Check Module pattern by Tilt key	A1	
2		Audio check method	A2	
3		Check Va, Vs on Power Board	A3	
4		PDP Module Label Information	A4	
5		Check & Adjust -VY,VSC,VZB voltage - 50H3 -VY,VSC(Y-Sus) / VZB(Z-Sus)	A5	
6		Video Check Method	A6	
6	<b>Picture Problem</b>	Fuse Checking Method	A7	
7		Y-Sus Board Checking Method(50H3)	A8	
8		Z-Sus Board Checking Method(50H3)	A9	
11		Check 5V, 12V on Power B/D	A12	
12		Control Board Checking Method(50H3)	A13	
13		Mal discharge Symptom Picture	A14	
14		PDP Module Rom Ver. Checking method	A15	
15		Y Drive B/D Checking method	A16	
16		(Half picture) X- B/D Checking method(50H3)	A18	

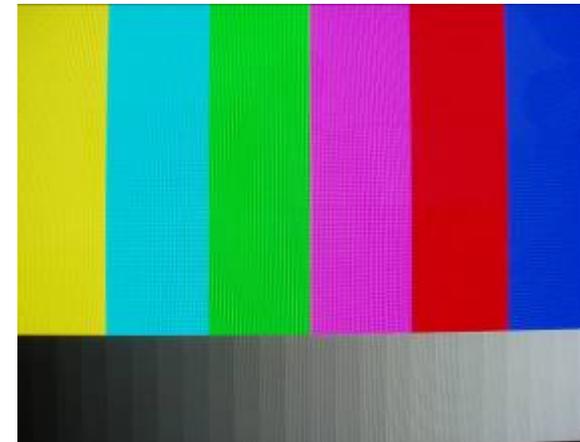
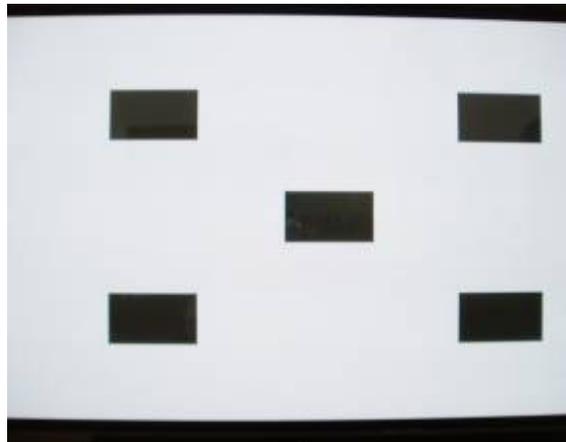
**Next page Continued**

# PDP TV Repair Process Reference data Index

No.	Symptom	Detail	Page	Remark
17	<b>Picture Problem</b>	<b>Defect type cause by PDP Module</b>	A19	
18		<b>Connector Type on PDP Module</b>	A20	
19		<b>RF Signal level Checking method</b>	A21	
20	<b>Power Problem</b>	<b>Check voltage on Power board</b>	A22	
21		<b>Power board Checking Method</b>	A23	
22		<b>Check Power off History</b>	A24	
23	<b>Sound Problem</b>	<b>Speaker cable checking method</b>	A25	
24	<b>General Function Problem</b>	<b>Check Remote control IR operation</b>	A26	
25		<b>Check Local Key operation</b>	A27	
26		<b>Check Local switch assembly status</b>	A28	

## Repair Process-Reference data

PDP TV	Symptom	A. Picture Problem	Making	2010. 12 . 24	전자 - 6-2
	Item	Check Module pattern by Tilt key	Revision		A1



**You can see 20 types patterns by using TILT Key on SVC Remote controller (except Old model)**

**< CHECK Item >**

**1. Dead pixel 2. Image sticking 3. Mal discharge 4. Module defect (V-Line/Bar, H-Line/Bar,,)**

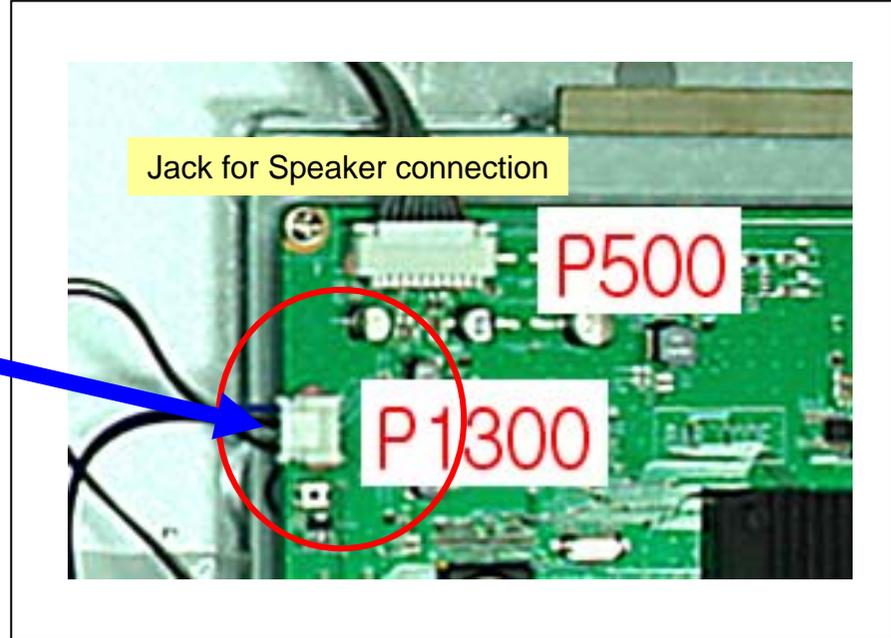
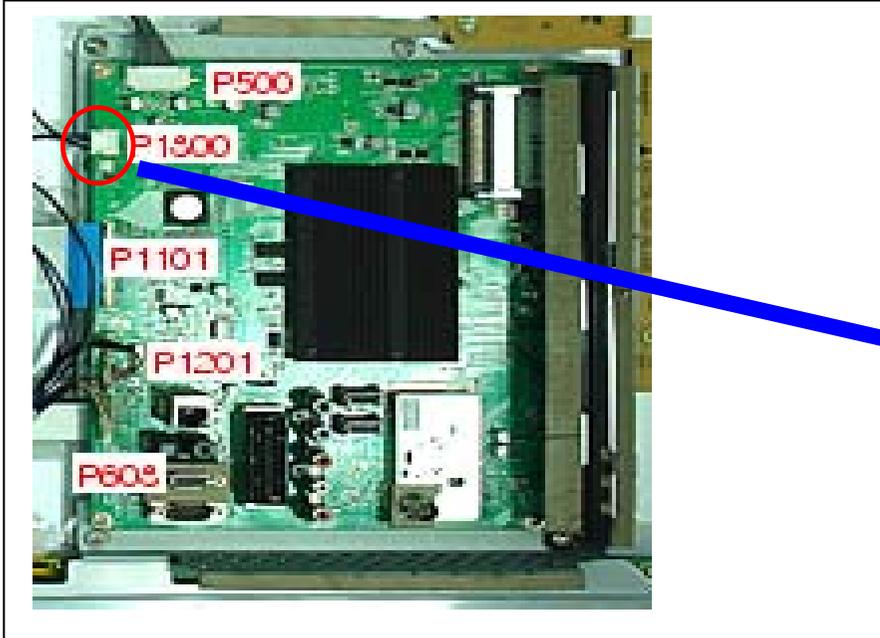
**5. In case of no picture, you can judge defect cause (Module or Main B/D)**

**- If patterns appear, defect cause is Main B/D**

A1

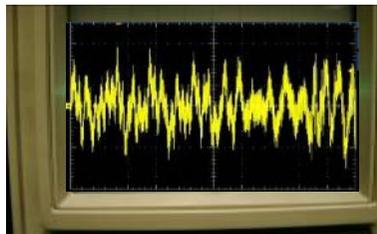
# Repair Process-Reference data

PDP TV	Symptom	A. Picture Problem	Making	2010. 12 . 24	
		Audio check method	Revision		A2



1. Check Audio output by using oscilloscope  
GND ↔ R- or R+ or L- or L+

2. Check whether speaker jack was inserted properly or not.

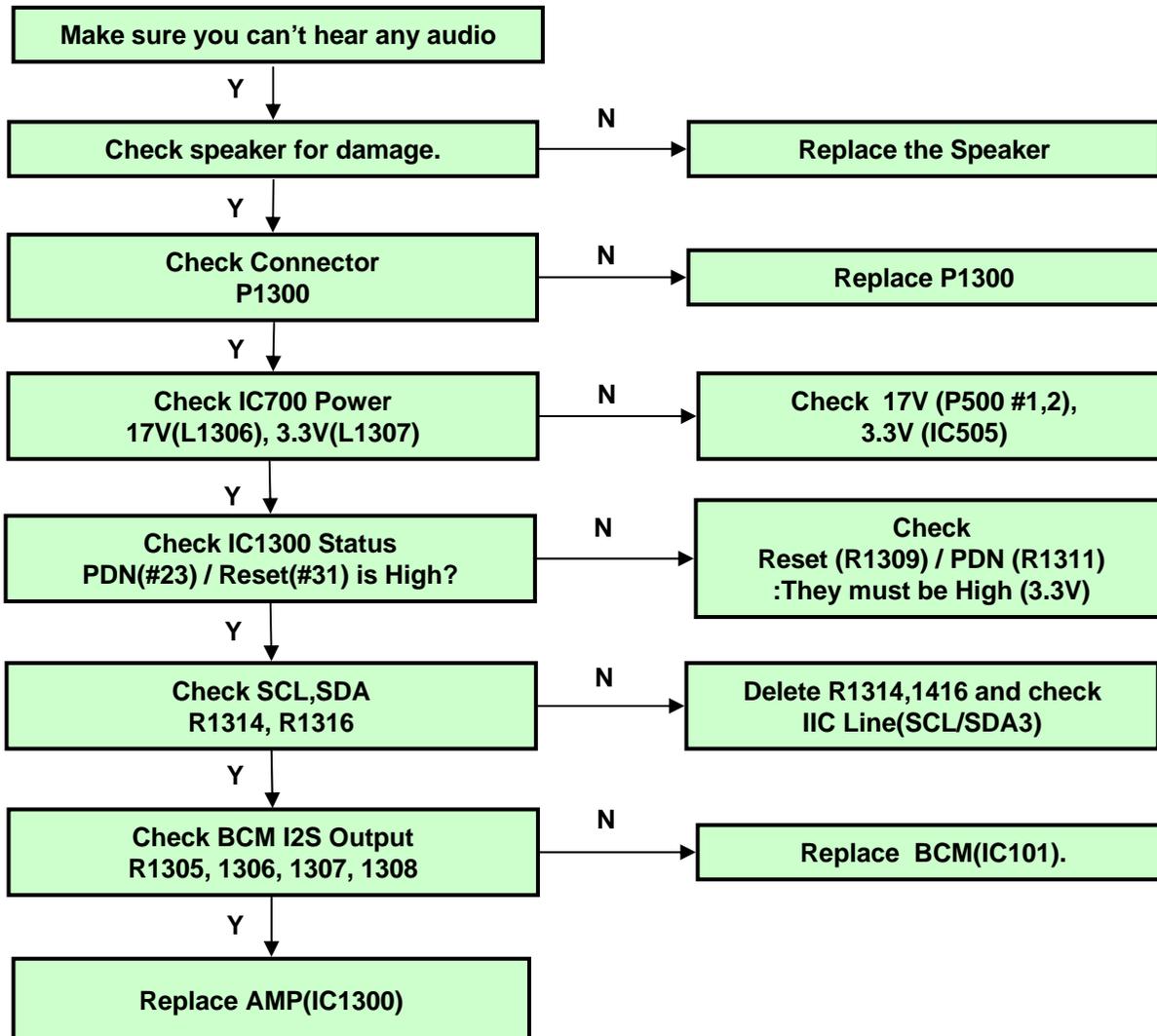


Audio output waveform

A2

# Repair Process-Reference data

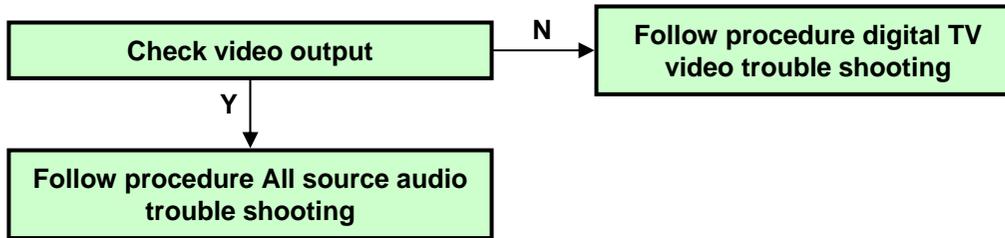
PDP TV	Input Block	All Input Audio Problem	Making	2010. 12 . 24	
			Revision		A2-1



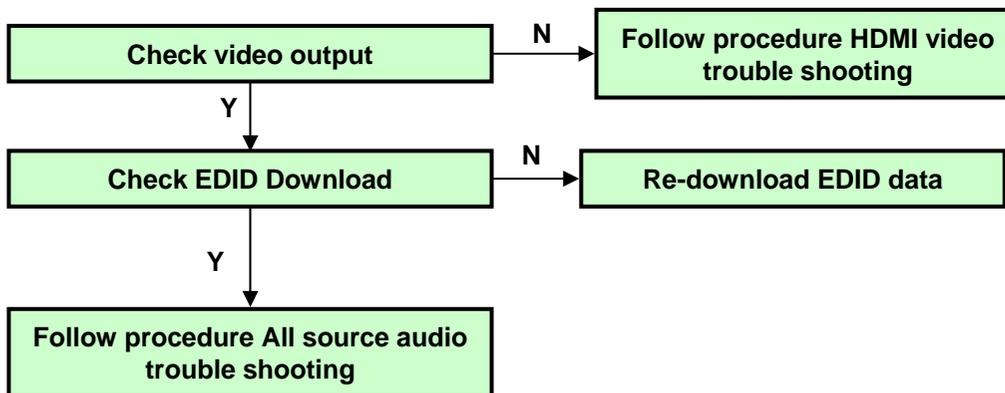
# Repair Process-Reference data

PDP TV	Input Block	Digital TV / HDMI Audio Problem	Making	2010. 12 . 24	
			Revision		A2-2

## ◆ Digital TV

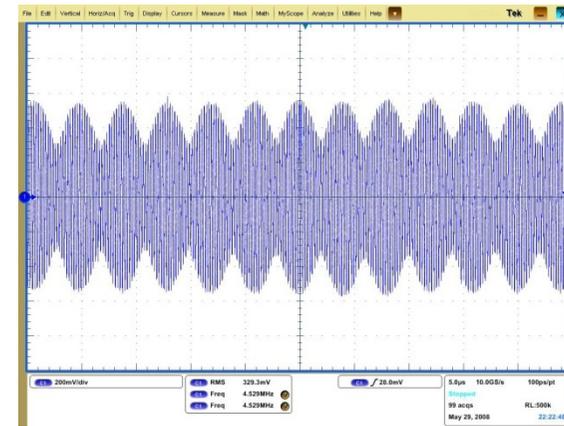
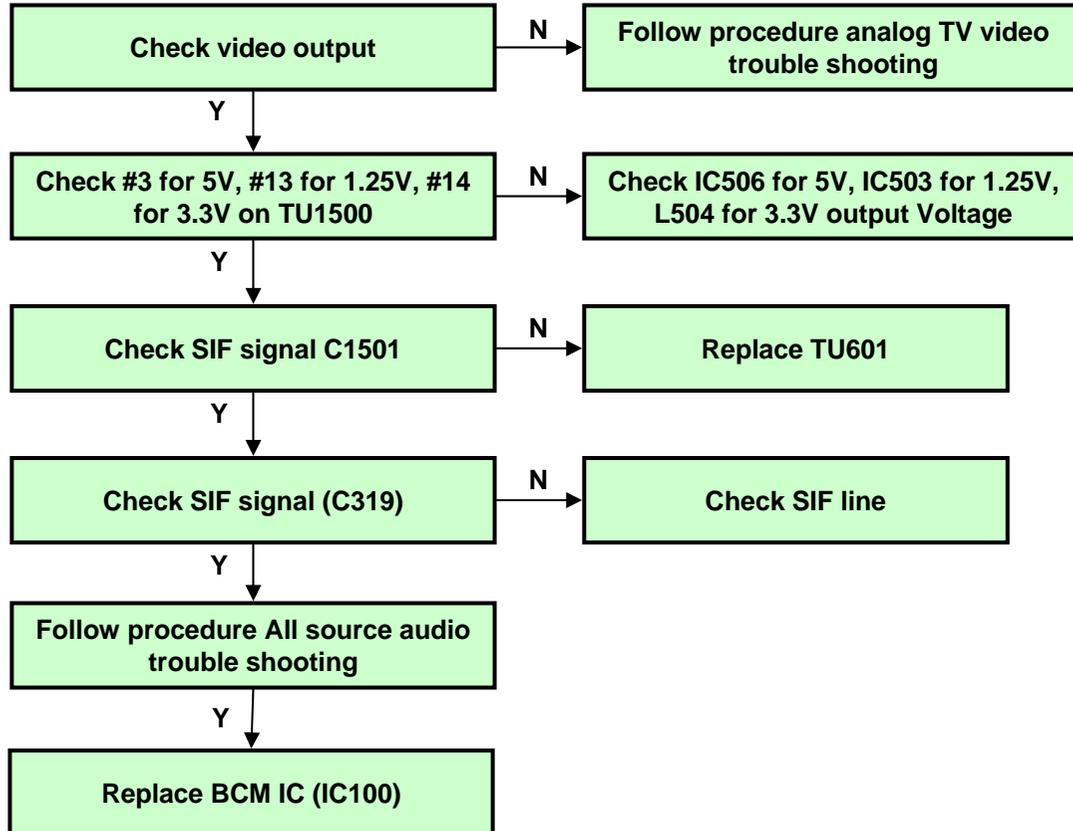


## ◆ HDMI



# Repair Process-Reference data

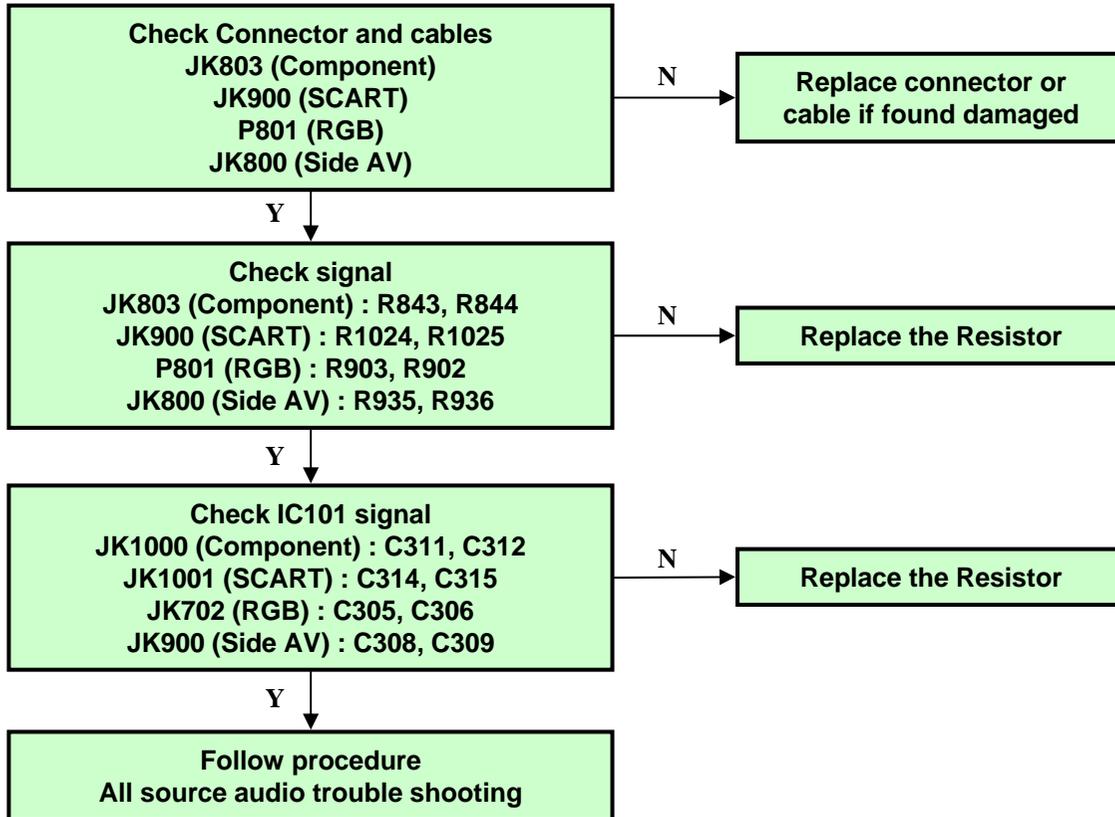
PDP TV	Input Block	Analog TV Audio Problem	Making	2010. 12 . 24	
			Revision		A2-3



< SIF waveform – sample >  
- Depend on the input signal.

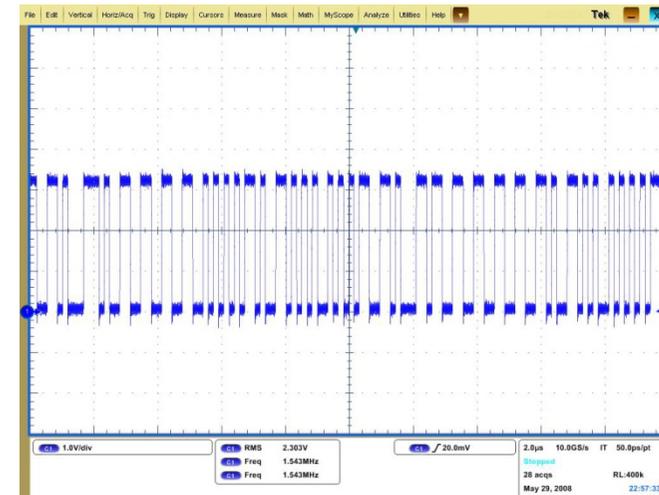
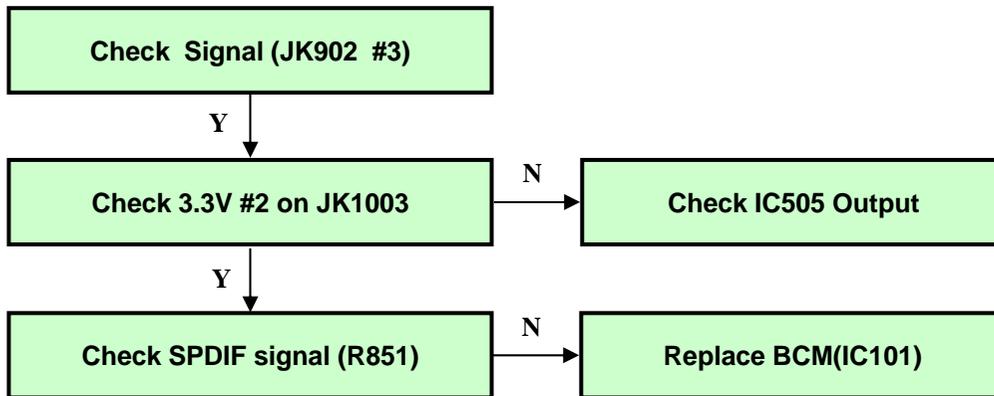
# Repair Process-Reference data

<b>PDP TV</b>	<b>Input Block</b>	<b>Component / AV/RGB Audio Problem</b>	<b>Making</b>	<b>2010. 12 . 24</b>	
			<b>Revision</b>		<b>A2-4</b>



# Repair Process-Reference data

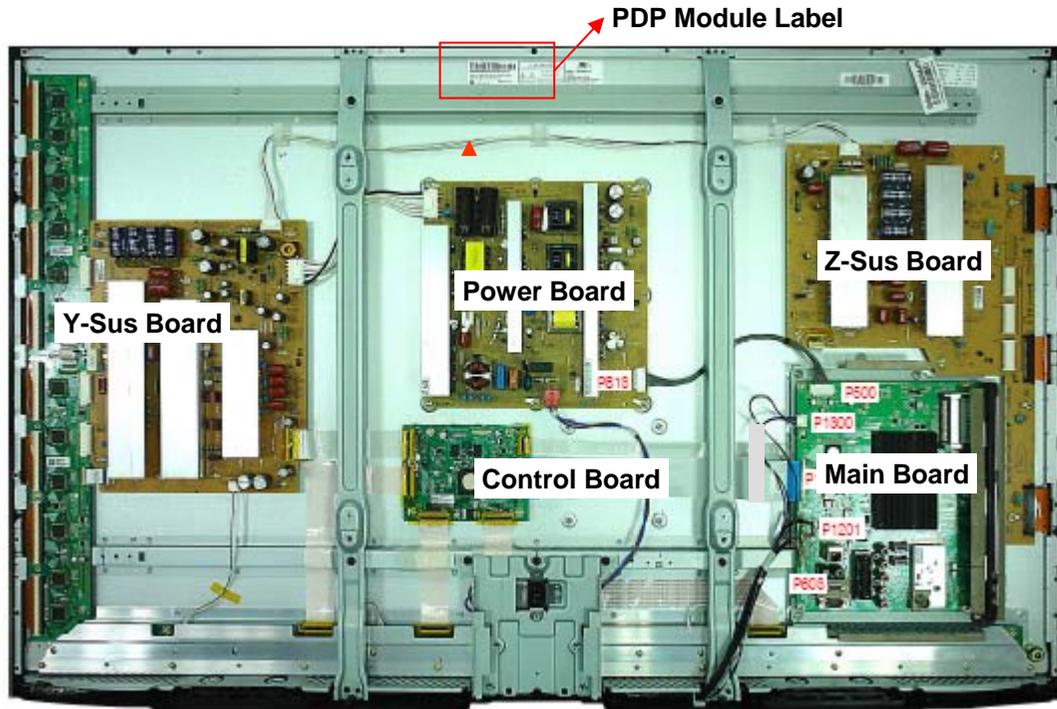
PDP TV	Input Block	Optical Audio Problem	Making	2010. 12 . 24	
			Revision		A2-5



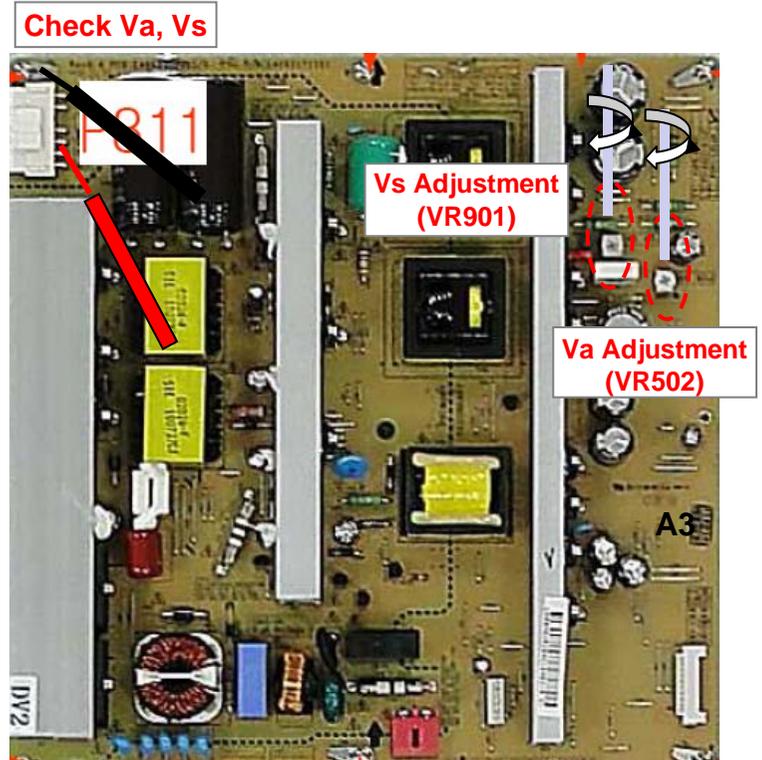
< SPDIF waveform – sample >  
- Depend on the input signal.

# Repair Process-Reference data

PDP TV	Symptom	A. Picture Problem	Making	2010. 12 . 24	
		Check Va, Vs on Power Board	Revision		A3



- ▶ **Check Va & Adjust Va Voltage**  
(Refer to the Module label for Va specification)
- ▶ **Check Vs & Adjust Vs Voltage**  
(Refer to the Module label for Vs specification)



## Repair Process-Reference data

PDP TV	Symptom	A. Picture Problem	Making	2010. 12 . 24	
		PDP Module Label Information	Revision		A4

### PDP Module Label Information.



- ① Model Name
- ② Bar Code  
(Code 128, Contains the manugacture No.)
- ③ Manugacture No.
- ④ Adjusting Voltage(DC Va, Vs)
- ⑤ Adjusting Voltage (Set up/-Vy/Vsc/Ve/Vzb)
- ⑥ The trade name of LG Electronics
- ⑦ Manufactured date(Year & Month)
- ⑧ Warning

- ⑨ UL Approval Mark
- ⑩ UL Approval No.
- ⑪ Model Name
- ⑫ Max. Watt
- ⑬ Max. Volts
- ⑭ Max. Amps

A4

# Repair Process-Reference data

PDP TV	Symptom	A. Picture Problem	Making	2010. 12 . 24	
		Check & Adjust $-V_Y, V_{sc}, V_{zB}$ voltage(50R3)	Revision		A5

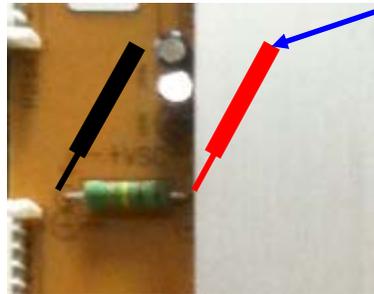
## Voltage Check & Adjustment : 50R3

<Module Label>

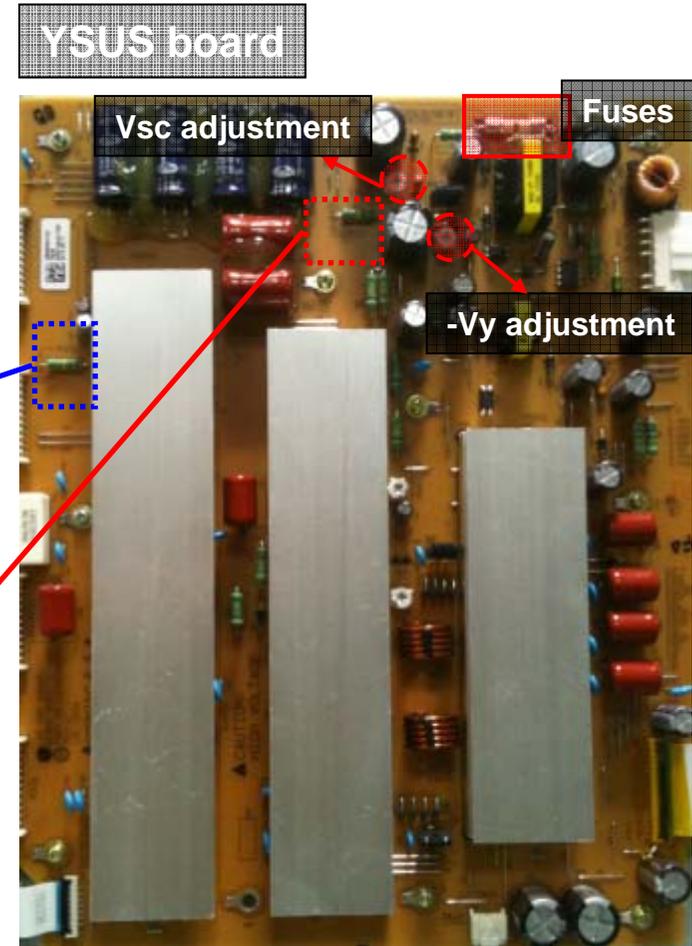


$-V_Y$      $V_{sc}$      $V_{zB}$

1.  $V_{sc}$  (150V) on Y-Sus B/D
  - Check Point: R324
  - Adjustment Point: VR301



2.  $-V_y$  (-190V) on Y-Sus B/D
  - Check Point: R334
  - Adjustment Point: VR302



A5

# Repair Process-Reference data

PDP TV	Symptom	A. Picture Problem	Making	2010. 12 . 24	
		Check & Adjust $-V_Y, V_{SC}, V_{ZB}$ voltage(50R1)	Revision		A5

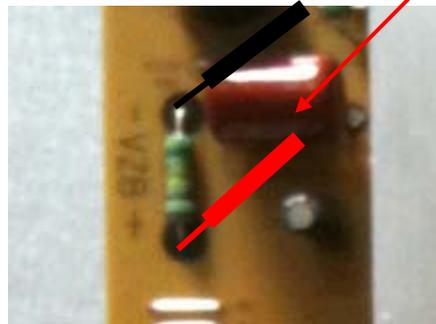
## Voltage Check & Adjustment : 50R3

<Module Label>

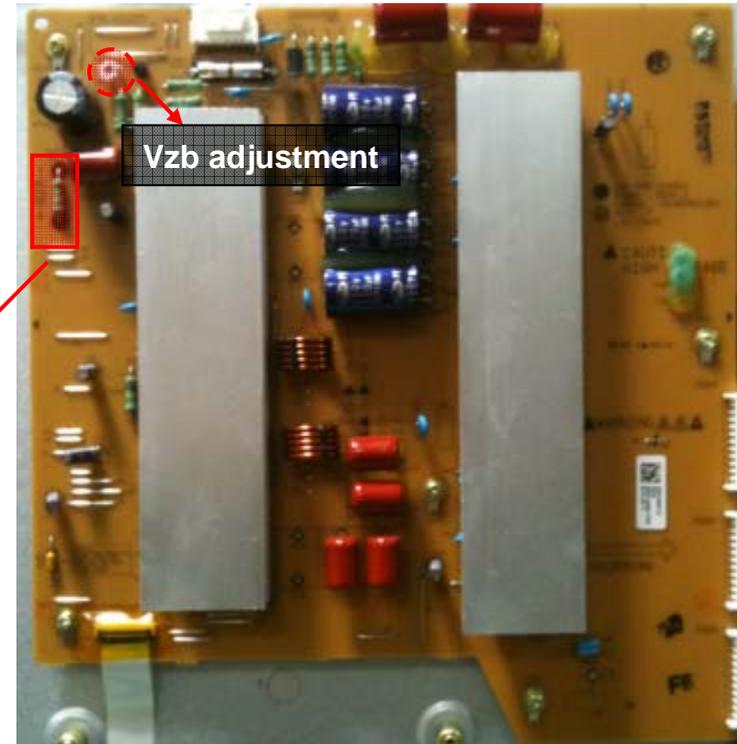


$-V_Y$      $V_{SC}$      $V_{ZB}$

- VZB (115V) on Z-Sus B/D
  - Check Point: R156
  - Adjustment Point: VR204

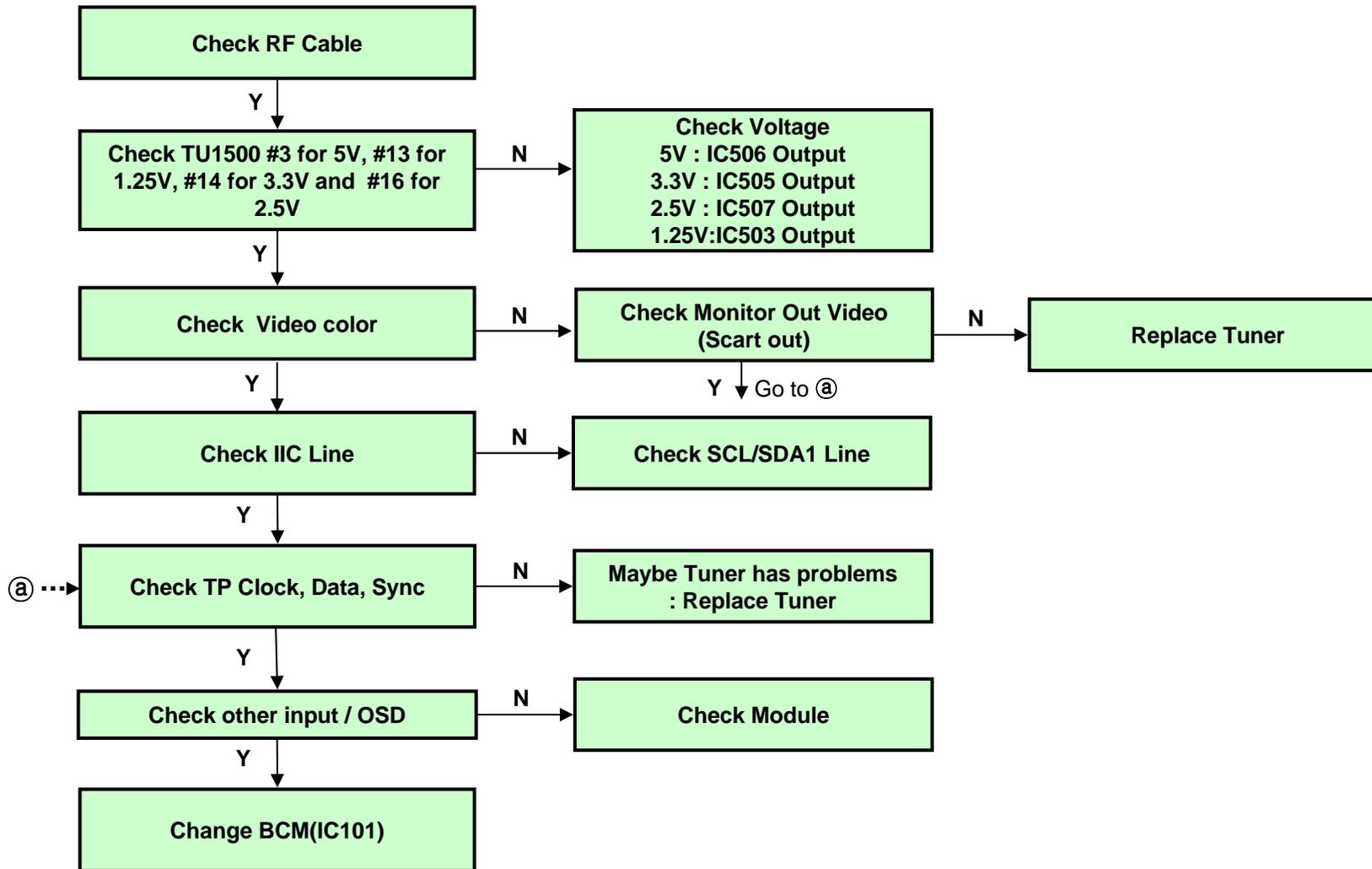


ZSUS board



# Repair Process-Reference data

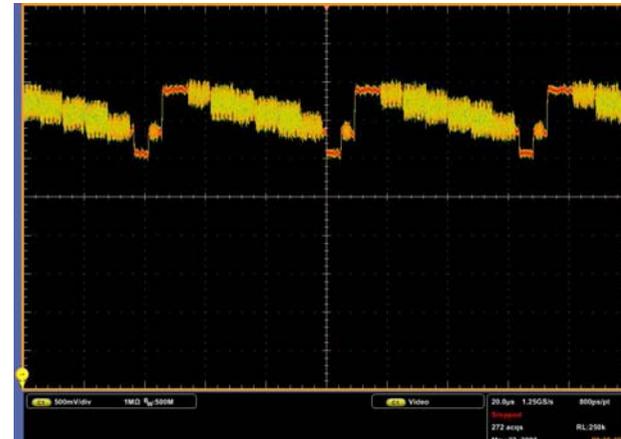
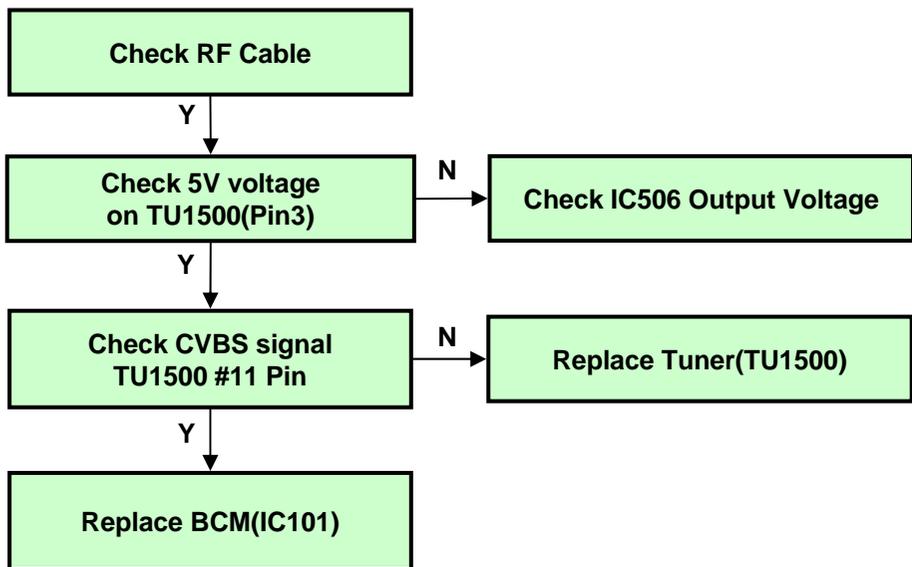
PDP TV	Input Block	Digital TV Video Problem	Making	2010. 12 . 24	
			Revision		A6-1



A6

# Repair Process-Reference data

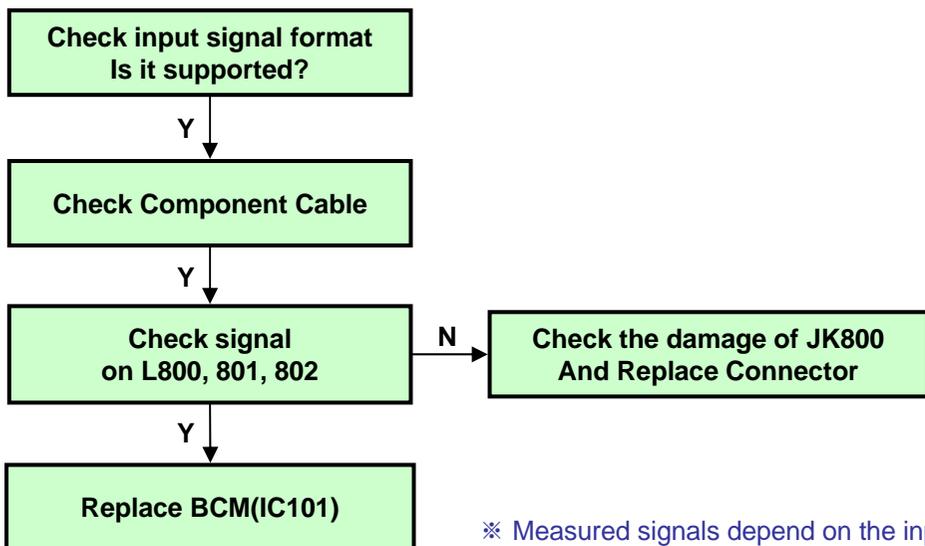
PDP TV	Input Block	Analog TV Video Problem	Making	2010. 12 . 24	
			Revision		A6-2



< CVBS waveform – sample >  
 - Depend on the input signal.

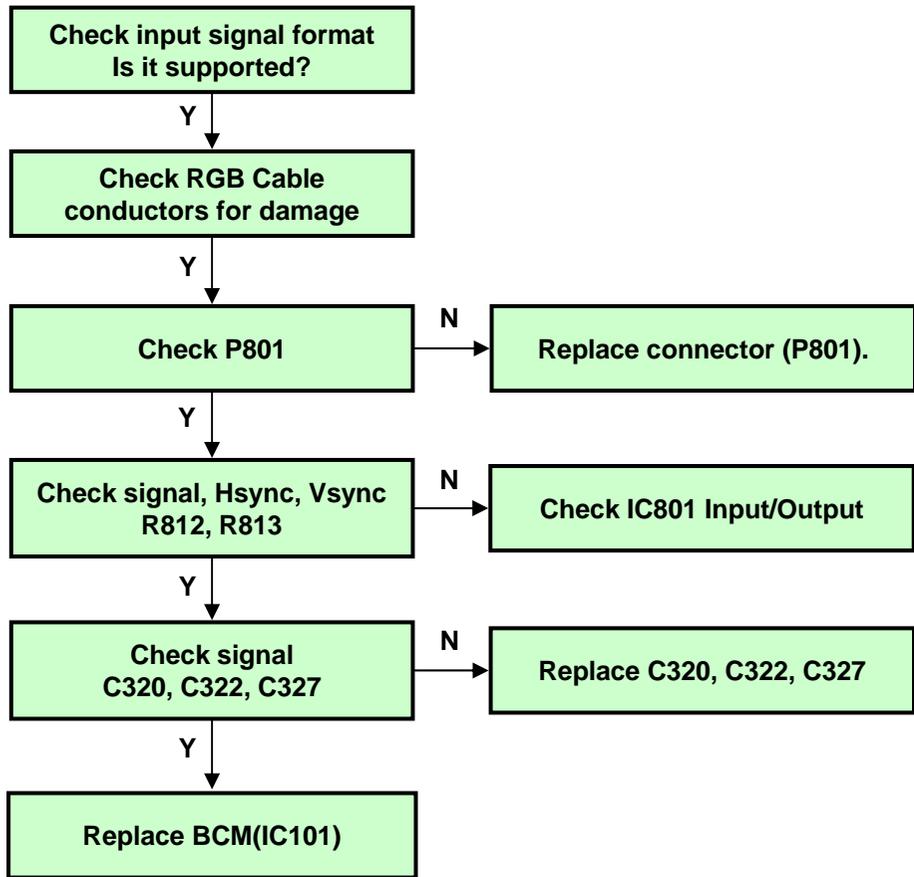
# Repair Process-Reference data

<b>PDP TV</b>	<b>Input Block</b>	<b>Component Video Problem</b>	<b>Making</b>	<b>2010. 12 . 24</b>	
			<b>Revision</b>		<b>A6-3</b>



# Repair Process-Reference data

<b>PDP TV</b>	<b>Input Block</b>	<b>RGB(D-Sub) Video Problem</b>	<b>Making</b>	2010. 12 . 24	
			<b>Revision</b>		<b>A6-4</b>

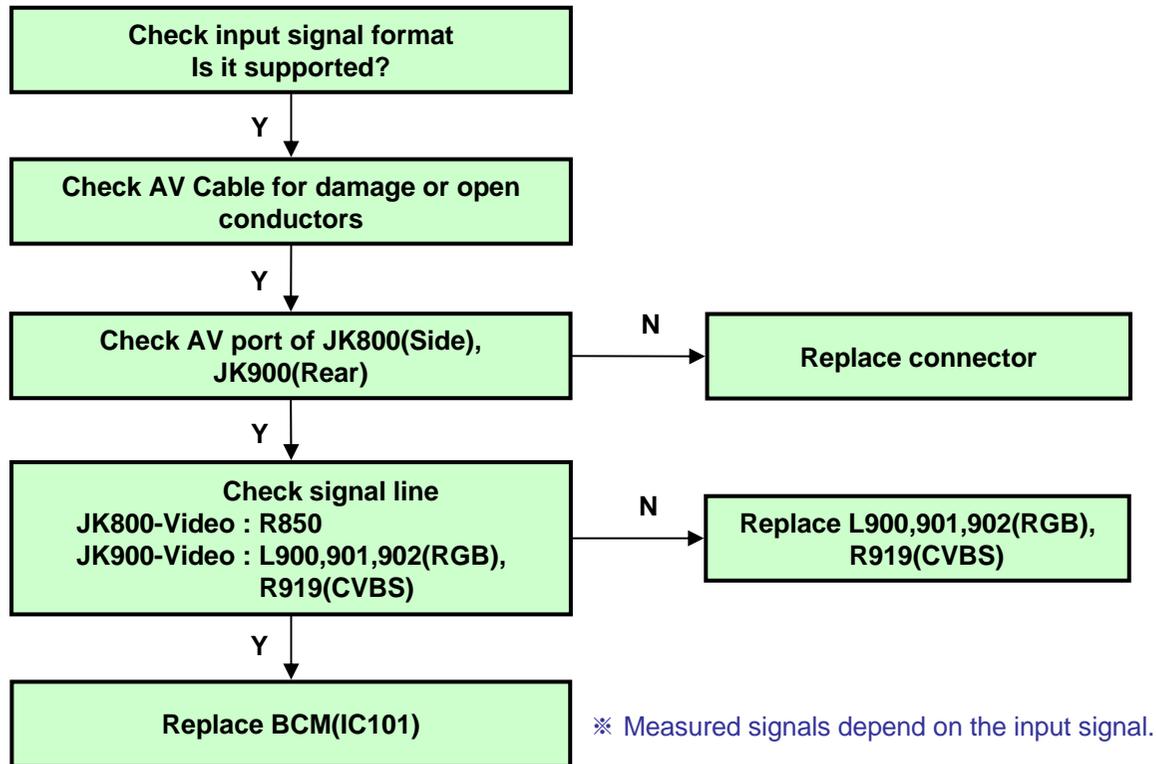


※ Measured signals depend on the input signal.

**A6**

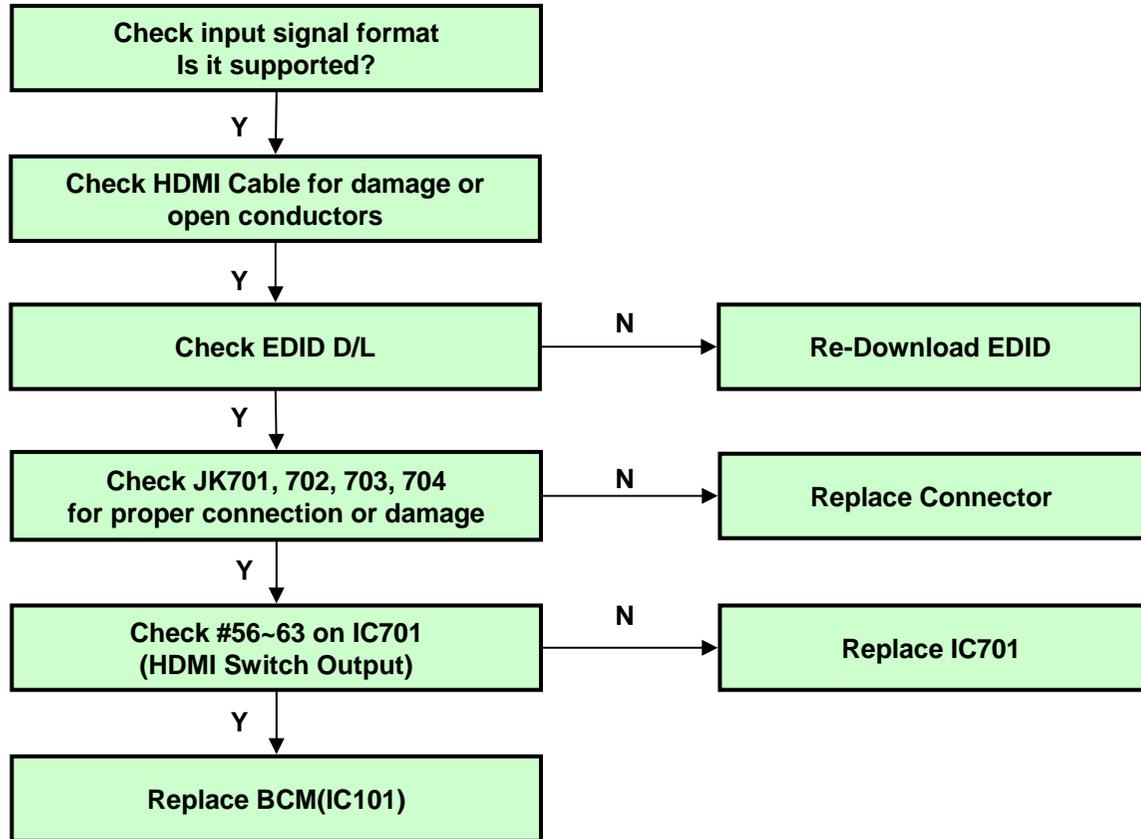
# Repair Process-Reference data

PDP TV	Input Block	AV Video Problem	Making	2010. 12 . 24	
			Revision		A6-5



# Repair Process-Reference data

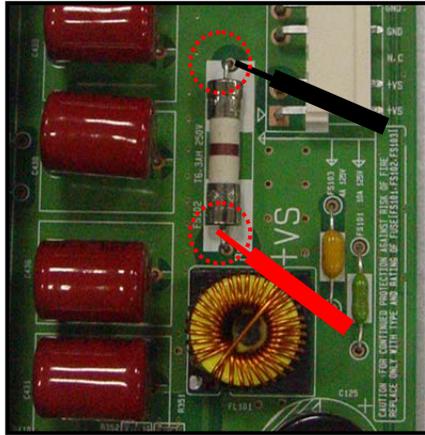
PDP TV	Input Block	HDMI Video Problem	Making	2010. 12 . 24	
			Revision		A6-6



A6

## Repair Process-Reference data

<b>PDP TV</b>	Symptom	<b>A. Picture Problem</b>	Making	2010. 12 . 24	
		<b>Fuse Checking Method</b>	Revision		<b>A7</b>



**Pic. 1. Fuse check**

Pic. 1.

< DMM mode >



Pic. 2.

- 1) Sound comes, the fuse is OK.
- 2) If Fuse is defects, it should check again voltage of 5V, Va, Va after replacing the fuse.
- 3) In case there are no voltage of 5V, Va, Vs, the board is failure, it need to replace the board.

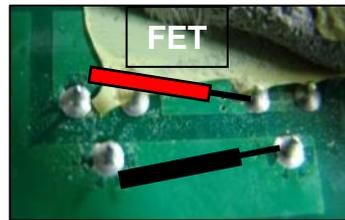
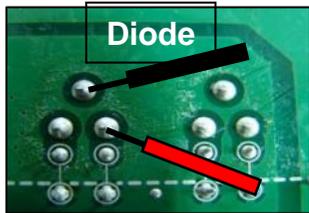
# Repair Process-Reference data

PDP TV	Symptom	A. Picture Problem	Making	2010. 12 . 24	
		Y-Sus Board Checking Method(50H3)	Revision		A8

## Check Method

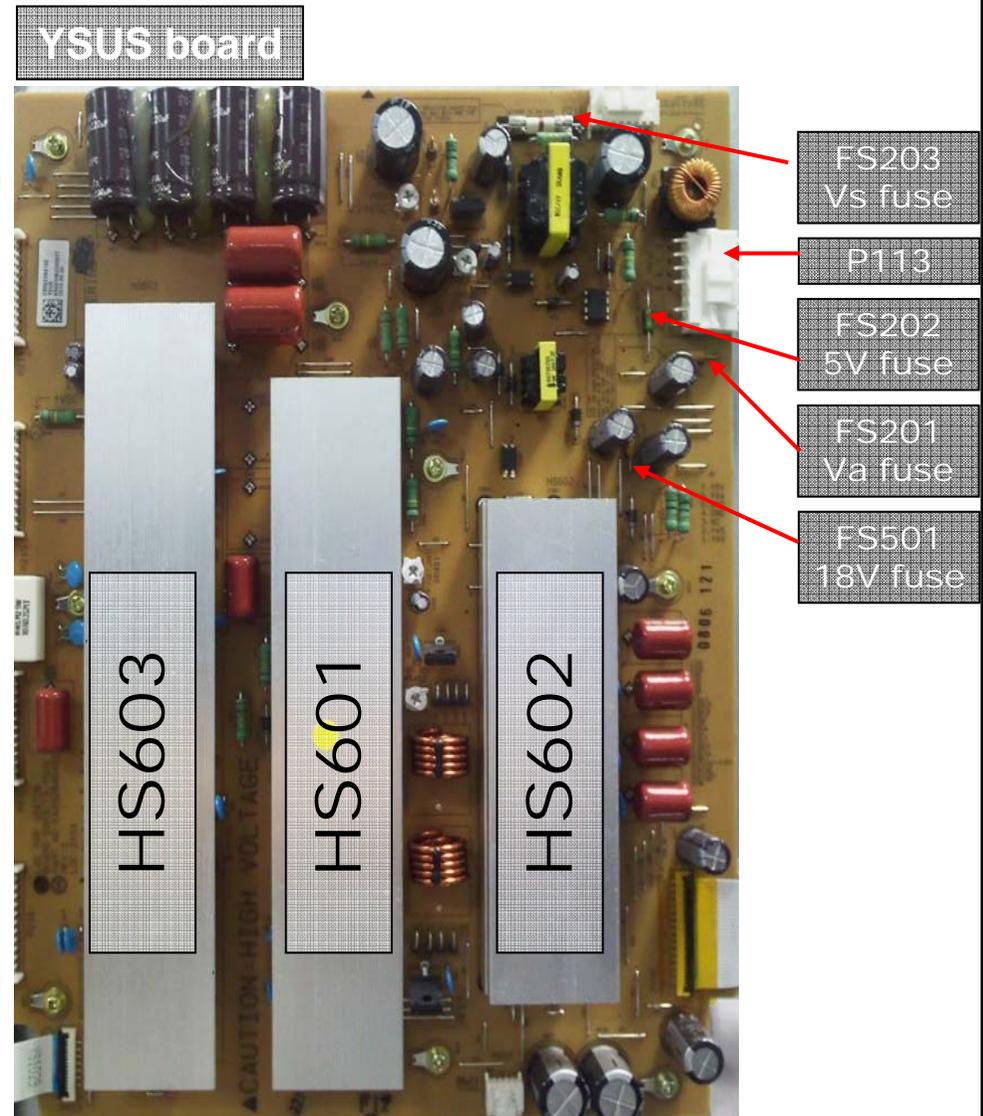
- ① Check input voltages(5V, Va, Vs) at P103 connector.
- ② Check it is short or not between Vs and GND at P103 connector.
- ③ Check all of fuses open. (FS201, FS202, FS203, FS501)
- ④ Check voltage of diode , FET by using digital multi-meter.

## Measurement method



## Specifications

Position	Direction	Circuit No.		
				D610
HS601	Forward	0.35V ~ 0.45V	0.45V~0.55V	0.45V~0.55V
	Reverse	O.L. (Overload)		
HS602		D604,D605	Q601,Q602	
	Forward	0.35V ~ 0.45V	0.45V~0.55V	
HS603	Reverse	O.L. (Overload)		
		D602	Q603,Q605	Q610,Q612
HS603	Forward	0.35V ~ 0.45V	0.35V ~ 0.45V	0.4V~0.5V
	Reverse	O.L. (Overload)		



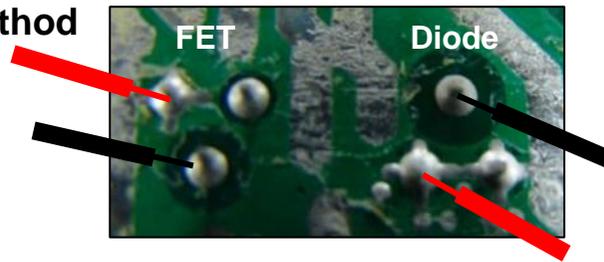
A9

# Repair Process-Reference data

PDP TV	Symptom	A. Picture Problem	Making	2010. 12 . 24	
		Z-Sus Board Checking Method(50R1)	Revision		A9

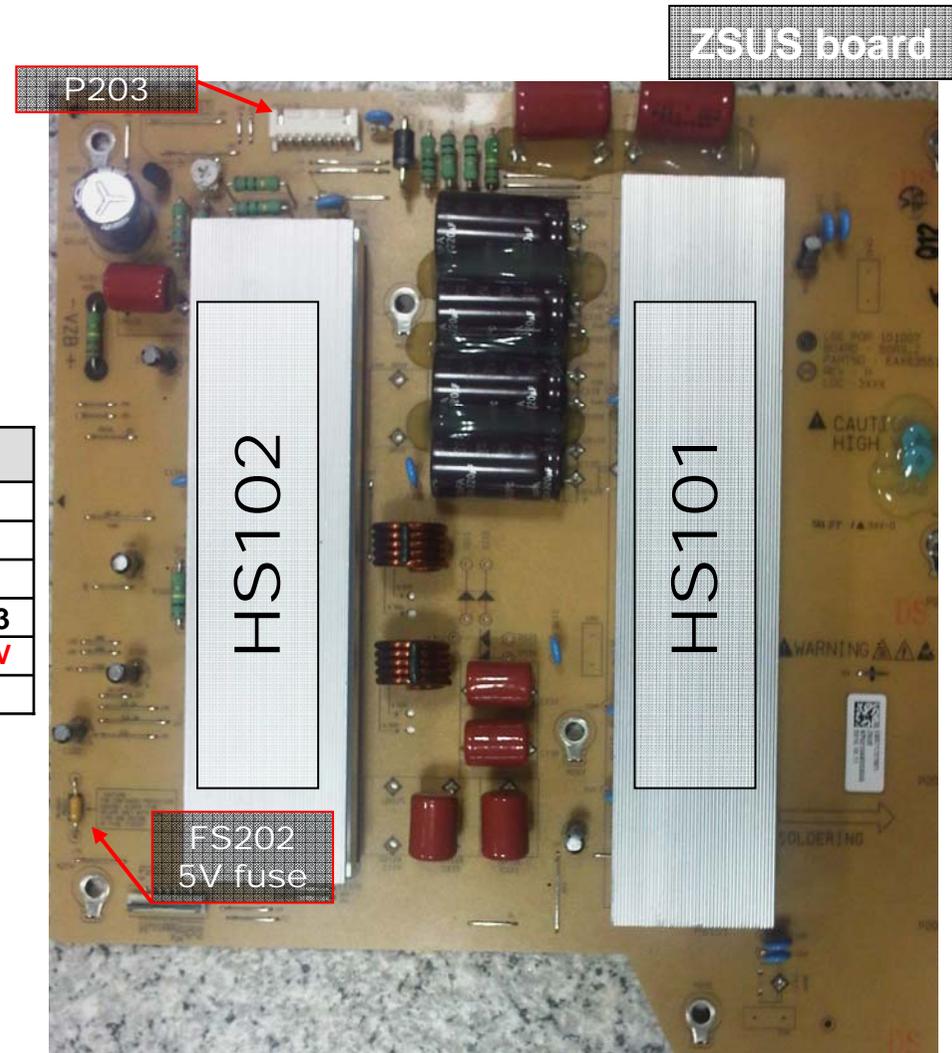
- ① Check input voltages(5V, Va, Vs) at P203 connector.
- ② Check it is short or not between Vs and GND at P203 connector.
- ③ Check all of fuses open. (FS202)
- ④ Check voltage of diode , FET by using digital multi-meter.

### Measuring Method



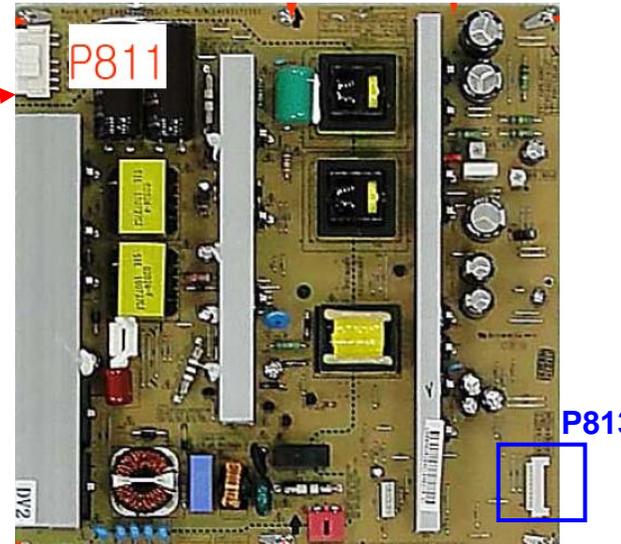
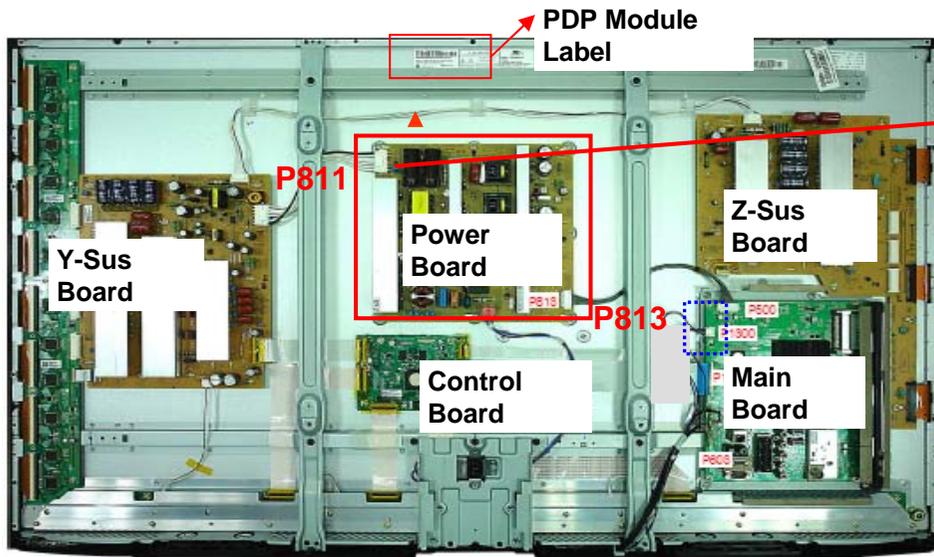
### Specifications

Position	Direction	Circuit No.		
		HS101	Forward	D114,D118 0.35V ~ 0.45V
Reverse	O.L. (Overload)			
HS102	Forward	D109,D110,D108,D111 0.35V ~ 0.45V	Q104,Q113,Q114 0.5V ~ 0.6V	Q102,Q103 0.45V~0.55V
	Reverse	O.L. (Overload)		



# Repair Process-Reference data

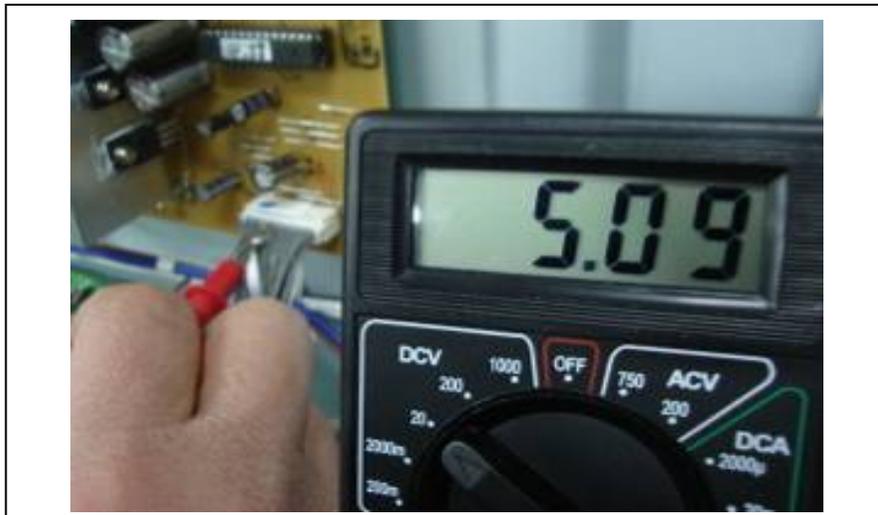
PDP TV	Symptom	A. Picture Problem	Making	2010. 12 . 24	
		Check 5V, 12V on Power B/D	Revision		A12



P813			
1	17V	2	17V
3	GND	4	GND
5	5V	6	5V
7	5V	8	Error_DET
9	GND	10	GND
11	GND	12	GND
13	STBY	14	STBY
15	RL_ON	16	AC DET
17	M_ON	18	AUTO_GND
Wafer	SMAW200-H18S2		

■ Measure 5V voltage

■ Measure 17V voltage



A12

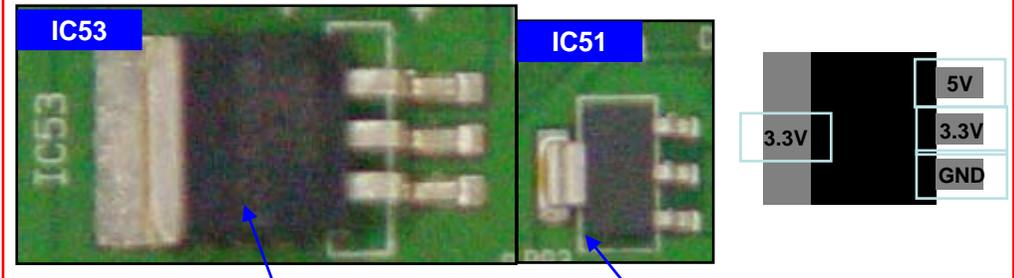
# Repair Process-Reference data

PDP TV	Symptom	A. Picture Problem	Making	2010. 12 . 24	
		Control Board Checking Method(50H3)	Revision		A13

## ■ Checking Method

- ① Check input voltages(5V of P105 / 18V of P2) at control board.
- ② Check LED is on.
- ③ If LED doesn't work, check crystal X1 output.
- ④ Check 3.3V, 5V IC.
- ⑤ Check MCM at VS\_DA by using digital multi meter.

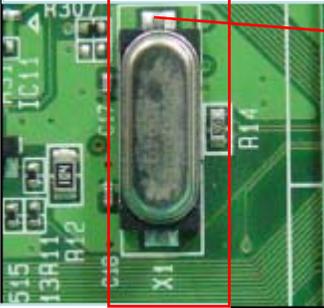
### ④ Check IC ( IC53, IC51 )



### ② Check LED On

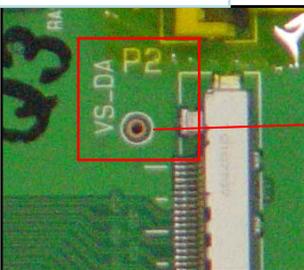


### ③ Check Crystal(X1)

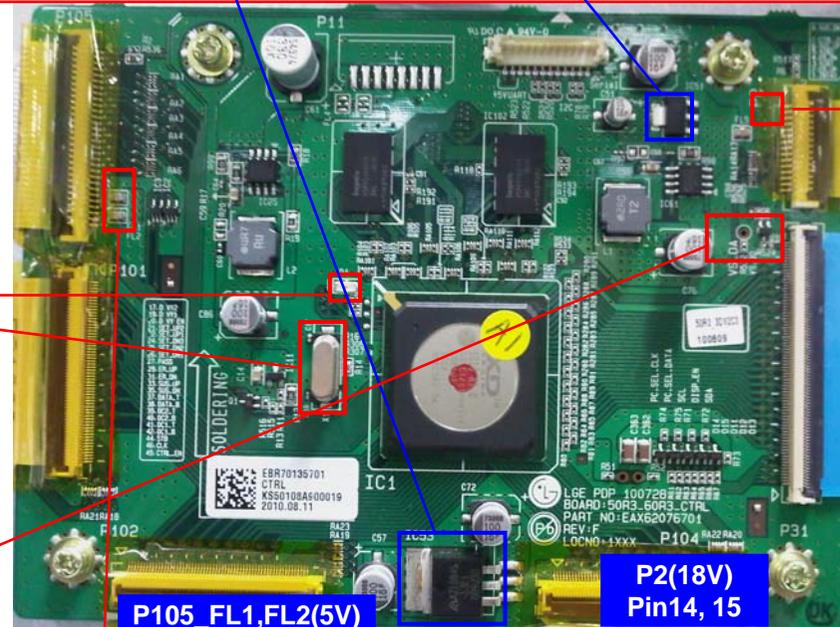


Check oscillation of Crystal  
(Normal: 25 MHZ)

### ⑤ Check MCM



MCM Check point  
(+)VS\_DA / (-) GND  
(Normal: 3.3V )



### ① Check Input voltage



Pin 14,15 : 18V

## Repair Process-Reference data

<b>PDP TV</b>	Symptom	<b>A. Picture Problem</b>	Making	2010. 12 . 24	
		Mal discharge Symptom	Revision		A14

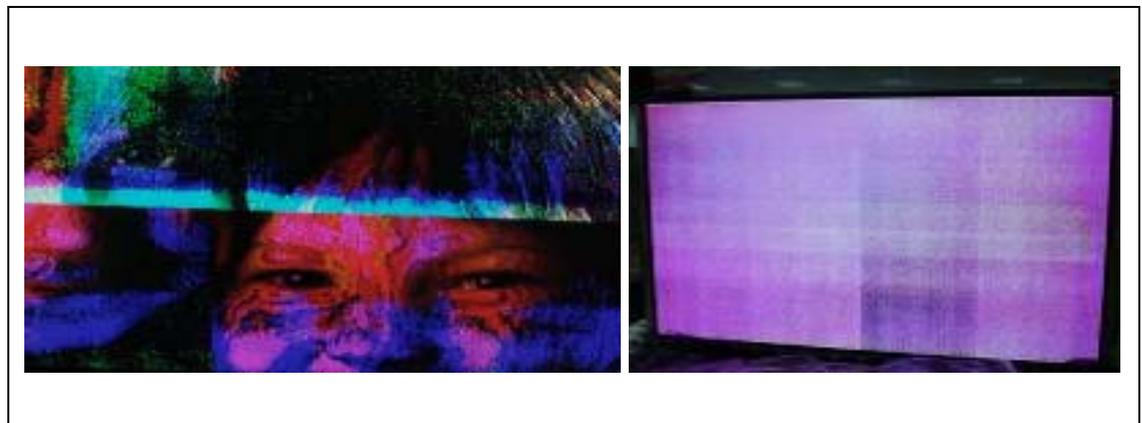
### ■ Dot type Mal-discharge symptom



### ■ Dark picture caused by Mal-discharge



### ■ Scan type Mal-discharge symptom



A14

# Repair Process-Reference data

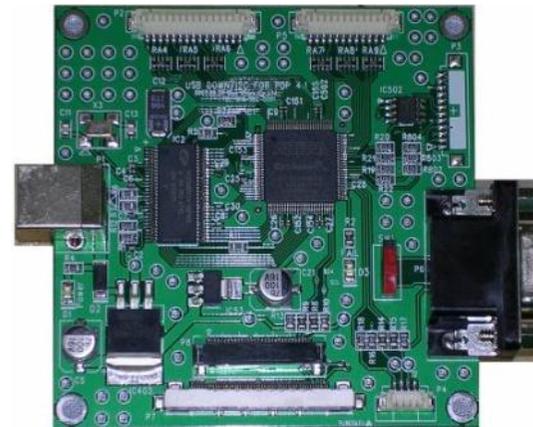
PDP TV	Symptom	A. Picture Problem	Making	2010. 12 . 24	
		PDP Module Rom Ver. Checking method	Revision		A15



- Check by using SVC Remote controller
- Press "In-start" → Press "0413"
- Select Panel Control → Check Module Rom ver.



※ Refer to the Module Rom upgrade manual for Rom upgrade.



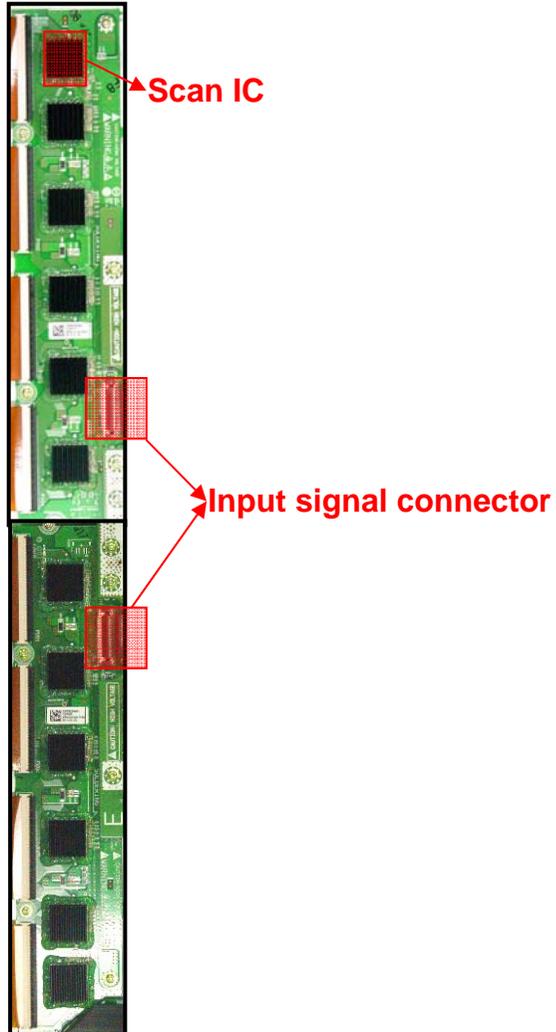
USB Type Jig

A15

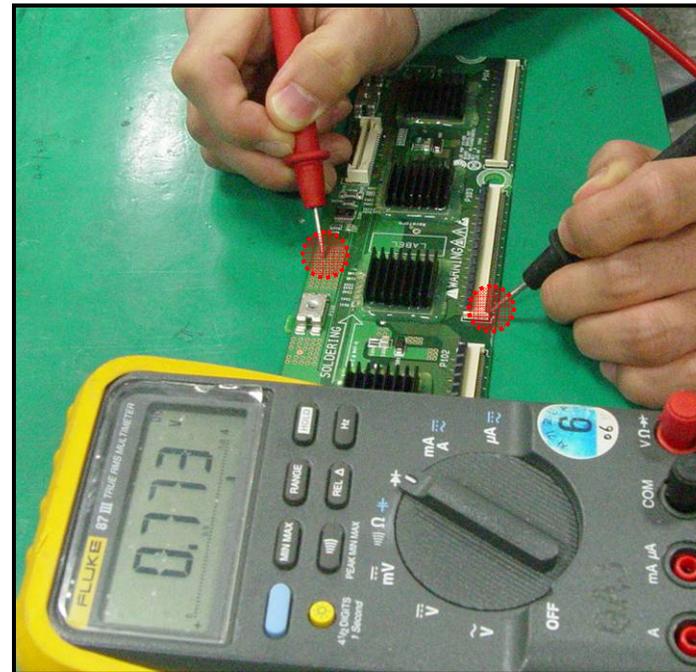
# Repair Process-Reference data

PDP TV	Symptom	A. Picture Problem	Making	2010. 12 . 24	
		Y Drive B/D Checking method(50R3)	Revision		A16

## ▣ Y drive board



## ※ DMM (Digital Multi-Meter)



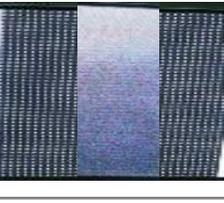
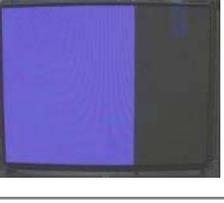
※ Check all output pins of scan IC (connector) using DMM.

A16

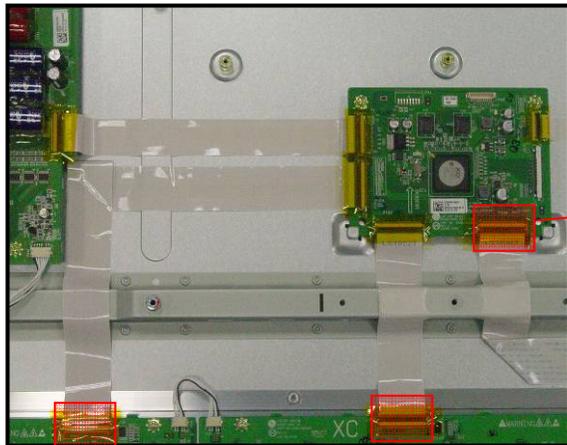
# Repair Process-Reference data

<b>PDP TV</b>	Symptom	<b>A. Picture Problem</b>	Making	2010. 12 . 24	
		(Half picture) X- B/D Checking method(50R3)	Revision		A18

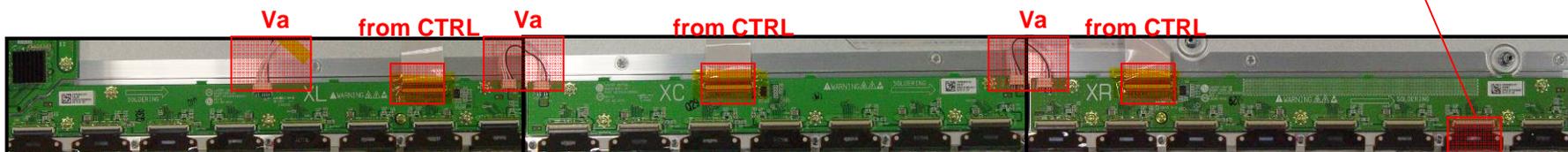
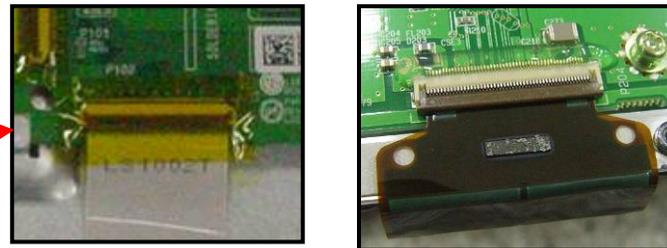
- **Half / partly display (or abnormal display)**
  - Check Va input voltage.  
(P121, P120, P220, P221, P320 : Power connector of the X board)
  - Check cables between CTRL board and X board.
  - Replace the X B/D.
  - Check TCP connection after X B/D replacement.

	Picture 1.	Picture 2.	Picture 3.
Half display (abnormal)			
Partly display (abnormal)			

- **Connections between panel and X B/D**
  - Right display (Picture 1.) ↔ Check/replace right X B/D
  - Both ends display (Picture 2.) ↔ Check/replace center X B/D
  - Left display (Picture 3.) ↔ Check/replace left X B/D



※ Check connections (TCP - X board, CTRL board - X board)

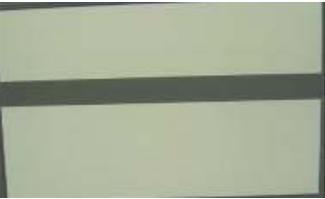


A18

## Repair Process-Reference data

<b>PDP TV</b>	Symptom	<b>A. Picture Problem</b>	Making	2010. 12 . 24	
		Defect type cause by PDP Module	Revision		A19

**First of all, Check whether all of cable between board was inserted properly or not.  
Next, Check whether there is foreign material on connector.**

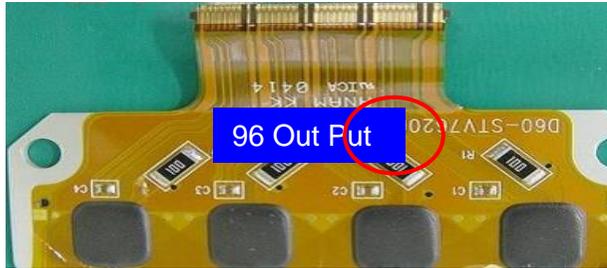
Symptom picture	defects description	To action
	Regular vertical lines	<ol style="list-style-type: none"> <li>1. Check connection (CTRL B/D, X B/D)</li> <li>2. Check CTRL B/D</li> <li>3. Replace CTRL B/D</li> </ol>
	Vertical lines or Bar	<ol style="list-style-type: none"> <li>1. Check connection (CTRL B/D, X B/D)</li> <li>2. Check CTRL B/D</li> <li>3. Replace CTRL B/D</li> </ol>
	Many irregular vertical lines	<ol style="list-style-type: none"> <li>1. Check connection (CTRL B/D, X B/D)</li> <li>2. Check CTRL B/D</li> <li>3. Replace CTRL B/D</li> </ol>
	Horizontal Line or Bar	<ol style="list-style-type: none"> <li>1. Check connection (Y-Sus B/D ↔ Panel)</li> <li>2. Check Y-Sus B/D</li> <li>3. Replace Y-Sus B/D</li> </ol>

A19

# Repair Process-Reference data

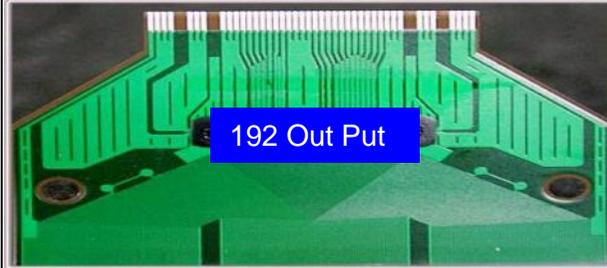
<b>PDP TV</b>	<b>Symptom</b>	<b>A. Picture Problem</b>	<b>Making</b>	<b>2010. 12 . 24</b>	
		<b>Connector Type on PDP Module</b>	<b>Revision</b>		<b>A20</b>

**COF Type**



1. Check foreign & Connection status
2. Check bad soldering on Chip resistance

**TCP Type**



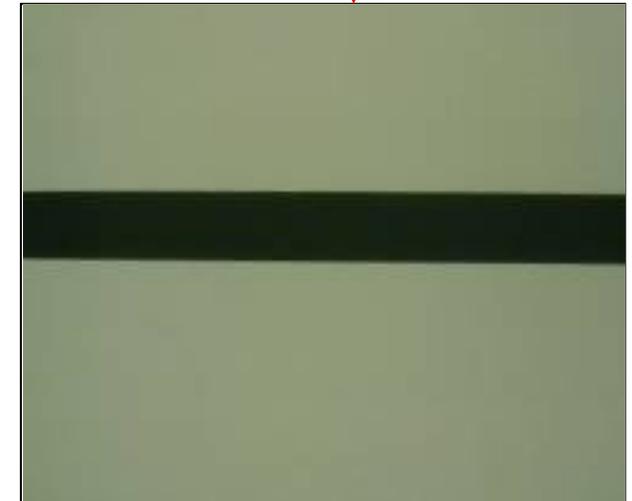
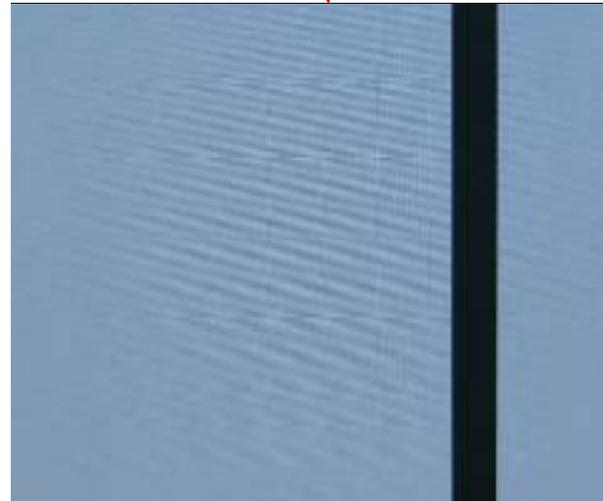
TCP (Tape Carrier Package) is film for IC connect with Electrode pattern (Direct Bonding) on X B/D

**FFC Type**



Connector to connect between Electrode PAD Of PANEL and Y Drive B/D,Z-Sus B/D

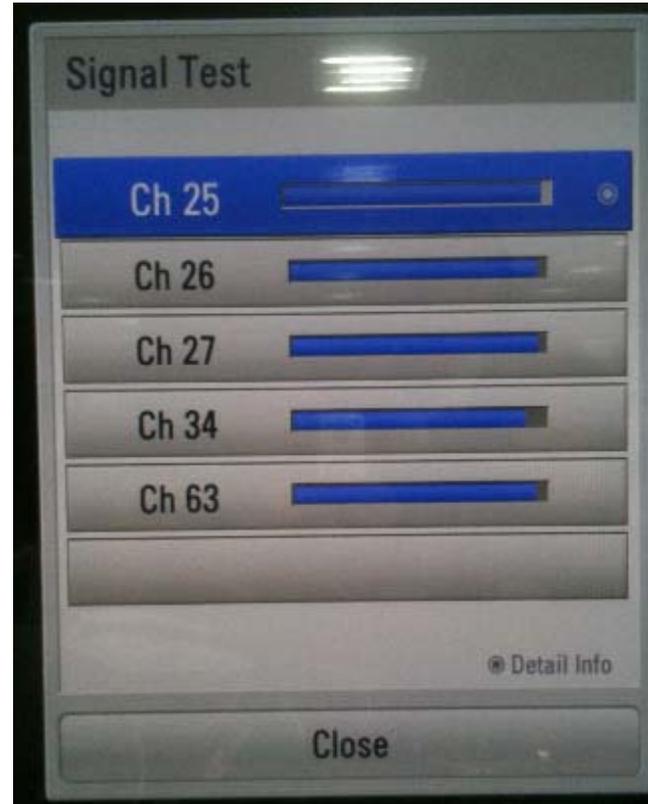
■ Defect symptom



**A20**

## Repair Process-Reference data

PDP TV	Symptom	A. Picture Problem	Making	2010. 12 . 24	
		RF Signal level Checking method	Revision		A21



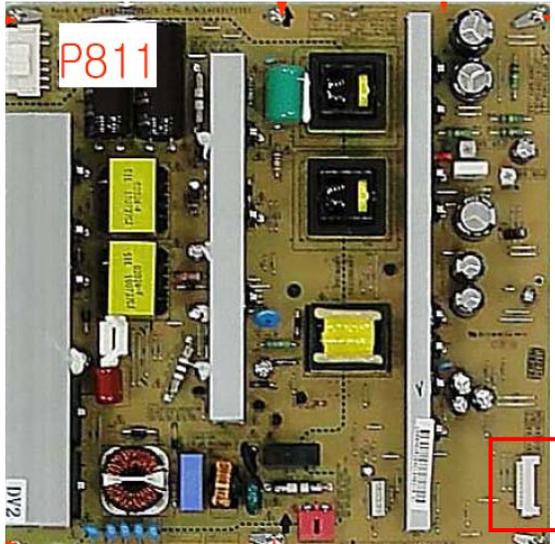
### ◆ MENU → SUPPORT → Signal TEST

1. Check whether Signal Strength, Signal Quality is over 50% or not.
2. If Signal Strength, Signal Quality is under 50%, install the Booster to increase signal level.

A21

# Repair Process-Reference data

PDP TV	Symptom	B. Power Problem	Making	2010. 12 . 24	
		Check voltage on Power board	Revision		A22



Pin Map  
Power B/D↔Main B/D

## Checking Order

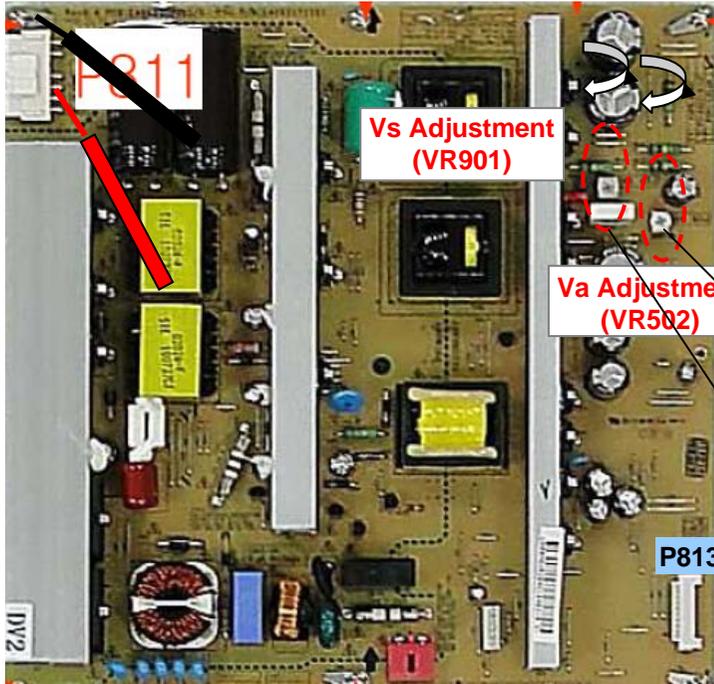
P813			
1	17V	2	17V
3	GND	4	GND
5	5V	6	5V
7	5V	8	Error_DET
9	GND	10	GND
11	GND	12	GND
13	STBY	14	STBY
15	RL_ON	16	AC DET
17	M_ON	18	AUTO_GND
Wafer	SMAW200-H18S2		

No.	Checking Point	Spec	Remark
1	STBY	5V	
2	5V	5V	
3	17V	17V	
4	AC DET	High(3.3V~5V)	
5	RL_ON	High(3.3V~5V)	
6	M_ON	High(3.3V~5V)	

A22

# Repair Process-Reference data

PDP TV	Symptom	B. Power Problem	Making	2010. 12 . 24	
		Power board Checking Method	Revision		A23



Power B/D ↔ Y-Sus B/D(P811)

◆ Check 5V, Va, Vs voltage

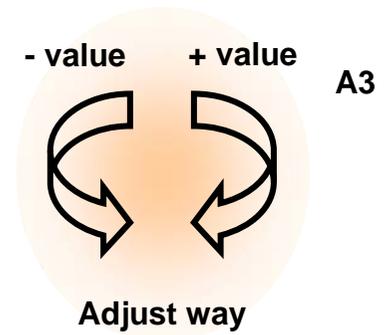
: For Voltage specification, refer to the PDP Module Label.

Pin	P811/812
1	Vs
2	Vs
3	NC
4	GND
5	GND
6	Va
7	Va
8	GND
9	M5V
10	M5V
Wafer	YAW396-10V

Va Voltage ADJ

◆ Adjust Va, Vs voltage.

Vs Voltage ADJ



## ■ Checking Method

- ① Check soldering status on each major component.
  - ② Check there is problem on major component or not by eye. (CONDENSER, FET, IC, Resistor)
  - ③ Check FUSE.
  - ④ Check 5V, Va, Vs voltage
- ※ PSU Maker: 1) LGIT 2) LITEON 3) YUYANG
- ※ If happen Power board Protection,  
check whether there is Short or Open on Y-SUS, Z-SUS B/D or not.

A23

## Repair Process-Reference data

<b>PDP TV</b>	Symptom	<b>B. Power Problem</b>	Making	2010. 12 . 24	
		Check Power off History	Revision		A24

### ■ Check Power off History by using SVC Remote controller

Press “In-start” → Press” 0000” → Select “Power Off History” → Pop up Module Rom ver.

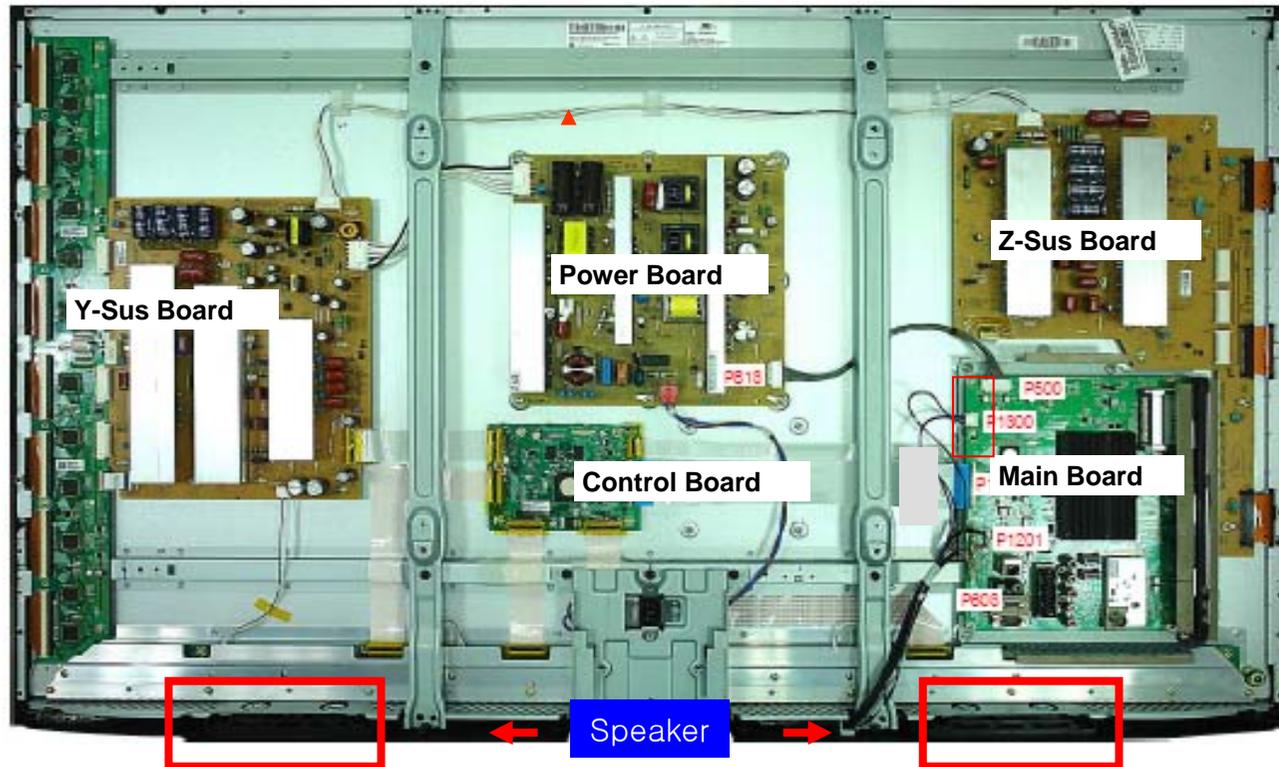


<b>LAST HISTORY 1~5</b>	Appear Power off history 5ea. (1 is the latest history)
<b>RCU OFF</b>	Power off by Remote control
<b>KEY OFF</b>	Mechanical power switch off
<b>2HOUR OFF</b>	After turn on by OnTimer, There is no operation for 2hours
<b>NO SIGNAL OFF</b>	In case that there is no signal for 15minutes

A24

## Repair Process-Reference data

PDP TV	Symptom	C. Sound Problem	Making	2010. 12 . 24	
		Speaker cable checking method	Revision		A25



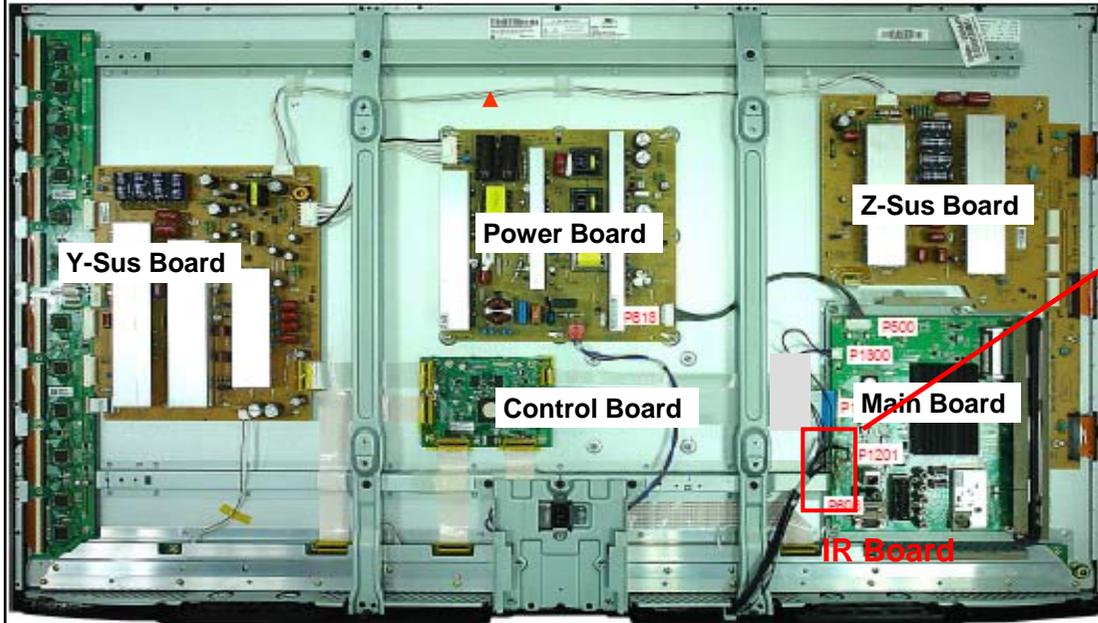
Jack for Speaker connection

1. Check whether speaker jack was inserted properly on Main B/D side & speaker side or not.
2. Check whether speaker cable have problem (disconnection wire) or not.

A25

# Repair Process-Reference data

PDP TV	Symptom	D. General function defect	Making	2010. 12 . 24	
		Check Remote control IR operation	Revision		A26



IR
GND
KEY1
KEY2
LED-RED
GND
SCL
SDA
BLUE_LED_ON
+3.3V_ST
+3.3V_Normal/ +5V_MULTI
3.3V Multi
LED_Power_On
TOUCH_Ver_CHECK
-
-



## ■ Checking method

1. Check connector was inserted properly on Main board and IR board.
2. Check +3.3V ST Voltage at Pin10
3. Check whether appear voltage on multi meter when operate remote control.
  - ※ Test Condition for case 3
    - Check Point: Pin 1( IR)
    - TV: power on status
    - Multi meter: Select DC 10V

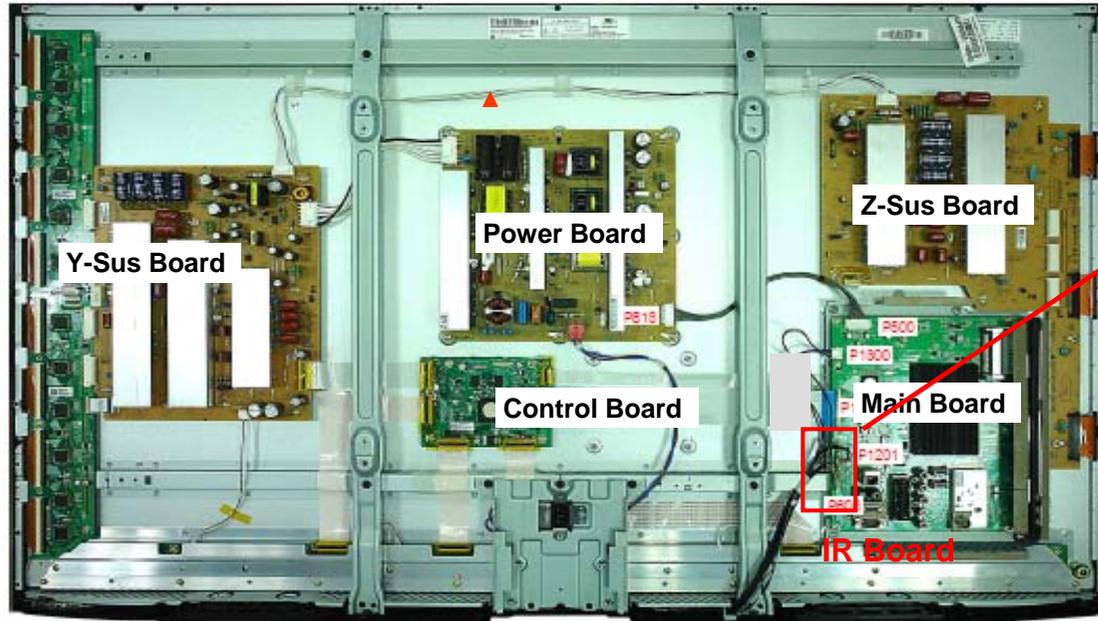


IR/KEY Board for XXPZ7/90XX

A26

# Repair Process-Reference data

PDP TV	Symptom	D. General function defect	Making	2010. 12 . 24	
		Check Local Key operation			A27



IR
GND
KEY1
KEY2
LED-RED
GND
SCL
SDA
BLUE_LED_ON
+3.3V_ST
+3.3V_Normal/ +5V_MULTI
3.3V Multi
LED_Power_On
TOUCH_Ver_CHECK
-
-



CH+	CH-	Vol+	Vol-	OK	HOME	Input	
-----	-----	------	------	----	------	-------	--

1. Check connector was inserted properly on Main board and local switch board.  
[ If mechanical switch off status, Key-on is high(3.3v) ]
2. Check whether appear voltage on multi meter when operate Local switch.
  - ※ Test Condition for case 3
  - Check Point: Pin 3,4( Key1,Key2)
  - TV: power on status
  - Multi meter: Select DC 10V



IR/KEY Board for XXPZ7/90XX