



**LG**

Life's Good

# LED TV **SERVICE MANUAL**

CHASSIS : LA4AW

**MODEL : 32LY560M 32LY560M-UA**

## **CAUTION**

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



P/NO : MFL68080421(1405-REV00)

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# SAFETY PRECAUTIONS

## 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 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 TV receiver is blown, replace it with the specified.

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

Keep wires away from high voltage or high temperature parts.

### Before returning the receiver to the customer,

always perform an **AC leakage current check** on the exposed metallic parts of the cabinet, such as antennas, terminals, etc., to be sure the set is safe to operate without damage of electrical shock.

### 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  $1\text{ M}\Omega$  and  $5.2\text{ M}\Omega$ .

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.

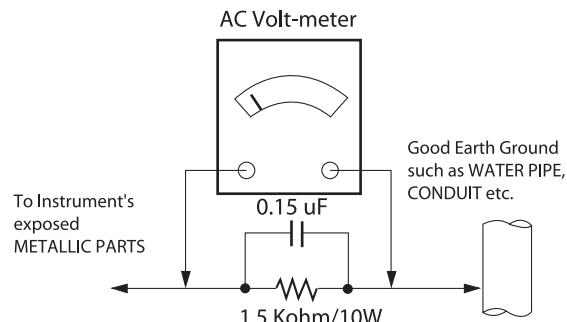
Connect 1.5 K / 10 watt resistor in parallel with a 0.15 uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.

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 corresponds to 0.5 mA.

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



When 25A is impressed between Earth and 2nd Ground for 1 second, Resistance must be less than  $0.1\ \Omega$

\*Base on Adjustment standard

# SERVICING PRECAUTIONS

**CAUTION:** Before servicing receivers covered by this service manual and its supplements and addenda, read and follow the **SAFETY PRECAUTIONS** on page 3 of this publication.

**NOTE:** If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 3 of this publication, always follow the safety precautions. Remember: Safety First.

## General Servicing Precautions

1. Always unplug the receiver AC power cord from the AC power source before:
  - a. Removing or reinstalling any component, circuit board module or any other receiver assembly.
  - b. Disconnecting or reconnecting any receiver electrical plug or other electrical connection.
  - c. Connecting a test substitute in parallel with an electrolytic capacitor in the receiver.

**CAUTION:** A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.
2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM, etc) equipped with a suitable high voltage probe. Do not test high voltage by "drawing an arc".
3. Do not spray chemicals on or near this receiver or any of its assemblies.
4. Unless specified otherwise in this service manual, clean electrical contacts only by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable non-abrasive applicator; 10 % (by volume) Acetone and 90 % (by volume) isopropyl alcohol (90 % - 99 % strength)  
**CAUTION:** This is a flammable mixture.  
Unless specified otherwise in this service manual, lubrication of contacts is not required.
5. Do not defeat any plug/socket B+ voltage interlocks with which receivers covered by this service manual might be equipped.
6. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
7. Always connect the test receiver ground lead to the receiver chassis ground before connecting the test receiver positive lead.  
Always remove the test receiver ground lead last.
8. Use with this receiver only the test fixtures specified in this service manual.  
**CAUTION:** Do not connect the test fixture ground strap to any heat sink in this receiver.

## Electrostatically Sensitive (ES) Devices

Some semiconductor (solid-state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed to prevent potential shock reasons prior to applying power to the unit under test.

2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static type solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.  
**CAUTION:** Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

## General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range of 500 °F to 600 °F.
2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.
3. Keep the soldering iron tip clean and well tinned.
4. Thoroughly clean the surfaces to be soldered. Use a small wire-bristle (0.5 inch, or 1.25 cm) brush with a metal handle.  
Do not use freon-propelled spray-on cleaners.
5. Use the following unsoldering technique
  - a. Allow the soldering iron tip to reach normal temperature. (500 °F to 600 °F)
  - b. Heat the component lead until the solder melts.
  - c. Quickly draw the melted solder with an anti-static, suction-type solder removal device or with solder braid.  
**CAUTION:** Work quickly to avoid overheating the circuit board printed foil.
6. Use the following soldering technique
  - a. Allow the soldering iron tip to reach a normal temperature (500 °F to 600 °F)
  - b. First, hold the soldering iron tip and solder the strand against the component lead until the solder melts.
  - c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.  
**CAUTION:** Work quickly to avoid overheating the circuit board printed foil.
  - d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.

## **IC Remove/Replacement**

Some chassis circuit boards have slotted holes (oblong) through which the IC leads are inserted and then bent flat against the circuit foil. When holes are the slotted type, the following technique should be used to remove and replace the IC. When working with boards using the familiar round hole, use the standard technique as outlined in paragraphs 5 and 6 above.

### *Removal*

1. Desolder and straighten each IC lead in one operation by gently prying up on the lead with the soldering iron tip as the solder melts.
2. Draw away the melted solder with an anti-static suction-type solder removal device (or with solder braid) before removing the IC.

### *Replacement*

1. Carefully insert the replacement IC in the circuit board.
2. Carefully bend each IC lead against the circuit foil pad and solder it.
3. Clean the soldered areas with a small wire-bristle brush. (It is not necessary to reapply acrylic coating to the areas).

## **"Small-Signal" Discrete Transistor**

### **Removal/Replacement**

1. Remove the defective transistor by clipping its leads as close as possible to the component body.
2. Bend into a "U" shape the end of each of three leads remaining on the circuit board.
3. Bend into a "U" shape the replacement transistor leads.
4. Connect the replacement transistor leads to the corresponding leads extending from the circuit board and crimp the "U" with long nose pliers to insure metal to metal contact then solder each connection.

## **Power Output, Transistor Device**

### **Removal/Replacement**

1. Heat and remove all solder from around the transistor leads.
2. Remove the heat sink mounting screw (if so equipped).
3. Carefully remove the transistor from the heat sink of the circuit board.
4. Insert new transistor in the circuit board.
5. Solder each transistor lead, and clip off excess lead.
6. Replace heat sink.

### **Diode Removal/Replacement**

1. Remove defective diode by clipping its leads as close as possible to diode body.
2. Bend the two remaining leads perpendicular y to the circuit board.
3. Observing diode polarity, wrap each lead of the new diode around the corresponding lead on the circuit board.
4. Securely crimp each connection and solder it.
5. Inspect (on the circuit board copper side) the solder joints of the two "original" leads. If they are not shiny, reheat them and if necessary, apply additional solder.

## **Fuse and Conventional Resistor**

### **Removal/Replacement**

1. Clip each fuse or resistor lead at top of the circuit board hollow stake.
2. Securely crimp the leads of replacement component around notch at stake top.

### **3. Solder the connections.**

**CAUTION:** Maintain original spacing between the replaced component and adjacent components and the circuit board to prevent excessive component temperatures.

## **Circuit Board Foil Repair**

Excessive heat applied to the copper foil of any printed circuit board will weaken the adhesive that bonds the foil to the circuit board causing the foil to separate from or "lift-off" the board. The following guidelines and procedures should be followed whenever this condition is encountered.

### *At IC Connections*

To repair a defective copper pattern at IC connections use the following procedure to install a jumper wire on the copper pattern side of the circuit board. (Use this technique only on IC connections).

1. Carefully remove the damaged copper pattern with a sharp knife. (Remove only as much copper as absolutely necessary).
2. carefully scratch away the solder resist and acrylic coating (if used) from the end of the remaining copper pattern.
3. Bend a small "U" in one end of a small gauge jumper wire and carefully crimp it around the IC pin. Solder the IC connection.
4. Route the jumper wire along the path of the out-away copper pattern and let it overlap the previously scraped end of the good copper pattern. Solder the overlapped area and clip off any excess jumper wire.

### *At Other Connections*

Use the following technique to repair the defective copper pattern at connections other than IC Pins. This technique involves the installation of a jumper wire on the component side of the circuit board.

1. Remove the defective copper pattern with a sharp knife. Remove at least 1/4 inch of copper, to ensure that a hazardous condition will not exist if the jumper wire opens.
2. Trace along the copper pattern from both sides of the pattern break and locate the nearest component that is directly connected to the affected copper pattern.
3. Connect insulated 20-gauge jumper wire from the lead of the nearest component on one side of the pattern break to the lead of the nearest component on the other side. Carefully crimp and solder the connections.

**CAUTION:** Be sure the insulated jumper wire is dressed so the it does not touch components or sharp edges.

# SPECIFICATION

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

## 1. Application range

This spec sheet is applied LED TV with LA4AV,W chassis

## 2. Test condition

Each part is tested as below without special notice.

1) Temperature :  $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ ( $77 \pm 9^{\circ}\text{F}$ ) , CST :  $40^{\circ}\text{C} \pm 5^{\circ}\text{C}$

2) Relative Humidity:  $65\% \pm 10\%$

3) Power Voltage

Market	Input voltage	Frequency	Remark
USA	110~240V	50/60Hz	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 BOM

5) The receiver must be operated for about 5 minutes prior to the adjustment

## 3. Test method

1) Performance: LGE TV test method followed

2) Demanded other specification

- Safety : UL, CSA, IEC specification

- EMC: FCC, ICES, IEC specification

## 4. General Specification

No	Item	Specification	Result	Remark
1.	Receiving System	ATSC / NTSC-M / 64 & 256 QAM		
2.	Available Channel	1) VHF : 02~13 2) UHF : 14~69 3) DTV : 02-69 4) CATV : 01~135 5) CADTV : 01~135		
3.	Input Voltage	AC 100 ~ 240V 50/60Hz		Mark : 110V, 60Hz (N.America)
4.	Market	NORTH AMERICA		
5.	Screen Size	22 inch Wide (1920 × 1080)	FHD + 60Hz	22LY560M-UA
		28 inch Wide (1366 × 768)	HD + 60Hz	28LY560M-UA
		32 inch Wide (1366 × 768)	HD + 60Hz	32LY560M-UA
		42 inch Wide (1920 × 1080)	FHD +60Hz	42LY560M-UA
6.	Aspect Ratio	16:9		
7.	Tuning System	FS		
8.	Module	LM215WF3-SLK1 FHD		22LY560M-UA
		328041563 Kenmos BLU		28LY560M-UA
		LC320DXE-FGA3 HD		32LY560M-UA
		LC420DUE-FGA3 FHD		42LY560M-UA
9.	Operating Environment	1) Temp : 0 ~ 40 deg 2) Humidity : ~ 80 %		
10.	Storage Environment	1) Temp : -20 ~ 60 deg 2) Humidity : ~ 85 %		

## 5. 7 External input support format

### 5.1. RGB Input (PC)

No	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed	DDC
1.	640*350	31.468	70.09	25.17	EGA	X
2.	720*400	31.469	70.08	28.32	DOS	O
3.	640*480	31.469	59.94	25.17	VESA(VGA)	O
4.	800*600	37.879	60.31	40.00	VESA(SVGA)	O
5.	1024*768	48.363	60.00	65.00	VESA(XGA)	O
6.	1280*768	47.776	59.870	79.5	CVT(WXGA)	X
7.	1360*768	47.712	60.015	85.50	VESA (WXGA)	X
8.	1600*1200	75.00	60.00	162.0	VESA (UXGA)	X
9.	1920*1080	67.50	60.00	148.5	HDTV 1080P	O

### 5.2. HDMI Input 1 (PC/DTV)

No	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed	DDC
HDMI-PC (Except HDMI3)					DDC	
1.	640*350	31.468	70.09	25.17	EGA	X
2.	720*400	31.469	70.08	28.32	DOS	O
3.	640*480	31.469	59.94	25.17	VESA(VGA)	O
4.	800*600	37.879	60.31	40.00	VESA(SVGA)	O
5.	1024*768	48.363	60.00	60.00	VESA(XGA)	O
6.	1152*864	54.348	60.053		VESA	X
7.	1280*1024	63.981	60.020	108.0	VESA (SXGA)	O
8.	1360*768	47.712	60.015	85.50	VESA (WXGA)	O
9.	1920*1080	67.50	60.00	148.5	HDTV 1080P	O
HDMI-DTV						
1	720*480	31.500	60.000	27.027	SDTV 480P	
2	720*480	31.470	59.940	27.000	SDTV 480P	
3	1280*720	45.000	60.000	74.250	HDTV 720P	
4	1280*720	44.960	59.940	74.176	HDTV 720P	
5	1920*1080	33.750	60.000	74.250	HDTV 1080I	
6	1920*1080	33.720	59.940	74.176	HDTV 1080I	
7	1920*1080	67.500	60.000	148.500	HDTV 1080P	
8	1920*1080	67.4320	59.940	148.352	HDTV 1080P	
9	1920*1080	27.000	24.000	74.250	HDTV 1080P	
10	1920*1080	26.970	23.976	74.176	HDTV 1080P	
11	1920*1080	33.750	30.000	74.250	HDTV 1080P	
12	1920*1080	33.710	29.970	74.176	HDTV 1080P	

### 5.3. Video

No	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed
1	710*484	15.73	60		NTSC-M

# ADJUSTMENT INSTRUCTION

## 1. Application

This spec. sheet applies to LA4AV,W Chassis applied LED TV all models manufactured in TV factory

## 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  $25 \pm 5^\circ\text{C}$  of temperature and  $65 \pm 10\%$  of relative humidity if there is no specific designation
- (4) The input voltage of the receiver must keep  $100\sim 240\text{V}, 50/60\text{Hz}$
- (5) At first Worker must turn on the SET by using Power Only key.
- (6) The receiver must be operated for about 5 minutes prior to the adjustment when module is in the circumstance of over  $15^\circ\text{C}$   
In case of keeping module is in the circumstance of  $0^\circ\text{C}$ , it should be placed in the circumstance of above  $15^\circ\text{C}$  for 2 hours  
In case of keeping module is in the circumstance of below  $-20^\circ\text{C}$ , it should be placed in the circumstance of above  $15^\circ\text{C}$  for 3 hours.

### \* Caution

When still image is displayed for a period of 20 minutes or longer (especially where W/B scale is strong).  
Digital pattern 13ch and/or Cross hatch pattern 09ch), there can some afterimage in the black level area

## 3. Adjustment items

### 3.1. Main PCBA Adjustments

- (1) Adjust RGB (ADC)
- (2) EDID/DDC download

- Above adjustment items can be also performed in Final Assembly if needed.  
Both Board-level and Final assembly adjustment items can be check using In-Start Menu (1.Adjust Check).  
Component 1080p and RGB-PC Adjust will be calculated by 480i adjust value

### 3.2. Final assembly adjustment

- White Balance adjustment
- RS-232C functionality check
- Factory Option setting per destination
- Ship-out mode setting (In-Stop)

### 3.3. Appendix

- Ship-out mode
- Service Option Default
- USB Download(S/W Update, Option, Service only)
- ISP Download (Optional)

## 4. Automatic Adjustment

### 4.1. ADC Adjustment

#### 4.1.1. Overview

- ADC adjustment is needed to find the optimum black level and gain in Analog-to-Digital device and to compensate RGB deviation!

#### 4.1.2. Equipment & Condition

- (1) Protocol: RS-232C

- (2) Inner Pattern

- Resolution : 1080p (Inner Pattern)
- Resolution : 1024\*768 RGB (Inner Pattern)
- Pattern : Horizontal 100% Color Bar Pattern
- Pattern level :  $0.7 \pm 0.1 \text{ Vp-p}$

#### 4.1.3. Adjustment

##### 4.1.3.1. Adjustment method

- Connect to Jig by using RS-232(USB)

\* Manual adj (If needed in Final Assembly)

- Required equipment : Adjustment R/C

- Enter Service Mode by pushing "ADJ" key,

- Start 'OTP' ADC Type by pushing '▶' key at [7. ADC Calibration]

##### 4.1.3.2. Adj. protocol (only Internal pattern)

Protocol	Command	Set ACK
Enter adj. mode	aa 00 00	a 00 OK00x
Source change	xb 00 60	b 00 OK60x (Adjust 1024*768 RGB)
Begin adj.	ad 00 10	
Return adj. result		OKx (Case of Success) NGx (Case of Fail)
Read adj. data	(main) ad 00 20  (sub) ad 00 21	(main) 000000000000000000000000000000007c007b006dx  (Sub) 00000007000000000000000000000000000000007c00830077x
Confirm adj.	ad 00 99	NG 03 00x (Fail) NG 03 01x (Fail) NG 03 02x (Fail) OK 03 03x (Success)
End adj.	aa 00 90	a 00 OK90x

Ref.) ADC Adj. RS232C Protocol\_Ver1.0

##### 4.1.3.3. Adj. order

- aa 00 00 [Enter ADC adj. mode]
- xb 00 60 [Change input source to RGB(1024\*768)]
- ad 00 10 [Adjust 1024\*768 RGB]
- ad 00 90 End adj.

## 5. Manual Adjustment

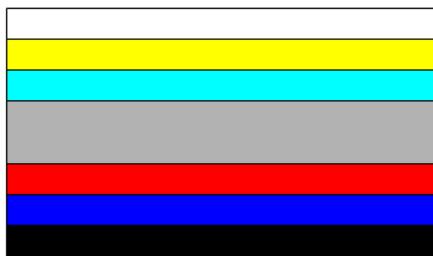
### 5.1. ADC Adjustment

#### 5.1.1. Overview

ADC adjustment is needed to find the optimum black level and gain in Analog-to-Digital device and to compensate RGB deviation.

#### 5.1.2. Equipment & Condition

- 1) Adjust Remote controller
- 2) 801GF(802B, 802F, 802R) or MSPG925FA Pattern Generator
  - Resolution: 480i Comp1 (MSPG-925FA: model-209, pattern-65)
  - Resolution : 1024\*768 RGB (Inner Pattern)
  - Pattern : Horizontal 100% Color Bar Pattern
  - Pattern level:  $0.7 \pm 0.1$  Vp-p
  - Image



- or Inner pattern.

- 3) Must use standard cable

#### 5.1.3. Adjust method

##### 5.1.3.1. ADC RGB

- 1) Press the In-start Key on the ADJ remote after at least 1 min of signal reception. Then, select ADC Calibration. And Press OK Button on the menu "Start". The adjustment will start automatically.
- 2) If ADC RGB is successful, "ADC RGB Success" is displayed and ADC RGB is completed. If ADC calibration is failure, "ADC RGB Fail" is displayed.
- 3) If ADC calibration is failure, after rechecking ADC pattern or condition, retry calibration

### 5.2. EDID Download (EDID PCM)

#### 5.2.1. Overview

- It is a VESA regulation. A PC or a MNT will display an optimal resolution through information sharing without any necessity of user input. It is a realization of "Plug and Play".

#### 5.2.2. Equipment

- (1) Since EDID data is embedded, EDID download JIG, HDMI cable is not need.
- (2) Adjust remocon

#### 5.2.3. Download method

- (1) Press Adj. key on the Adj. R/C.
- (2) Select EDID D/L menu.
- (3) By pressing Enter key, EDID download will begin
- (4) If Download is successful, OK is display, but If Download is failure, NG is displayed.
- (5) If Download is failure, Re-try downloads.

※ Caution) When EDID Download, must remove RGB/HDMI Cable

##### 5.2.3.1. HD Model - 28/32LY560M-UA

###### ■ HDMI1 HD 8BIT (C/S : 6F08) EDID Block 0, Bytes 0-127 [00H-7FH]

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	00	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01	
01	01	18	01	03	80	A0	5A	78	0A	EE	91	A3	54	4C	99	26
02	0F	50	54	A1	08	00	31	40	45	40	61	40	71	40	01	01
03	01	01	01	01	01	01	66	21	50	B0	51	00	1B	30	40	70
04	36	00	40	84	63	00	00	1E	64	19	00	40	41	00	26	30
05	18	88	36	00	40	84	63	00	00	1E	00	00	00	FD	00	3A
06	3E	1E	53	10	00	0A	20	20	20	20	20	20	00	00	00	FC
07	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	6F

###### EDID Block 1, Bytes 128-255 [80H-FFH]

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
08	02	03	19	F1	48	10	22	20	05	84	03	02	01	23	09	57
09	07	67	03	0C	00	20	00	80	1E	02	3A	80	18	71	38	2D
0A	40	58	2C	04	05	40	84	63	00	00	1E	01	1D	80	18	71
0B	1C	16	20	58	2C	25	00	40	84	63	00	00	9E	01	1D	00
0C	72	51	D0	1E	20	6E	28	55	00	40	84	63	00	00	1E	8C
0D	0A	D0	8A	20	E0	2D	10	10	3E	96	00	40	84	63	00	00
0E	18	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
0F	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	8

###### ■ HDMI2 HD 8BIT (C/S : 6FF8) EDID Block 0, Bytes 0-127 [00H-7FH]

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	00	FF	FF	FF	FF	FF	00	1E	6D	01	00	01	01	01	01	
01	01	18	01	03	80	A0	5A	78	0A	EE	91	A3	54	4C	99	26
02	0F	50	54	A1	08	00	31	40	45	40	61	40	71	40	01	01
03	01	01	01	01	01	01	66	21	50	B0	51	00	1B	30	40	70
04	36	00	40	84	63	00	00	1E	64	19	00	40	41	00	26	30
05	18	88	36	00	40	84	63	00	00	1E	00	00	00	FD	00	3A
06	3E	1E	53	10	00	0A	20	20	20	20	20	20	00	00	00	FC
07	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	6F

###### EDID Block 1, Bytes 128-255 [80H-FFH]

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
08	02	03	19	F1	48	10	22	20	05	84	03	02	01	23	09	57
09	07	67	03	0C	00	20	00	80	1E	02	3A	80	18	71	38	2D
0A	40	58	2C	04	05	40	84	63	00	00	1E	01	1D	80	18	71
0B	1C	16	20	58	2C	25	00	40	84	63	00	00	9E	01	1D	00
0C	72	51	D0	1E	20	6E	28	55	00	40	84	63	00	00	1E	8C
0D	0A	D0	8A	20	E0	2D	10	10	3E	96	00	40	84	63	00	00
0E	18	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
0F	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	F8



#### 6.1.4. Adjustment Command (Protocol)

(1) RS-232C Command used during auto-adj

RS-232C COMMAND			Explanation		
CMD	DATA	ID			
Wb	00	00	Begin White Balance adj.		
Wb	00	ff	End White Balance adj. (internal pattern disappears )		

(2) Adjustment Map

Applied Model : 32/42LY560M-UA

	Adj. item	Command (lower case ASCII)		Data Range (Hex.)		Default (Decimal)
		CMD1	CMD2	MIN	MAX	
Cool	R Gain	j	g	00	C0	172
	G Gain	j	h	00	C0	172
	B Gain	j	i	00	C0	192
	R Cut					64
	G Cut					64
	B Cut					64
Medium	R Gain	j	a	00	C0	192
	G Gain	j	b	00	C0	192
	B Gain	j	c	00	C0	192
	R Cut					64
	G Cut					64
	B Cut					64
Warm	R Gain	j	d	00	C0	192
	G Gain	j	e	00	C0	192
	B Gain	j	f	00	C0	172
	R Cut					64
	G Cut					64
	B Cut					64

Applied Model : 22LY560M-UA

	Adj. item	Command (lower case ASCII)		Data Range (Hex.)		Default (Decimal)
		CMD1	CMD2	MIN	MAX	
Cool	R Gain	j	g	00	C0	136
	G Gain	j	h	00	C0	137
	B Gain	j	i	00	C0	192
	R Cut					64
	G Cut					64
	B Cut					64
Medium	R Gain	j	a	00	C0	169
	G Gain	j	b	00	C0	174
	B Gain	j	c	00	C0	233
	R Cut					64
	G Cut					64
	B Cut					64
Warm	R Gain	j	d	00	C0	181
	G Gain	j	e	00	C0	180
	B Gain	j	f	00	C0	192
	R Cut					64
	G Cut					64
	B Cut					64

Applied Model : 28LY560M-UA

	Adj. item	Command (lower case ASCII)		Data Range (Hex.)		Default (Decimal)
		CMD1	CMD2	MIN	MAX	
Cool	R Gain	j	g	00	C0	148
	G Gain	j	h	00	C0	146
	B Gain	j	i	00	C0	192
	R Cut					64
	G Cut					64
	B Cut					64
Medium	R Gain	j	a	00	C0	185
	G Gain	j	b	00	C0	178
	B Gain	j	c	00	C0	192
	R Cut					64
	G Cut					64
	B Cut					64
Warm	R Gain	j	d	00	C0	192
	G Gain	j	e	00	C0	160
	B Gain	j	f	00	C0	123
	R Cut					64
	G Cut					64
	B Cut					64

## 6.1.5. Adjustment method

### 6.1.5.1. Auto WB calibration

- 1) Set TV in adj. mode using POWER ONLY (P-ONLY) key
- 2) Zero calibrate probe then place it on the center of the Display
- 3) Connect Cable(RS-232C)
- 4) Select mode in adj. Program and begin adj.
- 5) When adj. is completed (OK Sing), check adj. status of pre mode (Cool, Medium, Warm)
- 6) Remove probe and RS-232C cable to complete adj.

\* W/B Adj. must begin as start command "wb 00 00" , and finish as end command "wb 00 ff", and Adj. offset if need.

### 6.1.5.2. Manual adj. method

- (1) Set TV in Adj. mode using POWER ON
- (2) Zero Calibrate the probe of Color Analyzer, then place it on the center of LCD module within 10cm of the surface..
- (3) Press ADJ key -> EZ adjust using adj. R/C -> 6. White-Balance then press the cursor to the right (KEY►).  
(When KEY(►) is pressed 204 Gray(80IRE) internal pattern will be displayed)
- (4) One of R Gain / G Gain / B Gain should be fixed at 192, and the rest will be lowered to meet the desired value.
- (5) Adj. is performed in COOL, MEDIUM, WARM 3 modes of color temperature.

- If internal pattern is not available, use RF input. In EZ Adj. menu 6.White Balance, you can select one of 2 Test-pattern: ON, OFF. Default is inner(ON). By selecting OFF, you can adjust using RF signal in 204 Gray pattern.
- Adj. condition and cautionary items
  - 1) Lighting condition in surrounding area  
Surrounding lighting should be lower 10 lux. Try to isolate adj. area into dark surrounding.
  - 2) Probe location : Color Analyzer (CA-210) probe should be within 10cm and perpendicular of the module surface (80°~ 100°)
  - 3) Aging time  
- After Aging Start, Keep the Power ON status during 5 Minutes.  
- In case of LCD, Back-light on should be checked using no signal or Full-white pattern.

## 6.1.6. Reference

### (White Balance Adj. coordinate and color temperature)

- Luminance: 204 Gray, 80IRE
- Standard color coordinate and temperature using CA-210(CH-14)

Mode	Coordinate		Temp	$\Delta uv$
	x	y		
Cool	0.271±0.002	0.270±0.002	13000K	-0.003
Medium	0.285±0.002	0.293±0.002	9300K	0.0000
Warm	0.313±0.002	0.329±0.002	6500K	0.0000

- Standard color coordinate and temperature using CA-210(CH 14)  
– by aging time

## 6.1.6. White balance adjustment for 22/28inch (Do not adjust white balance)

\* RGB Gains are fixed data for each model.  
Insert RS-232C Jack which is connected with PC for White Balance or equivalent device.

=> Total Assembly line should be check whether the color coordinate(x,y) data refer to below table were meet or not.  
Color coordinate is differ from panel's characteristics of color temperature. Please check panel characteristics about color temperature.

### - Cool Panel (28LY560M)

Color Temperature	Cool	13,000	K	X=0.276 (±0.04) Y=0.275 (±0.04)	<Test Signal> Inner pattern (204gray,80IRE)
	Medium	9,300	K	X=0.290 (±0.04) Y=0.298 (±0.04)	
	Warm	6,500	K	X=0.318 (±0.04) Y=0.334 (±0.04)	
Luminance	Cool	Min : 80	cd/m <sup>2</sup>	Typ : 110	<Test Signal> Inner pattern (204gray,80IRE)
	Medium	Min : 80	cd/m <sup>2</sup>	Typ : 110	
	Warm	Min : 70	cd/m <sup>2</sup>	Typ : 110	

### - Warm Panel (22LY560M)

Color Temperature	Cool	9,300k	K	X=0.290 (±0.04) Y=0.298 (±0.04)	<Test Signal> Inner pattern (204gray,80IRE)
	Medium	8,000k	K	X=0.300 (±0.04) Y=0.310 (±0.04)	
	Warm	6,500k	K	X=0.318 (±0.04) Y=0.334 (±0.04)	
Luminance	Cool	Min : 80	cd/m <sup>2</sup>	Typ : 110	<Test Signal> Inner pattern (204gray,80IRE)
	Medium	Min : 80	cd/m <sup>2</sup>	Typ : 110	
	Warm	Min : 80	cd/m <sup>2</sup>	Typ : 110	

\*Note : x,y coordinates are drifted about 0.005 after 30 mins heat-run. So checking color coordinate within 5-min at total assembly line, consider x,y coordinates might be up to 0.005 than x,y target of each color temperature.

\*Note : Manual W/B process using service remote control.

- 1) After enter Service Mode by pushing "ADJ" key,
- 2) Enter "White Balance" by pushing "►" key at "9. White Balance".

## 6.3. Option selection per country

### 6.3.1. Overview

- (1) Tool option selection is only done for models in Non-USA North America due to rating
- (2) Applied model : LA4AV/W Chassis is applied in USA

### 6.3.2. Method

- (1) Press ADJ key on the Adj. R/C, then select Country Group Menu.
- (2) Depending on destination, select KR or US, then on the lower Country option, select US, CA, MX. Selection is done using +, - KEY

## 7. GND and HI-POT Test

### 7.1. GND & HI-POT auto-check preparation

- (1) Check the POWER CABLE and SIGNAL CABE insertion condition

### 7.2. GND & HI-POT auto-check

- (1) Pallet moves in the station. (POWER CORD / AV CORD is tightly inserted)
- (2) Connect the AV JACK Tester.
- (3) Controller (GWS103-4) on.
- (4) GND Test (Auto)
  - If Test is failed, Buzzer operates.
  - If Test is passed, execute next process (Hi-pot test). (Remove A/V CORD from A/V JACK BOX)
- (5) HI-POT test (Auto)
  - If Test is failed, Buzzer operates.
  - If Test is passed, GOOD Lamp on and move to next process automatically

### 7.3. Checkpoint

- (1) Test voltage
  - GND: 1.5KV/min at 100mA
  - SIGNAL: 3KV/min at 100mA
- (2) TEST time: 1 second
- (3) TEST POINT
  - GND Test = POWER CORD GND and SIGNAL CABLE GND.
  - Hi-pot Test = POWER CORD GND and LIVE & NEUTRAL.
- (4) LEAKAGE CURRENT: At 0.5mArms

## 8. AUDIO output check

### 8.1. Audio input condition

- (1) RF input: Mono, 1KHz sine wave signal, 100% Modulation
- (2) CVBS, Component: 1KHz sine wave signal (0.4Vrms)
- (3) RGB PC: 1KHz sine wave signal (0.7Vrms)

### 8.2. Specification

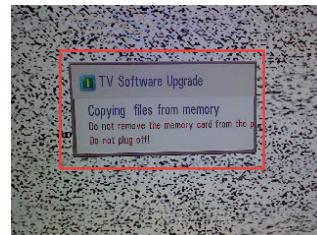
No	Item	Min	Typ	Max	Unit		Remark	
1	Audio practical max Output, L/R (Distortion=10% max Output)	9.0	10.0	12	W	Measure-ment condition EQ Off AVL Off Clear Voice Off	DRC opera-tion under 12W (42LY series)	
		8.5	8.9	9.8	Vrms			
		4.5	5	6	W	22/28LY Series		
		6	6.4	6.7	Vrms			
2	Speaker (8Ω Imped-ance)		10.0	14.0	W	(1) Measure-ment condition - EQ/AVL/ Clear Voice: Off	32/42LY Series	
			5	7	W		22/28LY Series	

#### ▪ Measurement condition:

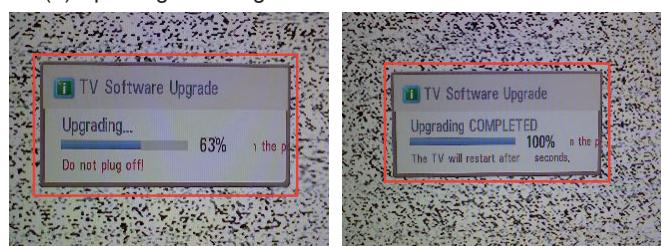
- (1) RF input: Mono, 1KHz sine wave signal, 100% Modulation
- (2) CVBS, Component: 1KHz sine wave signal 0.4Vrms
- (3) RGB PC: 1KHz sine wave signal 0.7Vrms

## 9. USB S/W Download (optional, Service only)

- (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 lower than that of TV set, it didn't work. Otherwise USB data is automatically detected.
- (3) Show the message "Copying files from memory"



(4) Updating is staring.



- (5) Updating Completed, The TV will restart automatically  
 (6) If your TV is turned on, check your updated version and Tool option.

\* If downloading version is more high than your TV have, TV can lost all channel data. In this case, you have to channel recover. If all channel data is cleared, you didn't have a DTV/ATV test on production line.

\* After downloading, TOOL OPTION setting is needed again.

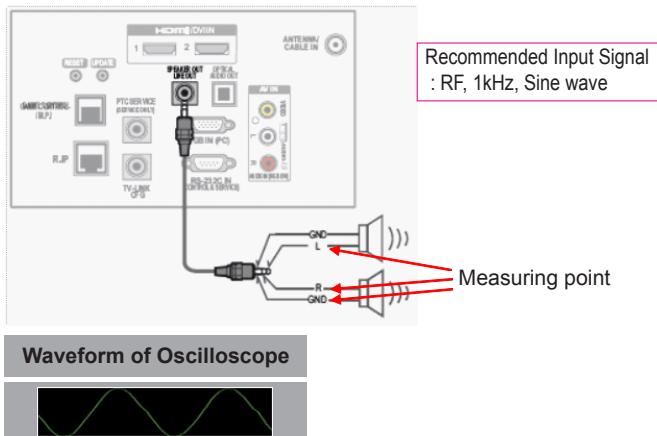
(1) Push "IN-START" key in service remote controller.

(2) Select "Tool Option 1" and Push "OK" button.

(3) Punch in the number. (Each model has their number.)

## 10. External Speaker Out

- (1) Connect external speaker to speaker out port with phone jack on TV rear bracket
- (2) Check the Max. speaker output is 1W or not. Sine wave with 1KHz will be displayed
- (3) Check Both of the signal in speaker.  
 (only Power -> Fixed 1W Default)  
 -> Check the input signal(1KHZ, Sine wave) and the waveform of output by utilizing oscilloscope.



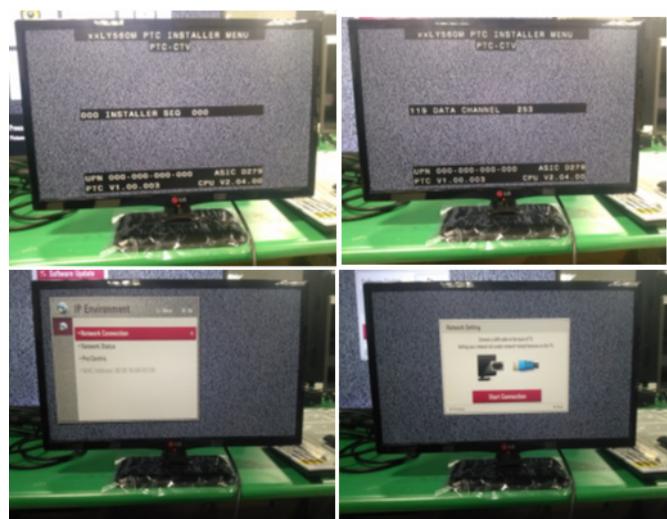
## 11. Pro:Idiom

- 1) Connect RF cable.
- 2) Press the Exit key for Encryption channel check when Power Only
- 3) Check if the channel is automatically switched into 96-1 (Encryption channel).
  - Check the Video is fine or not.
  - Check the Audio is fine or not



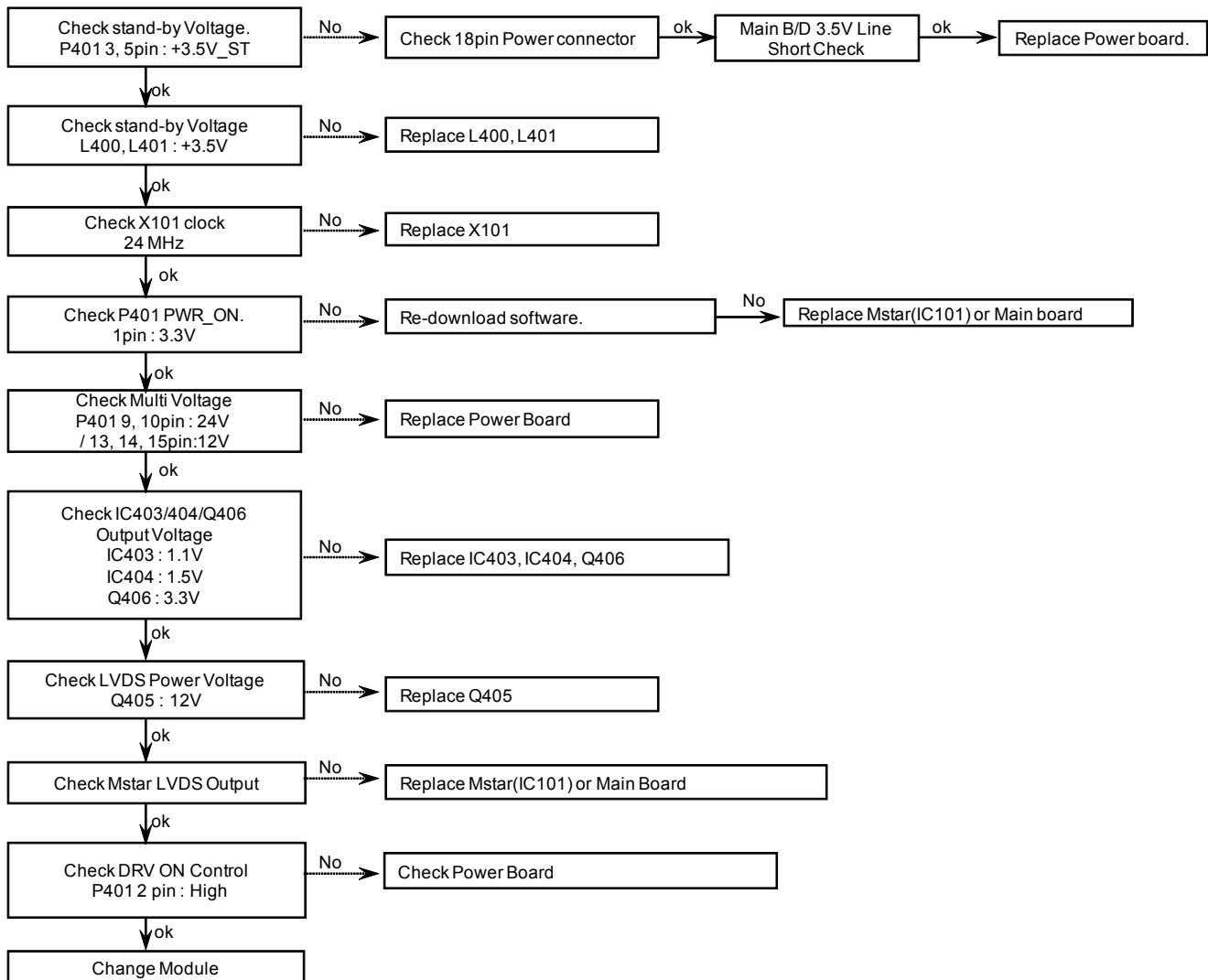
## 12. LAN Test method

- (1) Enter PTC INSTALLER MENU
- (2) How to enter IP Set up window : press 119 -> press menu key -> press 253 -> press menu key
- (3) In IP Environment, there are three menu for LAN TEST

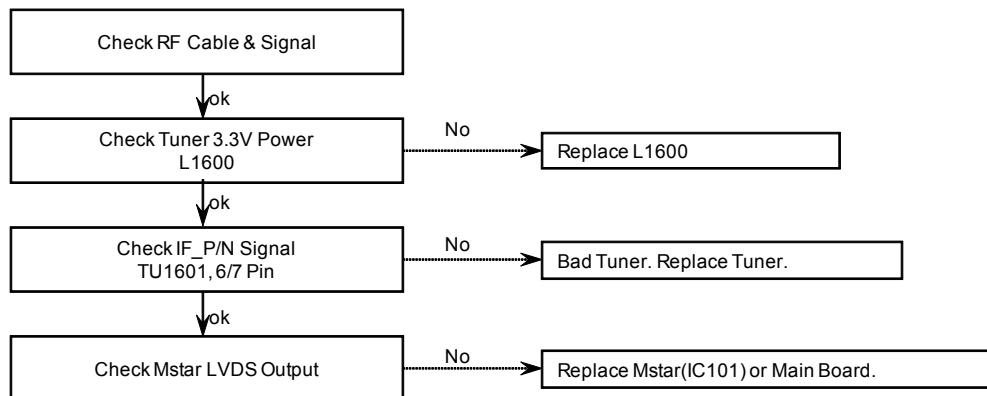


# TROUBLE SHOOTING

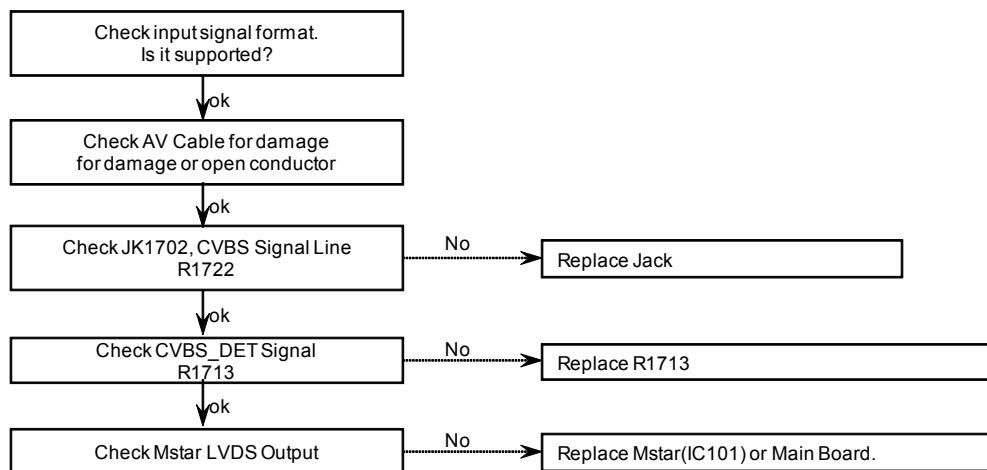
## 1. Power-up boot check



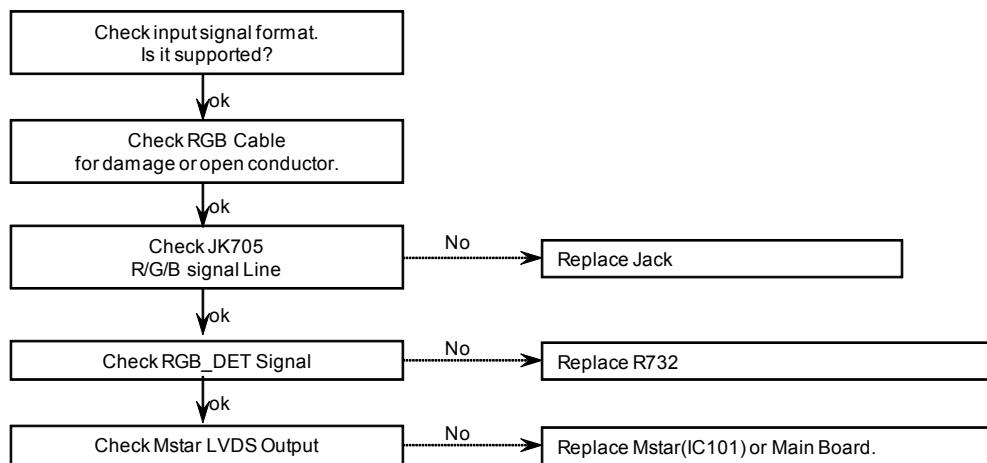
## 2. Digital/Analog TV Video



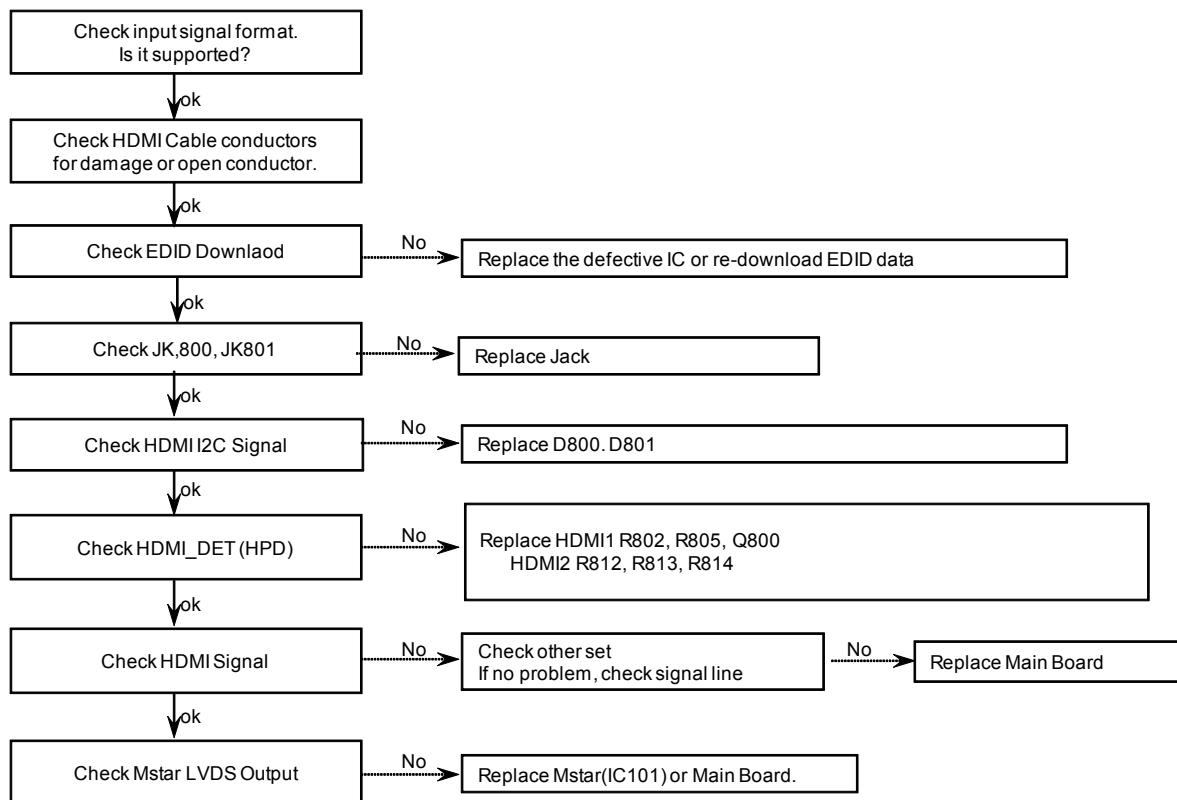
## 3. AV Video



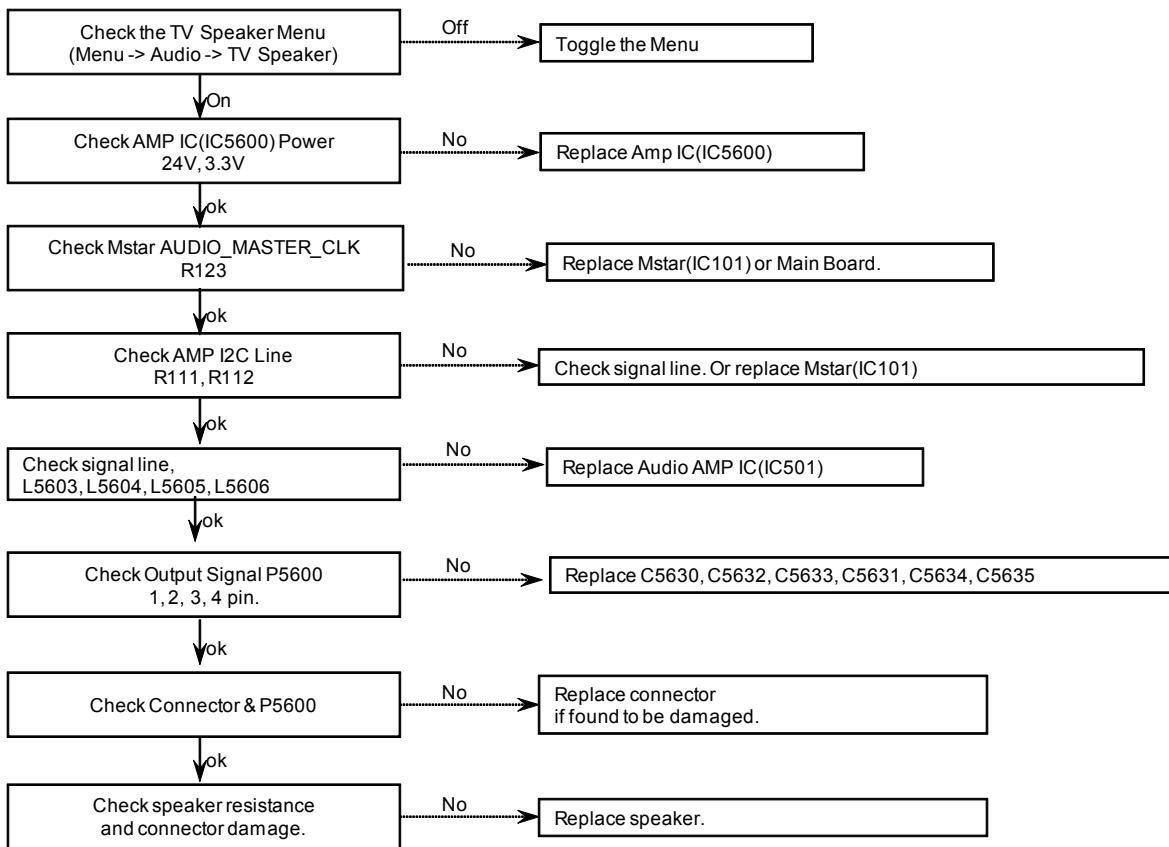
## 4. RGB Video



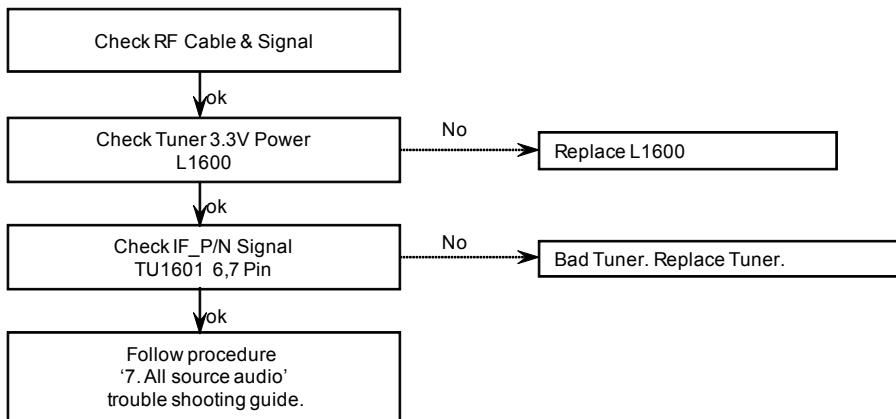
## 5. HDMI Video



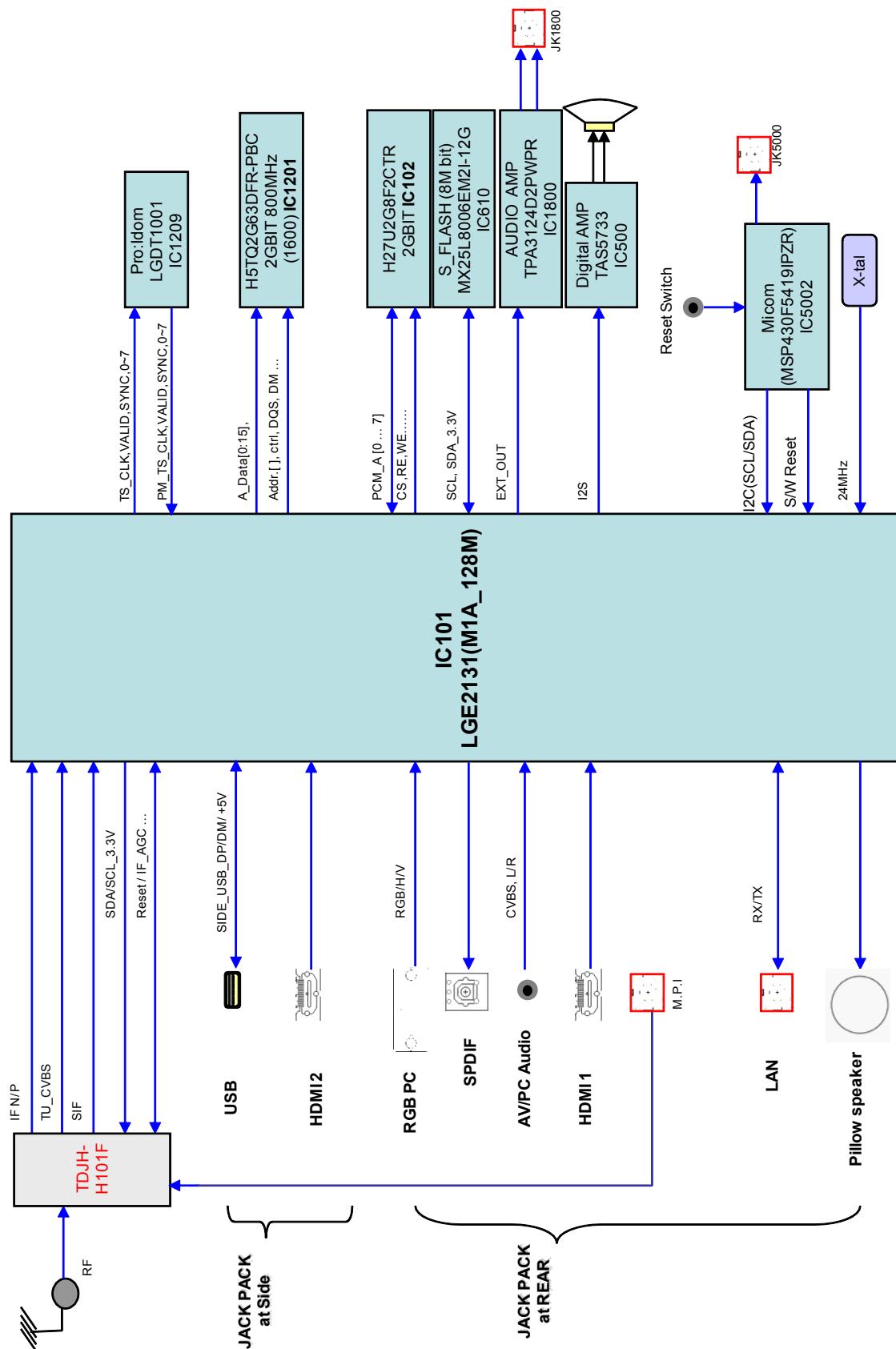
## 6. All Source Audio



## 7. Digital/Analog TV Audio



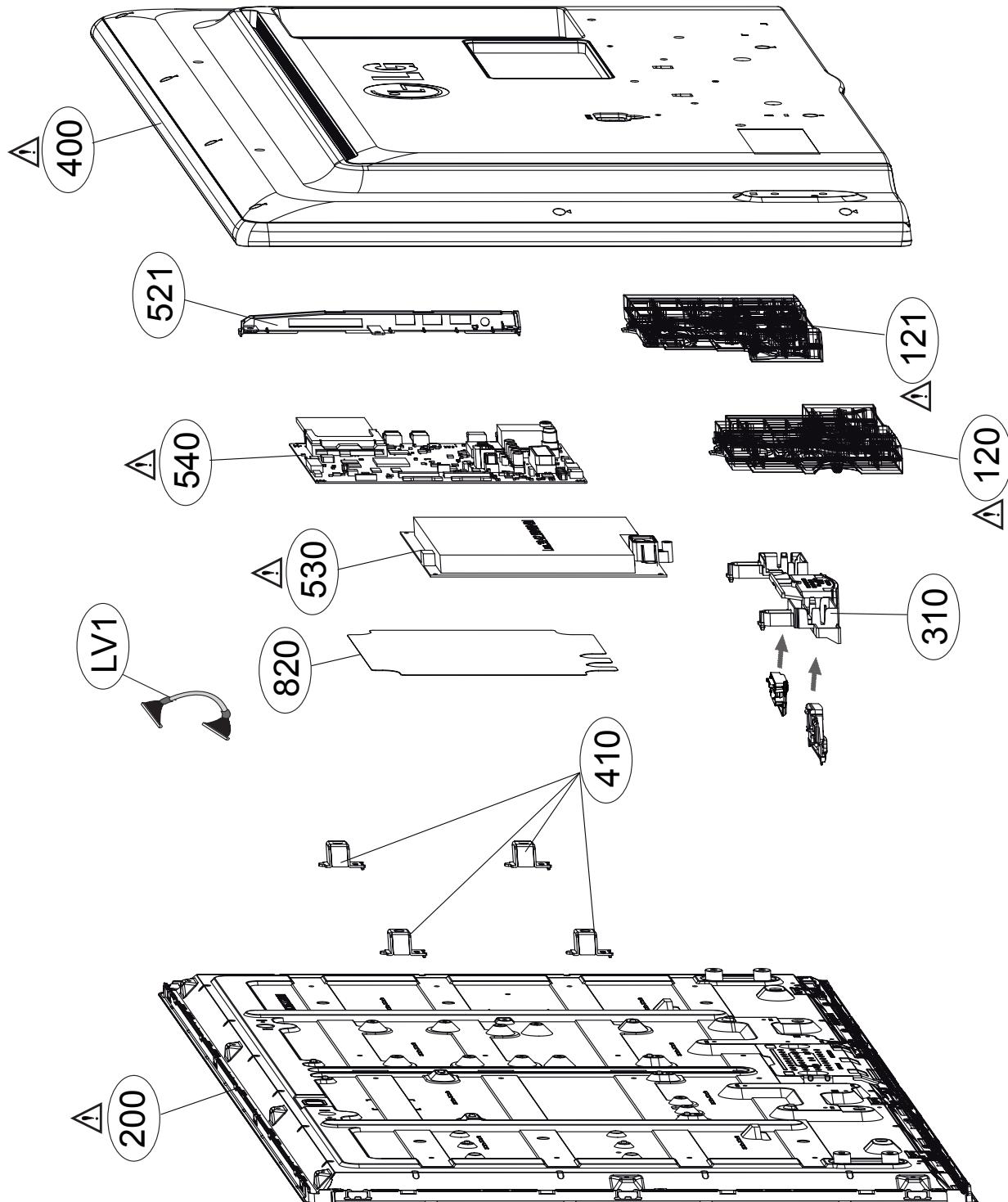
# BLOCK DIAGRAM

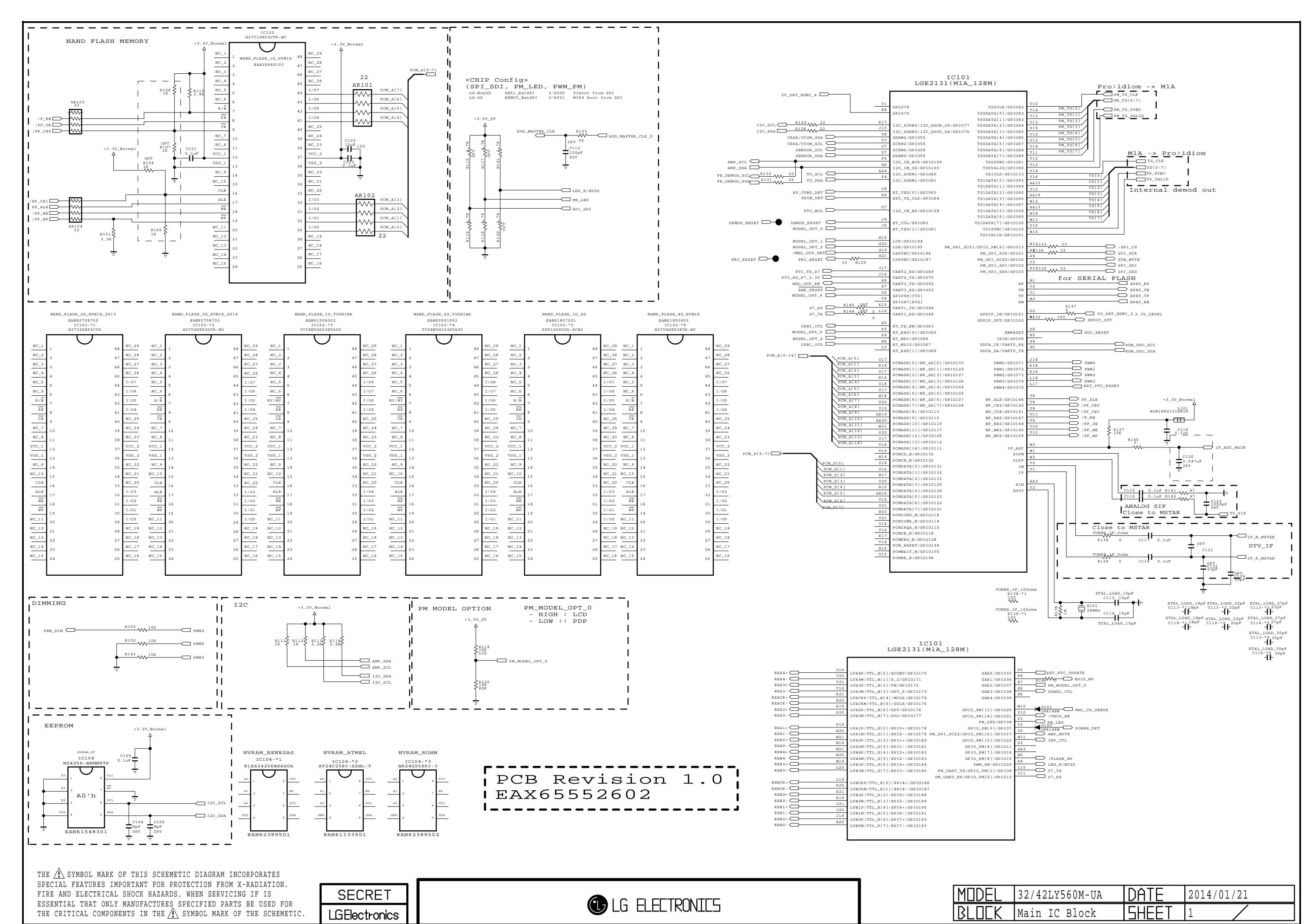


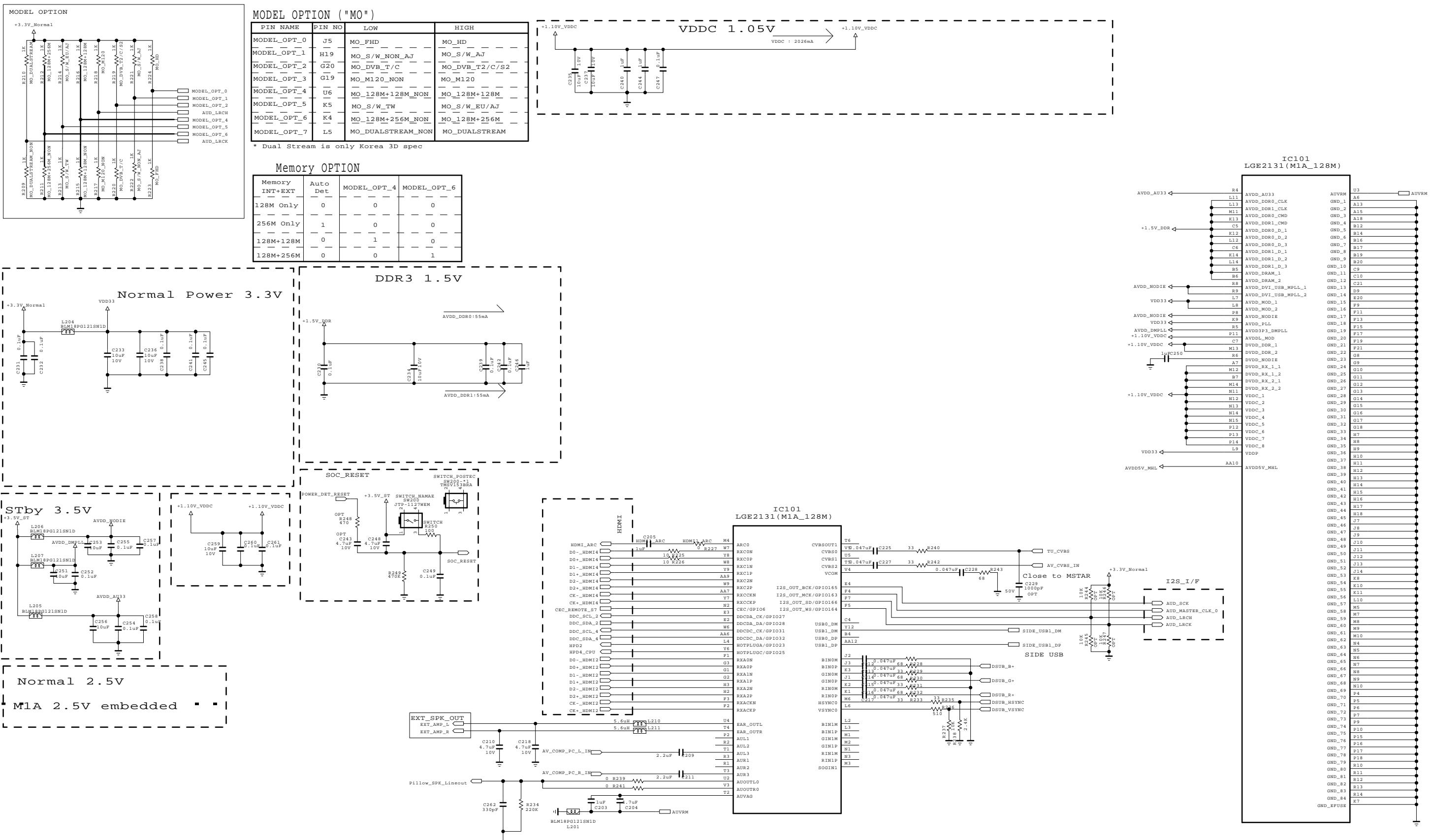
# EXPLODED VIEW

## IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by  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.







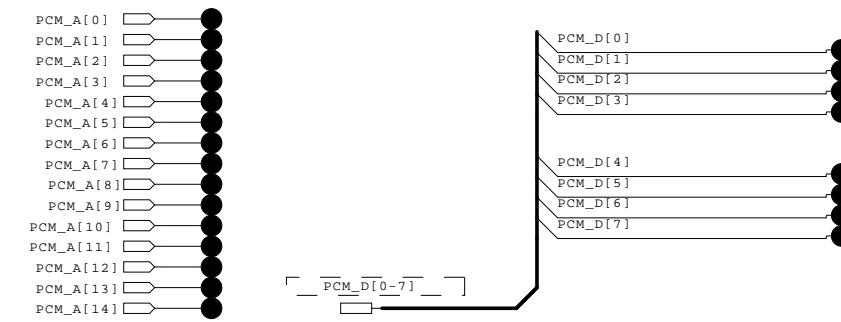
The symbol mark of this schematic diagram incorporates special features important for protection from X-radiation. Fire and electrical shock hazards, when servicing if is essential that only manufacturers specified parts be used for the critical components in the symbol mark of the schematic.

SECRET  
LG Electronics

LG ELECTRONICS

MODEL	XXLY670H-UA	DATE	2013/08/17
BLOCK	Main IC Block	SHEET	2

## NON CI Region



THE  SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FIRE 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.

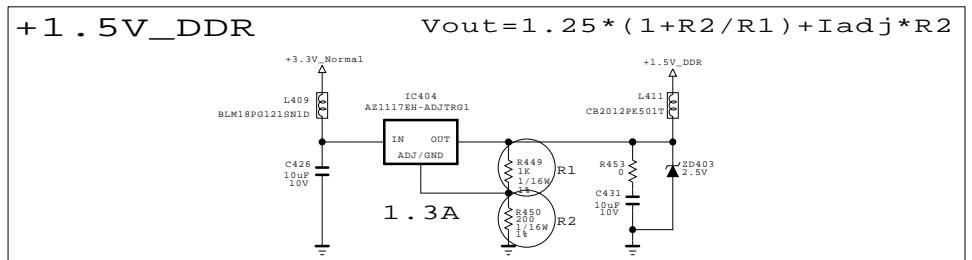
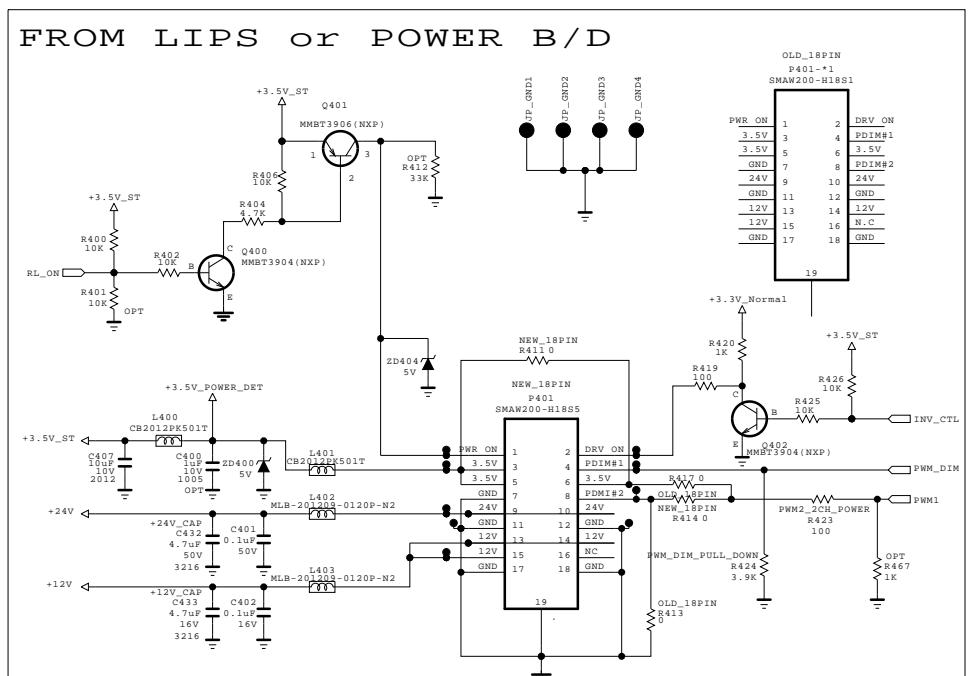
SECRET
LG Electronics

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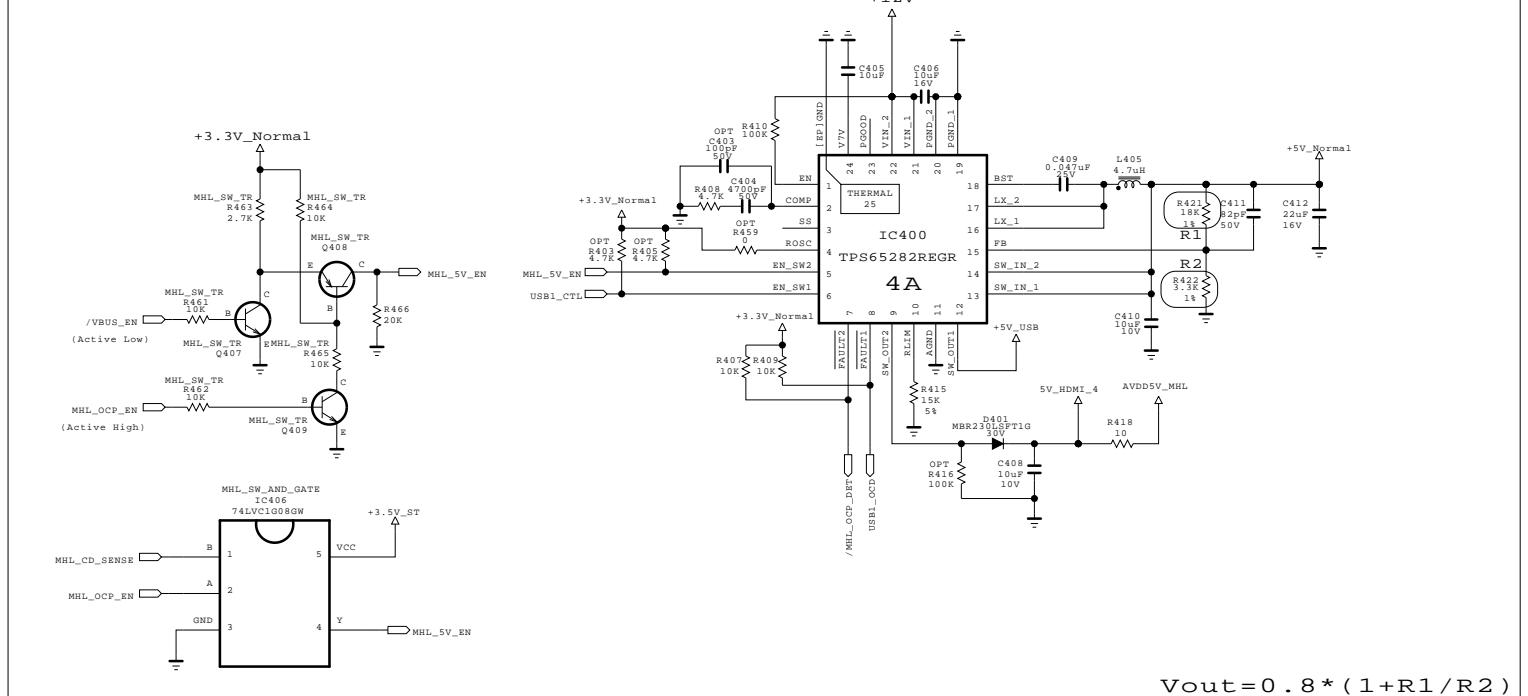
MODEL	XXLY570H-UA	DATE	2013/10/22
BLOCK	Non CI Region	SHEET	3

# L14 POWER BLOCK (POWER DETECT 2)

FROM LIPS or POWER B/D



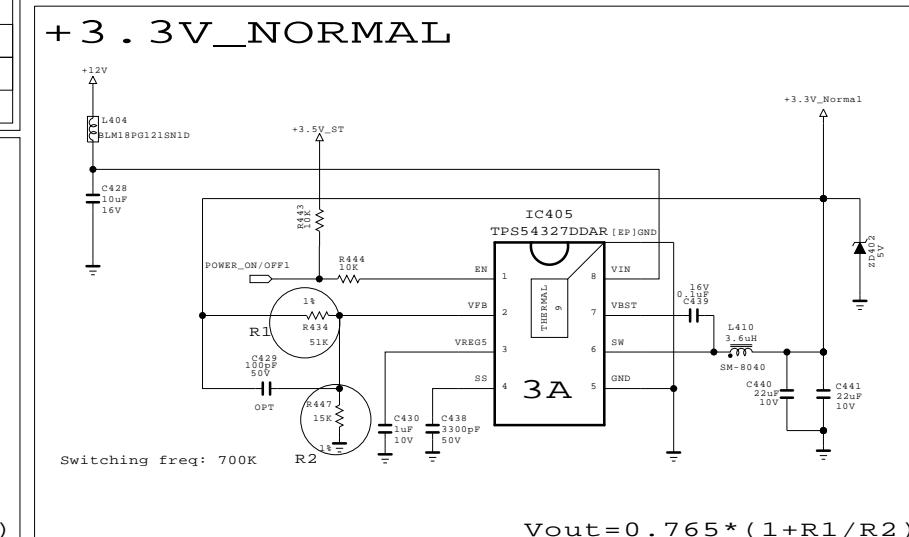
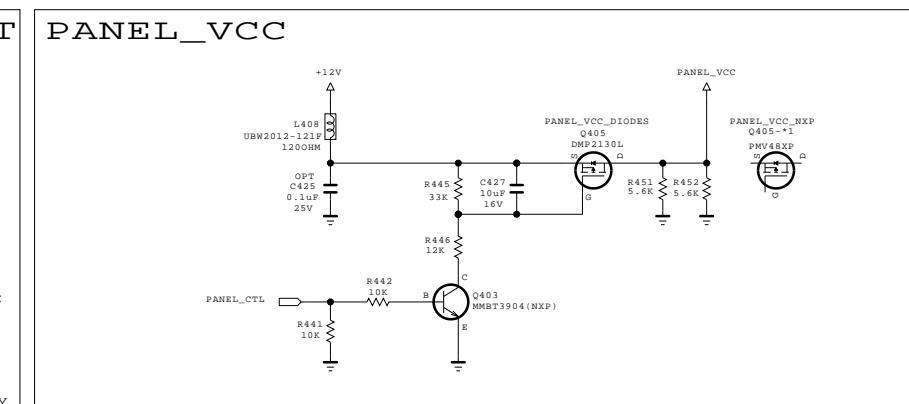
+5V\_Normal & +5V\_USB with OCP



The SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FIRE 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.

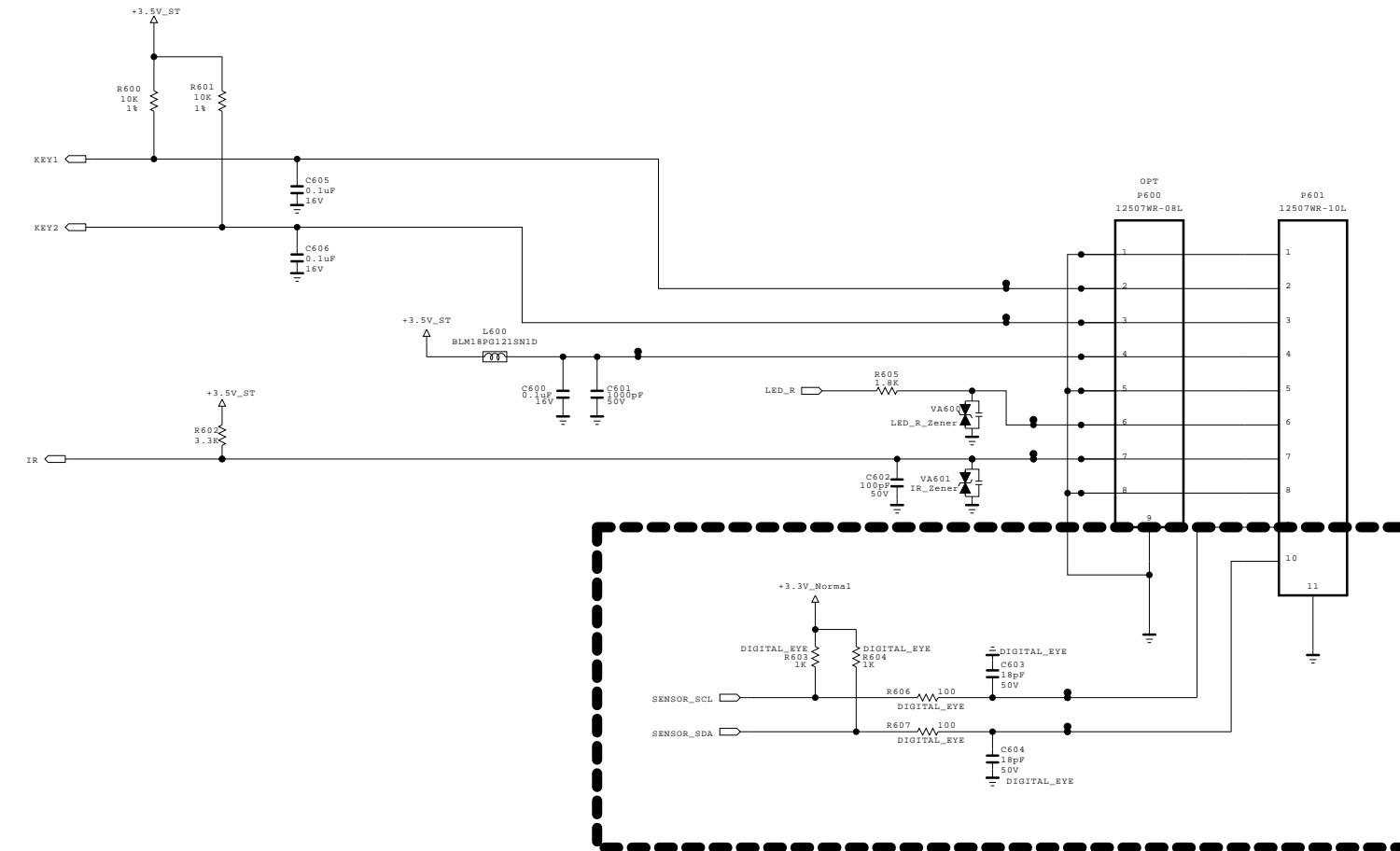
**SECRET**  
LG Electronics

LG ELECTRONICS



MODEL	XXLY570H-UA	DATE	2013/10/22
BLOCK	Power Block	SHEET	4

**CONTROL  
IR & LED**



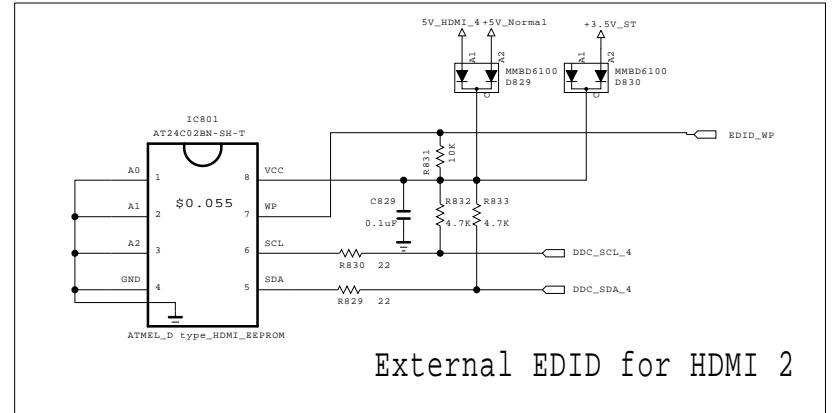
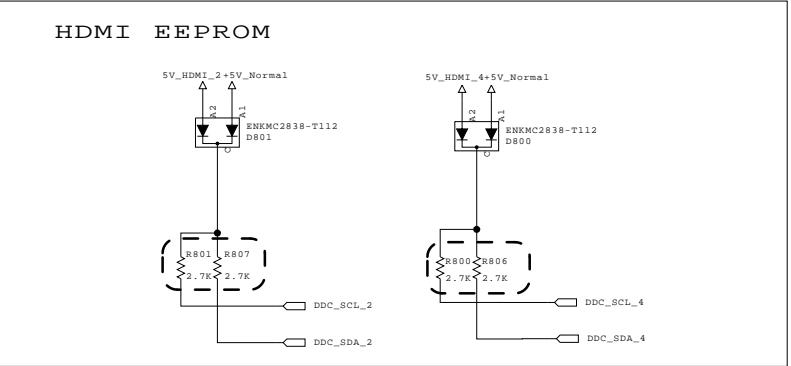
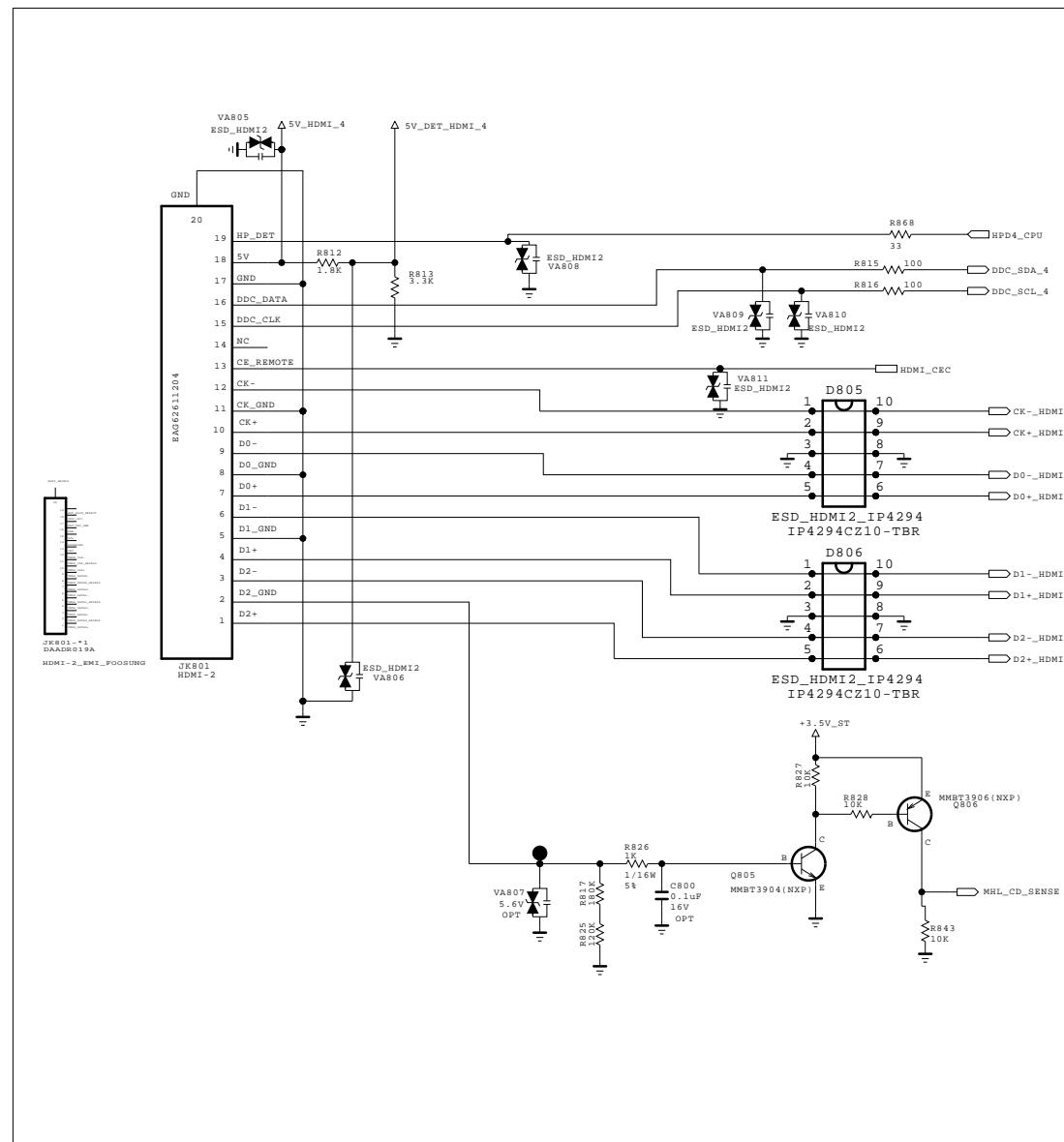
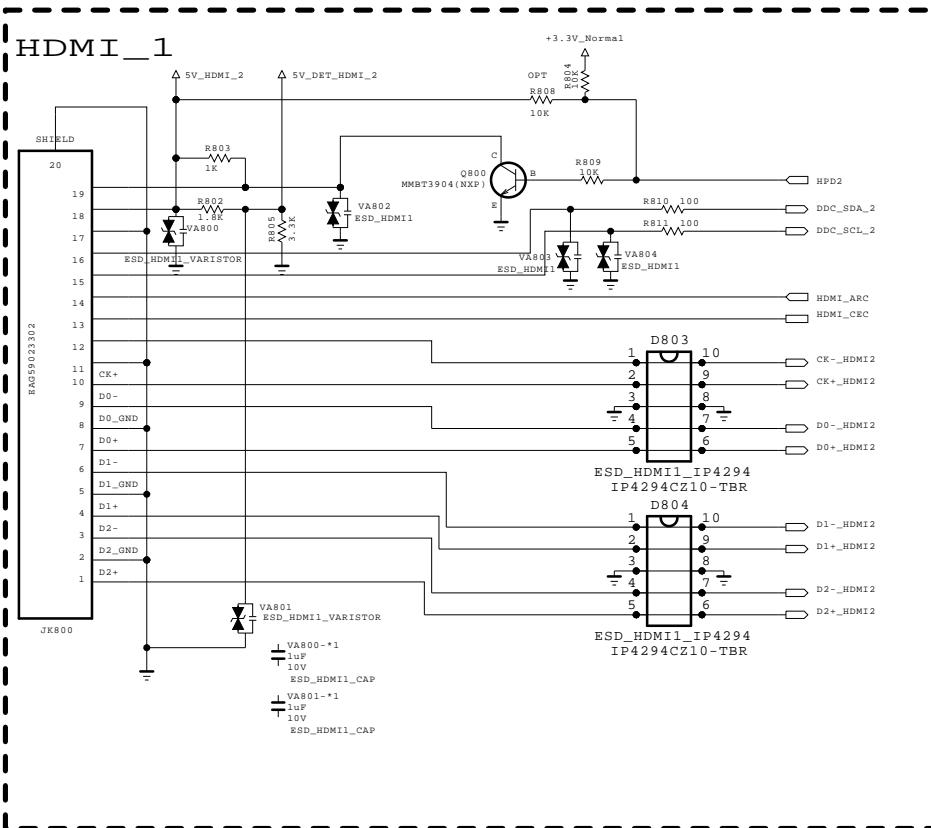
THE SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FIRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SYMBOL MARK OF THE SCHEMATIC.

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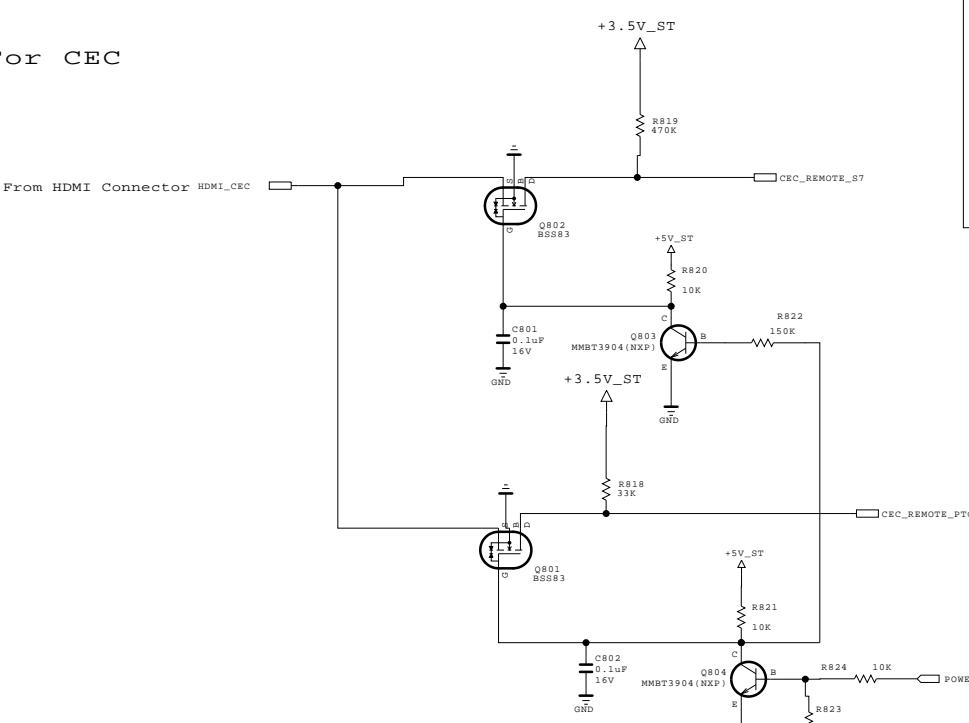
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MODEL	XXLY570H-UA	DATE	2013/10/22
BLOCK	IR Block	SHEET	5 /

# HDMI (REAR 1 / SIDE 1 MHL)



For CEC



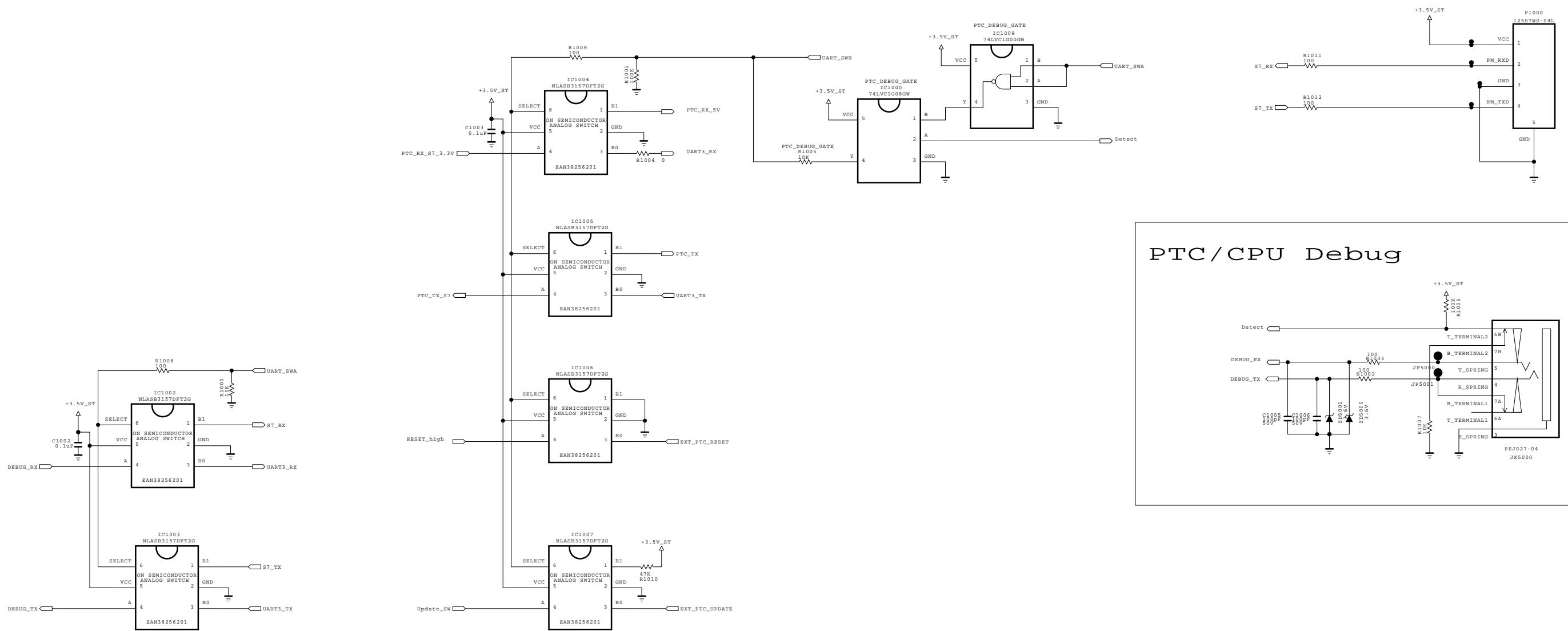
THE SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FIRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SYMBOL MARK OF THE SCHEMATIC.

**SECRET**  
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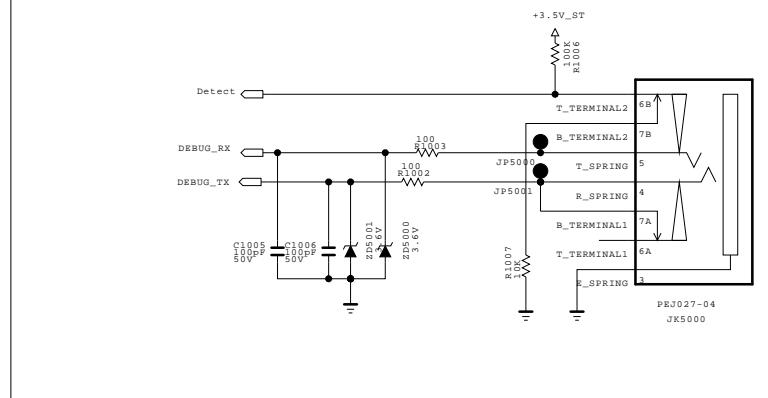
LG ELECTRONICS

MODEL	XXLY670H-UA	DATE	2013/08/17
BLOCK	HDMI Block	SHEET	8

# CPU Debug 4PIN



## PTC / CPU Debug



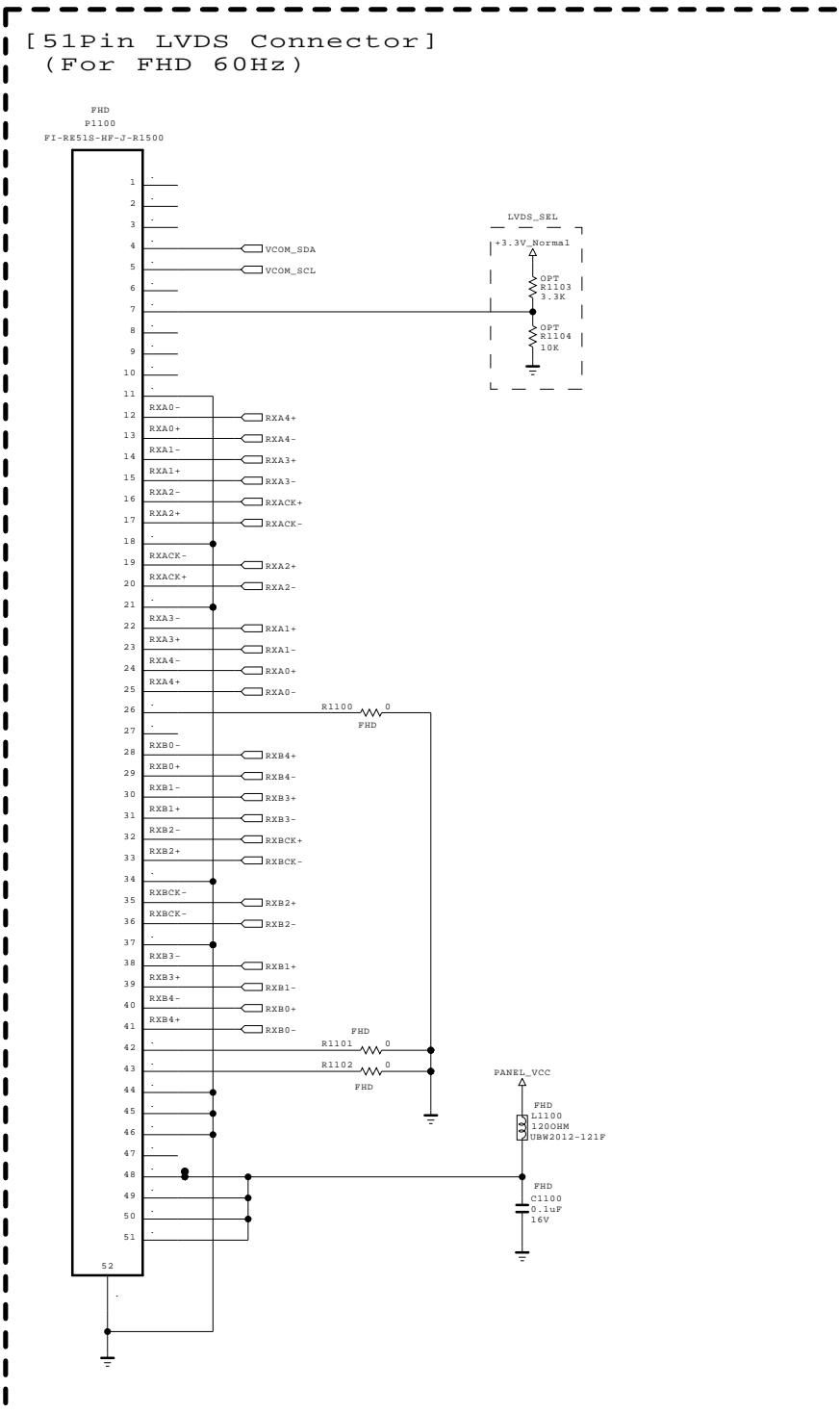
THE SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FIRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SYMBOL MARK OF THE SCHEMATIC.

**SECRET**  
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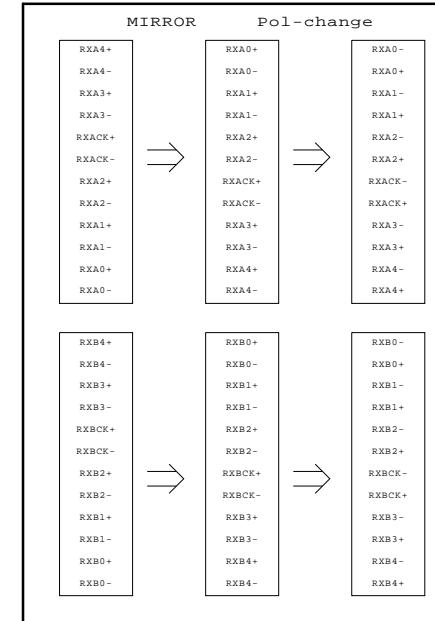
LG ELECTRONICS

MODEL	XXLY570H-UA	DATE	2013/10/22
BLOCK	RS232C 4Pin Block	SHEET	7

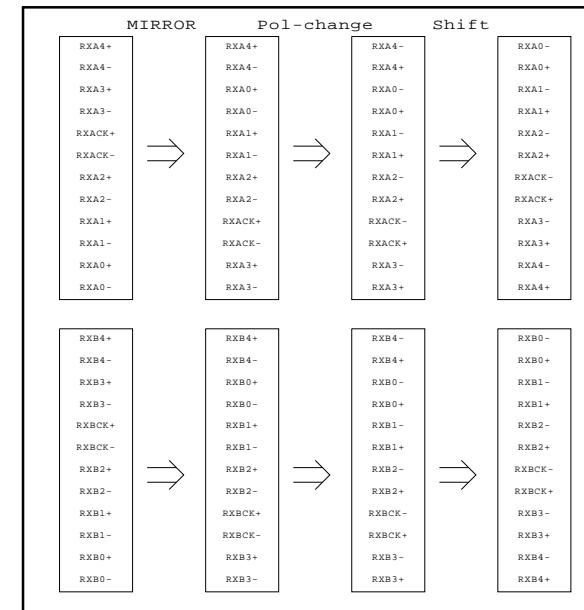
# LVDS for large inch



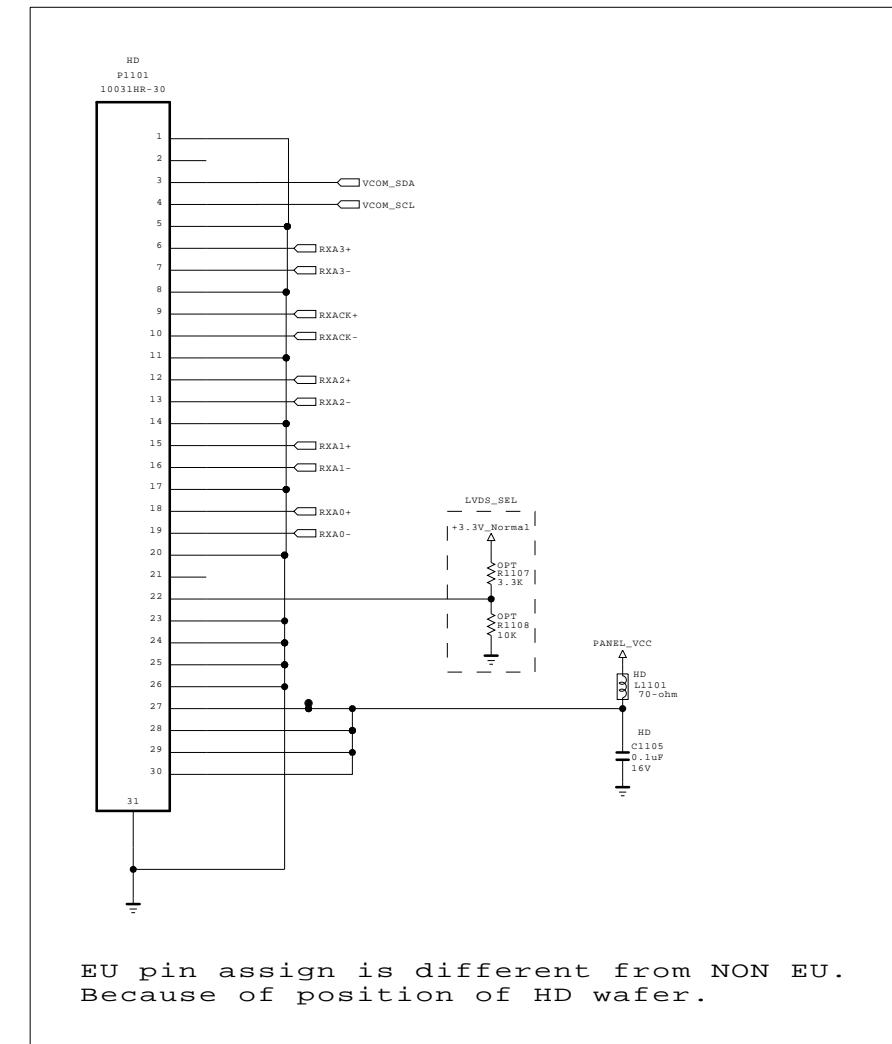
FOR FHD REVERSE(10bit)  
Change in S7LR



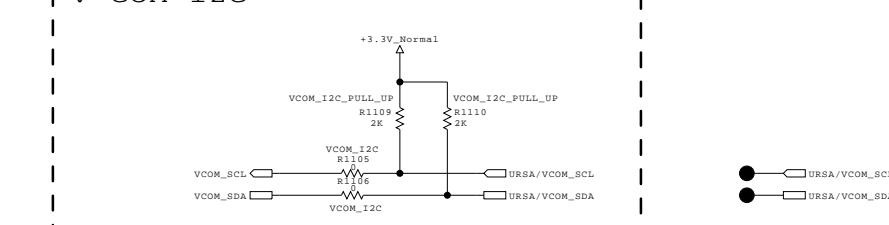
FOR FHD REVERSE(8bit)  
Change in S7LR



[ 30Pin LVDS Connector]  
(For HD 60Hz\_Normal)



V-COM I2C

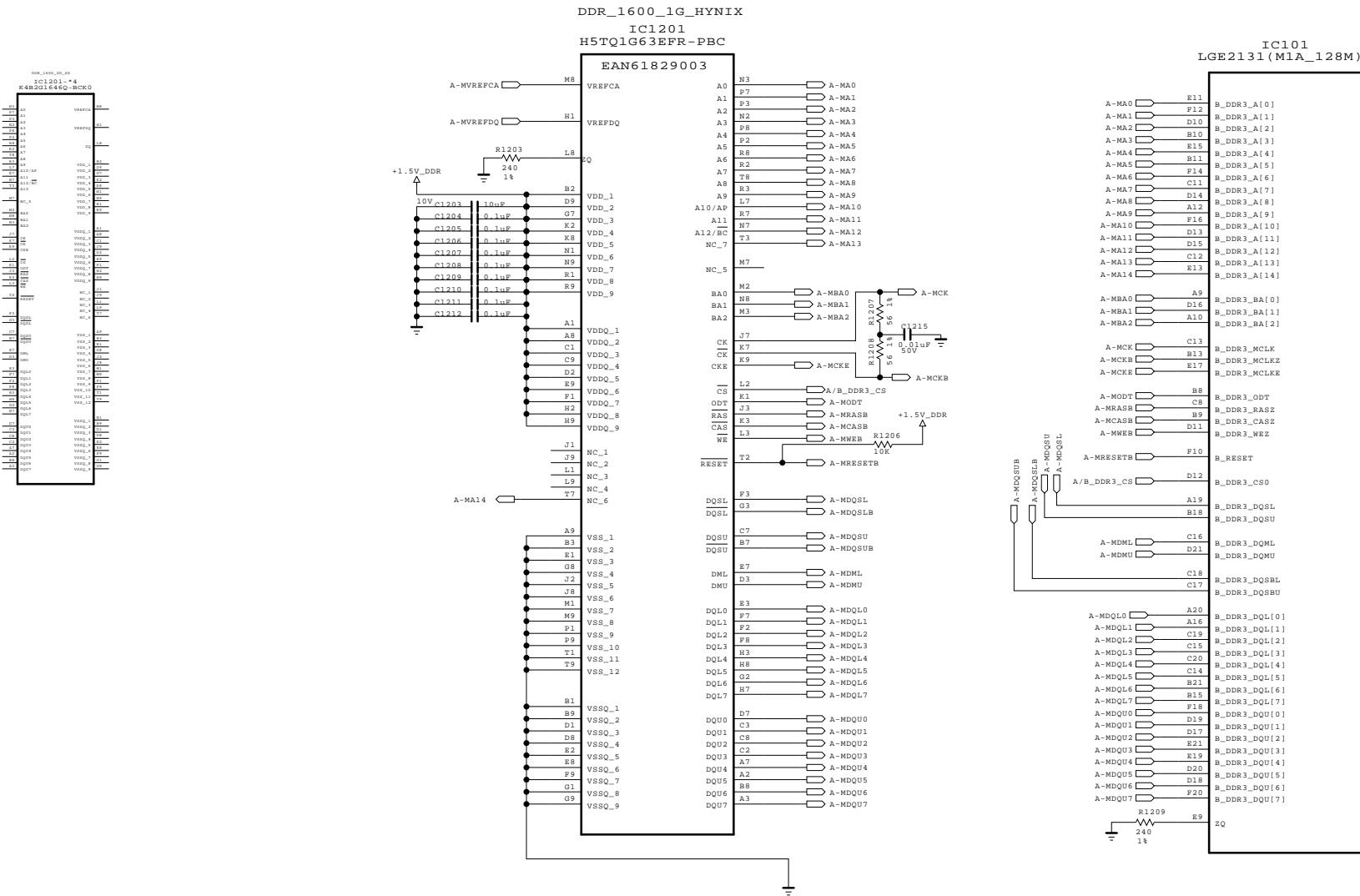
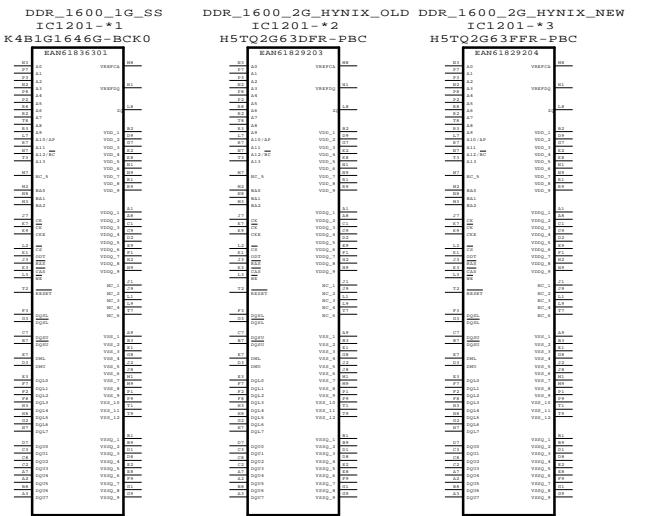
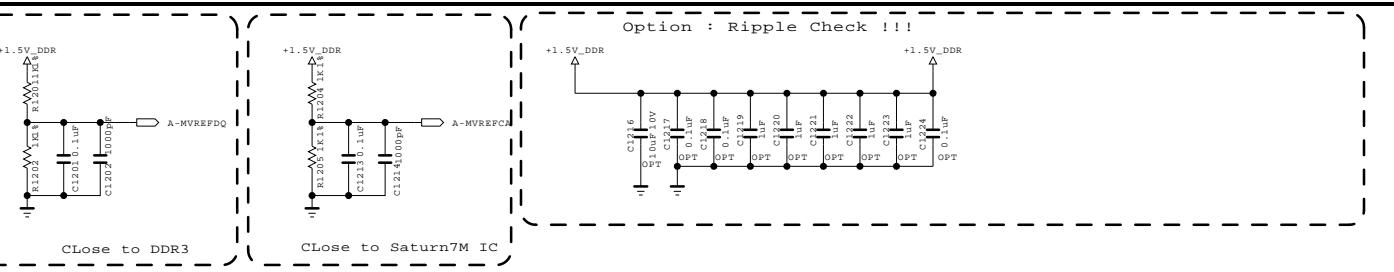


THE SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FIRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SYMBOL MARK OF THE SCHEMATIC.

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MODEL	XXLY570H-UA	DATE	2013/10/22
BLOCK	LVDS Block	SHEET	8 /



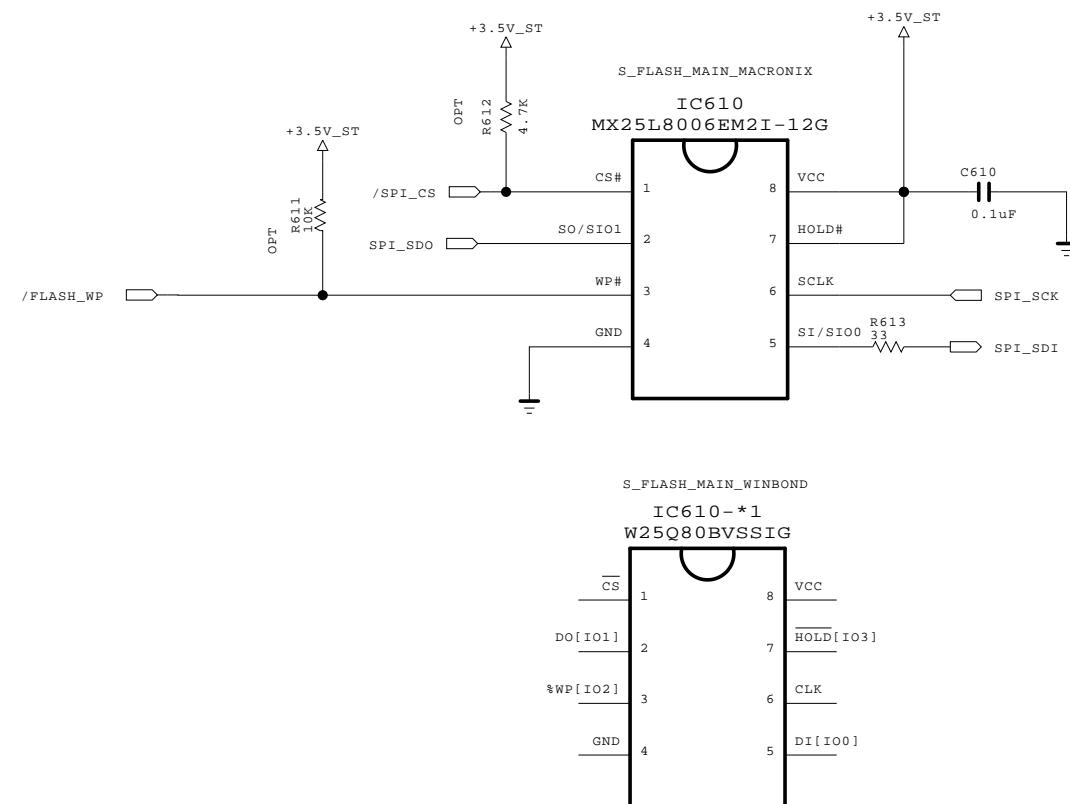
SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FIRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SYMBOL MARK OF THE SCHEMATIC.

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MODEL	XXLY570H-UA	DATE	2013/10/22
BLOCK	DDR Block	SHEET	9

## Serial Flash 1MB



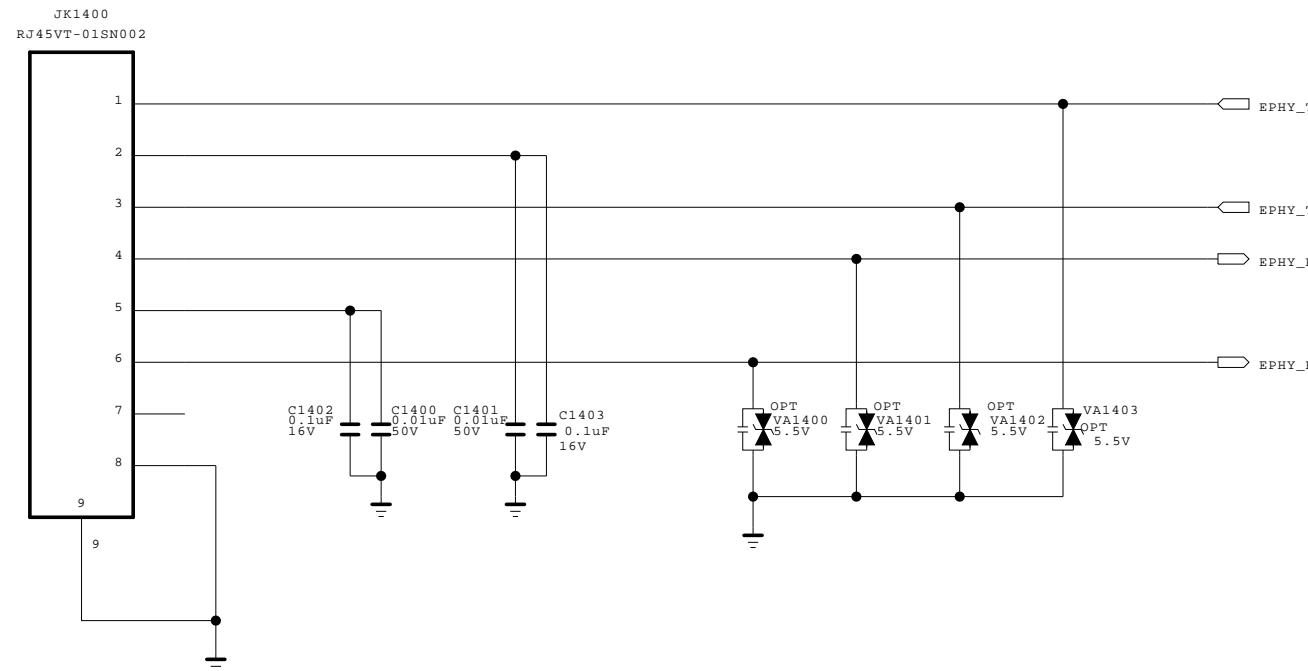
THE  SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FIRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE  SYMBOL MARK OF THE SCHEMATIC.

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MODEL	XXLY670H-UA	DATE	2013/08/17
BLOCK	S-Flash Block	SHEET	13

# ETHERNET



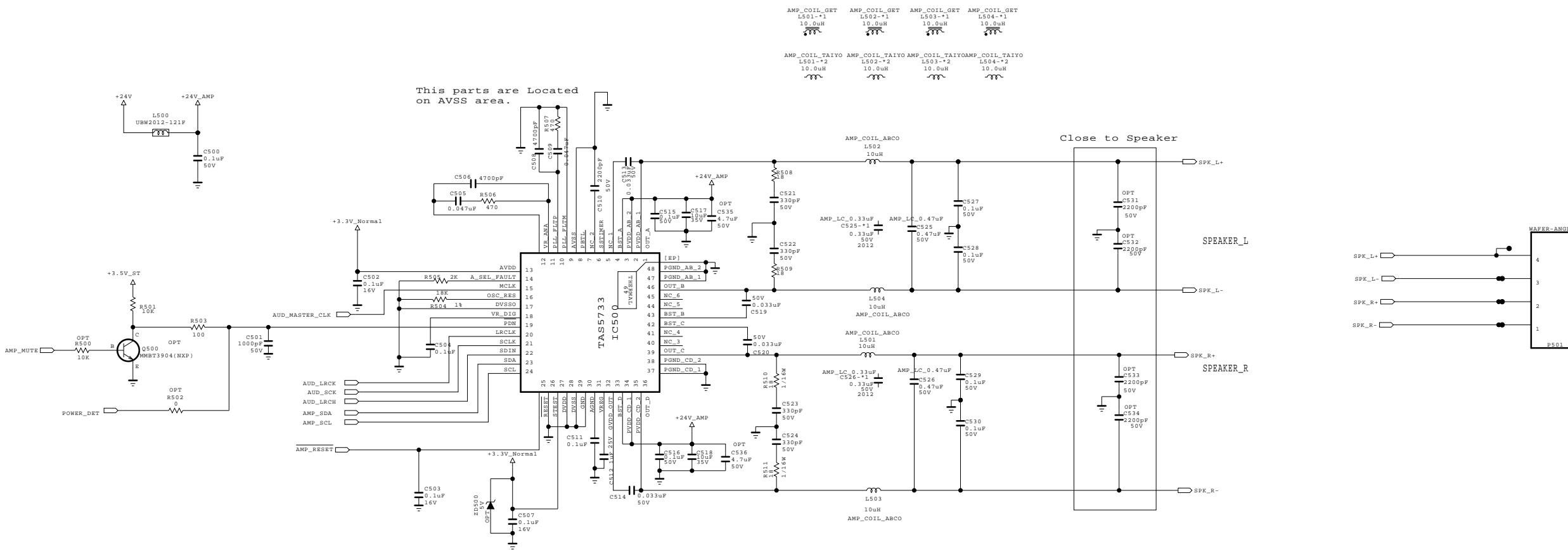
THE SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FIRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SYMBOL MARK OF THE SCHEMATIC.

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MODEL	32/42LY560M-UA	DATE	2014/01/21
BLOCK	Ethernet Block	SHEET	14

# AUDIO AMP (TI)



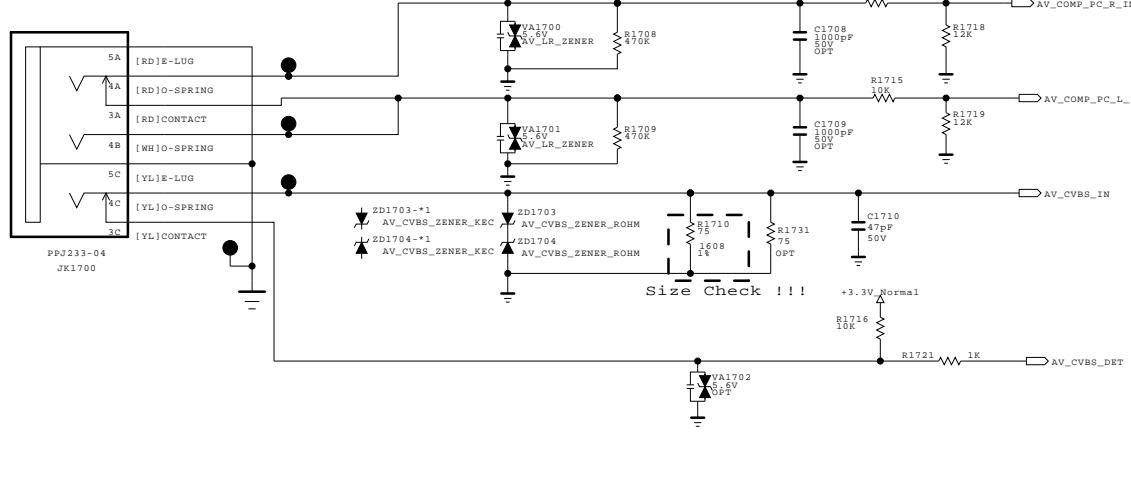
THE SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FIRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SYMBOL MARK OF THE SCHEMATIC.

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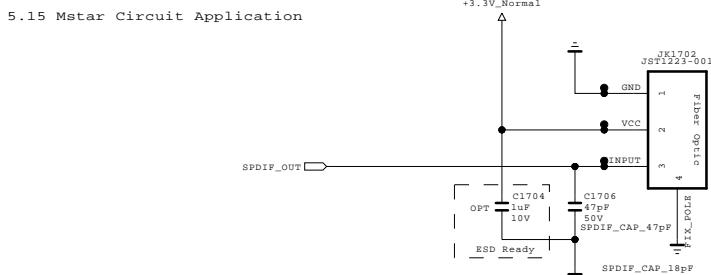
LG ELECTRONICS

MODEL	XXLY670H-UA	DATE	2013/08/17
BLOCK	TAS5733 AMP Block	SHEET	16

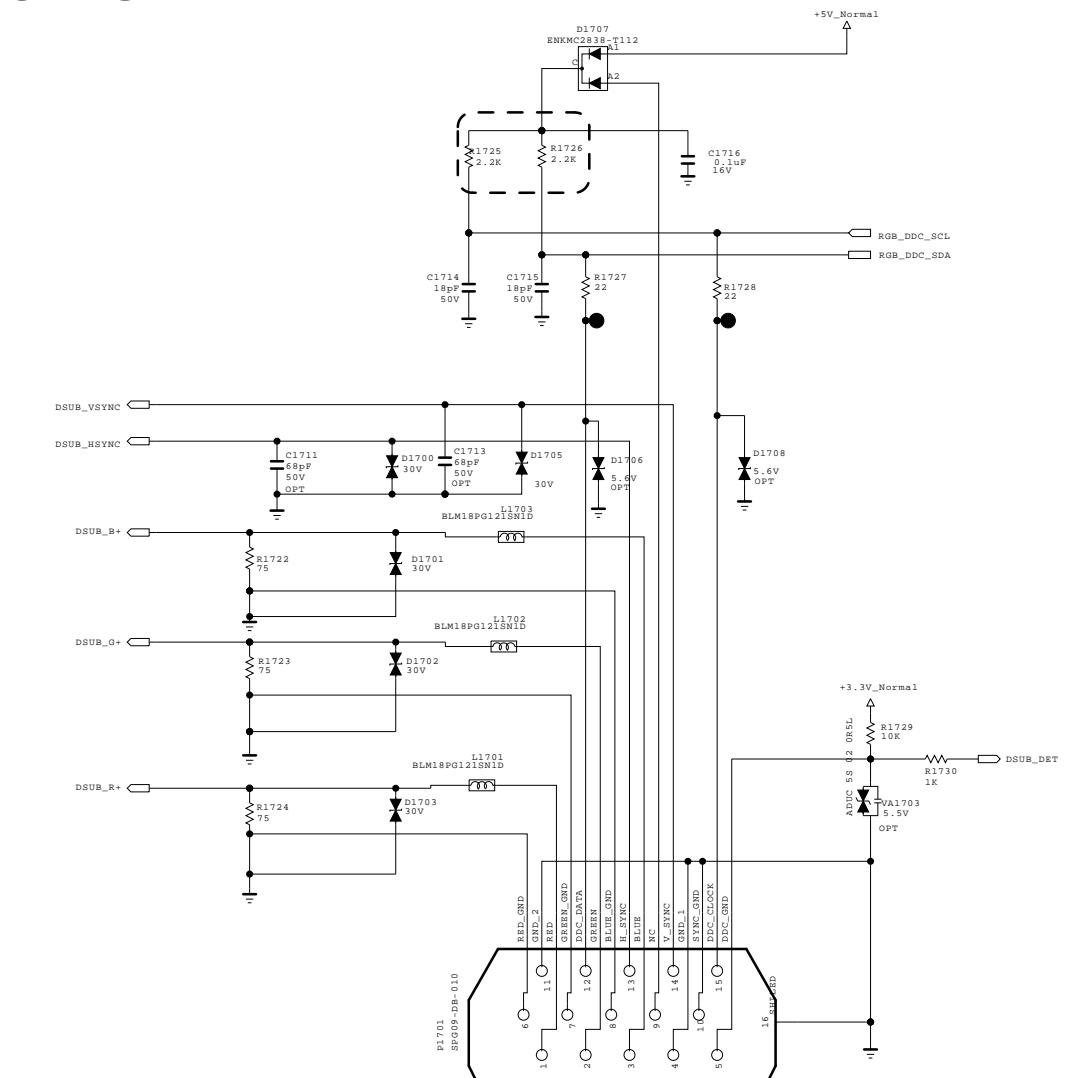
## Composite



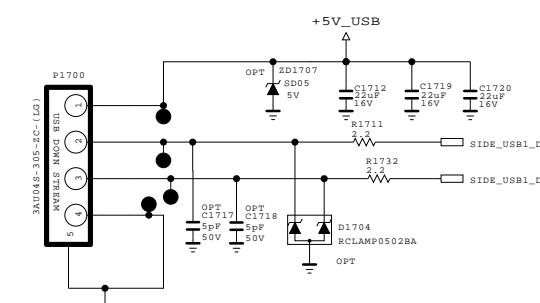
## SPDIF OPTIC JACK



## PC RGB In



## USB ( SIDE )



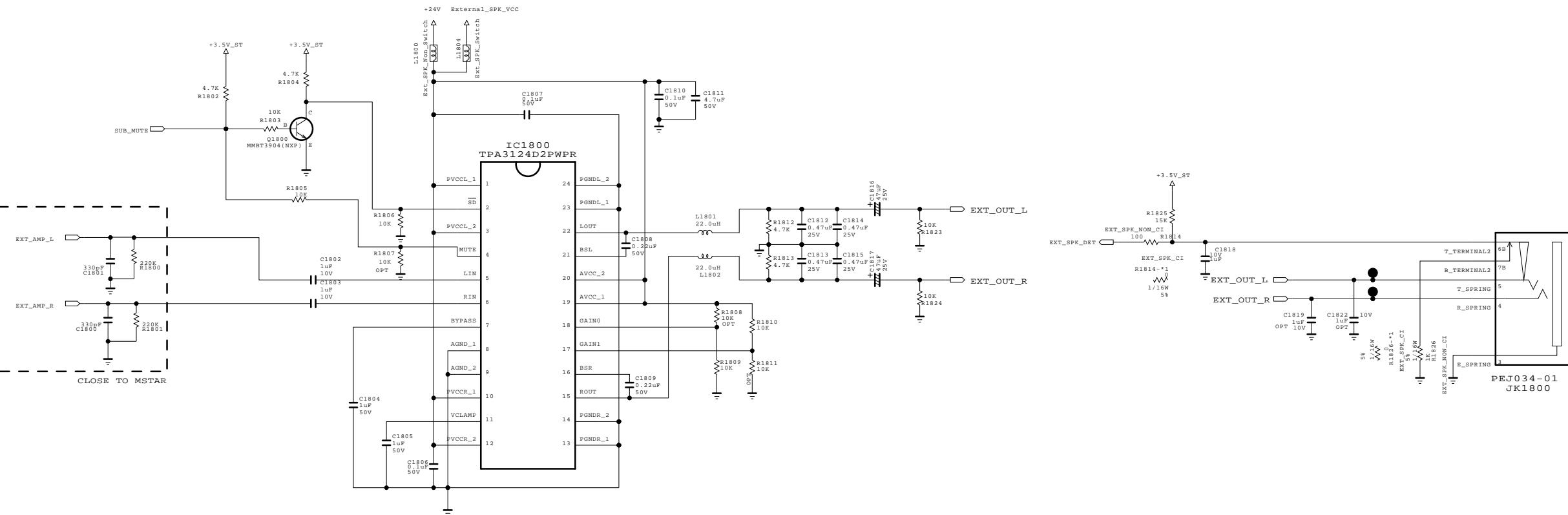
The SYMBOL MARK OF THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION. FIRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS ESSENTIAL THAT ONLY MANUFACTURES SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SYMBOL MARK OF THE SCHEMATIC.

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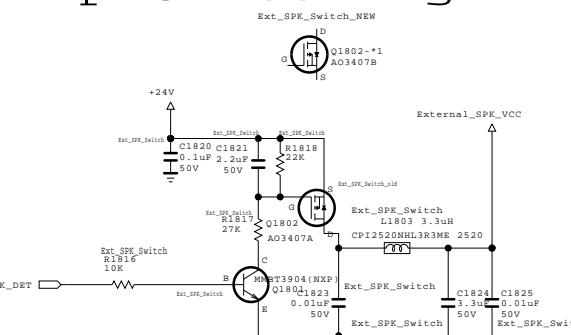
LG ELECTRONICS

MODEL	32/42LY560M-UA	DATE	2014/01/21
BLOCK	Rear Jack Block	SHEET	17

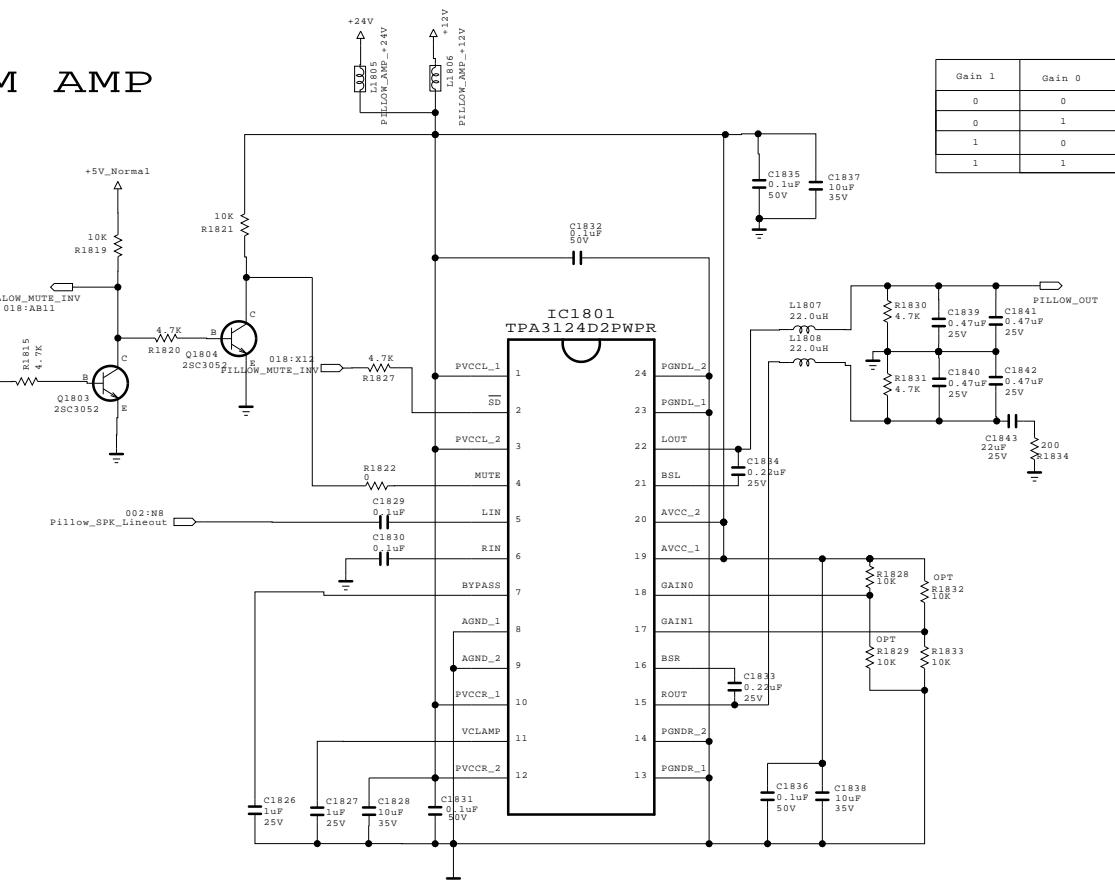
## EXT\_SPEAKER\_AMP



## External Amp Switching



## Pillow PWM AMP



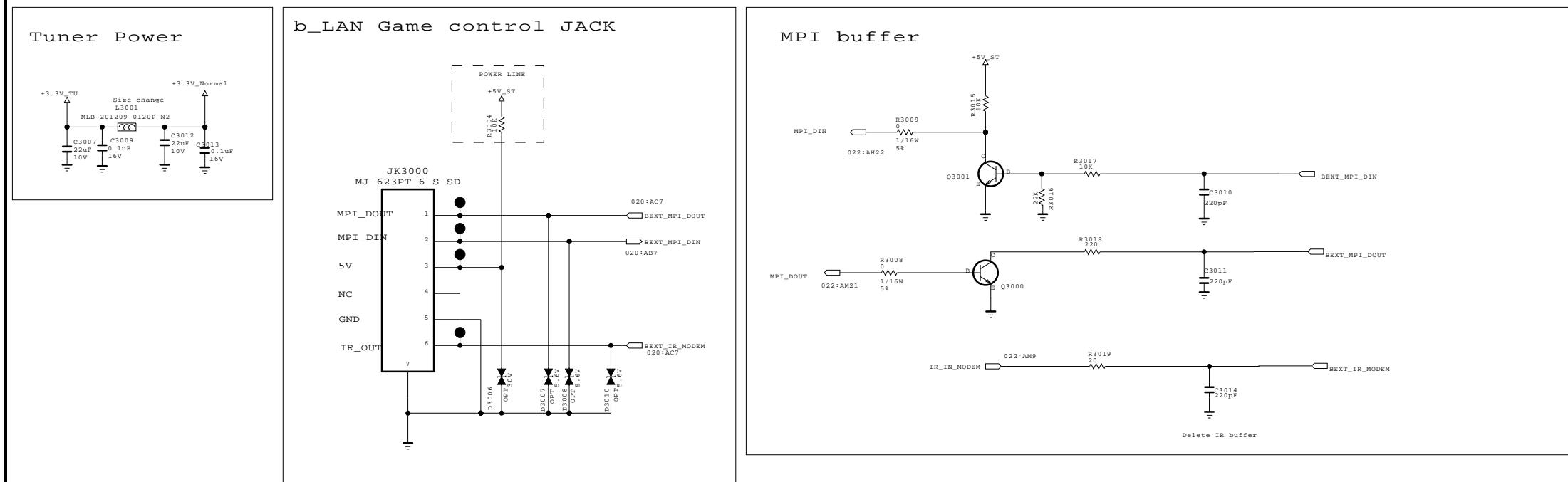
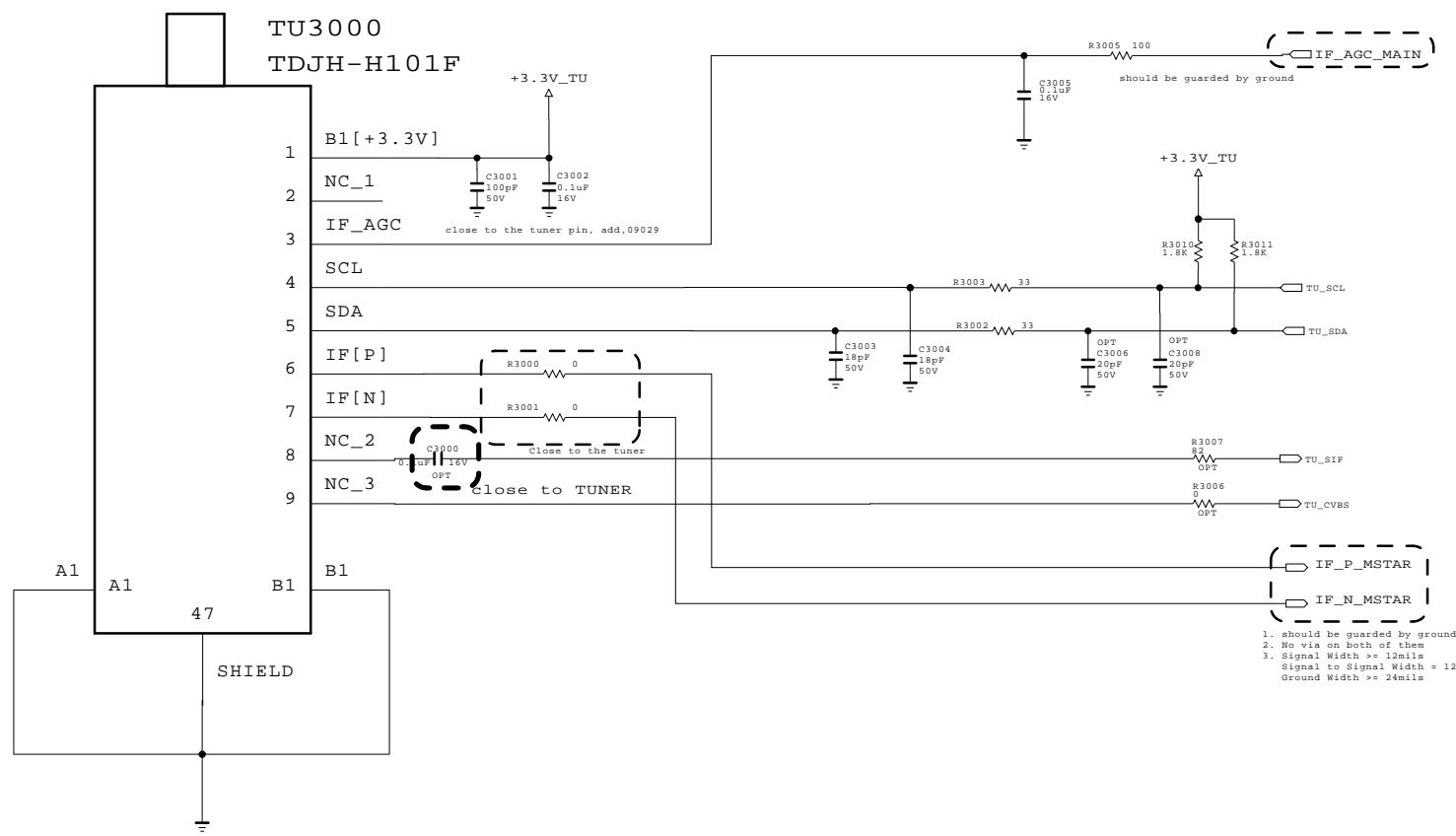
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MODEL	XXLY570H-UA	DATE	2013/10/22
BLOCK	Ext Speaker Block	SHEET	13

# Tuner Block



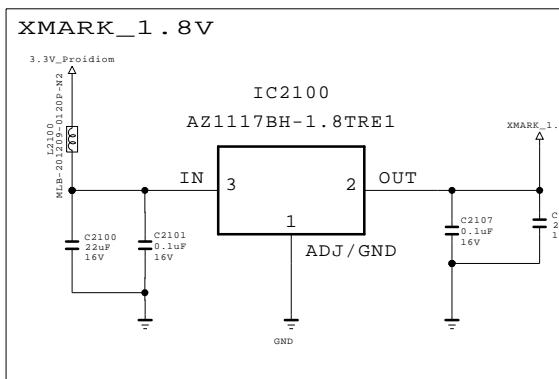
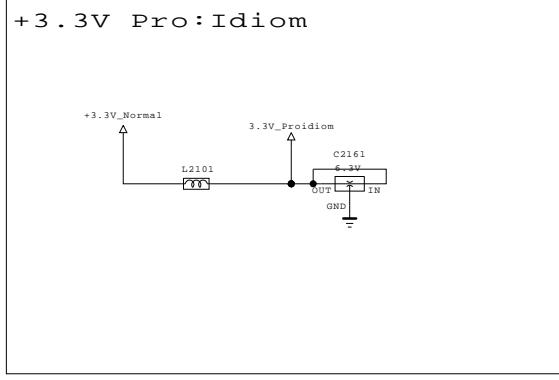
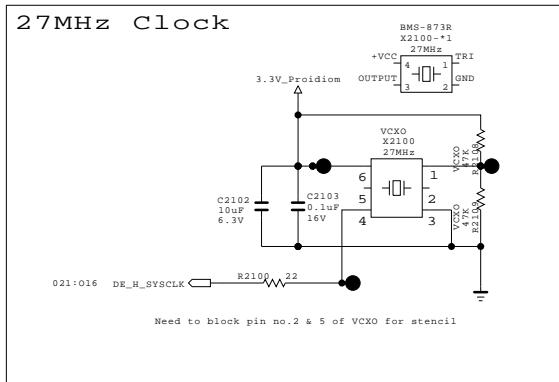
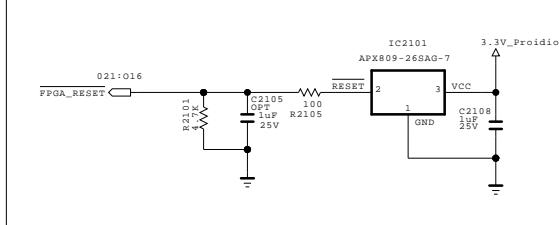
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MODEL	XXLY670H-UA	DATE	2013/08/17
BLOCK	B_Lan/MPI Block	SHEET	20

RESET



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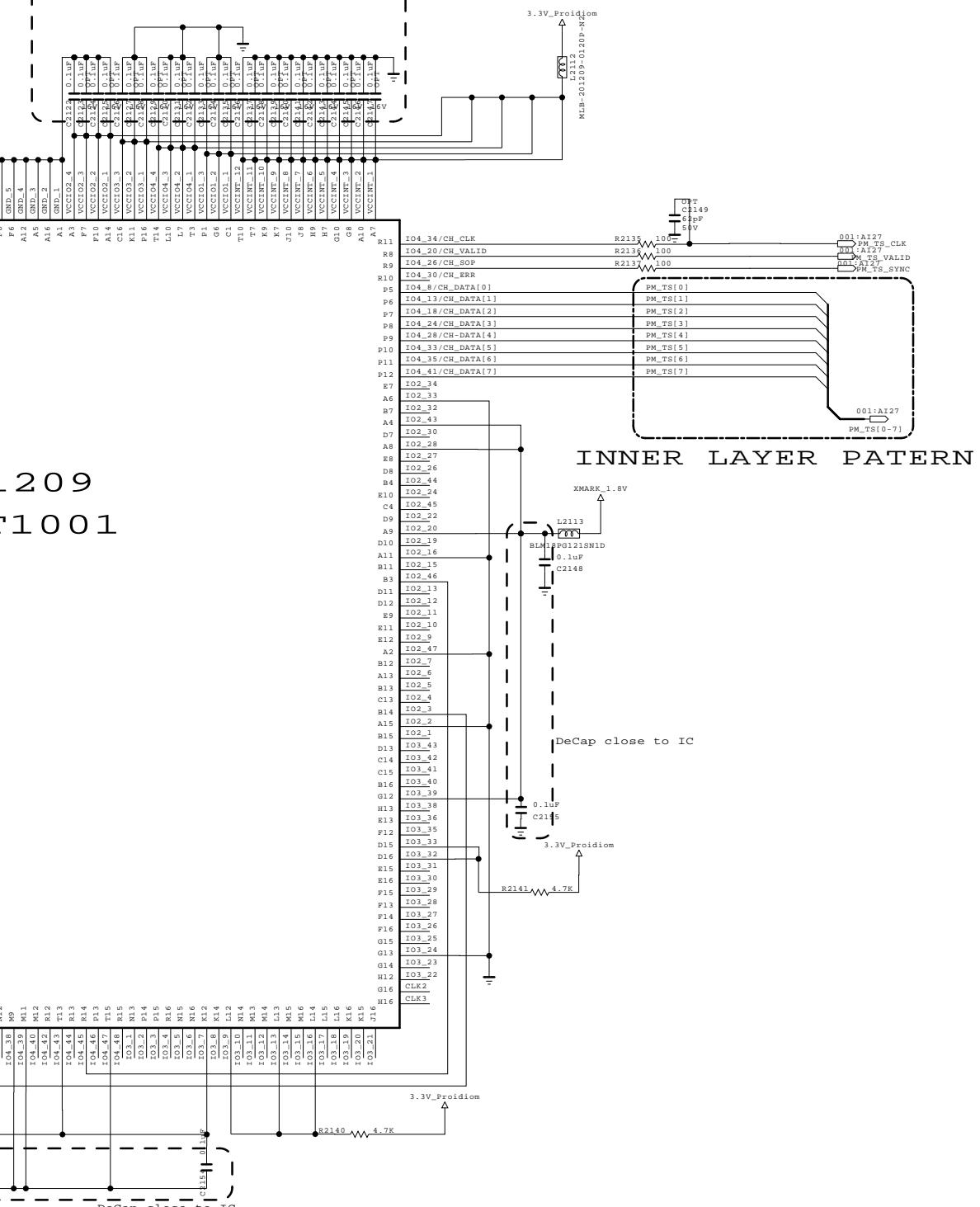
# Pro:Idiom

Only for LG1001

Full decap.: When use WATER MARK fuction

Half decap.: When do not use WATER MARK fuction

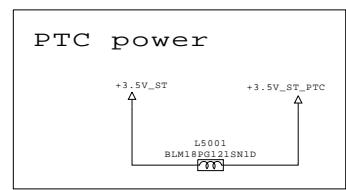
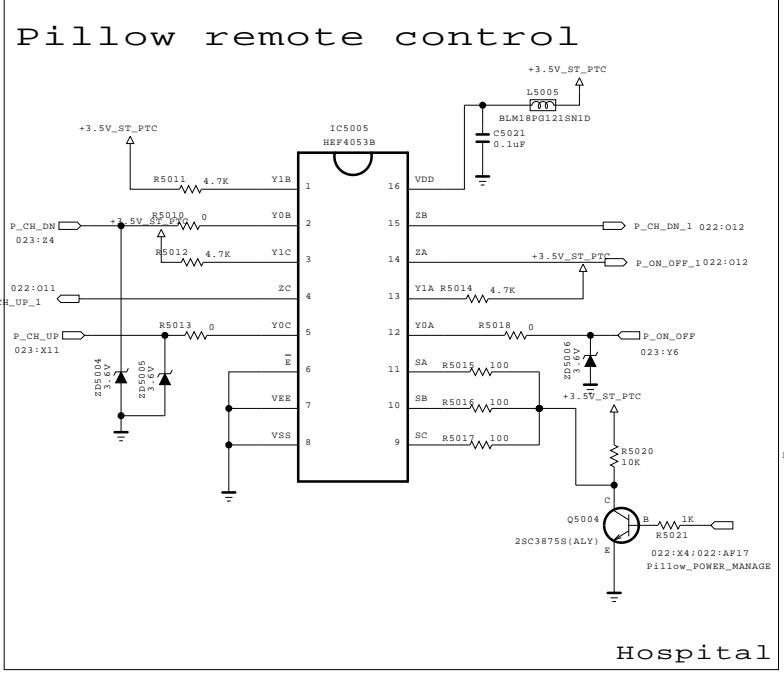
Reduce decap.



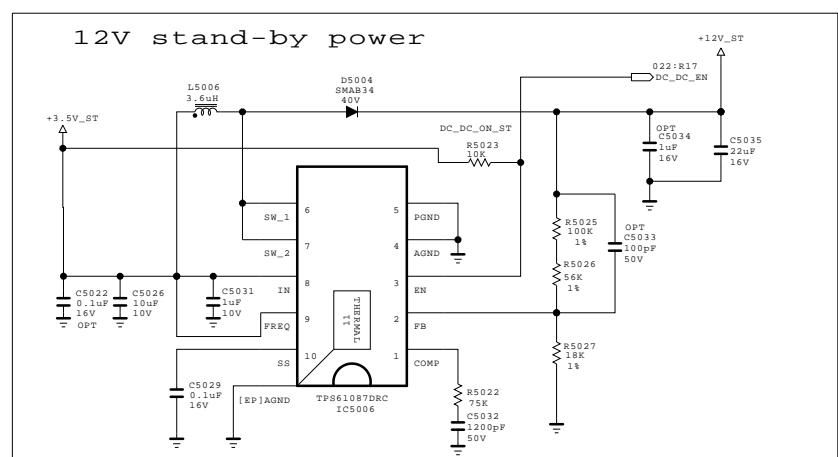
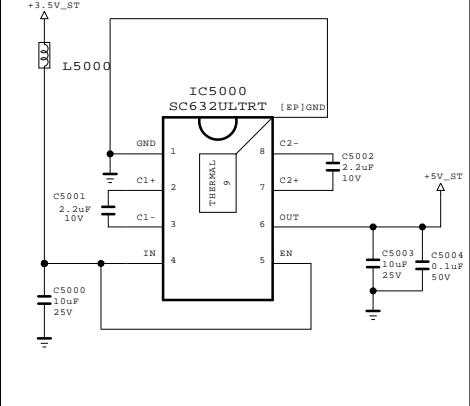
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LG Electronics

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MODEL	XXLY670H-UA	DATE	2013/08/17
BLOCK	Pro:Idiom Block	SHEET	21



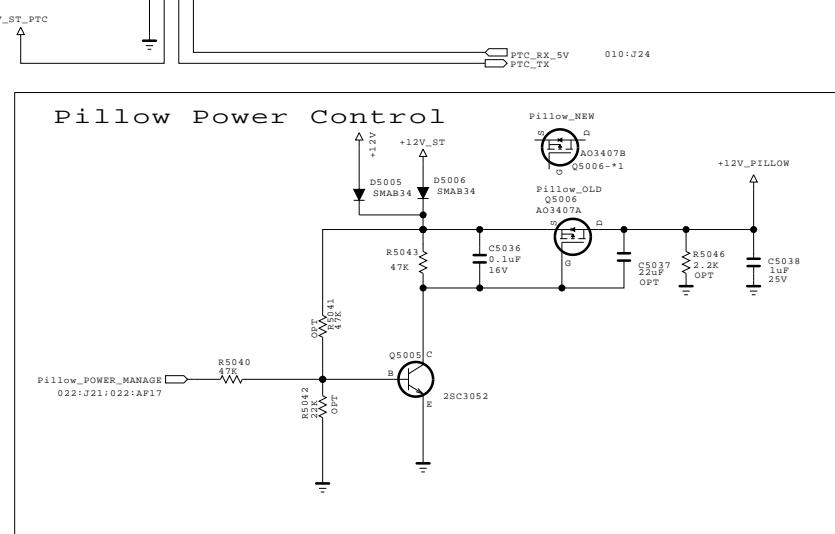
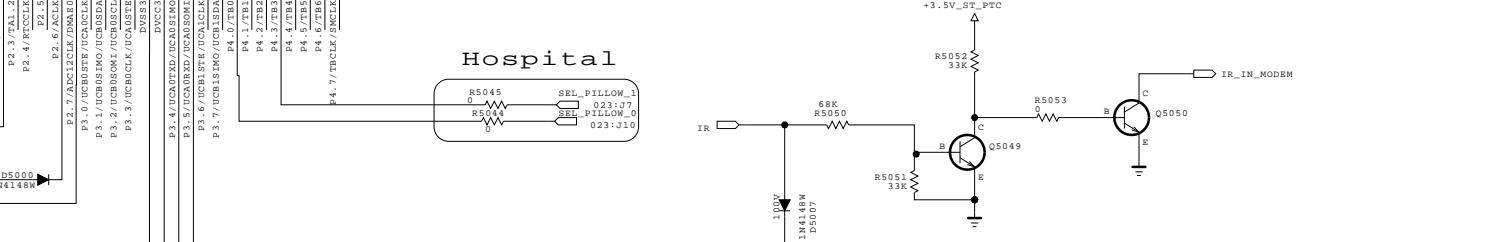
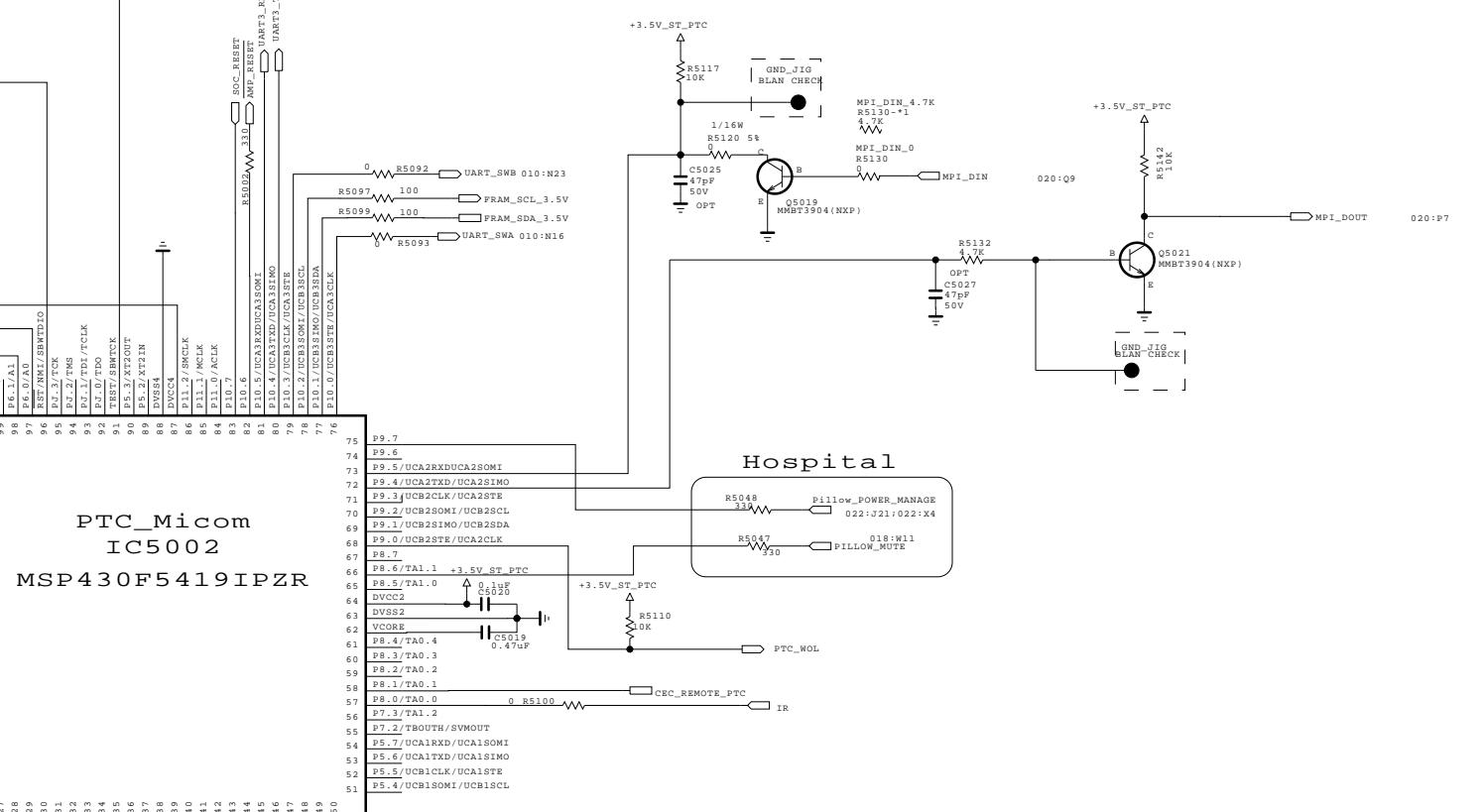
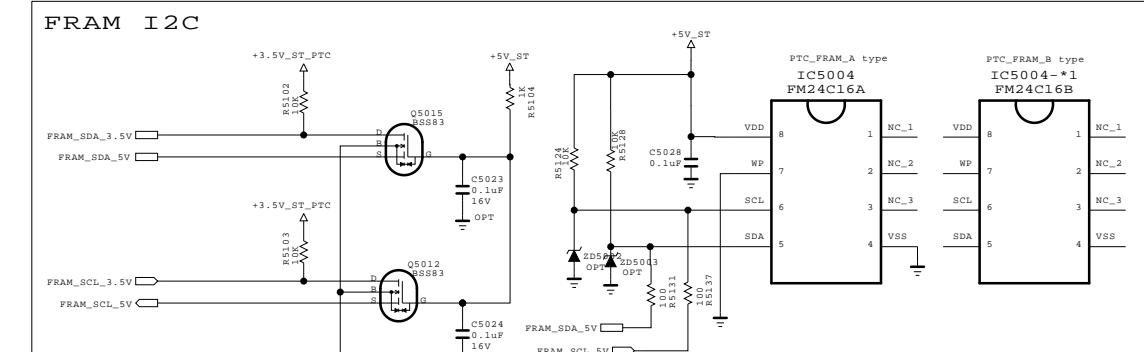
**5V stand-by power**



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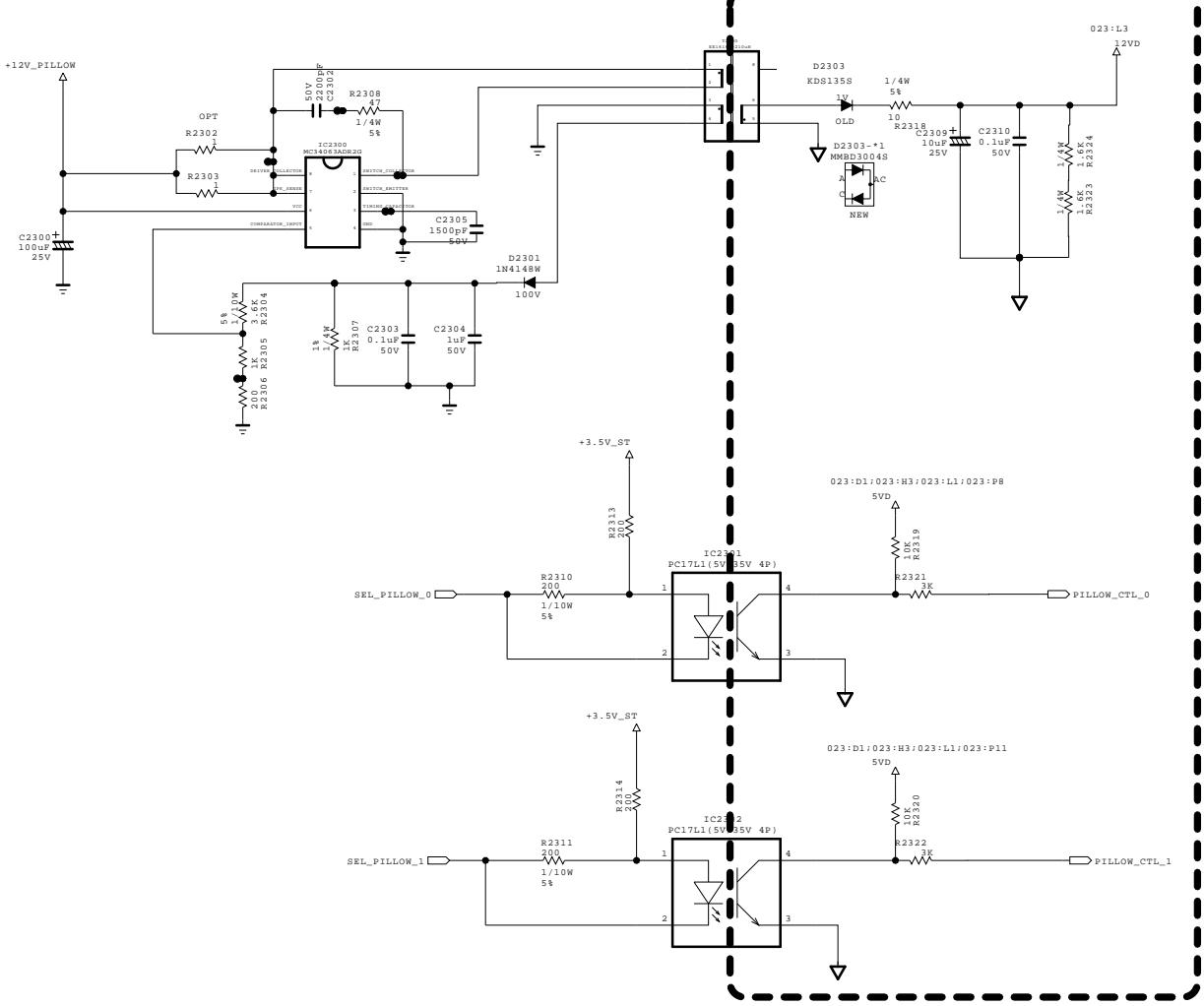
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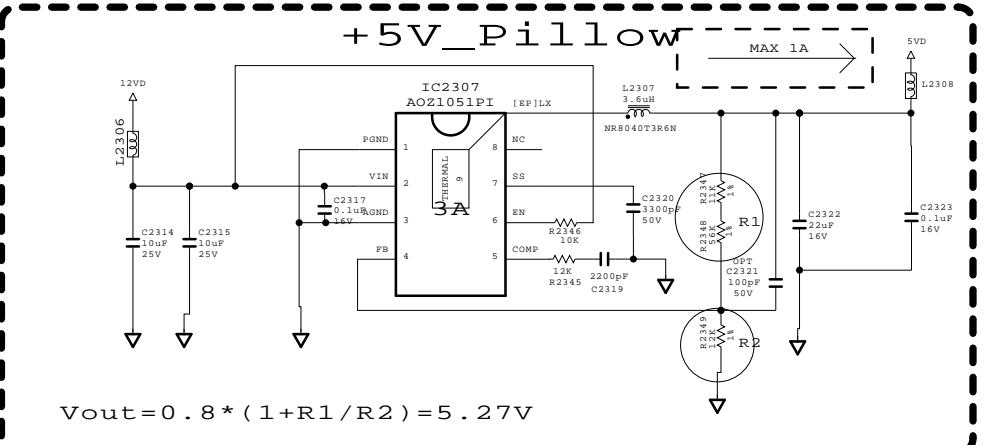
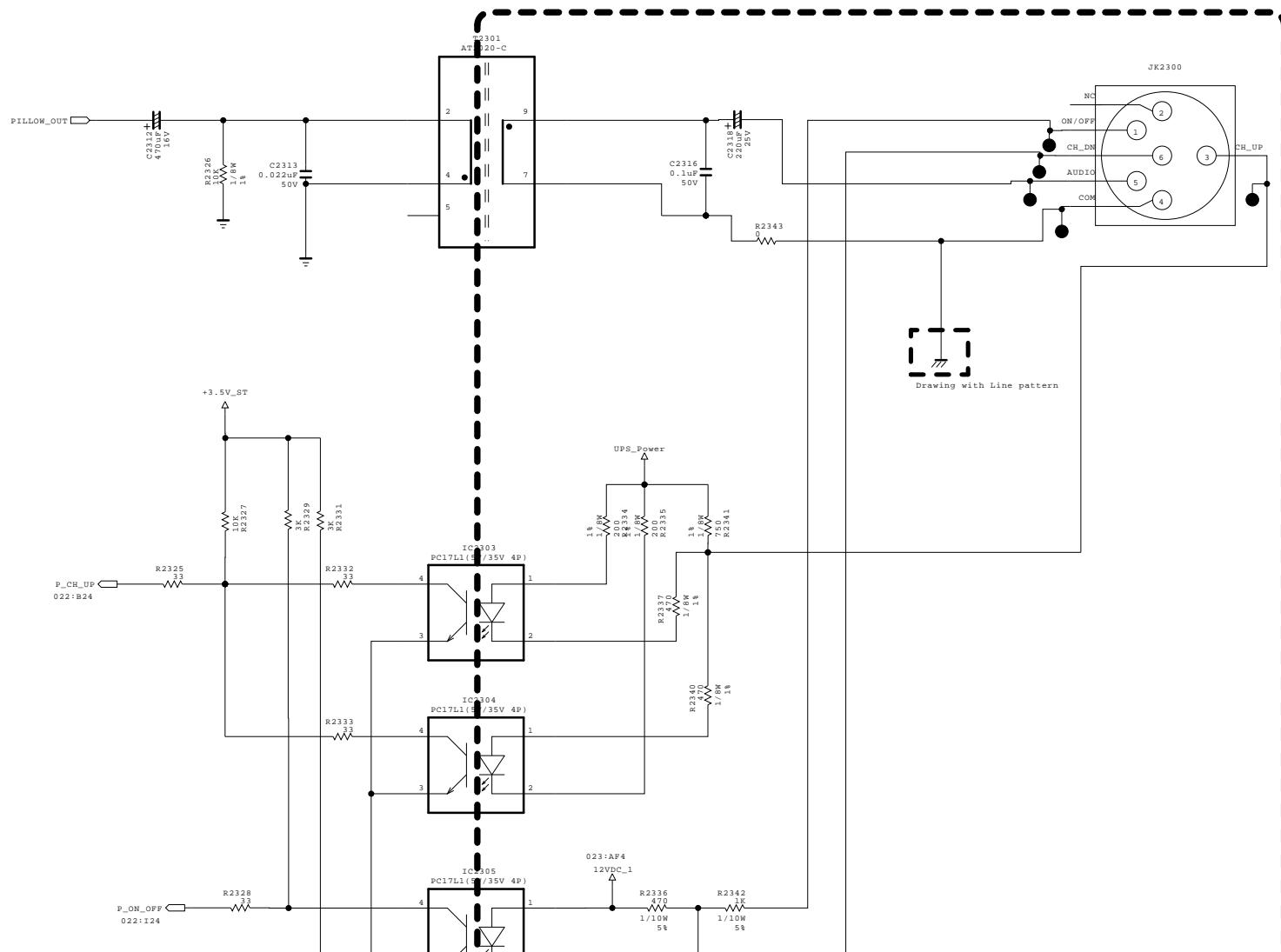
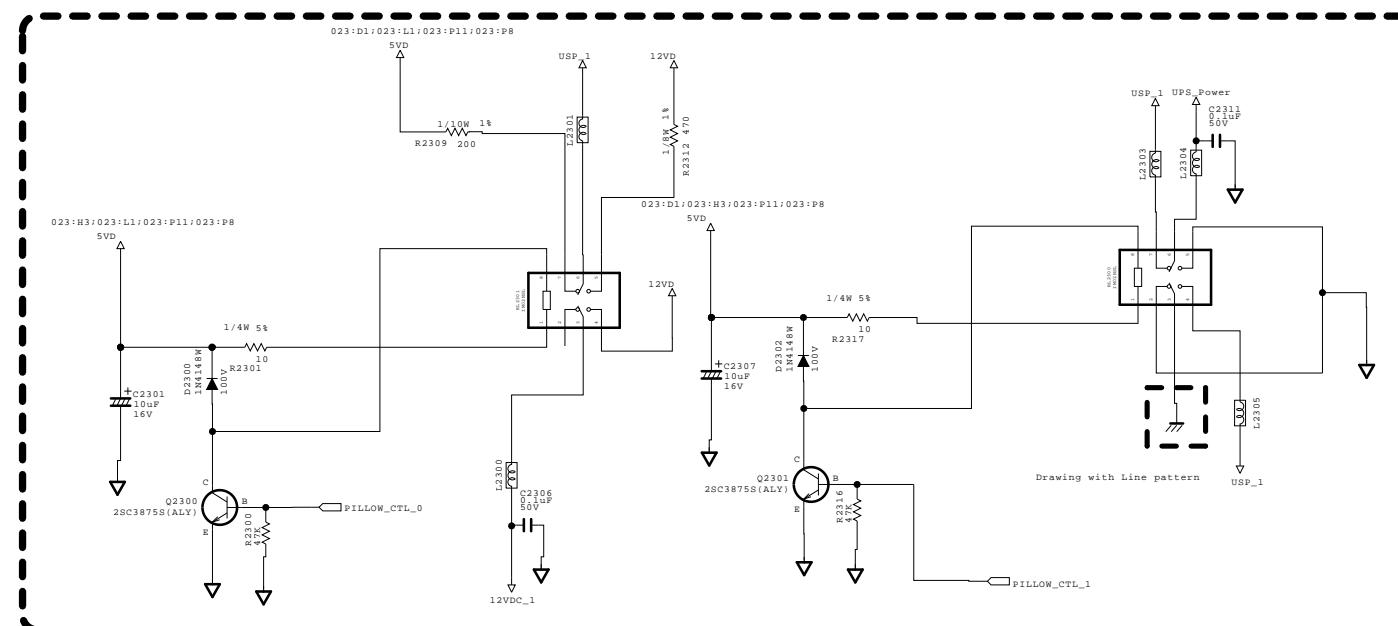


<b>MODEL</b>	32/42 Hospital	<b>DATE</b>	2013/08/28
<b>BLOCK</b>	PTC Block	<b>SHEET</b>	22

**Pillow Isolation**



**Universal Pillow Voltage**



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<b>MODEL</b>	32 / 42 HOSPITAL	<b>DATE</b>	2013 / 08 / 20
<b>BLOCK</b>	PILLOW	<b>SHEET</b>	23

