

JVC

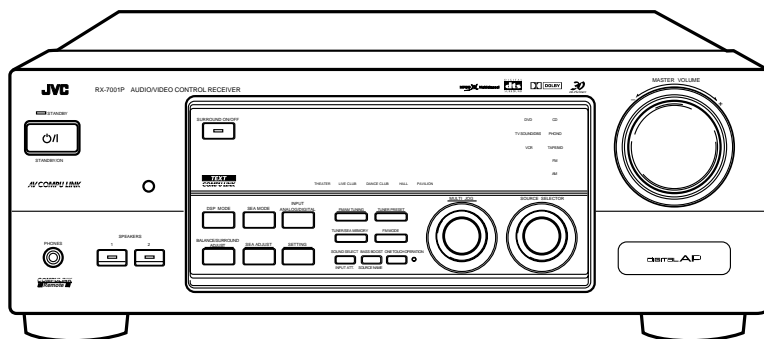
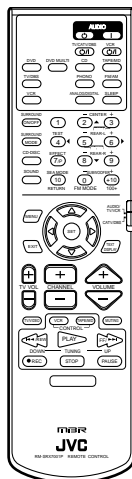
SERVICE MANUAL

AUDIO/VIDEO CONTROL RECEIVER

RX-7001PGD

Area Suffix

A Australia
 UF China
 US Singapore



DIGITAL AP

MPEG  **Multichannel**

TEXT
COMPU LINK

AV COMPU LINK

COMPU LINK
/// Remote ///

3D
3D-PHONIC

DIGITAL
dts
SURROUND

DD **DOLBY**
DIGITAL

Contents

Safety precautions	1-2
Disassembly method	1-3
Adjustment method	1-9
Description of major ICs	1-10

Safety Precautions

1. This design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Services should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacture of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by (⚠) on the Parts List in the Service Manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement parts shown in the Parts List of Service Manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.
5. Leakage current check (Electrical shock hazard testing)
After re-assembling the product, always perform an isolation check on the exposed metal parts of the product (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock. Do not use a line isolation transformer during this check.

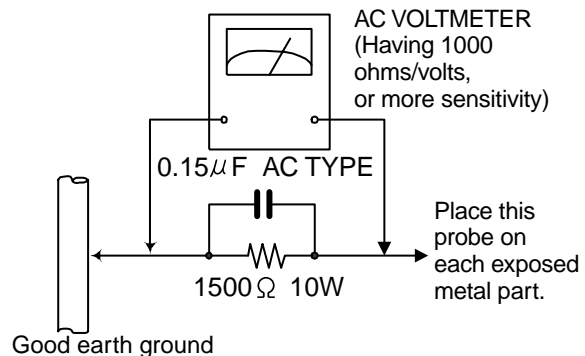
- Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal parts of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5mA AC (r.m.s.)

- Alternate check method

Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having, 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1,500Ω 10W resistor paralleled by a 0.15μF AC-type capacitor between an exposed metal part and a known good earth ground.

Measure the AC voltage across the resistor with the AC voltmeter.

Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. voltage measured Any must not exceed 0.75 V AC (r.m.s.). This corresponds to 0.5 mA AC (r.m.s.).



Warning

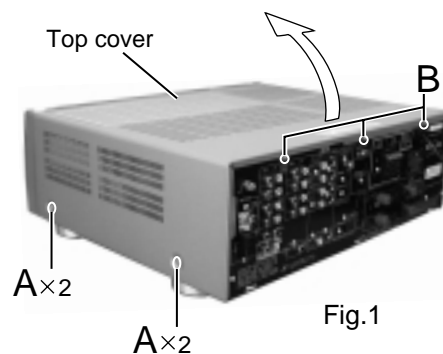
1. This equipment has been designed and manufactured to meet international safety standards.
2. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
3. Repairs must be made in accordance with the relevant safety standards.
4. It is essential that safety critical components are replaced by approved parts.
5. If mains voltage selector is provided, check setting for local voltage.

⚠ **CAUTION** Burrs formed during molding may be left over on some parts of the chassis. Therefore, pay attention to such burrs in the case of performing repair of this system.

Disassembly method

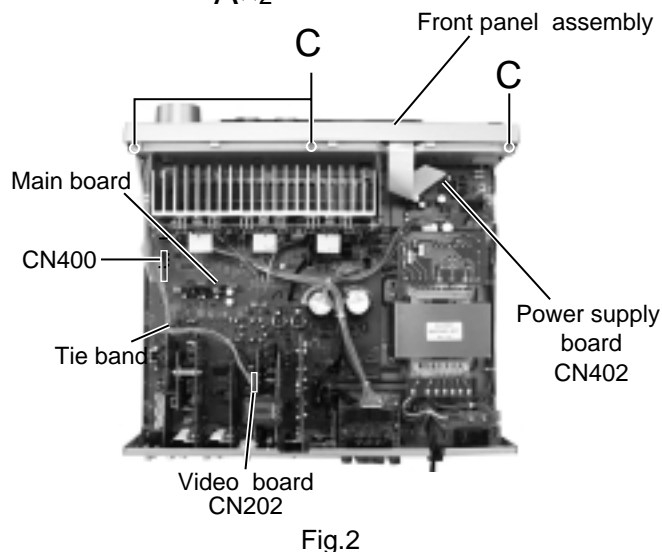
■ Removing the top cover (See Fig.1)

1. Remove the four screws A attaching the top cover on both sides of the body.
2. Remove the three screws B on the back of the body.
3. Remove the top cover from behind in the direction of the arrow while pulling both sides outward.



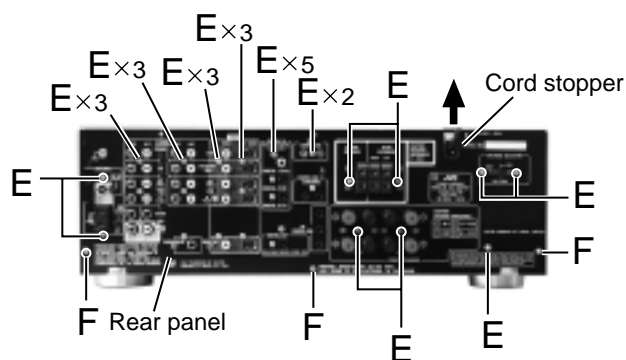
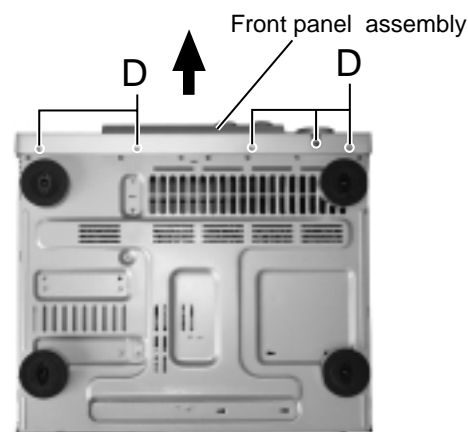
■ Removing the front panel assembly (See Fig.2 and 3)

- Prior to performing the following procedure, remove the top cover.
1. Disconnect the card wire from connector CN400 on the main board and CN402 on the power supply board in the front panel assembly.
 2. Cut off the tie band fixing the harness.
 3. Disconnect the harness from connector CN202 on the video board.
 4. Remove the three screws C attaching the front panel assembly.
 5. Remove the five screws D attaching the front panel assembly on the bottom of the body. Detach the front panel assembly toward the front.



■ Removing the rear panel (See Fig.4)

- Prior to performing the following procedure, remove the top cover.
1. Remove the power cord stopper from the rear panel by moving it in the direction of the arrow.
 2. Remove the twenty-eight screws E attaching the each boards to the rear panel on the back of the body.
 3. Remove the three screws F attaching the rear panel on the back of the body.



■ Removing each board connected to the rear side of the main board
(See Fig.5 to 9)

• Prior to performing the following procedure, remove the top cover and the rear panel.

1. Cut off the tie band fixing the harness.
2. Disconnect the harness from connector CN202 on the video board.
3. Disconnect the tuner board from connector CN101 on the main board.
4. Disconnect the SEA board and the audio board from connector CN452, CN301 and CN302 on the main board.
5. Disconnect the V-audio board from connector CN303 on the main board.
6. Disconnect the relay board 4. Then, disconnect the video board and the S-video board from connector CN201 and CN241 on the main board.
7. Disconnect the DSP board from connector CN501 and CN601 on the main board while removing the DSP board from the bracket fixing the lower part of the DSP board at the same time.
8. Disconnect the compulink board from connector CN255 on the main board.

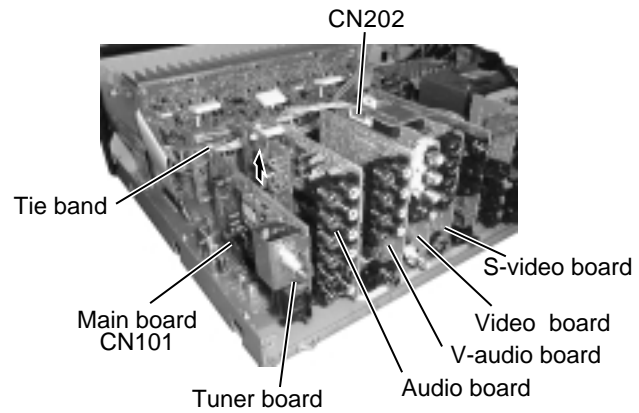


Fig.5

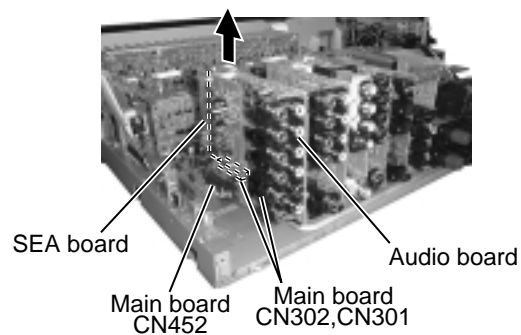


Fig.6

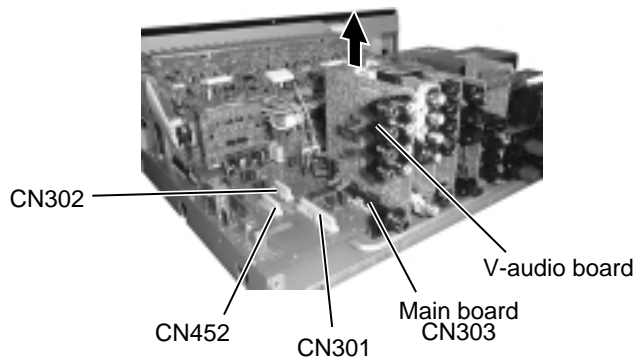


Fig.7

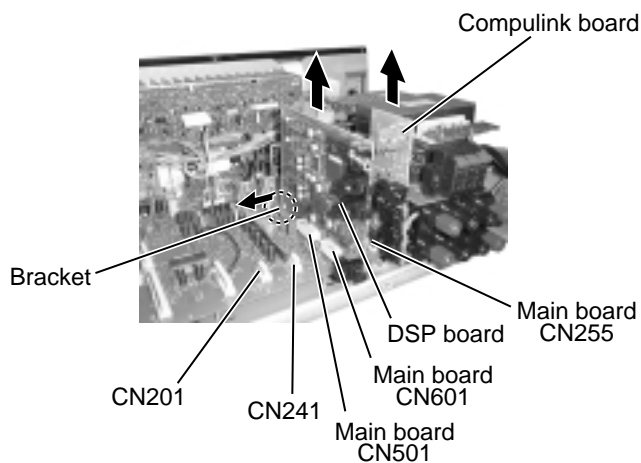


Fig.9

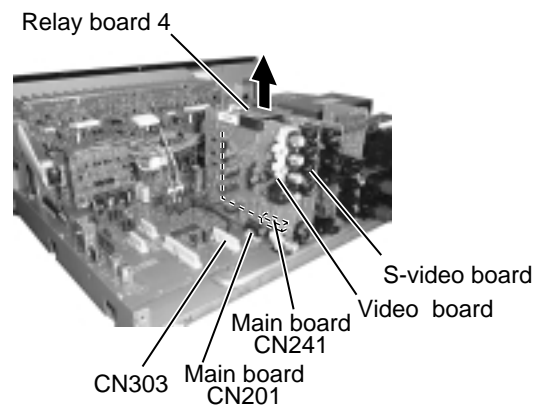


Fig.8

■ Removing the main board / regulator board (See Fig.10 to 12)

- Prior to performing the following procedure, remove the top cover and the rear panel.

ATTENTION: It is not necessary to remove the boards connected to the back of the main board. But to disassemble the main board and the power supply board efficiently, remove them.

1. Disconnect the card wire from connector CN400 on the main board.
2. Cut off the three tie bands fixing the harnesses.
3. Disconnect the harness from connector CN811 on the power transformer board.
4. Disconnect the relay board 1,2 and 3 from the main board and the power supply board.
5. Disconnect the harness from connector CN704, CN821, CN901, CN711, CN712, CN931 and CN932.
6. Remove the screw G attaching the regulator board to the heat sink cover.
7. Remove the four screws H attaching the main board to the heat sink cover.
8. Remove the five screws I and the screw J attaching the main board to the chassis base (The resistor board will come off at the same time).

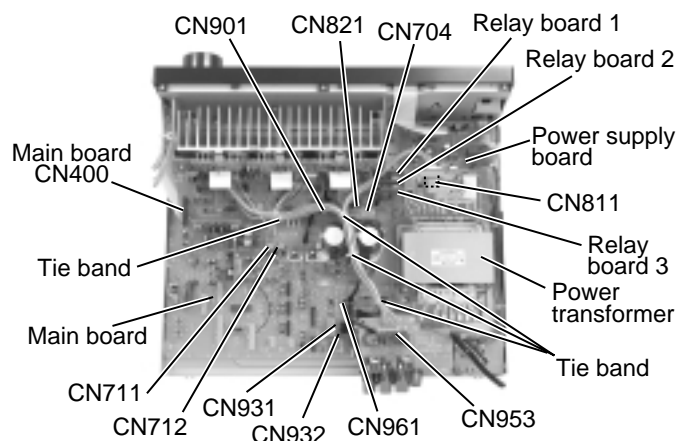


Fig.10

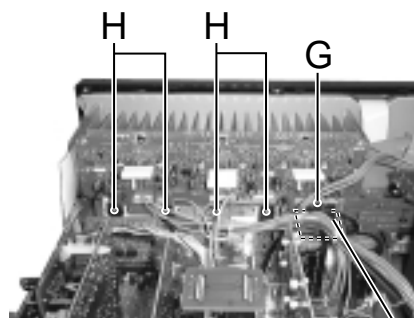


Fig.11 Regulator board

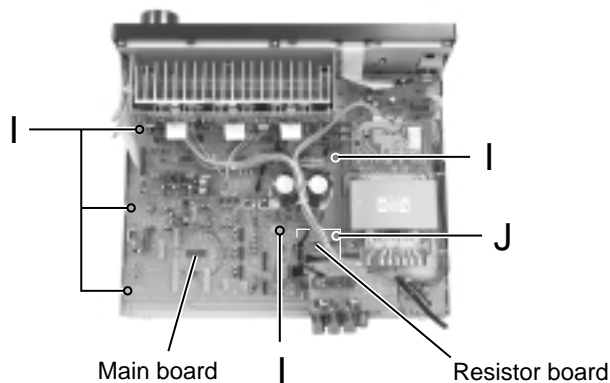


Fig.12

■ Removing the resistor board (See Fig.13)

- Prior to performing the following procedure, remove the top cover.

1. Disconnect the harness from connector CN881 on the resistor board.
2. Remove the screw J attaching the resistor board.

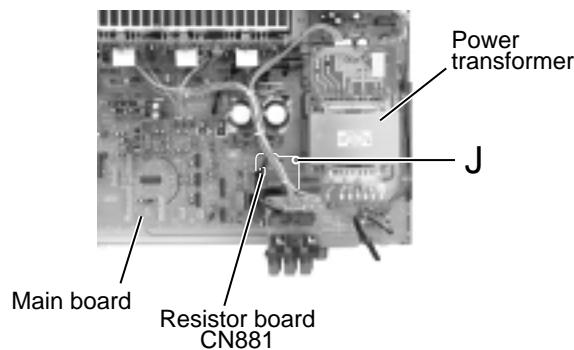


Fig.13

■ Removing the amplifier board
(See Fig.10 and 14)

- Prior to performing the following procedure, remove the top cover.
1. Cut off the four tie bands fixing the harnesses.
 2. Disconnect the harnesses from connector CN711, CN712, CN704 and CN901 on the main board respectively.
 3. Disconnect the harnesses from connector CN953 on the SP terminal board.
 4. Remove the four screws K and six screws L attaching the amplifier board.

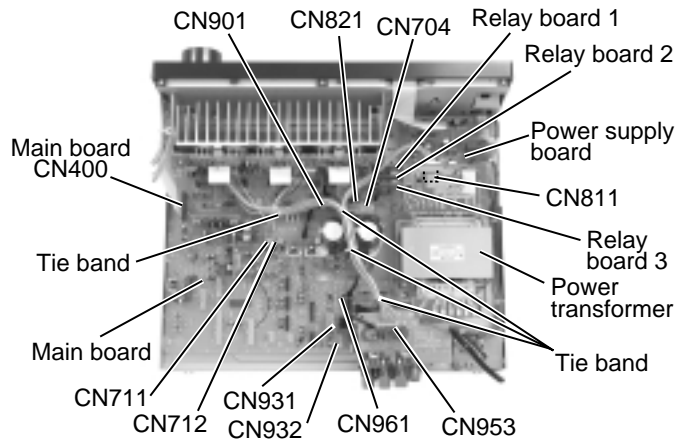


Fig.10

■ Removing the power transformer
(See Fig.15)

- Prior to performing the following procedures, remove the top cover.
1. Unsolder the seven harnesses connected to the power transformer.
 2. Disconnect the harness from connector CN811 and the harnesses connected to connector CN55 and CN56 on the power transformer board.
 3. Remove the four screws M attaching the power transformer.

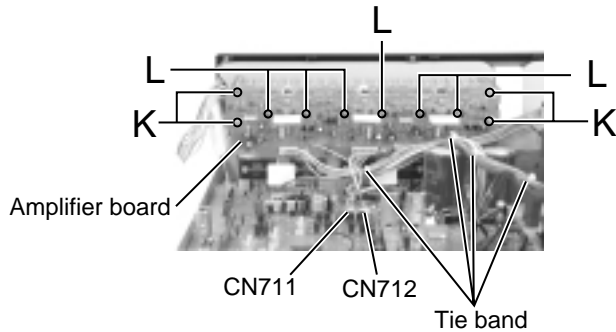


Fig.14

■ Removing the Voltage selector board
(See Fig.16)

- Prior to performing the following procedure, remove the top cover and the rear panel.
1. Unsolder the six harnesses connected to the Voltage selector board.

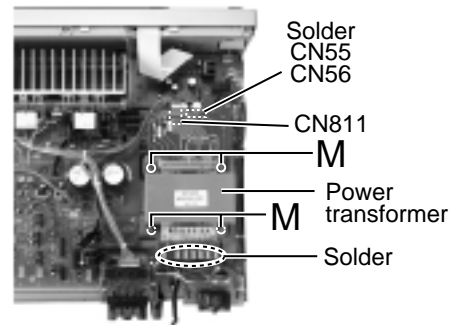


Fig.15

■ Removing the power / fuse board
(See Fig.17)

- Prior to performing the following procedure, remove the top cover and the rear panel.
1. Remove the screw N attaching the power / fuse board.
 2. Unsolder the power cord and other harnesses connected to the power / fuse board.

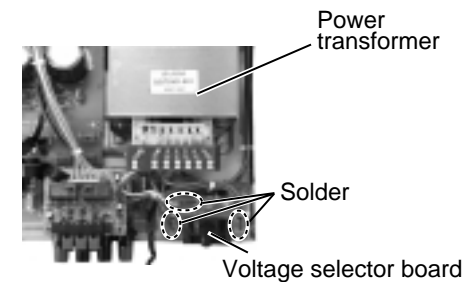


Fig.16

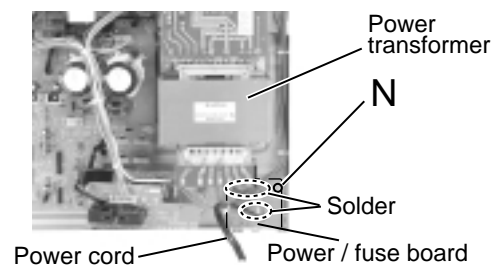


Fig.17

■ Removing the power supply board (See Fig.18 and 19)

- Prior to performing the following procedure, remove the top cover and the front panel.
1. Remove the one nut attaching the headphone jack of the power supply board on the front side of the body.
 2. Disconnect the relay board 1, 2 and 3 from the power supply board and the main board respectively.
 3. Disconnect the harness connected to connector CN55 and CN56 on the power transformer board (If necessary, cut off the band fixing the harness on the side of the base chassis).
 4. Remove the four screws **O** attaching the power supply board and pull out the power supply board from the front bracket backward.
 5. Unsolder the three harnesses connected to the power supply board.

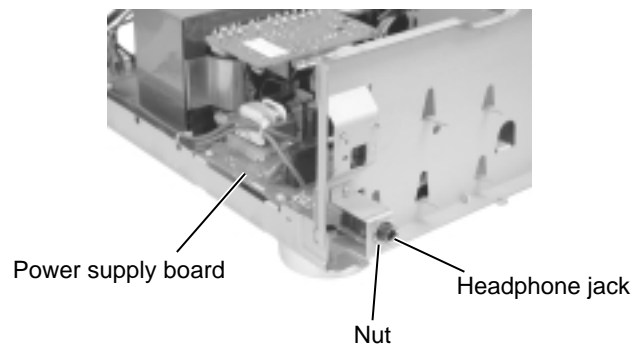


Fig.18

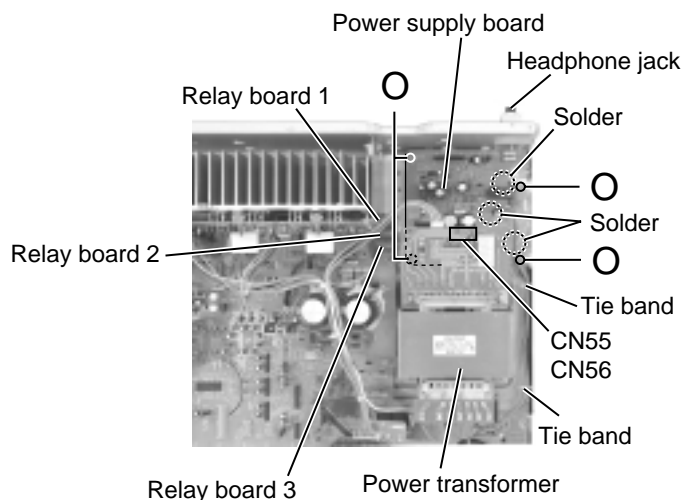


Fig.19

■ Removing the system control board / power switch board (See Fig.20 to 21)

- Prior to performing the following procedure, remove the top cover and the front panel assembly.
1. Pull out the volume knob on the front side of the front panel and remove the nut attaching the system control board.
 2. Remove the six screws **P** attaching the system control board on the back of the front panel and disconnect the harness from connector CN422 on the system control board.
 3. Disconnect the harness from connector CN430 on the power switch board.
 4. Remove the five screws **Q** attaching the power switch board.

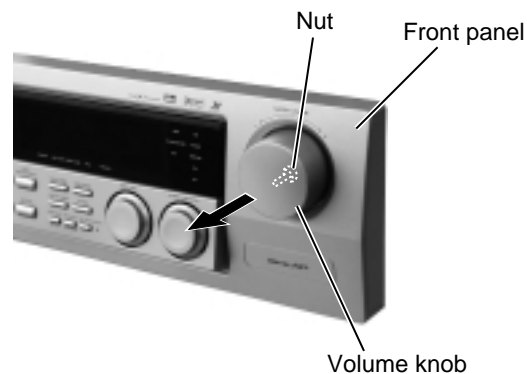


Fig.20

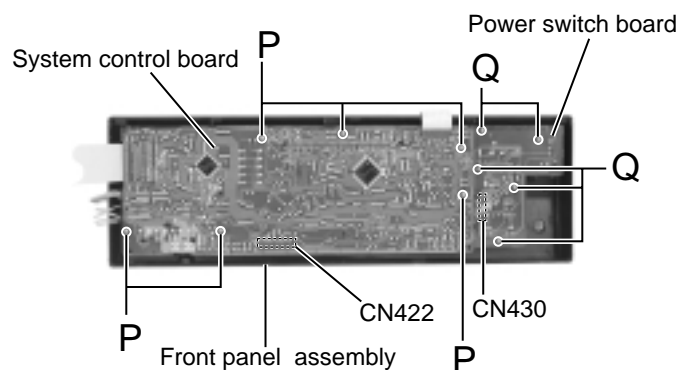


Fig.21

■Removing the operation switch board
(See Fig.22 to 24)

• Prior to performing the following procedure, remove the top cover, the front panel assembly and the system control board.

1. Remove the six screws R attaching the operation switch board on the back of the front panel.
2. On the back of the front panel, release the four joints by pushing the joint tabs inward. Remove the operation switch board toward the front.
3. Pull out the multi jog knob and the source selector knob.
4. Remove the two screws S attaching the operation switch board.

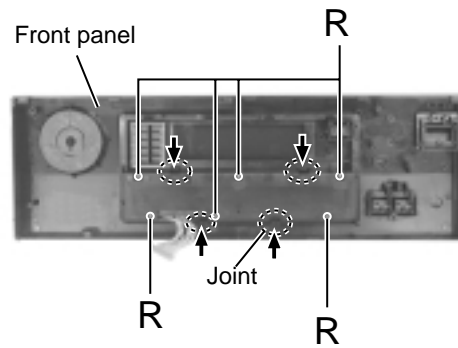


Fig.22

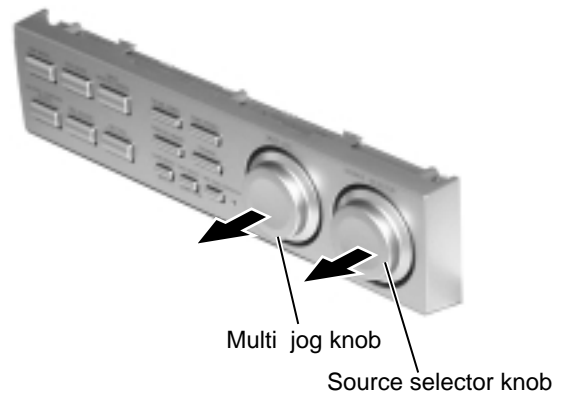


Fig.23

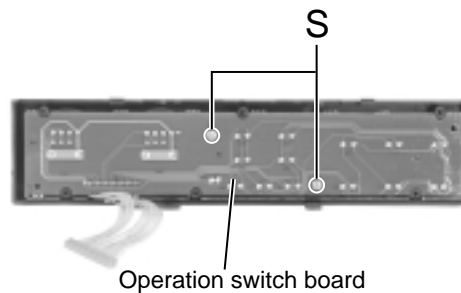


Fig.24

Adjustment method

■ Tuner section

1. Tuner range

FM	87.5MHz~108.0MHz
AM(MW)	530kHz~1710kHz

■ Power amplifier section

Adjustment of idling current

Measurement location	TP781
Adjustment part	VR787(Lch) , VR788(Rch)

Attention

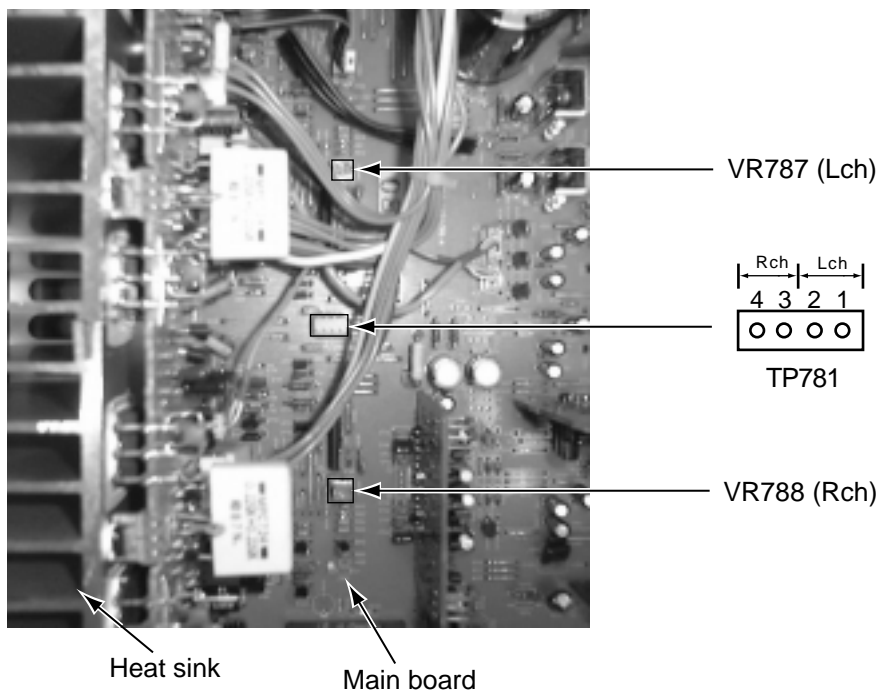
This adjustment does not obtain a correct adjustment value immediately after the amplifier is used (state that an internal temperature has risen).

Please adjust immediately after using the amplifier after turning off the power supply of the amplifier and falling an internal temperature.

<Adjustment method>

1. Set the volume control to minimum during this adjustment. (No signal & No load)
2. Set the surround mode OFF.
2. Turn VR787 and VR788 fully counterclockwise to warm up before adjustment.
If the heat sink is already warm from previous use the correct adjustment can not be made.
3. For L-ch, connect a DC voltmeter between TP781's pin1 and pin2 (Lch)
And, connect it between pin3 and pin4(Rch).
4. 30 minutes later after power on, adjust VR787 for L-ch, or VR788 for R-ch so that the DC voltmeter value has 1mV~10mV.

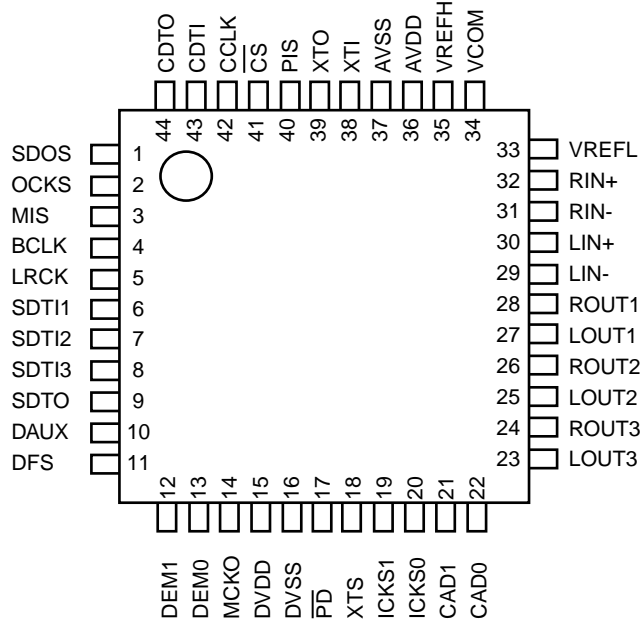
* It is not abnormal though the idling current might not become 0mA even if it is finished to turn variable resistance (VR787, VR788) in the direction of counterclockwise.



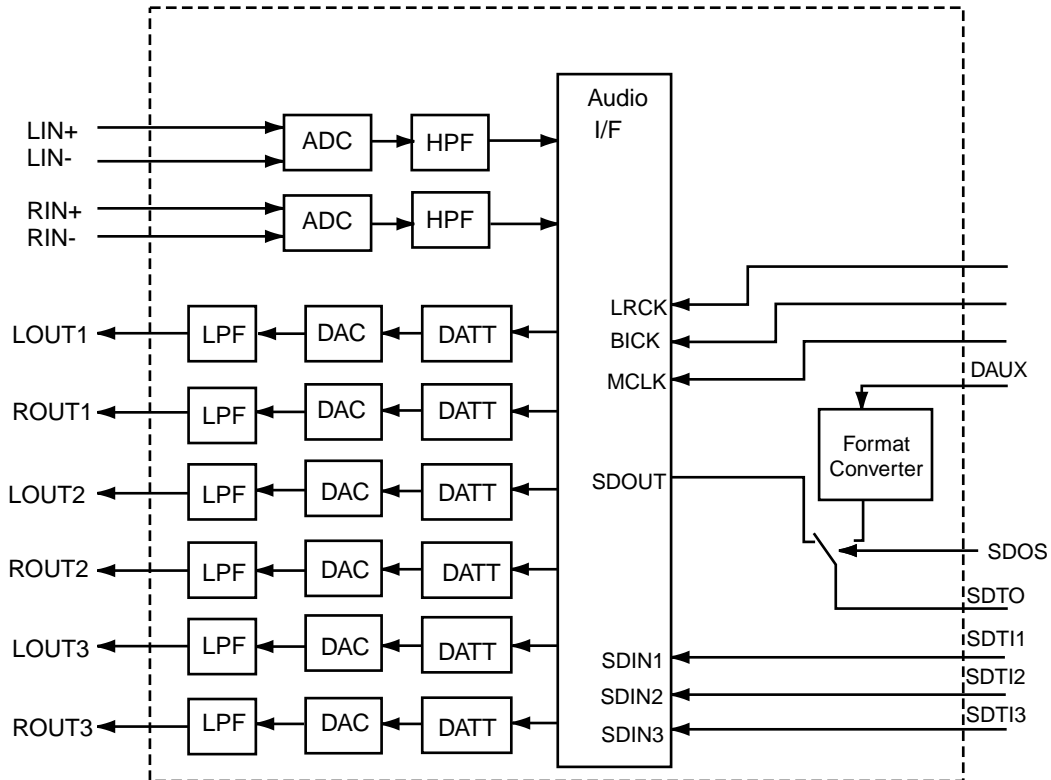
Description of major ICs

■ AK4527 (IC601) : A/D,D/A Converter

1.Pin layout



2.Block diagram



Block Diagram (DIR and AC-3) DSP are external parts)

3. Pin function (1/2)

AK4527(1/2)

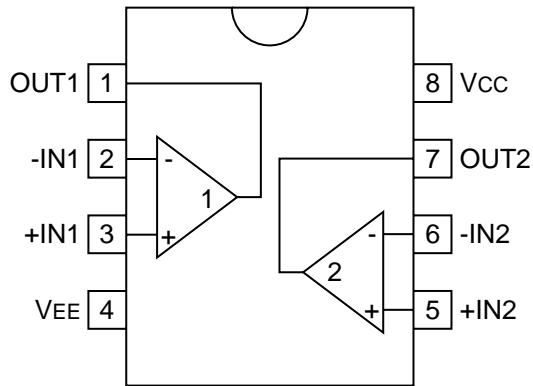
No.	Pin name	I/O	Function
1	SDOS	I	SDTO Source select pin "L" : Internal ADC output, "H" : DAUX input ORed with serial control register if P/S="L".
2	OCKS	I	MCKO Clock frequency select pin "L" : MCLK, "H" : MCLK/2. ORed with serial control register if P/S= "L".
3	MIS	I	Connect to GND
4	BICK	I	Audio serial data clock pin
5	LRCK	I/O	Input/Output channel clock pin
6	SDTI1	I	DAC1 Audio serial data input pin
7	SDTI2	I	DAC2 Audio serial data input pin
8	SDTI3	I	DAC3 Audio serial data input pin
9	SDTO	O	Audio serial data output pin
10	DAUX	I	AUX Audio serial data input pin
11	DFS	I	Double speed sampling mode pin "L" : Normal speed, "H" : Double speed, the ADC is powered down. ORed with serial control register if P/S="L".
12	DEM1	I	De-emphasis pin ORed with serial control register if P/S="L"
13	DEM0	I	De-emphasis Pin ORed with serial control register if P/S="L"
14	MCKO	O	Master clock output pin
15	DVDD	-	Digital power supply pin
16	DVSS	-	Digital ground pin
17	$\overline{\text{PD}}$	I	Power-down & Reset pin When "L", the AK4527 is powered-down and the control registers are reset to default state. If the state of CAD0-1 changes, then the AK4527 must be reset by PDN.
18	XTS	I	X'tal oscillator Select/Test mode pin "H" : X'tal Oscillator selected "L" : External clock source selected
19	ICKS1	I	Input clock select 1 pin
20	ICKS0	I	Input clock select 0 pin
21	CAD1	I	Chip address pin Used during the serial control mode.
22	CAD0	I	Chip address pin Used during the serial control mode.
23	LOUT3	O	Lch #3 analog output pin
24	ROUT3	O	Rch #3 analog output pin
25	LOUT2	O	Lch #2 analog output pin
26	ROUT2	O	Rch #2 analog output pin
27	LOUT1	O	Lch #1 analog output pin
28	ROUT1	O	Rch #1 analog output pin
29	LIN-	I	Lch analog negative Input Pin
30	LIN+	I	Lch analog positive Input Pin
31	RIN-	I	Rch analog negative Input Pin
32	RIN+	I	Rch analog positive Input Pin

3.Pin function (2/2)

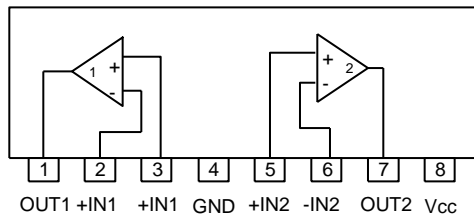
AK4527(2/2)

No.	Pin Name	I/O	Function
33	VREFL	I	Negative voltage reference Input pin, AVSS
34	VCOM	O	Common voltage output pin,AVDD/2 Large external capacitor around 2.2uF is used to reduce power-supply noise
35	VREFH	I	Positive voltage reference input pin,AVDD
36	AVDD	-	Analog power supply pin
37	AVSS	-	Analog ground pin
38	XTI	I	X'tal input pin
39	XTO	O	X'tal output pin if XTS="H"
	MCKI	I	External master clock input pin if XTS="L"
40	P/S	I	Parallel/Serial select pin "L" : Serial control mode, "H" : Parallel control mode
41	DIF0	I	Audio data interface format pin in parallel mode
	CS	I	Chip select pin in serial mode
42	DIF1	I	Audio data interface format pin in parallel mode
	CCLK	I	Control data clock pin in serial mode
43	LOOP0	I	Loop back mode pin in parallel mode Enables digital loop-back from ADC to 3 DACs.
	CDTI	I	Control data input pin in serial mode
44	LOOP1	I	Loop back mode pin in parallel mode Enable all 3 DAC channels to be input from SDTII.
	CDTO	O	Control data output pin in serial mode

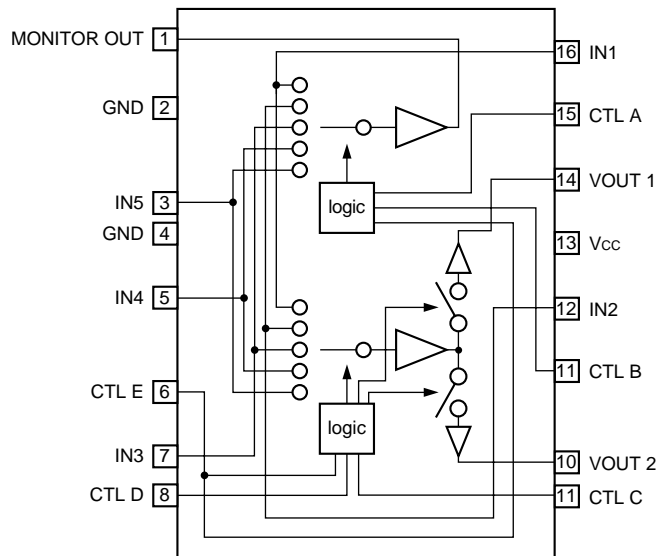
■ BA15218F(IC303):OP AMP.



■ BA15218N (IC501, IC510, IC511) : Dual Ope. Amp.



■ BA7625 (IC242,IC201) / BA7626 (IC241): Video selector



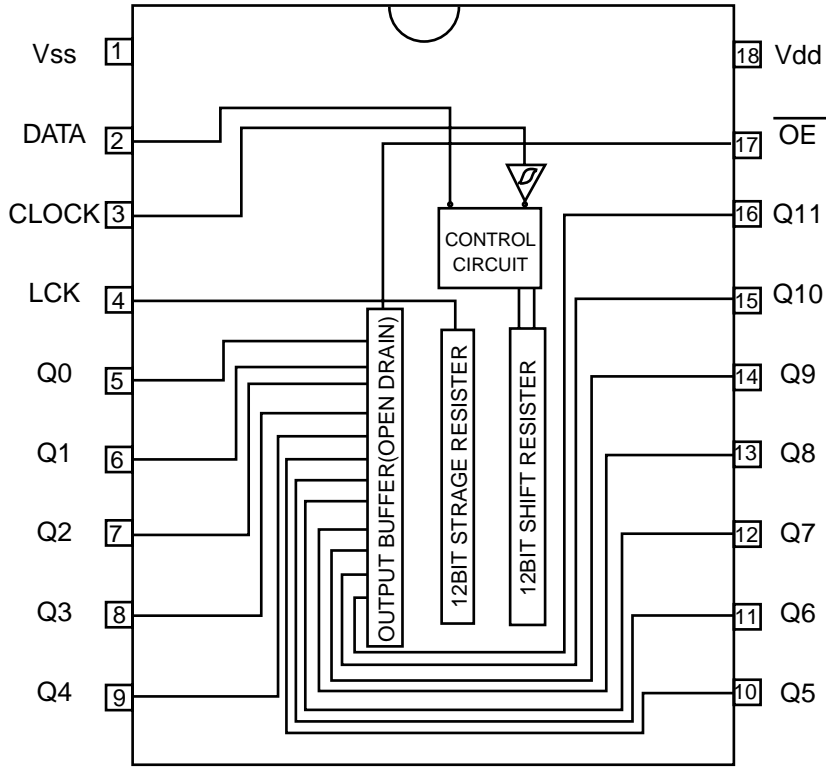
A	B	E	MONITOR OUT
L	L	*	IN1
H	L	*	IN2
L	H	*	IN3
H	H	L	IN4
H	H	H	IN5

C	D	E	VOUT1
L	L	*	--
H	L	*	IN2
L	H	*	IN3
H	H	L	IN4
H	H	H	IN5

C	D	E	VOUT2
L	L	*	IN1
H	L	*	--
L	H	*	IN3
H	H	L	IN4
H	H	H	IN5

■ BU2092(IC402,IC405):LED Controller

1. Terminal Layout

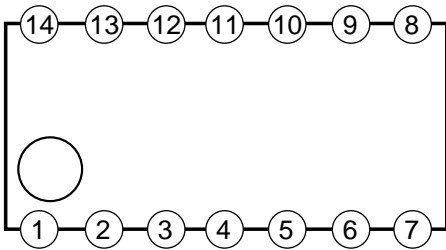


2. Pin Function

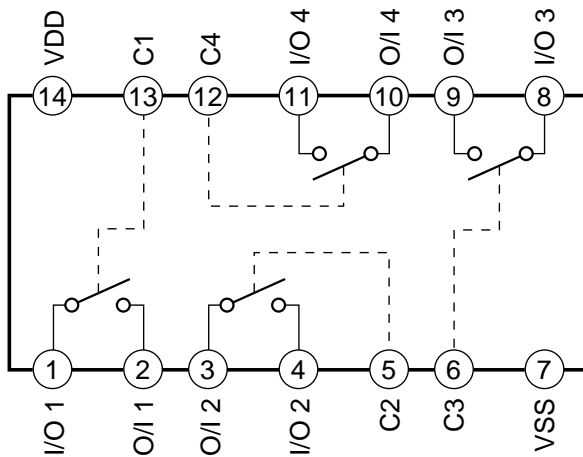
Pin No.	Symbol	I/O	Function						
1	Vss	-	Connect to GND						
2	DATA	I	Serial Data input						
3	CLOCK	I	Shift Clock of Data						
4	LCK	I	Latch Clock of Data						
5~16	Q0~Q11	O	Parallel Data Output <table border="1" style="margin-left: 20px;"> <tr> <td>Latch Data</td> <td>L</td> <td>H</td> </tr> <tr> <td>OUTPUT</td> <td>ON</td> <td>OFF</td> </tr> </table>	Latch Data	L	H	OUTPUT	ON	OFF
Latch Data	L	H							
OUTPUT	ON	OFF							
17	$\overline{\text{OE}}$	I	Output Enable						
18	Vdd	-	Power Supply						

BU4066BCF (IC602,IC611) : Switch

1.Pin Layout

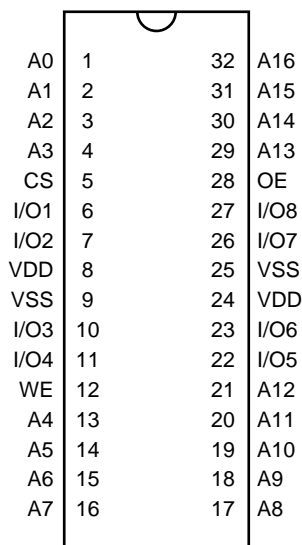


2.Block Diagram

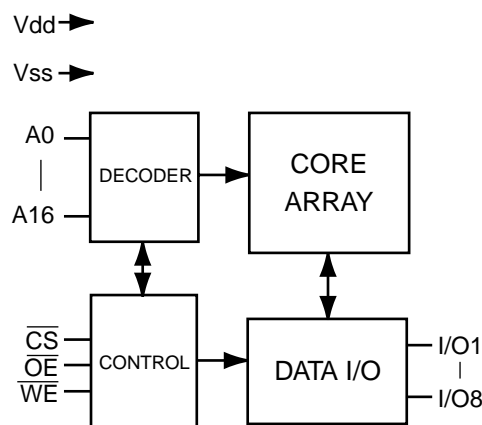


W24L011AJ-15(IC641):SDRAM

1.Pin layout



2.Block diagram

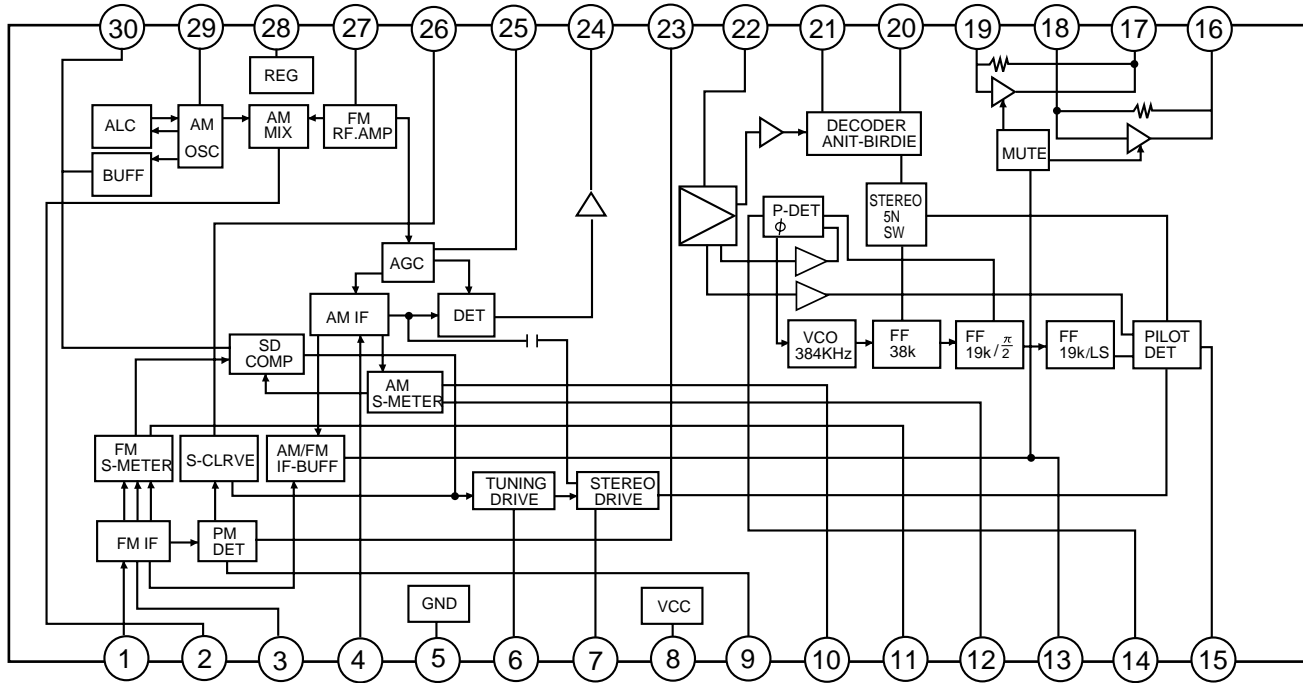


3.Pin function

Symbol	Description
A0~A16	Address inputs
I/O1~I/O8	Data inputs/outputs
CS	Chip select inputs
WE	Write enable input
OE	Output enable input
Vdd	Power supply
Vss	Ground

■ LA1838(IC102): FM AM IF AMP&detector, FM MPX Decoder

1. Block Diagram



2. Pin Function

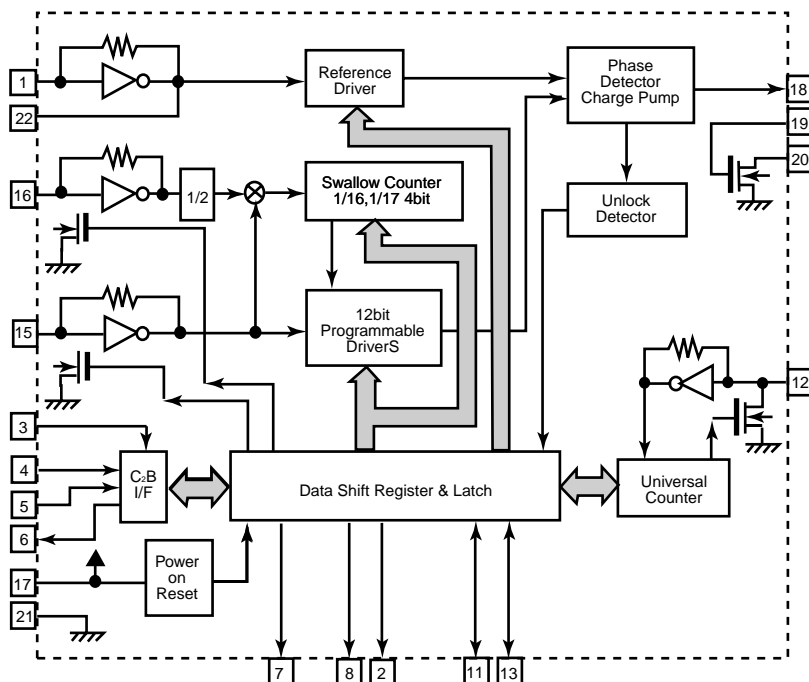
Pin No.	Symbol	I/O	Function	Pin No.	Symbol	I/O	Function
1	FM IN	I	This is an input terminal of FM IF signal.	16	R OUT	O	Right channel signal output.
2	AM MIX	O	This is an out put terminal for AM mixer.	17	L OUT	O	Left channel signal output.
3	FM IF	I	Bypass of FM IF	18	R IN	I	Input terminal of the Right channel post AMP.
4	AM IF	I	Input of AM IF Signal.	19	L IN	I	Input terminal of the Left channel post AMP.
5	GND	—	This is the device ground terminal.	20	RO	O	Mpx Right channel signal output.
6	TUNED	O	When the set is tuning,this terminal becomes "L".	21	LO	O	Mpx Left channel signal output.
7	STEREO	O	Stereo indicator output. Stereo "L", Mono: "H"	22	IF IN	I	Mpx input terminal
8	VCC	—	This is the power supply terminal.	23	FM OUT	O	FM detection output.
9	FM DET	—	FM detect transformer.	24	AM DET	O	AM detection output.
10	AM SD	—	This is a terminal of AM ceramic filter.	25	AM AGC	I	This is an AGC voltage input terminal for AM
11	FM VSM	O	Adjust FM SD sensitivity.	26	AFC	—	This is an output terminal of voltage for FM-AFC.
12	AM VSM	O	Adjust AM SD sensitivity.	27	AM RF	I	AM RF signal input.
13	MUTE	I/O	When the signal of IF REQ of IC121(LC72131) appear, the signal of FM/AM IF output. //Muting control input.	28	REG	O	Register value between pin 26 and pin28 besides the frequency width of the input signal.
14	FM/AM	I	Change over the FM/AM input. "H" :FM, "L" : AM	29	AM OSC	—	This is a terminal of AM Local oscillation circuit.
15	MONO/ST	O	Stereo : "H", Mono: "L"	30	OSC BUFFER	O	AM Local oscillation Signal output.

■ LC72136N (IC121) : PLL Frequency synthesizer

1. Pin layout

XT	1	22	XT
FM/AM	2	21	GND
CE	3	20	LPFOUT
DI	4	19	LPFIN
CLOCK	5	18	PD
DO	6	17	VCC
FM/ST/VCO	7	16	FMIN
AM/FM	8	15	AMIN
	9	14	
	10	13	IFCONT
SDIN	11	12	IFIN

2. Block diagram

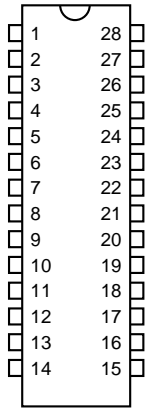


3. Pin function

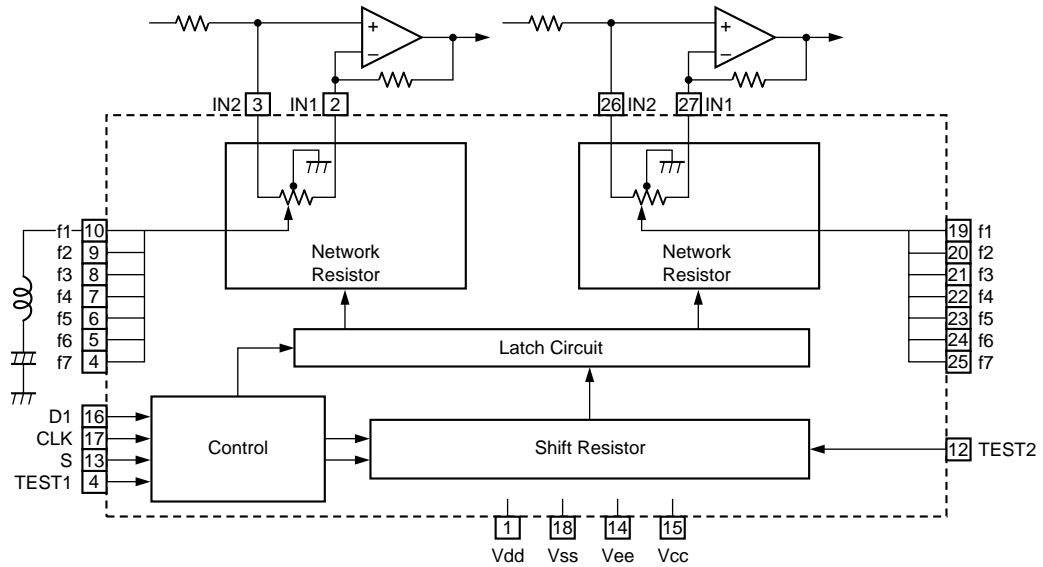
Pin No.	Symbol	I/O	Function	Pin No.	Symbol	I/O	Function
1	XT	I	X'tal oscillator connect (75kHz)	12	IFIN	I	IF counter signal input
2	FM/AM	O	LOW:FM mode	13	IFCONT	O	IF signal output
3	CE	I	When data output/input for 4pin(input) and 6pin(output): H	14	-	-	Not use
4	DI	I	Input for receive the serial data from controller	15	AMIN	I	AM Local OSC signal output
5	CLOCK	I	Sync signal input use	16	FMIN	I	FM Local OSC signal input
6	DO	O	Data output for Controller Output port	17	VCC	-	Power supply(VDD=4.5-5.5V) When power ON:Reset circuit move
7	FM/ST/VCO	O	"Low": MW mode	18	PD	O	PLL charge pump output(H: Local OSC frequency Height than Reference frequency. L: Low Agreement: Height impedance)
8	AM/FM	O	Open state after the power on reset	19	LPFIN	I	Input for active lowpassfilter of PLL
9	LW	I/O	Input/output port	20	LPFOUT	O	Output for active lowpassfilter of PLL
10	MW	I/O	Input/output port	21	GND	-	Connected to GND
11	SDIN	I/O	Data input/output	22	XT	I	X'tal oscillator(75KHz)

■ LC7522 (IC451) : SEA Control

1.Pin layout



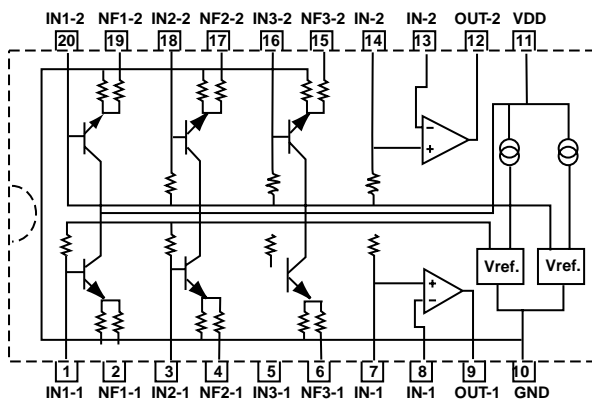
2.Block diagram



3.Pin function

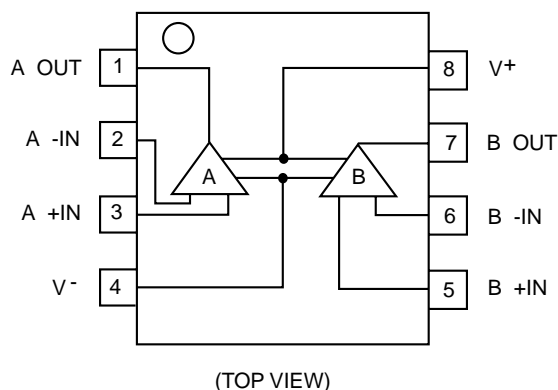
Pin No.	Symbol	Function
1	V _{DD}	Power Supply terminal for Audio signal +7V(typ)
18	V _{SS}	Power Supply terminal 0V
14	V _{EE}	Power Supply terminal for Audio signal. Single channel use, joint VSS.
15	V _{CC}	Power Supply terminal +5V(typ)
2,27	IN 1	Audio signal Input terminal
3,26	IN 2	IN1 joint opposite input of Operation amp. IN2 joint inapposite input of Operation amp. It have Right and Left.
16	D1	Data input terminal from CPU Shumit inverter style
17	CLK	Clock input terminal from CPU Shumit inverter style
4~10 19~25	f1~f7	Joint terminal of B.P.F. f1~f7 X Right, Left Total 14 terminal
11	TEST1	Internal test terminal of IC
12	TEST2	It can use open condition
13	S	Select terminal for 2 tip use "1" input, key code 7C3 - VDD joint "0" input, key code 7C2 - VEE joint
28	NC	No use

■ M5243AP12(IC452):S.E.A.Graphic equalizer

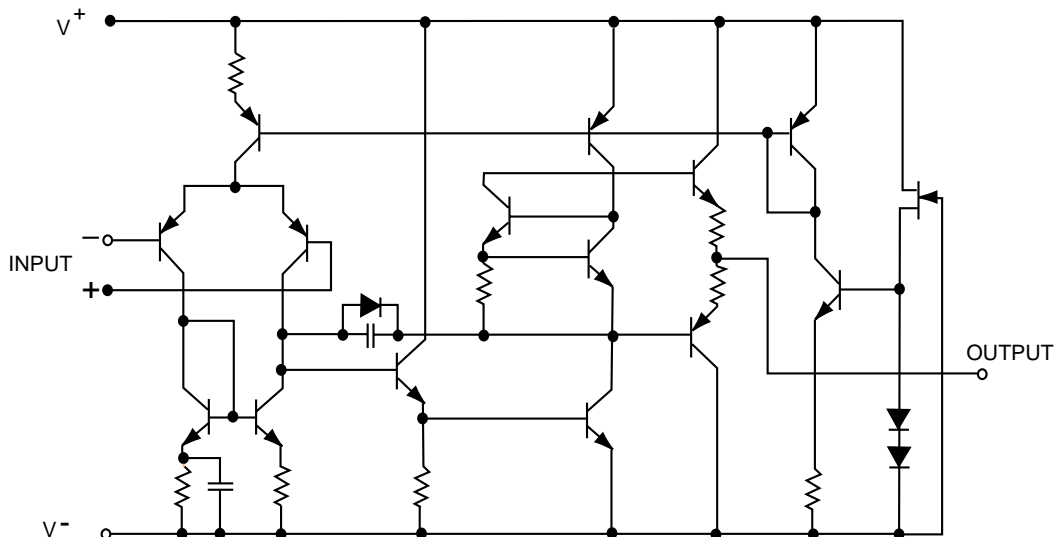


■ NJM4580D (IC301, IC302, IC306) : LPF, Mic and H.phone Amp.

1.Terminal layout

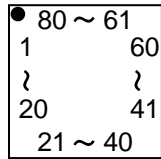


2.Block diagram



■ MN101C15FDE (IC401) : System control micon

1. Pin layout

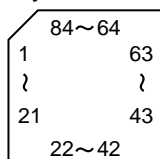


2. Pin function

Pin No	Symbol	Functions	Pin No	Symbol	Functions
1	GND	Ground	41	VIDEO3	VIDEO 3 signal terminal
2	DVD-S/C	DVD S/C signal select terminal	42	VIDEO4	VIDEO 4 signal terminal
3	VCR1-S/C	VCR1 S/C signal select terminal	43	S.MUTE	Source mute control terminal
4	VIDEO-S/C	VIDEO S/C signal select terminal	44	—————	No use
5	TV-S/C	TV S/C select terminal	45	—————	No use
6	4/8-IN	4 ohm / 8 ohm select signal terminal	46	—————	No use
7	—————	—————	47	RDS-DATA	RDS control signal terminal
8	GND	Ground	48	—————	No use
9	PROTECT	Protect	49	RDS-CLK	RDS control signal clock
10	GND	Ground	50	DSP-READY	DSP control signal clock
11	VDD	Power supply	51	DSP-RESET	DSP reset signal terminal
12	OSC 12	Oscillation terminal	52	M/CS	Control signal from IC400
13	OSC 11	Oscillation terminal	53	M-RESET	Reset signal from IC400
14	VSS	Ground	54	M-STATUS	Status signal from IC400
15	X1	Ground	55	M-COMMAND	Command signal from IC400
16	X0	Ground	56	M-CLK	Clock signal from IC400
17	GND	Ground	57	SEA-CLK	SEA clock signal from terminal
18	TEXT-OUT	Text signal output terminal	58	SEA-DATA	SEA data signal terminal
19	TEXT-IN	Text signal input terminal	59	VL/VH	Connect to power supply board
20	MASTER	Master signal terminal	60	4/8 OUT	4 ohm / 8 ohm select signal terminal
21	DSP-COMMAND	DSP control signal terminal	61	SW-DATA	Switch data signal terminal
22	DSP-STATUS	DSP control signal terminal	62	SW-CLK	Switch clock signal terminal
23	DSP-CLK	DSP control signal terminal	63	VOL-STB	Volume strobe signal terminal
24	—————	No use	64	VOL-DATA	Volume data signal terminal
25	RESET-IN	Reset signal input terminal	65	VOL-CLK	Volume clock signal terminal
26	TUNER-CE	Tuner chip enable	66	SW-STB	Switch strobe signal terminal
27	TUNER-CLK	Tuner clock signal terminal	67	—————	No use
28	—————	No use	68	—————	No use
29	TUNER-DATA	Tuner control signal terminal	69	FR1-RELAY	Relay 1 signal terminal
30	TUNER-MUTE	Tuner mute signal terminal	70	FR2-RELAY	Relay 2 signal terminal
31	TUNER-IN	Tuner signal input terminal	71	CNTR-RELAY	Center speaker relay terminal
32	STEREO-IN	Stereo signal input terminal	72	SUR-RELAY	Surround speaker relay terminal
33	RDS-ST	No use	73	SUB-MUTE	SUB woofer out mute control
34	M-BUSY	Busy signal from IC400	74	LED-LCK2	LED latch clock signal terminal
35	INH	No use	75	C.TONE3	Center tone 3 signal terminal
36	OSD-DATA	OSD data signal input terminal	76	C.TONE2	Center tone 2 signal terminal
37	OSD-STB	OSD standby signal terminal	77	C.TONE1	Center tone 1 signal terminal
38	OSD-CLK	OSD clock signal terminal	78	LED-LCK1	LED latch clock signal terminal
39	VIDEO1	VIDEO 1 signal terminal	79	LED-DATA	LED data signal terminal
40	VIDEO2	VIDEO 2 signal terminal	80	LED-CLK	LED clock signal terminal

■ MN173222DG(IC400):FL Display & Operation switch control

1.Pin layout



2.Key matrix

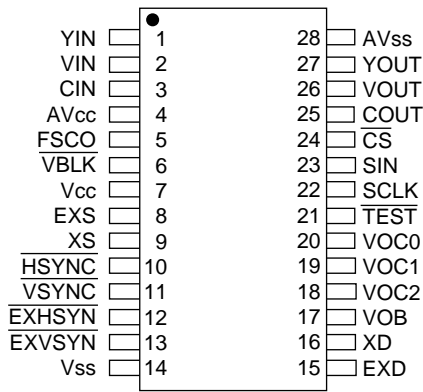
	KEY OUT 0	KEY OUT1	KEY OUT 2	KEY OUT 3	KEY OUT 5
KEY IN 0	POWER	ANALOG/ DIGITAL	SEA ADJUST	FM/AM TUNING	ONE TOUCH OPERATION
KEY IN 1	SURROUND	DSP MODE	FM MODE	TUNER PRESET	————
KEY IN 2	SPEAKER 1	LOUDNESS	LEVEL ADJUST	MEMORY	————
KEY IN 3	SPEAKER 2	SEA MODE	SOUND SELECT	SETTING	————

3.Pin function

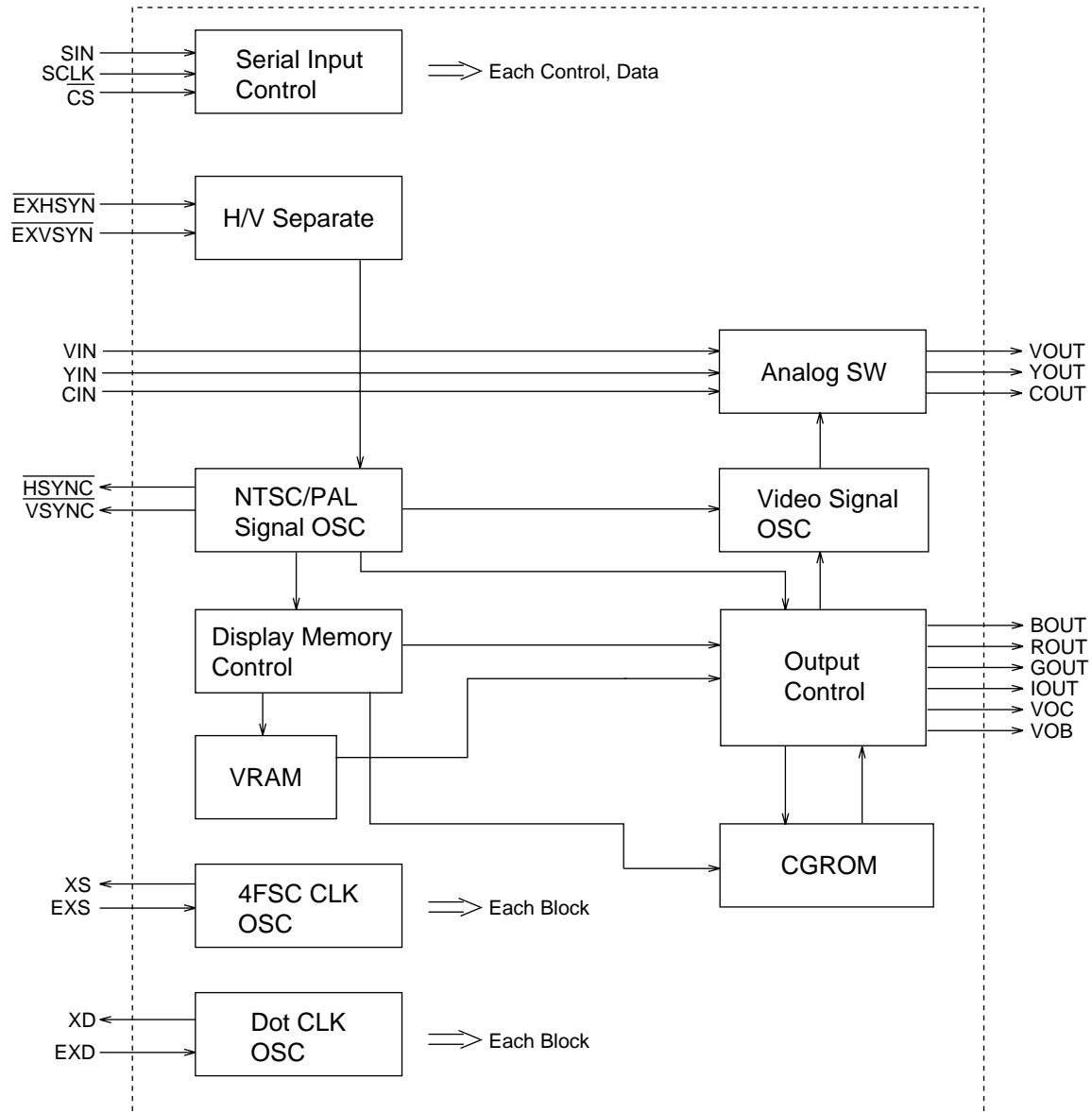
Pin No.	Symbol	I/O	Description
1~22	S22~S1	O	FL Segment control signal
23	VPP	-	Power supply terminal
24~39	G15~G1/KO0~5	O	FL grid control signal / Key matrix output
40,41	JOG1,2	I	Source select JOG1,2
42,43	JOG3,4	I	Volume JOG 3,4
44	M BUSY	O	BUSY Signal output to IC401
45	M CLK	I/O	Clock signal to IC401
46	M COMMAND	I	Command data input from IC401
47	M STATUS	O	Status signal output to IC401
48	M CS	I	Chip select signal input from IC401
49	RM	I	Remote control signal input
50	VCRI	I	AV Compu-link VCR input
51	DCSI	I	AV Compu-link DCS input
52	DCSO	O	AV Compu-link DCS output
53	VCRO	O	AV Compu-link VCR output
54	TVD	O	AV Compu-link TV output
55	TVC	O	AV Compu-link TV control output
56,57	JOG5,6	I	Multi JOG 5,6
58	POWER	I	Power ON control output
59		O	STANDBY LED control H:Lighting
60~63	KI3~KI0	I	Key matrix input
64~67	S36~S33	O	FL Segment control signal
68	RST	I	Reset input
69	X1	-	Connect to GND
70	X2	-	Non connect
71	VSS	-	Connect to GND
72	OSC2	-	Oscillation terminal 6MHz
73	OSC1	-	Oscillation terminal 6MHz
74		-	Not use
75~84	S32~S23	O	FL Segment control signal

■ **MB90088 (IC203) : On screen display controller**

1. Terminal layout



2. Block diagram

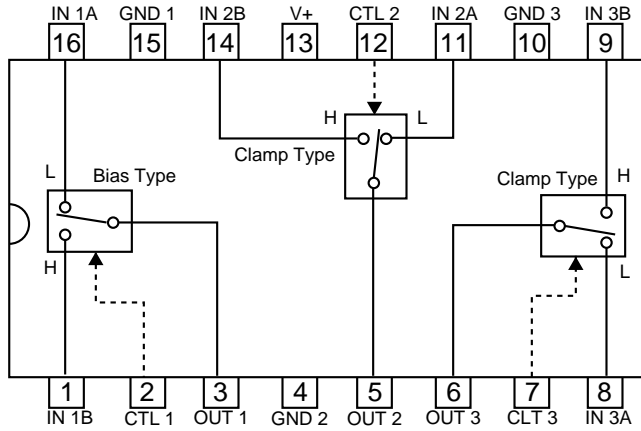


3.Pin functions (MB90088)

pin no	Symbol	I/O	Function
1	YIN	I	Brightness signal Input terminal for Superinpause indication
2	VIN	I	Composite video signal input terminal for Superinpause indication
3	CIN	I	Contrast signal input terminal for Superinpause indication
4	AVcc	-	Analog power supply terminal
5	IOUT	O	Color (Brightness) signal output terminal
6	VOC	O	Character output terminal
7	Vcc	-	Power supply terminal
8	EXS	I	Clock generater outside circuit terminal for color burst
9	XS	O	
10	$\overline{\text{HSYNC}}$	O	Horizontal signal output terminal
11	$\overline{\text{VSYNC}}$	O	Vertical signal output terminal
12	$\overline{\text{EXHSYN}}$	I	EXT horizontal signal input terminal
13	$\overline{\text{EXVSYN}}$	I	EXT vertical signal input terminal
14	Vss	-	GND
15	EXD	I	Dot clock generater outside circuit signal terminal for indication
16	XD	O	
17	VOB	O	Character & background signal output terminal
18	GOUT	O	Color signal (Green, Red, Blue)
19	ROUT		
20	BOUT		
21	$\overline{\text{TEST}}$	I	Test signal input terminal
22	SCLK	I	Shift clock input terminal for serial transmission
23	SIN	I	Serial data input terminal
24	$\overline{\text{CS}}$	I	Chip select terminal
25	COUT	O	Contrast signal output terminal
26	VOUT	O	Composite video signal output terminal
27	YOUT	O	Brightness signal output terminal
28	AVss	-	Analog GND terminal

■ **NJM2285D (IC202) : Video switch**

1. Terminal layout & Block diagram

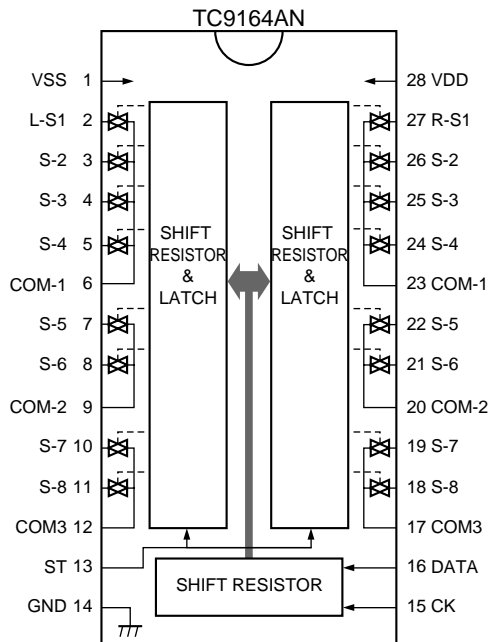


■ **TC9164AN (IC432): Analog switch**

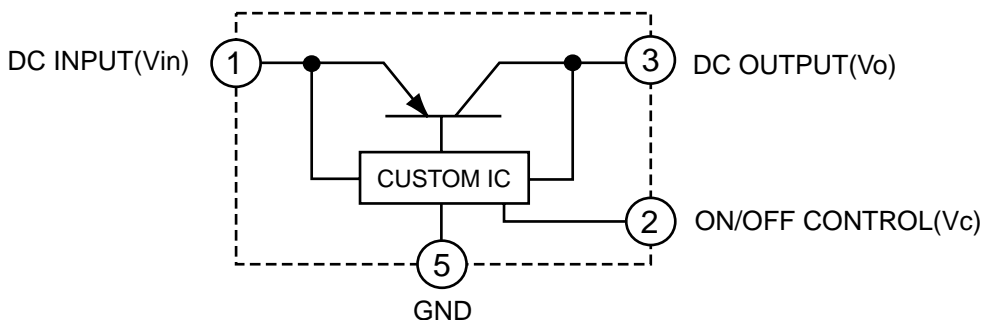
1. Function

Switch to On/Off of S1 to S8 by control of LSI.

2. Terminal Lay out & Block Diagram



■ **PQ3DZ53 (IC661, IC663) : Regulator IC**



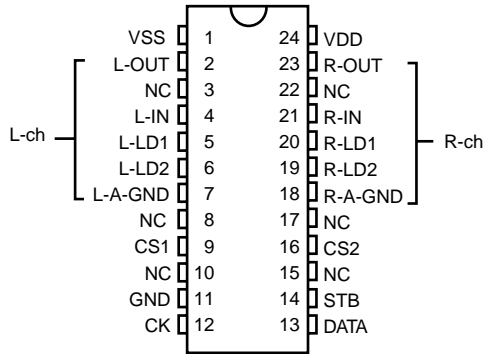
■ TC9446F-013(IC631):Digital signal processor for dolby digital / DTS audio decode

Pin No.	Symbol	I/O	Function
1	RST	I	Reset signal input terminal (L:reset H:Operation usually)
2	MIMD	I	Microcomputer interface mode selection input terminal (L:serial H:IC bus)
3	MICS	I	Microcomputer interface chip select input terminal
4	MILP	I	Microcomputer interface latch pulse input
5	MIDIO	I/O	Microcomputer interface data I/O terminal
6	MICK	I	Microcomputer interface clock input terminal
7	MIACK	O	Microcomputer interface acknowledge output terminal
8~11	FI0~3	I	Flag input terminal 0~3
12	IRQ	I	Interrupt input terminal
13	VSS	-	Digital ground terminal
14	LRCKA	I	Audio interface LR clock input terminal A
15	BCKA	I	Audio interface bit clock input terminal A
16~18	SDO0~2	O	Audio interface data output terminal 0
19	SD03	-	Non connect
20	LRCKB	I	Audio interface LR clock input terminal B
21	BCKB	I	Audio interface bit clock input terminal B
22	SDT0	I	Audio interface data input terminal 0
23	SDT1	I	Audio interface data input terminal 1
24	VDD	-	Power supply for digital circuit
25	LRCKOA	O	Audio interface LR clock output terminal A
26	BCKOA	O	Audio interface bit clock output terminal A
27,28	TEST0,1	I	Test input terminal 0/1 (L:test H:operation usually)
29~31	LRCKOB,BCKOB,TXO	-	Non connect
32,33	TEST2,3	I	Test input terminal (L:test H:operation usually)
34	RX	I	SPDIF input terminal
35	VSS	-	Ground terminal for digital circuit
36	TSTSUB0	I	Test sub input terminal 0 (L:test H:operation usually)
37	FCONT	O	VCO Frequency control output terminal
38,39	TSTSUB1,TSTSUB2	I	Test sub input terminal 1,2 (L:test H:operation usually)
40	PDO	O	Phase error signal output terminal
41	VDDA	-	Power supply for analog circuit
42	PLON	I	Clock selection input terminal (L:external clock H:VCO clock)
43	AMPI	I	AMP.input terminal for LPF
44	AMPO	O	AMP.output terminal for LPF
45	CKI	I	External clock input terminal
46	VSSA	-	Ground terminal for analog circuit
47	CKO	O	DIR Clock output terminal
48	LOCK	O	VCO Lock detection output terminal
49	VSS	-	Ground terminal for digital circuit
50	WR	O	External SRAM writing signal output terminal
51	OE	O	External SRAM output enable signal output terminal
52	CE	O	External SRAM chip enable signal output terminal
53	VDD	-	Power supply terminal for digital circuit
54~61	IO7~0	I/O	External SRAM data I/O terminal 7~0
62	VSS	-	Ground terminal for digital circuit
63~70	AD0~7	O	External SRAM address output terminal 0~7
71	VDD	-	Power supply terminal for digital circuit
72~80	AD8~16	O	External SRAM address output terminal 8~16
81	VSS	-	Ground terminal for digital circuit
82~89	PO0~7	O	General purpose output terminal 0~7
90	VDDDL	-	Power supply terminal for DLL
91	LPFO	O	LPF output terminal for DLL
92,93	DLON,DLCKS	I	Refer to the undermentioned table
94	SCKO	-	Non connect
95	VSSDL	-	Ground terminal for DLL
96	SCKI	I	External system clock input terminal
97	VSSX	-	Ground terminal for oscillation circuit
98,99	XO,XI	I/O	Oscillation I/O terminal
100	VDDX	-	Power supply terminal for oscillation circuit

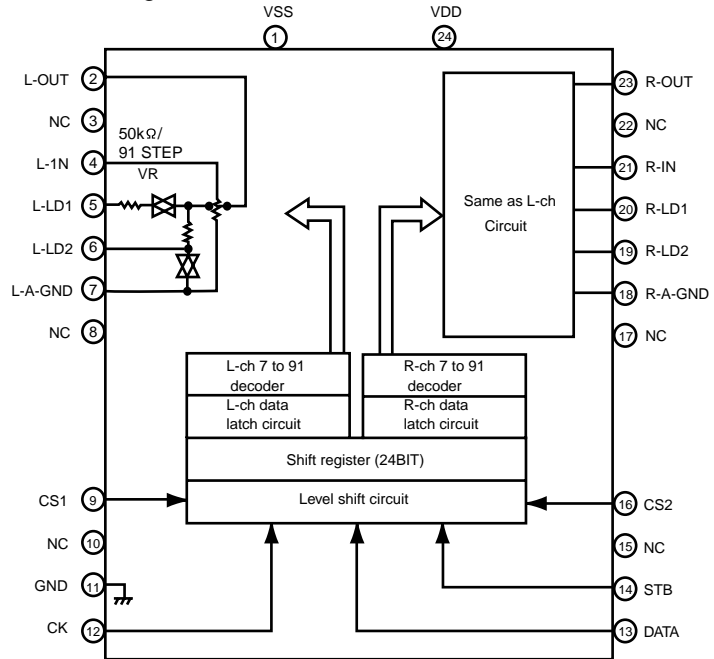
DLCKS terminal	DLONterminal	DLL clock setting
L	L	SCKI input (DLL circuit OFF)
L	H	Four times XI clock
H	L	Three times XI clock
H	H	Six times XI clock

TC9459F (IC331,IC332,IC333) : Electronic volume control

1.Pin layout



2. Block diagram

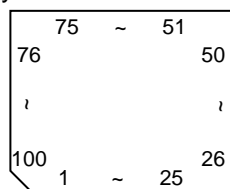


3.Pin function

Pin No.	Symbol	Function	Pin No.	Symbol	Function
1	VSS	Negative power supply pin	13	DATA	Volume setup serial data input
2	L-OUT	Volume output pin	14	STB	Data write strobe input
3	NC	No connection	15	NC	No connection
4	NC	No connection	16	CS2	Chip select input pin
5	L-LD1	Loudness tap output pin	17	NC	No connection
6	L-LD2	Loudness tap output pin	18	R-A-GND	Analog GND pin
7	L-A-GND	Analog GND pin	19	R-LD2	Loudness tap output pin
8	NC	No connection	20	R-LD1	Loudness tap output pin
9	CS1	Chip select input pin	21	R-IN	Volume input pin
10	NC	No connection	22	NC	No connection
11	NC	No connection	23	R-OUT	Volume output pin
12	CK	Data transfer clock input	24	VDD	Positive power supply pin

■ UPD78F4216AGC(IC671):UNIT CPU

1.Pin layout



2.Pin function

Pin No.	Symbol	I/O	Function
1~8		-	Non connect
9	VDD	-	Power supply terminal
10	X2	O	Connecting the crystal oscillator for system main clock
11	X1	I	Connecting the crystal oscillator for system main clock
12	VSS	-	Connect to GND
13	XT2	O	Connecting the crystal oscillator for system sub clock
14	XT1	I	Connecting the crystal oscillator for system sub clock
15	RESET	I	System reset signal input
16	AUTODATA	I	Output of DSP to general-purpose port
17	LOCK	I	Output of DSP to general-purpose port
18	DIGITAL0	I	Output of DSP to general-purpose port
19	FORMAT	I	Output of DSP to general-purpose port
20	CHANNEL	I	Output of DSP to general-purpose port
21	ERR	I	Output of DSP to general-purpose port
22	RSTDET	I	Reset signal input
23	AVDD	-	Power supply terminal
24	AVREF0	-	Connect to GND
25~32		-	Connect to GND
33	AVSS	-	Connect to GND
34,35		-	Non connect
36		-	Power supply terminal
37,38	RX,TX	-	Not use
39		-	Non connect
40	DSPCOM	I	Communication port from IC401
41	DSPSTS	O	Status communication port to IC401
42	DSPCLK	I	Clock input from IC401
43	DSPRDY	I	Ready signal input from IC401
44		-	Non connect
45,46	MIDIO_IN/OUT	I/O	Interface I/O terminal with microcomputer
47	MICK	O	Interface I/O terminal with microcomputer of clock signal
48	MICS	O	Interface I/O terminal with microcomputer of chip select
49	MILP	O	Interface I/O terminal with microcomputer
50	MIACK	O	Interface I/O terminal with microcomputer
51,52		-	Non connect
53	DSPRST	O	Reset signal output of DSP
54~63		-	Non connect
64,65	CDTI/CDTO	I/O	Interface I/O terminal with microcomputer
66	CCLK	O	Interface I/O terminal with microcomputer of clock signal
67	CS	O	Interface I/O terminal with microcomputer of chip select
68	XTS	O	OSC Select
69,70		-	Non connect
71	PD	O	Reset signal output
72	GND	-	Connect to GND
73~80		-	Non connect
81	VDD	-	Power supply
82	3D-ON	-	Non connect
83	3D-ON	O	Switch at output destination of surround channel
84	ANA/T-TONE	O	Test tone control
85	REF-MIX	O	Control at output destination of LFE channel
86		-	Non connect
87	D.MUTE	O	Mute of the digital out terminal is controlled
88	S.MUTE	O	Mute of the audio signal is controlled
89		-	Non connect
90~93	ASW1~4	O	Selection of digital input selector
94	TEST	-	Test terminal
95~100		-	Non connect

JVC

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