PERSONAL RECIEVER

RP-U200

SERVICE MANUAL

IMPORTANT NOTICE

This manual has been provided for the use of authorized YAMAHA Retailers and their service personnel.
It has been assumed that basic service procedures inherent to the industry, and more specifically YAMAHA Products, are already known and understood by the users, and have therefore not been restated.

WARNING: Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components, and failure of the product to perform as specified. For these reasons, we advise all YAMAHA product owners that any service required should be performed by an authorized YAMAHA Retailer or the appointed service representative.

IMPORTANT: The presentation or sale of this manual to any individual or firm does not constitute authorization, certification or recognition of any applicable technical capabilities, or establish a principle-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research, engineering, and service departments of YAMAHA are continually striving to improve YAMAHA products. Modifications are, therefore, inevitable and specifications are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

WARNING: Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

IMPORTANT: Turn the unit OFF during disassembly and part replacement. Recheck all work before you apply power to the unit.

■ CONTENTS

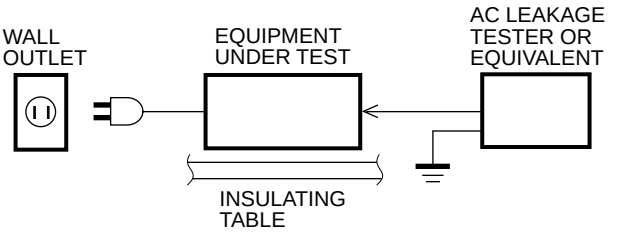
100740

YAMAHA
YAMAHA CORPORATION
P.O.Box 1, Hamamatsu, Japan

■ TO SERVICE PERSONNEL

1. Critical Components Information
   Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
2. Leakage Current Measurement (For 120V Models Only)
   When service has been completed, it is imperative to verify that all exposed conductive surfaces are properly insulated from supply circuits.

- Meter impedance should be equivalent to 1500 ohm shunted by 0.15μF.
- Leakage current must not exceed 0.5mA.



- Be sure to test for leakage with the AC plug in both polarities.

WARNING: CHEMICAL CONTENT NOTICE!

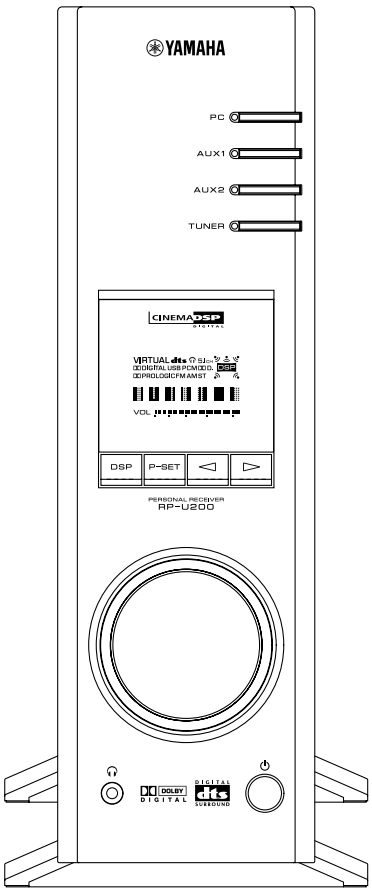
The solder used in the production of this product contains LEAD. In addition, other electrical/ electronic and/or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

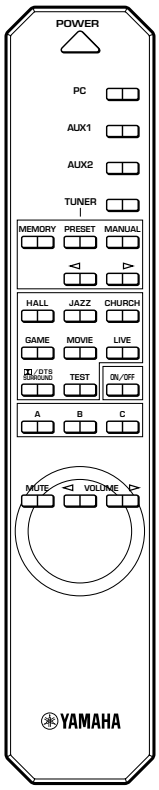
DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHATSOEVER!

Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!

If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

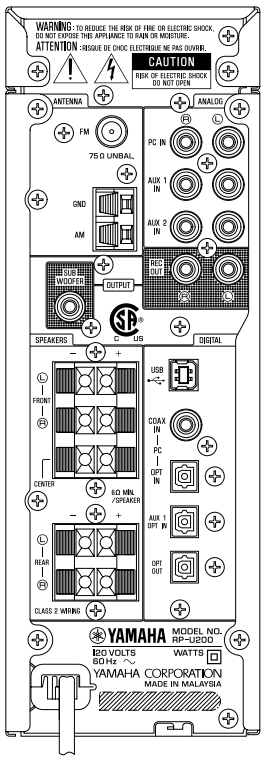
■ FRONT PANEL



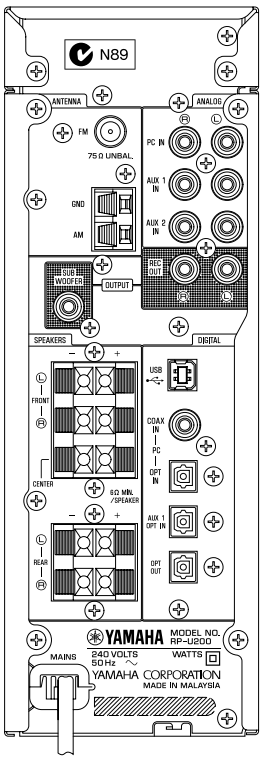


■ REAR PANELS

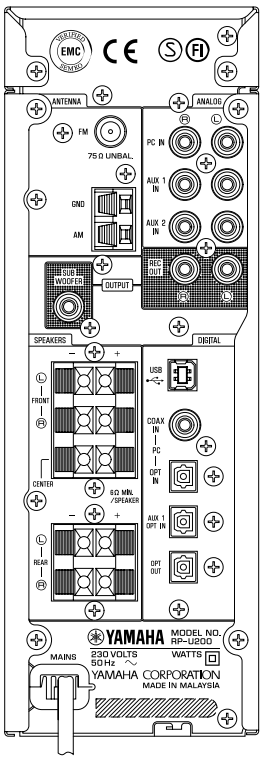
▼ U, C models



▼ A model



▼ B, G models



■ SPECIFICATIONS

■ AUDIO SECTION

Minimum RMS Output Power per Channel
Stereo, 20Hz to 20kHz, 1% THD, MAIN, 4Ω . . . . . 12W x 5
Maximum Power per Channel
Stereo, 1kHz, EIAJ, 10% THD, MAIN, 4Ω . . . . . 14W x 5
Input Sensitivity/Impedance
PC, AUX 1, AUX 2 (Analog) 150mV/35kΩ
Maximum Input Signal Level
PC, AUX 1, AUX 2, 1kHz (DSP= THRU) 2.1V
Output Level/Impedance
REC OUT 150mV/2.0kΩ
SUB WOOFER (50Hz) 1.0V/1.7kΩ
Headphone Jack Rated Output/Impedance
PC Analog Input, etc (1kHz, 150mV) 320mV/61Ω
Frequency Response
USB
20Hz . . . . . -1.0 ± 1.0dB
1kHz 0dB
20kHz . . . . . -0.5 ± 1.0dB
PC, AUX Digital Input
20Hz . . . . . -1.0 ± 1.0dB
1kHz 0dB
20kHz . . . . . -0.5 ± 1.0dB
Graphic Equalizer
Frequency 63/160/400/1k/2.5k/6.3k/16kHz
Boost/cut . . . . . ± 6dB
Total Harmonic Distortion (1kHz, 20k LPF)
USB to MAIN SP OUT (5V/4Ω) 0.2%
PC, AUX Digital Input to MAIN SP OUT (5V/4Ω) . . . 0.2%
Signal-to-Noise Ratio (IHF-A-Network)
USB to MAIN SP OUT (7V/4Ω) 85dB
PC, AUX Digital Input to MAIN SP OUT (7V/4Ω) . . . 85dB
Residual Noise (IHF-A-Network)
MAIN L/R SP OUT . . . . . -66dBV

■ FM SECTION

Tuning Range
U, C models . . . . . 87.5 to 107.9MHz
A, B, G models . . . . . 87.50 to 108.00MHz
Usable Sensitivity (30dB S/N Quietig)
Mono (1kHz, 100% Mod.) 6dBμ
Antenna Input . . . . . 75 Ω unbalanced

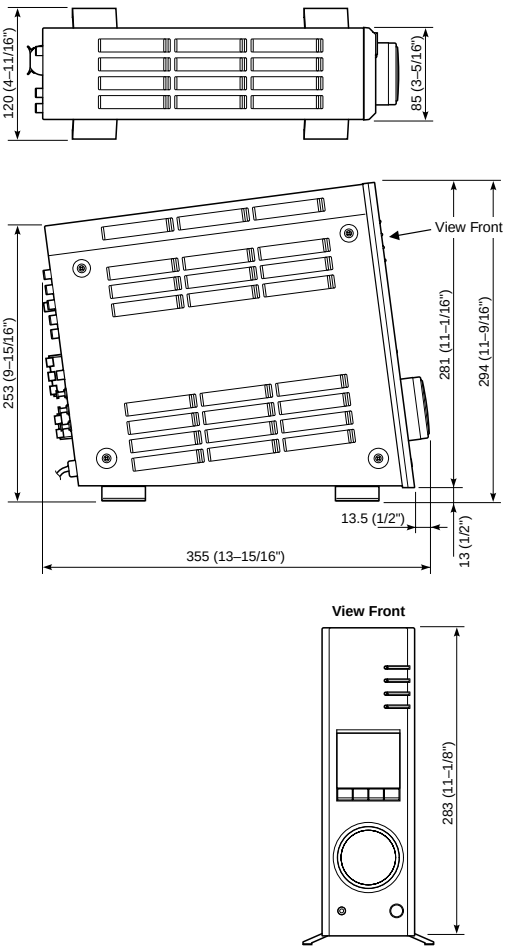
■ GENERAL

Power Supply
U, C models . . . . . AC 120V, 60Hz
A model . . . . . AC 240V, 50Hz
B, G models . . . . . AC 230V, 50Hz
Power Consumption 90W
Standby Power Consumption 5W
Dimensions (W x H x D) . . . . . 120 x 294 x 355mm
(4-11/16" x 11-9/16" x 13-15/16")
Weight . . . . . 5.5 kg (12 lbs 2oz)
Finish . . . . . Silver color
Accessories . . . . . Remote Control Transmitter x 1
Battery (size "AA", "R06") x 2
Indoor FM antenna x 1
USB Cable x 1
CD ROM x 1

** Specifications subject to change without notice.*

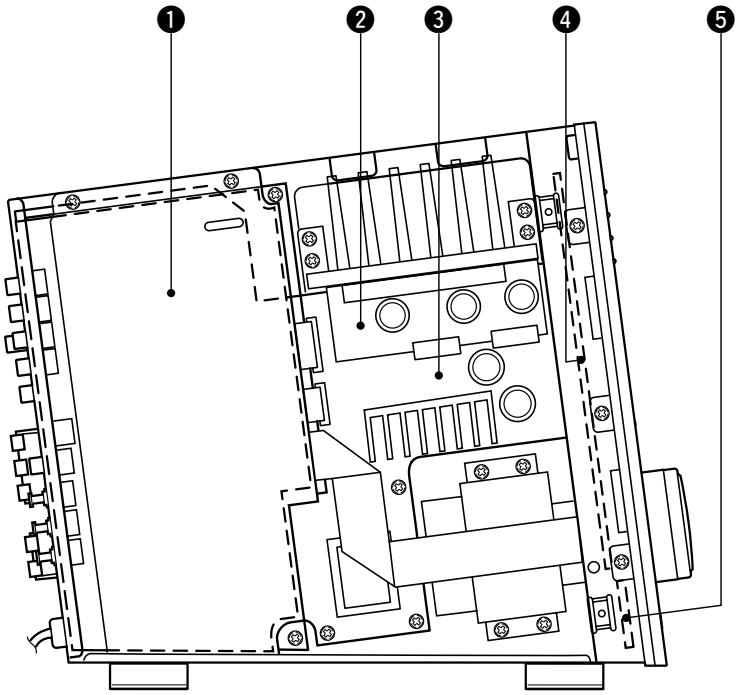
U . . . . . USA model
C . . . . . Canadian model
A . . . . . Australian model
B . . . . . British model
G . . . . . European model

● DIMENSIONS



Units : mm (inch)

■ INTERNAL VIEW



1. DSP P.C.B.
2. MAIN (2) P.C.B.
3. MAIN (1) P.C.B.
4. OPERATION (1) P.C.B.
5. OPERATION (2) P.C.B.

■ DISASSEMBLY PROCEDURES (Remove parts in the order as numbered.)

1. Removal of Top Cover

Remove 14 screws (① and ②) and then remove the Top Covers in Fig. 1.

2. Removal of Front Panel

Remove 6 screws (③) and then remove the Front Panel in Fig. 2.

3. Checking the DSP P.C.B.

Remove 4 screws (④) and then remove the Shield Case in Fig. 2.

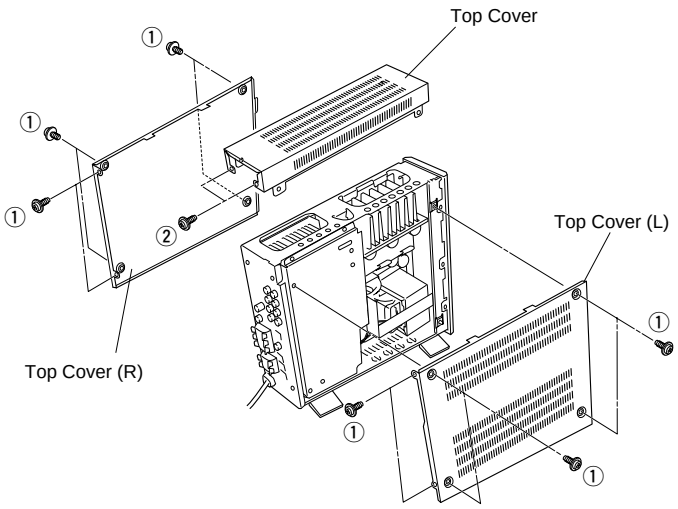
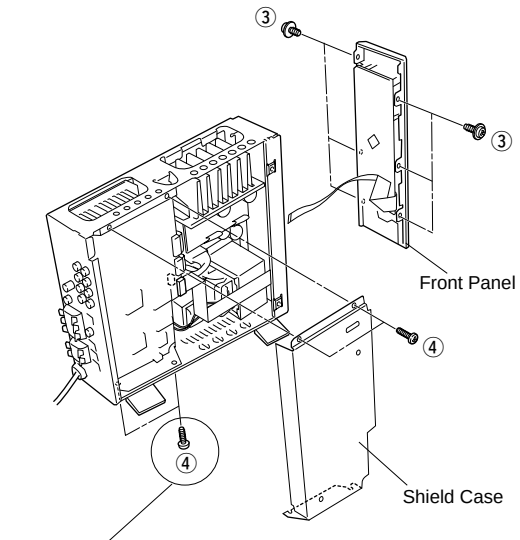


Fig. 1



The shield case can be removed only by loosening these 2 screws marked (④).

Fig. 2

■ SELF DIAGNOSIS FUNCTION

This product has a built-in self diagnosis function (DIAG) that can be used for inspection, measurement and determination of a faulty point, if any.
Listed below are these menu items and sub-menu items.

No.	Main menu	Sub menu
1	ALL (Sequential test)	
2	DEV (Device test)	
3	DSP (DSP test)	1. THROUGH
		2. DELAY
		3. HALL
		4. JAZZ
		5. CHURCH
		6. GAME
		7. MOVIE
		8. LIVE
		9. PC-ANA
		10. PC-Digi
		11. AUX1-A
		12. AUX1-D
		13. AUX2-A
		14. RETURN
4	FL (FL test)	1. AUTO
		2. MANUAL
		3. RETURN
5	AD (AD test)	1. KEY
		2. LEVEL
		3. JUDGE
		4. V-ERR
		5. V-MAX
		6. V-MID60
		7. V-MID55
		8. V-MID52
		9. V-MID49
		10. V-MID29
		11. V-MID1
		12. V-MIN
		13. RETURN
6	USB (USB loop back test)	1.START
		2. STOP
		3. RETURN
7	INIT (Memory initialization)	1. MEMORY
		2. CANCEL
		3. RETURN
8	VER (Version information)	1. SHV
		2. EGAV
		3. ChckSum
		4. RETURN
9	ERROR (Error history)	1. E0-
		2. E1-
		3. E2-
		4. E3-
		5. E4-
		6. E5 -
		7. E6-
		8. E7-
		9. CLEAR
		10. RETURN

No.	Main menu	Sub menu
10	DIT (Digital interface)	1. GENERAL
		2. CD
		3. PCM Enc
		4. DAT
		5. BS JPN
		6. Synthe
		7. AD
		8. SD
		9. BS Eur
		10. MIXER
		11. SFC
		12. DSP
		13. L Pa:Ch
		14. DIR RV
		15. RETURN
11	U200	1. All 5.1
		2. Main 2ch
		3. Rear 2ch
		4. Center 1
		5. Sub 1ch
		6. Normal 6
		7. Tmute ON
		8. Tmut OFF
		9. Smute ON
		10. SmutOFF
		11. LargeSP
		12. SmallSP
		13. T-Exit
		14. RETURN
0	EXIT	

● Starting DIAG

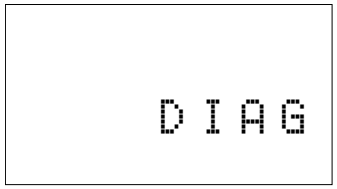
While the opening message appearing at the power ON is on display, press the “DSP” key 3 times; quickly at the first and second times and keep pressing it at the third time until the DIAG function is started.

● Display when DIAG function is started

First, “DIAG” appears on the FL display of the main unit, followed by the version of the microcomputer for 1 second (e.g., 1.223f), the checksum of the microcomputer for 2 seconds (e.g., 83B3) and finally the DIAG menu (e.g., 1: ALL). Also, all the function LED segments light up.

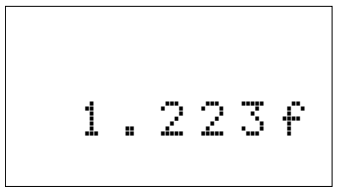
DIAG started

When there is no protection history (*1)



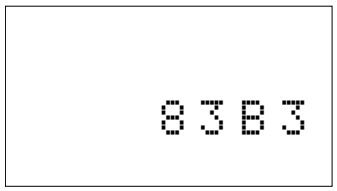
Some seconds later

Version of the microcomputer



1 second later

Checksum of microcomputer



2 seconds later

DIAG menu

(*1) If a protection function history has been recorded, the type of the protection function recorded last is displayed.

If the protection function activates after DIAG has been started and the power is turned off ;

When the protection function (*2) activates, the protection function history appears on the display and the power turns off. Repair the faulty parts according to the displayed history.

(*2) When any other faulty condition is found with the power source etc., the protection function forces the power to turn off.

PT PS **display**

(When the power is turned on without this abnormality corrected, the protection function activates to shut off the power relay. Display may not light if there is an abnormality with the power supply for the display.)
Cause: There is an abnormality in the power supply section (voltage).
Supplementary information: As the power from the following sources is detected, it is possible to determine where an abnormality exists.

Stabilizing power source
±15A, +9V, +5A, +5D SW, -VP
+12V(Tuner), Vcc(for power IC)

Besides the above possible causes, the cause may be disconnection of the connector or around the CPU.

● Protection history

When the protection function has activated, its history is stored in memory with a memory backup. Even when no abnormality is noted while the unit is being serviced, an abnormality which has occurred previously can be defined as long as the backup data has been stored. The protection history should always be cleared before returning the unit from service.
The protection history is cleared when DIAG is canceled by selecting “MEMORY” (memory initialization) from the setting items of the DIAG menu No.7 INT or when the backup data is erased.

● Operation procedure of DIAG menu and SUB-MENU

1) Use the UP ▷ (forward) / DOWN ◁ (reverse) keys to select a main menu item.
2) For main menu items 1. ALL and 2. DEV neither of which has sub menu, the menu item is executed when the DSP key is pressed.
3) For main menu items which have sub menu, the sub menu appears when the DSP key is pressed.
4) Use the UP ▷ (forward) / DOWN ◁ (reverse) keys to select a sub-menu item.
5) The sub-menu item is executed when the DSP key is pressed.
6) To return from the sub-menu to the main menu, have “RETURN” displayed by using the UP ▷ (forward) / DOWN ◁ (reverse) keys and press the DSP key.
7) To return to the DIAG initial setting (1.ALL) during DIAG operation, press the MUTE key of remote control unit except for the special case (*3).

(*3) : It is not possible to return to 1.ALL during execution of the AD test.

When using remote controller

Main unit	Remote control key	Remote control code
UP ▷ (forward)	VOLUME UP ▷ (forward)	7B---0D
DOWN ◁ (reverse)	VOLUME DOWN ◁ (reverse)	7B---0E
DSP	ON/OFF	7B---07
MUTE	Return the menu to the 1. ALL	7B---0F

● Functions during DIAG operation

The following functions are available even during the DIAG operation.

• Power ON/OFF
• Master volume

● Canceling DIAG

There are two methods to cancel the DIAG function.

1) Press the “POWER” (STANDBY) key of the main unit or the “POWER” (STANDBY) key of the remote controller to enter the stand-by state.
2) Selecting the DIAG menu item 0. EXIT, cancel the DIAG function. Then the self-diagnosis process ends and the normal operation is restored.

CAUTION: Prior to cancellation of the DIAG function, be sure to execute setting of DIAG menu 7. INIT (reserve / reserve cancel of memory initialization). (To keep the user memory, execute “CANCEL” (cancellation of resetting reservation) of 7. INIT setting before canceling the DIAG function.)

Details of DIAG menu

1. ALL (Sequential test)

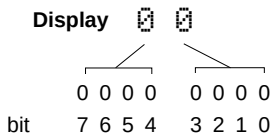
This menu is used to execute major five items of the DIAG menu. The items are as follows.
(Set the volume level to the intermediate value before execution.)
Press the DSP key to advance one step to the next item.
To skip a step, press the MUTE key of remote control unit.
(To end the DIAG function during the AD test of Step 5, keep pressing the DSP key for a long period of time.)

The AD test checks if pressing of each key is received properly or not.
Press the key in the order of PC, AUX1, AUX2, TUNER, DSP, P-SET, DOWN (◁) and UP (▷).

For the details of Steps 1 through 5, refer to the item corresponding to each step described hereafter.

2. DEV (Device Test)

This menu checks each of the five devices (IC417, 430, 438, 447, 475) for an error.
"OK" appears when no error is detected.
When an error is detected, its content is displayed as "NG-XX" (XX in hexadecimal notation).



Display	bit			
	7	6	5	4
0	0	0	0	0
1	0	0	0	1

Display	bit			
	3	2	1	0
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
A	1	0	1	0
B	1	0	1	1
C	1	1	0	0
D	1	1	0	1
E	1	1	1	0
F	1	1	1	1

bit7	Unused ("0" usually)
bit6	Unused ("0" usually)
bit5	Unused ("0" usually)
bit4	Checks checksum of IC438 (ROM) (0: OK / 1: NG)
bit3	Checks IC447 (RAM) (0: OK / 1: NG)
bit2	Checks register Read/Write of IC430 (USS820) (0: OK / 1: NG)
bit1	Checks register Read/Write of IC417 (YSS928) (0: OK / 1: NG)
bit0	Checks register Read/Write of IC475 (LC27287B) (0: OK / 1: NG)

3. DSP (DSP Test)

Using this menu, it is possible to set the sound field effect and input signals. (*1)
There are 14 sub-menus.
(*1) Apply an 1kHz, 150mV signal to ANALOG input terminal. (Sub-menu 1 to 8)

1. **THROUGH** [Remote control code : 7B—16(VDD)]
Passes signals through the DSP section.

2. **DELAY** [Remote control code : 7B—1F(TEST)]
Uses the delay function in the DSP section.

3. **HALL** [Remote control code : 7B—10(HALL)]
Sets the DSP for HALL.

4. **JAZZ** [Remote control code : 7B—11(JAZZ)]
Sets the DSP for JAZZ.

5. **CHURCH** [Remote control code : 7B—12(CHURCH)]
Sets the DSP for CHURCH.

6. **GAME** [Remote control code : 7B—13(GAME)]
Sets the DSP for GAME.

7. **MOVIE** [Remote control code : 7B—14(MOVIE)]
Sets the DSP for MOVIE.

8. **LIVE** [Remote control code : 7B—15(LIVE)]
Sets the DSP for LIVE.

9. **PC-ANA** [Remote control code : 7B—02(PC)]
Sets the input for PC-ANALOG.

10. **PC-Digi**
Sets the input for PC-DIGITAL.

11. **AUX1-A** [Remote control code : 7B—03(AUX1)]
Sets the input for AUX1-ANALOG.

12. **AUX1-D**
Sets the input for AUX1-DIGITAL.

13. **AUX2-A** [Remote control code : 7B—04(AUX2)]
Sets the input for AUX2-ANALOG.

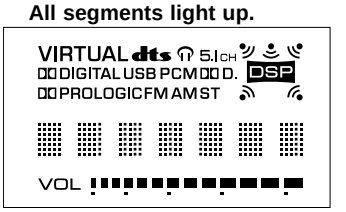
14. **RETURN**
Returns the menu to the main menu (3.DSP).

4. FL (FL Test)

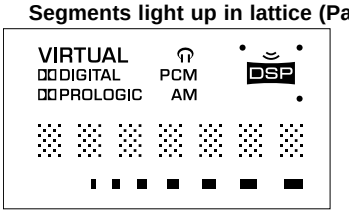
This menu is a lighting program for the FL display.

1. **AUTO** (Automatic FL change)
Changes the display automatically at 1-seond intervals.

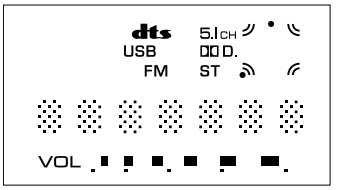
All segments light up.



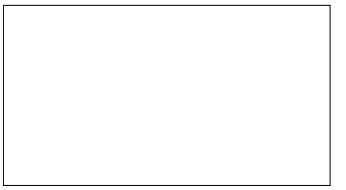
Segments light up in lattice (Pattern A).



Segments light up in lattice (Pattern B)



All segments go off.



2. **MANUAL** (Manual FL change)
Changes the display every time the DSP key is pressed.
The display contents are the same as the above.

3. **RETURN**
Returns the menu to the main menu (4. FL).

5. AD (AD Test)

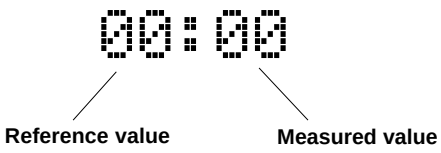
There are 13 sub-menu items.

1. **KEY** (Key reception test)
Checks if pressing of each key is properly received, using the key reception program. Keys should be checked in the order of PC, AUX1, AUX2, TUNER, DSP, P-SET, DOWN (◁) and UP (▷).

When the key reception test is executed, ">PC<" appears, urging to press the PC key.
When the PC key is pressed properly, "OK" appears for a moment followed by ">AUX-1<", urging to press the next AUX1 key.
When all these keys are checked in this way and check results are satisfactory, this mode is over.
If an incorrect key is received, "NG" appears and testing does not proceed to the next key. To exit from this mode, keep pressing the DSP key for a long period of time.

2. **LEVEL** (Display of key voltage level)
Displays the voltage level of the key and the reference value in parallel.
Use the same order for checking keys as the previous key reception test.

When the voltage level test is executed, ">PC<" appears, urging to press the PC key.
When the PC key is pressed, "00:00" appears for 1 second followed by ">AUX-1<", urging to press the next AUX1 key.

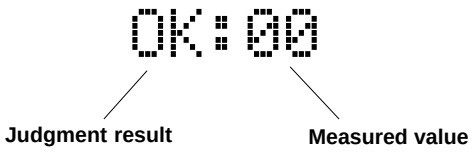


The A/D value is displayed in % (voltage value based on 5V as 100%).

When the voltage level of all the keys is checked in this way, this mode is over.
To exit from this mode before checking all the keys, keep pressing the DSP key for a long period of time.

3. **JUDGE** (Judgment of key voltage level)
Checks if the voltage level of each key is within the normal range by comparing it with the reference value.
Use the same order for checking keys as the previous key reception test.

When the key voltage level judge test is executed, ">PC<" appears, urging to press the PC key.
When the PC key is pressed, "OK:00" appears for 1 second followed by ">AUX-1<", urging to press the next AUX1 key.



When the judgment result is not satisfactory, "NG" appears.

When the voltage level of all the keys is judged in this way, this mode is over.
To exit from this mode before making judgment of all the keys, keep pressing the DSP key for a long period of time.

4. **V-ERR** (Display of power voltage , when abnormal)
Displays for 2 seconds the voltage value when the power supply protection function has worked due to abnormal voltage. (The voltage value is meaningless unless the power supply protection function has worked.)
The voltage value said here is obtained through calculation using 5V as the reference voltage. Note that deviation of the reference voltage will result in an error of the voltage on display.

5. **V-MAX**
Sets the main volume to 0dB.

6. **V-MID60**
Sets the main volume to -20dB.

7. **V-MID55**
Sets the main volume to -25dB.

8. **V-MID52**
Sets the main volume to -28dB.

9. **V-MID49**
Sets the main volume to -31dB.

10. **V-MID29**
Sets the main volume to -51dB.

11. **V-MID1**
Sets the main volume to -79dB.

12. **V-MIN**
Sets the main volume to -80dB.

13. **RETURN**
Returns the menu to the main menu (5. AD).

6. USB (USB loop back test)

1. **START** [Remote control code : 7B—1C (A)]
Starts the loop back of USB.

2. **STOP** [Remote control code : 7B—1D (B)]
Stops the loop back of USB.

3. **RETURN**
Returns the menu to the main menu (6. USB).

* This menu is used for the factory inspection before shipping.

7. INIT (Memory initialization)

1. **MEMORY** (Memory reset reservation)
Reserves the backup RAM to be reset to the factory setting before shipping.

Procedure
1) Using the DIAG function, have “7. INIT” displayed.
2) Press the DSP key. (“MEMORY” on display)
3) Press the DSP key again. (“DONE” on display)
4) Press the DOWN (◁) key. (“RETURN” on display)
5) Press the DSP key. (“7. INIT” on display)
6) Press the UP (▷) key a few times to have “0.EXIT” displayed.
7) Turn off the power by pressing the DSP key.

The actual initialization is executed when the DIAG function is cancelled and the power is turned on.
For the contens of the initialization, see page 14.

2. **CANCEL** (Cancellation of memory reset reservation)
Makes the memory reset reservation invalid. RAM initialization is not executed.

3. **RETURN**
Returns the menu to the main menu (7. INIT).

8. VER (Version information)

1. **SHV**
Displays the version information of the microcomputer (IC436).
The final alphabet indicates the version of the boot area. If the rewrite version is different, it is not transmitted properly.

2. **EGAV**
Displays the version information of the gate array (IC475: LC27287B).

3. **ChckSum**
Displays the checksum information of the microcomputer (IC436).

4. **RETURN**
Returns the menu to the main menu (8.VER).

9. ERROR (Error history)

1 – 8 **E0 –E7** (Error history)
The history of up to 8 errors is stored in memory. The error codes are used to display it.

Error code	Description
00	No error
11 – 14	USB internal error
21 – 2B	USB interrupt error
2C – 2E	USB communication error (*1)
2F	USB interrupt transmission error
41 – 46	USB stream error (*2)
80	Checksum error
81	RAM (IC447) Read/Write error
82	AC3D(IC417) Read/Write error
83	EGAV (IC475) Read/Write error
84	Backup RAM initialized at the power ON (*3)
85	RAM for Y-mersion coefficient initialized at the power ON
90	Detection of abnormality in power voltage
91	Detection of current of power amplifier (unused)
92	Detection of DC of power amplifier (unused)
93	Detection of abnormality in Tri-path amplifier (unused)
A0	Auto power OFF (24h)

(*1) : When the AC plug is plugged and unplugged with USB connected, this error may be recorded but it causes no problem in actual use.
(*2) : This error is not as fatal at to cause any problem in actual use.
(*3) : This code is recorded in the error history at least once because the memory is cleared at the time of shipping from the factory.

9. **CLEAR** (Error history clear)
Clears the entire error history in memory and overwrites with the normal value (00).

10. **RETURN**
Returns the menu to the main menu (9. ERROR).

10. DIT (Digital input/output control)

1. **GENERAL**
GENERAL category code output (0x00)

2. **CD**
CD category code output (0x01)

3. **PCM Enc**
PCM Encoder/decoder category code output (0x02)

4. **DAT**
DAT category code output (0x03)

5. **BS JPN**
BS JAPAN category code output (0x04)

6. **Synthe**
Synthesizer category code output (0x05)

7. **AD**
A/D converter category code output (0x06)

8. **SD**
Solid state memory category code output (0x08)

9. **BS Eur**
BS Euro category code output (0x0E)

10. **MIXER**
Digital signal mixer category code output (0x12)

11. **SFC**
Sampling rate converter category code output (0x1A)

12. **DSP**
Digital sound processor category code output (0x2A)

13. **L Pa:Ch**
Ch Change L bit parent ←→ child

14. **DIR RV**
Digital interface receive code display

15. **RETURN**
Returns the menu to the main menu (10. DIT).

11. U200 (RP-U200 control)

Apply an 1kHz, 150mV signal to ANALOG input terminal.

1. **All 5.1**
Speaker output from all 5.1 channels (L, R contents only)

2. **Main 2ch**
Speaker output from main 2 channels

3. **Rear 2ch**
Speaker output from rear 2 channels

4. **Center 1**
Speaker output from center 1 channel

5. **Sub 1ch**
Speaker output from sub-woofer output 1 channel

6. **Normal 6**
Speaker output from all 5.1 channels (All contents straightly)

7. **Tmute ON**
Tuner mute ON

8. **Tmut OFF**
Tuner mute OFF

9. **Smute ON**
S-MUTE ON

10. **SmutOFF**
S-MUTE OFF

11. **LargeSP**
Speaker size setting → Large

12. **SmallSP**
Speaker size setting → Small

13. **T-Exit**
Tuner frequency setting for factory inspection & exit from DIAG mode.

14. **RETURN**
Returns the menu to the main menu (11. U200).

0. EXIT (DIAG end)

Terminates the DIAG function, executes CPU resetting and restart operation.
Use the input selector PC for restarting operation.
Executing the memory reset reservation setting will set to the standby mode.

■ FACTORY PRESET

All of the system settings are initially set from the factory as follows.

Amplifier Status

Input Selector	PC DIGITAL
Master Volume	- ∞
DSP ON/OFF	ON
DSP Mode	HALL

GEQ

Maker Preset 1		Maker Preset 4	
63Hz	4 dB	63Hz	3 dB
160Hz	4 dB	160Hz	2 dB
400Hz	2 dB	400Hz	- 1 dB
1kHz	- 1 dB	1kHz	- 1 dB
2.5kHz	1 dB	2.5kHz	1 dB
6.3kHz	3 dB	6.3kHz	3 dB
16kHz	4 dB	16kHz	2 dB
Maker Preset 2		Maker Preset 5	
63Hz	0 dB	63Hz	- 2 dB
160Hz	1 dB	160Hz	0 dB
400Hz	2 dB	400Hz	0 dB
1kHz	1 dB	1kHz	0 dB
2.5kHz	1 dB	2.5kHz	1 dB
6.3kHz	2 dB	6.3kHz	1 dB
16kHz	3 dB	16kHz	- 2 dB
Maker Preset 3		User Preset 1–3	
63Hz	- 2 dB	63Hz	0 dB
160Hz	1 dB	160Hz	0 dB
400Hz	3 dB	400Hz	0 dB
1kHz	2 dB	1kHz	0 dB
2.5kHz	1 dB	2.5kHz	0 dB
6.3kHz	- 1 dB	6.3kHz	0 dB
16kHz	- 2 dB	16kHz	0 dB

D-range

D-range Mode	MAX
Low Dynamic Scale Factor	10
High Dynamic Scale Factor	10

USB Multi-channel

Multi-channel Setting	2 ch
Recording Sampling Frequency	44.1kHz
Recording Enabled/Disabled	Recordable

Multi-channel Speaker

Use of Speaker	
Surround	Use
Center	Use
Subwoofer	Use
Both	OFF
Speaker Size	
Front	Small
Center	Small
Surround	Small

Tuner Current Display

Frequency Index	FM, Auto Stereo, FM lower limit frequency for each destination
Monaural/Stereo (reception status)	Monaural

Tuner Preset Data (Frequency Index)

Market: U, C		Market: A	
Group A, B, C, D, E		Group A, B, C, D, E	
No. 1	87.5MHz	No. 1	87.5MHz
No. 2	90.1MHz	No. 2	90.1MHz
No. 3	95.1MHz	No. 3	95.1MHz
No. 4	98.1MHz	No. 4	98.1MHz
No. 5	107.9MHz	No. 5	108.0MHz
No. 6	88.1MHz	No. 6	88.1MHz
No. 7	106.1MHz	No. 7	106.1MHz
No. 8	107.9MHz	No. 8	108.0MHz
Market: G, B			
Group A, B, C, D, E			
No. 1	87.50MHz		
No. 2	90.10MHz		
No. 3	95.10MHz		
No. 4	98.10MHz		
No. 5	108.00MHz		
No. 6	88.10MHz		
No. 7	106.100MHz		
No. 8	108.001MHz		

Details of DSP Parameters

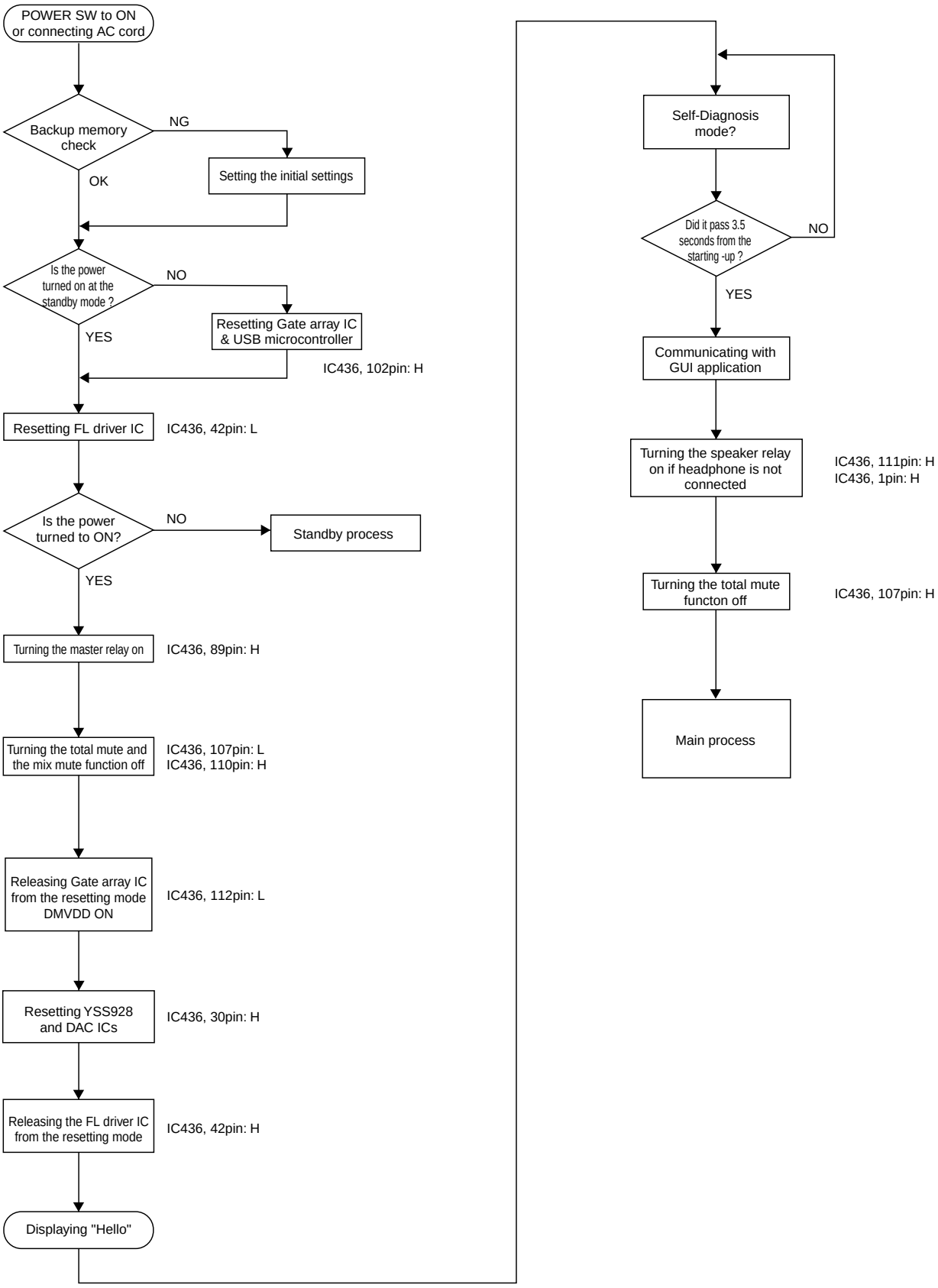
Parameter Default Value

PARAMETER	P. Init. Dly.	P. Room Size	P. Liveness	S. Delay		S. Init. Dly.	S. Room Size		Rev. Time	Rev. Lv.
INPUT SIGNAL				2ch	AC-3	AC-3	2ch	AC-3		
MIN	1ms	0.1	0	15ms	0ms	1ms	0.1	0.1	1.0s	0%
MAX	99ms	2.0	10	30ms	15ms	49ms	2.0	2.0	5.0s	100%
STEP	1ms	0.1	1	1ms	1ms	1ms	0.1	0.1	0.1s	1%
PROGRAM NAME										
Hall	30ms	1.0	5		5ms					
Jazz	21ms	1.0	3		5ms					
Church	69ms				15ms				4.0s	52%
Game	10ms	1.0		30ms	8ms	12ms	1.0	1.0		
Movie	13ms	1.0		23ms	15ms	32ms	1.0	1.0		
Live	21ms	1.0		25ms	5ms		1.0			
VDD				20ms	5ms					

Simple Mode Parameter Default Value

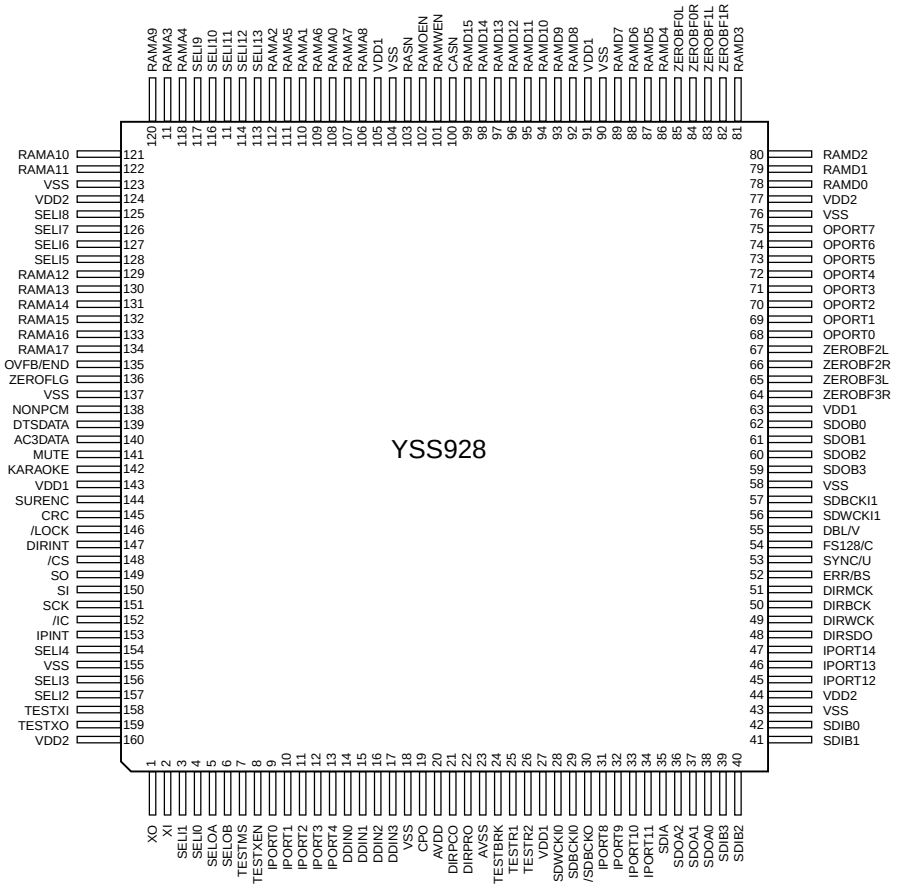
PARAMETER	Efct. Trim	Room Size	Init. Delay
PROGRAM NAME			
Hall	1	1	1
Jazz	1	1	1
Church	1		1
Game	1	1	1
Movie	1	1	1
Live	1	1	1
VDD			1

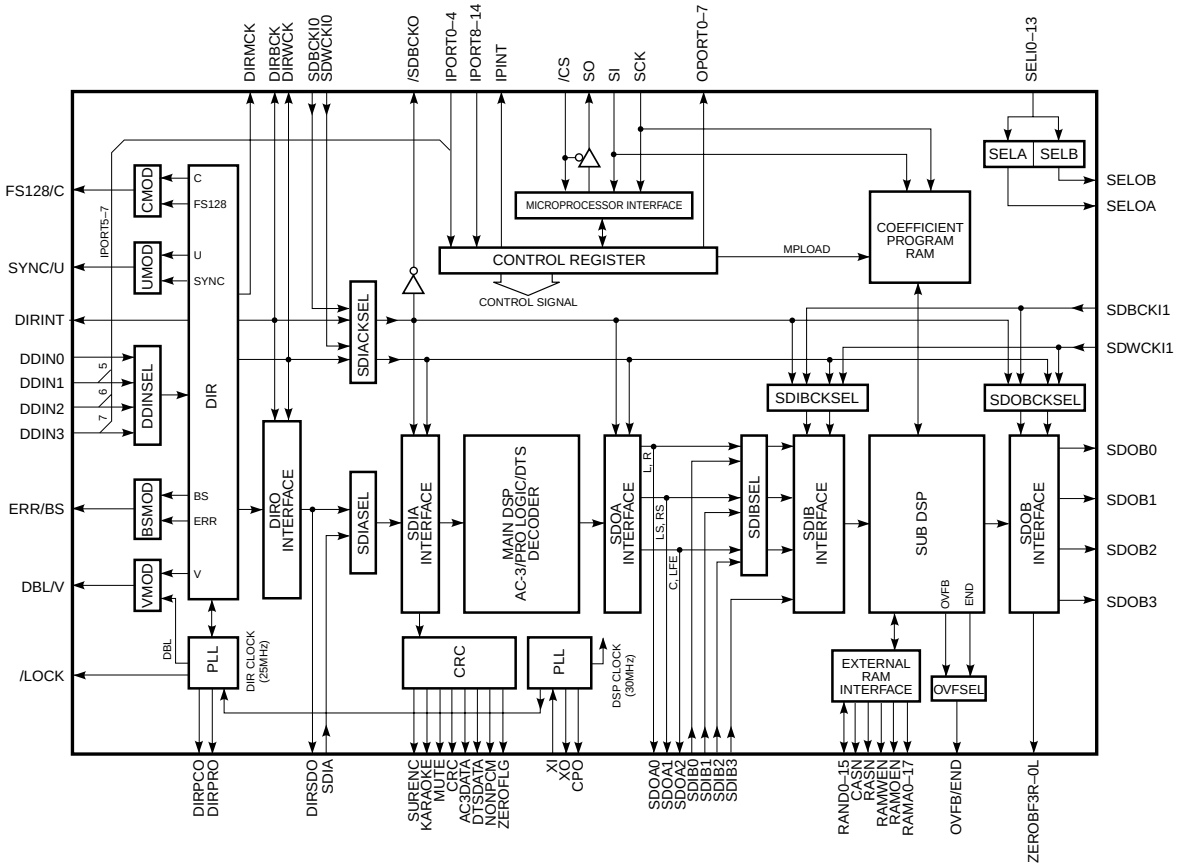
■ STANDARD OPERATION CHART



■ IC DATA

IC417 : YSS928
AC3D3





IC417 : YSS928

AC3D3

No.	Name	I/O	Function	
1	XO	O	Crystal oscillator connecting terminal	
2	XI	I	Crystal oscillator connecting terminal (24.576MHz)	
3	SELI1	I+	Built-in selector input 1	(SDOA1)
4	SELI0	I+	Built-in selector input 0	(SDOA0)
5	SELOA	O+	Built-in selector output A	(PAI7)
6	SELOB	O+	Built-in selector output B (unconnected)	
7	TESTMS	I+	Test terminal (unconnected)	
8	TESTXEN	I+	Test terminal (unconnected)	
9	IPORT0	I+	General purpose input terminal (unconnected)	
10	IPORT1	I+	General purpose input terminal (unconnected)	
11	IPORT2	I+	General purpose input terminal (unconnected)	
12	IPORT3	I+	General purpose input terminal (unconnected)	
13	IPORT4	I+	General purpose input terminal (unconnected)	
14	DDIN0	Is	DIR: Digital audio interface data input terminal 0	(PA09)
15	DDIN1	Is	DIR: Digital audio interface data input terminal 1/General purpose input terminal	(GND)
16	DDIN2	Is	DIR: Digital audio interface data input terminal 2/General purpose input terminal	(GND)
17	DDIN3	Is	DIR: Digital audio interface data input terminal 3/General purpose input terminal	(GND)
18	VSS		Ground terminal	
19	CPO	A	PLL filter connecting terminal	
20	AVDD		+3.3V power terminal (for DIR)	
21	DIRPCO	A	DIR: PLL filter connecting terminal	
22	DIRPRO	A	DIR: PLL filter connecting terminal	
23	AVSS		Ground terminal (for DIR)	
24	TESTBRK	I+	Test terminal (unconnected)	
25	TESTR1	I+	PLL initialization signal input terminal for DSP	(/D_RST)
26	TESTR2	I+	Test terminal (unconnected)	
27	VDD1		+3.3V power terminal (for terminal section)	
28	SDWCKI0	I+	Word clock input terminal for SDIA, SDOA, SDIB, SDOB interface	(SFS)
29	SDBCKI0	I+	Bit clock input terminal for SDIA, SDOA, SDIB, SDOB interface	(S64FS)
30	/SDBCK0	O	DIRBCK or SDBCKI0 invert clock output terminal (unconnected)	
31	IPORT8	I+	IPINT general purpose input terminal (unconnected)	
32	IPORT9	I+	IPINT general purpose input terminal (unconnected)	
33	IPORT10	I+	IPINT general purpose input terminal (unconnected)	
34	IPORT11	I+	IPINT general purpose input terminal (unconnected)	
35	SDIA	I	AC-3/DTS bit stream (or PCM) data input terminal to Main DSP	(PA03)
36	SDOA2	O	PCM output terminal from Main DSP (C/LFE output)	(SDOA2)
37	SDOA1	O	PCM output terminal from Main DSP (LS/RS output)	(SDOA1)
38	SDOA0	O	PCM output terminal from Main DSP (L/R output)	(SDOA0)
39	SDIB3	I+	PCM input terminal 3 to Sub DSP (unconnected)	
40	SDIB2	I+	PCM input terminal 2 to Sub DSP	(PA06)
41	SDIB1	I+	PCM input terminal 1 to Sub DSP	(PA05)
42	SDIB0	I+	PCM input terminal 0 to Sub DSP	(PA04)
43	VSS		Ground terminal	
44	VDD2		+2.5V power terminal (for internal circuit)	
45	IPORT12	I+	IPINT general purpose input terminal (unconnected)	
46	IPORT13	I+	IPINT general purpose input terminal (unconnected)	
47	IPORT14	I+	IPINT general purpose input terminal (unconnected)	
48	DIRSDO	O	AC-3/DTS bit stream (or PCM) data output terminal from DIR	(PAI8)
49	DIRWCK	O	DIR: Serial data word clock (fs) output terminal	(XFS)
50	DIRBCK	O	DIR: Serial data bit clock (64fs) output terminal	(X64FS)
51	DIRMCK	O	DIR: Serial data master clock (256fs or 128fs) output terminal	(X256FS)
52	ERR/BS	O	DIR: Data error detect output/block start output terminal	(DIRERR)
53	SYNC/U	O	DIR: Serial data synchronous timing output/user data output terminal	(XSYNC)
54	FS128/C	O	DIR: Serial data master clock 128fs output/channel status output terminal	(X128FS)
55	DBL/V	O	DIR: Double rate clock output/validity flag output terminal	(DBL/V)

IC417 : YSS928

AC3D3

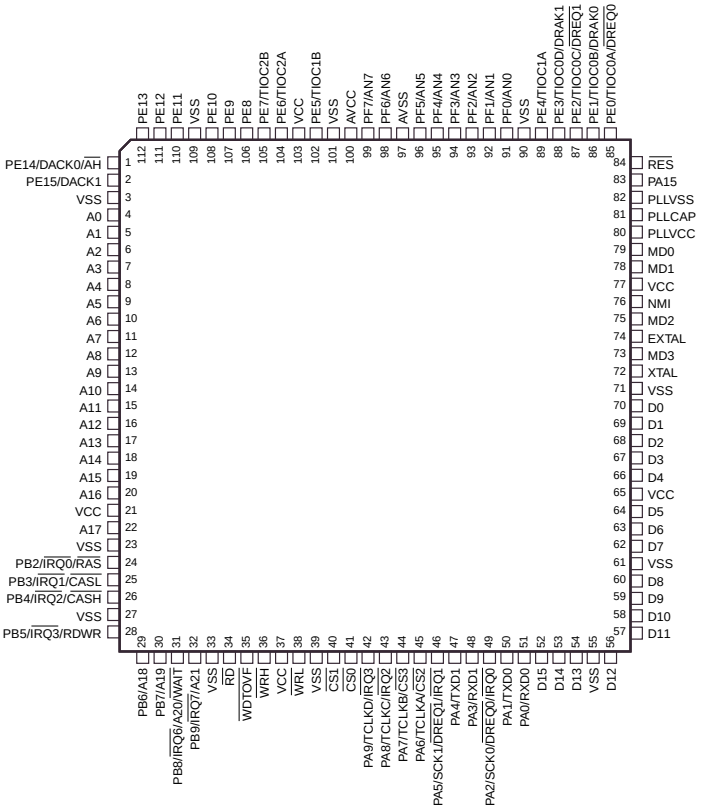
No.	Name	I/O	Function	
56	SDWCKI1	I+	Word clock input terminal for SDIB, SDOB interface (unconnected)	
57	SDBCKI1	I+	Bit clock input terminal for SDIB, SDOB interface (unconnected)	
58	VSS		Ground terminal	
59	SDOB3	O	PCM output terminal from Sub DSP	(SDOB3)
60	SDOB2	O	PCM output terminal from Sub DSP	(PAI6)
61	SDOB1	O	PCM output terminal from Sub DSP	(PAI5)
62	SDOB0	O	PCM output terminal from Sub DSP	(PAI4)
63	VDD1		+3.3V power terminal (for terminal section)	
64	ZEROBF3R	O+	SDOB3 Rch zero flag output terminal (unconnected)	
65	ZEROBF3L	O+	SDOB3 Lch zero flag output terminal (unconnected)	
66	ZEROBF2R	O+	SDOB2 Rch zero flag output terminal (unconnected)	
67	ZEROBF2L	O+	SDOB2 Lch zero flag output terminal (unconnected)	
68	OPORT0	O	General purpose output terminal	(LED_PC)
69	OPORT1	O	General purpose output terminal	(LED_A1)
70	OPORT2	O	General purpose output terminal	(LED_A2)
71	OPORT3	O	General purpose output terminal	(LED_TU)
72	OPORT4	O	General purpose output terminal (unconnected)	
73	OPORT5	O	General purpose output terminal (unconnected)	
74	OPORT6	O	General purpose output terminal (unconnected)	
75	OPORT7	O	General purpose output terminal (unconnected)	
76	VSS		Ground terminal	
77	VDD2		+2.5V power terminal (for internal circuit)	
78	RAMD0	I+/O	Sub DSP: External memory data terminal 0	
79	RAMD1	I+/O	Sub DSP: External memory data terminal 1	
80	RAMD2	I+/O	Sub DSP: External memory data terminal 2	
81	RAMD3	I+/O	Sub DSP: External memory data terminal 3	
82	ZEROBF1R	O+	SDOB1 Rch zero flag output terminal (unconnected)	
83	ZEROBF1L	O+	SDOB1 Lch zero flag output terminal (unconnected)	
84	ZEROBF0R	O+	SDOB0 Rch zero flag output terminal (unconnected)	
85	ZEROBF0L	O+	SDOB0 Lch zero flag output terminal (unconnected)	
86	RAMD4	I+/O	Sub DSP: External memory data terminal 4	
87	RAMD5	I+/O	Sub DSP: External memory data terminal 5	
88	RAMD6	I+/O	Sub DSP: External memory data terminal 6	
89	RAMD7	I+/O	Sub DSP: External memory data terminal 7	
90	VSS		Ground terminal	
91	VDD1		+3.3V power terminal (for terminal section)	
92	RAMD8	I+/O	Sub DSP: External memory data terminal 8	
93	RAMD9	I+/O	Sub DSP: External memory data terminal 9	
94	RAMD10	I+/O	Sub DSP: External memory data terminal 10	
95	RAMD11	I+/O	Sub DSP: External memory data terminal 11	
96	RAMD12	I+/O	Sub DSP: External memory data terminal 12	
97	RAMD13	I+/O	Sub DSP: External memory data terminal 13	
98	RAMD14	I+/O	Sub DSP: External memory data terminal 14	
99	RAMD15	I+/O	Sub DSP: External memory data terminal 15	
100	CASN	O	Sub DSP: Column address strobe output terminal for external DRAM	
101	RAMWEN	O	Sub DSP: Write enable terminal for external memory	
102	RAMOEN	O	Sub DSP: Output enable terminal for external memory	
103	RASN	O	Sub DSP: Low address strobe output terminal for external DRAM	
104	VSS		Ground terminal	
105	VDD1		+3.3V power terminal (for terminal section)	
106	RAMA8	O	Sub DSP: External memory address terminal 8	
107	RAMA7	O	Sub DSP: External memory address terminal 7	
108	RAMA0	O	Sub DSP: External memory address terminal 0	
109	RAMA6	O	Sub DSP: External memory address terminal 6	
110	RAMA1	O	Sub DSP: External memory address terminal 1	

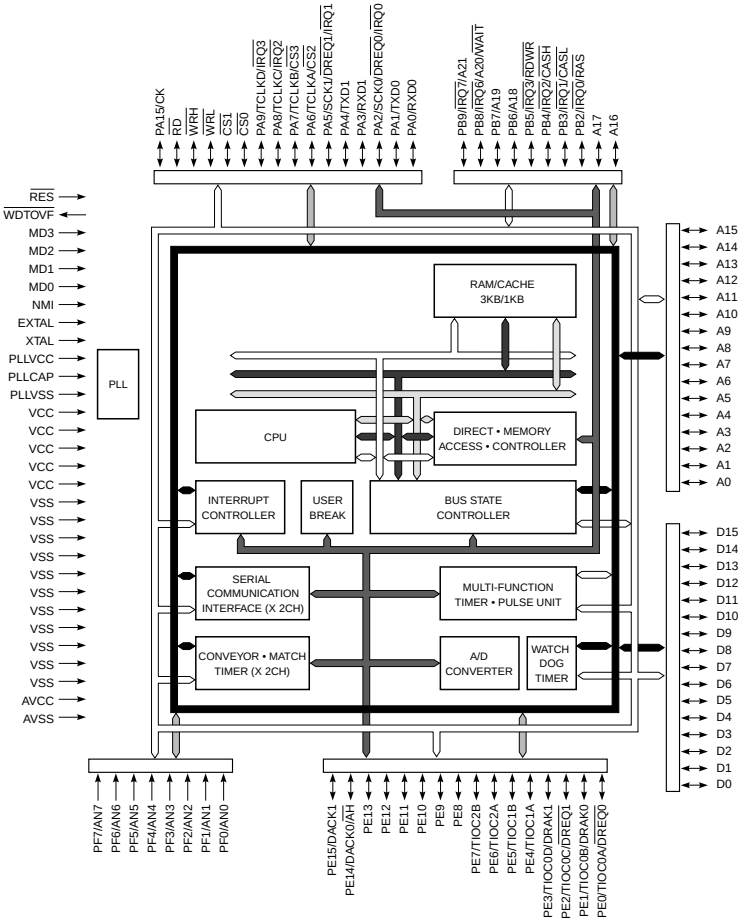
IC417 : YSS928
AC3D3

No.	Name	I/O	Function	
111	RAMA5	O	Sub DSP: External memory address terminal 5	
112	RAMA2	O	Sub DSP: External memory address terminal 2	
113	SELI13	I+	Built-in selector input 13 (unconnected)	
114	SELI12	I+	Built-in selector input 12 (unconnected)	
115	SELI11	I+	Built-in selector input 11 (unconnected)	
116	SELI10	I+	Built-in selector input 10 (unconnected)	
117	SELI9	I+	Built-in selector input 9 (unconnected)	
118	RAMA4	O	Sub DSP: External memory address terminal 4	
119	RAMA3	O	Sub DSP: External memory address terminal 3	
120	RAMA9	O	Sub DSP: External memory address terminal 9 (unconnected)	
121	RAMA10	O	Sub DSP: External memory address terminal 10 (unconnected)	
122	RAMA11	O	Sub DSP: External memory address terminal 11 (unconnected)	
123	VSS		Ground terminal	
124	VDD2		+2.5V power terminal (for internal circuit)	
125	SELI8	I+	Built-in selector input 8 (unconnected)	
126	SELI7	I+	Built-in selector input 7 (unconnected)	
127	SELI6	I+	Built-in selector input 6	(SDOB3)
128	SELI5	I+	Built-in selector input 5	(PAI6)
129	RAMA12	O	Sub DSP: External memory address terminal 12 (unconnected)	
130	RAMA13	O	Sub DSP: External memory address terminal 13 (unconnected)	
131	RAMA14	O	Sub DSP: External memory address terminal 14 (unconnected)	
132	RAMA15	O	Sub DSP: External memory address terminal 15 (unconnected)	
133	RAMA16	O	Sub DSP: External memory address terminal 16 (unconnected)	
134	RAMA17	O	Sub DSP: External memory address terminal 17 (unconnected)	
135	OVFB/END	O	Sub DSP: Overflow/program end detect terminal	(OVFB)
136	ZEROFLG	O	Main DSP: Zero flag output terminal	(ZEROFLG)
137	VSS		Ground terminal	
138	NONPCM	O	Main DSP: Non-PCM data detect terminal	
139	DTSDATA	O	Main DSP: DTS data detect terminal	
140	AC3DATA	O	Main DSP: AC3 data detect terminal	
141	MUTE	O	Main DSP: Auto mute detect terminal	
142	KARAOKE	O	Main DSP: AC3 KARAOKE data detect terminal	
143	VDD1		+3.3V power terminal (for terminal section)	
144	SURENC	O	Main DSP: AC-3 2/0 mode Dolby surround encode input detect terminal	
145	CRC	O	Main DSP: AC3 CRC error detect terminal	
146	/LOCK	O	DIR: PLL lock detect terminal	(/DIRLOCK)
147	DIRINT	O	DIR: Interrupt output terminal	
148	/CS	Is	Microprocessor interface chip select input terminal	(AC3CS)
149	SO	Ot	Microprocessor interface data output terminal	(SDI)
150	SI	Is	Microprocessor interface data input terminal	(SDO)
151	SCK	Is	Microprocessor interface clock input terminal	
152	/IC	Is	Initial clear input terminal	(/ICD)
153	IPINT	O+	Interrupt output terminal by IPORT 8-14 (unconnected)	
154	SELI4	I+	Built-in selector input 4	(PAI5)
155	VSS		Ground terminal	
156	SELI3	I+	Built-in selector input 3	(PAI4)
157	SELI2	I+	Built-in selector input 2	(SDOA2)
158	TESTXI	I	Test terminal (should be always connected to VSS)	
159	TESTXO	O	Test terminal (unconnected)	
160	VDD2		+2.5V power terminal (for internal circuit)	

Is: Schmidt trigger input terminal
I+: Input terminal with pull-up resistor
O: digital output terminal
Ot: Tri-state digital output terminal
A: Analog terminal

IC436 : HD6417014F28
16 bit μ-COM (CPU)





IC436 : HD6417014F28

16 bit μ-COM (CPU)

No.	Port	Name	I/O	Function
1	PE14/DACK0//AH	SP_ON	O	Speaker relay control (H: ON, L: OFF)
2	PE15/DACK1	T_MUTE	O	Tripath Amp Mute (AMP-ON)
3	VSS	VSS		GND
4	A0	A0	O	Address bus
5	A1	A1	O	Address bus
6	A2	A2	O	Address bus
7	A3	A3	O	Address bus
8	A4	A4	O	Address bus
9	A5	A5	O	Address bus
10	A6	A6	O	Address bus
11	A7	A7	O	Address bus
12	A8	A8	O	Address bus
13	A9	A9	O	Address bus
14	A10	A10	O	Address bus
15	A11	A11	O	Address bus
16	A12	A12	O	Address bus
17	A13	A13	O	Address bus
18	A14	A14	O	Address bus
19	A15	A15	O	Address bus
20	A16	A16	O	Address bus
21	VCC	VCC		+5V
22	A17	A17	O	Address bus
23	VSS	VSS		GND
24	PB2//IRQ0//RAS	DC_ON	I	Power down detection (using power level detection)
25	PB3//IRQ1//CASL	USBSOF	I	Start of Frame input from USB
26	PB4//IRQ2//CASH	USBINT	I	Interruption input from USB
27	VSS	VSS		GND
28	PB5//IRQ3/RDWR	/EAINT	I	Interruption input from Gate Array
29	PB6/A18	A18	O	Address bus
30	PB7/A19	/D_RST	O	Reset signal for YSS928, CS5360(A/D), AD1854(D/A)
31	PB8//IRQ6/A20//WAIT	/DIRINT	I	Interruption input from YSS928 (DIR)
32	PB9//IRQ7/A21	/AC3MUTE	I	Interruption input from YSS928 (MUTE)
33	VSS	VSS		GND
34	/RD	RDB	O	Control signal output for reading
35	/WDTOVF	/WDTOVF		Watched timer overflow output (Not used)
36	/WRH	/WRH	O	Control signal output for upper byte writing
37	VCC	VCC		+5V
38	/WRL	WRL	O	Control signal output for lower byte writing
39	VSS	VSS		GND
40	/CS1	EACS	O	Chip select output for Gate Array
41	/CS0	FLASHCS	O	Chip select output for external ROM
42	PA9/TCLKD//IRQ3	/ICD	O	Chip select output for FL driver
43	PA8/TCLKC//IRQ2	/NONPCM	I	Interruption input from YSS928 (NONPCM)
44	PA7/TCLKB//CS3	SRAMCS	O	Chip select output for SRAM
45	PA6/TCLKA//CS2	USBCS	O	Chip select output for USB
46	PA5/SCK1//DREQ1//IRQ1	T-FAULT	I	Protection for Tripath Amp (Not used)
47	PA4/TXD1	TX	O	Serial data output for Debug Monitor (RS232C)
48	PA3/RXD1	RX	I	Serial data input for Debug Monitor (RS232C)
49	PA2/SCK0//DREQ0//IRQ0	FLCK	O	Serial clock output to FL driver
50	PA1/TXD0	FLDA	O	Serial data output to FL driver
51	PA0/RXD0	FLCS	O	Chip select output to FL driver
52	D15	D15	I/O	Data bus
53	D14	D14	I/O	Data bus
54	D13	D13	I/O	Data bus
55	VSS	VSS		GND
56	D12	D12	I/O	Data bus

IC436 : HD6417014F28

16 bit μ-COM (CPU)

No.	Port	Name	I/O	Function
57	D11	D11	I/O	Data bus
58	D10	D10	I/O	Data bus
59	D9	D9	I/O	Data bus
60	D8	D8	I/O	Data bus
61	VSS	VSS		GND
62	D7	D7	I/O	Data bus
63	D6	D6	I/O	Data bus
64	D5	D5	I/O	Data bus
65	VCC	VCC		+5V
66	D4	D4	I/O	Data bus
67	D3	D3	I/O	Data bus
68	D2	D2	I/O	Data bus
69	D1	D1	I/O	Data bus
70	D0	D0	I/O	Data bus
71	VSS	VSS		GND
72	XTAL	XTAL	I	Connect to crystal (7MHz)
73	MD3	MD3	I	Mode setup input (+5V)
74	EXTAL	EXTAL	I	Connect to crystal (7MHz)
75	MD2	MD2	I	Mode setup input (GND)
76	NMI	NMI		Not used (Pull up)
77	VCC	VCC		+5V
78	MD1	MD1	I	Mode setup input (GND)
79	MD0	MD0	I	Mode setup input (+5V)
80	PLLVCC	PLLVCC	I	Power input of internal PLL oscillator (+5V)
81	PLLCAP	PLLCAP	I	Capacitor terminal of internal PLL oscillator
82	PLLVSS	PLLVSS	I	GND of internal PLL oscillator (GND)
83	PA15/CK	CPUCLK	O	CPU clock output
84	/RES	RST	I	Power on reset input
85	PE0/TIOC0A//DREQ0	REM	I	Remote control input
86	PE1/TIOC0B//DACK0	E_A	I	Encoder detection (Volume)
87	PE2/TIOC0C//DREQ1	E_B	I	Encoder detection (Volume)
88	PE3/TIOC0D//DACK1	RYDY	I	ROM Ready input
89	PE4/TIOC1A	POW	O	Power relay control
90	VSS	VSS		GND
91	PF0/AN0	KEY0	I	Key input (AD)
92	PF1/AN1	PS	I	Protection PS
93	PF2/AN2	PRT_DC	I	Amp protection (DC) (Not used)
94	PF3/AN3	PRT_I	I	Amp protection (current) (Not used)
95	PF4/AN4	TYPE	I	Model detection
96	PF5/AN5	DEST	I	Market detection
97	AVSS	AVSS	I	GND (analog)
98	PF6/AN6	DC_ON	I	DC level detection of power supply
99	PF7/AN7	P_SW	I	ON/OFF detection of power switch
100	AVCC	AVCC		+5V (analog)
101	VSS	VSS		GND
102	PE5/TIOC1B	USBRST	O	Reset output for USB, Gate Array
103	VCC	VCC		+5V
104	PE6/TIOC2A	SUSPN	I	Suspend input from USB
105	PE7/TIOC2B	RWUPN	O	Remote Wake-Up output to USB
106	PE8	SW-MUTE	O	Subwoofer mute (ON: L)
107	PE9	A-MUTE	O	Total mute (ON: L)
108	PE10	SFMUTE	O	DAC soft mute (ON: H)
109	VSS	VSS		GND
110	PE11	MIX_MUTE	O	DAC MIX signal path mute (ON: H)
111	PE12	HP	I	Headphone detection
112	PE13	DMVDD	O	Enable output to Gate Array (ON: H)

IC430 : USS-820DT-DB

USB Device Controller

No.	Port	Name	I/O	Function
1	NC	NC		No connect
2	VDDA	VDDA		+3.3V power supply for analog PLL
3	XTAL1	XTAL1	I	Crystal/Clock input
4	XTAL2	XTAL2	O	Crystal/Clock output
5	VDDT	VDDT		+3.3V power supply for USB transceiver
6	DMNS	DMNS	I/O	USB Differential data bus minus
7	DPLS	DPLS	I/O	USB Differential data bus plus
8	VSST	VSST		Device ground for USB transceiver
9	A0	A1	I	Address bus
10	A1	A2	I	Address bus
11	A2	A3	I	Address bus
12	A3	A4	I	Address bus
13	A4	A5	I	Address bus
14	VSSX	VSSX		Device ground
15	VSS0	VSS0		Device ground
16	NC	NC		No connect
17	NC	NC		No connect
18	VDD0	VDD0		+3.3V power supply
19	NC	NC		No connect
20	NC	NC		No connect
21	NC	NC		No connect
22	VSS1	VSS1		Device ground
23	VSSX	VSSX		Device ground
24	VSSX	VSSX		Device ground
25	VSSX	VSSX		Device ground
26	VSSX	VSSX		Device ground
27	NC	NC		No connect
28	RWUPN	RWUPN	I	Remote wake-up (active-low)
29	SUSPN	SUSPN	O	Suspend (active-low)
30	IRQN	USBINT	O	Interrupt
31	SOFN	USBSOF	O	Start of frame (active-low)
32	RESET	USBRST	I	Reset
33	NC	NC		No connect
34	IOCSN	USBCS	I	Chip select (active-low)
35	WRN	WRL	I	Control register write (active-low)
36	RDN	RDB	I	Control register read (active-low)
37	VSSX	VSSX		Device ground
38	D7	D7	I/O	Data bus
39	D6	D6	I/O	Data bus
40	D5	D5	I/O	Data bus
41	D4	D4	I/O	Data bus
42	D3	D3	I/O	Data bus
43	VSS2	VSS2		Device ground
44	D2	D2	I/O	Data bus
45	D1	D1	I/O	Data bus
46	D0	D0	I/O	Data bus
47	VDD1	VDD1		+3.3V power supply
48	DPPU	DPPU	O	DPLS pull up

IC475 : LC27287B-TF3

Embedded Array

No.	Name	I/O	Function
1	VSS	I	GND
2	XI	I	X'tal in (GND)
3	XO	O	X'tal out (OPEN)
4	/SIOIRQ	O	Serial IRQ (OPEN)
5	/FIFOIRQ	O	FIFO IRQ (/EAINT)
6	A0	I	Address Bus
7	A1	I	Address Bus
8	A2	I	Address Bus
9	A3	I	Address Bus
10	A4	I	Address Bus
11	A5	I	Address Bus
12	TEST9	I	(OPEN)
13	TEST10	I	(OPEN)
14	D0	I/O	Data Bus
15	D1	I/O	Data Bus
16	D2	I/O	Data Bus
17	D3	I/O	Data Bus
18	D4	I/O	Data Bus
19	D5	I/O	Data Bus
20	D6	I/O	Data Bus
21	D7	I/O	Data Bus
22	VDD5	I	+5V
23	VSS	I	GND
24	D8	I/O	Data Bus
25	D9	I/O	Data Bus
26	D10	I/O	Data Bus
27	D11	I/O	Data Bus
28	D12	I/O	Data Bus
29	D13	I/O	Data Bus
30	D14	I/O	Data Bus
31	D15	I/O	Data Bus
32	RDB	I	Read Strobe input
33	WRL	I	Write Strobe Low input
34	WRH	I	Write Strobe High input
35	GACS	I	Bus Chip Select (EACS)
36	GARST	I	Global Reset input (USBRST)
37	CPUCLK	I	System clock input
38	DMVDD	I	Master Vdd active detection
39	USBDACO	O	USB audio data
40	CAPTIN	I	USB capture audio data in (PAO7)
41	TEST0	I	OPEN
42	TEST1	I	OPEN
43	TEST2	I	OPEN
44	VDD5	I	+5V
45	VSS	I	GND
46	MCLKAI	I	X'tal in (11.2896MHz)
47	MCLKAO	O	X'tal out (11.2896MHz)
48	PIO0	O	TUNER MUTE
49	PIO1	I	TUNER TUNED
50	PIO2	I	TUNER STEREO
51	PIO3	I	YSS928 AC3DATA
52	PIO4	I	YSS928 SURENC
53	PIO5	I	YSS928 DIRERR
54	PIO6	I	YSS928 DIRLOCK
55	PIO7	I	YSS928 KARAOKE

No.	Name	I/O	Function
56	PIO8	I	YSS928 OVFB
57	PIO9	I	YSS928 DTSDATA
58	PIO10	I	YSS928 ZEROFLOG
59	PIO11	I	YSS928 CRC
60	PIO12	O	48/96
61	PIO13	I	YSS928 DBL/V
62	PIO14	O	ANSEL
63	PIO15	I/O	Extended I/O port (OPEN)
64	I2CCK	O	I2C serial Bus clock (OPEN)
65	I2SDA	I/O	I2C serial Bus data (OPEN)
66	VDD5	I	+5V
67	VSS	I	GND
68	MCLKBI	I	X'tal in (GND)
69	MCLKBO	O	X'tal out (OPEN)
70	TEST3	I	(OPEN)
71	TEST4	I	(OPEN)
72	TEST5	I	(OPEN)
73	TEST6	I	H: PLL TEST out, L: normal (OPEN)
74	TEST7	I	H: pllclks in, L: NC (OPEN)
75	TEST8	I	H: PLL TEST out, L: normal (OPEN)
76	PLLCKO	I	PLL clock input
77	PLLREF	O	PLL reference clock out
78	RFCLK	I	Internal PLL reference clock
79	VDD33	I	+3.3V
80	PCH	O	PLL PCH out (TEST8: H) (OPEN)
81	NCH	O	PLL NCH out (TEST8: H) (OPEN)
82	DIV2	O	Internal PLL VCO div2 (OPEN)
83	VSS	I	GND
84	PO	O	Charge pump out
85	VCNT	I	VCO control input
86	R	I	VCO Bias Resistor
87	AVSS	I	GND (for Analog)
88	AVDD	I	+3.3V (for Analog)
89	VSS	I	GND
90	VDD5	I	+5V
91	SFS	O	Other device audio clock
92	/S64FS	O	Other device audio clock
93	S128FS	O	Other device audio clock (OPEN)
94	S256FS	O	Other device audio clock
95	SSYNC	O	Other device audio clock (OPEN)
96	R64FS	O	Render device bit clock (OPEN)
97	C64FS	O	Capture device bit clock (OPEN)
98	D64FS	O	USB bit clock (OPEN)
99	S64FS	O	Other device bit clock (OPEN)
100	X64FS	O	External bit clock (DIR) (OPEN)
101	XFS	I	External audio clock (DIR)
102	/X64FS	I	External audio clock (DIR)
103	X128FS	I	External audio clock (DIR)
104	X256FS	I	External audio clock (DIR)
105	XSYNC	I	External audio clock (DIR)
106	PAI3	I	Patch input (A/D)
107	PAI4	I	Patch input (YSS928 SDOB0)
108	PAI5	I	Patch input (YSS928 SDOB1)
109	PAI6	I	Patch input (YSS928 SDOB2)
110	VDD33	I	+3.3V

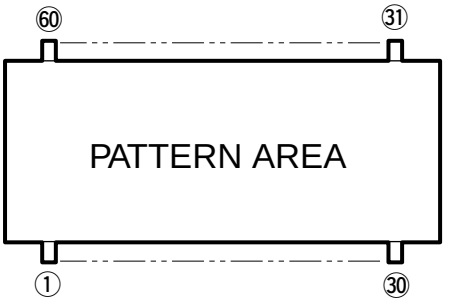
IC475 : LC27287B-TF3

Embedded Array

No.	Name	I/O	Function
111	VSS	I	GND
112	PAI7	I	Patch input (YSS928 SELOA)
113	PAI8	I	Patch input (YSS928 DIRSDO)
114	PAI9	I	Patch input (OPEN)
115	PAI10	I	Patch input (GND)
116	PAI11	I	Patch input (OPEN)
117	PAI12	I	Patch input (OPEN)
118	PAI13	I	Patch input (PC IN)
119	PAI14	I	Patch input (AUX1 IN)
120	SXSDI	I	Extendedserial Bus data in (SDI)
121	SXSDO	O	Extendedserial Bus data out (SDO)
122	SXSCK	O	Extendedserial Bus clock (SCK)
123	SXCS0	O	Extendedserial Bus CS0 (AC3CS)
124	SXCS1	O	Extendedserial Bus CS1 (OPEN)
125	SXCS2	O	Extendedserial Bus CS2 (OPEN)
126	SXCS3	O	Extendedserial Bus CS3 (OPEN)
127	RFS	O	Render device audio clock (OPEN)
128	/R64FS	O	Render device audio clock (OPEN)
129	R128FS	O	Render device audio clock (OPEN)
130	R256FS	O	Render device audio clock (OPEN)
131	RSYNC	O	Render device audio clock (OPEN)
132	VDD5	I	+5V
133	VSS	I	GND
134	DFS	O	USB audio clock
135	/D64FS	O	USB audio clock
136	D256FS	O	USB audio clock
137	CFS	O	Capture device audio clock
138	/C64FS	O	Capture device audio clock
139	C128FS	O	Capture device audio clock (OPEN)
140	C256FS	O	Capture device audio clock
141	CSYNC	O	Capture device audio clock (OPEN)
142	SELA	I	74153 Logic function (GND)
143	SELB	I	74153 Logic function
144	CI0	I	74153 Logic function
145	CI1	I	74153 Logic function (GND)
146	CI2	I	74153 Logic function
147	CI3	I	74153 Logic function (GND)
148	YO	O	74153 Logic function (PAI13)
149	CCBDI	I	Serial Bus data in
150	CCBDO	O	Serial Bus data out
151	CCBCLK	O	Serial Bus clock
152	CCBCS0	O	Serial Bus CS0 (SYCSO)
153	CCBCS1	O	Serial Bus CS1 (SYCS1)
154	VDD5	I	+5V
155	VSS	I	GND
156	CCBCS2	O	Serial Bus CS2 (SYCS2)
157	CCBCS3	O	Serial Bus CS3 (SYCS3)
158	TEST11	I	(OPEN)
159	SZSDO	O	Extended serial Bus data out
160	SZSCK	O	Extended serial Bus clock
161	SZCS0	O	Extended serial Bus CS0
162	SZCS1	O	Extended serial Bus CS1
163	SZCS2	O	Extended serial Bus CS2
164	SZCS3	O	Extended serial Bus CS3
165	PAO0	O	Patch out (MAIN DAC)
166	PAO1	O	Patch out (REAR DAC)
167	PAO2	O	Patch out (CENTER/LFE DAC)
168	PAO3	O	Patch out (YSS928 SDIA)
169	PAO4	O	Patch out (YSS928 SDIB0)
170	PAO5	O	Patch out (YSS928 SDIB1)
171	PAO6	O	Patch out (YSS928 SDIB2)
172	PAO7	O	Patch out (CAPTIN)
173	PAO8	O	Patch out (NC)
174	PAO9	O	Patch out (YSS928 DDIN0)
175	PAO10	O	Patch out (OPT OUT)
176	VDD5	I	+5V

■ DISPLAY DATA

V301 : 8-ST-24GN (V6445100)



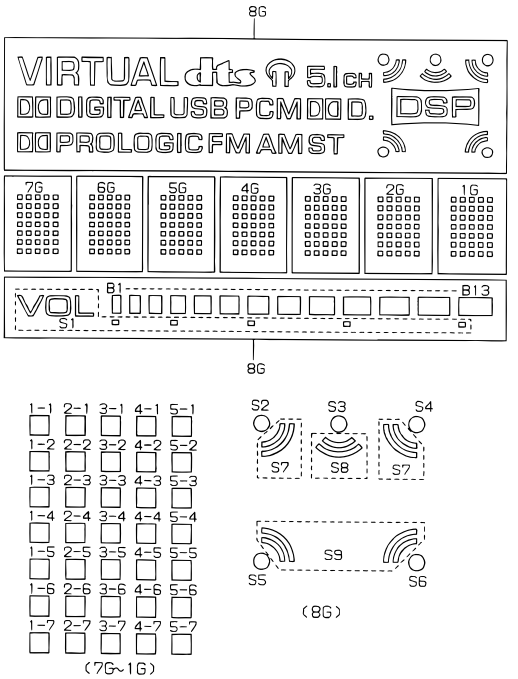
● PIN CONNECTION

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Connection	F1	NP	F1	NP	1G	2G	3G	4G	5G	6G	7G	8G	P35	P34	P33	P32	P31	P30	P29	P28	P27	P26	P25	P24	P23	P22	NP	F2	NP	F2

Pin No.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Connection	F2	NP	F2	NP	P21	P20	P19	P18	P17	P16	P15	P14	P13	P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2	P1	IC	NP	F1	NP	F1

Note 1) F1, F2 ..... Filament
2) NP ..... No Pin
3) IC ..... Internal connection
4) P1~P35 ..... Datum Line
5) 1G~8G ..... Grid

● GRID ASSIGNMENT



● ANODE CONNECTION

	8G	7G~1G
P1	B1	1-1
P2	B2	2-1
P3	B3	3-1
P4	B4	4-1
P5	B5	5-1
P6	B6	1-2
P7	B7	2-2
P8	B8	3-2
P9	B9	4-2
P10	B10	5-2
P11	B11	1-3
P12	B12	2-3
P13	B13	3-3
P14	S1	4-3
P15	VIRTUAL	5-3
P16	dts	1-4
P17		2-4
P18	5.1CH	3-4
P19	DIGITAL	4-4
P20	USB	5-4
P21	PCM	1-5
P22	D.	2-5
P23	PROLOGIC	3-5
P24	FM	4-5
P25	AM	5-5
P26	ST	1-6
P27	S2	2-6
P28	S3	3-6
P29	S4	4-6
P30	S5	5-6
P31	S6	1-7
P32	S7	2-7
P33	S8	3-7
P34	S9	4-7
P35	DSP	5-7

■ PRINTED CIRCUIT BOARD (Foil side)

● **Semiconductor Location**

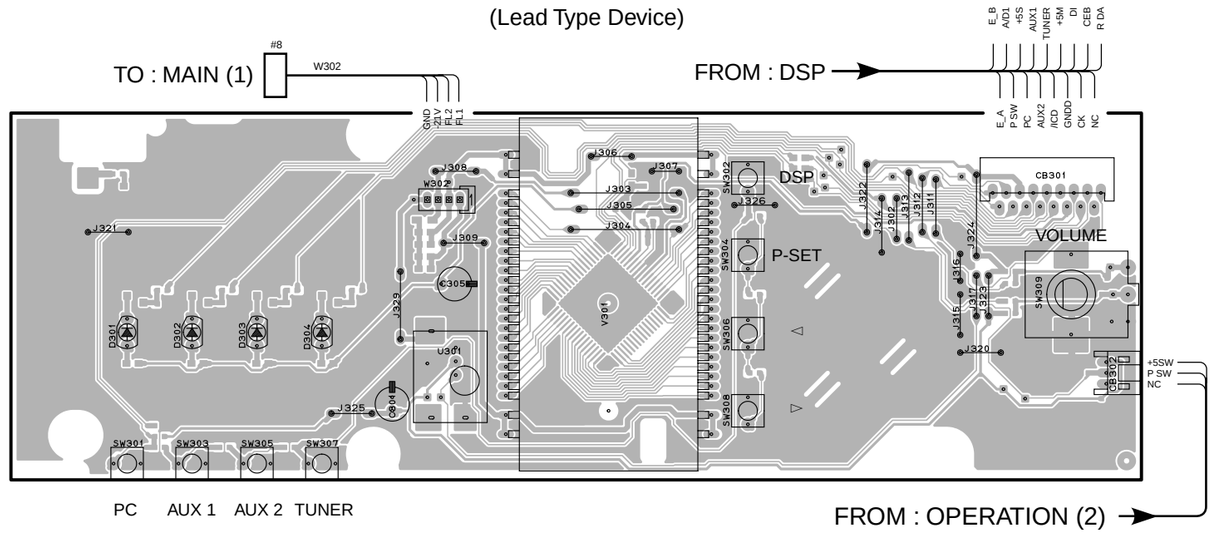
Ref. No.	Location
D301	B2
D302	C2
D303	C2
D304	C2
D305	C4

Ref. No.	Location
IC301	D4

Ref. No.	Location
Q301	B4
Q302	C4
Q303	C4
Q304	C4

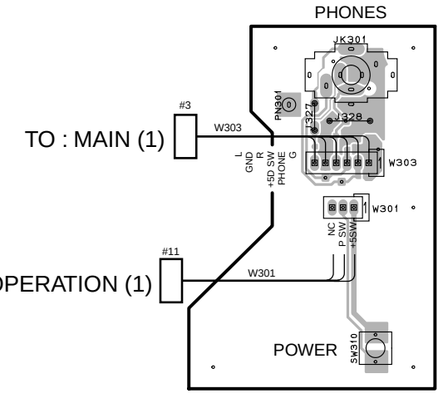
OPERATION (1) P.C.B.

(Lead Type Device)



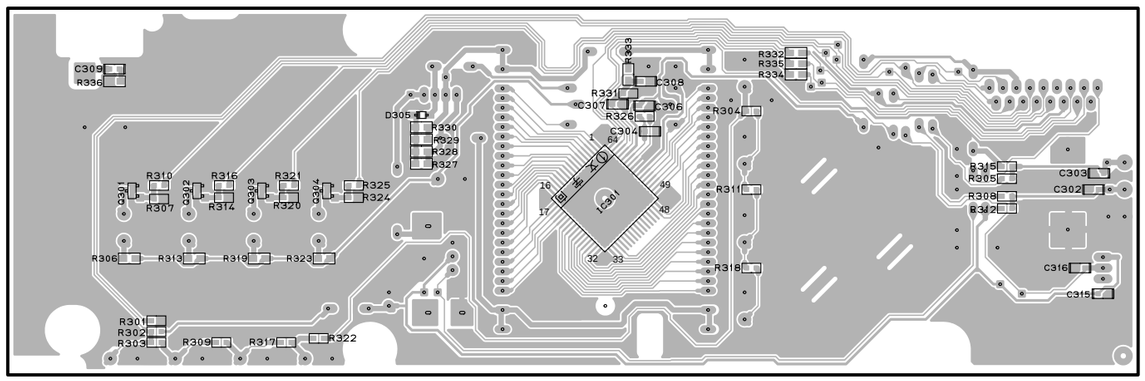
OPERATION (2) P.C.B.

(Lead Type Device)



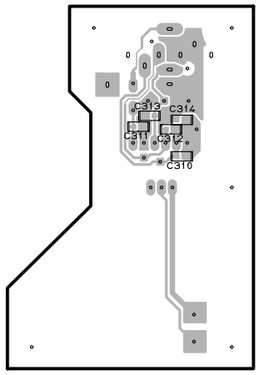
OPERATION (1) P.C.B.

(Surface Mount Device)



OPERATION (2) P.C.B.

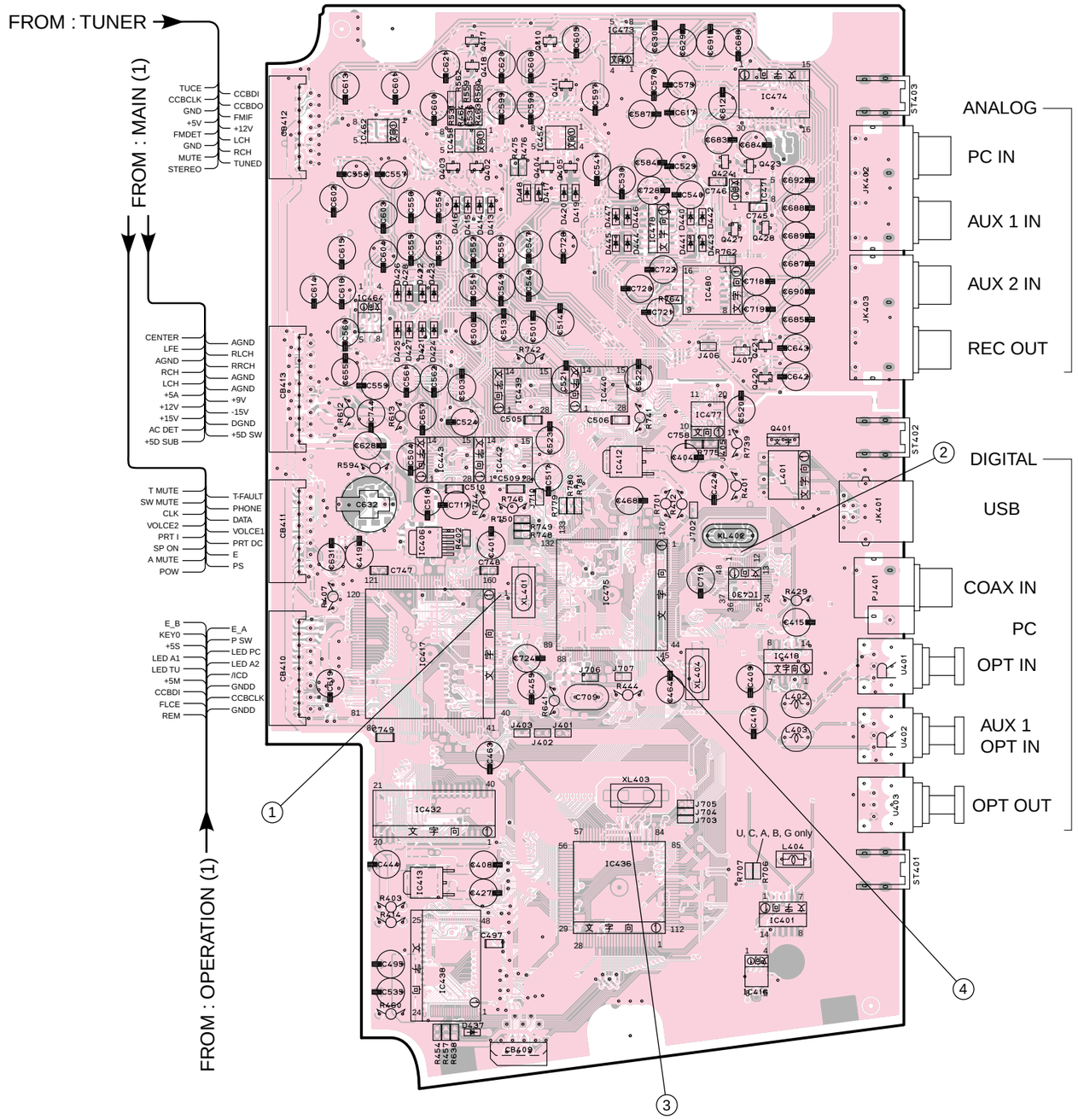
(Surface Mount Device)



■ PRINTED CIRCUIT BOARD (Foil side)

DSP P.C.B.

(Lead Type Device)



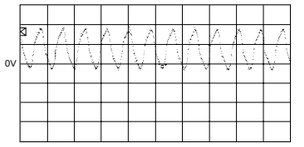
● **Semiconductor Location**

Ref. No.	Location
D413	C2
D414	C2
D415	C2
D416	C2
D417	C2
D418	C2
D419	C2
D420	C2
D421	C3
D422	C2
D423	C2
D424	C3
D425	C3
D426	C2
D427	C3
D428	C2
D437	C5
D440	D2
D441	D2
D442	D2
D443	D2
D444	D2
D445	D2
D446	D2
D447	D2

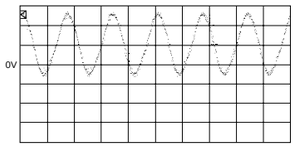
Ref. No.	Location
IC401	D5
IC406	C3
IC412	D3
IC413	C5
IC416	D5
IC417	C4
IC418	D4
IC430	D3
IC432	C4
IC436	D5
IC438	C5
IC439	C3
IC440	C3
IC442	C3
IC443	C3
IC454	C2
IC458	C2
IC462	C2
IC464	C2
IC471	D2
IC473	D1
IC474	D2
IC475	D3
IC477	C2
IC478	D2
IC480	D2

Ref. No.	Location
Q401	D3
Q402	C2
Q403	C2
Q404	C2
Q405	C2
Q410	C1
Q411	C2
Q417	C1
Q418	C2
Q420	D3
Q421	D3
Q423	D2
Q424	D2
Q427	D2
Q428	D2

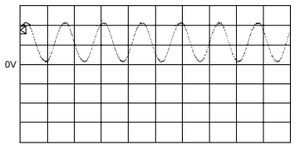
Point ① (Pin 1 of IC417)
V : 2V/div, H : 50 nsec/div
DC, 1 : 1 probe



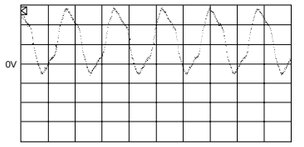
Point ② (Pin 4 of IC430)
V : 1V/div, H : 50 nsec/div
DC, 1 : 1 probe



Point ③ (Pin 74 of IC436)
V : 2V/div, H : 0.1 µsec/div
DC, 1 : 1 probe



Point ④ (Pin 47 of IC475)
V : 2V/div, H : 50 nsec/div
DC, 1 : 1 probe



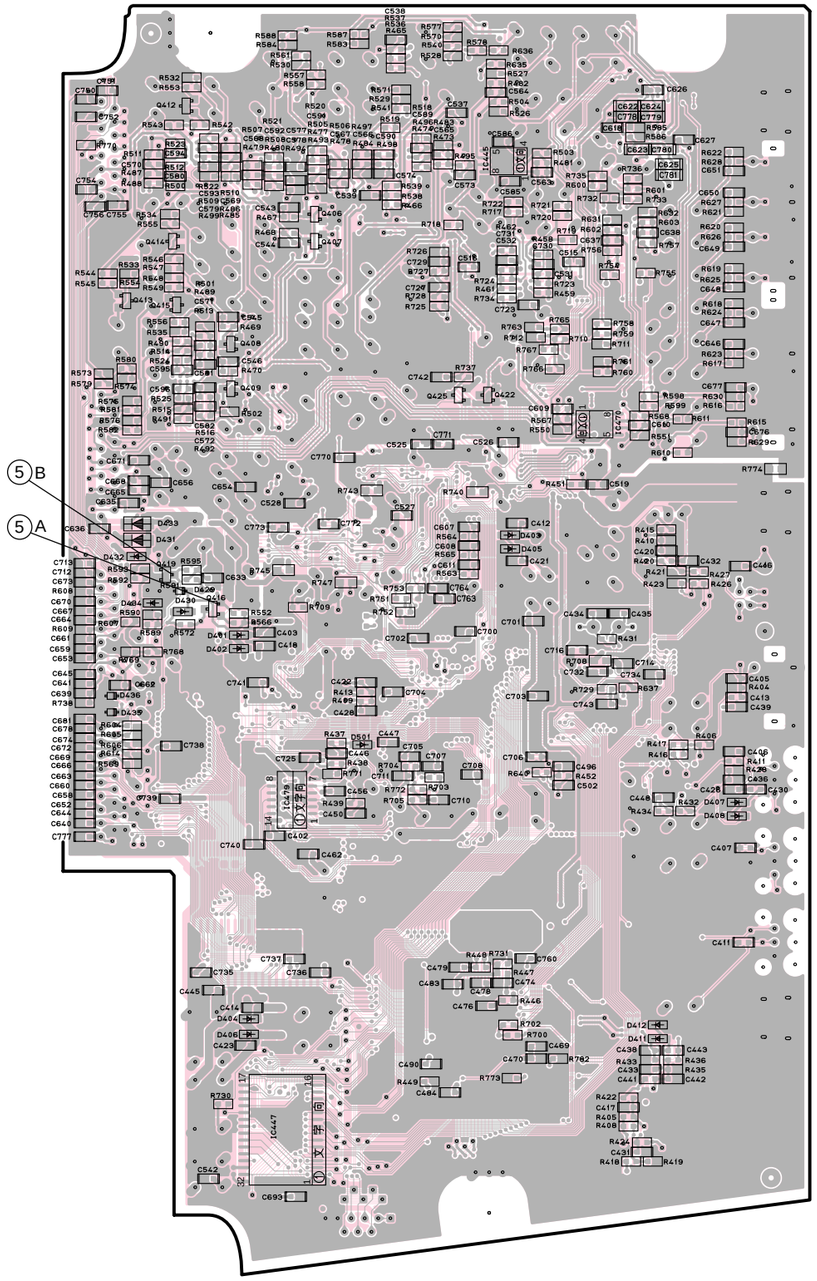
NOTE)
The DSP P.C.B. actually has a four-layer pattern structure (part face pattern, internal pattern 1, internal pattern 2 and solder face pattern) but it is shown as "part face pattern + solder face pattern" in this diagram.

NOTE)
ＤＳＰ Ｐ.Ｃ.Ｂ.は、４層パターン構造（部品面パターン、内層１パターン、内層２パターン、ハンダ面パターン）ですが、本図のＤＳＰ Ｐ.Ｃ.Ｂ.は、部品面パターン＋ハンダ面パターンを表記しております。

■ PRINTED CIRCUIT BOARD (Foil side)

DSP P.C.B.

(Surface Mount Device)



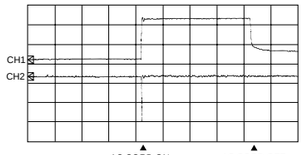
● **Semiconductor Location**

Ref. No.	Location
D401	C3
D402	C3
D403	D3
D404	C5
D405	D3
D406	C5
D407	D4
D408	D4
D411	D5
D412	D5
D429	C3
D430	C3
D431	B3
D432	B3
D433	B3
D434	B3
D435	B4
D436	B4
D501	C4

Ref. No.	Location
IC445	D2
IC447	C5
IC470	D3
IC479	C4

Ref. No.	Location
Q406	C2
Q407	C2
Q408	C2
Q409	C3
Q412	C2
Q413	B2
Q414	B2
Q415	B2
Q416	C3
Q419	B3
Q423	C3
Q425	C3

Point ⑤-A (CH1 : Emitter of Q416)
Point ⑤-B (CH2 : Collector of Q419)
V : 5V/div (CH1), V : 2V/div (CH2)
DC, 1 : 1 probe, H : 5 sec/div



NOTE)
The DSP P.C.B. actually has a four-layer pattern structure (part face pattern, internal pattern 1, internal pattern 2 and solder face pattern) but it is shown as "part face pattern + solder face pattern" in this diagram.

NOTE)
DSP P.C.B.は、4層パターン構造（部品面パターン、内層1パターン、内層2パターン、ハンダ面パターン）ですが、本図のDSP P.C.B.は、部品面パターン＋ハンダ面パターンを表記しております。

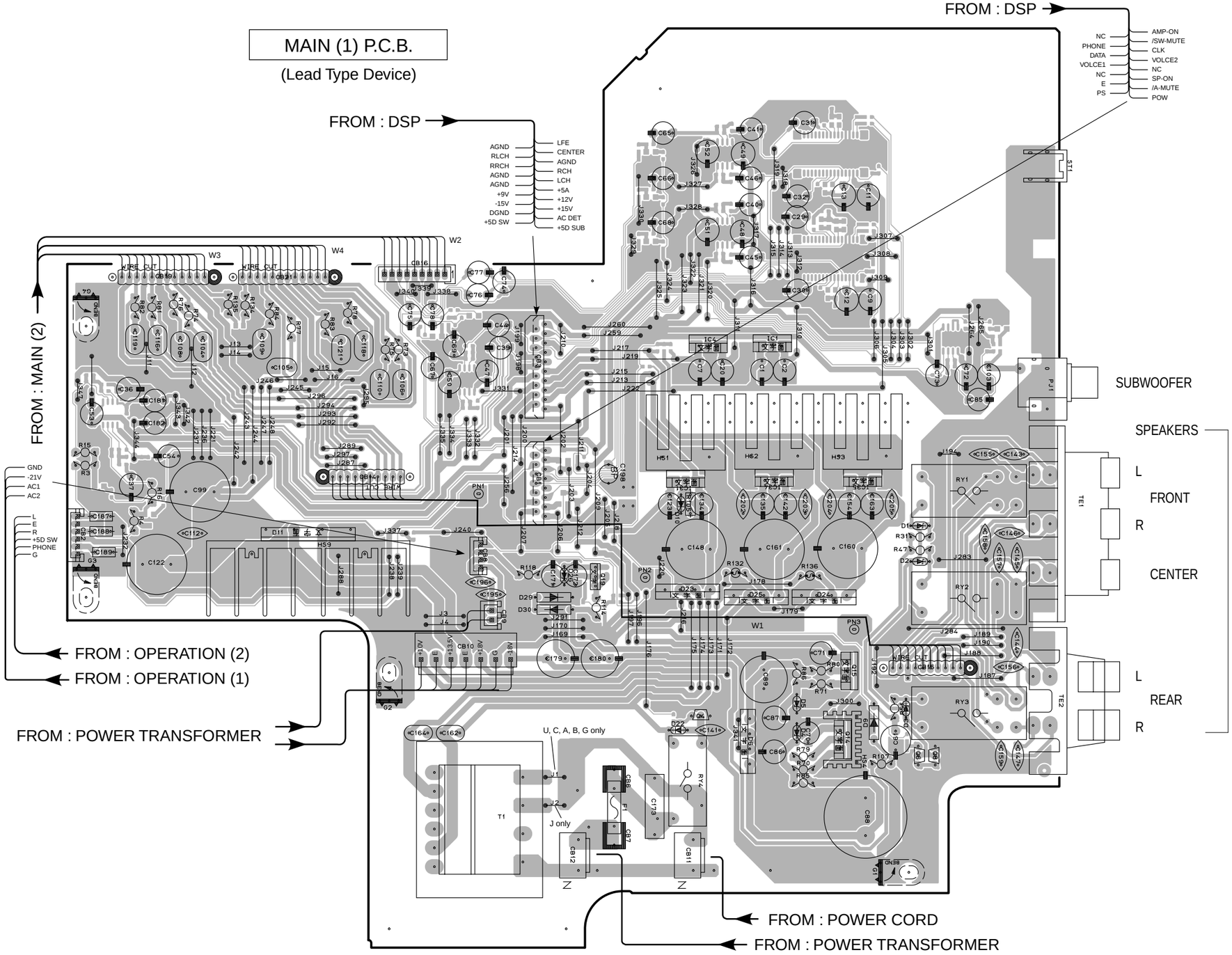
■ PRINTED CIRCUIT BOARD (Foil side)

● **Semiconductor Location**

Ref. No.	Location
D1	F3
D2	F4
D3	F4
D4	F4
D5	E4
D6	F4
D9	F4
D10	E3
D11	C3
D22	E4
D23	E4
D24	F4
D25	E4
D26	D4
D29	D4
D30	D4

Ref. No.	Location
IC1	E3
IC4	E3
IC31	E3
IC34	E3
IC35	F3

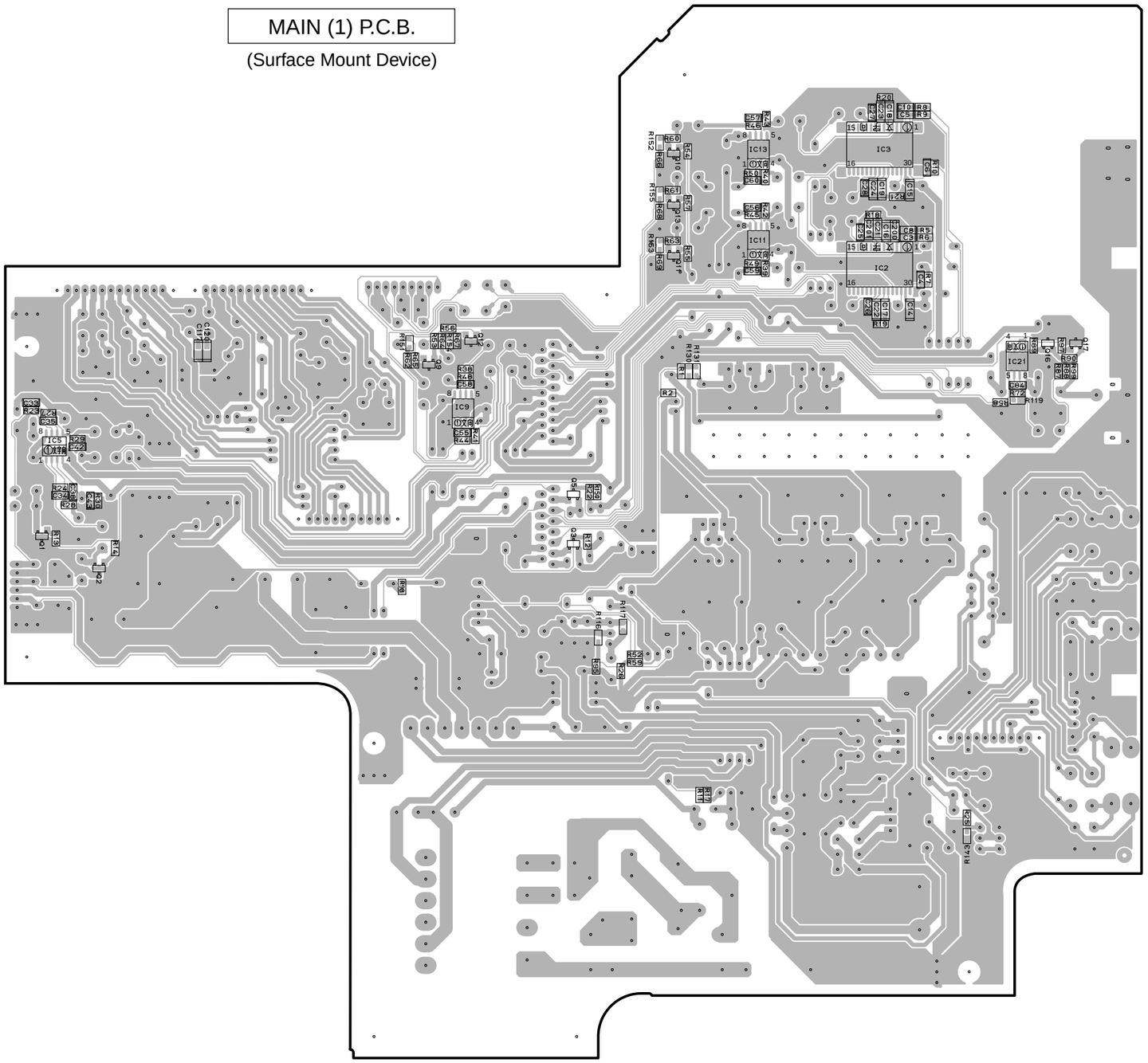
Ref. No.	Location
Q4	E4
Q6	F4
Q8	F4
Q14	F4
Q15	F4
Q19	E4



■ PRINTED CIRCUIT BOARD (Foil side)

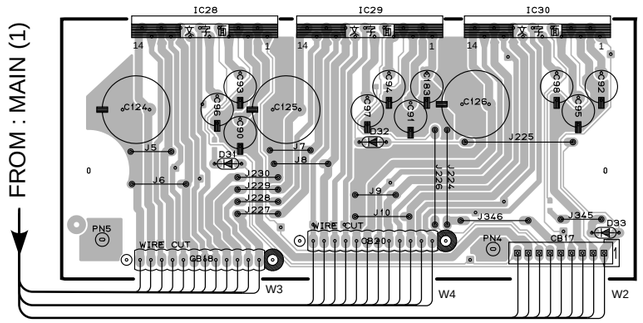
MAIN (1) P.C.B.

(Surface Mount Device)



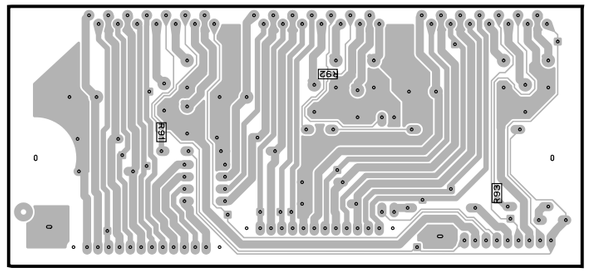
MAIN (2) P.C.B.

(Lead Type Device)



MAIN (2) P.C.B.

(Surface Mount Device)



● **Semiconductor Location**

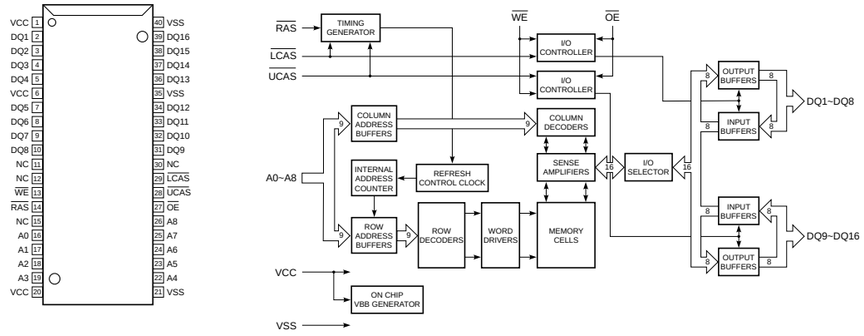
Ref. No.	Location
D31	F2
D32	F2
D33	H2

Ref. No.	Location
IC2	D2
IC3	D2
IC5	A3
IC9	C3
IC11	D2
IC13	D2
IC21	E3
IC28	F1
IC29	F1
IC30	F1

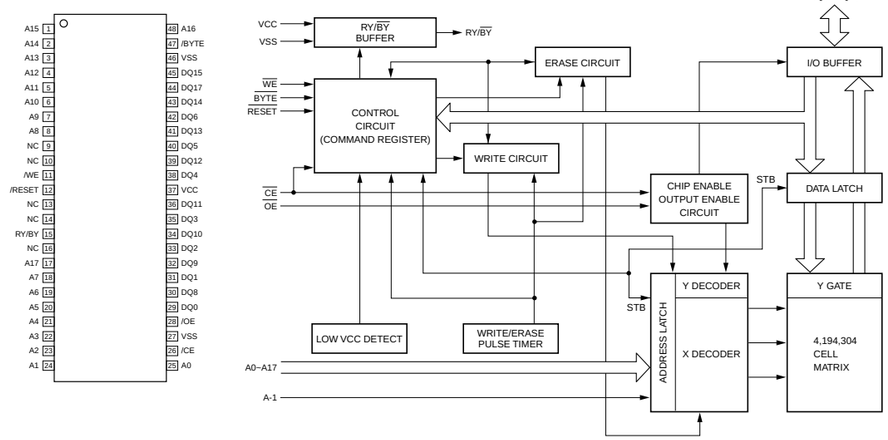
Ref. No.	Location
Q1	A3
Q2	A3
Q3	C3
Q5	C3
Q9	B3
Q10	C2
Q11	C2
Q12	C2
Q13	C2
Q16	E2
Q17	E2

■ IC BLOCK

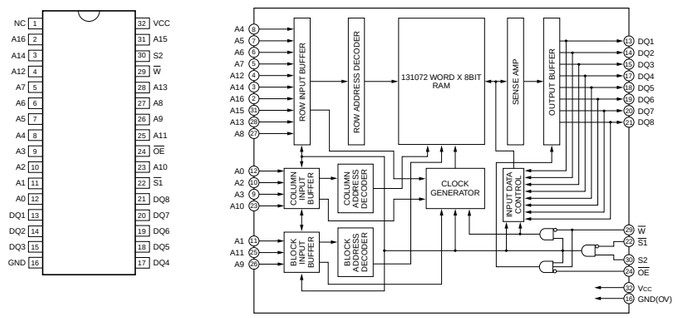
IC432 : MSM514260C-60JS
262,144-word x 16 bit Dynamic RAM



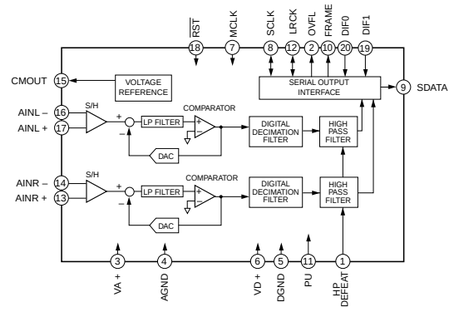
IC438 : MBM29F400BC-55
4M Bit Flash Memory



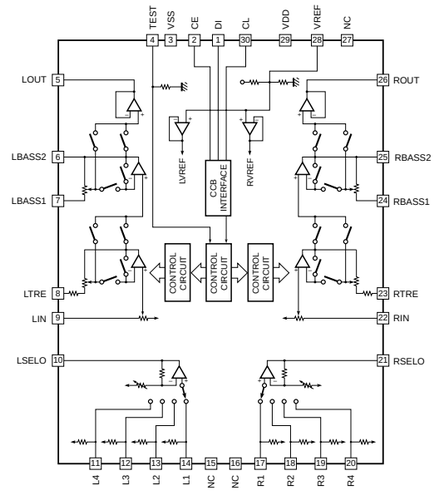
IC447 : M5M51008CFP-70H
131, 72-word X 8 bit Static RAM



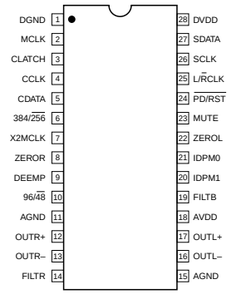
IC477 : CS5360-KSR
24-Bit A/D Converter

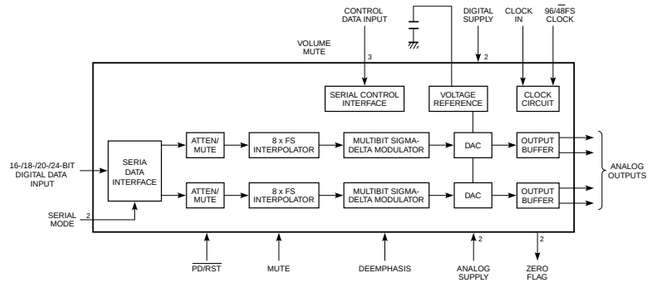


IC474 : LC75342M-TLM
Input Selector & Electric Controlled Volume

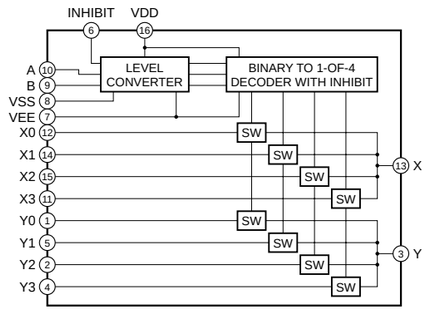


IC439, 440, 442, 443 : AD1854JSRSRL
24-Bit, 96kHz, Multibit Sigma-Delta D/A Converter





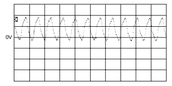
IC480 : TC4052BF
Analog Multiplexers/Demultiplexers



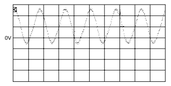
INHIBIT	B	A	
0	0	0	0x, 0y
0	0	1	1x, 1y
0	1	0	2x, 2y
0	1	1	3x, 3y
1	X	X	NONE

■ SCHEMATIC DIAGRAM (DSP)

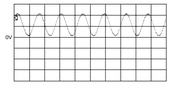
Point ① (Pin 1 of IC417)
V : 2V/div, H : 50 nsec/div
DC, 1 : 1 probe



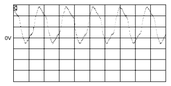
Point ② (Pin 4 of IC430)
V : 1V/div, H : 50 nsec/div
DC, 1 : 1 probe



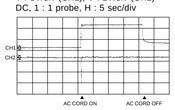
Point ③ (Pin 74 of IC436)
V : 2V/div, H : 0.1 μsec/div
DC, 1 : 1 probe



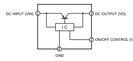
Point ④ (Pin 47 of IC475)
V : 2V/div, H : 50 nsec/div
DC, 1 : 1 probe



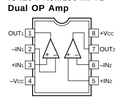
Point ⑤-A (CH1 : Emitter of Q416)
Point ⑤-B (CH2 : Collector of Q419)
V : 5V/div (CH1), V : 2V/div (CH2)
DC, 1 : 1 probe, H : 5 sec/div



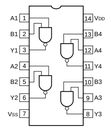
IC406 : PQ025EZ5MZP
+2.5V Regulator



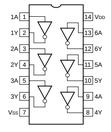
IC445, 454, 458, 462, 464, 470, 471, 473 : μPC4570G2
IC416 : NJM2904M-T1
Dual OP Amp



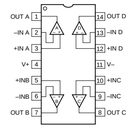
IC401 : TC74HC00AF
Quad 2 Input NAND

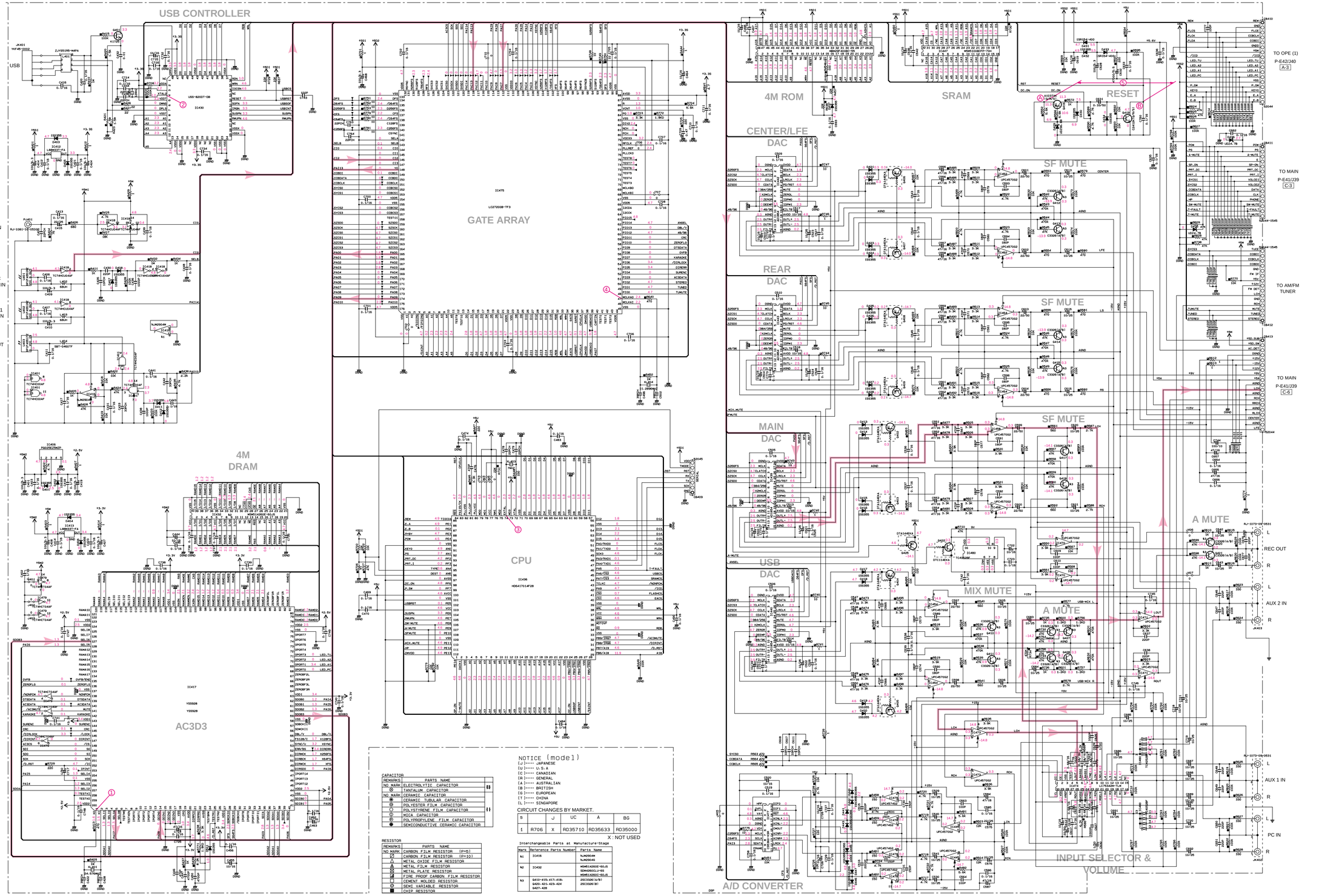


IC418 : TC74HCUO4AF-TP1
IC479 : TC74HCTO4AF-T1
Hex Inverters



IC478 : μPC4574G2
4Channel OP-Amp





NOTICE (model)
(J)..... JAPANESE
(U)..... U.S.A
(C)..... CANADIAN
(A)..... GENERAL
(A)..... AUSTRALIAN
(B)..... BRITISH
(G)..... EUROPEAN
(T)..... CHINA
(L)..... SINGAPORE

CIRCUIT CHANGES BY MARKET.

S		J	UC	A	BG
1	R706	X	RD35710	RD35633	RD35000

X : NOT USED

Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
k1	IC416	NJM2904M NJM2904D
k2	IC432	MSM5146306E-60JS SDM4260LU-55 MSM5148306C-55JS
k3	Q410-415-417-418- Q420-421-423-424 Q427-428	2SC3326(A/B)T- 2SC3326(B)T-

CAPACITOR

REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
⊗	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
◉	CERAMIC TUBULAR CAPACITOR
◎	POLYESTER FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
⊜	MICA CAPACITOR
⊛	POLYPROPYLENE FILM CAPACITOR
●	SEMICONDUCTIVE CERAMIC CAPACITOR

RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
☒	CARBON FILM RESISTOR (P=10)
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
⊠	METAL PLATE RESISTOR
▩	FINE PROOF CARBON FILM RESISTOR
▥	CEMENT MOLDED RESISTOR
⊘	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

2SA1037K (Q, R, S)
2SC2412K (Q, R, S)
2SC3326 (A, B)
DTA144EKA
DTC114EKA

2SK1725-AZ

1SS355
1SR154-400
UDZ4.7B
UDZS6.8B

L88M33T

PQ025EZ5MZP

NJM2904M
μPC4570G2

TC74HC00AF
TC74HCT04AF-T1
TC74HCU04AF-TP1
μPC4574G2

TC4052BF

CS5360-KSR

AD1854JRSRL

LC75342M-TLM

M5M51008CFP-70H

MSM514260C-60JS

M8M29F400BC-55

USS-820DT-DB

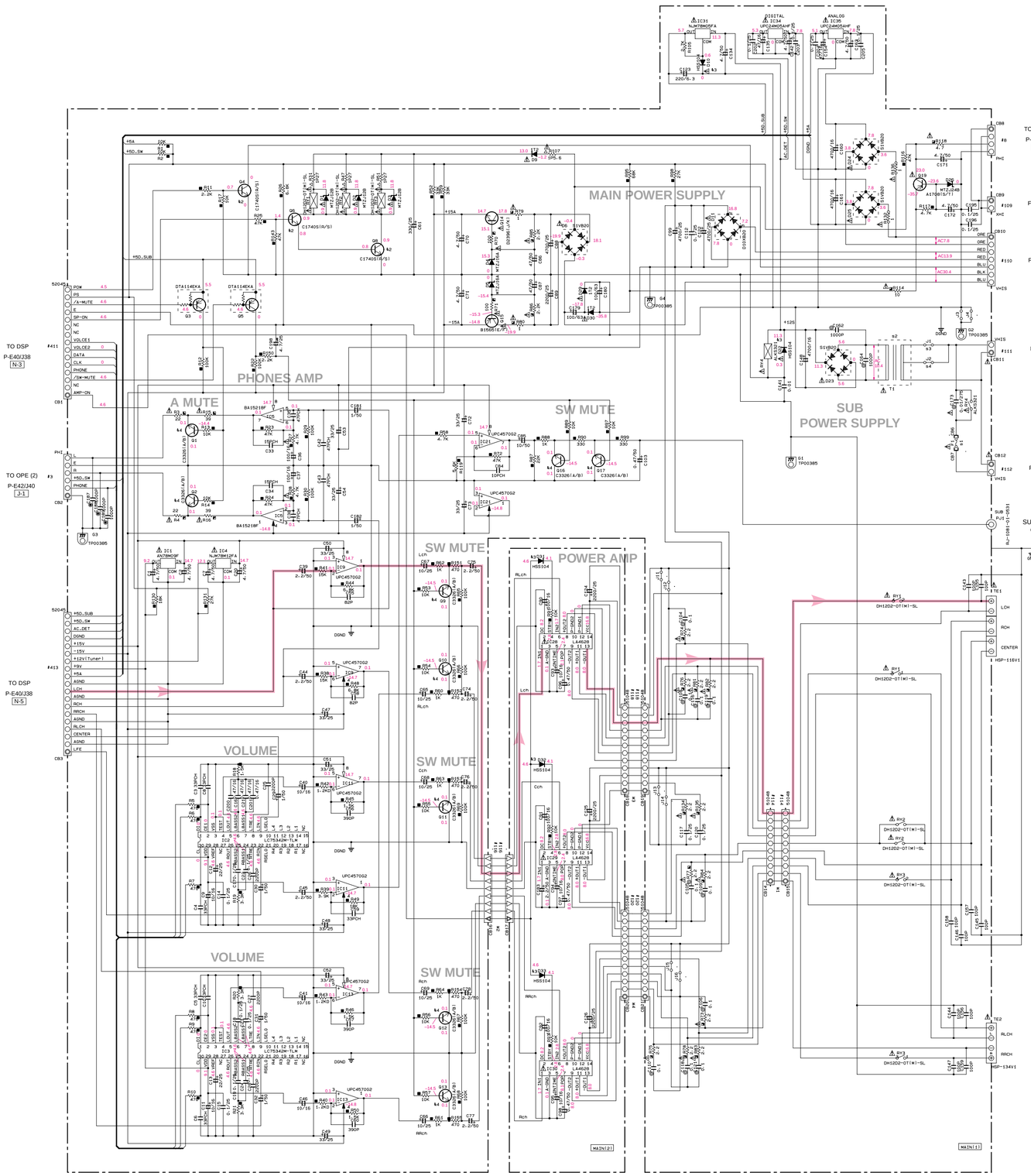
HD6417014F28

YSS928

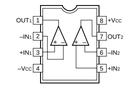
LC27287B-TF3

* All voltage are measured with a 10MΩ/V DC electric volt meter.
* Components having special characteristics are marked △ and must be replaced with parts having specifications equal to those originally installed.
* Schematic diagram is subject to change without notice.

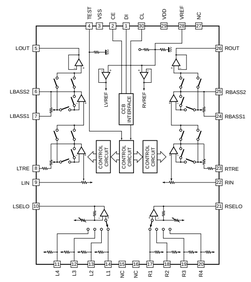
■ SCHEMATIC DIAGRAM (MAIN)



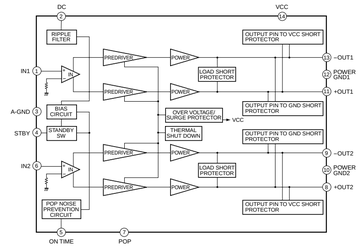
IC9, 11, 13, 21 : μPC4570G2
IC5 : BA15218FA
Dual OP Amp



IC2, 3 : LC75342M-TLM
Input Selector & Electric Controlled Volume



IC28–30 : LA4628
Power Amp



Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
k1		
k2	04-5-8	2SC1740S(R/S) 2SC2603(E/F) 2SC3311A(Q/R/S)
k3	010-22-31-33	HSS104 1SS133 1SS176
k4	01-2-9-13.16.17	2SC3326(A/B) 2SC3326(B)

RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
☑	CARBON FILM RESISTOR (P=10)
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
⊠	METAL PLATE RESISTOR
▤	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊘	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

CAPACITOR

REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	⊟
⊗	TANTALUM CAPACITOR	
NO MARK	CERAMIC CAPACITOR	⊟
◉	CERAMIC TUBULAR CAPACITOR	
◎	POLYESTER FILM CAPACITOR	
○	POLYSTYRENE FILM CAPACITOR	
ⓘ	MICA CAPACITOR	
ⓟ	POLYPROPYLENE FILM CAPACITOR	
●	SEMICONDUCTIVE CERAMIC CAPACITOR	

NOTICE (model)
(J)····· JAPANESE
(U)····· U.S.A
(C)····· CANADIAN
(R)····· GENERAL
(A)····· AUSTRALIAN
(B)····· BRITISH
(G)····· EUROPEAN
(T)····· CHINA
(L)····· SINGAPORE

CIRCUIT CHANGES BY MARKET.

※		J	U-C	A-B-G
1	F1	T2.0A125V VSB2250	T2.0A125V VSB2250	T800mAL250V KBO0261
2	T1	XZ404	XZ404	XZ405
3	J1		○	○
4	J2	○		

O : USED

1SS133
1T2
MTZJ12.0B
MTZJ16.0A
MTZJ24.0B

S1VB20

2SC3326 (A, B)
DTA114EKA

2SC1740S (R, S)

2SA1708 (S, T)

2SB1565 (E, F)
2SD2396 (J, K)

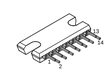
AN78N09F

NJM78M05FA
NJM78M12FA

μPC4570G2
BA15218F

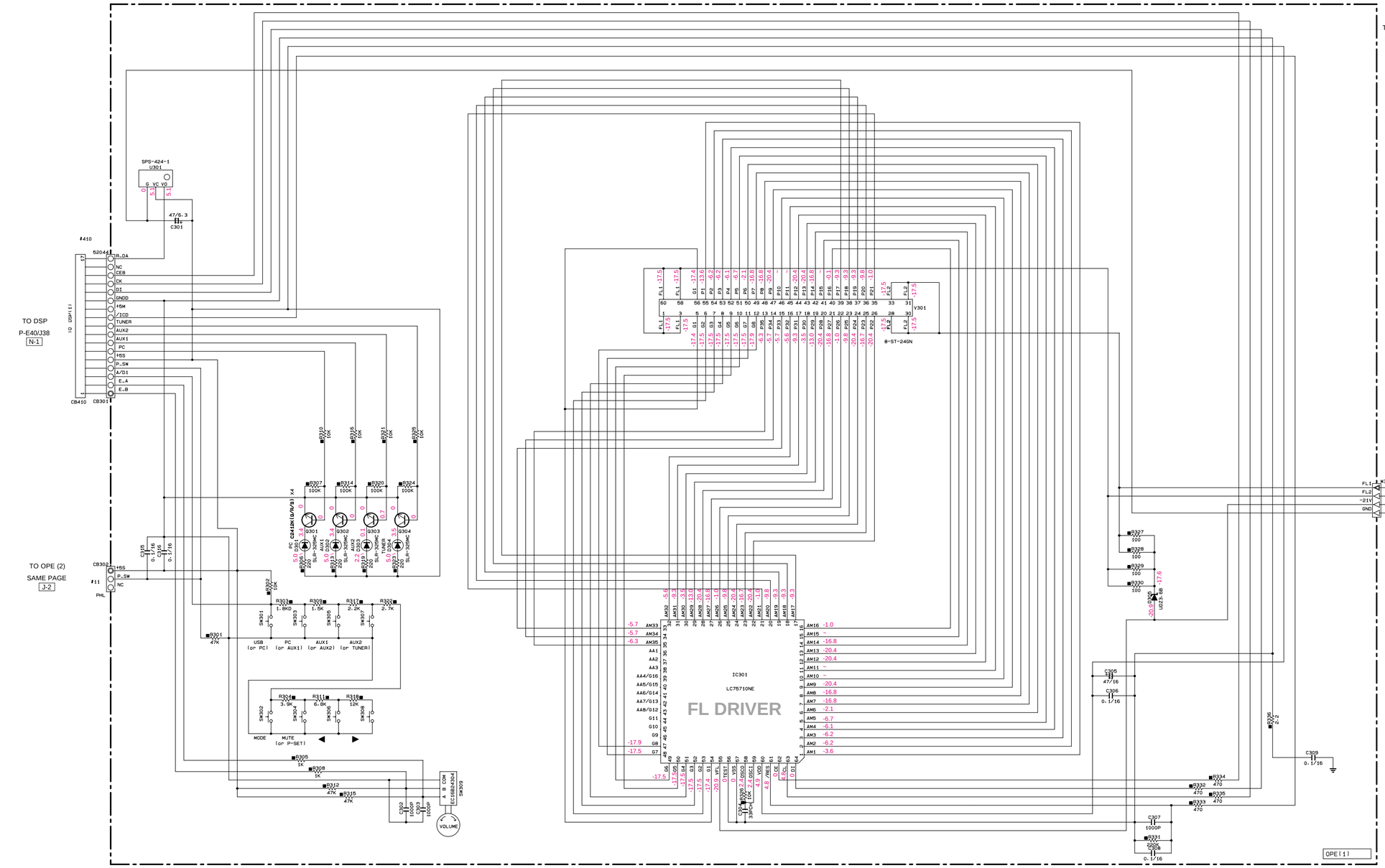
LC75342M-TLM

LA4628

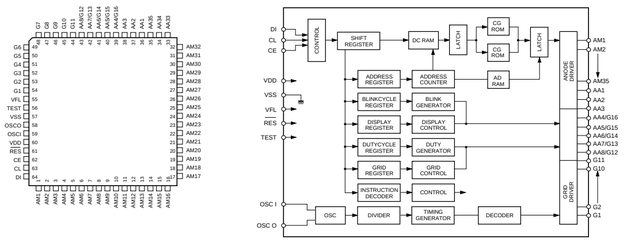


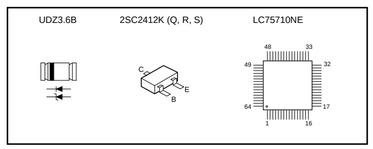
* All voltage are measured with a 10MΩ/V DC electric volt meter.
* Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
* Schematic diagram is subject to change without notice.

■ SCHEMATIC DIAGRAM (OPERATION)



IC301 : LC75710NE
FL Display Driver





RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
	CARBON FILM RESISTOR (P=10)
	METAL OXIDE FILM RESISTOR
	METAL FILM RESISTOR
	METAL PLATE RESISTOR
	FIRE PROOF CARBON FILM RESISTOR
	CEMENT MOLDED RESISTOR
	SEMI VARIABLE RESISTOR
	CHIP RESISTOR

CAPACITOR

REMARKS	PARTS NAME	
NO MARK	ELECTROLYTIC CAPACITOR	⫼
	TANTALUM CAPACITOR	
NO MARK	CERAMIC CAPACITOR	⫻
	CERAMIC TUBULAR CAPACITOR	
	POLYESTER FILM CAPACITOR	
	POLYSTYRENE FILM CAPACITOR	
	MICA CAPACITOR	
	POLYPROPYLENE FILM CAPACITOR	
	SEMICONDUCTIVE CERAMIC CAPACITOR	

* All voltage are measured with a 10MΩ/V DC electric volt meter.
* Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
* Schematic diagram is subject to change without notice.

■ BLOCK DIAGRAM

ADDRESS BUS
DATA BUS
USB DEVICE CONTROLLER IC430 USS-820DT
DUAL PORT SRAM
TXFIFO
RXFIFO
USB P/S CONV
USB S/P CONV
CPU IC436 HD6417014
4M FLASH ROM IC438
SRAM IC447
POWER DETECT/ RESET Q416, 419
XL402 12MHz
XL403 7MHz
XL404 11.2896MHz
XL401 24.576MHZ
4M DRAM IC432
REMOTE SENSOR U301
KEY SW301-308
POWER SW SW310
SW309 VOLUME
FL DRIVER IC301
FL V301
FUNCTION LED D301-304
MUTE CONTROL
SP RELAY
POWER RELAY
DIGITAL
USB
L401
COAX IN
PC
OPT IN
IC418A IC418B IC418C
SIGNAL DETECTOR IC418E
SEL
AUX 1 OPT IN
IC418D
DUTY CORRECT
OPT OUT
IC401
DIT
EMBEDDED ARRAY IC475 LC27287B
16IN 12OUT PATCH BAY
ANALOG
PC IN
AUX 1 IN
AUX 2 IN
INPUT SELECTOR IC474A LC75342M
A/D CONVERTER IC477 CSS360
IC445A IC445B
IC478A IC478B IC478C IC478D
PLL
CLOCK MUX
DFS CONTROL
CFS CONTROL 137, 138, 140
SFS CONTROL 91, 92, 94
SERIAL CONTROL
SERIAL I/F CCB
SERIAL I/F SZ
SERIAL I/F SX
IC480 TC4052BF
FM/AM TUNER
LOOP BACK
MAIN DSP
DOLBY DIGITAL DTS DECODER
DIR
I/O PORT
LED-PC, A1, A2, TU
SUB DSP
VIRTUAL 3D BASS RE-DIRECTION
AC3D3 IC417 YSS928
XFS CONTROL
+2.5V
+3.3V
+5M
+5A
+5S1
+3.3S
D-RST
DAC IC439 AD1854
DAC IC440 AD1854
DAC IC442 AD1854
DAC IC443 AD1854
SF MUTE
MIX MUTE
VOLUME IC474B LC75342M
VOLUME IC2 LC75342M
VOLUME IC3 LC75342M
A-MUTE
SW-MUTE
POWER AMP
IC28 LA4628
IC29 LA4628
IC30 LA4628
L ch
R ch
CENTER
R L ch
R R ch
SUB WOOFER
PHONES
REC OUT
L
R
+5V
-21V
+5A
+5D-SW (+5M)
+15A
+9V
+12V
–15A
Vcc
GND
+ 12S (AC-DET)
+5D-SUB
POW
T1
F1
RY4
D305
D23
IC35 IC34 IC1 IC4 IC31
D24 D25 D6 D11
Q14 Q15 Q4
RE BE BL BE RE
OR OR
YE YE
FL2 FL1

See page E-42/J-40 (OPE)

See page E-41/J-39 (MAIN)

See page E-40/J-38 (DSP)

PARTS LIST

■ ELECTRICAL PARTS

■ **WARNING**

Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.

- Carbon resistors (1/6W or 1/4W) are not included in the ELECTRICAL PARTS List. For the parts No. of the carbon resistors, refer to last page.
- Chip resistors are listed on page 52.

ABBREVIATIONS IN THIS LIST ARE AS FOLLOWS :

C.A.EL.CHP	:	CHIP ALUMI. ELECTROLYTIC CAP
C.CE	:	CERAMIC CAP
C.CE.ARRAY	:	CERAMIC CAP ARRAY
C.CE.CHP	:	CHIP CERAMIC CAP
C.CE.ML	:	MULTILAYER CERAMIC CAP
C.CE.M.CHP	:	CHIP MULTILAYER CERAMIC CAP
C.CE.SAFTY	:	RECOGNIZED CERAMIC CAP
C.CE.TUBLR	:	CERAMIC TUBULAR CAP
C.CE.SMI	:	SEMI CONDUCTIVE CERAMIC CAP
C.EL	:	ELECTROLYTIC CAP
C.MICA	:	MICA CAP
C.ML.FLM	:	MULTILAYER FILM CAP
C.MP	:	METALLIZED PAPER CAP
C.MYLAR	:	MYLAR FILM CAP
C.MYLAR.ML	:	MULTILAYER MYLAR FILM CAP
C.PAPER	:	PAPER CAPACITOR
C.PLS	:	POLYSTYRENE FILM CAP
C.POL	:	POLYESTER FILM CAP
C.POLY	:	POLYETHYLENE FILM CAP
C.PP	:	POLYPROPYLENE FILM CAP
C.TNTL	:	TANTALUM CAP
C.TNTL.CHP	:	CHIP TANTALUM CAP
C.TRIM	:	TRIMMER CAP
CN	:	CONNECTOR
CN.BS.PIN	:	CONNECTOR, BASE PIN
CN.CANNON	:	CONNECTOR, CANNON
CN.DIN	:	CONNECTOR, DIN
CN.FLAT	:	CONNECTOR, FLAT CABLE
CN.POST	:	CONNECTOR, BASE POST
COIL.MX.AM	:	COIL, AM MIX
COIL.AT.FM	:	COIL, FM ANTENNA
COIL.DT.FM	:	COIL, FM DETECT
COIL.MX.FM	:	COIL, FM MIX
COIL.OUTPT	:	OUTPUT COIL
DIOD.ARRAY	:	DIODE ARRAY
DIODE.BRG	:	DIODE BRIDGE
DIODE.CHP	:	CHIP DIODE
DIODE.VAR	:	VARACTOR DIODE
DIOD.Z.CHP	:	CHIP ZENER DIODE
DIODE.ZENR	:	ZENER DIODE
DSCR.CE	:	CERAMIC DISCRIMINATOR
FER.BEAD	:	FERRITE BEADS
FER.CORE	:	FERRITE CORE
FET.CHP	:	CHIP FET
FL.DSPLY	:	FLUORESCENT DISPLAY
FLTR.CE	:	CERAMIC FILTER
FLTR.COMB	:	COMB FILTER MODULE
FLTR.LC.RF	:	LC FILTER ,EMI
GND.MTL	:	GROUND PLATE
GND.TERM	:	GROUND TERMINAL
HOLDER.FUS	:	FUSE HOLDER
IC.PRTCT	:	IC PROTECTOR
JUMPER.CN	:	JUMPER CONNECTOR
JUMPER.TST	:	JUMPER, TEST POINT
L.DTCT	:	LIGHT DETECTING MODULE
L.EMIT	:	LIGHT EMITTING MODULE
LED.DSPLY	:	LED DISPLAY
LED.INFRD	:	LED, INFRARED
MODUL.RF	:	MODULATOR, RF
PHOT.CPL	:	PHOTO COUPLER
PHOT.INTR	:	PHOTO INTERRUPTER
PHOT.RFLCT	:	PHOTO REFLECTOR
PIN.TEST	:	PIN, TEST POINT
PLST.RIVET	:	PLASTIC RIVET
R.ARRAY	:	RESISTOR ARRAY
R.CAR	:	CARBON RESISTOR
R.CAR.CHP	:	CHIP RESISTOR
R.CAR.FP	:	FLAME PROOF CARBON RESISTOR
R.FUS	:	FUSABLE RESISTOR
R.MTL.CHP	:	CHIP METAL FILM RESISTOR
R.MTL.FLM	:	METAL FILM RESISTOR
R.MTL.OXD	:	METAL OXIDE FILM RESISTOR
R.MTL.PLAT	:	METAL PLATE RESISTOR
RSNR.CE	:	CERAMIC RESONATOR
RSNR.CRYS	:	CRYSTAL RESONATOR
R.TW.CEM	:	TWIN CEMENT FIXED RESISTOR
R.WW	:	WIRE WOUND RESISTOR
SCR.BND.HD	:	BIND HEAD B-TITE SCREW
SCR.BW.HD	:	BW HEAD TAPPING SCREW
SCR.CUP	:	CUP TITE SCREW
SCR.TERM	:	SCREW TERMINAL
SCR.TR	:	SCREW, TRANSISTOR
SUPRT.PCB	:	SUPPORT, P.C.B.
SURG.PRTCT	:	SURGE PROTECTOR
SW.TACT	:	TACT SWITCH
SW.LEAF	:	LEAF SWITCH
SW.LEVER	:	LEVER SWITCH
SW.MICRO	:	MICRO SWITCH
SW.PUSH	:	PUSH SWITCH
SW.RT.ENC	:	ROTARY ENCODER
SW.RT.MTR	:	ROTARY SWITCH WITH MOTOR
SW.RT	:	ROTARY SWITCH
SW.SLIDE	:	SLIDE SWITCH
TERM.SP	:	SPEAKER TERMINAL
TERM.WRAP	:	WRAPPING TERMINAL
THRMST.CHP	:	CHIP THERMISTOR
TR.CHP	:	CHIP TRANSISTOR
TR.DGT	:	DIGITAL TRANSISTOR
TR.DGT.CHP	:	CHIP DIGITAL TRANSISTOR
TRANS	:	TRANSFORMER
TRANS.PULS	:	PULSE TRANSFORMER
TRANS.PWR	:	POWER TRANSFORMER ASS'y
TUNER.AM	:	TUNER PACK, AM
TUNER.FM	:	TUNER PACK, FM
TUNER.PK	:	FRONT-END TUNER PACK
VR	:	ROTARY POTENTIOMETER
VR.MTR	:	POTENTIOMETER WITH MOTOR
VR.SW	:	POTENTIOMETER WITH ROTARY SW
VR.SLIDE	:	SLIDE POTENTIOMETER
VR.TRIM	:	TRIMMER POTENTIOMETER

Note) Those parts marked with "#" are not included in the P.C.B. ass'y.

P.C.B. DSP

	Schm Ref.	PART NO.	Description		Market
*		V6762700	P.C.B.	DSP	UC
*		V6762800	P.C.B.	DSP	A
*		V6762900	P.C.B.	DSP	BG
	CB409	VQ047100	CN.BS.PIN	7P	
	CB410	VF982300	CN.BS.PIN	17P	
	CB411	VM929900	CN.BS.PIN	15P	
	CB412	VM929900	CN.BS.PIN	15P	
	CB413	VQ044900	CN.BS.PIN	19P	
	C401	UR818100	C.EL	100uF 6.3V	
	C402	US035100	C.CE.M.CHP	0.1uF 16V	
	C403	US035100	C.CE.M.CHP	0.1uF 16V	
	C404	UR818100	C.EL	100uF 6.3V	
	C405	US061220	C.CE.M.CHP	22pF 50V	
	C406	US035100	C.CE.M.CHP	0.1uF 16V	
	C407	US035100	C.CE.M.CHP	0.1uF 16V	
	C408	UR818100	C.EL	100uF 6.3V	
	C409	UR818100	C.EL	100uF 6.3V	
	C410	UR818100	C.EL	100uF 6.3V	
	C411	US035100	C.CE.M.CHP	0.1uF 16V	
	C412	US035100	C.CE.M.CHP	0.1uF 16V	
	C413	US035100	C.CE.M.CHP	0.1uF 16V	
	C414	US035100	C.CE.M.CHP	0.1uF 16V	
	C415	UR847220	C.EL	22uF 25V	
	C416	US035100	C.CE.M.CHP	0.1uF 16V	
	C417	US035100	C.CE.M.CHP	0.1uF 16V	
	C418	US035100	C.CE.M.CHP	0.1uF 16V	
	C419	UR818100	C.EL	100uF 6.3V	
	C420	US035100	C.CE.M.CHP	0.1uF 16V	
	C421	US035100	C.CE.M.CHP	0.1uF 16V	
	C422	US061390	C.CE.M.CHP	39pF 50V	
	C423	US035100	C.CE.M.CHP	0.1uF 16V	
	C424	UR818100	C.EL	100uF 6.3V	
	C426	US061100	C.CE.M.CHP	10pF 50V	
	C427	UR818100	C.EL	100uF 6.3V	
	C428	US061390	C.CE.M.CHP	39pF 50V	
	C430	US062220	C.CE.CHP	220pF 50V	
	C431	US035100	C.CE.M.CHP	0.1uF 16V	
	C432	US064100	C.CE.M.CHP	0.01uF 50V	
	C433	US061330	C.CE.M.CHP	33pF 50V	
	C434	US061220	C.CE.M.CHP	22pF 50V	
	C435	US061220	C.CE.M.CHP	22pF 50V	
	C436	US063100	C.CE.M.CHP	1000pF 50V	
	C438	US063100	C.CE.M.CHP	1000pF 50V	
	C439	US035100	C.CE.M.CHP	0.1uF 16V	
	C441	US035100	C.CE.M.CHP	0.1uF 16V	
	C442	US061330	C.CE.M.CHP	33pF 50V	
	C443	US035100	C.CE.M.CHP	0.1uF 16V	
	C444	UR837100	C.EL	10uF 16V	
	C445	US035100	C.CE.M.CHP	0.1uF 16V	
	C446	US062470	C.CE.M.CHP	470pF 50V	
	C447	US063470	C.CE.CHP	4700pF 50V	
	C448	US035100	C.CE.M.CHP	0.1uF 16V	
	C450	US063470	C.CE.CHP	4700pF 50V	

* New Parts

Schm Ref.	PART NO.	Description		Market
C455	UR837100	C.EL	10uF 16V	
C456	US035100	C.CE.M.CHP	0.1uF 16V	
C462	US035100	C.CE.M.CHP	0.1uF 16V	
C463	UR837100	C.EL	10uF 16V	
C464	UR837100	C.EL	10uF 16V	
C468	UR818100	C.EL	100uF 6.3V	
C469	US035100	C.CE.M.CHP	0.1uF 16V	
C470	US035100	C.CE.M.CHP	0.1uF 16V	
C474	US035100	C.CE.M.CHP	0.1uF 16V	
C476	US062470	C.CE.M.CHP	470pF 50V	
C478	US061220	C.CE.M.CHP	22pF 50V	
C479	US061220	C.CE.M.CHP	22pF 50V	
C483	US035100	C.CE.M.CHP	0.1uF 16V	
C484	US035100	C.CE.M.CHP	0.1uF 16V	
C490	US035100	C.CE.M.CHP	0.1uF 16V	
C495	UR837100	C.EL	10uF 16V	
C496	US061390	C.CE.M.CHP	39pF 50V	
C497	US035100	C.CE.M.CHP	0.1uF 16V	
C500	UR837100	C.EL	10uF 16V	
C501	UR837100	C.EL	10uF 16V	
C502	US061390	C.CE.M.CHP	39pF 50V	
C503	UR837100	C.EL	10uF 16V	
C504	UR837100	C.EL	10uF 16V	
C505	US035100	C.CE.M.CHP	0.1uF 16V	
C506	US035100	C.CE.M.CHP	0.1uF 16V	
C509	US035100	C.CE.M.CHP	0.1uF 16V	
C510	US035100	C.CE.M.CHP	0.1uF 16V	
C513	UR837100	C.EL	10uF 16V	
C514	UR837100	C.EL	10uF 16V	
C515	US063220	C.CE.M.CHP	2200pF 50V	
C516	US063220	C.CE.M.CHP	2200pF 50V	
C517	UR837100	C.EL	10uF 16V	
C518	UR837100	C.EL	10uF 16V	
C519	US035100	C.CE.M.CHP	0.1uF 16V	
C520	UR837100	C.EL	10uF 16V	
C521	UU147100	C.EL	10uF 25V	
C522	UU147100	C.EL	10uF 25V	
C523	UU147100	C.EL	10uF 25V	
C524	UU147100	C.EL	10uF 25V	
C525	US035100	C.CE.M.CHP	0.1uF 16V	
C526	US035100	C.CE.M.CHP	0.1uF 16V	
C527	US035100	C.CE.M.CHP	0.1uF 16V	
C528	US035100	C.CE.M.CHP	0.1uF 16V	
C529	UU147100	C.EL	10uF 25V	
C530	UU147100	C.EL	10uF 25V	
C531	US062150	C.CE.CHP	150pF 50V	
C532	US062150	C.CE.CHP	150pF 50V	
C535	UR837100	C.EL	10uF 16V	
C536	US035100	C.CE.M.CHP	0.1uF 16V	
C537	US035100	C.CE.M.CHP	0.1uF 16V	
C538	US035100	C.CE.M.CHP	0.1uF 16V	
C539	US035100	C.CE.M.CHP	0.1uF 16V	
C540	UU147100	C.EL	10uF 25V	

* New Parts

P.C.B. DSP

Schm Ref.	PART NO.	Description			Market
C541	UU147100	C.EL	10uF	25V	
C542	US035100	C.CE.M.CHP	0.1uF	16V	
C543	US035100	C.CE.M.CHP	0.1uF	16V	
C544	US035100	C.CE.M.CHP	0.1uF	16V	
C545	US035100	C.CE.M.CHP	0.1uF	16V	
C546	US035100	C.CE.M.CHP	0.1uF	16V	
C547	UU137470	C.EL	47uF	16V	
C548	UU137470	C.EL	47uF	16V	
C549	UU137470	C.EL	47uF	16V	
C550	UU137470	C.EL	47uF	16V	
C551	UU137470	C.EL	47uF	16V	
C552	UU137470	C.EL	47uF	16V	
C553	UU137470	C.EL	47uF	16V	
C554	UU137470	C.EL	47uF	16V	
C555	UU137470	C.EL	47uF	16V	
C556	UU137470	C.EL	47uF	16V	
C557	UU137470	C.EL	47uF	16V	
C558	UU137470	C.EL	47uF	16V	
C559	UU137470	C.EL	47uF	16V	
C560	UU137470	C.EL	47uF	16V	
C561	UU137470	C.EL	47uF	16V	
C562	UU137470	C.EL	47uF	16V	
C563	US062100	C.CE.M.CHP	100pF	50V	
C564	US062100	C.CE.M.CHP	100pF	50V	
C565	US062470	C.CE.M.CHP	470pF	50V	
C566	US062470	C.CE.M.CHP	470pF	50V	
C567	US062470	C.CE.M.CHP	470pF	50V	
C568	US062470	C.CE.M.CHP	470pF	50V	
C569	US062470	C.CE.M.CHP	470pF	50V	
C570	US062470	C.CE.M.CHP	470pF	50V	
C571	US062470	C.CE.M.CHP	470pF	50V	
C572	US062470	C.CE.M.CHP	470pF	50V	
C573	US062180	C.CE.CHP	180P	50V	
C574	US062180	C.CE.CHP	180P	50V	
C575	UU147220	C.EL	22uF	25V	
C576	UU147220	C.EL	22uF	25V	
C577	US062180	C.CE.CHP	180P	50V	
C578	US062180	C.CE.CHP	180P	50V	
C579	US062180	C.CE.CHP	180P	50V	
C580	US062180	C.CE.CHP	180P	50V	
C581	US062180	C.CE.CHP	180P	50V	
C582	US062180	C.CE.CHP	180P	50V	
C584	UU137470	C.EL	47uF	16V	
C585	US035100	C.CE.M.CHP	0.1uF	16V	
C586	US035100	C.CE.M.CHP	0.1uF	16V	
C587	UU137470	C.EL	47uF	16V	
C589	US062180	C.CE.CHP	180P	50V	
C590	US062180	C.CE.CHP	180P	50V	
C591	US062180	C.CE.CHP	180P	50V	
C592	US062180	C.CE.CHP	180P	50V	
C593	US062180	C.CE.CHP	180P	50V	
C594	US062180	C.CE.CHP	180P	50V	
C595	US062180	C.CE.CHP	180P	50V	

＊New Parts

Schm Ref.	PART NO.	Description			Market
C596	US062180	C.CE.CHP	180P	50V	
C597	UU167220	C.EL	22uF	50V	
C598	UU167220	C.EL	22uF	50V	
C599	UU167220	C.EL	22uF	50V	
C600	UU167220	C.EL	22uF	50V	
C601	UU167220	C.EL	22uF	50V	
C602	UU167220	C.EL	22uF	50V	
C603	UU167220	C.EL	22uF	50V	
C604	UU167220	C.EL	22uF	50V	
C605	UU147100	C.EL	10uF	25V	
C606	UU147100	C.EL	10uF	25V	
C607	US061330	C.CE.M.CHP	33pF	50V	
C608	US061330	C.CE.M.CHP	33pF	50V	
C609	US062100	C.CE.M.CHP	100pF	50V	
C610	US062100	C.CE.M.CHP	100pF	50V	
C611	US061330	C.CE.M.CHP	33pF	50V	
C612	UU137100	C.EL	10uF	16V	
C613	UU147100	C.EL	10uF	25V	
C614	UU147100	C.EL	10uF	25V	
C615	UU147100	C.EL	10uF	25V	
C616	UU147100	C.EL	10uF	25V	
C617	UU167220	C.EL	22uF	50V	
C618	US035100	C.CE.M.CHP	0.1uF	16V	
C619	UR837100	C.EL	10uF	16V	
C620	UU147100	C.EL	10uF	25V	
C621	UU147100	C.EL	10uF	25V	
＊ C622	VZ281900	C.CE.CHP	0.47uF	16V	
＊ C623	VZ281900	C.CE.CHP	0.47uF	16V	
＊ C624	VZ281900	C.CE.CHP	0.47uF	16V	
＊ C625	VZ281900	C.CE.CHP	0.47uF	16V	
C626	US063330	C.CE.M.CHP	3300pF	50V	
C627	US063330	C.CE.M.CHP	3300pF	50V	
C628	UR818100	C.EL	100uF	6.3V	
C629	UU166100	C.EL	1uF	50V	
C630	UU166100	C.EL	1uF	50V	
C631	UR865330	C.EL	0.33uF	50V	
C632	VU545000	C.EL	47000uF	5.5V	
C633	US035100	C.CE.M.CHP	0.1uF	16V	
C635	US035100	C.CE.M.CHP	0.1uF	16V	
C636	US035100	C.CE.M.CHP	0.1uF	16V	
C637	US062220	C.CE.CHP	220pF	50V	
C638	US062220	C.CE.CHP	220pF	50V	
C639	US062100	C.CE.M.CHP	100pF	50V	
C640	US062100	C.CE.M.CHP	100pF	50V	
C641	US062100	C.CE.M.CHP	100pF	50V	
C642	UU147100	C.EL	10uF	25V	
C643	UU147100	C.EL	10uF	25V	
C644	US062100	C.CE.M.CHP	100pF	50V	
C645	US062100	C.CE.M.CHP	100pF	50V	
C646	US062220	C.CE.CHP	220pF	50V	
C647	US062220	C.CE.CHP	220pF	50V	
C648	US062220	C.CE.CHP	220pF	50V	
C649	US062220	C.CE.CHP	220pF	50V	

＊New Parts

P.C.B. DSP

Schm Ref.	PART NO.	Description			Market
C650	US062220	C.CE.CHP	220pF	50V	
C651	US062220	C.CE.CHP	220pF	50V	
C652	US062100	C.CE.M.CHP	100pF	50V	
C653	US062100	C.CE.M.CHP	100pF	50V	
C654	US035100	C.CE.M.CHP	0.1uF	16V	
C655	UU137470	C.EL	47uF	16V	
C656	US035100	C.CE.M.CHP	0.1uF	16V	
C657	UU137470	C.EL	47uF	16V	
C658	US062100	C.CE.M.CHP	100pF	50V	
C659	US062100	C.CE.M.CHP	100pF	50V	
C660	US062100	C.CE.M.CHP	100pF	50V	
C661	US062100	C.CE.M.CHP	100pF	50V	
C662	US035100	C.CE.M.CHP	0.1uF	16V	
C663	US062100	C.CE.M.CHP	100pF	50V	
C664	US062100	C.CE.M.CHP	100pF	50V	
C665	US064100	C.CE.M.CHP	0.01uF	50V	
C666	US062100	C.CE.M.CHP	100pF	50V	
C667	US062100	C.CE.M.CHP	100pF	50V	
C668	US064100	C.CE.M.CHP	0.01uF	50V	
C669	US062100	C.CE.M.CHP	100pF	50V	
C670	US062100	C.CE.M.CHP	100pF	50V	
C671	US064100	C.CE.M.CHP	0.01uF	50V	
C672	US062100	C.CE.M.CHP	100pF	50V	
C673	US062100	C.CE.M.CHP	100pF	50V	
C674	US062100	C.CE.M.CHP	100pF	50V	
C676	US062220	C.CE.CHP	220pF	50V	
C677	US062220	C.CE.CHP	220pF	50V	
C678	US062100	C.CE.M.CHP	100pF	50V	
C681	US062100	C.CE.M.CHP	100pF	50V	
C683	UU147100	C.EL	10uF	25V	
C684	UU147100	C.EL	10uF	25V	
C685	UU147100	C.EL	10uF	25V	
C686	UU147100	C.EL	10uF	25V	
C687	UU147100	C.EL	10uF	25V	
C688	UU147100	C.EL	10uF	25V	
C689	UU147100	C.EL	10uF	25V	
C690	UU147100	C.EL	10uF	25V	
C691	UU147100	C.EL	10uF	25V	
C692	UU147100	C.EL	10uF	25V	
C693	US035100	C.CE.M.CHP	0.1uF	16V	
C700	US035100	C.CE.M.CHP	0.1uF	16V	
C701	US035100	C.CE.M.CHP	0.1uF	16V	
C702	US035100	C.CE.M.CHP	0.1uF	16V	
C703	US035100	C.CE.M.CHP	0.1uF	16V	
C704	US035100	C.CE.M.CHP	0.1uF	16V	
C705	US035100	C.CE.M.CHP	0.1uF	16V	
C706	US035100	C.CE.M.CHP	0.1uF	16V	
C707	US035100	C.CE.M.CHP	0.1uF	16V	
C708	US035100	C.CE.M.CHP	0.1uF	16V	
C709	VR169200	C.MYLAR.ML	ECQ-V1H474JL3		
C710	US035100	C.CE.M.CHP	0.1uF	16V	
C711	US035100	C.CE.M.CHP	0.1uF	16V	
C712	US062100	C.CE.M.CHP	100pF	50V	

* New Parts

Schm Ref.	PART NO.	Description			Market
C713	US062100	C.CE.M.CHP	100pF	50V	
C714	US035100	C.CE.M.CHP	0.1uF	16V	
C715	UR837100	C.EL	10uF	16V	
C716	US035100	C.CE.M.CHP	0.1uF	16V	
C717	UR866100	C.EL	1uF	50V	
C718	UU147100	C.EL	10uF	25V	
C719	UU147100	C.EL	10uF	25V	
C720	UU147100	C.EL	10uF	25V	
C721	UU147100	C.EL	10uF	25V	
C722	UR837100	C.EL	10uF	16V	
C723	US035100	C.CE.M.CHP	0.1uF	16V	
C724	UR837470	C.EL	47uF	16V	
C725	US035100	C.CE.M.CHP	0.1uF	16V	
C726	UR837100	C.EL	10uF	16V	
C727	US035100	C.CE.M.CHP	0.1uF	16V	
C728	UR837100	C.EL	10uF	16V	
C729	US035100	C.CE.M.CHP	0.1uF	16V	
C730	US062150	C.CE.CHP	150pF	50V	
C731	US062150	C.CE.CHP	150pF	50V	
C732	US035100	C.CE.M.CHP	0.1uF	16V	
C734	US035100	C.CE.M.CHP	0.1uF	16V	
C735	US035100	C.CE.M.CHP	0.1uF	16V	
C736	US035100	C.CE.M.CHP	0.1uF	16V	
C737	US035100	C.CE.M.CHP	0.1uF	16V	
C738	US035100	C.CE.M.CHP	0.1uF	16V	
C739	US035100	C.CE.M.CHP	0.1uF	16V	
C740	US035100	C.CE.M.CHP	0.1uF	16V	
C741	US035100	C.CE.M.CHP	0.1uF	16V	
C742	US035100	C.CE.M.CHP	0.1uF	16V	
C743	US062100	C.CE.M.CHP	100pF	50V	
C744	UR828100	C.EL	100uF	10V	
C745	US035100	C.CE.M.CHP	0.1uF	16V	
C746	US035100	C.CE.M.CHP	0.1uF	16V	
C747	US035100	C.CE.M.CHP	0.1uF	16V	
C748	US035100	C.CE.M.CHP	0.1uF	16V	
C749	US035100	C.CE.M.CHP	0.1uF	16V	
C750	US062100	C.CE.M.CHP	100pF	50V	
C751	US062100	C.CE.M.CHP	100pF	50V	
C752	US062100	C.CE.M.CHP	100pF	50V	
C754	US062100	C.CE.M.CHP	100pF	50V	
C755	US062100	C.CE.M.CHP	100pF	50V	
C756	US062100	C.CE.M.CHP	100pF	50V	
C758	US035100	C.CE.M.CHP	0.1uF	16V	
C760	US035100	C.CE.M.CHP	0.1uF	16V	
C763	US061220	C.CE.M.CHP	22pF	50V	
C764	US061220	C.CE.M.CHP	22pF	50V	
C770	US035100	C.CE.M.CHP	0.1uF	16V	
C771	US035100	C.CE.M.CHP	0.1uF	16V	
C772	US035100	C.CE.M.CHP	0.1uF	16V	
C773	US035100	C.CE.M.CHP	0.1uF	16V	
C777	US062100	C.CE.M.CHP	100pF	50V	
* C778	VZ281900	C.CE.CHP	0.47uF	16V	
* C779	VZ281900	C.CE.CHP	0.47uF	16V	

* New Parts

P.C.B. DSP

	Schm Ref.	PART NO.	Description		Market
*	C780	VZ281900	C.CE.CHP	0.47uF 16V	
*	C781	VZ281900	C.CE.CHP	0.47uF 16V	
	D401	VT332900	DIODE	1SS355	
	D402	VT332900	DIODE	1SS355	
	D403	VT332900	DIODE	1SS355	
	D404	VT332900	DIODE	1SS355	
	D405	VT332900	DIODE	1SS355	
	D406	VT332900	DIODE	1SS355	
	D407	VT332900	DIODE	1SS355	
	D408	VT332900	DIODE	1SS355	
	D411	VT332900	DIODE	1SS355	
	D412	VT332900	DIODE	1SS355	
	D413	VT332900	DIODE	1SS355	
	D414	VT332900	DIODE	1SS355	
	D415	VT332900	DIODE	1SS355	
	D416	VT332900	DIODE	1SS355	
	D417	VT332900	DIODE	1SS355	
	D418	VT332900	DIODE	1SS355	
	D419	VT332900	DIODE	1SS355	
	D420	VT332900	DIODE	1SS355	
	D421	VT332900	DIODE	1SS355	
	D422	VT332900	DIODE	1SS355	
	D423	VT332900	DIODE	1SS355	
	D424	VT332900	DIODE	1SS355	
	D425	VT332900	DIODE	1SS355	
	D426	VT332900	DIODE	1SS355	
	D427	VT332900	DIODE	1SS355	
	D428	VT332900	DIODE	1SS355	
	D429	VU172200	DIODE.ZENR	UDZ6.8B 6.8V	
	D430	VT332900	DIODE	1SS355	
	D431	VT532500	DIODE	1SR154-400	
	D432	VT332900	DIODE	1SS355	
	D433	VT532500	DIODE	1SR154-400	
	D434	VT332900	DIODE	1SS355	
	D435	VU171800	DIODE.ZENR	UDZ4.7B 4.7V	
	D436	VU171800	DIODE.ZENR	UDZ4.7B 4.7V	
	D437	VT332900	DIODE	1SS355	
	D440	VT332900	DIODE	1SS355	
	D441	VT332900	DIODE	1SS355	
	D442	VT332900	DIODE	1SS355	
	D443	VT332900	DIODE	1SS355	
	D444	VT332900	DIODE	1SS355	
	D445	VT332900	DIODE	1SS355	
	D446	VT332900	DIODE	1SS355	
	D447	VT332900	DIODE	1SS355	
	D501	VT332900	DIODE	1SS355	
	IC401	XD655A00	IC	TC74HC00AF NAND	
	IC406	XZ003A00	IC	PQ025EZ5MZP 2.5V	
	IC412	XY494A00	IC	L88M33T-FA 3.3V	
	IC413	XY494A00	IC	L88M33T-FA 3.3V	
	IC416	XR038A00	IC	NJM2904M OP AMP	
	IC417	XY580A00	IC	YSS928	
	IC418	XD660A00	IC	TC74HCU04AF-TP1	

*New Parts

	Schm Ref.	PART NO.	Description		Market
	IC430	XY524B00	IC.CPU	USS-820DT-DB CPU	
*	IC432	XV077B00	IC	MSM514260E-60JS	
	IC436	XU147A00	IC	HD6417014F28 CPU	
	IC438	XZ457B00	IC	MBM29F400BC-55	
	IC439	XY782A00	IC	AD1854JRSRL	
	IC440	XY782A00	IC	AD1854JRSRL	
	IC442	XY782A00	IC	AD1854JRSRL	
	IC443	XY782A00	IC	AD1854JRSRL	
	IC445	XF291A00	IC	uPC4570G2	
	IC447	XV976A00	IC	M5M51008CFP-70H SR	
	IC454	XF291A00	IC	uPC4570G2	
	IC458	XF291A00	IC	uPC4570G2	
	IC462	XF291A00	IC	uPC4570G2	
	IC464	XF291A00	IC	uPC4570G2	
	IC470	XF291A00	IC	uPC4570G2	
	IC471	XF291A00	IC	uPC4570G2	
	IC473	XF291A00	IC	uPC4570G2	
	IC474	XY935A00	IC	LC75342M-TLM	
	IC475	XZ143A00	IC.CPU	LC27287B-TF3 CPU	
	IC477	XY172A00	IC	CS5360-KSR	
	IC478	XE518A00	IC	uPC4574G2	
	IC479	Xi297A00	IC	TC74HCT04AF-T1	
	IC480	XG903A00	IC	TC4052BF MPX	
	JK401	V3671200	JACK.USB	4P	
	JK402	V6385400	JACK.PIN	4P	
	JK403	V6385400	JACK.PIN	4P	
	L401	V3939900		ZJYS51R5-M4PAT	
	L402	GE901970	COIL	68uH	
	L403	GE901970	COIL	68uH	
	L404	VD473700	COIL	60uH	
	PJ401	V6385600	JACK.PIN	1P	
	Q401	VU019600	FET	2SK1725	
	Q402	VV655300	TR.DGT	DTA144EKA	
	Q403	VV655300	TR.DGT	DTA144EKA	
	Q404	VV655300	TR.DGT	DTA144EKA	
	Q405	VV655300	TR.DGT	DTA144EKA	
	Q406	VV655300	TR.DGT	DTA144EKA	
	Q407	VV655300	TR.DGT	DTA144EKA	
	Q408	VV655300	TR.DGT	DTA144EKA	
	Q409	VV655300	TR.DGT	DTA144EKA	
	Q410	VD303700	TR	2SC3326 A,B	
	Q411	VD303700	TR	2SC3326 A,B	
	Q412	VD303700	TR	2SC3326 A,B	
	Q413	VD303700	TR	2SC3326 A,B	
	Q414	VD303700	TR	2SC3326 A,B	
	Q415	VD303700	TR	2SC3326 A,B	
	Q416	VV556500	TR	2SA1037K Q,R,S	
	Q417	VD303700	TR	2SC3326 A,B	
	Q418	VD303700	TR	2SC3326 A,B	
	Q419	VV556400	TR	2SC2412K Q,R,S	
	Q420	VD303700	TR	2SC3326 A,B	
	Q421	VD303700	TR	2SC3326 A,B	
	Q422	VV655400	TR.DGT	DTC114EKA	

*New Parts

P.C.B. DSP, OPERATION & MAIN

Schm Ref.	PART NO.	Description			Market
Q423	VD303700	TR	2SC3326 A,B		
Q424	VD303700	TR	2SC3326 A,B		
Q425	VV655300	TR.DGT	DTA144EKA		
Q427	VD303700	TR	2SC3326 A,B		
Q428	VD303700	TR	2SC3326 A,B		
R401	HV753100	R.CAR.FP	1Ω	1/4W	
R403	HV753100	R.CAR.FP	1Ω	1/4W	
R407	HV753100	R.CAR.FP	1Ω	1/4W	
R412	HV753100	R.CAR.FP	1Ω	1/4W	
R414	HV753100	R.CAR.FP	1Ω	1/4W	
R429	HV753100	R.CAR.FP	1Ω	1/4W	
R444	HV753100	R.CAR.FP	1Ω	1/4W	
R460	HV753100	R.CAR.FP	1Ω	1/4W	
R594	HV753100	R.CAR.FP	1Ω	1/4W	
R612	HV753100	R.CAR.FP	1Ω	1/4W	
R613	HV753100	R.CAR.FP	1Ω	1/4W	
R641	HV753470	R.CAR.FP	4.7Ω	1/4W	
R701	HV753100	R.CAR.FP	1Ω	1/4W	
R739	HV753100	R.CAR.FP	1Ω	1/4W	
R741	HV753100	R.CAR.FP	1Ω	1/4W	
R742	HV753100	R.CAR.FP	1Ω	1/4W	
R744	HV753100	R.CAR.FP	1Ω	1/4W	
R746	HV753100	R.CAR.FP	1Ω	1/4W	
ST401	V4040500	SCR.TERM	M3		
ST402	V4040500	SCR.TERM	M3		
ST403	V4040500	SCR.TERM	M3		
U401	V5478200	CN.PHOT.SN	1P GP1FA551RZ		
U402	V5478200	CN.PHOT.SN	1P GP1FA551RZ		
U403	V6022800	CN.FBRLINK	1P GP1FA551TZ		
XL401	V3625700	RSNR.CRYS	24.576MHz		
XL402	VE463500	RSNR.CRYS	12.0MHz AT-49		
XL403	VV762900	RSNR.CRYS	7MHz SMD-49		
XL404	VY712700	RSNR.CRYS	11.2896MHz SMD-49		
	V6440800	P.C.B.	OPERATION		
CB301	VF982300	CN.BS.PIN	17P		
CB302	VB858200	CN.BS.PIN	3P		
C301	VR804100	C.EL.AL	47uF	6.3V	
C302	US063100	C.CE.M.CHP	1000pF	50V	
C303	US063100	C.CE.M.CHP	1000pF	50V	
C304	US061330	C.CE.M.CHP	33pF	50V	
C305	UM397470	C.EL	47uF	16V	
C306	US035100	C.CE.M.CHP	0.1uF	16V	
C307	US063100	C.CE.M.CHP	1000pF	50V	
C308	US035100	C.CE.M.CHP	0.1uF	16V	
C309	US035100	C.CE.M.CHP	0.1uF	16V	
C310	US035100	C.CE.M.CHP	0.1uF	16V	
C311	US034470	C.CE.M.CHP	0.047uF	16V	
C312	US035100	C.CE.M.CHP	0.1uF	16V	
C313	US034470	C.CE.M.CHP	0.047uF	16V	
C314	US035100	C.CE.M.CHP	0.1uF	16V	

＊New Parts

Schm Ref.	PART NO.	Description			Market
C315	US035100	C.CE.M.CHP	0.1uF	16V	
C316	US035100	C.CE.M.CHP	0.1uF	16V	
D301	VR711400	LED(gr)	SLR-325MC		
D302	VR711400	LED(gr)	SLR-325MC		
D303	VR711400	LED(gr)	SLR-325MC		
D304	VR711400	LED(gr)	SLR-325MC		
D305	VU171500	DIODE.ZENR	UDZ 3.6BTE-17 3.6V		
IC301	XR188A00	IC	LC75710NE FLD		
JK301	VY810500	JACK.MNI	HTJ-035-18ABG		
PN301	V3750100	PIN	L=50		
Q301	VV556400	TR	2SC2412K Q,R,S		
Q302	VV556400	TR	2SC2412K Q,R,S		
Q303	VV556400	TR	2SC2412K Q,R,S		
Q304	VV556400	TR	2SC2412K Q,R,S		
SW301	VG392900	SW.TACT	SKHVAA		
SW302	VG392900	SW.TACT	SKHVAA		
SW303	VG392900	SW.TACT	SKHVAA		
SW304	VG392900	SW.TACT	SKHVAA		
SW305	VG392900	SW.TACT	SKHVAA		
SW306	VG392900	SW.TACT	SKHVAA		
SW307	VG392900	SW.TACT	SKHVAA		
SW308	VG392900	SW.TACT	SKHVAA		
SW309	VT941400	SW.RT.ENC	EC16B24304		
SW310	VG392900	SW.TACT	SKHVAA		
U301	VR023400	L.DTCT	SPS-424-1		
V301	V6445100	FL.DSPLY	8-ST-24GN		
	V3534200	SPACER.FL			
	V6955200	SHEET.PRT	W=35		
＊	V6763100	P.C.B.	MAIN		UC
＊	V6763200	P.C.B.	MAIN		ABG
CB1	VM859600	CN.BS.PIN	15P		
CB2	VB390200	CN.BS.PIN	6P		
CB3	VQ047400	CN.BS.PIN	19P		
CB6	VP206500	HOLDER.FUS	EYF-52BCT		
CB7	VP206500	HOLDER.FUS	EYF-52BCT		
CB8	VB390000	CN.BS.PIN	4P		
＊ CB9	LB918020	CN.BS.PIN	2P		
CB10	LB932070	CN.BS.PIN	7P		
⚠ CB11	VG879900	CN.BS.PIN	2P		
⚠ CB12	VG879900	CN.BS.PIN	2P		
CB14	Vi878800	CN.BS.PIN	10P		
CB15	Vi878800	CN.BS.PIN	10P		
CB18	Vi879000	CN.BS.PIN	12P		
CB19	Vi879000	CN.BS.PIN	12P		
CB20	Vi879000	CN.BS.PIN	12P		
CB21	Vi879000	CN.BS.PIN	12P		
C1	UR866470	C.EL	4.7uF	50V	
C2	UR866470	C.EL	4.7uF	50V	
C3	US061330	C.CE.M.CHP	33pF	50V	
C4	US061330	C.CE.M.CHP	33pF	50V	

＊New Parts

P.C.B. MAIN

	Schm Ref.	PART NO.	Description			Market
	C5	US061330	C.CE.M.CHP	33pF	50V	
	C6	US061330	C.CE.M.CHP	33pF	50V	
	C7	UR866470	C.EL	4.7uF	50V	
	C8	US061330	C.CE.M.CHP	33pF	50V	
	C9	UM397100	C.EL	10uF	16V	
	C10	US061330	C.CE.M.CHP	33pF	50V	
	C11	UM397100	C.EL	10uF	16V	
	C12	UM407220	C.EL	22uF	25V	
	C13	UM407220	C.EL	22uF	25V	
	C14	UB245100	C.CE.M.CHP	0.1uF	25V	
	C15	UB245100	C.CE.M.CHP	0.1uF	25V	
*	C16	VZ281900	C.CE.CHP	0.47uF	16V	
	C17	UB245100	C.CE.M.CHP	0.1uF	25V	
	C18	UB245100	C.CE.M.CHP	0.1uF	25V	
	C19	UB245100	C.CE.M.CHP	0.1uF	25V	
	C20	UR866470	C.EL	4.7uF	50V	
*	C21	VZ281900	C.CE.CHP	0.47uF	16V	
	C22	UB245100	C.CE.M.CHP	0.1uF	25V	
	C23	UB245100	C.CE.M.CHP	0.1uF	25V	
	C24	UB245100	C.CE.M.CHP	0.1uF	25V	
	C25	US063220	C.CE.M.CHP	2200pF	50V	
	C26	US063220	C.CE.M.CHP	2200pF	50V	
	C27	US063220	C.CE.M.CHP	2200pF	50V	
	C28	US063220	C.CE.M.CHP	2200pF	50V	
	C29	UM416100	C.EL	1uF	50V	
	C30	UM416100	C.EL	1uF	50V	
	C31	UM416100	C.EL	1uF	50V	
	C32	UM416100	C.EL	1uF	50V	
	C33	US061150	C.CE.CHP	15pF	50V	
	C34	US061150	C.CE.CHP	15pF	50V	
	C35	US061470	C.CE.M.CHP	47pF	50V	
*	C36	Vi842600	C.EL	100uF	16V	
*	C37	Vi842600	C.EL	100uF	16V	
	C38	US061470	C.CE.M.CHP	47pF	50V	
*	C39	Vi845000	C.EL	2.2uF	50V	
	C40	UM397100	C.EL	10uF	16V	
	C41	UM397100	C.EL	10uF	16V	
	C42	US061470	C.CE.M.CHP	47pF	50V	
	C43	US061470	C.CE.M.CHP	47pF	50V	
*	C44	Vi845000	C.EL	2.2uF	50V	
	C45	UM416220	C.EL	2.2uF	50V	
	C46	UM397100	C.EL	10uF	16V	
*	C47	Vi843300	C.EL	33uF	25V	
	C48	UM407330	C.EL	33uF	25V	
	C49	UM407330	C.EL	33uF	25V	
*	C50	Vi843300	C.EL	33uF	25V	
	C51	UM407330	C.EL	33uF	25V	
	C52	UM407330	C.EL	33uF	25V	
*	C53	Vi843300	C.EL	33uF	25V	
*	C54	Vi843300	C.EL	33uF	25V	
*	C55	US061820	C.CE.CHP	82pF	50V	
	C56	US062390	C.CE.CHP	390P	50V	
	C57	US062390	C.CE.CHP	390P	50V	

*New Parts

	Schm Ref.	PART NO.	Description			Market
*	C58	US061820	C.CE.CHP	82pF	50V	
	C59	US061330	C.CE.M.CHP	33pF	50V	
	C60	US062390	C.CE.CHP	390P	50V	
	C61	UR848330	C.EL	330uF	25V	
*	C65	Vi843100	C.EL	10uF	63V	
*	C66	Vi843100	C.EL	10uF	63V	
*	C67	Vi843100	C.EL	10uF	63V	
*	C68	Vi843100	C.EL	10uF	63V	
*	C69	Vi843100	C.EL	10uF	63V	
	C70	UR866470	C.EL	4.7uF	50V	
	C71	UR866470	C.EL	4.7uF	50V	
*	C72	Vi843300	C.EL	33uF	25V	
*	C73	Vi843300	C.EL	33uF	25V	
*	C74	Vi845000	C.EL	2.2uF	50V	
*	C75	Vi845000	C.EL	2.2uF	50V	
*	C76	Vi845000	C.EL	2.2uF	50V	
*	C77	Vi845000	C.EL	2.2uF	50V	
*	C78	Vi845000	C.EL	2.2uF	50V	
	C84	US061100	C.CE.M.CHP	10pF	50V	
*	C85	Vi845300	C.EL	10uF	63V	
	C86	UR867470	C.EL	47uF	50V	
	C87	UR867470	C.EL	47uF	50V	
	C88	V6452400	C.EL	4700uF	25V	
	C89	UR749220	C.EL	2200uF	25V	
	C90	UR838100	C.EL	100uF	16V	
	C91	UR838100	C.EL	100uF	16V	
	C92	UR838100	C.EL	100uF	16V	
	C93	UR837100	C.EL	10uF	16V	
	C94	UR837100	C.EL	10uF	16V	
	C95	UR837100	C.EL	10uF	16V	
	C96	UR865470	C.EL	0.47uF	50V	
	C97	UR865470	C.EL	0.47uF	50V	
	C98	UR865470	C.EL	0.47uF	50V	
	C99	UR749470	C.EL	4700uF	25V	
*	C103	Vi844800	C.EL	0.47uF	50V	
	C104	UA655100	C.MYLAR	0.1uF	50V	
	C105	UA655100	C.MYLAR	0.1uF	50V	
	C106	UA655100	C.MYLAR	0.1uF	50V	
	C108	UA655100	C.MYLAR	0.1uF	50V	
	C109	UA655100	C.MYLAR	0.1uF	50V	
	C110	UA655100	C.MYLAR	0.1uF	50V	
*	C112	VA762200	C.CE.ML	0.1uF	25V	
	C116	UA655100	C.MYLAR	0.1uF	50V	
	C117	UB245100	C.CE.M.CHP	0.1uF	25V	
	C118	UA655100	C.MYLAR	0.1uF	50V	
	C119	UA655100	C.MYLAR	0.1uF	50V	
	C120	UB245100	C.CE.M.CHP	0.1uF	25V	
	C121	UA655100	C.MYLAR	0.1uF	50V	
	C122	UR749470	C.EL	4700uF	25V	
	C123	UR818220	C.EL	220uF	6.3V	
	C124	UR749220	C.EL	2200uF	25V	
	C125	UR749220	C.EL	2200uF	25V	
	C126	UR749220	C.EL	2200uF	25V	

*New Parts

P.C.B. MAIN

	Schm Ref.	PART NO.	Description			Market
	C134	UR866470	C.EL	4.7uF	50V	
	C135	UR837470	C.EL	47uF	16V	
	C141	FG644100	C.CE	0.01uF	50V	
	C142	UR866470	C.EL	4.7uF	50V	
	C143	FG652100	C.CE	100pF	50V	
	C144	FG652100	C.CE	100pF	50V	
	C145	FG652100	C.CE	100pF	50V	
	C146	FG652100	C.CE	100pF	50V	
	C147	FG652100	C.CE	100pF	50V	
	C148	UR739470	C.EL	4700uF	16V	
	C154	UR837470	C.EL	47uF	16V	
	C155	FG652100	C.CE	100pF	50V	
	C156	FG652100	C.CE	100pF	50V	
	C157	FG652100	C.CE	100pF	50V	
	C158	FG652100	C.CE	100pF	50V	
	C159	FG652100	C.CE	100pF	50V	
	C160	UR739470	C.EL	4700uF	16V	
	C161	UR739470	C.EL	4700uF	16V	
	C162	UA653100	C.MYLAR	1000pF	50V	
	C163	UR866470	C.EL	4.7uF	50V	
	C164	UA653100	C.MYLAR	1000pF	50V	
	C171	UR866470	C.EL	4.7uF	50V	
	C172	UR866470	C.EL	4.7uF	50V	
⚠	C173	V3501400	C.CE.SAFTY	0.01uF	275V	
	C179	UR878100	C.EL	100uF	63V	
	C180	UR878100	C.EL	100uF	63V	
	C181	Vi844900	C.EL	1uF	50V	
	C182	Vi844900	C.EL	1uF	50V	
	C183	UR866220	C.EL	2.2uF	50V	
	C187	VF467000	C.CE.TUBLR	1000pF	50V	
	C188	VF467000	C.CE.TUBLR	1000pF	50V	
	C189	VF467000	C.CE.TUBLR	1000pF	50V	
*	C195	VA762200	C.CE.ML	0.1uF	25V	
*	C196	VA762200	C.CE.ML	0.1uF	25V	
*	C198	UN846470	C.EL	4.7uF	25V	
*	C200	VZ281900	C.CE.CHP	0.47uF	16V	
*	C201	VZ281900	C.CE.CHP	0.47uF	16V	
*	C202	VA762200	C.CE.ML	0.1uF	25V	
*	C203	VA762200	C.CE.ML	0.1uF	25V	
*	C204	VA762200	C.CE.ML	0.1uF	25V	
*	C205	VA762200	C.CE.ML	0.1uF	25V	
⚠	D1	VG440200	DIODE.ZENR	MTZJ12B	12V	
⚠	D2	VG440200	DIODE.ZENR	MTZJ12B	12V	
⚠	D3	VG440200	DIODE.ZENR	MTZJ12B	12V	
	D4	VG441000	DIODE.ZENR	MTZJ16A	16V	
	D5	VG441000	DIODE.ZENR	MTZJ16A	16V	
⚠	D6	VQ379300	DIODE.BRG	S1VB20	1.0A 200V	
⚠	D9	VS997800	DIODE	1T2		
⚠	D10	VD631600	DIODE	1SS133,176		
⚠*	D11	V2954200	DIODE.BRG	D10XB20	10.0A 200V	
⚠	D22	VD631600	DIODE	1SS133,176		
⚠	D23	VQ379300	DIODE.BRG	S1VB20	1.0A 200V	
⚠	D24	VQ379300	DIODE.BRG	S1VB20	1.0A 200V	

*New Parts

	Schm Ref.	PART NO.	Description			Market
⚠	D25	VQ379300	DIODE.BRG	S1VB20	1.0A 200V	
	D26	VG442500	DIODE.ZENR	MTZJ24B	24V	
⚠	D29	VS997800	DIODE	1T2		
⚠	D30	VS997800	DIODE	1T2		
	D31	VD631600	DIODE	1SS133,176		
	D32	VD631600	DIODE	1SS133,176		
	D33	VD631600	DIODE	1SS133,176		
⚠	F1	KB001770	FUSE	T1.0A 250V		ABG
⚠	F1	VS822600	FUSE	2.5A	125V	UC
	G1	VR463400	TERM.GND	D3.5		
	G2	VR463400	TERM.GND	D3.5		
	G3	VR463400	TERM.GND	D3.5		
	G4	VR463400	TERM.GND	D3.5		
	HS1	VJ564300	RADIATOR	OSH-2025-SP		
	HS2	VJ564300	RADIATOR	OSH-2025-SP		
	HS3	VJ564300	RADIATOR	OSH-2025-SP		
*	HS4	VK509500	HEAT.SINK	OSH-1025	CDI-P11X	
*	HS9	V6513700	HEAT.SINK	OSH-2054-L25		
	IC1	XF635A00	IC	AN78M09F		
	IC2	XY935A00	IC	LC75342M-TLM		
	IC3	XY935A00	IC	LC75342M-TLM		
	IC4	XJ602A00	IC	NJM78M12FA		
	IC5	XS377A00	IC	BA15218F OP AMP		
	IC9	XF291A00	IC	uPC4570G2		
	IC11	XF291A00	IC	uPC4570G2		
	IC13	XF291A00	IC	uPC4570G2		
	IC21	XF291A00	IC	uPC4570G2		
⚠*	IC28	X0049A00	IC	LA4628		
⚠*	IC29	X0049A00	IC	LA4628		
⚠*	IC30	X0049A00	IC	LA4628		
⚠	IC31	XJ604A00	IC	NJM78M05FA		
⚠	IC34	XR590A00	IC	UPC24M05AHF +5V		
⚠	IC35	XR590A00	IC	UPC24M05AHF +5V		
	PJ1	V6352000	JACK.PIN	1P		
	PN1	V3750100	PIN	L=50		
	PN2	V3750100	PIN	L=50		
	PN3	V3750100	PIN	L=50		
	PN4	V3750100	PIN	L=50		
	PN5	V3750100	PIN	L=50		
	Q1	VD303700	TR	2SC3326 A,B		
	Q2	VD303700	TR	2SC3326 A,B		
	Q3	VV655000	TR.DGT	DTA114EKA		
	Q4	iC174020	TR	2SC1740S R,S		
	Q5	VV655000	TR.DGT	DTA114EKA		
	Q6	iC174020	TR	2SC1740S R,S		
	Q8	iC174020	TR	2SC1740S R,S		
	Q9	VD303700	TR	2SC3326 A,B		
	Q10	VD303700	TR	2SC3326 A,B		
	Q11	VD303700	TR	2SC3326 A,B		
	Q12	VD303700	TR	2SC3326 A,B		
	Q13	VD303700	TR	2SC3326 A,B		
⚠	Q14	VR510800	TR	2SD2396 J,K		
⚠	Q15	VS883300	TR	2SB1565 E,F		

*New Parts

P.C.B. MAIN & CHIP RESISTORS

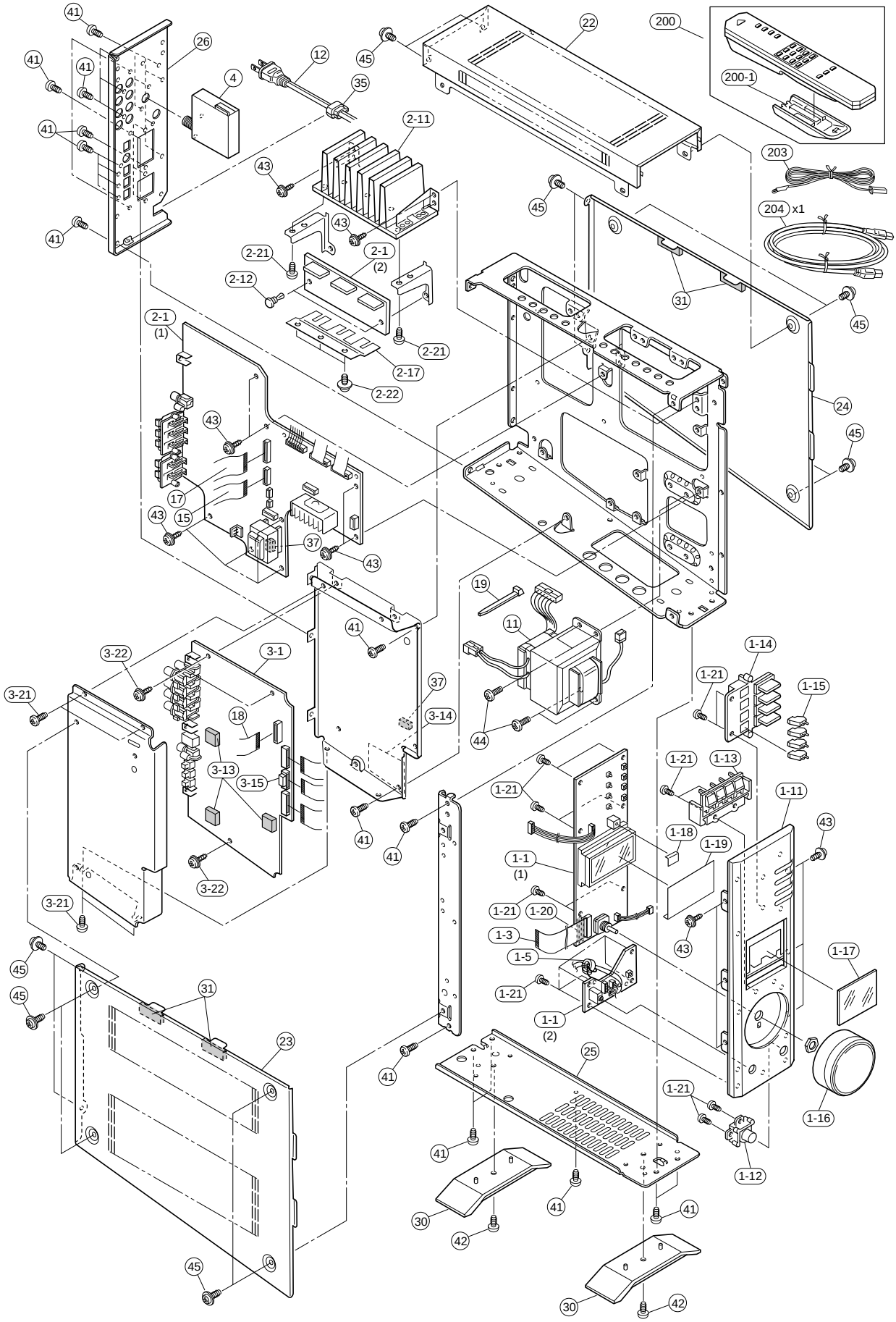
	Schm Ref.	PART NO.	Description			Market
	Q16	VD303700	TR	2SC3326 A,B		
	Q17	VD303700	TR	2SC3326 A,B		
	Q19	VP872600	TR	2SA1708 S,T		
⚠	R3	HV754220	R.CAR.FP	22Ω	1/4W	
⚠	R4	HV754220	R.CAR.FP	22Ω	1/4W	
⚠	R15	HV754390	R.CAR.FP	39Ω	1/4W	
⚠	R16	HV754390	R.CAR.FP	39Ω	1/4W	
⚠	R31	VU318400	R.MTL.OXD	27Ω	1W	
⚠	R47	VU318400	R.MTL.OXD	27Ω	1W	
⚠	R51	VU318400	R.MTL.OXD	27Ω	1W	
⚠	R70	HV755100	R.CAR.FP	100Ω	1/4W	
⚠	R71	HV755100	R.CAR.FP	100Ω	1/4W	
⚠	R73	HV753220	R.CAR.FP	2.2Ω	1/4W	
⚠	R74	HV753220	R.CAR.FP	2.2Ω	1/4W	
⚠	R75	HV753220	R.CAR.FP	2.2Ω	1/4W	
⚠	R76	HV753220	R.CAR.FP	2.2Ω	1/4W	
⚠	R77	HV753220	R.CAR.FP	2.2Ω	1/4W	
⚠	R78	HV753220	R.CAR.FP	2.2Ω	1/4W	
⚠	R79	HV753100	R.CAR.FP	1Ω	1/4W	
⚠	R80	HV753100	R.CAR.FP	1Ω	1/4W	
⚠	R81	HV753220	R.CAR.FP	2.2Ω	1/4W	
⚠	R82	HV753220	R.CAR.FP	2.2Ω	1/4W	
⚠	R83	HV753220	R.CAR.FP	2.2Ω	1/4W	
⚠	R84	HV753220	R.CAR.FP	2.2Ω	1/4W	
⚠	R85	HV756220	R.CAR.FP	2.2KΩ	1/4W	
⚠	R86	HV756220	R.CAR.FP	2.2KΩ	1/4W	
⚠*	R107	V7637600	R.MTL.OXD	5.6Ω	1W	
⚠	R114	HV754100	R.CAR.FP	10Ω	1/4W	
⚠	R118	HV753470	R.CAR.FP	4.7Ω	1/4W	
⚠	R132	VL380500	R.FUS	1Ω	1/4W	
	R134	HV753220	R.CAR.FP	2.2Ω	1/4W	
	R135	HV753220	R.CAR.FP	2.2Ω	1/4W	
⚠	R136	VL380500	R.FUS	1Ω	1/4W	
⚠*	RY1	V6644100	RELAY	DC 12V		
⚠*	RY2	V6644100	RELAY	DC 12V		
⚠*	RY3	V6644100	RELAY	DC 12V		
⚠	RY4	V2850400	RELAY	DC ALKS321		
	ST1	V4040500	SCR.TERM	M3		
⚠	T1	XZ404A00	TRANS			UC
⚠	T1	XZ405A00	TRANS			ABG
⚠*	TE1	V7337000	TERM.SP	6P PUSH		
⚠*	TE2	V7337100	TERM.SP	4P PUSH		
		EP600530	SCR.BND.HD	3x8	MFZN2-BL	
		RD253100	R.CAR.CHP	1Ω	1/10W	
		RD253220	R.CAR.CHP	2.2Ω	1/10W	
		RD254100	R.CAR.CHP	10Ω	1/10W	
		RD255100	R.CAR.CHP	100Ω	1/10W	
		RD255220	R.CAR.CHP	220Ω	1/10W	
		RD255470	R.CAR.CHP	470Ω	1/10W	
		RD259150	R.CAR.CHP	1.5MΩ	1/10W	

*New Parts

	Schm Ref.	PART NO.	Description			Market
		RD350000	R.CAR.CHP	0Ω	1/10W	
		RD354100	R.CAR.CHP	10Ω	1/10W	
		RD355120	R.CAR.CHP	120Ω	1/10W	
		RD355150	R.CAR.CHP	150Ω	1/10W	
		RD355330	R.CAR.CHP	330Ω	1/10W	
		RD355470	R.CAR.CHP	470Ω	1/10W	
		RD355560	R.CAR.CHP	560Ω	1/10W	
		RD356100	R.CAR.CHP	1KΩ	1/10W	
		RD356220	R.CAR.CHP	2.2KΩ	1/10W	
		RD356330	R.CAR.CHP	3.3KΩ	1/10W	
		RD356470	R.CAR.CHP	4.7KΩ	1/10W	
		RD356560	R.CAR.CHP	5.6KΩ	1/10W	
		RD356680	R.CAR.CHP	6.8KΩ	1/10W	
		RD357100	R.CAR.CHP	10KΩ	1/10W	
		RD357180	R.CAR.CHP	18KΩ	1/10W	
		RD357220	R.CAR.CHP	22KΩ	1/10W	
		RD357270	R.CAR.CHP	27KΩ	1/10W	
		RD357330	R.CAR.CHP	33KΩ	1/10W	
		RD357470	R.CAR.CHP	47KΩ	1/10W	
		RD357680	R.CAR.CHP	68KΩ	1/10W	
		RD358100	R.CAR.CHP	100KΩ	1/10W	
		RD358220	R.CAR.CHP	220KΩ	1/10W	
		RD358470	R.CAR.CHP	470KΩ	1/10W	
		RD359100	R.CAR.CHP	1MΩ	1/10W	
		RF454220	R.CAR.CHP	22Ω	1/10W	
		RF454750	R.CAR.CHP	75Ω	1/10W	
		RF455100	R.CAR.CHP	100Ω	1/10W	
		RF455220	R.CAR.CHP	220Ω	1/10W	
		RF455330	R.CAR.CHP	330Ω	1/10W	
		RF455470	R.CAR.CHP	470Ω	1/10W	
		RF455680	R.CAR.CHP	680Ω	1/10W	
		RF456100	R.CAR.CHP	1.0KΩ	1/10W	
		RF456120	R.CAR.CHP	1.2KΩ	1/10W	
		RF456150	R.CAR.CHP	1.5KΩ	1/10W	
		RF456180	R.CAR.CHP	1.8KΩ	1/10W	
		RF456220	R.CAR.CHP	2.2KΩ	1/10W	
		RF456270	R.CAR.CHP	2.7KΩ	1/10W	
		RF456330	R.CAR.CHP	3.3KΩ	1/10W	
		RF456390	R.CAR.CHP	3.9KΩ	1/10W	
		RF456470	R.CAR.CHP	4.7KΩ	1/10W	
*		RF456560	R.CAR.CHP	5.6kΩ	1/10W	
		RF456680	R.CAR.CHP	6.8KΩ	1/10W	
		RF456820	R.CAR.CHP	8.2KΩ	1/10W	
		RF457100	R.CAR.CHP	10KΩ	1/10W	
		RF457120	R.CAR.CHP	12KΩ	1/10W	
		RF457150	R.CAR.CHP	15KΩ	1/10W	
		RF457180	R.CAR.CHP	18KΩ	1/10W	
		RF457470	R.CAR.CHP	47KΩ	1/10W	
		RF458100	R.CAR.CHP	100KΩ	1/10W	

*New Parts

■ EXPLODED VIEW



■ MECHANICAL PARTS

	Ref. No.	PART NO.	Description		Remarks	Markets
	1-1	V6440800	P.C.B. ASS'Y	OPERATION		
*	1-3	V7451100	S FLEXIBLE FLAT CABLE	17P 210mm P=1.25		
	1-5	Vi491100	FERRITE CORE	BP53RB19012080M		UCABG
*	1-11	V6052700	FRONT PANEL			
	1-12	V6052800	BUTTON			
*	1-13	V6492100	BUTTON/FUNC			
	1-14	V6053200	BUTTON ASS'Y			
	1-15	V6053300	LENS, LED			
	1-16	V6231100	KNOB ASSY			
	1-17	V6053400	WINDOW			
*	1-18	V7393400	SHEET/RE			
*	1-19	V7413900	SHEET/FL			
	1-20	VZ117200	DAMPER, T3	TOP-F		
	1-21	VF617600	PAN HEAD P-TITE SCREW	2.6x8 MFC2-BL		
*	2-1	V6763100	P.C.B. ASS'Y	MAIN		UC
*	2-1	V6763200	P.C.B. ASS'Y	MAIN		ABG
*	2-11	V7512400	HEAT SINK ASS'Y			
	2-12	VQ368600	PUSH RIVET	P3555-B		
*	2-17	V7474600	SUPPORT/IC			
	2-21	EP600830	BIND HEAD B-TITE SCREW	3x8 MFC2-BL		
	2-22	VT669300	PW HEAD B-TITE SCREW	3x8-8 MFC2		
*	3-1	V6762700	P.C.B. ASS'Y	DSP		UC
*	3-1	V6762800	P.C.B. ASS'Y	DSP		A
*	3-1	V6762900	P.C.B. ASS'Y	DSP		BG
	3-13	VS758000	DAMPER, T5			
	3-14	V6955300	SHEET/DSP			
	3-15	VS936800	DAMPER	3x5x10		
	3-21	EP600830	BIND HEAD B-TITE SCREW	3x8 MFC2-BL		
	3-22	VH365800	PW HEAD B-TITE SCREW	3x6-8 FCM3-CU		
*	4	V7536000	AM/FM TUNER	TFCE1U921A		UC
*	4	V7536100	AM/FM TUNER	TFCE1E921A		ABG
⚠*	11	XZ701A00	POWER TRANSFORMER			UC
⚠*	11	XZ900A00	POWER TRANSFORMER			A
⚠*	11	XZ702A00	POWER TRANSFORMER			BG
⚠	12	V2363800	POWER CORD ASS'Y			UC
⚠	12	V2296800	POWER CORD ASS'Y			A
⚠	12	VV437300	POWER CORD ASS'Y			B
⚠	12	VN363700	POWER CORD ASS'Y			G
*	15	V7355700	CONNECTOR, FLAT CABLE	15P 45mm P=1.25		
*	17	V7355800	CONNECTOR, FLAT CABLE	19P 45mm P=1.25		
*	18	V7637000	S FLEXIBLE FLAT CABLE	15P 170mm P=1.25		
	19	VU590000	BINDING TIE	CBTD001B		
	22	V6048800	TOP COVER			
	23	V6049100	TOP COVER-L			
	24	V6049400	TOP COVER-R			
*	25	V6050100	BOTTOM COVER			UC
*	25	V6364100	BOTTOM COVER			ABG
*	26	V6051500	REAR PANEL			UC
*	26	V6051700	REAR PANEL			A
*	26	V6051800	REAR PANEL			BG
	30	V3989600	LEG			
	31	V6773900	DAMPER	SIDE		
	35	V2438700	CORD STOPPER	10P1		

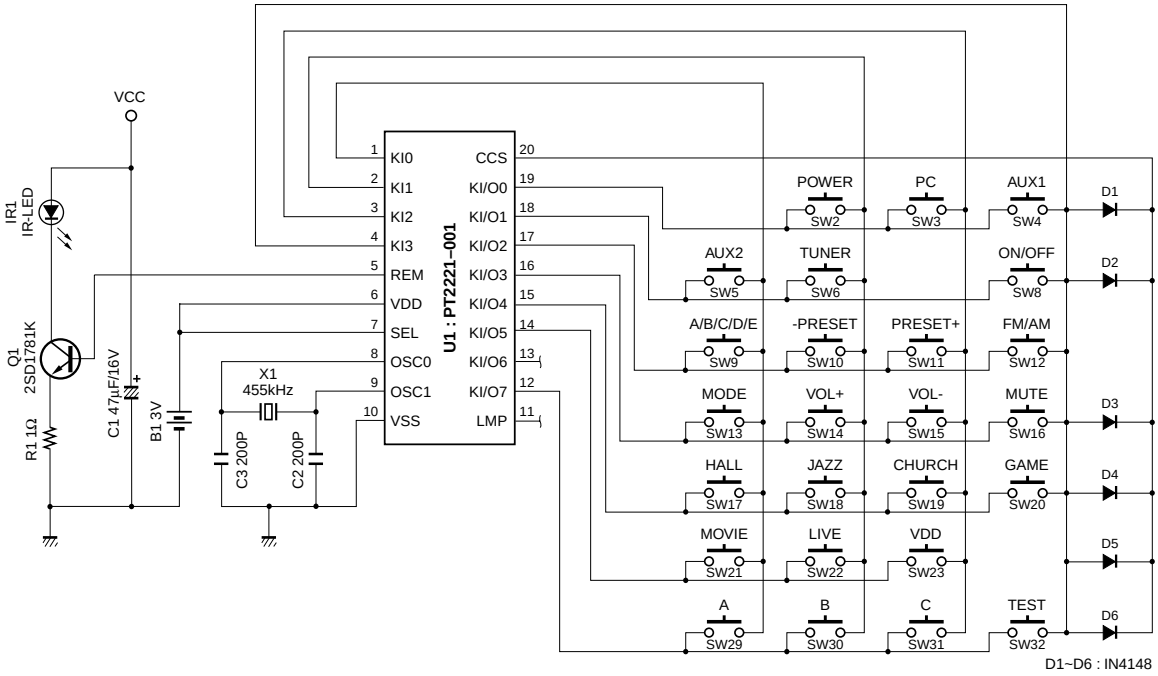
* New Parts

	Ref. No.	PART NO.	Description		Remarks	Markets
	37	VZ092400	DAMPER	6x5x10		
	41	VN413300	BIND HEAD BONDING B-T. SCREW	3x8 MFZN2-BL		
	42	EP600830	BIND HEAD B-TITE SCREW	3x8 MFC2-BL		
	43	VH365800	PW HEAD B-TITE SCREW	3x6-8 FCM3-CU		
	44	V2728500	BIND HEAD S-TITE SCREW	4x7 MFZN2-BL		
	45	V5633800	TAPPING B-TITE SCREW	3x6-8 MFNI33		
			ACCESSORIES			
*	200	V6390200	REMOTE CONTROL TRANSMITTER	PET2	RC-7060-01-0013	
	200-1	AAX14020	LID	GRYJYE	60050007	
	203	V6267000	ANTENNA, FM	1.4m 1pc		UC
	203	VQ147100	ANTENNA, FM	1.4m 1pc		ABG
*	204	V7534500	USB CABLE	4P 2m plug A 1pc		
*		XZ674C00	CD-ROM	CD-ROM V1.0		
			BATTERY, MANGANESE	SUM-3,AA,R06		

* New Parts

REMOTE CONTROL TRANSMITTER

■ SCHEMATIC DIAGRAM



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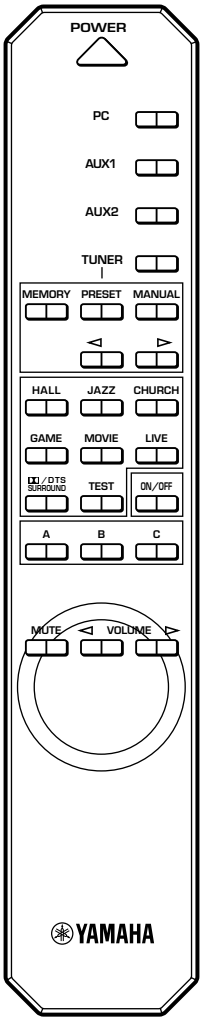


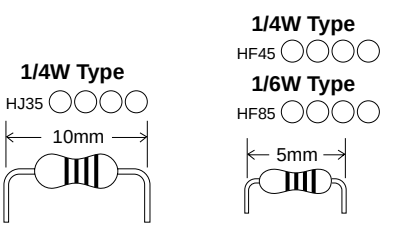
CUSTOM CODE(HEX)	7B

CUSTOM CODE'(HEX)	84

Key Name	Data Code (HEX)
POWER	01
PC	02
AUX-1	03
AUX-2	04
TUNER	05
MEMORY	0B
PRESET	08
MANUAL	0C
◄	09
►	0A
HALL	10
JAZZ	11
CHURCH	12
GAME	13
MOVIE	14
LIVE	15
DTS SURROUND	16
TEST	1F
ON/OFF	07
A	1C
B	1D
C	1E
MUTE	0F
VOLUME –	0E
VOLUME+	0D

Parts List for Carbon Resistors

Value	**1/4W** Type Part No.	**1/6W** Type Part No.	Value	**1/4W** Type Part No.	**1/6W** Type Part No.
1.0 Ω	HJ35 3100	HF85 3100	10 kΩ	HF45 7100	HF45 7100
1.8 Ω	HJ35 3180	❊	11 kΩ	HF45 7110	HF45 7110
2.2 Ω	HJ35 3220	HF85 3220	12 kΩ	HJ35 7120	HF85 7120
3.3 Ω	HJ35 3330	HF85 3330	13 kΩ	HF45 7130	HF45 7130
4.7 Ω	HJ35 3470	HF85 3470	15 kΩ	HF45 7150	HF45 7150
5.6 Ω	HJ35 3560	HF85 3560	18 kΩ	HF45 7180	HF45 7180
10 Ω	HF45 4100	HF45 4100	22 kΩ	HF45 7220	HF45 7220
15 Ω	HJ35 4150	HF85 4150	24 kΩ	HF45 7240	HF45 7240
22 Ω	HF45 4220	HF45 4220	27 kΩ	HJ35 7270	HF85 7270
27 Ω	HJ35 4270	HF85 4270	30 kΩ	HF45 7300	HF45 7300
33 Ω	HF45 4330	HF45 4330	33 kΩ	HF45 7330	HF45 7330
39 Ω	HJ35 4470	HF85 4390	36 kΩ	HF45 7360	HF45 7360
47 Ω	HF45 4470	HF45 4470	39 kΩ	HF45 7390	HF45 7390
56 Ω	HF45 4560	HF45 4560	47 kΩ	HF45 7470	HF45 7470
68 Ω	HF45 4680	HF45 4680	51 kΩ	HF45 7510	HF45 7510
75 Ω	HF45 4750	HF45 4750	56 kΩ	HF45 7560	HF45 7560
82 Ω	HF45 4820	HF45 4820	62 kΩ	HF45 7620	HF45 7620
91 Ω	HF45 4910	HF45 4910	68 kΩ	HF45 7680	HF45 7680
100 Ω	HF45 5100	HF45 5100	82 kΩ	HF45 7820	HF45 7820
110 Ω	HJ35 5110	HF85 5110	91 kΩ	HF45 7910	HF45 7910
120 Ω	HF45 5120	HF45 5120	100 kΩ	HF45 8100	HF45 8100
150 Ω	HF45 5150	HF45 5150	110 kΩ	HF45 8110	HF45 8110
160 Ω	HJ35 5160	❊	120 kΩ	HF45 8120	HF45 8120
180 Ω	HF45 5180	HF45 5180	150 kΩ	HF45 8150	HF45 8150
200 Ω	HF45 5200	HF45 5200	180 kΩ	HF45 8180	HF45 8180
220 Ω	HF45 5220	HF45 5220	220 kΩ	HJ35 8220	HF85 8220
270 Ω	HF45 5270	HF45 5270	270 kΩ	HF45 8270	HF45 8270
330 Ω	HF45 5330	HF45 5330	300 kΩ	HF45 8300	HF45 8300
390 Ω	HF45 5390	HF45 5390	330 kΩ	HF45 8330	HF45 8330
430 Ω	HF45 5430	HF45 5430	390 kΩ	HJ35 8390	HF85 8390
470 Ω	HF45 5470	HF45 5470	470 kΩ	HF45 8470	HF45 8470
510 Ω	HF45 5510	HF45 5510	560 kΩ	HJ35 8560	HF85 8560
560 Ω	HF45 5560	HF45 5560	680 kΩ	HJ35 8680	HF85 8680
680 Ω	HF45 5680	HF45 5680	820 kΩ	HJ35 8820	HF85 8820
820 Ω	HF45 5820	HF45 5820	1.0 MΩ	HF45 9100	HF45 9100
910 Ω	HF45 5910	HF45 5910	1.2 MΩ	HJ35 9120	❊
1.0 kΩ	HF45 6100	HF45 6100	1.5 MΩ	HJ35 9150	HF85 9150
1.2 kΩ	HF45 6120	HF45 6120	1.8 MΩ	HJ35 9180	HF85 9180
1.5 kΩ	HF45 6150	HF45 6150	2.2 MΩ	HJ35 9220	HF85 9220
1.8 kΩ	HF45 6180	HF45 6180	3.3 MΩ	HJ35 9330	HF85 9330
2.0 kΩ	HJ35 6200	HF85 6200	3.9 MΩ	HJ35 9390	❊
2.2 kΩ	HF45 6220	HF45 6220	4.7 MΩ	HJ35 9470	HF85 9470
2.4 kΩ	HJ35 6240	HF85 6240			
2.7 kΩ	HF45 6270	HF45 6270			
3.0 kΩ	HF45 6300	HF45 6300			
3.3 kΩ	HF45 6330	HF45 6330			
3.6 kΩ	HJ35 6360	HF85 6360			
3.9 kΩ	HF45 6390	HF45 6390			
4.7 kΩ	HF45 6470	HF45 6470			
5.1 kΩ	HF45 6510	HF45 6510			
5.6 kΩ	HF45 6560	HF45 6560			
6.8 kΩ	HF45 6680	HF45 6680			
8.2 kΩ	HF45 6820	HF45 6820			
9.1 kΩ	HF45 6910	HF45 6910			



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