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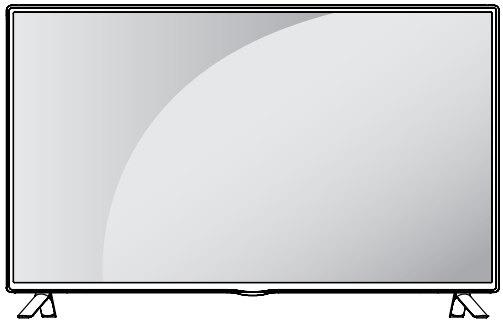
LED TV
SERVICE MANUAL

CHASSIS : LA43B

MODEL : 55LB6000 55LB6000-UH

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



P/NO : MFL67988310(1402-REV00)

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SCHEMATIC CIRCUIT DIAGRAM .....

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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 ⚠ 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 it's 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,

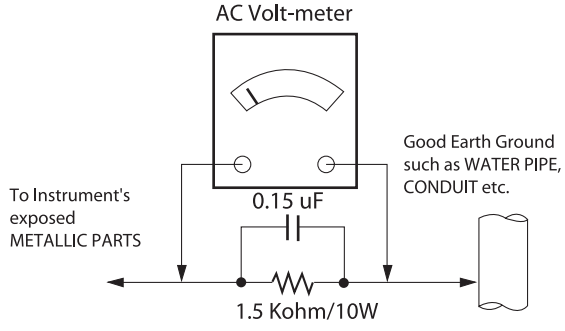
always perform an **AC leakage current check** on the exposed metallic parts of the cabinet, such as antennas, terminals, etc., to be sure the set is safe to operate without damage of electrical shock.

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 MΩ and 5.2 MΩ.
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 is 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 Ω
*Base on Adjustment standard

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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 in 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 or 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 mall 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.

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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.

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SPECIFICATION

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

1. Application range

This spec sheet is applied LCD TV with LA43B/M chassis

2. Test condition

Each part is tested as below without special notice.

1) Temperature : 25 ºC ± 5 ºC(77 ± 9 ºF) , CST : 40 ºC±5 ºC
2) Relative Humidity: 65 % ± 10 %
3) Power Voltage

Market	Input voltage	Frequency	Remark
USA	100~240V	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 20 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		42/49 inch Wide (1920 × 1080)	FHD + 60Hz	All models without HD models
			60 Inch Wide (1920X1080)	FHD + M120Hz	
			32 inch Wide (1366 × 768)	HD + 60Hz	
6.	Aspect Ratio		16:9		
7.	Tuning System		FS		
8.	Module	POLA	HC600DUF-VHHS1	HS (Sharp Panel)	60LB6000-Ux
			LC550DUE-FGA3	LGD	55LB6000-Ux
			T550HVF04.1	AUO	55LB6000-Ux.xxxJxxx
			LC500DUE-FGA3	LGD	50LB6000-Ux.xxxWxxx
			NC500DUN-VXBP1	INX	50LB6000-Ux.xxxJxxx
			LC470DUE-FGA3	LGD	47LB6000-Ux
			LC420DUE-FGP2	LGD	42LB6200-Ux
9.	Operating Environment		1) Temp : 0 ~ 40 deg 2) Humidity : ~ 80 %		
10.	Storage Environment		1) Temp : -20 ~ 60 deg 2) Humidity : ~ 85 %		

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5. Supported video resolutions

5.1. Component input(Y, CB/PB, CR/PR)

No	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed
1	720*480	15.73	60.00	13.5135	SDTV ,DVD 480I
2	720*480	15.73	59.94	13.50	SDTV ,DVD 480I
3	720*480	31.50	60.00	27.027	SDTV 480P
4	720*480	31.47	59.94	27.00	SDTV 480P
5	1280*720	45.00	60.00	74.25	HDTV 720P
6	1280*720	44.96	59.94	74.176	HDTV 720P
7	1920*1080	33.75	60.00	74.25	HDTV 1080I
8	1920*1080	33.72	59.94	74.176	HDTV 1080I
9	1920*1080	67.50	60.00	148.50	HDTV 1080P
10	1920*1080	67.432	59.94	148.352	HDTV 1080P
11	1920*1080	27.00	24.00	74.25	HDTV 1080P
12	1920*1080	26.97	23.94	74.176	HDTV 1080P
13	1920*1080	33.75	30.00	74.25	HDTV 1080P
14	1920*1080	33.71	29.97	74.176	HDTV 1080P

5.2. HDMI Input (DTV / PC)

No.	Resolution	H-freq(kHz)	V-freq.(kHz)	Pixel clock(MHz)	Proposed		Remarks
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		
PC							
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	1152*864	54.348	60.053		VESA	O	
7	1280*1024	63.981	60.020	108.0	VESA (SXGA)	O	Full HD model Only
8	1360*768	47.712	60.015	85.50	VESA (WXGA)	O	
9	1920*1080	67.50	60.00	148.5	HDTV 1080P	O	Full HD model Only

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6. 3D Mode ('LB6200' models)

6.1. RF Input(DTV)

No.	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed	Remark
1	1920*1080	45.00	60.00	74.25	HDTV 1080I	Side by Side, Top & Bottom
2	1280*720	45.00	60.00	74.25	HDTV 720P	Side by Side, Top & Bottom

6.2. HDMI Input

(a) HDMI Input(1.4a)

- When connect the cable on TV or change the input mode, 3D display on automatically
- Display OSD information => 1920x2205 [1080p 24], 1280x1470 [720p 60]

No.	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed	3D input proposed mode
1	1280*720	89.9 / 90	59.94/60	148.35/148.50	HDTV 720P	Frame packing (720 60p)
2	1280*720	45	60	74.25	HDTV 720P	Side by Side(half), Top & Bottom
3	1920*1080	53.95 / 54	23.98 / 24	148.35/148.50	HDTV 1080P	Frame packing (1080 24p)
4	1920*1080	67.5	60	148.50	HDTV 1080P	Side by Side(half), Top & bottom
5	1920*1080	33.7	60	74.25	HDTV 1080i	Side by Side(half), Top & Bottom
6	1920*1080	27	24	74.25	HDTV 1080P	Side by Side(half), Top & Bottom
7	1920*1080	33.7	30	74.25	HDTV 1080P	Side by Side(half), Top &Bottom

(b) HDMI Input(1.3)

- Connect the HDMI cable & receiving the HDMI signal
- Press “3D” key of remote control & select 3D format below.

No.	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed	3D input proposed mode
1	1280*720	45.00	60.00	74.25	HDTV 720P	Side by Side, Top & Bottom
2	1920*1080	33.75	60.00	74.25	HDTV 1080I	Side by Side, Top & Bottom
3	1920*1080	27.00	24.00	74.25	HDTV 1080P	Side by Side, Top & Bottom
4	1920*1080	33.75	30.00	74.25	HDTV 1080P	Side by Side, Top & Bottom
5	1920*1080	67.50	60.00	148.5	HDTV 1080P	Side by Side, Top & Bottom, Single Frame Sequential

6.3. USB Input

(a) Movie

No.	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed	3D input proposed mode
1	1920*1080	33.75	30.00	74.25	HDTV 1080P	Side by Side, Top & Bottom

(b) MPO Picture 3D : when selecting the MPO file, Automatically 3D on

(c) 3D Demo in store mode

No.	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed	3D input proposed mode
1	1920*1080	33.75	30.00	74.25	HDTV 1080P	Side by Side

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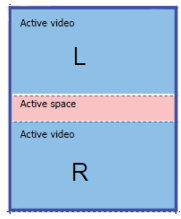
6.4. 2D to 3D Mode

6.5. DLNA

No.	Resolution	H-freq(kHz)	V-freq.(Hz)	Pixel clock(MHz)	Proposed	3D input proposed mode
1	1920*1080	33.75	30.00	74.25	HDTV 1080P	Side by Side, Top & Bottom

6.6. Remark: 3D Input mode

No	2D to 3D	Top & Bottom	Side by Side	Single Frame Sequential	Frame Packing
1					

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ADJUSTMENT INSTRUCTION

1. Application

This spec. sheet applies to LA43B/M 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 ±5 ºC of temperature and 65±10% of relative humidity if there is no specific designation
(4) The input voltage of the receiver must keep 100~240V, 50/60Hz
(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 ºC
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.

※ 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) ADC adjustment: Component 480i, 1080p / RGB-PC 1080p
(2) EDID download: HDMI and RGB-PC

■ Above adjustment items can be also performed in Final Assembly if needed. Adjustment items in both PCBA and final assembly tages can be checked by using the INSTART Menu(1.ADJUST CHECK)
Component 1080p and RGB-PC Adjust will be calculated by 480i adjust value.

3.2. Final assembly adjustment

(1) White Balance adjustment
(2) RS-232C functionality check
(3) Factory Option setting per destination
(4) Shipment mode setting (In-Stop)
(5) GND and HI-POT test

3.3. Appendix

(1) Shipment conditions
(2) Tool option menu
(3) USB Download (S/W Update, Option and Service only)
(4) Preset CH Information

4. MAIN PCBA Adjustments

4.1. ADC Calibration

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(Comp) / 1024*768(RGB)
- Pattern : Horizontal 100% Color Bar Pattern
- Pattern level : 0.7±0.1 Vp-p

4.1.3. Adjustment

4.1.3.1. Adjustment method
- Connect to Jig by using RS-232(USB), adjust Component

※ 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]
※ In L13 case, Adjust ADC(OTP) is automatically ‘OK’

4.1.3.2. Adj. protocol (only Internal patten)

Protocol	CMD 1	CMD 2	Data 1	Data 2	Remark
Enter adj mode	a	a	00	00	When transfer the ‘Mode In’,Carry the command.
Start ADC adj	a	d	00	10	Automatically adjustment (Use internal pattern)

4.2. EDID Download

4.2.1. 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”.

4.2.2. Equipment

▪ Since embedded EDID data is used, EDID download JIG, HDMI cable and D-sub cable are not need.
▪ Adjust by using remote controller

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4.2.3. 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.

4.2.3.1. Models for EDID Data

	2D		3D
	8bit-FHD (HDMI2)	10bit-FHD (HDMI2)	8bit-FHD (HDMI2)
North America (PCM)	55/50/47 LB6000-Ux	60LB6000-Ux	42LB6200-Ux

4.2.4. EDID DATA

■ L14 EDID - PCM
8. 2D / 8bit / FHD

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	FF	00	1E	6D	01	00	01	01	01	01
10	01	18	01	03	80	A0	5A	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	31	40	45	40	61	40	71	40	81	80
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	40	84	63	00	00	1E	66	21	50	B0	51	00	1B	30
50	40	70	36	00	40	84	63	00	00	1E	00	00	00	FD	00	3A
60	3E	1E	53	10	00	0A	20	20	20	20	20	20	20	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	E7

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

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	02	03	19	F1	48	90	22	20	05	04	03	02	01	23	09	57
10	07	67	03	0C	00	10	00	80	1E	02	3A	80	18	71	38	2D
20	40	58	2C	04	05	40	84	63	00	00	1E	01	1D	80	18	71
30	1C	16	20	58	2C	25	00	40	84	63	00	00	9E	01	1D	00
40	72	51	D0	1E	20	6E	28	55	00	40	84	63	00	00	1E	8C
50	0A	D0	8A	20	E0	2D	10	10	3E	96	00	40	84	63	00	00
60	18	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
70	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	08

■ L14 EDID - PCM
9. 2D / 10bit / FHD

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	FF	00	1E	6D	01	00	01	01	01	01
10	01	18	01	03	80	A0	5A	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	31	40	45	40	61	40	71	40	81	80
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	40	84	63	00	00	1E	66	21	50	B0	51	00	1B	30
50	40	70	36	00	40	84	63	00	00	1E	00	00	00	FD	00	3A
60	3E	1E	53	10	00	0A	20	20	20	20	20	20	20	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	E7

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

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	02	03	19	F1	48	90	22	20	05	04	03	02	01	23	09	57
10	07	67	03	0C	00	10	00	B8	2D	02	3A	80	18	71	38	2D
20	40	58	2C	04	05	40	84	63	00	00	1E	01	1D	80	18	71
30	1C	16	20	58	2C	25	00	40	84	63	00	00	9E	01	1D	00
40	72	51	D0	1E	20	6E	28	55	00	40	84	63	00	00	1E	8C
50	0A	D0	8A	20	E0	2D	10	10	3E	96	00	40	84	63	00	00
60	18	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
70	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	C1

■ L14 EDID - PCM
11. 3D / 8bit / FHD

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	FF	00	1E	6D	01	00	01	01	01	01
10	01	18	01	03	80	A0	5A	78	0A	EE	91	A3	54	4C	99	26
20	0F	50	54	A1	08	00	31	40	45	40	61	40	71	40	81	80
30	01	01	01	01	01	01	02	3A	80	18	71	38	2D	40	58	2C
40	45	00	40	84	63	00	00	1E	66	21	50	B0	51	00	1B	30
50	40	70	36	00	40	84	63	00	00	1E	00	00	00	FD	00	3A
60	3E	1E	53	10	00	0A	20	20	20	20	20	20	20	00	00	FC
70	00	4C	47	20	54	56	0A	20	20	20	20	20	20	20	01	E7

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

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
00	02	03	2A	F1	48	90	22	20	05	04	03	02	01	23	09	57
10	07	78	03	0C	00	10	00	80	1E	20	C0	0E	01	40	00	14
20	08	10	18	10	28	10	38	10	48	10	02	3A	80	18	71	38
30	2D	40	58	2C	04	05	40	84	63	00	00	1E	01	1D	80	18
40	71	1C	16	20	58	2C	25	00	40	84	63	00	00	9E	01	1D
50	00	72	51	D0	1E	20	6E	28	55	00	40	84	63	00	00	1E
60	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
70	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	DB

5. Final Assembly Adjustment

5.1. White Balance Adjustment

5.1.1. Overview

5.1.1.1. W/B adj. Objective & How-it-works

(1) Objective: To reduce each Panel's W/B deviation

(2) How-it-works: When R/G/B gain in the OSD is at 192, it means the panel is at its Full Dynamic Range.

● Case : Cool Mode

- To adjust the white balance without the saturation, G gain should be adjust at least 172 and change the others (R,B Gain)

▪ When R or B gain is over 255, G gain can be adjust below 172)

● Case : Medium / Warm Mode

- To adjust the white balance without the saturation, Fix the one of R/G/B gain to 192 (default data) and decrease the others.

(3) Adj. condition: normal temperature

- Surrounding Temperature: 25±5 °C
- Warm-up time: About 5 Min
- Surrounding Humidity: 20% ~ 80%
- Before White balance adjustment, Keep power on status, don't power off

5.1.1.2. 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.

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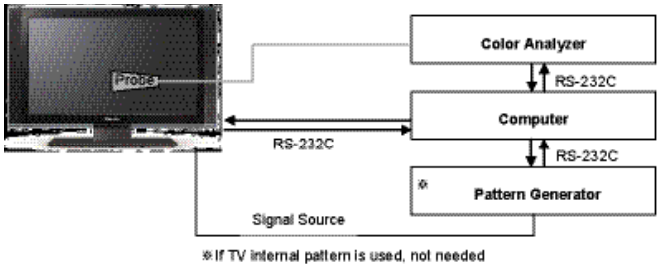
5.1.2. Equipment

(1) Color Analyzer: CA-210 (NCG: CH 9 / WCG: CH12 / LED: CH14)
(2) Adj. Computer (During auto adj., RS-232C protocol is needed)
(3) Adjust Remocon
(4) Video Signal Generator MSPG-925F 720p/204-Gray (Model: 217, Pattern: 49)
→ Only when internal pattern is not available
※ Color Analyzer Matrix should be calibrated using CS-1000

5.1.3. Equipment connection



※ If TV internal pattern is used, not needed

5.1.4. 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

	Adj. item	Command (lower caseASCII)		Data Range (Hex.)	
		CMD1	CMD2	MIN	MAX
Cool	R Gain	j	g	00	C0
	G Gain	j	h	00	C0
	B Gain	j	i	00	C0
Medium	R Gain	j	a	00	C0
	G Gain	j	b	00	C0
	B Gain	j	c	00	C0
Warm	R Gain	j	d	00	C0
	G Gain	j	e	00	C0
	B Gain	j	f	00	C0

5.1.5. Adjustment method

5.1.5.1. Auto WB calibration
(1) Set TV in ADJ mode using P-ONLY key (or POWER ON key)
(2) Place optical probe on the center of the display
- It need to check probe condition of zero calibration before adjustment.
(3) Connect RS-232C Cable
(4) Select mode in ADJ Program and begin a adjustment.
(5) When WB adjustment is completed with OK message, check adjustment status of pre-set mode (Cool, Medium, Warm)
(6) Remove probe and RS-232C cable.
▪ W/B Adj. must begin as start command “wb 00 00” , and finish as end command “wb 00 ff”, and Adj. offset if need

5.1.5.2. Manual adjustment
(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 → 8. White-Balance then press the cursor to the right (KEY►).
(When KEY(►) is pressed 204 Gray(80IRE) internal pattern will be displayed)
(4-a) Adjust modes (Cool) : Fix the G gain at least 172 and change the others (R/B Gain).
▪ If R or B gain is over 255, G gain can be adjust below 172.
(4-b) Adjust two modes (Medium / Warm) : Fix the one of R/G/B gain to 192 (default data) and decrease the others.

※ CASE : Cool mode
First adjust the coordinate far away from the target value(x, y).B
(1) x, y >target
(2) x, y< target
(3) x >target , y< target
(4) x < target , y >target
- Every 4 case have to fit y value by adjusting B Gain and then fit x value by adjusting R-Gain
- In this case, increasing/decreasing of B Gain and R Gain can be adjusted.

► How to adjust
(1) Fix G gain at least 172 : Adjust R, B Gain (In Case of Mostly Blue Gain Saturation)
(2) When R or B Gain > 255, Release Fixed G Gain and Readjust

※ CASE : Medium / Warm mode
First adjust the coordinate far away from the target value(x, y).
(1) x, y >target
i) Decrease the R, G.
(2) x, y< target
i) First decrease the B gain,
ii) Decrease the one of the others.
(3) x >target , y< target
i) First decrease B, so make y a little more than the target.
ii) Adjust x value by decreasing the R
(4) x < target , y >target
i) First decrease B, so make x a little more than the target.
ii) Adjust x value by decreasing the G

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5.1.6. Reference (White Balance Adj. coordinate and color temperature)

▪ Luminance: 204 Gray, 80IRE

** (normal line) LGD Cell (LB5xxx, LB6xxx, LB7xxx, LB8xxx)
** Except Gumi winter season (Mar ~ Dec) & Global
▪ Standard color coordinate and temperature using CA-210(CH-14) – by aging time

L14	Aging time (Min)	Cool		Medium		Warm	
		X	Y	X	Y	X	Y
		271	270	286	289	313	329
1	0-2	282	289	297	308	324	348
2	3-5	281	287	296	306	323	346
3	6-9	279	284	294	303	321	343
4	10-19	277	280	292	299	319	339
5	20-35	275	277	290	296	317	336
6	36-49	274	274	289	293	316	333
7	50-79	273	272	288	291	315	331
8	80-119	272	271	287	290	314	330
9	Over 120	271	270	286	289	313	329

** (Aging chamber) LGD Cell (LB5xxx, LB6xxx, LB7xxx, LB8xxx)
▪ Standard color coordinate and temperature using CA-210(CH-14) – by aging time

** (normal line) LGD Cell (LB5xxx, LB6xxx, LB7xxx, LB8xxx)
** Gumi winter season (Jan ~ Feb) & Global, except Cinema Screen models
▪ Standard color coordinate and temperature using CA-210(CH-14) – by aging time

GP4	Aging time (Min)	Cool		Medium		Warm	
		X	Y	X	Y	X	Y
		271	270	286	289	313	329
1	0-2	286	295	301	314	328	354
2	3-5	284	290	299	309	326	349
3	6-9	282	287	297	306	324	346
4	10-19	279	283	294	302	321	342
5	20-35	276	278	291	297	318	337
6	36-49	274	275	289	294	316	334
7	50-79	273	272	288	291	315	331
8	80-119	272	271	287	290	314	330
9	Over 120	271	270	286	289	313	329

** INX, AUO, Sharp, CSOT Models (Cool Mode Spec : 13000K)
▪ Standard color coordinate and temperature using CA-210(CH-14) – by aging time

	cool		med		warm	
	x	y	x	y	x	y
spec	271	270	286	289	313	329
target	278	280	293	299	320	339

5.2. Option selection per country

5.2.1. Overview

(1) Tool option selection is only done for models in Non-USA North America due to rating
(2) Applied model: LA43B/M Chassis applied to CANADA and MEXICO

5.2.2. Country Group selection

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

5.2.3. Tool Option inspection

▪ Press Adj. key on the Adj. R/C, then select Tool option

Model	Module	Tool 1	Tool 2	Tool 3	Tool 4	Tool 5	Tool 6
60LB6000-Ux.A	Pola (Sharp)	22571	2473	11009	30532	27650	2440
60LB6000-Ux.K/S	Pola (Sharp)	22571	2473	11009	30532	27650	2312
55LB6000-Ux	Pola (LGD)	42	2473	11009	30532	31746	2312
50LB6000-Ux	Pola (LGD)	41	2473	11009	30532	31746	2312
50LB6000-Ux	Pola (INX)	2089	2473	11009	30532	27650	2311
47LB6000-Ux	Pola (LGD)	40	2473	11009	30532	31746	2311
42LB6200-UG	Pola (LGD)	55	2473	27393	63300	23554	2311

* Tool option can be reconstructed by Software

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5.3. 3D Module inspection

5.3.1. Test equipment

(1) Pattern Generator MSHG-600 or MSPG-6100 (HDMI 1.4 support)
(2) Pattern: HDMI mode (model No. 872, pattern No. 83)

5.3.2. Test method

(1) Start 3D pattern inspection

Fig.1 <model No. 872, pattern No. 83>

(2) check the 3D patterm with 3D FPR Glasses or L/R Film.

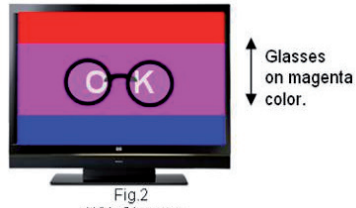

Fig.2
<With Glasses>

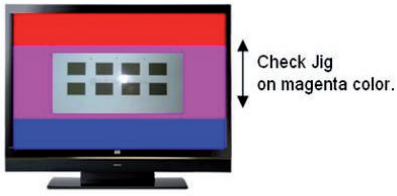

Fig.3
<With Check Jig>

(3) If 3D Module is correctly worked, The 3D FPR Glasses is change Color.
Left is Red. Right is Blue

Fig.4
< NG in 3D Module>

Fig.5
<OK in 3D module>

Fig.6
< NG in 3D Module>

Fig.7
<OK in 3D module>

5.4. Ship-out mode check (In-stop)

After final inspection, press In-Stop key of the Adj. R/C and check that the unit goes to Stand-by mode

6. GND and HI-POT Test

6.1. GND & HI-POT auto-check preparation

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

6.2. 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.

6.3. 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

7. AUDIO output check

7.1. 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)

7.2. Specification

No	Item	Min	Typ	Max	Unit	Remark
1	Audio practical max Output, L/R (Distortion=10% max Output)	9.0 8.5	10.0 8.9	12.0 9.9	W Vrms	(1) Measurement condition - EQ/AVL/Clear Voice: Off (2) Speaker (8Ω Impedance) (3) 60LB6000-UH
2	Audio practical max Output, L/R (Distortion=10% max Output)	9.0 8.5	10.0 8.9	12.0 9.9	W Vrms	(1) Measurement condition - EQ/AVL/Clear Voice: Off (2) Speaker (8Ω Impedance) (3)

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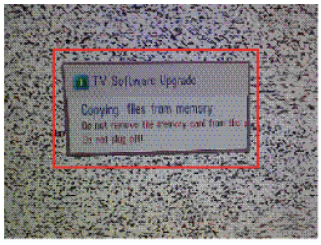
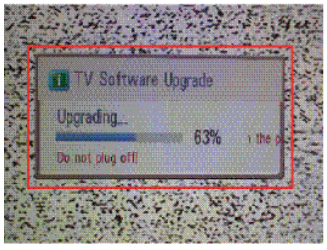
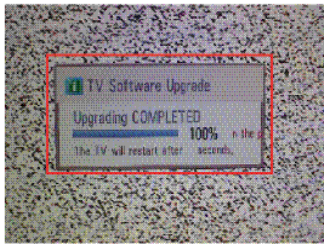
8. USB S/W Download (optional, Service only)

(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.)

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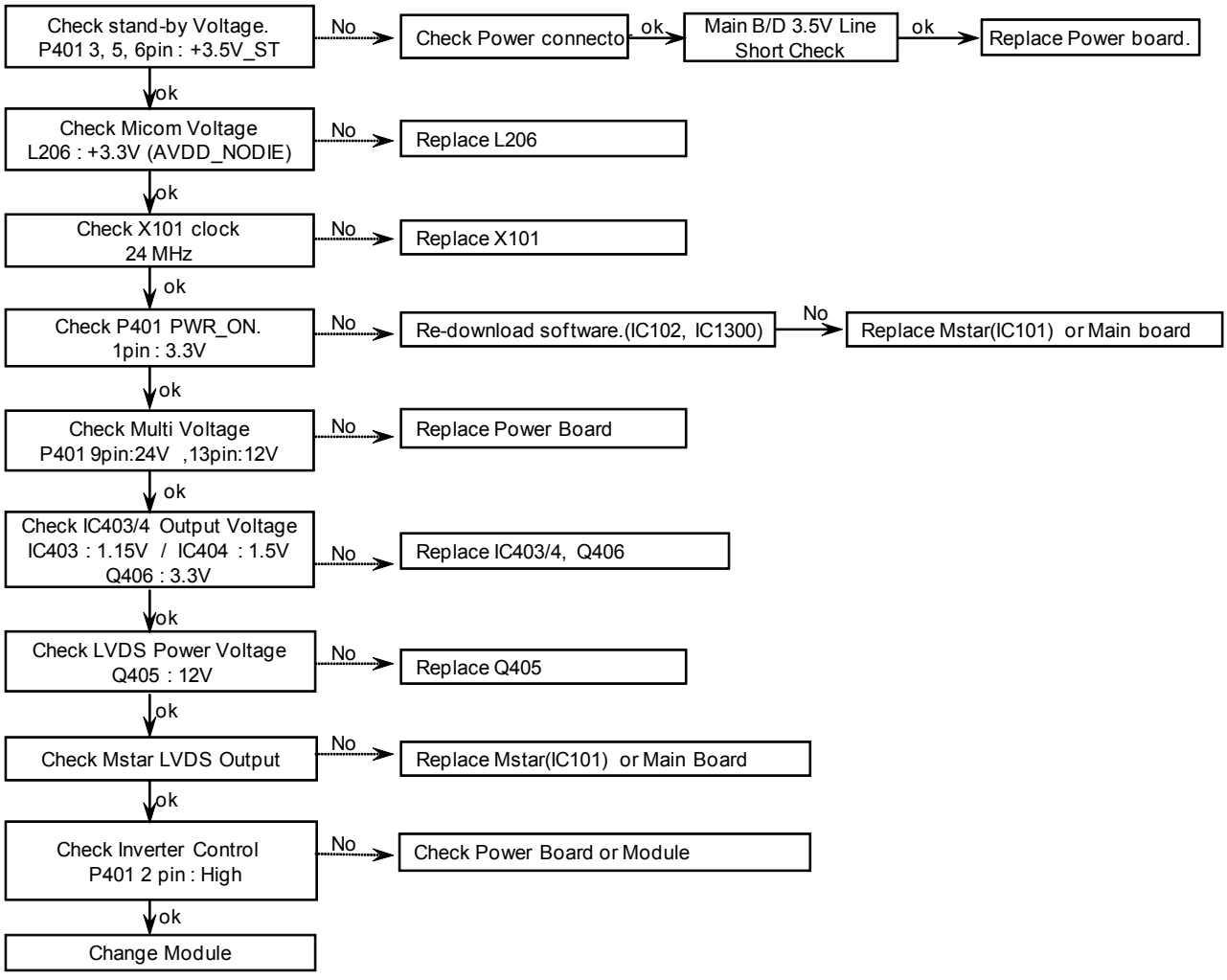
TROUBLE SHOOTING

1. Power-up boot check



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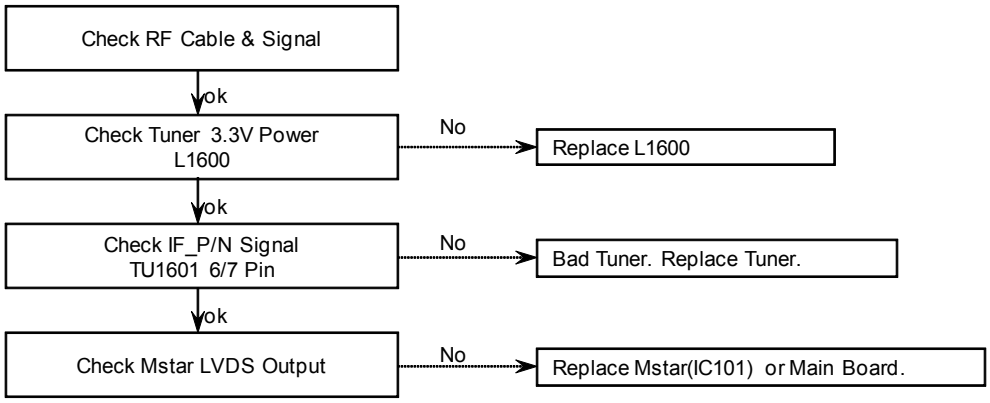
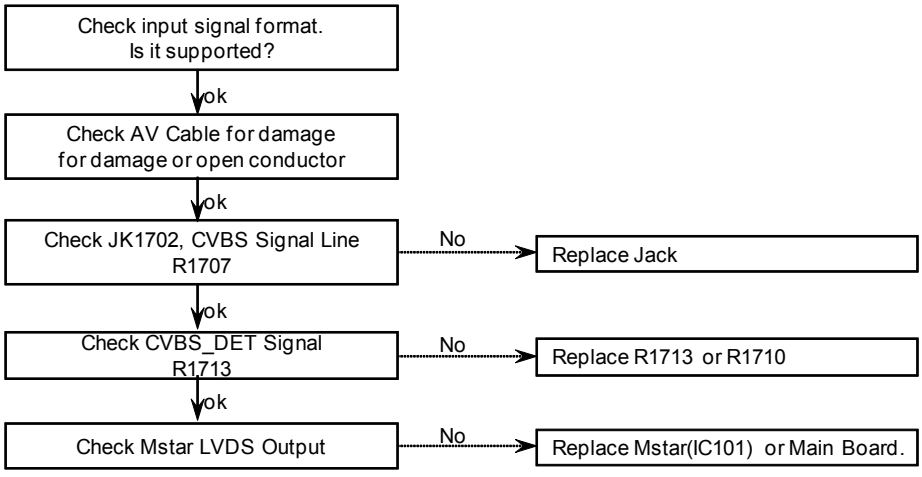
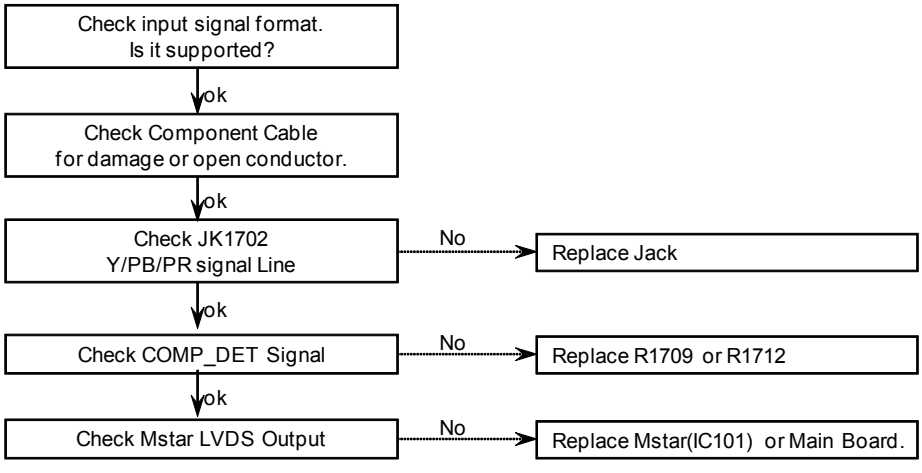
2. Digital / Analog TV Video



3. AV Video



4. Component Video



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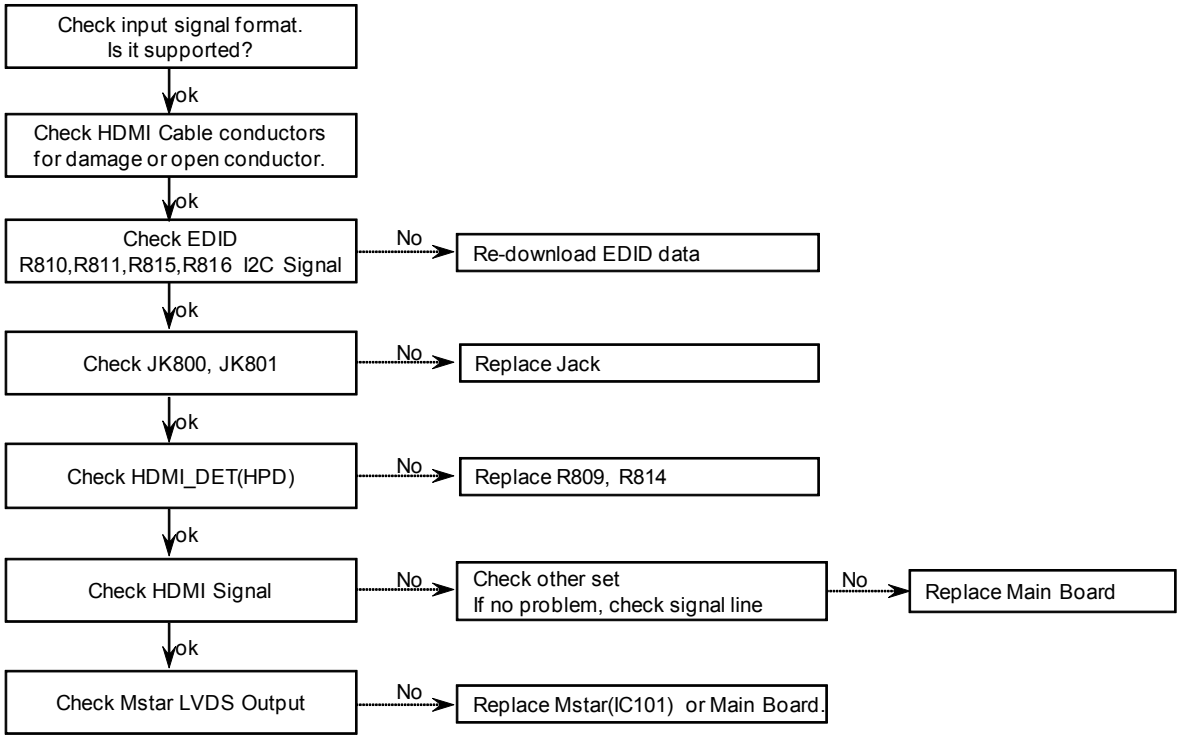
5. HDMI Video



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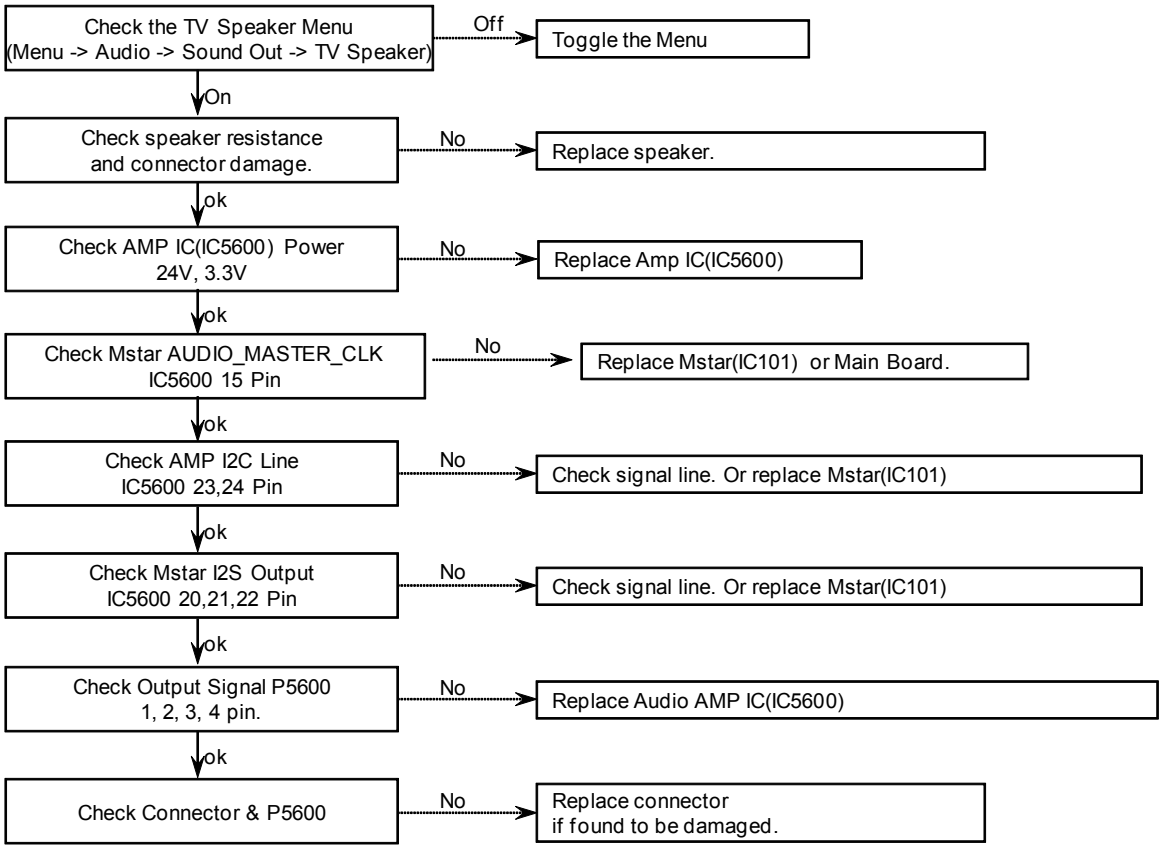
6. All Source Audio



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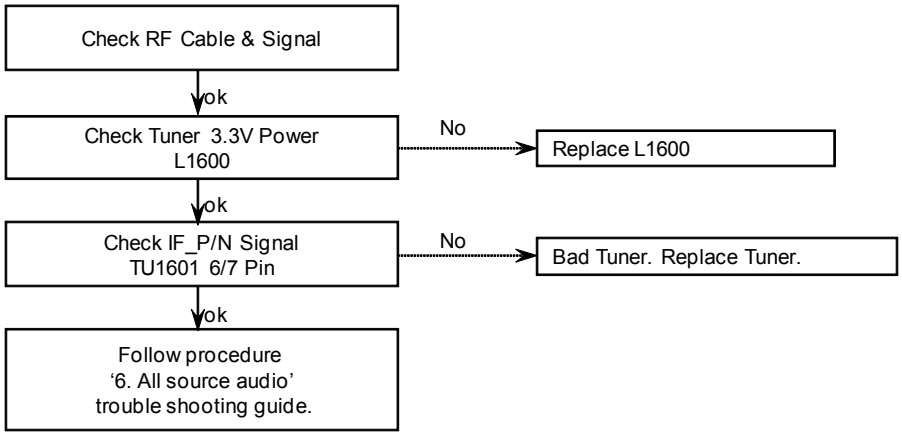
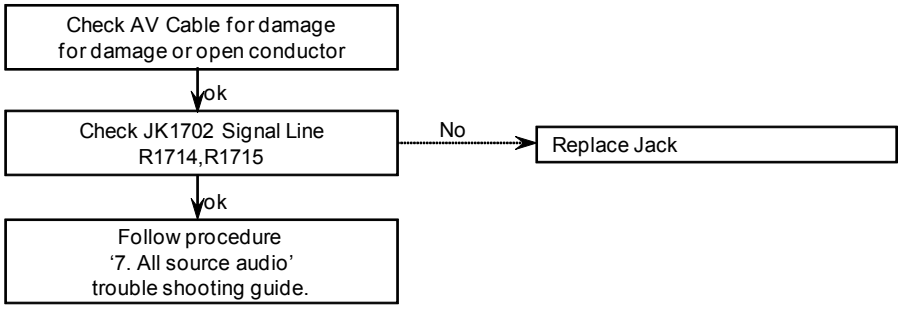
7. Digital / Analog TV Audio



8. AV/Comp Audio



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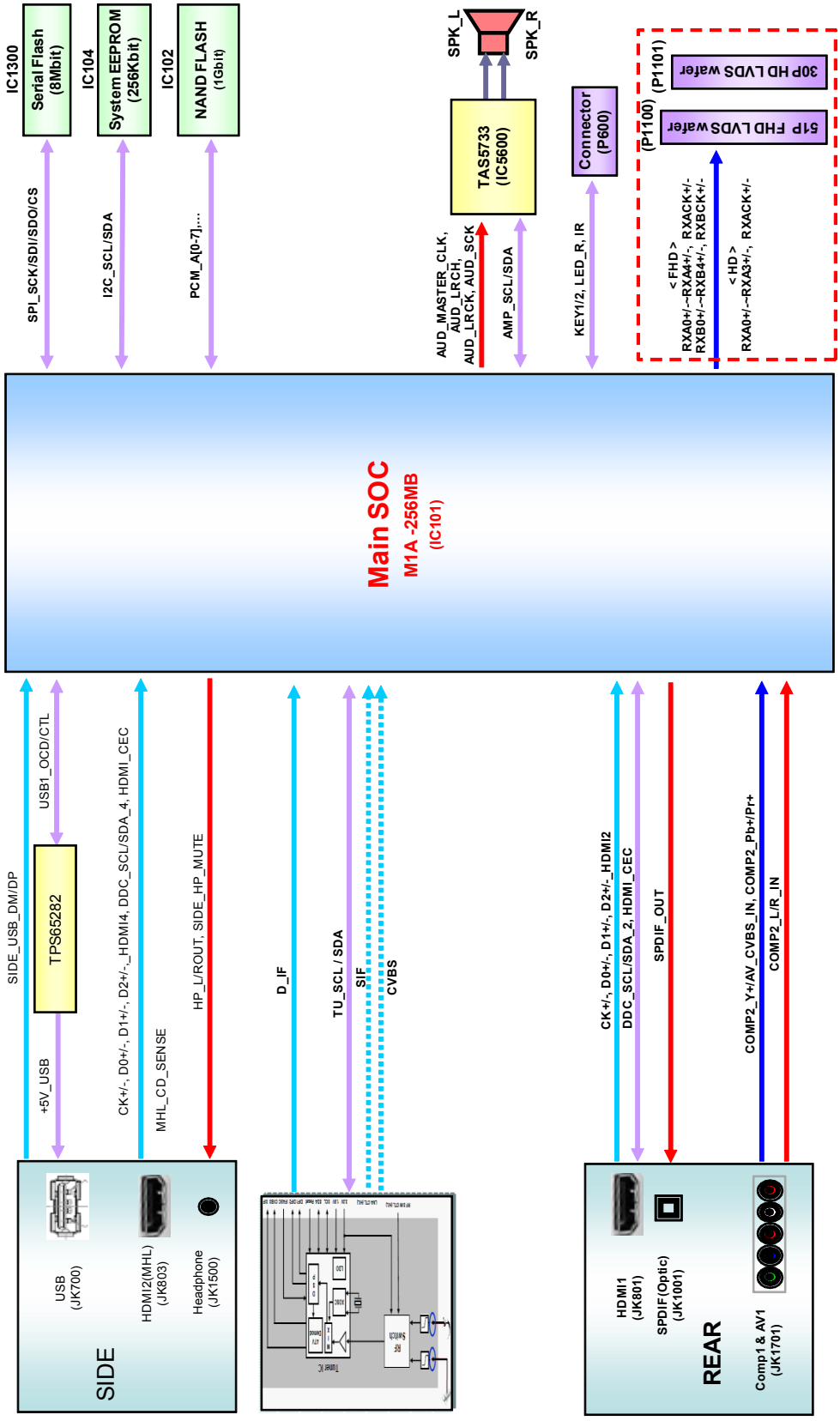
BLOCK DIAGRAM

1. 2D Model



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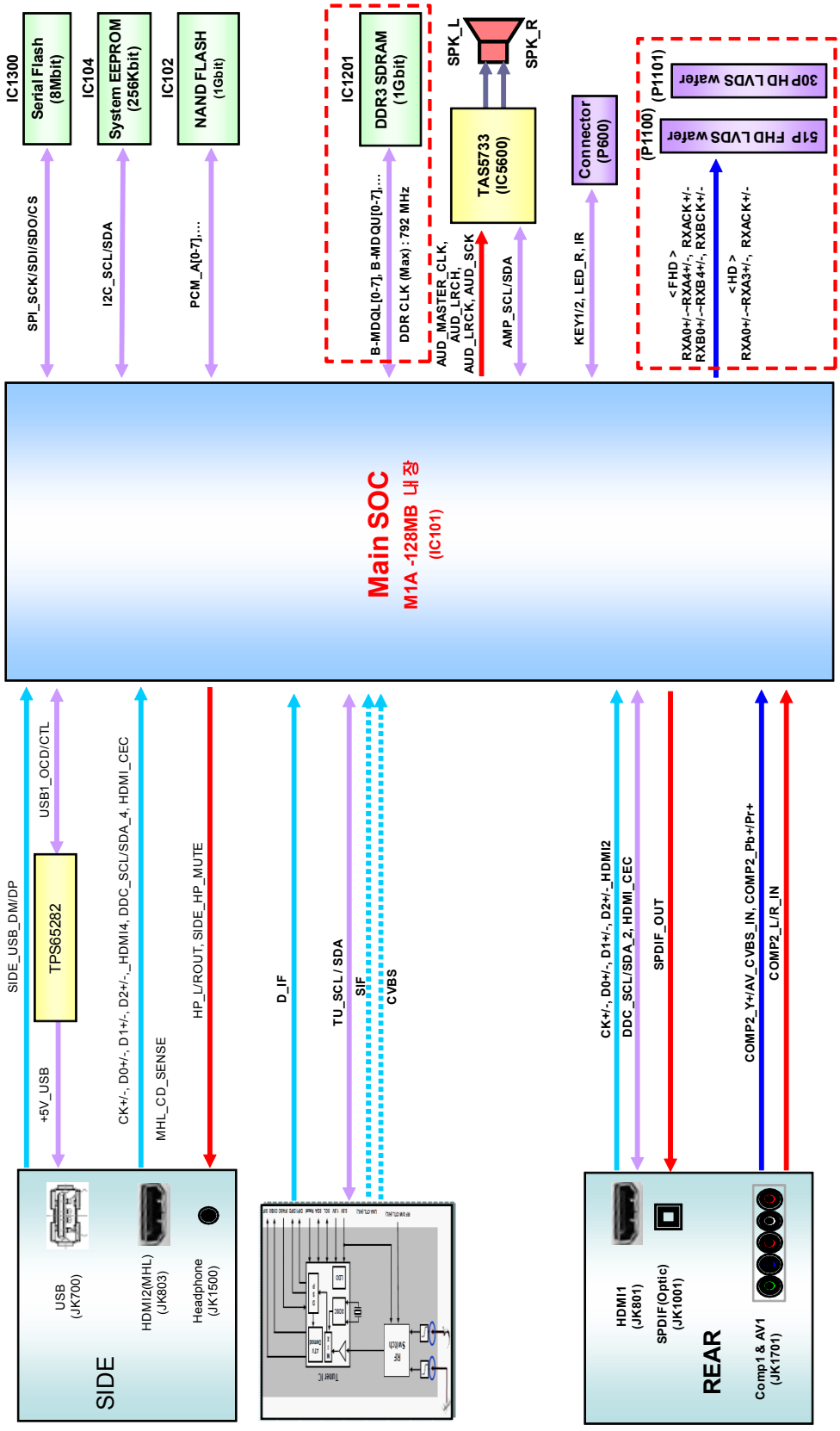
2. 3D Model



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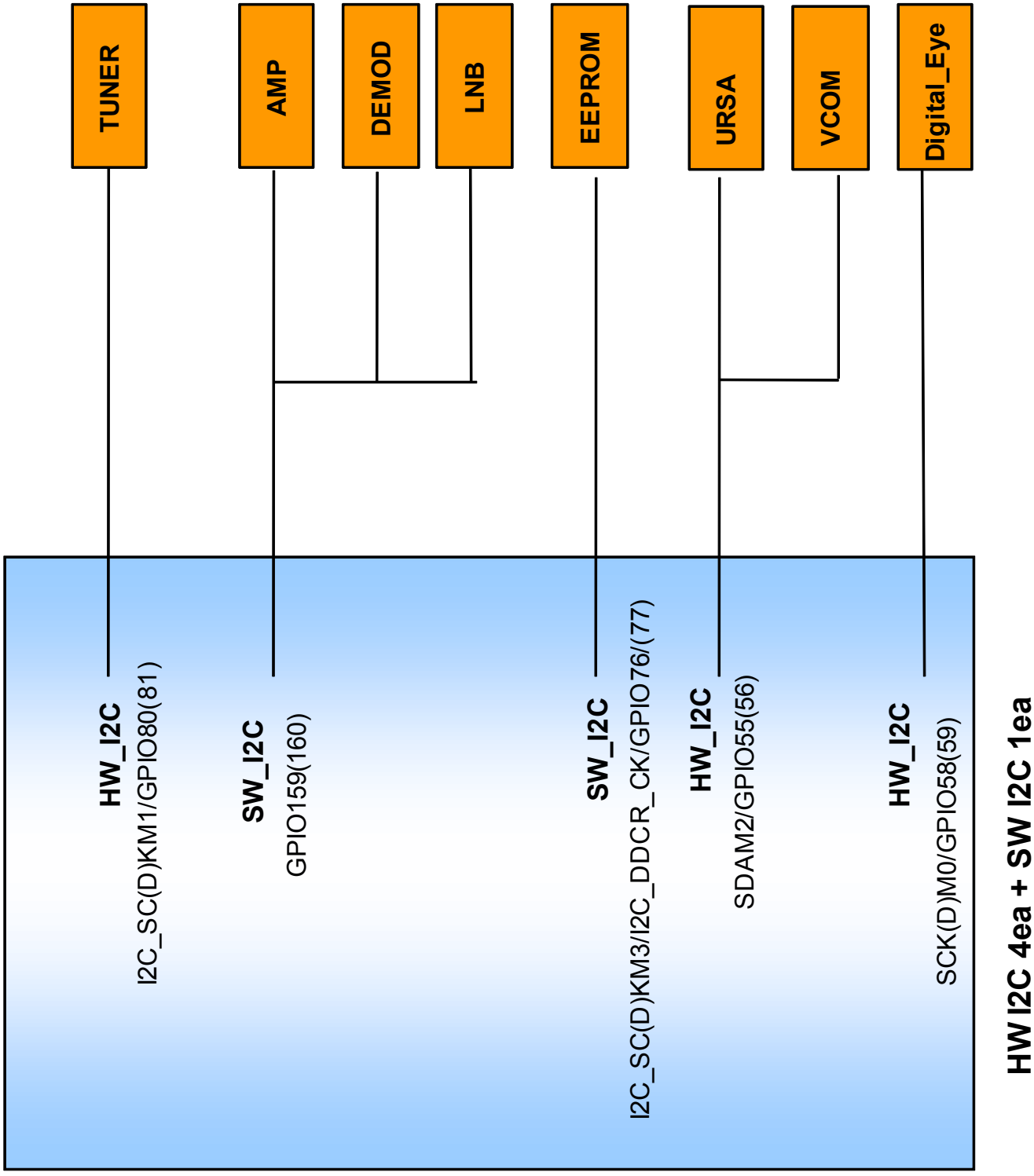
3. I2C Map



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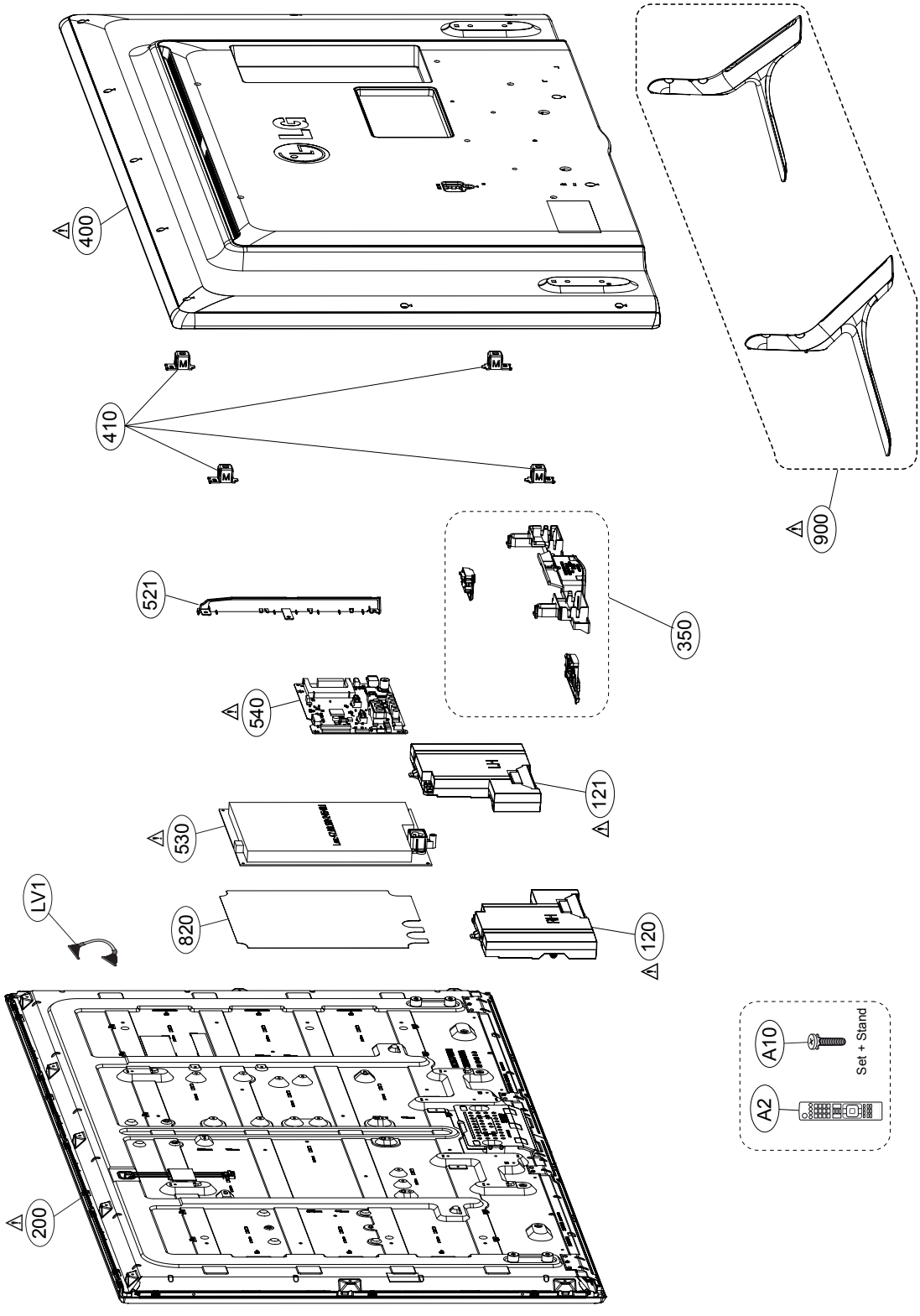
EXPLODED VIEW

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.



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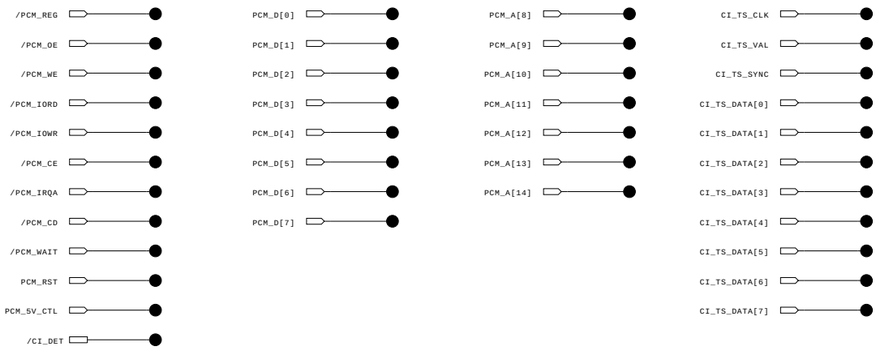
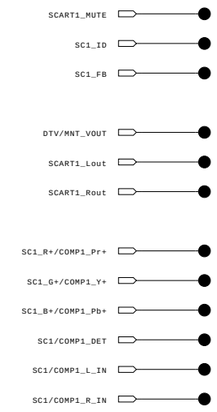
TP for NON-EU models(except EU and China)

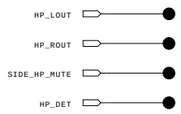
TP for CI slot



TP for SCART

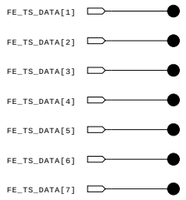


TP for Headphone



TP for S2

TP for FE_TS_DATA



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MODEL	NC5_L14	DATE	2013.05.09
BLOCK	TP_NON_EN	SHEET	3

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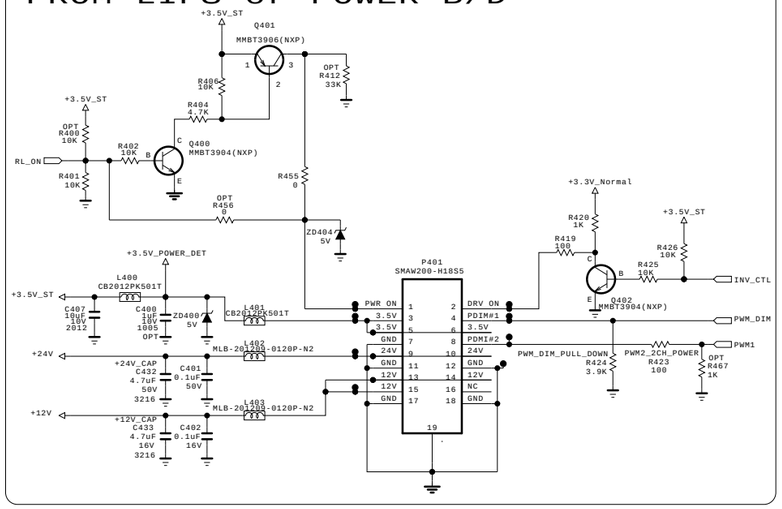
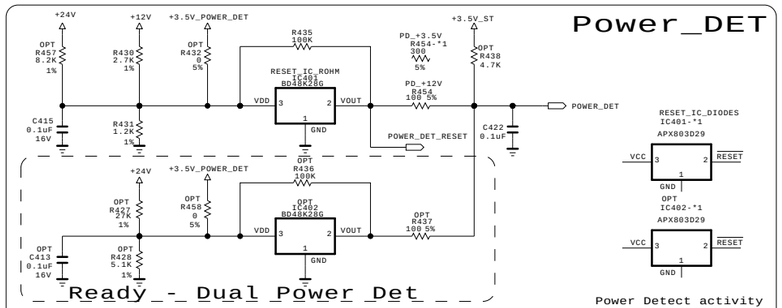
L14 POWER BLOCK (POWER DETECT 2)

FROM LIPS or POWER B/D



Power_DET



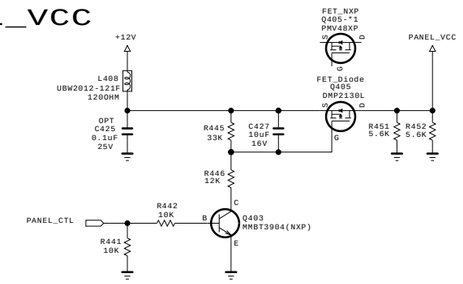
_ _Ready_- Dual Power Det_ _ _

Power Detect activity

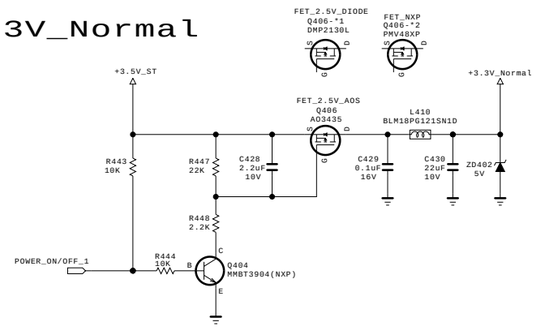
Detect Valtage	Now is	Use Circuit Designator
Power Detect +3.5V		R432, R454-*1, R438
Power Detect +12V	O	R430, R431, R454
Power Detect +24V		R457, R454

* Notice
- Applying all inch models for LCD L14
- Dual Power Det is used for detecting two kinds of voltage

PANEL_VCC

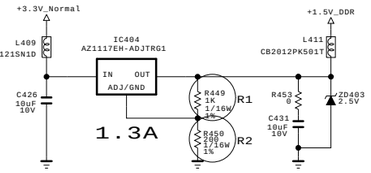


+3.3V_Normal

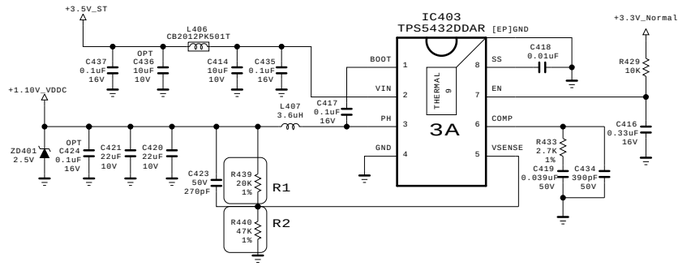


+1.5V_DDR

Vout=1.25*(1+R2/R1)+Iadj*R2

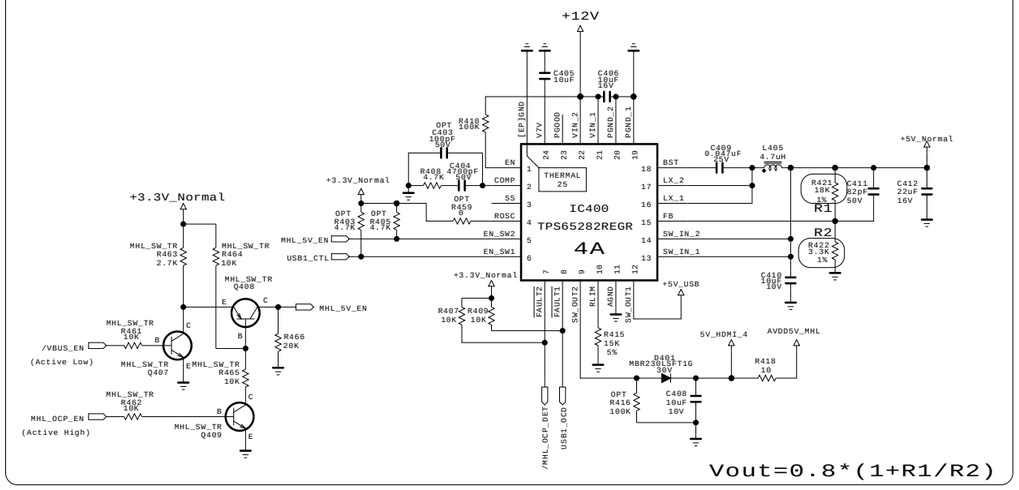


+1.10V_VDDC



Vout=0.808*(1+R1/R2)

+5V_Normal & +5V_USB with OCP



Vout=0.8*(1+R1/R2)

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MODEL	L14_M1A	DATE	131123
BLOCK	Power_PD2	SHEET	4

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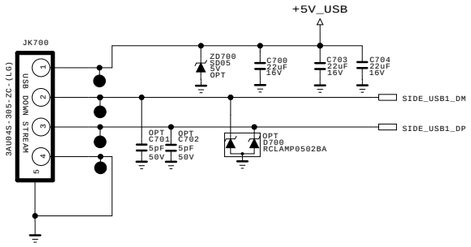
USB 3216 CAP(SIDE)



THE ⚠ SYMBOL MARK OF THIS SCHEMETIC DIAGRAM INCORPORATES
SPECIAL FEATURES IMPORTANT FOR PROTECTION FROM X-RADIATION.
FIRE AND ELECTRICAL SHOCK HAZARDS, WHEN SERVICING IF IS
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MODEL	L14_M1A	DATE	13/11/16
BLOCK	USB_S1	SHEET	66

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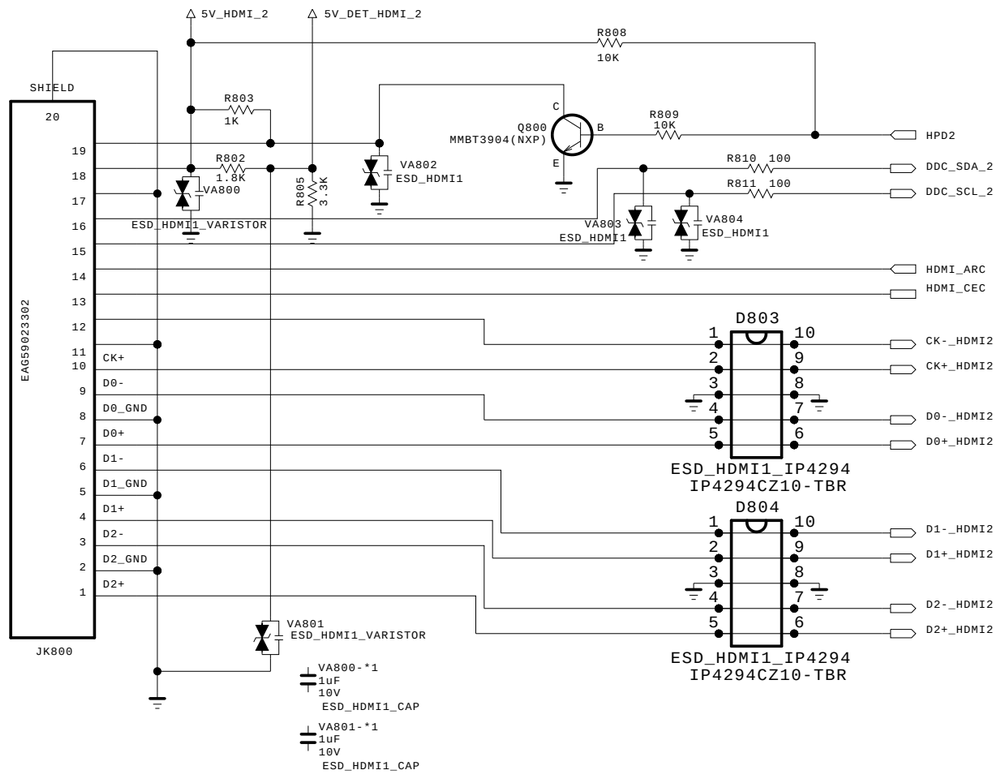
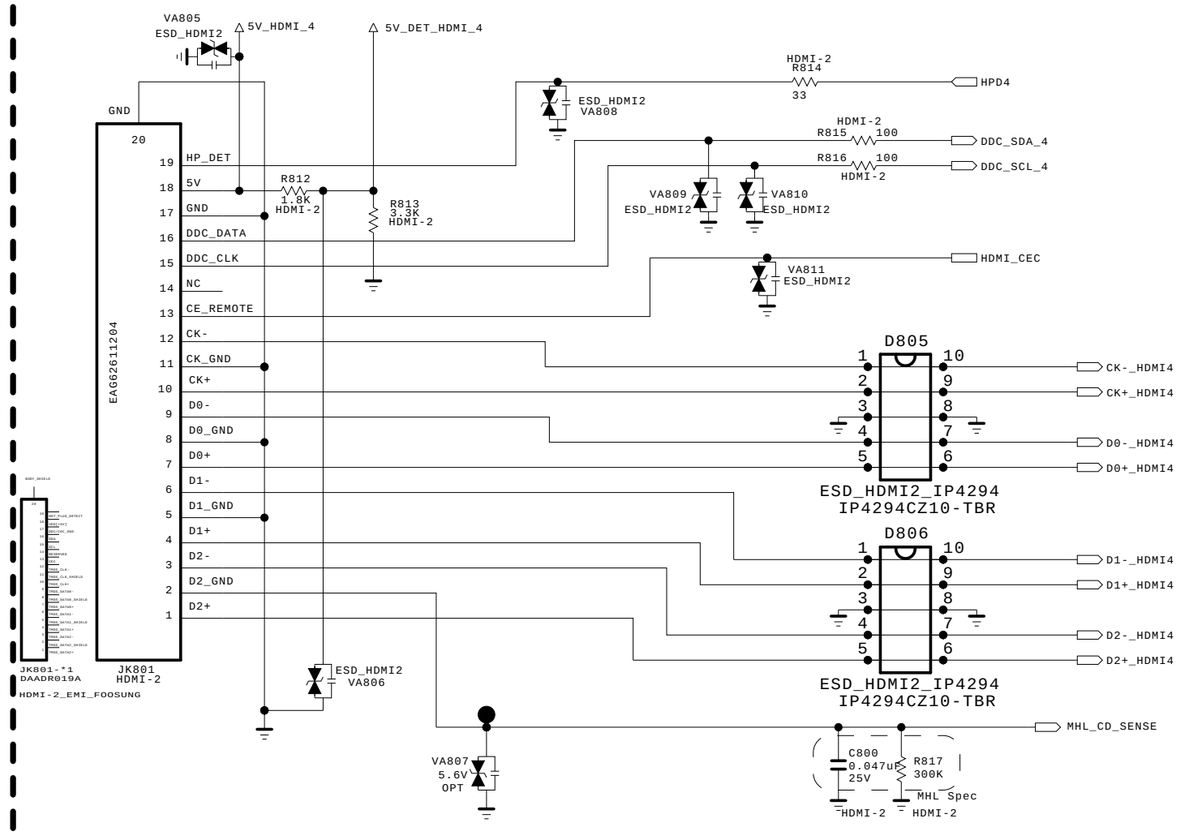
HDMI (REAR 1 / SIDE 1 MHL)

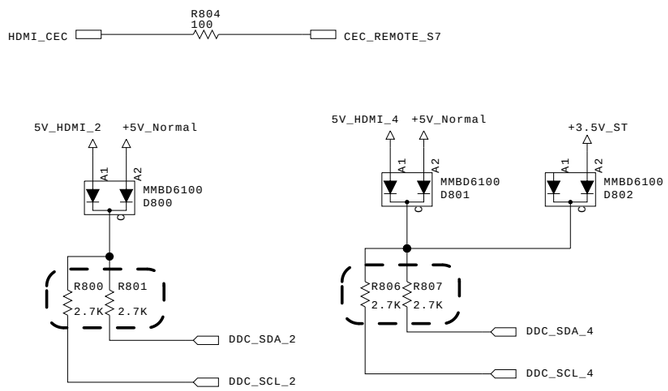
HDMI_1

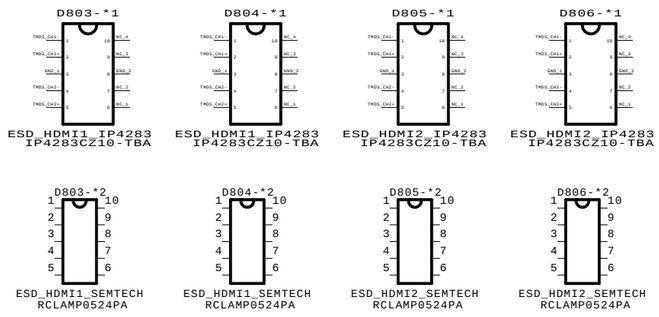


HDMI_2 MHL



CEC





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MODEL	L14_M1A	DATE	2013/08/15
BLOCK	HDMI_R1_S1	SHEET	8 /

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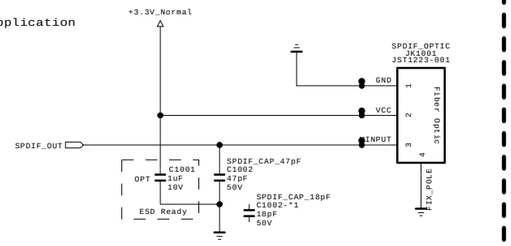
SPDIF

SPDIF OPTIC JACK

5.15 Mstar Circuit Application



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MODEL	NC5_L14	DATE	2013/10/29
BLOCK	SPDIF	SHEET	10

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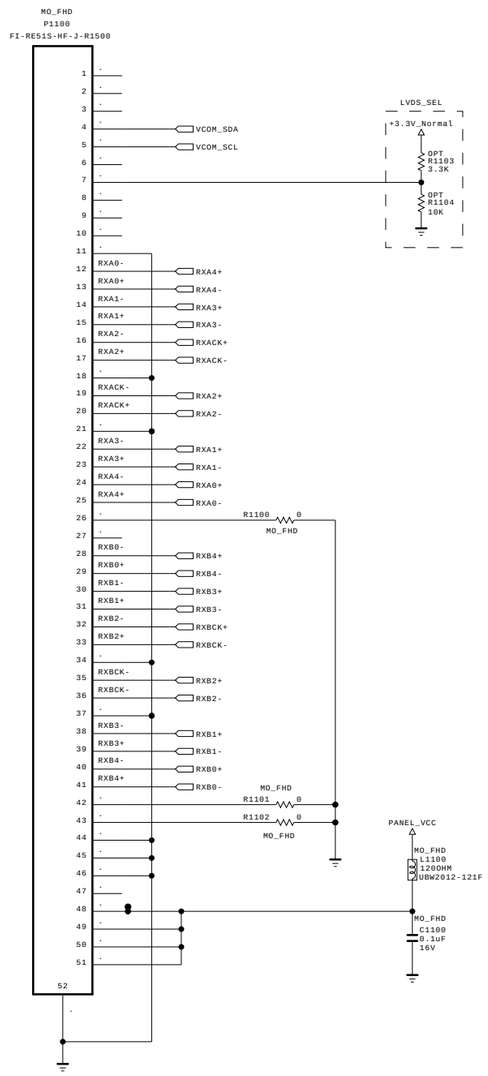
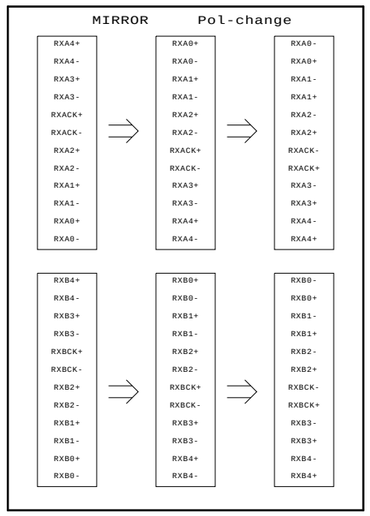
LVDS (NON EU)

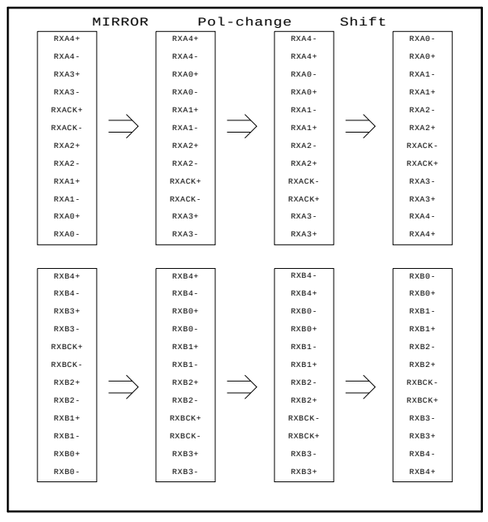
[51Pin LVDS Connector] (For FHD 60Hz)



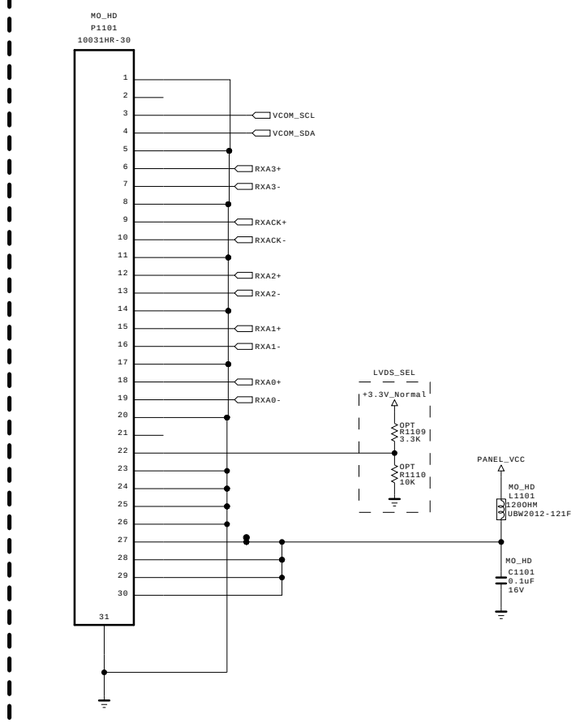
FOR FHD REVERSE(10bit) Change in S7LR



FOR FHD REVERSE(8bit) Change in S7LR

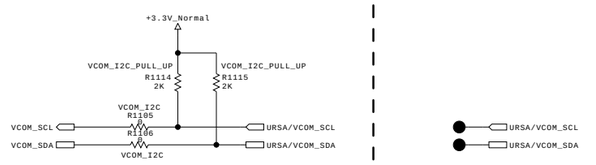


[30Pin LVDS Connector] (For HD 60Hz_Normal)



EU pin assign is different from NON EU.
Because of position of HD wafer.

V-COM I2C



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MODEL	L14_S7LR(M1A)	DATE	2013/05/22
BLOCK	LVDS_NON_EU	SHEET	11

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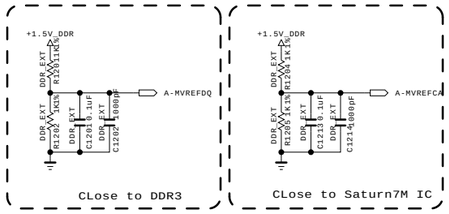
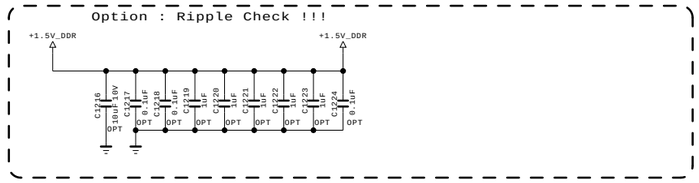
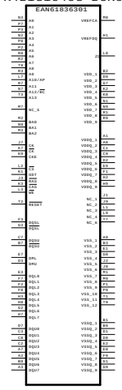
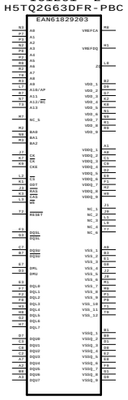




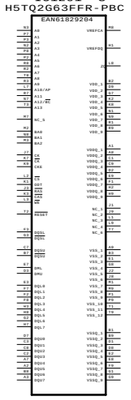
DDR_1600_1G_SS
IC1201-*1
K4B1G1646G-BCK0



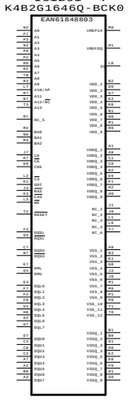
DDR_1600_2G_HYNIX_OLD
IC1201-*2
H5TQ2G63DFR-PBC



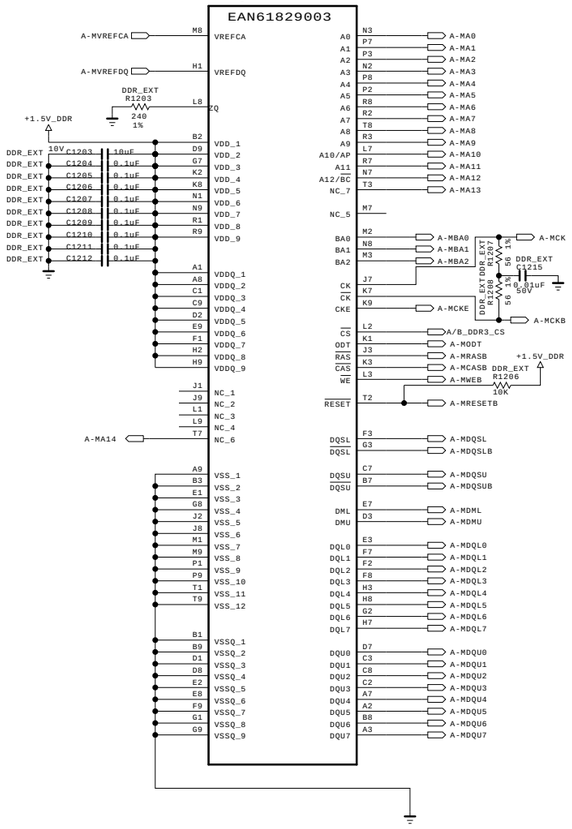
DDR_1600_2G_HYNIX_NEW
IC1201-*3
H5TQ2G63FFR-PBC



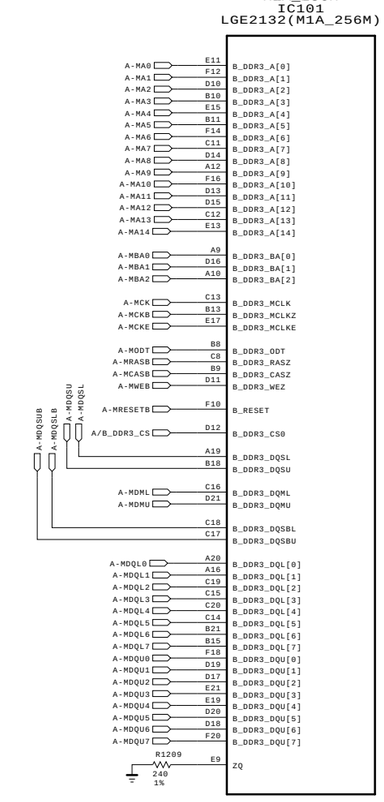
DDR_1600_2G_SS
IC1201-*4
K4B2G1646Q-BCK0



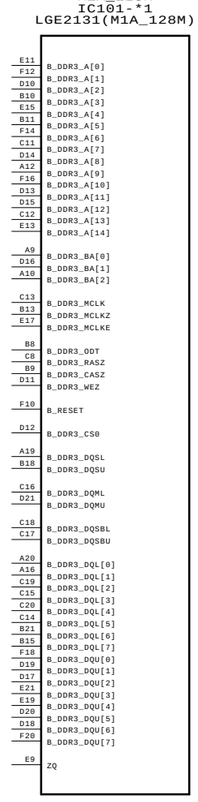
DDR_1600_1G_HYNIX
IC1201
H5TQ1G63EFR-PBC



M1A_256M
IC101
LGE2132(M1A_256M)



M1A_128M
IC101-*1
LGE2131(M1A_128M)



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MODEL	NC5_S7LR(M1A)	DATE	2013/05/20
BLOCK	1_DDR	SHEET	12 /

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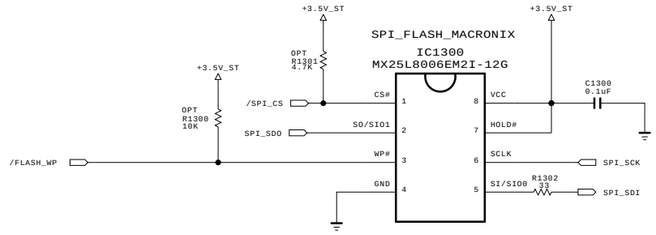
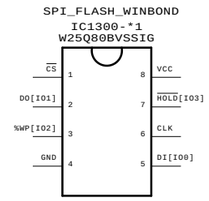
Serial Flash for SPI boot





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MODEL	NC5_S7LR(M1A)	DATE	2013/04/29
BLOCK	S_FLASH	SHEET	13

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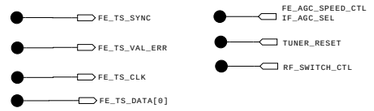
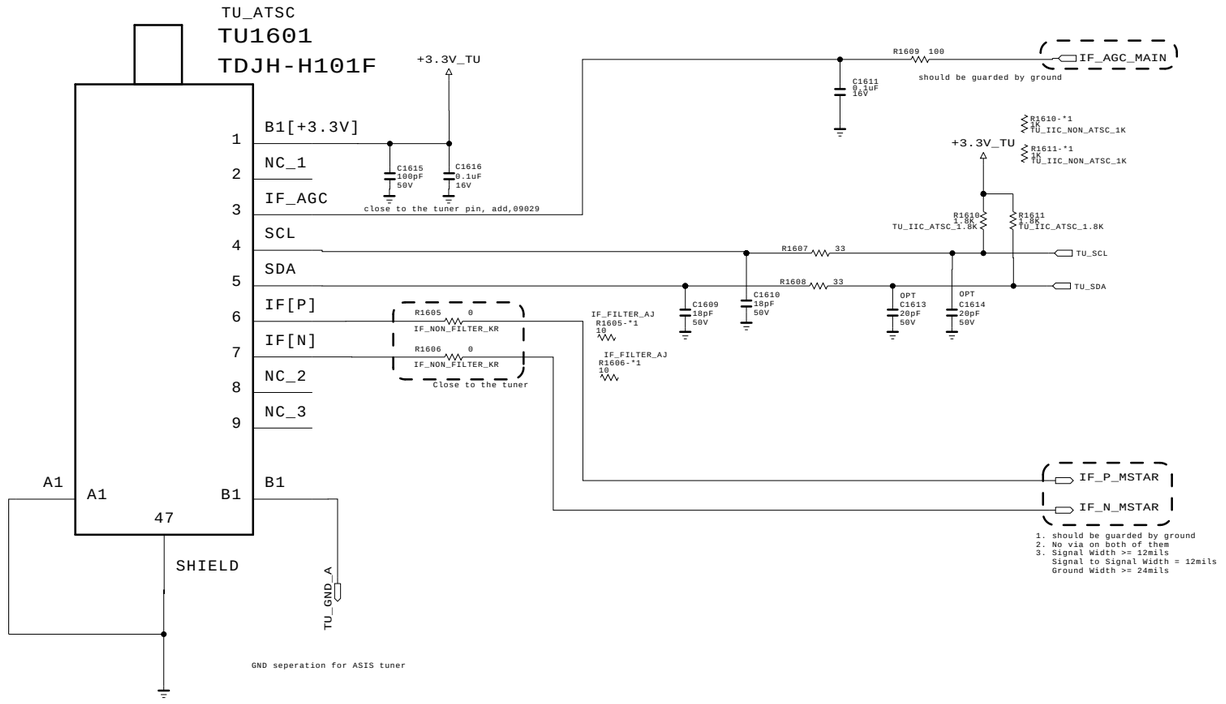
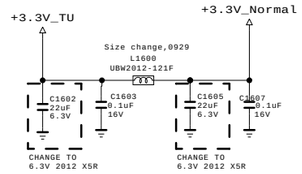
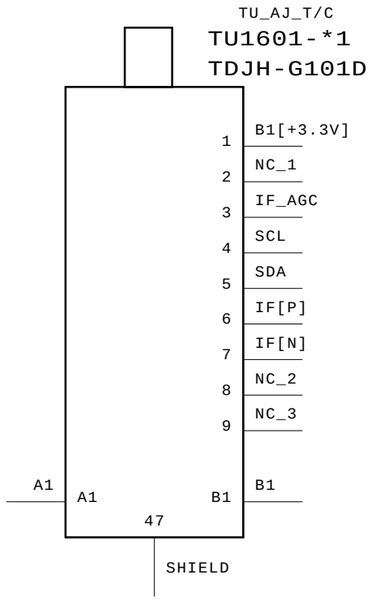
GLOBAL tuner block KR & AJ









THE ⚠ SYMBOL MARK OF THIS SCHEMETIC 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 SCHEMETIC.

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MODEL	L14_M1A	DATE	2013/06/05
BLOCK	TUNER_KR_AJ	SHEET	16

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COMPONENT & AV1(COMMON), AV2

AV2

COMPONENT
&
AV1

COMP_AV1/2_YG
JK1701
PPJ248-21

6C	[RD3]E-LUG
5C	[RD3]O-SPRING
4C	[RD3]CONTACT
5B	[WH2]O-SPRING
4A	[YL]CONTACT
5A	[YL]O-SPRING
6A	[YL]E-LUG

COMP_AV1_YG
JK1702
PPJ245N2-01

6E	[RD2]E-LUG
5E	[RD2]O-SPRING
4E	[RD2]CONTACT
5D	[WH]O-SPRING
4C	[RD1]CONTACT
5C	[RD1]O-SPRING
7C	[RD1]E-LUG-S
5B	[BL]O-SPRING
4A	[GN/YL]CONTACT
5A	[GN/YL]O-SPRING
6A	[GN/YL]E-LUG

6H	[RD2]E-LUG
5H	[RD2]O-SPRING
4H	[RD2]CONTACT
5G	[WH1]O-SPRING
4F	[RD1]CONTACT
5F	[RD1]O-SPRING
7F	[RD1]E-LUG-S
5E	[BL]O-SPRING
4D	[YL/GN]CONTACT
5D	[YL/GN]O-SPRING
6D	[YL/GN]E-LUG

AV2_R_IN — VA1706 5.6V AV2_LR_ZENER — R1700 470K AV2 — C1701 330PF 50V OPT — R1716 10K AV2 — R1718 12K AV2

AV2_L_IN — VA1704 5.6V AV2_LR_ZENER — R1701 470K AV2 — C1702 330PF 50V OPT — R1717 10K AV2 — R1719 12K AV2

+3.3V_Normal — R1708 10K AV2 — R1711 1K AV2 — AV2_CVBS_DET — VA1705 5.6V OPT

SC1/AV2_CVBS_IN — ZD1706 AV2_CVBS_ZENER_ROHM — ZD1707 AV2_CVBS_ZENER_ROHM — AV2 R1702 75 1608 1% — R1725 3216 75 1% 1/4W OPT — C1703 47pF 50V AV2

Size Check !!!

ZD1706-*1 AV2_CVBS_ZENER_KEC — ZD1707-*1 AV2_CVBS_ZENER_KEC

COMP2_R_IN — VA1700 5.6V COMP_LR_ZENER — R1703 470K — C1704 330PF 50V OPT — R1714 10K — R1720 12K

COMP2_L_IN — VA1701 5.6V COMP_LR_ZENER — R1704 470K — C1705 330PF 50V OPT — R1715 10K — R1721 12K

+3.3V_Normal — R1709 10K — R1712 1K — COMP2_DET — VA1702 5.6V OPT

COMP2_Pr+ — ZD1700 COMP_Pr_ZENER_ROHM — ZD1701 COMP_Pr_ZENER_ROHM — R1705 75

ZD1700-*1 COMP_Pr_ZENER_KEC — ZD1701-*1 COMP_Pr_ZENER_KEC

COMP2_Pb+ — ZD1702 COMP_Pb_ZENER_ROHM — ZD1703 COMP_Pb_ZENER_ROHM — R1706 75

ZD1702-*1 COMP_Pb_ZENER_KEC — ZD1703-*1 COMP_Pb_ZENER_KEC

+3.3V_Normal — R1710 10K — R1713 1K — AV_CVBS_DET — VA1703 5.6V OPT

COMP2_Y+/AV_CVBS_IN — ZD1704 COMP_Y_ZENER_ROHM — ZD1705 COMP_Y_ZENER_ROHM — R1707 75 1608 1% — R1722 3216 75 1% 1/4W OPT

Size Check !!!

CVBS_OUT_TEST — R1724 0 — DTV/MNT_VOUT — R1723 75

ZD1704-*1 COMP_Y_ZENER_KEC — ZD1705-*1 COMP_Y_ZENER_KEC

* One Ton Color Jack - Yellow/Green

JK1702-*1
PPJ245-01
COMP_AV1_G

7E	[RD2]E-LUG
6E	[RD2]C-SPRING
4E	[RD2]CONTACT
5D	[WH]C-SPRING
4C	[RD1]CONTACT
6C	[RD1]C-SPRING
8C	[RD1]E-LUG-S
5B	[BL]C-SPRING
4A	[GN]CONTACT
6A	[GN]C-SPRING
7A	[GN]E-LUG

JK1701-*1
PPJ248-01
COMP_AV1/2_G

7C	[RD3]E-LUG
6C	[RD3]C-SPRING
4C	[RD3]CONTACT
5B	[WH2]C-SPRING
4A	[YL]CONTACT
5A	[YL]C-SPRING
7A	[YL]E-LUG
7H	[RD2]E-LUG
6H	[RD2]C-SPRING
4H	[RD2]CONTACT
5G	[WH1]C-SPRING
4F	[RD1]CONTACT
6F	[RD1]C-SPRING
8F	[RD1]E-LUG-S
5E	[BL]C-SPRING
4D	[GN]CONTACT
6D	[GN]C-SPRING
7D	[GN]E-LUG

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MODEL	L14_S7LR(M1A)	DATE	2013.08.15
BLOCK	REAR_JACK_NON_EU	SHEET	17

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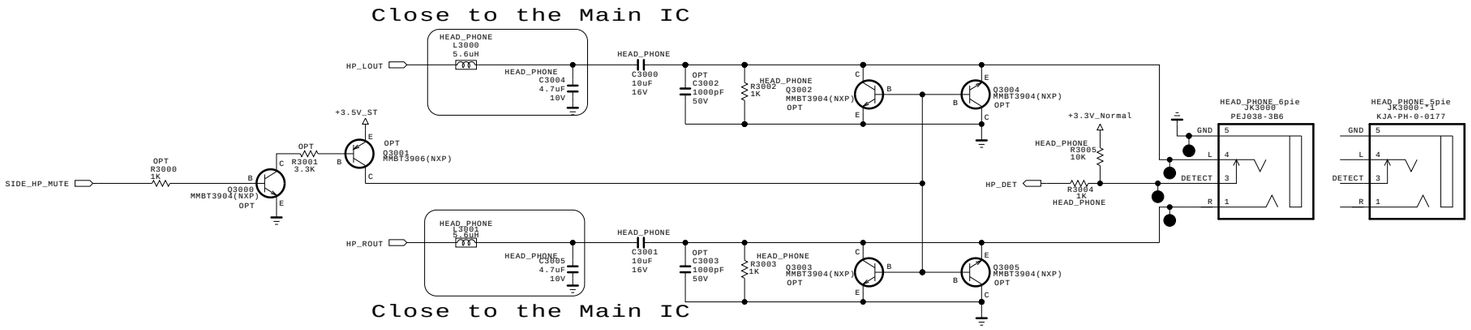
Headphone
*Option : HEAD_PHONE_EU



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LG ELECTRONICS

MODEL	NC5_M1A	DATE	2013.04.29
BLOCK	HEAD_PHONE_EU	SHEET	30

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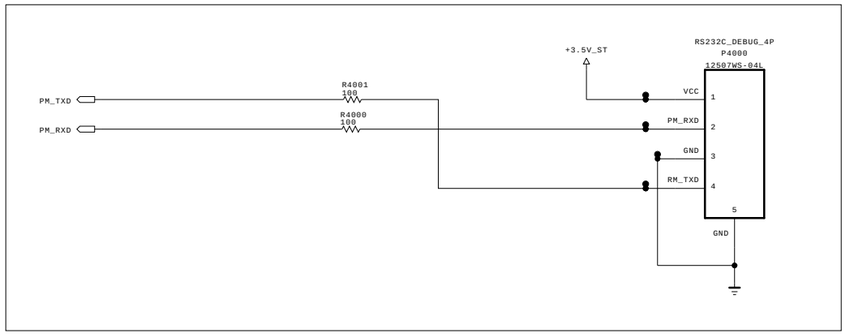
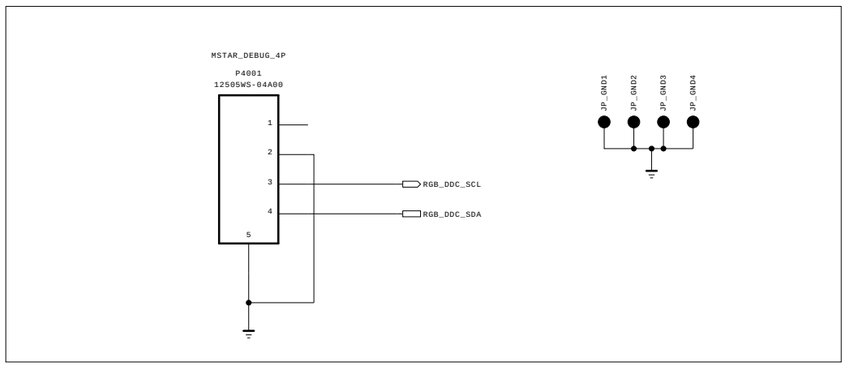
RS-232C 4PIN & MSTAR DEBUG 4PIN

RS-232C 4PIN



MSTAR DEBUG 4PIN



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MODEL	L14_S7LR(M1A)	DATE	2013/04/30
BLOCK	RS232C_MSTAR_DEBUG_4P	SHEET	40

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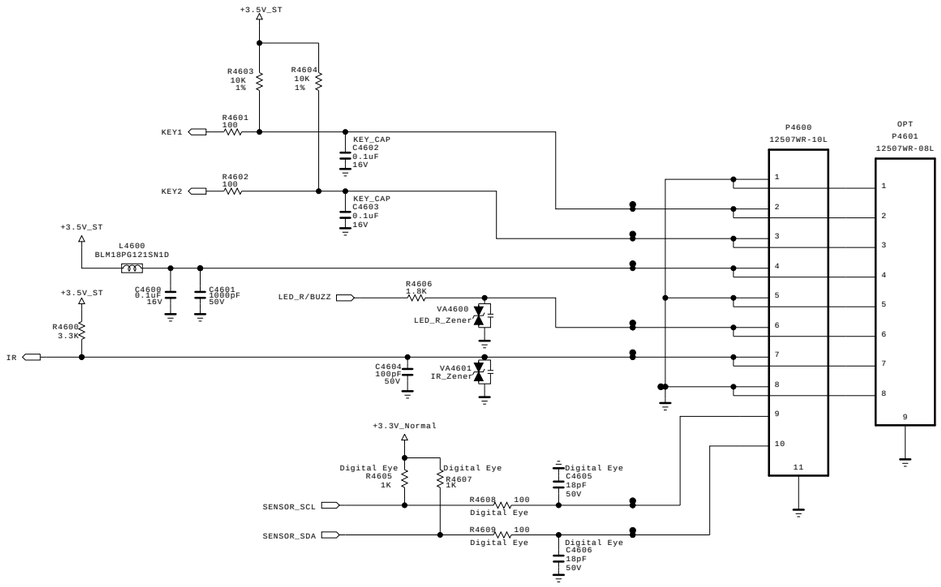
IR/LED + Digital Eye + Control



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MODEL	L14_M1A	DATE	2013/09/03
BLOCK	IR_EYE_SENSOR	SHEET	46

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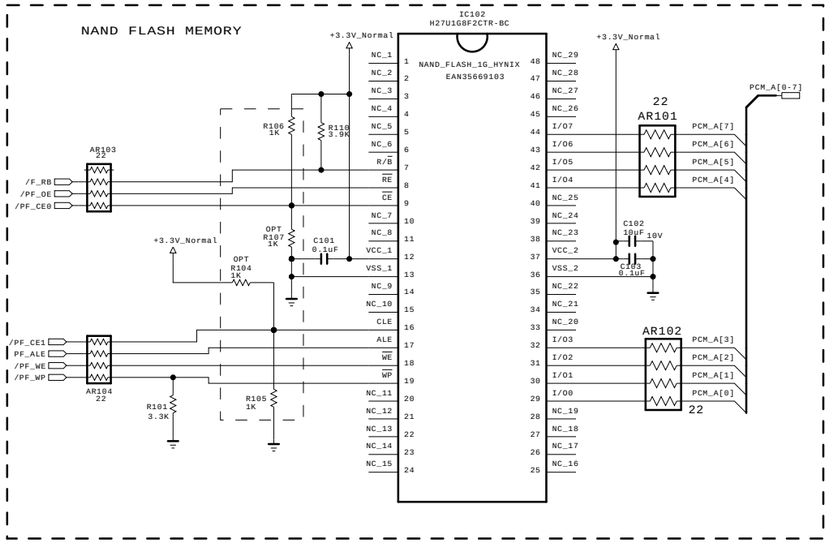

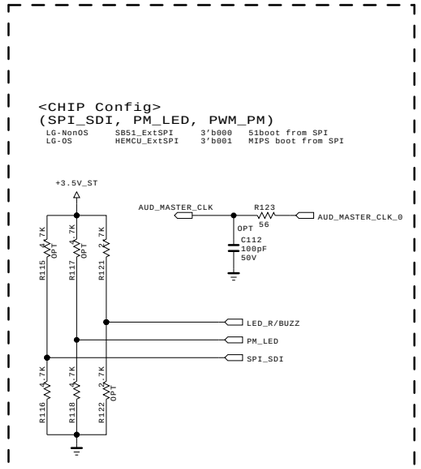

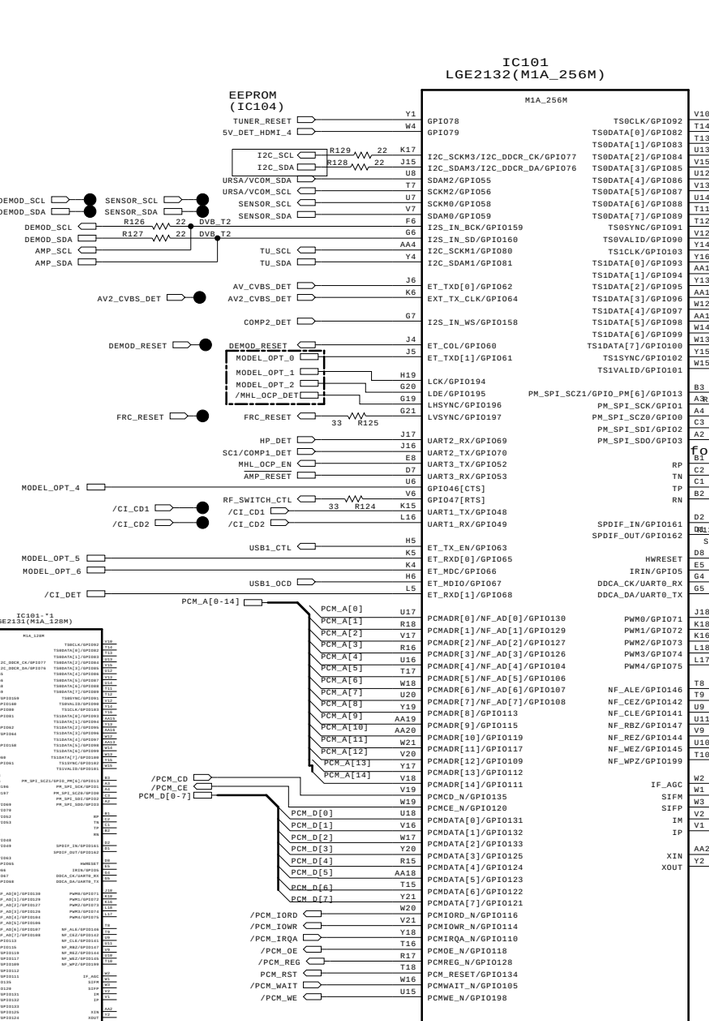

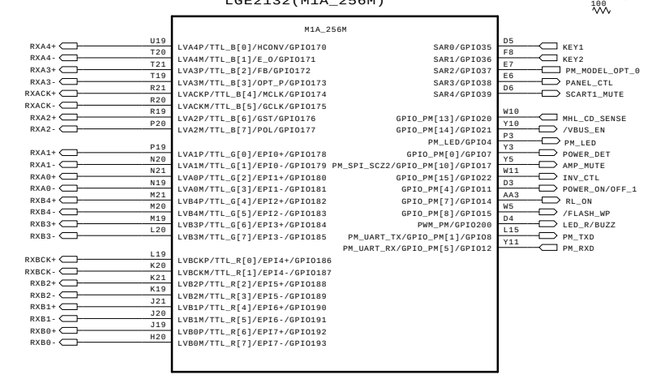

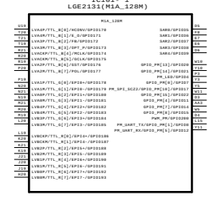

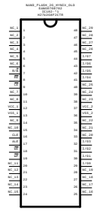

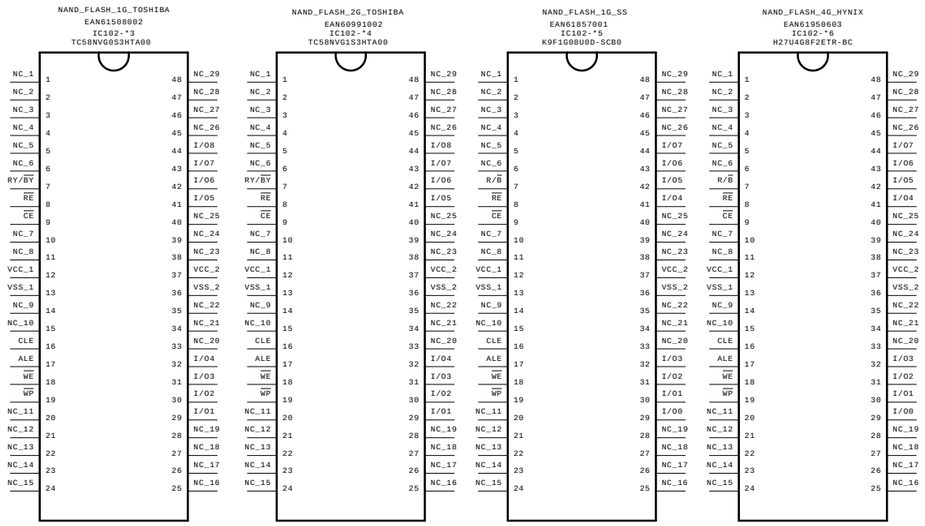

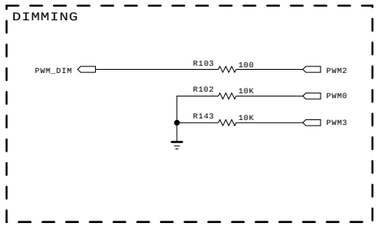

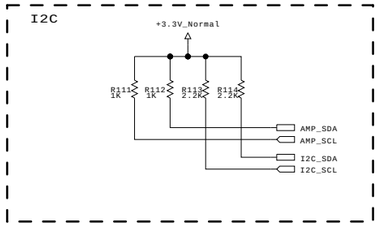

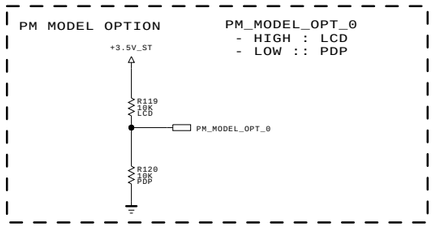

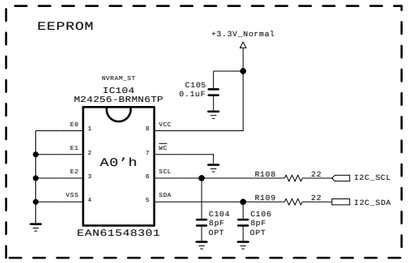

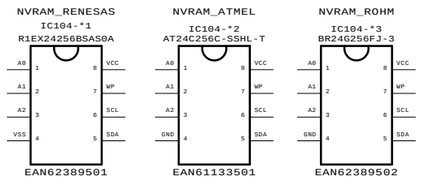

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LG ELECTRONICS

MODEL	M1A_L14	DATE	2013/09/16
BLOCK	MAIN1_NON_EU	SHEET	51

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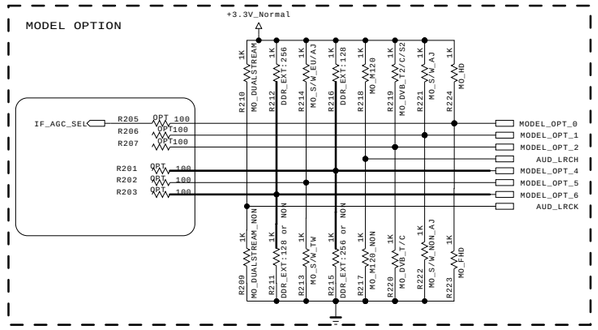


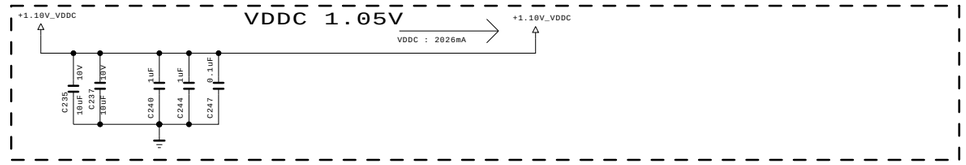
MODEL OPTION ("MO")

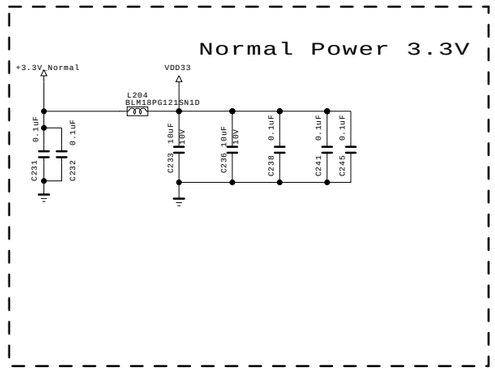
PIN NAME	PIN NO	LOW	HIGH
MODEL_OPT_0	J5	MO_FHD	MO_HD
MODEL_OPT_1	H19	MO_S/W_NON_AJ	MO_S/W_AJ
MODEL_OPT_2	G20	MO_DVB_T/C	MO_DVB_T2/C/S2
MODEL_OPT_3	G19	MO_M120_NON	MO_M120
MODEL_OPT_4	U6	DDR_EXT:256 or NON	DDR_EXT : 128
MODEL_OPT_5	K5	MO_S/W_TW	MO_S/W_EU/AJ
MODEL_OPT_6	K4	DDR_EXT:128 or NON	DDR_EXT : 256
MODEL_OPT_7	L5	MO_DUALSTREAM_NON	MO_DUALSTREAM

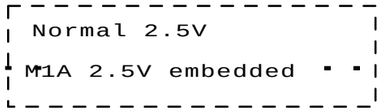
* Dual Stream is only Korea 3D spec

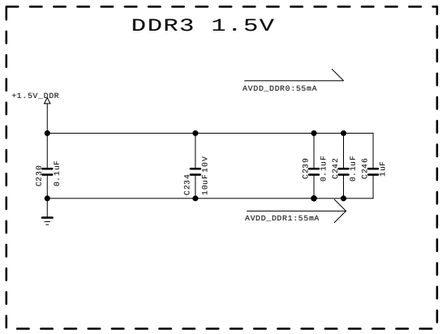
Memory OPTION

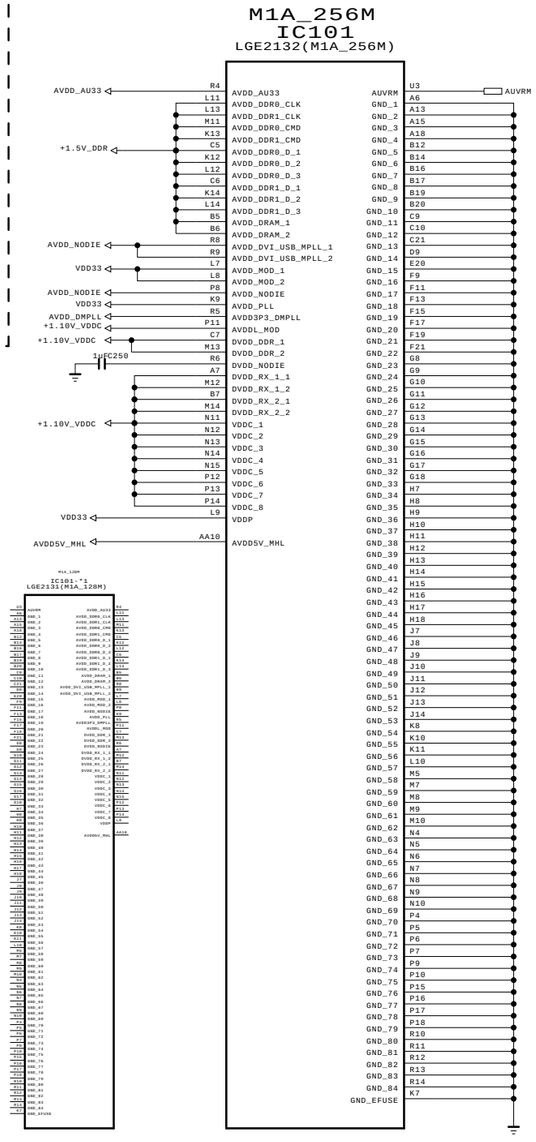
Memory INT+EXT	Auto Det	MODEL_OPT_4	MODEL_OPT_6
128M Only	0	0	0
256M Only	1	0	0
128M+128M	0	1	0
128M+256M	0	0	1
256M+256M	1	0	1

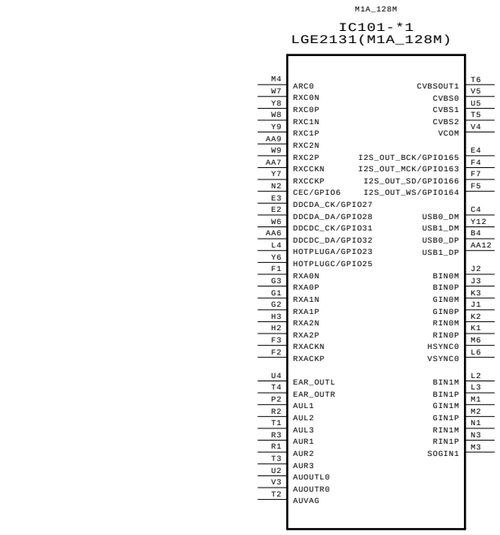


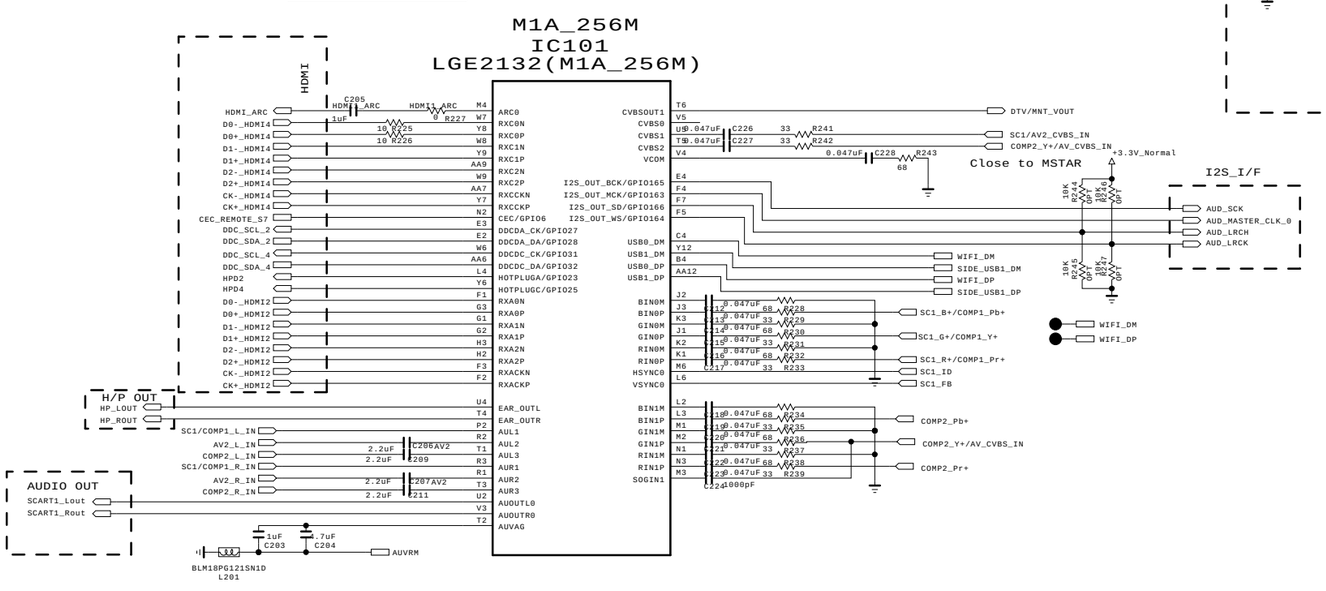


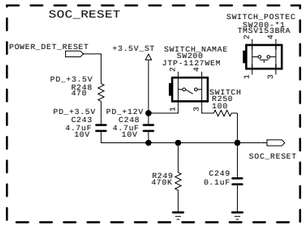


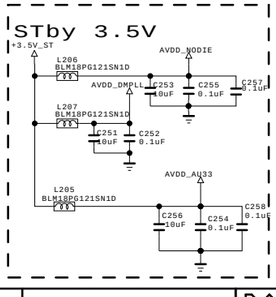


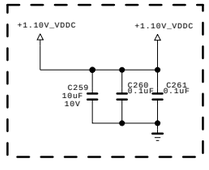












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MODEL	NC5_L14	DATE	2013.08.15
BLOCK	MAIN2_NON_EU	SHEET	52

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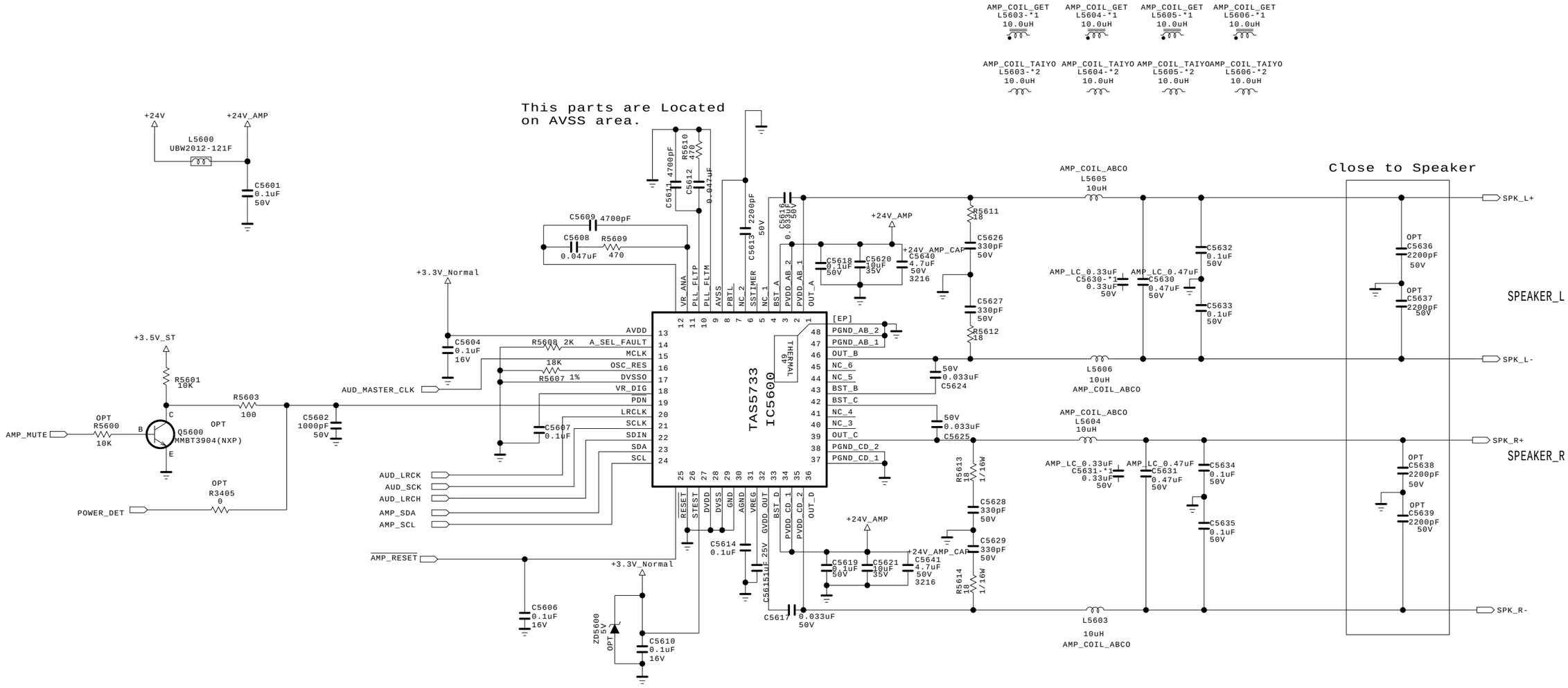
AUDIO AMP(TI)



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LG ELECTRONICS

MODEL	L14	DATE	131116
BLOCK	AUDIO[TI]	SHEET	56

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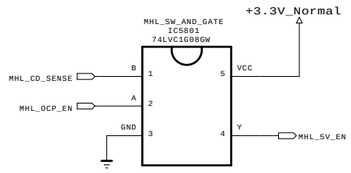
L14 MHL SW AND GATE



THE ⚠ SYMBOL MARK OF THIS SCHEMETIC 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 SCHEMETIC.

SECRET
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LG ELECTRONICS

MODEL	L14_M1A	DATE	2013.09.01
BLOCK	MHL_SW_AND	SHEET	58

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