

DENON

Ver. 3

Please refer to the
MODIFICATION NOTICE.

SERVICE MANUAL

MODEL	JP	E3	E2	EK	EA	E1	E1C	E1K
AVR-S500BT		✓					✓	
AVR-X510BT						✓	✓	

AV SURROUND RECEIVER

• For purposes of improvement, specifications and design are subject to change without notice.

• Please use this service manual with referring to the operating instructions without fail.

• Some illustrations using in this service manual are slightly different from the actual set.

DENON

D&M Holdings Inc.

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ABOUT THIS MANUAL

Read the following information before using the service manual.

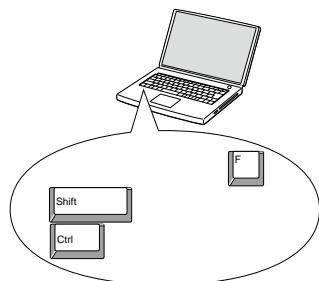
What you can do with this manual

Search for a Ref. No. (phrase) (Ctrl+Shift+F)

You can use the search function in Acrobat Reader to search for a Ref. No. in schematic diagrams, printed wiring circuit diagrams, block diagrams, and parts lists.

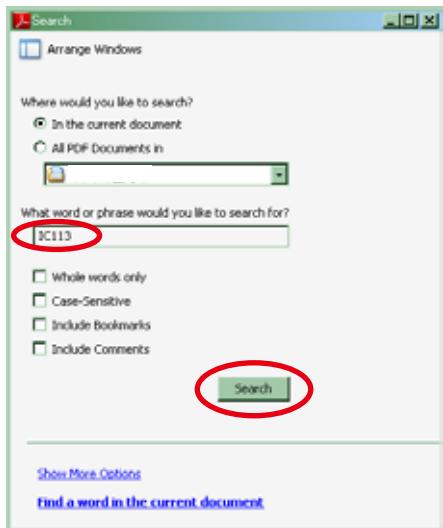
1.Press **Ctrl+Shift+F** on the keyboard.

- The Search window appears.



2.Enter the Ref. No. you want to search for in the Search window, and then click the **Search** button.

- A list of search results appears.



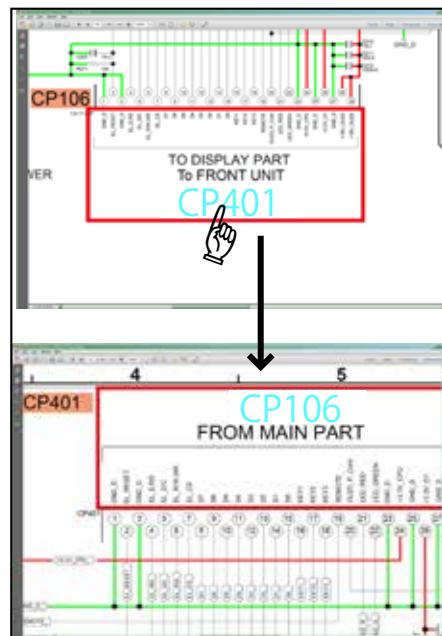
3.Click an item on the list.

- The screen jumps to the page for that item, and the search phrase is displayed.

Jump to the target of a schematic diagram connector

Click the Ref. No. of the target connector in the red box around a schematic diagram connector.

- The screen jumps to the target connector.



- Page magnification stays the same as before the jump.

Using Adobe Reader (Windows version)

Add notes to this data (Sign)

The Sign function lets you add notes to the data in this manual.

Save the file once you have finished adding notes.

[Example using Adobe Reader X]

On the "View" menu, click "Sign".

- The Sign pane appears.



[Example using Adobe Reader 9]

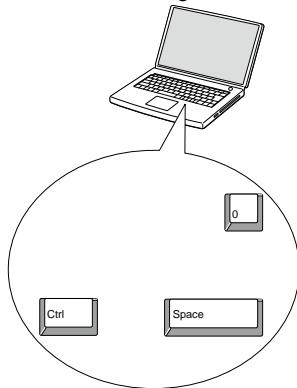
On the "Document" menu, click "Sign".

Magnify schematic / printed circuit board diagrams - 1

(Ctrl+Space, mouse operation)

Press **Ctrl+Space** on the keyboard and drag the mouse to select the area you want to view.

- The selected area is magnified.

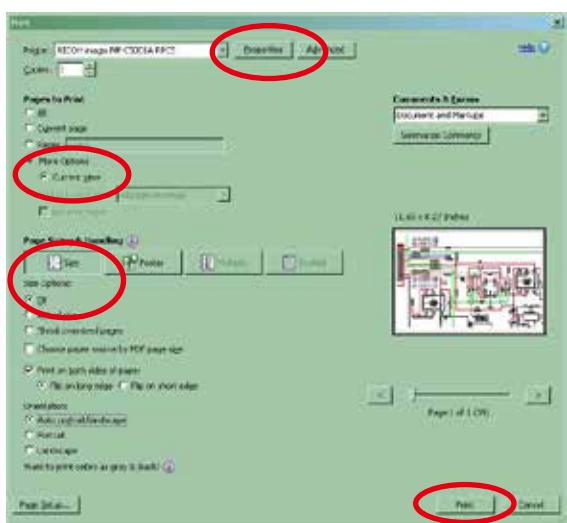


- When you want to move the area shown, hold down **Space** and drag the mouse.
- When you want to show a full page view, press **Ctrl+0** on the keyboard.

Print a magnified part of the manual

The Properties dialog box and functions will vary depending on your printer.

- Drag the mouse to magnify the part you want to print.
- On the "File" menu, click "Print".
- Configure the following settings in the Print dialog box.



- Click the **Print** button to start printing.

Properties

Click this button and check that the printer is set to a suitable paper size.

Page to print

Select the following checkbox.

"**More Options**" : "Current View"

Page Sizing & Handling

Select the following checkbox.

"**Size**" / "**Size Options**" : "Fit"

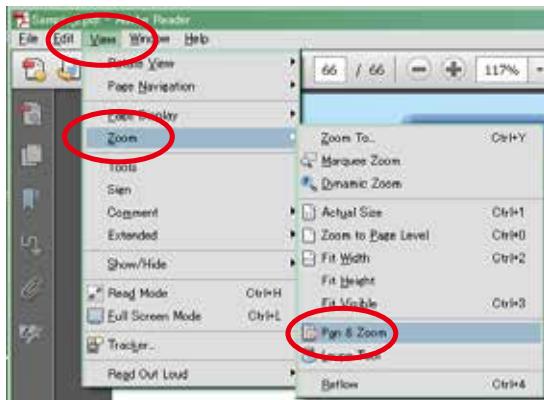
Magnify schematic / printed circuit board diagrams - 2

(Pan & Zoom function)

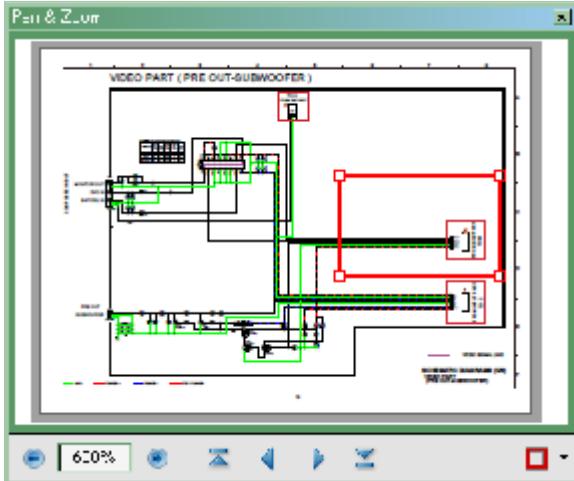
The Pan & Zoom function lets you see which part of a magnified diagram is being shown in a separate window.

[Example using Adobe Reader X]

On the "View" menu, point to "Zoom", and then click "Pan & Zoom".



- The Pan & Zoom window appears on the screen.



[Example using Adobe Reader 9]

On the "Tools" menu, point to "Select & Zoom", and then click "Pan & Zoom Window".

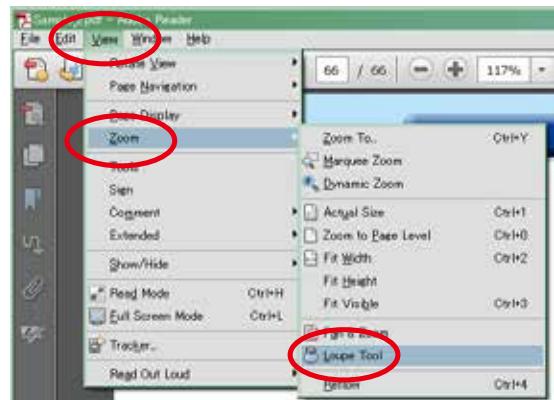
Magnify schematic / printed circuit board diagrams - 3

(Loupe Tool function)

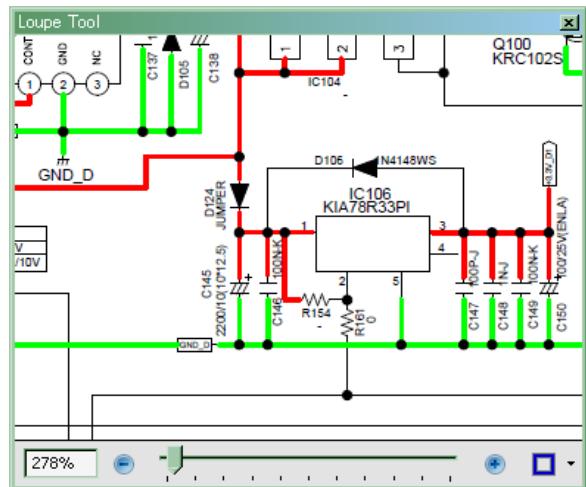
The Loupe Tool function lets you magnify a specific part of a diagram in a separate window.

[Example using Adobe Reader X]

On the "View" menu, point to "Zoom", and then click "Loupe Tool".



- The Loupe Tool window appears on the screen.



[Example using Adobe Reader 9]

On the "Tools" menu, point to "Select & Zoom", and then click "Loupe Tool Window".

SAFETY PRECAUTIONS

The following items should be checked for continued protection of the customer and the service technician.

leakage current check

Before returning the set to the customer, be sure to carry out either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 millamps, or if the resistance from chassis to either side of the power cord is less than 460 kohms, the set is defective.

Be sure to test for leakage current with the AC plug in both polarities, in addition, when the set's power is in each state (on, off and standby mode), if applicable.

CAUTION Please heed the following cautions and instructions during servicing and inspection.

○ Heed the cautions!

Cautions which are delicate in particular for servicing are labeled on the cabinets, the parts and the chassis, etc. Be sure to heed these cautions and the cautions described in the handling instructions.

○ Cautions concerning electric shock!

- (1) An AC voltage is impressed on this set, so if you touch internal metal parts when the set is energized, you may get an electric shock. Avoid getting an electric shock, by using an isolating transformer and wearing gloves when servicing while the set is energized, or by unplugging the power cord when replacing parts, for example.
- (2) There are high voltage parts inside. Handle with extra care when the set is energized.

○ Caution concerning disassembly and assembly!

Through great care is taken when parts were manufactured from sheet metal, there may be burrs on the edges of parts. The burrs could cause injury if fingers are moved across them in some rare cases. Wear gloves to protect your hands.

○ Use only designated parts!

The set's parts have specific safety properties (fire resistance, voltage resistance, etc.). Be sure to use parts which have the same properties for replacement. The burrs have the same properties. In particular, for the important safety parts that are indicated by the  mark on schematic diagrams and parts lists, be sure to use the designated parts.

○ Be sure to mount parts and arrange the wires as they were originally placed!

For safety seasons, some parts use tapes, tubes or other insulating materials, and some parts are mounted away from the surface of printed circuit boards. Care is also taken with the positions of the wires by arranging them and using clamps to keep them away from heating and high voltage parts, so be sure to set everything back as it was originally placed.

○ Make a safety check after servicing!

Check that all screws, parts and wires removed or disconnected when servicing have been put back in their original positions, check that no serviced parts have deteriorate the area around. Then make an insulation check on the external metal connectors and between the blades of the power plug, and otherwise check that safety is ensured.

(Insulation check procedure)

Unplug the power cord from the power outlet, disconnect the antenna, plugs, etc., and on the power. Using a 500V insulation resistance tester, check that the insulation resistance value between the inplug and the externally exposed metal parts (antenna terminal, headphones terminal, input terminal, etc.) is 1MΩ or greater. If it is less, the set must be inspected and repaired.

CAUTION Concerning important safety parts

Many of the electric and the structural parts used in the set have special safety properties. In most cases these properties are difficult to distinguish by sight, and the use of replacement parts with higher ratings (rated power and withstand voltage) does not necessarily guarantee that safety performance will be preserved. Parts with safety properties are indicated as shown below on the wiring diagrams and the parts list in this service manual. Be sure to replace them with the parts which have the designated part number.

- (1) Schematic diagrams.....Indicated by the  mark.
- (2) Parts lists.....Indicated by the  mark.

The use of parts other than the designated parts could cause electric shocks, fires or other dangerous situations.

NOTE FOR SCHEMATIC DIAGRAM

WARNING:

Parts indicated by the \triangle mark have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

CAUTION:

Before returning the set to the customer, be sure to carry out either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 millamps, or if the resistance from chassis to either side of the power cord is less than 460 kohms, the set is defective.

WARNING:

DO NOT return the set to the customer unless the problem is identified and remedied.

NOTICE:

ALL RESISTANCE VALUES IN OHM. $k=1,000$ OHM / $M=1,000,000$ OHM

ALL CAPACITANCE VALUES ARE EXPRESSED IN MICRO FARAD, UNLESS OTHERWISE INDICATED. P INDICATES MICRO-MICRO FARAD. EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION. CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

NOTE FOR PARTS LIST

1. Parts indicated by "nsp" on this table cannot be supplied.

2. When ordering a part, make a clear distinction between "1" and "I" (i) to avoid mis-supplying.

3. A part ordered without specifying its part number can not be supplied.

4. Part indicated by "★" mark is not illustrated in the exploded view.

WARNING: Parts indicated by the \triangle mark have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

INSTRUCTIONS FOR HANDLING SEMI-CONDUCTORS AND OPTICAL UNIT

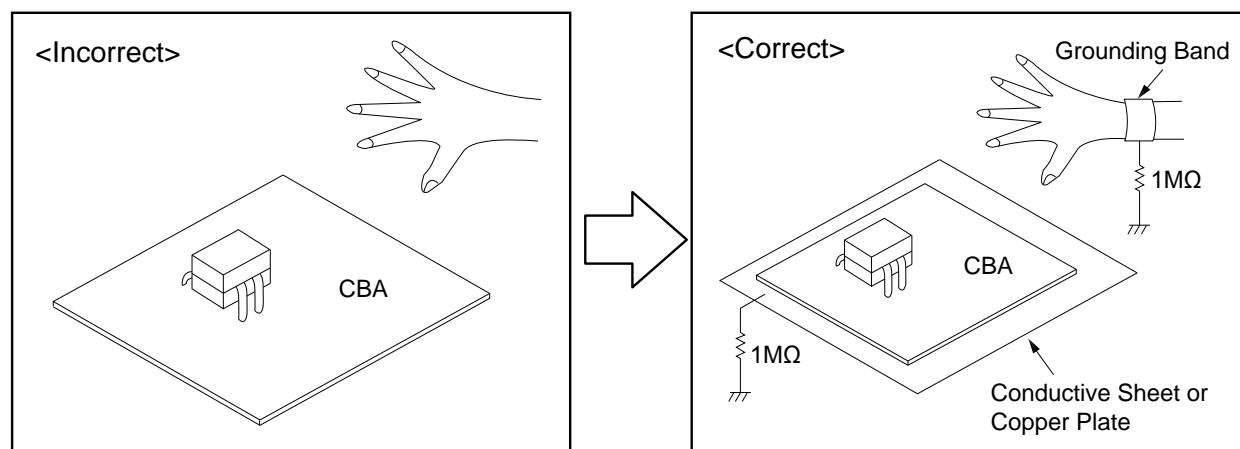
Electrostatic breakdown of the semi-conductors or optical pickup may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

1. Ground for Human Body

Be sure to wear a grounding band ($1\text{ M}\Omega$) that is properly grounded to remove any static electricity that may be charged on the body.

2. Ground for Workbench

Be sure to place a conductive sheet or copper plate with proper grounding ($1\text{ M}\Omega$) on the workbench or other surface, where the semi-conductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semi-conductors with your clothing.



Personal notes:

TECHNICAL SPECIFICATIONS FOR AVR-S500BT

Audio Section

• Power amplifier

Rated output :

Front :

70 W + 70 W (8 Ω/ohms, 20 Hz – 20 kHz with 0.08 % T.H.D.)
90 W + 90 W (6 Ω/ohms, 1 kHz with 0.7 % T.H.D.)

Center :

70 W (8 Ω/ohms, 20 Hz – 20 kHz with 0.08 % T.H.D.)
90 W (6 Ω/ohms, 1 kHz with 0.7 % T.H.D.)

Surround :

70 W + 70 W (8 Ω/ohms, 20 Hz – 20 kHz with 0.08 % T.H.D.)
90 W + 90 W (6 Ω/ohms, 1 kHz with 0.7 % T.H.D.)

Output connectors : 6 – 16 Ω/ohms

• Analog

Input sensitivity/Input impedance : 200 mV/47 kΩ

Frequency response: 10 Hz – 100 kHz — +1, -3 dB (Direct mode)
S/N : 98 dB (IHF-A weighted, Direct mode)

Tuner section

[FM](Note: μ V at 75 Ω, 0 dBf = 1×10^{-15} W)

Reception frequency range :

(for E3) : [FM] 87.5 MHz – 107.9 MHz [AM] 520 kHz – 1710 kHz
(for E1C) : [FM] 87.5 MHz – 108.0 MHz [AM] 522 kHz – 1611 kHz

Effective sensitivity :

[FM] 1.2 μ V (12.8 dBf) [AM] 18 μ V

50 dB sensitivity :

[FM] MONO 2.8 μ V (20.2 dBf)

S/N ratio :

[FM] MONO 70 dB (IHF-A weighted, Direct mode)

STEREO 67 dB (IHF-A weighted, Direct mode)

Distortion (at 1 kHz) :

[FM] MONO 0.7 %

STEREO 1.0 %

Bluetooth Section

Communications system : Bluetooth Version 2.1 + EDR
(Enhanced Data Rate)

Transmission power : Maximum 2.5 mW (Class 2)

Maximum communication range : Approx. 32.8 ft/10m 2 in line of sight

Frequency band : 2.4 GHz band

Modulation scheme : FHSS (Frequency-Hopping Spread Spectrum)

Supported profiles : A2DP (Advanced Audio Distribution Profile)1.2
AVRCP (Audio Video Remote Control Profile)1.4

Corresponding codec : SBC, AAC

Transmission range (A2DP) : 20 Hz – 20,000 Hz

General

Power supply : (for E3) : AC 120 V, 60 Hz
(for E1C) : AC 220 V, 50 Hz

Power consumption : 310W

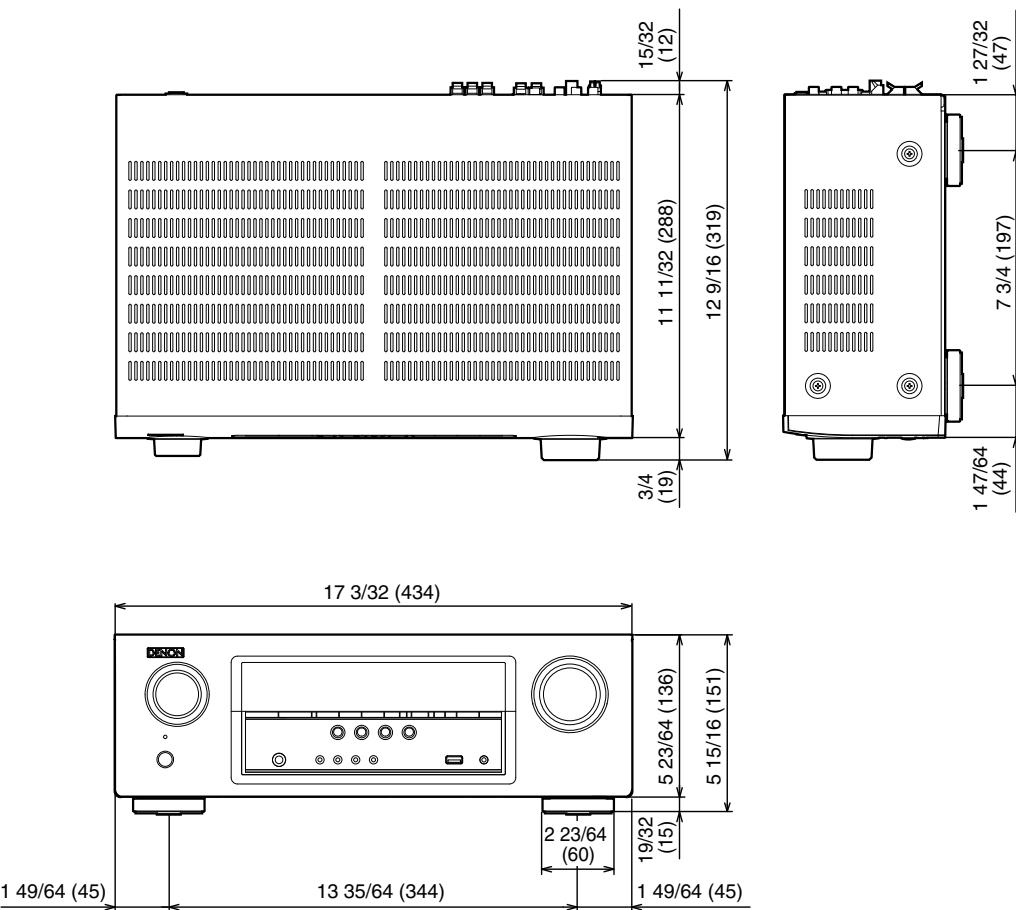
Power consumption in standby mode: 0.1 W

Power consumption in CEC standby mode: 0.5W

Power consumption when Bluetooth standby is used: 1W

DIMENSION

Unit : in. (mm) Weight : 16 lbs 9 oz (7.5 kg)



TECHNICAL SPECIFICATIONS FOR AVR-X510BT

Audio Section

• Power amplifier

Rated output :

Front :

70 W + 70 W (8 Ω/ohms, 20 Hz – 20 kHz with 0.08 % T.H.D.)
90 W + 90 W (6 Ω/ohms, 1 kHz with 0.7 % T.H.D.)

Center :

70 W (8 Ω/ohms, 20 Hz – 20 kHz with 0.08 % T.H.D.)
90 W (6 Ω/ohms, 1 kHz with 0.7 % T.H.D.)

Surround :

70 W + 70 W (8 Ω/ohms, 20 Hz – 20 kHz with 0.08 % T.H.D.)
90 W + 90 W (6 Ω/ohms, 1 kHz with 0.7 % T.H.D.)

Output connectors : 6 – 16 Ω/ohms

• Analog

Input sensitivity/Input impedance : 200 mV/47 kΩ

Frequency response: 10 Hz – 100 kHz — +1, -3 dB (Direct mode)

S/N : 98 dB (IHF-A weighted, Direct mode)

Tuner section

[FM](Note: μV at 75 Ω, 0 dBf = 1 × 10⁻¹⁵ W)

Reception frequency range (for E1 / E1C) :

[FM] 87.5 MHz – 108.0 MHz [AM] 522 kHz – 1611 kHz

Effective sensitivity :

[FM] 1.2 μV (12.8 dBf) [AM] 18 μV

50 dB sensitivity :

[FM] MONO 2.8 μV (20.2 dBf)

S/N ratio:

[FM] MONO 70 dB (IHF-A weighted, Direct mode)

STEREO 67 dB (IHF-A weighted, Direct mode)

Distortion (at 1 kHz) :

[FM] MONO 0.7 %

STEREO 1.0 %

Bluetooth Section

Communications system : Bluetooth Version 2.1 + EDR

(Enhanced Data Rate)

Transmission power : Maximum 2.5 mW (Class 2)

Maximum communication range : Approx. 10m 2 in line of sight

Frequency band : 2.4 GHz band

Modulation scheme : FHSS (Frequency-Hopping Spread Spectrum)

Supported profiles : A2DP (Advanced Audio Distribution Profile)1.2
AVRCP (Audio Video Remote Control Profile)1.4

Corresponding codec : SBC, AAC

Transmission range (A2DP) : 20 Hz - 20,000 Hz

General

Power supply : (for E1) : AC 230 V, 50 Hz / 60Hz

(for E1C) : AC 220 V, 50 Hz

Power consumption : 310W

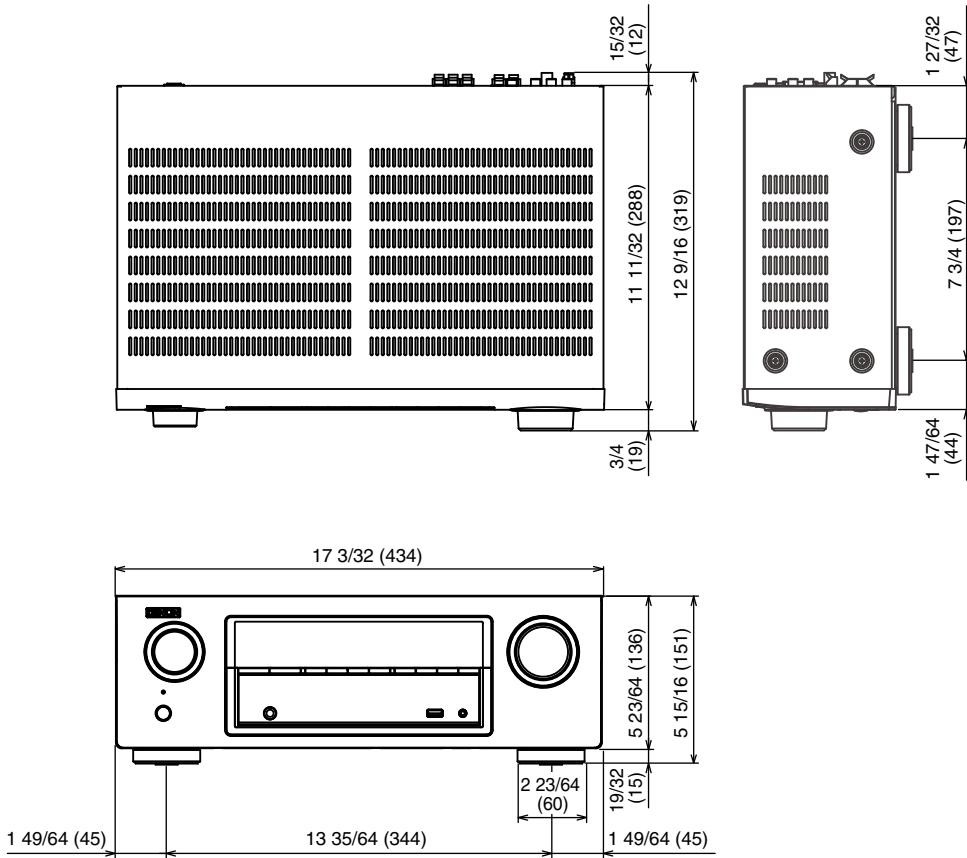
Power consumption in standby mode: 0.1 W

Power consumption in CEC standby mode: 0.5W

Power consumption when Bluetooth standby is used: 1W

DIMENSION

Unit : in. (mm) Weight : 16 lbs 9 oz (7.5 kg)



PRECAUTIONS DURING SERVICE

Initializing This Unit

Initialize this unit if you have replaced the microcomputer, one of the parts around the microcomputer, or the digital PCB.

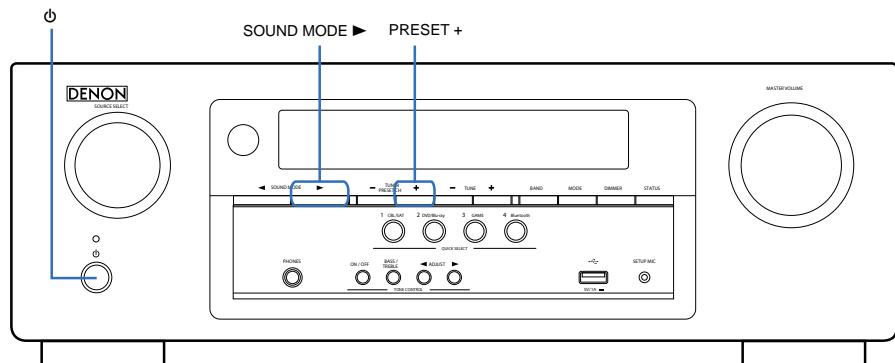
1. Press the power button (\odot) to turn off the power.
2. AVR-S500BT: Hold down buttons "SOUND MODE ▶" and "PRESET +" at the same time and press the power button to turn on the power.
AVR-X510BT: Hold down buttons "PRESET +" and "TUNE +" at the same time and press the power button to turn on the power.
3. Release the buttons after confirming that the display flashes in intervals of approximately 1 second.
The unit is initialized.

NOTE: •If the status in step 3 does not occur, start again from step 1.

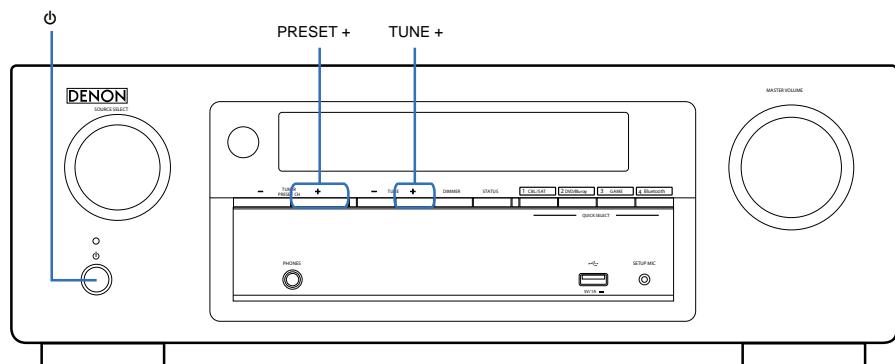
• Initializing the device restores settings configured by the user to the factory settings.

Take note of your settings beforehand and reconfigure them after initialization.

[AVR-S500BT]

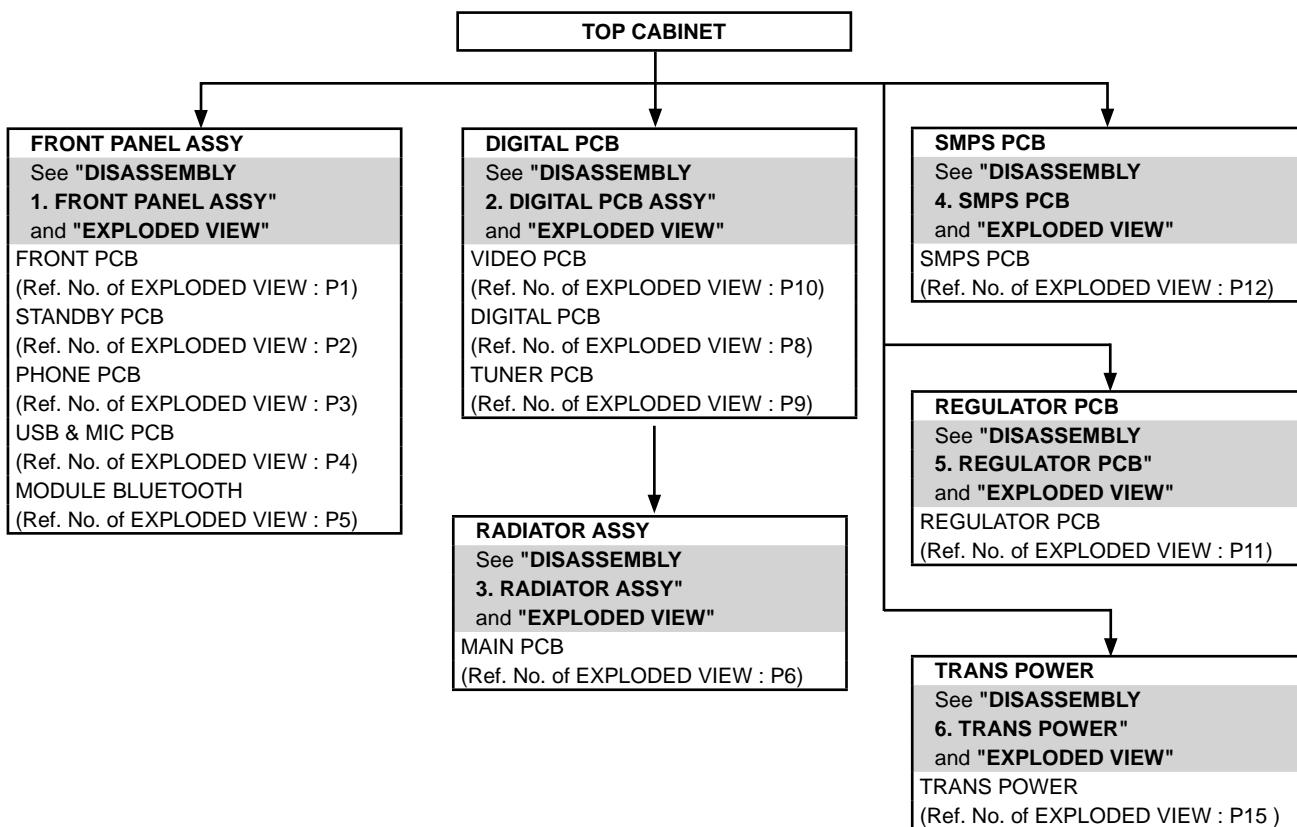


[AVR-X510BT]



DISASSEMBLY

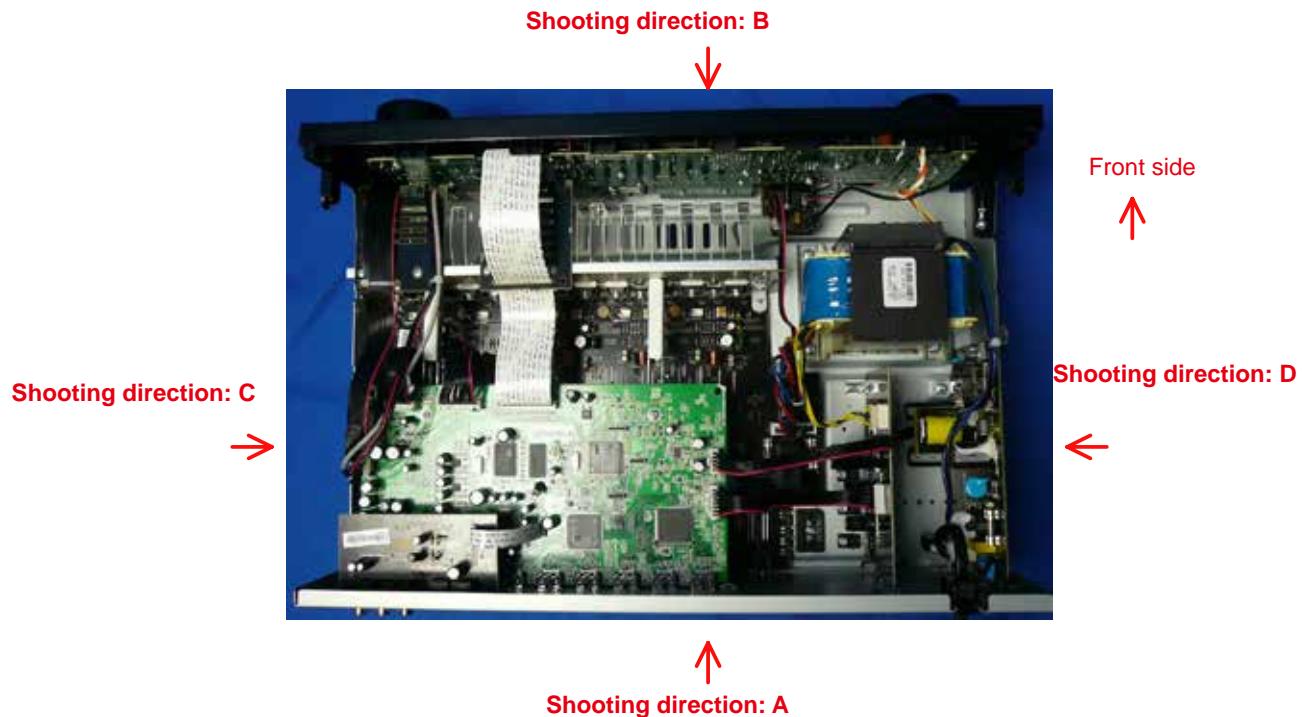
- Remove each part in the order of the arrows below.
- Reassemble removed parts in the reverse order.
- Read "SAFETY PRECAUTION" before reassembling removed parts.
- If wire bundles are removed or moved during adjustment or part replacement, reshape the wires after completing the work. Failure to shape the wires correctly may cause problems such as noise.



Explanatory Photos for“ DISASSEMBLY”

- The angles from which the photos are taken are shown by“ Photo angle: A, B, C, D” .
- See the diagram below about the shooting direction of each photograph.
- Photographs with no shooting direction indicated were taken from the top of the set.
- The photograph is AVR-S500BT E3 model.

The viewpoint of each photograph (Shooting direction)



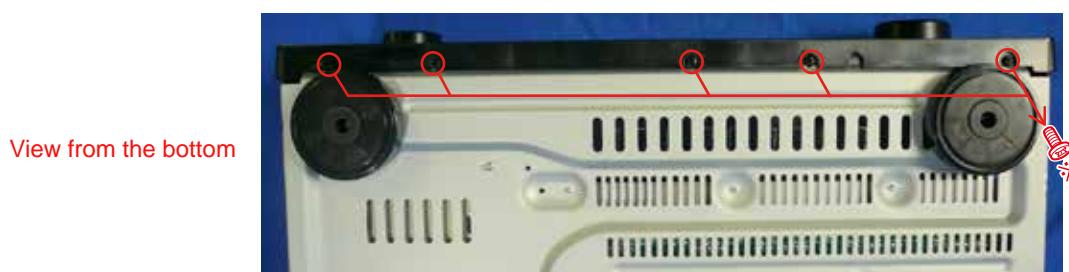
Note:

- Before disassembling this unit, be sure to discharge the power line (the colored line in the schematic diagram).
- FFC cables with one end disconnected should be insulated by using tapes, etc.

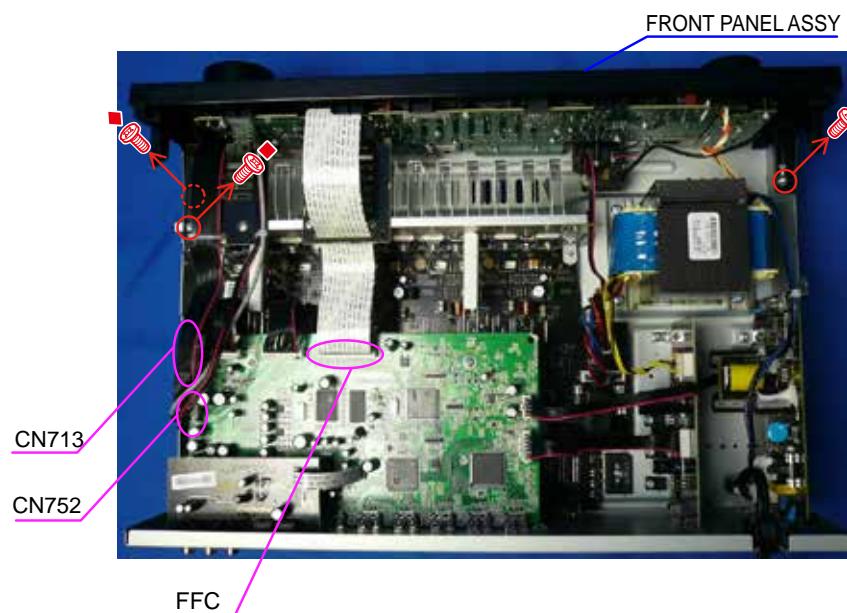
1. FRONT PANEL ASSY

Proceeding : **CABINET TOP** → **FRONT PANEL ASSY**

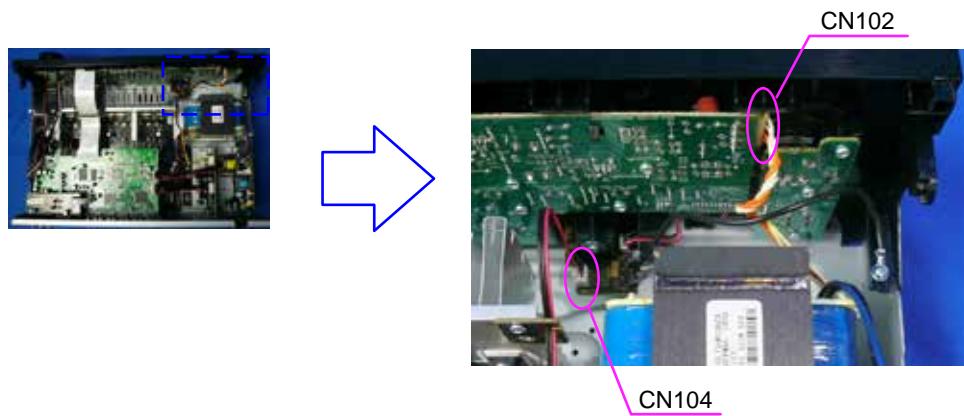
- (1) Remove the screws.



- (2) Remove the screws and disconnect the FFC.



- (3) Disconnect the connector wires.



See "EXPLODED VIEW" for the disassembly method of each PCB included in FRONT PANEL ASSY.

2. DIGITAL PCB

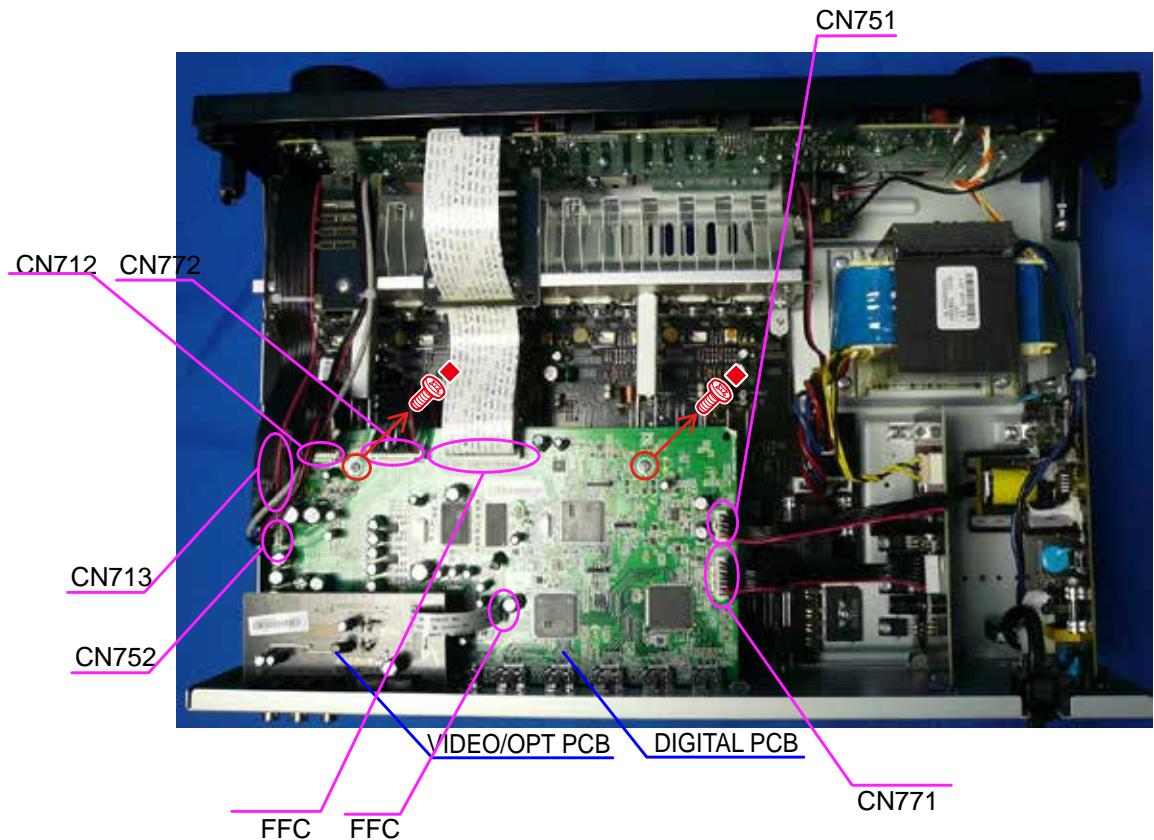
Proceeding : **CABINET TOP** → **DIGITAL PCB**

- (1) Remove the screws.



- (2) Remove the screws.

Disconnect the connector wires and FFC.



3. RADIATOR ASSY

Proceeding : **TOP COVER** → **DIGITAL PCB** → **RADIATOR ASSY**

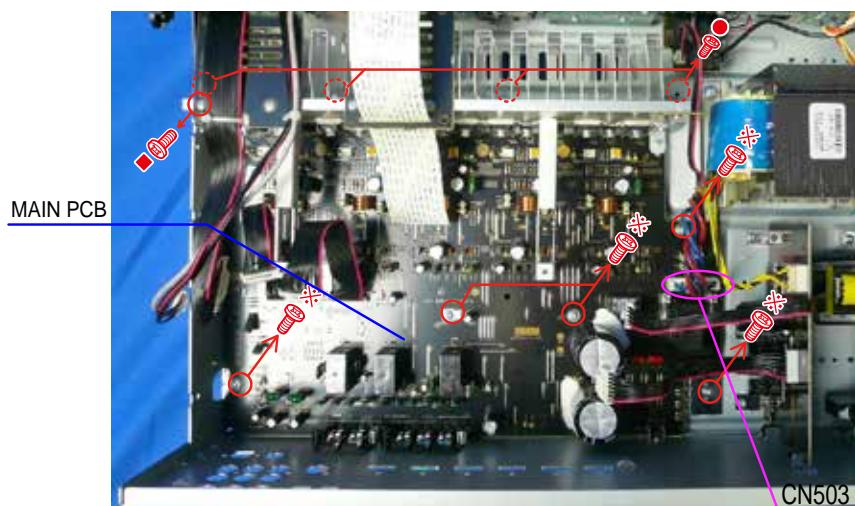
- (1) Remove the screws.

Shooting direction: A



- (2) Remove the screws then disconnect the connector wire.

Remove the RADIATOR ASSY from the CHASSIS BOTTOM.



4. SMPS PCB

Proceeding : **CABINET TOP** → **SMPS PCB**

See "EXPLODED VIEW" for the disassembly method of SMPS PCB.

5. REGULATOR PCB

Proceeding : **CABINET TOP** → **REGULATOR PCB**

See "EXPLODED VIEW" for the disassembly method of REGULATOR PCB.

6. TRANS POWER

Proceeding : **CABINET TOP** → **TRANS POWER**

See "EXPLODED VIEW" for the disassembly method of TRANS POWER.

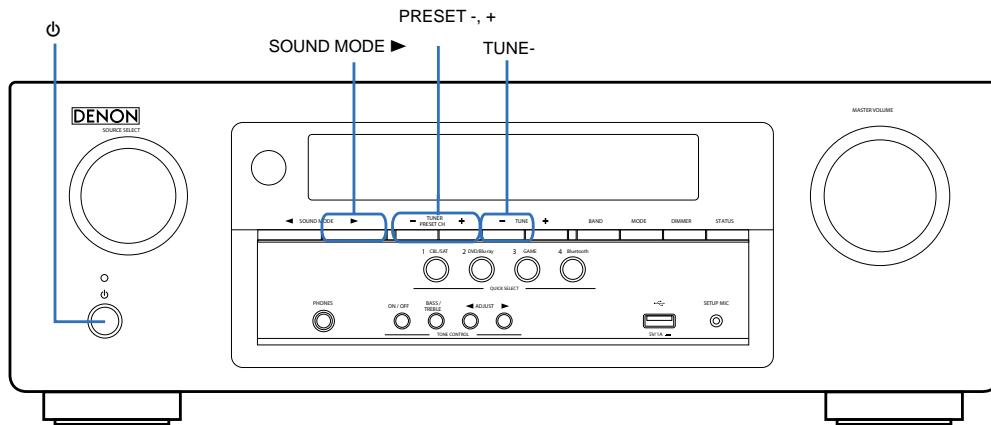
SPECIAL MODE

Special mode setting button

- ※ No. 1, 2 : Hold down buttons A and B at the same time and press the power button (\odot) to turn on the power.
- No. 3, 4 : Hold down buttons A, B and C for at least 3 seconds while the power is on.

AVR-S500BT

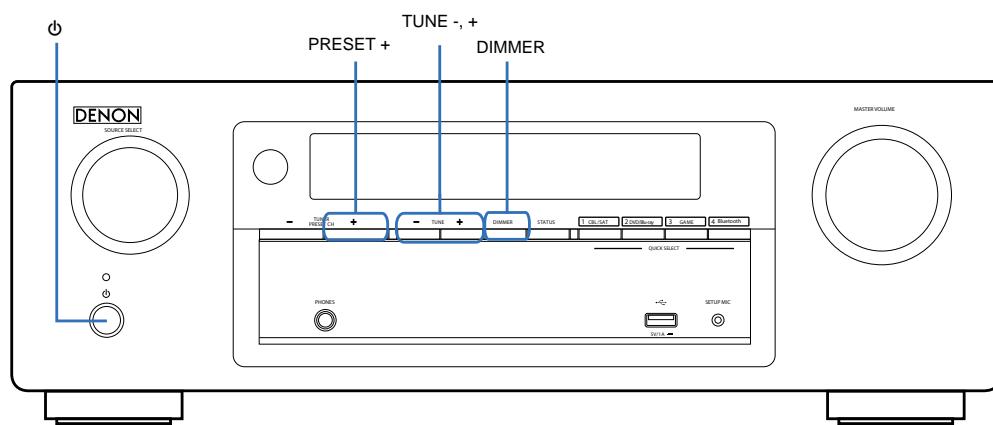
Mode	Button A	Button B	Button C	Contents
1 Initialization	SOUND MODE ►	PRESET +		Backup data initialization is carried out. (See 11 page.)
2 Version Display	PRESET +	TUNE -		Firmware versions such as Main, DSP or OSD are displayed in the FL display. Errors are displayed or when they occur. (See 20 page.)
3 Chang Video Format and Display Languge	PRESET -	PRESET +	TUNE -	
4 Product Mode	SOUND MODE ►	PRESET -	PRESET +	Select the mode shown below. "Remote Lock", "Tuning Step Change", "OSD Update", "Protection History Display" and "Mic Mode".



- * No. 1, 2 : Hold down buttons A and B at the same time and press the power button (\odot) to turn on the power.
- No. 3, 4 : Hold down buttons A, B and C for at least 3 seconds while the power is on.

AVR-X510BT

Mode	Button A	Button B	Button C	Contents
1 Initialization	PRESET +	TUNE +		Backup data initialization is carried out. (See 11 page.)
2 Version Display	TUNE +	DIMMER		Firmware versions such as Main, DSP or OSD are displayed in the FL display. Errors are displayed or when they occur. (See 20 page.)
3 Chang Video Format and Display Languge	TUNE -	TUNE +	DIMMER	
4 Product Mode	PRESET +	TUNE -	TUNE +	Select the mode shown below. "Remote Lock", "Tuning Step Change", "OSD Update", "Protection History Display" and "Mic Mode".



1. Initialization Mode

1.1. Operations

Hold down buttons below at the same time and press the power button to turn on the power.

"SOUND MODE ▶", "PRESET +" (AVR-S500BT)
"PRESET +", "TUNE +" (AVR-X510BT)

Release the buttons after confirming that the display flashes in intervals of approximately 1 second.

1.2. Actions

Initialize this unit.

Note: Settings for the tuner step are not initialized.

2. Version Display Mode

2.1. Operations

Hold down buttons below at the same time and press the power button to turn on the power.

"PRESET +", "TUNE -" (AVR-S500BT)
"TUNE +", "DIMMER" (AVR-X510BT)

Press the button "STATUS" to display the versions.

2.2. Actions

Press the "STATUS" button to display the versions in the following order.

Error information(See 2.4. Error display) → ① Model destination information → ② Main-μcom version → ③ Main IAP →
④ DSP version → ⑤ OSD version → ⑥ USB version → Normal display

When an error has occurred in this unit, the error information is displayed initially when entering this mode. (5 seconds)

Display	State
① Model destination information	
AVR-S500BT E3 model	A V R - S 5 0 0 E 3
AVR-X510BT E1 model	A V R - X 5 1 0 E 1
AVR-X510BT E1C model	A V R - X 5 1 0 E 1 C
AVR-S500BT E1C model	A V R - S 5 0 0 E 1 C
② Main-μcom version	
③ Main IAP	
④ DSP version	
⑤ OSD version	
⑥ USB version	

2.3. Canceling the mode:

Press the ⏻ button to turn the power off.

2.4. Error display

See the following table for each "Error information" display and its contents (status).

Condition	-	State
DSP NG	When DSP boot, executing DSP reset makes to becomes error.	D S P E R R O R 0 1
DSP OK		(No error display, version display only)

3. Change Video Format and Display Language Mode

3.1. Operations

Hold down buttons below for at least 3 seconds while the power is on.

"PRESET -", "PRESET +", "TUNE -" (AVR-S500BT)

"TUNE -", "TUNE +", "DIMMER" (AVR-X510BT)

Note: Do not start in this mode when displaying the OSD MENU using the MENU button.

3.2. Actions

This unit is in VIDEO Format at startup.

Press the button below to switch between Video Format and Display Language.

"TUNE +" AVR-S500BT

"STATUS" AVR-X510BT

3.2.1. Video Format

Press the button below to switch between NTSC and PAL.

"PRESET +" or "TUNE -" AVR-S500BT

"PRESET +" or "DIMMER" AVR-X510BT

FLD	U	.	F	o	r	m	a	t	:	<	N	T	S	C	>	
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	--

↓↑

FLD	U	.	F	o	r	m	a	t	:	<	P	A	L		>	
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	--	---	--

↓↑

Return to top.

Press the "Preset -" button to set format. The display then return to the normal mode.

3.2.1. Language

Press the button below to switch display language.

"PRESET +" or "TUNE -" AVR-S500BT

"PRESET +" or "DIMMER" AVR-X510BT

FLD	L	a	n	g	.	:	<	E	N	G	L	I	S	H	>	
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	--

↓↑

FLD	L	a	n	g	.	:	<	S	P	A	N	I	S	H	>	
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	--

↓↑

FLD	L	a	n	g	.	:	<	F	R	E	N	C	H		>	
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	--	---	--

↓↑

FLD	L	a	n	g	.	:	<	D	H	I	N	E	S	E	>	
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	--

↓↑

Return to top.

Press the "Preset -" button to set display language. The display then return to the normal mode.

4. Product Mode

Select "Remote Lock", "Tuner Step", "OSD update", "Protection History Display" or "Mic Mode".

4.1. Operations

Hold down buttons below for at least 3 seconds while the power is on.

"SOUND MODE▶", "PRESET -", "PRESET +" (AVR-S500BT)

"PRESET +", "TUNE -", "TUNE +" (AVR-X510BT)

Each mode shown on the display changes each time the button below is pressed.

"TUNE +" (AVR-S500BT)

"STATUS" (AVR-X510BT)

Press the buttons below to switch the display "On"/"Off".

"PRESET +", "TUNE -" (AVR-S500BT)

"PRESET +", "DIMMER" (AVR-X510BT)

Press the button below to set the displayed "On"/"Off".

"PRESET -" (AVR-S500BT)

"TUNE -" (AVR-X510BT)

4.2. Displaying and Selecting Each Mode

Remote Lock Mode

FLD	R	E	M	O	T	E	L	O	C	K	:	0	ff	
-----	---	---	---	---	---	---	---	---	---	---	---	---	----	--

↓
Press the "TUNE +"(AVR-S500BT) button.
Press the "STATUS"(AVR-X510BT) button.

Tuner Step Change Mode

FLD	T	U	N	E	R	:	A	M	9	/	F	M	5	0	
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	--

↓
Press the "TUNE +"(AVR-S500BT) button.
Press the "STATUS"(AVR-X510BT) button.

OSD Update Mode

FLD	O	S	D	U	P	d	a	t	e	:	0	ff	
-----	---	---	---	---	---	---	---	---	---	---	---	----	--

↓
Press the "TUNE +"(AVR-S500BT) button.
Press the "STATUS"(AVR-X510BT) button.

Protection History Display Mode

FLD	N	O	P	R	O	T	E	C	T					
-----	---	---	---	---	---	---	---	---	---	--	--	--	--	--

↓
Press the "TUNE +"(AVR-S500BT) button.
Press the "STATUS"(AVR-X510BT) button.

Mic Mode

FLD	M	I	C	M	o	d	e							
-----	---	---	---	---	---	---	---	--	--	--	--	--	--	--

↓
Press the "TUNE +"(AVR-S500BT) button.
Press the "STATUS"(AVR-X510BT) button.

Return to top.

4.3. Canceling Each Mode

See the actions of each mode.

4.4.1. Remote Lock Mode

To enter the Product Mode, to display the Remote Lock Mode.

Press the button below to switch between On and Off.

"PRESET +" / "TUNE -" (AVR-S500BT)
"PRESET +" / "DIMMER" (AVR-X510BT)

FLD	R	E	M	O	T	E	L	O	C	K	:	0	f	f	
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	--

↓ ↑

FLD	R	E	M	O	T	E	L	O	C	K	:	0	n	
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	--

Press the button below to set On/Off. The display then return to the normal mode.

"PRESET -" (AVR-S500BT)
"TUNE -" (AVR-X510BT)

4.4.2. Tuner Step Change Mode

To enter the Product Mode, to display the Tuner Step Change mode.

Press the button below to switch between AM9/FM50 and AM10/FM200.

"PRESET +" / "TUNE -" (AVR-S500BT)
"PRESET +" / "DIMMER" (AVR-X510BT)

FLD	R	E	M	O	T	E	L	O	C	K	:	0	f	f	
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---	--

↓ ↑

FLD	R	E	M	O	T	E	L	O	C	K	:	0	n	
-----	---	---	---	---	---	---	---	---	---	---	---	---	---	--

Press the button below to set On/Off. The display then return to the normal mode.

"PRESET -" (AVR-S500BT)
"TUNE -" (AVR-X510BT)

To operate this unit in the set step, either remove the power plug from the power outlet or press the power button to turn off the power, and then turn the power on again.

*The initialization will not initialize the tuner step frequency.

4.4.3. OSD Update Mode

Not for service. Do not operate.

Cancellation of the mode

Disconnect the AC plug of this unit to turn the power off.

4.4.4. Protection History Display Mode

To enter the Product Mode, to display the Protection History Display Mode.

- (1) If no protections have occurred.

FLD	N	O	P	R	O	T	E	C	I	T									
-----	---	---	---	---	---	---	---	---	---	---	--	--	--	--	--	--	--	--	--

- (2) For THERMAL (when the last protection incident was THERMAL(A) or THERMAL(B) protection)

FLD	P	R	T	:	T	H	E	R	M	A	L								
-----	---	---	---	---	---	---	---	---	---	---	---	--	--	--	--	--	--	--	--

FLD	P	R	T	:	T	H	E	R	M	A	L	B							
-----	---	---	---	---	---	---	---	---	---	---	---	---	--	--	--	--	--	--	--

Cause: The temperature of the heat sink is excessive.

If the power is turned on without correcting the abnormality, the protection function will work about 4 minutes later and the power supply will be shut off.

- (3) For ASO (when the last protection incident was ASO protection)

FLD	P	R	T	:	A	S	O												
-----	---	---	---	---	---	---	---	--	--	--	--	--	--	--	--	--	--	--	--

Cause: The line between speaker terminals is shorted, or speakers with impedance of less than the rated value.

Supplementary information: As the excess current is detected after operation of the speaker relay, a short on the speaker terminal and the connected speaker can be identified.

- (4) For DC (when the last protection incident was DC protection)

FLD	P	R	T	:	D	C													
-----	---	---	---	---	---	---	--	--	--	--	--	--	--	--	--	--	--	--	--

Cause: DC output of the power amplifier is abnormal.

If the power is turned on without correcting the abnormality, the protection function will work about 6 seconds later and the power supply will be shut off.

- (5) For Power (when the last protection incident was Power protection)

FLD	P	R	T	:	P	o	w	e	r										
-----	---	---	---	---	---	---	---	---	---	--	--	--	--	--	--	--	--	--	--

Cause: The Power Supply ($\pm 12V$) is abnormal.

* Additional causes of protection can be due to loose connections, associated components, Microprocessor, etc.

Press the button below to set On/Off. The display then return to the normal mode.

"PRESET -" (AVR-S500BT)
"TUNE -" (AVR-X510BT)

Clearing the protection history

There are two ways to clear the protection history, as described below.

- (1) Start up the set in error (protection display) mode and display the error, then press and hold down the below button for 3 seconds.

FLD	P	R	T	:	D	C													
-----	---	---	---	---	---	---	--	--	--	--	--	--	--	--	--	--	--	--	--

↓ Press the button for 3 seconds.

FLD	P	R	T	:	C	L	E	A	R										
-----	---	---	---	---	---	---	---	---	---	--	--	--	--	--	--	--	--	--	--

↓ The above is displayed and the protection history is cleared.

FLD	N	O	P	R	O	T	E	C	I	T									
-----	---	---	---	---	---	---	---	---	---	---	--	--	--	--	--	--	--	--	--

- (2) Initialize. ([20 page.](#))

4.4.5. Mic Mode

Not for service. Do not operate.

Cancellation of the mode

Press the power button to turn off the power or disconnect the AC plug of this unit to turn the power off.

PROCEDURE AFTER REPLACING THE MICROPROCESSOR, ETC

The procedure after replacing the u-COM (Microprocessor), flash ROM, etc. is as follows.

PCB Name	Ref. No.	Description	After replaced	Remark
Digital	IC711	STM32F101ZG	B	SOFTWARE: Main
Digital	IC722	MX25L3206EM2I-12G	B	SOFTWARE: GUI ROM
Digital	IC742	MX25L8006EM2I-12G	B	SOFTWARE: DSP ROM

After replacing

A : The software has been written. The software is not written at the time of replacement.

B : The software has been written. The software may need to be rewritten by version updates. Check the version.

C : The software has not been written. The software needs to be written after replacement. See "Firmware Update Procedure" for information on writing the software.

D : The software has been written. Be sure to rewrite with the latest software for your service region. See "Firmware Update Procedure" for information on writing the software.

Firmware Update Procedure

1. Updating by USB

The latest firmware can be downloaded to a USB Memory for updates.

1.1. Connecting to the USB Memory

(1) Prepared

- USB format: Prepare a USB memory formatted in FAT16 or FAT32.
- Do not run the USB memory through a hub.
- Do not connect a computer to the USB port of this unit using a USB cable.
- Do not use an extension cable when connecting the USB memory.

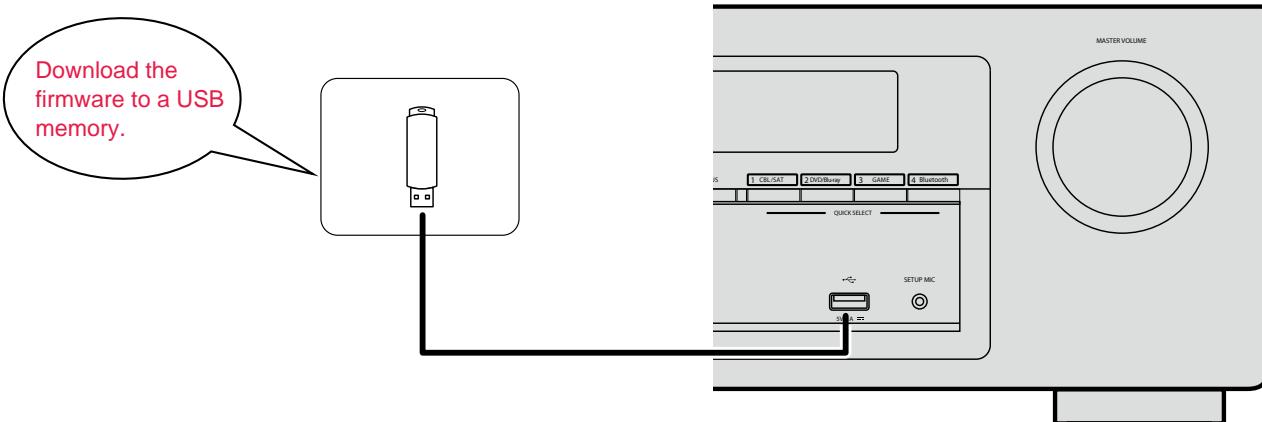
1.2. Unzip Download File

Unzip the downloaded file on your computer.

You can find "S500BT_USB_V**_**.fw" file after unzipped. Copy that file to USB flash drive.

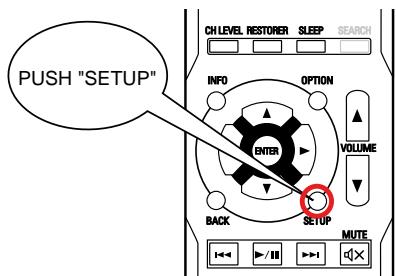
You have to put "S500BT_USB_V**_**.fw" file on root directly on USB flash drive(memory).

1.3. Insert the USB memory device in the USB port

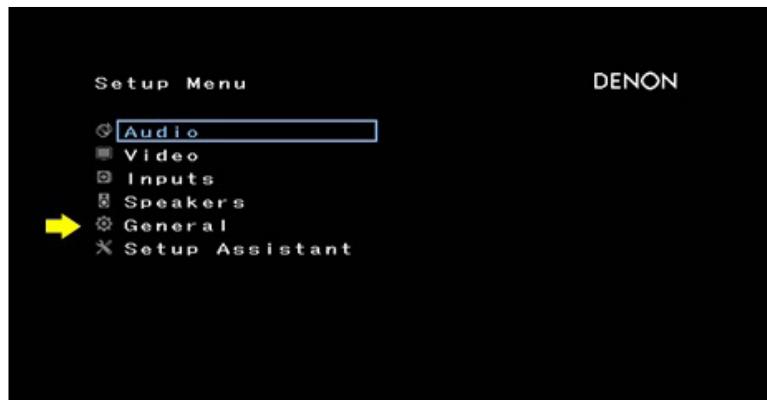


1.5. Start the update

Turn on the power of this unit. Then, push "SETUP" and select.

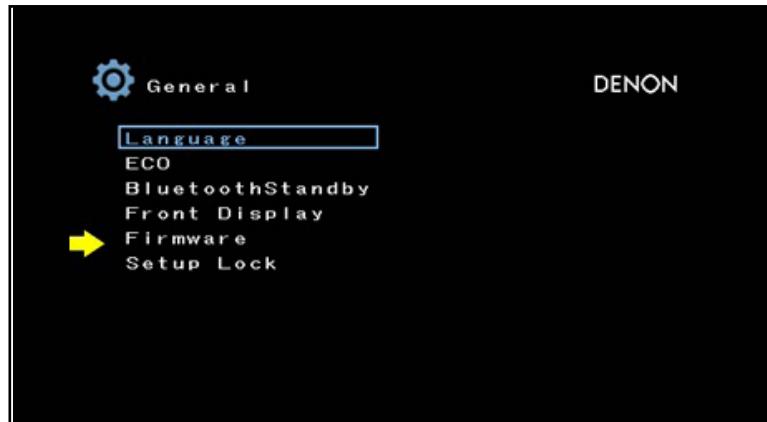


(1) Select "General"



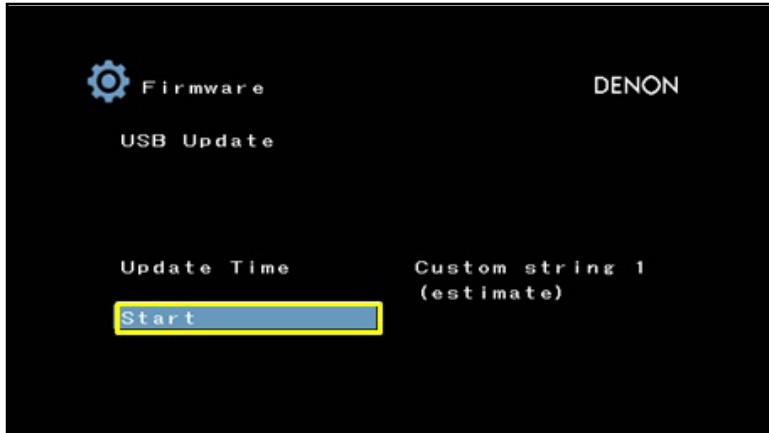
FLD	G	e	n	e	r	a	l												
-----	---	---	---	---	---	---	---	--	--	--	--	--	--	--	--	--	--	--	--

(2) Select "Firmware"



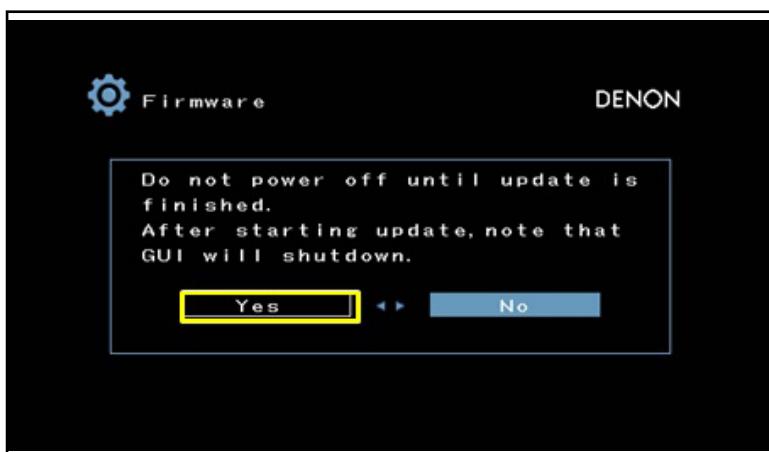
FLD	F	i	r	m	w	a	r	e											
-----	---	---	---	---	---	---	---	---	--	--	--	--	--	--	--	--	--	--	--

(3) Push "ENTER"



FLD | F | i | r | m | a | w | a | r | e | ← | S | t | a | r | t | →

(4) Select "Yes", then, Push "ENTER"



FLD | F | i | r | m | a | w | a | r | e | ← | A | V | e | s | →

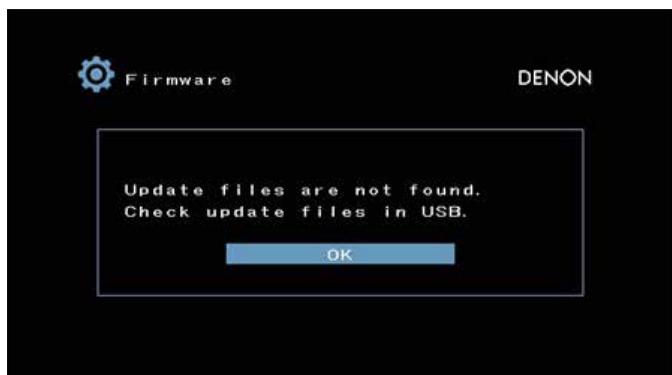
FLD | U | p | d | a | t | e | ← | T | i | m | e | * | * | * | *

--- Precautions for Updates ---

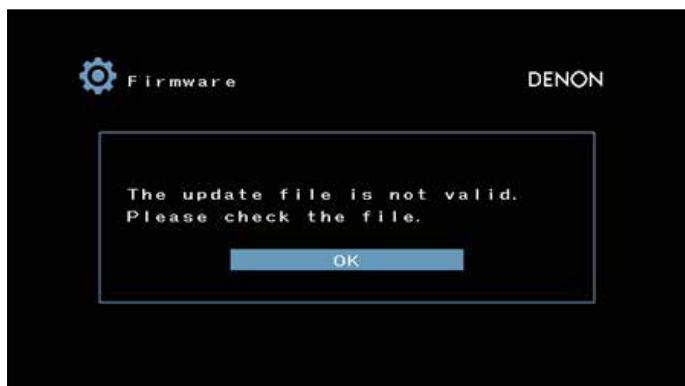
- Never remove the USB memory before the update is finished.
- Never turn off the power before an update is completed.
- It takes around about 35 minutes to complete the update even with a broadband connection.
Once an update is started, normal operations cannot be performed until it is completed.
The GUI menu settings and image adjustment settings of this unit may be initialized.
Take note of your settings beforehand and reconfigure them after the update.

1.6. About the error code

No FirmwareFile in USB.



FirmwareFile in USB for unsupported Model name/area



ADJUSTMENT

Audio Section

Adjusting Idling Current

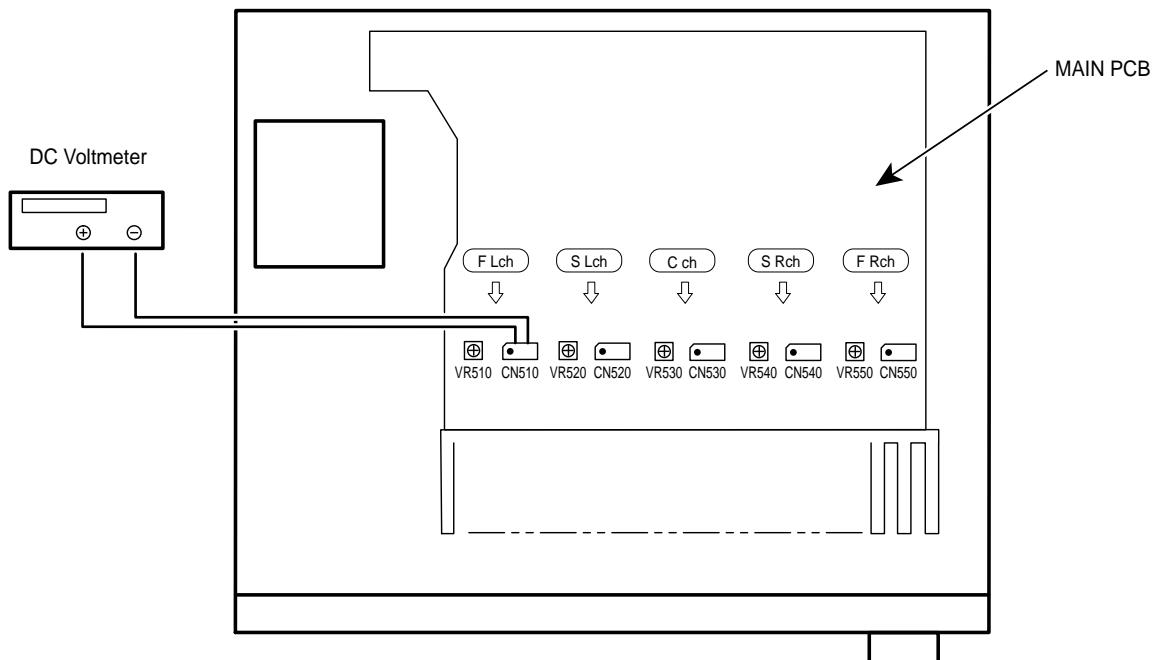
Required measurement equipment: DC Voltmeter

1. Preparation

- (1) Avoid direct blow from an air conditioner or an electric fan and humidity should be moderate, and place the set at normal usage environment.
Temperature should be at 15 °C ~ 30 °C (59 °F ~ 86 °F).
- (2) Presetting
 - POWER (Power source switch) OFF
 - SPEAKER (Speaker terminal) No load
(Do not connect speaker, dummy resistor, etc.)

2. Adjustment

- (1) Remove the top cover and set VR510(FL), VR550(FR), VR530(C), VR520(SL), VR540(SR), on MAIN PCB at fully counterclockwise (\ominus) position.
- (2) Connect DC Voltmeter to test points (FRONT-Lch: CN510, FRONT-Rch: CN550, CENTER ch: CN530, SURROUND-Lch: CN520, SURROUND-Rch: CN540).
- (3) Connect the power cord to AC Line, and set the power switch to "ON".
- (4) Presetting.
MASTER VOLUME : \ominus minimum
SPEAKER (Speaker terminal) : No load
(Do not connect speaker, dummy resistor, etc.)
MODE : MCH STEREO
FUNCTION : CBL/SAT
- (5) Within 2 minutes after the power on, turn VR510 clockwise (\oplus) to adjust the TEST POINT voltage at $1.5\text{mV} \pm 0.5\text{mV}$ DC.
- (6) After 10 minutes from the preset above, turn VR510 to set the voltage to $2.0\text{mV} \pm 0.5\text{mV}$ DC.
- (7) Adjust the Variable Resistors of each channel(VR520-VR550) in the same way.



SURROUND MODES AND PARAMETERS

Sound modes and channel output

○ This indicates the audio output channels or surround parameters that can be set.

◎ This indicates the audio output channels. The output channels depend on the settings of "Speaker Config.". (☞ p. 82)

Sound mode (☞ p. 55)	Channel output			
	Front L/R	Center	Surround L/R	Subwoofer
Direct (2-channel)	○			○ *
Direct (Multi-channel)	○	○	○	○
Stereo	○			○
Multi Ch In	○	○	○	○
Dolby Pro Logic II	○	○	○	○
DTS Neo:6	○	○	○	○
Dolby Digital	○	○	○	○
Dolby Digital Plus	○	○	○	○
Dolby TrueHD	○	○	○	○
DTS Surround	○	○	○	○
DTS 96/24	○	○	○	○
DTS-HD	○	○	○	○
DTS Express	○	○	○	○
Multi Ch Stereo	○	○	○	○
Virtual	○			○

* Audio is output when "Subwoofer Mode" in the menu is set to "LFE+Main". (☞ p. 85)

Sound modes and surround parameters

Sound mode (☞ p. 55)	Sur. Parameter (☞ p. 67)							Tone (☞ p. 52)	Restorer*3 (☞ p. 70)
	Mode (☞ p. 67)	Dynamic Comp.*1 (☞ p. 68)	Low Frequency*2 (☞ p. 68)	Subwoofer (☞ p. 70)	Pro Logic II Music mode only			Neo: 6 Music mode only	
Direct (2-channel)		○							
Direct (Multi-channel)		○	○						
Stereo		○	○						○
Multi Ch In			○						○
Dolby Pro Logic II	○	○			○	○	○		○
DTS Neo:6	○	○						○	○
Dolby Digital		○	○						○
Dolby Digital Plus		○	○						○
Dolby TrueHD		○	○						○
DTS Surround		○	○						○
DTS 96/24		○	○						○
DTS-HD		○	○						○
DTS Express		○	○						○
Multi Ch Stereo		○	○						○
Virtual		○	○						○

*1 This item can be selected when Dolby Digital or DTS signal is played.

*2 This item can be selected when Dolby Digital or DTS signal or DVD-Audio is played.

*3 This item can be set when the input signal is analog, PCM 48 kHz or 44.1 kHz.

*4 This setting is available when "Subwoofer Mode" in the menu is set to "LFE+Main". (☞ p. 85)

Types of input signals, and corresponding sound modes

● This indicates the default sound mode.

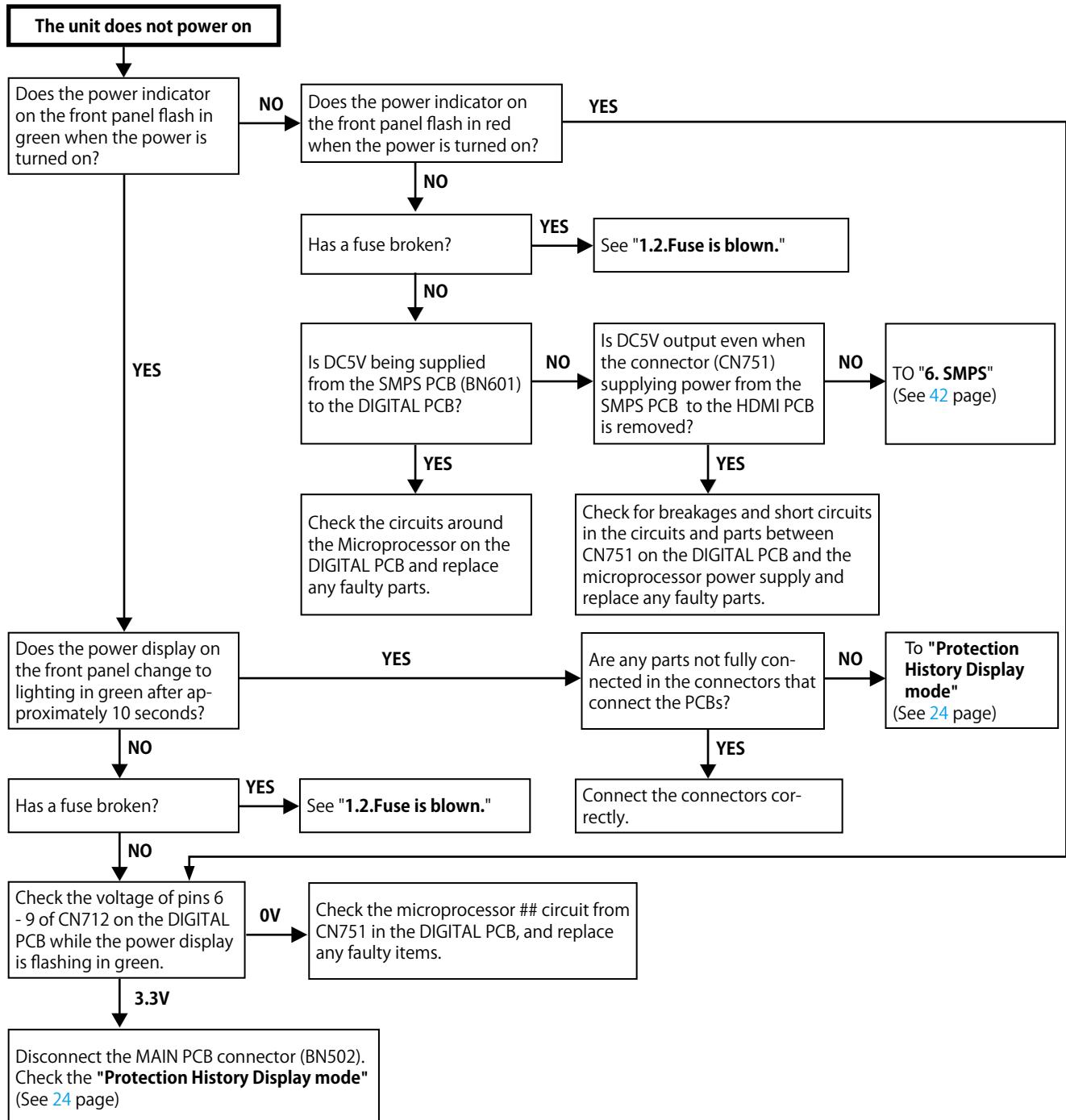
○ This indicates the selectable sound mode.

Sound mode ( p.55)	ANALOG	Type and format of input signals										
		PCM		DTS-HD		DTS			Dolby		Dolby Digital	
		PCM (Multi-channel)	PCM (2-channel)	DTS-HD Master Audio	DTS-HD High Resolution Audio	DTS Express	DTS (5.1-channel)	DTS 96/24	Dolby TrueHD	Dolby Digital Plus	Dolby Digital (5.1-channel)	Dolby Digital (2-channel)
DTS Surround				●	●							
DTS-HD Mstr												
DTS-HD Hi Res												
DTS Surround							●					
DTS 96/24							●					
DTS Express												
DTS Neo:6 Cinema	○	○									○	
DTS Neo:6 Music	○	○									○	
Dolby Surround									●			
Dolby TrueHD									●			
Dolby Digital+									●			
Dolby Digital										●		
Dolby Pro Logic II Cinema	○	○									○	
Dolby Pro Logic II Music	○	○									○	
Dolby Pro Logic II Game	○	○									○	
Dolby Pro Logic	○	○									○	
Multi Ch In		●										
Multi Ch In												
Direct												
Direct	○	○	○	○	○	○	○	○	○	○	○	○
Original sound mode												
Multi Ch Stereo	○	○	○				○	○			○	○
Virtual	○	○	○				○	○			○	○
Stereo												
Stereo	●	○	●	○	○	○	○	○	○	○	○	○

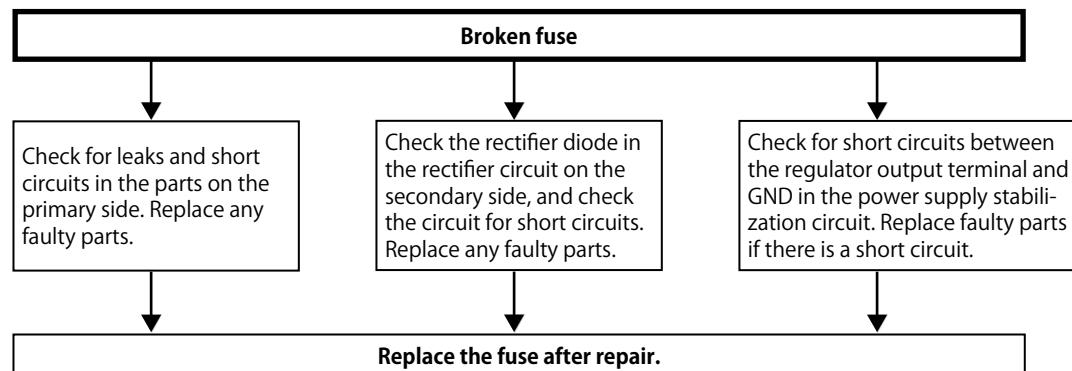
TROUBLE SHOOTING

1. POWER

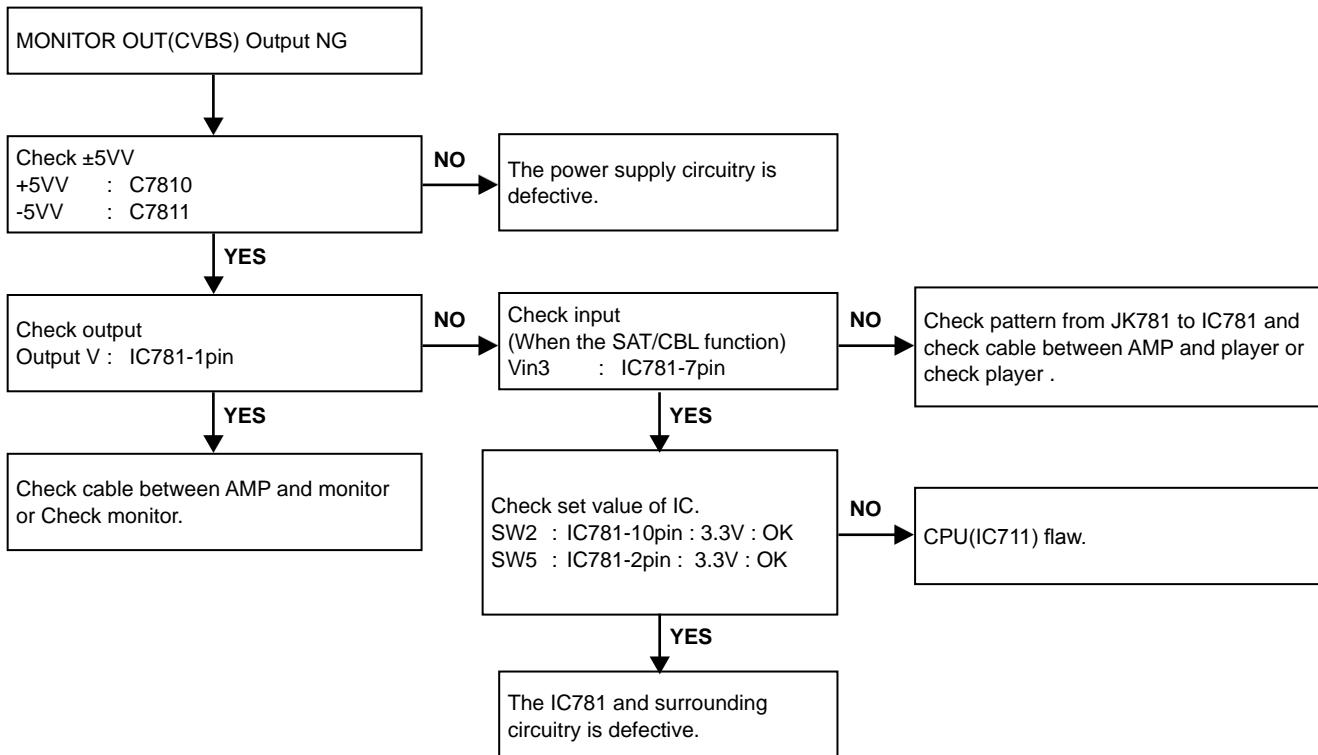
1.1. The unit does not power on



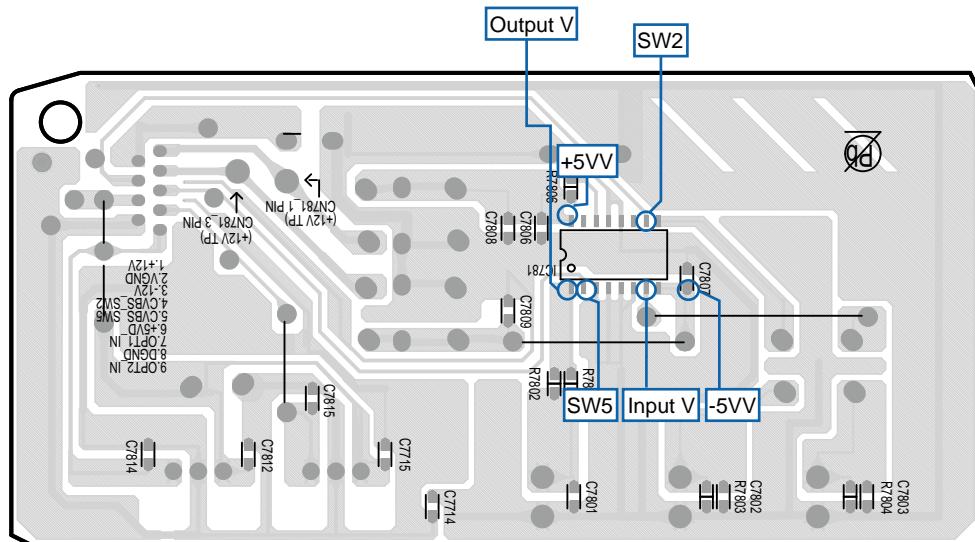
1.2. Fuse is blown



2. Analog video



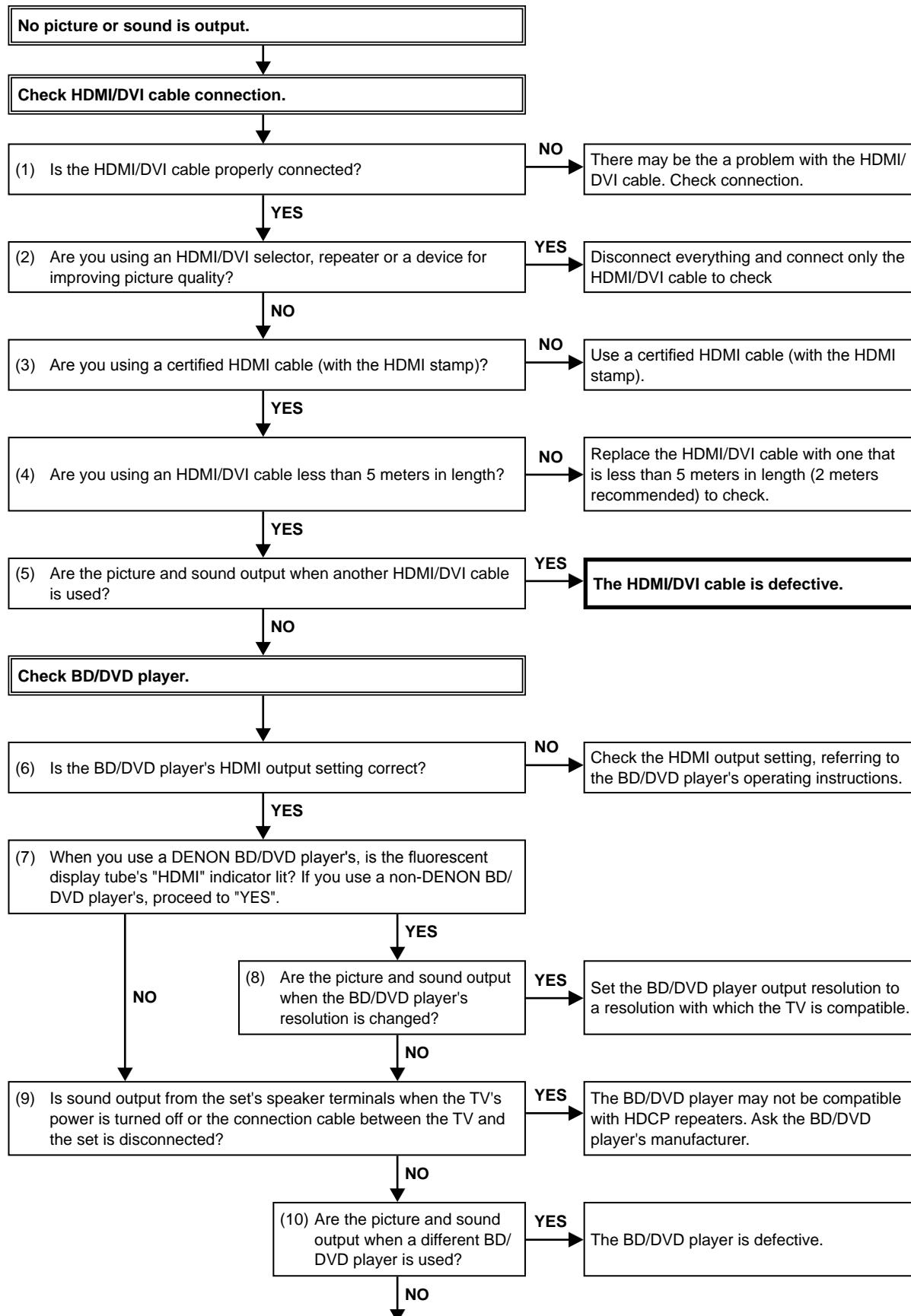
VIDEO test point

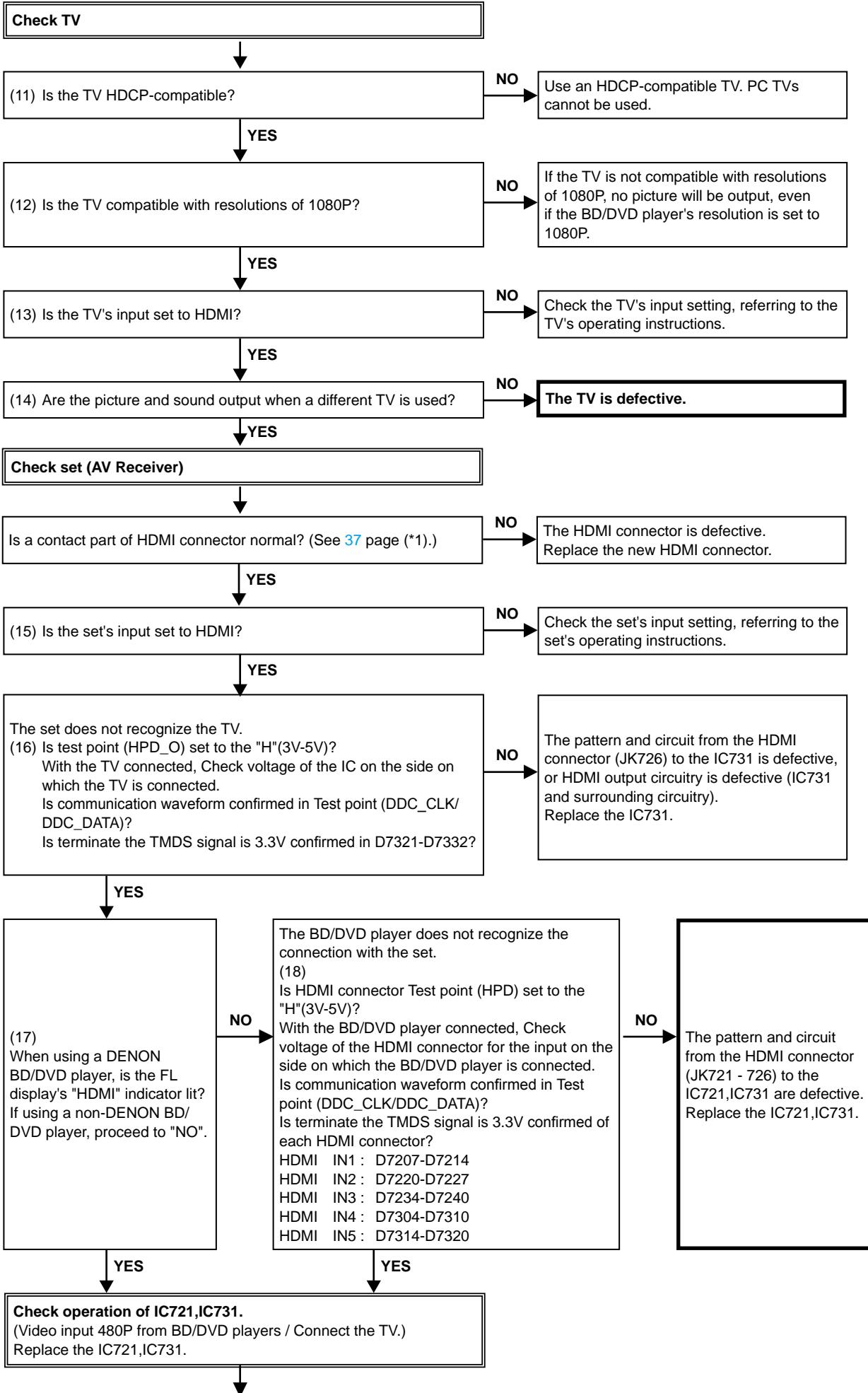


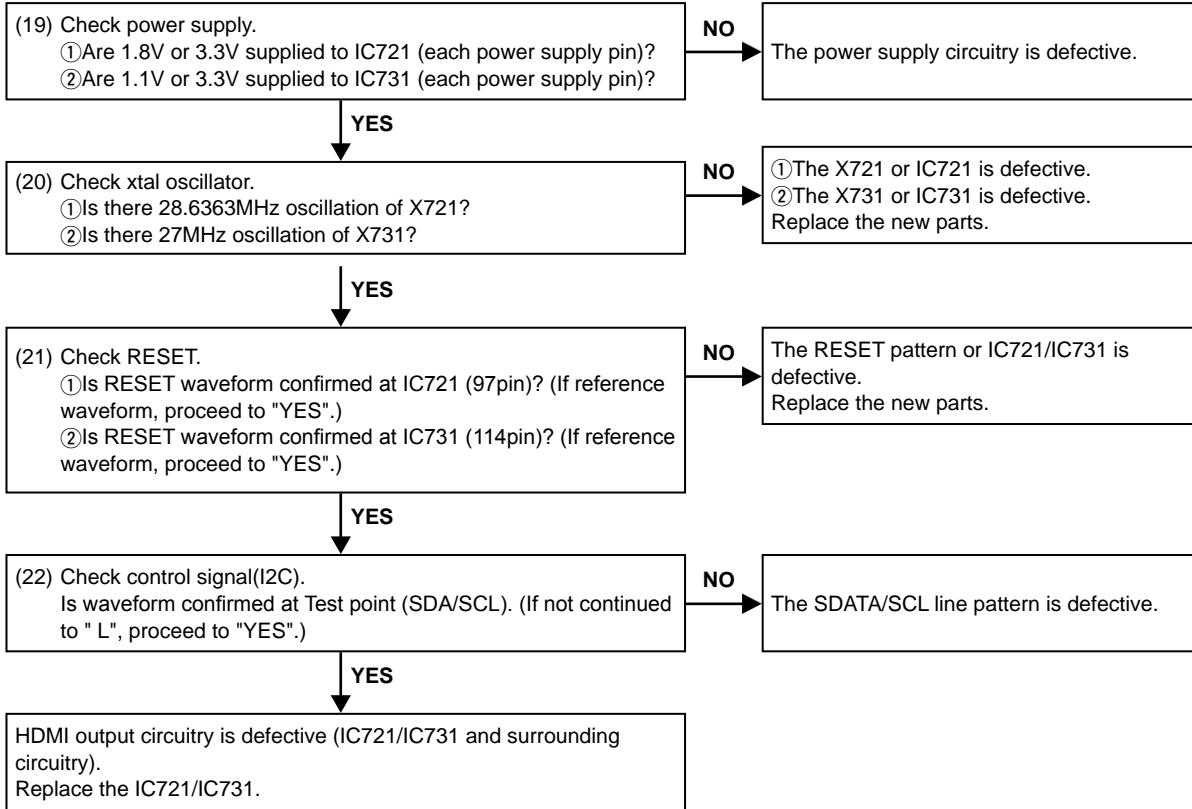
VIDEO PCB (B SIDE)

3. HDMI/DVI

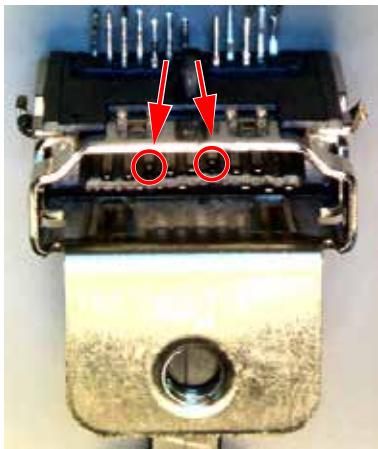
3.1. No picture or sound is output





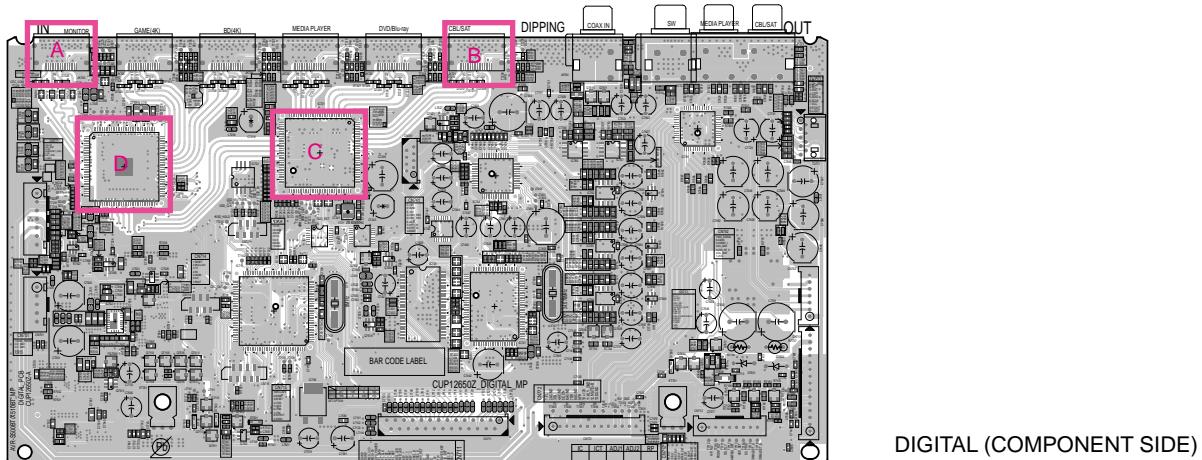


(*1) Abnormal sample of HDMI connector : The internal terminal has bent.

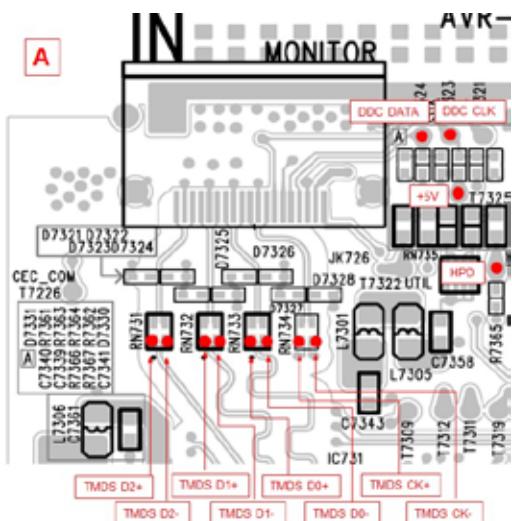


3.2. HDMI test point and waveforms

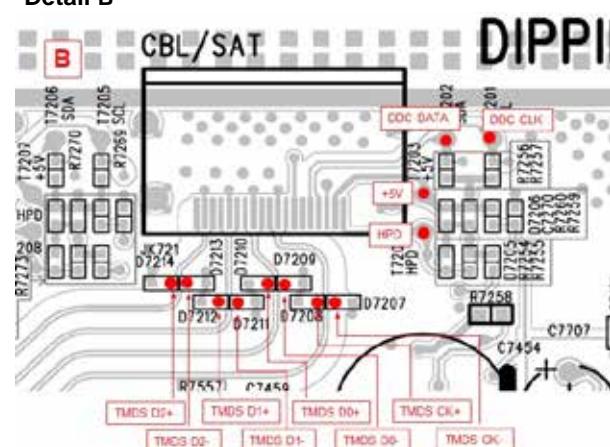
HDMI test point and waveforms



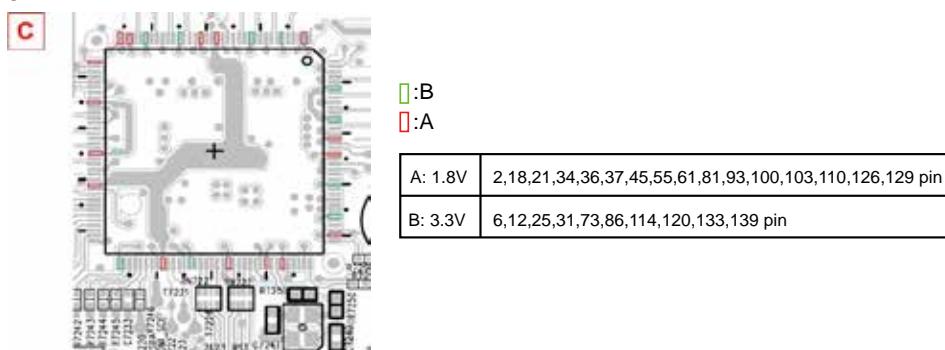
Detail A



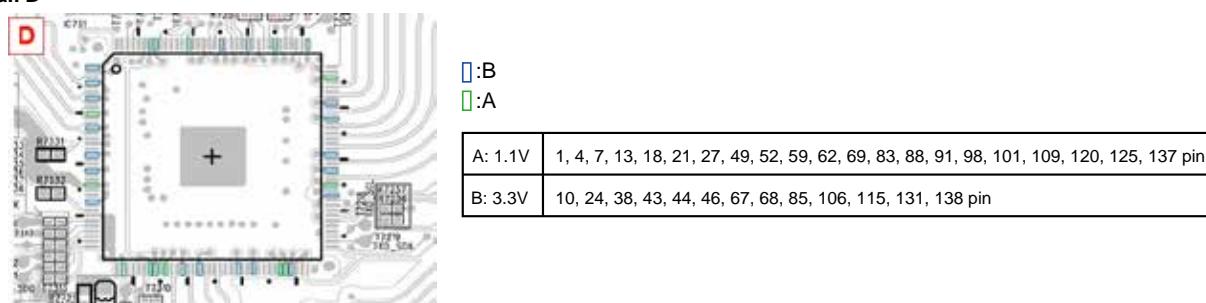
Detail B



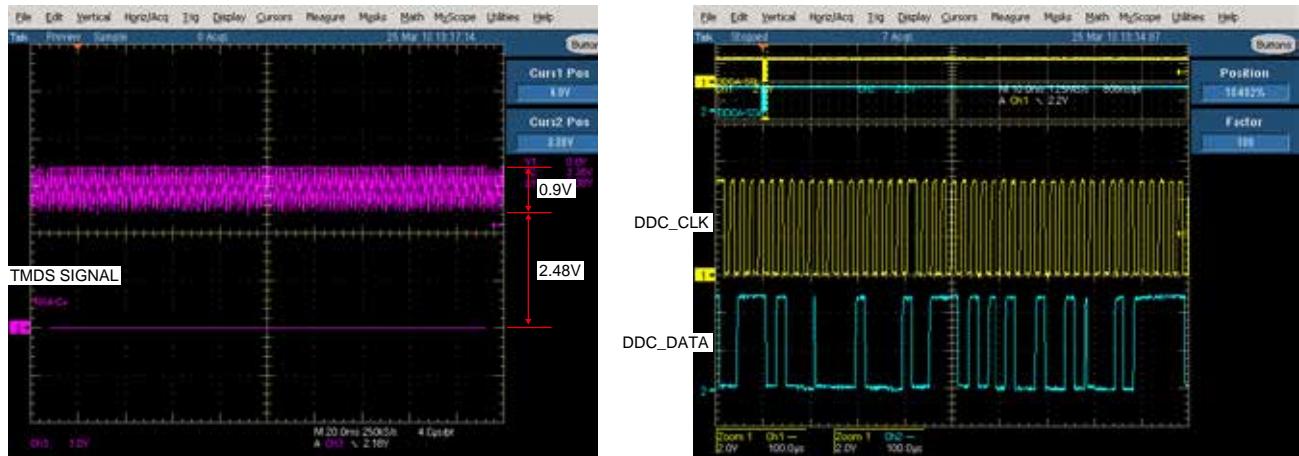
Detail C



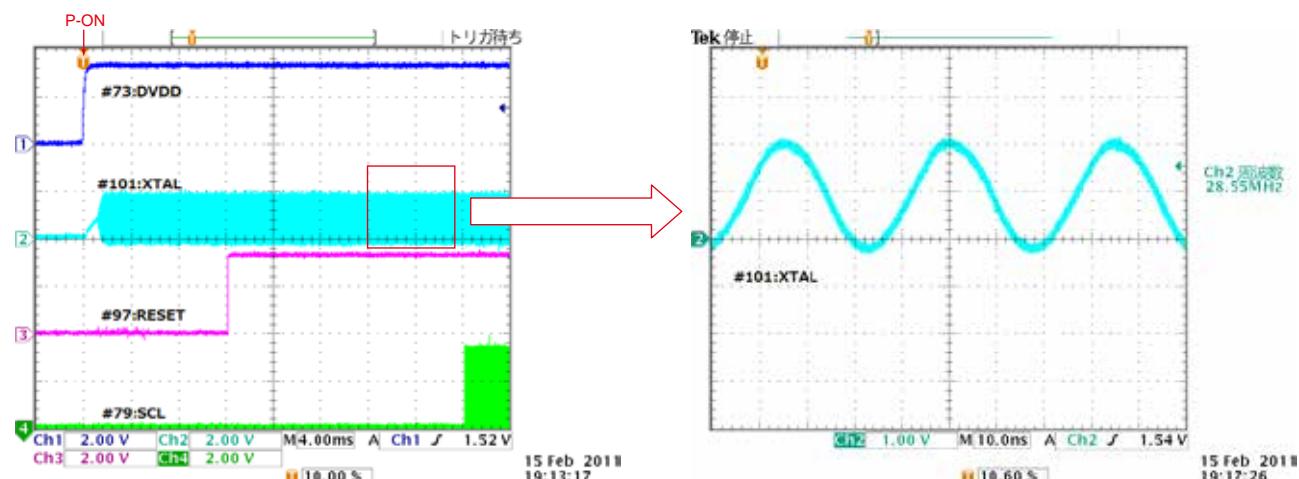
Detail D



DDC_CLK/DDC_DATA/TMDS : Check items (16),(18)



DVDD/XTAL/RESET/SCL : Check items (19),(20),(21)

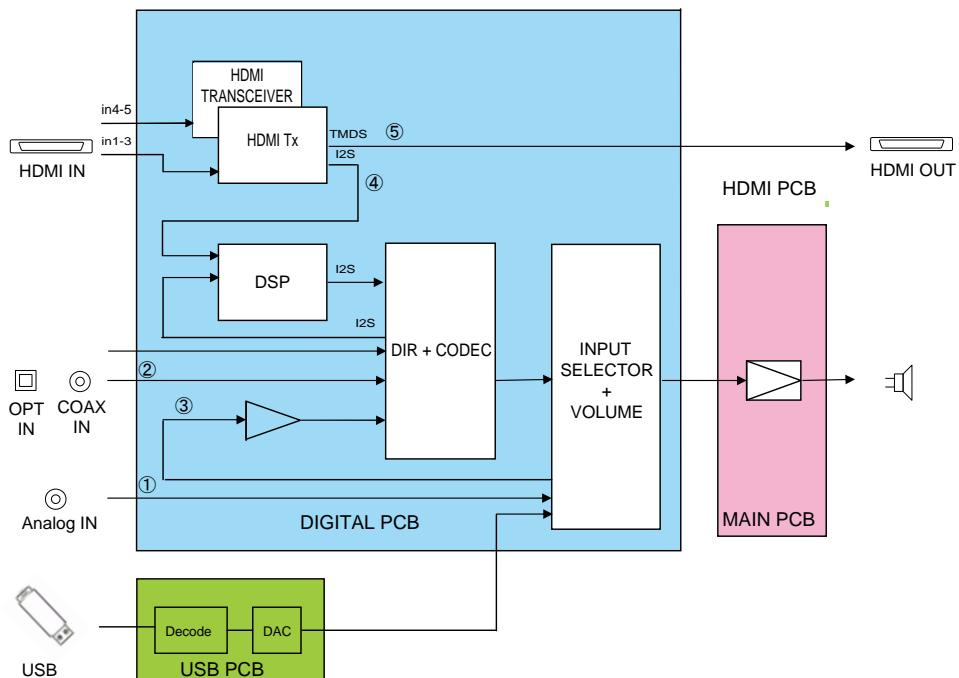
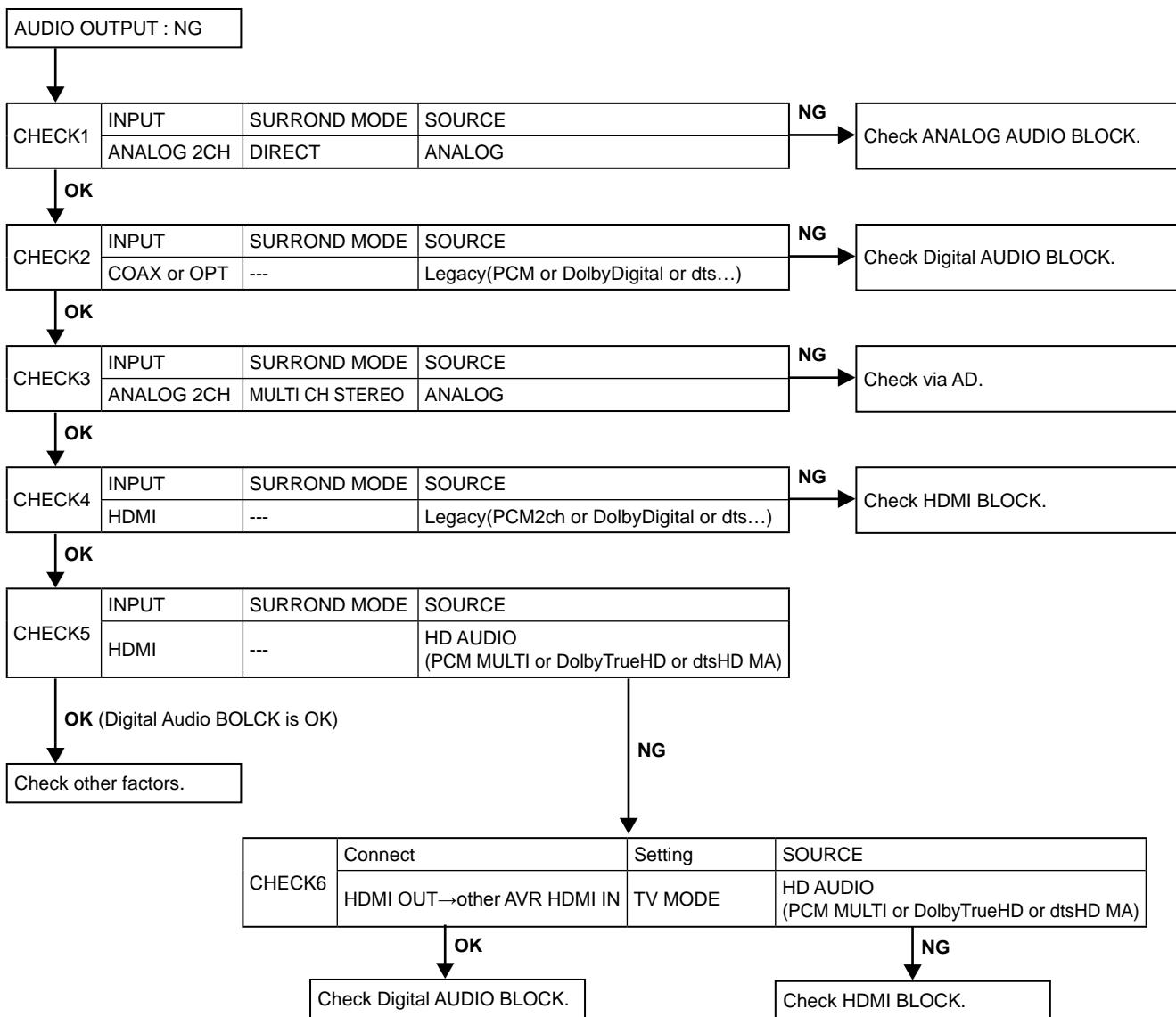


HDMI_SDA/SCL(I2C) : Check item (22)

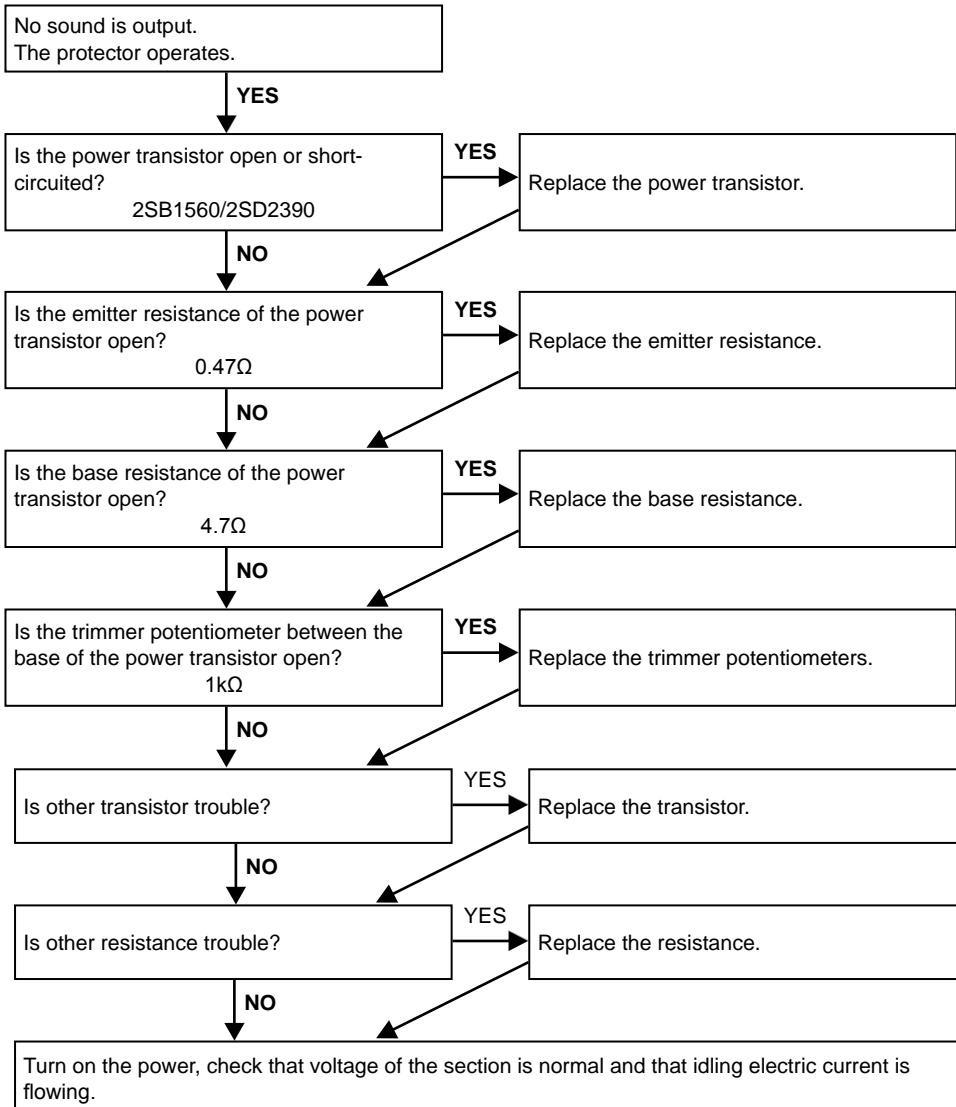


4. AUDIO

4.1. AUDIO CHECK

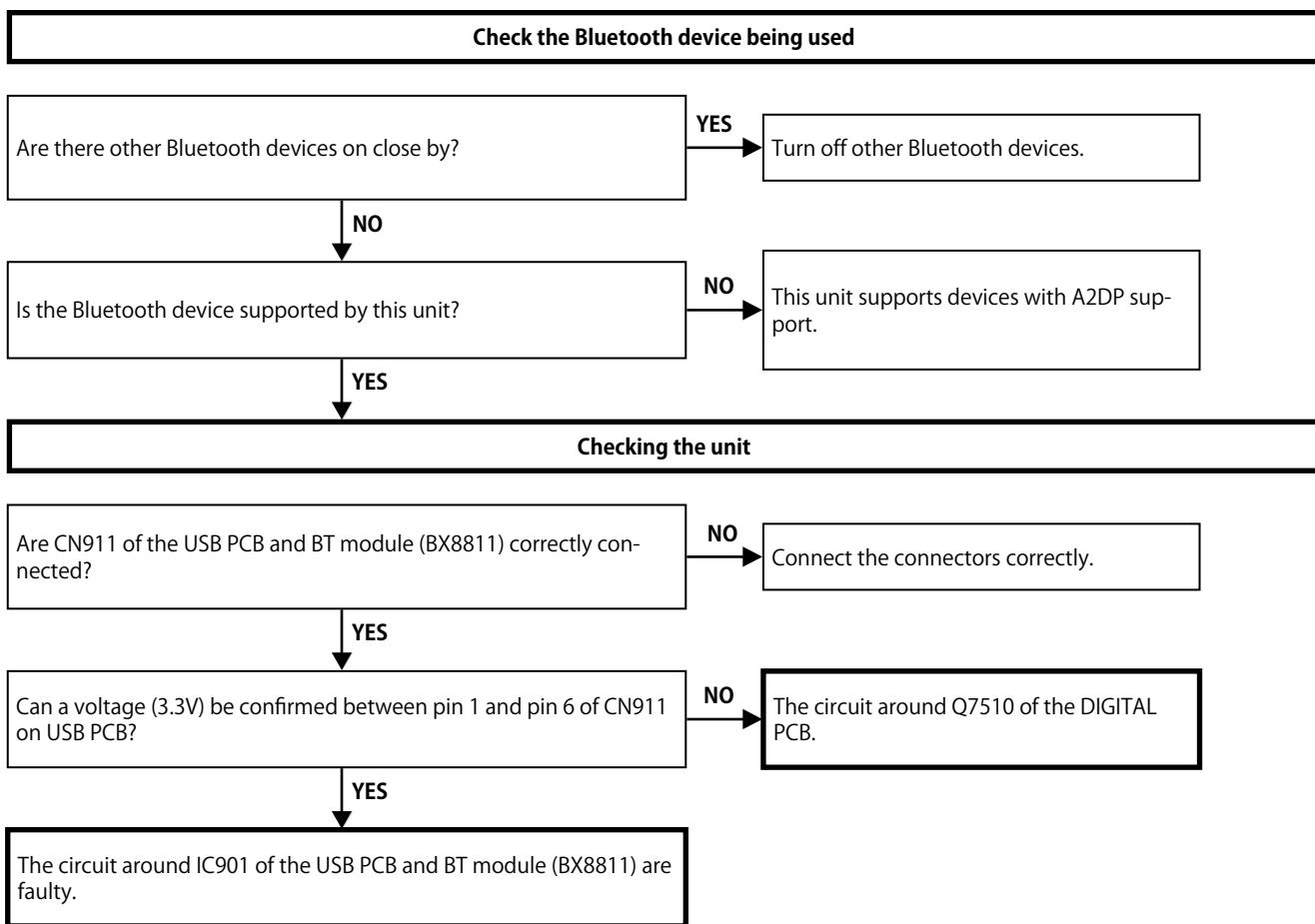


4.2. Power AMP (MAIN UNIT)

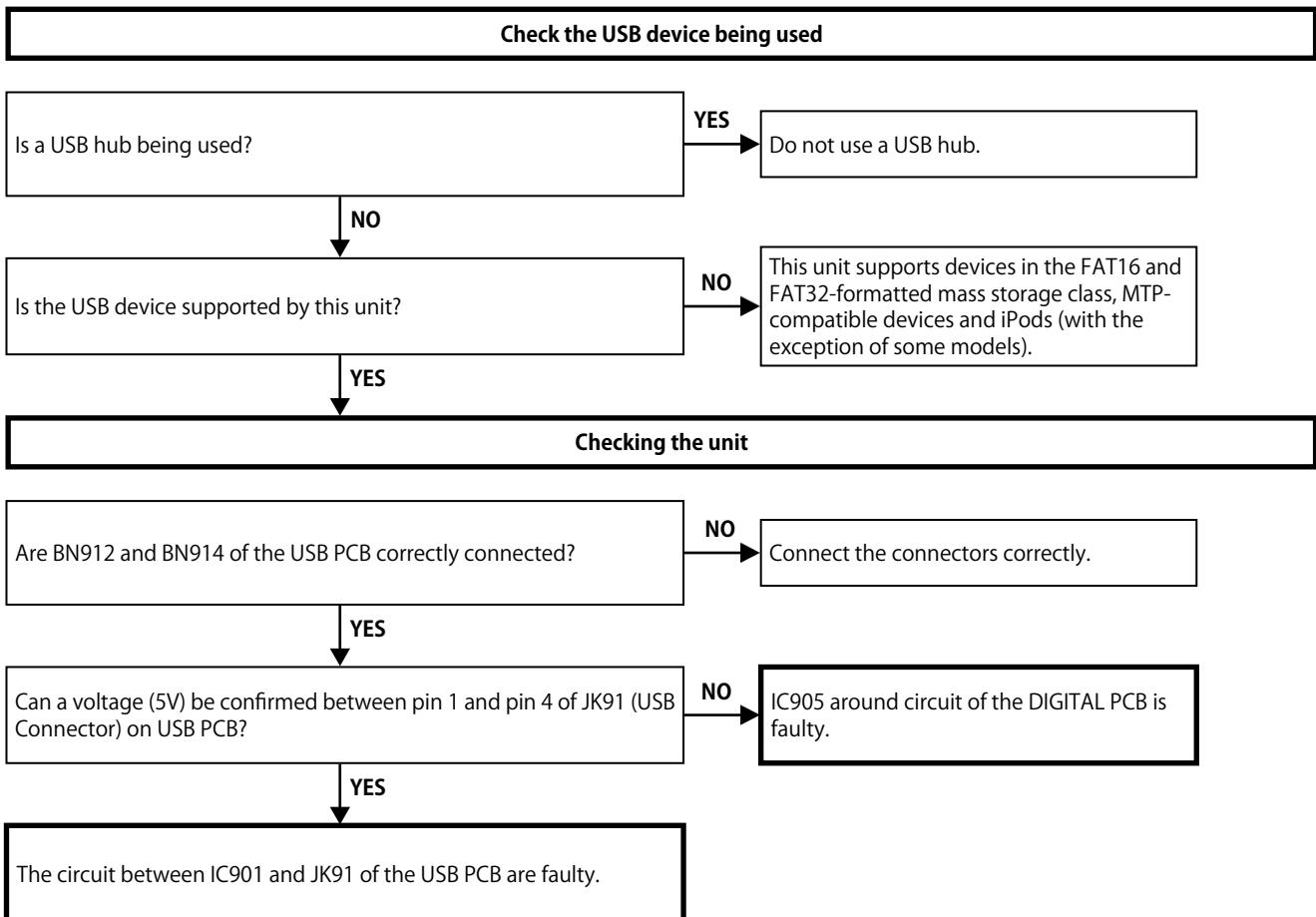


5. Bluetooth

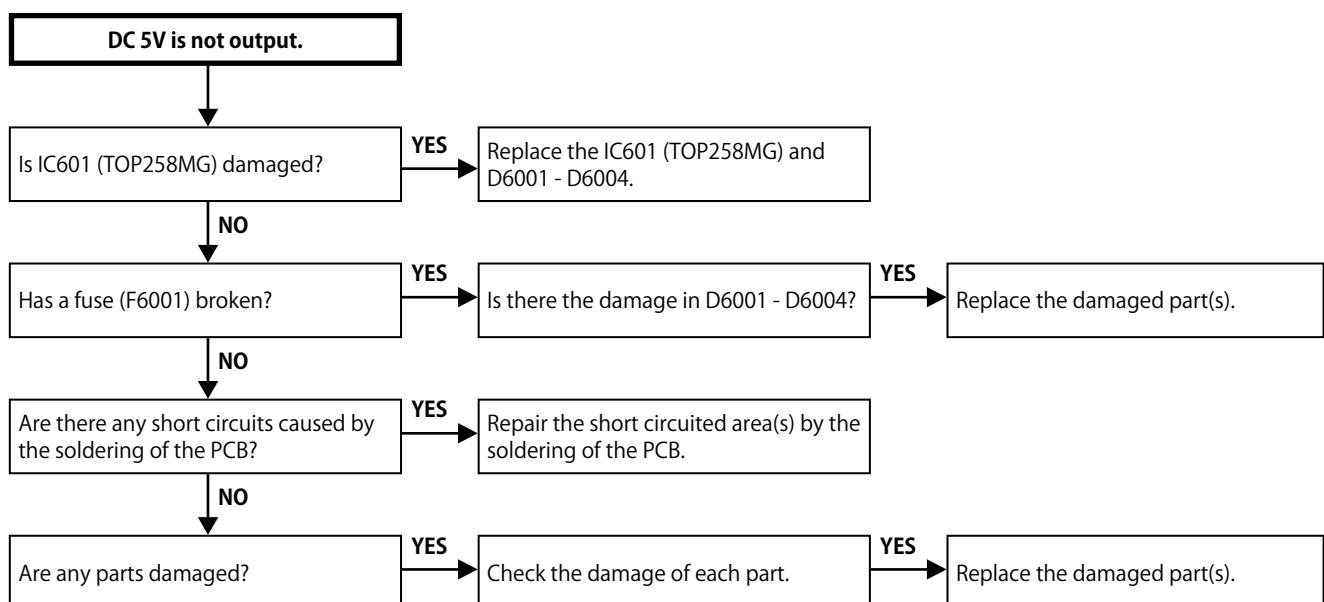
5.1. A connected Bluetooth device is not recognized.



5.2. A connected USB device is not recognized.

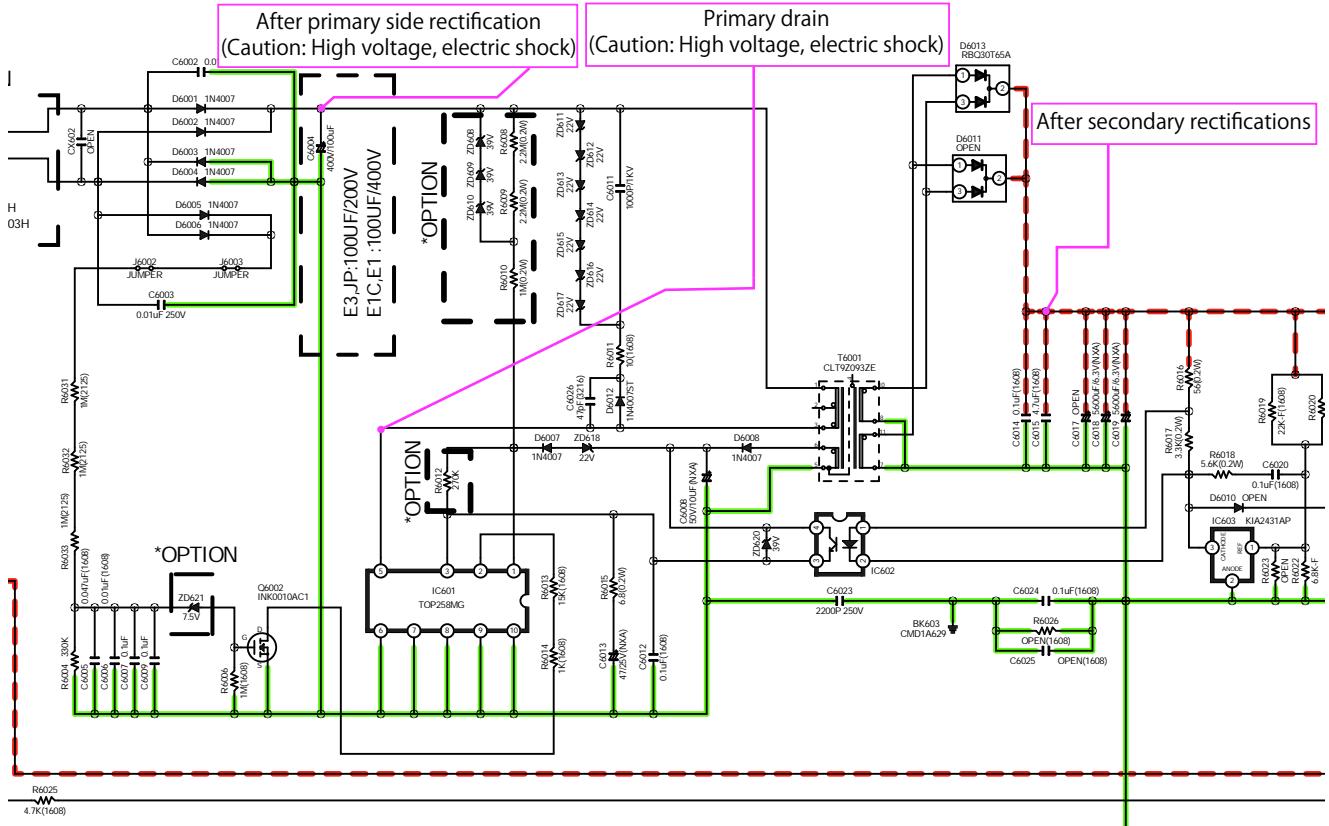


6. SMPS

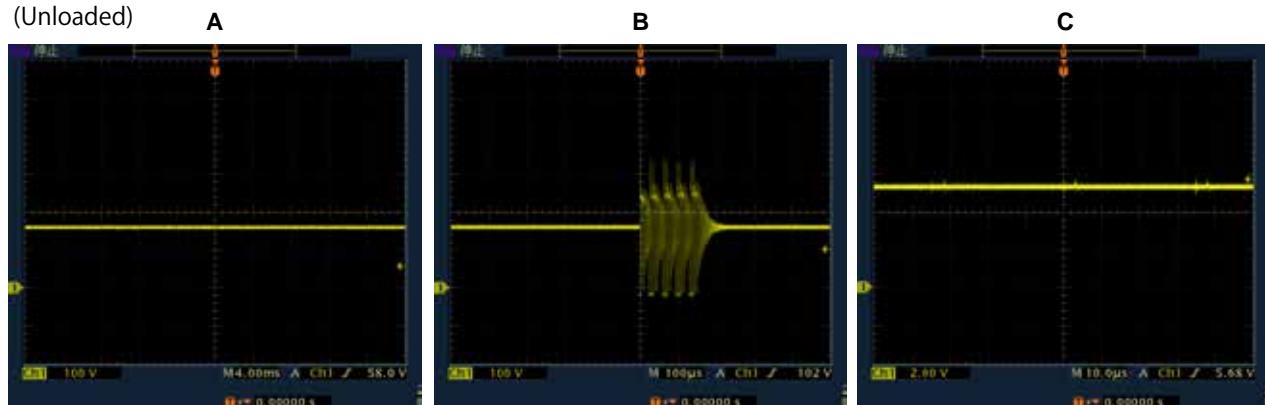


Operation waveform for each part

SMPS



SMPS unit
(Unloaded)



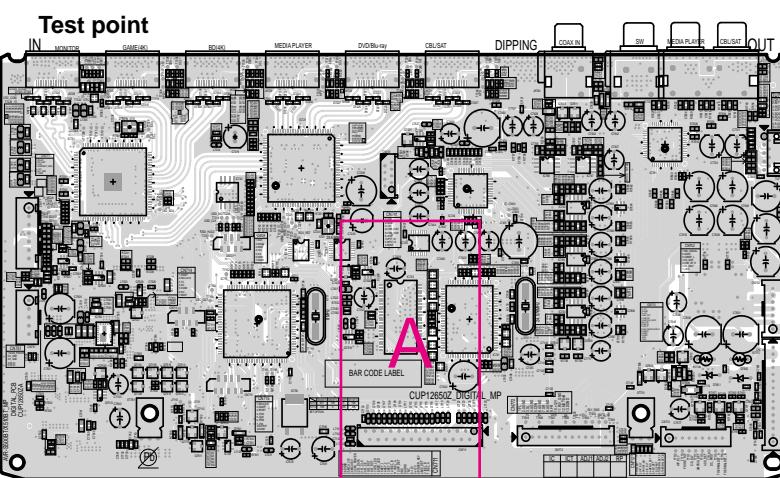
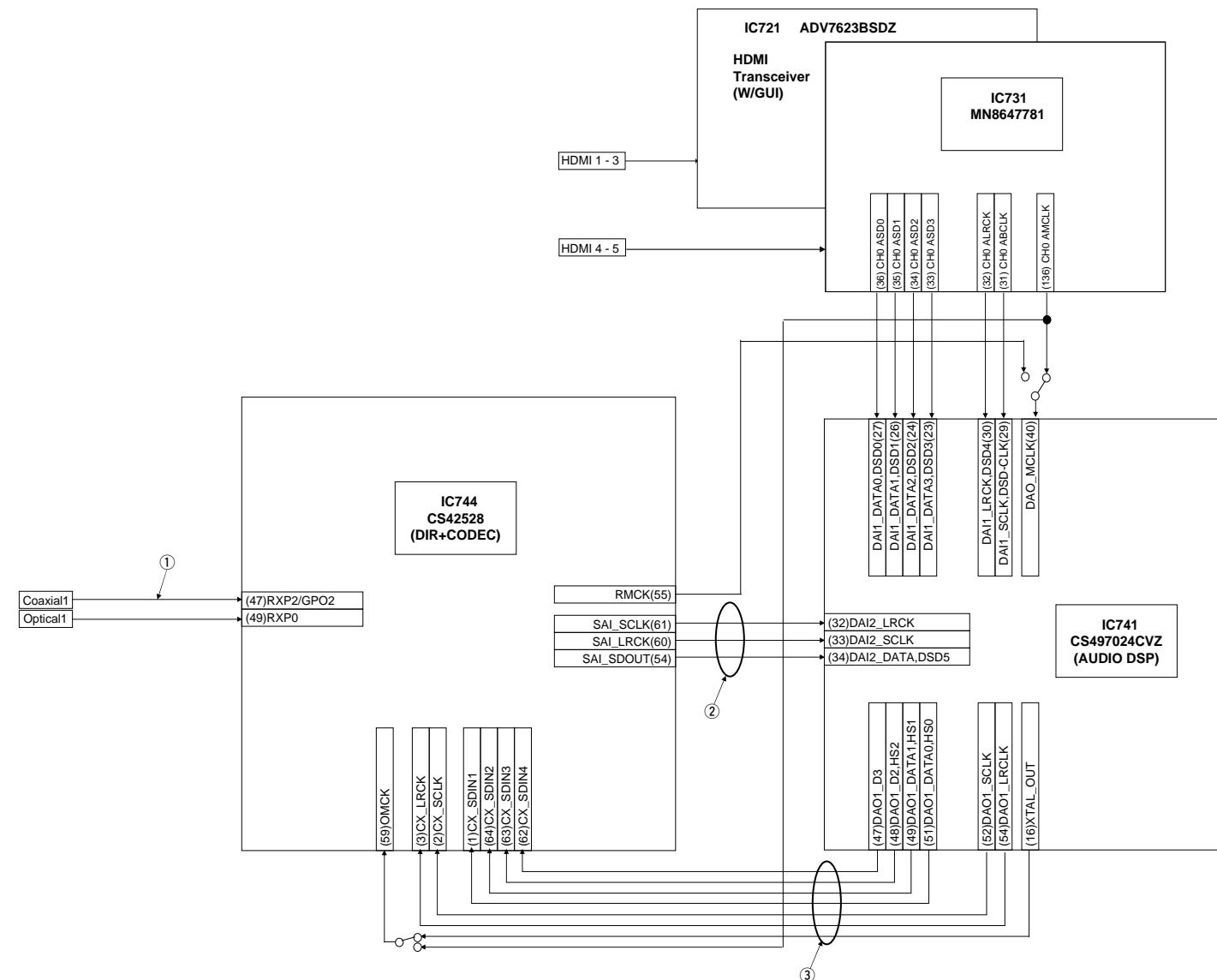
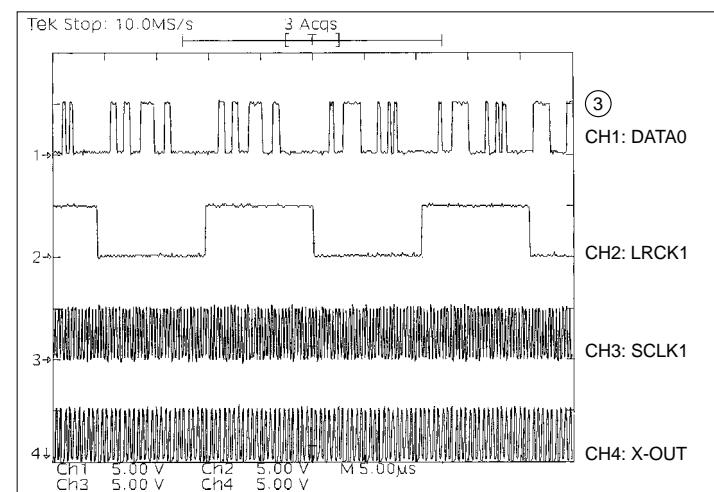
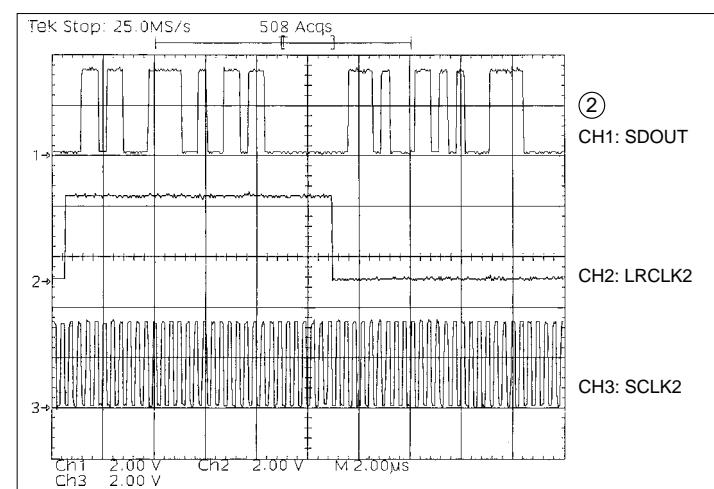
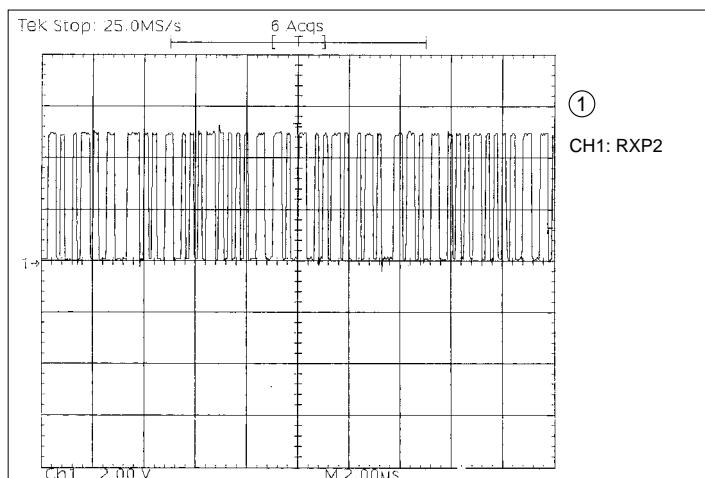
Set



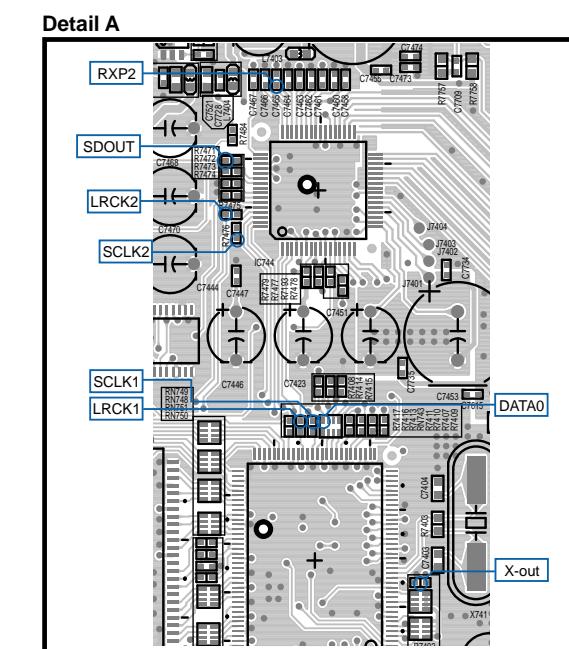
Personal notes:

CLOCK FLOW & WAVE FORM IN DIGITAL BLOCK

Wave form

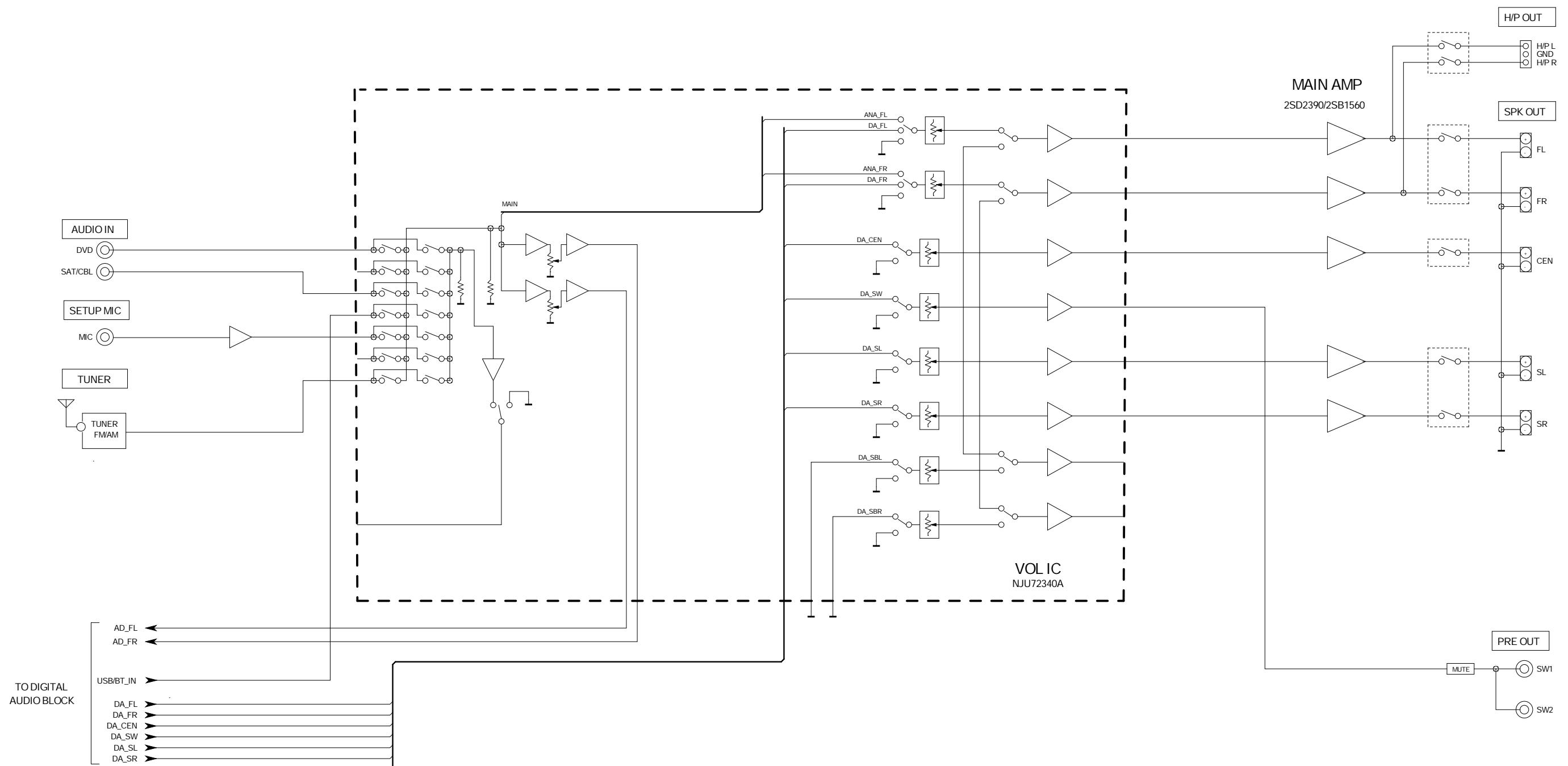


DIGITAL (COMPONENT SIDE)



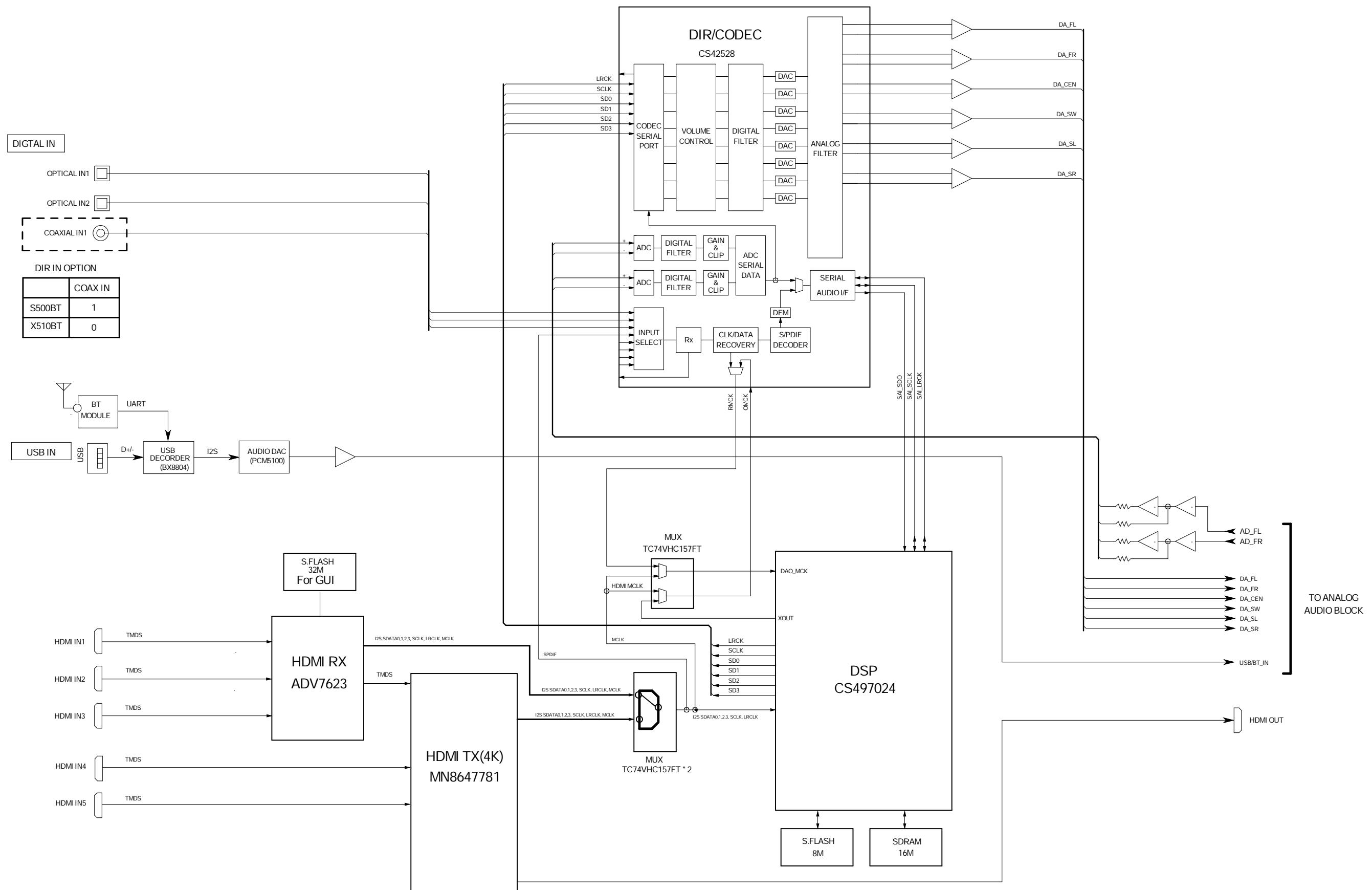
ANALOG AUDIO BLOCK DIAGRAM

AVR-S500BT/X510BT ANALOG AUDIO BLOCK



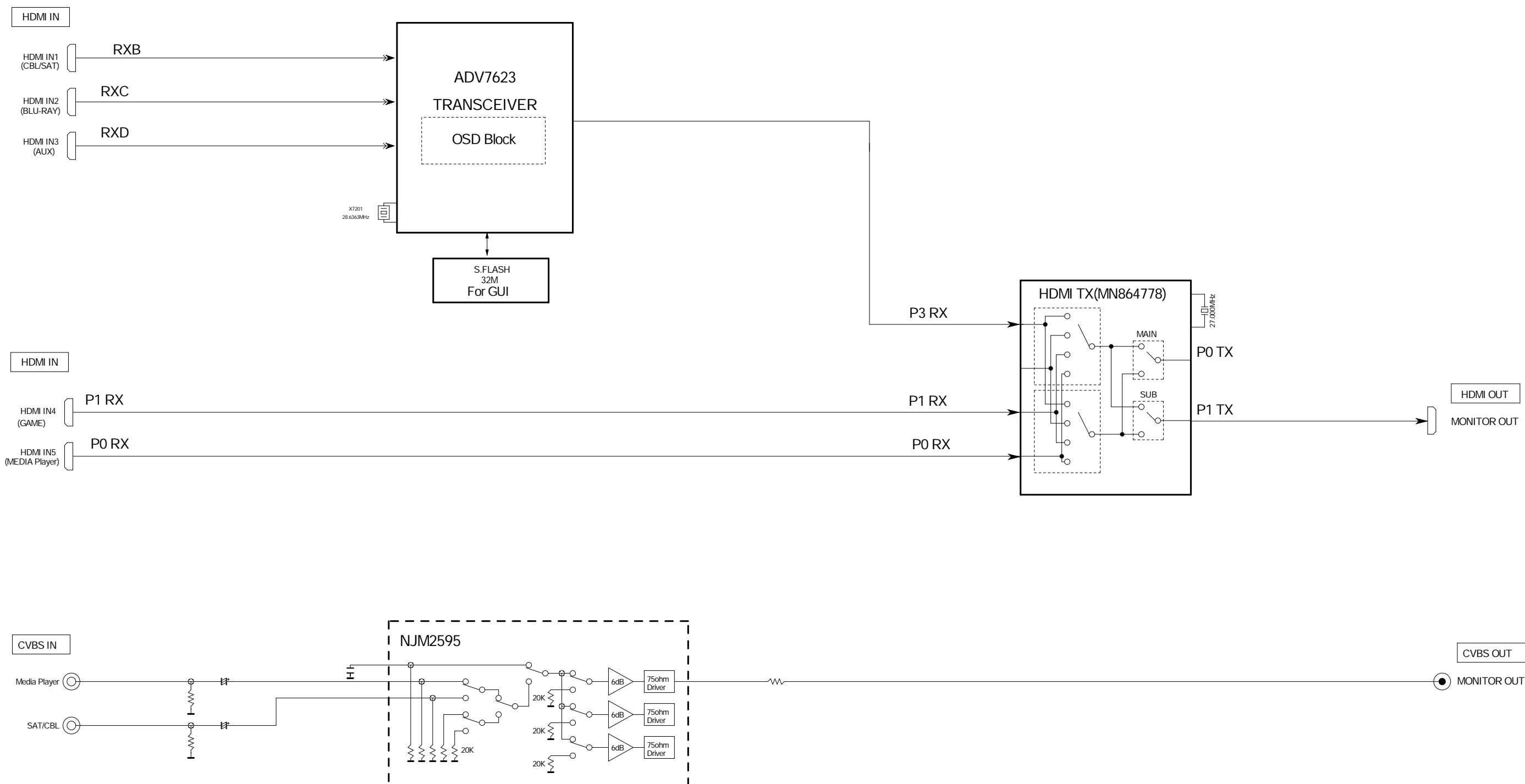
DIGITAL AUDIO/HDMI BLOCK DIAGRAM

AVR-S500BT/X510BT DIGITAL AUDIO/HDMI BLOCK



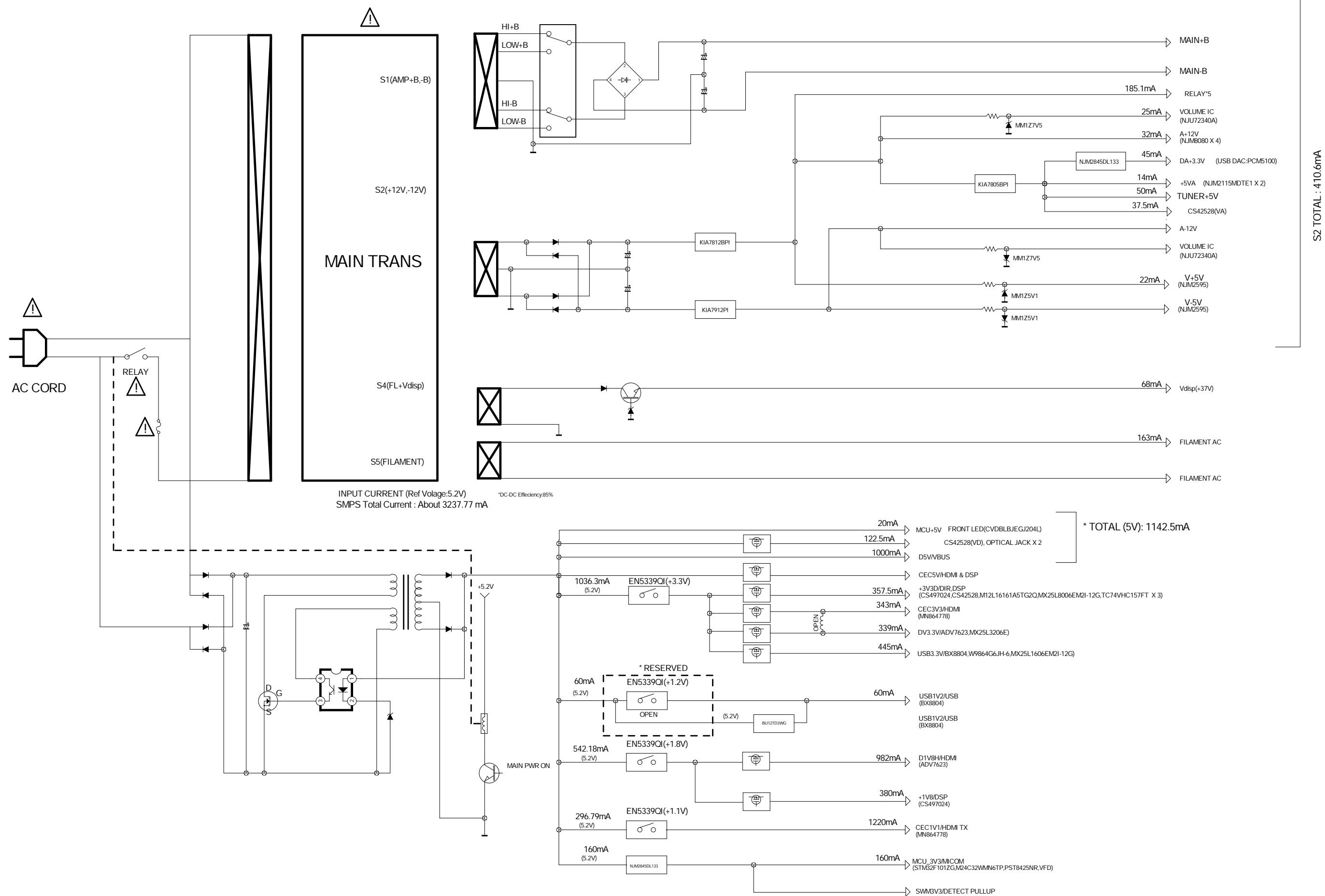
VIDEO BLOCK DIAGRAM

AVR-S500BT/X510BT VIDEO BLOCK



POWER BLOCK DIAGRAM

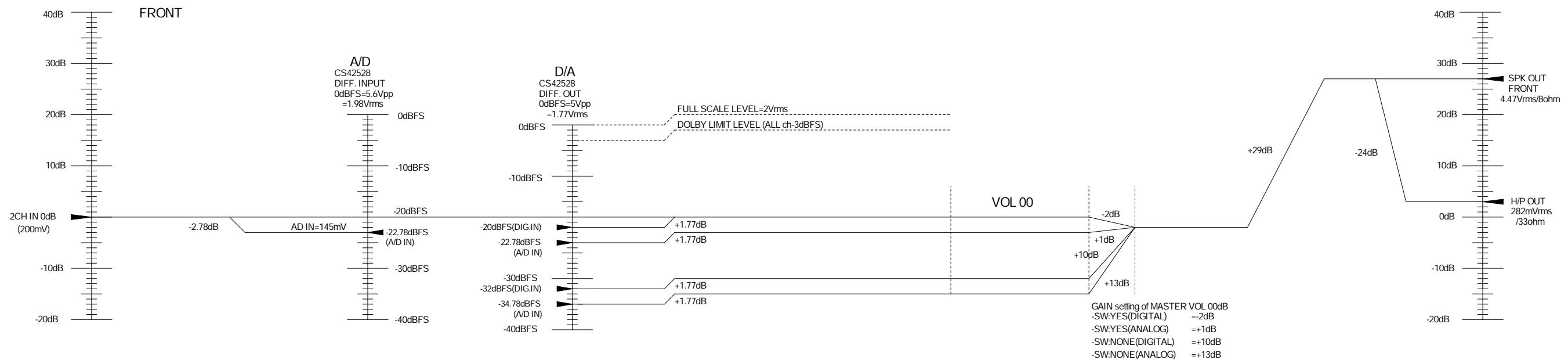
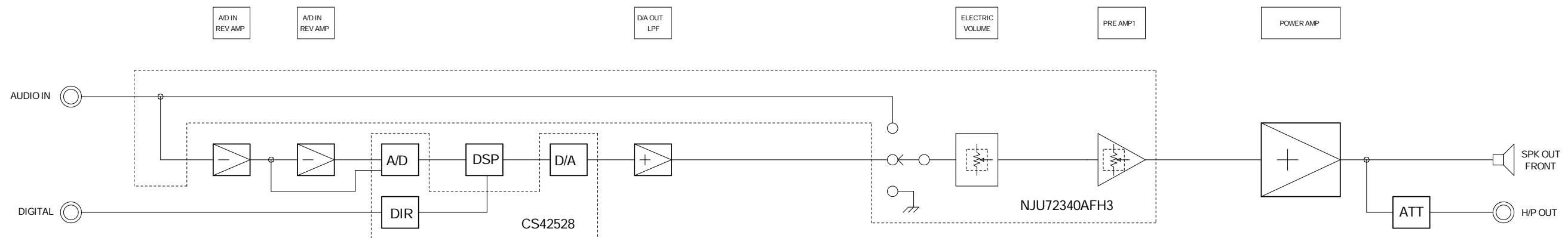
AVR-S500BT/X510BT VCC DIAGRAM



LEVEL DIAGRAM

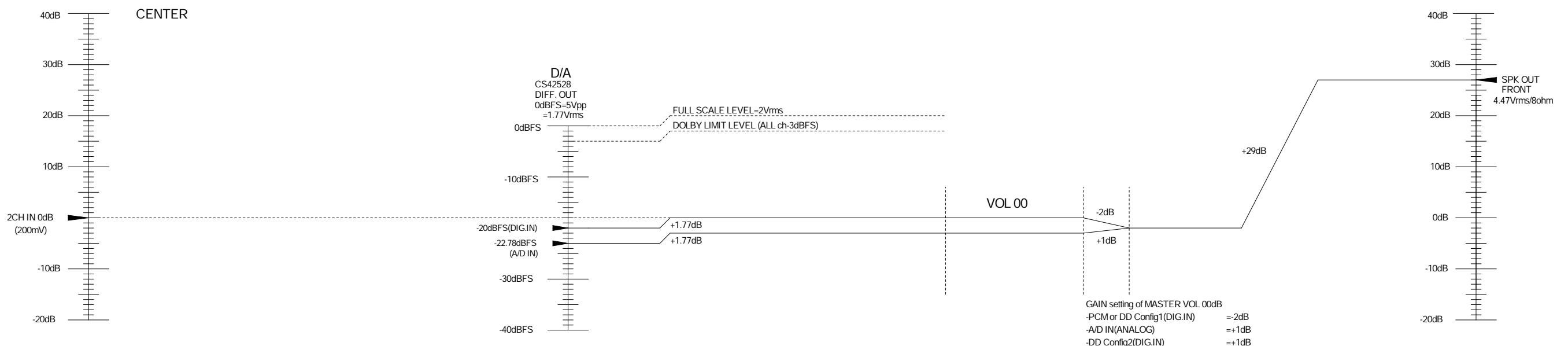
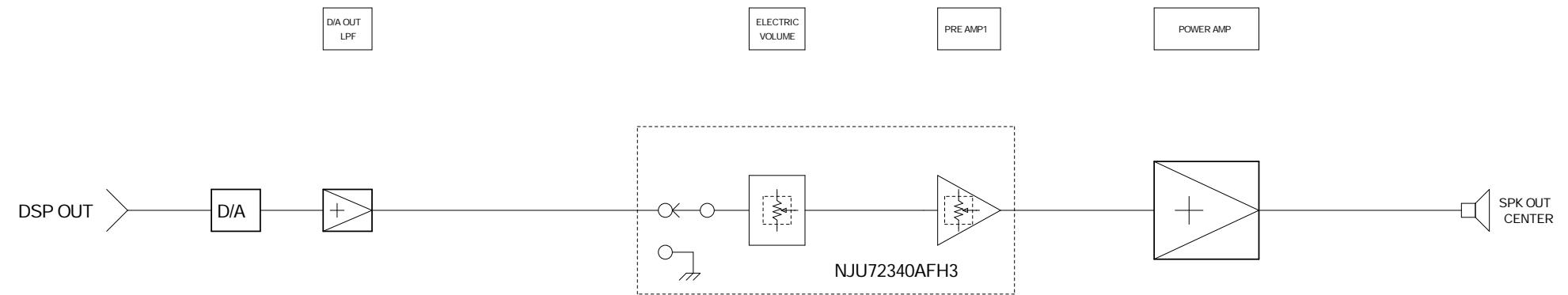
AVR-S500BT/X510BT LEVEL1 DIAGRAM

FRONT ch



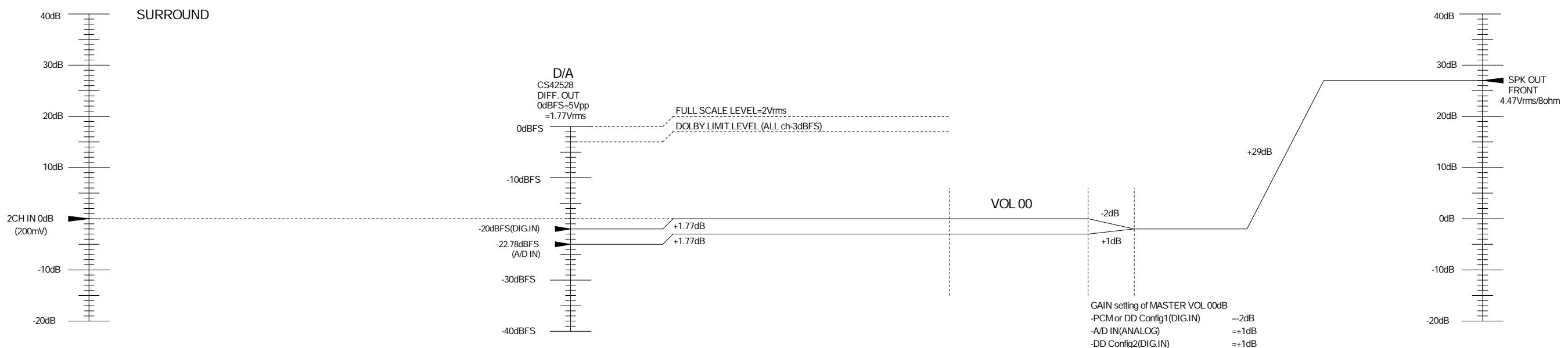
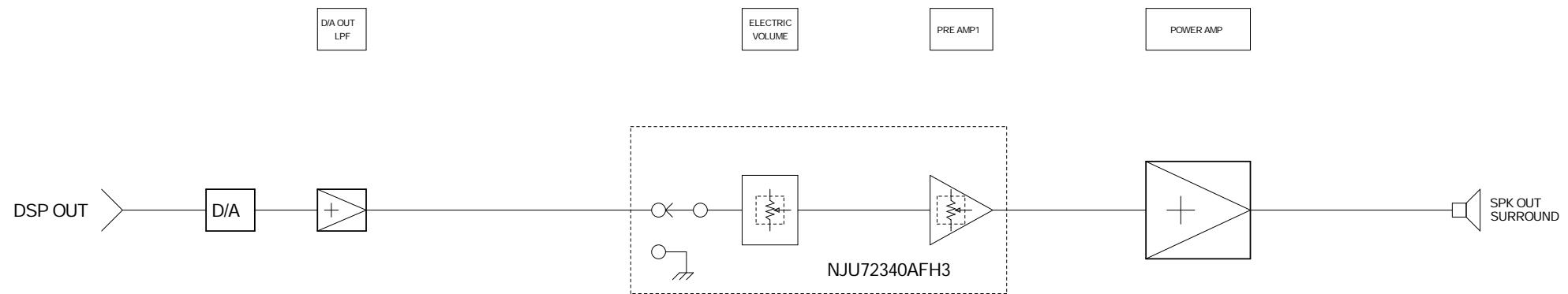
AVR-S500BT/X510BT LEVEL2 DIAGRAM

CENTER ch



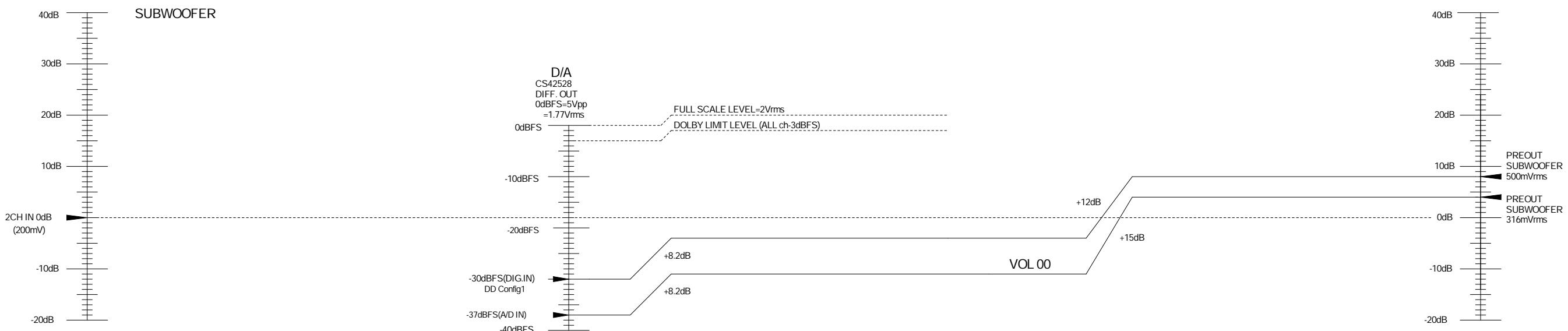
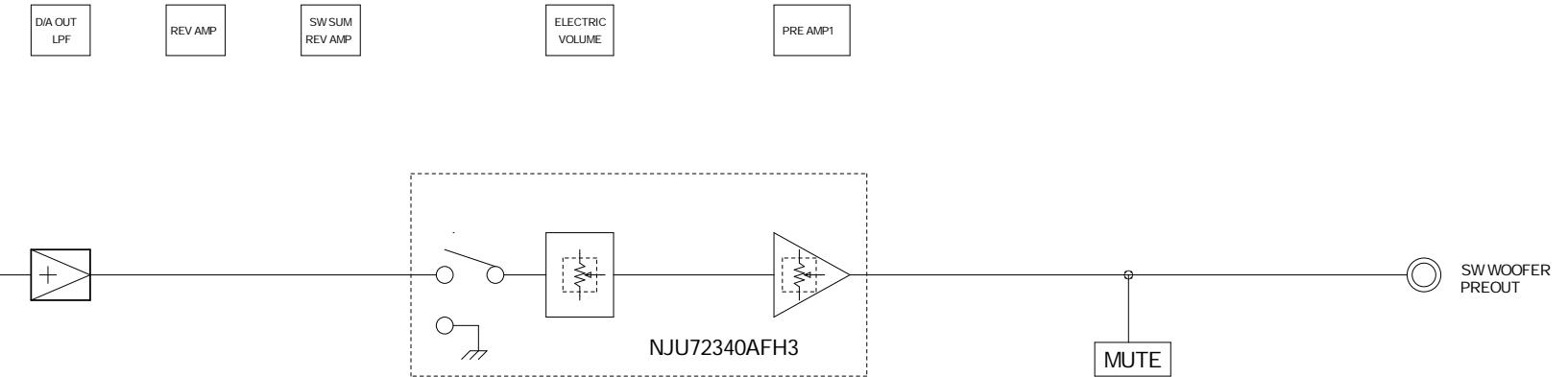
AVR-S500BT/X510BT LEVEL3 DIAGRAM

SURROUND ch



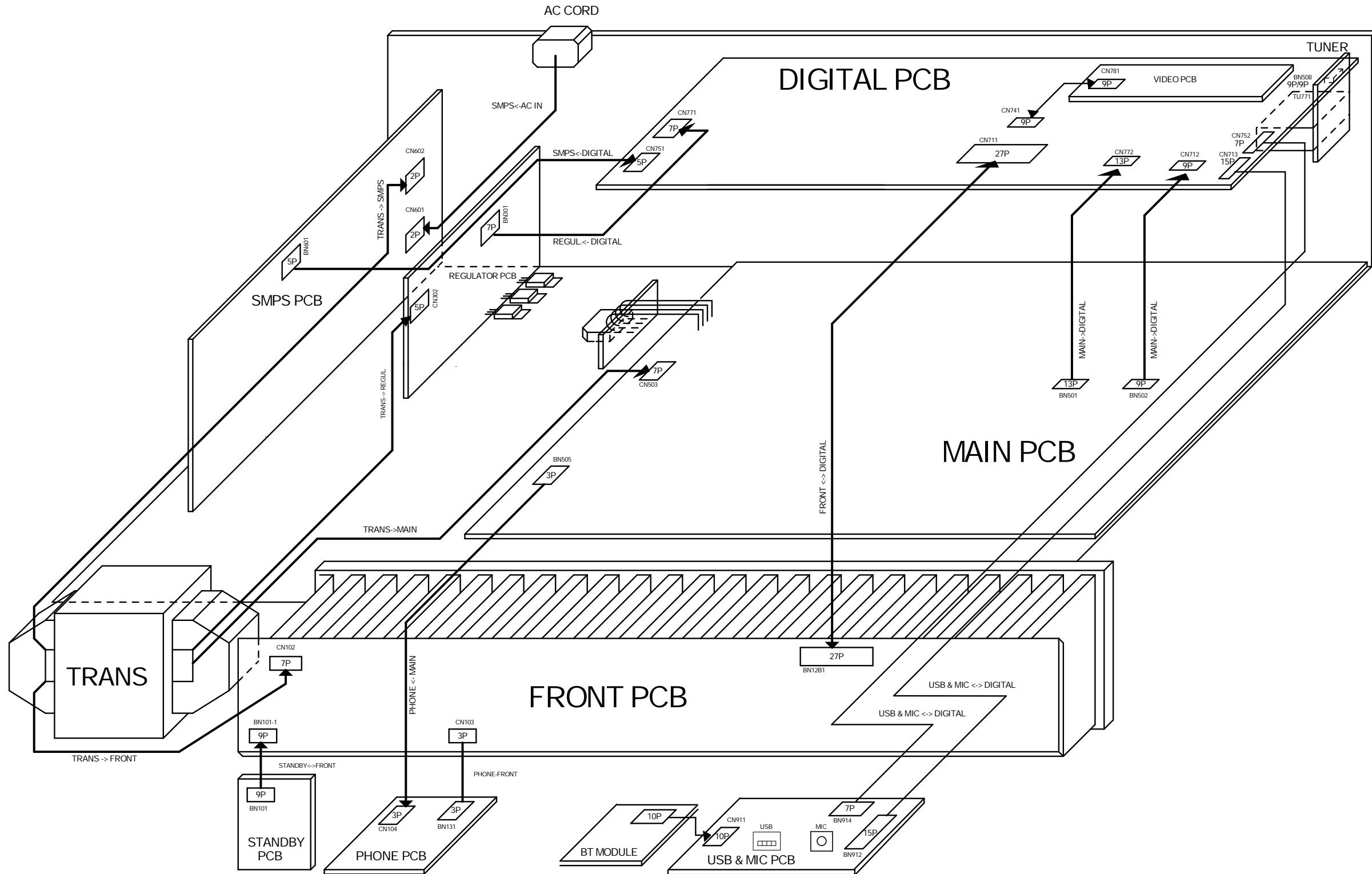
AVR-S500BT/X510BT LEVEL4 DIAGRAM

SUBWOOFER ch



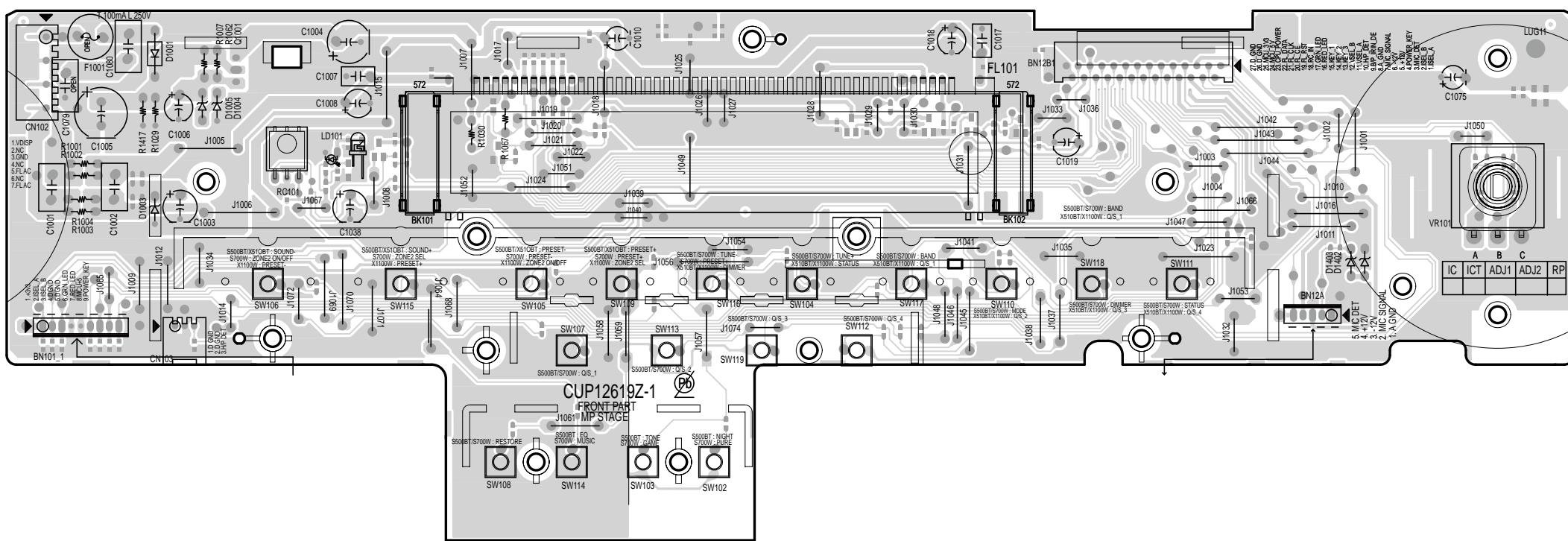
WIRING DIAGRAM

AVR-S500BT/X510BT WIRING DIAGRAM

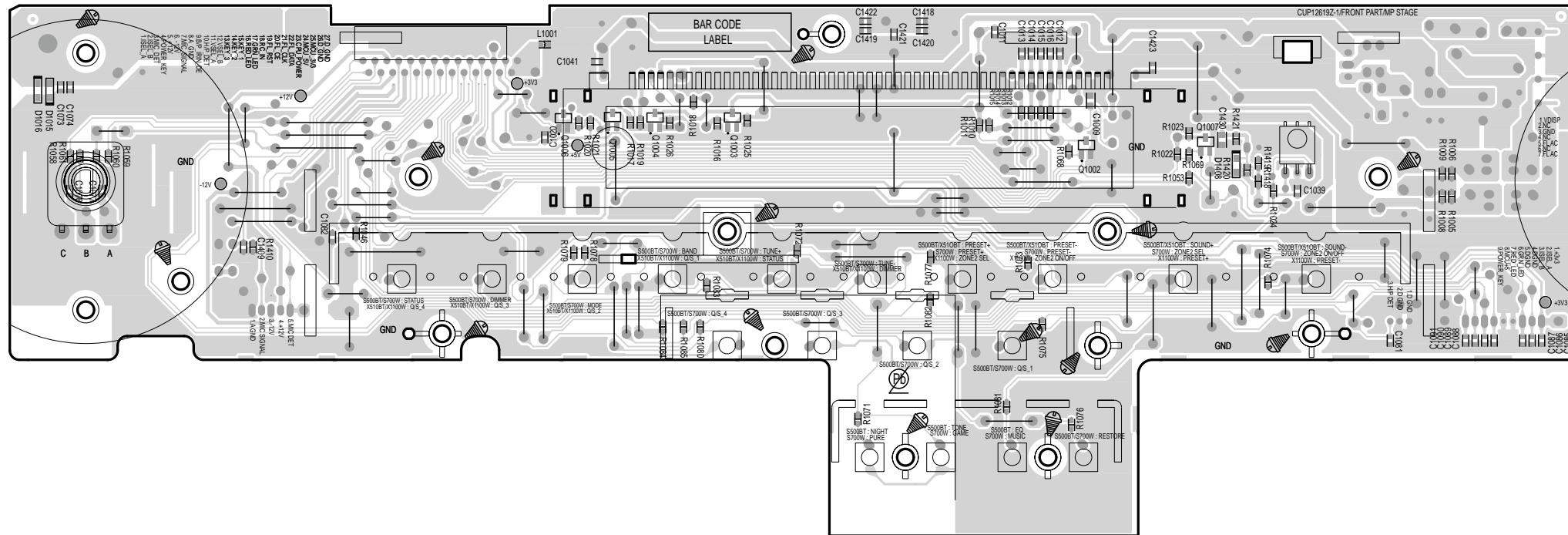


PRINTED WIRING BOARDS

**FRONT
(A SIDE)**



**FRONT
(B SIDE)**



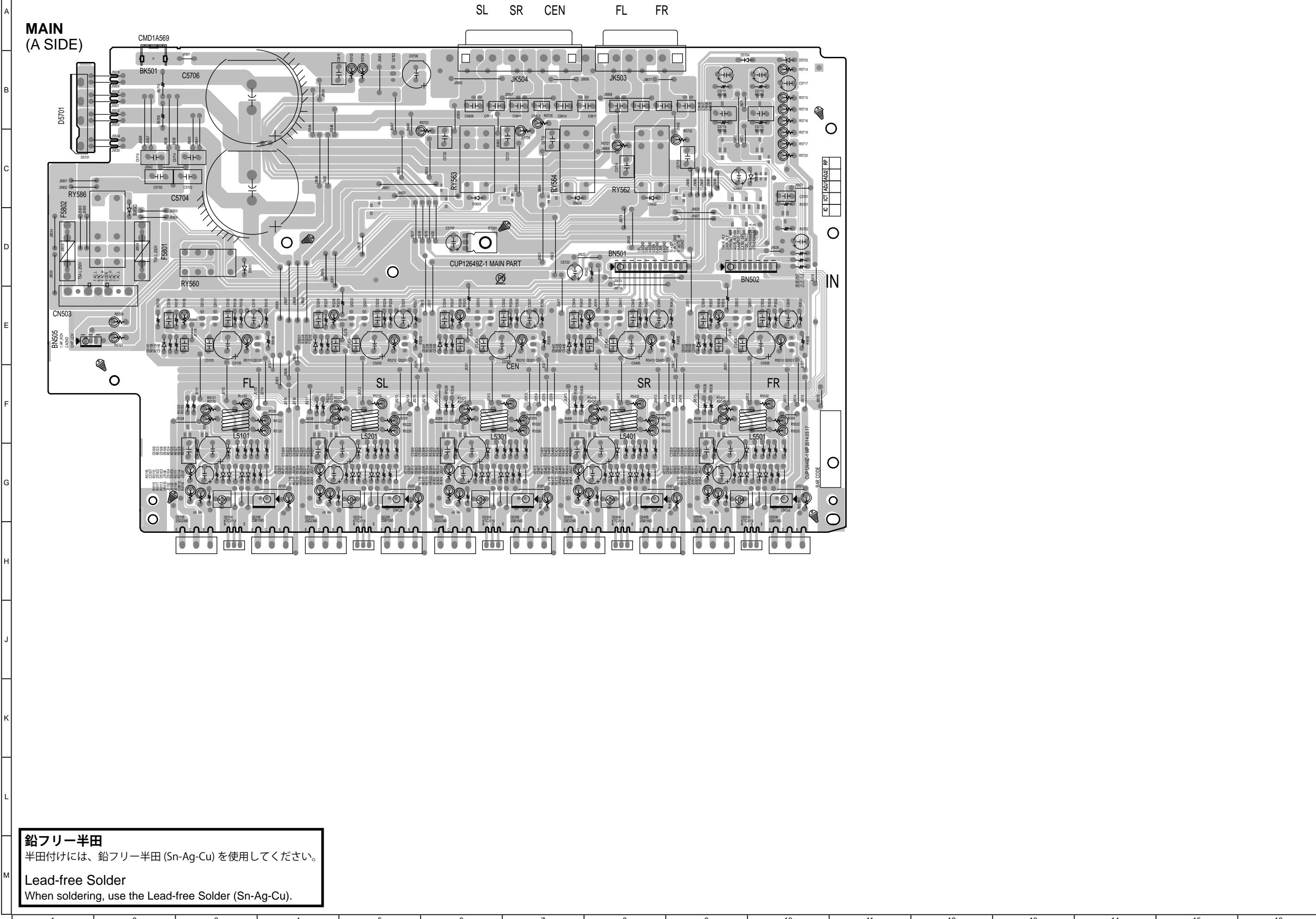
鉛フリー半田

半田付けには、鉛フリー半田 (Sn-Ag-Cu) を使用してください。

Lead-free Solder

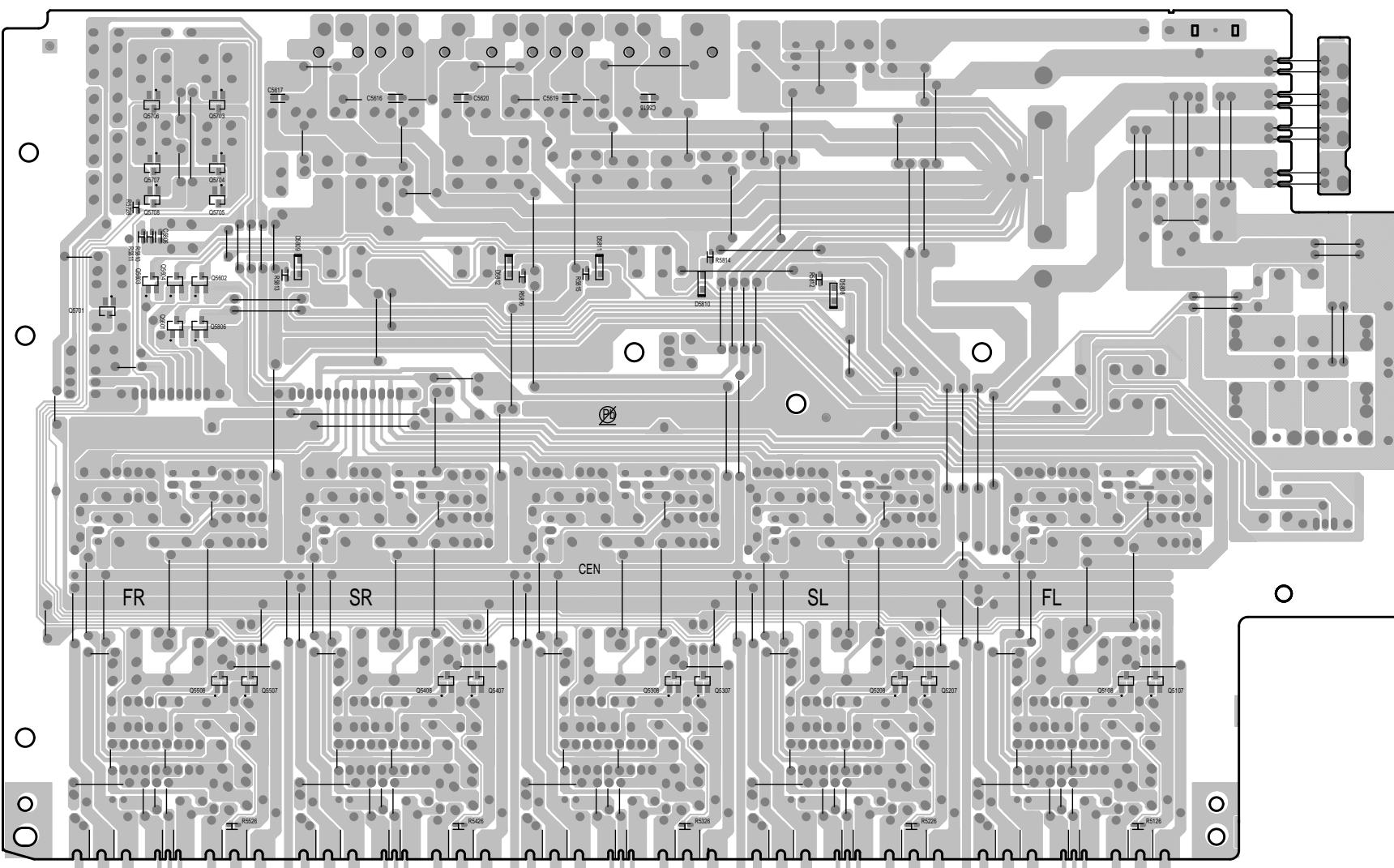
When soldering, use the Lead-free Solder (Sn-Ag-Cu).

PRINTED WIRING BOARDS



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

A
**MAIN
(B SIDE)**



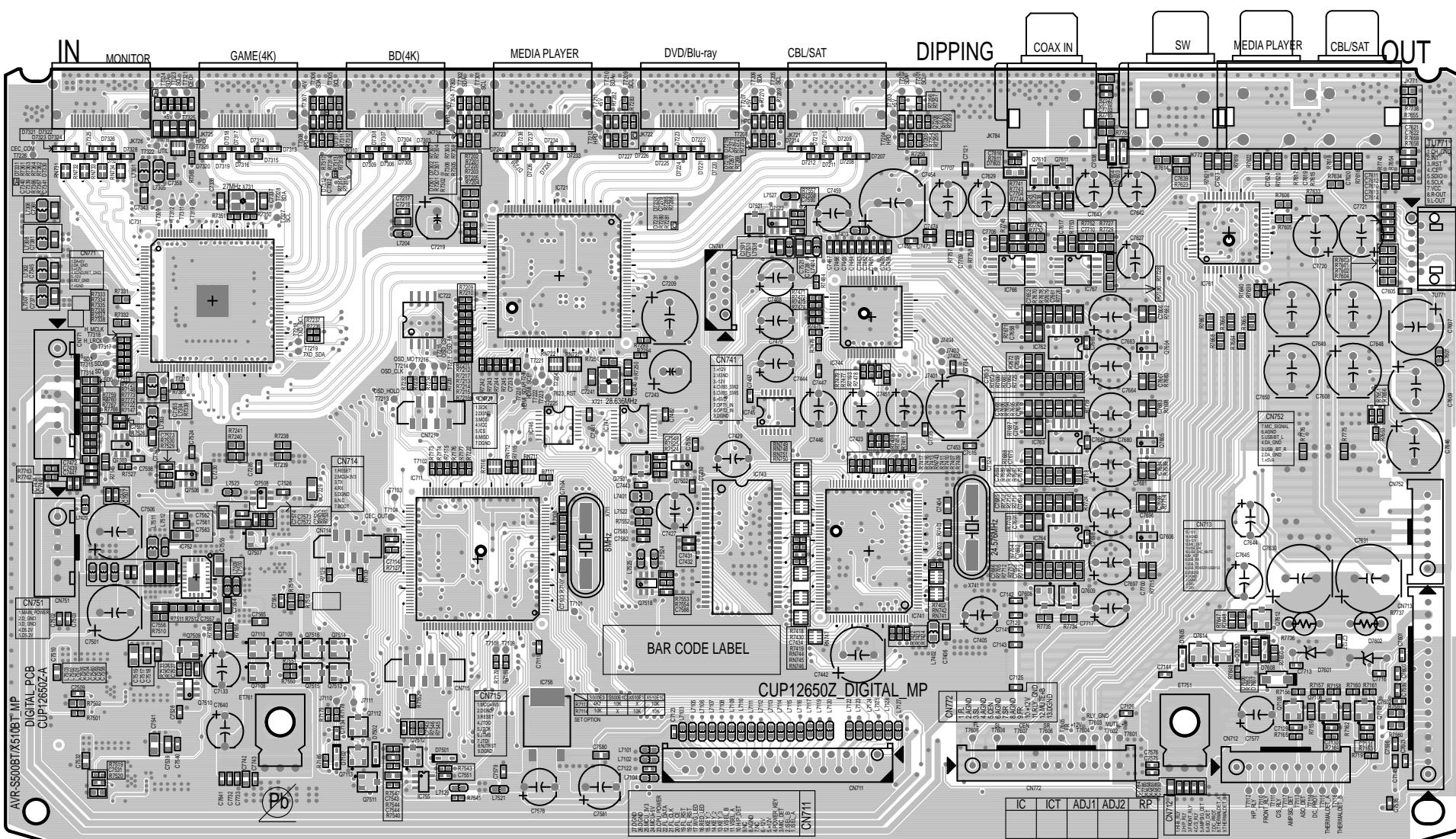
M
鉛フリー半田
半田付けには、鉛フリー半田 (Sn-Ag-Cu) を使用してください。
Lead-free Solder
When soldering, use the Lead-free Solder (Sn-Ag-Cu).

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

A B C D E F G H J K L M

DIGITAL

(A SIDE)

**鉛フリー半田**

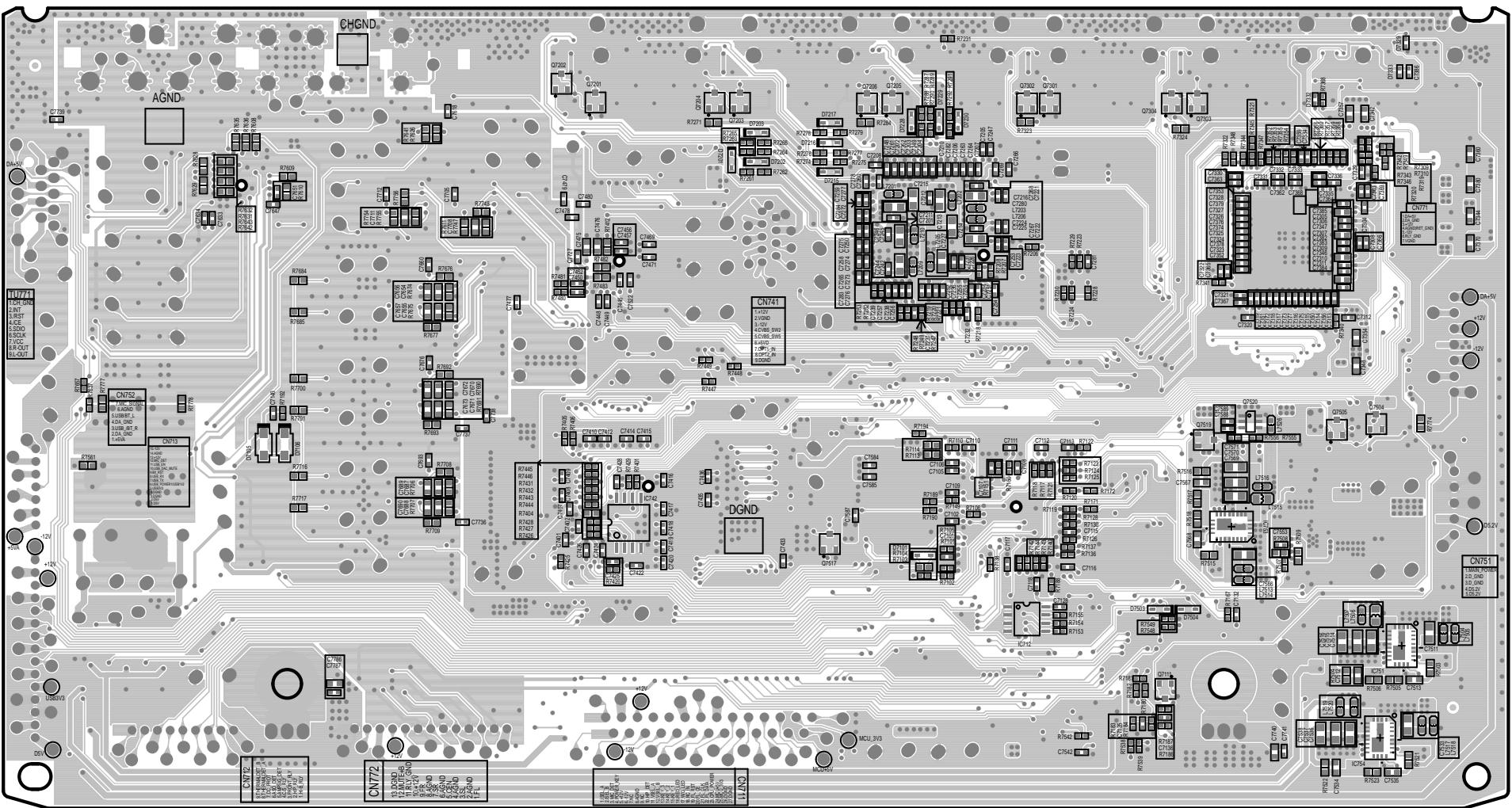
半田付けには、鉛フリー半田 (Sn-Ag-Cu) を使用してください。

Lead-free Solder

When soldering, use the Lead-free Solder (Sn-Ag-Cu).

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

DIGITAL
(B SIDE)



A

B

C

D

E

F

G

H

J

K

L

M

鉛フリー半田

半田付けには、鉛フリー半田 (Sn-Ag-Cu) を使用してください。

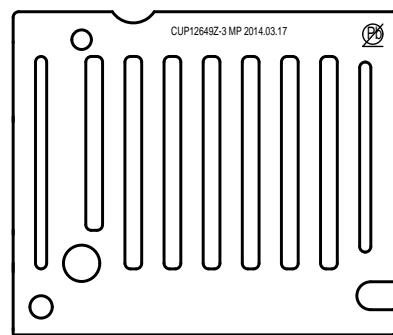
Lead-free Solder

When soldering, use the Lead-free Solder (Sn-Ag-Cu).

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

A

**FRONT CABLE GUIDE
(A SIDE)**



B

C

D

E

F

G

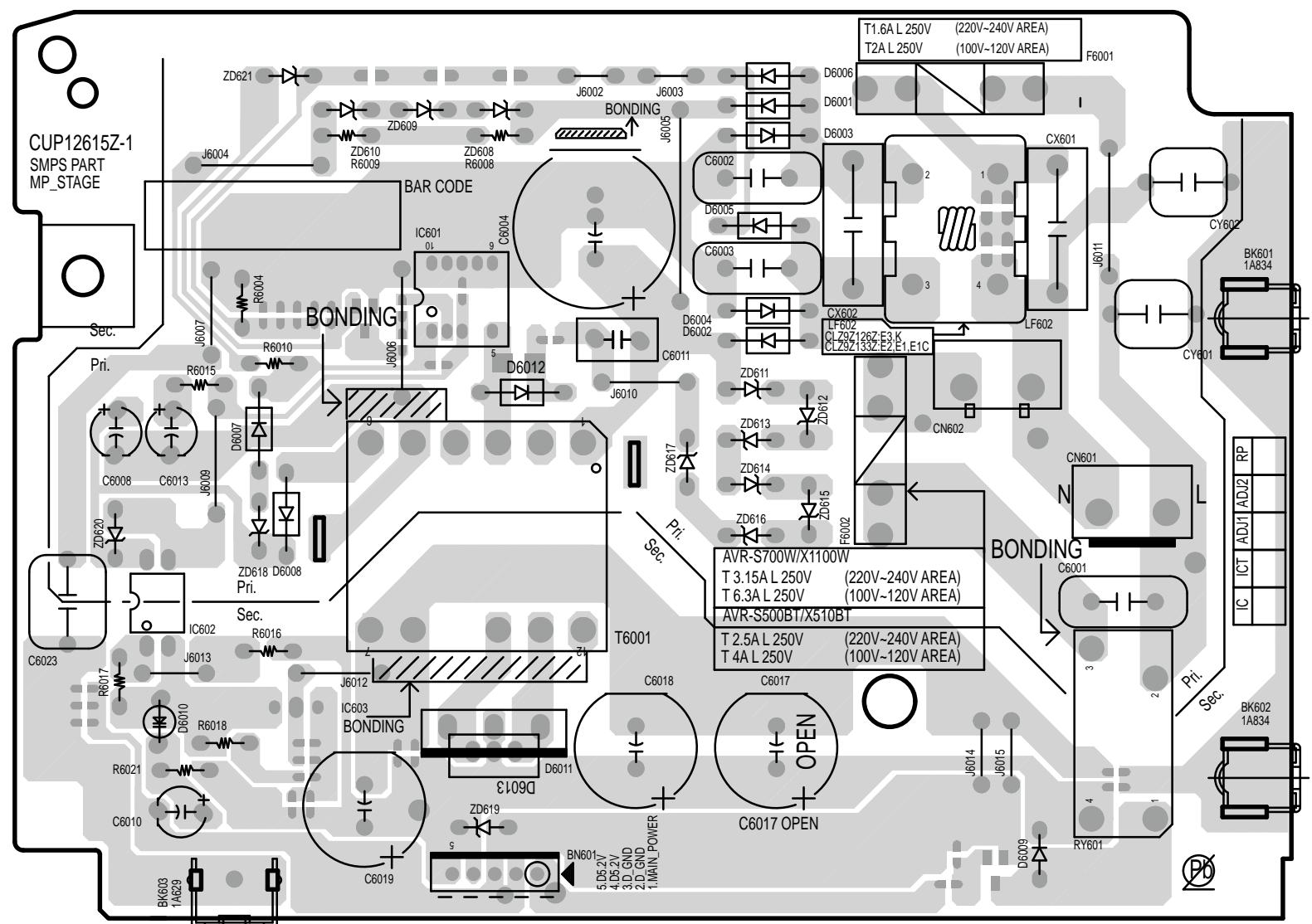
J

K

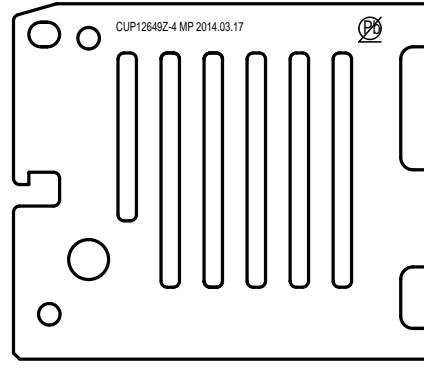
L

M

**SMPS
(A SIDE)**



**USB WIRE GUIDE
(A SIDE)**



鉛フリー半田

半田付けには、鉛フリー半田 (Sn-Ag-Cu) を使用してください。

Lead-free Solder

When soldering, use the Lead-free Solder (Sn-Ag-Cu).

A

B

C

D

E

F

G

H

J

K

L

M

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

A

B

C

D

E

F

G

H

J

K

L

M

A

B

C

D

E

F

G

H

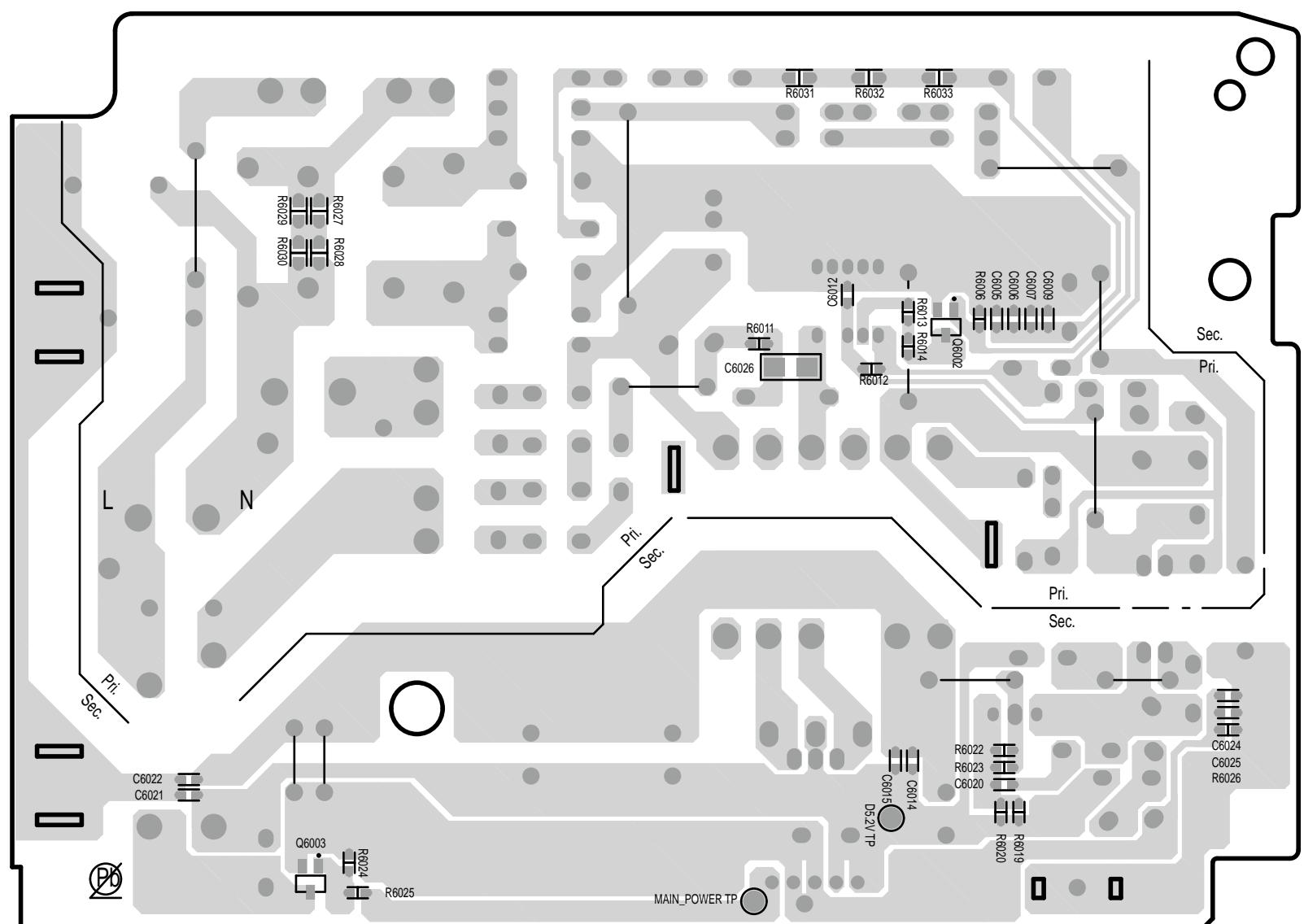
J

K

L

M

SMPS (B SIDE)



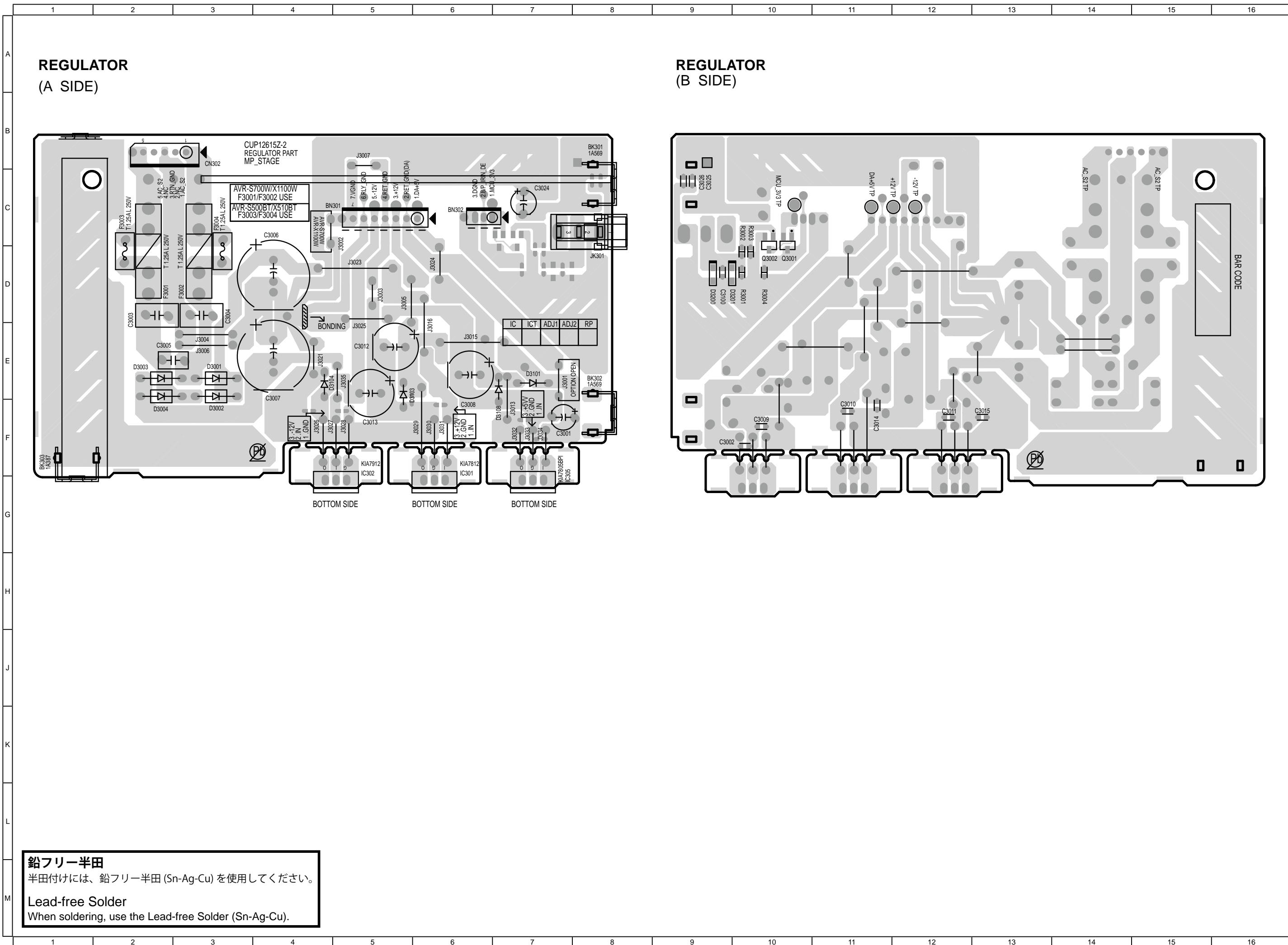
鉛フリー半田

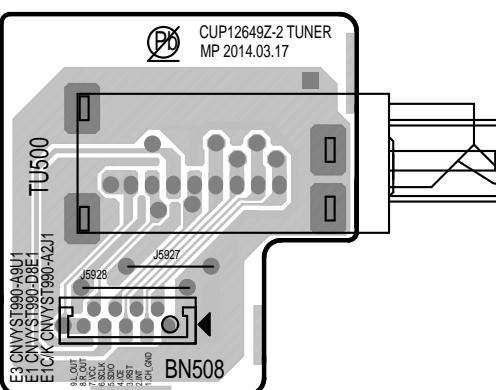
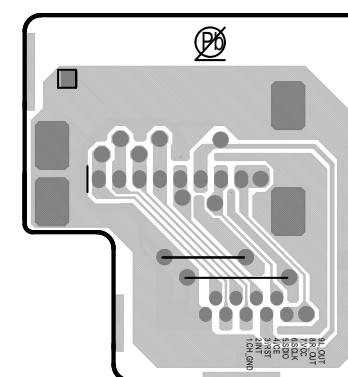
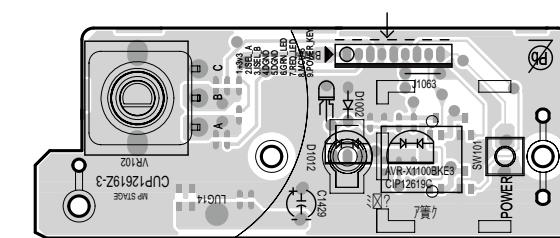
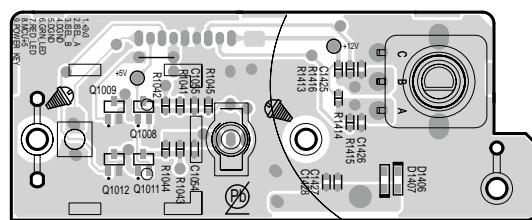
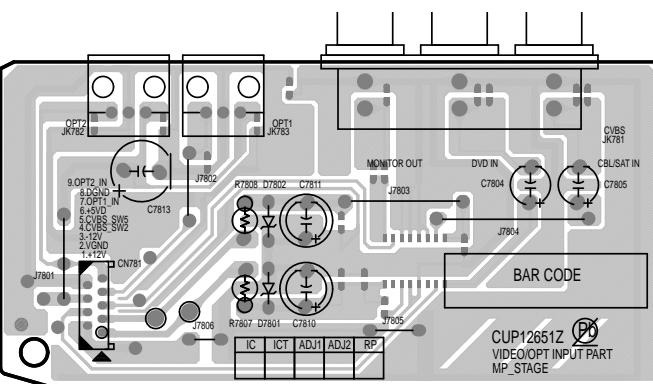
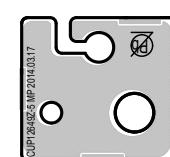
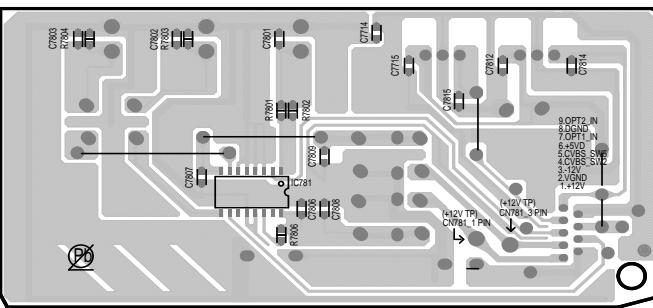
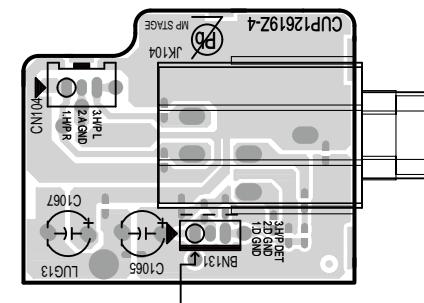
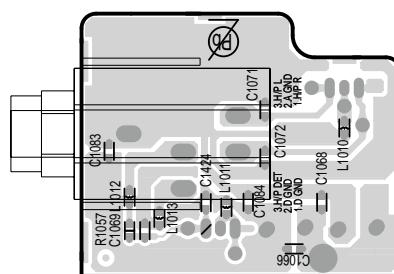
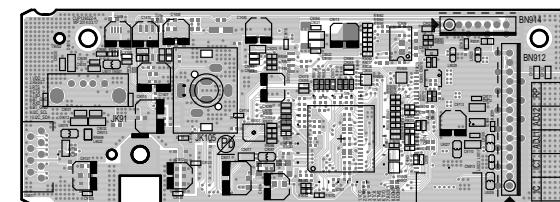
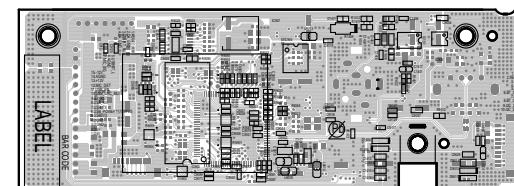
半田付けには、鉛フリー半田 (Sn-Ag-Cu) を使用してください。

Lead-free Solder

When soldering, use the Lead-free Solder (Sn-Ag-Cu).

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

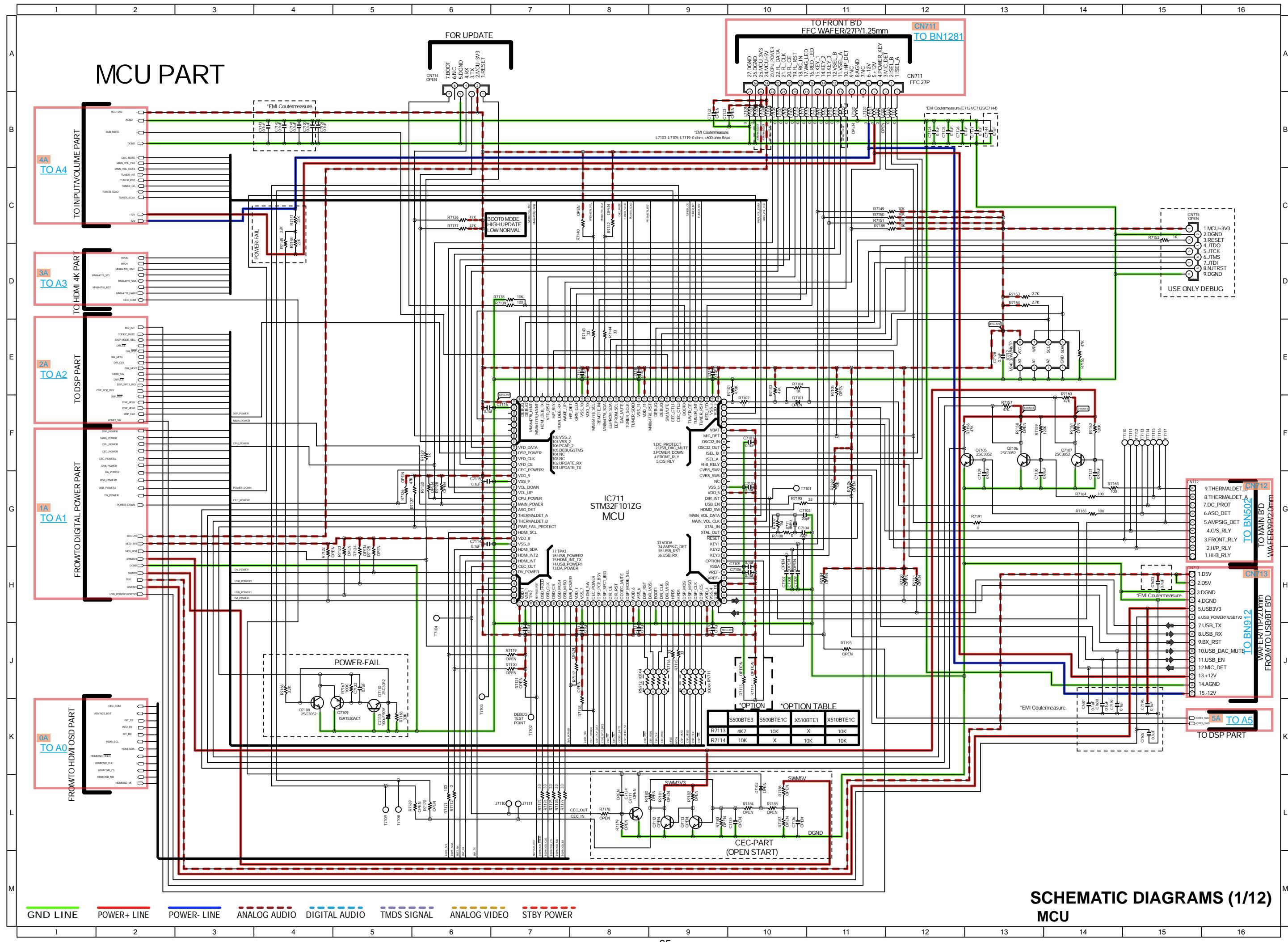


**TUNER
(A SIDE)****TUNER
(B SIDE)****STANDBY
(A SIDE)****STANDBY
(B SIDE)****VIDEO
(A SIDE)****PHONE WIRE GUIDE
(A SIDE)****VIDEO
(B SIDE)****PHONE
(A SIDE)****PHONE
(B SIDE)****USB & MIC
(A SIDE)****USB & MIC
(B SIDE)****鉛フリー半田**

半田付けには、鉛フリー半田 (Sn-Ag-Cu) を使用してください。

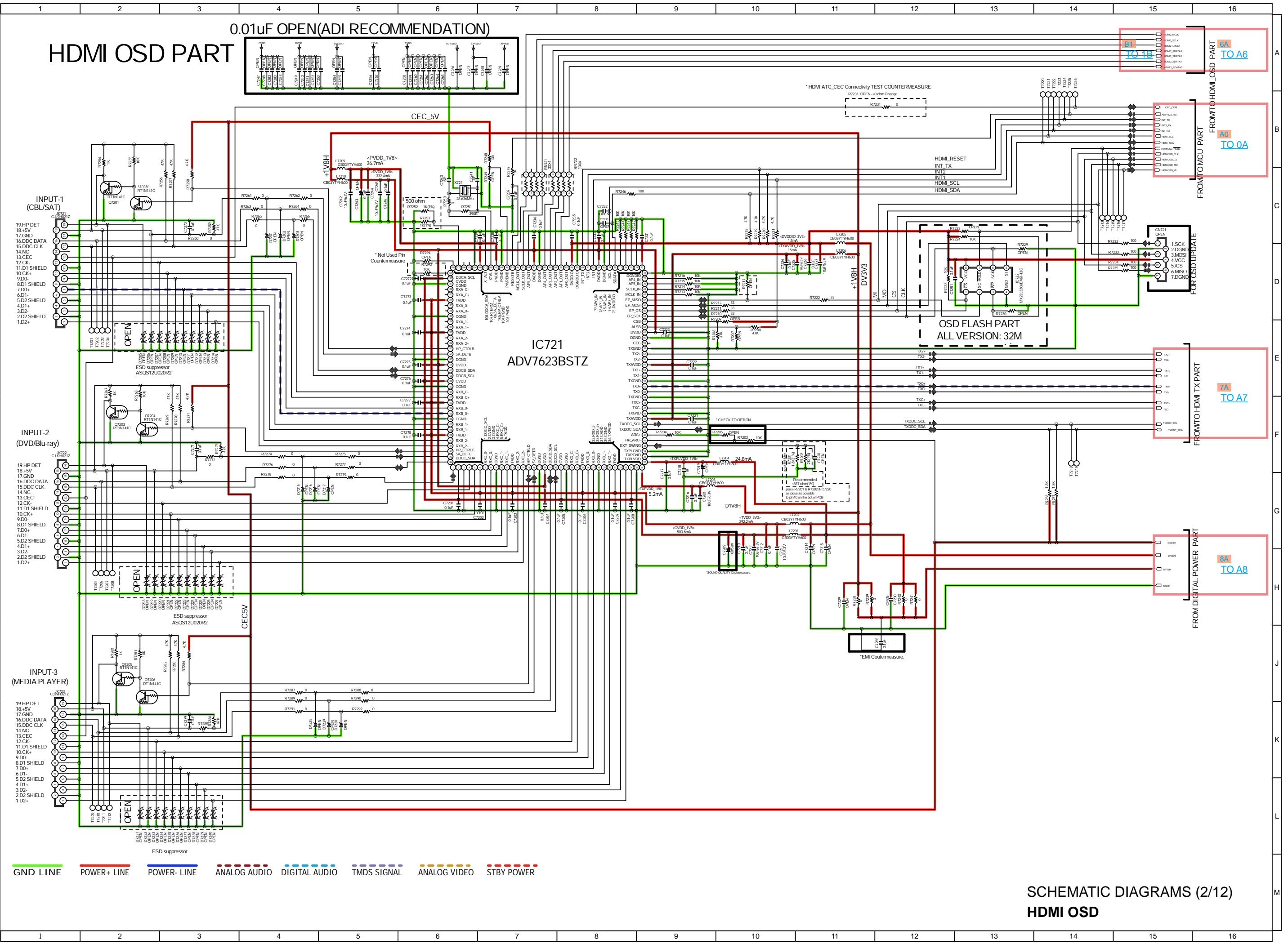
Lead-free Solder

When soldering, use the Lead-free Solder (Sn-Ag-Cu).

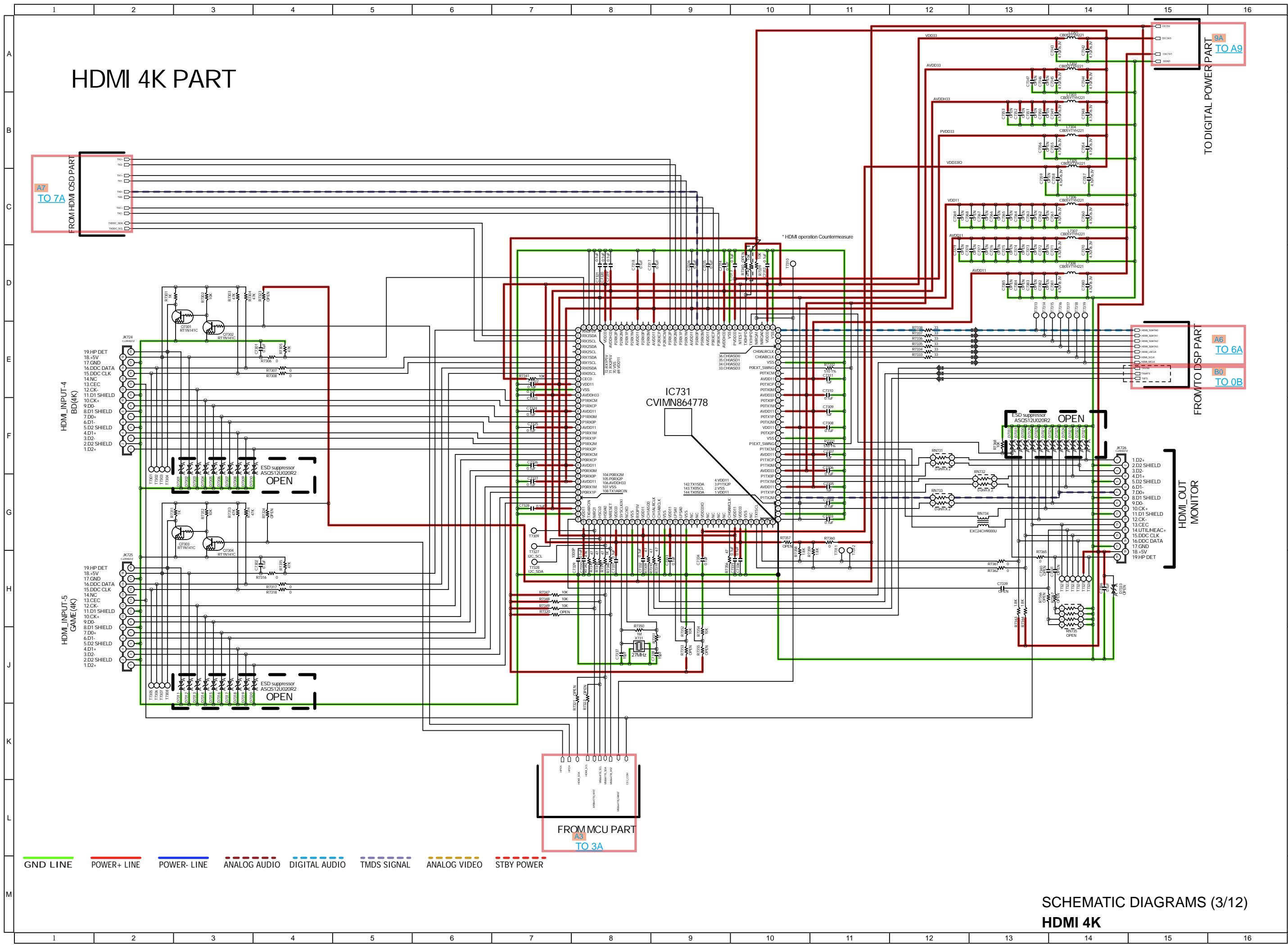


0.01uF OPEN(ADI RECOMMENDATION)

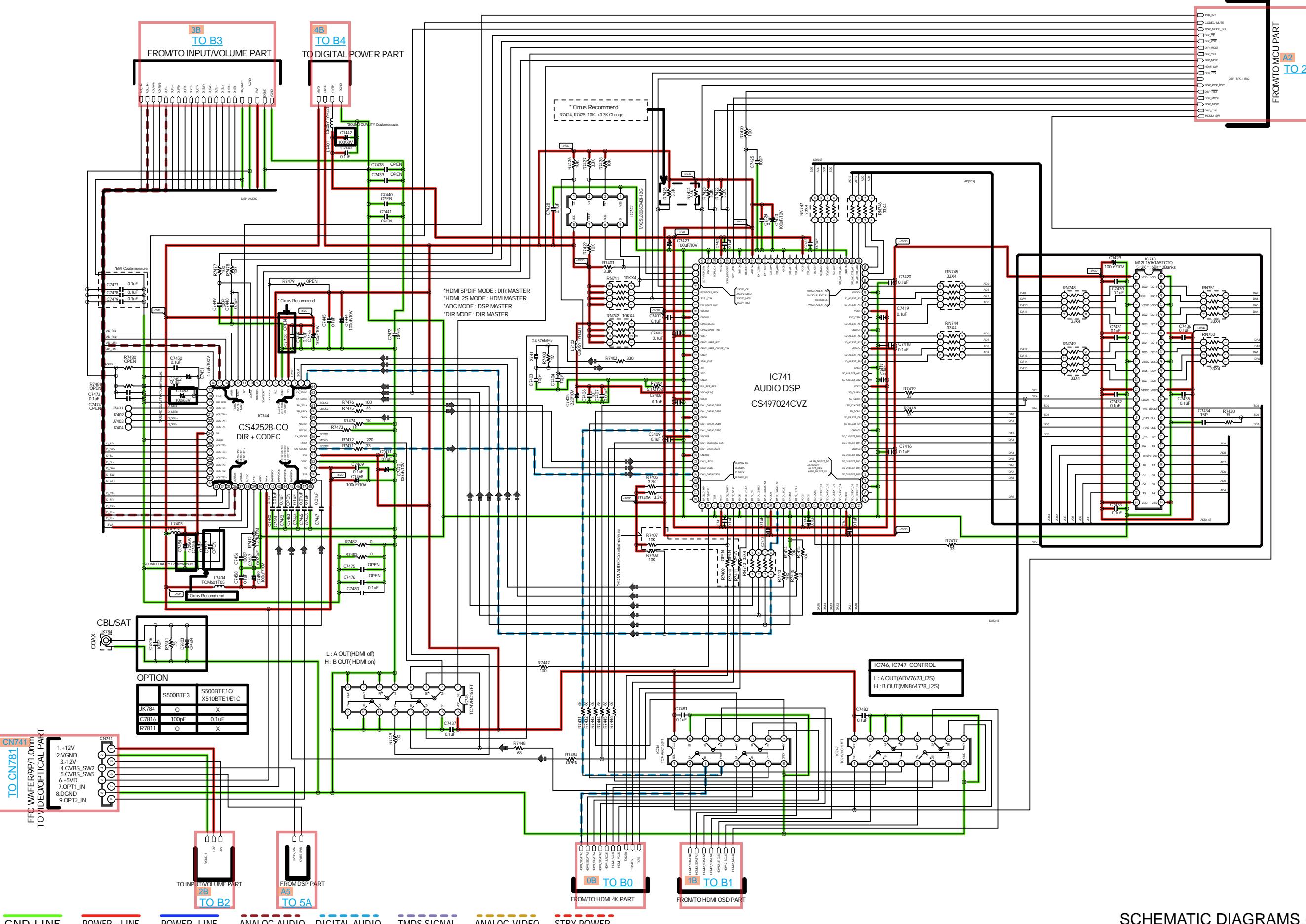
HDMI OSD PART



HDMI 4K PART

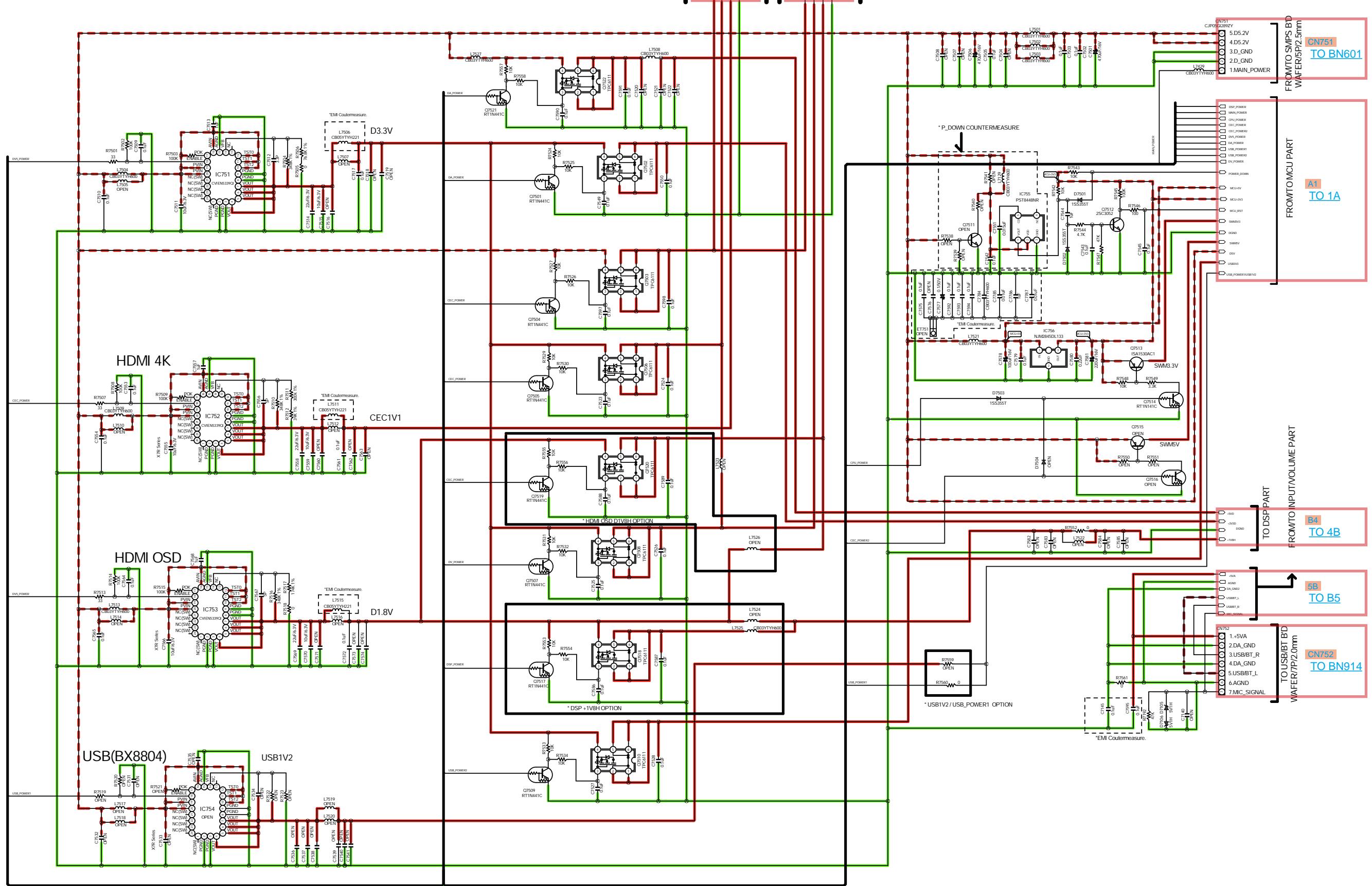


DSP PART



SCHEMATIC DIAGRAMS (4/12)
DSP

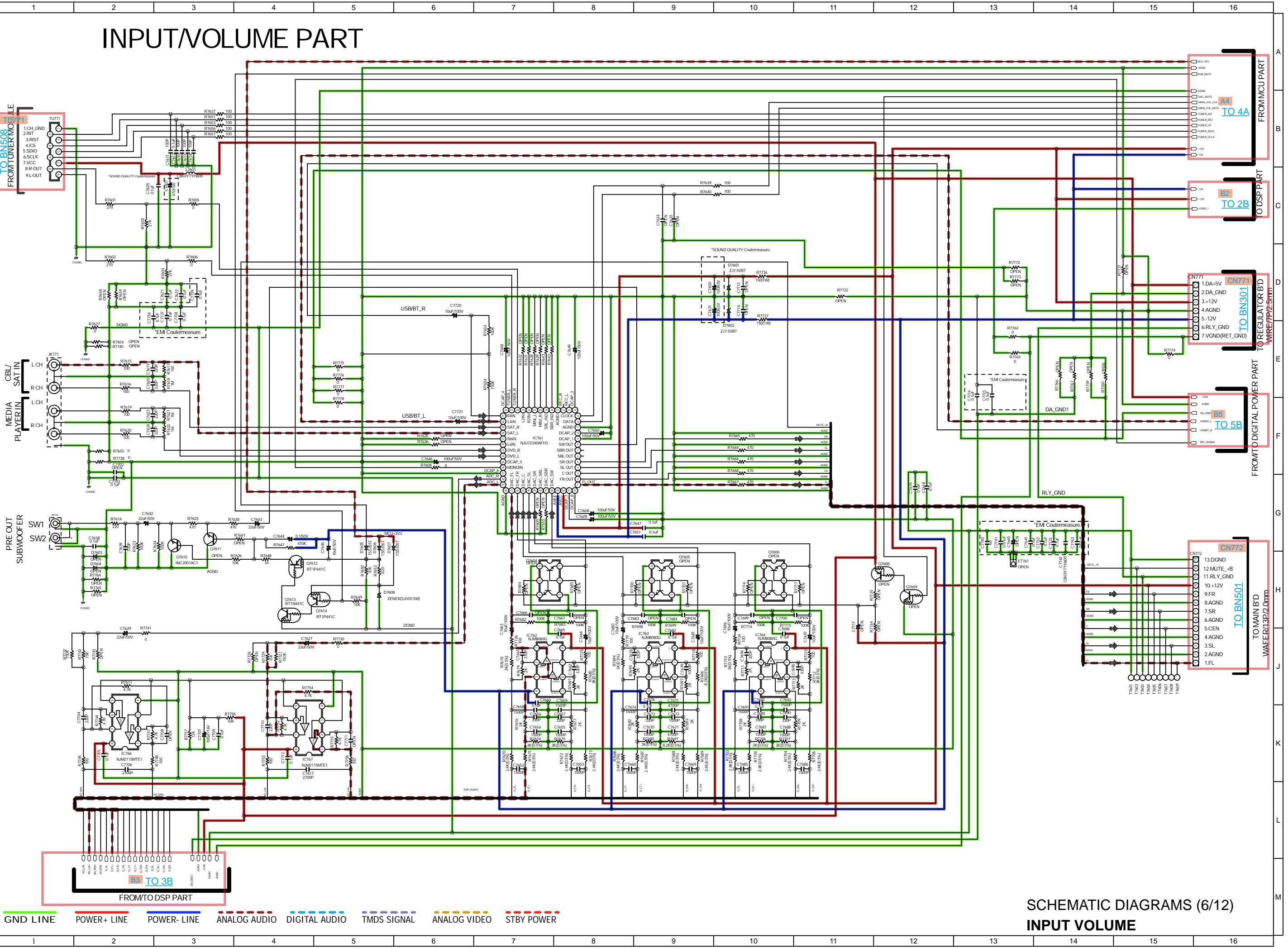
DIGITAL POWER PART



GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO STBY POWER

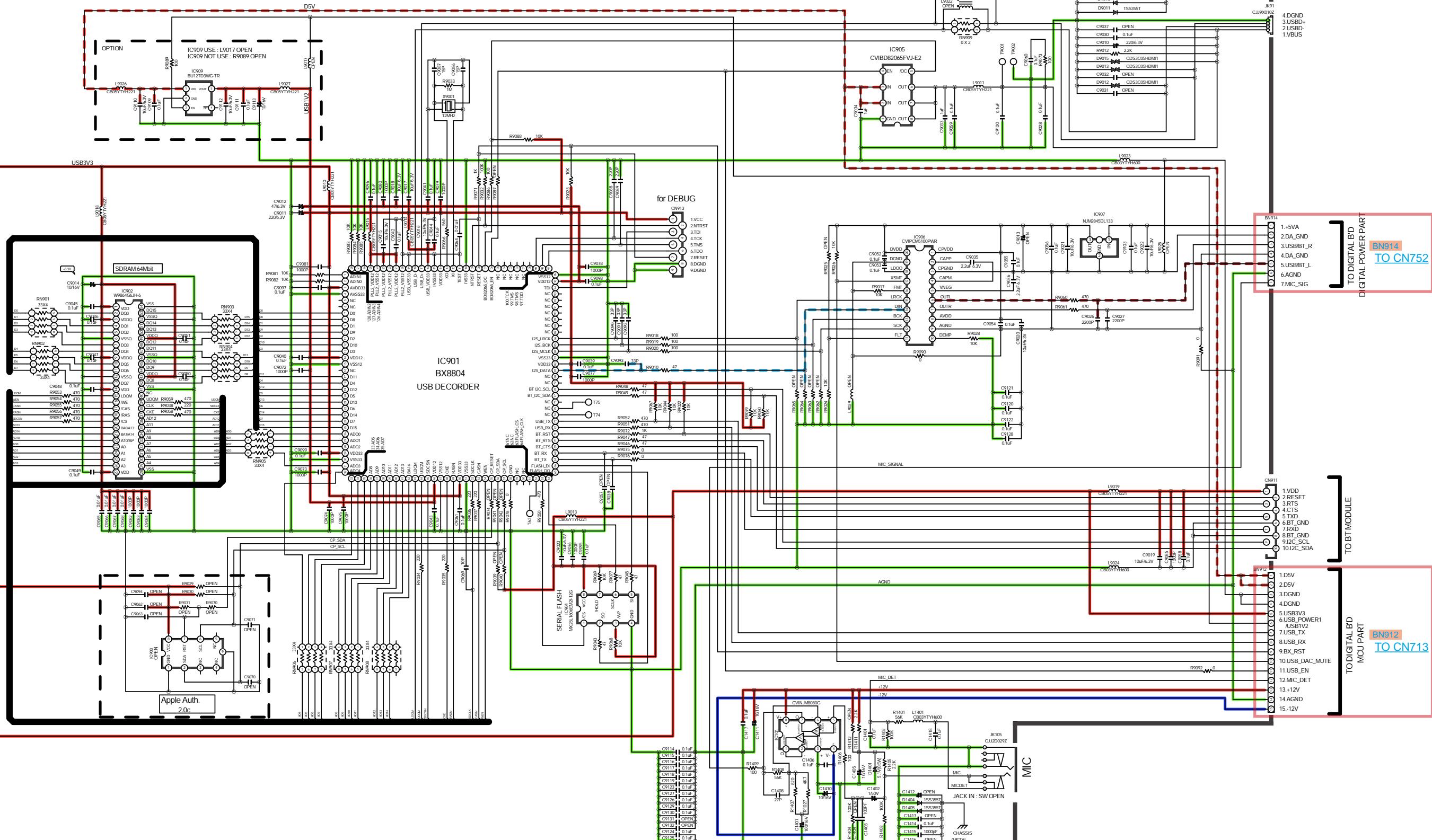
SCHEMATIC DIAGRAMS (5/12)
DIGITAL POWER

INPUT/VOLUME PART

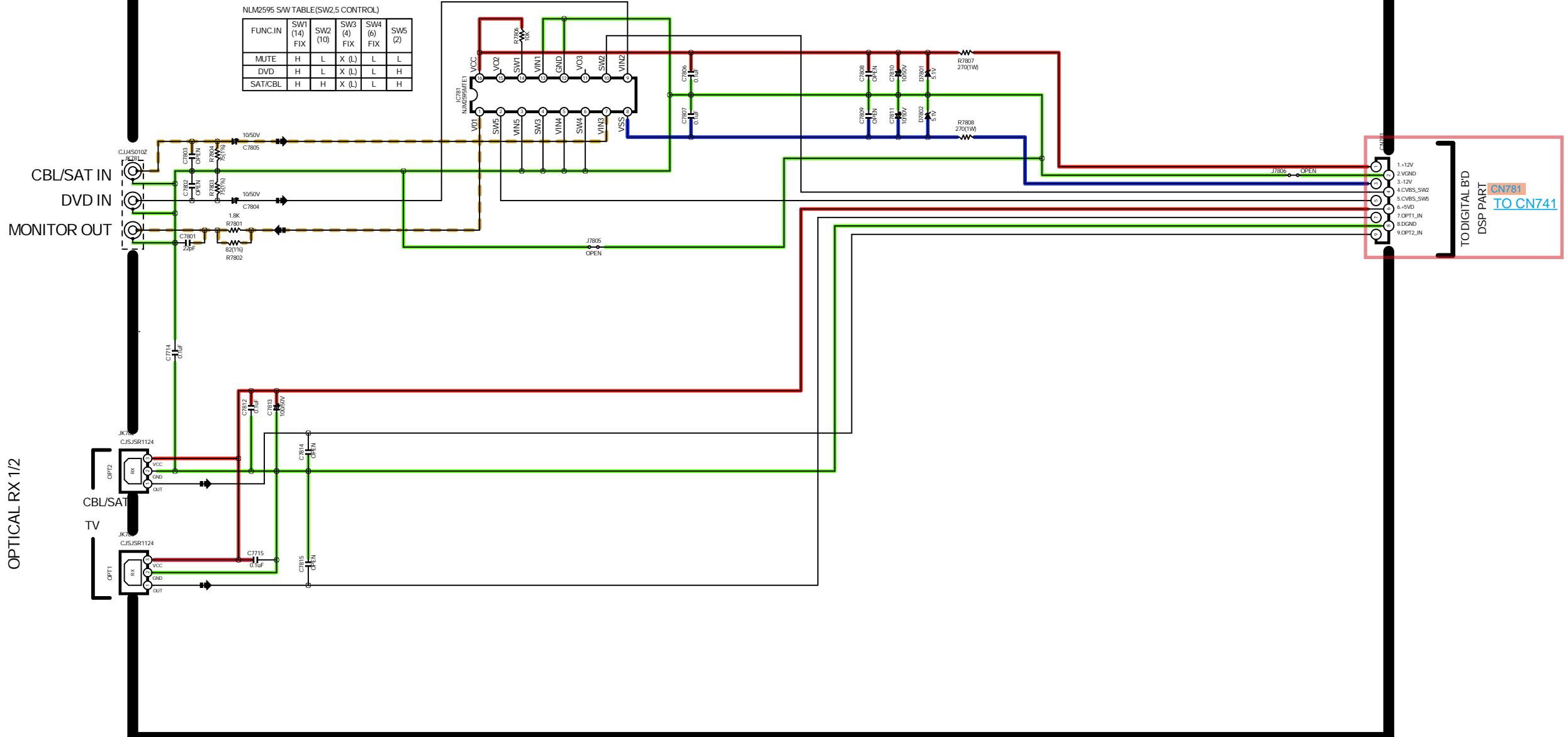


SCHEMATIC DIAGRAMS (6/12)
INPUT VOLUME

USB / BT PART (SETUP MIC)

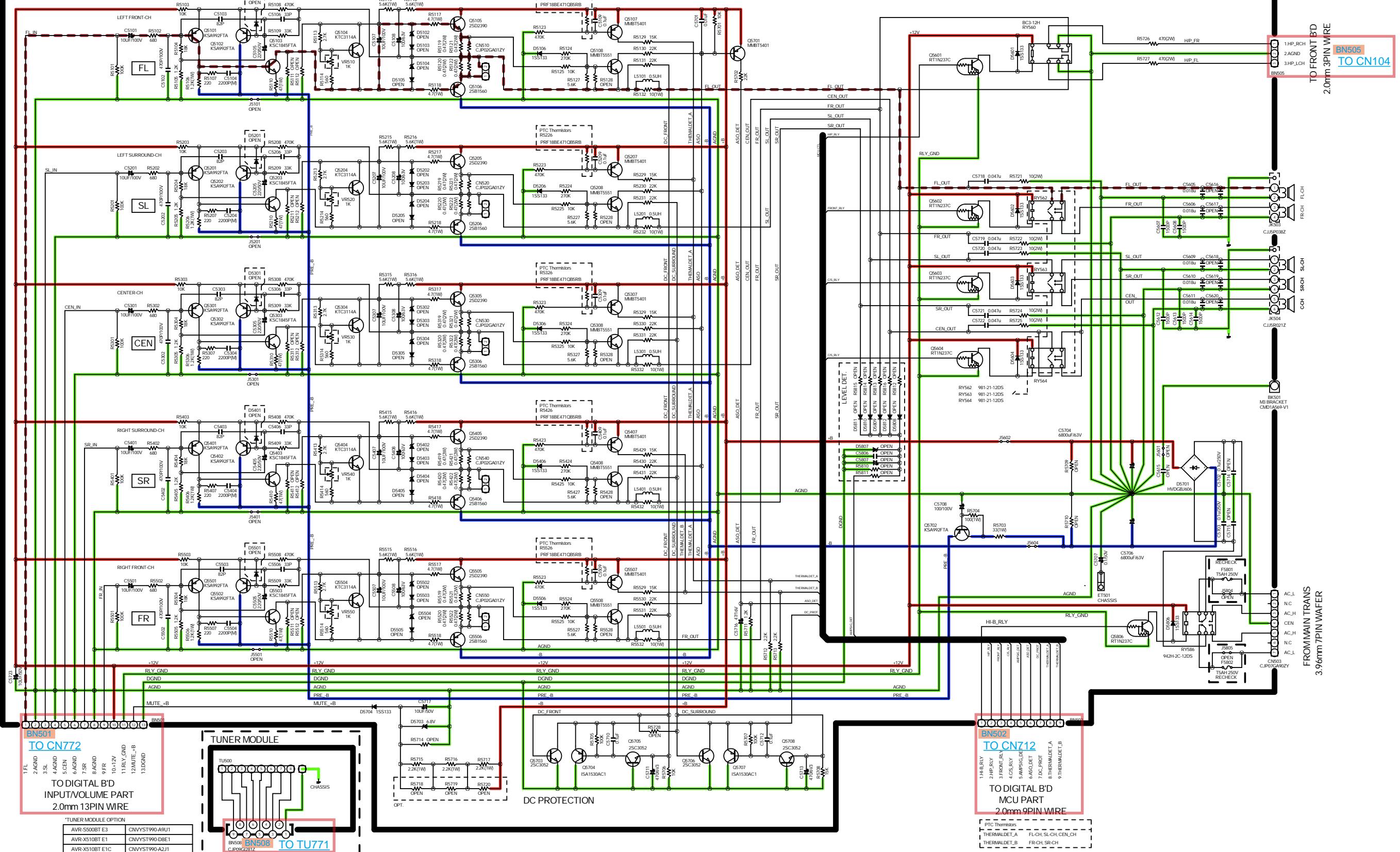


VIDEO/OPTICAL PART

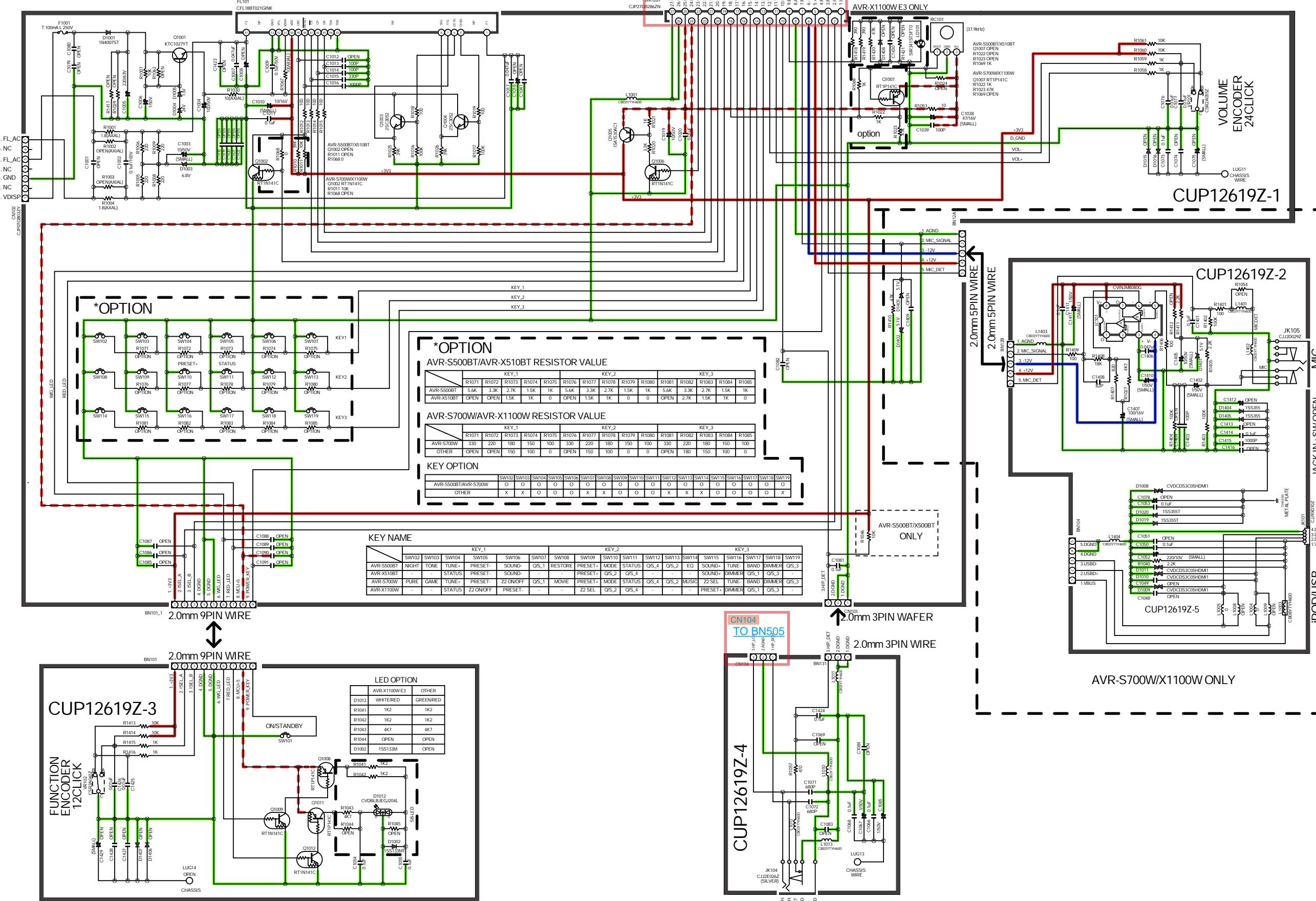
A
B
C
D
E
F
G
H
J
K
L
MA
B
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D
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J
K
L
M

SCHEMATIC DIAGRAMS (8/12)
VIDEO OPTICAL

MAIN PART



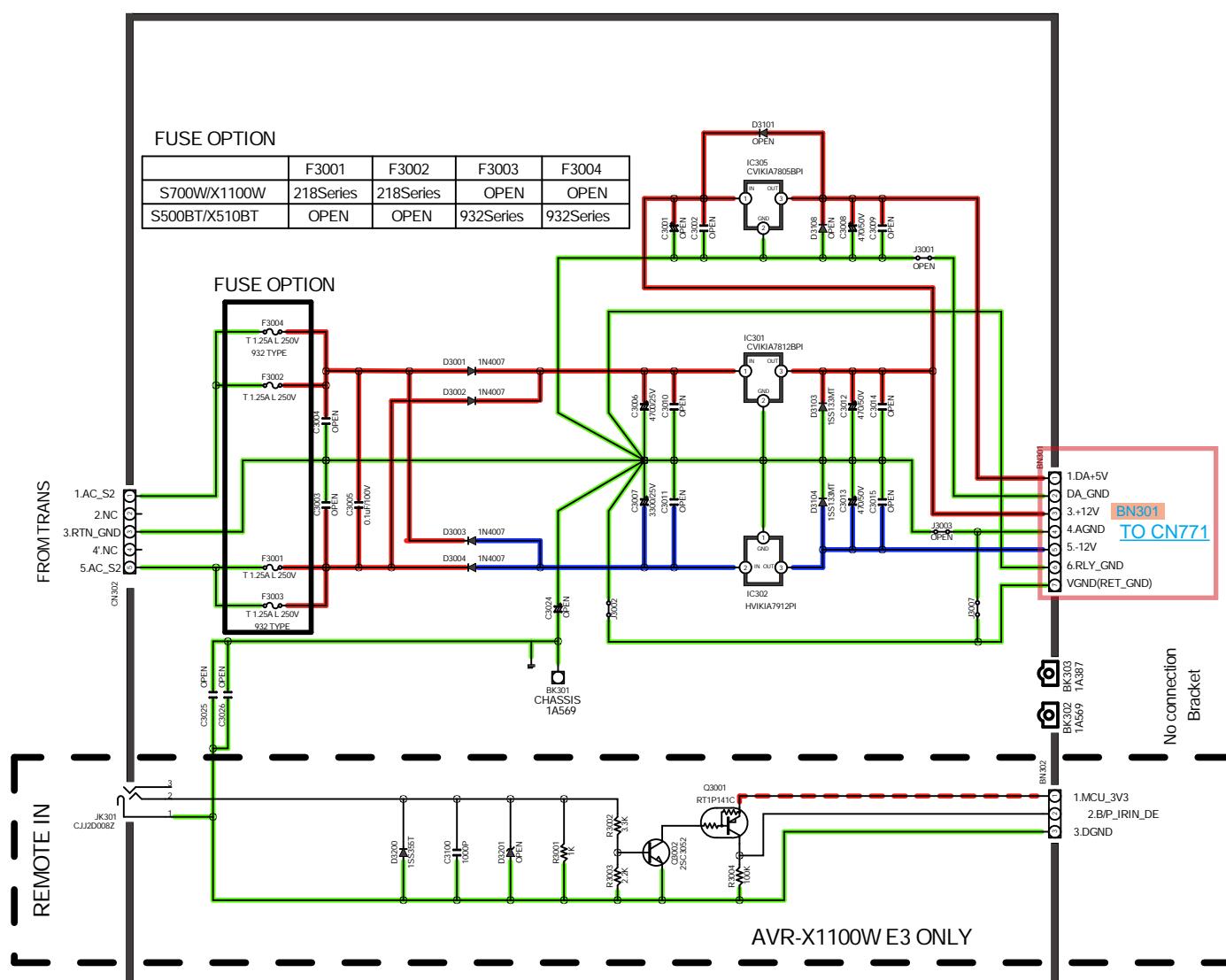
AVR-S500BT/X510BT/S700W/X1100W FRONT PART



GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO STBY POWER

SCHEMATIC DIAGRAMS (10/12)
FRONT

REGULATOR PART



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

A

B

C

D

E

F

G

H

J

K

L

M

A

B

C

D

E

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K

L

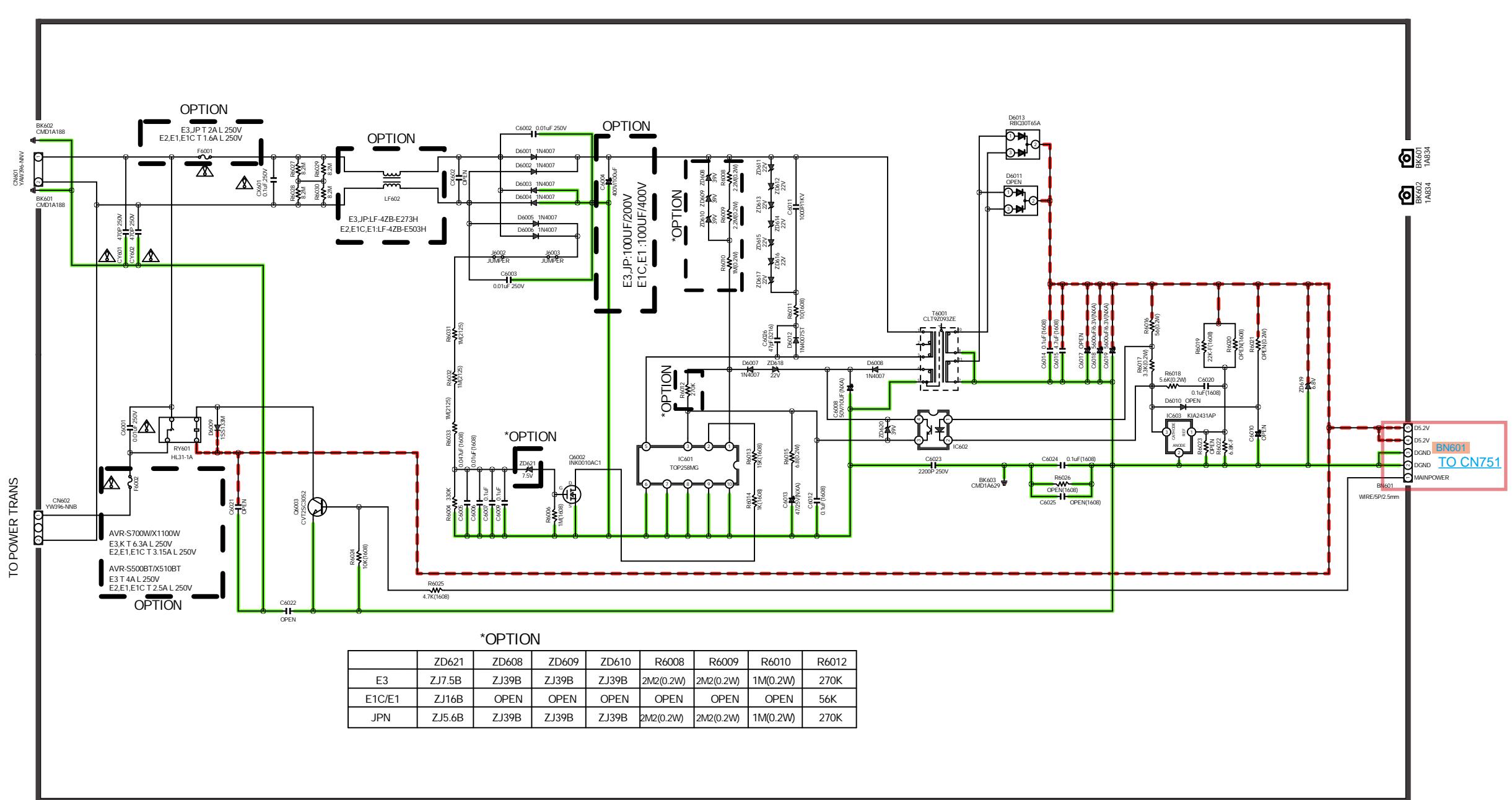
M

GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO STBY POWER

SCHEMATIC DIAGRAMS (11/12)
REGULATOR

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

SMPS PART



**IMPORTANT SAFETY NOTICE
 COMPONENT IDENTIFIED BY HAVE SPECIAL CHARACTERISTICS.
 IMPORTANT FOR SAFETY, WHEN REPLACING ANY OF THESE COMPONENTS
 USE EXACTLY THE SAME SPECIFICATIONS AS THE SPECIFIED PARTS.
 ** THE UNIT OF RESISTANCE IS OHM.
 K = 1000 OHM. M = 100KOHM
 ** THE UNIT OF CAPACITANCE IS MICROFARAD(uF)
 pF = 10 uF
 ** THIS SCHEMATIC DIAGRAM MAY BE MODIFIED AT ANY TIME WITH THE
 IMPROVEMENT OF PERFORMANCE.

GND LINE POWER+ LINE POWER- LINE ANALOG AUDIO DIGITAL AUDIO TMDS SIGNAL ANALOG VIDEO STBY POWER

SCHEMATIC DIAGRAMS (12/12)
SMPS

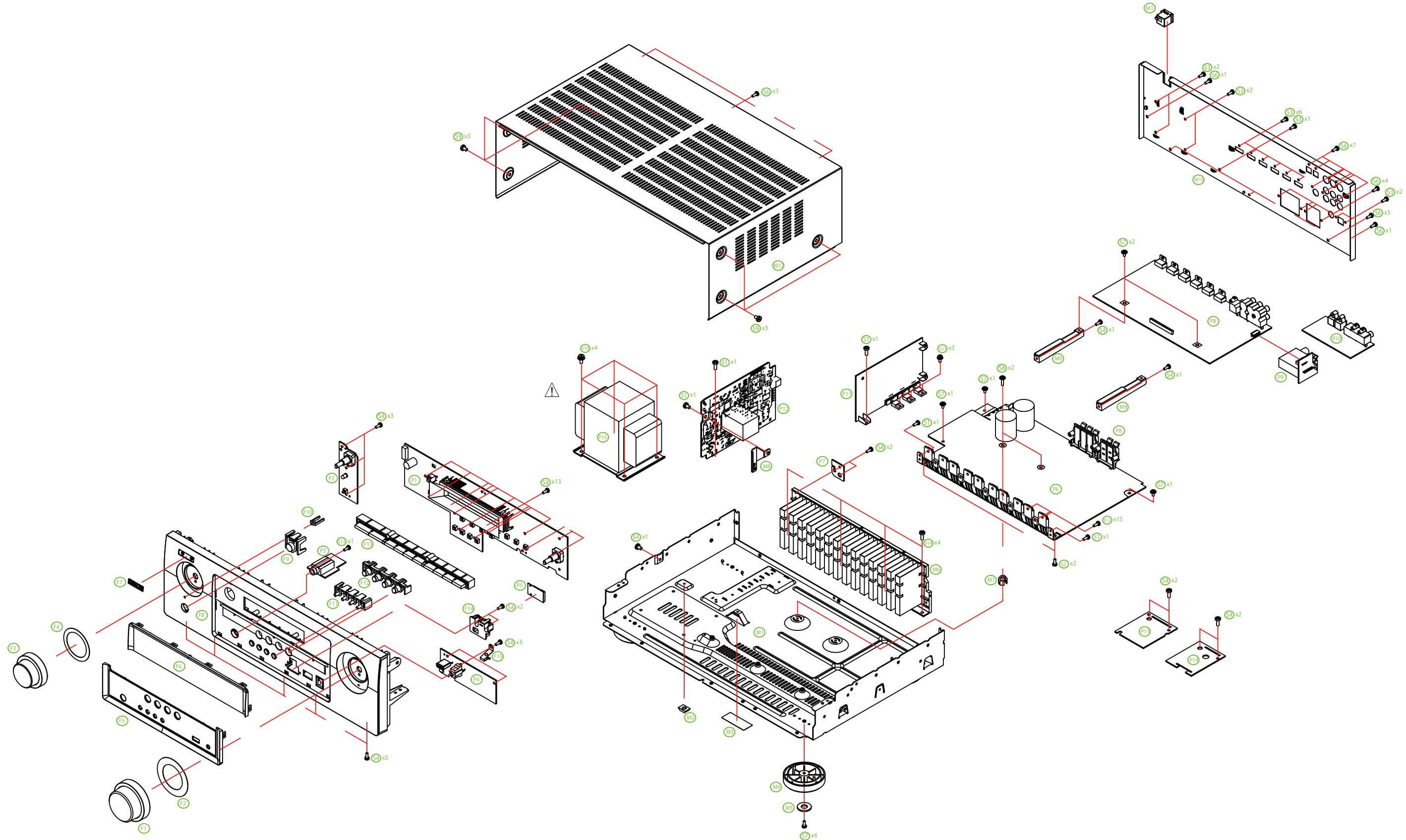
Personal notes:

Personal notes:

EXPLODED VIEW AVR-S500BT

See the last chapter the part list.

AVR-S500BTBKE3 EXPLODED VIEW

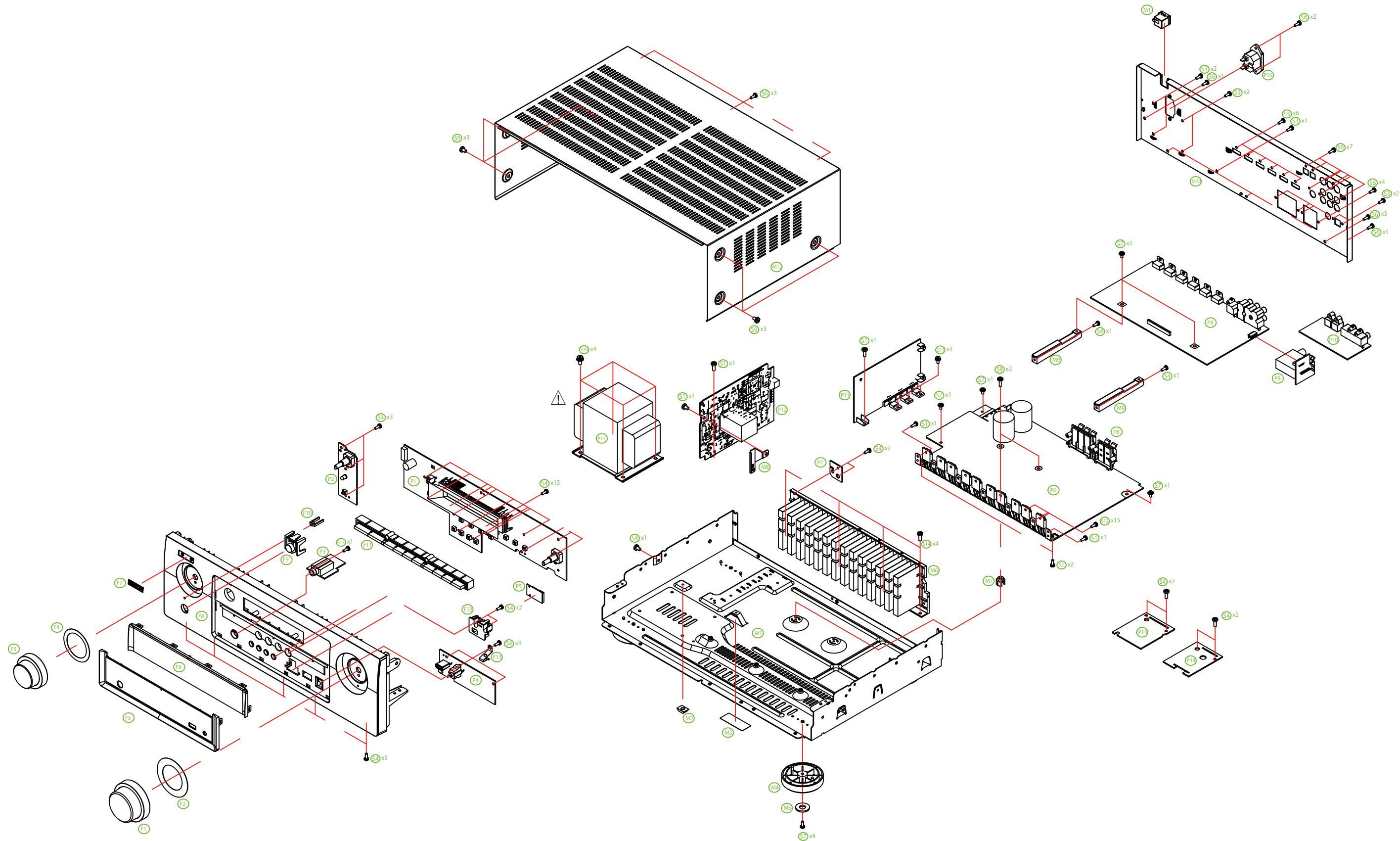


WARNING:
Parts marked with this symbol have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

EXPLODED VIEW AVR-X510BT

See the last chapter the part list.

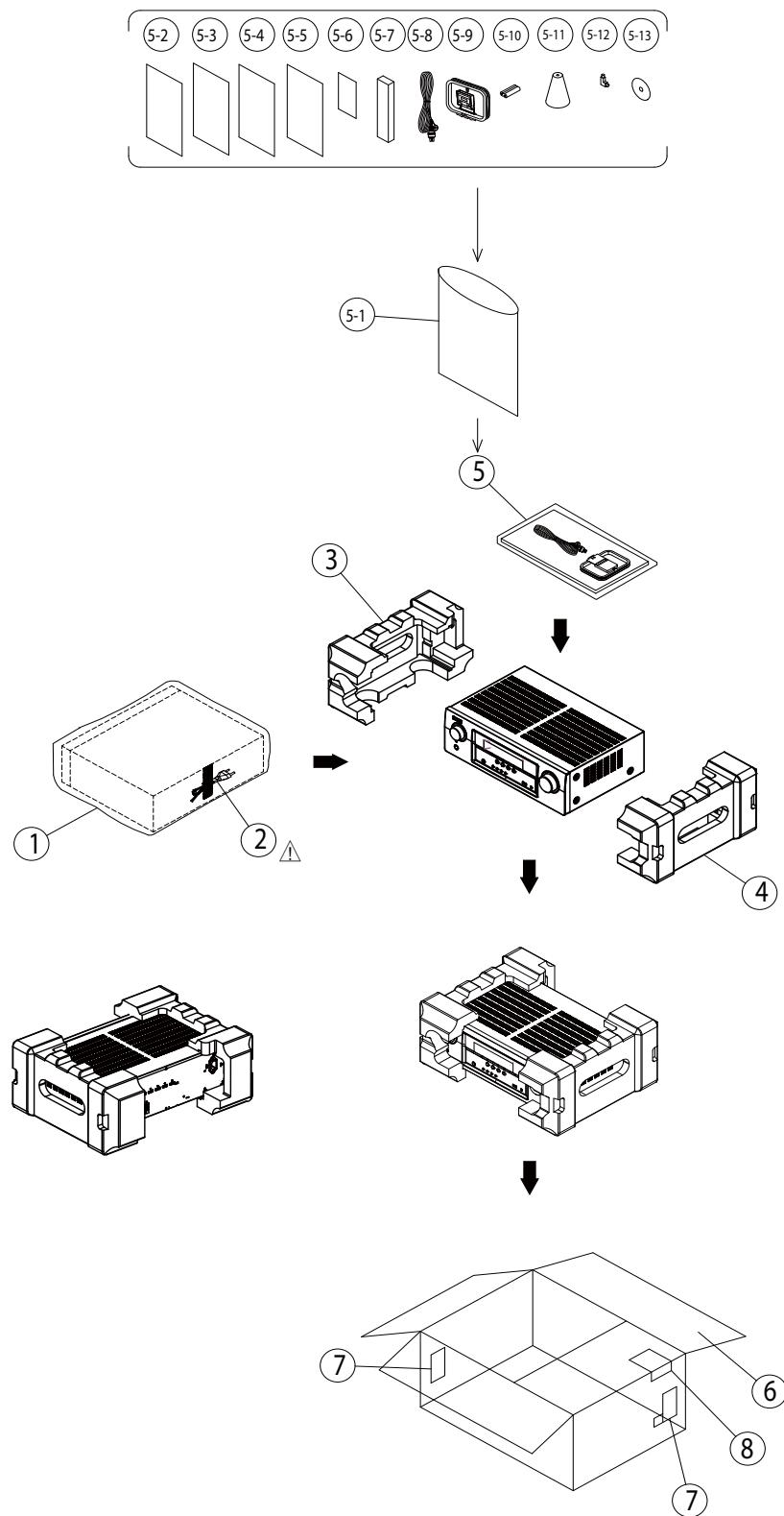
AVR-X510BT EXPLODED VIEW



WARNING:
Parts marked with this symbol have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

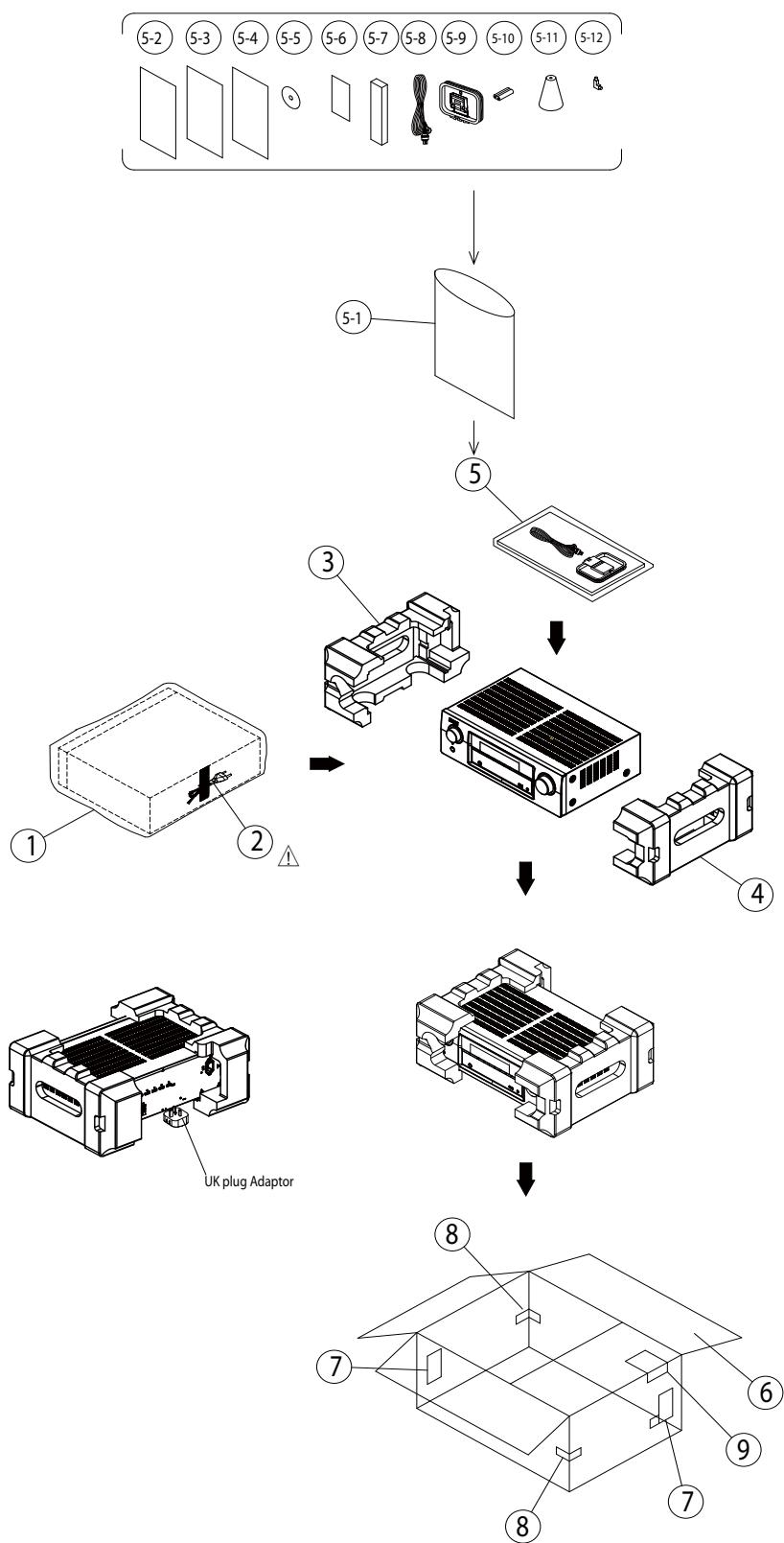
PACKING VIEW AVR-S500BT

See the last chapter part numbers.



PACKING VIEW AVR-X510BT

See the last chapter part numbers.



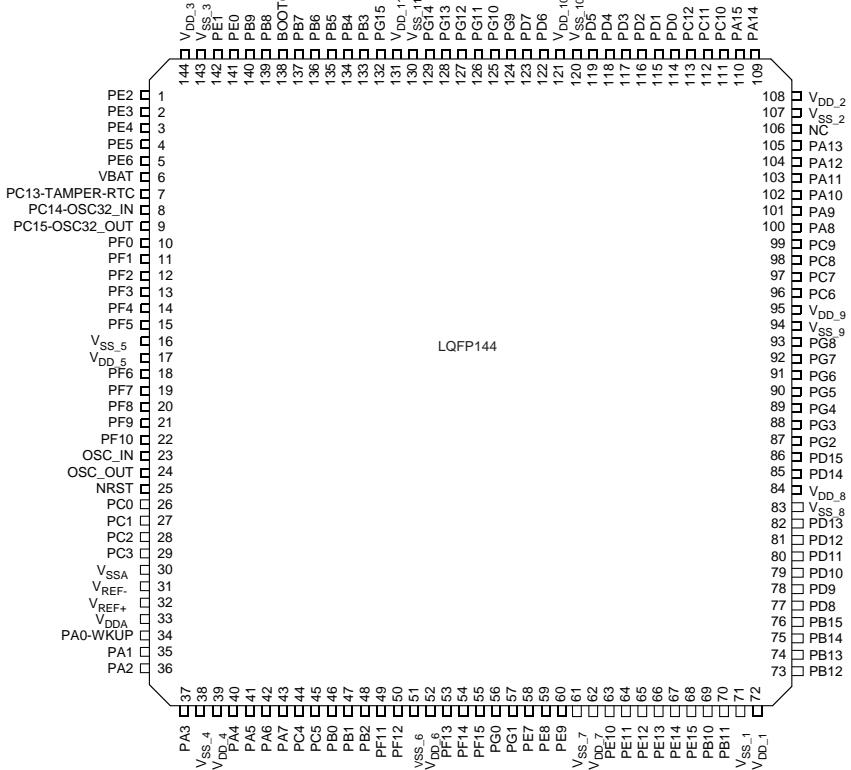
SEMICONDUCTORS

Only major semiconductors are shown. General semiconductors etc. are omitted from list.

The semiconductors which have a detailed drawing in a schematic diagram are omitted from list.

1. IC's

STM32F101ZE (DIGITAL MCU: IC711)



STM32F101ZG Terminal Functions

Pin	Pin Name	Symbol	I/O	Pullup	STBY	stop	Function
1	PE2	DC_PROTECT	I	M3VPu	I	I	DC Protection detect
2	PE3	USB_DAC_MUTE	O	-	O/L	O/L	USB_DAC_MUTE control
3	PE4	POWER_DOWN	I	M3VPu	I	I	Power Down detect
4	PE5	FRONT_RLY(SPK_RLY_ON)	O	-	O/L	O/L	Front SPK RLY control
5	PE6	C/S_RLY	O	-	O/L	O/L	Surround SPK RLY control/Center SPK RLY control
6	VBAT	VBAT	-	-	-	-	3.3V
7	PC13	MIC_DET	I	-	O/L	O/L	MIC_DET detect
8	PC14 / OSC32_IN	OSC32_IN	-	-	-	-	
9	PC15 / OSC32_OUT	OSC32_OUT	-	-	-	-	
10	PF0	ISEL_B	I	-	O/L	O/L	FUNCTION ENDORDER input(A)
11	PF1	ISEL_A	I	-	O/L	O/L	FUNCTION ENDORDER input(B)
12	PF2	HI-B RLY	O(L)	-	-	-	HI-B RLY control
13	PF3	CVBS_SW2	O	-	O/L	O/L	CVBS Video SW2 control
14	PF4	CVBS_SW5	O	-	O/L	O/L	CVBS Video SW5 control
15	PF5	NC	O(L)	-	-	-	NC
16	VSS_5		-	-	-	-	GND fixed
17	VDD_5		-	-	-	-	3.3V
18	PF6	TEST PORT#1	I/O	-	-	-	TEST PORT#1(FOR SOFT DEBUG)
19	PF7	USB_EN	O	-	O/L	O/L	USB_CURRENT IC control
20	PF8	HDMI2 SW	I	-	O/L	O/L	HDMI output control
21	PF9	MAIN_VOL_DATA	O	-	O/L	O/L	Volume Data line
22	PF10	MAIN_VOL_CLK	O	-	O/L	O/L	Volume CLK line
23	PH0 / OSC_IN	XTAL_IN	I	-	-	-	8Mhz Xtal
24	PH1 / OSD_OUT	XTAL_OUT	O	-	-	-	8Mhz Xtal
25	NRST	RESET	I	-	-	-	RESET
26	PC0	KEY1	I	M3VPu	I	I	KEY1 input
27	PC1	KEY2	I	M3VPu	I	I	KEY2 input
28	PC2	KEY3	I	M3VPu	I	I	KEY3 input

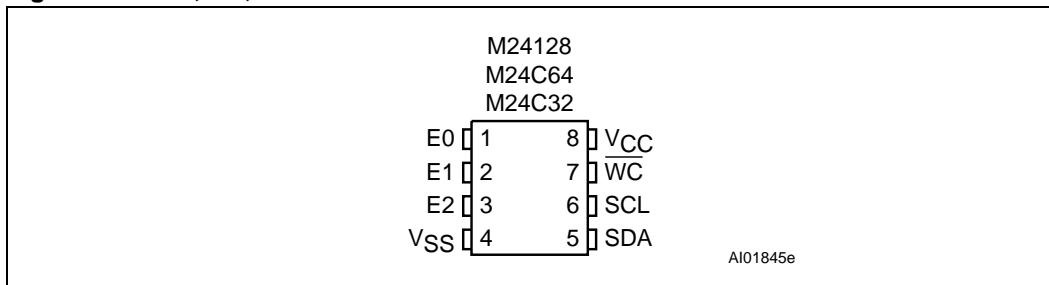
Pin	Pin Name	Symbol	I/O	Pullup	STBY	stop	Function
29	PC3	OPTION	I	M3VPu	I	I	MODEL OPTION
30	VSSA		-	-	-	-	GND fixed
31	VREF-		-	-	-	-	GND fixed
32	VREF+		-	-	-	-	3.3V
33	VDDA		-	-	-	-	3.3V
34	PA0 / WKUP	AUDIO LEVEL DET	I	-	O/L	O/L	AUDIO LEVEL DETECT
35	PA1	USB_RESET	O	-	O/L	O/L	BX8804(USB DECORDER) RESET control
36	PA2	USB_RX	O	-	O/L	O/L	BX8804(USB DECORDER) RX control
37	PA3	USB_TX	I	-	O/L	O/L	BX8804(USB DECORDER) TX control
38	VSS_4		-	-	-	-	GND fixed
39	VDD_4		-	-	-	-	3.3V
40	PA4	DSP_CS	O	-	O/L	O/L	DSP Chip Select
41	PA5	DSP_CLK	O	D3VPu	O/L	O/L	DSP_CLK
42	PA6	DSP_MISO	I	D3VPu	O/L	O/L	DSP MISO
43	PA7	DSP_MOSI	O	-	O/L	O/L	DSP MOSI
44	PC4	HPD4	O	-	O/L	O/L	HDMI INPUT4 HOT PLUG CONTROL
45	PC5	HPD5	O	-	O/L	O/L	HDMI INPUT4 HOT PLUG CONTROL
46	PB0	DIR_MISO	I	-	O/L	O/L	DIR_MISO
47	PB1	DIR_CLK	O	D3VPu	O/L	O/L	DIR_CLK(separated from AVR1312 DSP_CLK)
48	PB2 / BOOT1	BOOT1	I	-	-	-	GND fixed
49	PF11	DIR_MOSI	O	-	O/L	O/L	DIR MOSI(separated from AVR1312 DSP_MOSI)
50	PF12	DSP_RST	O	-	O/L	O/L	DSP Reset control
51	VSS_6		-	-	-	-	GND fixed
52	VDD_6		-	-	-	-	3.3V
53	PF13	DSP_MODE_SEL	I/O	PullDown	O/L	O/L	DSP_MODE_SEL
54	PF14	CODEC_MUTE	I(FT)	-	O/L	O/L	CODEC Mute Detect (*FT = 5V tolerant)
55	PF15	DIR_RST	O	-	O/L	O/L	DIR Reset
56	PG0	DIR_CE	O	-	O/L	O/L	DIR Chip Select
57	PG1	DSP_SPC1_IRQ	I	D3VPu	O/L	O/L	DSP INTERRUPTQ
58	PE7	DSP_PCP_BSY	I	D3VPu	O/L	O/L	DSP BSY
59	PE8	CEC_POWER	O	-	O/L	O/L	CEC_POWER TIMING control
60	PE9	HDMI_SW	O	-	O/L	O/L	HDMI Audio Data MCLK Select SW
61	VSS_7		-	-	-	-	GND fixed
62	VDD_7		-	-	-	-	3.3V
63	PE10	DV5_POWER	O	-	O/L	O/L	DV5_POWER TIMING control
64	PE11	HDMI_SPI_MISO	I	-	I	O/L	HDMI OSD DATA input
65	PE12	HDMI_SPI_MOSI	O	-	O/L	O/L	HDMI OSD DATA output
66	PE13	HDMI_SPI_CS	O	+3VHPu	O/L	O/L	HDMI OSD Chip Select
67	PE14	HDMI_SPI_CLK	O	-	O/L	O/L	HDMI OSD Clock
68	PE15	HDMI_SPI_HOLD	O	-	O/L	O/L	HDMI OSD HOLD
69	PB10	HDMI_RST	O	-	O/L	O/L	ADV7623_Reset control
70	PB11	TEST PORT#2	I/O	-	-	-	TEST PORT#2(FOR SOFT DEBUG)
71	VSS_1		-	-	-	-	GND fixed
72	VDD_1		-	-	-	-	3.3V
73	PB12	DA_POWER	O	-	O/L	O/L	DA_POWER TIMING control
74	PB13	USB_POWER1	O	-	O/L	O/L	USB_POWER1(1.2V) TIMING control
75	PB14	HDMI_INT_TX_7623	I	+3VHPu	I	O/L	HDMI INT TX interrupt
76	PB15	USB_POWER2	O	-	O/L	O/L	USB_POWER1(3.3V) TIMING control
77	PD8	TEST PORT#3	I/O	-	O/L	O/L	TEST PORT#3(FOR SOFT DEBUG)
78	PD9	DV_POWER	O	-	O/L	O/L	DV_POWER TIMING control
79	PD10	CEC_OUT	O	-	O/L	O/L	Reserved NC(STANDBY CEC MODE control)
80	PD11	HDMI_INT	I	+3VHPu	I	O/L	HDMI INT interrupt
81	PD12	HDMI_INT2	I	+3VHPu	I	O/L	HDMI INT2 intreeupt
82	PD13	HDMI_SDA	I/O	+3VHPu	O/L	O/L	HDMI SDATA
83	VSS_8		-	-	-	-	GND fixed
84	VDD_8		-	-	-	-	3.3V
85	PD14	HDMI_SCL	O	-	O/L	O/L	HDMI SCL
86	PD15	PWR_FAIL_PROTECT	I	M3VPu	O/L	O/L	+12V/-12V CHECK PROTECTION
87	PG2	THERMALDET_B	I	M3VPu	O/L	O/L	TEMPERATURE PROTECTION
88	PG3	THERMALDET_A	I	M3VPu	O/L	O/L	TEMPERATURE PROTECTION
89	PG4	ASO_DET	I	M3VPu	O/L	O/L	ASO_DETECT
90	PG5	MAIN_POWER	O	-	O/L	O/L	POWER RELAY control
91	PG6	CPU_POWER	O	-	O/L	O/L	MCU POWER PULL UP SWITCHING
92	PG7	VOL+	I	-	O/L	O/L	VOLUME UP
93	PG8	VOL-	I	-	O/L	O/L	VOLUME DOWN
94	VSS_9		-	-	-	-	GND fixed

Pin	Pin Name	Symbol	I/O	Pullup	STBY	stop	Function
95	VDD_9		-	-	-	-	3.3V
96	PC6	CEC_POWER2	O	-	O/L	O/L	CEC_POWER2_TIMING control
97	PC7	VFD_CE	O	-	O/L	O/L	VFD_CE
98	PC8	VFD_CLK	O	-	O/L	O/L	VFD_CLK
99	PC9	DSP POWER	O(L)	-	-	-	DSP power cotrol
100	PA8	VFD_DATA	O	-	O/L	O/L	VFD_DATA
101	PA9	UPDATE_TX	O	-	O/L	O/L	UPDATE TX
102	PA10	UPDATE_RX	I	-	I	O/L	UPDATE RX
103	PA11	NC	O	-	-	-	
104	PA12	NC	O	-	-	-	HDMI INPUT#5_5V DETECT(OPEN)
105	PA13	DEBUG	I	-	-	-	JTMS / SWDIO
106	PCAP_2		-	-	-	-	Not Connected
107	VSS_2		-	-	-	-	GND fixed
108	VDD_2		-	-	-	-	3.3V
109	PA14	DEBUG	I	-	-	-	JTCK / SWCLK
110	PA15	DEBUG	I	-	-	-	JTDI
111	PC10	MN864778_HINT	I	-	O/L	O/L	MN864778_HDMI INTERRUPT
112	PC11	MN864778_HAINT	I	-	O/L	O/L	MN864778_HDMI AUDIO INTERRUPT
113	PC12	HDMI_DEBUG_TX	O	-	O/L	O/L	HDMI DEBUG TX
114	PD0	VFD_RST	O	-	O/L	O/L	VFD_RESET(Low Active)
115	PD1	HP_RLY	O	-	O/L	O/L	H/P RLY control
116	PD2	HDMI_DEBUG_RX	I	-	I	O/L	HDMI DEBUG RX
117	PD3	WAKE_UP	I	M3VPu	I	I	WAKE UP
118	PD4	HP_DET	I	M3VPu	O/L	O/L	H/P DETECT
119	PD5	GRN_LED	O	-	O/L	O/L	2COLOR LED GREEN
120	VSS_10		-	-	-	-	GND fixed
121	VDD_10		-	-	-	-	3.3V
122	PD6	MN864778_SCL	O	-	-	O/L	MN864778_I2C_SCL
123	PD7	REMOTE_IN	I	-	I	O/L	REMOTE input (invert as AVR1312)
124	PG9	MN864778_SDA	I/O	-	-	O/L	MN864778_I2C_SDA
125	PG10	EEPROM_SDA	I/O	M3VPu	I	O/L	EEPROM SDA
126	PG11	EEPROM_SCL	O	M3VPu	O/L	O/L	EEPROM SCL
127	PG12	DAC_MUTE	O	-	O/L	O/L	NC(DAC Mute control)
128	PG13	TUNER_SCLK	O	-	O/L	O/L	TUNER SCLK
129	PG14	TUNER_SDIO	I/O	-	O/L	O/L	TUNER SDIO
130	VSS_11		-	-	-	-	GND fixed
131	VDD_11		-	-	-	-	3.3V
132	PG15	MN864778_RST	O	-	O/L	O/L	MN864778_RESET
133	PB3	DEBUG	O	-	-	-	JTDO / TRACESWO
134	PB4	DEBUG	I	-	-	-	NJTRST
135	PB5	SUB_MUTE	O	-	O/L	O/L	Sub Woofer MUTE
136	PB6	CEC_CTL1	O(L)	-	-	-	CEC IN_CEC_CTL1
137	PB7	CEC_CTL2	O(L)	-	-	-	CEC IN_CEC_CTL2
138	BOOT0	BOOT0	I	PullDown	I	I	UPDATE BOOT (HIGH:UPDATE / LOW:NORMAL MODE)
139	PB8	TUNER_CE	O	-	O/L	O/L	TUNER CE
140	PB9	TUNER_INT	I	-	I	O/L	TUNER INTERRUPT
141	PE0	TUNER_RST	O	-	O/L	O/L	TUNER Reset control
142	PE1	RED_LED	O	-	O/L	O/L	2COLOR LED RED
143	VSS_3		-	-	-	-	GNDfixed
144	VDD_3		-	-	-	-	3.3V

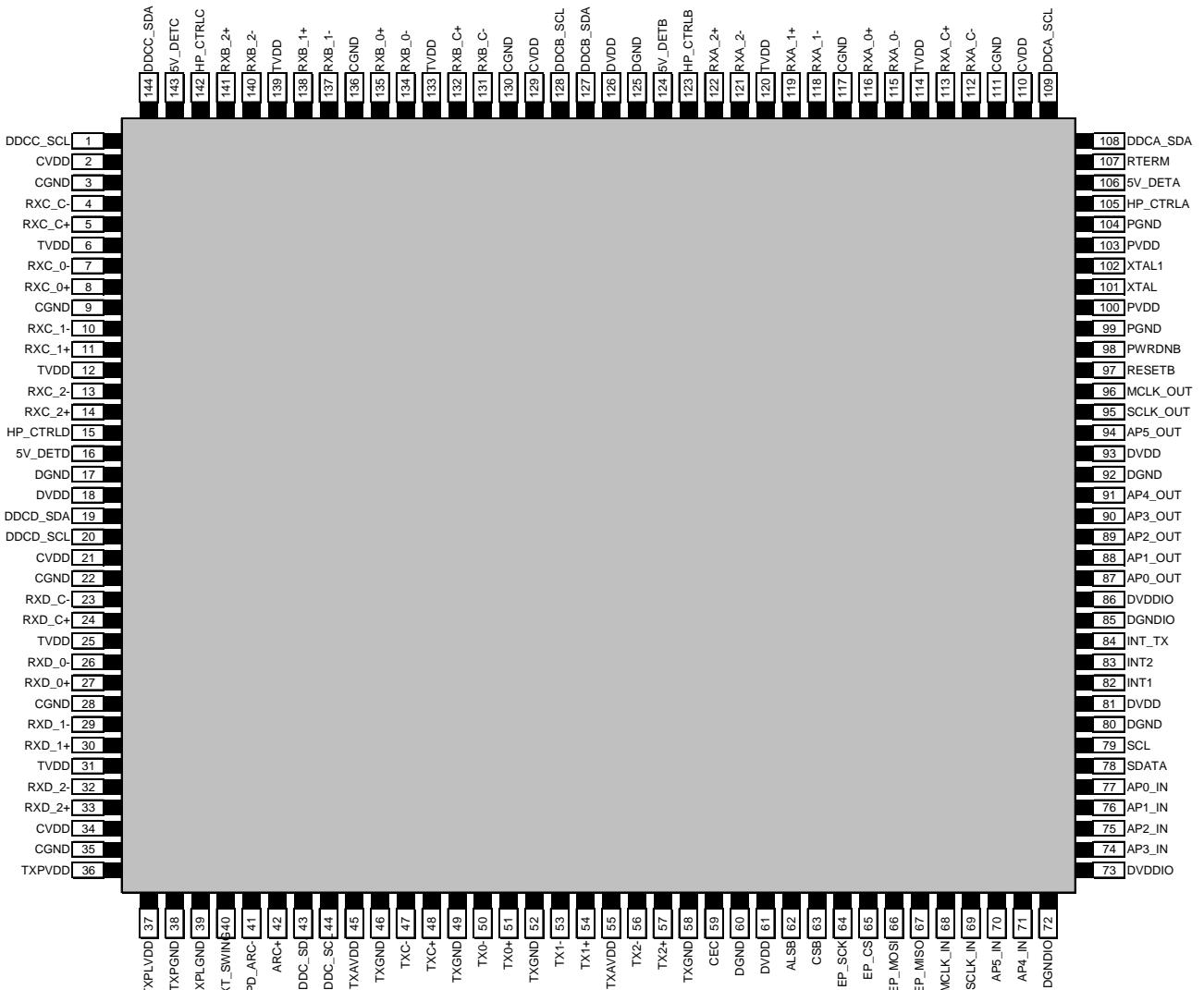
M24C32WMN6TP (DIGITAL : IC712)

Signal name	Function	Direction
E0, E1, E2	Chip Enable	Input
SDA	Serial Data	I/O
SCL	Serial Clock	Input
WC	Write Control	Input
V _{CC}	Supply voltage	
V _{SS}	Ground	

Figure 2. DIP, SO, TSSOP and UFDFPN connections



ADV7623 (DIGITAL : IC721)



ADV7623 Terminal Functions

Location	Mnemonic	Type	Description
1	DDCC_SCL	Digital Input	HDCP slave serial clock port C. DDCC_SCL is a 3.3 V input that is 5 V tolerant.
2	CVDD	Power	Receiver comparator supply voltage (1.8V)
3	CGND	Ground	TVDD and CVDD Ground
4	RXC_C-	HDMI Input	Digital input clock Complement of port C in the HDMI interface.
5	RXC_C+	HDMI Input	Digital input clock True of port C in the HDMI interface.
6	TVDD	Power	Receiver terminator supply voltage (3.3 V)
7	RXC_0-	HDMI Input	Digital input channel 0 Complement of port C in the HDMI interface.
8	RXC_0+	HDMI Input	Digital input channel 0 True of port C in the HDMI interface.
9	CGND	Ground	TVDD and CVDD Ground
10	RXC_1-	HDMI Input	Digital input channel 1 Complement of port C in the HDMI interface.
11	RXC_1+	HDMI Input	Digital input channel 1 True of port C in the HDMI interface.
12	TVDD	Power	Receiver terminator supply voltage (3.3 V)
13	RXC_2-	HDMI Input	Digital input channel 2 Complement of port C in the HDMI interface.
14	RXC_2+	HDMI Input	Digital input channel 2 True of port C in the HDMI interface.
15	HP_CTRLD	Digital Output	Hot Plug Detect for Port D.
16	5V_DETD	Digital Input	5 V detect pin for port D in the HDMI interface.
17	DGND	Ground	Ground for DVDD
18	DVDD	Power	Digital supply voltage (1.8 V)
19	DDCD_SDA	Digital I/O	HDCP slave serial data ports D. DDCD_SDA is a 3.3 V input/output that is 5 V tolerant.
20	DDCD_SCL	Digital Input	HDCP slave serial clock port D. DDCD_SCL is a 3.3 V input that is 5 V tolerant.
21	CVDD	Power	Receiver comparator supply voltage (1.8V)
22	CGND	Ground	TVDD and CVDD Ground
23	RXD_C-	HDMI Input	Digital input clock Complement of port D in the HDMI interface.
24	RXD_C+	HDMI Input	Digital input clock True of port D in the HDMI interface.
25	TVDD	Power	Receiver terminator supply voltage (3.3 V)
26	RXD_0-	HDMI Input	Digital input channel 0 Complement of port

Location	Mnemonic	Type	Description
			D in the HDMI interface.
27	RXD_0+	HDMI Input	Digital input channel 0 True of port D in the HDMI interface.
28	CGND	Ground	TVDD and CVDD Ground
29	RXD_1-	HDMI Input	Digital input channel 1 complement of port D in the HDMI interface.
30	RXD_1+	HDMI Input	Digital input channel 1 true of port D in the HDMI interface.
31	TVDD	Power	Receiver terminator supply voltage (3.3 V)
32	RXD_2-	HDMI Input	Digital input channel 2 complement of port D in the HDMI interface.
33	RXD_2+	HDMI Input	Digital input channel 2 true of port D in the HDMI interface.
34	CVDD	Power	Receiver comparator supply voltage (1.8V)
35	CGND	Ground	TVDD and CVDD Ground
36	TXPVDD	Power	1.8 V Power Supply for Digital and I/O Power Supply. These pins supply power to the digital logic and I/Os. They should be filtered and as quiet as possible.
37	TXPLVDD	Power	1.8 V Power Supply.
38	TXGND	Ground	TXPVDD Ground
39	TXPGND	Ground	TXPLVDD Ground
40	EXT_SWING	Analog Input	Sets Internal Reference Currents. Place 887 Ω resistor (1% tolerance) between this pin and ground.
41	HPD_ARC-	Analog Input	Hot Plug Detect Signal. This indicates to the interface whether the receiver is connected. Supports 1.8 V to 5.0V CMOS logic levels.
42	ARC+	Analog Input	Audio return channel input
43	TXDDC_SDA	Digital I/O	Serial Port Data I/O to Receiver. This pin serves as the master to the DDC bus. Supports a 5 V CMOS logic level.
44	TXDDC_SCL	Digital Input	Serial Port Data Clock to Receiver. This pin serves as the master clock for the DDC bus. Supports a 5 V CMOS logic level.
45	TXAVDD	Power	1.8V power supply for TMDS outputs
46	TXGND	Ground	TXAVDD Ground
47	TXC-	HDMI Output	Differential Clock Output. Differential clock output at the TMDS clock rate; supports TMDS logic level.
48	TXC+	HDMI Output	Differential Clock Output. Differential clock output at the TMDS clock rate; supports TMDS logic level.

Location	Mnemonic	Type	Description
49	TXGND	Ground	TXAVDD Ground
50	TX0-	HDMI Output	Differential Output Channel 0 Complement. Differential output of the red data at 10× the pixel clock rate; supports TMDS logic level.
51	TX0+	HDMI Output	Differential Output Channel 0 True. Differential output of the red data at 10× the pixel clock rate; supports TMDS logic level.
52	TXGND	Ground	TXAVDD Ground
53	TX1-	HDMI Output	Differential Output Channel 1 Complement. Differential output of the red data at 10× the pixel clock rate; supports TMDS logic level.
54	TX1+	HDMI Output	Differential Output Channel 1 True. Differential output of the red data at 10× the pixel clock rate; supports TMDS logic level.
55	TXAVDD	Power	1.8V power supply for TMDS outputs
56	TX2-	HDMI Output	Differential Output Channel 2 Complement. Differential output of the red data at 10× the pixel clock rate; supports TMDS logic level.
57	TX2+	HDMI Output	Differential Output Channel 2 True. Differential output of the red data at 10× the pixel clock rate; supports TMDS logic level.
58	TXGND	Ground	TXAVDD Ground
59	CEC	Digital I/O	Consumer electronic control channel.
60	DGND	Ground	Ground for DVDD
61	DVDD	Power	Digital supply voltage (1.8 V)
62	ALSB	Digital Input	This pin is used to set I2C address of the Rx IO and the Tx Main Map.
63	CSB	Digital Input	Chip Select pin. This pin must be set low or left floating for the chip to process I2C messages that are destined to the ADV7623. The ADV7623 ignores I2C messages which he receives if this pin is high.
64	EP_SCK	Digital Output	SPI clock interface for the EDID/OSD
65	EP_CS	Digital Output	SPI chip selected interface for the EDID/OSD
66	EP_MOSI	Digital Output	SPI master out/slave in for the EDID/OSD
67	EP_MISO	Digital Input	SPI master in/slave out for the EDID/OSD

Location	Mnemonic	Type	Description
68	MCLK_IN	Digital Input	Audio Reference Clock. $128 \times N \times fs$ with $N = 1, 2, 3,$ or $4.$ Set to $128 \times$ sampling frequency (fs), $256 \times fs$, $384 \times fs$, or $512 \times fs.$ Supports 1.8 V to 3.3 V CMOS logic levels.
69	SCLK_IN	Digital Input	I2S Audio Clock. Supports CMOS logic levels from 1.8 V to $3.3\text{ V}.$
70	AP5_IN	Digital Input	Audio Input Port 5. CMOS logic levels from 1.8 V to $3.3\text{ V}.$
71	AP4_IN	Digital Input	Audio Input Port 4. CMOS logic levels from 1.8 V to $3.3\text{ V}.$
72	DGNDIO	Ground	Ground for DVDDIO
73	DVDDIO	Power	Digital I/O supply voltage (3.3 V)
74	AP3_IN	Digital Input	Audio Input Port 3. CMOS logic levels from 1.8 V to $3.3\text{ V}.$
75	AP2_IN	Digital Input	Audio Input Port 2. CMOS logic levels from 1.8 V to $3.3\text{ V}.$
76	AP1_IN	Digital Input	Audio Input Port 1. CMOS logic levels from 1.8 V to $3.3\text{ V}.$
77	AP0_IN	Digital Input	Audio Input Port 0. CMOS logic levels from 1.8 V to $3.3\text{ V}.$
78	SDATA	Digital I/O	I2C port serial data input/output pin. SDA is the data line for the control port.
79	SCL	Digital Input	I2C port serial clock input. SCL is the clock line for the control port.
80	DGND	Ground	Ground for DVDD
81	DVDD	Power	Digital supply voltage (1.8 V)
82	INT1 (AMUTE1)	Digital Output	Interrupt pin, can be active low or active high. When status bits change, this pin is triggered. The events that trigger an interrupt are under user control. This pin can also output an audio mute signal
83	INT2 (AMUTE2)	Digital Output	Interrupt pin, can be active low or active high. When status bits change, this pin is triggered. The events that trigger an interrupt are under user control. This pin can also output an audio mute signal. I2C LSB selection.
84	INT_TX	Digital Output	Interrupt. Open drain. A $2\text{ k}\Omega$ pull-up resistor to the microcontroller I/O supply is recommended.
85	DGNDIO	Ground	Ground for DVDDIO
86	DVDDIO	Power	Digital I/O supply voltage (3.3 V)

Location	Mnemonic	Type	Description
87	AP0_OUT	Digital Output	Audio output port 0.
88	AP1_OUT	Digital Output	Audio output port 1.
89	AP2_OUT	Digital Output	Audio output port 2.
90	AP3_OUT	Digital Output	Audio output port 3.
91	AP4_OUT	Digital Output	Audio output port 4.
92	DGND	Ground	Ground for DVDD
93	DVDD	Power	Digital supply voltage (1.8 V)
94	AP5_OUT	Digital Output	Audio output port 5.
95	SCLK_OUT	Digital Output	Audio serial clock output.
96	MCLK_OUT	Digital Output	Audio master clock output.
97	RESETB	Digital Input	System reset input. Active low. A minimum low reset pulse width of 5 ms is required to reset the ADV7623 circuitry.
98	PWRDNB	Digital Input	Active low power-down pin. This pin should be used as a system power detect when the internal EDID is powered from the 5V signal from the HDMI port when connected to active equipment. Pin pulled down internally.
99	PGND	Ground	Ground for PVDD
100	PVDD	Power	PLL supply voltage
101	XTAL	Miscellaneous Analog	Input pin for 28.63636 MHz crystal or an external 1.8 V 28.63636 MHz clock oscillator source to clock the ADV7623. The following crystal frequencies are also supported: 24.576 MHz and 27 MHz.
102	XTAL1	Miscellaneous Analog	Crystal output pin. This pin should be left floating if a clock oscillator is used.
103	PVDD	Power	PLL supply voltage
104	PGND	Ground	PVDD Ground
105	HP_CTRLA	Digital Output	Hot Plug Detect for port A.
106	5V_DETA	Digital Input	5 V detect pin for port A in the HDMI interface.
107	RTERM	Miscellaneous Analog	Sets internal termination resistance. A 500 Ω resistor between this pin and GND should be used.
108	DDCA_SDA	Digital I/O	HDCP slave serial data port A. DDCD_SDA is a 3.3 V input/output that is 5 V tolerant.
109	DDCA_SCL	Digital Input	HDCP slave serial clock port A. DDCD_SCL is a 3.3 V input that is 5 V tolerant.
110	CVDD	Power	Receiver comparator supply voltage (1.8V)

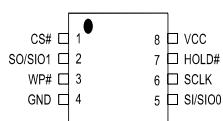
Location	Mnemonic	Type	Description
111	CGND	Ground	TVDD and CVDD Ground
112	RXA_C-	HDMI Input	Digital input clock Complement of port A in the HDMI interface.
113	RXA_C+	HDMI Input	Digital input clock True of port A in the HDMI interface.
114	TVDD	Power	Receiver terminator supply voltage (3.3 V)
115	RXA_0-	HDMI Input	Digital input channel 0 complement of port A in the HDMI interface.
116	RXA_0+	HDMI Input	Digital input channel 0 true of port A in the HDMI interface.
117	CGND	Ground	TVDD and CVDD Ground
118	RXA_1-	HDMI Input	Digital input channel 1 complement of port A in the HDMI interface.
119	RXA_1+	HDMI Input	Digital input channel 1 true of port A in the HDMI interface.
120	TVDD	Power	Receiver terminator supply voltage (3.3 V)
121	RXA_2-	HDMI Input	Digital input channel 2 complement of port A in the HDMI interface.
122	RXA_2+	HDMI Input	Digital input channel 2 true of port A in the HDMI interface.
123	HP_CTRLB	Digital Output	Hot Plug Detect for port B.
124	5V_DETB	Digital Input	5 V detect pin for port B in the HDMI interface.
125	DGND	Ground	Ground for DVDD
126	DVDD	Power	Digital supply voltage (1.8 V)
127	DDCB_SDA	Digital I/O	HDCP slave serial data ports B. DDCB_SDA is a 3.3 V input/output that is 5 V tolerant.
128	DDCB_SCL	Digital Input	HDCP slave serial clock port B. DDCB_SCL is a 3.3 V input that is 5 V tolerant.
129	CVDD	Power	Receiver comparator supply voltage (1.8V)
130	CGND	Ground	TVDD and CVDD Ground
131	RXB_C-	HDMI Input	Digital input clock complement of port B in the HDMI interface.
132	RXB_C+	HDMI Input	Digital input clock true of port B in the HDMI interface.
133	TVDD	Power	Receiver terminator supply voltage (3.3 V)
134	RXB_0-	HDMI Input	Digital input channel 0 complement of port B in the HDMI interface.
135	RXB_0+	HDMI Input	Digital input channel 0 true of port B in the HDMI interface.
136	CGND	Ground	TVDD and CVDD Ground
137	RXB_1-	HDMI Input	Digital input channel 1 complement of port B in the HDMI interface.

Location	Mnemonic	Type	Description
			B in the HDMI interface.
138	RXB_1+	HDMI Input	Digital input channel 1 true of port B in the HDMI interface.
139	TVDD	Power	Receiver terminator supply voltage (3.3 V)
140	RXB_2-	HDMI Input	Digital input channel 2 complement of port B in the HDMI interface.
141	RXB_2+	HDMI Input	Digital input channel 2 true of port B in the HDMI interface.
142	HP_CTRLC	Digital Output	Hot Plug Detect for port C.
143	5V_DETC	Digital Input	5 V detect pin for port C in the HDMI interface.
144	DDCC_SDA	Digital I/O	HDCP slave serial clock port C. DDCC_SDA is a 3.3 V input/output that is 5 V tolerant.

MX25L3206EM2I-12G (DIGITAL : IC722)

PIN CONFIGURATIONS

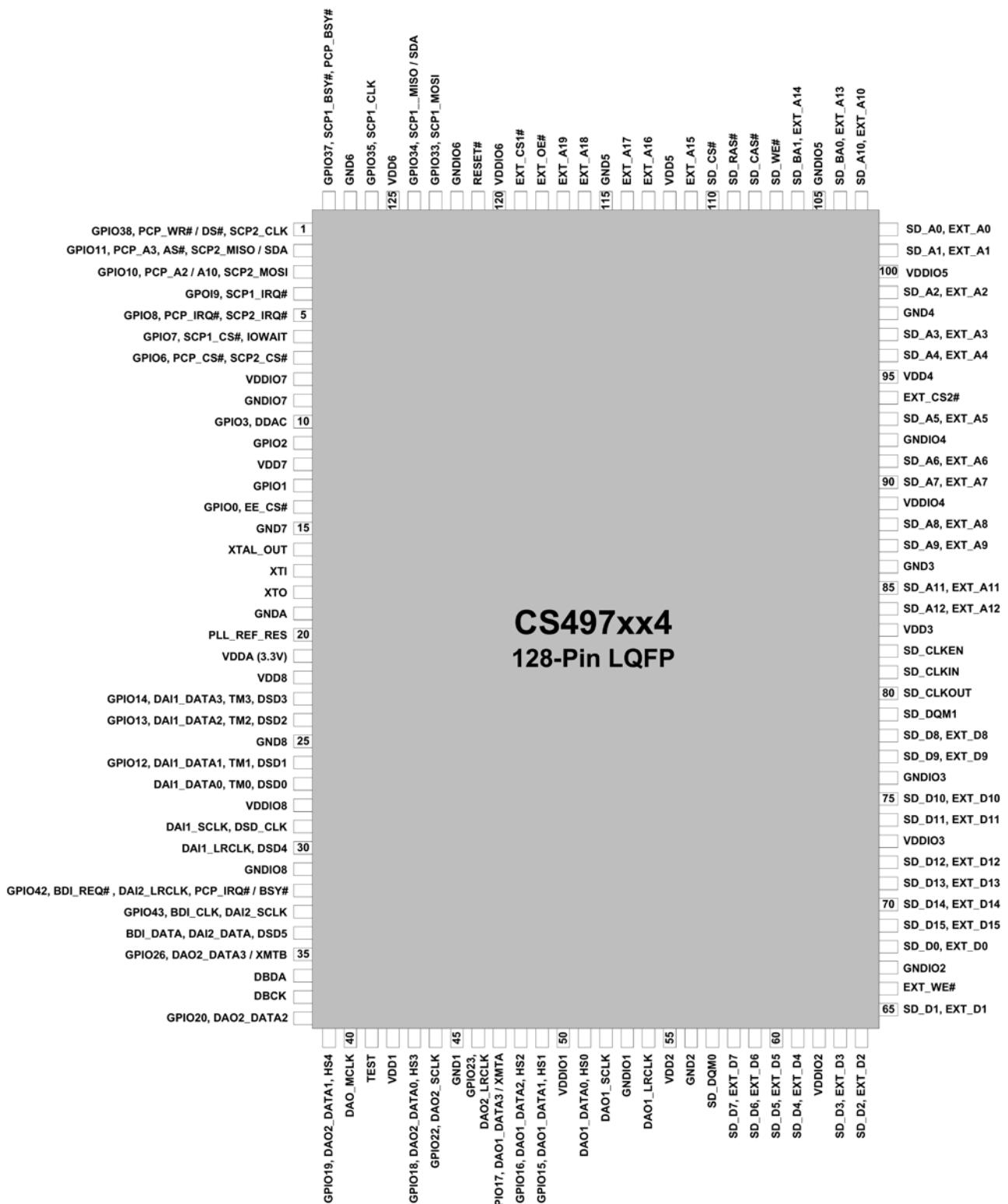
8-PIN SOP (200mil)



PIN DESCRIPTION

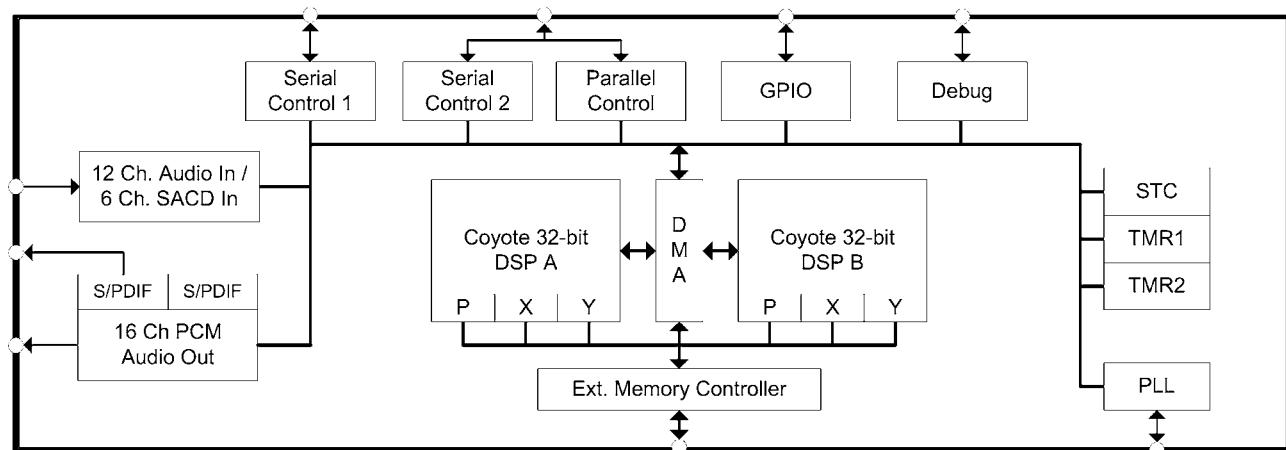
SYMBOL	DESCRIPTION
CS#	Chip Select
SI/SIO0	Serial Data Input (for 1 x I/O)/ Serial Data Input & Output (for Dual Output mode)
SO/SIO1	Serial Data Output (for 1 x I/O)/ Serial Data Output (for Dual Output mode)
SCLK	Clock Input
WP#	Write protection
HOLD#	Hold, to pause the device without deselecting the device
VCC	+ 3.3V Power Supply
GND	Ground

CS497024CVZ (DIGITAL : IC741)



**CS497xx4
128-Pin LQFP**

CS497024CVZ Block diagram



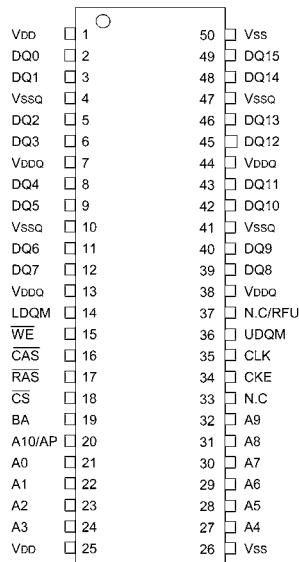
MX25L8006EM2I-12G (DIGITAL : IC742)

CS#	1	8	VCC
SO/SIO1	2	7	HOLD#
WP#	3	6	SCLK
GND	4	5	SI/SIO0

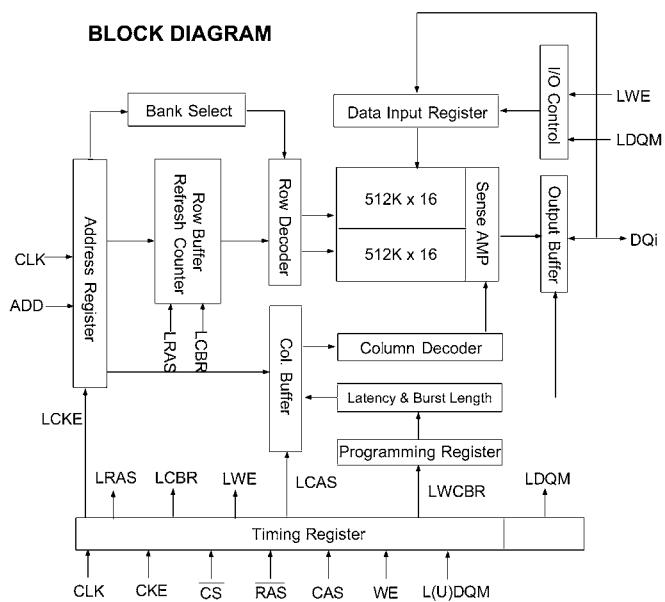
PIN DESCRIPTION

SYMBOL	DESCRIPTION
CS#	Chip Select
SI/SIO0	Serial Data Input (for 1 x I/O)/ Serial Data Input & Output (for Dual Output mode)
SO/SIO1	Serial Data Output (for 1 x I/O)/ Serial Data Output (for Dual Output mode)
SCLK	Clock Input
WP#	Write protection
HOLD#	Hold, to pause the device without deselecting the device
VCC	+ 3.3V Power Supply
GND	Ground

M12L16161A5TG (DIGITAL : IC743)



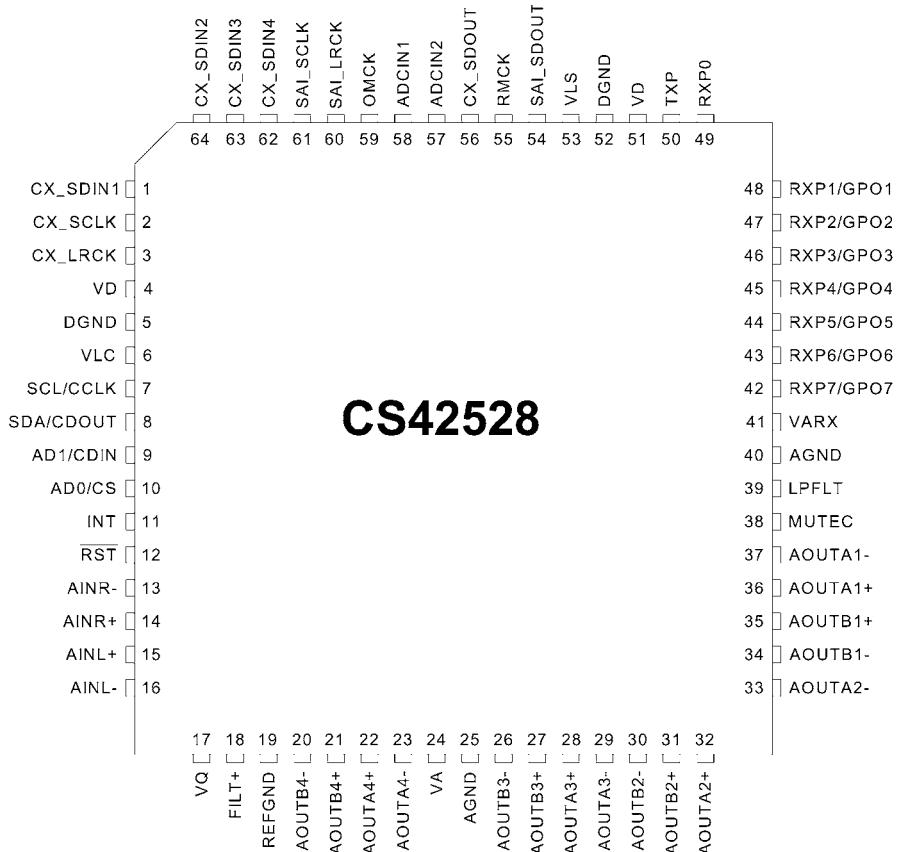
BLOCK DIAGRAM



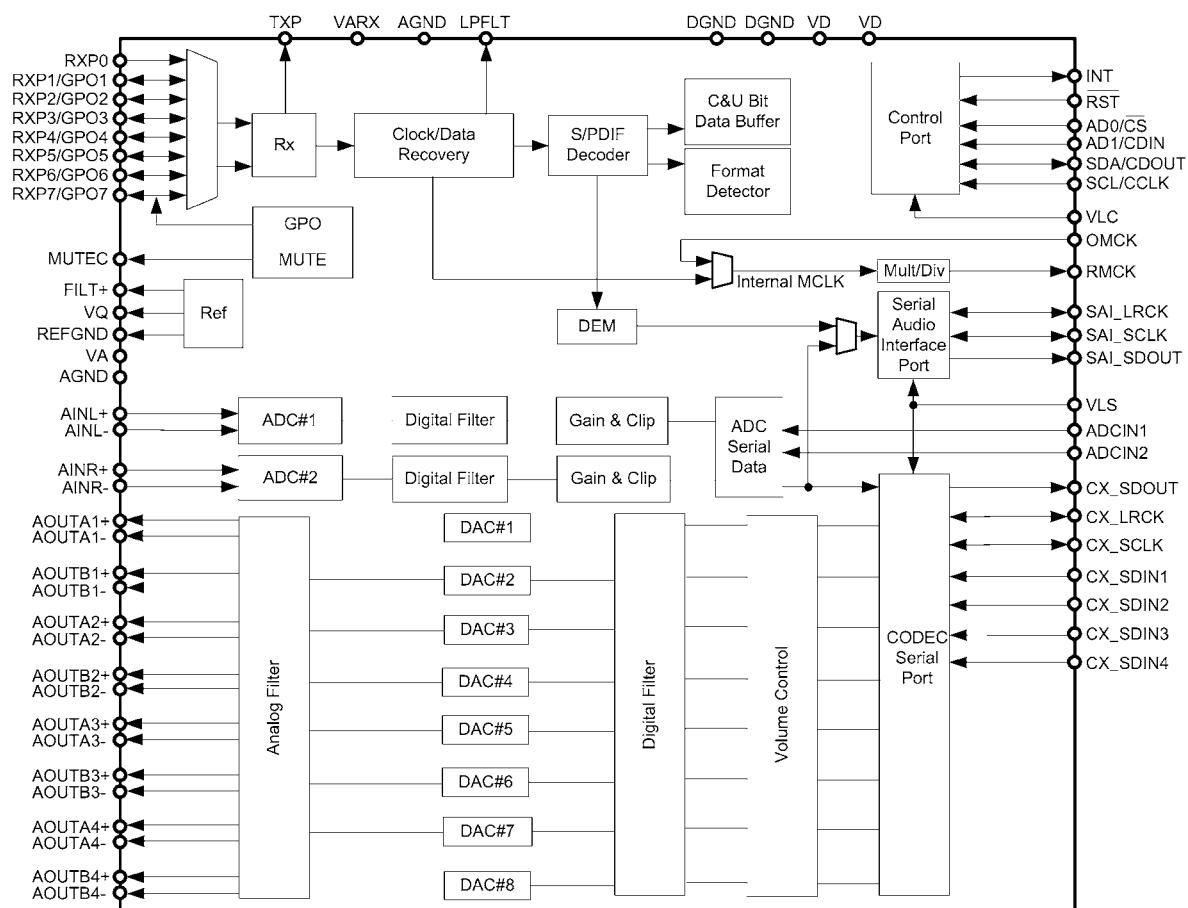
M12L16161A5TG Terminal Functions

Pin	Name	Input Function
CLK	System Clock	Active on the positive going edge to sample all inputs.
CS	Chip Select	Disables or enables device operation by masking or enabling all inputs except CLK, CKE and L(U)DQM.
CKE	Clock Enable	Masks system clock to freeze operation from the next clock cycle. CKE should be enabled at least one cycle prior to new command. Disable input buffers for power down in standby.
A0 ~ A10/AP	Address	Row / column addresses are multiplexed on the same pins. Row address : RA0 ~ RA10, column address : CA0 ~ CA7
BA	Bank Select Address	Selects bank to be activated during row address latch time. Selects bank for read/write during column address latch time.
RAS	Row Address Strobe	Latches row addresses on the positive going edge of the CLK with $\overline{\text{RAS}}$ low. Enables row access & precharge.
CAS	Column Address Strobe	Latches column addresses on the positive going edge of the CLK with $\overline{\text{CAS}}$ low. Enables column access.
WE	Write Enable	Enables write operation and row precharge. Latches data in starting from $\overline{\text{CAS}}$, $\overline{\text{WE}}$ active.
L(U)DQM	Data Input / Output Mask	Makes data output Hi-Z, t_{SHZ} after the clock and masks the output. Blocks data input when L(U)DQM active.
DQ0~15	Data Input / Output	Data inputs/outputs are multiplexed on the same pins.
VDD/VSS	Power Supply/Ground	Power and ground for the input buffers and the core logic.
VDDQ/VSSQ	Data Output Power/Ground	Isolated power supply and ground for the output buffers to provide improved noise immunity.
N.C/RFU	No Connection/ Reserved for Future Use	This pin is recommended to be left No Connection on the device.

CS42528-CQ (DIGITAL : IC744)



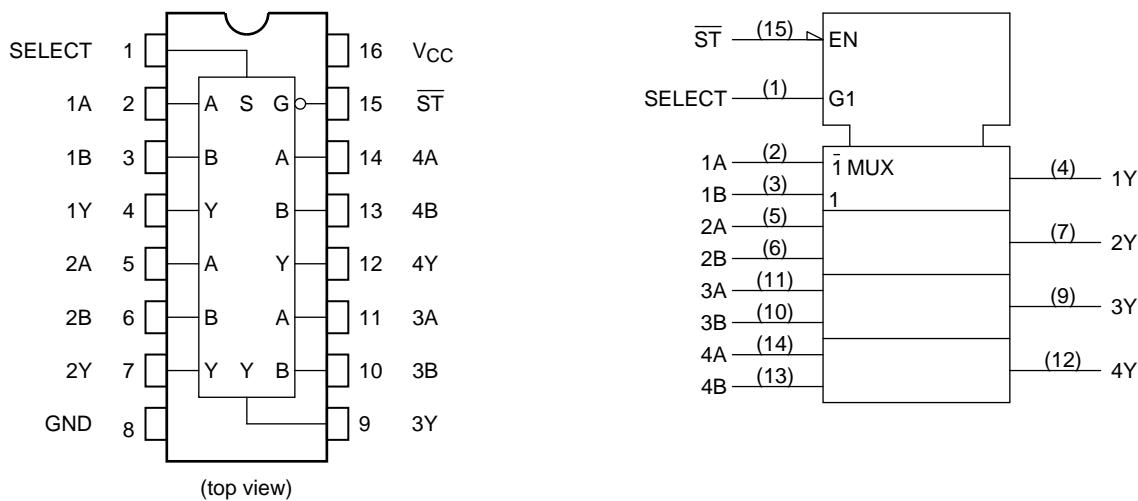
CS42528 Block diagram



CS42528 Terminal Functions

INT	11	Interrupt (Output) - The CS42528 will generate an interrupt condition as per the Interrupt Mask register. See "Interrupts" on page 40 for more details.
RST	12	Reset (Input) - The device enters a low power mode and all internal registers are reset to their default settings when low.
AINR-	13	Differential Right Channel Analog Input (Input) - Signals are presented differentially to the delta-sigma modulators via the AINR+- pins.
AINR+	14	
AINL+	15	Differential Left Channel Analog Input (Input) - Signals are presented differentially to the delta-sigma modulators via the AINL+- pins.
AINL-	16	
VQ	17	Quiescent Voltage (Output) - Filter connection for internal quiescent reference voltage.
FILT+	18	Positive Voltage Reference (Output) - Positive reference voltage for the internal sampling circuits.
REFGND	19	Reference Ground (Input) - Ground reference for the internal sampling circuits.
AOUTA1 +,-	36,37	
AOUTB1 +,-	35,34	
AOUTA2 +,-	32,33	
AOUTB2 +,-	31,30	Differential Analog Output (Output) - The full-scale differential analog output level is specified in the Analog Characteristics specification table.
AOUTA3 +,-	28,29	
AOUTB3 +,-	27,26	
AOUTA4 +,-	22,23	
AOUTB4 +,-	21,20	
VA	24	
VARX	41	Analog Power (Input) - Positive power supply for the analog section.
AGND	25	
	40	Analog Ground (Input) - Ground reference. Should be connected to analog ground.
MUTEC	38	Mute Control (Output) - The Mute Control pin outputs high impedance following an initial power-on condition or whenever the PDN bit is set to a '1', forcing the codec into power-down mode. The signal will remain in a high impedance state as long as the part is in power-down mode. The Mute Control pin goes to the selected "active" state during reset, muting, or if the master clock to left/right clock frequency ratio is incorrect. This pin is intended to be used as a control for external mute circuits to prevent the clicks and pops that can occur in any single supply system. The use of external mute circuits are not mandatory but may be desired for designs requiring the absolute minimum in extraneous clicks and pops.
LPFLT	39	PLL Loop Filter (Output) - An RC network should be connected between this pin and ground.
RXP7/GPO7	42	
RXP6/GPO6	43	S/PDIF Receiver Input/ General Purpose Output (Input/Output) - Receiver inputs for S/PDIF encoded data. The CS42528 has an internal 8:2 multiplexer to select the active receiver port, according to the Receiver Mode Control 2 register. These pins can also be configured as general purpose output pins, ADC Overflow indicators or Mute Control outputs according to the RXP/General Purpose Pin Control registers.
RXP5/GPO5	44	
RXP4/GPO4	45	
RXP3/GPO3	46	
RXP2/GPO2	47	
RXP1/GPO1	48	
RXP0	49	S/PDIF Receiver Input (Input) - Dedicated receiver input for S/PDIF encoded data.
TXP	50	S/PDIF Transmitter Output (Output) - S/PDIF encoded data output, mapped directly from one of the receiver inputs as indicated by the Receiver Mode Control 2 register.
VLS	53	Serial Port Interface Power (Input) - Determines the required signal level for the serial port interfaces.
SAI_SDOUT	54	Serial Audio Interface Serial Data Output (Output) - Output for two's complement serial audio PCM data from the S/PDIF incoming stream. This pin can also be configured to transmit the output of the internal and external ADCs.
RMCK	55	Recovered Master Clock (Output) - Recovered master clock output from the External Clock Reference (OMCK, pin 59) or the PLL which is locked to the incoming S/PDIF stream or CX_LRCK.
CX_SDOUT	56	CODEC Serial Data Output (Output) - Output for two's complement serial audio data from the internal and external ADCs.
ADCIN1	58	External ADC Serial Input (Input) - The CS42528 provides for up to two external stereo analog to digital converter inputs to provide a maximum of six channels on one serial data output line when the CS42528 is placed in One-Line Mode.
ADCIN2	57	
OMCK	59	External Reference Clock (Input) - External clock reference that must be within the ranges specified in the register "OMCK Frequency (OMCK Freqx)" on page 53.
SAI_LRCK	60	Serial Audio Interface Left/Right Clock (Input/Output) - Determines which channel, Left or Right, is currently active on the serial audio data line.
SAI_SCLK	61	Serial Audio Interface Serial Clock (Input/Output) - Serial clock for the Serial Audio Interface.

TC74VHC157FT (DIGITAL : IC745-747)

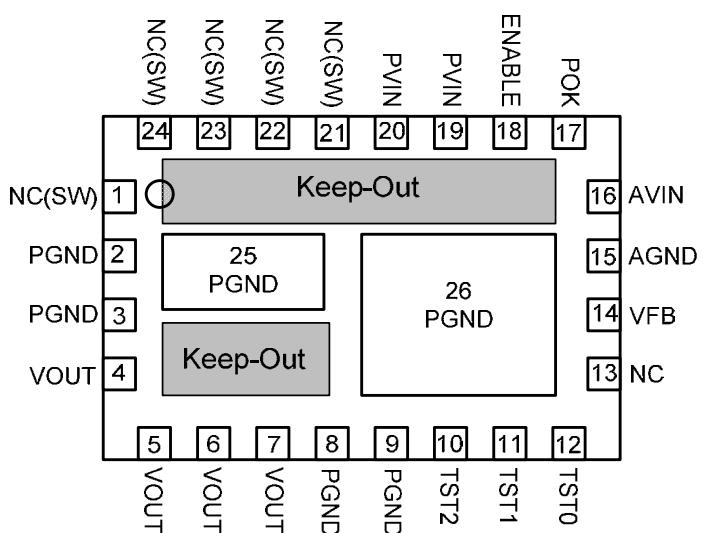


Truth Table

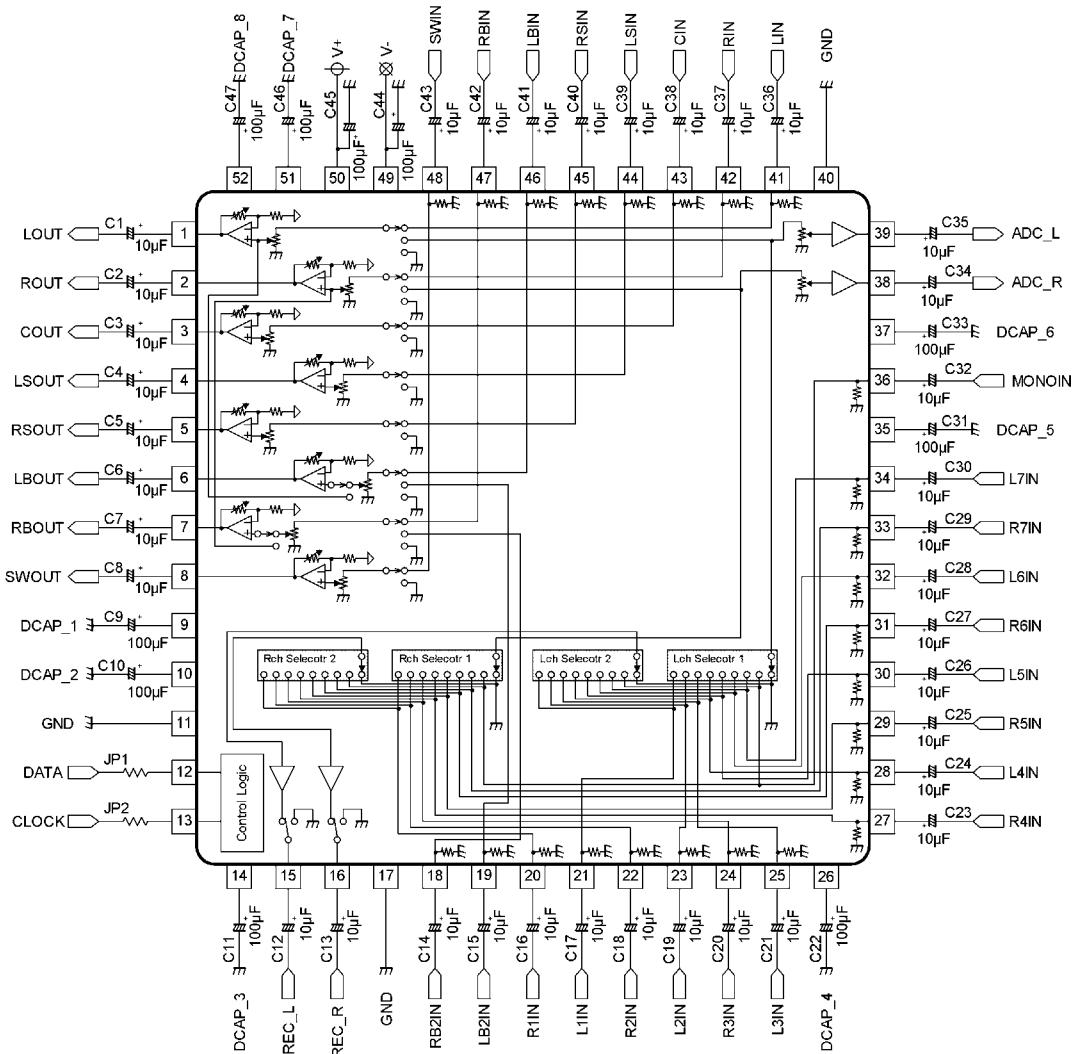
Inputs				Output
\bar{ST}	SELECT	A	B	
H	X	X	X	L
L	L	L	X	L
L	L	H	X	H
L	H	X	L	L
L	H	X	H	H

X: Don't care

EN5339QI (DIGITAL : IC751-753)



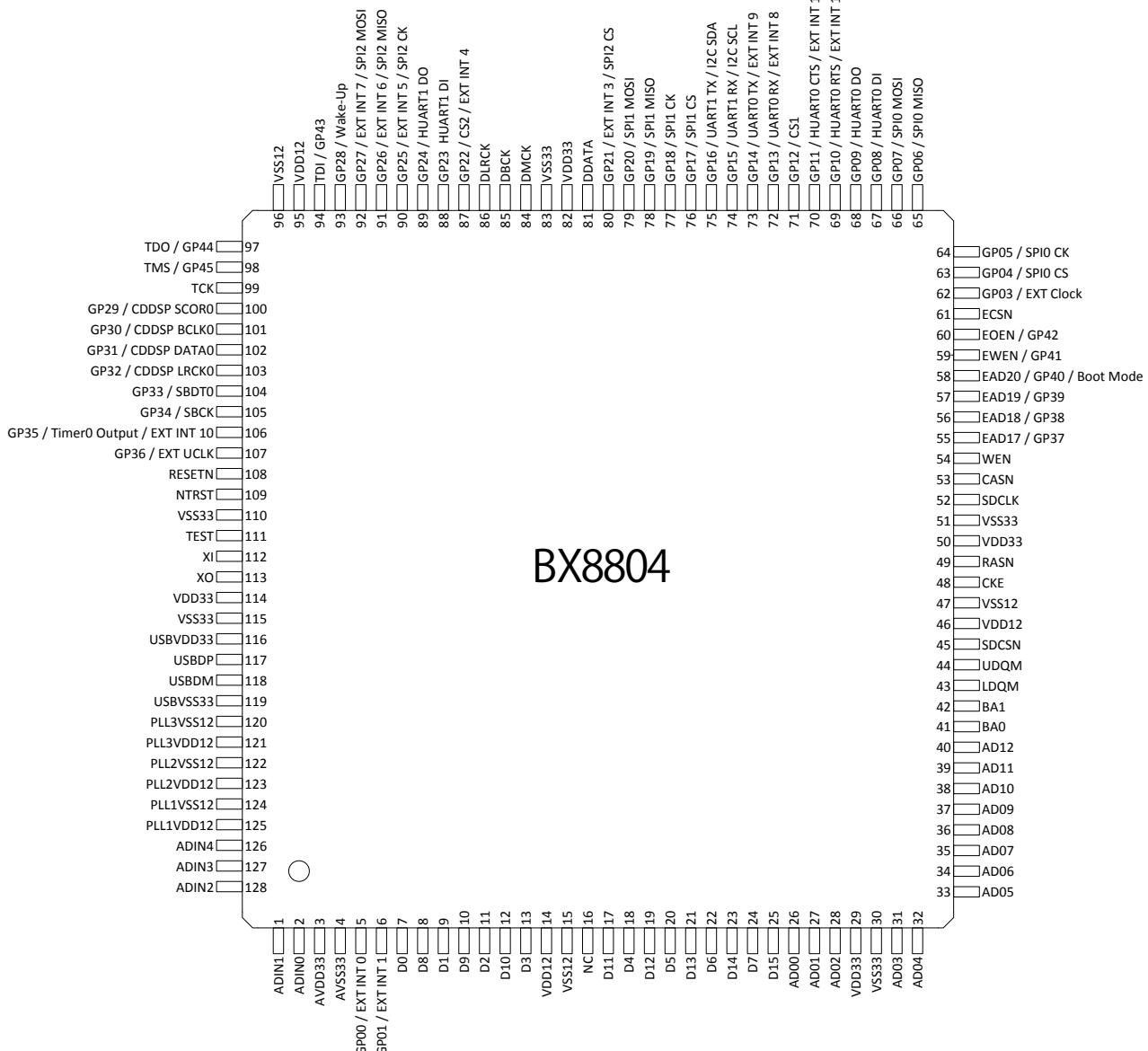
NJU72340A (DIGITAL :IC761)



NJU72340A Terminal Functions

Pin No.	SYMBOL						
1	LOUT	14	DCAP_3	27	R4IN	40	GND
2	ROUT	15	REC_R	28	L4IN	41	LIN
3	COUT	16	REG_L	29	R5IN	42	RIN
4	LSOUT	17	GND	30	L5IN	43	CIN
5	RSOUT	18	RB2IN	31	R6IN	44	LSIN
6	LBOUT	19	LB2IN	32	L6IN	45	RSIN
7	RBOUT	20	R1IN	33	R7IN	46	LBIN
8	SWOUT	21	L1IN	34	L7IN	47	RBIN
9	DCAP_1	22	R2IN	35	DCAP_5	48	SWIN
10	DCAP_2	23	L2IN	36	MONOIN	49	V-
11	GND	24	R3IN	37	DCAP_6	50	V+
12	DATA	25	L3IN	38	ADC_R	51	DCAP_7
13	CLOCK	26	DCAP_4	39	ADC_L	52	DCAP_8

BX8804(USB : IC901)



BX8804

BX8804 Terminal Functions

Pin	Name	Type	Description	Alternative Function
1	ADIN1	I	ADC analog input[1]	
2	ADIN0	I	ADC analog input[0]	
3	AVDD33	P	ADC Analog Power supply (3.3V)	
4	AVSS33	P	ADC Analog Ground	
5	GP00	BD	General Purpose IO 00	External Interrupt 0
6	GP01	BD	General Purpose IO 01	External Interrupt 1
7	D0	B	External SDRAM data bus [0]	External program data bus [0]
8	D8	B	External SDRAM data bus [8]	External program data bus [8]
9	D1	B	External SDRAM data bus [1]	External program data bus [1]
10	D9	B	External SDRAM data bus [9]	External program data bus [9]
11	D2	B	External SDRAM data bus [2]	External program data bus [2]
12	D10	B	External SDRAM data bus [10]	External program data bus [10]
13	D3	B	External SDRAM data bus [3]	External program data bus [3]
14	VDD12	P	Digital power supply (1.2V)	
15	VSS12	P	Digital Ground	
16	NC		Not Connected	
17	D11	B	External SDRAM data bus [11]	External program data bus [11]
18	D4	B	External SDRAM data bus [4]	External program data bus [4]
19	D12	B	External SDRAM data bus [12]	External program data bus [12]
20	D5	B	External SDRAM data bus [5]	External program data bus [5]
21	D13	B	External SDRAM data bus [13]	External program data bus [13]
22	D6	B	External SDRAM data bus [6]	External program data bus [6]
23	D14	B	External SDRAM data bus [14]	External program data bus [14]
24	D7	B	External SDRAM data bus [7]	External program data bus [7]
25	D15	B	External SDRAM data bus [15]	External program data bus [15]
26	AD0	O	External SDRAM address bus [0]	External program address bus [0]
27	AD1	O	External SDRAM address bus [1]	External program address bus [1]
28	AD2	O	External SDRAM address bus [2]	External program address bus [2]
29	IOVDD33	P	I/O Power supply (3.3V)	
30	IOVSS33	P	I/O Ground	
31	AD3	O	External SDRAM address bus [3]	External program address bus [3]
32	AD4	O	External SDRAM address bus [4]	External program address bus [4]
33	AD5	O	External SDRAM address bus [5]	External program address bus [5]
34	AD6	O	External SDRAM address bus [6]	External program address bus [6]
35	AD7	O	External SDRAM address bus [7]	External program address bus [7]
36	AD8	O	External SDRAM address bus [8]	External program address bus [8]
37	AD9	O	External SDRAM address bus [9]	External program address bus [9]
38	AD10	O	External SDRAM address bus [10]	External program address bus [10]
39	AD11	O	External SDRAM address bus [11]	External program address bus [11]
40	AD12	O	External SDRAM address bus [12]	External program address bus [12]
41	BA0	O	External SDRAM Bank selector 0	External program address bus [13]

42	BA1	O	External SDRAM Bank selector 1	External program address bus [14]
43	LDQM	O	SDRAM Lower byte data mask	External program address bus [15]
44	UDQM	O	SDRAM Upper byte data mask	External program address bus [16]
45	SDCSN	O	SDRAM Chip select	
46	VDD12	P	Digital power supply (1.2V)	
47	VSS12	P	Digital Ground	
48	CKE	O	SDRAM clock enable	
49	RASN	O	SDRAM RAS	
50	IOVDD33	P	I/O Power supply (3.3V)	
51	IOVSS33	P	I/O Ground	
52	SDCLK	O	SDRAM clock	
53	CASN	O	SDRAM CAS	
54	WEN	O	SDRAM WEN	
55	EAD17	B	External memory address[17]	General Purpose IO 37
56	EAD18	B	External memory address[18]	General Purpose IO 38
57	EAD19	B	External memory address[19]	General Purpose IO 39
58	EAD20	B	External memory address[20]	General Purpose IO 40 Booting Mode
59	EWEN	B	External memory WEN	General Purpose IO 41
60	EOEN	B	External memory OEN	General Purpose IO 42
61	ECSN	O	External memory CSN	
62	GP03	B	General Purpose IO 03	External Clock (16.9344MHz)
63	GP04	B	General Purpose IO 04	SPI0 CS
64	GP05	B	General Purpose IO 05	SPI0 CK
65	GP06	B	General Purpose IO 06	SPI0 MISO
66	GP07	B	General Purpose IO 07	SPI0 MOSI
67	GP08	B	General Purpose IO 08	HUART0 DI
68	GP09	B	General Purpose IO 09	HUART0 DO
69	GP10	B	General Purpose IO 10	HUART0 RTS External Interrupt 11
70	GP11	B	General Purpose IO 11	HUART0 CTS External Interrupt 12
71	GP12	B	General Purpose IO 12	Chip Select 1 When GP12 is used for CS1, the external pull-up resistor (48 kΩ) has to be connected with this pin
72	GP13	B	General Purpose IO 13	UART0 RX Data External Interrupt 8
73	GP14	B	General Purpose IO 14	UART0 TX Data External Interrupt 9
74	GP15	B	General Purpose IO 15	UART1 RX Data I2C SCL
75	GP16	B	General Purpose IO 16	UART1 TX Data I2C SDA
76	GP17	B	General Purpose IO 17	SPI1 CS
77	GP18	B	General Purpose IO 18	SPI1 CK

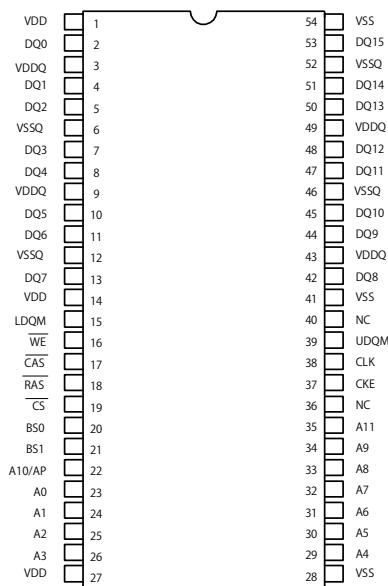
78	GP19	B	General Purpose IO 19	SPI1 MISO
79	GP20	B	General Purpose IO 20	SPI1 MOSI
80	GP21	B	General Purpose IO 21	External Interrupt 3
				SPI2 CS
81	DDATA	O	Audio serial data for external DAC	
82	IOVDD33	P	I/O Power supply (3.3V)	
83	IOVSS33	P	I/O Ground	
84	DMCK	O	Master clock for external DAC	
85	DBCK	O	Audio serial data Bit clock	
86	DLRCK	O	Audio serial data frame clock	
87	GP22	B	General Purpose IO 22	Chip Select 2 When GP22 is used for CS2, the external pull-up resistor (48 kΩ) has to be connected with this pin
				External Interrupt 4
88	GP23	B	General Purpose IO 23	HUART1 DI
89	GP24	B	General Purpose IO 24	HUART1 DO
90	GP25	B	General Purpose IO 25	External Interrupt 5
				SPI2 CK
91	GP26	B	General Purpose IO 26	External Interrupt 6
				SPI2 MISO
92	GP27	B	General Purpose IO 27	External Interrupt 7
				SPI2 MOSI
93	GP28	B	General Purpose IO 28	Wake-UP When GP28 is used for WAKE-UP signal input pin, the external pull-down resistor (48kΩ) has to be connected with this pin.
94	TDI	B	JTAG TDI input When GP43 is used for TDI of JTAG, the external pull-up resistor (48kΩ) has to be connected with this pin.	General Purpose IO 43
95	VDD12	P	Digital power supply (1.2V)	
96	VSS12	P	Digital Ground	
97	TDO	B	JTAG TDO Output When GP44 is used for TDO of JTAG, the external pull-up resistor (48kΩ) has to be connected with this pin.	General Purpose IO 44
98	TMS	B	JTAG TMS input When GP45 is used for TMS of JTAG, the external pull-up resistor (48kΩ) has to be connected with this pin.	General Purpose IO 45
99	TCK	I	JTAG Clock Input	
100	GP29	B	General Purpose IO 29	CDDSP SCORO

101	GP30	B	General Purpose IO 30	CDDSP BCLK0
102	GP31	B	General Purpose IO 31	CDDSP DATA0
103	GP32	B	General Purpose IO 32	CDDSP LRCK0
104	GP33	B	General Purpose IO 33	SBDT0
105	GP34	B	General Purpose IO 34	SBCK
106	GP35	B	General Purpose IO 35	Timer0 Output External Interrupt 10
107	GP36	B	General Purpose IO 36	External UCLK
108	RESETN	I	System Reset	
109	NTRST	I	JTAG NRST Input When NTRSR is used for Reset of JTAG, the external pull-up resistor (48kΩ) has to be connected with this pin.	
110	IOVSS33	P	I/O Ground	
111	TEST	I	Test	
112	XI	I	System clock input	
113	XO	O	System clock output	
114	IOVDD33	P	I/O Power supply (3.3V)	
115	IOVSS33	P	I/O Ground	
116	USBVDD33	P	USB Power supply (3.3V)	
117	USBDP	B	USB D+	
118	USBDM	B	USB D-	
119	USBVSS33	P	USB Ground (3.3V)	
120	PLL3VSS12	P	PLL3 Ground (1.2V)	
121	PLL3VDD12	P	PLL3 Power supply (1.2V)	
122	PLL2VSS12	P	PLL2 Ground (1.2V)	
123	PLL2VDD12	P	PLL2 Power supply (1.2V)	
124	PLL1VSS12	P	PLL1 Ground (1.2V)	
125	PLL1VDD12	P	PLL1 Power supply (1.2V)	
126	ADIN4	I	ADC analog input[4]	
127	ADIN3	I	ADC analog input[3]	
128	ADIN2	I	ADC analog input[2]	

Note: Pin type 'D' means open drain output

W9864G6JH-6 (USB : IC902)

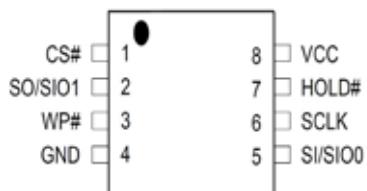
PIN CONFIGURATION



W9864G6JH-6 Terminal Functions

PIN NUMBER	PIN NAME	FUNCTION	DESCRIPTION
23 ~ 26, 22, 29 ~ 35	A0-A11	Address	Multiplexed pins for row and column address. Row address: A0–A11. Column address: A0–A7. A10 is sampled during a precharge command to determine if all banks are to be precharged or bank selected by BS0, BS1.
20, 21	BS0, BS1	Bank Select	Select bank to activate during row address latch time, or bank to read/write during address latch time.
2, 4, 5, 7, 8, 10, 11, 13, 42, 44, 45, 47, 48, 50, 51, 53	DQ0-DQ15	Data Input/ Output	Multiplexed pins for data output and input.
19	CS	Chip Select	Disable or enable the command decoder. When command decoder is disabled, new command is ignored and previous operation continues.
18	RAS	Row Address Strobe	Command input. When sampled at the rising edge of the clock RAS, CAS and WE define the operation to be executed.
17	CAS	Column Address Strobe	Referred to RAS
16	WE	Write Enable	Referred to RAS
39, 15	UDQM LDQM	Input/output mask	The output buffer is placed at Hi-Z (with latency of 2) when DQM is sampled high in read cycle. In write cycle, sampling DQM high will block the write operation with zero latency.
38	CLK	Clock Inputs	System clock used to sample inputs on the rising edge of clock.
37	CKE	Clock Enable	CKE controls the clock activation and deactivation. When CKE is low, Power Down mode, Suspend mode, or Self Refresh mode is entered.
1, 14, 27	VDD	Power	Power for input buffers and logic circuit inside DRAM.
28, 41, 54	Vss	Ground	Ground for input buffers and logic circuit inside DRAM.
3, 9, 43, 49	VDDQ	Power for I/O buffer	Separated power from VDD, to improve DQ noise immunity.
6, 12, 46, 52	VSSQ	Ground for I/O buffer	Separated ground from Vss, to improve DQ noise immunity.
36, 40	NC	No Connection	No connection.

MX25L1606EM2I-12G (USB : IC904)

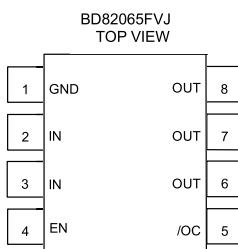


MX25L1606EM2I-12G Terminal Functions

PIN DESCRIPTION

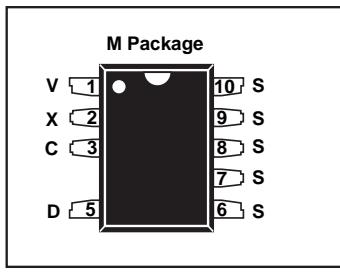
SYMBOL	DESCRIPTION
CS#	Chip Select
SI/SIO0	Serial Data Input (for 1 x I/O)/ Serial Data Input & Output (for Dual Output mode)
SO/SIO1	Serial Data Output (for 1 x I/O)/ Serial Data Output (for Dual Output mode)
SCLK	Clock Input
WP#	Write protection
HOLD#	Hold, to pause the device without deselecting the device
VCC	+ 3.3V Power Supply
GND	Ground

BD82065FVJ (USB : IC905)



端子番号	端子名	I / O	端子機能
1	GND	-	グランド端子。
2, 3	IN	-	電源入力端子。 パワースイッチへの入力端子と内部回路の電源入力端子です。 使用時は外部で全端子を接続してください。
4	EN , /EN	I	パワースイッチネーブル入力端子。 Low レベルの入力でパワースイッチを ON します。 (BD82061FVJ) High レベルの入力でパワースイッチを ON します。 (BD82065FVJ) High レベル入力 > 2.0V, Low レベル入力 < 0.8V。
5	/OC	O	過電流通知出力端子。 過電流、過温度検出時に Low になります。 オープンドレイン出力端子です。
6, 7, 8	OUT	O	パワースイッチ出力端子。 使用時は外部で全端子を接続してください。

TOP258MG (SMPS : IC601)



Pin Functional Description

DRAIN (D) Pin:

High-voltage power MOSFET DRAIN pin. The internal start-up bias current is drawn from this pin through a switched high-voltage current source. Internal current limit sense point for drain current.

CONTROL (C) Pin:

Error amplifier and feedback current input pin for duty cycle control. Internal shunt regulator connection to provide internal bias current during normal operation. It is also used as the connection point for the supply bypass and auto-restart/compensation capacitor.

EXTERNAL CURRENT LIMIT (X) Pin (Y, M, E and L package):
Input pin for external current limit adjustment and remote ON/OFF. A connection to SOURCE pin disables all functions on this pin.

VOLTAGE MONITOR (V) Pin (Y & M package only):

Input for OV, UV, line feed forward with DC_{MAX} reduction, output overvoltage protection (OVP), remote ON/OFF and device reset. A connection to the SOURCE pin disables all functions on this pin.

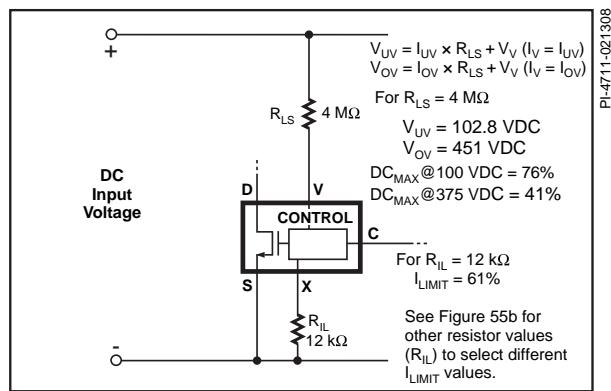


Figure 5. TOP254-258 Y and All M/E/L Package Line Sense and Externally Set Current Limit.

MULTI-FUNCTION (M) Pin (P & G packages only):

This pin combines the functions of the VOLTAGE MONITOR (V) and EXTERNAL CURRENT LIMIT (X) pins of the Y package into one pin. Input pin for OV, UV, line feed forward with DC_{MAX} reduction, output overvoltage protection (OVP), external current limit adjustment, remote ON/OFF and device reset. A connection to SOURCE pin disables all functions on this pin and makes TOPSwitch-HX operate in simple three terminal mode (like TOPSwitch-II).

FREQUENCY (F) Pin (TOP254-258Y, and all E and L packages):

Input pin for selecting switching frequency 132 kHz if connected to SOURCE pin and 66 kHz if connected to CONTROL pin. The switching frequency is internally set for fixed 66 kHz operation in the P, G, M package and TOP259YN, TOP260YN and TOP261YN.

SIGNAL GROUND (G) Pin (TOP259YN, TOP260YN & TOP261YN only):

Return for C pin capacitor and X pin resistor.

SOURCE (S) Pin:

Output MOSFET source connection for high voltage power return. Primary side control circuit common and reference point.

PI-471-021308

ANODE CONNECTION

	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	13G	14G	15G	16G	17G (AD3)	18G (AD4)
D0	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	1-1	S9	-
D1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	2-1	3d	-
D2	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	3-1	2d	-
D3	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	4-1	3e	-
D4	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	5-1	2e	-
D5	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	3c	-
D6	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2-2	2c	-
D7	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3g	-
D8	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	4-2	2g	-
D9	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	5-2	3f	-
D10	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	2f	-
D11	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	3b	-
D12	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	3-3	2b	-
D13	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	4-3	3a	-
D14	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	5-3	2a	-
D15	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	Dp	-
D16	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	2-4	dB	-
D17	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	1d	-
D18	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	4-4	1e	-
D19	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	5-4	1c	-
D20	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1-5	1g	-
D21	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	2-5	1f	-
D22	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	3-5	1b	-
D23	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	4-5	1a	AUTO
D24	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	5-5	S1	HDMI
D25	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	S2	DIGITAL
D26	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	2-6	S3	ANALOG
D27	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	3-6	S4	SBLACK
D28	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	S5	D
D29	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6	S6	dts
D30	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	S7	AUDIO
D31	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	2-7	S8	TUNED
D32	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	3-7	MUTE	STEREO
D33	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	4-7	PCM	RDS
D34	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	5-7	Z2	SLEEP
AD1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	DIG	-	
AD2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ANA	-	

REF No.	Part No.	Part Name	Remarks	Q'ty	New	Ver
C1081	nsp	CAP,CHIP(1608,50V/0.1uF,X7R) _SAMSUNG GeneralCapacitors-X7R	CCUS1H104KCS	1		
C1424	nsp	CAP,CHIP(1608,50V/0.1uF,X7R) _SAMSUNG GeneralCapacitors-X7R	CCUS1H104KCS	1		
C1425,1426	nsp	CAP,CHIP(1608,50V/0.01uF,X7R) _SAMSUNG GeneralCapacitors-X7R	CCUS1H103KCS	2		
OTHER PARTS GROUP						
CN102	nsp	WAFER/ANGLE/2.5mm/07P	CJP07GB03ZY	1		
CN103	nsp	LOCK-WAFER/ANGLE/2MMPITCH/3PIN	CJP03GJ288ZY	1		
CN104	nsp	LOCK-WAFER/STRAIGHT/2MMPITCH/3PIN	CJP03GI288ZY	1		
BK101,102	nsp	BRACKET,FIP	CMD1A572-V1	2		
BN101	nsp	WIREASS'YB'D-B'DIN(9P,2MM,80MM,#28) 80'C1007#28BLK(RED)Borad_in-Borad_in	CWB1A009080CC	1		
BN12B1	nsp	WAFER,FFC1.25mm,ANGLE	CJP27GB286ZN	1		
BN131	nsp	WIREASS'YLocking(YH)(3P,2MM,50MM,#28) 80'C1007#28BLK(RED)Locking-Borad_in	CWB1A003050HC	1		
F1001	943652000620S	FUSE(372Series/100mA/TR5)	CBA2D0100A3EYT	1		
FL101	943172100150S	V.F.D'FUTABA,18-BT-02GINK	CFL18BT021GINK	1		
JK104	90M-YT004500R	JACK,PHONES(6.35mm,SILVER)	CJJ2E026Z	1		
L1001	nsp	FERRITECHIPBEAD(1608/60R,CB03YTYH600)	CLZ9R005V	1		
L1010-1013	nsp	FERRITECHIPBEAD(1608/60R,CB03YTYH600)	CLZ9R005V	4		
L1402-1404	nsp	FERRITECHIPBEAD(1608/60R,CB03YTYH600)	CLZ9R005V	3		
SW101	00D9430004402	SW,TACT	CST1A012ZT	1		
SW102,103	00D9430004402	SW,TACT	S500BT	CST1A012ZT	2	
SW104-106	00D9430004402	SW,TACT		CST1A012ZT	3	
SW107,108	00D9430004402	SW,TACT	S500BT	CST1A012ZT	2	
SW109,111	00D9430004402	SW,TACT		CST1A012ZT	3	
SW112-114	00D9430004402	SW,TACT	S500BT	CST1A012ZT	3	
SW115-118	00D9430004402	SW,TACT		CST1A012ZT	4	
SW119	00D9430004402	SW,TACT	S500BT	CST1A012ZT	1	

REF No.	Part No.	Part Name	Remarks	Qty	New	Ver
C5407	943134500070S	CAP,ELECT(100V/10uF)	CCEA2AH100T	1		
C5408	13405014940AS	CAP,ELECT(63V/100uF) 85C10X12.5KOSHIN	CCEA1JH101T	1		
C5409	nsp	CAP,MYLAR(50V/0.1uF/J)	HCOI1H104JZT	1		
C5501	943134500070S	CAP,ELECT(100V/10uF)	CCEA2AH100T	1		
C5502	nsp	CAP,MYLAR(100V/470pF/J)	HCOI2A471JZT	1		
C5503	nsp	CAP,CERAMIC(50V/82pF/J)	CCCT1H820JC	1		
C5504	nsp	CAP,MYLAR(50V/2200pF/J)	HCOI1H222JZT	1		
C5505	943134501770S	CAP,ELECT(50V/220uF)	CCEA1HH221T	1		
C5506	nsp	CAP,CERAMIC(50V/33pF/J)	CCCT1H330JC	1		
C5507	943134500070S	CAP,ELECT(100V/10uF)	CCEA2AH100T	1		
C5508	13405014940AS	CAP,ELECT(63V/100uF) 85C10X12.5KOSHIN	(CCEA1JH101T	1		
C5509	nsp	CAP,MYLAR(50V/0.1uF/J)	HCOI1H104JZT	1		
C5605_5606	nsp	CAP,MYLAR(50V/0.018pF/J)	HCOI1H183JZT	2		
C5607_5608	nsp	CAP,MYLAR(50V/1500pF/J)	HCOI1H152JZT	2		
C5609-5611	nsp	CAP,MYLAR(50V/0.018pF/J)	HCOI1H183JZT	3		
C5612-5614	nsp	CAP,MYLAR(50V/1500pF/J)	HCOI1H152JZT	3		
C5701	nsp	CAP,MYLAR(50V/0.01uF/J)	HCOI1H103JZT	1		
C5702_5703	90M-OF100490R	CAP,METALPEFILM(250V/0.1uF)	KCME2E104JP04T	2		
C5704	943134010460S	CAP,ELECT(30X35)WITHOUTPLATEONTHETOP	CCET63VKL5682NKZ	1		
C5706	943134010460S	CAP,ELECT(30X35)WITHOUTPLATEONTHETOP	CCET63VKL5682NKZ	1		
C5707	nsp	CAP,ELECT(50V/0.1uF)	CCEA1HH0R11	1		
C5708	nsp	CAP,ELECT(100V/100uF)	CCEA2AH101E	1		
C5710	nsp	CAP,MYLAR(50V/0.1uF/J)	HCOI1H104JZT	1		
C5711	nsp	CAP,ELECT(6.3V/470uF)	CCEA0JH471T	1		
C5712	nsp	CAP,MYLAR(50V/0.1uF/J)	HCOI1H104JZT	1		
C5713	nsp	CAP,ELECT(6.3V/470uF)	CCEA0JH471T	1		
C5716	nsp	CAP,ELECT(16V/47uF)	CCEA1CH470T	1		
C5717	nsp	CAP,ELECT(50V/10uF)	CCEA1HH100T	1		
C5718-5722	nsp	CAP,MYLAR(50V/0.047uF/J)	HCOI1H473JZT	5		
C5723	nsp	CAP,ELECT(50V/10uF)	CCEA1HH100T	1		
OTHER PARTS GROUP						
CN503	nsp	WAFER,7P(DIP,3.96PITCH) 3.96mmPitchWireToBoardDipType(YW396-07AB)	CJP07GA90ZY	1		
CN510	nsp	WAFER/STRAIGHT/2.5mm/2P	CJP02GA01ZY	1		
CN520	nsp	WAFER/STRAIGHT/2.5mm/2P	CJP02GA01ZY	1		
CN530	nsp	WAFER/STRAIGHT/2.5mm/2P	CJP02GA01ZY	1		
CN540	nsp	WAFER/STRAIGHT/2.5mm/2P	CJP02GA01ZY	1		
CN550	nsp	WAFER/STRAIGHT/2.5mm/2P	CJP02GA01ZY	1		
BK501	nsp	BRACKET,PCB	CMD1A569-V1	1		
BN501	nsp	WIREASS'YLocking(YH)(13P,2MM,150MM,#26)	CWB1B013150HC	1		
BN502	nsp	WIREASS'YLocking(YH)(9P,2MM,150MM,#26) 80'C1007#26BLK/(RED)Locking-Borad_in	CWB1B009150HC	1		
BN505	nsp	WIREASS'YLocking(YH)(3P,2MM,220MM,#26) 105'C1569#26BLK/(RED)Locking-Borad_in	CWB4B003220HC	1		
BN508	nsp	PINHEADER(09P,125mm,STRAIGHT,B-TO-B)	CJP09GI281Z	1		
ET501	nsp	PLATE,EARTH(TRONICELECTRONICS)	CJT1A026	1		
F5801_5802	nsp	HOLDER,FUSE	KJCF5S	2		
JK503	943643102350S	4PPUSHSPK(RW/BB,NOSPCC,94V-0) RED,WHITE,BLACK,BLACK	CJ5P038Z	1		
JK504	943643102360S	6PPUSHSPK(GBB/BBB,NOSPCC,94V-0) GREEN,GRAY,BLUE,BLACK,BLACK,BLACK	CJ5R021Z	1		
L5101	943115100310S	COIL,SPEAKER(0.5UH)	CLEY0R5KAD	1		
L5201	943115100310S	COIL,SPEAKER(0.5UH)	CLEY0R5KAD	1		
L5301	943115100310S	COIL,SPEAKER(0.5UH)	CLEY0R5KAD	1		
L5401	943115100310S	COIL,SPEAKER(0.5UH)	CLEY0R5KAD	1		
L5501	943115100310S	COIL,SPEAKER(0.5UH)	CLEY0R5KAD	1		
TU500	943183100510S	TUNER,FM(SCREW-FTYPE),AM,SI4730-D60 SI4730-D60	E3	1	*	
TU500	943183100500S	TUNER,FM(PALTYPE),AM,SI4730-D60 SI4730-D60	E1C	1	*	
TU500	943183100520S	TUNER,RDS,FM(PALTYPE),AM,SI4731-D60 SI4731-D60	E1	1	*	
VR510	963161012400S	RES,SEMIFIXED(1K,BCURVE)	CVN1RA102B03T	1		
VR520	963161012400S	RES,SEMIFIXED(1K,BCURVE)	CVN1RA102B03T	1		
VR530	963161012400S	RES,SEMIFIXED(1K,BCURVE)	CVN1RA102B03T	1		
VR540	963161012400S	RES,SEMIFIXED(1K,BCURVE)	CVN1RA102B03T	1		
VR550	963161012400S	RES,SEMIFIXED(1K,BCURVE)	CVN1RA102B03T	1		

VIDEO PCB ASS'Y

※Parts indicated by "nsp" on this table cannot be supplied.

※The parts listed t NOTE:The symbols in the column Remarks indicate the following destinations.

E3 : U.S.A. & Canada model E2 : Europe model E1C : China model E1 : Asia model JP : Japan model

BK : Black model SP : Premium Silver model

REF No.	Part No.	Part Name	Remarks	Q'ty	New	Ver
SEMICONDUCTORS GROUP						
D7801,7802	943202010080S	DIODE,ZENER,1/2W,5.1V		CVDJ5.1BT	2	
IC781	90M-HC109700R	IC,VIDEOS/W(JRC)		CVINJM2595MTE1	1	
RESISTOR GROUP						
R7801	nsp	RES,CHIP(1608/5%/1.8Kohm)		CRJ10DJ182T	1	
R7802	nsp	RES,CHIP(1608/1%/820ohm)		CRJ10DF82R0T	1	
R7803,7804	nsp	RES,CHIP(1608/1%/750ohm)		CRJ10DF75R0T	2	
R7806	nsp	RES,CHIP(1608/5%/10Kohm)		CRJ10DJ103T	1	
R7807,7808	nsp	RES,M-OXIDEFILM(1W/270ohm)		CRG1SANJ271RT	2	
CAPACITORS GROUP						
C7714,7715	nsp	CAP,CHIP(1608,50V/0.1uF,X7R) _SAMSUNG GeneralCapacitors-X7R		CCUS1H104KCS	2	
C7801	nsp	CAP,CHIP(1608,50V/22pF,C0G) _SAMSUNG GeneralCapacitors-C0G		CCUS1H220JAS	1	
C7804,7805	nsp	CAP,ELECT(50V/10uF)		CCEA1HH100T	2	
C7806,7807	nsp	CAP,CHIP(1608,50V/0.1uF,X7R) _SAMSUNG GeneralCapacitors-X7R		CCUS1H104KCS	2	
C7810,7811	nsp	CAP,ELECT(50V/10uF)		CCEA1HH100T	2	
C7812	nsp	CAP,CHIP(1608,50V/0.1uF,X7R) _SAMSUNG GeneralCapacitors-X7R		CCUS1H104KCS	1	
C7813	nsp	CAP,ELECT(50V/100uF)		CCEA1HH101T	1	
OTHER PARTS GROUP						
CN781	nsp	WAFER,FFC(9P-1mm,STRAIGHT)		CJP09GA117ZY	1	
J7801-7804	00D9430101101	WIRE,COPPER(D0.6)		C3A206	4	
JK781	90M-YT002940R	JACK,BOARD		CJJ4S010Z	1	
JK782,783	943262100150S	MODULE,OPTICAL(RX16MHz)		CJSJSR1124	2	
! F5801, 5802	0520100170060	FUSE(218Series,250V/5A)		KBA2C5000TLEY	1	
! F6002	90M-FS001490R	FUSE(218Series,250V/4A)	E3	KBA2C4000TLEY	1	
! F6002	00D9430199109	FUSE(218Series,250V/4A)	E1, E1C	KBA2C2500TLEY	1	

EXPLODED_S500BT

※Parts indicated by "nsp" on this table cannot be supplied.

※The parts listed t NOTE:The symbols in the column Remarks indicate the following destinations.

E3 : U.S.A. & Canada model E2 : Europe model E1C : China model E1 : Asia model JP : Japan model

BK : Black model SP : Premium Silver model

REF No.	Part No.	Part Name	Remarks	Q'ty	New	Ver
P1	nsp	FRONT PCB ASS'Y	COP12619H	1	*	
P2	nsp	STANDBY PCB ASS'Y	COP12619H	1	*	
P3	nsp	PHONE PCB ASS'Y	COP12619H	1	*	
P4	943639101410D	USB&MIC PCB ASS'Y	E3	COP12652B	1	*
P4	943639101420D	USB&MIC PCB ASS'Y	E1C	COP12652C(E1C)	1	*
P5	943639101390D	MODULE, BLUETOOTH		CNVMB8811C0B	1	*
P6	nsp	MAIN PCB ASS'Y		COP12649B	1	*
P7	nsp	PHONE WIRE GUIDE		COP12649B	1	*
P9	nsp	TUNER PCB ASS'Y		COP12649B	1	*
P13	nsp	FRONT CABLE GUIDE		COP12649B	1	*
P14	nsp	USB WIRE GUIDE	E3	COP12649B	1	*
P8	943639101430D	DIGITAL PCB ASS'Y	E3	COP12650B	1	*
P8	943639101750D	DIGITAL PCB ASS'Y	E1C	COP12650F	1	*
P10	nsp	VIDEO PCB ASS'Y		COP12651B	1	*
P11	nsp	REGULATOR PCB ASS'Y		COP12615H	1	*
P12	nsp	SMPS PCB ASS'Y		COP12615H	1	*
P15	943101102380D	TRANS, POWER	E3	CLTU056ZU	1	*
P15	943101102400D	TRANS, POWER	E1C	CLTU056ZH	1	*
F1	943412100710D	KNOB, VOLUME		CBN1A263	1	
F2	943446100590D	PLATE, VOLUME KNOB		CGX1A469	1	
F3	943412101070D	KNOB, SELECT		CBN1A274	1	
F4	943446100760D	PLATE, VOLUME KNOB		CGX1A481	1	
F5	943419100860D	PANEL, SUB		CGR1A570R12ZH70	1	*
F6	943416101310D	WINDOW, FL		CGU1A462P	1	*
F7	42141002400AD	BADGE, DENON		CGB1A275Y	1	
F8	943402104580D	PANEL, FRONT		CGW1A553RHWH70	1	*
F9	943411101750D	BUTTON, POWER		CBT1A1167	1	
F10	943423100510D	INDICATOR, POWER		CGL1A299A36	1	*
F11	943411103220D	BUTTON, SOURCE		CBT1A1195	1	*
F12	943411103210D	BUTTON, NETWORK		CBT1A1194	1	*
F13	943411101770D	BUTTON, 10KEY		CBT2A1164	1	
F14	nsp	HOLDER, BT		CMH1A356	1	*
F15	nsp	EARTH PLATE, USB		CMC1A430	1	
M1	nsp	CHASSIS, BOTTOM		CUA4A335	1	*
M2	nsp	RUBBER		CHG1A113	1	
M3	nsp	LABEL, BOTTOM		C0B1A1243	1	*
M4	943407100020D	FOOT		CKL1A190	4	
M5	nsp	CUSHION, FOOT		CHG2A289	4	
M6	nsp	HEAT SINK		CMY1A409	1	*
M7	nsp	HOLDER, PCB		CHE170	2	
M8	nsp	BRACKET, SMPS		CMD1A790	1	
M9	nsp	BRACKET, PCB		CMD1A774	2	
M10	nsp	PANEL, REAR		CKF1A481Z	1	*
M11	nsp	BUSHING, AC CORD		CHR1A028	1	
M12	943403100570D	CABINET, TOP		CKC1A215K117	1	
S1	nsp	SCREW		CTB3+6JR	9	
S2	nsp	SCREW		CTW3+6JR	2	
S3	nsp	SCREW		CTB3+6FFZR	7	
S4	nsp	SCREW		CTB3+8JR	26	
S5	nsp	SCREW		CTB3+8JFZR	5	
S6	nsp	SCREW		CTBD3+8JFZR	16	
S7	nsp	SCREW		CTW3+8JR	9	
S8	nsp	SCREW		CTW3+12JR	2	
S9	nsp	SCREW		CTBD4+8JFZR	6	
S10	nsp	SCREW		CHDR1A023R	4	
S11	nsp	SCREW		CHD4A012R	3	
S12	nsp	SCREW		CHD1A012Z	15	
S13	nsp	SCREW		CTWS3+10GR	1	
S14	nsp	SCREW		CTB3+6FR	4	
★	nsp	BRACKET,H/SPCB		CMD1A802	2	
★	nsp	TAPE,HEMELON		CHS1A032	2	
★	nsp	LABEL,POP	E3	C0B1A1255Z	1	*
★	nsp	LABEL,POP		S500E1C	1	*
★	nsp	LABEL,POP	E1	CQB1A1294Z	1	*
★	943606502440D	CARD CABLE(1.25mm,27p,200mm,Btype,105'C,Shield) UL2086160V/Nogroundshield		CWB5C4A27B200B10001	1	
★	943606502450D	CARD CABLE(1.0mm,10P,60mm,Btype,80'C) UL2079860VP		CWC4F4A10A060A08	1	
★	943606502460D	CARD CABLE(1mm,09P,80mm,Btype,80) UL20798/60V		CWC4F4A09A080B10	1	

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E3 : U.S.A. & Canada model E2 : Europe model E1C : China model E1 : Asia model JP : Japan model

BK : Black model SP : Premium Silver model

REF No.	Part No.	Part Name	Remarks	Q'ty	New	Ver
P1	nsp	FRONT PCB ASS'Y	COP12619(I(E1),J(E1C)	1	*	
I-P2	nsp	STANDBY PCB ASS'Y	COP12619(I(E1),J(E1C)	1	*	
L-P3	nsp	PHONE PCB ASS'Y	COP12619(I(E1),J(E1C)	1	*	
P4	943639101410D	USB&MIC PCB ASS'Y	E1 COP12652B(E1)	1	*	3
P4	943639101420D	USB&MIC PCB ASS'Y	E1C COP12652C(E1C)	1	*	3
P5	943639101390D	MODULE_BLUETOOTH	CNVM8811COB	1	*	
P6	nsp	MAIN PCB ASS'Y	COP12649C(E1),D(E1C)	1	*	
I-P7	nsp	PHONE WIRE GUIDE	COP12649C(E1),D(E1C)	1	*	
I-P9	nsp	TUNER PCB ASS'Y	COP12649C(E1),D(E1C)	1	*	
L-P13	nsp	FRONT CABLE GUIDE	COP12649C(E1),D(E1C)	1	*	
L-P14	nsp	USB WIRE GUIDE	COP12649C(E1),D(E1C)	1	*	
P8	943639101440D	DIGITAL PCB ASS'Y E1	E1 COP12650D	1	*	
P8	943639101450D	DIGITAL PCB ASS'Y E1C	E1C COP12650E (E1C)	1	*	
P10	nsp	VIDEO PCB ASS'Y	COP12651B(E1),C(E1C)	1	*	
P11	nsp	REGULATOR PCB ASS'Y	COP12615(I(E1),J(E1C)	1	*	
L-P12	nsp	SMPs PCB ASS'Y	COP12615(I(E1),J(E1C)	1	*	
! P15	943101102390D	TRANS_POWER	E1 CLT5U056ZE	1	*	
! P15	943101102400D	TRANS_POWER	E1C CLT5U056ZH	1	*	
P16	nsp	RECEPTACLE_AC	E1 CJJ8A006ZV(E1)	1	*	
F1	943412100710D	KNOB_VOLUME_(BK)	BK CBN1A263	1		
F1	943412100720D	KNOB_VOLUME_(SP)	SP CBN1A263C73	1		
F2	943446100590D	PLATE_VOLUME_KNOB	CGX1A469	1		
F3	943412101070D	KNOB_SELECT_(BK)	BK CBN1A274	1		
F3	943412101080D	KNOB_SELECT_(SP)	SP CBN1A274CT73	1		2
F4	943446100760D	PLATE_VOLUME_KNOB	CGX1A481	1		
F5	943419100870D	PANEL_SUB	BK CGR1A570R12ZH70	1	*	
F5	943419100880D	PANEL_SUB	SP CGR1A569R12Y	1	*	
F6	943416101320D	WINDOW_FL	CGU1A462N	1		
F7	42141002400AD	BADGE_DENON	BK CGB1A275Y	1		
F7	42141002401AD	BADGE_DENON	SP CGB1A275X	1		
F8	943402104590D	PANEL_FRONT	BK CGW1A553RHUH70	1		
F8	943402104600D	PANEL_FRONT	SP CGW1A553RGYG45	1		
F9	943411101750D	BUTTON_POWER	BK CBT1A1167	1		
F9	943411101760D	BUTTON_POWER	SP CBT1A1167C73	1		
F10	943423100510D	INDICATOR_POWER	CGL1A299A36	1	*	
F11	943411101770D	BUTTON_10KEY	CBT2A1164	1		
F12	nsp	HOLDER_BT	CMH1A356	1	*	
F13	nsp	EARTH PLATE , USB	CMC1A430	1		
M1	nsp	CHASSIS_BOTTOM	CUA4A335	1	*	
M2	nsp	RUBBER	CHG1A113	1		
M3	nsp	LABEL_BOTTOM	CQB1A1243	1	*	
M4	943407100020D	FOOT	CKL1A190	4		
M5	nsp	CUSHION_FOOT	CHG2A289	4		
M6	nsp	HEAT_SINK	CMY1A409	1	*	
M7	nsp	HOLDER_PCB	CHE170	2		
M8	nsp	BRACKET_SMPS	CMD1A790	1		
M9	nsp	BRACKET_PCB	CMD1A774	2		
M10	nsp	PANEL_REAR	E1 CKF2A481Y	1	*	
M10	nsp	PANEL_REAR	E1C CKF3A481X	1	*	
M11	nsp	BUSHING_AC_CORD	CHR1A028	1		
M12	943403100570D	CABINET_TOP	BK CKC1A215K117	1		
M12	943403100580D	CABINET_TOP	SP CKC1A215K117D11	1		
S1	nsp	SCREW	CTB3+6JR	9		
S2	nsp	SCREW	CTV3+6JR	2		
S3	nsp	SCREW	CTB3+6FFZR	7		
S4	nsp	SCREW	CTB3+8JR	26		
S5	nsp	SCREW	CTB3+8FZR	5		
S6	nsp	SCREW	CTBD3+8FZR	18		
S7	nsp	SCREW	CTV3+8JR	9		
S8	nsp	SCREW	CTW3+12JR	2		
S9	nsp	SCREW	BK CTBD4+8FZR	6		
S9	nsp	SCREW	SP CTBD4+8JFN	6		
S10	nsp	SCREW	CHDR1A023R	4		
S11	nsp	SCREW	CHD4A012R	3		
S12	nsp	SCREW	CHD1A012ZR	15		
S13	nsp	SCREW	CTWS3+10GR	1		
S14	nsp	SCREW	CTB3+6FR	4		
★	nsp	BRACKET_H/SPCB	CMD1A802	2		
★	nsp	TAPE_HEMELON	CHS1A032	2		
★	nsp	LABEL_POP	E3 CQB1A256Z	1	*	
★	nsp	LABEL_POP	E1 CQB1A256Z	1	*	
★	nsp	LABEL_POP	X510E1C CQB1A1257Z	1	*	
★	943606502440D	CARDCABLE(1.25mm,27p,200mm,Btype,105'C,Shield) UL2086160VNogroundshield	CWC5C4A27B200B10001	1		
★	943606502450D	CARDCABLE(1.0mm,10P,60mm,Btype,80'C) UL2079860VP	CWC4F4A10A060A08	1		
★	943606502460D	CARDCABLE(1mm,0.9p,80mm,Btype,80) UL20798/60V	CWC4F4A09A080B10	1		

PACKING_S500BT

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E3 : U.S.A. & Canada model E2 : Europe model E1C : China model E1 : Asia model JP : Japan model

BK : Black model SP : Premium Silver model

REF No.	Part No.	Part Name	Remarks	Q'ty	New	Ver
1	nsp	BAG,POLY		CPP1A081X	1	
!	2 90M-YC000780R	CORD,POWER	E3	CJA523FBWA	1	
!	2 90M-YC000850R	CORD,POWER	E1C	CJA2N047WA	1	
3	943533102490D	PAD,SNOW-L		CPS2A916	1	*
4	943533101130D	PAD,SNOW-R		CPS1A917	1	
5	nsp	INSTRUCTION MANUAL ASS'Y		-	1	
5-1	nsp	BAG,POLY(MANUAL)		CPB1A197Z	1	
5-2	nsp	SHEET , NOTE ON RADIO		CQE1A675Z	1	*
5-3	nsp	SHEET , SAFTY	E3	CQE1A574Z	1	
5-3	nsp	SHEET , SAFTY	E1C	CQE1A618Z	1	
5-4	nsp	CARD,WARRANTY	E3	CQE1A224N	1	
5-5	54111118300AD	SHEET , GETTING START	E3	CQX1A1803Z	1	*
5-5	54111120800AD	SHEET , GETTING START	E1C	CQX1A1821Z	1	*
5-6	nsp	CARD FOR CHINA IDENTIFICATION	E1C	CQE1A450Z	1	
5-7	30701017000AD	REMOCON ASS'Y (RC-1196)		CARTAVRS500BT/X510BT	1	*
5-8	943116100170D	FM 1 POLE ANT (UL TYPE)		CSA1A044Z	1	
5-9	963116100070S	ANT, AM LOOP(9.5uh/5t)		CSA1A039Y	1	
5-10	nsp	BATTERY , AAA 2PCS IN PACK		CABR03PPB	2	
5-11	943324008700D	MICROPHONE ASS'Y		CJXAVRS500BTMICRO	1	*
5-12	nsp	China Tuner Isolator	E1C	CLR92001Z	1	
5-13	35201035700AD	CD MANULA ASS'Y	E1C	CFT1A148ZA	1	*
6	53121042200AM	BOX , OUT CARTON	E3	CPG1A962J	1	*
6	943531104490D	BOX , OUT CARTON	E1C	CPG1A962G	1	*
7	nsp	CONTROL_LABEL		CQB1A993Z	1	
8	nsp	CARD,WARRANTY	E1C	CQE1A473W	1	

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E3 : U.S.A. & Canada model E2 : Europe model E1C : China model E1 : Asia model JP : Japan model

BK : Black model SP : Premium Silver model

REF No.	Part No.	Part Name	Remarks	Q'ty	New	Ver
1	nsp	BAG,POLY		CPP1A081X	1	
!	2 90M-ZC000320R	CORD,POWER	E1	CJA2B054Y	1	
!	2 90M-YC000850R	CORD,POWER	E1C	CJA2N047WA	1	
3	943533102490D	PAD,SNOW-L		CPS2A916	1	*
4	943533101130D	PAD,SNOW-R		CPS1A917	1	
5	nsp	INSTRUCTION MANUAL ASS'Y		-	1	
5-1	nsp	BAG,POLY(MANUAL)		CPB1A197Z	1	
5-2	nsp	SHEET , NOTE ON RADIO		CQE1A675Z	1	*
5-3	nsp	SHEET , SAFTY	E1	CQE1A575Z	1	
5-3	nsp	SHEET , SAFTY	E1C	CQE1A618Z	1	
5-5	35201033700AD	CD MANULA ASS'Y	E1	CFT1A125ZA	1	*
5-5	35201033701AD	CD MANULA ASS'Y	E1C	CFT1A126ZA	1	*
5-4	54111118301AD	SHEET , GETTING START	E1	COX1A1810Z	1	*
5-4	54111118302AD	SHEET , GETTING START	E1C	COX1A1811Z	1	*
5-6	nsp	CARD FOR CHINA IDENTIFICATION	E1C	CQE1A450Z	1	
5-7	30701017000AD	REMOCON ASS'Y (RC-1196)		CARTAVRS500BT/X510BT	1	*
5-8	943116100170D	FM 1 POLE ANT (UL TYPE)		CSA1A044Z	1	
5-9	963116100070S	ANT, AM LOOP(9.5uh/5T)		CSA1A039Y	1	
5-10	nsp	BATTERY , AAA 2PCS IN PACK		CABR03PPB	2	
5-11	943324008700D	MICROPHONE ASS'Y		CJXAVRS500BTMICRO	1	*
5-12	nsp	China Tuner Isolator	E1C	CLR92001Z	1	
6	53121042300AM	BOX , OUT CARTON	E1	CPG1A963Q	1	*
6	53121042400AM	BOX , OUT CARTON	E1C	CPG1A962H	1	*
7	nsp	CONTROL_LABEL		CQB1A993Z	1	
8	nsp	LABEL , WHITE M1 SG	SPE1C	CQB1A908Z	2	
9	nsp	CARD,WARRANTY	E1C	CQE1A473W	1	