

HISTORY INFORMATION FOR THE FOLLOWING MANUAL:

SERVICE MANUAL

LAX G CHASSIS

<u>MODEL NAME</u>	<u>REMOTE COMMANDER</u>	<u>DESTINATION</u>
KLV-20G300A	RM-YA007	CANADA
KLV-20G300A	RM-YA007	MEXICO

ORIGINAL MANUAL ISSUE DATE: 4/2007

REVISION DATE

SUBJECT

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KLV-20G300A



RM-YA007

LCD HDTV MONITOR
SONY®

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SPECIFICATIONS:

Specifications

Screen size (measured diagonally):
20 inches

Panel System:
LCD (Liquid Crystal Display) Panel

Display resolution (horizontal × vertical):
640 dots × 480 lines

VIDEO IN 1/2 (NTSC Video Standard):

S VIDEO (4-pin mini DIN):

Y: 1.0 Vp-p, 75 ohms unbalanced,
sync negative

C: 0.286 Vp-p (Burst signal), 75 ohms

VIDEO: 1 Vp-p, 75 ohms unbalanced, sync negative^e

AUDIO: 500 mVrms (100% modulation)
Impedance: 47 kilohms

COMPONENT IN 3

YPbPr (Component Video):

Y: 1.0 Vp-p, 75 ohms unbalanced,
sync negative

Pb: 0.7 Vp-p, 75 ohms

Pr: 0.7 Vp-p, 75 ohms

Signal format: 480i, 480p, 576i, 576p
720p, 1080i

AUDIO: 500 mVrms (100% modulation)
Impedance: 47 kilohms

AUDIO OUT:

500 mVrms (100% modulation)

Headphones:

Stereo mini jack

Impedance: 16 ohms

Speaker/Full range (2)

40 x 100 mm (1⁵/₈ × 4³/₈ inches)

Speaker output:

5 W + 5 W

Power requirement:

110 V– 240 V AC, 50/60 Hz

Power consumption:

In use: 60 W

In standby: Less than 1.0 W

Dimensions (W/H/D):

(With stand) 592 x 438 x 223 mm

(23³/₈ × 17¹/₄ × 8⁷/₈ inches)

(Without stand) 592 x 426 x 95 mm

(23³/₈ × 16⁷/₈ × 3³/₄ inches)

Mass:

(With stand) 9.5 kg (20 lb. 15 oz.)

(Without stand) 8.5 kg (18 lb. 12 oz.)

Supplied accessories:

Remote control RM-YA007 (1)

Size AA batteries (2)

AC power cord (1)

Support belt (1), securing screw (1) and wood screw (1)

Cable Holder (1)

Hole Masks (2)

Operating Instructions (1)

Quick Setup Guide (1)


Warranty Card (1)

Optional accessories:

Headphones plug adaptor

Connecting cables

Wall-Mount Bracket: SU-WL100

 Optional accessories' availability may depend on its stock.

Design and specifications are subject to change without notice.

WARNINGS AND CAUTIONS

CAUTION

These servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

WARNING!!

An isolation transformer should be used during any service to avoid possible shock hazard, because of live chassis. The chassis of this receiver is directly connected to the ac power line.



SAFETY-RELATED COMPONENT WARNING!!

Replace all components with Sony parts whose part numbers appear as shown in this manual or in supplements published by Sony.

ATTENTION!!

Ces instructions de service sont à l'usage du personnel de service qualifié seulement. Pour prévenir le risque de choc électrique, ne pas faire l'entretien autre que celui contenu dans le Mode d'emploi à moins que vous soyez qualifié faire ainsi.

Afin d'éviter tout risque d'électrocution provenant d'un châssis sous tension, un transformateur d'isolement doit être utilisé lors de tout dépannage. Le châssis de ce récepteur est directement raccordé à l'alimentation du secteur.



ATTENTION AUX COMPOSANTS RELATIFS A LA SECURITE!!

Remplacer tout les composants par des composants Sony dont le numero de piece est indique dans le present manuel ou dans des supplements publies par Sony.

SAFETY-RELATED COMPONENT WARNING

It is essential that all critical parts be replaced only with the part number specified in the electrical parts list to prevent electric shock, fire, or other hazard.

NOTE: Do not modify the original design without obtaining written permission from the manufacturer or you will void the original parts and labor guarantee.

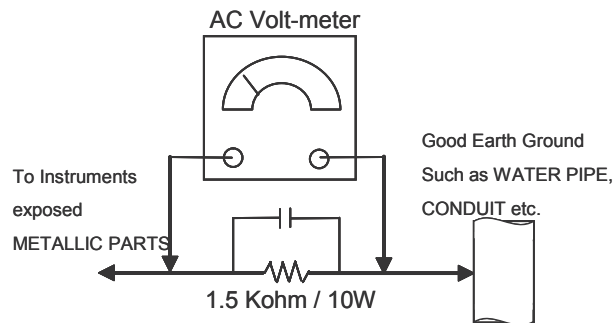
USE CAUTION WHEN HANDLING THE LCD PANEL

When repairing the LCD panel, be sure you are grounded by using a wrist band.

To avoid damaging the LCD panel:

- do not press on the panel or frame edge to avoid the risk of electric shock.
- do not scratch or press on the panel with any sharp objects.
- do not leave the module in high temperatures or in areas of high humidity for an extended period of time.
- do not expose the LCD panel to direct sunlight.
- avoid contact with water. It may cause a short circuit within the module.
- disconnect the AC power when replacing the backlight (CCFL) or inverter circuit.
(High voltage occurs at the inverter circuit at 650Vrms.)
- always clean the LCD panel with a soft cloth material.
- use care when handling the wires or connectors of the inverter circuit. Damaging the wires may cause a short.
- protect the panel from ESD to avoid damaging the electronic circuit (C-MOS).

LEAKAGE CURRENT HOT CHECK CIRCUIT



The circuit boards used in these models have been processed using Lead Free Solder.
The servicing of these boards requires special precautions to be taken as outlined below.

It is strongly recommended to use Lead Free Solder material in order to guarantee optimal quality of new solder joints.
Lead Free Solder is available under the following part numbers :

Part number	Diameter	Remarks
7-640-005-19	0.3 mm	0.25 kg
7-640-005-20	0.4 mm	0.50 kg
7-640-005-21	0.5 mm	0.50 kg
7-640-005-22	0.6 mm	0.25 kg
7-640-005-23	0.8 mm	1.00 kg
7-640-005-24	1.0 mm	1.00 kg
7-640-005-25	1.2 mm	1.00 kg
7-640-005-26	1.6 mm	1.00 kg

Due to the higher melting point of Lead Free Solder the soldering iron tip temperature needs to be set to 370 degrees centigrade.
This requires soldering equipment capable of accurate temperature control coupled with a good heat recovery characteristics.

For more information on the use of Lead Free Solder, please refer to <http://www.sony-training.com>

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or touching high-wattage resistors.
3. Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced. Be absolutely certain that you have replaced all the insulators.
4. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
6. Check the line cords for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
7. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instructions.
2. A battery-operated AC milliampmeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low voltage scale. The Simpson's 250 and Sanwa SH-63TRD are examples of passive VOMs that are suitable. Nearly all battery-operated digital multimeters that have a 2 VAC range are suitable (see Figure A).

How to Find a Good Earth Ground

A cold-water pipe is a guaranteed earth ground; the cover-plate retaining screw on most AC outlet boxes is also at earth ground. If the retaining screw is to be used as your earth ground, verify that it is at ground by measuring the resistance between it and a cold-water pipe with an ohmmeter. The reading should be zero ohms.

If a cold-water pipe is not accessible, connect a 60- to 100-watt trouble-light (not a neon lamp) between the hot side of the receptacle and the retaining screw. Try both slots, if necessary, to locate the hot side on the line; the lamp should light at normal brilliance if the screw is at ground potential (see Figure B).

Leakage Test

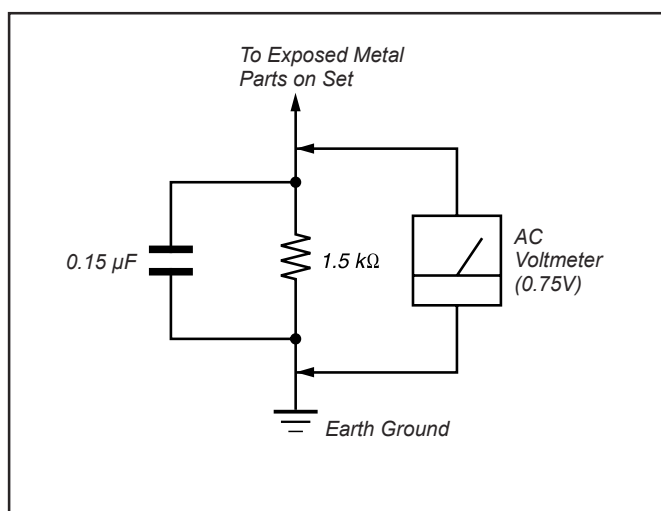


Figure A. Using an AC voltmeter to check AC leakage.

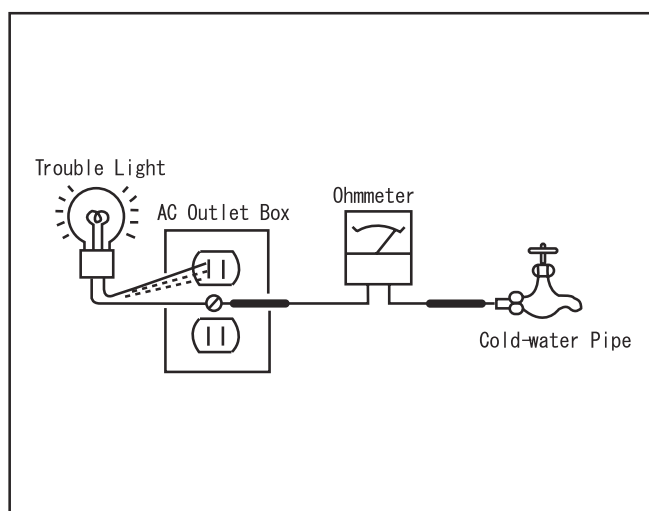


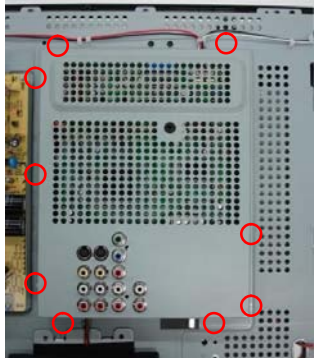
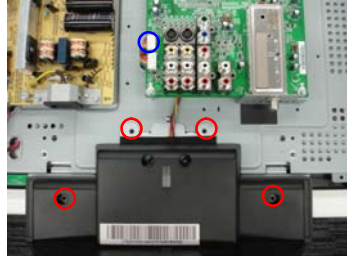
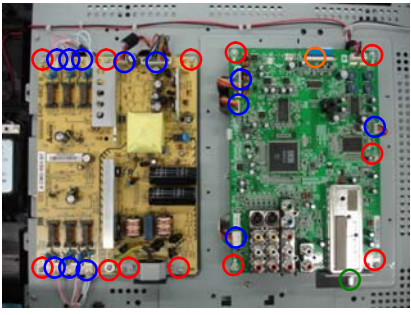

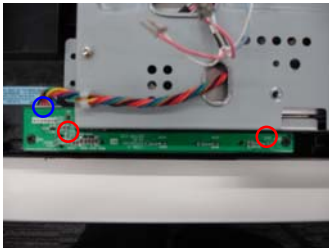

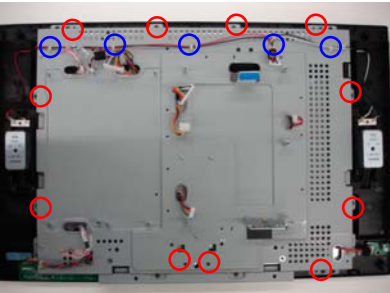
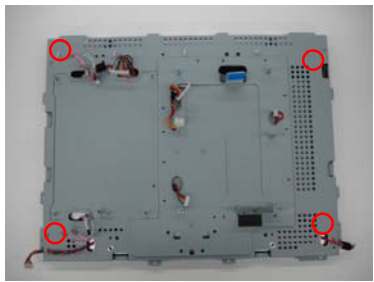


Figure B. Checking for earth ground.

SECTION 1 : DISASSEMBLY INSTRUCTION

STEP	PICTURE	Description
Service Position		Gently place the TV set face down on the table
Rear Cover Removal		Remove 11 screws to release the rear cover
Main Shield Removal		Remove 9 screws to release the main shield
Stand Removal		Remove 4 screws and 1 connector to release the Tabletop Stand from the unit
A (Main) Board Assy and G (Inverter/Power) Board Assy Removal		<p>Remove FFC cable, 6 angle nut, 5 screws and 4 connectors to release the A (Main) Board.</p> <p>Remove 7 screws and 8 connectors to release the G (Inverter/Power) Board Assy.</p>

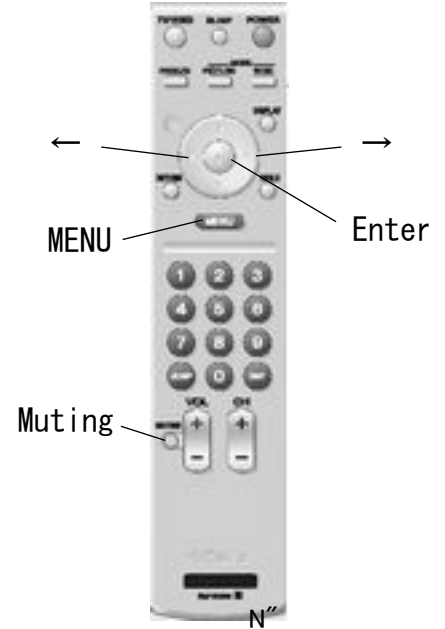
STEP	PICTURE	Description
Bracket Removal		Remove 2 screws to release the Bracket
H2 Board (IR LED) Removal		Remove 2 screws and 1 connector to release the H2 Board
H3 Board (Earphone) Removal		Remove 1 screw and 1 connector to release the H3 Board
Bezel Removal		Remove 11 screws and 5 location of connector lock to release the Front Bezel.
Main Frame Removal		Remove 4 screws to release the Main Frame from LCD Panel.

SECTION 2 : SERVICE MODE (factory mode)

To adjust various set features, use the Remote Commander to put the set into service mode to display the Service menu.

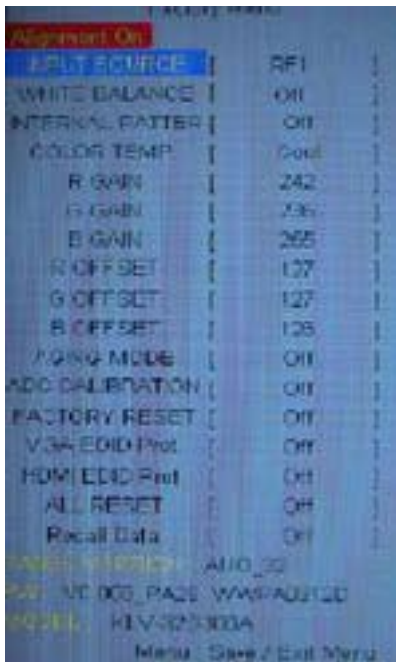
(Input the signal to TV set. Please confirm that there is no OSD before enter the service mode)

- 1) Press “←” button
- 2) Press “→” button
- 3) Press “MUTING” button
- 4) Press “Enter” button
- 5) Press “MUTING” button
- 6) Press “MENU” button



To exit “SERVICE MODE”, press the “MENU” button

Sample picture of “SERVICE MODE”



Description of Service Mode menu for adjustment. Do not use other menu.

Before to do White Balance adjustment please press remote control “1” to turn “Alignment On” .

To turn “Alignment Off” press remote control “2” .

To save aligned data, please AC off the TV set. And automatically turn “Alignment Off” .

INPUT SOURCE	Component 1
WHITE BALANCE	Default is “OFF”, when you adjust white balance, change it to “ON”
COLOR TEMPERATURE	Color mode change menu (COOL, NUTRAL, WARM)
R GAIN	White balance adjustment resistor, refer to WB adjust procedure
G GAIN	
B GAIN	
R OFFSET	
G OFFSET	
B OFFSET	

SECTION 3 : ADJUSTMENT PROCEDURE

3.1 Preparation

- 1) Allow approximately 30 minutes for the set to warm up before proceeding with the white balance adjustment.
- 2) Connect 3 terminal of 480i signal cable (Y | Pb | Pr) from the signal source to monitor "Component 1"
- 3) Enter "SERVICE MODE". The method to enter "SERVICE MODE" is described in next section.
- 4) Press remote control "1" to turn on "Alignment On"
- 4) Change "WHITE BALANCE" from "OFF" to "ON "in SERVICE MENU.
- 5) Select "VIDE03" from INPUT SOURCE in SERVICE MENU
- 6) Set "R", "G", "B", "GAIN" and "R", "G", "B", "Offset" value as same as "3.5. AVERAGE VALUE"

3.2. Adjust White Balance of "COOL" temperature;

- 1) Select "COOL" from COLOR TEMPERATURE in SERVICE MENU
- 2) Input 70IRE Full white pattern signal into "Component 1"
- 3) Adjust "RGB GAIN" in SERVICE MENU if needed
- 4) Input 30IRE Full white pattern signal into "Component 1"
- 5) Adjust "RGB OFFSET" in SERVICE MENU if needed
- 6) Repeat adjustment of 2) to 5) so that White Balance is as same level as good monitor

3.3. Adjust White Balance of "NEUTRAL" temperature;

- 1) Select "NEUTRAL" from COLOR TEMPERATURE in SERVICE MENU
- 2) Repeat adjustment as same step of 2) to 5) till White Balance is as same level as good monitor.

3.4. Adjust White Balance of "WARM" temperature;

- 1) Select "WARM" from COLOR TEMPERATURE in SERVICE MENU
- 2) Repeat adjustment as same step of 2) to 5) till White Balance is as same level as good monitor.
- 11) Change "WHITE BALANCE" from "ON" to "OFF "in SERVICE MENU.

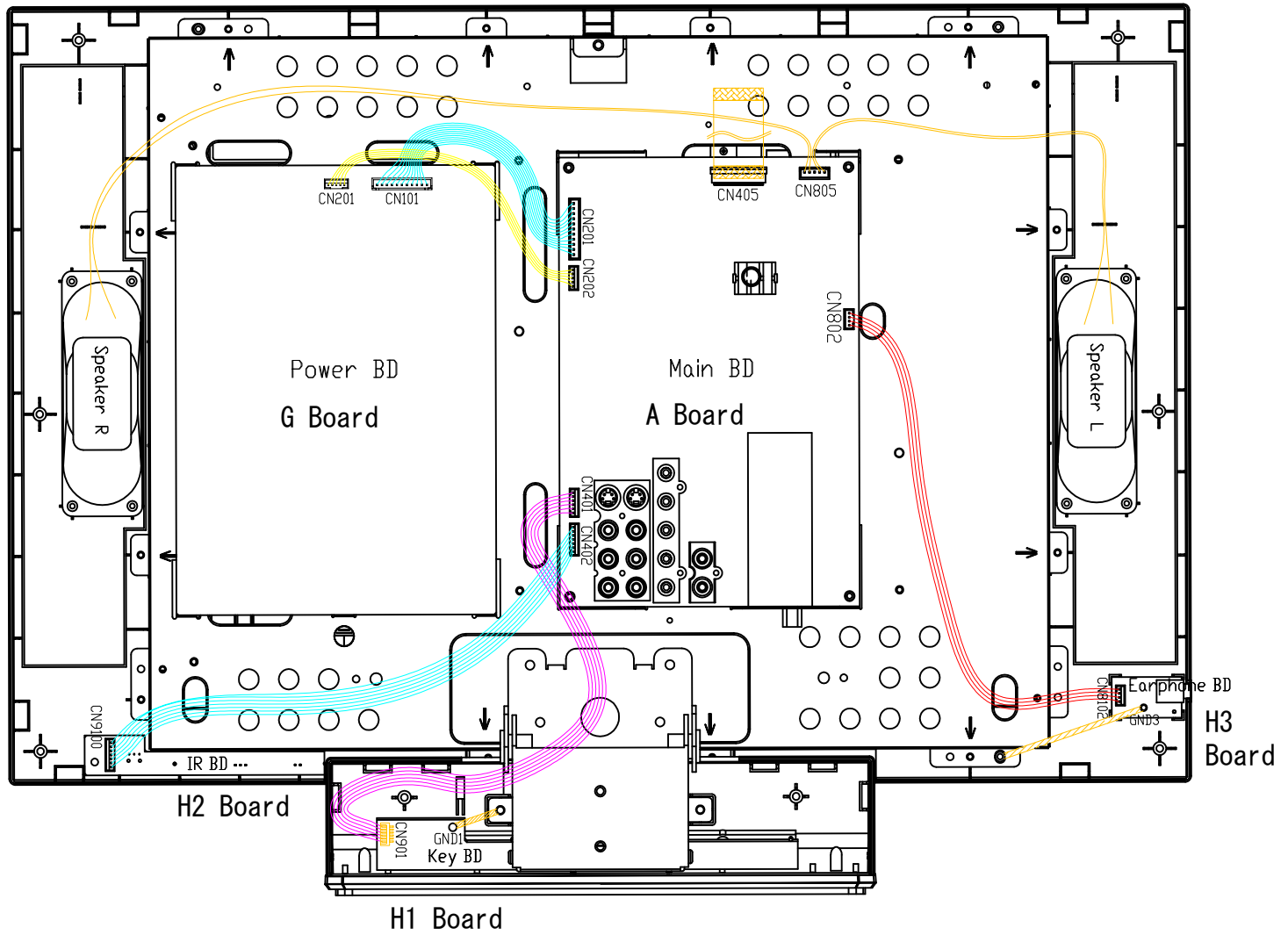
3.5. Average Value of W/B

	Red Gain	Green Gain	Blue Gain	Red Offset	Green Offset	Blue Offset
COOL	232	232	248	126	125	126
NEUTRAL	255	255	255	124	123	124
WARM	255	255	250	125	124	125

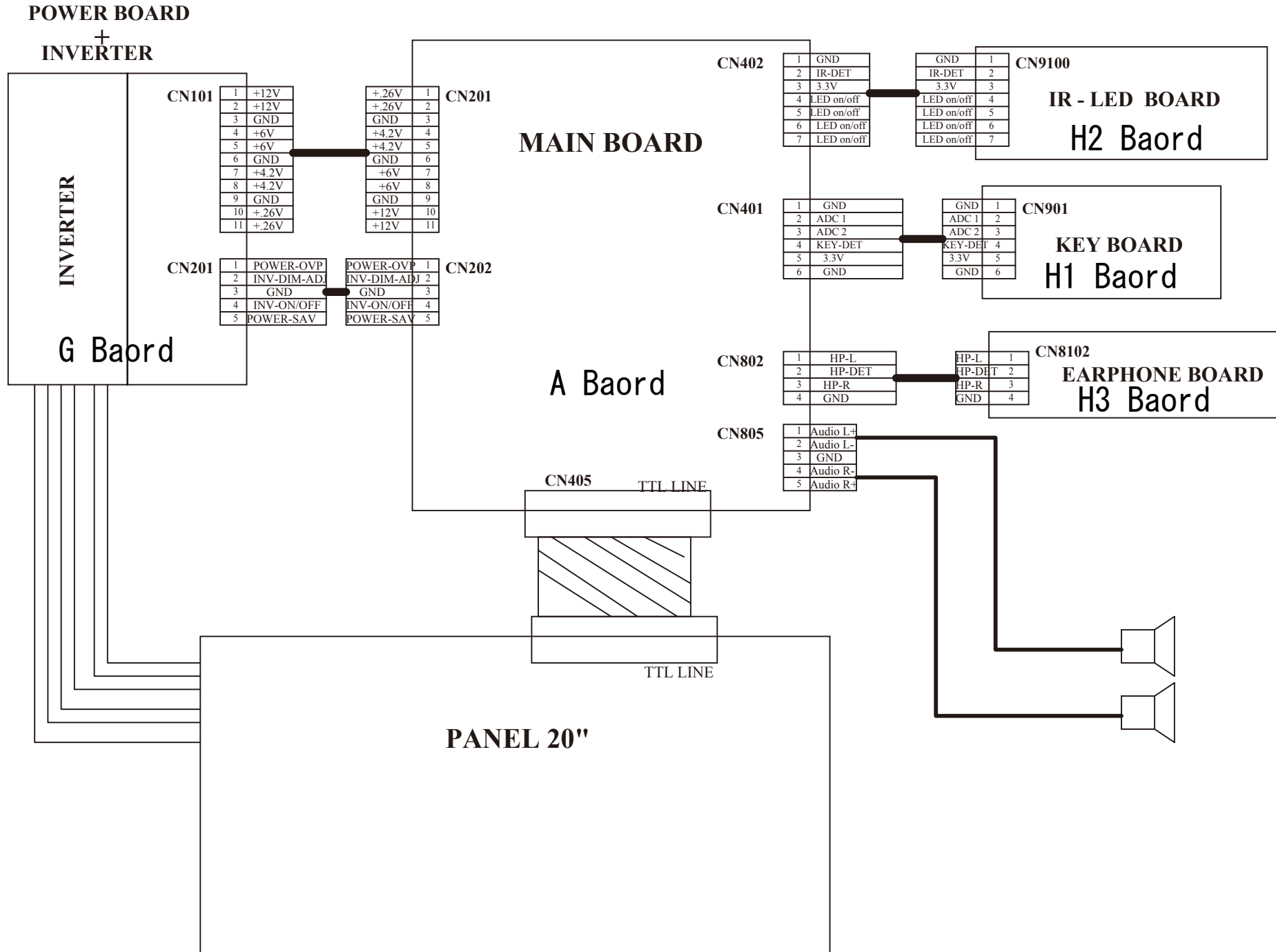
Section 4: Diagrams

4. Diagrams

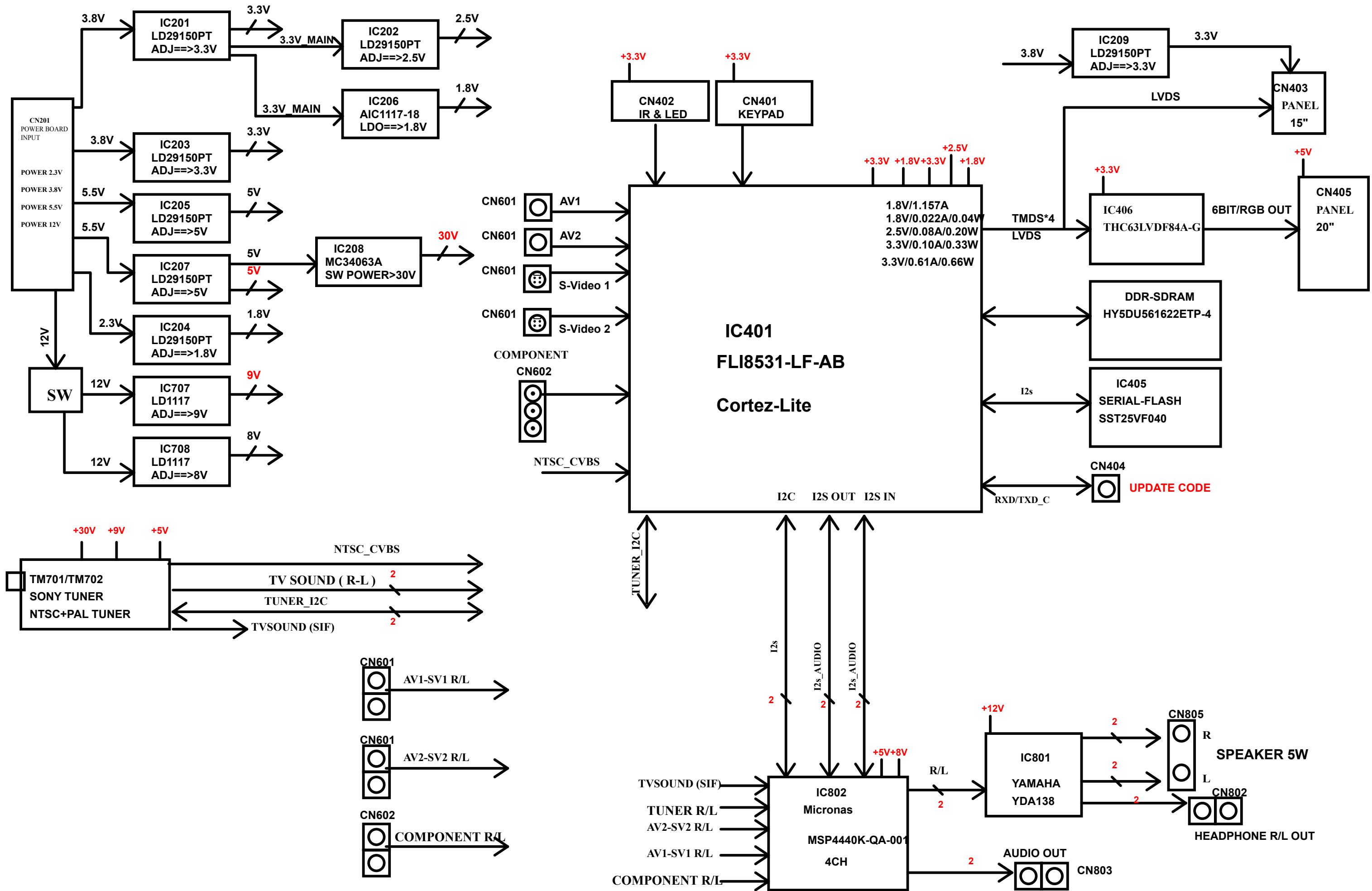
4-1. Board LOCATION / WIRING



4-2. Fram Diagram

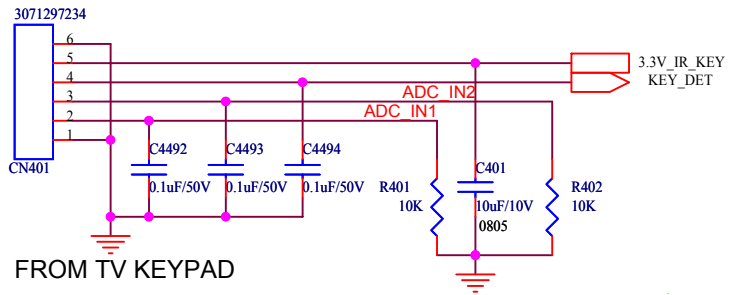


4-3. Block Diagram

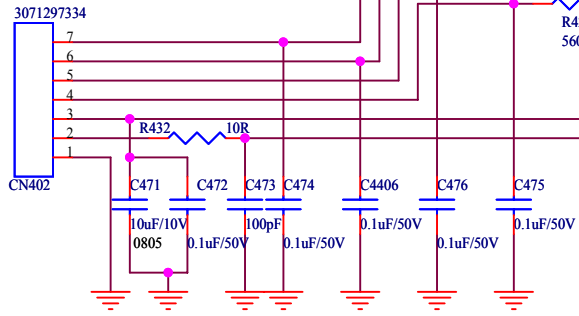
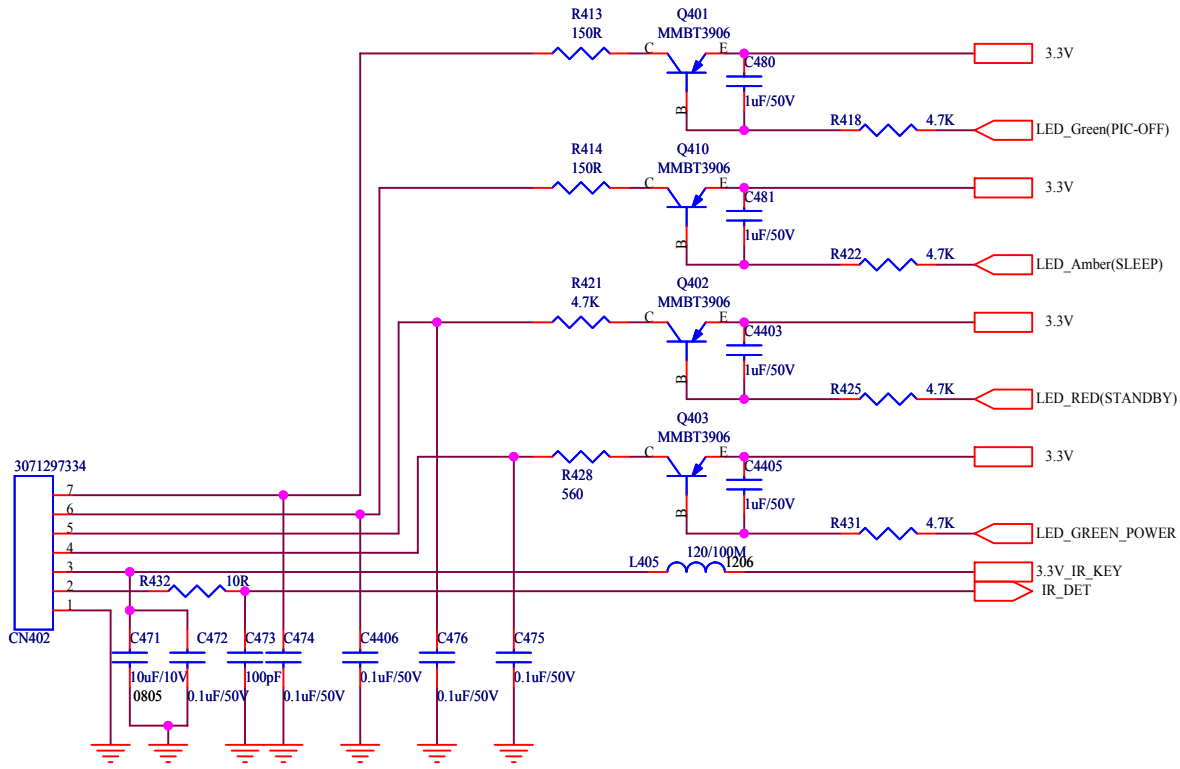


4-4 Schematic
Mounted PWB A Board (Main Board) (1/9)

KeyPad connector

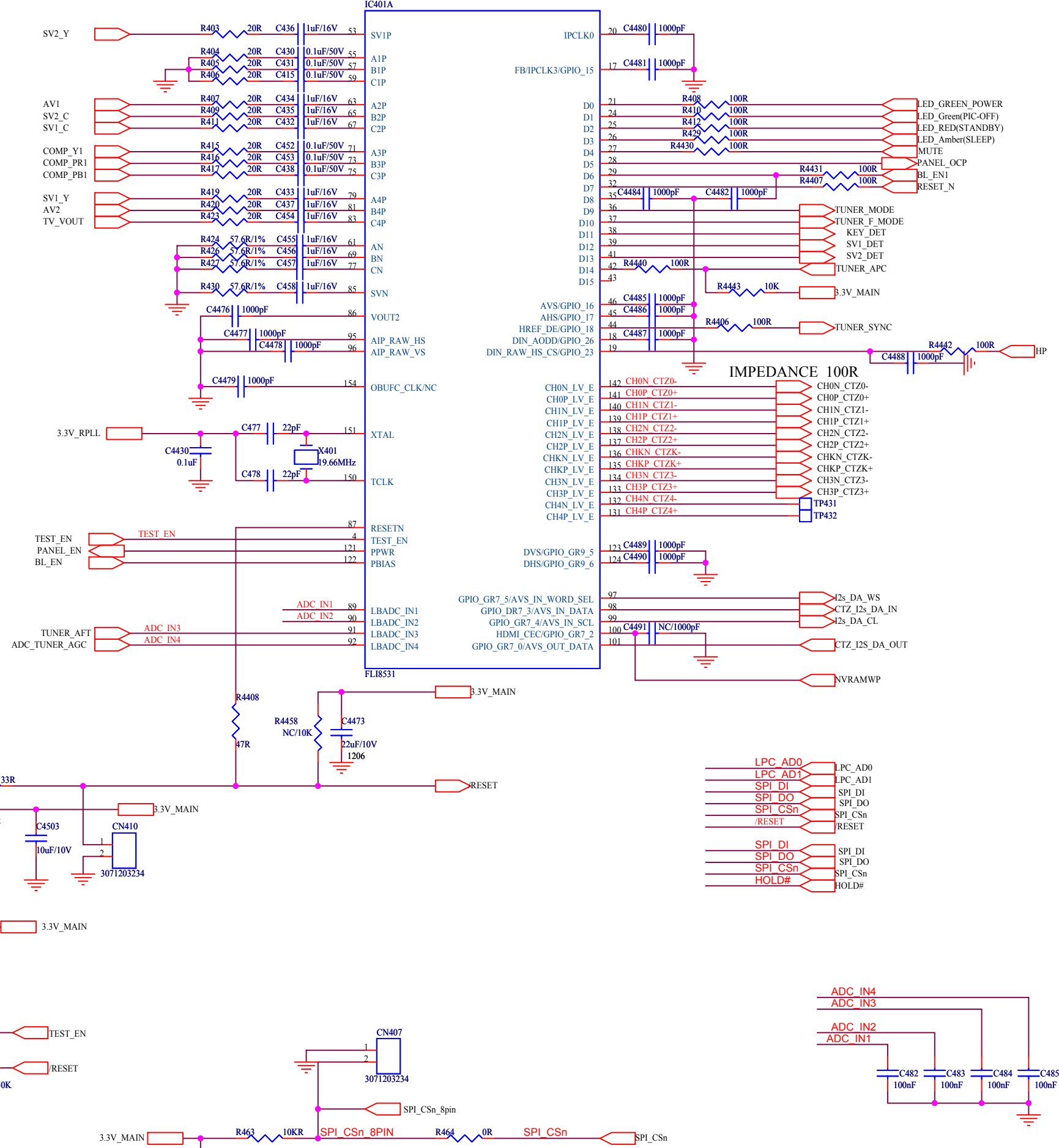
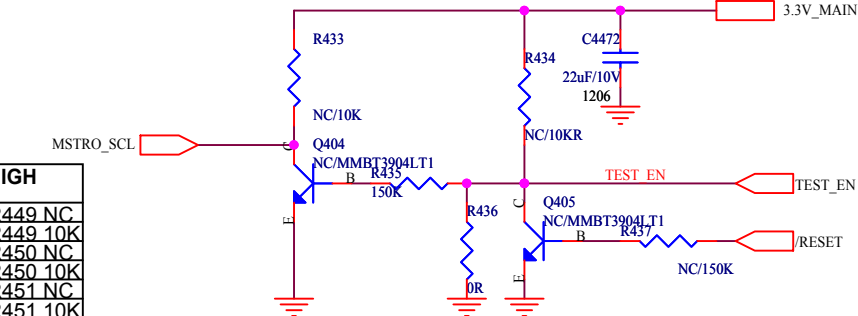
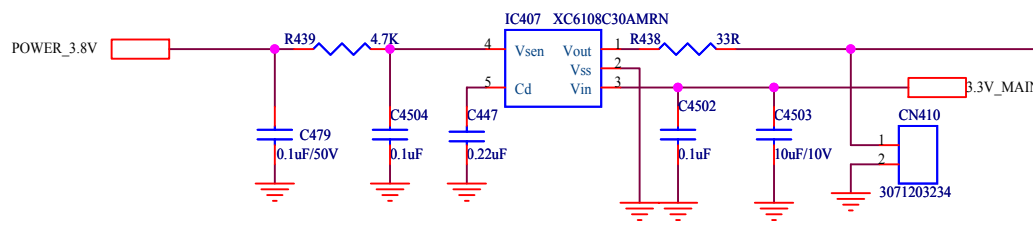


FROM TV KEYPAD

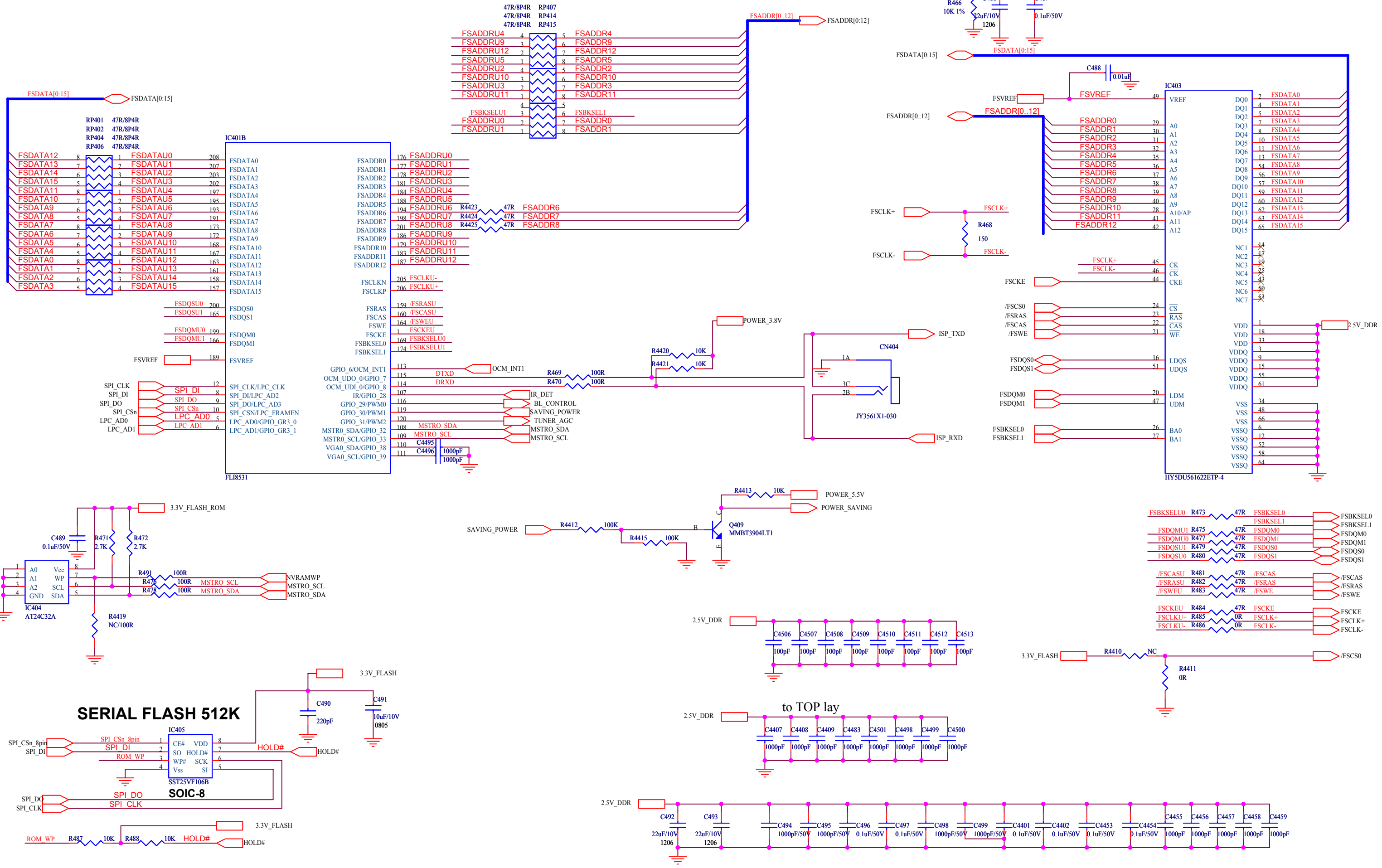


BOOTSTRAP

	LOW	HIGH
SPI(Flash)	R455 10K	R449 NC
LPC(Flash)	R455 NC	R449 10K
ATE OFF	R456 10K	R450 NC
ATE ON	R456 NC	R450 10K
OCM24	R457 10K	R451 NC
OCM20	R457 NC	R451 10K
DEBUG OFF	R458 10K	R452 NC
DEBUG ON	R458 NC	R452 10K
JTAG DIS	R459 10K	R453 NC
JTAG EN	R459 NC	R453 10K
OSC	R460 NC	R454 10K
XTAL	R460 10K	R454 NC

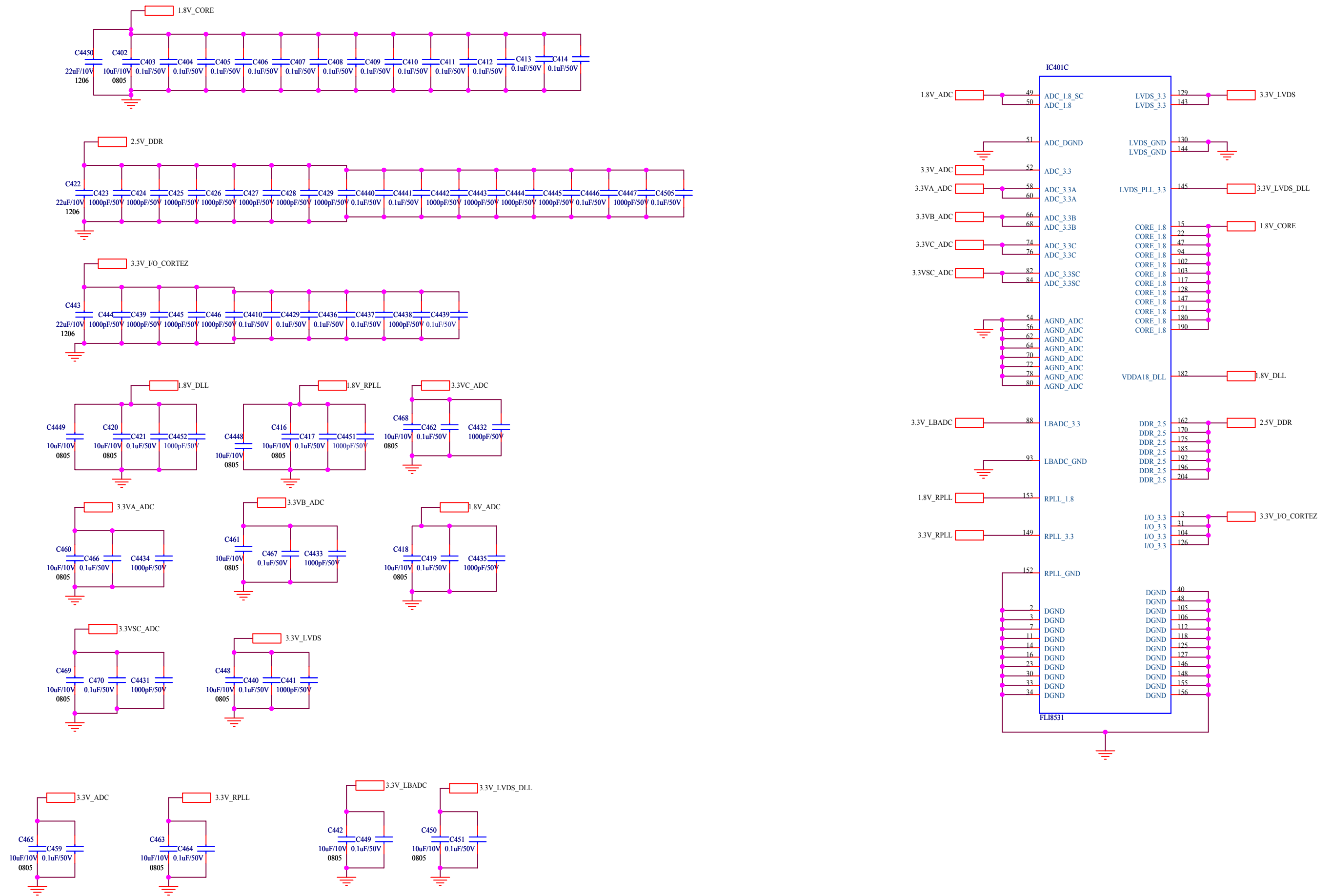


4-4 Schematic
 Mounted PWB A Board (Main Board) (2/9)



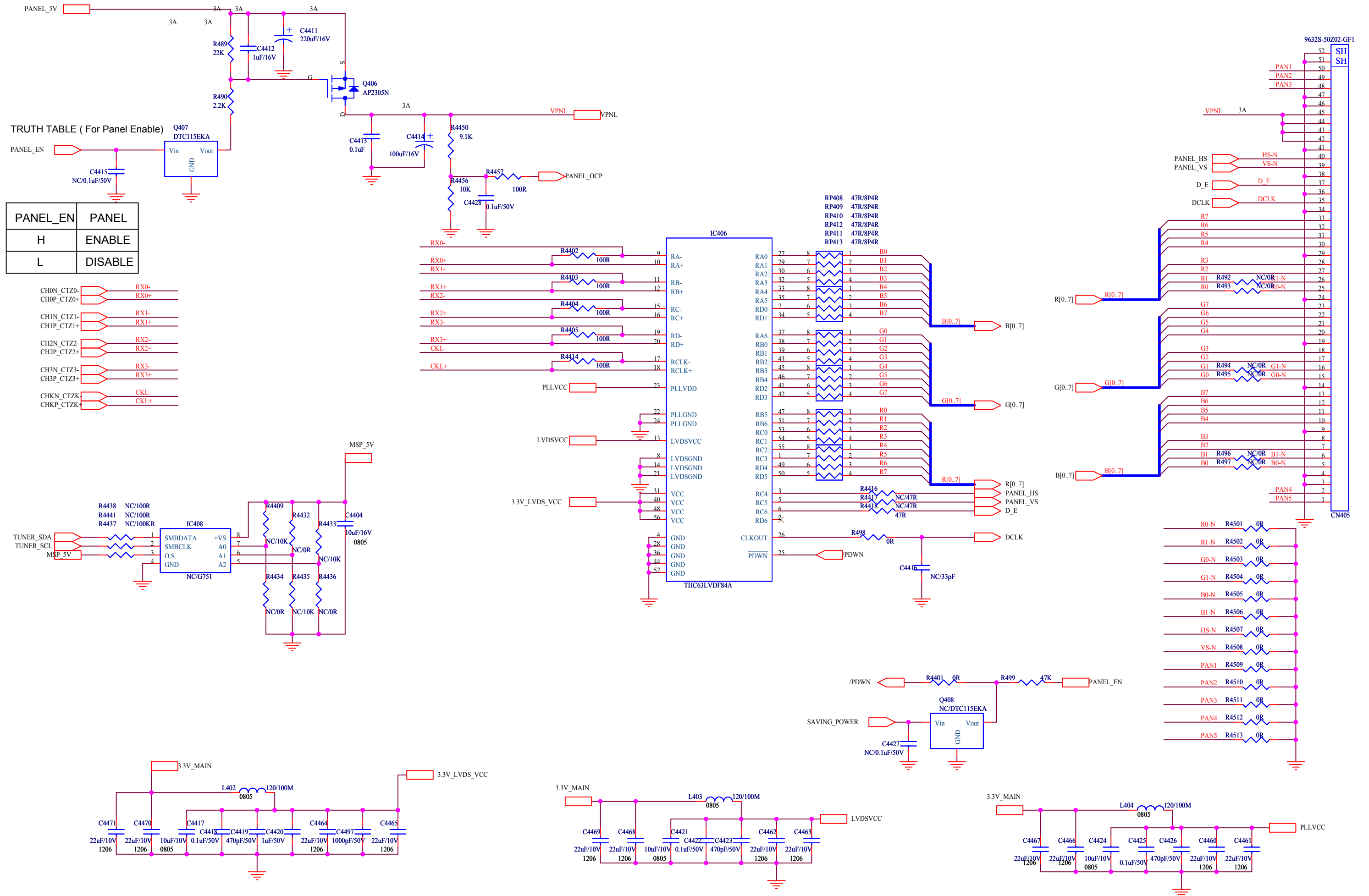
Mounted PWB A Board (Main Board) (2/9)
 Cortez Lite FL18531 Video Processor & Scaler (IC401B)
 AND DDR-SDRAM (IC403), Serial-Flash (IC405) KLV-20G300A

4-4 Schematic
 Mounted PWB A Board (Main Board) (3/9)



Mounted PWB A Board (Main Board) (3/9)
 Cortez Lite FLI8531 Video Processor & Scaler (IC401C)

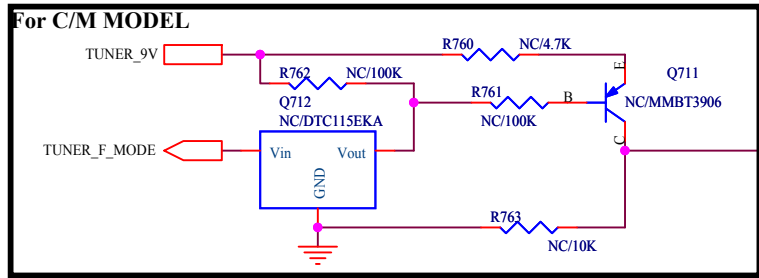
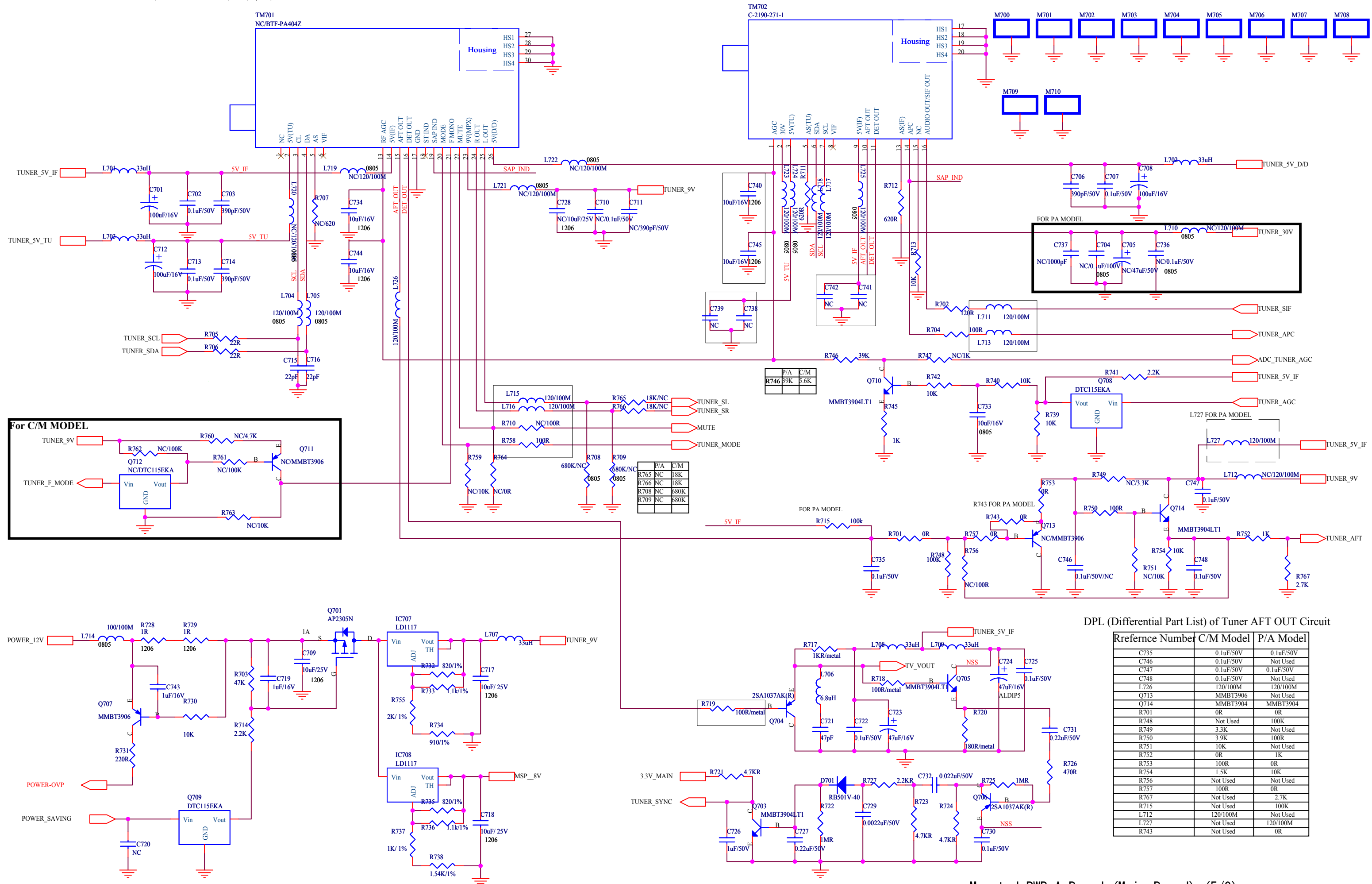
4-4 Schematic
 Mounted PWB A Board (Main Board) (4/9)



PANEL_EN	PANEL
H	ENABLE
L	DISABLE

Mounted PWB A Board (Main Board) (4/9)
 THC63LVDF84A 6 Bit RGB OUT to Panel via FCC (IC406)
 KLV-20G300A

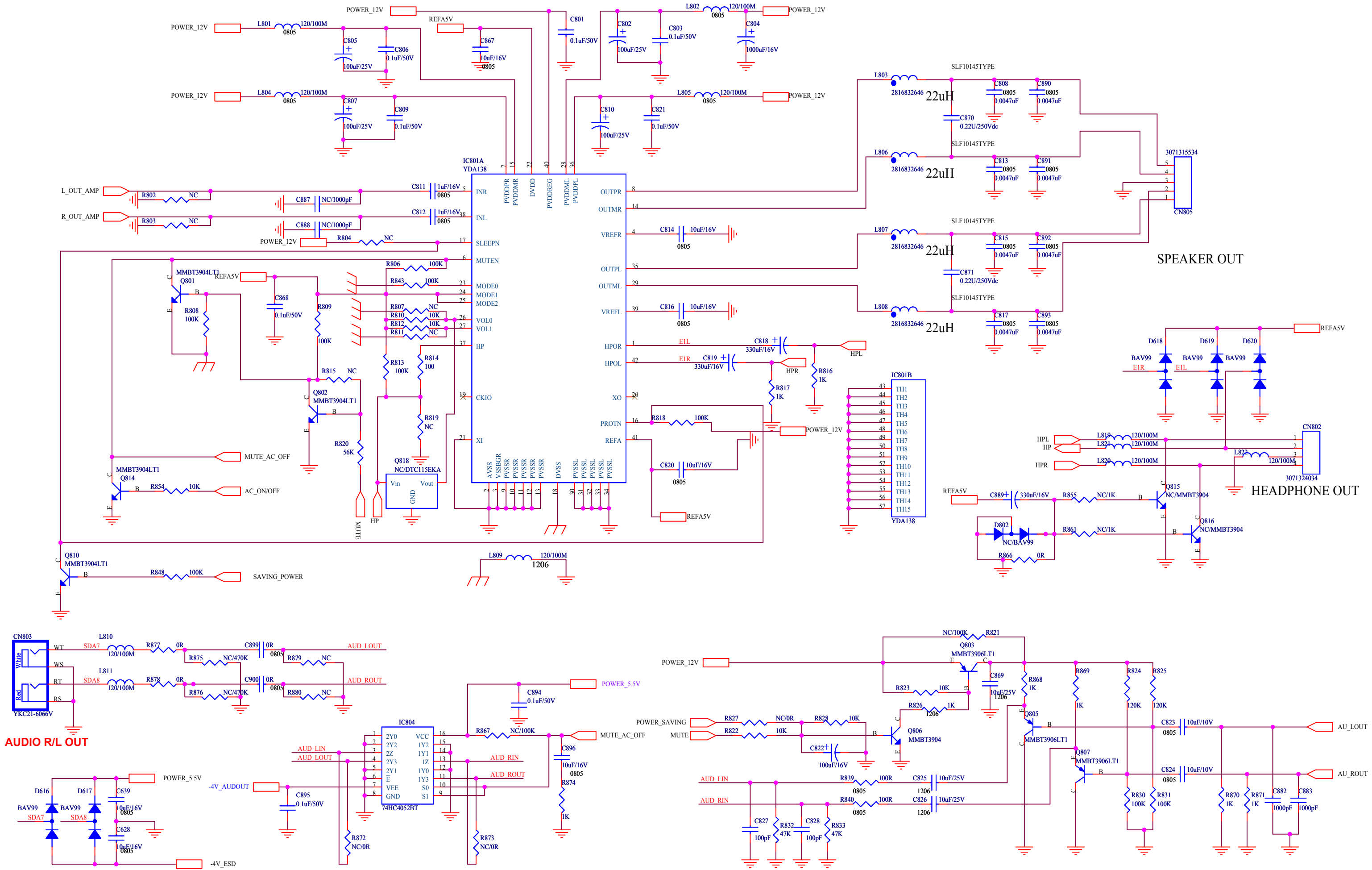
4-4 Schematic
 Mounted PWB A Board (Main Board) (5/9)



DPL (Differential Part List) of Tuner AFT OUT Circuit

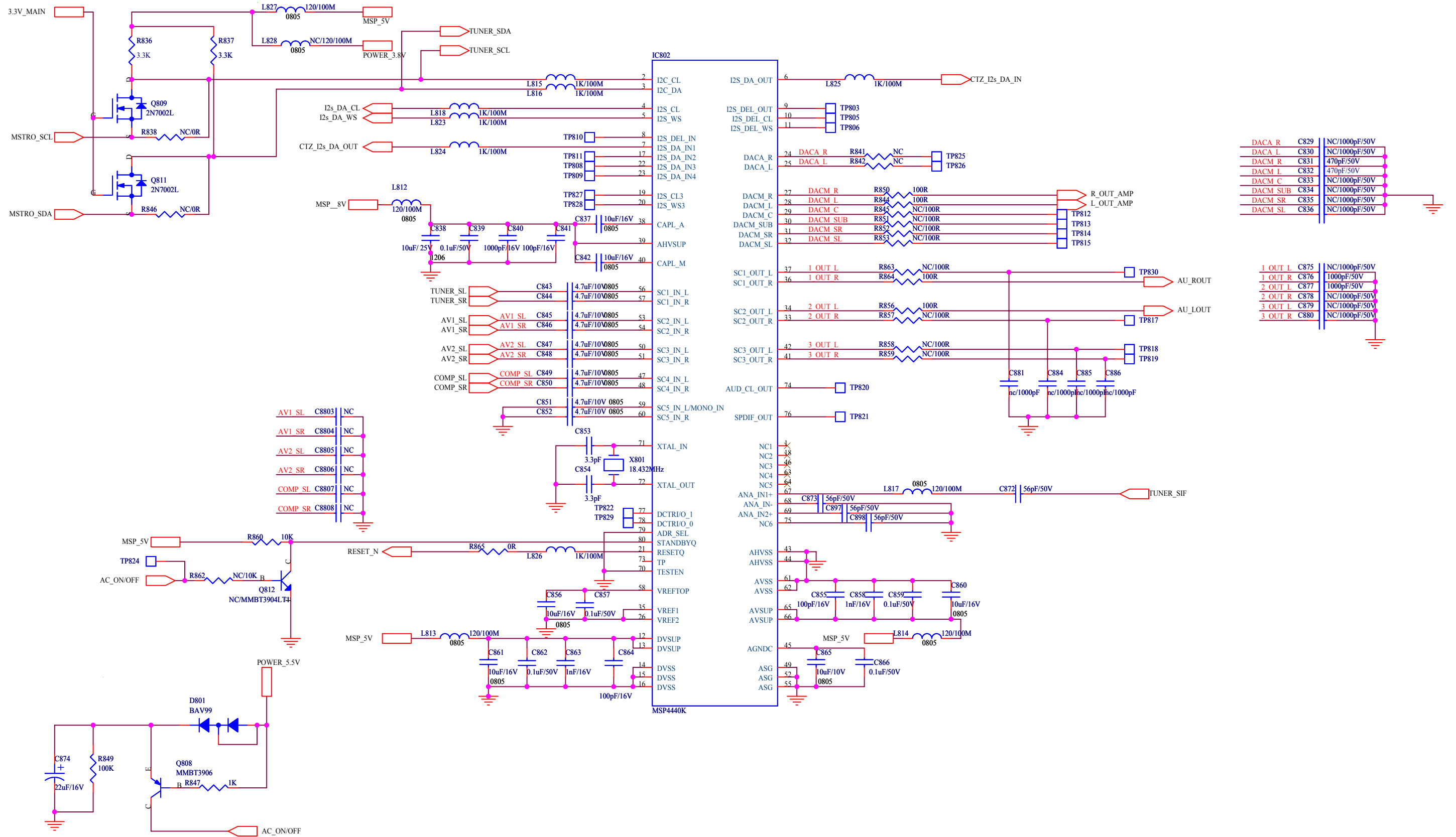
Reference Number	C/M Model	P/A Model
C735	0.1uF/50V	0.1uF/50V
C746	0.1uF/50V	Not Used
C747	0.1uF/50V	0.1uF/50V
C748	0.1uF/50V	Not Used
L726	120/100M	120/100M
Q713	MMBT3906	Not Used
Q714	MMBT3904	MMBT3904
R701	0R	0R
R748	Not Used	100K
R749	3.3K	Not Used
R750	3.9K	100R
R751	10K	Not Used
R752	0R	1K
R753	100R	0R
R754	1.5K	10K
R756	Not Used	Not Used
R757	100R	0R
R767	Not Used	2.7K
R715	Not Used	100K
L712	120/100M	Not Used
L727	Not Used	120/100M
R743	Not Used	0R

4-4 Schematic
 Mounted PWB A Board (Main Board) (6/9)

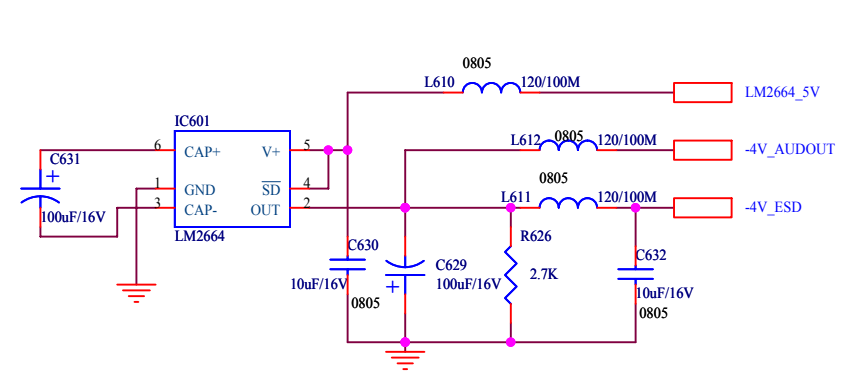
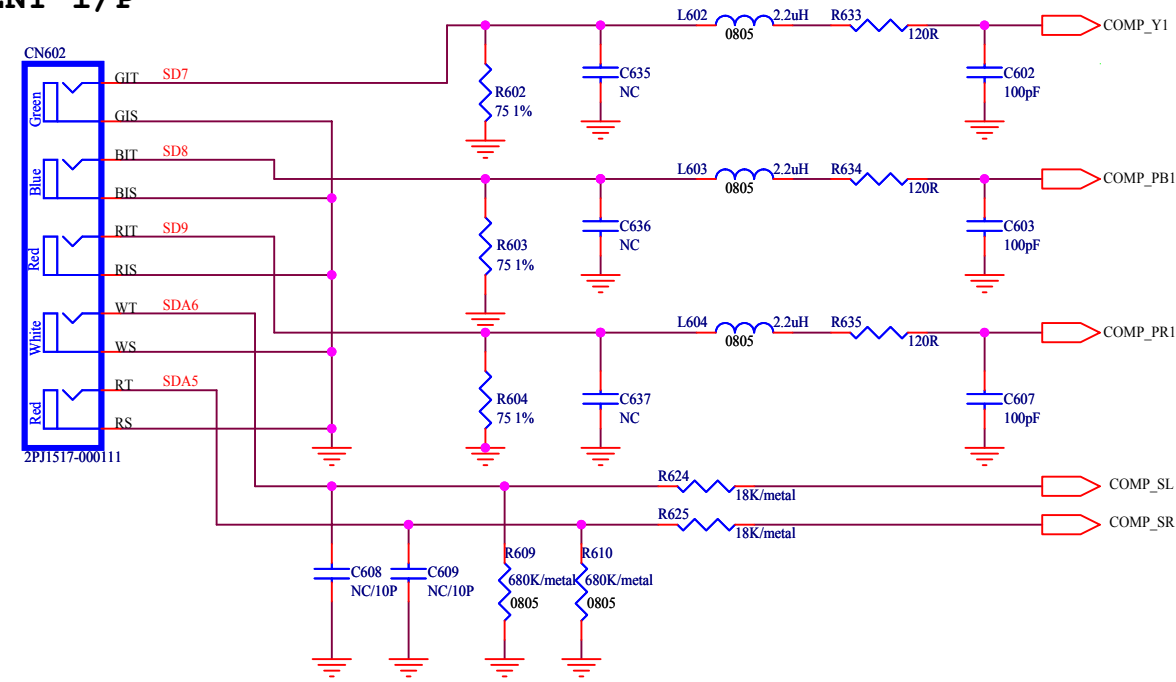
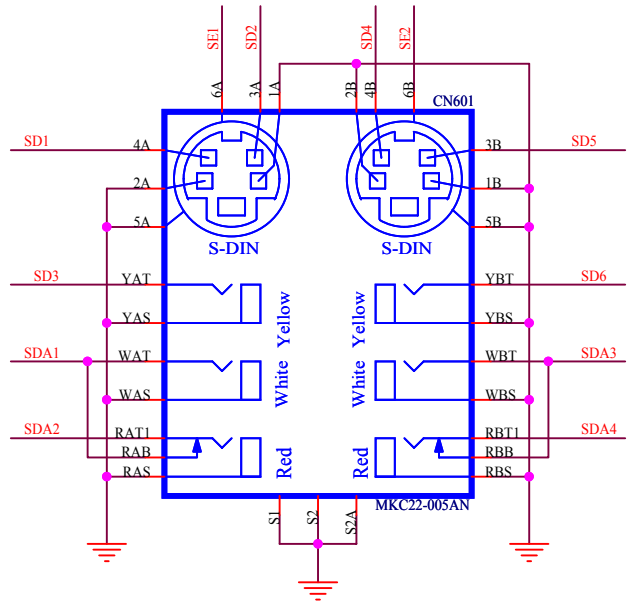


Mounted PWB A Board (Main Board) (6/9)
 YAMAHA (IC801) TDA138 AUDIO AMP

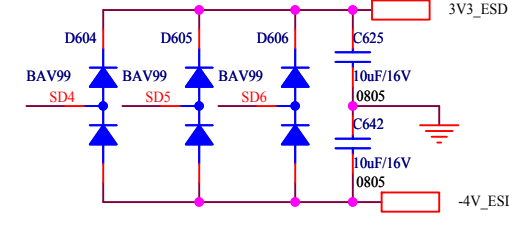
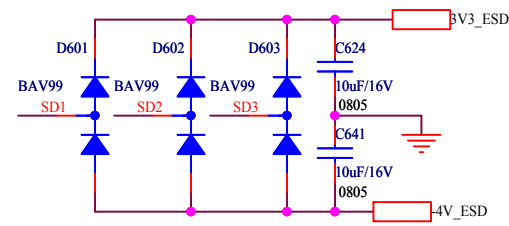
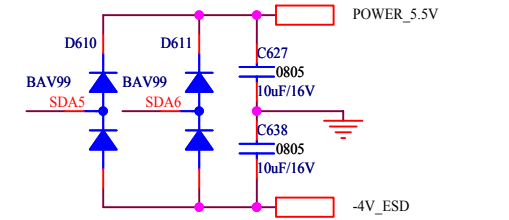
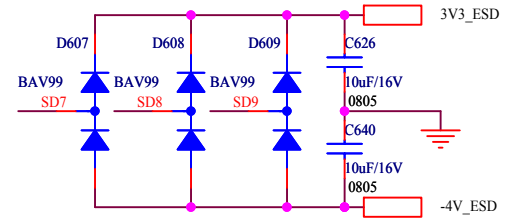
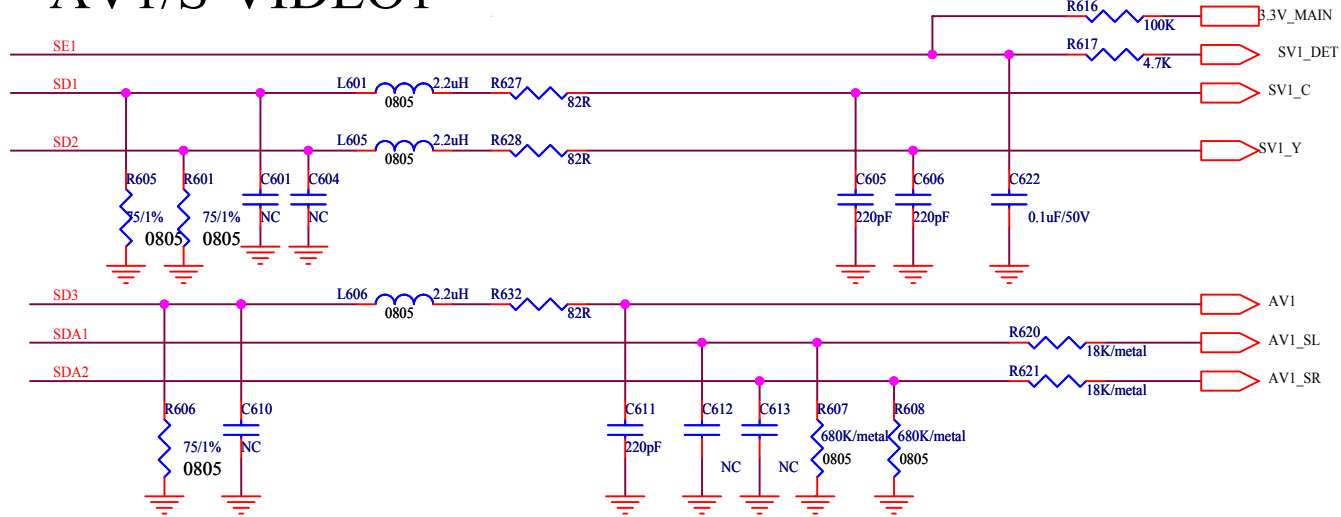
4-4 Schematic
 Mounted PWB A Board (Main Board) (7/9)



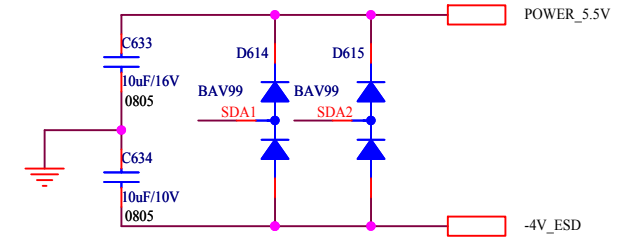
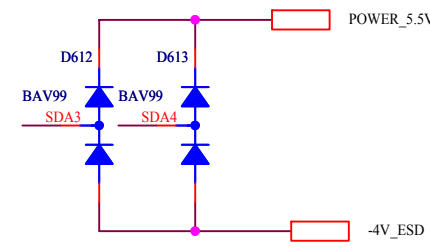
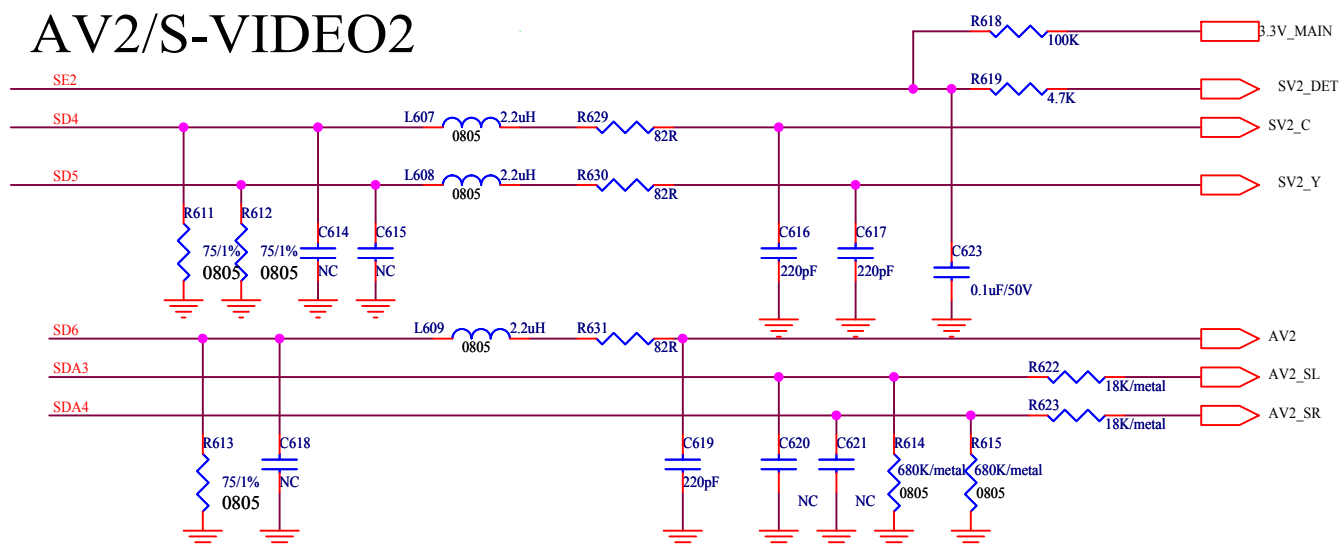
COMPONENT I/P



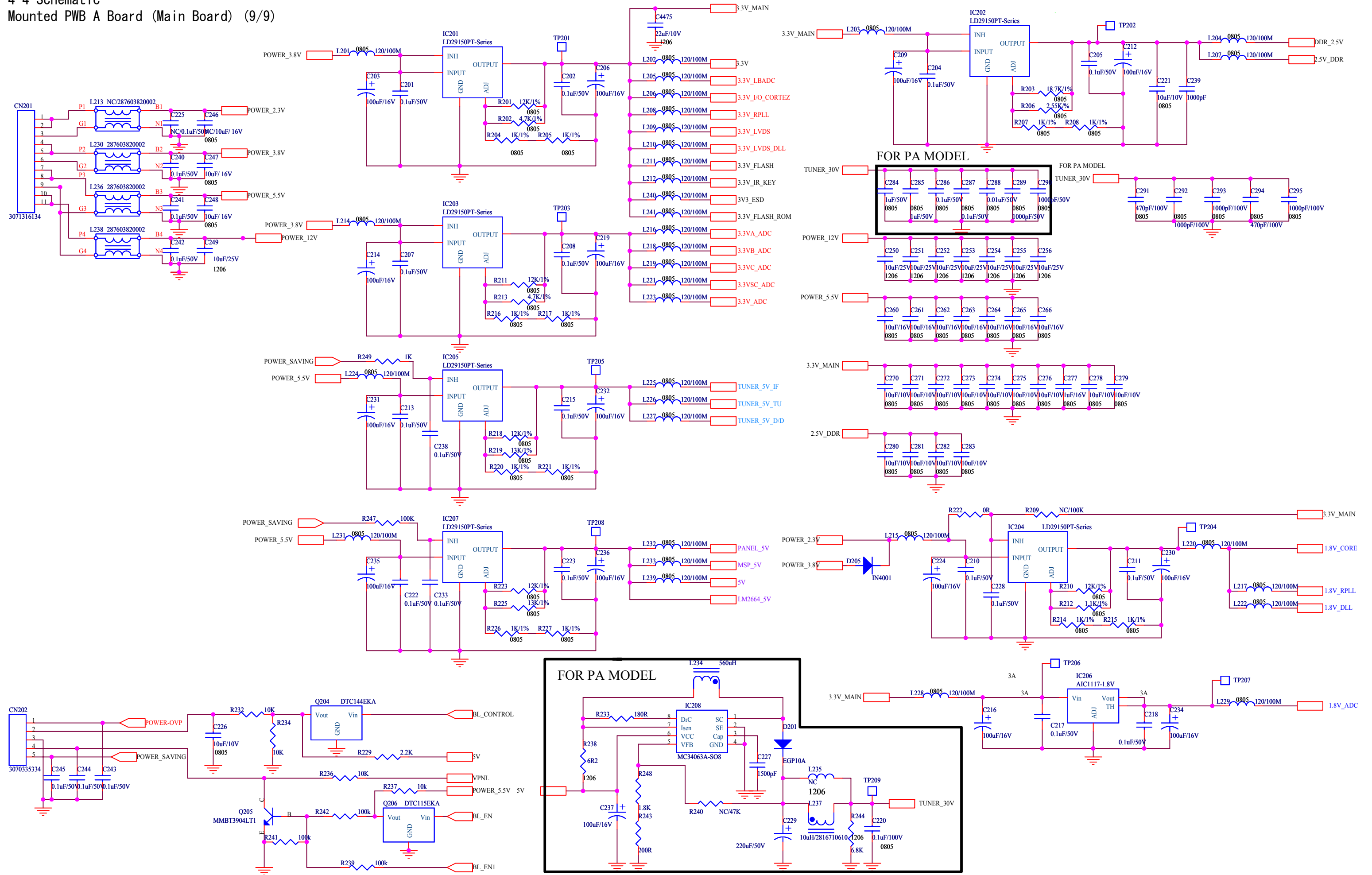
AV1/S-VIDEO1



AV2/S-VIDEO2



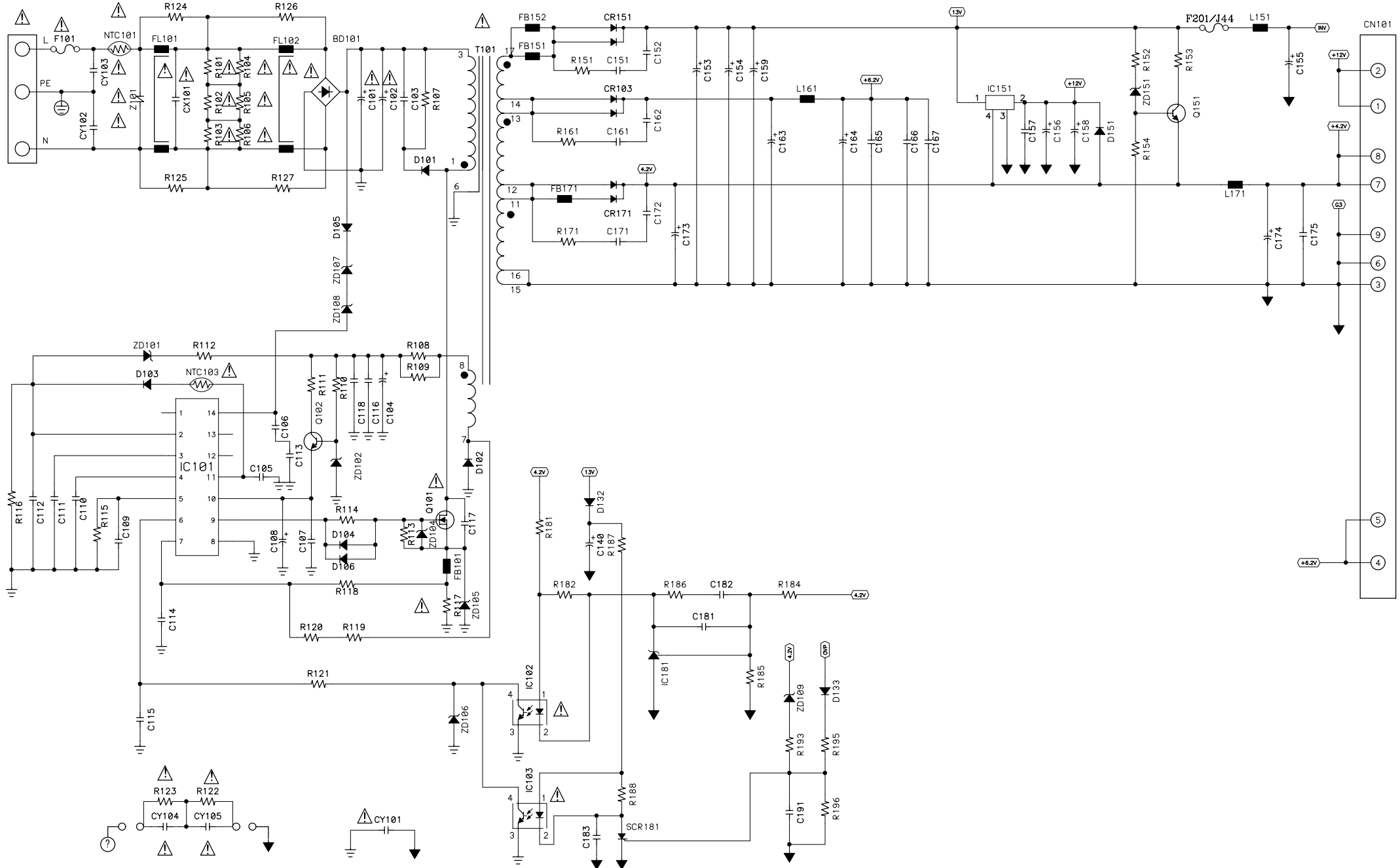
4-4 Schematic
Mounted PWB A Board (Main Board) (9/9)



Mounted PWB A Board (Main Board) (9/9)
Power circuit and SW

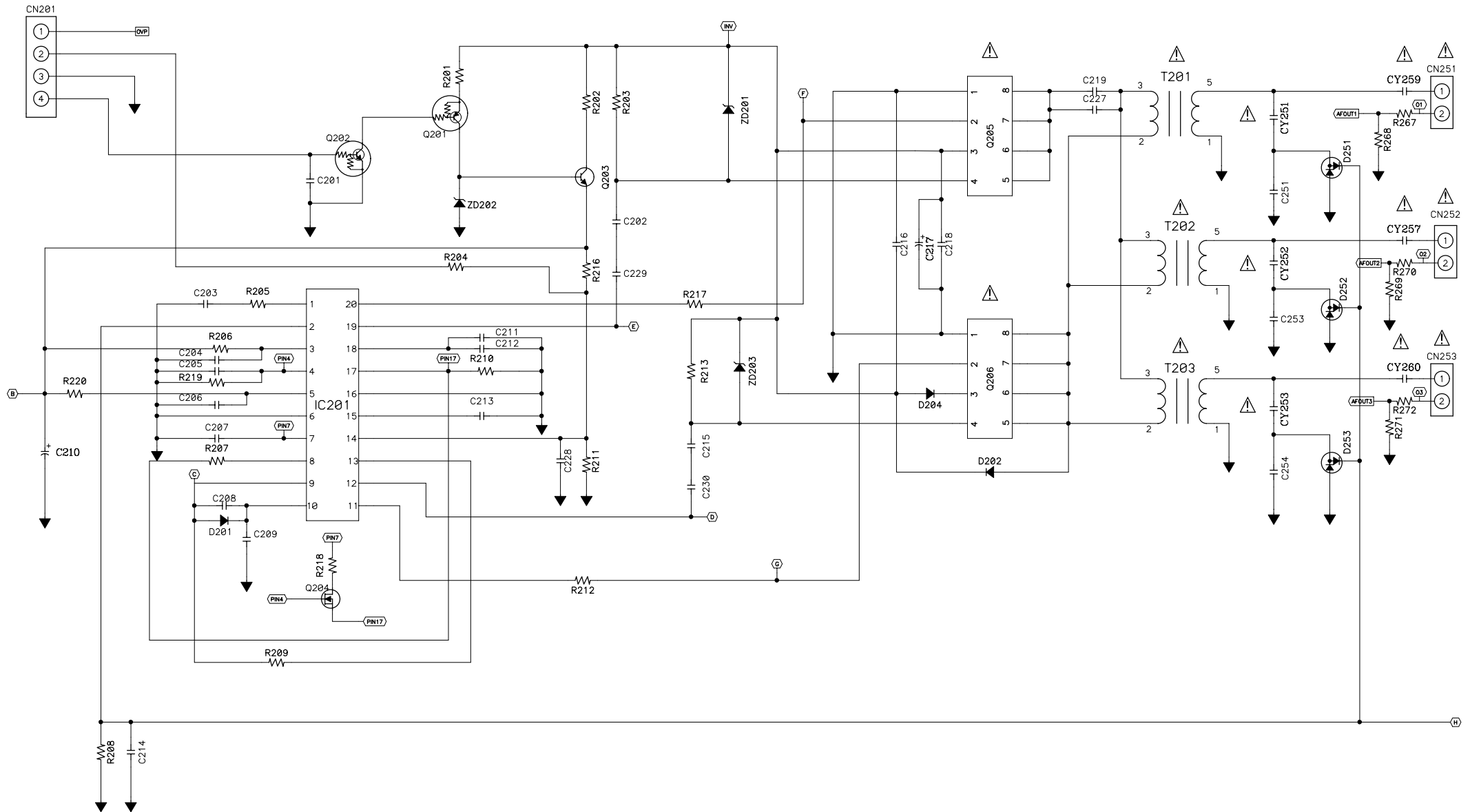
4-4 Schematic

Mounted PWB G Board (Power Inverter Board) (1/3)



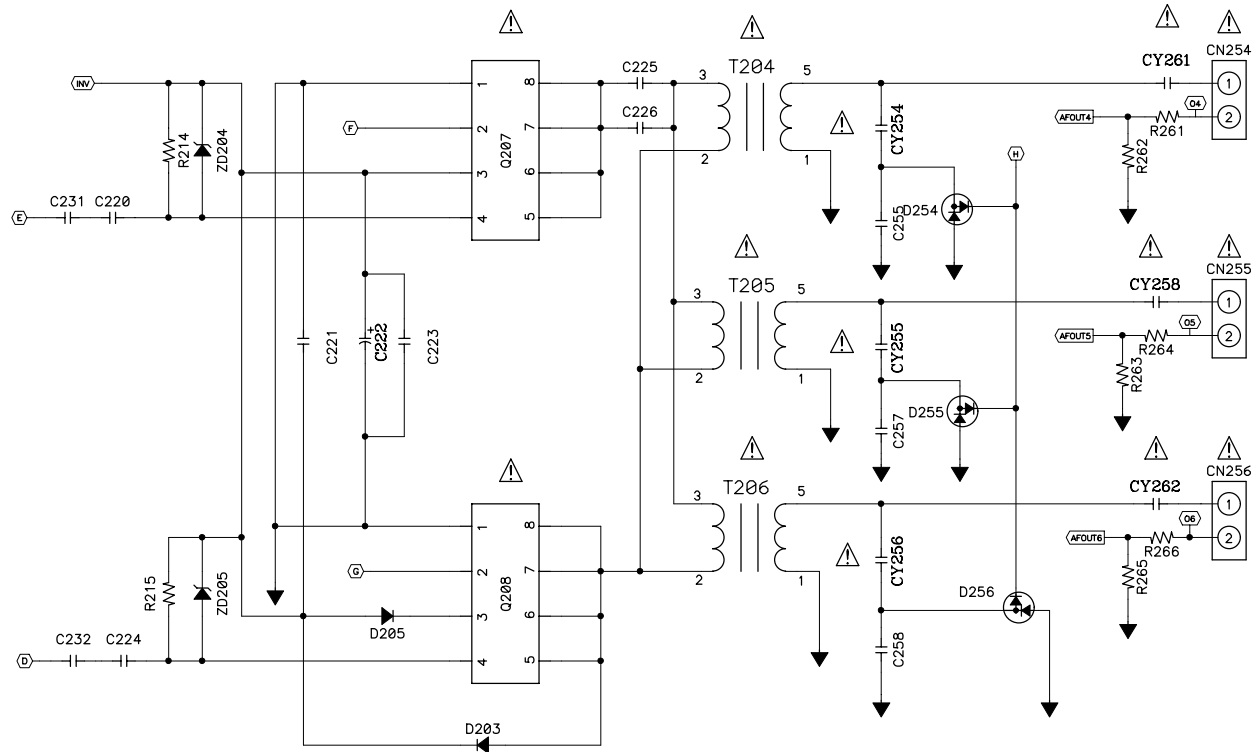
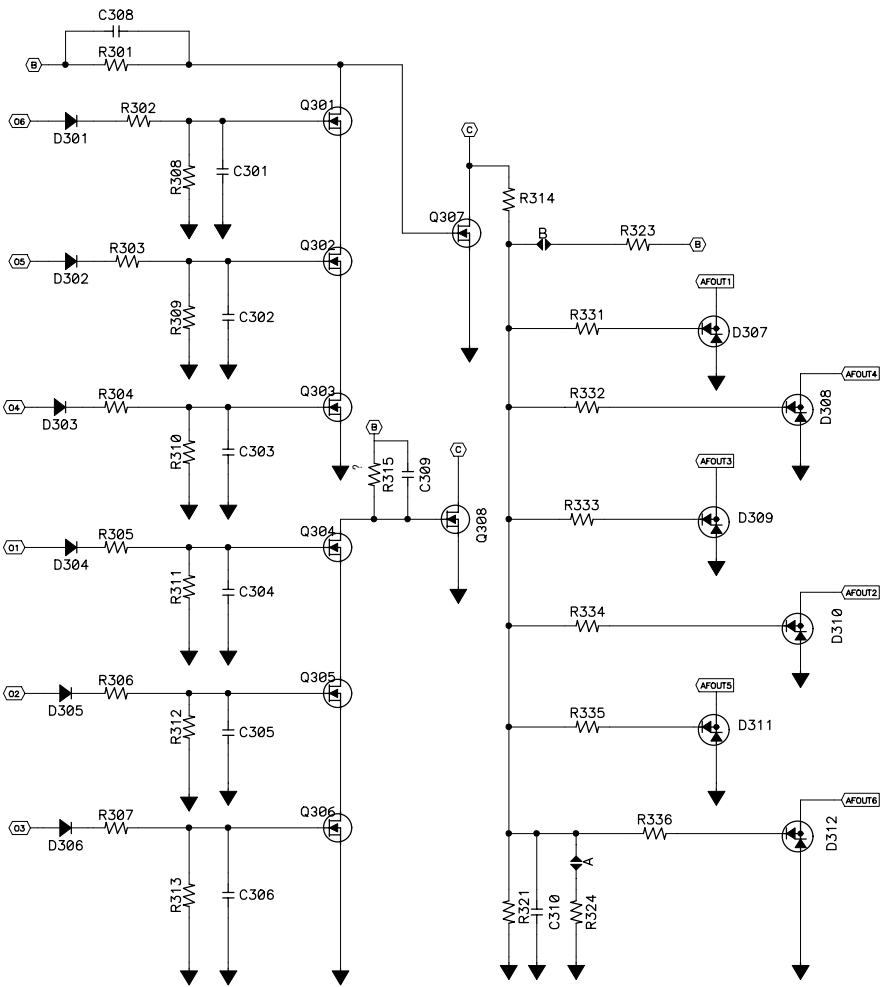
4-4 Schematic

Mounted PWB G Board (Power Inverter Board) (2/3)



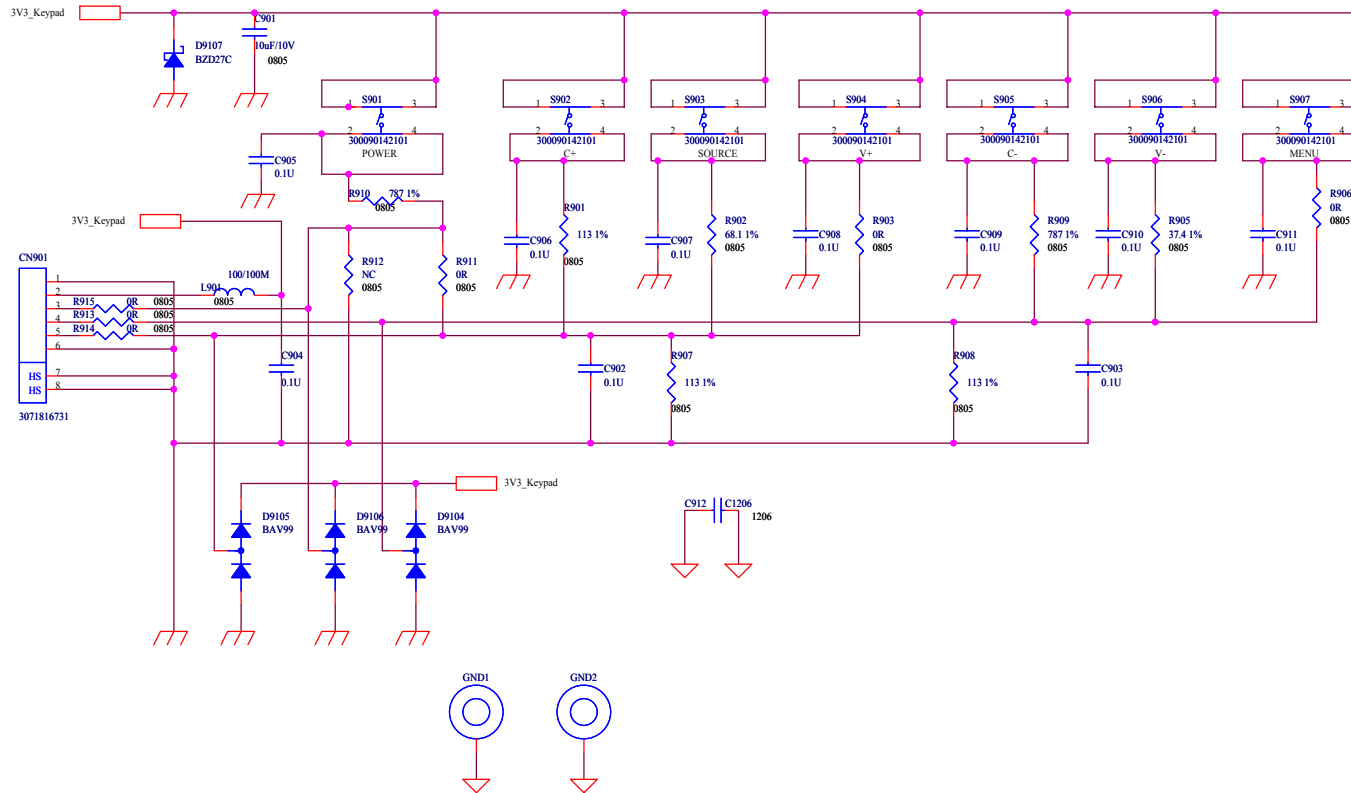
4-4 Schematic

Mounted PWB G Board (Power Inverter Board) (3/3)

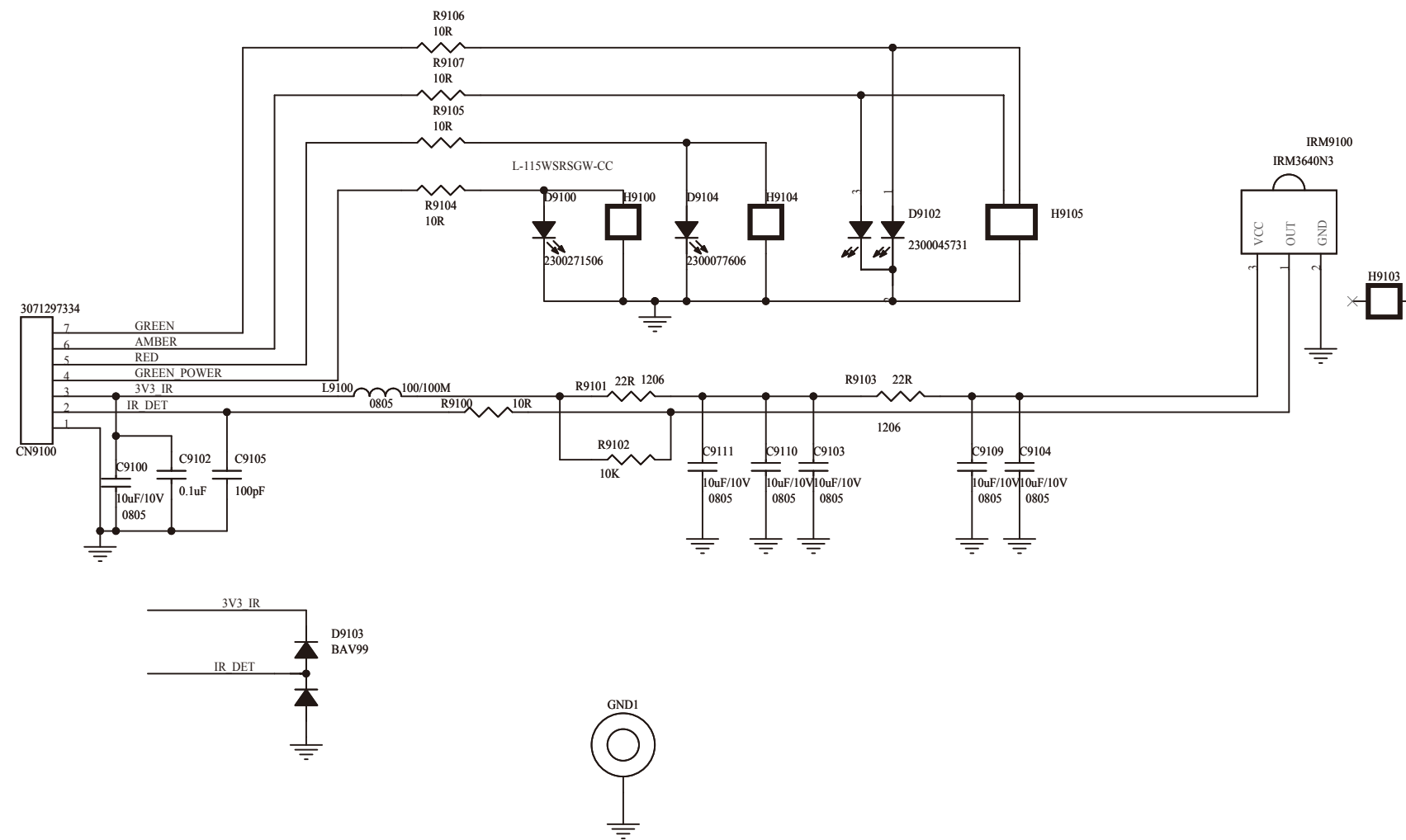


4-4 Schematic

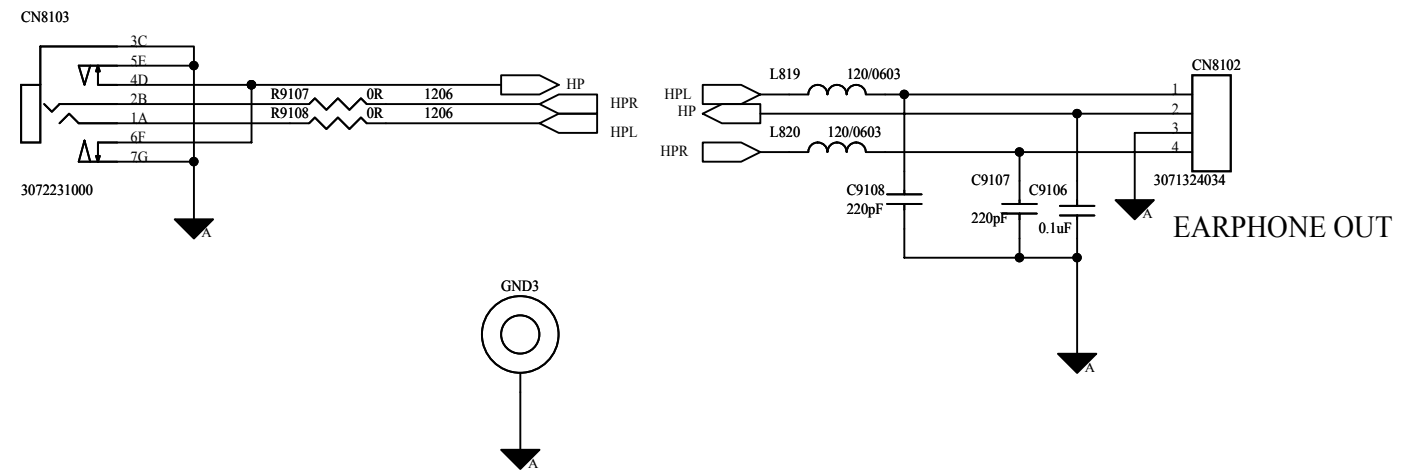
Mounted PWB H1 Board (Key Board)



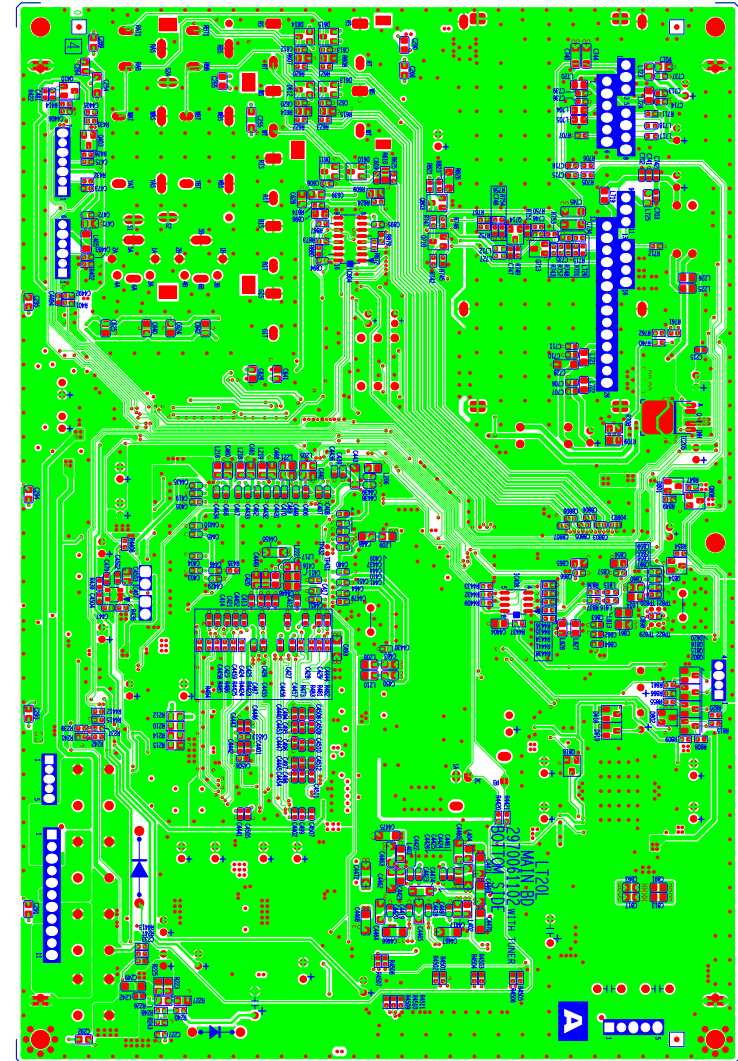
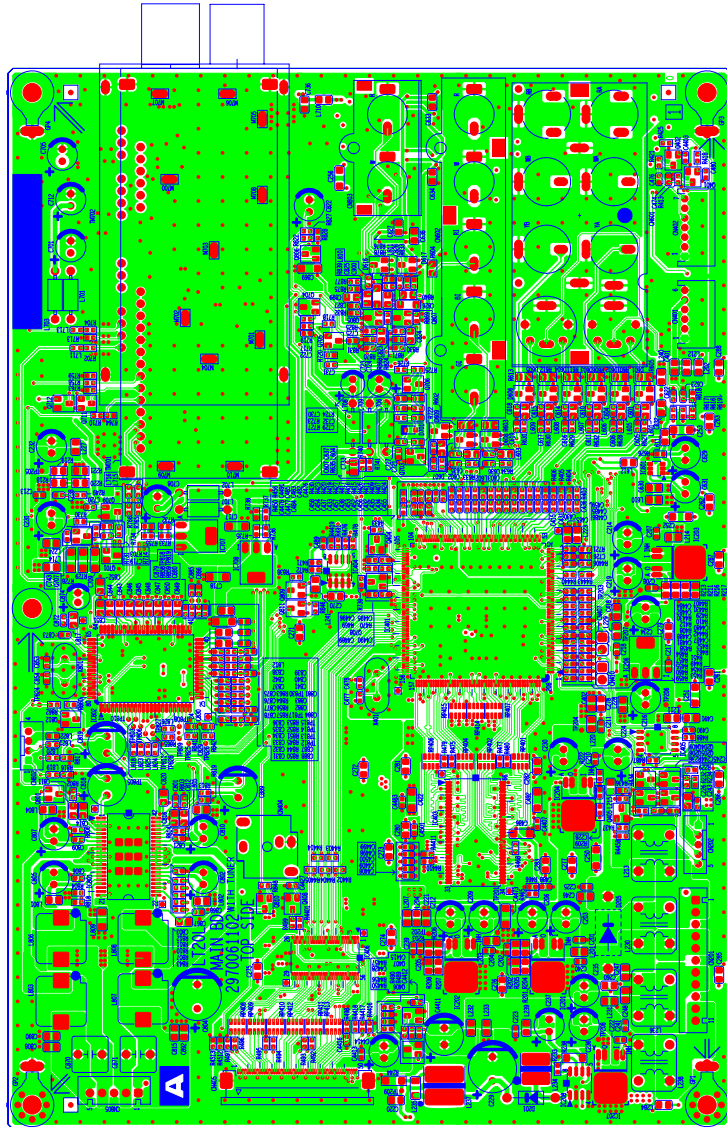
4-4 Schematic Mounted PWB H2 Board (IR LED Board)



4-4 Schematic Mounted PWB H3 Board (EARPHONE Board)

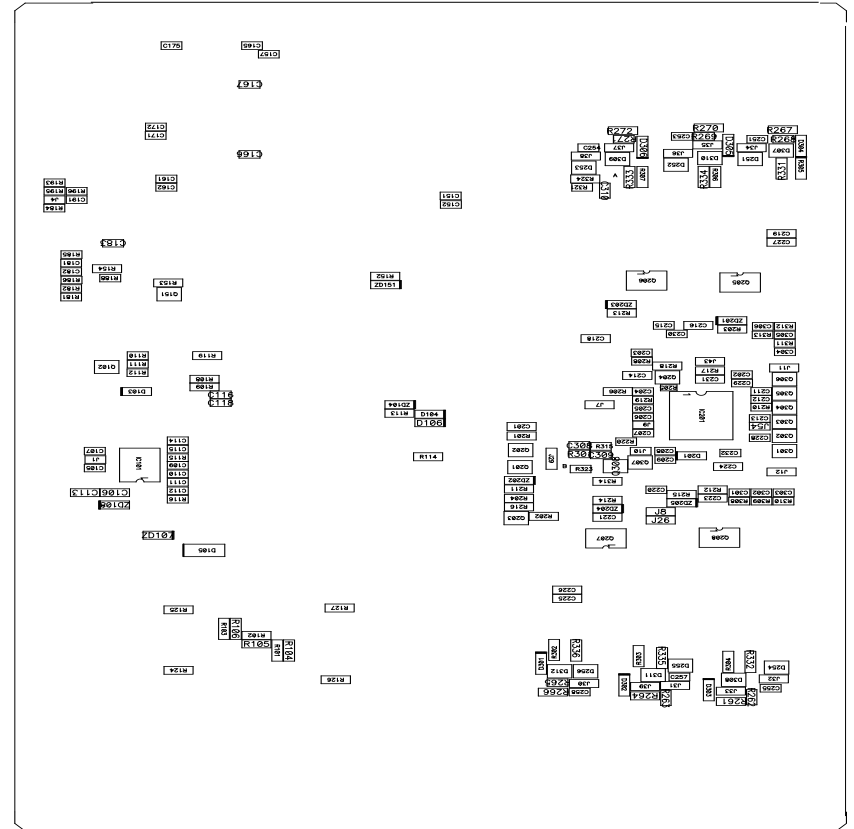
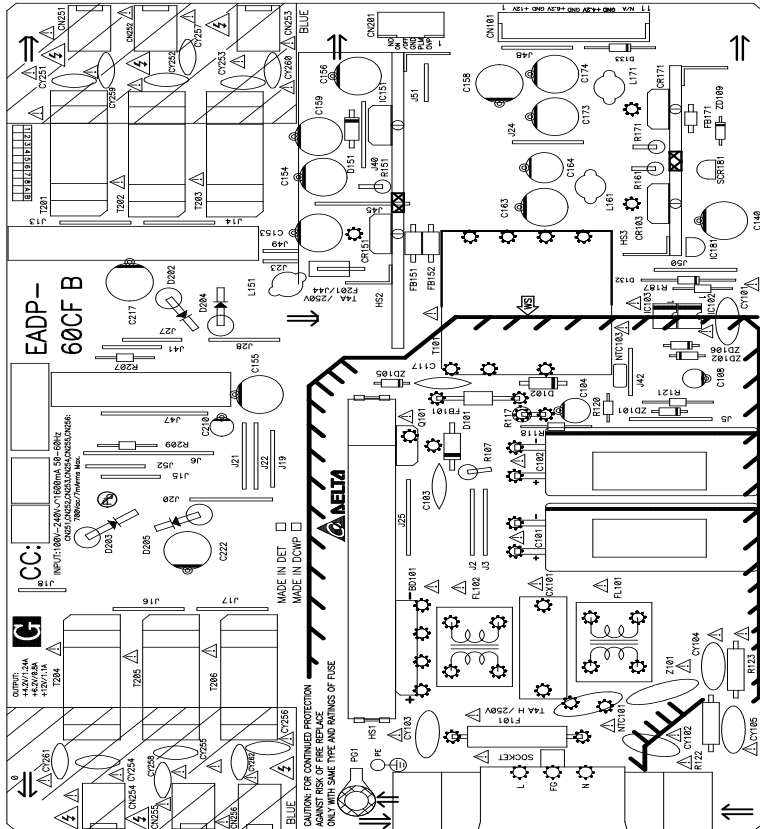


4-5. PCB LAYOUT
A Board (Main Board)



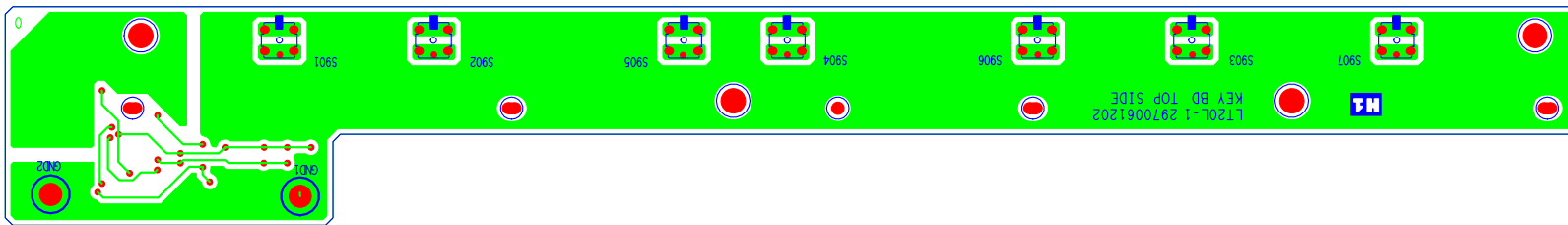
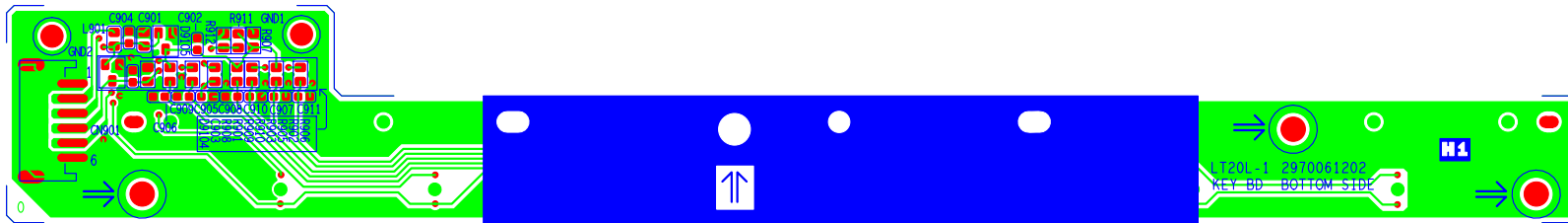
4-5. PCB LAYOUT

G Board (Power Inverter Board)

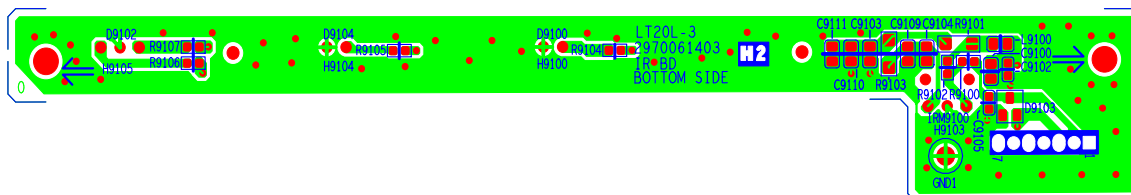
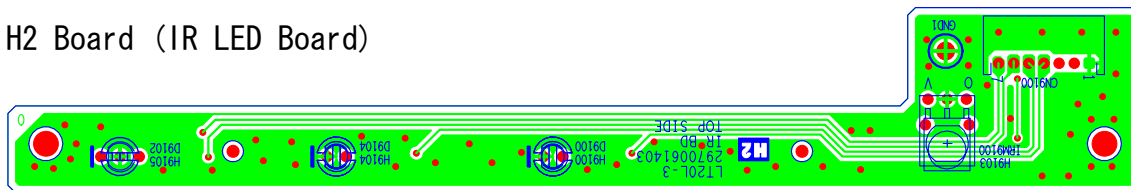


4-5. PCB Layout

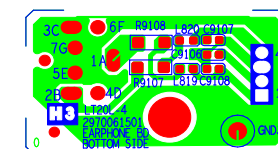
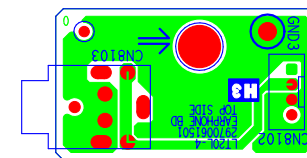
H1 Board (Key Board)



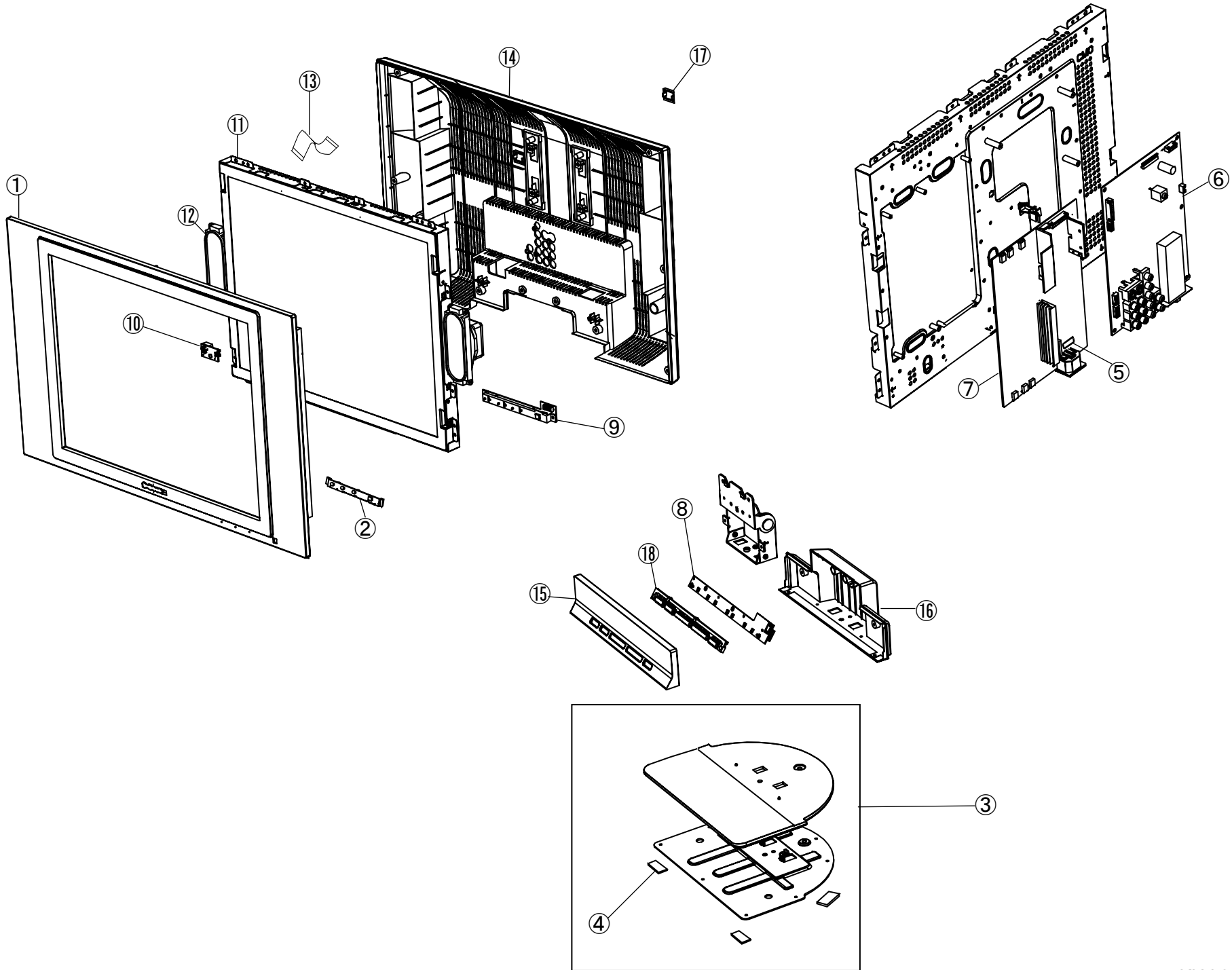
H2 Board (IR LED Board)



H3 Board (Earphone Board)



Section 5: Exploded View & Parts List



No.	SONY P/N	WISTRON P/N	DESCRIPTION
1	X-217-869-31	60.3XA02.001	BEZEL ASS'Y (Bezel, Front Mask, Guide LED, Emblem Sony badge)
2	3-196-535-01	42.3XA06.001	GUIDE, LED
3	X-217-869-41	60.3XA01.001	STAND ASS'Y
4	2-668-639-01	6K.3XAMS.001	FOOT, STAND
5	1-523-010-11	26.14001.A13	FUSE, TIME-LAG (4A/250V)
6	1-789-757-11	6M.3XAMB.001	MOUNTED PWB A (MAIN)
7	1-789-758-11	56.04060.103	MOUNTED PWB G (POWER)
8	1-789-759-11	91.3XA10.004G	MOUNTED PWB H1 (KEY CONTROL)
9	1-789-760-11	91.3XA10.002G	MOUNTED PWB H2 (IR LED)
10	1-789-761-11	91.3XA10.003G	MOUNTED PWB H3 (EAR PHONE)
11	1-802-460-11	5052001101	DISPLAY PANEL, LIQUID CRYSTAL
12	1-826-669-11	6K.3XASP.001	SPEAKER (11X4CM)
13	1-910-037-08	3081501902	CONNECTOR ASSY FFC
14	3-196-531-01	6M.3XACS.001	COVER, REAR (Rear cover, Information label, Label terminal cover)
15	3-196-533-01	41.3XA02.001	COVER, NECK FRONT
16	3-196-534-01	42.3XA05.001	COVER, NECK REAR
17	3-196-536-01	42.3XA01.001	COVER, SOFTWARE
18	3-196-537-01	42.3XA04.001	FUNCTION KEY
19	1-480-255-11	5041815300	REMOTE COMMANDER (RM-YA007)
20	1-834-069-11	3090219367	POWER-SUPPLY CORD SET
21	3-197-988-11	49.3XA01.001	MANUAL,INSTRUCTION (English)
22	3-197-988-21	49.3XA02.001	MANUAL,INSTRUCTION (French)
23	3-197-988-31	49.3XA03.001	MANUAL,INSTRUCTION (Spanish)
24	3-197-989-11	49.3XA04.001	GUIDE,QUICK SETUP (English)
25	3-197-989-21	49.3XA05.001	GUIDE,QUICK SETUP (French)
26	3-197-989-31	49.3XA06.001	GUIDE,QUICK SETUP (Spanish)
27	3-197-990-11	46.3XA03.001	MANUAL,INSTRUCTION (WALL MOUNT)
28	3-211-947-01	44.3XA01.021	INDIVID CARTON
29	3-213-730-01	6K.3XAPK.001	CUSHION UPPER
30	3-213-732-01	47.3XA02.001	CUSHION LOWER
31	3-213-734-01	42.3XA18.001	BAG PROTECTION