AV RECEIVER

RX-V365/HTR-6230

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.

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This Service Manual uses recycled paper.

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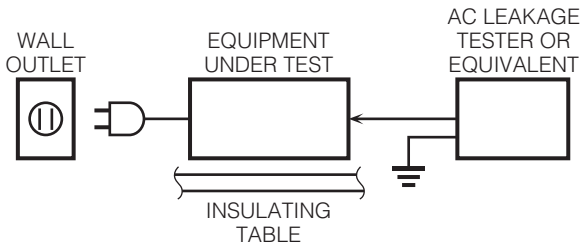
YAMAHA
YAMAHA CORPORATION
P.O.Box 1, Hamamatsu, Japan
animate '09.02

RX-V365/HTR-6230

■ 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 ohms shunted by 0.15 µF.



- Leakage current must not exceed 0.5mA.
- Be sure to test for leakage with the AC plug in both polarities.



For U model

"CAUTION"

"F2251: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE 6A, 125V FUSE."

For C model

CAUTION

F2251: REPLACE WITH SAME TYPE 6A, 125V FUSE.

ATTENTION

F2251: UTILISER UN FUSIBLE DE RECHANGE DE MÉME TYPE DE 6A, 125V.

WARNING: CHEMICAL CONTENT NOTICE!

This product contains chemicals known to the State of California to cause cancer, 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.

About lead free solder

All of the P.C.B.s installed in this unit and solder joints are soldered using the lead free solder.

Among some types of lead free solder currently available, it is recommended to use one of the following types for the repair work.

- Sn + Ag + Cu (tin + silver + copper)
- Sn + Cu (tin + copper)
- Sn + Zn + Bi (tin + zinc + bismuth)

Caution:

As the melting point temperature of the lead free solder is about 30°C to 40°C (50°F to 70°F) higher than that of the lead solder, be sure to use a soldering iron suitable to each solder.

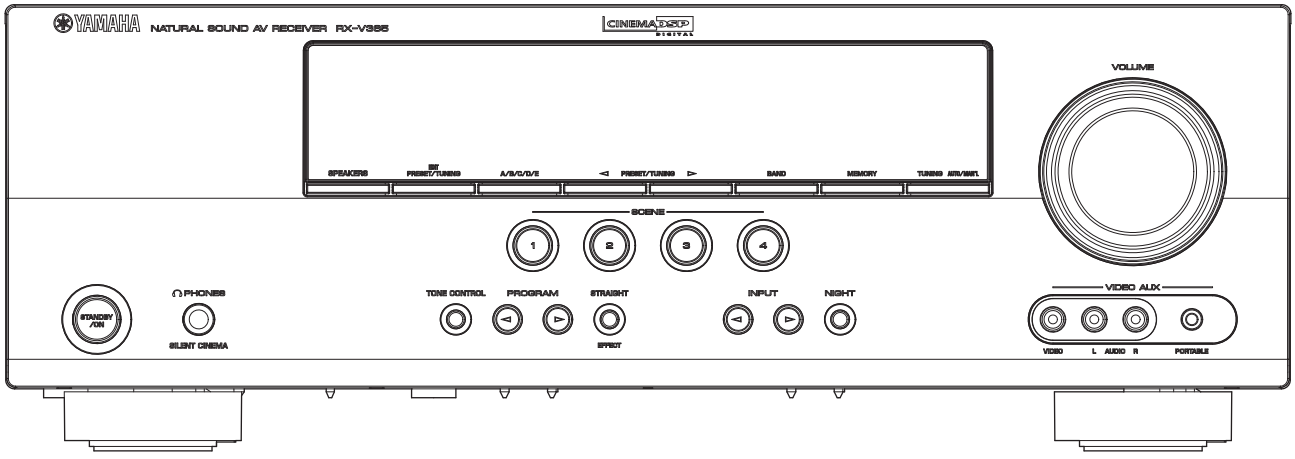
■ FRONT PANELS

Top view

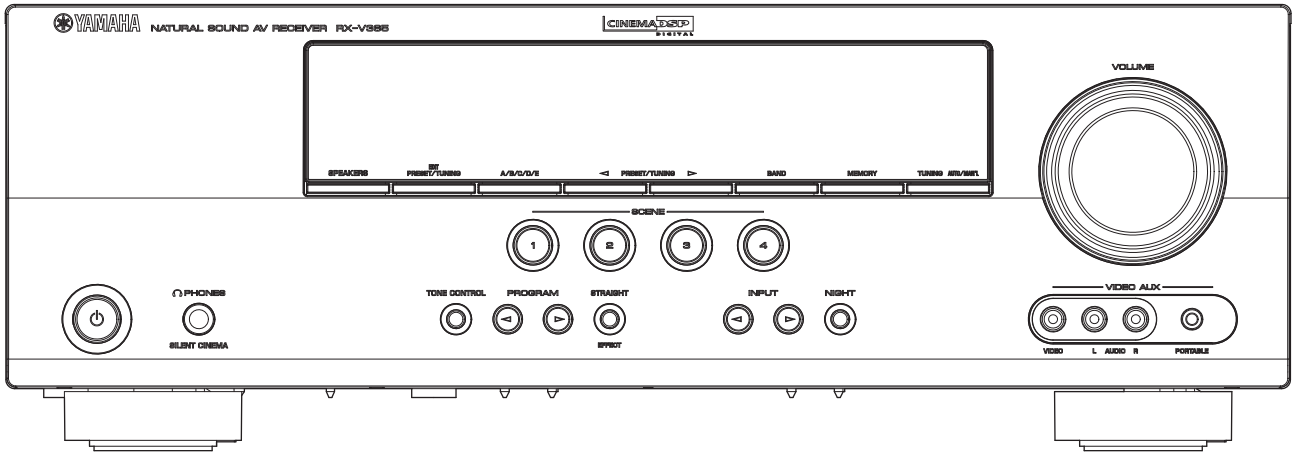


Front view

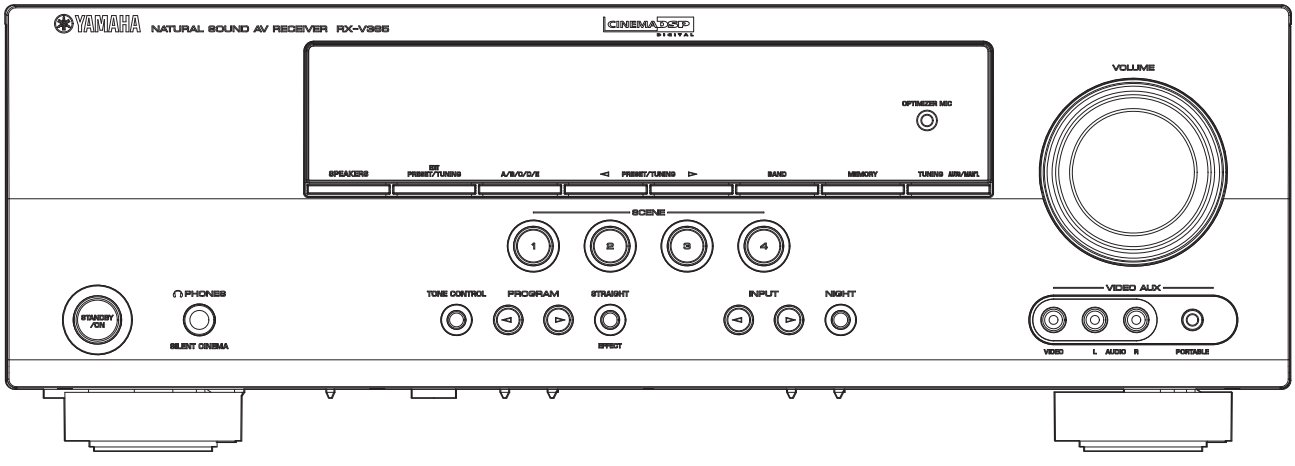
RX-V365 (U, C models)



RX-V365 (T model)

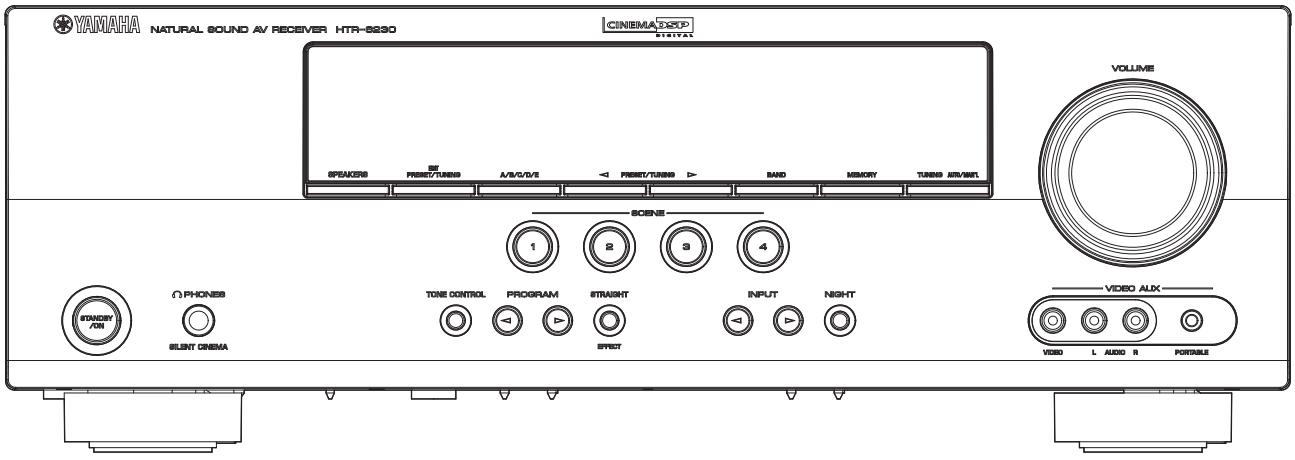


RX-V365 (R, K, A, B, G, E, F, L models)

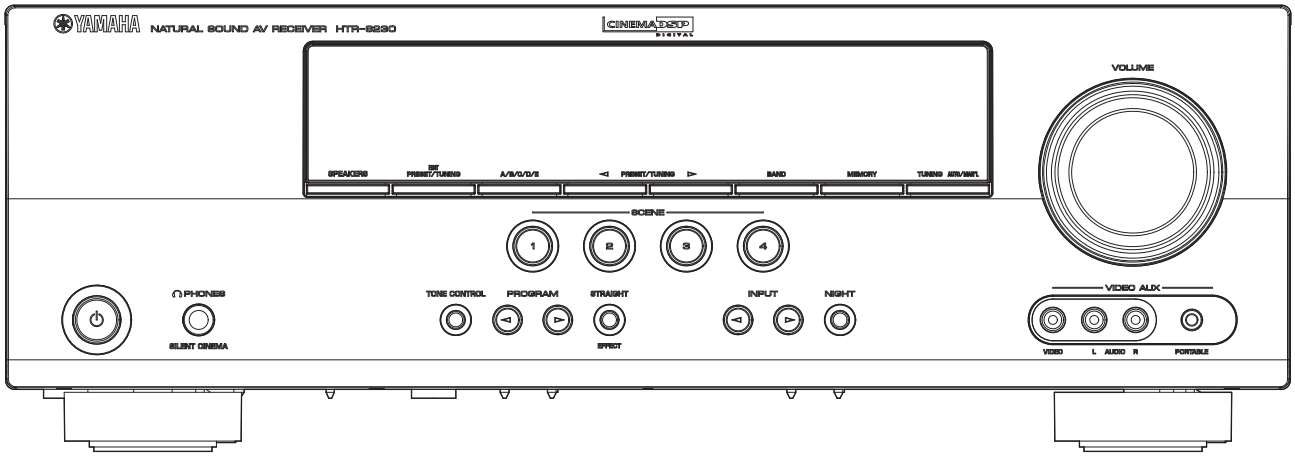


RX-V365/HTR-6230

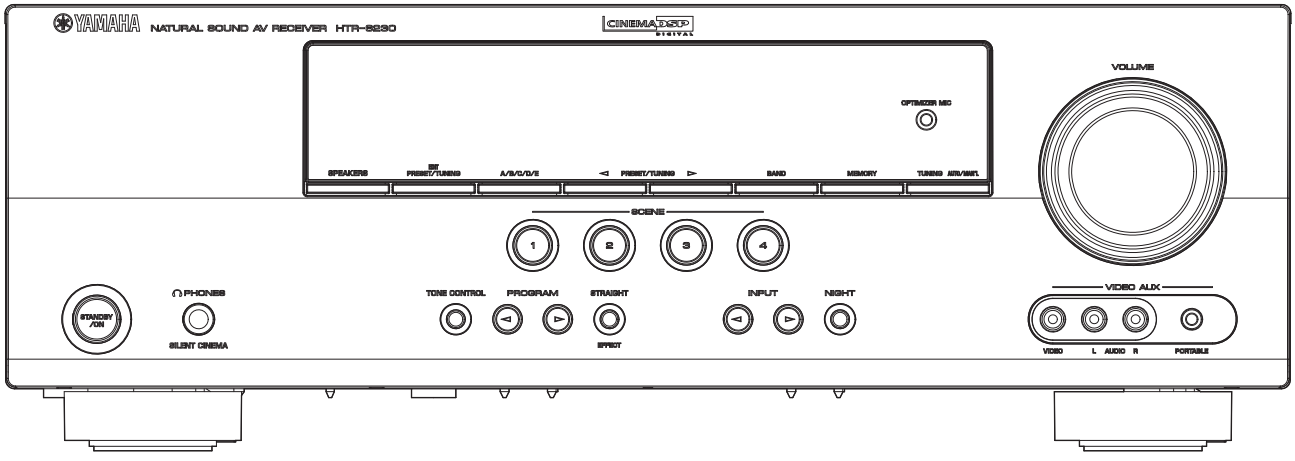
HTR-6230 (U, C models)



HTR-6230 (T model)

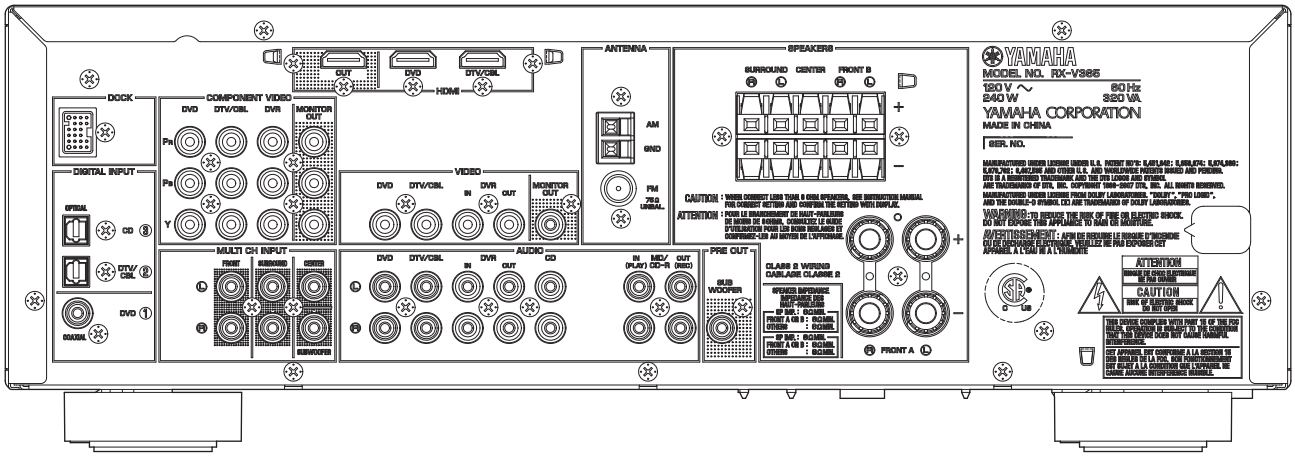


HTR-6230 (R, K, G, E, F models)

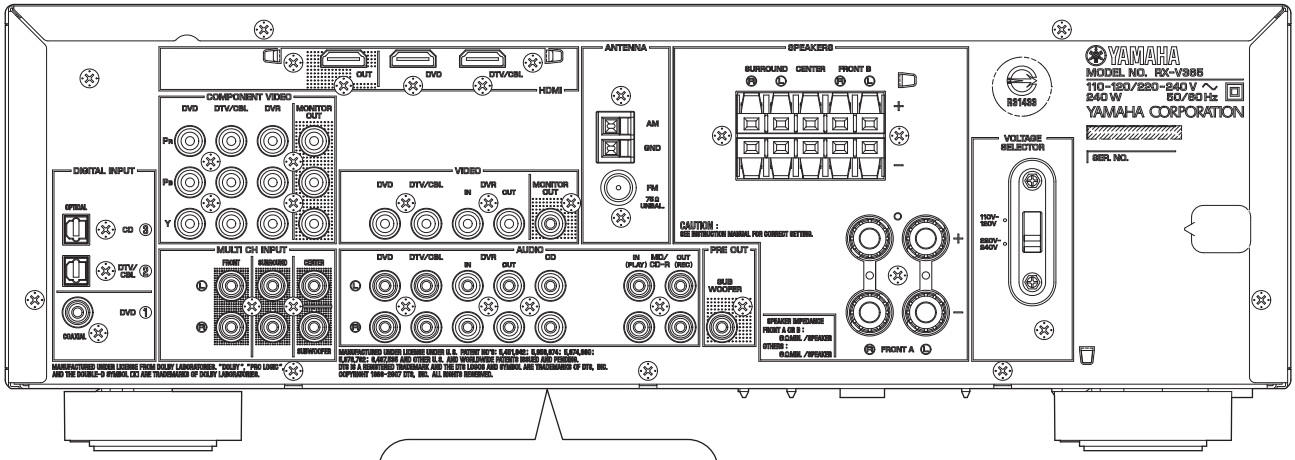


■ REAR PANELS

RX-V365 (U, C models)



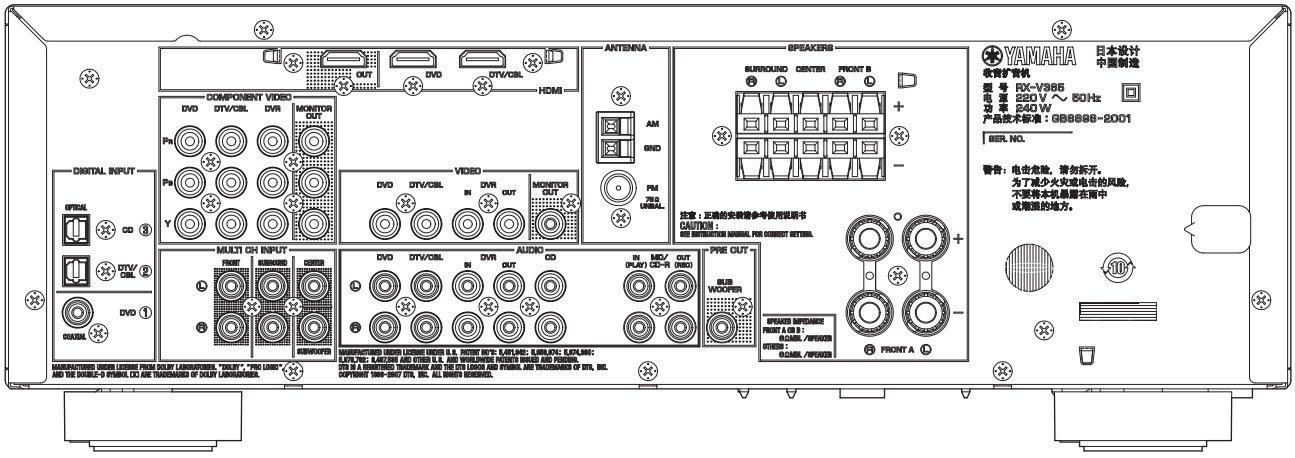
RX-V365 (R model)



Nameplate

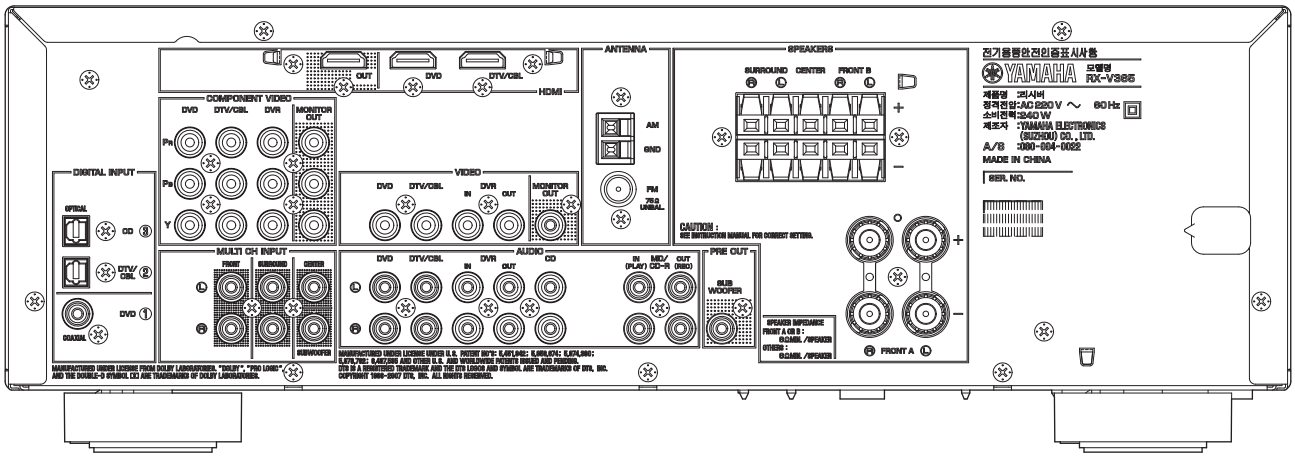
產品名稱	收音擴大機
型號	RX-V365
電壓	110-120/220-240 V ～
頻率	50/60 Hz
消耗功率	240 W
進口商	功華社會體股份有限公司
地址	台北縣蘆洲市中山二路 162號7樓
產地	中國

RX-V365 (T model)

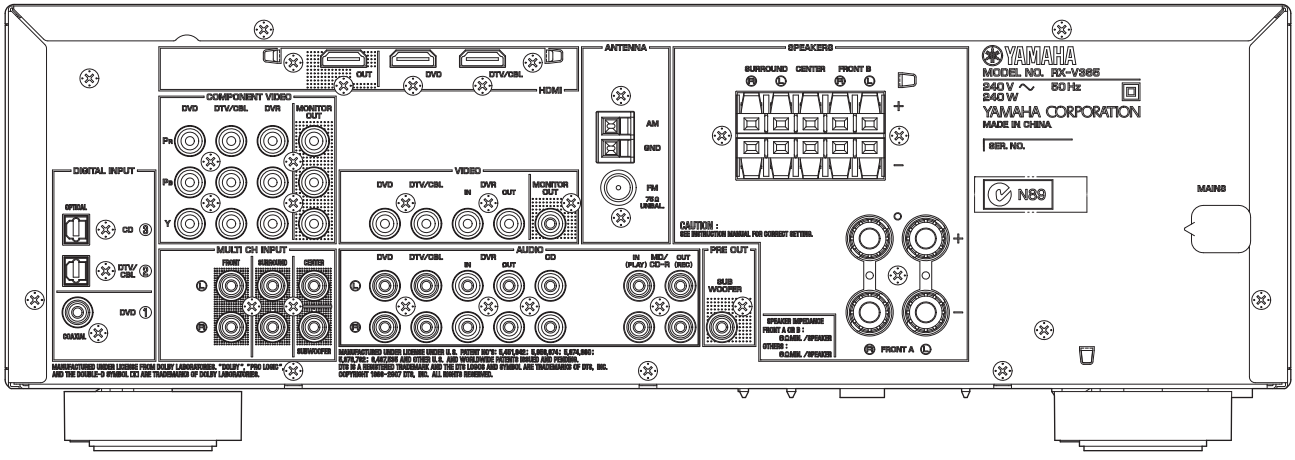


RX-V365/HTR-6230

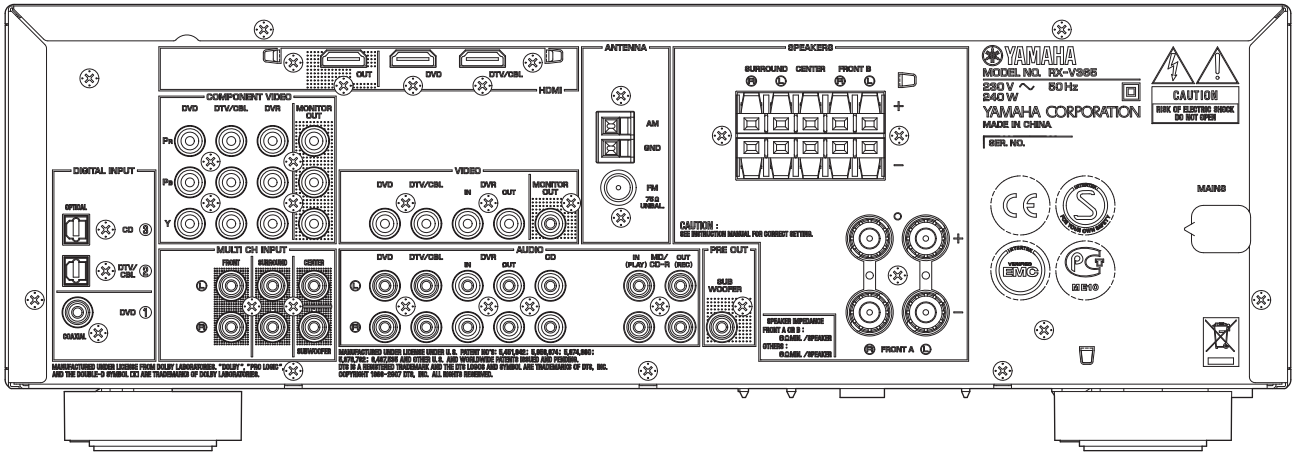
RX-V365 (K model)



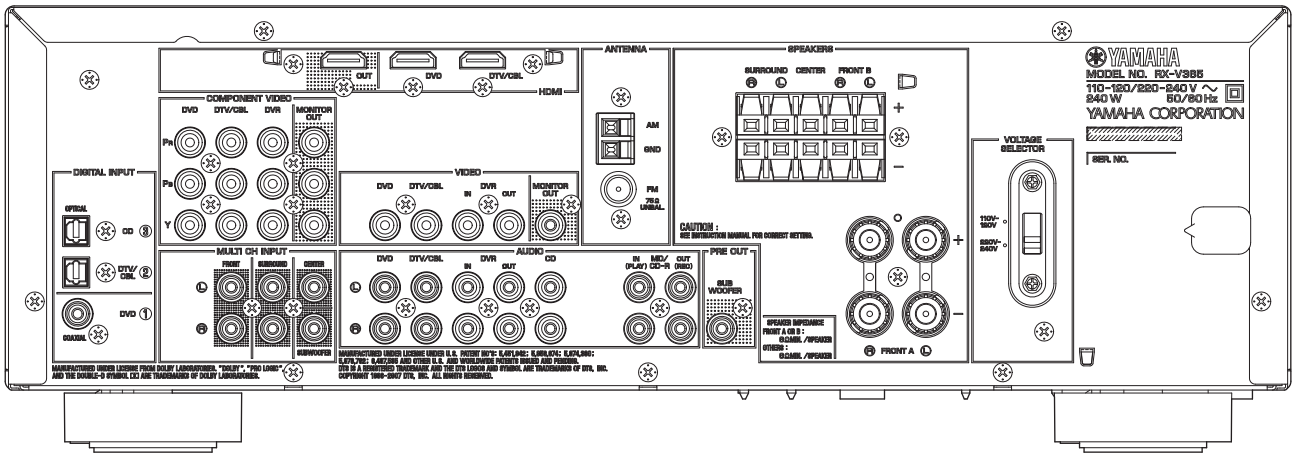
RX-V365 (A model)



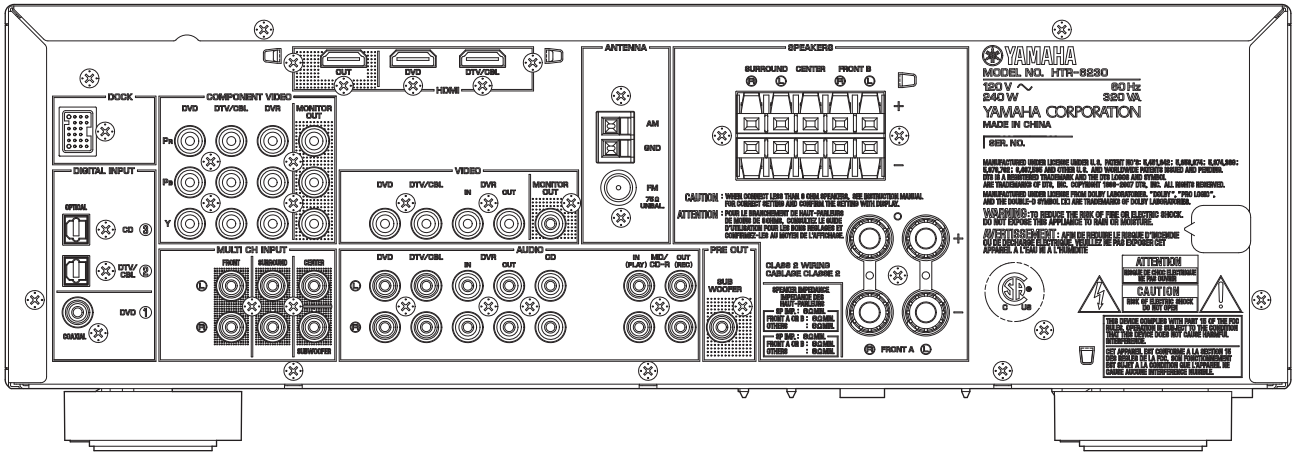
RX-V365 (B, G, E, F models)



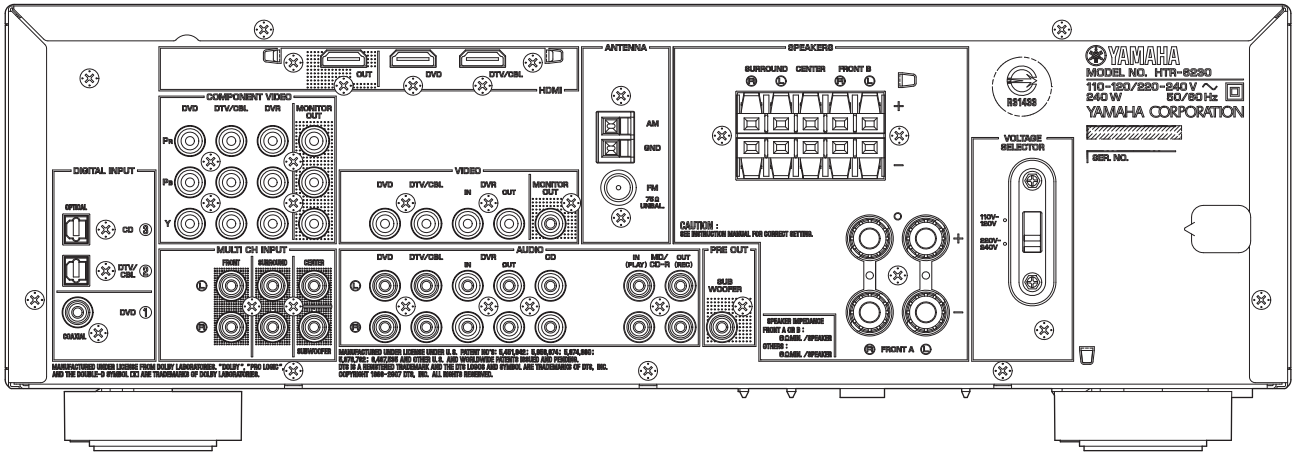
RX-V365 (L model)



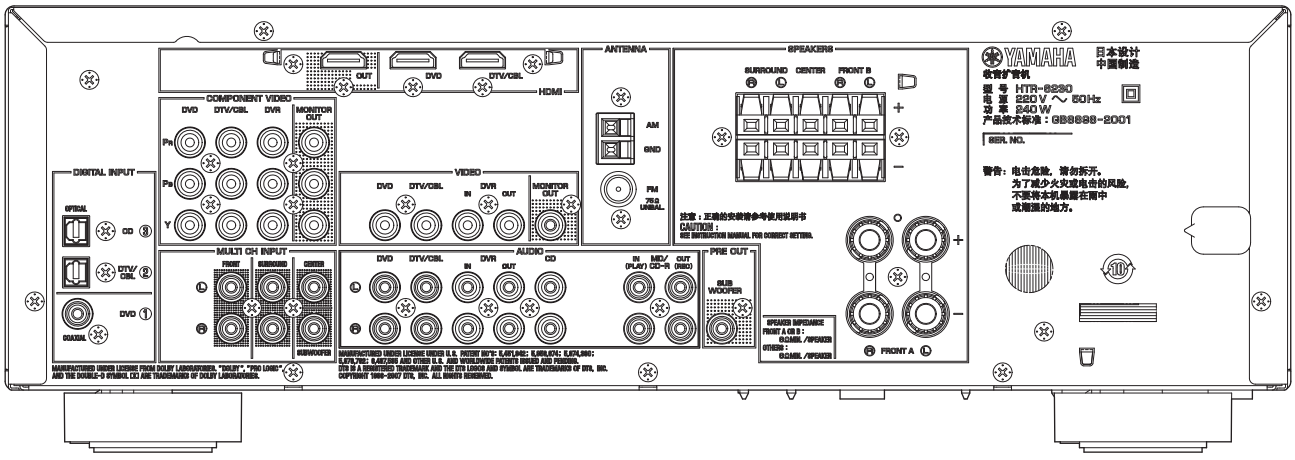
HTR-6230 (U, C models)



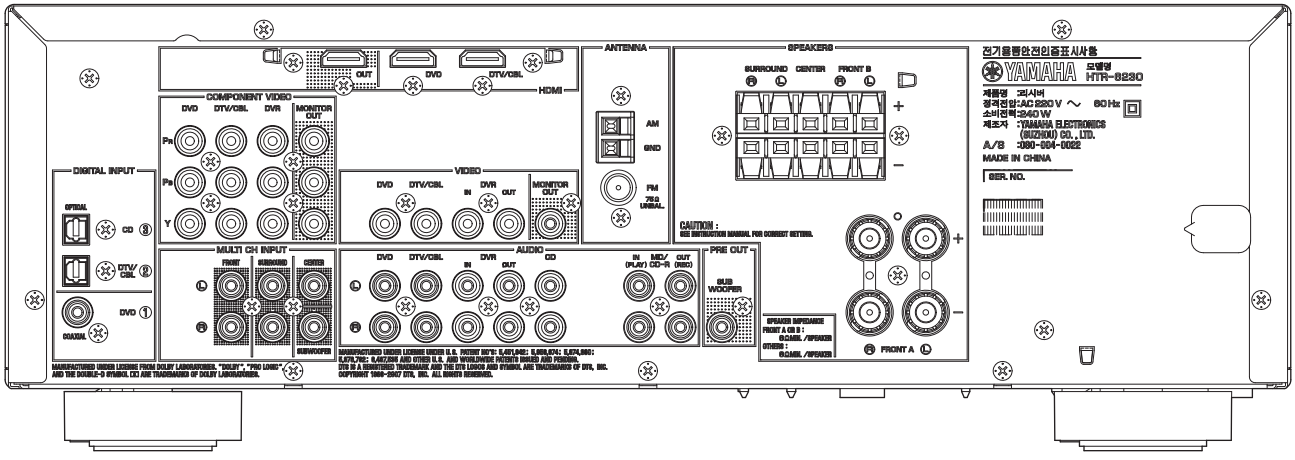
HTR-6230 (R model)



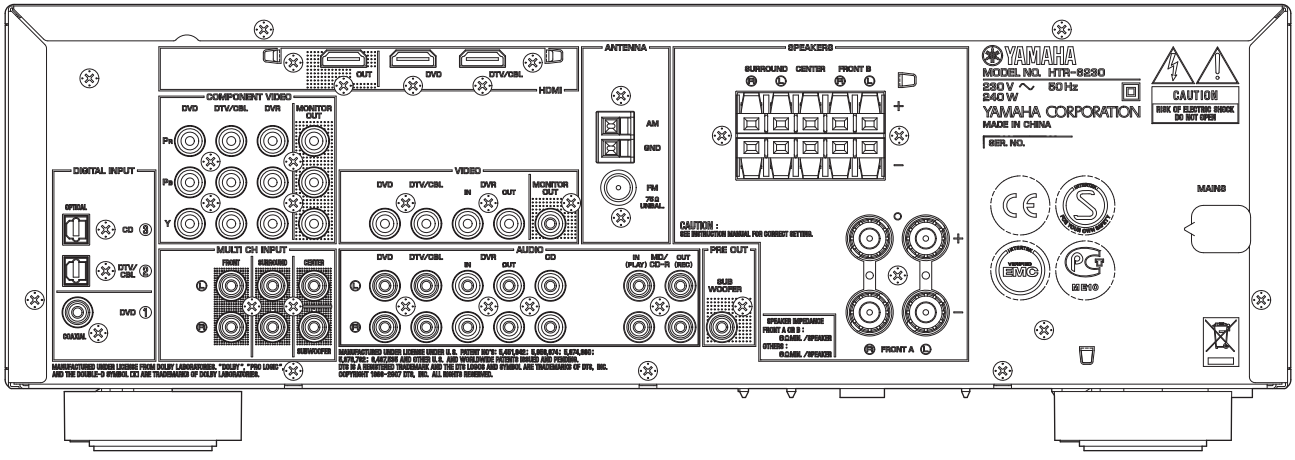
HTR-6230 (T model)



HTR-6230 (K model)

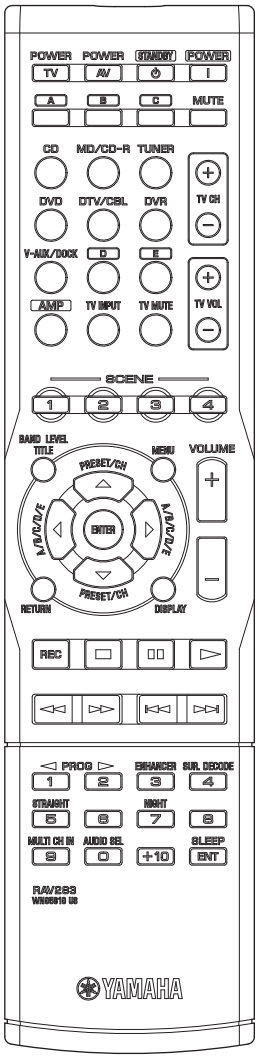


HTR-6230 (G, E, F models)

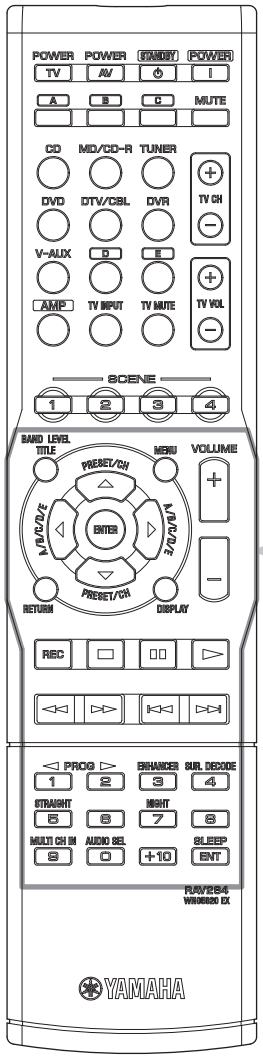


■ REMOTE CONTROL PANELS

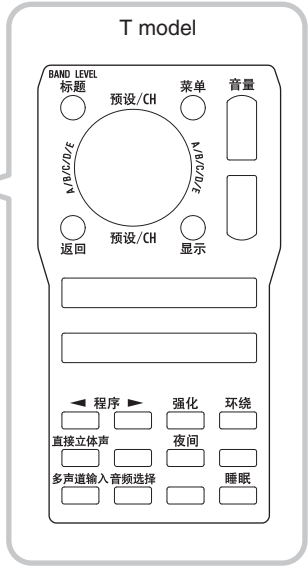
RAV283
(U, C models)



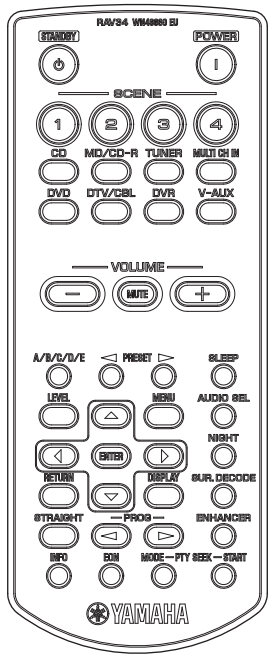
RAV284
(R, T, K, A, L models)



T model



RAV34
(B, G, E, F models)



RX-V365/HTR-6230

■ SPECIFICATIONS

■ Audio Section

Minimum RMS Output Power (Power Amp. Section)
(1 kHz, 0.9 % THD)
FRONT L/R, CENTER, SURROUND L/R
U, C models (8 ohms) ..... 100 W/ch
R, T, K, A, B, G, E, F, L models (6 ohms) ..... 100 W/ch

Maximum Power (JEITA) (1 kHz, 10 % THD)
FRONT L/R, CENTER, SURROUND L/R
U, C models (8 ohms)..... 135 W/ch
R, T, K, A, L models (6 ohms)..... 135 W/ch

Max. Power Per Channel [B, G, E, F models]
(1 kHz, 0.7 % THD, 4 ohms)
FRONT L/R, CENTER, SURROUND L/R .....105 W or more

IEC Power [B, G, E, F models]
(1 kHz, 0.1 % THD, 6 ohms)
MAIN L/R .....90 W or more

Dynamic Power Per Channel (IHF) (FRONT L/R)
U, C models
(8/6/4/2 ohms) ..... 110/130/160/180 W
R, T, K, A, B, G, E, F, L models
(6/4/2 ohms) ..... 105/130/150 W

Dynamic Headroom
U, C models (8 ohms) .....0.41 dB

Input Sensitivity/Input Impedance
CD, etc. ..... 200 mV / 47 k-ohms
MULTI CH INPUT
FRONT L/R, CENTER, SURROUND L/R, SUBWOOFER
..... 200 mV / 47 k-ohms

Maximum Input Signal (1 kHz, 0.5 % THD, Effect on)
CD, etc. .....2.0 V or more

Output Level/Output Impedance
AUDIO OUT (REC) ..... 200 mV / 1.2 k-ohms
SUBWOOFER (2 ch STEREO and FRONT SP: Small)
..... 4 V / 1.2 k-ohms

Headphone Jack Rated Output/Impedance
CD, etc. (1 kHz, 200 mV, 8 ohms) ..... 400 mV / 470 ohms

Frequency Response
(10 Hz to 100 kHz)
CD, etc. to FRONT L/R .....0 / -3.0 dB
(10 Hz to 20 kHz)
V-AUX to FRONT L/R .....0 / -3.0 dB

Total Harmonic Distortion (1 kHz, 50 W)
CD, etc. (2 ch STEREO) to FRONT L/R SP OUT
U, C models (8 ohms) .....0.06 % or less
R, T, K, A, B, G, E, F, L models (6 ohms) .....0.06 % or less

Signal to Noise Ratio (IHF-A Network)
CD, etc. (STEREO) (Input shorted) to SP OUT
200 mV ..... 98 dB or more
250 mV ..... 100 dB or more

Residual Noise (IHF-A Network)
FRONT L/R SP OUT .....170 µV or less

Channel Separation
CD, etc. (Input 5.1 k-ohms shorted, 1 kHz / 10 kHz)
..... 60 dB or more / 45 dB or more

Tone Control Characteristics
BASS
Boost/Cut .....±10 dB (100 Hz)
TREBLE
Boost/Cut .....±10 dB (20 kHz)

Filter Characteristics
FRONT, CENTER, SURROUND (H.P.F.)
.....fc=40/60/80/90/100/110/120/160/200 Hz, 12 dB/oct.
SUBWOOFER (L.P.F.)
.....fc=40/60/80/90/100/110/120/160/200 Hz, 24 dB/oct.

■ Video Section

Composite Video Signal Level
.....1 Vp-p / 75 ohms

Component Signal Level
Y .....1 Vp-p / 75 ohms
P_B/P_R .....0.7 Vp-p / 75 ohms

Video Maximum Input Level
..... 1.5 Vp-p or more

Signal to Noise Ratio (IHF)
..... 50 dB or more

Monitor Out Frequency Response
Component video signal .....5 Hz to 60 MHz, -3 dB

■ FM Section

Tuning Range
U, C models .....87.5 to 107.9 MHz
R, L models .....87.5 to 108.0 / 87.50 to 108.00 MHz
T, K, A, B, G, E, F models .....87.50 to 108.00 MHz

50 dB Quieting Sensitivity (IHF) (1 kHz, 100 % Mod.)
Mono .....2.8 µV (20.2 dBf)

Signal to Noise Ratio (IHF)
Mono / Stereo .....73 dB / 70 dB

Harmonic Distortion (1 kHz)
Mono / Stereo .....0.5 % / 0.5 %

Antenna Input ..... 75 ohms unbalanced

■ AM Section

Tuning Range
U, C models .....530 to 1,710 kHz
R, L models .....530 to 1,710 / 531 to 1,611 kHz
T, K, A, B, G, E, F models .....531 to 1,611 kHz

Antenna Input .....Loop antenna

■ General

Power Supply

U, C models ..... AC 120 V, 60 Hz
R, L models ..... AC 110-120/220-240 V, 50/60 Hz
T model ..... AC 220 V, 50 Hz
K model ..... AC 220 V, 60 Hz
A model ..... AC 240 V, 50 Hz
B, G, E, F models ..... AC 230 V, 50 Hz

Power Consumption

U, C models ..... 240 W / 320 VA
R, T, K, A, B, G, E, F, L models ..... 240 W

Standby Power Consumption (reference data)

U, C, T, K, A, B, G, E, F models ..... 0.8 W

Maximum Power Consumption (5 ch drive, 10 % THD)

R, L models ..... 530 W

Dimensions (W x H x D)

..... 435 x 151 x 317.6 mm (17-1/8" x 5-7/8" x 12-1/2")

Weight ..... 8.0 kg (17.6 lbs.)

Finish

[RX-V365]
Gold color ..... T model
Black color ..... U, C, R, T, K, A, B, G, E, F, L models
Silver color ..... R, A, G, E, F models
Titanium color ..... R, K, G, E, F, L models
[HTR-6230]
Gold color ..... T model
Black color ..... U, C, T, K, G, E, F models
Silver color ..... U, R, G, E, F models

Accessories ..... Remote control x 1
Batteries (R03, AAA, UM-4) x 2
Indoor FM antenna x 1
AM loop antenna x 1
Optimizer microphone x 1 (R, K, A, B, G, E, F, L models)
Sheet x 1 (T model)

*** Specifications are subject to change without notice due to product improvements.**

U ..... ***U.S.A. model***
C ..... ***Canadian model***
R ..... ***General model***
T ..... ***Chinese model***
K ..... ***Korean model***
A ..... ***Australian model***
B ..... ***British model***
G ..... ***European model***
E ..... ***South European model***
F ..... ***Russian model***
L ..... ***Singapore model***

DOLBY DIGITAL
Manufactured under license from Dolby Laboratories.
"Dolby", "Pro Logic", and the double-D symbol are trademarks of Dolby Laboratories.

dts Digital Surround
DTS is a registered trademark and the DTS logos and symbol are trademarks of DTS, Inc.

HDMI
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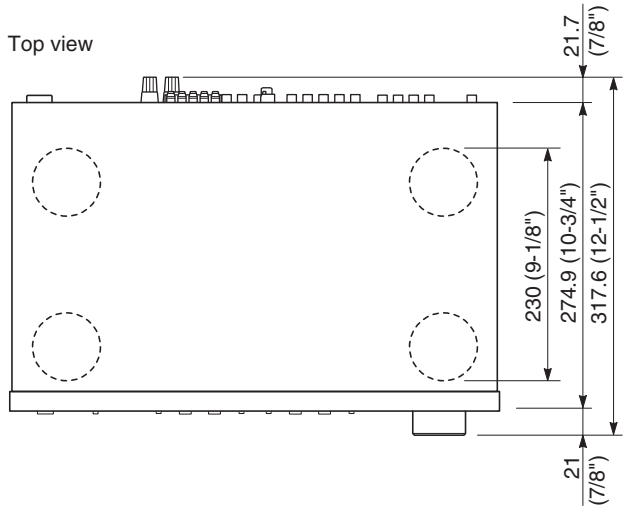
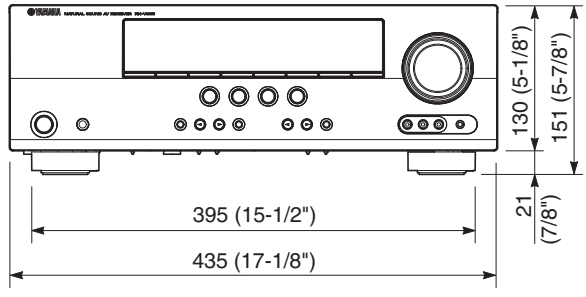
SILENT ™ CINEMA
"SILENT CINEMA" is a trademark of Yamaha Corporation.

- **DIMENSIONS**

Top view



Front view



Unit: mm (inch)

RX-V365/HTR-6230

- **SCENE TEMPLATE**

SCENE name	Contents		Source	Program		NIGHT	Select (Default)	
				Mode	Sub-mode	Mode	U, C models	R, T, K, A, B, G, E, F, L models
DVD Viewing	DVD	Movie	DVD	STRAIGHT	–	SYSTEM	O (SCENE 1)	O
DVD Movie Viewing			DVD	MOVIE	Movie Dramatic	SYSTEM	O	O (SCENE 1)
DVD Live Viewing		Music Live	DVD	MUSIC	Pop/Rock	SYSTEM	O	O
DVR Viewing	DVR		DVR	MOVIE	Movie Dramatic	SYSTEM	O	O
Music Disc Listening	DVD-Audio/ SA-CD	Music Disc	DVD	STEREO	2ch Stereo	SYSTEM	O	O (SCENE 2)
Disc Listening			DVD	STEREO	5ch Stereo	SYSTEM	O (SCENE 2)	O
CD Listening	CD	Music Disc	CD	STEREO	5ch Stereo	SYSTEM	O	O
CD Music Listening			CD	STEREO	2ch Stereo	SYSTEM	O	O
Radio Listening	TUNER/ RADIO	FM/AM	FM/AM (TUNER)	MUSIC ENHANCER	Music Enh. 5ch	SYSTEM	O (SCENE 4)	O (SCENE 4)
DOCK Listening	DAP	iPod	DOCK (V-AUX)	MUSIC ENHANCER	Music Enh. 5ch	SYSTEM	O	–
		Bluetooth						
TV Viewing	TV		DTV/CBL	STRAIGHT	–	SYSTEM	O (SCENE 3)	O (SCENE 3)
TV Sports Viewing			DTV/CBL	ENTERTAINMENT	TV Sports	SYSTEM	O	O
Game Playing	GAME		V-AUX	ENTERTAINMENT	Game	SYSTEM	O	O

- **SOUND/SURROUND SELECT MENU**

Sound Field Parameters

		DSP LEVEL MIN, [MID], MAX	MUSIC ENHANCER LOW, [HIGH]
STEREO	2ch Stereo		
	5ch Stereo		
MUSIC	Pop/Rock	O	
	Hall	O	
	Jazz	O	
ENTERTAIN	Game	O	
	TV Sports	O	
MOVIE	Movie Spacious	O	
	Movie Dramatic	O	
ENHANCER	Music Enh. 2ch		O
	Music Enh. 5ch		O

Surround Decoders

		PANORAMA ON, [OFF]	DIMENSION -3, [STD], +3	CENTER WIDTH 0, 1, 2, [3], 4, 5, 6, 7
DECODING FORMAT	Dolby Digital			
	DTS			
POST DECODING FORMAT	Dolby Pro Logic			
	Dolby Pro Logic II Music	O	O	O
	Dolby Pro Logic II Movie			
	Dolby Pro Logic II Game			

• SET MENU TABLE

CATEGORY	MAIN MENU	SUB MENU	SELECT MENU		VALUE [INITIAL]
BASIC SETUP (U, C, T models)			ROOM	: M	S / [M] / L
			SUBWOOFER	: YES	[YES] / NONE
			SPEAKERS	: 5 spk	2 spk / 3 spk / 4 spk / [5 spk]
			SET / [CANCEL]		
			CHECK	: Test Tone	
			CHECK OK?		[YES] / NO
		SPEAKER LEVEL	FL	· · · · · || · · · · ·	-10 to +10 dB, [0 dB], 1 dB step
			FR	· · · · · || · · · · ·	
			C	· · · · · || · · · · ·	
			SL	· · · · · || · · · · ·	
			SR	· · · · · || · · · · ·	
			SWFR	· · · · · || · · · · ·	
AUTO SETUP (R, K, A, B, G, E, F, L models)	Use this feature to automatically adjust speaker and system parameters.				
MANUAL SETUP	1 SOUND MENU	A) SPEAKER SET	FRONT B	: FRONT	[FRONT] / ZONE B
			FRONT	: LARGE	[LARGE] / SMALL
			CENTER	: SML	NONE / [SML] / LRG
			SUR. L/R	: SML	NONE / [SML] / LRG
			BASS OUT	: BOTH	SWFR / FRNT / [BOTH]
			CROSSOVER	: 80 Hz	40 / 60 / [80] / 90 / 100 / 110 / 120 / 160 / 200 Hz
			SWFR PHASE	: NRM	[NRM] / REV
		B) SP LEVEL	FL	· · · · · || · · · · ·	-10 to +10 dB, [0 dB], 1 dB step
			FR	· · · · · || · · · · ·	
			C	· · · · · || · · · · ·	
			SL	· · · · · || · · · · ·	
			SR	· · · · · || · · · · ·	
			SWFR	· · · · · || · · · · ·	
		C) SP DISTANCE	UNIT	: feet	feet (ft) / meters (m)
			FRONT L	: 10.0 ft	feet : 1.0 to 80.0 ft, [10.0 ft], 0.5 ft step
			FRONT R	: 10.0 ft	
			CENTER	: 8.5 ft	feet : 1.0 to 80.0 ft, [8.5 ft], 0.5 ft step
			SUR. L	: 8.0 ft	feet : 1.0 to 80.0 ft, [8.0 ft], 0.5 ft step
			SUR. R	: 8.0 ft	
			SWFR	: 10.0 ft	feet : 1.0 to 80.0 ft, [10.0 ft], 0.5 ft step
			FRONT L	: 3.00 m	meters : 0.30 to 24.00 m, [3.00 m], 0.10 m step
			FRONT R	: 3.00 m	
			CENTER	: 2.60 m	meters : 0.30 to 24.00 m, [2.60 m], 0.10 m step
			SUR. L	: 2.40 m	meters : 0.30 to 24.00 m, [2.40 m], 0.10 m step
			SUR. R	: 2.40 m	
			SWFR	: 3.00 m	meters : 0.30 to 24.00 m, [3.00 m], 0.10 m step
		D) CENTER GEQ	TEST	: > OFF ON	[OFF] / ON
			100 Hz	- - || - -	-6.0 to +6.0 dB, [0 dB], 0.5 dB step
			300 Hz	- - || - -	
			1 kHz	- - || - -	
			3 kHz	- - || - -	
			10 kHz	- - || - -	
		E) LFE LEVEL	SP LFE	: 0 dB	-20 to 0 dB, [0 dB], 1 dB step
			HP LFE	: 0 dB	
		F) D. RANGE	SP D. R.	: MAX	MIN / STD / [MAX]
			HP D. R.	: MAX	
		G) AUDIO SET	MUTE TYP	: FULL	[FULL] / -20 dB
			A. DELAY	: 0 ms	0 to 160 ms, [0 ms], 1 ms step
			MAX VOL.	: +16 dB	+16 dB / +10 to -30 dB, [+16 dB], 5 dB step
			INI. VOL.	: OFF	OFF / -80 to +16 dB, [OFF], 1 dB step

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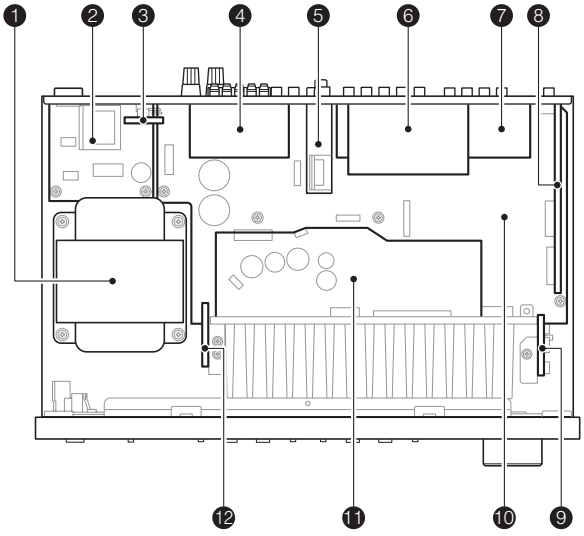
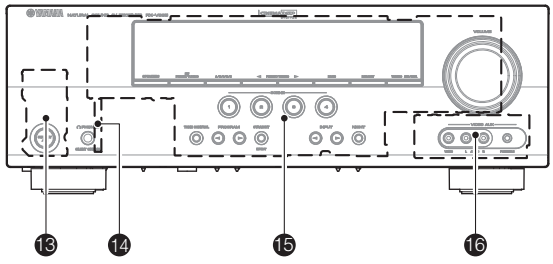
CATEGORY	MAIN MENU	SUB MENU	SELECT MENU	VALUE [INITIAL]
	2 INPUT MENU	A) INPUT ASSIGN	IN (1) [COAXIAL] : DVD	CD / MD/CD-R / [DVD] / DTV/CBL / V-AUX / DVR
			IN (2) [OPTICAL] : DTV/CBL	CD / MD/CD-R / DVD / [DTV/CBL] / V-AUX / DVR
			IN (3) [OPTICAL] : CD	[CD] / MD/CD-R / DVD / DTV/CBL / V-AUX / DVR
		B) INPUT RENAME		CD / MD/CD-R / DVD / DTV/CBL / V-AUX / DVR Input is possible to 8 characters Input possible Character type: Capital: A to Z, Small: a to z, Figure: 0 to 9, Space, Marks: # * + , - . / : < > ?
		C) VOLUME TRIM		CD / TUNER / MD/CD-R / DVD / DTV/CBL / V-AUX (DOCK: U, C models) /DVR / MULTI CH INPUT -6.0 to +6.0 dB, [0.0 dB], 1.0 dB step
		D) DECODER MODE		[AUTO] / LAST
			CD / DVD / DTV/CBL	[AUTO] / DTS
		E) MULTI CH SET	BGV	[LAST] / DVR / V-AUX / DTV/CBL / DVD
	3 OPTION MENU	A) DISPLAY SET	DIMMER : 0	-4 to 0, [0], 1 step
		B) MEMORY GUARD	MEM. GUARD : OFF	[OFF] / ON
		C) AUDIO SELECT	> AUTO LAST	[AUTO] / LAST
		D) PARAM. INI		[NO] / YES
		E) BLUETOOTH (U, C models)	START PAIRING	
SIGNAL INFO	1 FORMAT (Signal format)		Analog / PCM / Dolby Digital / DTS / Digital / --- / ???	
	2 SAMPLING		xxx kHz	
	3 CHANNEL		2/0/--- / 3/2/0.1 / 1+1/0/--- / ---/---	
	4 BITRATE (Bit rate)		xxx kbps	
	5 FLAG		DTS / Dolby Digital / PCM / None	

■ INTERNAL VIEW





1. POWER TRANSFORMER
2. OPERATION (3) P.C.B.
3. OPERATION (5) P.C.B. (R, L models)
4. MAIN (3) P.C.B.
5. AM/FM TUNER
6. HDMI P.C.B.
7. OPERATION (4) P.C.B.
8. DSP P.C.B.
9. MAIN (4) P.C.B.
10. MAIN (1) P.C.B.
11. OPERATION (2) P.C.B.
12. OPERATION (11) P.C.B.
13. OPERATION (10) P.C.B.
14. OPERATION (6) P.C.B.
15. OPERATION (1) P.C.B.
16. OPERATION (7) P.C.B.

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■ DISASSEMBLY PROCEDURES

(Remove parts in the order as numbered.)
Disconnect the power cable from the AC outlet.

1. Removal of Top Cover

a. Remove 4 screws (①), 4 screws (②) and screw (③). (Fig. 1)
b. Slide the top cover rearward to remove it. (Fig. 1)

2. Removal of Front Panel Unit

a. Remove 6 screws (④). (Fig. 1)
b. Remove CB191 (R, K, A, B, G, E, F, L models),CB192, CB261 and CB408. (Fig. 1)
c. Unlock and remove CB235. (Fig. 1)
d. Release hook and then remove the front panel unit. (Fig. 1)

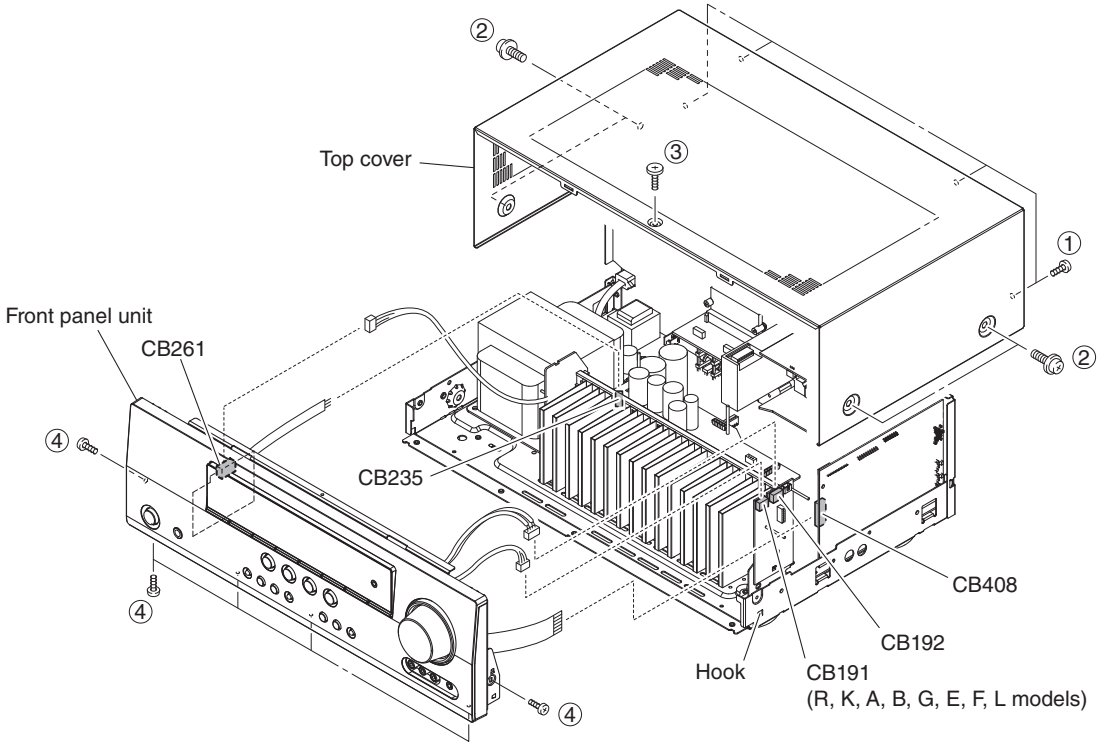

Fig. 1

3. Removal of HDMI P.C.B.

a. Remove CB904 and CB905. (Fig. 2)
b. Remove 5 screws (⑤). (Fig. 3)
c. Remove the HDMI P.C.B.. (Fig. 2)

4. Removal of OPERATION (4) P.C.B.

a. Remove CB181–182 and CB193. (Fig. 2)
b. Remove 7 screws (⑥). (Fig. 3)
c. Remove the OPERATION (4) P.C.B.. (Fig. 2)

5. Removal of DSP P.C.B.

a. Remove 18 screws (⑦), 3 screws (⑧) and 2 screws (⑨) (R, L models). (Fig. 3)
b. Remove the cord stopper. (Fig. 2)
c. Remove the rear panel. (Fig. 2)
d. Remove screw (⑩). (Fig. 2)
e. Remove CB512 and CB516. (Fig. 2)
f. Remove the DSP P.C.B. which is connected directly to the MAIN (1) P.C.B. with board-to-board connectors. (Fig. 2)

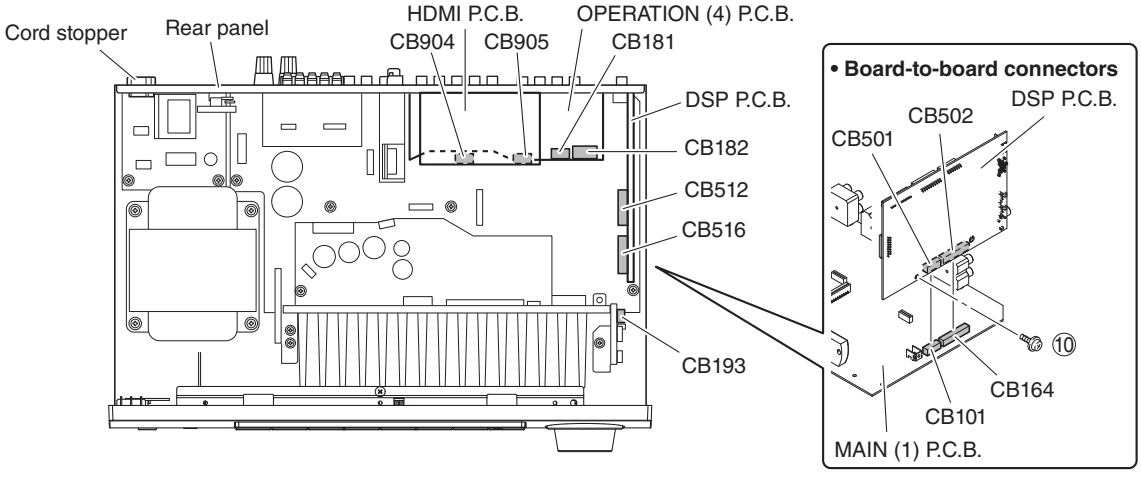

Fig. 2

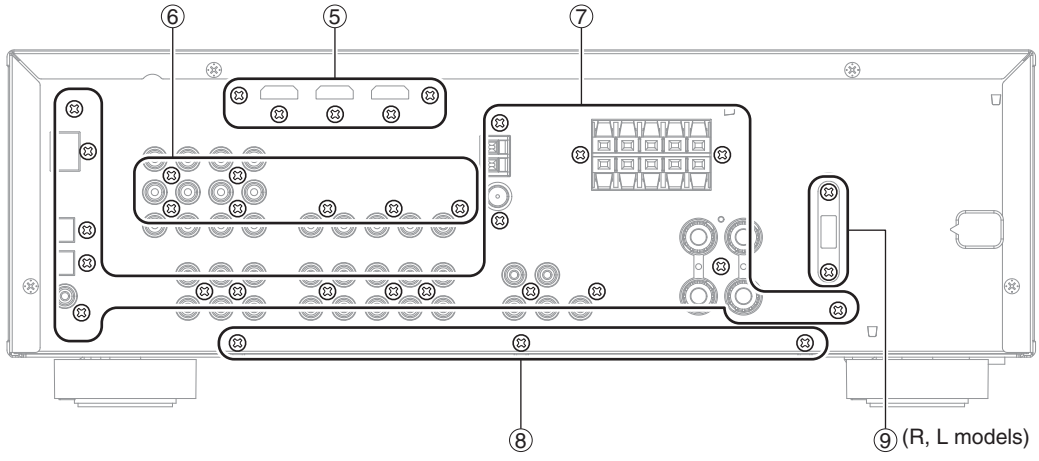

Fig. 3

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When checking the P.C.B.

a. Remove the top cover. (Fig. 1)
b. Remove 3 screws (⑧). (Fig. 3)
c. Remove 5 screws (⑪) and 4 screws (⑫). (Fig. 4)
d. Place the P.C.B.s (with rear panel) upright. (Fig. 5)
e. Connect the ground of heat sink, rear panel and MAIN (1) P.C.B. (G103, G104, G105 and ST101) to the chassis with a ground lead or the like. (Fig. 5)

- Use the extension cable for connection for the following connectors. (Fig. 6)
  DSP P.C.B. CB408 – OPERATION (1) P.C.B. CB202: MF117350 (17P, 350mm)

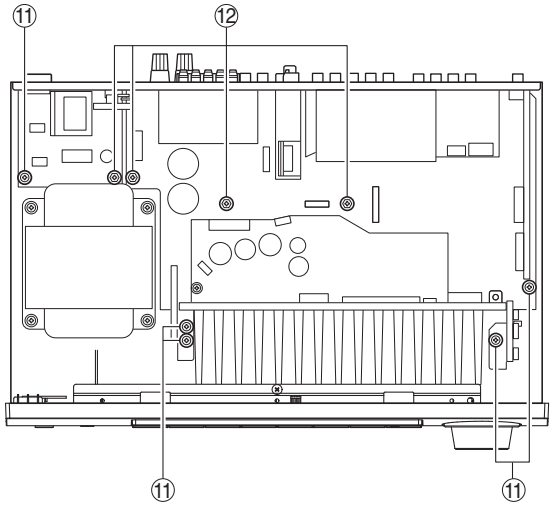


Fig. 4

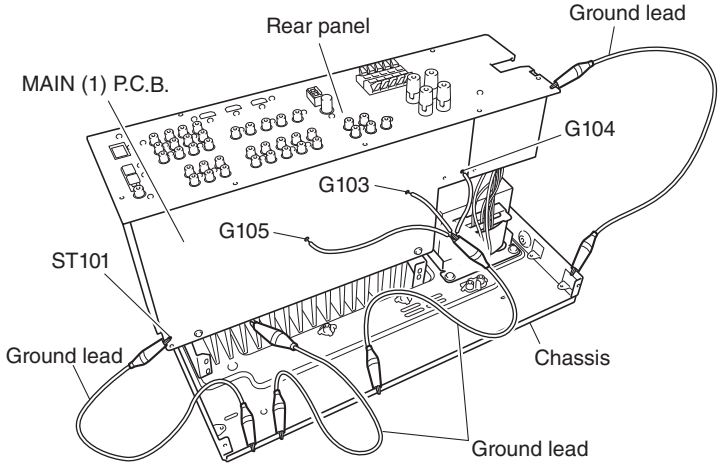


Fig. 5

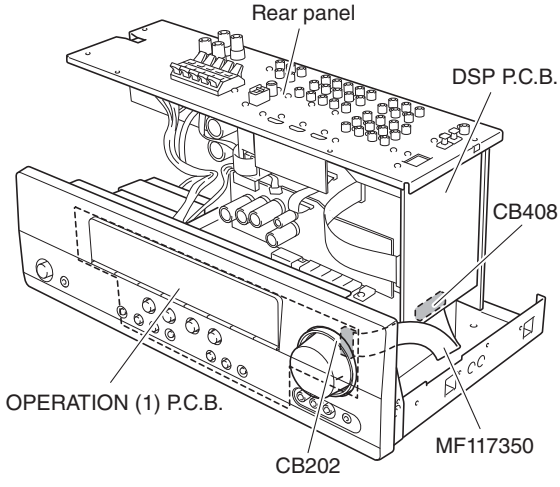


Fig. 6

■ UPDATING FIRMWARE

After replacing the following parts, be sure to write the latest firmware.

- DSP P.C.B.
- IC201 (DSP P.C.B.)

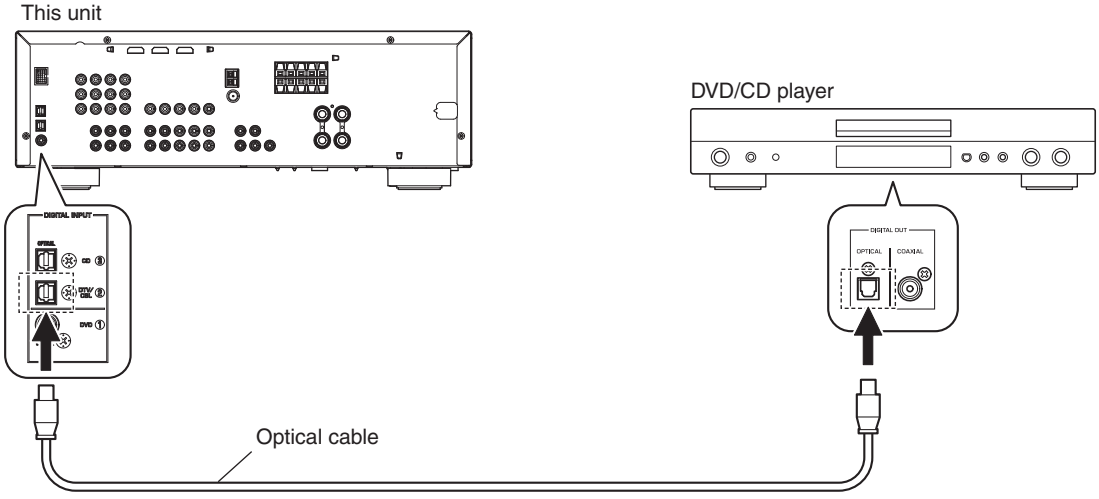
● Required tools

- DVD or CD player (with DIGITAL OUTPUT (OPTICAL or COAXIAL) jack)
- Optical cable (when OPTICAL jack is used)
- Digital audio pin cable (when COAXIAL jack is used)
- Firmware CD
  - * To make the firmware CD, download the latest firmware from the specified download source to PC.

● Connection

Connect this unit and DVD/CD player as shown below. (Fig. 1)

Example of connection between digital OPTICAL jacks



Example of connection between digital COAXIAL jacks

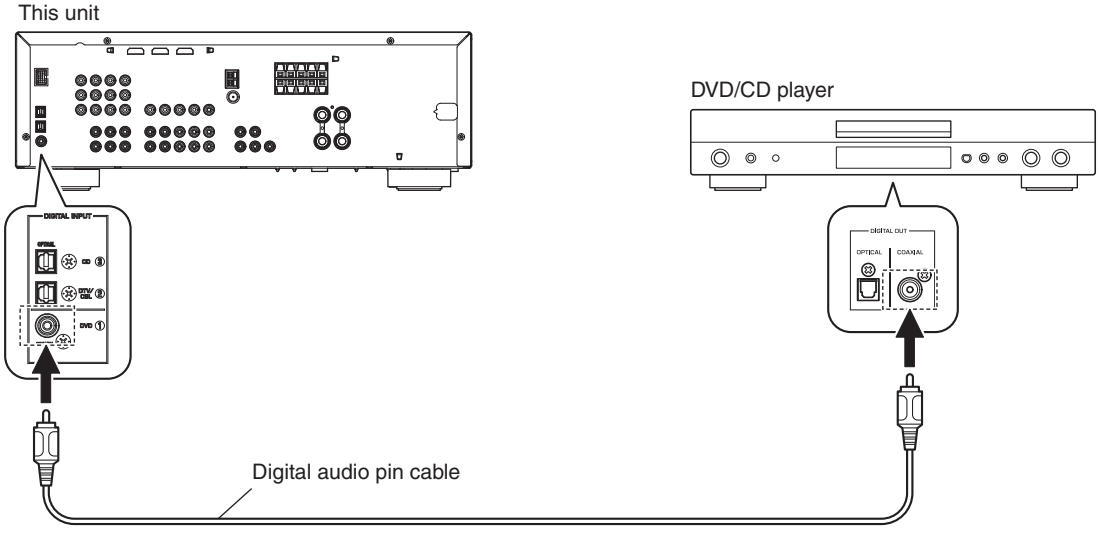


Fig. 1

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● Confirmation of firmware version and checksum

Before and after writing the firmware, check the firmware version and checksum value by using the self-diagnostic function menu “14. ROM VER/SUM”.
For more information, refer to “SELF-DIAGNOSTIC FUNCTION”.
Have the firmware version and checksum displayed by using sub-menu, and note down them.

● Operation procedures

1. While pressing the “STANDBY/ON” and “SPEAKERS” keys of this unit, connect the power cable of this unit to the AC outlet. (Fig. 2)
   The FIRMWARE UPDATE mode is activated and “SPDIF Upgrade” is displayed. (Fig. 2)

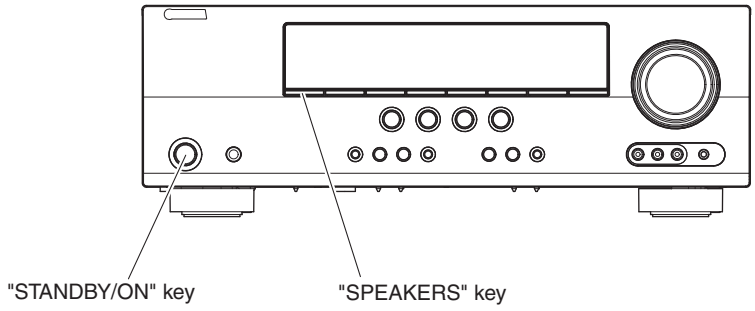

Fig. 2

2. Connect the power cable of DVD/CD player to the AC outlet.
3. Press the “STANDBY/ON” key of the DVD/CD player to turn on the power.
4. Press the “EJECT” key of the DVD/CD player to open the disc tray.
5. Place the firmware CD in the disc tray and close the disc tray.
6. Press the “PLAY” key of the DVD/CD player, then writing of the firmware is started. (Fig. 3)
7. When writing of the firmware is completed, “Upgrade OK”, “Please...” and “Turn off!!” are displayed repeatedly. (Fig. 3)



Fig. 3

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* When the version of the firmware to be written is the same as the one existing in this unit, “Same Version”, “Please...” and “Turn off!!” are displayed repeatedly. (Upgrading is not necessary.)

If the display remains unchanged for longer than 10 seconds after starting the firmware CD play procedure, perform the firmware CD play procedure again from the beginning.

If “FILE CORRUPTED” is displayed after “Address:XXXXXX”, make sure that the firmware CD is not corrupted and perform steps 1 to 7 of “Operation Procedures” again.

If “Upgrade Failed” is displayed, perform Steps 1 to 7 of “Operation Procedures” again.

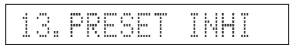
8. Press the “STOP” key of the DVD/CD player.
9. Press the “EJECT” key of the DVD/CD player to open the disc tray.
10. Remove the firmware CD from the disc tray and close the disc tray.
11. Press the “STANDBY/ON” key of the DVD/CD player to turn off the power.
12. Press the “STANDBY/ON” key of this unit to turn off the power.
13. Start up the self-diagnostic function mode of this unit and select “14. ROM VER/SUM” menu.
    Have the firmware version and checksum displayed by using sub-menu, and then check that they are the same as written ones.
    * When the displayed firmware version and checksum are different from written ones, perform the “Operation Procedures” all over again.
14. Press the “STANDBY/ON” key of this unit to turn off the power.

● Initializing of this unit

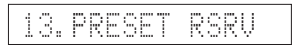
* After updating the firmware, be sure to initialize this unit.

1. Start up the self-diagnostic function mode and select “13. FACTORY PRESET” menu.
2. Select the “PRESET RSRV” menu.

PRESET INHIBIT (Initialization inhibited)



PRESET RESERVED (Initialization reserved)



3. Press the “STANDBY/ON” key of this unit to turn off the power.

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■ SELF-DIAGNOSTIC FUNCTION

This unit has self-diagnostic functions that are intended for inspection, measurement and location of faulty point.
There are 14 main menu items, each of which has sub-menu items.
Listed in the table below are menu items and sub-menu items.
Note that not all menu items listed will apply to the models covered in this service manual.

No.	Main menu	Sub-menu
1	BYPASS	ANALOG BYPASS
		DSP BYPASS
2	AUDIO CHECK	AUDIO CHECK
		MUTE ALL
		MUTE SYSTEM IC
		MUTE TRANSISTOR
3	SPEAKERS SET	FRNT : SML 0dB
		CENTER : NONE
		LFE/B : FRNT
		TONE : MAX
		TONE : MIN
4	6CH-INPUT	6ch INPUT 6-ohm
		6ch INPUT 8-ohm
		LIM : , PLDET : , THM :
5	MIC CHECK	MIC CHECK
6	FL CHECK	VFD CHECK
		VFD DISP OFF
		VFD DISP ALL
		VFD DIMMER
		CHECK PATTERN
7	TEST TONE	TEST ALL
		TEST FRONT L
		TEST CENTER
		TEST FRONT R
		TEST SURR R
		TEST SURR L
		TEST LFE
8	PROTECTION	PRD L : xxx
		PRD H : xxx
		PRV L : xxx
		PRV H : xxx
		THM : xxx
		PLDET8_L : xxx
		PLDET8_H : xxx
		PLDET6_L : xxx
		PLDET6_H : xxx
		PRI : xxx
		PDET : xxx

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No.	Main menu	Sub-menu
9	AD DATA CHECK	PD : xxx PV : xxx
		TH : xxx PL : xxx
		PI : xxx DE : xxx
		K0 : xxx K1 : xxx
10	PROTECTION HISTORY	History 1
		History 2
		History 3
		History 4
11	DOCK	DOCK : xxx
		DOCK ignore
		BTYS : xxx
		BT CLR/RSRV
12	NO MENU (Not applied to these models.)	
13	FACTORY PRESET	PRESET INHI
		PRESET RSRV
14	ROM VER/SUM	TOTAL VERSION
		CRC14 ALL program
		CRC16 application & standby (Main program CRC16)
		CRC16 SPI F/W update code
		CRC16 S/PDIF/ F/W update code
		FLASH ROM Read/Write check
		SDRAM Read/Write check
		EEPROM Read/Write check

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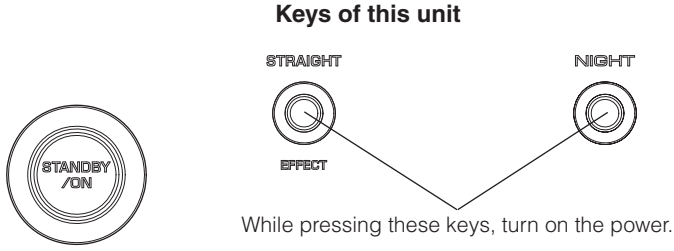
● Starting Self-Diagnostic Function

While pressing those 2 keys of this unit as shown in the figure below, press the “STANDBY/ON” key to turn on the power.



● Starting Self-Diagnostic Function in the protection cancel mode

If the protection function works and causes hindrance to trouble shoot, cancel the protection function as described below, and it will be possible to enter the self-diagnostic function mode.

While pressing those 2 keys as shown in the figure above, press the “STANDBY/ON” key to turn on the power and keep pressing those 2 keys for 3 seconds or longer.
The self-diagnostic function mode is activated with the protection functions disabled.
In this mode, the “SLEEP” segment of the FL display of this unit flashes to indicate that the mode is self-diagnostic function mode with the protection functions disabled.

CAUTION!

Using this product with the protection function disabled may cause further damage to this unit. Use special care for this point when using this mode.

● Canceling Self-Diagnostic Function

1. Before canceling self-diagnostic function, execute setting for FACTORY PRESET of main menu No.13 (Memory initialization inhibited or Memory initialized).
   * In order to keep the user memory stored, be sure to select PRESET INHIBITED (Memory initialization inhibited).
2. Press the “STANDBY/ON” key of this unit to turn off the power.

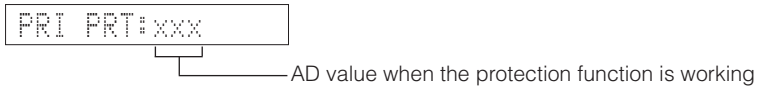
● Display provided when Self-Diagnostic Function started

The FL display of this unit displays the protection function history data then the main menu (sub-menu ANALOG BYPASS of main menu No. 1 BYPASS) a few seconds later.

When there is no history of protection function:



When there is a history of protection function due to excess current:



Cause: An excessive current flowed through the power amplifier.

Supplementary information:

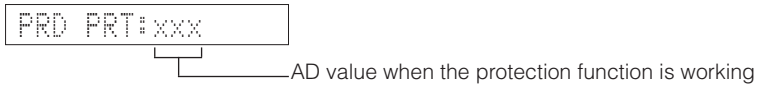
As current of the power amplifier is detected, the abnormal channel can be identified by checking the current detect transistor.

Turning on the power without correcting the abnormality will cause the protection function to work immediately and the power supply will instantly be shut off.

Notes)

- Applying the power to this unit without correcting the abnormality can be dangerous and cause additional circuit damage.
  To avoid this, if "PRI" and "PRD" protection function has been activated 3 times continuously, the power will not turn on even when the "STANDBY/ON" key is pressed.
  In order to turn on the power again, disconnect the power cable of this unit from the AC outlet once and then reconnect it again.
- The output transistors in each amplifier channel should be checked for damage before applying power to this unit.
- Amplifier current should be monitored by measuring DC voltage across the emitter resistors for each channel.

When there is a history of protection function due to abnormal DC output



Cause: DC output of the power amplifier is abnormal.

Supplementary information:

The protection function worked due to a DC voltage appearing at the speaker terminal.

A cause could be a defect in the amplifier.

If the power is turned on with the abnormality unsolved, the protection function works in about 3 seconds to turn off the power.

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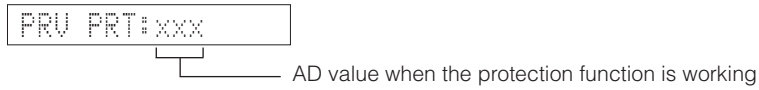
When there is a history of protection function due to abnormal voltage in the power supply section

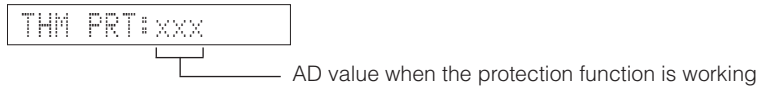


Cause: The voltage in the power supply section is abnormal.

Supplementary information:

The protection function worked due to a defect or overload in the power supply.
If the power is turned on with the abnormality unsolved, the protection function works in about 1 second to turn off the power.

When there is a history of protection function due to excessive heat sink temperature



Cause: The temperature of the heat sink is excessive.

Supplementary information:

The protection function worked due to the temperature limit being exceeded.
Causes could be poor ventilation or a defect related to the thermal sensor.

If the power is turned on with the abnormality unsolved, the protection function works in about 1 second to turn off the power.
For detection of each protection function, refer to main menu described later.

History of protection function

When the protection function has worked, its history is stored in memory with a backup.
Even if no abnormality is noted while servicing the unit, an abnormality which has occurred previously can be defined as long as the backup data has been stored.
The history of the protection function is cleared when self-diagnostic function is cancelled by selecting PRESET RESERVED (Memory initialized) of main menu No. 13 or when the backup data is erased.

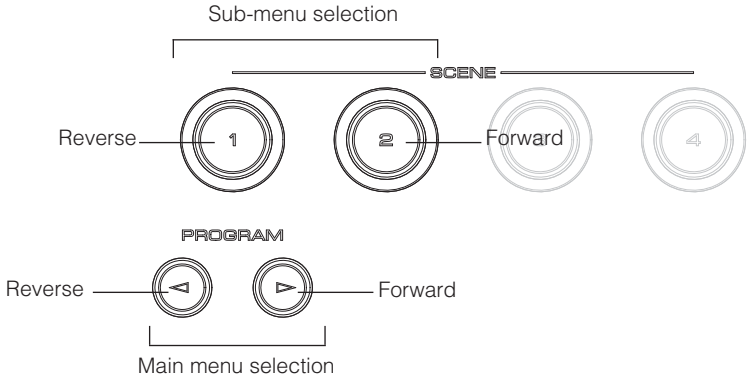
● Operation procedure of Main menu and Sub-menu

There are 14 menu items, each of them having sub-menu items.

Main menu selection:
Select the menu using “>” (forward) and “<” (reverse) keys of PROGRAM.

Sub-menu selection:
Select the sub-menu using “SCENE 2” (forward) and “SCENE 1” (Reverse) keys.

Keys of this unit



● Functions in Self-Diagnostic Function mode

In addition to the self-diagnostic function menu items, functions as listed below are available.

- Power on/off
- Master volume
- Muting
- Speakers A/B/OFF
- Input selection
- Tone control

* Functions related to the tuner and the set menu are not available.

● Initial settings used to start Self-Diagnostic Function

The following initial settings are used when starting self-diagnostic function.
When self-diagnostic function is canceled, these settings are restored to those before starting self-diagnostic function.

- Master volume: -20 dB
- Input: DVD (MULTI CHANNEL INPUT OFF)
- Effect level: 0 dB
- Main menu: 1. ANALOG BYPASS

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● Details of Self-Diagnostic Function menu

1. BYPASS

Using the sub-menu, it is possible to select ANALOG BYPASS output or DSP BYPASS output.

ANALOG BYPASS

The analog input audio signal is output to FRONT L/R with EFFECT OFF.

```
1.ANLOG BYPASS
```

INPUT: DVD ANALOG
SPEAKER OUT: 1 kHz, SUBWOOFER OUTPUT: 50 Hz

Input level	Volume	SPEAKER OUT			SUBWOOFER OUTPUT
		FRONT	CENTER	SURROUND	
Both ch, -20 dBm	+6.0 dB	+11.5 dBm	-∞	-∞	-∞

DSP BYPASS

The digital input audio signal is output to FRONT L/R with EFFECT OFF.

```
1.DSP BYPASS
```

INPUT: DVD ANALOG
SPEAKER OUT: 1 kHz, SUBWOOFER OUTPUT: 50 Hz

Input level	Volume	SPEAKER OUT			SUBWOOFER OUTPUT
		FRONT	CENTER	SURROUND	
Both ch, -20 dBm	+6.0 dB	+11.5 dBm	-∞	-∞	-∞

2. AUDIO CHECK

The input audio signal is output.

* When the input audio signal is 2 ch L/R, it is distributed as follows when output.
L ch: FRONT L, CENTER, SURROUND L, LFE (L ch +10 dB)
R ch: FRONT R, SURROUND R

```
2.AUDIO CHECK
```

INPUT: DVD ANALOG
SPEAKER OUT: 1 kHz, SUBWOOFER OUTPUT: 50 Hz

Input level	Volume	SPEAKER OUT			SUBWOOFER OUTPUT
		FRONT	CENTER	SURROUND	
Both ch, -20 dBm	+6.0 dB	+11.5 dBm	+11.5 dBm	+11.5 dBm	0 dBm

MUTE ALL

The audio signals of all channels are muted by System IC (MAIN P.C.B.) and Transistor (Q5008-5011 MAIN P.C.B.).

```
2.MUTE ALL
```

MUTE SYSTEM IC

The audio signals of all channels are muted by System IC (MAIN P.C.B.).

```
2.MUTE SYS IC
```

MUTE TRANSISTOR

The audio signals of all channels are muted by Transistor (Q5008-5011 MAIN P.C.B.).

```
2.MUTE TR
```

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3. SPEAKER SET

The analog switch settings for each sub-menu are as shown in the table below.

	FRONT	CENTER	SURROUND	SUBWOOFER
FRONT : SML 0dB	SMALL	LARGE	LARGE	SWFR
CENTER : NONE	LARGE	NONE	LARGE	SWFR
LFE/B : FRNT	LARGE	SMALL	SMALL	FRONT
TONE : MAX	LARGE	LARGE	LARGE	SWFR
TONE : MIN	LARGE	LARGE	LARGE	SWFR

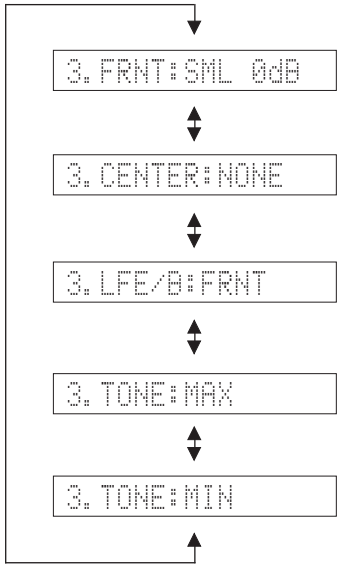
LARGE: This mode is used for a speaker with high bass reproduction performance (a large unit). Full bandwidth signals are output.

SMALL: This mode is used for a speaker with low bass reproduction performance (a small unit). The signals of 90 Hz or less are mixed into the channel specified by LFE/BASS.

NONE: This mode is used for no center speaker. The center content is reduced by 3 dB and distributed to FRONT L/R.

SWFR: LFE of 5.1 ch signal or LFE/BASS lower than 90 Hz is output through SUBWOOFER OUT.

FRONT: LFE of 5.1 ch signal or LFE/BASS lower than 90 Hz is distributed to FRONT L/R.



FRONT: SML 0 dB
The FRONT L/R signal, when 90 Hz or lower, is mixed to the channel specified by LFE/BASS.

CENTER: NONE
The CENTER signal is distributed to FRONT L/R.

LFE / BASS: FRONT
The LFE (SUBWOOFER) signal is distributed to FRONT L/R.

TONE: MAX
The signal is output with the tone control [BASS +10 dB, TREBLE +10 dB].

TONE: MIN
The signal is output with the tone control [BASS -10 dB, TREBLE -10 dB].

INPUT: DVD ANALOG
SPEAKER OUT: 1 kHz, SUBWOOFER OUTPUT: 50 Hz

Sub-menu	Input level	Volume	SPEAKER OUT			SUBWOOFER OUTPUT
			FRONT	CENTER	SURROUND	
FRONT : SML 0dB	Both ch, -20 dBm	+6.0 dB	+11.5 dBm	-∞	-∞	-3.5 dBm
CENTER : NONE	Both ch, -20 dBm	+6.0 dB	+11.5 dBm	-∞	-∞	-∞
LFE/B : FRNT	Both ch, -20 dBm	+6.0 dB	+11.5 dBm	-∞	-∞	-∞
TONE : MAX	Both ch, -20 dBm	+6.0 dB	+14.5 dBm	-∞	-∞	-∞
TONE : MIN	Both ch, -20 dBm	+6.0 dB	+8.5 dBm	-∞	-∞	-∞

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4. 6CH INPUT

The input source [MULTI CHANNEL INPUT] is selected.
It is possible to select the 6-ohm/8-ohm by using the sub-menu.

6 ch INPUT 6-ohm



INPUT: MULTI CH INPUT
SPEAKER OUT: 1 kHz, SUBWOOFER OUTPUT: 50 Hz

Sub-menu	Input level	Volume	SPEAKER OUT			SUBWOOFER OUTPUT
			FRONT	CENTER	SURROUND	
6 ch INPUT 6-ohm	Both ch, -20 dBm	+6.0 dB	+11.5 dBm	+11.5 dBm	+11.5 dBm	-3.5 dBm

6 ch INPUT 8-ohm



INPUT: MULTI CH INPUT
SPEAKER OUT: 1 kHz, SUBWOOFER OUTPUT: 50 Hz

Sub-menu	Input level	Volume	SPEAKER OUT			SUBWOOFER OUTPUT
			FRONT	CENTER	SURROUND	
6 ch INPUT 8-ohm	Both ch, -20 dBm	+6.0 dB	+11.5 dBm	+11.5 dBm	+11.5 dBm	-3.5 dBm

LIM/PLDET/THM

LIM: Setting value of LIM (Limiter control)

* Do not change the setting value because this item is only for the use of development staff.

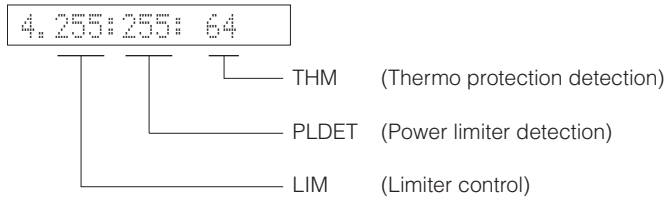
PLDET: Power limiter detection

The A/D conversion value during operation is displayed.

THM: Thermo protection detection

The A/D conversion value during operation is displayed.

(Reference voltage: 3.3 V=255)



5. MIC CHECK (R, K, A, B, G, E, F, L models)

The signals input through the microphone are output via A/D and D/A.



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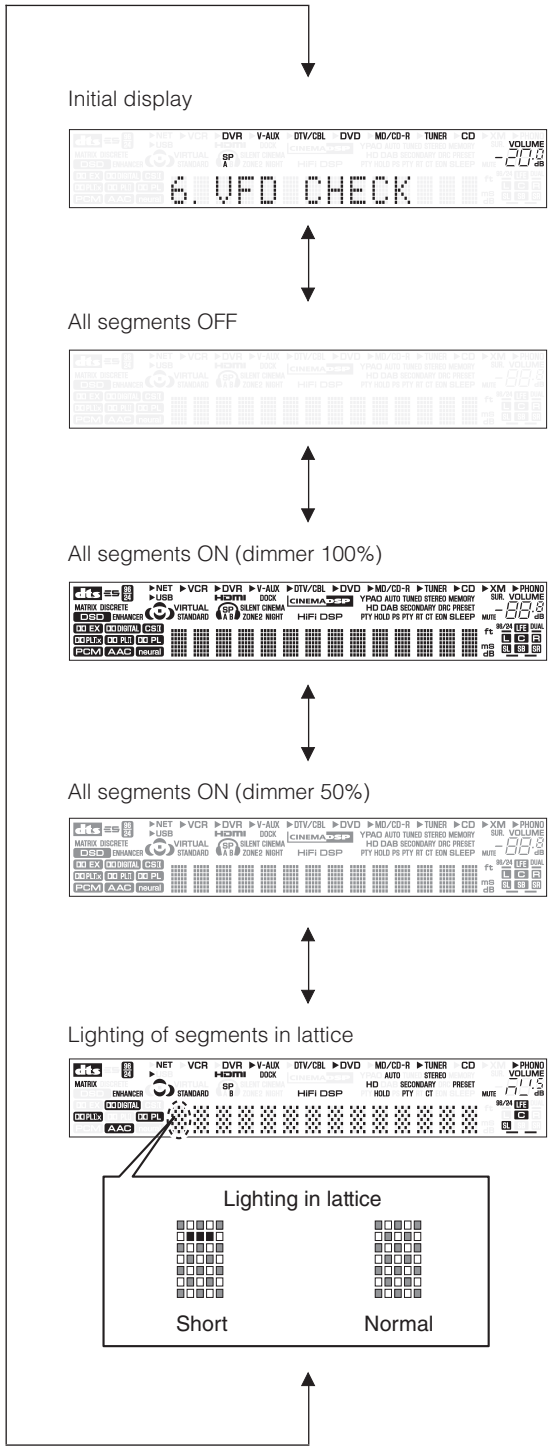
6. FL CHECK

This menu is used to check the FL display section.
The audio signal is processed using STRAIGHT.

Checking FL display section



Segment conditions of the FL driver and the FL tube are checked by turning ON and OFF all segments.
Next, the operation of the FL driver is checked by using the dimmer control. Then a short between segments next to each other is checked by turning ON and OFF all segments alternately (in lattice).
(In the above example, the segments in the second row from the top are shorted.)

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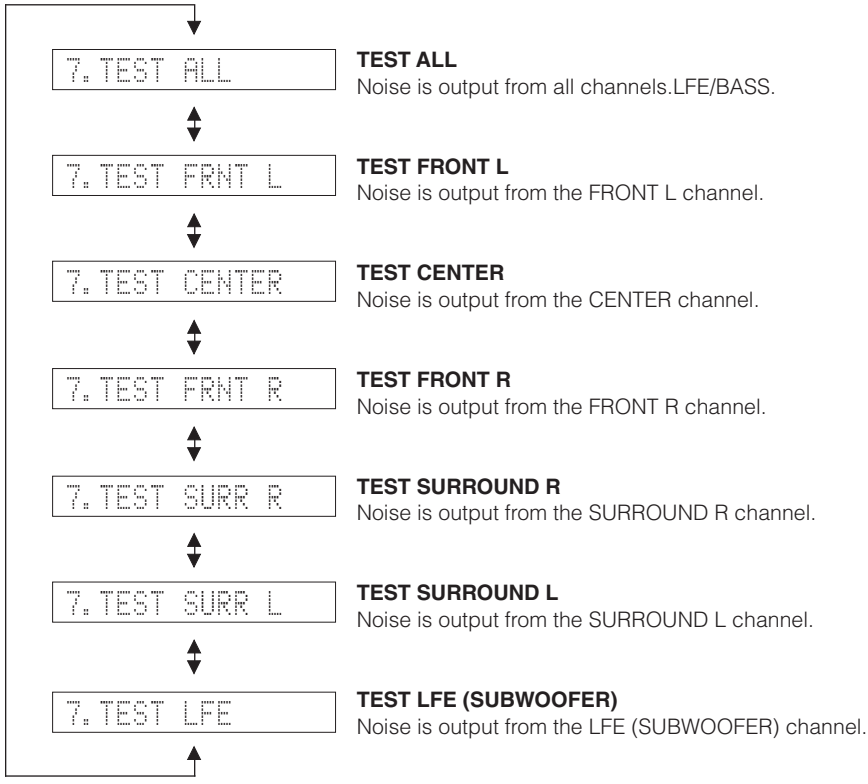
7. TEST TONE

The noise generator with a built-in DSP outputs the test noise through the channels specified by the sub-menu.
The noise frequency for LFE (SUBWOOFER) is 35 to 80 Hz.
Other than that, the noise frequency is 500 to 2 kHz.



TEST ALL
Noise is output from all channels.LFE/BASS.

TEST FRONT L
Noise is output from the FRONT L channel.

TEST CENTER
Noise is output from the CENTER channel.

TEST FRONT R
Noise is output from the FRONT R channel.

TEST SURROUND R
Noise is output from the SURROUND R channel.

TEST SURROUND L
Noise is output from the SURROUND L channel.

TEST LFE (SUBWOOFER)
Noise is output from the LFE (SUBWOOFER) channel.

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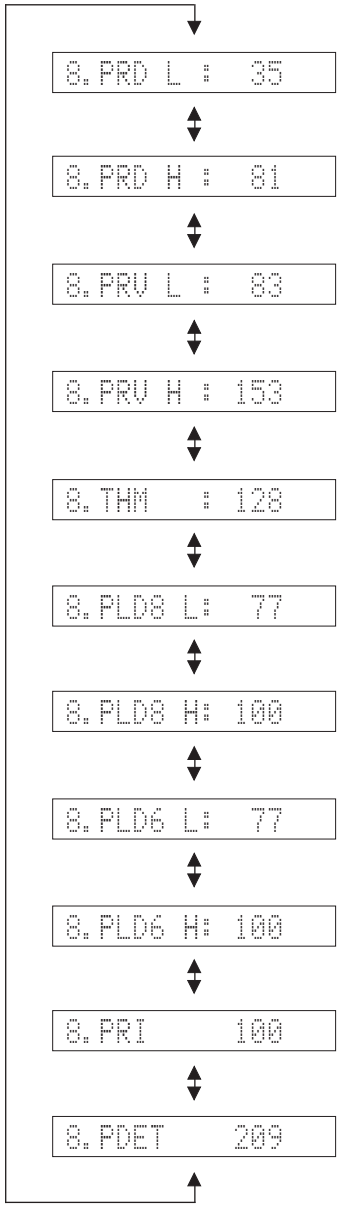
8. PROTECTION

The A/D setting value of each protection is displayed.
(Reference voltage: 3.3 V=255)



PRD (Amplifier DC protection) Low
The minimum preset value of PRD is displayed.

PRD (Amplifier DC protection) High
The maximum preset value of PRD is displayed.

PRV (Voltage protection) Low
The minimum preset value of PRV is displayed.

PRV (Voltage protection) High
The maximum preset value of PRV is displayed.

THM (Thermo protection) High
The maximum preset value of THM is displayed.

PLD (PLDET (Power limiter detection)) 8-ohm Low
The value for starting limiter operation of PLD8 is displayed.

PLD (PLDET (Power limiter detection)) 8-ohm High
The value for canceling limiter operation of PLD8 is displayed.

PLD (PLDET (Power limiter detection)) 6-ohm Low
The value for starting limiter operation of PLD6 is displayed.

PLD (PLDET (Power limiter detection)) 6-ohm High
The value for canceling limiter operation of PLD6 is displayed.

PRI (Amplifier current protection) High
The maximum preset value of PRI is displayed.

PDET Low
The minimum preset value of PDET is displayed.

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9. A/D DATA CHECK

This menu is used to display the A/D conversion value of the microprocessor which detects panel keys of this unit and protection functions by using the sub-menu.
When K0/K1 menu is selected, keys become non-operable due to detection of the values of all keys.
However, it is possible to advance to the next sub-menu by turning the VOLUME of this unit. When using this function, note that turning the VOLUME more than 1 click would cause the volume value to change.
Signal processing is maintained in the status before execution.

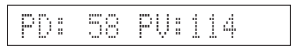
* The figures in the diagram are given as reference only.

PD/PV

PD: PRD (Power amplifier DC protection detection)
The output of power amplifier DC (DC voltage) is detected.
Normal value: 35 to 81 (Reference voltage: 3.3 V=255)

PV: PRV (Voltage protection detection)
Voltage detects: ACL, AC2, 10V, S9, +12, -12, +5V and VP
Normal value: 84 to 153 (Reference voltage: 3.3 V=255)

* If PRD and PRV becomes out of the normal value range, the protection function works to turn off the power.

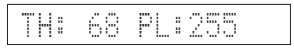


TH/PL

TH: THM (Thermo protection detection)
The temperature of the heat sink is detected.
Normal value: 0 to 124 (Reference voltage: 3.3 V=255)

* If THM becomes out of the normal value range, the protection function works to turn off the power.

PL: PLDET (Power limiter detection)
The output voltage of power amplifier is detected.



U, C models (Reference voltage: 3.3 V=255)

	During normal operation	Value for starting limiter operation	Value for canceling limiter operation
PLDET	255	77	100
LIM H: 255 / L: 102	H	L	H

(LIM: Limiter control)

R, T, K, A, B, G, E, F, L models (Reference voltage: 3.3 V=255)

	During normal operation	Value for starting limiter operation	Value for canceling limiter operation
PLDET	255	100	131
LIM H: 255 / L: 90	H	L	H

(LIM: Limiter control)

PI/DE

PI: PRI (Current protection detection)
The current of the power amplifier is detected.
Normal value: 0 to 100 (Reference voltage: 3.3 V=255)

DE: PDET (Sub-trans power detection)
Normal value: 209 to 255 (Reference voltage: 3.3 V=255)

* If PRI and PDET becomes out of the normal value range, the protection function works to turn off the power.



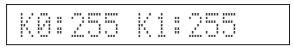
K0/K1

K0/K1: KEY0/KEY1 (Panel key of this unit)

When the A/D conversion value of the panel key becomes out of the specified range (standard value ±4), normal operation will not be available.

In that case, check the constant of partial pressure resistor, solder condition, etc. with referring to the table below.

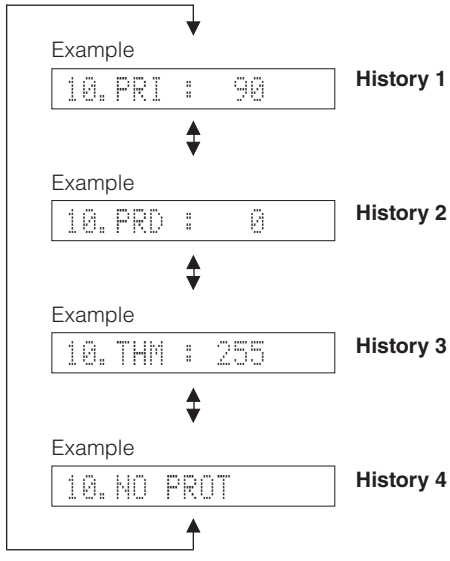
(Reference voltage: 3.3 V=255)



Display	KEY0	KEY1
23 ± 4	SCENE 1	SCENE 3
42 ± 4	SCENE 2	SCENE 4
66 ± 4	PROGRAM <	NIGHT
92 ± 4	PROGRAM >	–
120 ± 4	STRAIGHT	INPUT <
147 ± 4	TONE CONTROL	INPUT >
165 ± 4	PRESET/TUNING	PRESET/TUNING <
182 ± 4	BAND	PRESET/TUNING >
198 ± 4	A/B/C/D/E	MEMORY
217 ± 4	SPEAKERS	TUNING
255	(KEY OFF)	(KEY OFF)

10. PROTECTION HISTORY

The history of protection function is displayed.



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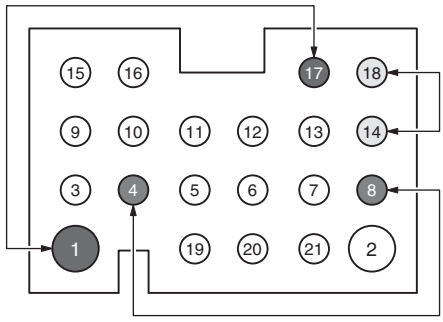
11. DOCK (U, C models)

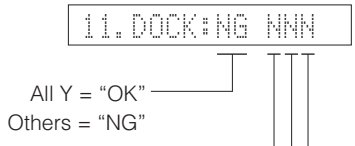
DOCK check

This menu is used to check the DOCK connector without the iPod itself.
With the power to this unit turned off, short between pins No. 14 (TX) and No. 18 (RX), between pins No. 1 (PWR) and No. 17 (ACCPOW) and between pins No. 4 (iPDET) and No. 8 (DGND) of the DOCK connector. (Make sure that the power is turned off when shorting pins.)
Start up the self-diagnostic function and select this menu.
The check result is displayed according to the following display specifications.

Note) Be sure to return the shorted pins to their original condition after executing this test.



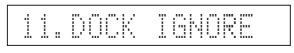
DOCK connector



Check item	Result		Display
UART loop back test	OK		Y
	NG		N
iPAP (iPod accessory power) detection	IC402 pin No. 1	High	Y
		Low	N
iPDET (iPod installation to DOCK) detection	IC402 pin No. 12	Low (iPod universal dock)	Y
		High (Bluetooth adapter)	N

DOCK ignore

When DOCK and iPod are connected, the input source [DOCK (iPod)] is made ineffective and [V-AUX] is selected.



Bluetooth version

When the Bluetooth DOCK is connected, the firmware version of that Bluetooth module is displayed.



Clear Bluetooth pairing information

While the Bluetooth DOCK is connected, initialization of the Bluetooth DOCK pairing information is inhibited/reserved.
Use “PRESET/TUNING<” and “PRESET TUNING>” keys for operation.

Initialization inhibited



Initialization inhibited

User memory initialization is not executed. Select this sub-menu to protect the user memory.



Initialization reserved



Initialization reserved

Initialization of the use memory is reserved. (Actually, initialization is executed the next time that the power is turned on.)
Select this sub-menu to initialize the Bluetooth DOCK pairing information.

12. NO MENU



13. FACTORY PRESET

This menu is used to reserve and inhibit initialization of the back-up IC.
The signals are processed using EFFECT OFF (The L/R signal is output using ANALOG BYPASS).



PRESET INHIBIT (Initialization inhibited)

Back-up IC initialization is not executed. Select this sub-menu to protect the values set by the user.





PRESET RESERVED (Initialization reserved)

Initialization of the back-up IC is reserved. (Actually, initialization is executed the next time that the power is turned on.)
Select this sub-menu to reset to the original factory settings or to reset the IC.
Any protection history will be cleared.

CAUTION: Before setting to the PRESET RESERVED, write down the existing preset memory content of the tuner in a table as shown below.
(This is because setting to the PRESET RESERVED will cause the user memory content of the tuner to be erased.)

Preset Group	P1	P2	P3	P4	P5	P6	P7	P8
A								
B								
C								
D								
E								

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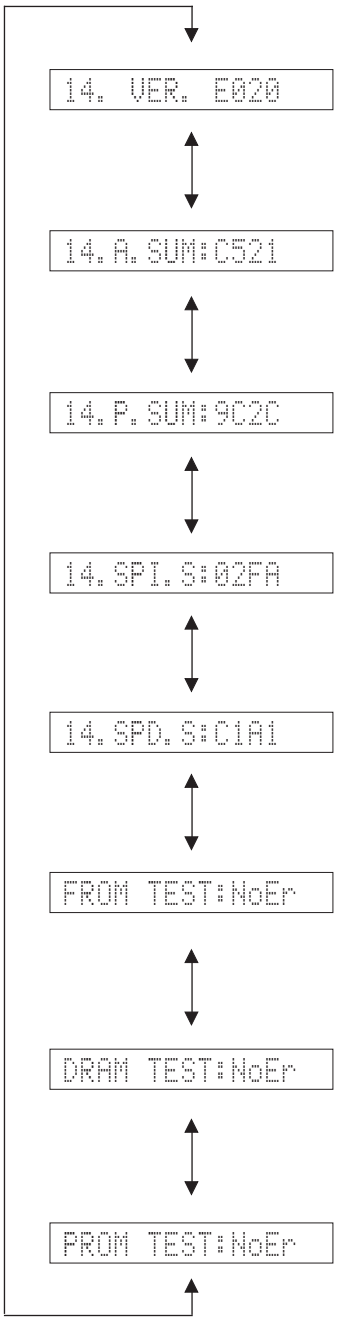
14. ROM VER/SUM

The firmware version and checksum values are displayed.
The checksum is obtained by adding the data at every 8 bits for each program area and expressing the result as a 4 figure hexadecimal data.



Version
Firmware version of microprocessor (IC101 DSP P.C.B.) is displayed.

All checksum
Checksum value of microprocessor (IC101 DSP P.C.B.) is displayed.

Program checksum
Checksum value of application and standby code program is displayed.

SPI (Serial Peripheral Interface) checksum
Checksum value of SPI firmware update code is displayed.

SPD (S/PDIF) checksum
Checksum value of SPD firmware update code is displayed.

FlashROM test
The read/write test of microprocessor (IC101 DSP P.C.B.) and flash ROM (IC201 DSP P.C.B.).

NoEr: No error detected **NG:** An error is detected

SDRAM test
The read/write test of microprocessor (IC101 DSP P.C.B.) and SDRAM (IC202 DSP P.C.B.).

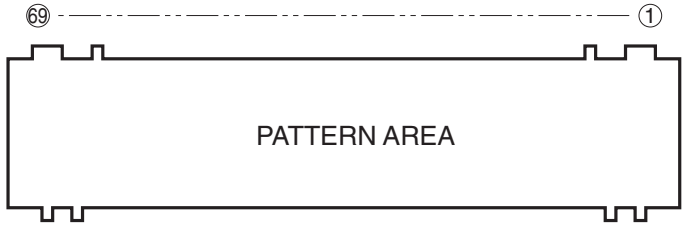
NoEr: No error detected **NG:** An error is detected

EEPROM test
The read/write test of microprocessor (IC101 DSP P.C.B.) and EEPROM (IC102 DSP P.C.B.).

NoEr: No error detected **NG:** An error is detected

■ DISPLAY DATA

● **V2001 : 17-BT-29GNK (OPERATION P.C.B.)**



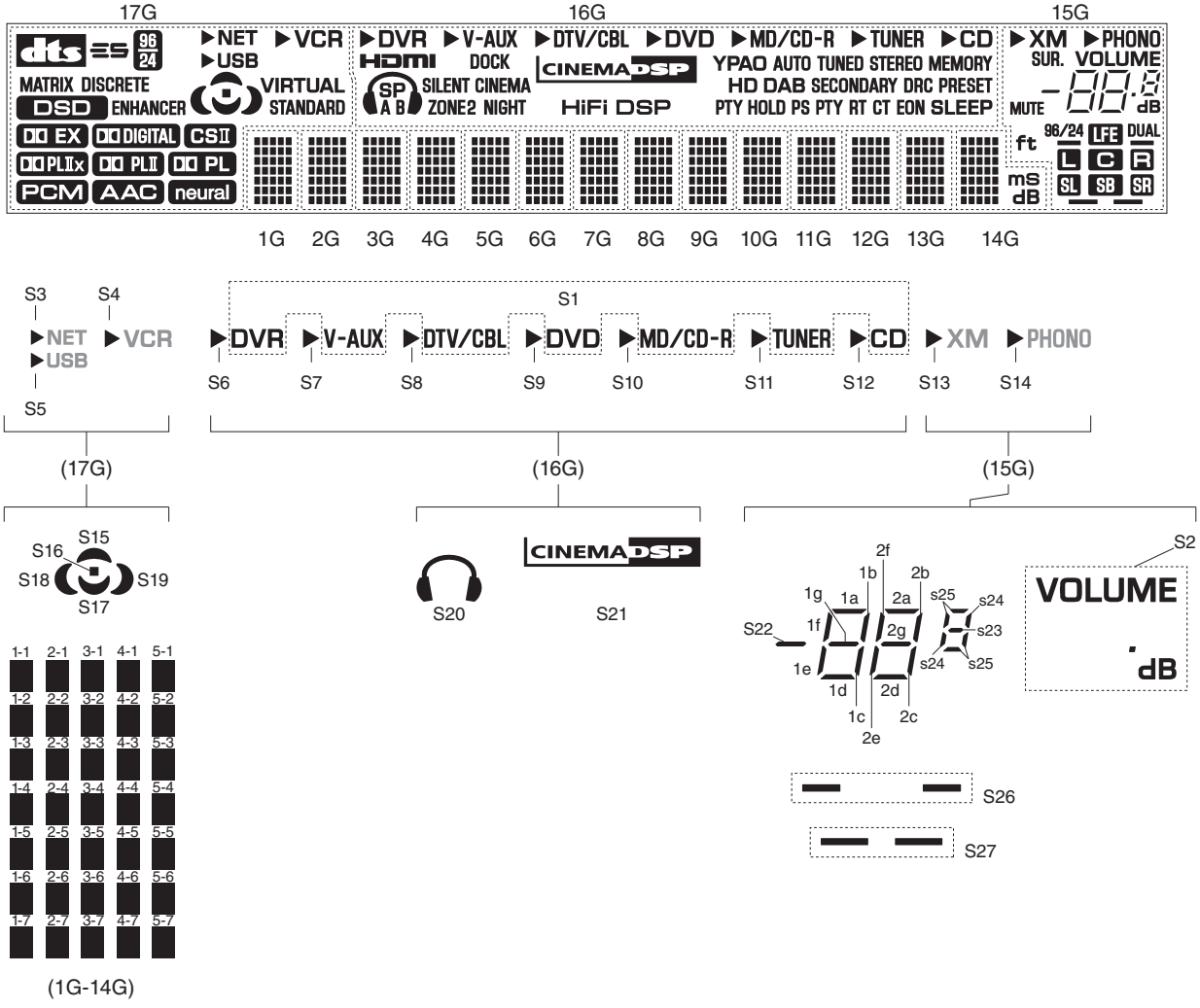
● **PIN CONNECTION**

Pin No.	69	68	67	66	65	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35
Connection	F2	NX	NP	NP	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24	P25	P26	P27	P28	P29	P30	P31

Pin No.	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Connection	P32	P33	P34	P35	P36	P37	NX	NX	NX	NX	NX	NX	NX	17G	16G	15G	14G	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G	NP	NP	NX	F1

Note : 1) F1, F2 ..... Filament pin 2) NP ..... No pin 3) NX ..... No extend pin 4) 1G-17G ..... Grid pin

● **GRID ASSIGNMENT**



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● **ANODE CONNECTION**

	17G	16G	15G	14G	13G-1G
1P	dts	S1	S2	1-1	1-1
2P	ES	S6	S26	2-1	2-1
3P	MATRIX	S7	S27	3-1	3-1
4P	DISCRETE	S8	S22	4-1	4-1
5P	96/24	S9	1a	5-1	5-1
6P	DSD	S10	1b	1-2	1-2
7P	ENHANCER	S11	1c	2-2	2-2
8P	DD EX	S12	1d	3-2	3-2
9P	DD DIGITAL	HDMI	1e	4-2	4-2
10P	CSII	S20	1f	5-2	5-2
11P	DD PLIIx	SP	1g	1-3	1-3
12P	DD PLII	A	2a	2-3	2-3
13P	DD PL	B	2b	3-3	3-3
14P	PCM	SILENT CINEMA	2c	4-3	4-3
15P	AAC	ZONE2	2d	5-3	5-3
16P	neural	NIGHT	2e	1-4	1-4
17P	NET	DOCK	2f	2-4	2-4
18P	USB	S21	2g	3-4	3-4
19P	VCR	HiFi DSP	S23	4-4	4-4
20P	S3	YPAO	S24	5-4	5-4
21P	S5	AUTO	S25	1-5	1-5
22P	S4	TUNED	XM	2-5	2-5
23P	S15	STEREO	PHONO	3-5	3-5
24P	S16	MEMORY	S13	4-5	4-5
25P	S17	HD	S14	5-5	5-5
26P	S18	DAB	SUR.	1-6	1-6
27P	S19	SECONDARY	MUTE	2-6	2-6
28P	VIRTUAL	DRC	DUAL	3-6	3-6
29P	STANDARD	PRESET	96/24	4-6	4-6
30P	–	PTY (HOLD)	ft	5-6	5-6
31P	–	HOLD	LFE	1-7	1-7
32P	–	PS	L	2-7	2-7
33P	–	PTY	C	3-7	3-7
34P	–	RT	R	4-7	4-7
35P	–	CT	SL	5-7	5-7
36P	–	EON	SB	mS	–
37P	–	SLEEP	SR	dB	–

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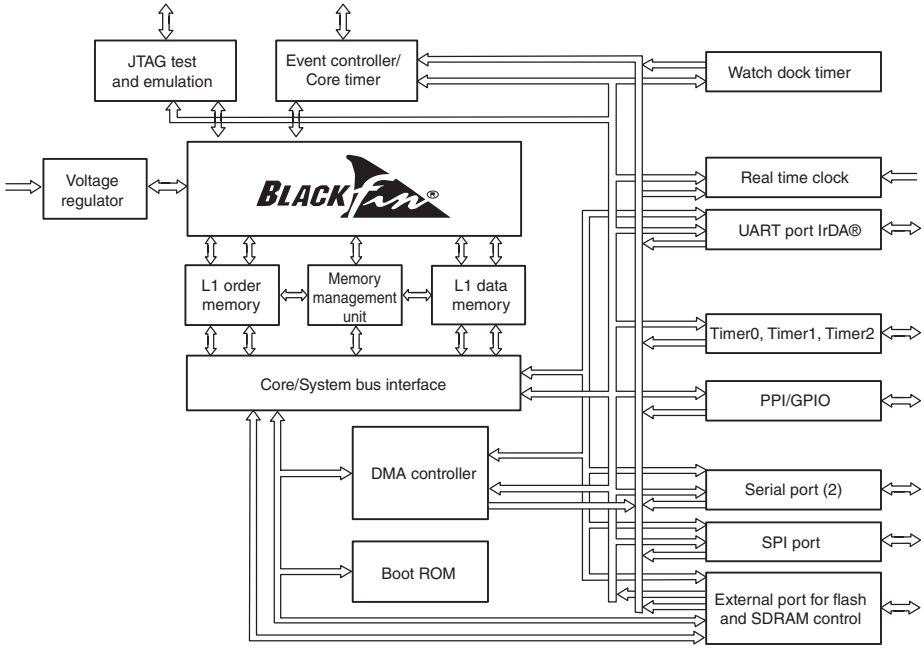
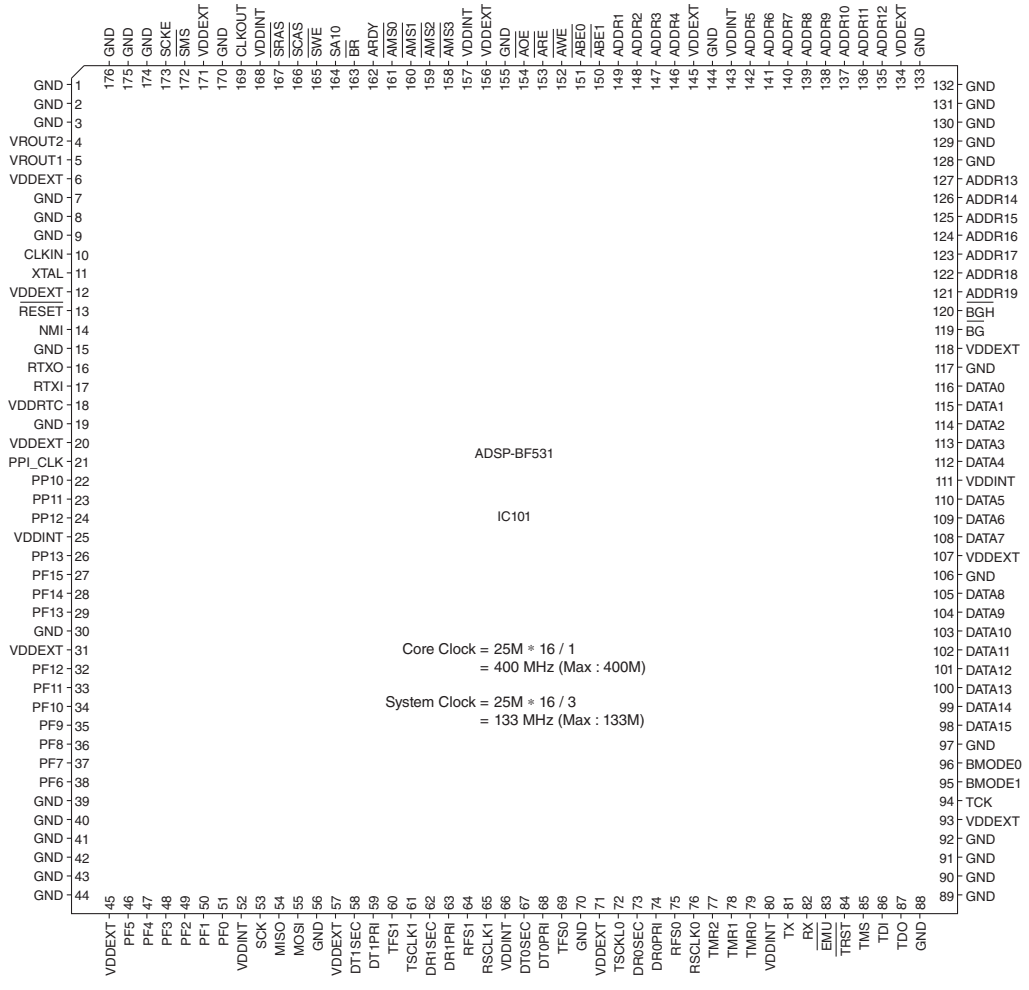
■ IC DATA

IC101: ADSP-BF531 CPU (DSP P.C.B.)
Microprocessor and DSP





RX-V365/HTR-6230

Pin No.	Port Name	Function Name	I/O	Detail of Function
1	DGND	GND	–	Ground of external
2	DGND	GND	–	Ground of external
3	DGND	GND	–	Ground of external
4	/VINTSW	VROUT2	O	Voltage regulator drive for Q101
5	/VINTSW	VROUT1	O	Voltage regulator drive for Q101
6	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
7	DGND	GND	–	Ground of external
8	DGND	GND	–	Ground of external
9	DGND	GND	–	Ground of external
10	CLKIN	CLKIN	I	Clock/oscillation input
11	XTAL	XTAL	O	Oscillation output
12	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
13	/DRESET	/RESET	I	Delayed reset
14	NMI/DGND	NMI	I	(Pull-down)
15	DGND	GND	–	Ground of external
16	–	RTXO	O	
17	RTXI/DGND	RTXI	I	(Pull-down)
18	–	VDDRTC	–	
19	DGND	GND	–	Ground of external
20	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
21	–	PPI_CLK	I	
22	–	PP10	I/O	
23	–	PP11	I/O	
24	–	PP12	I/O	
25	VDDINT	VDDINT	–	Power supply of microprocessor (BF1.2)
26	–	PP13	I/O	
27	VIB	PF15	O	Video select B
28	VIA	PF14	O	Video select A
29	–	PF13	I	
30	DGND	GND	–	Ground of external
31	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
32	/ICXM	PF12	O	
33	/XMPWR	PF11	O	
34	INTAK	PF10	I	CODEC IC (IC301) interrupt
35	FSYNC/TFS0	PF9	I	Frame sync detect
36	R2A_DATA	PF8	O	DATA for R2A volume/selector IC (IC162)
37	R2A_CLK	PF7	O	CLK for R2A volume/selector IC (IC161)
38	VRB	PF6	I	Volume rotary B
39	DGND	GND	–	Ground of external
40	DGND	GND	–	Ground of external
41	DGND	GND	–	Ground of external
42	DGND	GND	–	Ground of external
43	DGND	GND	–	Ground of external
44	DGND	GND	–	Ground of external
45	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
46	VRA	PF5	I	Volume rotary A
47	REM	PF4	I	IR remote control pulse input
48	PSW	PF3	I	Power switch (STANDBY/ON)
49	/SPISEL2	PF2	O	CS for EEPROM (IC102)
50	/SPISEL1	PF1	O	CS for 4ch ADC (IC401)
51	/EXPE	PF0	O	Extended port enable
52	VDDINT	VDDINT	–	Power supply of microprocessor (BF1.2)
53	SPISCK	SCK	I/O	SPI clock
54	SPIMI	MISO	I/O	Master input/slave output
55	SPIMO	MOSI	I/O	Master output/slave input
56	DGND	GND	–	Ground of external
57	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
58	DT1SEC	DT1SEC	O	Serial port 1, secondary transmission data
59	DT1PRI	DT1PRI	O	Serial port 1, primary transmission data
60	TFS1	TFS1	I/O	Serial port 1, frame asynchronous transmission

Pin No.	Port Name	Function Name	I/O	Detail of Function
61	TSCLK1	TSCLK1	I/O	Serial port 1, serial transmission clock
62	DR1SEC	DR1SEC	I	Serial port 1, secondary reception data
63	DR1PRI	DR1PRI	I	Serial port 1, primary reception data
64	RFS1	RFS1	I/O	Serial port 1, frame synchronization reception
65	RSCLK1	RSCLK1	I/O	Serial port 1, serial reception clock
66	VDDINT	VDDINT	–	Power supply of microprocessor (BF1.2)
67	DT0SEC	DT0SEC	O	Serial port 0, secondary transmission data
68	DT0PRI	DT0PRI	O	Serial port 0, primary transmission data
69	TFS0	TFS0	I/O	Serial port 0, frame asynchronous transmission
70	DGND	GND	–	Ground of external
71	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
72	TSCLK0	TSCLK0	I/O	Serial port 0, serial transmission clock
73	DR0SEC	DR0SEC	I	Serial port 0, secondary reception data
74	DR0PRI	DR0PRI	I	Serial port 0, primary reception data
75	RFS0	RFS0	I/O	Serial port 0, frame synchronization reception
76	RSCLK0	RSCLK0	I/O	Serial port 0, serial reception clock
77	–	TMR2	I/O	
78	–	TMR1	I/O	
79	LIMITER	TMR0	O	Limiter control output
80	VDDINT	VDDINT	–	Power supply of microprocessor (BF1.2)
81	DTXM	TX	O	
82	DRXM	RX	I	
83	–	/EMU	O	
84	–	/TRST	I	
85	–	TMS	I	
86	–	TDI	I	
87	–	TDO	O	
88	DGND	GND	–	Ground of external
89	DGND	GND	–	Ground of external
90	DGND	GND	–	Ground of external
91	DGND	GND	–	Ground of external
92	DGND	GND	–	Ground of external
93	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
94	–	TCK	I	
95	BMODE1	BMODE1	I	(Pull-down)
96	BMODE0	BMODE0	I	(Pull-up)
97	DGND	GND	–	Ground of external
98	D16	DATA15	I/O	SDRAM data bus 16
99	D15	DATA14	I/O	SDRAM data bus 15
100	D14	DATA13	I/O	SDRAM data bus 14
101	D13	DATA12	I/O	SDRAM data bus 13
102	D12	DATA11	I/O	SDRAM data bus 12
103	D11	DATA10	I/O	SDRAM data bus 11
104	D09	DATA9	I/O	SDRAM data bus 09
105	D08	DATA8	I/O	SDRAM data bus 08
106	DGND	GND	–	Ground of external
107	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
108	D07	DATA7	I/O	SDRAM data bus 07
109	D06	DATA6	I/O	SDRAM data bus 06
110	D05	DATA5	I/O	SDRAM data bus 05
111	VDDINT	VDDINT	–	Power supply of microprocessor (BF1.2)
112	D04	DATA4	I/O	SDRAM data bus 04
113	D03	DATA3	I/O	SDRAM data bus 03
114	D02	DATA2	I/O	SDRAM data bus 02
115	D01	DATA1	I/O	SDRAM data bus 01
116	D00	DATA0	I/O	SDRAM data bus 00
117	DGND	GND	–	Ground of external
118	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
119	–	/BG	O	
120	–	/BGH	O	

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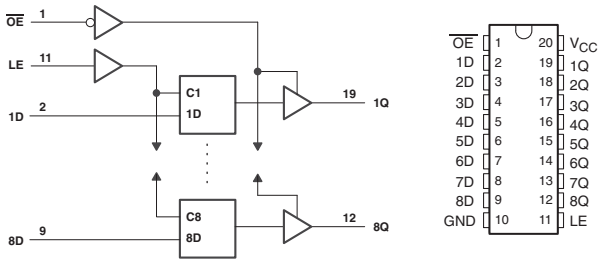
Pin No.	Port Name	Function Name	I/O	Detail of Function
121	A19	ADDR19	O	SDRAM address bus 19
122	A18	ADDR18	O	SDRAM address bus 18
123	A17	ADDR17	O	SDRAM address bus 17
124	A16	ADDR16	O	SDRAM address bus 16
125	A15	ADDR15	O	SDRAM address bus 15
126	A14	ADDR14	O	SDRAM address bus 14
127	A13	ADDR13	O	SDRAM address bus 13
128	DGND	GND	–	Ground of external
129	DGND	GND	–	Ground of external
130	DGND	GND	–	Ground of external
131	DGND	GND	–	Ground of external
132	DGND	GND	–	Ground of external
133	DGND	GND	–	Ground of external
134	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
135	A12	ADDR12	O	SDRAM address bus 12
136	A11	ADDR11	O	SDRAM address bus 11
137	A10	ADDR10	O	SDRAM address bus 10
138	A09	ADDR9	O	SDRAM address bus 09
139	A08	ADDR8	O	SDRAM address bus 08
140	A07	ADDR7	O	SDRAM address bus 07
141	A06	ADDR6	O	SDRAM address bus 06
142	A05	ADDR5	O	SDRAM address bus 05
143	VDDINT	VDDINT	–	Power supply of microprocessor (BF1.2)
144	DGND	GND	–	Ground of external
145	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
146	A04	ADDR4	O	SDRAM address bus 04
147	A03	ADDR3	O	SDRAM address bus 03
148	A02	ADDR2	O	SDRAM address bus 02
149	A01	ADDR1	O	SDRAM address bus 01
150	SDQM1	/ABE1	O	SDRAM byte enable/data mask 1
151	SDQM0	/ABE0	O	SDRAM byte enable/data mask 0
152	/AWE	/AWE	O	Write enable (Asynchronous)
153	/ARE	/ARE	O	Read enable
154	/AOE	/AOE	O	Output enable
155	DGND	GND	–	Ground of external
156	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
157	VDDINT	VDDINT	–	Power supply of microprocessor (BF1.2)
158	/AMS3	/AMS3	O	Bank select 3
159	/AMS2	/AMS2	O	Bank select 2
160	/AMS1	/AMS1	O	Bank select 1
161	/AMS0	/AMS0	O	Bank select 0
162	ARDY	ARDY	I	Hardware ready control
163	/BR	/BR	I	(Pull-up)
164	SA10	SA10	O	A10 pin
165	/SWE	/SWE	O	Write enable (Synchronization)
166	/SCAS	/SCAS	O	Sequence address strobe
167	/SRAS	/SRAS	O	Line address strobe
168	VDDINT	VDDINT	–	Power supply of microprocessor (BF1.2)
169	CLKOUT	CLKOUT	O	Clock output
170	DGND	GND	–	Ground of external
171	VDDEXT	VDDEXT	–	I/O power supply (EX3.3)
172	/SMS	/SMS	O	Bank select
173	SCKE	SCKE	O	Clock enable
174	DGND	GND	–	Ground of external
175	DGND	GND	–	Ground of external
176	DGND	GND	–	Ground of external

- **Microprocessor extended port**

IC204-IC206: SN74LV573APWR (DSP P.C.B.)
Octal 3-state D-latches with 3-state outputs



IC204

Pin No.	Port Name	Function Name	Detail of Function
1	/OE	/EXPE	Extended port enable
2	1D	D00	Data bus 00
3	2D	D01	Data bus 01
4	3D	D02	Data bus 02
5	4D	D03	Data bus 03
6	5D	D04	Data bus 04
7	6D	D05	Data bus 05
8	7D	D06	Data bus 06
9	8D	D07	Data bus 07
10	GND	DGND	Ground of external
11	LE	LEEX1	Bank select 1
12	8Q	/SPISEL3	CS for CODEC IC (IC301, DSP P.C.B.)
13	7Q	ADSEL2	4ch ADC input select 2
14	6Q	ADSEL1	4ch ADC input select 1
15	5Q	ADSEL0	4ch ADC input select 0
16	4Q	/CCBE	SPI bus switch
17	3Q	/CMT	Center mute
18	2Q	/SMT	Surround mute
19	1Q	/FMT	Front mute
20	VCC	EX3.3	Power supply

IC205

Pin No.	Port Name	Function Name	Detail of Function
1	/OE	/EXPE	Extended port enable
2	1D	D08	Data bus 08
3	2D	D09	Data bus 09
4	3D	D10	Data bus 10
5	4D	D11	Data bus 11
6	5D	D12	Data bus 12
7	6D	D13	Data bus 13
8	7D	D14	Data bus 14
9	8D	D15	Data bus 15
10	GND	DGND	Ground of external
11	LE	LEEX1	Bank select 1 (B, G, E, F models)
12	8Q	CLKSEL/RDS_RST	Reset for RDS (B, G, E, F models)
13	7Q	SSEL3	SCENE select LED switch 3
14	6Q	SSEL2	SCENE select LED switch 2
15	5Q	SSEL1	SCENE select LED switch 1
16	4Q	/IC_AK	IC for CODEC IC (IC301, DSP P.C.B.) and VFD (IC201, OPERATION P.C.B.)
17	3Q	/SPISEL4	CS for VFD (IC201, OPERATION P.C.B.)
18	2Q	/3.3SW	+3.3S switch
19	1Q	PRY	Power relay
20	VCC	EX3.3	Power supply

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IC206

Pin No.	Port Name	Function Name	Detail of Function
1	/OE	/EXPE	Extended port enable
2	1D	D00	Data bus 00
3	2D	D01	Data bus 01
4	3D	D02	Data bus 02
5	4D	D03	Data bus 03
6	5D	D04	Data bus 04
7	6D	D05	Data bus 05
8	7D	D06	Data bus 06
9	8D	D07	Data bus 07
10	GND	DGND	Ground of external
11	LE	LEEX2	Bank select 2
12	8Q	/VR1	Video select R
13	7Q	SPISEL5	CE for tuner
14	6Q	/8ohmSW	AC H/L relay (RY106, MAIN P.C.B.)
15	5Q	HPRY	Headphone relay (RY102, MAIN P.C.B.)
16	4Q	MRYA	Main speakers A relay (RY101, MAIN P.C.B.)
17	3Q	MRYB	Main speakers B relay (RY102, MAIN P.C.B.)
18	2Q	CSRY	Center/surround speakers relay (RY103/RY105, MAIN P.C.B.)
19	1Q	/SWMT	Subwoofer mute
20	VCC	EX3.3	Power supply

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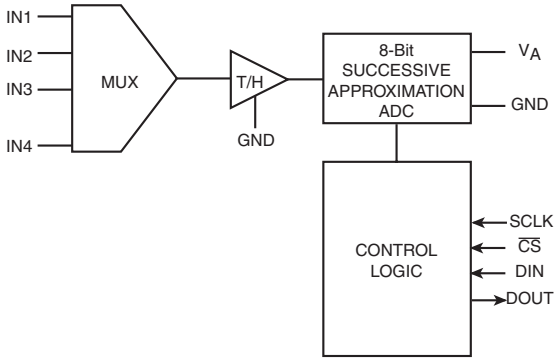
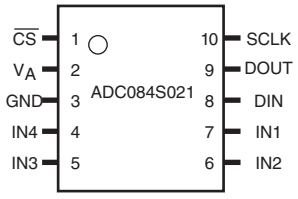
- **Microprocessor ADC select port**

IC401: ADC084S021CIMM (DSP P.C.B.)
4-channel, 200 kSPS, 8-bit A/D converter



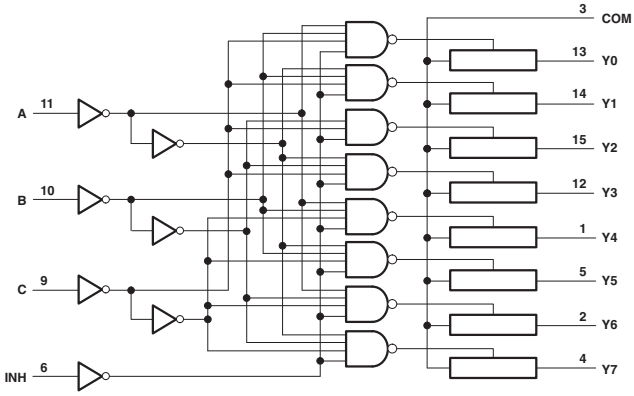


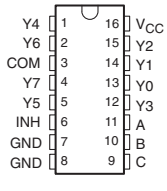
Pin No.	Port Name	Function Name	Detail of Function
1	/CS	/SPISEL1	CS for microprocessor
2	VA	VA	+3.3S
3	GND	DGND	Ground of external
4	IN4	IN4	SPI bus COM (IC402)
5	IN3	IN3	SPI bus COM (IC403)
6	IN2	KEY1	Key input 1
7	IN1	KEY0	Key input 0
8	DIN	SPIMO	Master output/slave input
9	DOUT	SPIMI	Master input/slave output
10	SCLK	SPISCK	SPI clock

Key input (A/D), pull-up resistance 10 k-ohms

Ohm [ohm]	+1.0 k	+1.0 k	+1.5 k	+2.2 k	+3.3 k	+4.7 k	+4.7 k	+6.8 k	+10.0 k	+22.0 k
V [V]	0.3	0.55	0.86	1.2	1.56	1.91	2.14	2.36	2.57	2.81
KEY0 (7 pin)	SCENE 1	SCENE 2	PROGRAM <	PROGRAM >	STRAIGHT	TONE CONTROL	PRESET/ TUNING	BAND	A/B/C/D/E	SPEAKERS
KEY1 (6 pin)	SCENE 3	SCENE 4	NIGHT	–	INPUT <	INPUT >	PRESET/ TUNING <	PRESET/ TUNING >	MEMORY	TUNING

IC402, IC403: SN74LV4051APWR (DSP P.C.B.)
8-channel analog multiplexers/demultiplexers





INPUTS				ON CHANNEL
INH	C	B	A	
L	L	L	L	Y0
L	L	L	H	Y1
L	L	H	L	Y2
L	L	H	H	Y3
L	H	L	L	Y4
L	H	L	H	Y5
L	H	H	L	Y6
L	H	H	H	Y7
H	X	X	X	None

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IC402

Pin No.	Port Name	Function Name	Detail of Function
1	Y4	–	
2	Y6	–	
3	COM	COM	SPI bus IN4 (IC401)
4	Y7	LINKACTIVE	Link detect (U, C models)
5	Y5	XM_MUTE	
6	INH	DGND	(Pull-down)
7	GND	DGND	Ground of external
8	GND	DGND	Ground of external
9	COM	ADSEL2	Input select 2
10	B	ADSEL1	Input select 1
11	A	ADSEL0	Input select 0
12	Y3	–	
13	Y0	–	
14	Y1	/ST	Stereo for tuner
15	Y2	/TUNED	Tuned for tuner
16	Vcc	+3.3S	Power supply

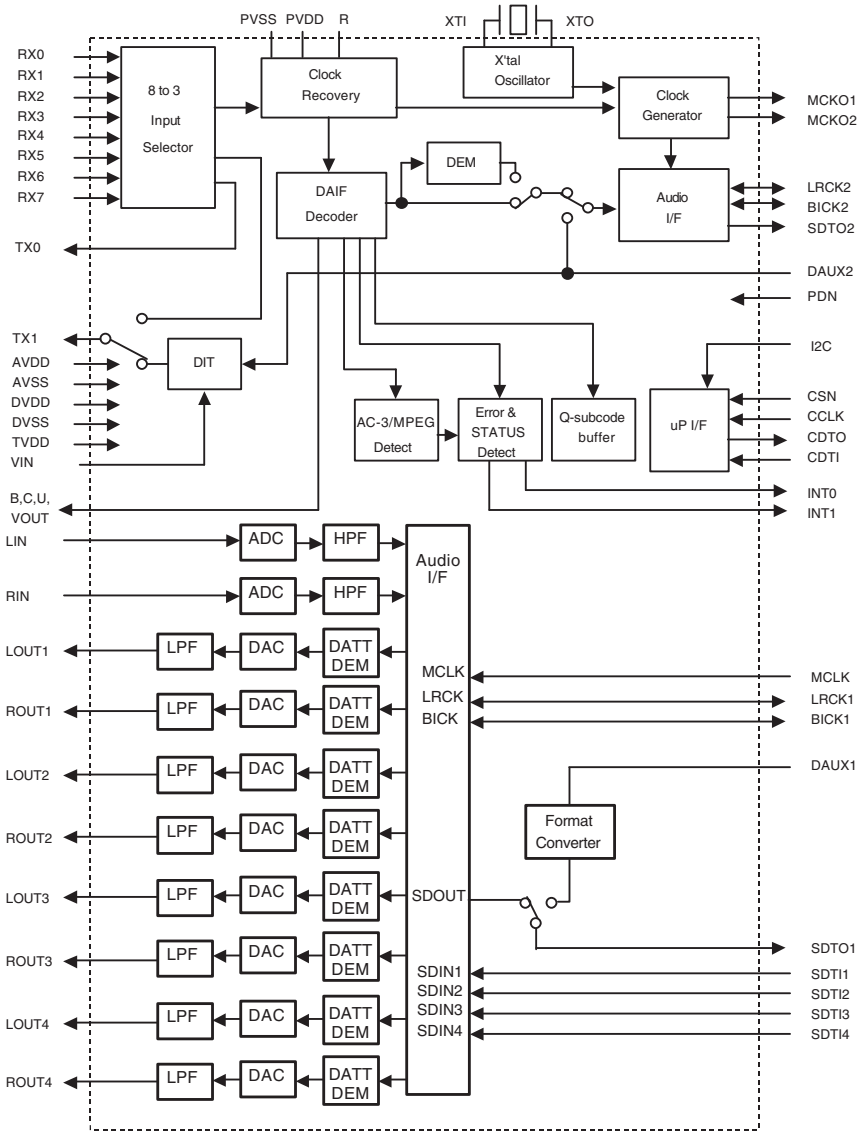
IC403

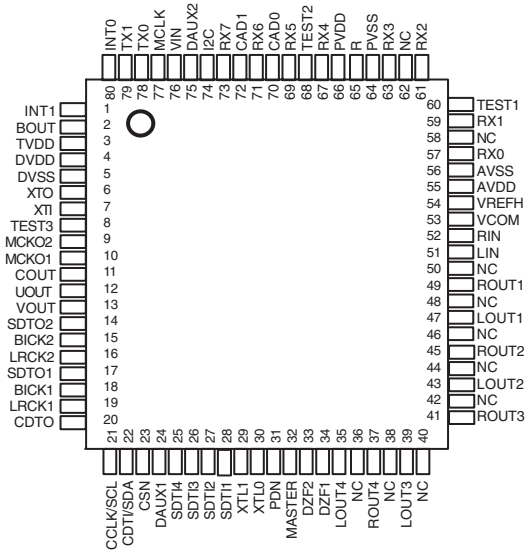
Pin No.	Port Name	Function Name	Detail of Function
1	Y4	DEST	Destination 1 *
2	Y6	/PDET	Sub-trans detect
3	COM	COM	SPI bus IN3 (IC401)
4	Y7	/HP	Headphone detect
5	Y5	PRIIN	Current protection
6	INH	DGND	(Pull-down)
7	GND	DGND	Ground of external
8	GND	DGND	Ground of external
9	COM	ADSEL2	Input select 2
10	B	ADSEL1	Input select 1
11	A	ADSEL0	Input select 0
12	Y3	PLDET	Limiter detect
13	Y0	PRDIN	Amplifier DC detect
14	Y1	PRVIN	Voltage protection
15	Y2	THMIN	Thermo protection
16	Vcc	+3.3S	Power supply

*** Destination for A/D port**

R406 [ohm]	1.5 k	3.3 k	4.7 k	6.8 k	8.2 k
R407 [ohm]	8.2 k	6.8 k	5.6 k	3.9 k	2.2 k
DEST (1 pin) [V]	2.6-3.0	2.0-2.4	1.6-2.0	1.0-1.4	0.5-0.9
A/D value (3.3 V=255)	206-226	162-182	129-149	83-103	44-64
Destination	U, C	R, L	T	K, A	B, G, E, F

IC301: AK4588VQ (DSP P.C.B.)
2/8-channel audio CODEC with DIR





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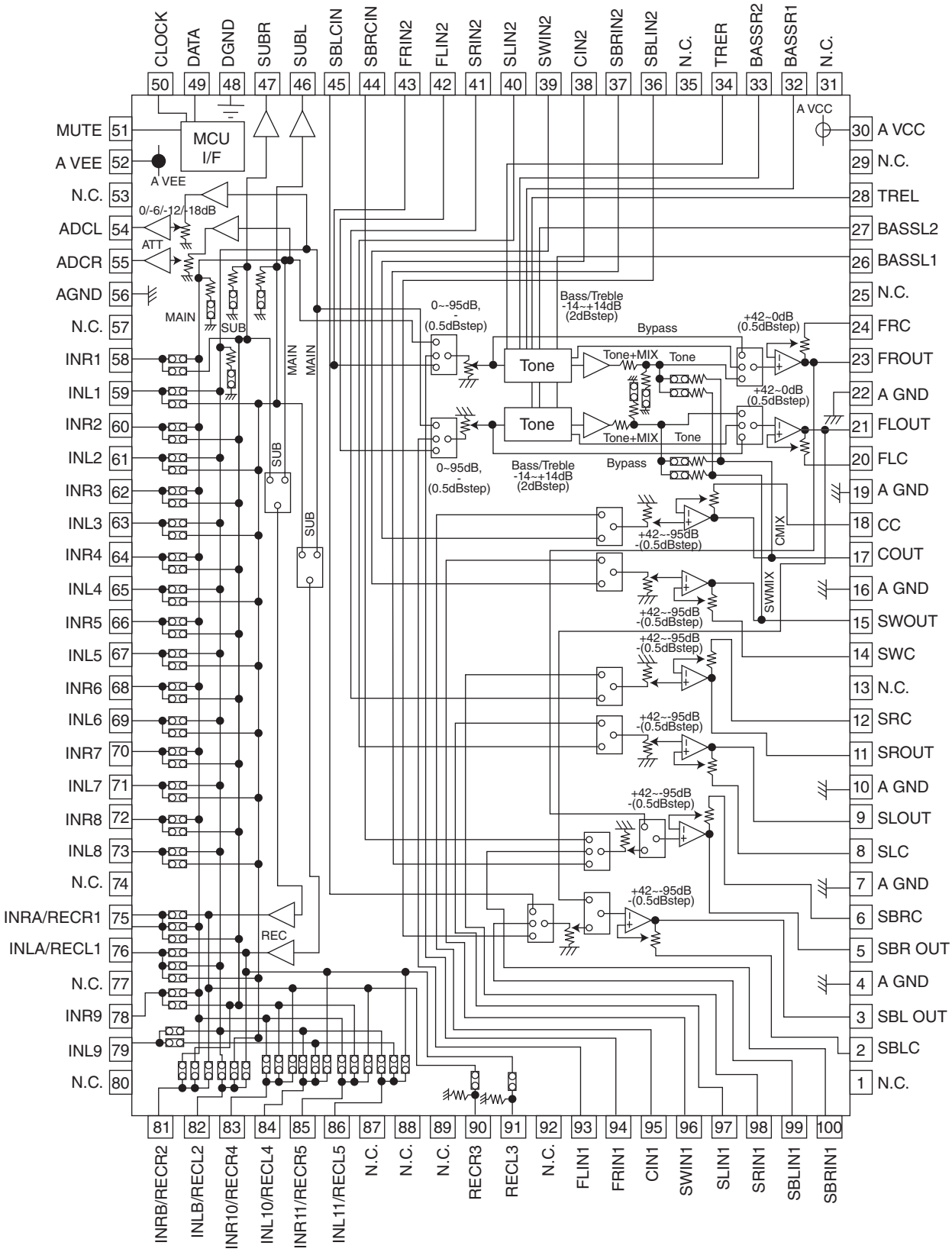
Pin No.	Function Name	I/O	Detail of Function
1	INT1	O	Interrupt 1 pin
2	BOUT	O	Block-start output pin for receiver input “H” during first 40 flames
3	TVDD	–	Output buffer power supply pin, 2.7 V to 5.5 V
4	DVDD	–	Digital power supply pin, 4.5 V to 5.5 V
5	DVSS	–	Digital ground pin
6	XTO	O	X’tal clock output pin
7	XTI	I	X’tal / External clock input pin
8	TEST3	I	Test 3 pin This pin should be connected to DVSS
9	MCKO2	O	Master clock output 2 pin
10	MCKO1	O	Master clock output 1 pin
11	COUT	O	C-bit output pin for receiver input
12	UOUT	O	U-bit output pin for receiver input
13	VOUT	O	V-bit output pin for receiver input
14	SDTO2	O	Audio serial data output pin (DIR/DIT part)
15	BICK2	I/O	Audio serial data clock pin (DIR/DIT part)
16	LRCK2	I/O	Channel clock pin (DIR/DIT part)
17	SDTO1	O	Audio serial data output pin (ADC/DAC part)
18	BICK1	I/O	Audio serial data clock pin (ADC/DAC part)
19	LRCK1	I/O	Input channel clock pin
20	CDTO	O	Control data output pin in serial mode, I2C pin= “L”
21	CCLK	I	Control data clock pin in serial mode, I2C pin= “L”
	SCL	I	Control data clock pin in serial mode, I2C pin= “H”
22	CDTI	I	Control data input pin in serial mode, I2C pin= “L”
	SDA	I/O	Control data pin in serial mode, I2C pin= “H”
23	CSN	I	Chip select pin in serial mode, I2C pin=”L”
		I	This pin should be connected to DVSS, I2C pin=”H”
24	DAUX1	I	AUX audio serial data input pin (ADC/DAC part)
25	SDTI4	I	DAC4 audio serial data input pin
26	SDTI3	I	DAC3 audio serial data input pin
27	SDTI2	I	DAC2 audio serial data input pin
28	SDTI1	I	DAC1 audio serial data input pin
29	XTL1	I	X’tal frequency select 0 pin
30	XTL0	I	X’tal frequency select 1 pin
31	PDN	I	Power-down mode pin When “L”, the AK4588 is powered-down, all output pin goes “L”, all registers are reset When CAD1-0 pins are changed, the AK4588 should be reset by PDN pin
32	MASTER	I	Master mode select pin “H”: Master mode, “L”: Slave mode
33	DZF2	O	Zero input detect 2 pin (table 13) When the input data of the group 1 follow total 8192 LRCK cycles with “0” input data, this pin goes to “H” / When RSTN1 bit is “0” or PWDAN bit is “0”, this pin goes to “H”
	OVF	O	Analog input overflow detect pin This pin goes to “H” if the analog input of L ch or R ch overflows This pin becomes OVF pin if OVFE bit is set to 1
34	DZF1	O	Zero input detect 1 pin (table 13) When the input data of the group 1 follow total 8192 LRCK cycles with “0” input data, this pin goes to “H” / When RSTN1 bit is “0” or PWDAN bit is “0”, this pin goes to “H”
35	LOUT4	O	DAC4 L ch analog output pin
36	NC	–	No connect pin No internal bonding / This pin should be opened
37	ROUT4	O	DAC4 R ch analog output pin
38	NC	–	No connect pin No internal bonding / This pin should be opened
39	LOUT3	O	DAC3 L ch analog output pin
40	NC	–	No connect pin No internal bonding / This pin should be opened

Pin No.	Function Name	I/O	Detail of Function
41	ROUT3	O	DAC3 R ch analog output pin
42	NC	–	No connect pin No internal bonding / This pin should be opened
43	LOUT2	O	DAC2 L ch analog output pin
44	NC	–	No connect pin No internal bonding / This pin should be opened
45	ROUT2	O	DAC2 R ch analog output pin
46	NC	–	No connect pin No internal bonding / This pin should be opened
47	LOUT1	O	DAC1 L ch analog output pin
48	NC	–	No connect pin No internal bonding / This pin should be opened
49	ROUT1	O	DAC1 R ch analog output pin
50	NC	–	No connect pin
			No internal bonding / This pin should be opened
51	LIN	I	L ch analog input pin
52	RIN	I	R ch analog input pin
53	VCOM	–	Common voltage output pin 2.2 F capacitor should be connected to AVSS externally
54	VREFH	–	Positive voltage reference input pin, AVDD
55	AVDD	–	Analog power supply pin, 4.5 V to 4.5 V
56	AVSS	–	Analog ground pin, 0 V
57	RX0	I	Receiver channel 0 pin (Internal biased pin / Internally biased at PVDD/2)
58	NC	–	No connect pin No internal bonding / This pin should be connected to PVSS
59	RX1	I	Receiver channel 1 pin (Internal biased pin / Internally biased at PVDD/2)
60	TEST1	I	Test 1 pin This pin should be connected to PVSS
61	RX2	I	Receiver channel 2 pin (Internal biased pin / Internally biased at PVDD/2)
62	NC	–	No connect pin No internal bonding / This pin should be connected to PVSS
63	RX3	I	Receiver channel 3 pin (Internal biased pin / Internally biased at PVDD/2)
64	PVSS	–	PLL ground pin
65	R	–	External resistor pin 12 k-ohms +/-1 % resistor should be connected to PVSS externally
66	PVDD	–	PLL power supply pin, 4.5 V to 4.5 V
67	RX4	I	Receiver channel 4 pin (Internal biased pin / Internally biased at PVDD/2)
68	TEST2	I	Test 2 pin This pin should be connected to PVSS
69	RX5	I	Receiver channel 5 pin (Internal biased pin / Internally biased at PVDD/2)
70	CAD0	I	Chip address 0 pin (ADC/DAC part)
71	RX6	I	Receiver channel 6 pin (Internal biased pin / Internally biased at PVDD/2)
72	CAD1	I	Chip address 1 pin (ADC/DAC part)
73	RX7	I	Receiver channel 7 pin (Internal biased pin / Internally biased at PVDD/2)
74	I2C	I	Control mode select pin “L”: 4-wire serial, “H”: I2C bus
75	DAUX2	I	Auxiliary audio data input pin (DIR/DIT part)
76	VIN	I	V-bit input pin for transmitter output
77	MCLK	I	Master clock input pin
78	TX0	O	Transmit channel (through data) output 0 pin
79	TX1	O	Transmit channel output 1 pin When TX bit = “0”, transmit channel (through data) output 1 pin. When TX bit = “1”, transmit channel (DAUX2 data) output pin (default)
80	INT0	O	Interrupt 0 pin

Note: All input pins except internal biased pins and internal pull-down pin should not be left floating.

RX-V365/HTR-6230

IC161: R2A15218FP (MAIN P.C.B.)
8-channel electronic volume with 11 input selector and tone control



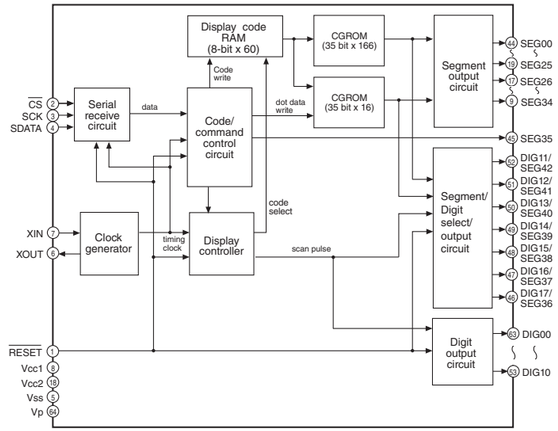
RX-V365/HTR-6230

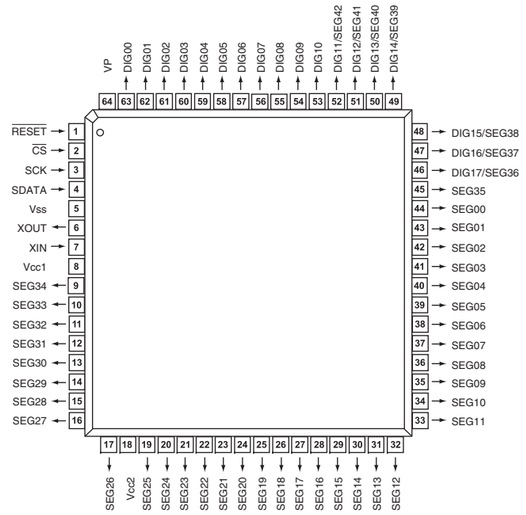
Pin No	Function Name	Detail of Function
1	N.C.	No connected
2	SBLC	L/R/C/SW/SL/SR/SBL/SBR ch terminal to connect capacitor to reduce noise from changing the volume
3	SBLOUT	FL/FR/C/SW/SL/SR/SBL/SBR ch output terminal
4	AGND	Analog GND terminal
5	SBROUT	FL/FR/C/SW/SL/SR/SBL/SBR ch output terminal
6	SBRC	L/R/C/SW/SL/SR/SBL/SBR ch terminal to connect capacitor to reduce noise from changing the volume
7	AGND	Analog GND terminal
8	SLC	L/R/C/SW/SL/SR/SBL/SBR ch terminal to connect capacitor to reduce noise from changing the volume
9	SLOUT	FL/FR/C/SW/SL/SR/SBL/SBR ch output terminal
10	AGND	Analog GND terminal
11	SROUT	FL/FR/C/SW/SL/SR/SBL/SBR ch output terminal
12	SRC	L/R/C/SW/SL/SR/SBL/SBR ch terminal to connect capacitor to reduce noise from changing the volume
13	N.C.	No connected
14	SWC	L/R/C/SW/SL/SR/SBL/SBR ch terminal to connect capacitor to reduce noise from changing the volume
15	SWOUT	FL/FR/C/SW/SL/SR/SBL/SBR ch output terminal
16	AGND	Analog GND terminal
17	COUT	FL/FR/C/SW/SL/SR/SBL/SBR ch output terminal
18	CC	L/R/C/SW/SL/SR/SBL/SBR ch terminal to connect capacitor to reduce noise from changing the volume
19	AGND	Analog GND terminal
20	FLC	L/R/C/SW/SL/SR/SBL/SBR ch terminal to connect capacitor to reduce noise from changing the volume
21	FLOUT	FL/FR/C/SW/SL/SR/SBL/SBR ch output terminal
22	AGND	Analog GND terminal
23	FROUT	FL/FR/C/SW/SL/SR/SBL/SBR ch output terminal
24	FRC	L/R/C/SW/SL/SR/SBL/SBR ch terminal to connect capacitor to reduce noise from changing the volume
25	N.C.	No connected
26	BASSL1	L/R ch tone control (Bass) terminal for setting frequency characteristics
27	BASSL2	L/R ch tone control (Bass) terminal for setting frequency characteristics
28	TREL	L/R ch tone control (Treble) terminal for setting frequency characteristics
29	N.C.	No connected
30	AVCC	Positive side power terminal
31	N.C.	No connected
32	BASSR1	L/R ch tone control (Bass) terminal for setting frequency characteristics
33	BASSR2	L/R ch tone control (Bass) terminal for setting frequency characteristics
34	TRER	L/R ch tone control (Treble) terminal for setting frequency characteristics
35	N.C.	No connected
36	SBLIN2	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
37	SBRIN2	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
38	CIN2	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
39	SWIN2	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
40	SLIN2	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
41	SRIN2	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
42	FLIN2	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
43	FRIN2	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
44	SBRCIN	SBL/SBR ch volume input terminal
45	SBLCIN	SBL/SBR ch volume input terminal
46	SUBL	L/R ch SUB output terminal
47	SUBR	L/R ch SUB output terminal
48	DGND	Digital GND terminal
49	DATA	Control data input terminal
50	CLOCK	Control data input terminal
51	MUTE	External Mute Control terminal
52	AVEE	Negative side power terminal
53	N.C.	No connected
54	ADCL	L/R ch ADC output terminal
55	ADCR	L/R ch ADC output terminal

RX-V365/HTR-6230

Pin No	Function Name	Detail of Function
56	AGND	Analog GND terminal
57	N.C.	No connected
58	INR1	L/R ch input terminal (input selector)
59	INL1	L/R ch input terminal (input selector)
60	INR2	L/R ch input terminal (input selector)
61	INL2	L/R ch input terminal (input selector)
62	INR3	L/R ch input terminal (input selector)
63	INL3	L/R ch input terminal (input selector)
64	INR4	L/R ch input terminal (input selector)
65	INL4	L/R ch input terminal (input selector)
66	INR5	L/R ch input terminal (input selector)
67	INL5	L/R ch input terminal (input selector)
68	INR6	L/R ch input terminal (input selector)
69	INL6	L/R ch input terminal (input selector)
70	INR7	L/R ch input terminal (input selector)
71	INL7	L/R ch input terminal (input selector)
72	INR8	L/R ch input terminal (input selector)
73	INL8	L/R ch input terminal (input selector)
74	N.C.	No connected
75	INRA/RECR1	L/R ch input terminal (input selector) / L/R ch REC output terminal
76	INLA/RECL1	L/R ch input terminal (input selector) / L/R ch REC output terminal
77	N.C.	No connected
78	INR9	L/R ch input terminal (input selector)
79	INL9	L/R ch input terminal (input selector)
80	N.C.	No connected
81	INRB/RECR2	L/R ch input terminal (input selector) / L/R ch REC output terminal
82	INLB/RECL2	L/R ch input terminal (input selector) / L/R ch REC output terminal
83	INR10/RECR4	L/R ch input terminal (input selector) / L/R ch REC output terminal
84	INL10/RECL4	L/R ch input terminal (input selector) / L/R ch REC output terminal
85	INR11/RECR5	L/R ch input terminal (input selector) / L/R ch REC output terminal
86	INL11/RECL5	L/R ch input terminal (input selector) / L/R ch REC output terminal
87	N.C.	No connected
88	N.C.	No connected
89	N.C.	No connected
90	RECR3	L/R ch REC output terminal
91	RECL3	L/R ch REC output terminal
92	N.C.	No connected
93	FLIN1	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
94	FRIN1	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
95	CIN1	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
96	SWIN1	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
97	SLIN1	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
98	SRIN1	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
99	SBLIN1	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)
100	SBRIN1	L/R/C/SW/SL/SR/SBL/SBR ch input terminal (multi input 1/2)

IC201: M66003-0131FP-R (OPERATION P.C.B.)
18 digit 5x7 segment VFD controller/driver



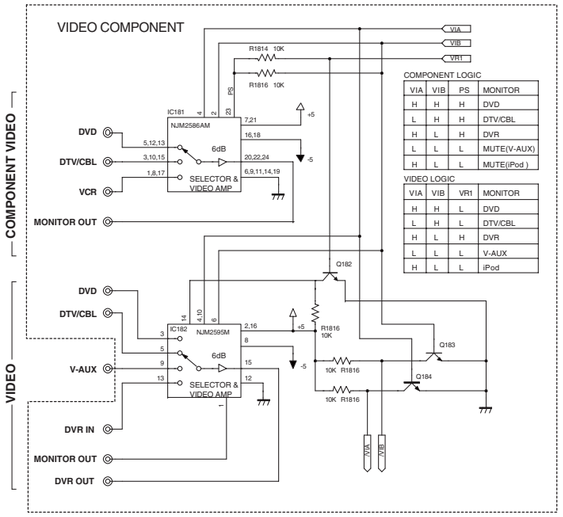


Pin No	Port Name	Function Name	I/O	Detail of Function
1	$\overline{\text{Reset}}$	/RESET	Reset input	When “L”, M66003 is initialized
2	$\overline{\text{CS}}$	/CEFL	Chip select input	When “L”, communication with the MCU is possible When “H”, any instruction from the MCU is neglected
3	SCK	CKFL	Shift clock input	Serial input data is taken and shifted by the positive edge of SCK
4	SDATA	DTFL	Serial data input	
5	Vss	VSS		GND (0V)
6	XOUT	XOUT	Clock output	When use as a CR oscillator, connect external resistor and capacitor / When use an external clock, input external clock to XIN, and XOUT must be opened
7	XIN	XIN	Clock input	
8	Vcc1	VDD		Positive power supply for internal logic
9	SEG34	P1I	Segment output	
10	SEG33	P2	Segment output	
11	SEG32	P3	Segment output	Positive power supply for DIG and SEG outputs
12	SEG31	P4	Segment output	
13	SEG30	P5	Segment output	
14	SEG29	P6	Segment output	
15	SEG28	P7	Segment output	
16	SEG27	P8	Segment output	
17	SEG26	P9	Segment output	
18	Vcc2	VDD		
19	SEG25	P10	Segment output	Connect to segment (anode) pins of VFD
20	SEG24	P11	Segment output	
21	SEG23	P12	Segment output	
22	SEG22	P13	Segment output	
23	SEG21	P14	Segment output	
24	SEG20	P15	Segment output	
25	SEG19	P16	Segment output	
26	SEG18	P17	Segment output	
27	SEG17	P18I	Segment output	
28	SEG16	P19	Segment output	
29	SEG15	P20	Segment output	
30	SEG14	P21	Segment output	
31	SEG13	P22	Segment output	
32	SEG12	P23	Segment output	
33	SEG11	P24	Segment output	
34	SEG10	P25	Segment output	
35	SEG09	P26	Segment output	
36	SEG08	P27	Segment output	
37	SEG07	P28	Segment output	
38	SEG06	P29	Segment output	
39	SEG05	P30	Segment output	
40	SEG04	P31	Segment output	
41	SEG03	P32	Segment output	
42	SEG02	P33	Segment output	
43	SEG01	P34	Segment output	
44	SEG00	P35	Segment output	
45	SEG35	P36	Segment output	
46	DIG17/SEG36	P37	Segment output	
47	DIG16/SEG37	G17I	Digit output	Connect to digit (grid) pins of VFD
48	DIG15/SEG38	G16I	Digit output	
49	DIG14/SEG39	G15I	Digit output	
50	DIG13/SEG40	G14	Digit output	
51	DIG12/SEG41	G13	Digit output	
52	DIG11/SEG42	G12	Digit output	
53	DIG10	G11	Digit output	
54	DIG09	G10	Digit output	
55	DIG08	G9	Digit output	
56	DIG07	G8	Digit output	
57	DIG06	G7	Digit output	
58	DIG05	G6	Digit output	
59	DIG04	G5	Digit output	
60	DIG03	G4	Digit output	
61	DIG02	G3	Digit output	
62	DIG01	G2	Digit output	
63	DIG00	G1	Digit output	
64	Vp	VP		Negative power supply to pull down

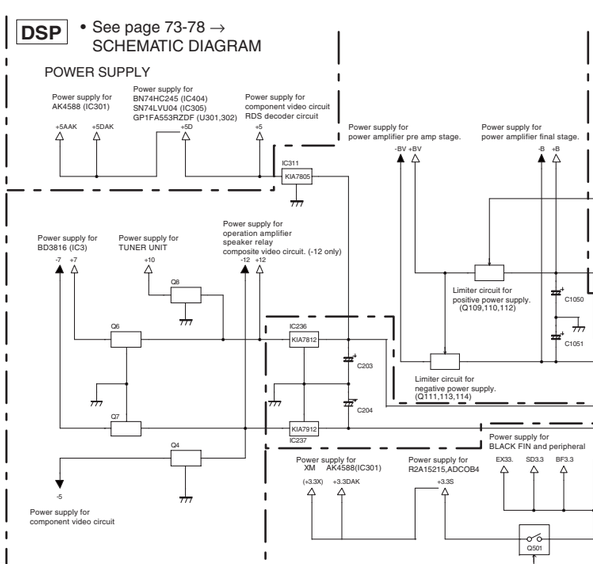
■ BLOCK DIAGRAMS

VIDEO, AUDIO and Power Supply Sections BLOCK DIAGRAM

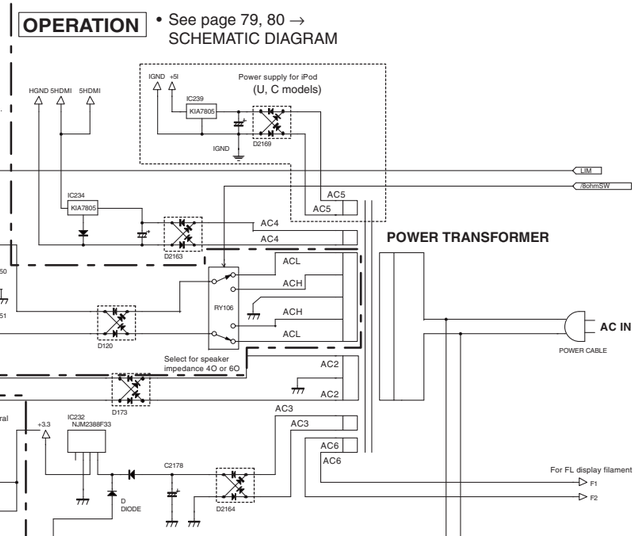
OPERATION • See page 79, 80 → SCHEMATIC DIAGRAM



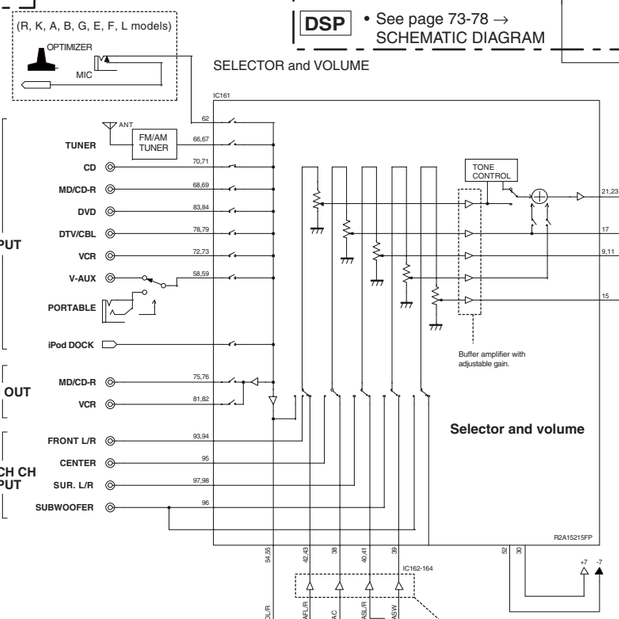
DSP • See page 73-78 → SCHEMATIC DIAGRAM



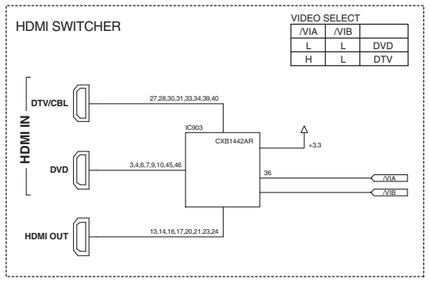
OPERATION • See page 79, 80 → SCHEMATIC DIAGRAM

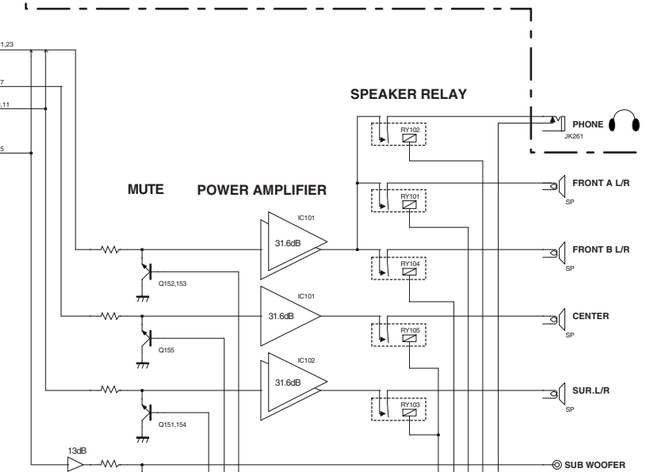


DSP • See page 73-78 → SCHEMATIC DIAGRAM

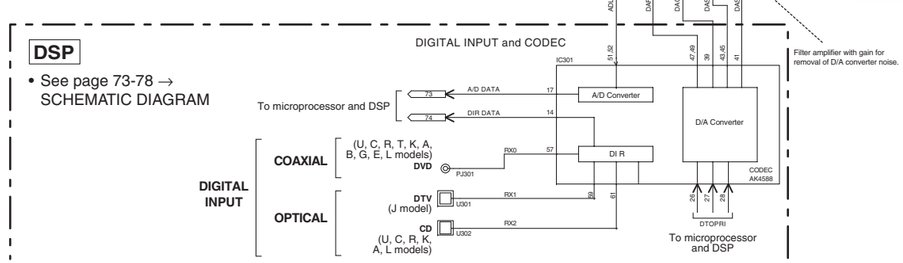


HDMI • See page 83 → SCHEMATIC DIAGRAM



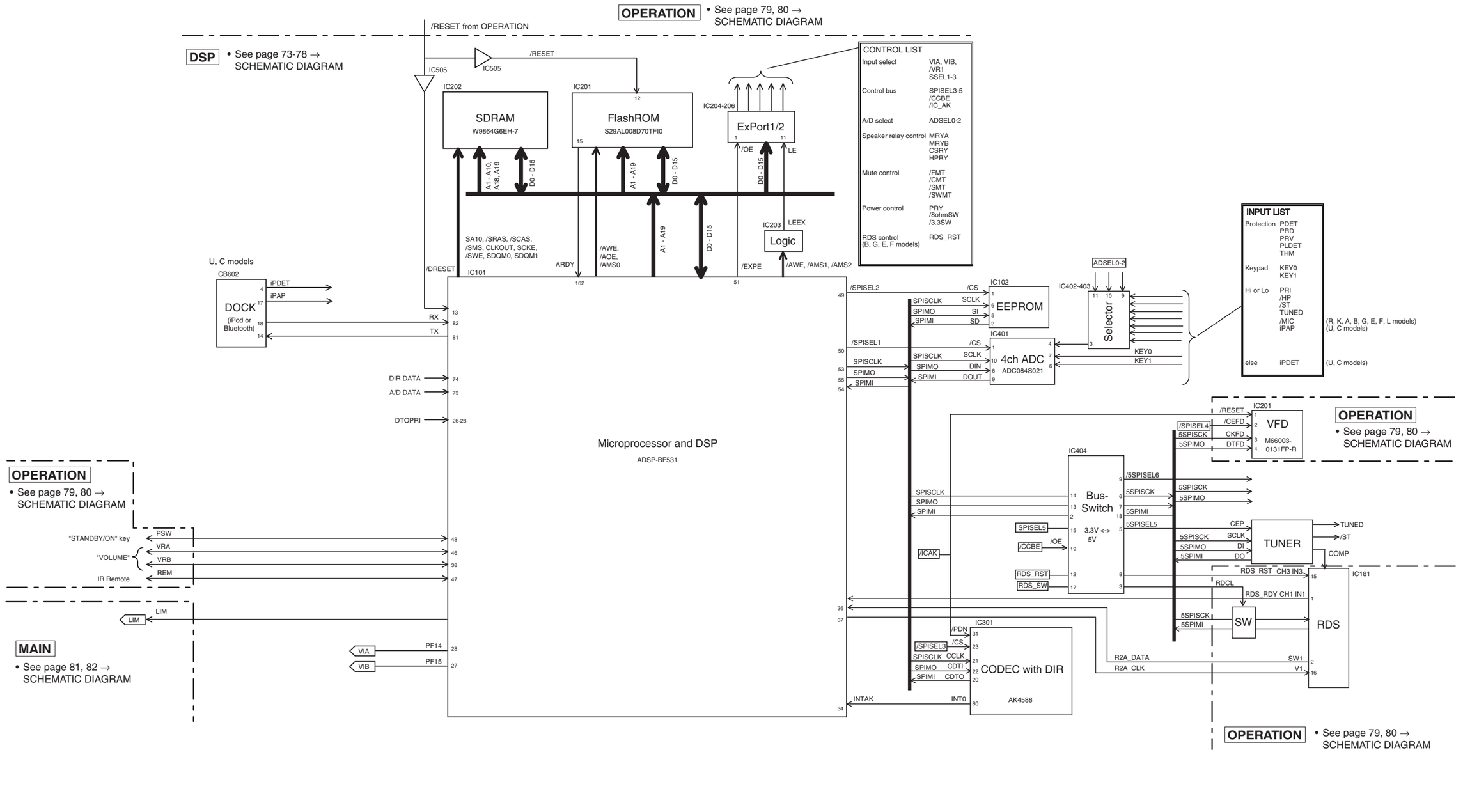


MAIN • See page 81, 82 → SCHEMATIC DIAGRAM



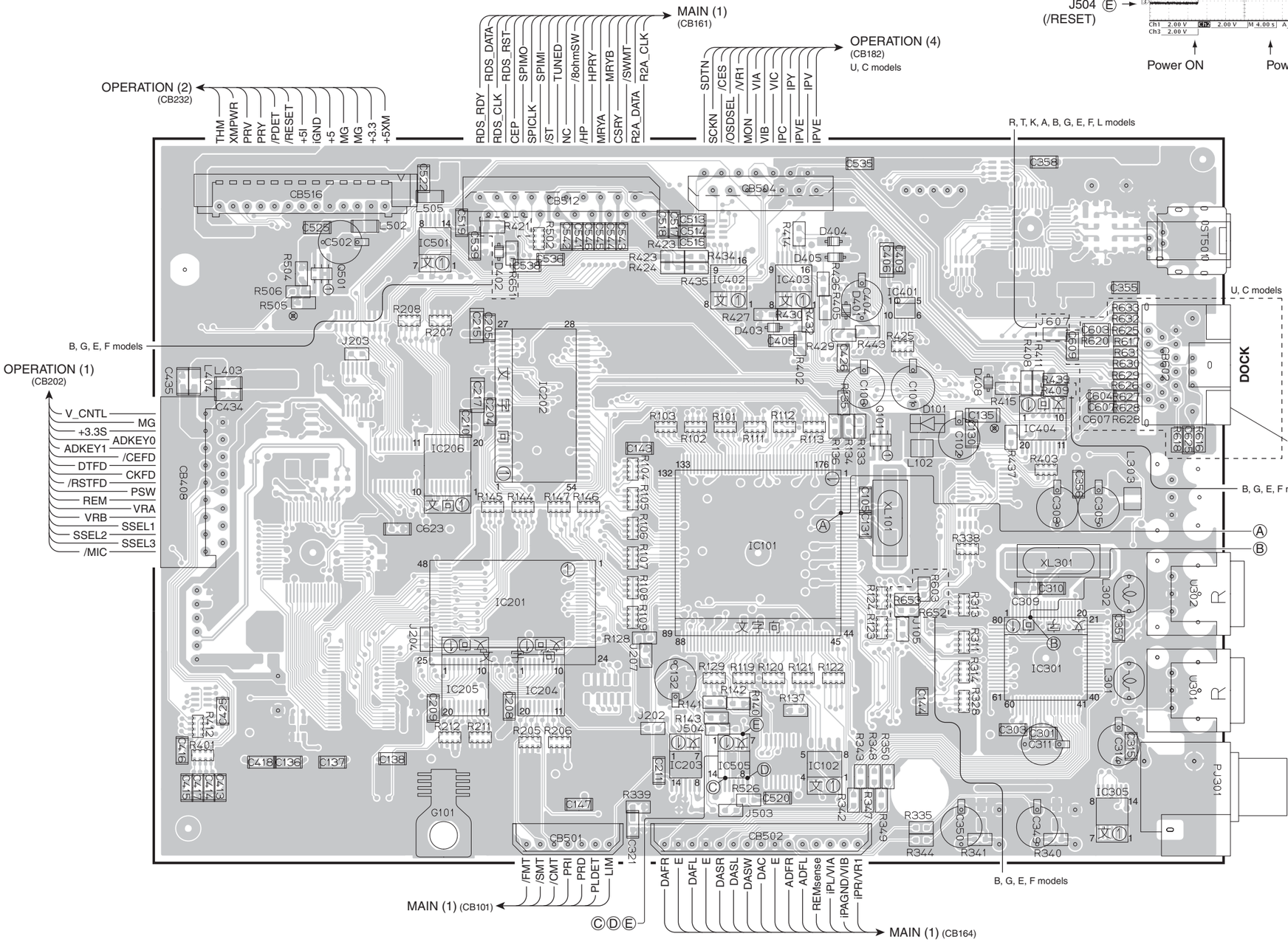
DSP • See page 73-78 → SCHEMATIC DIAGRAM

Control Section BLOCK DIAGRAM

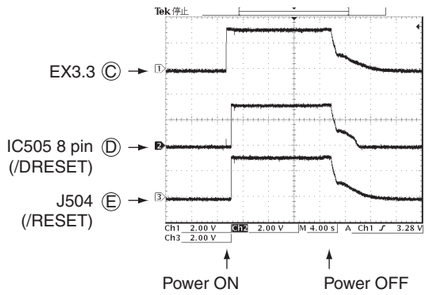


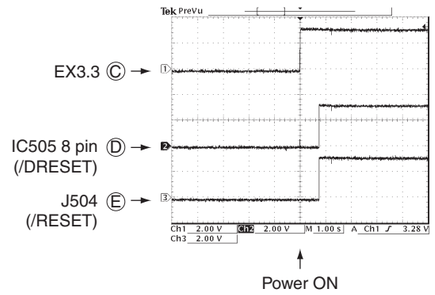
■ PRINTED CIRCUIT BOARDS

DSP P.C.B. (Side A)

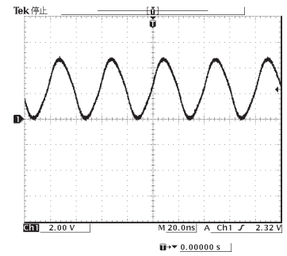


POINT Ⓒ/ EX3.3, Ⓓ/ Pin 8 of IC505, Ⓔ/ J504

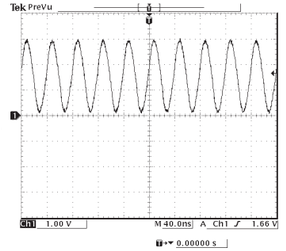




POINT Ⓑ XL301 (Pin 6 of IC301)



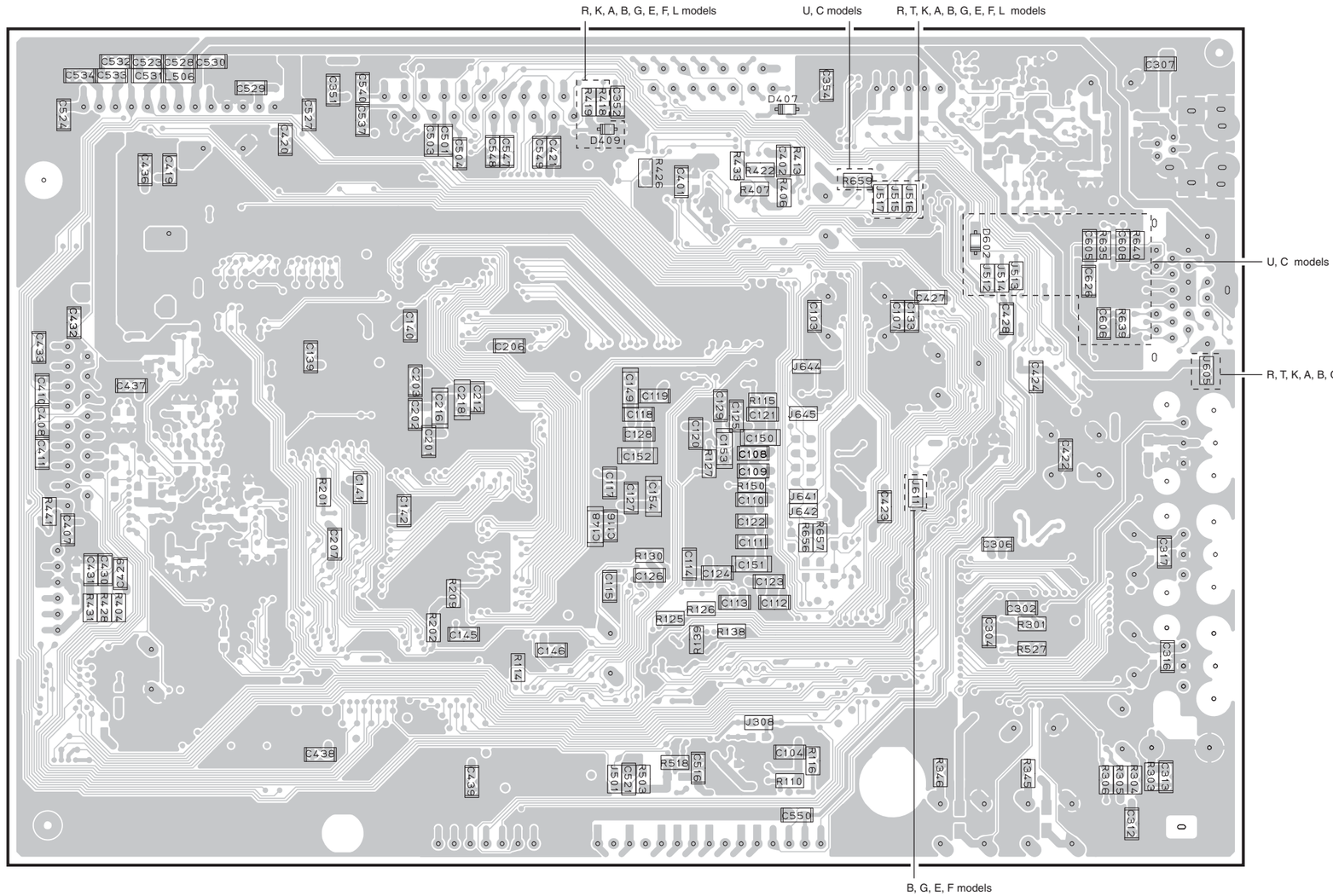
POINT Ⓐ XL101 (Pin 11 of IC101)



• Semiconductor Location

Ref No.	Location	Ref No.	Location
D101	F4	IC205	D6
D401	F4	IC206	C5
D402	D3	IC301	G6
D403	E4	IC305	G6
D404	F3	IC401	F4
D405	F3	IC402	E3
D408	G4	IC403	E3
IC101	E5	IC404	G4
IC102	F6	IC501	C3
IC201	D5	IC505	E6
IC202	D4	Q101	F4
IC203	E6	Q501	C3
IC204	D6		

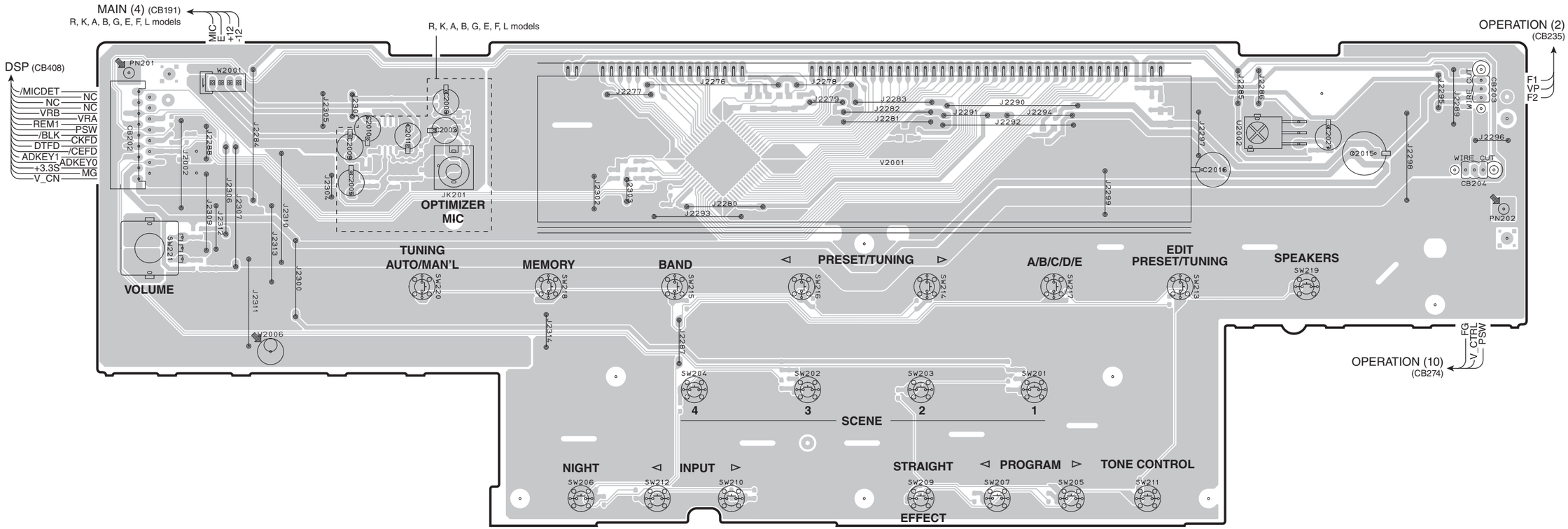
DSP P.C.B. (Side B)



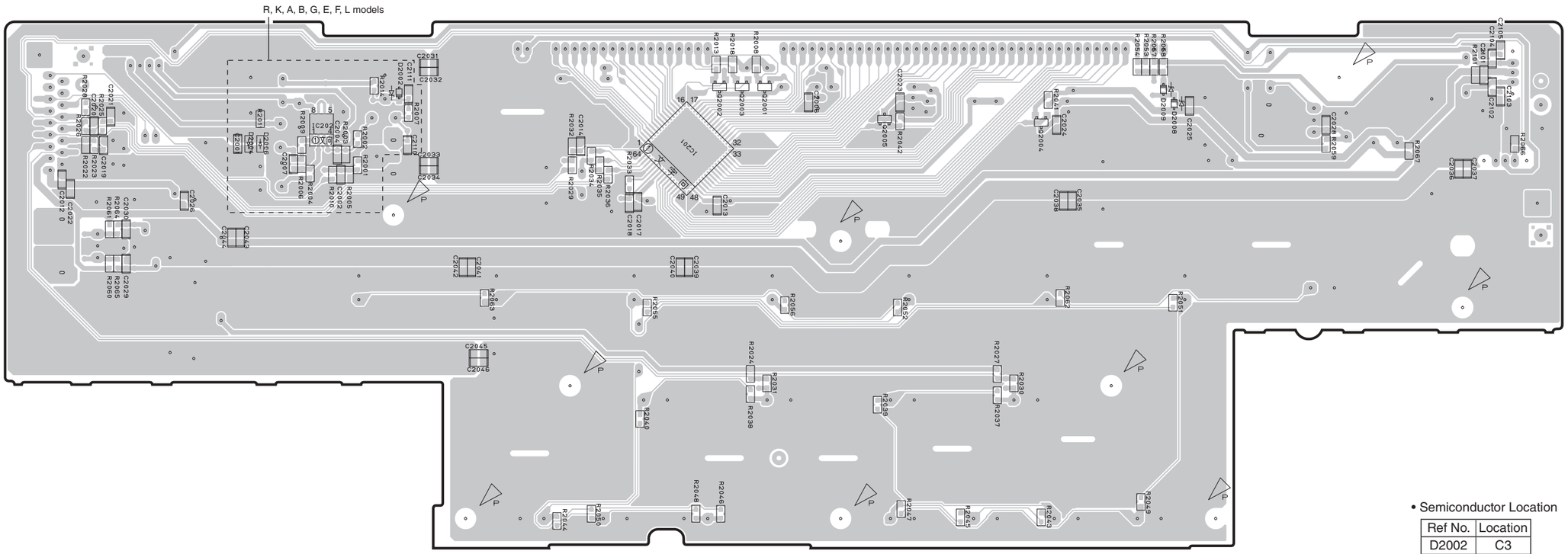
• Semiconductor Location

Ref No.	Location
D407	F3
D409	E3
D602	G4

OPERATION (1) P.C.B. (Side A)



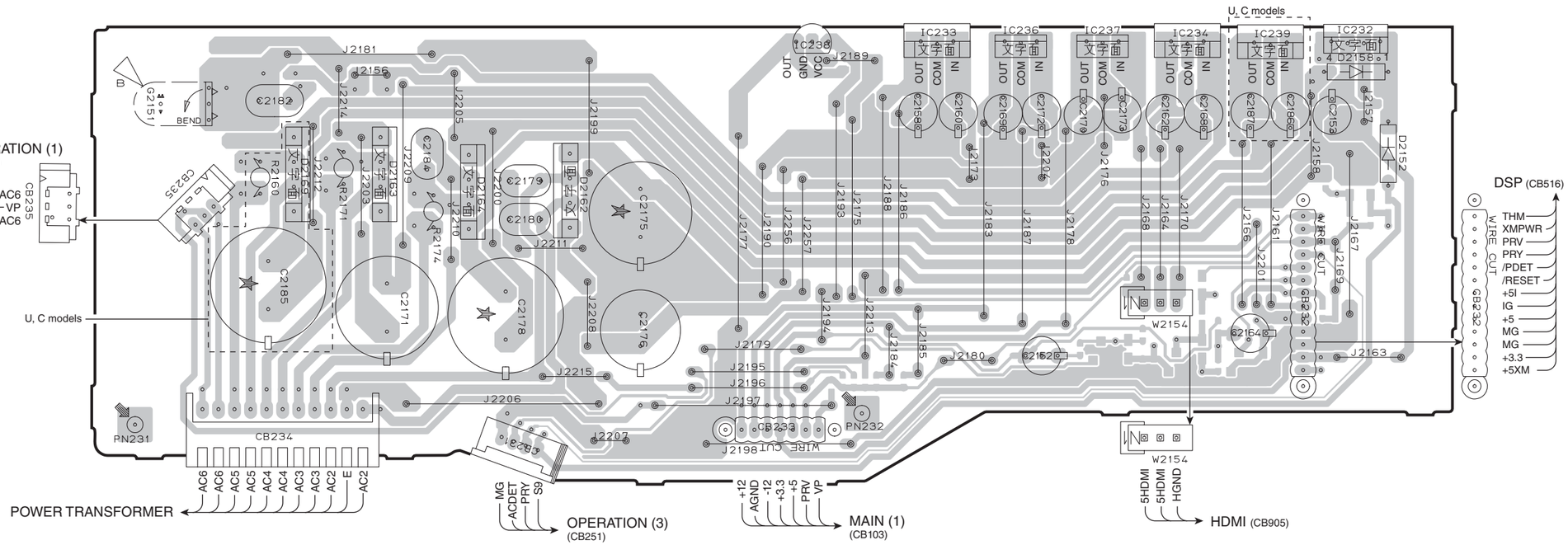
OPERATION (1) P.C.B. (Side B)



• Semiconductor Location

Ref No.	Location
D2002	C3
D2004	B3
D2006	C3
D2008	H3
D2009	G3
IC201	E4
IC202	C3
Q2001	E3
Q2002	E3
Q2003	E3
Q2004	G3
Q2005	F3

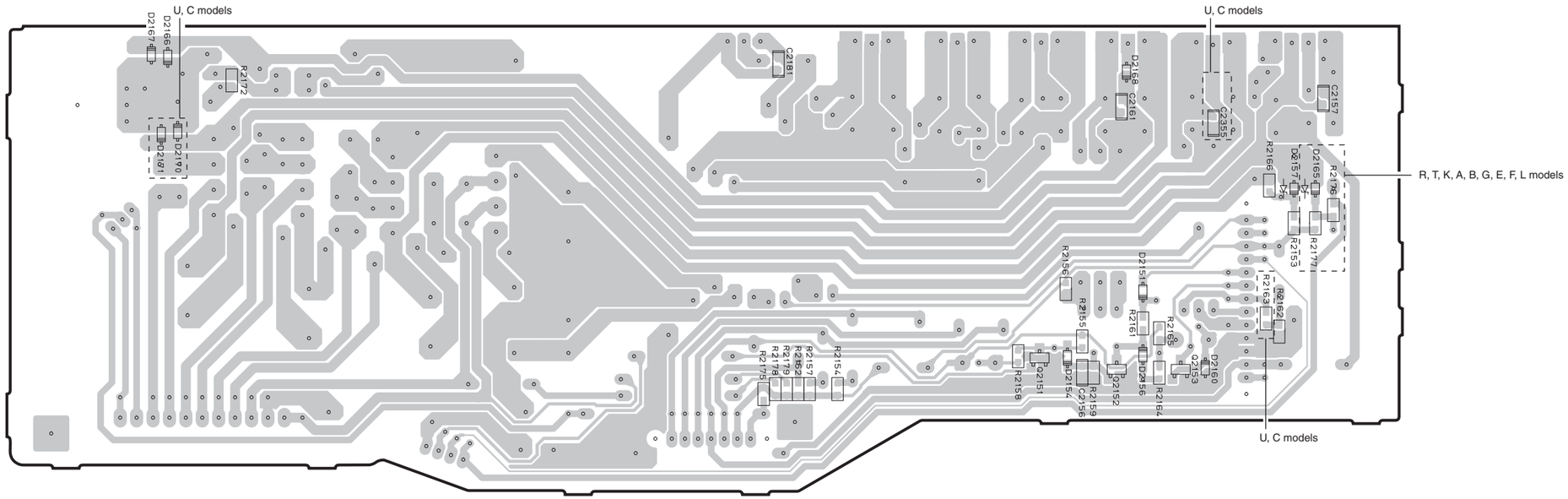
OPERATION (2) P.C.B. (Side A)



• Semiconductor Location

Ref No.	Location	Ref No.	Location
D2152	I3	IC233	G3
D2158	I3	IC234	H3
D2162	E4	IC236	G3
D2163	D3	IC237	G3
D2164	D4	IC238	F3
D2169	C3	IC239	H3
IC232	I3		

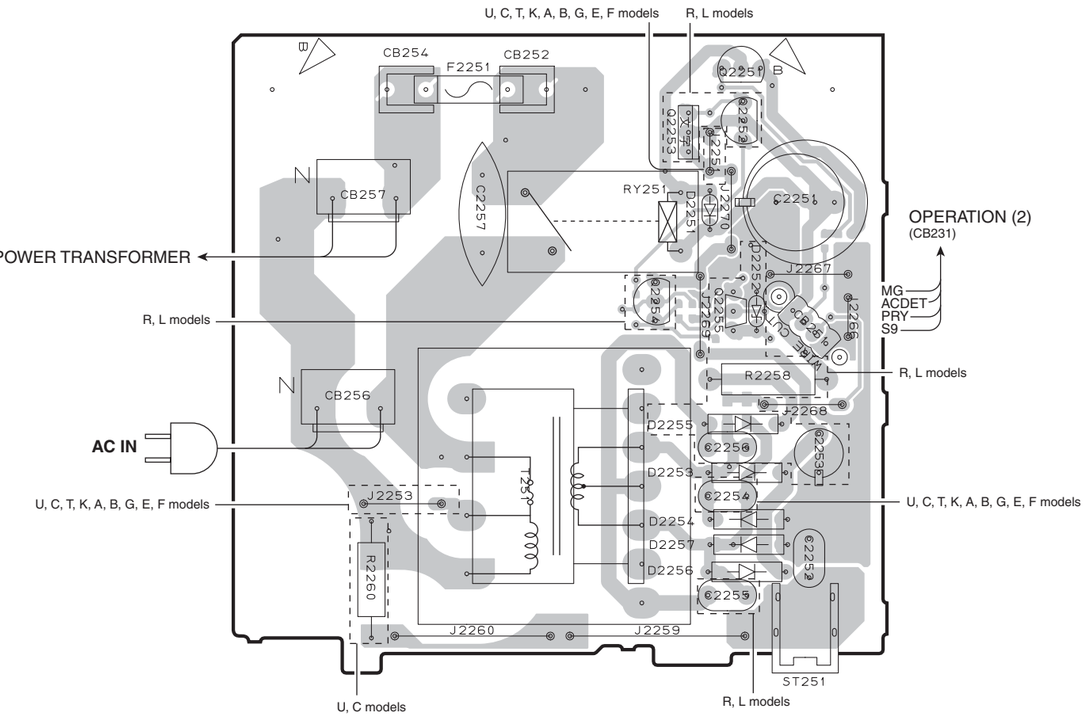
OPERATION (2) P.C.B. (Side B)



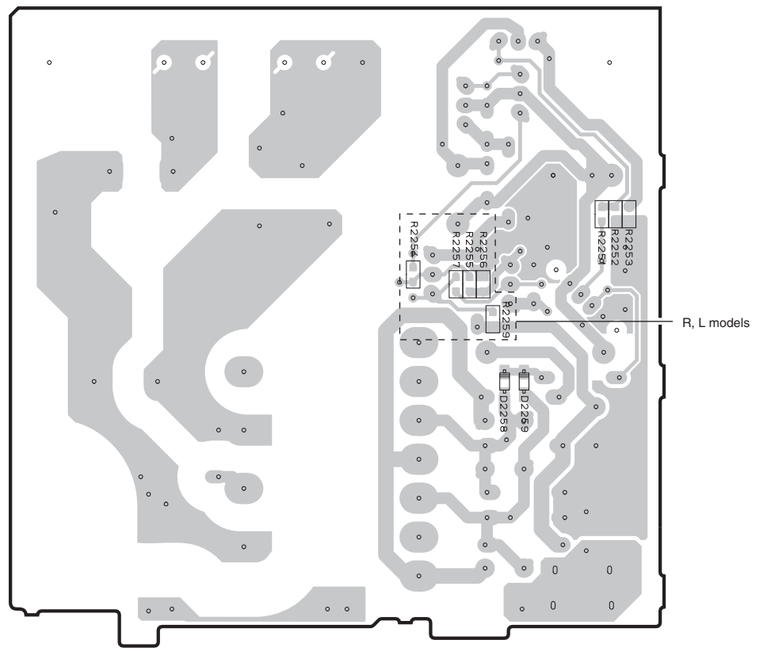
• Semiconductor Location

Ref No.	Location	Ref No.	Location
D2151	G4	D2167	C3
D2154	G4	D2168	G3
D2156	G4	D2170	C3
D2157	H3	D2171	C3
D2160	H4	Q2151	G4
D2165	H3	Q2152	G4
D2166	C3	Q2153	H4

OPERATION (3) P.C.B. (Side A)



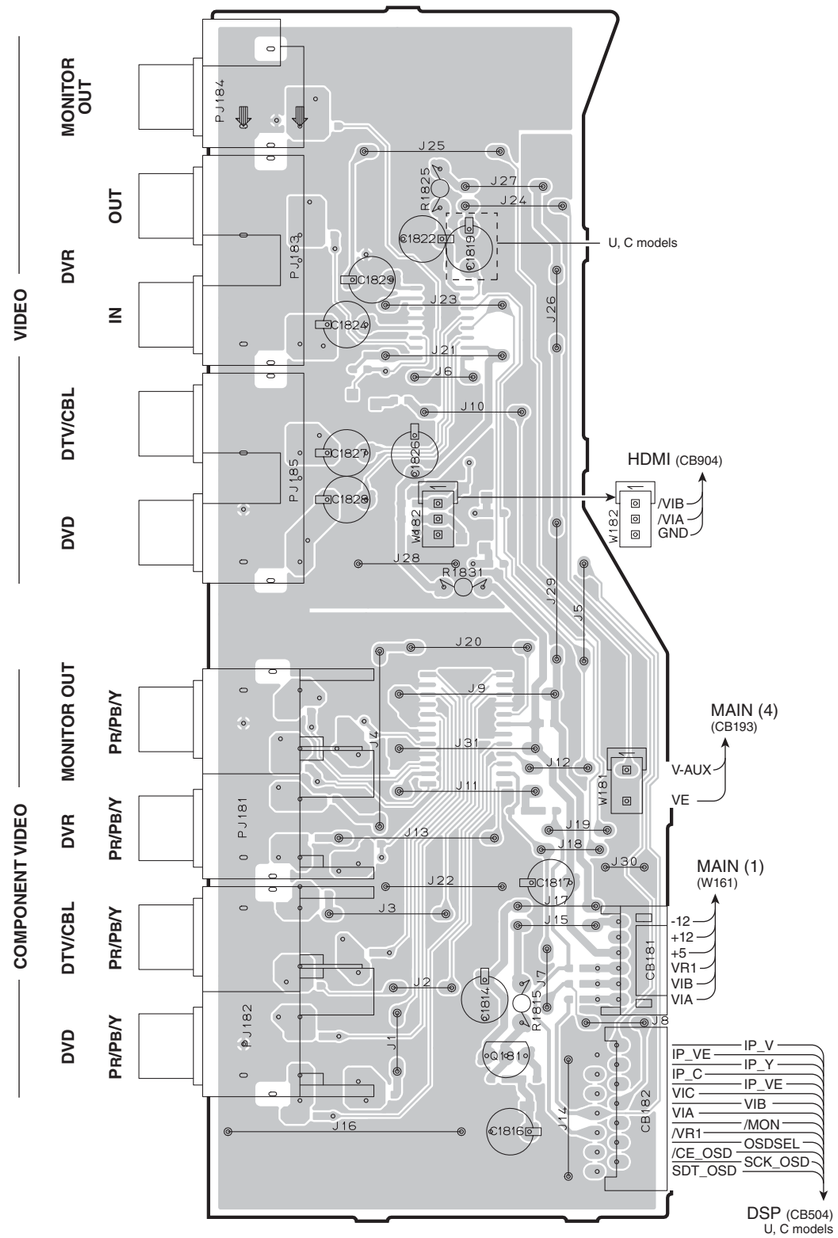
OPERATION (3) P.C.B. (Side B)



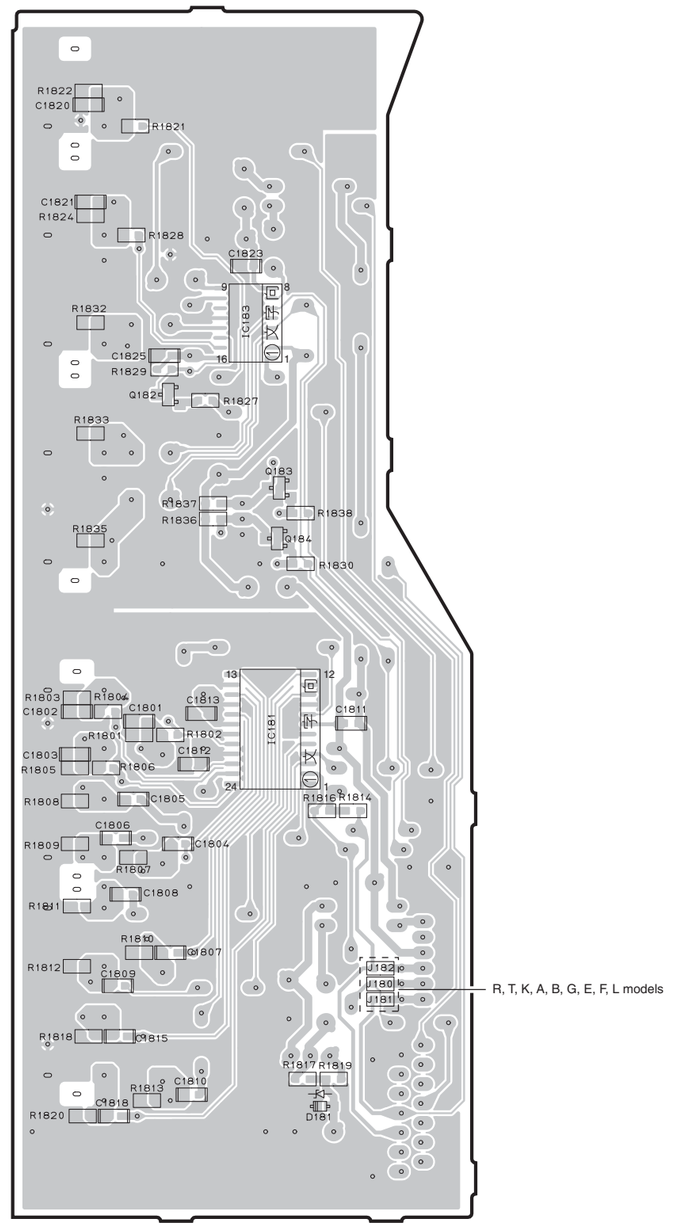
• Semiconductor Location

Ref No.	Location	Ref No.	Location
D2251	D3	D2258	I4
D2252	D4	D2259	I4
D2253	D4	Q2251	D3
D2254	D5	Q2252	D3
D2255	D4	Q2253	D3
D2256	D5	Q2254	D4
D2257	D5	Q2255	D4

OPERATION (4) P.C.B. (Side A)



OPERATION (4) P.C.B. (Side B)

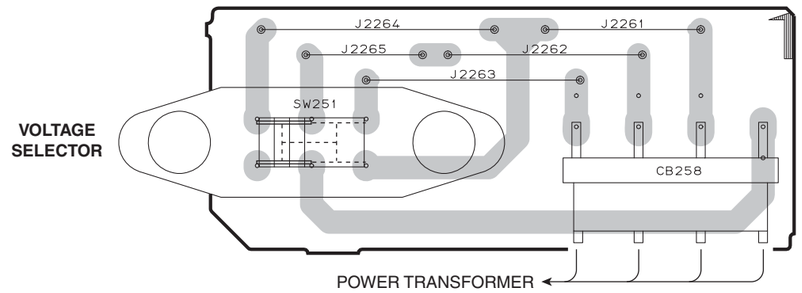


• Semiconductor Location

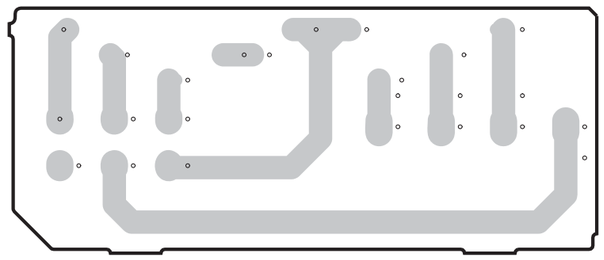
Ref No.	Location
D181	G6
IC181	G5
IC183	G3
Q181	C6
Q182	G3
Q183	G4
Q184	G4

OPERATION (5) P.C.B. (Side A)

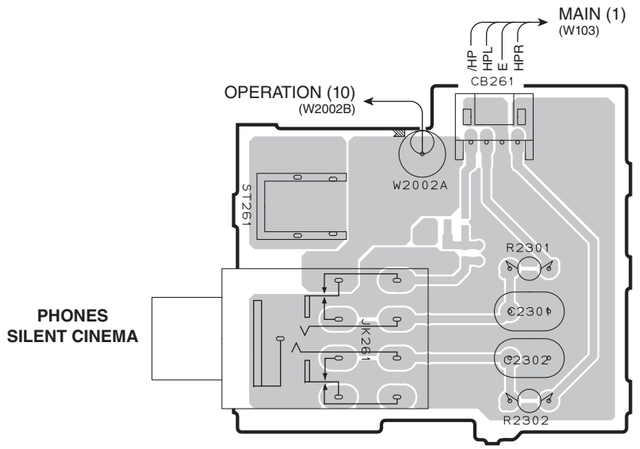
R, L models



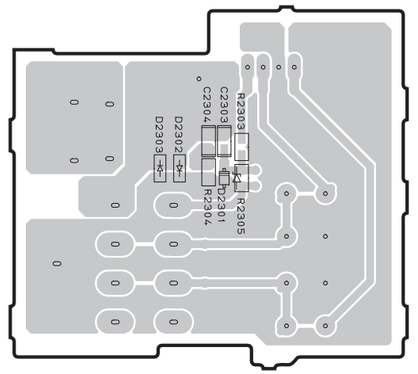
OPERATION (5) P.C.B. (Side B)



OPERATION (6) P.C.B. (Side A)



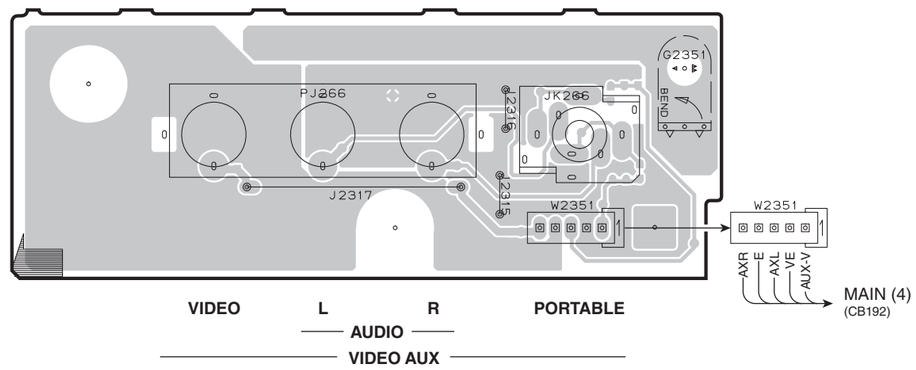
OPERATION (6) P.C.B. (Side B)



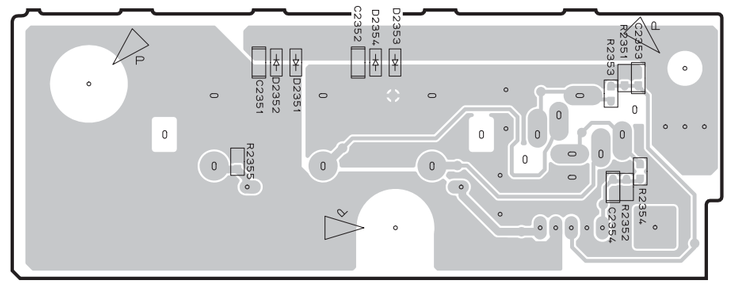
• Semiconductor Location

Ref No.	Location
D2301	H6
D2302	H6
D2303	H6

OPERATION (7) P.C.B. (Side A)



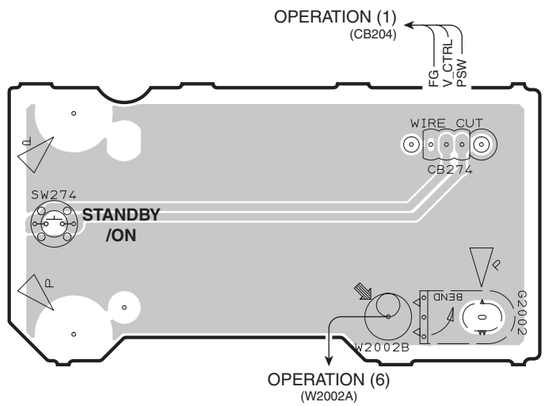
OPERATION (7) P.C.B. (Side B)



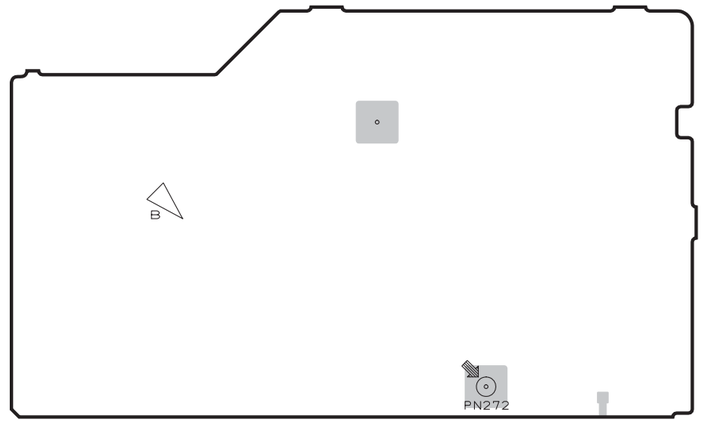
• Semiconductor Location

Ref No.	Location
D2351	H2
D2352	H2
D2353	H2
D2354	H2

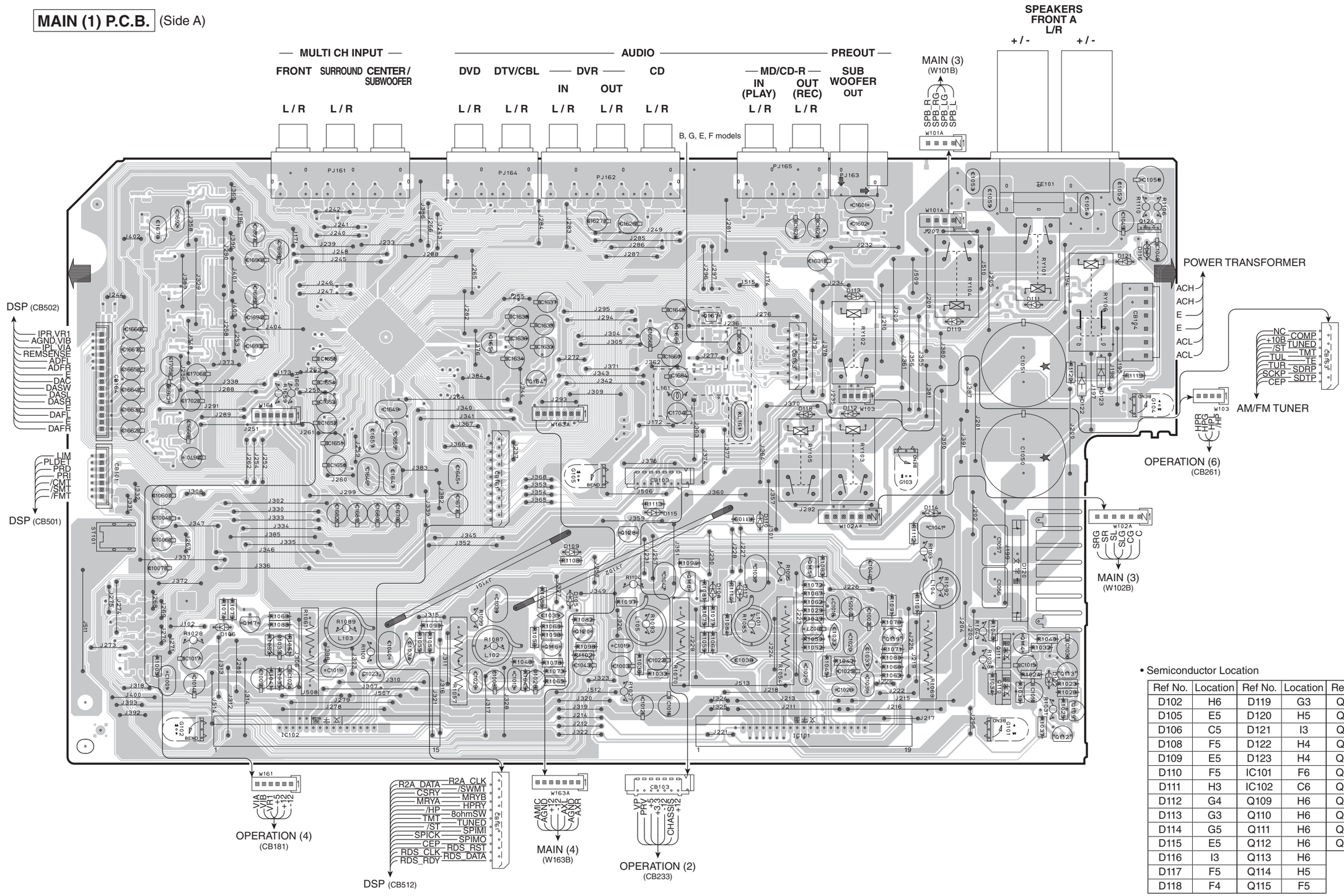
OPERATION (10) P.C.B. (Side A)



OPERATION (11) P.C.B. (Side A)



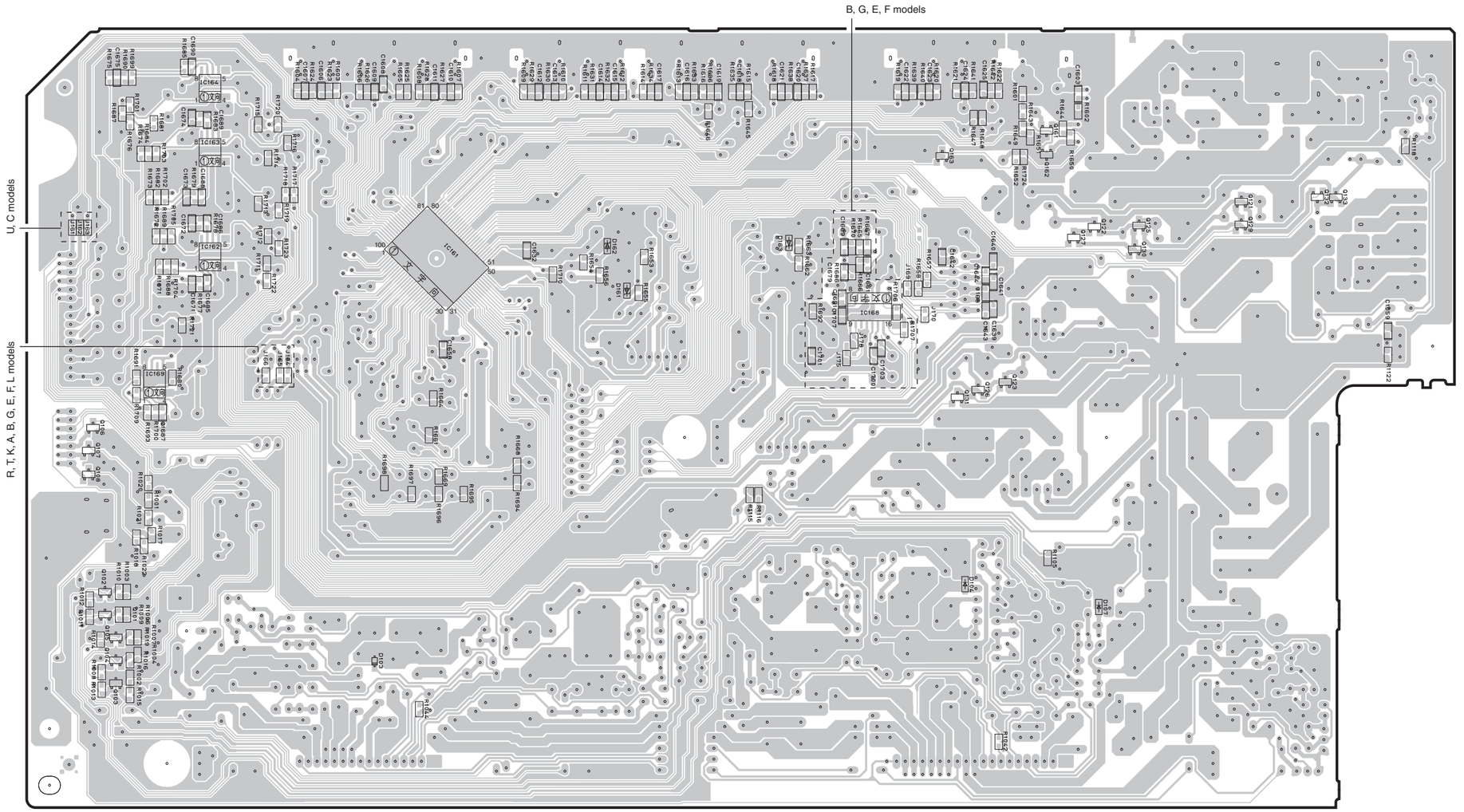
MAIN (1) P.C.B. (Side A)



• Semiconductor Location

Ref No.	Location	Ref No.	Location	Ref No.	Location
D102	H6	D119	G3	Q116	E6
D105	E5	D120	H5	Q117	C5
D106	C5	D121	I3	Q118	F5
D108	F5	D122	H4	Q119	G5
D109	E5	D123	H4	Q120	E5
D110	F5	IC101	F6	Q124	I3
D111	H3	IC102	C6	Q128	E5
D112	G4	Q109	H6	Q164	E4
D113	G3	Q110	H6	Q165	D3
D114	G5	Q111	H6	Q166	F3
D115	E5	Q112	H6	Q167	F3
D116	I3	Q113	H6		
D117	F5	Q114	H5		
D118	F4	Q115	F5		

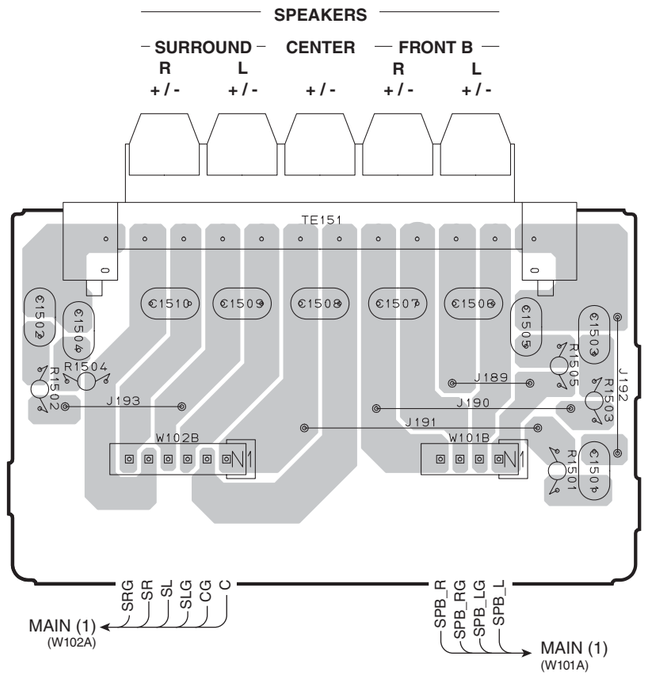
MAIN (1) P.C.B. (Side B)



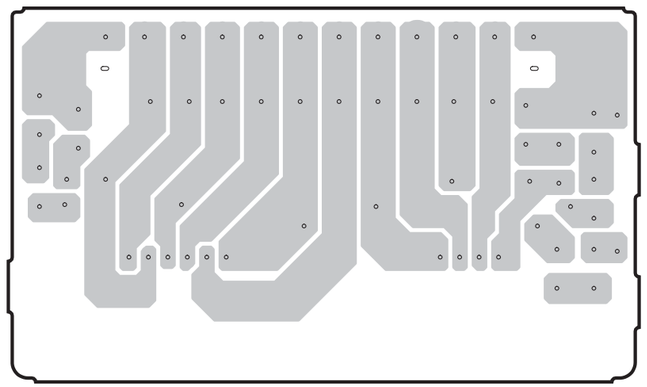
• Semiconductor Location

Ref No.	Location
D103	C6
D104	F5
D107	G5
D161	D4
D162	D3
D163	E3
IC161	C3
IC162	B3
IC163	B3
IC164	B3
IC168	F4
IC169	B4
Q101	B5
Q102	B5
Q103	B6
Q104	B6
Q105	B5
Q106	B4
Q107	B4
Q108	B5
Q121	H3
Q122	G3
Q123	F4
Q125	G3
Q126	F4
Q127	G3
Q129	H3
Q130	G3
Q131	F4
Q132	H3
Q133	H3
Q161	G3
Q162	G3
Q163	F3

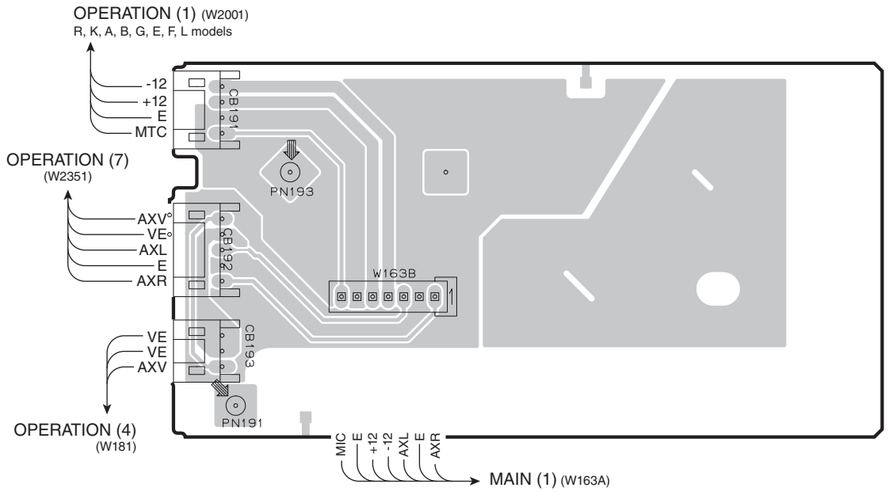
MAIN (3) P.C.B. (Side A)



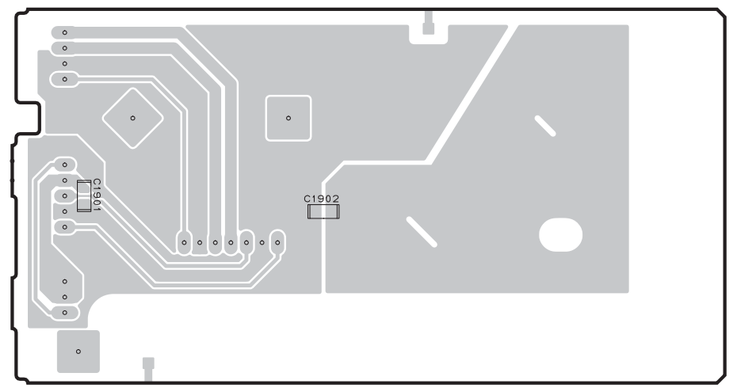
MAIN (3) P.C.B. (Side B)



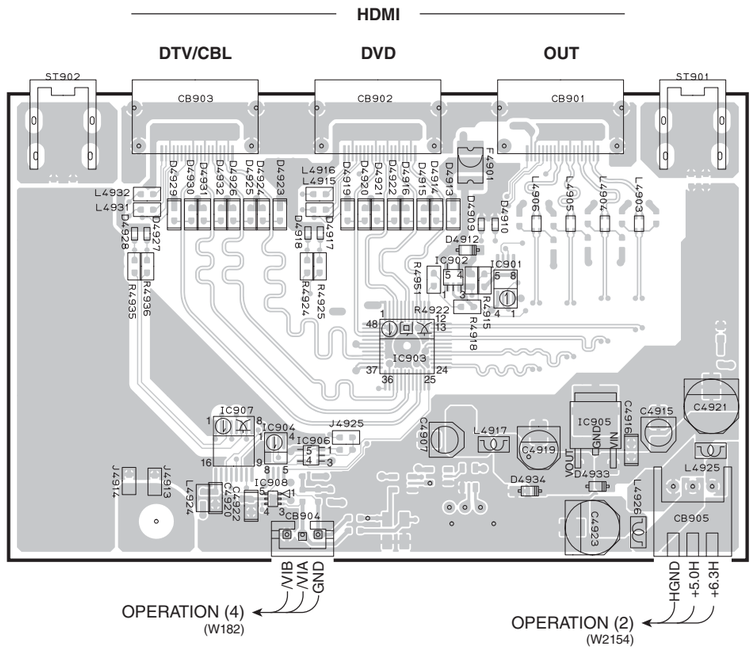
MAIN (4) P.C.B. (Side A)



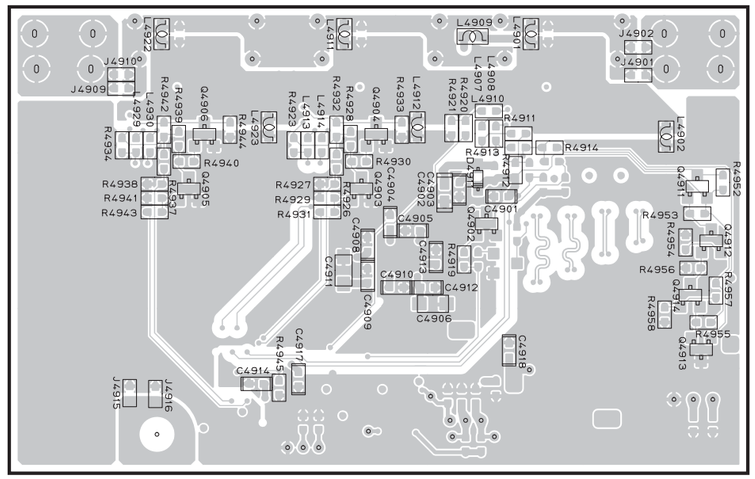
MAIN (4) P.C.B. (Side B)



HDMI P.C.B. (Side A)



HDMI P.C.B. (Side B)



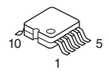
• Semiconductor Location

Ref No.	Location
D4909	C4
D4910	C4
D4911	H4
D4912	C4
D4913	C4
D4914	C4
D4915	C4
D4916	C4
D4917	C4
D4918	C4
D4919	C4
D4920	C4
D4921	C4
D4922	C4
D4923	B4
D4924	B4
D4925	B4
D4926	B4
D4927	B4
D4928	B4
D4929	B4
D4930	B4
D4931	B4
D4932	B4
D4933	D5
D4934	C5
IC901	C4
IC902	C4
IC903	C4
IC904	B5
IC905	D5
IC906	C5
IC907	B5
IC908	B5
Q4902	H4
Q4903	G4
Q4904	G4
Q4905	G4
Q4906	G4
Q4911	I4
Q4912	I4
Q4913	I5
Q4914	I4

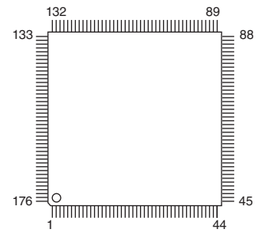
■ PIN CONNECTION DIAGRAMS

• ICs

ADC084S021 CIMM



ADSP-BF531 CPU



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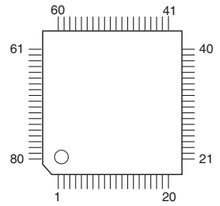
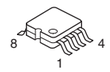


BR25L320F-W EEPROM



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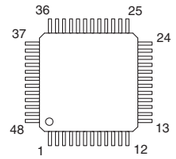

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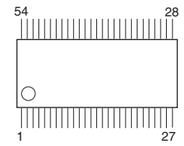
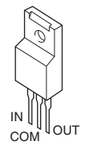
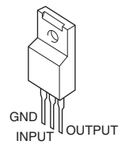


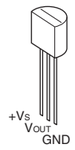
KIA7805API
KIA7812API



KIA7912PI



LM61CIZ



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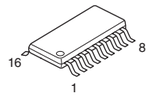
SN74CB3Q3257PWR



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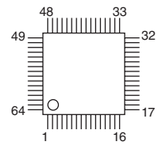
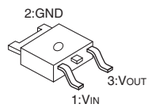


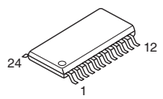
NJM2867F3-05



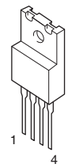
NJM2885DL1-33



NJM2586AM

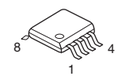


NJM2388F33



1. VIN
2. VOUT
3. GND
4. ON/OFF CONTROL

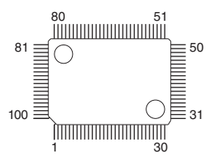
NJM4565M



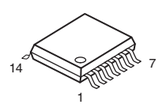
PCA9517DP



R2A15218FP



SN74AHC02PWR
SN74AHCT08PWR
SN74LV08APWR
SN74LVU04APWR



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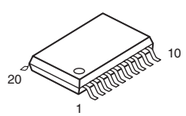
SN74LV573APWR



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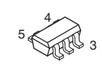

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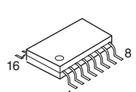
SN74LVC3G04DCTR



SN74LV4051APWR



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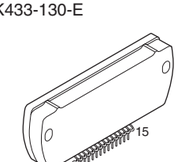
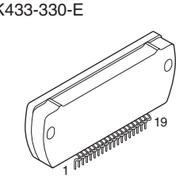
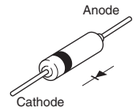


STK433-330-E



• Diodes

1SS133, 176
1SS270A
1T2
MTZJ4.7A
MTZJ33B



1SS355
RB500V-40
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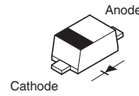
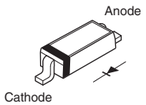


KDS160-RTK



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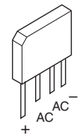

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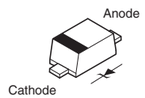
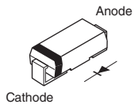
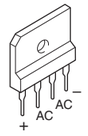
MA8100-H
UDZ5.1B
UDZS3.3BTE-17
UDZS5.6BTE-17
UDZS9.1B



RB160L-40 TE25



TS6P03G 6.0A 200V



• Transistors

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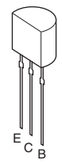
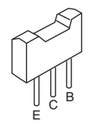
2N5401C
2N5551C



2SA1037K
2SC2412K
2SC3326
2SD1938F



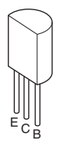
2SA1708



2SC1740S



2SC1815



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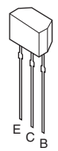


KRA102S-RTK/P
KRA104S-RTK
KRC102S-RTK
KRC104S-RTK

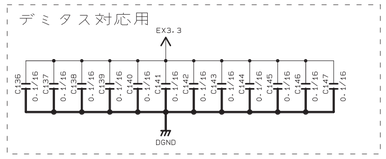


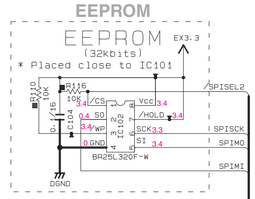
KTA1046-Y-U/P

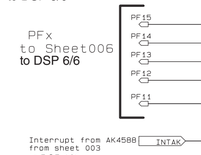
RTQ040P02

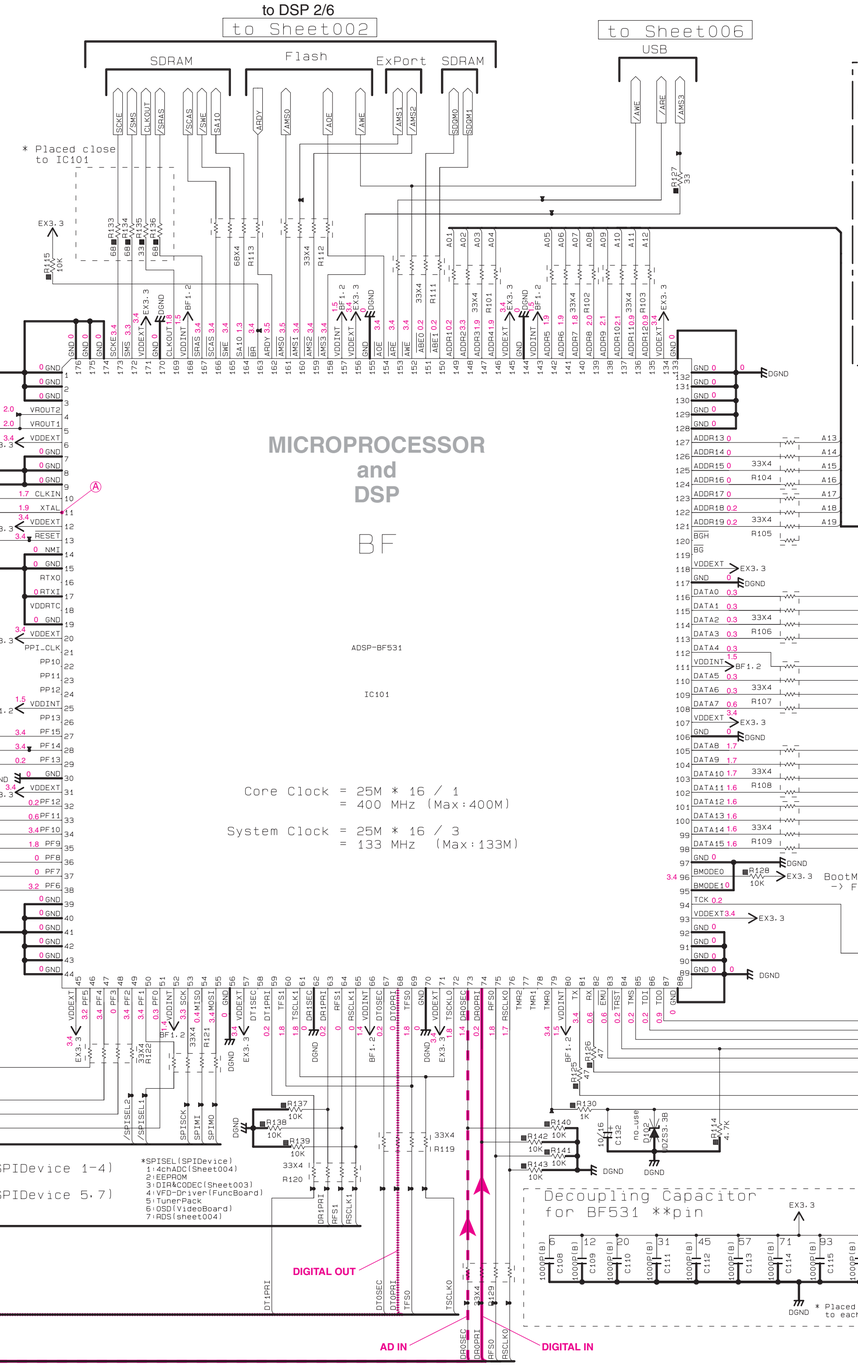
1. Drain
2. Drain
3. Gate
4. Source
5. Drain
6. Drain

■SCHEMATIC DIAGRAMS
DSP 1/6









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	
	POLYPHENYLENE SULFIDE FILM CAPACITOR	

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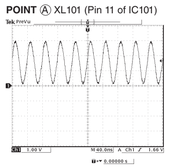
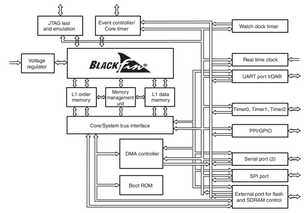
(F)····· RUSSIAN

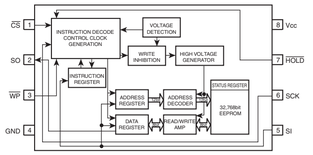
POINT Ⓐ XL101 (Pin 11 of IC101)



IC101: ADSP-BF531 CPU
Microprocessor



IC102: BR25L320F-W EEPROM
SPI BUS 32 k-bit (4,096 x 8-bit) EEPROM



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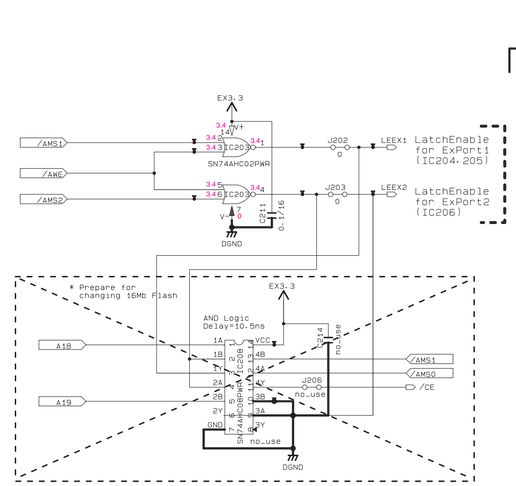
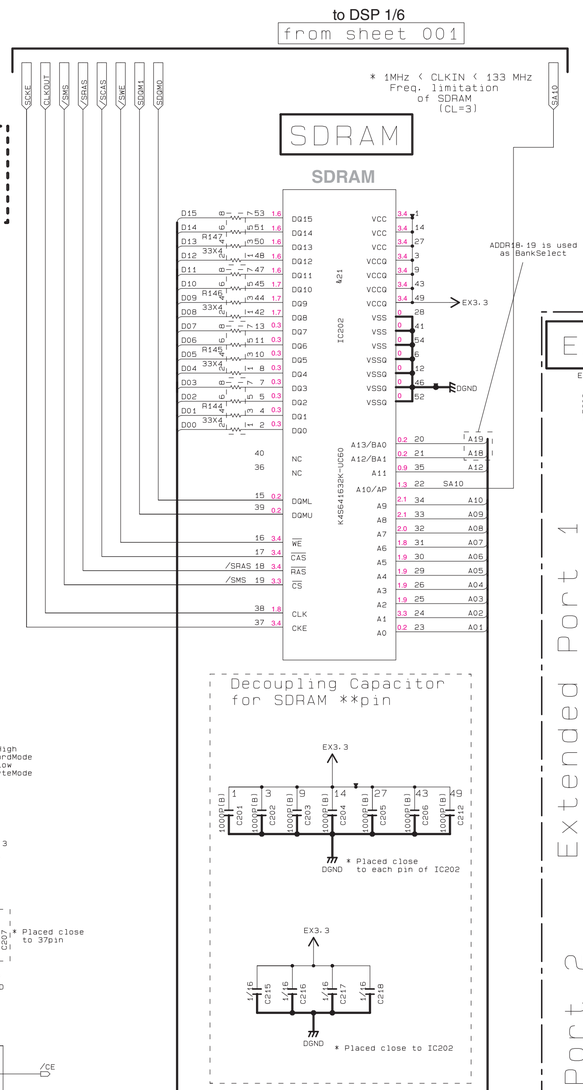
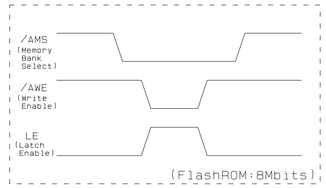
★ Schematic diagram is subject to change without notice.

DSP 2/6

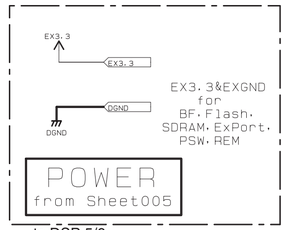


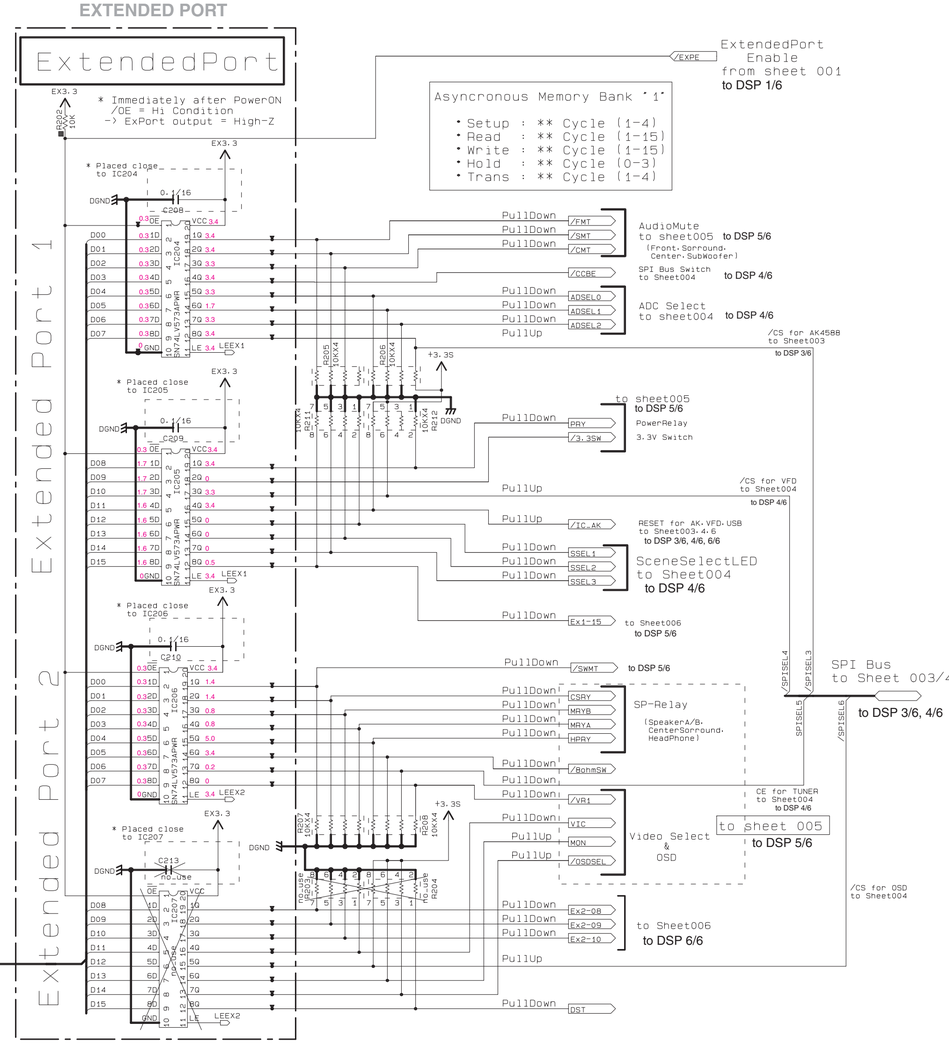




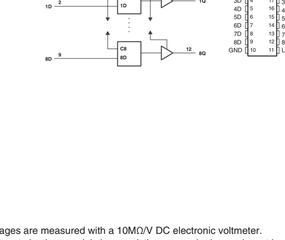
Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
&21	IC202	K4S641632K-UC60000
		M12L64164A-5TG

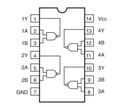




IC202: K4S641632K-UC60000
64 M synchronous DRAM



IC203: SN74AHC02PWR
Quadruple 2-input positive-NOR gates



IC204-206: SN74LV573APWR
Octal transparent D-type latches with 3-state outputs

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	
	POLYPHENYLENE SULFIDE FILM CAPACITOR	

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(F)····· RUSSIAN

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★ Schematic diagram is subject to change without notice.

DSP 3/6

Interchangeable Parts at Manufacture=Stage

Mark	Reference Parts Number	Parts Name
※22	U301-U302	J5R1165
		GP1FAV51RK0F

IC301: AK4588VQ
2/8-channel audio CODEC with DIR

IC305: SN74LVU04APWR
Hex inverters

POINT Ⓑ XL301 (Pin 6 of IC301)

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
Ⓢ	POLYPHENYLENE SULFIDE FILM CAPACITOR

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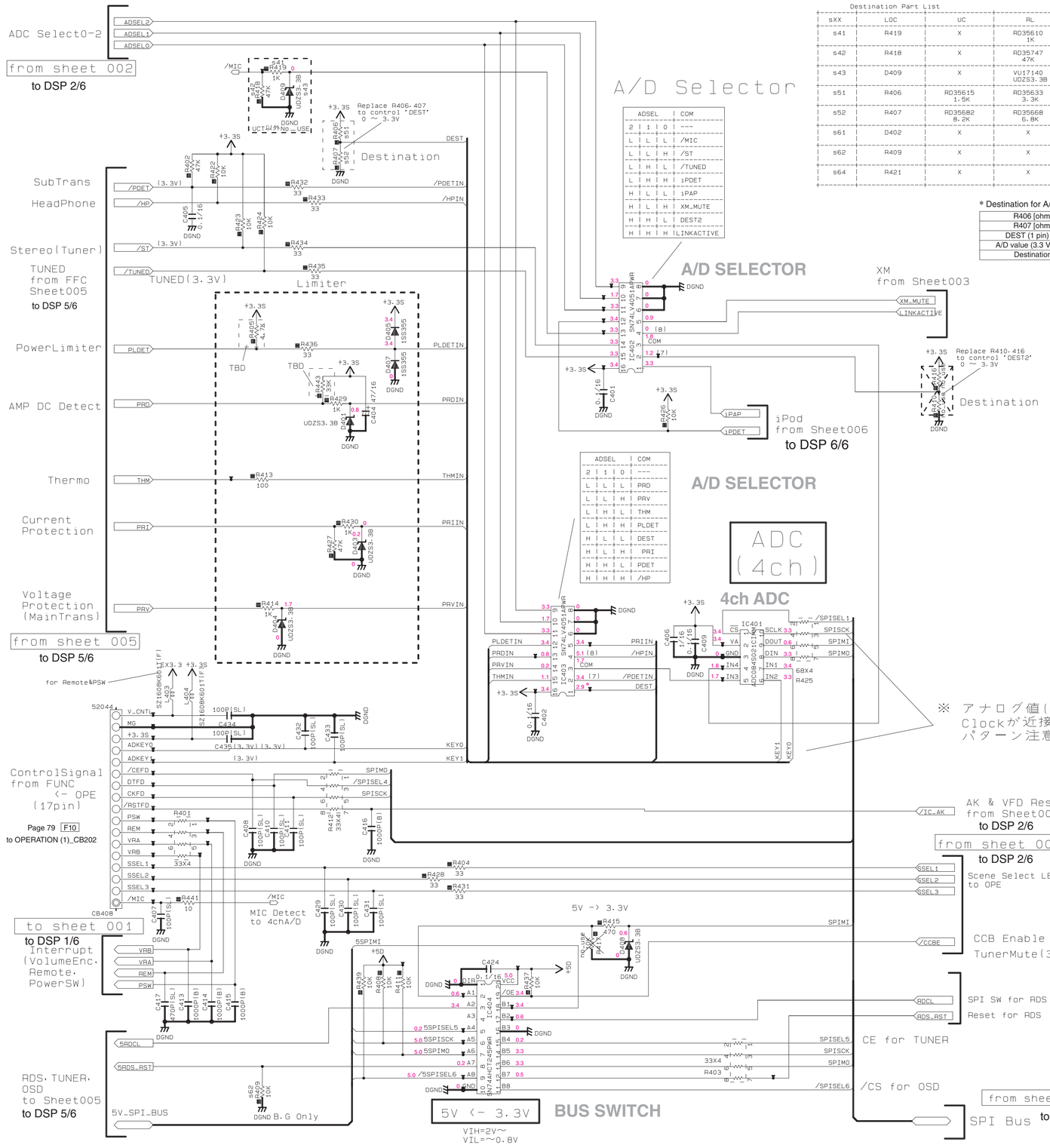
DSP 4/6

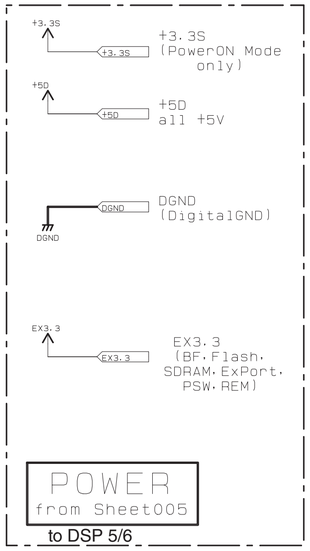


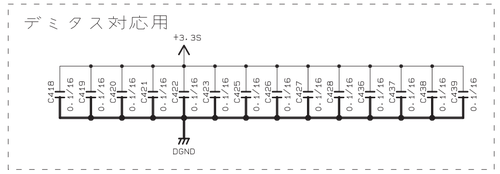
Destination Part List

sXX	LOC	UC	RL	T	KA	BGEF	
s41	R419	X	RD35610 1K	X	RD35610 1K	RD35610 1K	MIC
s42	R418	X	RD35747 47K	X	RD35747 47K	RD35747 47K	
s43	D409	X	VU17140 UDZS3.3B	X	VU17140 UDZS3.3B	VU17140 UDZS3.3B	
s51	R406	RD35615 1.5K	RD35633 3.3K	RD35647 4.7K	RD35668 6.8K	RD35682 8.2K	DEST
s52	R407	RD35682 8.2K	RD35668 6.8K	RD35656 5.6K	RD35639 3.9K	RD35622 2.2K	
s61	D402	X	X	X	X	VU17140 UDZS3.3B	RDS
s62	R409	X	X	X	X	RD35710 10K	
s64	R421	X	X	X	X	RD35610 1K	

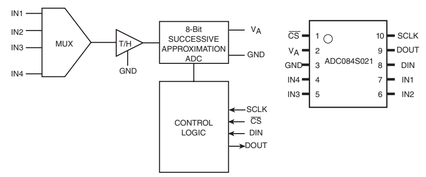
* Destination for A/D port

R406 [ohm]	1.5 k	3.3 k	4.7 k	6.8 k	8.2 k
R407 [ohm]	8.2 k	6.8 k	5.6 k	3.9 k	2.2 k
DEST (1 pin) [V]	2.6-3.0	2.0-2.4	1.6-2.0	1.0-1.4	0.5-0.9
A/D value (3.3 V=255)	206-226	162-182	129-149	83-103	44-64
Destination	U, C	R, L	T	K, A	B, G, E, F

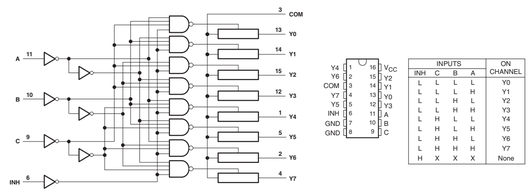




IC401: ADC084S021 CIMM
4-channel, 200 ksps, 8-bit A/D converter

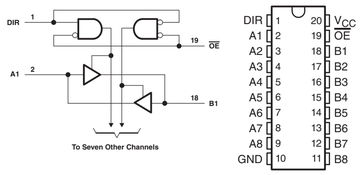


IC402, 403: SN74LV4051APWR
8-channel analog multiplexers/demultiplexers



INPUTS				ON CHANNEL
INH	C	B	A	
L	L	L	L	Y0
L	L	L	H	Y1
L	L	H	L	Y2
L	L	H	H	Y3
L	H	L	L	Y4
L	H	L	H	Y5
L	H	H	L	Y6
L	H	H	H	Y7
H	X	X	X	None

IC404: SN74AHCT245PWR
Octal bus transceivers with 3-state outputs



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	日
⊗	TANTALUM CAPACITOR	
NO MARK	CERAMIC CAPACITOR	
◉	CERAMIC TUBULAR CAPACITOR	
◎	POLYESTER FILM CAPACITOR	
○	POLYSTYRENE FILM CAPACITOR	
Ⓘ	MICA CAPACITOR	
Ⓟ	POLYPROPYLENE FILM CAPACITOR	
◉	SEMICONDUCTIVE CERAMIC CAPACITOR	
Ⓢ	POLYPHENYLENE SULFIDE FILM CAPACITOR	

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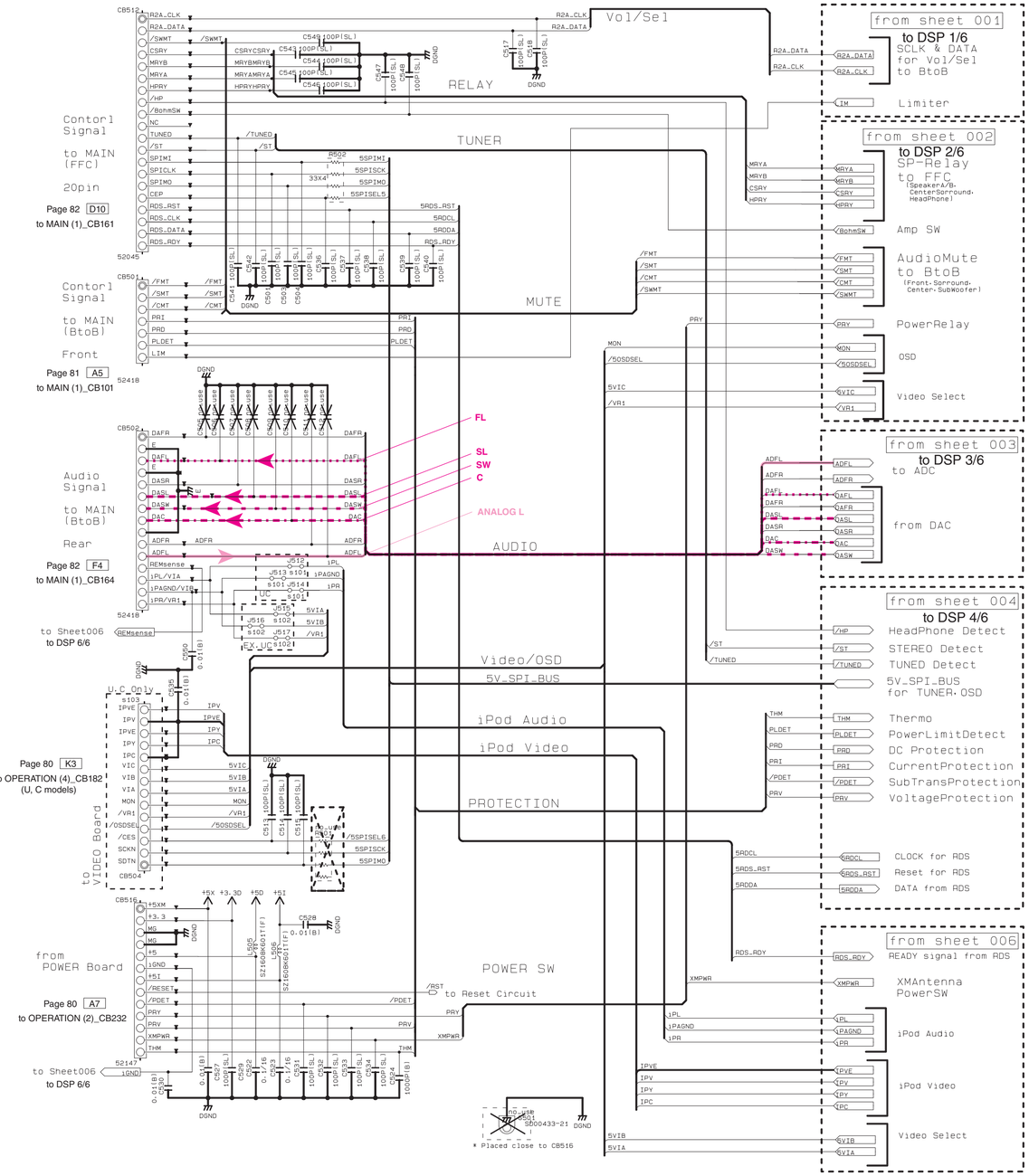
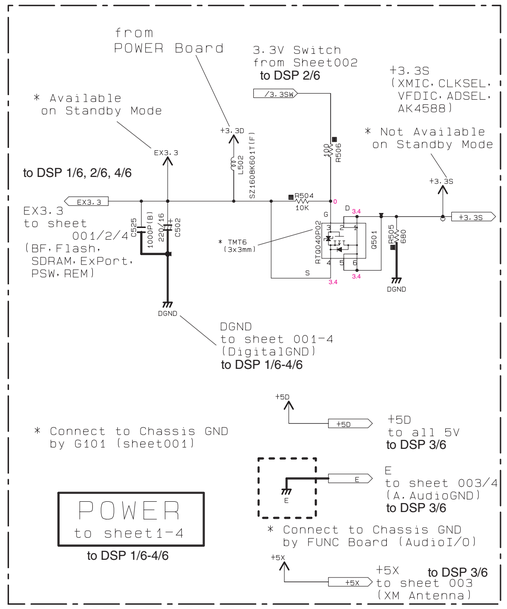
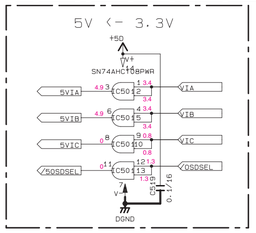
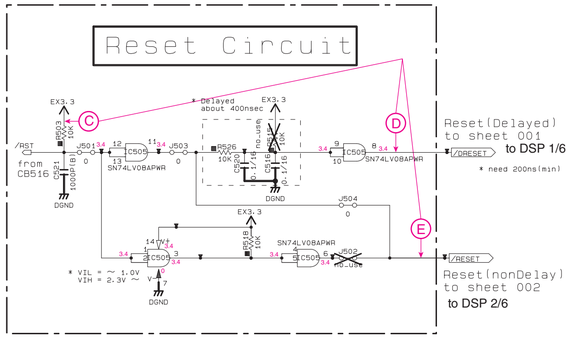
DSP 5/6





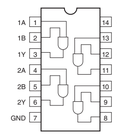




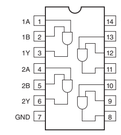
Destination Part List

sXX	LOC	UC	RL	T	KA	BGEF
s101	J514 J512 J513	RD35000 0	X	X	X	X
s102	J517 J516 J515	X	RD35000 0	RD35000 0	RD35000 0	RD35000 0
s103	CB504	VN39490 52045	X	X	X	X

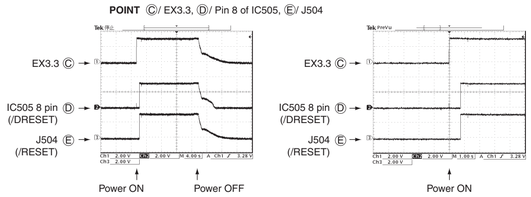
IC501: SN74AHCT08PWR
Quadruple 2-input positive-AND gates



IC505: SN74LV08APWR
Quadruple 2-input positive-AND gate



POINT Ⓒ/ EX3.3, Ⓓ/ Pin 8 of IC505, Ⓔ/ J504



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	⫫
Ⓢ	POLYPHENYLENE SULFIDE FILM CAPACITOR	⫫

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DSP 6/6

Destination Part List

sXX	LOC	UC	RL	T	KA	BGEF
s65	R652 R653 R651	X	X	X	X	RD35433 33
s66	R603	X	X	X	X	RD35710 10K
s67	J611	X	X	X	X	RD35000 0
s70	R617	RF45851 510K	X	X	X	X
s72	R616 R618 R659	RD35710 10K	X	X	X	X
s73	R620	RF45739 39K	X	X	X	X
s74	C625	US06310 1000P(B)	X	X	X	X
s75	R627 R625 R628 R626	RD35510 100	X	X	X	X
s76	R629 R631 R630	RD35475 75	X	X	X	X
s77	R632 R633	RD35547 470	X	X	X	X
s78	C606 C607 C608 C605 C604 C603	US06222 220P(SL)	X	X	X	X
s79	R640 R635	RD35810 100K	X	X	X	X
s80	D602	VT33290 1SS355	X	X	X	X
s81	C626	US06410 0.01(B)	X	X	X	X
s82	C609	US13510 0.1/16	X	X	X	X
s83	CB602	WM4580 LAC2115-0003F	X	X	X	X
s85	R639	RD35610 1K	X	X	X	X
s86	J605 J607	X	RD35000 0	RD35000 0	RD35000 0	RD35000 0

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	
Ⓢ	POLYPHENYLENE SULFIDE FILM CAPACITOR	

NOTICE (model)
(J)····· JAPAN
(U)····· U.S.A
(C)····· CANADA
(R)····· GENERAL
(T)····· CHINA
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(A)····· AUSTRALIA
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(G)····· EUROPE
(L)····· SINGAPORE
(E)····· SOUTH EUROPE
(V)····· TAIWAN
(F)····· RUSSIAN

Destination Circuit

UART for iPod to Sheet001 to DSP 1/6

UART for XM to Sheet 003

PFx for BF to Sheet 001 to DSP 1/6

I2C for DAB to Sheet 003

DMA Request from USB

USB Interrupt from IC601

DMA ACK from BF

Video Select to Sheet005 to DSP 5/6

ExPort from Sheet 002 to DSP 2/6

B, G, E, F models

BG Only

RDS to Sheet004 to DSP 4/6

RDS Ready from Sheet005 to DSP 5/6

* /ICXM go active(LOW) after BF531 SPORT Enable

Reset for XM to Sheet003

XM Power(3.3V) to Sheet005 to DSP 5/6

ClockSelect to sheet 003

Reset for RDS to DSP 4/6

ExPort from Sheet 002 to DSP 2/6

デミタス対応用

iPod

(U, C models)

18pin:Rx for uCOM
14pin:Tx for uCOM

U.C Only

No replacement part available.

DOCK to Dock

iPod Detect to Sheet004 to DSP 4/6

UART for iPod to Sheet001 to DSP 1/6

iPod Video & Audio to Sheet005 to DSP 5/6

*UC-EX Mount

iGND from Sheet005 to DSP 5/6

REMsense from Sheet005 to DSP 5/6

+5D (all 5V except XM)

E (Analog GND)

EX3.3 (BF.Flash. SDRAM. ExPort. PSW. REM)

+3.3S (PowerON Mode only)

DGND (DigitalGND)

POWER from Sheet005 to DSP 5/6

USB

from Sheet004

Place close to IC101 (as possible)

AddressBus

DataBus

IC601 USB Host Controller ISP1362

Place close to IC603

IC604

from IC603

Reset AK4588 from Sheet002

to Destination Circuit

* Placed close to each pin of IC601

to OPE Board USB_HOST

Near IC601

OTGMODE	ID	Function
L	X	OTG
H	L	HOST
H	H	Peripheral

★ All voltages are measured with a 10MΩ/V DC electronic voltmeter.
★ 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.

OPERATION 1/2

NOTICE (model)
(J)····· JAPAN
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(G)····· EUROPE
(L)····· SINGAPORE
(E)····· SOUTH EUROPE
(V)····· TAIWAN
(F)····· RUSSIAN

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

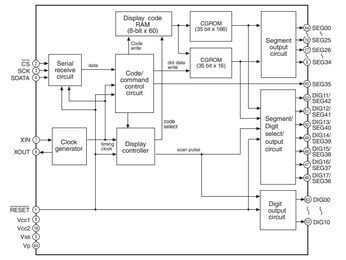
CAPACITOR

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	⫫
Ⓢ	POLYPHENYLENE SULFIDE FILM CAPACITOR	⫫

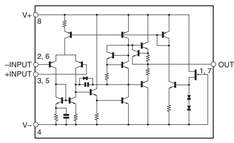
Interchangeable Parts at Manufacture-Stage

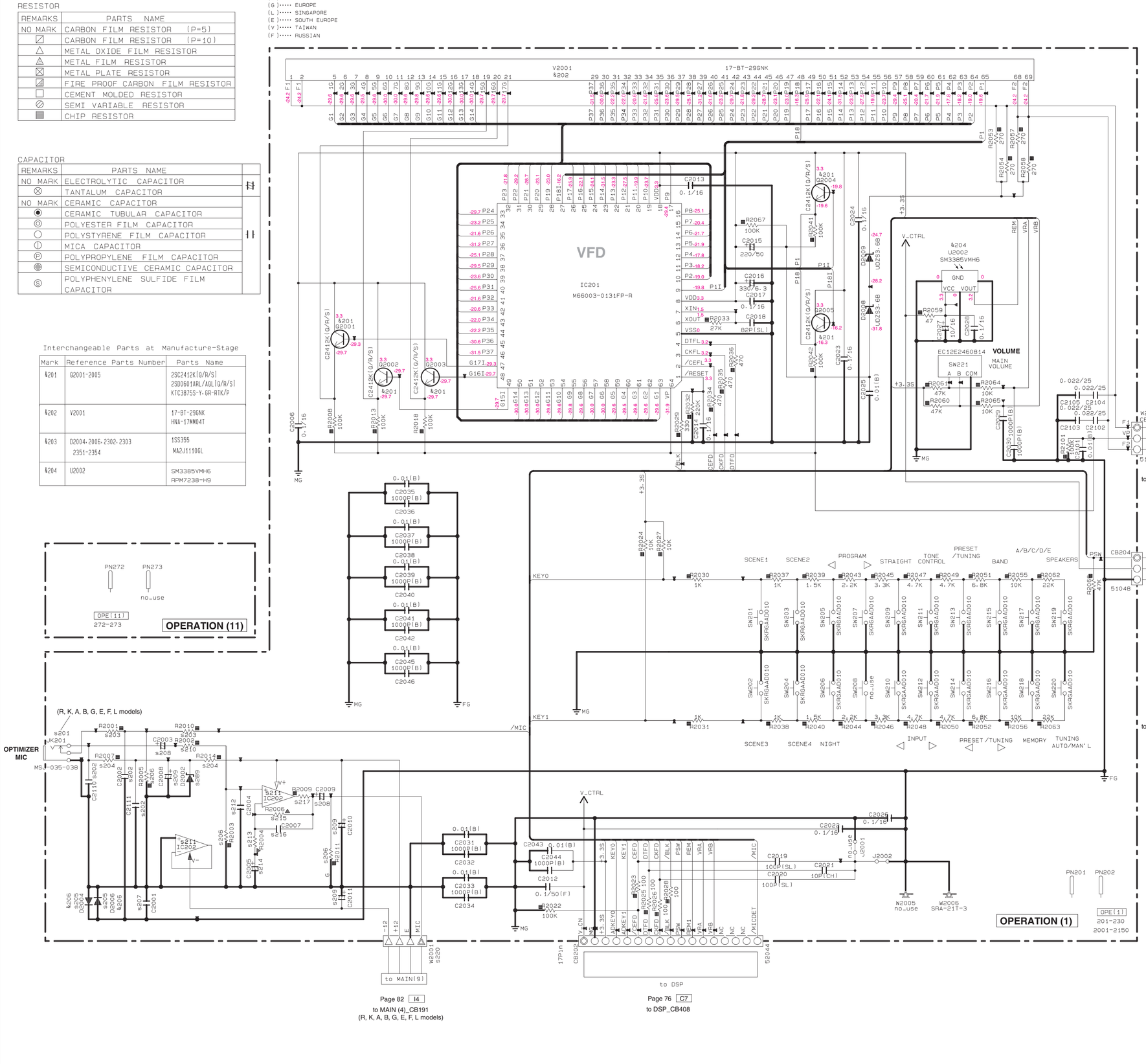
Mark	Reference Parts Number	Parts Name
&201	Q2001-2005	2SC2412K(Q/R/S) 2SD0601AL/AQL(Q/R/S) KTC3875S-Y.GR-RTK/P
&202	V2001	17-BT-29GNK HNA-17MM04T
&203	D2004、2006、2302、2303 2351-2354	1SS355 MA2J111OGL
&204	U2002	SM3385VMH6 RPM7238-H9

IC201: M66003-0131FP-R
18 digit 5 x 7 segment VFD controller/driver



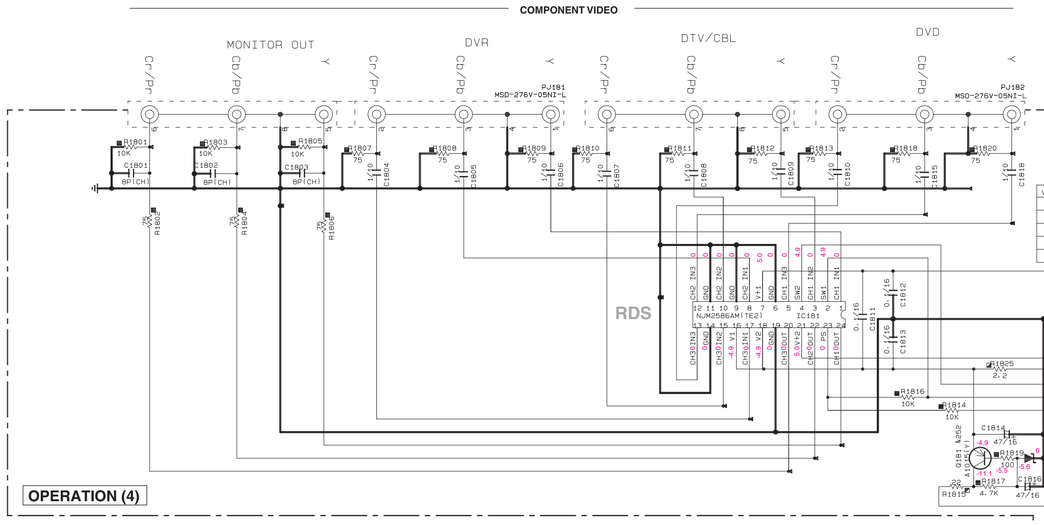
IC202: NJM4565M
Dual operational amplifier

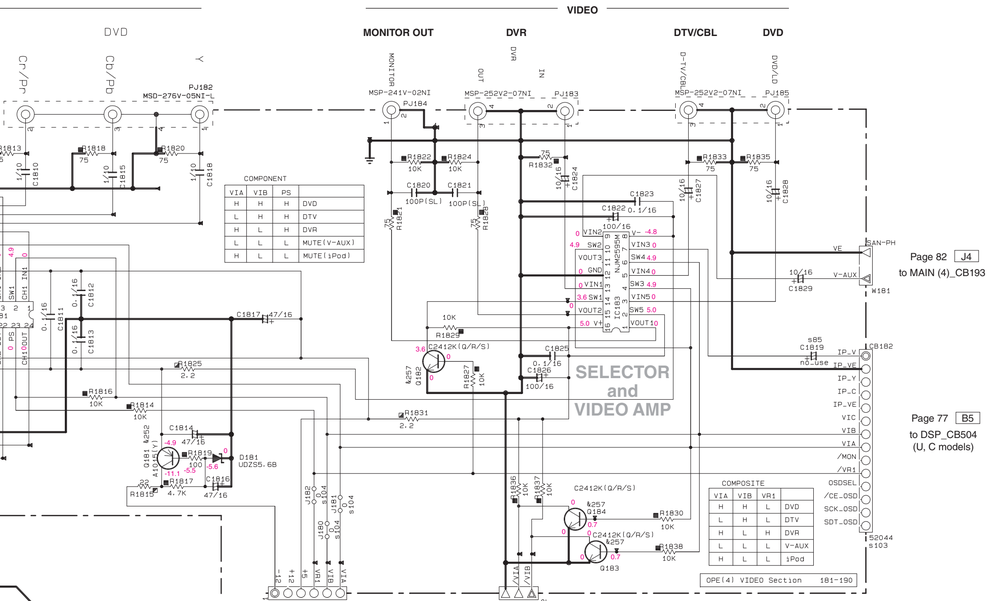




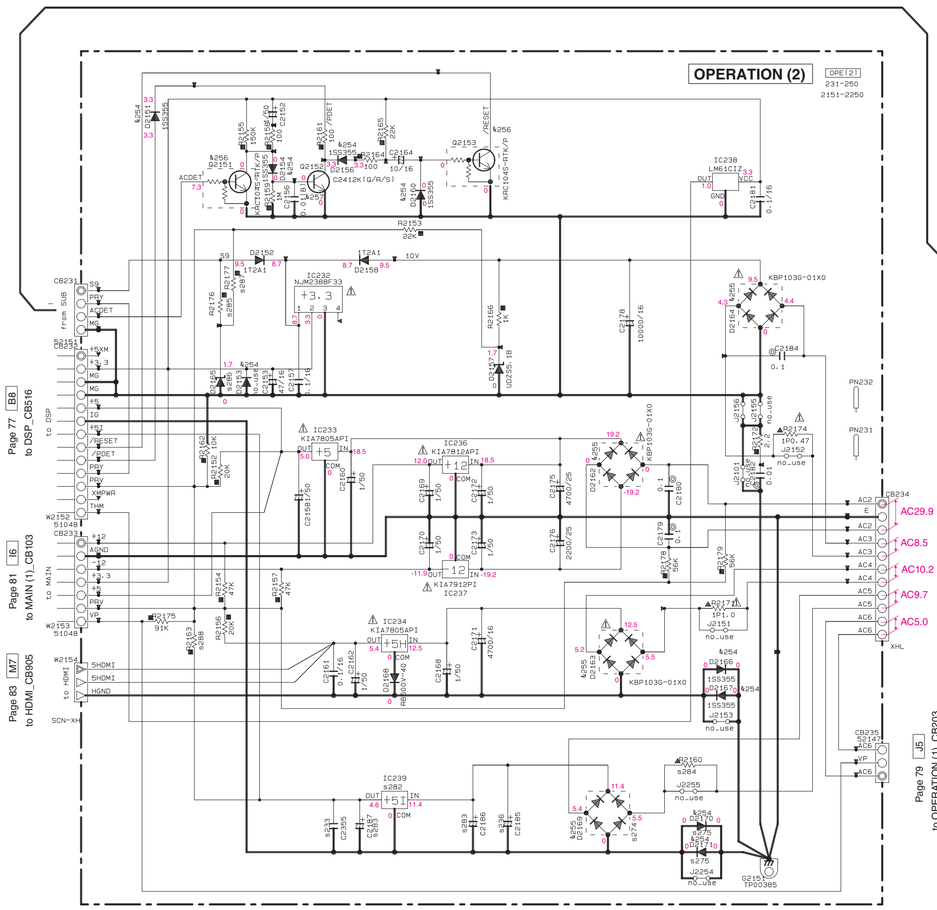
★ All voltages are measured with a 10MΩ/V DC electronic voltmeter.
★ Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
★ Schematic diagram is subject to change without notice.

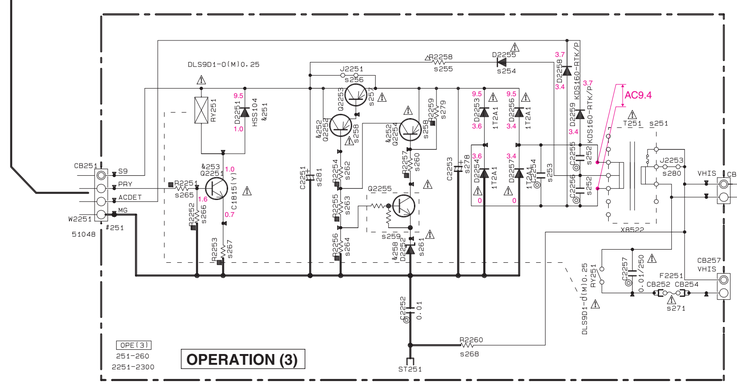
OPERATION 2/2

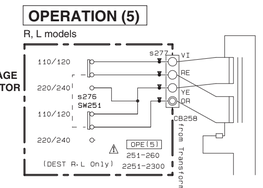




Page 82 J4
to MAIN (4)_CB193
Page 77 B5
to DSP_CB504
(U, C models)
Page 82 E3
to MAIN (1)_W161
Page 83 M7
to HDMI_CB904







RESISTOR

REMARKS	PARTS NAME
NO MARK	CARBON FILM RESISTOR (P=5)
⊠	CARBON FILM RESISTOR (P=1Ω)
△	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	

Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
♣251	D2251	HSS104 1SS133 1SS176
♣252	Q181·2252·2254	2SA1015[Y] KTA1266[Y] 2SA1015Y
♣253	Q2251	2SC1815[Y] KTC3198Y 2SC1815Y
♣254	D2151·2154·2156·2160 2166·2167·2170·2171	1SS355 MA2J1110GL
♣255	D2162·2164·2169	KBP103G-01X0 RS103
♣256	Q2151·2153	DTC144EKA KRC104S-RTK/P
♣257	Q182·184·2152	2SC2412K[Q/R/S] 2SD601ARL/AQL[Q/R/S] KTC3875S-Y,GR-RTK/P
♣258	D2252	MTZJ4.7A GDZJ4.7A

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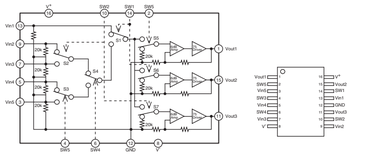
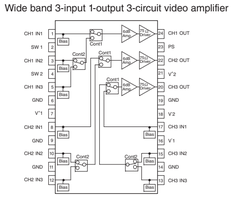
(L)····· SINGAPORE
(E)····· SOUTH EUROPE
(V)····· TAIWAN
(F)····· RUSSIAN

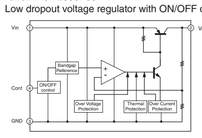
IC183: NJM2595M (TE1)
5-input 3-output video switch



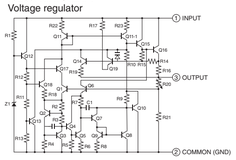
IC181: NJM2586AM
Wide band 3-input 1-output 3-circuit video amplifier



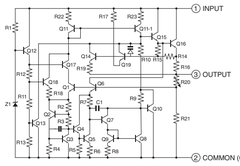
IC232: NJM2388F33
Low dropout voltage regulator with ON/OFF control



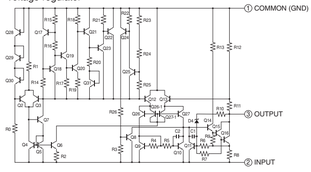
IC236: KIA7812API
Voltage regulator



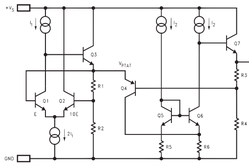
IC233, 234, 239: KIA7805API
Voltage regulator



IC237: KIA7912PI
Voltage regulator



IC238: LM61CIZ
Temperature sensor



Destination Part List

sXX	LOC	UC	RL	T	KABGEF
s85	C1819	UR83710 10/16	X	X	X
s103	CB182	VF98220 52044	X	X	X
s104	J181 J180 J182	X	RD35000 0	RD35000 0	RD35000 0
s201	JK201	X	WR12620 MSJ-035-03B	X	WR12620 MSJ-035-03B
s202	C2002 C2110 C2111	X	US06310 100P(B)	X	US06310 100P(B)
s203	R2010 R2001	X	RD35610 1K	X	RD35610 1K
s204	R2007 R2014	X	RD35647 4.7K	X	RD35647 4.7K
s205	D2006 D2004	X	VT33290 1SS355	X	VT33290 1SS355
s206	R2011 R2005 R2003	X	RD35810 100K	X	RD35810 100K
s207	C2001	X	US06410 0.01(B)	X	US06410 0.01(B)
s208	C2003 C2009	X	UM39710 10/16	X	UM39710 10/16
s209	C2008 C2011 C2010	X	UM39722 22/16	X	UM39722 22/16
s210	R2002	X	RD35522 220	X	RD35522 220
s211	IC202	X	X7378A0 NJM4565M	X	X7378A0 NJM4565M
s212	C2004	X	US06210 100P(SL)	X	US06210 100P(SL)
s213	R2004	X	RF35547 470	X	RF35547 470
s214	C2005	X	UM38747 47/6.3	X	UM38747 47/6.3
s215	R2006	X	RF35712 12K	X	RF35712 12K

Destination Part List

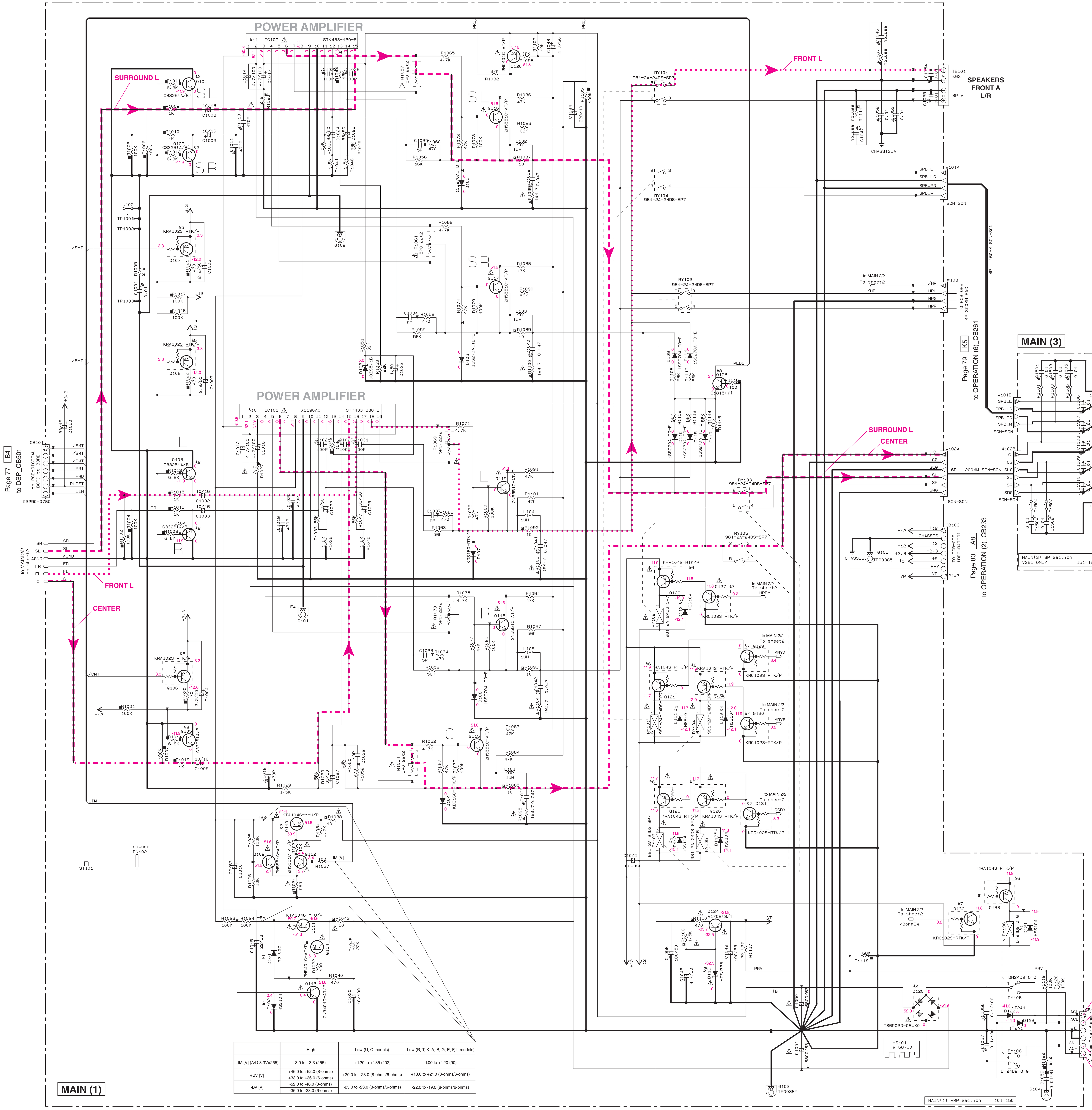
sXX	LOC	UC	RL	T	KABGEF
s216	C2007	X	US06133 33P(CH)	X	US06133 33P(CH)
s217	R2009	X	RD35682 8.2K	X	RD35682 8.2K
s220	W2001	X	MF40410 -	X	MF40410 -
s233	C2355	US13510 0.1/16	X	X	X
s236	C2185	UR73947 4700/16	X	X	X
s251	T251	X8521A0 X8521	X8522A0 X8522	X8523A0 X8523	X8523A0 X8523
s252	C2255 C2256	X	WJ60500 0.01	X	X
s253	C2254	WJ60500 0.01	X	WJ60500 0.01	WJ60500 0.01
s254	D2255	X	VS99780 1T2A1	X	X
s255	R2258	X	VC75790 2P47	X	X
s256	J2251	VN50000 -	X	VN50000 -	VN50000 -
s257	Q2253	X	VP87260 A1708[S/T]	X	X
s258	Q2252 Q2254	X	IA1015I A1015(Y)	X	X
s259	Q2255	X	WC52920 KRC102M-AT/P	X	X
s260	R2257	X	RD35747 47K	X	X
s261	D2252	X	VG43700 MTZJ4.7A	X	X
s262	R2254	X	RD35610 1K	X	X
s263	R2255	X	RD35722 22K	X	X
s264	R2256	X	RD35647 4.7K	X	X

Destination Part List

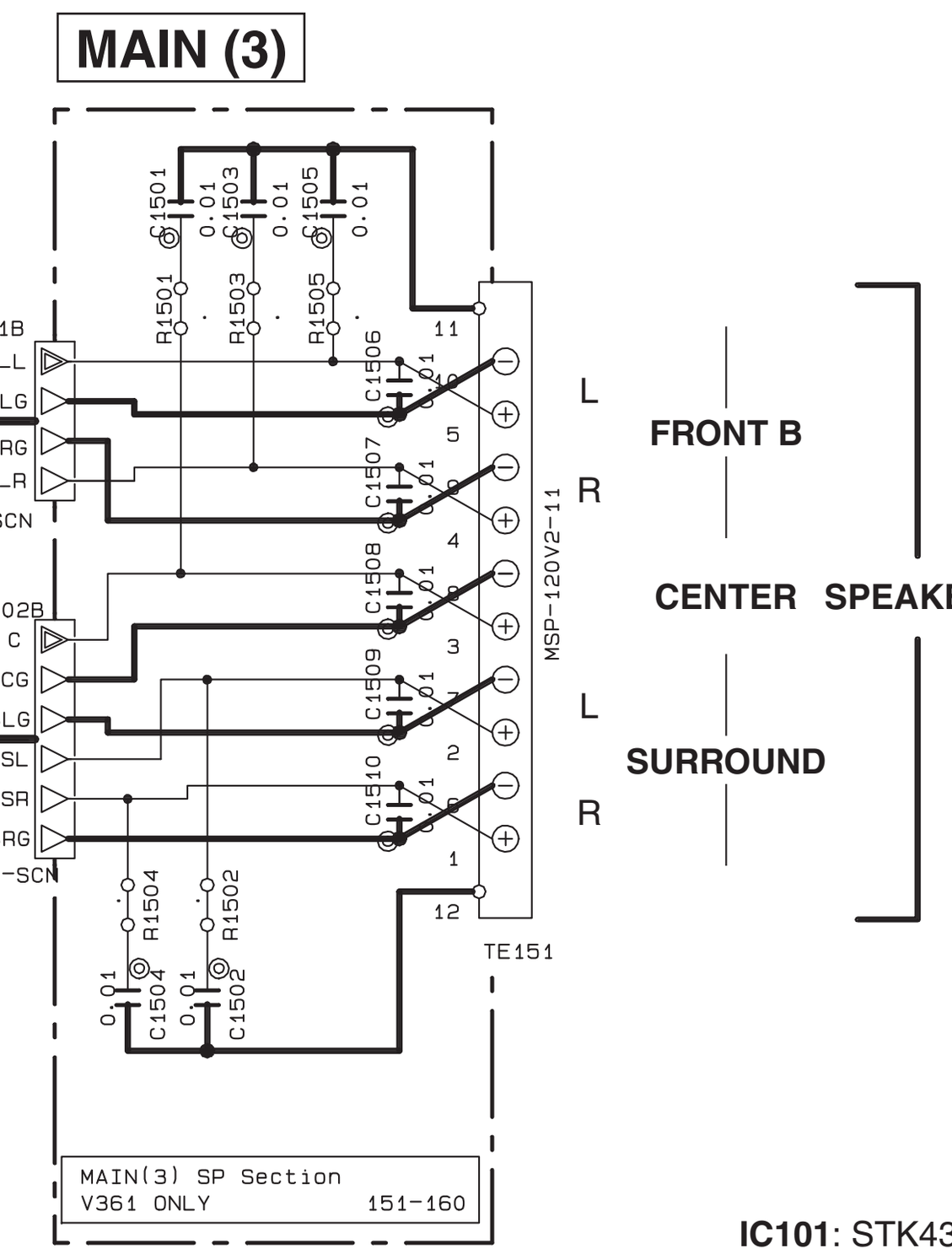
sXX	LOC	UC	RL	T	KABGEF
s265	R2251	RD35647 4.7K	RD35610 1K	RD35647 4.7K	RD35647 4.7K
s266	R2252	RD35610 100K	RD35647 470	RD35610 100K	RD35610 100K
s267	R2253	RD35433 33	RD35368 6.8	RD35447 47	RD35447 47
s268	R2260	V673000 1/2P2.2M	X	X	X
s271	F2251	WB22120 6.00A125V	WM93310 T5AL250V	VV07170 T3.15AL250V	VV07170 T3.15AL250V
s274	D2169	W465310 KBP103G-01X0	X	X	X
s275	D2171 D2170	VT33290 1SS355	X	X	X
s276	SW251	X	VZ07550 SL14-22AM5F	X	X
s277	CB258	X	V937790 84F75-VH	X	X
s278	C2253	X	UR89710 10/100	X	X
s279	R2259	X	RD35810 100K	X	X
s280	J2253	VN50000 -	X	VN50000 -	VN50000 -
s281	C2251	UR74922 2200/25	UR75922 2200/35	UR74922 2200/25	UR74922 2200/25
s282	IC239	X4928A0 KIA7805API	X	X	X
s283	C2187 C2186	UR86610 1/50	X	X	X
s284	R2160	WJ68240 1P1.0	X	X	X
s285	R2176	X	RD35610 1K	RD35610 1K	RD35610 1K
s286	D2165	X	VU17190 UDZ5S.1B	VU17190 UDZ5S.1B	VU17190 UDZ5S.1B
s287	R2177	X	RD35722 22K	RD35722 22K	RD35722 22K
s288	R2163	RD35720 20K	X	X	X
s289	D2002	X	VU17190 UDZ5S.1B	X	VU17190 UDZ5S.1B

★ All voltages are measured with a 10MΩ/V DC electronic voltmeter.
★ 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.

MAIN 1/2



	High	Low (U, C models)	Low (R, T, K, A, B, G, E, F, L models)
LIM [V] (A/D 3.3V=255)	+3.0 to +3.3 (255)	+1.20 to +1.35 (102)	+1.00 to +1.20 (90)
+BV [V]	+46.0 to +52.0 (8-ohms) +33.0 to +36.0 (6-ohms)	+20.0 to +23.0 (8-ohms/6-ohms)	+18.0 to +21.0 (8-ohms/6-ohms)
-BV [V]	-52.0 to -46.0 (8-ohms) -36.0 to -33.0 (6-ohms)	-25.0 to -23.0 (8-ohms/6-ohms)	-22.0 to -19.0 (8-ohms/6-ohms)



Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
&1	D102, 111-113, 118, 119, 121	HSS104 1SS133 1SS176
&2	Q101-105	2SC3326(A/B) 2SC3326(B) 2SC5938A(A/B) 2SD1938(F)S/T 2SD2704K
&3	Q110, 111	2SB1274(R/S) 2SB1565(E/F) KTA1046-Y-U/P
&4	D120	TS6P03G-08_X0 RS603M-B-C-J80
&5	Q106-108	KRA102S-RTK/P DTA114EKA
&6	Q121-123, 125, 126, 133	KRA104S-RTK/P DTA144EKA
&7	Q127, 129-132	KRC102S-RTK/P DTC114EKA
&8	Q128	2SC1815(Y) KTC3198 Y-AT
&9	D116	MTZJ33B GDZJ33B
&10	IC101	STK433-330-E STK433-330Y-E
&11	IC102	STK433-130-E STK433-130Y-E

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	polarized
⊗	TANTALUM CAPACITOR	polarized
NO MARK	CERAMIC CAPACITOR	non-polarized
◉	CERAMIC TUBULAR CAPACITOR	non-polarized
◎	POLYESTER FILM CAPACITOR	non-polarized
○	POLYSTYRENE FILM CAPACITOR	non-polarized
⦶	MICA CAPACITOR	non-polarized
Ⓟ	POLYPROPYLENE FILM CAPACITOR	non-polarized
◍	SEMICONDUCTIVE CERAMIC CAPACITOR	non-polarized
Ⓢ	POLYPHENYLENE SULFIDE FILM CAPACITOR	non-polarized

NOTICE (model)
(J)····· JAPAN
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(R)····· GENERAL
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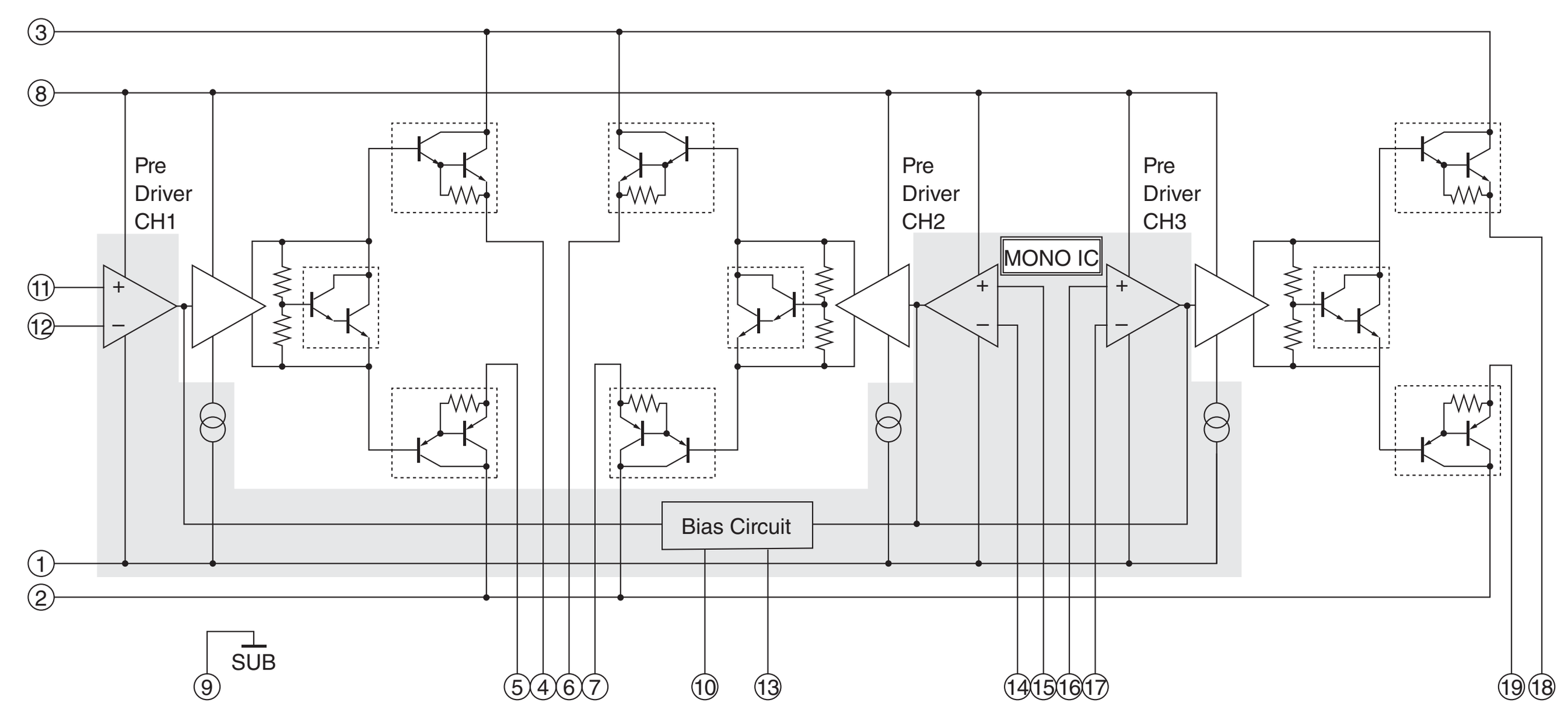
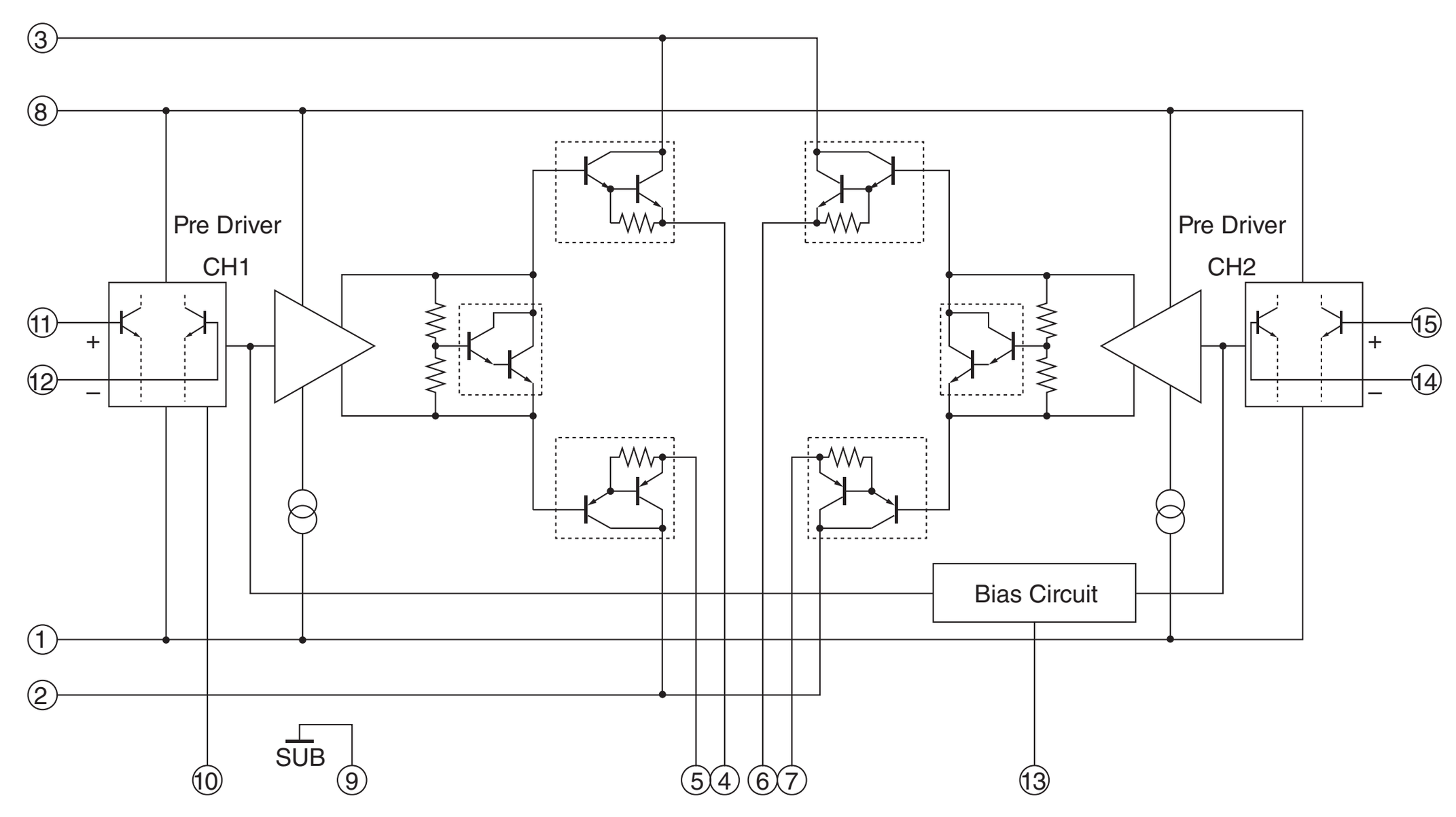
(L)····· SINGAPORE
(E)····· SOUTH EUROPE
(V)····· TAIWAN
(F)····· RUSSIAN

IC101: STK433-330-E
3-channel AF power amplifier, stand-by circuit built-in

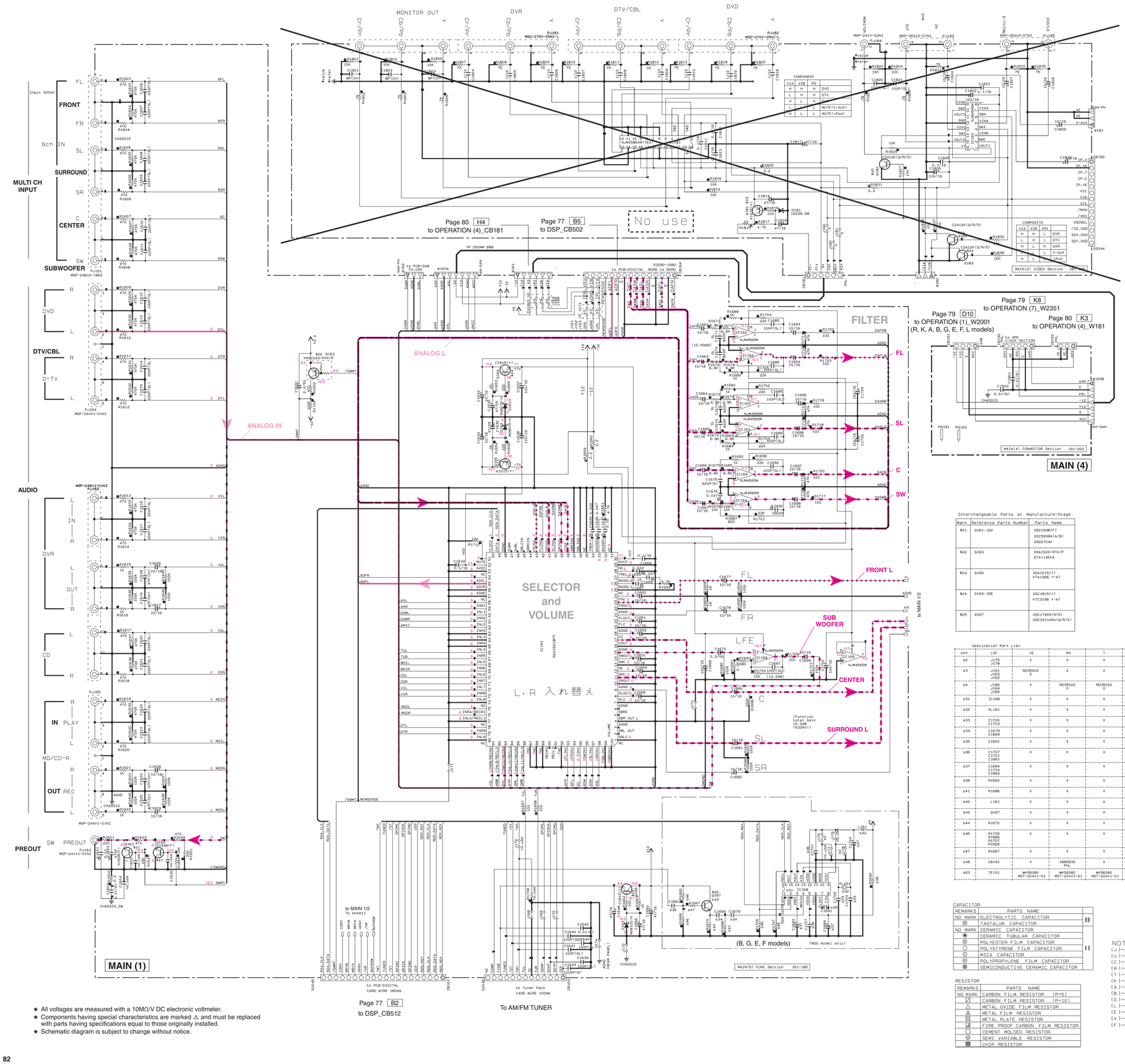


IC102: STK433-130-E
2-channel AF power amplifier, stand-by circuit built-in

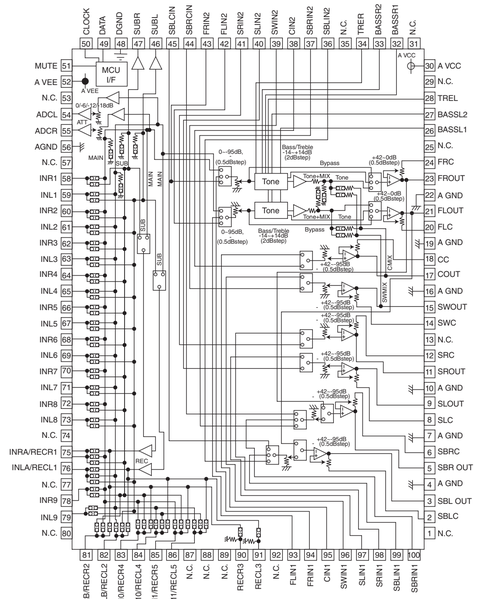


★ All voltages are measured with a 10MΩ/V DC electronic voltmeter.
★ Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
★ Schematic diagram is subject to change without notice.

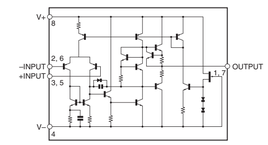
MAIN 2/2



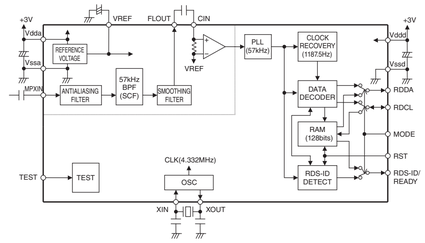
IC161: R2A15218FP
8-channel electronic volume with 11 input selector and tone control



IC162-164, 169: NJM4565M
Dual operational amplifier



IC168: LC72725KM
RDS signal demodulation IC



Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
&21	Q161-162	2SD1938[F] 2SC5938A[A/B] 2SD2704K
&22	Q163	KRA102S-RTK/P DTA114EKA
&23	Q165	2SA1015[Y] KTA1266 Y-AT
&24	Q164-166	2SC1815[Y] KTC3198 Y-AT
&25	Q167	2SC1740S[R/S] 2SC3314A[G/R/S]

Destination Part List

&XX	LOC	UC	RA	T	KL	BGEF
s2	J175 J176	X	X	X	X	RD35000 0
s3	J161 J163 J162	RD35000 0	X	X	X	X
s4	J166 J164 J165	X	RD35000 0	RD35000 0	RD35000 0	RD35000 0
s31	IC168	X	X	X	X	XR29540 LC72725KM-UY-TL
s32	XL161	X	X	X	X	X-75800 4.332MHz
s33	C1700 C1703	X	X	X	X	US06127 27P(CH)
s34	C1679 C1669	X	X	X	X	US06233 330P(SL)
s35	C1691	X	X	X	X	US06256 560P(SL)
s36	C1707 C1701 C1661	X	X	X	X	US13510 0.1/16
s37	C1684 C1704 C1662	X	X	X	X	UR83747 47/16
s38	R1692	X	X	X	X	RD35510 100
s41	R1686	X	X	X	X	RD35722 22K
s42	L161	X	X	X	X	RJ78730 CVCNP-221K
s43	Q167	X	X	X	X	IC17452 C1740S(R/S)
s44	R1670	X	X	X	X	RD35633 3.3K
s46	R1706 R1666 R1707 R1665	X	X	X	X	RD35810 100K
s47	R1667	X	X	X	X	RD35610 1K
s48	CB191	X	VB85830 PHL	X	VB85830 PHL	VB85830 PHL
s53	TE101		WK56080 MST-204V1-01	WK56080 MST-204V1-01	WK56080 MST-204V1-01	WK56080 MST-204V1-01

CAPACITOR

REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
◇	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
●	CERAMIC TUBULAR CAPACITOR
◎	POLYESTER FILM CAPACITOR
○	POLYSTYRENE FILM CAPACITOR
①	MICA CAPACITOR
ⓟ	POLYPROPYLENE FILM CAPACITOR
◉	SEMICONDUCTIVE CERAMIC CAPACITOR

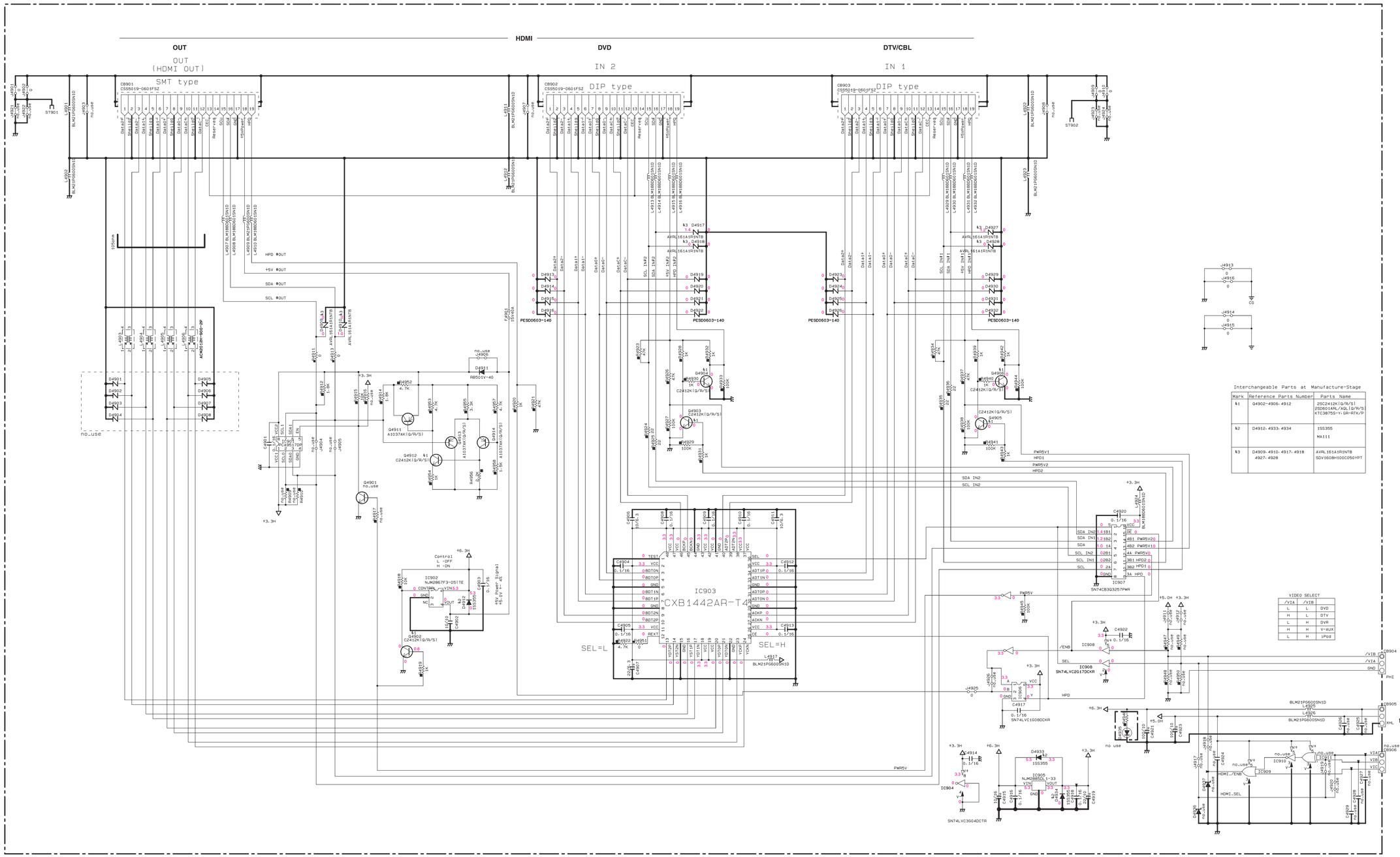
RESISTOR

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
◪	FIRE PROOF CARBON FILM RESISTOR
□	CEMENT MOLDED RESISTOR
⊘	SEMI VARIABLE RESISTOR
■	CHIP RESISTOR

NOTICE (model)
(J)····· JAPAN
(U)····· U.S.A
(C)····· CANADA
(R)····· GENERAL
(T)····· CHINA
(K)····· KOREA
(A)····· AUSTRALIA
(B)····· BRITISH
(G)····· EUROPE
(L)····· SINGAPORE
(E)····· SOUTH EUROPE
(V)····· TAIWAN
(F)····· RUSSIAN

★ All voltages are measured with a 10MΩ/V DC electronic voltmeter.
★ 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.

HDMI



Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
k1	Q4902-4906-4912	2SC2412K(Q/R/S) 2SC6016R/AGL(Q/R/S) KTC3875S-Y.GR-RTK/P
k2	D4912.4933.4934	1SS355 MA111
k3	D4909.4910.4917.4918 4927.4928	AVRL161A1R1NTB SDV160B+100C050YPT

NOTICE (model)
(J)····· JAPAN
(U)····· U.S.A
(C)····· CANADA
(A)····· GENERAL
(T)····· CHINA
(K)····· KOREA
(A)····· AUSTRALIA
(B)····· BRITISH
(G)····· EUROPE
(L)····· SINGAPORE
(E)····· SOUTH EUROPE
(V)····· TAIWAN
(F)····· RUSSIAN

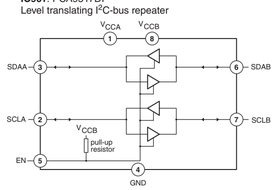
RESISTOR

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

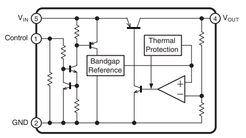
CAPACITOR

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	⊟
Ⓢ	POLYPHENYLENE SULFIDE FILM CAPACITOR	⊟

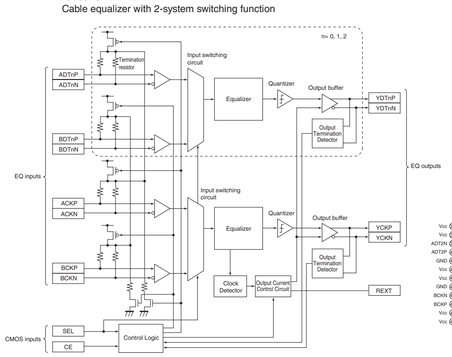
IC901: PCA9517DP
Level translating I²C-bus repeater



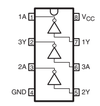
IC902: NJM2867F3-05
Low dropout voltage regulator



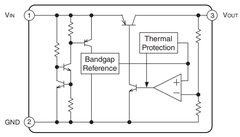
IC903: CXB1442AR-T4
Cable equalizer with 2-system switching function



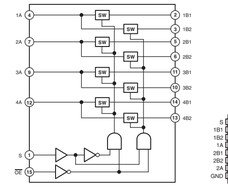
IC904: SN74LVC3G04DCTR
Triple inverter gate



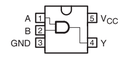
IC905: NJM2885DL1-33
Low dropout voltage regulator



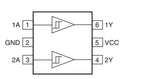
IC907: SN74CB3Q3257PWR
Low voltage high-bandwidth bus switch



IC906: SN74LVC1G08DCKR
Single 2-input positive-AND gate



IC908: SN74LVC2G17DCKR
Dual schmitt-trigger buffer



★ All voltages are measured with a 10MΩ/V DC electronic voltmeter.
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★ Schematic diagram is subject to change without notice.

■ REPLACEMENT PARTS LIST

• ELECTRICAL COMPONENT PARTS

WARNING

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

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.CEMENT	: CEMENT RESISTOR
SCR.BND.HD	: BIND HEAD B-TIGHT SCREW
SCR.BW.HD	: BW HEAD TAPPING SCREW
SCR.CUP	: CUP TIGHT 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-ENDTUNER PACK
VR	: ROTARY POTENTIOMETER
VR.MTR	: POTENTIOMETER WITH MOTOR
VR.SW	: POTENTIOMETER WITH ROTARY SW
VR.SLIDE	: SLIDE POTENTIOMETER
VR.TRIM	: TRIMMER POTENTIOMETER

P.C.B. DSP

Ref No.	Part No.	Description		Markets
	WN242100	P. C. B.	DSP	UC
	WN242200	P. C. B.	DSP	RL
	WN242300	P. C. B.	DSP	T
	WN242400	P. C. B.	DSP	KA
	WN242500	P. C. B.	DSP	BGEF
CB408	VF982300	CN. BS. PIN	17P	
CB501	VQ961000	CN. BS. PIN	7P	
CB502	VQ961800	CN. BS. PIN	15P	
CB504	VN394900	CN. BS. PIN	14P	UC
CB512	VQ047500	CN. BS. PIN	20P	
CB516	VK025700	CN. BS. PIN	13P	
C101	UR838220	C. EL	220uF 16V	
C102	WH771300	C. EL	100uF 10V	
C103-104	US135100	C. CE. CHP	0. 1uF 16V	
C105	US061270	C. CE. CHP	27pF 50V B	
C106	WH771300	C. EL	100uF 10V	
C107	US135100	C. CE. CHP	0. 1uF 16V	
C108-129	US063100	C. CE. CHP	1000pF 50V B	
C130	US135100	C. CE. CHP	0. 1uF 16V	
C131	US061270	C. CE. CHP	27pF 50V B	
C132	UR837100	C. EL	10uF 16V	
C133	US063100	C. CE. CHP	1000pF 50V B	
C135	UB446100	C. CE. CHP	1uF 16V	
C136-147	US135100	C. CE. CHP	0. 1uF 16V	
C148-154	UB446100	C. CE. CHP	1uF 16V	
C201-206	US063100	C. CE. CHP	1000pF 50V B	
C207-211	US135100	C. CE. CHP	0. 1uF 16V	
C212	US063100	C. CE. CHP	1000pF 50V B	
C215-218	UB446100	C. CE. CHP	1uF 16V	
C301-304	US135100	C. CE. CHP	0. 1uF 16V	
C305	UR837470	C. EL	47uF 16V	
C306	US135100	C. CE. CHP	0. 1uF 16V	
C307	US063100	C. CE. CHP	1000pF 50V B	
C308	UR837100	C. EL	10uF 16V	
C309-310	US061270	C. CE. CHP	27pF 50V B	
C311	UR866220	C. EL	2. 2uF 50V	
C312	US135100	C. CE. CHP	0. 1uF 16V	
C313	US061220	C. CE. CHP	22pF 50V B	
C314	UR847220	C. EL	22uF 25V	
C315-317	US135100	C. CE. CHP	0. 1uF 16V	
C321	US135100	C. CE. CHP	0. 1uF 16V	
C349-350	UR837100	C. EL	10uF 16V	
C351-352	US135100	C. CE. CHP	0. 1uF 16V	
C354-358	US135100	C. CE. CHP	0. 1uF 16V	
C401-402	US135100	C. CE. CHP	0. 1uF 16V	
C404	UR837470	C. EL	47uF 16V	
C405	US135100	C. CE. CHP	0. 1uF 16V	
C406	UB446100	C. CE. CHP	1uF 16V	
C407-408	US062100	C. CE. CHP	100pF 50V B	
C409	US135100	C. CE. CHP	0. 1uF 16V	
C410-411	US062100	C. CE. CHP	100pF 50V B	
C413-416	US063100	C. CE. CHP	1000pF 50V B	
C417	US062470	C. CE. CHP	470pF 50V B	
C418-428	US135100	C. CE. CHP	0. 1uF 16V	
C429-435	US062100	C. CE. CHP	100pF 50V B	
C436-439	US135100	C. CE. CHP	0. 1uF 16V	
C501	US062100	C. CE. CHP	100pF 50V B	

✻ New Parts

P.C.B. DSP

Ref No.	Part No.	Description		Markets
C502	UR838220	C. EL	220uF 16V	
C503-504	US062100	C. CE. CHP	100pF 50V B	
C513-515	US062100	C. CE. CHP	100pF 50V B	
C516	US035100	C. CE. CHP	0. 1uF 16V B	
C517-518	US062100	C. CE. CHP	100pF 50V B	
C519	US135100	C. CE. CHP	0. 1uF 16V	
C520	US035100	C. CE. CHP	0. 1uF 16V B	
C521	US063100	C. CE. CHP	1000pF 50V B	
C522-523	US135100	C. CE. CHP	0. 1uF 16V	
C524-525	US063100	C. CE. CHP	1000pF 50V B	
C527-528	US064100	C. CE. CHP	0. 01uF 50V B	
C529	US062100	C. CE. CHP	100pF 50V B	
C530	US064100	C. CE. CHP	0. 01uF 50V B	
C531-534	US062100	C. CE. CHP	100pF 50V B	
C535	US064100	C. CE. CHP	0. 01uF 50V B	
C536-549	US062100	C. CE. CHP	100pF 50V B	
C550	US064100	C. CE. CHP	0. 01uF 50V B	
C603-608	US062220	C. CE. CHP	220pF 50V B	UC
C609	US135100	C. CE. CHP	0. 1uF 16V	UC
C623	US135100	C. CE. CHP	0. 1uF 16V	
C625	US063100	C. CE. CHP	1000pF 50V B	UC
C626	US064100	C. CE. CHP	0. 01uF 50V B	UC
D101	VS597600	DIODE. CHP	RB160L-40 TE25	
D401	VU171400	DIODE. ZENR	UDZS3. 3BTE-17 3. 3V	
D402	VU171400	DIODE. ZENR	UDZS3. 3BTE-17 3. 3V	BGEF
D403-404	VU171400	DIODE. ZENR	UDZS3. 3BTE-17 3. 3V	
D405	VT332900	DIODE	1SS355	
D407	VT332900	DIODE	1SS355	
D408	VU171400	DIODE. ZENR	UDZS3. 3BTE-17 3. 3V	
D409	VU171400	DIODE. ZENR	UDZS3. 3BTE-17 3. 3V	RKABGEFL
D409	VU171400	DIODE. ZENR	UDZS3. 3BTE-17 3. 3V	
D602	VT332900	DIODE	1SS355	UC
G101	WB438000	TERM. GND	M4 SD00433-21	
IC101	X7534A00	IC. CPU	ADSP-BF531 CPU	
IC102	X8653A00	IC	BR25L320F-W EEPROM	
* IC201	YA430A00	IC. MEMORY	F49L160BA-70TG	(written)
IC202	X9626A00	IC. MEMORY	K4S641632K-UC60000	
IC203	X4201A00	IC	SN74AHC02PWR	
IC204-206	X4285A00	IC	SN74LV573APWR	
IC301	X7919A00	IC	AK4588VQ	
IC305	X3936A00	IC	SN74LVU04APWR	
IC401	X6905A00	IC	ADC084S021CIMM	
IC402-403	X5875A00	IC	SN74LV4051APWR	
IC404	X2709A00	IC	SN74AHCT245PWR	
IC501	X3824A00	IC	SN74AHCT08PWR	
IC505	X4463A00	IC	SN74LV08APWR	
PJ301	V8795700	JACK. PIN	1P	
Q101	WE736300	FET	RTQ040P02	
Q501	WE736300	FET	RTQ040P02	
U301-302	WH169900	CN. PHOTO. R	1P GP1FAV51RK0F	
XL101	VZ540700	RSNR. CRYS	25MHz SMD-49	
XL301	WJ625200	RSNR. CRYS	24. 576MHz	

✻ New Parts

P.C.B. OPERATION

	Ref No.	Part No.		Description		Markets
*		WQ890400	P. C. B.	OPERATION		UC
*		WQ890500	P. C. B.	OPERATION		RL
*		WQ890600	P. C. B.	OPERATION		T
*		WQ890700	P. C. B.	OPERATION		KABGEF
	CB181	VB858500	CN. BS. PIN	6P		
	CB182	VF982200	CN. BS. PIN	14P		UC
	CB202	VF982300	CN. BS. PIN	17P		
	CB231	VK026300	CN. BS. PIN	4P		
	CB234	LB919110	CN. BS. PIN	11P SE		
	CB235	VK024700	CN. BS. PIN	3P		
	CB252	WN077700	CLIP. FUSE	CLIP PFC5000-0202F		
	CB254	WN077700	CLIP. FUSE	CLIP PFC5000-0202F		
	CB256-257	VG879900	CN. BS. PIN	2P		
	CB258	V9377900	CN. BS. PIN	4P		RL
	CB261	VB858300	CN. BS. PIN	4P		
	C1801-1803	US060800	C. CE. CHP	8pF	50V B	
	C1804-1810	WE773800	C. CE. M. CHP	1uF	10V B	
	C1811-1813	US135100	C. CE. CHP	0. 1uF	16V	
	C1814	UR837470	C. EL	47uF	16V	
	C1815	WE773800	C. CE. M. CHP	1uF	10V B	
	C1816-1817	UR837470	C. EL	47uF	16V	
	C1818	WE773800	C. CE. M. CHP	1uF	10V B	
	C1819	UR837100	C. EL	10uF	16V	UC
	C1820-1821	US062100	C. CE. CHP	100pF	50V B	
	C1822	UR838100	C. EL	100uF	16V	
	C1823	US135100	C. CE. CHP	0. 1uF	16V	
	C1824	UR837100	C. EL	10uF	16V	
	C1825	US135100	C. CE. CHP	0. 1uF	16V	
	C1826	UR838100	C. EL	100uF	16V	
	C1827-1829	UR837100	C. EL	10uF	16V	
	C2001	US064100	C. CE. CHP	0. 01uF	50V B	RKABGEFL
	C2002	US063100	C. CE. CHP	1000pF	50V B	RKABGEFL
	C2003	UM397100	C. EL	10uF	16V	RKABGEFL
	C2004	US062100	C. CE. CHP	100pF	50V B	RKABGEFL
	C2005	UM387470	C. EL	47uF	16V	RKABGEFL
	C2006	US135100	C. CE. CHP	0. 1uF	16V	
	C2007	US061330	C. CE. CHP	33pF	50V B	RKABGEFL
	C2008	UM397220	C. EL	22uF	25V	RKABGEFL
	C2009	UM397100	C. EL	10uF	16V	RKABGEFL
	C2010-2011	UM397220	C. EL	22uF	25V	RKABGEFL
	C2012	US065100	C. CE. CHP	0. 1uF	50V B	
	C2013-2014	US135100	C. CE. CHP	0. 1uF	16V	
	C2015	UR268220	C. EL	220uF	50V	
	C2016	UM388330	C. EL	330uF	6. 3V	
	C2017	US135100	C. CE. CHP	0. 1uF	16V	
	C2018	US061820	C. CE. CHP	82pF	50V B	
	C2019-2020	US062100	C. CE. CHP	100pF	50V B	
	C2021	US061100	C. CE. CHP	10pF	50V B	
	C2022-2024	US135100	C. CE. CHP	0. 1uF	16V	
	C2025	US064100	C. CE. CHP	0. 01uF	50V B	
	C2026	US135100	C. CE. CHP	0. 1uF	16V	
	C2027	UM397100	C. EL	10uF	16V	
	C2028	US135100	C. CE. CHP	0. 1uF	16V	
	C2029-2030	US063100	C. CE. CHP	1000pF	50V B	
	C2031	US064100	C. CE. CHP	0. 01uF	50V B	
	C2032	US063100	C. CE. CHP	1000pF	50V B	
	C2033	US064100	C. CE. CHP	0. 01uF	50V B	

✻ New Parts

P.C.B. OPERATION

	Ref No.	Part No.		Description		Markets
	C2034	US063100	C. CE. CHP	1000pF	50V B	
	C2035	US064100	C. CE. CHP	0. 01uF	50V B	
	C2036	US063100	C. CE. CHP	1000pF	50V B	
	C2037	US064100	C. CE. CHP	0. 01uF	50V B	
	C2038	US063100	C. CE. CHP	1000pF	50V B	
	C2039	US064100	C. CE. CHP	0. 01uF	50V B	
	C2040	US063100	C. CE. CHP	1000pF	50V B	
	C2041	US064100	C. CE. CHP	0. 01uF	50V B	
	C2042	US063100	C. CE. CHP	1000pF	50V B	
	C2043	US064100	C. CE. CHP	0. 01uF	50V B	
	C2044	US063100	C. CE. CHP	1000pF	50V B	
	C2045	US064100	C. CE. CHP	0. 01uF	50V B	
	C2046	US063100	C. CE. CHP	1000pF	50V B	
	C2101	US064100	C. CE. CHP	0. 01uF	50V B	
	C2102-2105	US044220	C. CE. CHP	0. 022uF	25V B	
	C2110-2111	US063100	C. CE. CHP	1000pF	50V B	RKABGEFL
	C2152	UR866100	C. EL	1uF	50V	
	C2153	UR837470	C. EL	47uF	16V	
	C2156	US064100	C. CE. CHP	0. 01uF	50V B	
	C2157	US135100	C. CE. CHP	0. 1uF	16V	
	C2158	UR866100	C. EL	1uF	50V	
	C2160	UR866100	C. EL	1uF	50V	
	C2161	US135100	C. CE. CHP	0. 1uF	16V	
	C2162	UR866100	C. EL	1uF	50V	
	C2164	UR837100	C. EL	10uF	16V	
	C2168-2170	UR866100	C. EL	1uF	50V	
	C2171	UR739470	C. EL	4700uF	16V	
	C2172-2173	UR866100	C. EL	1uF	50V	
	C2175	UR749470	C. EL	4700uF	25V	
	C2176	UR749220	C. EL	2200uF	25V	
	C2178	UR73A100	C. EL	10000uF	16V	
	C2179-2180	VE326000	C. MYLAR	0. 1uF	50V	
	C2181	US135100	C. CE. CHP	0. 1uF	16V	
	C2182	WJ605000	C. MYLAR	0. 01uF	50V J	
	C2184	VE326000	C. MYLAR	0. 1uF	50V	
	C2185	UR739470	C. EL	4700uF	16V	UC
	C2186-2187	UR866100	C. EL	1uF	50V	UC
	C2251	UR749220	C. EL	2200uF	25V	
	C2251	UR749220	C. EL	2200uF	25V	UCTKABGEF
	C2251	UR759220	C. EL	2200uF	35V	RL
	C2252	WJ605000	C. MYLAR	0. 01uF	50V J	
	C2253	UR897100	C. EL	10uF	100V	RL
	C2254	WJ605000	C. MYLAR	0. 01uF	50V J	RKABGEFL
	C2255-2256	WJ605000	C. MYLAR	0. 01uF	50V J	RL
⚠ *	C2257	WQ939400	C. CE. SAFTY	0. 01uF	250V	
	C2301-2302	WJ605000	C. MYLAR	0. 01uF	50V J	
	C2303	US063100	C. CE. CHP	1000pF	50V B	
	C2304	US064100	C. CE. CHP	0. 01uF	50V B	
	C2351-2352	US135100	C. CE. CHP	0. 1uF	16V	
	C2353-2354	US062220	C. CE. CHP	220pF	50V B	
	C2355	US135100	C. CE. CHP	0. 1uF	16V	UC
	D181	VU172000	DIODE. ZENR	UDZS5. 6BTE-17	5. 6V	
	D2002	VU171900	DIODE. ZENR	UDZ5. 1B	5. 1V	RKABGEFL
	D2004	VT332900	DIODE	1SS355		RKABGEFL
	D2006	VT332900	DIODE	1SS355		RKABGEFL
	D2008-2009	VU171500	DIODE. ZENR	UDZ 3. 6BTE-17	3. 6V	
	D2151	VT332900	DIODE	1SS355		

✻ New Parts

RX-V365/HTR-6230

P.C.B. OPERATION

	Ref No.	Part No.		Description	Markets
	D2152	VS997800	DIODE	1T2	
	D2154	VT332900	DIODE	1SS355	
	D2156	VT332900	DIODE	1SS355	
	D2157	VU171900	DIODE. ZENR	UDZ5. 1B 5. 1V	
	D2158	VS997800	DIODE	1T2	
	D2160	VT332900	DIODE	1SS355	
⚠	D2162-2164	WA653100	DIODE. BRG	KBP103G 1A 200V	
	D2165	VU171900	DIODE. ZENR	UDZ5. 1B 5. 1V	RKABGEFL
	D2166-2167	VT332900	DIODE	1SS355	
	D2168	V2376600	DIODE. SHOT	RB500V-40	
	D2169	WA653100	DIODE. BRG	KBP103G 1A 200V	UC
	D2170-2171	VT332900	DIODE	1SS355	UC
	D2251	VD631600	DIODE	1SS133, 176	
⚠	D2252	VG437000	DIODE. ZENR	MTZJ4. 7A 4. 7V	RL
⚠	D2253-2254	VS997800	DIODE	1T2	
⚠	D2255	VS997800	DIODE	1T2	RL
⚠	D2256-2257	VS997800	DIODE	1T2	
	D2258-2259	WC398800	DIODE	KDS160-RTK	
	D2301	VU172500	DIODE. ZENR	UDZS9. 1B	
	D2302-2303	VT332900	DIODE	1SS355	
	D2351-2354	VT332900	DIODE	1SS355	
⚠	F2251	WB221200	FUSE	T6A 125V	UC
⚠	F2251	WM933100	FUSE	T5A 250V	RL
⚠	F2251	VV071700	FUSE	3. 15A 250V	TKABGEF
	IC181	X7362A00	IC	NJM2586AM(TE2)	
	IC183	X9374A00	IC	NJM2595M	
	IC201	X6386A00	IC	M66003-0131FP	
	IC202	X7378A00	IC	NJM4565M(TE1)	RKABGEFL
⚠	IC232	X6248A00	IC	NJM2388F33	
⚠	IC233-234	X4928A00	IC	KIA7805API 5V	
⚠	IC236	X4153A00	IC	KIA7812API	
⚠	IC237	X4154A00	IC	KIA7912PI	
*	IC238	X0515B00	IC	LM61CIZ THERMAL	
	IC239	X4928A00	IC	KIA7805API 5V	UC
	JK201	WC814400	JACK. MNI	JY-3554-01-130	RKABGEFL
	JK261	V9408200	JACK. PHONE	MSJ-064-05B GR	
	JK266	WJ117400	JACK. MNI	OPTIMIZER MIC	
	PJ181-182	WG505100	JACK. PIN	6P	
	PJ183	V7190000	JACK. PIN	2P	
	PJ184	V7189800	JACK. PIN	1P	
	PJ185	V7190000	JACK. PIN	2P	
	PJ266	WJ117500	JACK. PIN	3P	
	PN201-202	V9637500	PIN	L=70 #18	
	PN231-232	V9637500	PIN	L=70 #18	
	PN272	V9637500	PIN	L=70 #18	
	Q181	iA1015IO	TR	2SA1015 Y	
	Q182-184	VV556400	TR	2SC2412K Q, R, S	
	Q2001-2005	VV556400	TR	2SC2412K Q, R, S	
	Q2151	WC435100	TR. DGT	KRC104S-RTK	
	Q2152	VV556400	TR	2SC2412K Q, R, S	
	Q2153	WC435100	TR. DGT	KRC104S-RTK	
⚠	Q2251	iC1815IO	TR	2SC1815 Y	
⚠	Q2252	iA1015IO	TR	2SA1015 Y	RL
⚠	Q2253	VP872600	TR	2SA1708 S, T	RL
⚠	Q2254	iA1015IO	TR	2SA1015 Y	RL
⚠	Q2255	WC529200	TR. DGT	KRC102M-AT	RL
	R1815	HV754220	R. CAR. FP	22Ω 1/4W	

✻ New Parts

P.C.B. OPERATION and P.C.B. MAIN

	Ref No.	Part No.		Description	Markets
	R1825	HV753220	R. CAR. FP	2. 2Ω 1/4W	
	R1831	HV753220	R. CAR. FP	2. 2Ω 1/4W	
	R2160	WJ682400	R. MTL. FLM	1Ω 1W J	UC
⚠	R2171	WJ682400	R. MTL. FLM	1Ω 1W J	
⚠	R2174	WJ682000	R. MTL. FLM	0. 47Ω 1W J	
	R2258	VC757900	R. MTL. OXD	47Ω 2W	RL
	R2260	V6730000	R. CAR.	2. 2MΩ 1/2W	UC
	R2301-2302	WJ685600	R. MTL. FLM	470Ω 1W J	
⚠	RY251	V9366900	RELAY	DLS9D1-0(M)0. 25W	
*	ST251	WR364700	SCR. TERM	M3	
*	ST261	WR364800	SCR. TERM	D3. 5	
	SW201-207	WD483100	SW. TACT	SKRGAAD010	
	SW209-220	WD483100	SW. TACT	SKRGAAD010	
	SW221	V9597100	SW. RT. ENC	EC12E2460802	
⚠	SW251	VZ075500	SW. SLIDE	SL14-22AM5F	RL
	SW274	WD483100	SW. TACT	SKRGAAD010	
⚠	T251	X8521A00	TRANS. PWR		UC
⚠	T251	X8522A00	TRANS. PWR		RL
⚠	T251	X8523A00	TRANS. PWR		TKABGEF
*	U2002	WQ600700	L. DTCT	SM3385VMH6	
	V2001	WJ264400	FL. DSPLY	17-BT-29GNK	
		WA790900	SPACER	4. 6/10/32	
		WN241400	P. C. B.	MAIN	UC
		WN241500	P. C. B.	MAIN	RA
		WN241600	P. C. B.	MAIN	T
		WN241700	P. C. B.	MAIN	KL
		WN241800	P. C. B.	MAIN	BGEF
	CB101	VQ962800	CN. BS. PIN	7P	
	CB103	VK025100	CN. BS. PIN	7P	
	CB104	LB932060	CN. BS. PIN	6P	
	CB161	VQ047500	CN. BS. PIN	20P	
	CB163	VM923600	CN. BS. PIN	13P	
	CB164	VQ963600	CN. BS. PIN	15P	
	CB191	VB858300	CN. BS. PIN	4P	RKABGEFL
	CB192	VB858400	CN. BS. PIN	5P	
	CB193	VB858200	CN. BS. PIN	3P	
	C1001	WJ605000	C. MYLAR	0. 01uF 50V J	
	C1002-1003	UR837100	C. EL	10uF 16V	
	C1004	UR866220	C. EL	2. 2uF 50V	
	C1005	UR837100	C. EL	10uF 16V	
	C1006-1007	UR866220	C. EL	2. 2uF 50V	
	C1008-1009	UR837100	C. EL	10uF 16V	
	C1010	UR877220	C. EL	22uF 63V	
	C1011	WJ603300	C. MYLAR	470pF 50V J	
	C1012	UR896470	C. EL	4. 7uF 100V	
	C1013	WJ603300	C. MYLAR	470pF 50V J	
	C1014	UR896470	C. EL	4. 7uF 100V	
	C1015	UR877220	C. EL	22uF 63V	
	C1016-1017	UR896470	C. EL	4. 7uF 100V	
	C1018-1020	WJ603300	C. MYLAR	470pF 50V J	
	C1021	WJ602900	C. MYLAR	100pF 50V K	
	C1022	UR867330	C. EL	33uF 50V	
	C1023	WJ602900	C. MYLAR	100pF 50V K	
	C1024-1025	UR867330	C. EL	33uF 50V	

✻ New Parts

P.C.B. MAIN

Ref No.	Part No.	Description		Markets
C1026	WJ602900	C. MYLAR	100pF 50V K	
C1027-1028	UR867330	C. EL	33uF 50V	
C1029	WJ602900	C. MYLAR	100pF 50V K	
C1030	UR897100	C. EL	10uF 100V	
C1031	WJ602900	C. MYLAR	100pF 50V K	
C1032	FG651100	C. CE	10pF 50V	
C1033	UR866100	C. EL	1uF 50V	
C1034-1037	FG650500	C. CE	5pF 50V	
C1038-1042	WJ605800	C. MYLAR	0.047uF 50V J	
C1043	UR866470	C. EL	4.7uF 50V	
C1044	UR828220	C. EL	220uF 10V	
C1048	UR866470	C. EL	4.7uF 50V	
C1049	UR858100	C. EL	100uF 35V	
⚠ C1050-1051	WE514200	C. EL	6800uF 63V	
C1052-1055	WJ605000	C. MYLAR	0.01uF 50V J	
C1056-1057	WJ611400	C. MYLAR	0.1uF 100V J	
C1058	UR868100	C. EL	100uF 50V	
C1059	US064100	C. CE. CHP	0.01uF 50V B	
C1060	UR837330	C. EL	33uF 16V	
C1501-1510	WJ605000	C. MYLAR	0.01uF 50V J	
C1601	WJ605000	C. MYLAR	0.01uF 50V J	
C1602	WJ603300	C. MYLAR	470pF 50V J	
C1603	US064100	C. CE. CHP	0.01uF 50V B	
C1606-1617	US062220	C. CE. CHP	220pF 50V B	
C1618-1619	US061470	C. CE. CHP	47pF 50V B	
C1620-1623	US062220	C. CE. CHP	220pF 50V B	
C1624-1625	US061470	C. CE. CHP	47pF 50V B	
C1626-1629	UR837100	C. EL	10uF 16V	
C1631	UR866220	C. EL	2.2uF 50V	
C1632	US135100	C. CE. CHP	0.1uF 16V	
C1633-1634	UR837100	C. EL	10uF 16V	
C1635-1636	UR847470	C. EL	47uF 25V	
C1637-1638	UR838100	C. EL	100uF 16V	
C1639-1641	US062100	C. CE. CHP	100pF 50V B	
C1642	US064100	C. CE. CHP	0.01uF 50V B	
C1643	US063100	C. CE. CHP	1000pF 50V B	
C1644	US062100	C. CE. CHP	100pF 50V B	
C1645	WJ605400	C. MYLAR	0.022uF 50V J	
C1646	WJ605800	C. MYLAR	0.047uF 50V J	
C1647	VE326200	C. MYLAR	0.15uF 50V	
C1648	UR837470	C. EL	47uF 16V	
C1649	WJ605400	C. MYLAR	0.022uF 50V J	
C1650-1655	UR837100	C. EL	10uF 16V	
C1656	UR837470	C. EL	47uF 16V	
C1657	VE326200	C. MYLAR	0.15uF 50V	
C1658	US135100	C. CE. CHP	0.1uF 16V	
C1659	WJ605800	C. MYLAR	0.047uF 50V J	
C1660	UR837470	C. EL	47uF 16V	
C1661	US135100	C. CE. CHP	0.1uF 16V	BGEF
C1662-1667	UR837100	C. EL	10uF 16V	
C1668	UR838100	C. EL	100uF 16V	
C1669	US062330	C. CE. CHP	330pF 50V B	BGEF
C1670	UR866220	C. EL	2.2uF 50V	
C1671-1674	US162820	C. CE. CHP	820pF 50V J	
C1675	US062820	C. CE. CHP	820pF 50V B	
C1676	WJ605800	C. MYLAR	0.047uF 50V J	
C1677-1678	UR837100	C. EL	10uF 16V	

✻ New Parts

P.C.B. MAIN

Ref No.	Part No.	Description		Markets
C1679	US062330	C. CE. CHP	330pF 50V B	BGEF
C1680-1682	UR837100	C. EL	10uF 16V	
C1683-1684	UR837470	C. EL	47uF 16V	BGEF
C1685-1690	US062100	C. CE. CHP	100pF 50V B	
C1691	US062560	C. CE. CHP	560pF 50V B	BGEF
C1692	WJ604400	C. MYLAR	3900pF 50V J	
C1693-1699	UR837100	C. EL	10uF 16V	
C1700	US061270	C. CE. CHP	27pF 50V B	BGEF
C1701	US135100	C. CE. CHP	0.1uF 16V	BGEF
C1702	UR838100	C. EL	100uF 16V	
C1703	US061270	C. CE. CHP	27pF 50V B	BGEF
C1704	UR837470	C. EL	47uF 16V	BGEF
C1705-1706	UR838100	C. EL	100uF 16V	
C1707	US135100	C. CE. CHP	0.1uF 16V	BGEF
C1901-1902	US064100	C. CE. CHP	0.01uF 50V B	
D102	VD631600	DIODE	1SS133,176	
D103	VU171900	DIODE. ZENR	UDZ5.1B 5.1V	
D104	WC398800	DIODE	KDS160-RTK	
D105-106	VN008700	DIODE	1SS270A	
D107	WC398800	DIODE	KDS160-RTK	
D108-110	VN008700	DIODE	1SS270A	
D111-113	VD631600	DIODE	1SS133,176	
D114-115	VN008700	DIODE	1SS270A	
⚠ D116	VG443700	DIODE. ZENR	MTZJ33B 33V	
D117	VN008700	DIODE	1SS270A	
D118-119	VD631600	DIODE	1SS133,176	
⚠ D120	WA653200	DIODE. BRG	TS6P03G 6A 200V	
D121	VD631600	DIODE	1SS133,176	
D122-123	VS997800	DIODE	1T2	
D161-162	VU994300	DIODE. ZENR	MA8075-H 7.7V	
D163	VU995500	DIODE. ZENR	MA8100-H 10.3V	
⚠ IC101	X8190A00	IC	STK433-330-E	
⚠ IC102	X7427A00	IC	STK433-130-E	
IC161	X8155B00	IC	R2A15218FP	
IC162-164	X7378A00	IC	NJM4565M(TE1)	
IC168	X8235A00	IC	LC72725KM	BGEF
IC169	X7378A00	IC	NJM4565M(TE1)	
PJ161	V7190400	JACK. PIN	6P	
PJ162	V7046800	JACK. PIN	6P MSP-246V1-01NI	
PJ163	V7189700	JACK. PIN	1P	
PJ164-165	V7046700	JACK. PIN	4P MSP-244V1-01NI	
PN191	V9637500	PIN	L=70 #18	
PN193	V9637500	PIN	L=70 #18	
Q101-105	VD303700	TR	2SC3326 A,B	
Q106-108	WC434800	TR. DGT	KRA102S-RTK/P	
⚠ Q109	WC398400	TR	2N5551C-AT	
⚠ Q110-111	WG538600	TR	KTA1046-Y-U/P	
⚠ Q112	WC398400	TR	2N5551C-AT	
⚠ Q113-114	WC397700	TR	2N5401C-AT	
⚠ Q115-119	WC398400	TR	2N5551C-AT	
⚠ Q120	WC397700	TR	2N5401C-AT	
⚠ Q121-123	WC434900	TR. DGT	KRA104S-RTK	
⚠ Q124	VP872600	TR	2SA1708 S,T	
⚠ Q125-126	WC434900	TR. DGT	KRA104S-RTK	
⚠ Q127	WC435000	TR. DGT	KRC102S-RTK	
Q128	iC181510	TR	2SC1815 Y	
Q129-132	WC435000	TR. DGT	KRC102S-RTK	

✻ New Parts

RX-V365/HTR-6230

P.C.B. MAIN and P.C.B. HDMI

	Ref No.	Part No.		Description	Markets
	Q133	WC434900	TR. DGT	KRA104S-RTK	
	Q161-162	VZ725900	TR	2SD1938F S,T	
	Q163	WC434800	TR. DGT	KRA102S-RTK/P	
	Q164	iC181510	TR	2SC1815 Y	
	Q165	iA101510	TR	2SA1015 Y	
	Q166	iC181510	TR	2SC1815 Y	
	Q167	iC174020	TR	2SC1740S QRS	BGEF
⚠	R1027-1028	HV753220	R. CAR. FP	2.2Ω 1/4W	
⚠	R1031	HV755560	R. CAR. FP	560Ω 1/4W	
⚠	R1038	HV754100	R. CAR. FP	10Ω 1/4W	
⚠	R1043	HV754100	R. CAR. FP	10Ω 1/4W	
⚠	R1054	WB279900	R. CEMENT	RGC55C 0.22+0.22	
⚠	R1057	WB279900	R. CEMENT	RGC55C 0.22+0.22	
⚠	R1061	WB279900	R. CEMENT	RGC55C 0.22+0.22	
⚠	R1069-1070	WB279900	R. CEMENT	RGC55C 0.22+0.22	
	R1085	HV754100	R. CAR. FP	10Ω 1/4W	
	R1087	HV754100	R. CAR. FP	10Ω 1/4W	
	R1089	HV754100	R. CAR. FP	10Ω 1/4W	
	R1092-1093	HV754100	R. CAR. FP	10Ω 1/4W	
⚠	R1095	WB625100	R. MTL. FLM	4.7Ω 1W J	
⚠	R1099-1100	WB625100	R. MTL. FLM	4.7Ω 1W J	
⚠	R1103-1104	WB625100	R. MTL. FLM	4.7Ω 1W J	
⚠	R1106	HV756150	R. CAR. FP	1.5KΩ 1/4W	
⚠	R1110	HV755470	R. CAR. FP	470Ω 1/4W	
	R1659-1660	HV753220	R. CAR. FP	2.2Ω 1/4W	
⚠	RY101-105	WJ122400	RELAY	981-2A-24DS-SP7	
	RY106	WE648700	RELAY	DC DH24D2-O-Q	
	ST101	WA789600	SCR. TERM	M3	
	TE101	WK560800	TERM. SP	4P MST-204V1-01 NC	UCRTA
	TE101	WK560900	TERM. SP	4P MST-204V1-01 WC	KBGEFL
	TE151	WJ551900	TERM. SP	MSP-120V2-11(765A)	
	XL161	WJ588000	RSNR. CRYS	4.332MHz	BGEF
		WE774200	SCR. BND. HD	3x10 MFZN2W3	
*		WN243201	P. C. B.	HDMI	
	CB901-903	WM462600	CN. HDMI	19P SE	
	CB904	VB389900	CN. BS. PIN	3P	
	CB905	LB919030	CN. BS. PIN	3P	
	C4901	US135100	C. CE. CHP	0.1uF 16V	
	C4902	WD758300	C. CE. CHP	10uF 10V	
	C4903-4905	US135100	C. CE. CHP	0.1uF 16V	
	C4906	V5333500	C. CE. CHP	10uF 6.3V	
	C4907	UF017220	C. EL. CHP	22uF 6.3V	
	C4908-4910	US135100	C. CE. CHP	0.1uF 16V	
	C4911	V5333500	C. CE. CHP	10uF 6.3V	
	C4912-4914	US135100	C. CE. CHP	0.1uF 16V	
	C4915	UF037100	C. EL. CHP	10uF 16V	
	C4916-4918	US135100	C. CE. CHP	0.1uF 16V	
	C4919	UF027220	C. EL. CHP	22uF 10V	
	C4920	US135100	C. CE. CHP	0.1uF 16V	
	C4921	UF028100	C. EL. CHP	100uF 10V	
	C4922	US135100	C. CE. CHP	0.1uF 16V	
	C4923	UF028100	C. EL. CHP	100uF 10V	
	D4909-4910	WE674800	DIODE	AVRL161A1R1NTB	
	D4911	VV220700	DIODE. SHOT	RB501V-40	

✻ New Parts

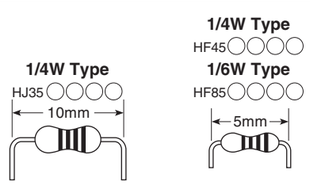
P.C.B. HDMI

Ref No.	Part No.		Description	Markets
D4912	VT332900	DIODE	1SS355	
D4913-4916	WH641900	PESD	PESD0603-140	
D4917-4918	WE674800	DIODE	AVRL161A1R1NTB	
D4919-4926	WH641900	PESD	PESD0603-140	
D4927-4928	WE674800	DIODE	AVRL161A1R1NTB	
D4929-4932	WH641900	PESD	PESD0603-140	
D4933-4934	VT332900	DIODE	1SS355	
F4901	V2997600	SW. POLY	SMDC050-02	
IC901	X8368A00	IC	PCA9517DP	
IC902	X7741A00	IC	NJM2867F3-05(TE1)	
IC903	X8900A00	IC	CXB1442AR-T4	
IC904	X7854A00	IC	SN74LVC3G04DCTR	
IC905	X6869A00	IC	NJM2885DL1-33	
IC906	X5896A00	IC	SN74LVC1G08DCKR	
IC907	X7743A00	IC	SN74CB3Q3257PWR	
IC908	X4454A00	IC	SN74LVC2G17DCKR	
Q4902-4906	VV556400	TR	2SC2412K Q,R,S	
Q4911	VV556400	TR	2SA1037K Q,R,S	
Q4912	VV556400	TR	2SC2412K Q,R,S	
Q4913-4914	VV556400	TR	2SA1037K Q,R,S	
ST901-902	WA789600	SCR. TERM	M3	

✻ New Parts

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	11 kΩ	HF45 7110	HF45 7110
1.8 Ω	HJ35 3180	✻	12 kΩ	HJ35 7120	HF85 7120
2.2 Ω	HJ35 3220	HF85 3220	13 kΩ	HF45 7130	HF45 7130
3.3 Ω	HJ35 3330	HF85 3330	15 kΩ	HF45 7150	HF45 7150
4.7 Ω	HJ35 3470	HF85 3470	18 kΩ	HF45 7180	HF45 7180
5.6 Ω	HJ35 3560	HF85 3560	22 kΩ	HF45 7220	HF45 7220
10 Ω	HF45 4100	HF45 4100	24 kΩ	HF45 7240	HF45 7240
15 Ω	HJ35 4150	HF85 4150	27 kΩ	HJ35 7270	HF85 7270
22 Ω	HF45 4220	HF45 4220	30 kΩ	HF45 7300	HF45 7300
27 Ω	HJ35 4270	HF85 4270	33 kΩ	HF45 7330	HF45 7330
33 Ω	HF45 4330	HF45 4330	36 kΩ	HF45 7360	HF45 7360
39 Ω	HJ35 4470	HF85 4390	39 kΩ	HF45 7390	HF45 7390
47 Ω	HF45 4470	HF45 4470	47 kΩ	HF45 7470	HF45 7470
56 Ω	HF45 4560	HF45 4560	51 kΩ	HF45 7510	HF45 7510
68 Ω	HF45 4680	HF45 4680	56 kΩ	HF45 7560	HF45 7560
75 Ω	HF45 4750	HF45 4750	62 kΩ	HF45 7620	HF45 7620
82 Ω	HF45 4820	HF45 4820	68 kΩ	HF45 7680	HF45 7680
91 Ω	HF45 4910	HF45 4910	82 kΩ	HF45 7820	HF45 7820
100 Ω	HF45 5100	HF45 5100	91 kΩ	HF45 7910	HF45 7910
110 Ω	HJ35 5110	HF85 5110	100 kΩ	HF45 8100	HF45 8100
120 Ω	HF45 5120	HF45 5120	110 kΩ	HF45 8110	HF45 8110
150 Ω	HF45 5150	HF45 5150	120 kΩ	HF45 8120	HF45 8120
160 Ω	HJ35 5160	✻	150 kΩ	HF45 8150	HF45 8150
180 Ω	HF45 5180	HF45 5180	180 kΩ	HF45 8180	HF45 8180
200 Ω	HF45 5200	HF45 5200	220 kΩ	HJ35 8220	HF85 8220
220 Ω	HF45 5220	HF45 5220	270 kΩ	HF45 8270	HF45 8270
270 Ω	HF45 5270	HF45 5270	300 kΩ	HF45 8300	HF45 8300
330 Ω	HF45 5330	HF45 5330	330 kΩ	HF45 8330	HF45 8330
390 Ω	HF45 5390	HF45 5390	390 kΩ	HJ35 8390	HF85 8390
430 Ω	HF45 5430	HF45 5430	470 kΩ	HF45 8470	HF45 8470
470 Ω	HF45 5470	HF45 5470	560 kΩ	HJ35 8560	HF85 8560
510 Ω	HF45 5510	HF45 5510	680 kΩ	HJ35 8680	HF85 8680
560 Ω	HF45 5560	HF45 5560	820 kΩ	HJ35 8820	HF85 8820
680 Ω	HF45 5680	HF45 5680	1.0 MΩ	HF45 9100	HF45 9100
820 Ω	HF45 5820	HF45 5820	1.2 MΩ	HJ35 9120	✻
910 Ω	HF45 5910	HF45 5910	1.5 MΩ	HJ35 9150	HF85 9150
1.0 k	HF45 6100	HF45 6100	1.8 MΩ	HJ35 9180	HF85 9180
1.2 kΩ	HF45 6120	HF45 6120	2.2 MΩ	HJ35 9220	HF85 9220
1.5 kΩ	HF45 6150	HF45 6150	3.3 MΩ	HJ35 9330	HF85 9330
1.8 kΩ	HF45 6180	HF45 6180	3.9 MΩ	HJ35 9390	✻
2.0 kΩ	HJ35 6200	HF85 6200	4.7 MΩ	HJ35 9470	HF85 9470
2.2 kΩ	HF45 6220	HF45 6220			
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			
10 kΩ	HF45 7100	HF45 7100			



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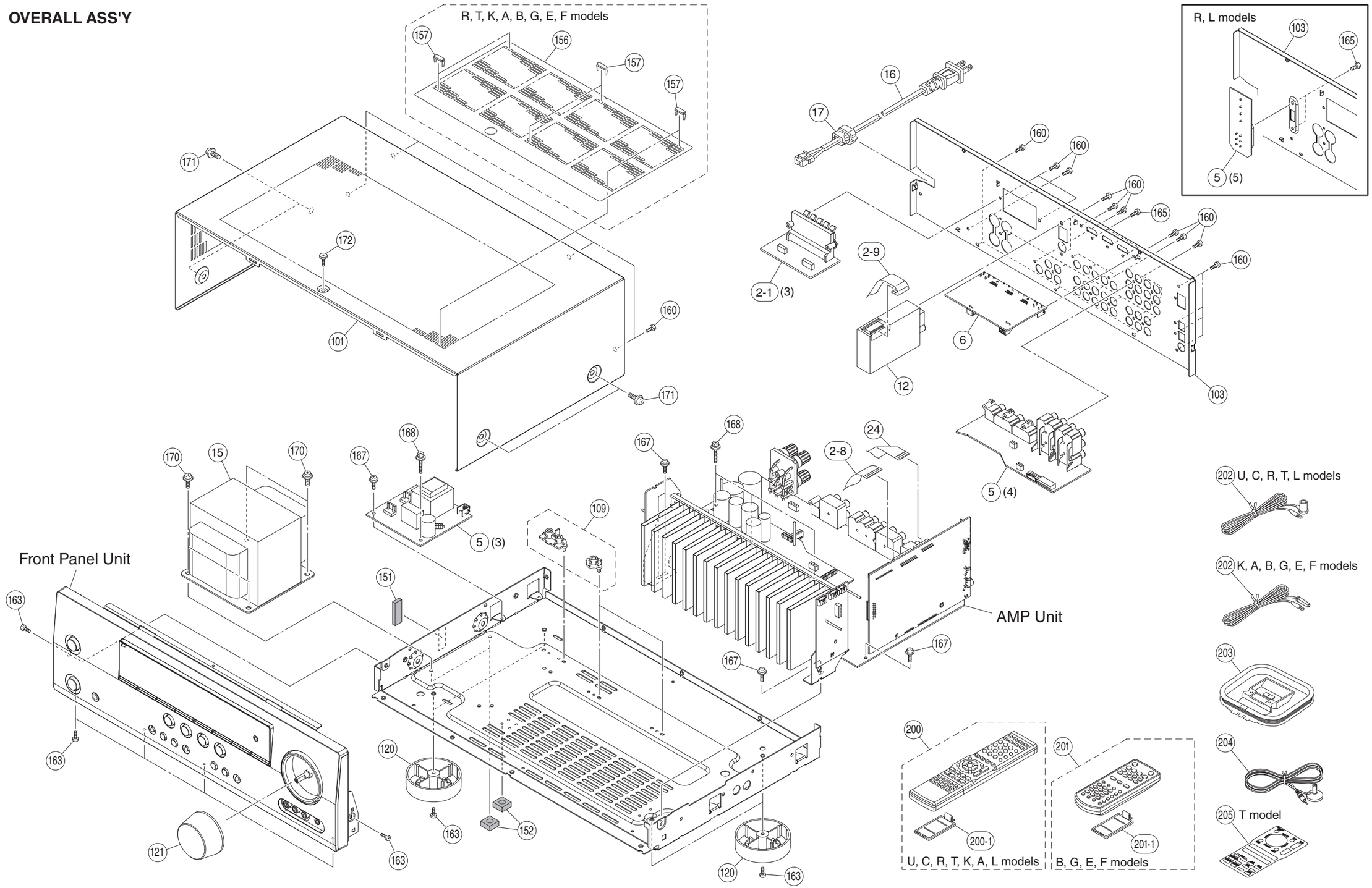
- **OVERALL ASS'Y**



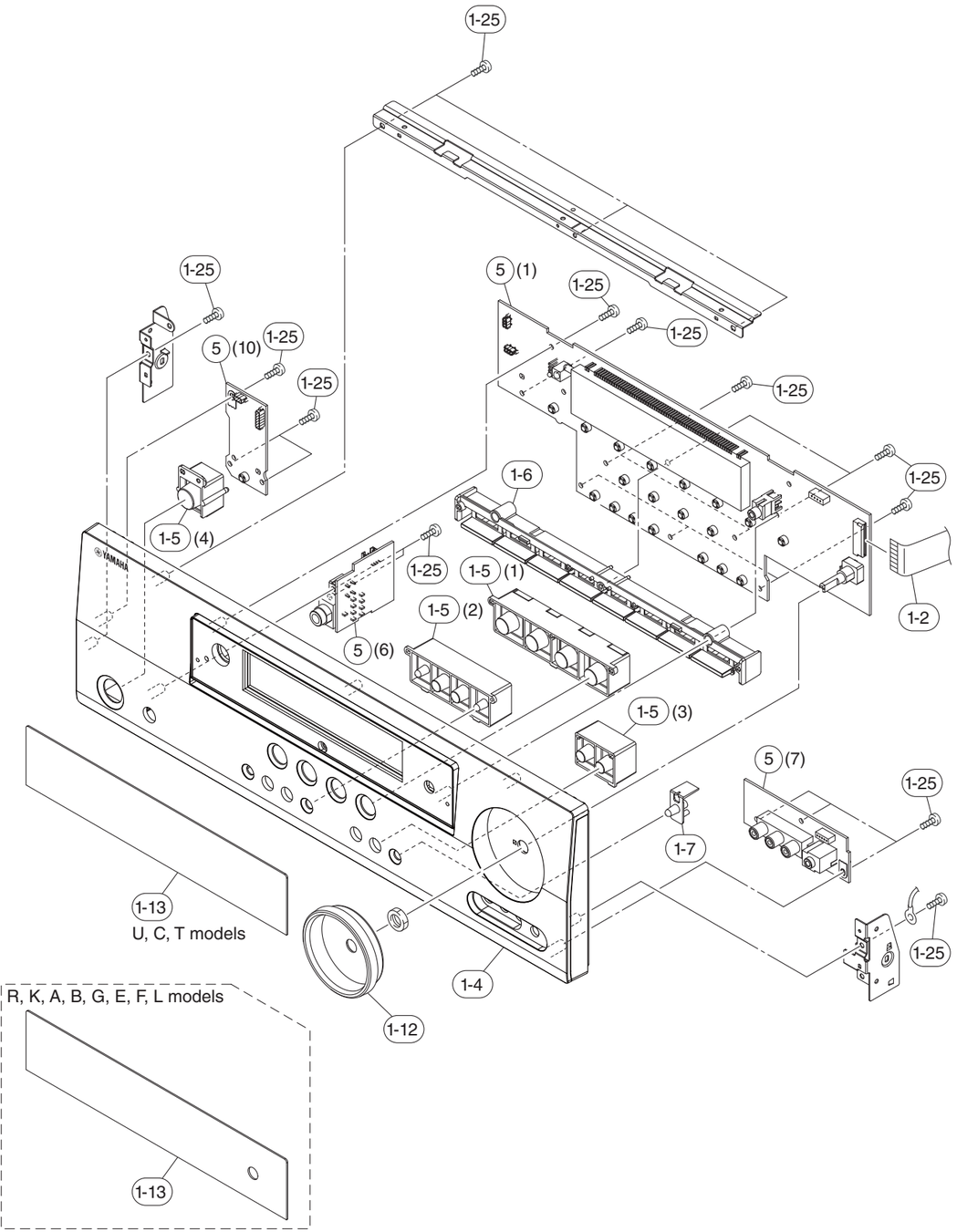
	Ref No.	Part No.	Description		Remarks	Markets
	2-1	WN241400	P.C.B. ASS'Y	MAIN		UC
	2-1	WN241500	P.C.B. ASS'Y	MAIN		RA
	2-1	WN241600	P.C.B. ASS'Y	MAIN		T
	2-1	WN241700	P.C.B. ASS'Y	MAIN		KL
	2-1	WN241800	P.C.B. ASS'Y	MAIN		BGEF
*	2-8	WR395000	FLEXIBLE FLAT CABLE	20P 180mm P=1.25		
*	2-9	WR387000	FLEXIBLE FLAT CABLE	13P 120mm P=1.25		
*	5	WQ890400	P.C.B. ASS'Y	OPERATION		UC
*	5	WQ890500	P.C.B. ASS'Y	OPERATION		RL
*	5	WQ890600	P.C.B. ASS'Y	OPERATION		T
*	5	WQ890700	P.C.B. ASS'Y	OPERATION		KABGEF
	6	WN243200	P.C.B. ASS'Y	HDMI		
	12	WB877300	AM/FM TUNER	FAE381-A07F		UCRTL
	12	WB877400	AM/FM TUNER	FAE481-E07F		KABGEF
⚠	15	X9582A00	POWER TRANSFORMER			UC
⚠	15	X9583A00	POWER TRANSFORMER			RL
⚠	15	X9584A00	POWER TRANSFORMER			TK
⚠	15	X9585A00	POWER TRANSFORMER			A
⚠	15	X9586A00	POWER TRANSFORMER			BGEF
⚠	16	WB120500	POWER CABLE	2m		UC
⚠	16	WC992700	POWER CABLE	2m		R
⚠	16	WB120600	POWER CABLE	2m		T
⚠	16	WC753000	POWER CABLE	2m		K
⚠	16	WC743700	POWER CABLE	2m		A
⚠	16	WB212200	POWER CABLE	2m		B
⚠	16	WB212300	POWER CABLE	2m		GEFL
	17	V2438700	CORD STOPPER	10P1		
	24	MF114100	FLEXIBLE FLAT CABLE	14P 100mm P=1.25		UC
	101	WE065200	TOP COVER		GD	
	101	WE065000	TOP COVER		BL	
	101	WE065100	TOP COVER		TI	
	101	WG481900	TOP COVER		SI	
*	103	WQ891200	REAR PANEL		V365	UC
*	103	WQ891300	REAR PANEL		V365	R
*	103	WQ891400	REAR PANEL		V365	T
*	103	WQ891500	REAR PANEL		V365	K
*	103	WQ891600	REAR PANEL		V365	A
*	103	WQ891700	REAR PANEL		V365	BGEF
*	103	WQ891900	REAR PANEL		V365	L
*	103	WQ892000	REAR PANEL		6230	UC
*	103	WQ892100	REAR PANEL		6230	R
*	103	WQ892200	REAR PANEL		6230	T
*	103	WQ892300	REAR PANEL		6230	K
*	103	WQ892400	REAR PANEL		6230	GEF
	109	WA796100	P.C.B. SUPPORT			
	120	WA790600	LEG	D60/H21 GD	GD	
	120	WA790500	LEG	D60/H21 HS	BL, TI, SI	
*	121	WQ822800	KNOB D50		GD	
*	121	WQ822700	KNOB D50		BL	
*	121	WQ823000	KNOB D50		TI	
*	121	WQ822900	KNOB D50		SI	
	151	WB408400	DAMPER	10x30 t=4		
	152	WP126800	DAMPER	SCREW MASK		

※ New Parts

Ref No.	Part No.	Description			Remarks	Markets
156	WJ589800	SHEET TOP				RTKABGEFL
157	WJ323900	RIVET TOP				RTKABGEFL
160	WE774100	BIND HEAD BONDING B-T. SCREW	3x8	MFZN2B3		
163	WE774300	BIND HEAD B-TIGHT SCREW	3x8	MFZN2W3		
165	WE877900	BIND HEAD S-TIGHT SCREW	3x6	MFZN2W3		
167	WF002600	PW HEAD B-TIGHT SCREW	3x8	MFZN2W3		
168	WE774600	SCREW IC	3x18	MFZN2W3		
170	WE774700	BIND HEAD S-TIGHT SCREW	4x10	MFZN2W3		
171	VD069600	PW HEAD S-TIGHT SCREW	4x8-10	MFNI33	GD, TI, SI	
171	VH313200	PW HEAD S-TIGHT SCREW	4x8-10	MFNI3BL	BL	
172	WE200400	DISH HEAD B-TIGHT SCREW	3x6	MFNI33	GD, TI, SI	
172	WE200500	DISH HEAD B-TIGHT SCREW	3x6	MFNI3BL	BL	
		ACCESSORIES				
200	WN058100	REMOTE CONTROL	RAV283			UC
200	WN058200	REMOTE CONTROL	RAV284			RTKAL
200-1	AAX82380	BATTERY COVER			CG-2209	UCRTKAL
201	WN466800	REMOTE CONTROL	RAV34			BGEF
201-1	AAX70730	BATTERY COVER			CG-8912	BGEF
202	WB212500	INDOOR FM ANTENNA	1.4m 1pc			UCRTL
202	WB212400	INDOOR FM ANTENNA	1.4m 1pc			KABGEF
203	WB212600	AM LOOP ANTENNA	1.0m 1pc			
204	WN649600	OPTIMIZER MICROPHONE	6.0m 1pc		EM6022L-HN1700	RKABGEFL
* 205	WR476100	SHEET	1pc			T
		BATTERY	R03, AAA, UM-4 2pcs			
		SERVICE TOOL				
	MF117350	FLEXIBLE FLAT CABLE	17P 350mm P=1.25			

※ New Parts

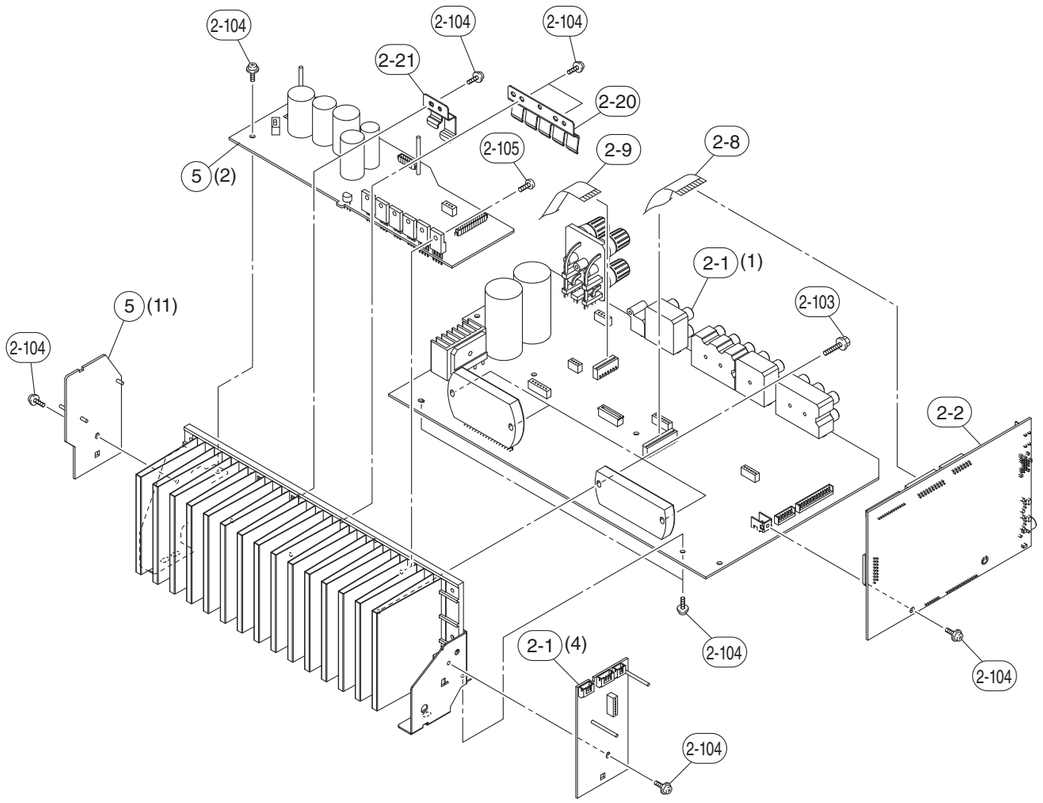
• FRONT PANEL UNIT



	Ref No.	Part No.	Description		Remarks	Markets
*	1-2	WR391600	FLEXIBLE FLAT CABLE	17P 160mm P=1.25		
*	1-4	WR0834A0	FRONT PANEL ASS'Y		V365GD	
*	1-4	WR0832A0	FRONT PANEL ASS'Y		V365BL	
*	1-4	WR0836A0	FRONT PANEL ASS'Y		V365TI	
*	1-4	WR0837A0	FRONT PANEL ASS'Y		V365SI	
*	1-4	WR0835A0	FRONT PANEL ASS'Y		6230GD	
*	1-4	WR0833A0	FRONT PANEL ASS'Y		6230BL	
*	1-4	WR0839A0	FRONT PANEL ASS'Y		6230SI	UR
*	1-4	WR0838A0	FRONT PANEL ASS'Y		6230SI	GEF
*	1-5	WS073100	BUTTON CASE		GD	
*	1-5	WQ832200	BUTTON CASE		BL	UCRKABGEFL
*	1-5	WS073000	BUTTON CASE		BL	T
*	1-5	WQ832500	BUTTON CASE		TI	
*	1-5	WQ832400	BUTTON CASE		SI	
*	1-6	WQ827800	BUTTON TUNER			
*	1-7	WQ832800	BUTTON PD		GD	
*	1-7	WQ832700	BUTTON PD		BL	
*	1-7	WQ833000	BUTTON PD		TI	
*	1-7	WQ832900	BUTTON PD		SI	UCKALV
*	1-12	WQ822400	ESCUTCHEON VOL		GD	GF
*	1-12	WQ822300	ESCUTCHEON VOL		BL	
*	1-12	WQ822600	ESCUTCHEON VOL		TI	UCLV
*	1-12	WQ822500	ESCUTCHEON VOL		SI	KAGF
*	1-13	WQ833700	SHEET WINDOW			UCT
*	1-13	WQ833600	SHEET WINDOW			RKABGEFL
	1-25	WE774800	BIND HEAD P-TIGHT SCREW	3x8 MFZN2W3		
*	5	WQ890400	P.C.B. ASS'Y	OPERATION		UC
*	5	WQ890500	P.C.B. ASS'Y	OPERATION		RL
*	5	WQ890600	P.C.B. ASS'Y	OPERATION		T
*	5	WQ890700	P.C.B. ASS'Y	OPERATION		KABGEF

* New Parts

• AMP UNIT



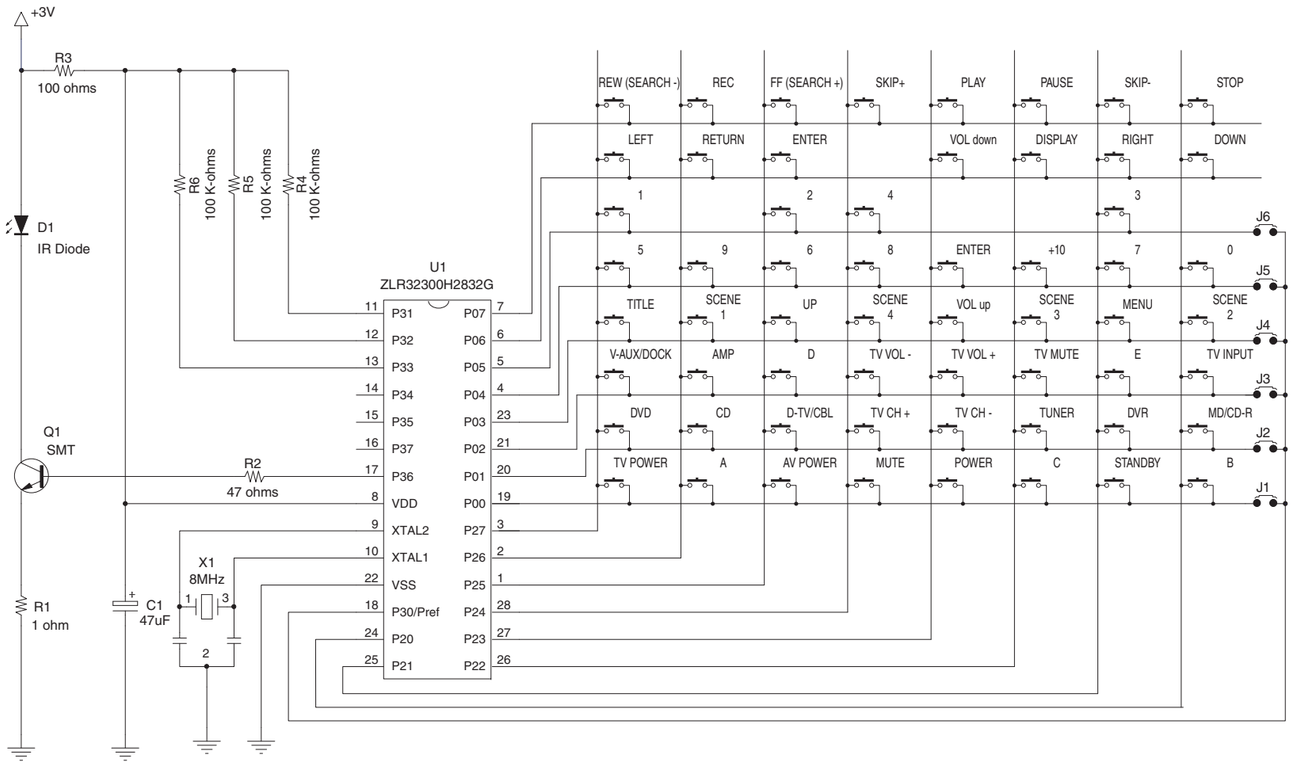
	Ref No.	Part No.	Description		Remarks	Markets
	2-1	WN241400	P.C.B. ASS'Y	MAIN		UC
	2-1	WN241500	P.C.B. ASS'Y	MAIN		RA
	2-1	WN241600	P.C.B. ASS'Y	MAIN		T
	2-1	WN241700	P.C.B. ASS'Y	MAIN		KL
	2-1	WN241800	P.C.B. ASS'Y	MAIN		BGEF
	2-2	WN242100	P.C.B. ASS'Y	DSP		UC
	2-2	WN242200	P.C.B. ASS'Y	DSP		RL
	2-2	WN242300	P.C.B. ASS'Y	DSP		T
	2-2	WN242400	P.C.B. ASS'Y	DSP		KA
	2-2	WN242500	P.C.B. ASS'Y	DSP		BGEF
*	2-8	WR395000	FLEXIBLE FLAT CABLE	20P 180mm P=1.25		
*	2-9	WR387000	FLEXIBLE FLAT CABLE	13P 120mm P=1.25		
	2-20	WG451000	SUPPORT TR	5P		
	2-21	WJ187700	SUPPORT TR	2P		
	2-103	WE774600	SCREW IC	3x18 MFZN2W3		
	2-104	WF002600	PW HEAD B-TIGHT SCREW	3x8 MFZN2W3		
	2-105	WE774300	BIND HEAD B-TIGHT SCREW	3x8 MFZN2W3		
*	5	WQ890400	P.C.B. ASS'Y	OPERATION		UC
*	5	WQ890500	P.C.B. ASS'Y	OPERATION		RL
*	5	WQ890600	P.C.B. ASS'Y	OPERATION		T
*	5	WQ890700	P.C.B. ASS'Y	OPERATION		KABGEF

* New Parts

■ REMOTE CONTROL

● RAV283: U, C models
RAV284: R, T, K, A, L models

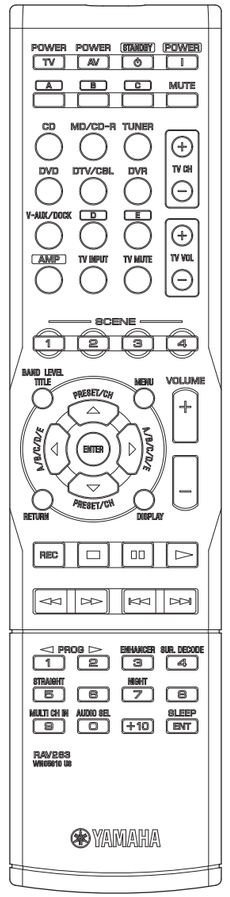
SCHEMATIC DIAGRAM



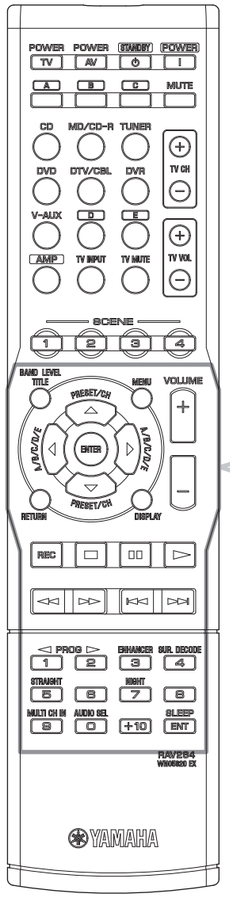
	RAV283	RAV284
J1	X	X
J2	X	X
J3	X	X
J4	O	X
J5	X	O
J6	X	X

PANELS

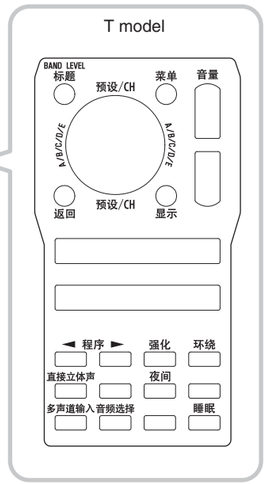
RAV283
U, C models



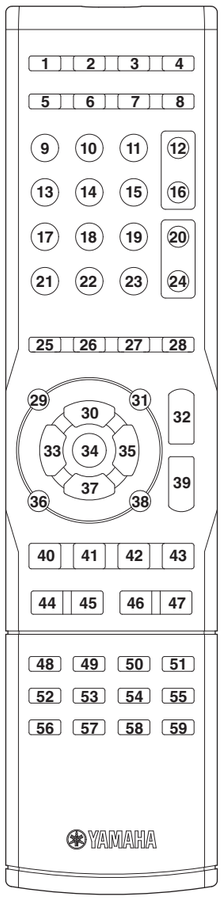
RAV284
R, T, K, A, L models



T model



KEY NO. LAYOUT

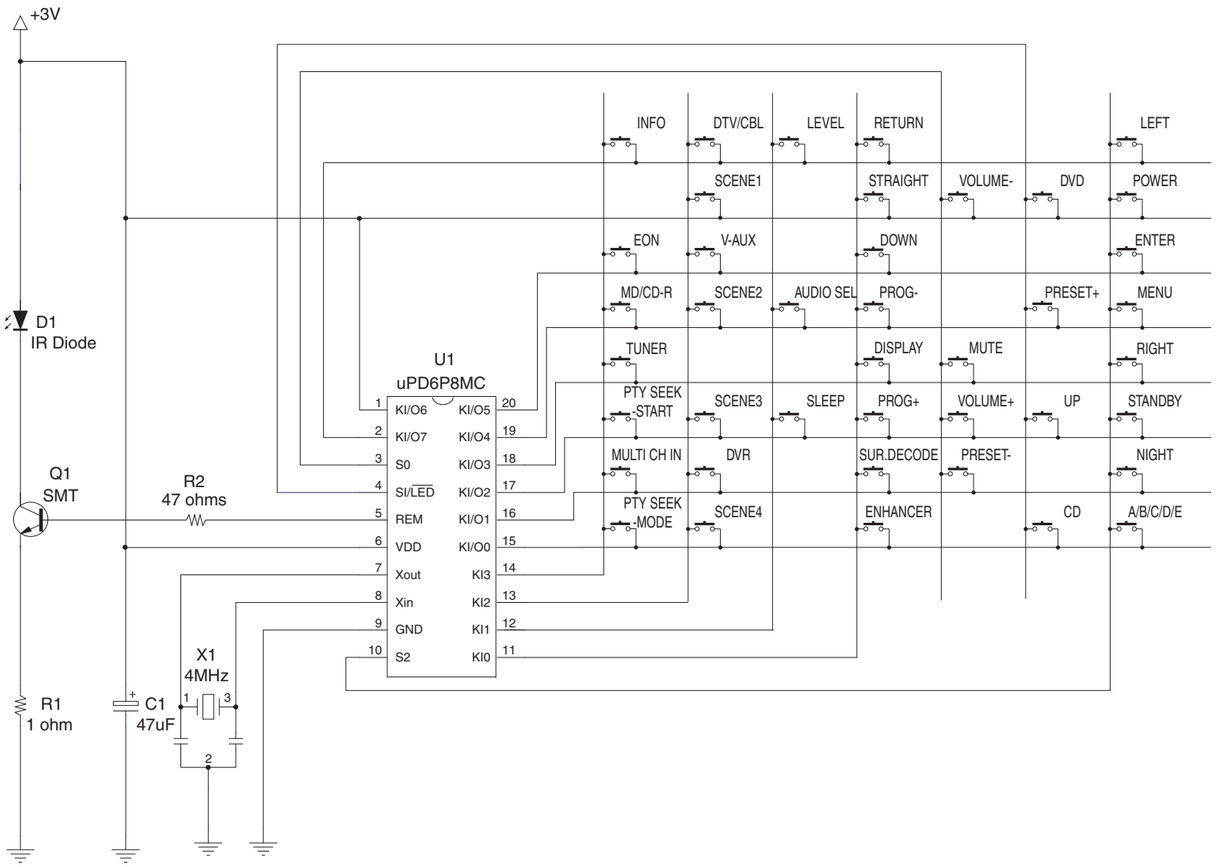


KEY CODE

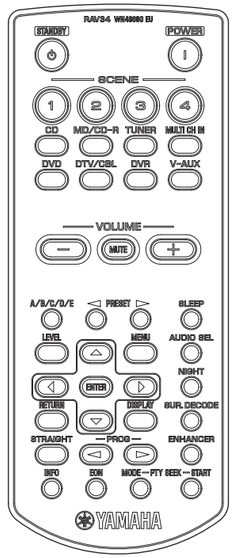
Key No.	Label		Command key	AMP									
	U, C, R, K, A, L models	T model											
1	TV / POWER		–	(TV POWER)	(TV POWER)	(TV POWER)	(TV POWER)	(TV POWER)	TV POWER	(TV POWER)	(TV POWER)	(TV POWER)	TV POWER
2	AV / POWER		–	(device)	79-60	7F-80	D1-1B	7C-80	(DVR POWER)	048.012	7F01-00	–	(DVR POWER)
3	STANDBY		O	7E-7F	STANDBY								
4	POWER		O	7E-7E	POWER								
5	A		O	7F01-3F	A								
6	B		O	7A-B4	B								
7	C		O	7A-39	C								
8	MUTE		O	7A-1C	MUTE								
9	CD		O	7A-15	CD								
10	MD/CD-R		O	7A-C9	MD/CD-R								
11	TUNER		O	7A-16	TUNER								
12	TV CH +		–	(TV CH +)	(TV CH +)	(TV CH +)	(TV CH +)	(TV CH +)	TV CH +	(TV CH +)	(TV CH +)	(TV CH +)	TV CH +
13	DVD		O	7A-C1	DVD								
14	D-TV/CBL		O	7A-54	DTV/CBL								
15	DVR		O	7A-13	DVR								
16	TV CH -		–	(TV CH -)	(TV CH -)	(TV CH -)	(TV CH -)	(TV CH -)	TV CH -	(TV CH -)	(TV CH -)	(TV CH -)	TV CH -
17	V-AUX/DOCK		O	7A-55	V-AUX (/DOCK)								
18	D		O	7A-0F	VCR								
19	E		O	7A-14	PHONO								
20	TV VOL +		–	(TV VOL +)	(TV VOL +)	(TV VOL +)	(TV VOL +)	(TV VOL +)	TV VOL +	(TV VOL +)	(TV VOL +)	(TV VOL +)	TV VOL +
21	AMP		O		Enter into AMP mode								
					9	10	11	13	14	15	17	18	19
					CD	MD/CD-R	TUNER	DVD	DTV/CBL	DVR	V-AUX/DOCK	VCR	PHONO
22	TV INPUT		–	(TV INPUT)	(TV INPUT)	(TV INPUT)	(TV INPUT)	(TV INPUT)	TV INPUT	(TV INPUT)	(TV INPUT)	(TV INPUT)	TV INPUT
23	TV MUTE		–	(TV MUTE)	(TV MUTE)	(TV MUTE)	(TV MUTE)	(TV MUTE)	TV MUTE	(TV MUTE)	(TV MUTE)	(TV MUTE)	TV MUTE
24	TV VOL -		–	(TV VOL -)	(TV VOL -)	(TV VOL -)	(TV VOL -)	(TV VOL -)	TV VOL -	(TV VOL -)	(TV VOL -)	(TV VOL -)	TV VOL -
25	SCENE 1		O	7A-007F	SCENE SELECT								
26	SCENE 2		O	7A-037C	SCENE SELECT								
27	SCENE 3		O	7A-0679	SCENE SELECT								
28	SCENE 4		O	7A-0976	SCENE SELECT								
29	TITLE	**标题**	–	7A-86	–	–	7A-AE	7C-B1	–	048.200	7F01-0D	–	–
30	▲ (UP)		–	7A-9D	–	–	7A-10	7C-B4	–	048.088	7F01-0E	–	–
31	MENU	**菜单**	–	7A-84	–	–	7A-AB	7C-B2	–	048.084	7F01-0F	–	–
32	VOLUME +	**音量＋**	O	7A-1A	VOLUME +								
33	◀ (LEFT)		–	7A-9F	–	–	7A-AC	7C-B5	–	048.090	7F01-10	–	–
34	ENTER		–	7A-DE	–	–	7A-AD	7C-B8	–	048.092	7F01-11	–	–
35	▶ (RIGHT)		–	7A-9E	–	–	7A-12	7C-B6	–	048.091	7F01-12	–	–
36	RETURN	**返回**	–	7A-AA	–	–	7A-AF	7C-B7	–	048.131	7F01-13	–	–
37	▼ (DOWN)		–	7A-9C	–	–	7A-11	7C-B3	–	048.089	7F01-14	–	–
38	DISPLAY	**显示**	–	7A-C2	79-0A	7F-9E	7A-B0	7C-A6	–	048.015	7F01-15	–	–
39	VOLUME -	**音量－**	O	7A-1B	VOLUME -								
40	REC		–	(device)	7A-4F	–	–	7C-8B	(DVR REC)	048.055	7F01-16	–	(DVR REC)
41	■ (STOP)		–	(device)	7A-09	7F-84	–	7C-85	(DVR STOP)	048.049	7F01-1D	–	(DVR STOP)
42	❚❚ (PAUSE)		–	(device)	7A-09	7F-83	–	7C-83	(DVR PAUSE)	048.048	7F01-1A	–	(DVR PAUSE)
43	▶ (PLAY)		–	(device)	7A-08	7F-82	–	7C-82	(DVR PLAY)	048.044	7F01-1E	–	(DVR PLAY)
44	◀◀ (SEARCH -)		–	(device)	7A-0D	7F-88	7A-A4	7C-86	(DVR REW)	048.041	7F01-17	–	(DVR REW)
45	▶▶ (SEARCH +)		–	(device)	7A-0C	7F-89	7A-A5	7C-87	(DVR FF)	048.040	7F01-18	–	(DVR FF)
46	⏮ (SKIP -)		–	(device)	7A-0B	7F-86	7A-A6	7C-B9	(DVR SKIP -)	048.033	7F01-1B	–	(DVR SKIP -)
47	⏭ (SKIP +)		–	(device)	7A-0A	7F-87	7A-A7	7C-BA	(DVR SKIP +)	048.032	7F01-1C	–	(DVR SKIP +)
48	1 / PROG ◀	**程序 ◄**	–	7A-59	79-11	7F-91	7A-E5	7C-94	–	048.001	7F01-01	–	–
49	2 / PROG ▶	**程序 ►**	–	7A-58	79-12	7F-92	7A-E6	7C-95	–	048.002	7F01-02	–	–
50	3 / ENHANCER	**强化**	–	7A-94	79-13	7F-93	7A-E7	7C-96	–	048.003	7F01-03	–	–
51	4 / SUR.DECODE	**环绕**	–	7A-8D	79-14	7F-94	7A-E8	7C-97	–	048.004	7F01-04	–	–
52	5 / STRAIGHT	**直接立体声**	–	7A-56	79-15	7F-95	7A-E9	7C-98	–	048.005	7F01-05	–	–
53	6		–	7A-DD	79-16	7F-96	7A-EA	7C-99	–	048.006	7F01-06	–	–
54	7 / NIGHT	**夜間**	–	7A-95	79-17	7F-97	7A-EB	7C-9A	–	048.007	7F01-07	–	–
55	8		–	7A-C4	79-18	7F-98	7A-EC	7C-9B	–	048.008	7F01-08	–	–
56	9 / MULTI CH IN	**多声道输入**	–	7A-87	79-19	7F-99	7A-B1	7C-9C	–	048.009	7F01-09	–	–
57	0 / AUDIO SEL	**音频选择**	–	7A-C3	79-10	7F-90	7A-B2	7C-93	–	048.000	7F01-0A	–	–
58	+10		–	–	79-1A	7F-9A	–	7C-9D	–	–	7F01-0B	–	–
59	ENTER / SLEEP	**睡眠**	–	7A-57	79-0B	7F-8A	7A-B3	7C-9E	–	–	7F01-0C	–	–

● RAV34: B, G, E, F models

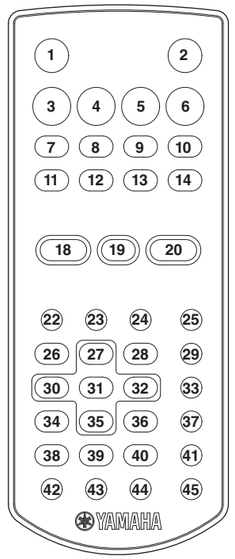
SCHEMATIC DIAGRAM



PANEL



KEY NO. LAYOUT



KEY CODE

Key No.	Key Name	Custom Code	Data Code
1	STANDBY	7E	7F
2	POWER	7E	7E
3	SCENE1	7A	007F
4	SCENE2	7A	037C
5	SCENE3	7A	0679
6	SCENE4	7A	0976
7	CD	7A	15
8	MD/CD-R	7A	C9
9	TUNER	7A	16
10	MULTI CH IN	7A	87
11	DVD	7A	C1
12	DTV/CBL	7A	54
13	DVR	7A	13
14	V-AUX	7A	55
18	VOLUME-	7A	1B
19	MUTE	7A	1C
20	VOLUME+	7A	1A
22	A/B/C/D/E	7A	12
23	PRESET-	7A	11
24	PRESET+	7A	10
25	SLEEP	7A	57
26	LEVEL	7A	86
27	UP	7A	9D
28	MENU	7A	84
29	AUDIO SEL	7A	C3
30	LEFT	7A	9F
31	ENTER	7A	DE
32	RIGHT	7A	9E
33	NIGHT	7A	95
34	RETURN	7A	AA
35	DOWN	7A	9C
36	DISPLAY	7A	C2
37	SUR.DECODE	7A	8D
38	STRAIGHT	7A	56
39	PROG-	7A	59
40	PROG+	7A	58
41	ENHANCER	7A	94
42	INFO	7A	A4
43	EON	7A	A5
44	PTY SEEK-MODE	7A	A6
45	PTY SEEK-START	7A	A7

Advanced setup

This unit has additional menus that are displayed on the front panel display. The advanced setup menu offers additional operations to adjust and customize the way this unit operates. Change the initial settings (indicated by (*) in this following parameter) to reflect the needs of your listening environment.

Notes

- Only Ⓐ**STANDBY/ON**, Ⓛ**PROGRAM** ⊲ / ⊳ and Ⓜ**STRAIGHT** are effective while you are using the advanced setup menu.
- No other operations can be made while you are using the advanced setup menu.
- The advanced setup menu is only available on the front panel display.

1 Press Ⓐ STANDBY/ON on the front panel to set this unit to the standby mode.

2 Press and hold Ⓚ TONE CONTROL and then press Ⓐ STANDBY/ON to turn on this unit.

This unit turns on, and the advanced setup menu appears on the front panel display.

3 Press Ⓛ PROGRAM ⊲ / ⊳ to select the parameter you want to adjust.

The name of the selected parameter appears on the front panel display.

4 Press Ⓜ STRAIGHT repeatedly to change the selected parameter setting.

5 Press Ⓐ STANDBY/ON to confirm your selection and set this unit to the standby mode.

- The settings you made are reflected next time you turn on this unit.

■ Speaker impedance SP IMP. (U.S.A. and Canada models only)

Caution

If you are to use 6 ohm speakers, set "SP IMP." to "6ΩMIN" as follows BEFORE using this unit.

Use this feature to set the speaker impedance of this unit so that it matches that of your speakers.
Choices: 8ΩMIN*, 6ΩMIN

- Select "8ΩMIN" to set the speaker impedance to 8 Ω.
- Select "6ΩMIN" to set the speaker impedance to 6 Ω.

SP IMP.	Speaker	Impedance level
8ΩMIN	Front (A or B)	The impedance of each speaker must be 8 Ω or higher.
	Center	
	Surround	
6ΩMIN	Front (A or B)	The impedance of each speaker must be 6 Ω or higher.
	Center	
	Surround	

■ Initializing PRESET

Use this feature to reset all the parameters of this unit to the initial factory settings.
Choices: CANCEL*, RESET

- Select "CANCEL" not to reset any parameters of this unit.
- Select "RESET" to reset the parameters of this unit.

Notes

- This setting completely resets all the parameters of this unit including the set menu parameters. However, the advanced setup menu parameters will not be initialized.
- The initial factory settings are activated next time you turn on this unit.

RX-V365/HTR-6230

YAMAHA