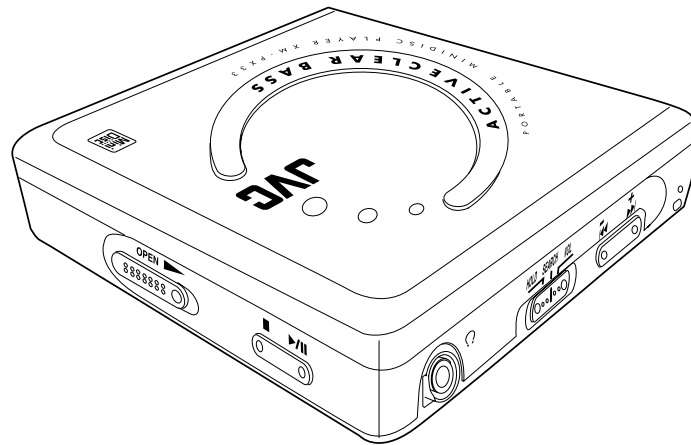


# JVC

# SERVICE MANUAL

PORTABLE MINIDISC PLAYER

## XM-PX33BU XM-PX33WT



**Area Suffix**  
UB ----- Hong Kong



**Pickup**  
QAL0193-002

XM-PX33BU ----- BLUE  
XM-PX33WT ----- WHITE

### Contents

Safety Precautions .....	1-2	Adjustment method .....	1-9
Preventing static electricity .....	1-3	Maintenance of laser pickup .....	1-10
Important for laser products .....	1-4	Replacement of laser pickup .....	1-10
Disassembly method .....	1-5	Description of major ICs .....	1-11

## Safety Precautions

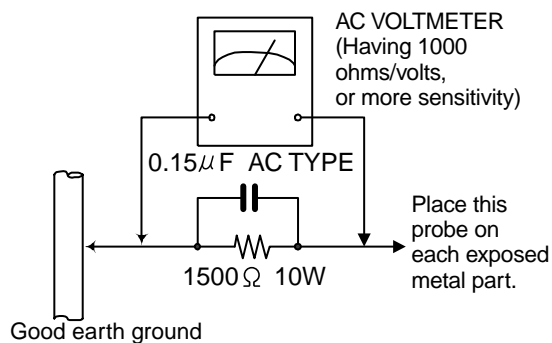
1. This design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the 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 preforming repair of this system.

## Attention when MD pick up is exchanged

### 1. About the static electricity protection measures

The laser diode in the traverse unit (optical pick up) is easy to be destroyed by clothes and the human body to the electrified static electricity.

Please note the explosion by static electricity when repairing.

### 2. About the earth processing for the electrostatic destruction prevention

In the equipment which uses an optical pick up (laser diode), an optical pick up is destroyed by the static electricity of the work environment.

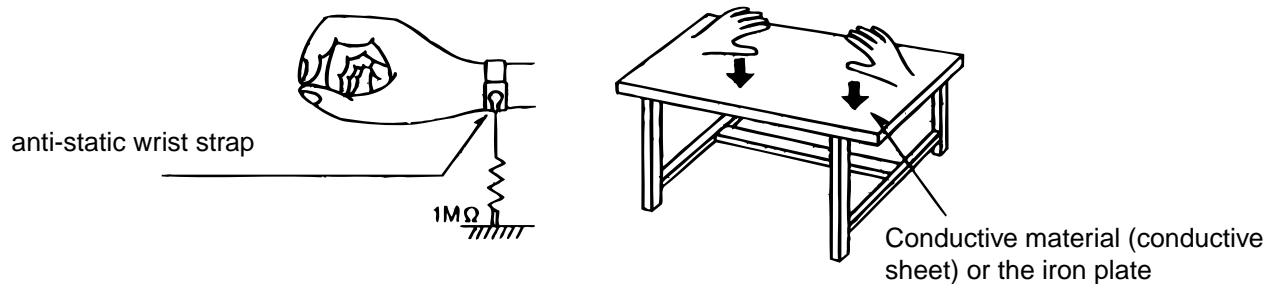
Please do the earth processing and work.

#### 1) Earth of work stand

Please pull the conductive material (conductive sheet) or the iron plate to the depository place of the traverse unit (optical pick up), and take the earth to ground.

#### 2) Human body earth

Please use the anti-static wrist strap to exhaust the electrified static electricity to the human body.



### 3. Handling the optical pick up

1) Please return according to a correct procedure based on short processing after exchanging parts.

2) Do not use a tester to check the condition of the laser diode in the optical pick up. The tester's internal power source can easily destroy the laser diode.

### 4. Attention when unit is disassembled

Please refer to "Disassembling method" for how to detach.

1) Please be sure to solder before a flexible wire is removed from connector CN301 on a main printed circuit board as shown in Figure 2.

if you removes without soldering, the MD picking up assembly might destroy

2) When installing, solder in the part of short round should be removed after a flexible wire is connected with CN301



CN301

Fig 1

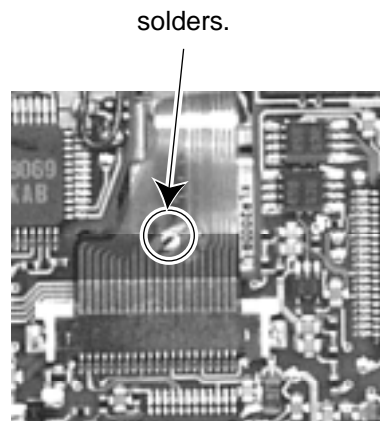


Fig 2

# Important for laser products

**1.CLASS 1 LASER PRODUCT**

**2.DANGER :** Invisible laser radiation when open and interlock failed or defeated. Avoid direct exposure to beam.

**3.CAUTION :** There are no serviceable parts inside the Laser Unit. Do not disassemble the Laser Unit. Replace the complete Laser Unit if it malfunctions.

**4.CAUTION :** The compact disc player uses invisible laserradiation and is equipped with safety switches which prevent emission of radiation when the drawer is open and the safety interlocks have failed or are defeated. It is dangerous to defeat the safety switches.

**5.CAUTION :** If safety switches malfunction, the laser is able to function.

**6.CAUTION :** Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

**⚠ CAUTION** Please use enough caution not to see the beam directly or touch it in case of an adjustment or operation check.

**WARNING :** Osynlig laserstrålning är denna del är öppnad och spårren är urkopplad. Betrakta ej strålen.

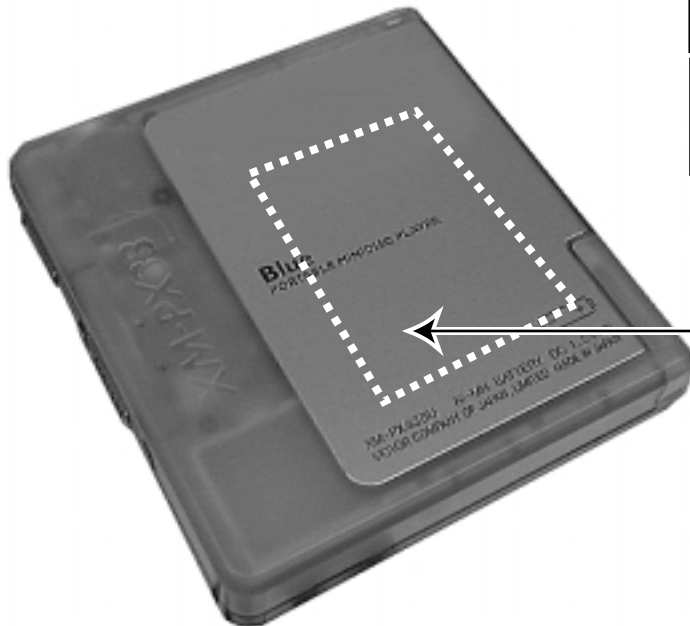
**VARO :** Avattaessa ja suojalukitus ohitettaessa olet alltiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

**ADVARSEL :** Usynlig laserstrålning ved åbning , når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

**ADVARSEL :** Usynlig laserstrålning ved åpning, når sikkerhetsbryteren er avslott. unngå utsettelse for stråling.

## REPRODUCTION AND POSITION OF LABELS

### WARNING LABEL



DANGER : Invisible laser radiation when open and interlock or defeated.  
 AVOID DIRECT EXPOSURE TO BEAM (e)

VARO : Avattaessa ja suojalukitus ohitettaessa olet alltiina näkymättömälle lasersäteilylle. Älä katso säteeseen. (d)

WARNING : Osynlig laserstrålning är denna del är öppnad och spårren är urkopplad. Betrakta ej strålen. (s)

ADVARSEL :Usynlig laserstrålning ved åbning , når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling. (f)

# Disassembly method

## ■ Removing the MD door assembly (See Fig.1 and 2)

1. Open the door by moving the eject knob.
2. Remove the four screws **A** attaching the MD door assembly. Detach the MD door assembly from the main body.

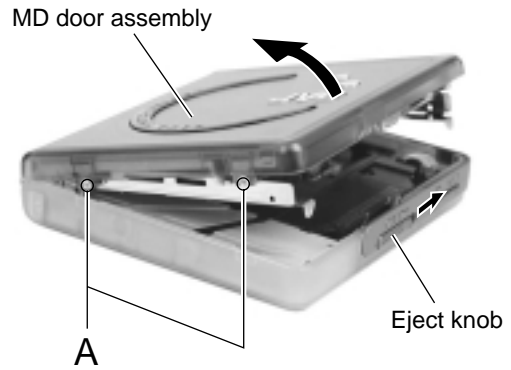


Fig.1

## ■ Removing the holder assembly (See Fig.3 and 4)

1. Turn the holder assembly as shown in Fig.3.
2. Pull the side arm (L) marked **a** outward, then remove. Open the holder assembly as shown in Fig.4.
3. Move the U-shaped notch marked **b** in the direction of the arrow and release it from the shaft.
4. Move the part **c** inward and pull out the holder assembly from the shaft.

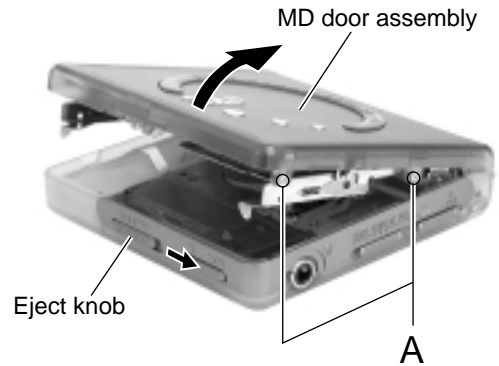


Fig.2

ATTENTION: When reassembling, first reattach the part **c** to the shaft of the chassis assembly. And next, fit the U-shaped notch to the shaft.

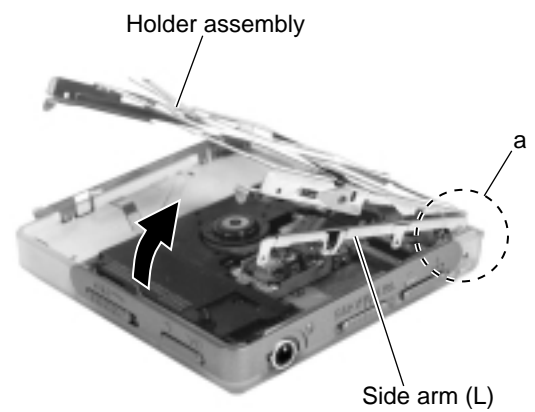


Fig.3

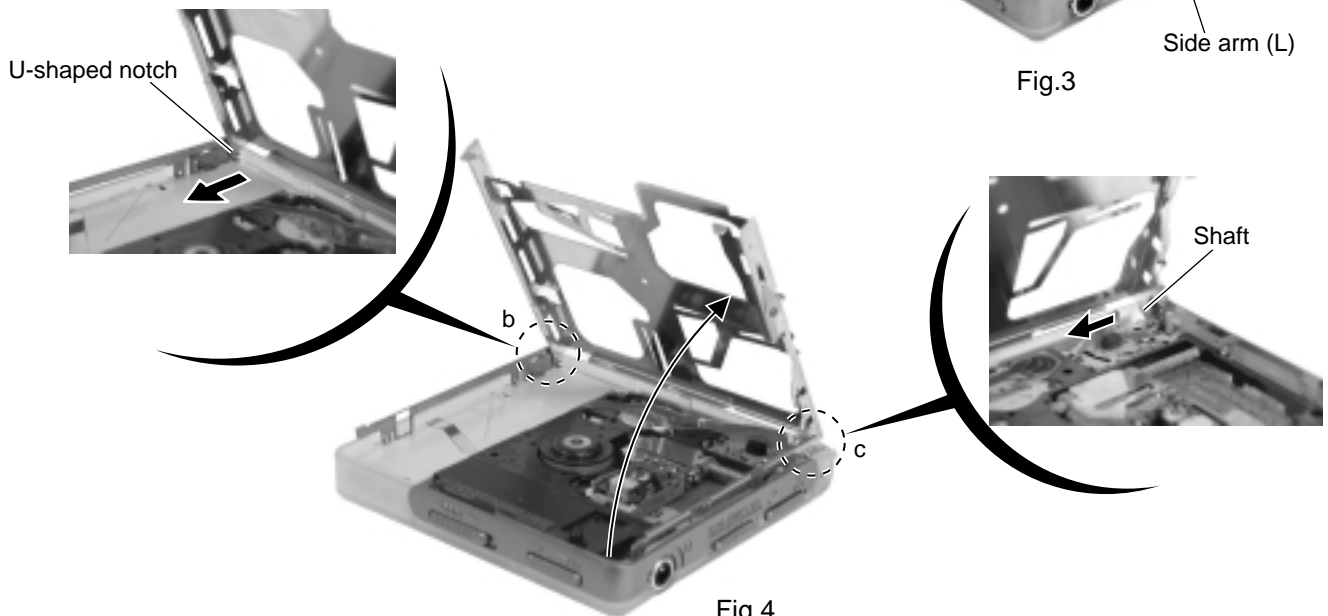


Fig.4

**■Removing the chassis assembly  
(See Fig.5 and 6)**

1. Remove the two screws **B** and the one screw **C** attaching the chassis assembly. Remove the one screw **D** attaching the jack cover.
2. Open the battery lid and release the tab **d** from the chassis. Pull out the battery lid.
3. Remove the one screw **E** attaching the arm (L).
4. Remove the chassis assembly and the arm (L) while releasing them from the headphone jack on the bottom case.

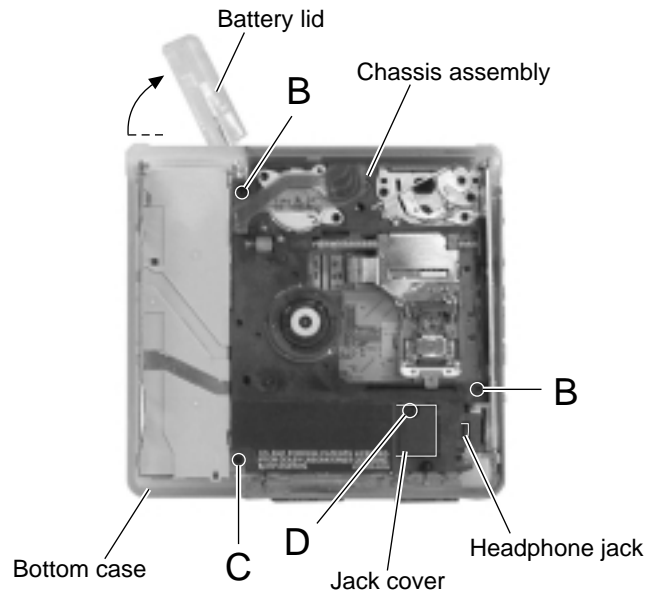


Fig.5

**■Removing the main P.W. board and the battery holder (See Fig.7 and 8)**

1. Use a soldering bit provided with ground to solder or unsolder the short round.
2. Ground the set and the main board. The voltage level of the ground should be equal to that of the soldering bit.
3. Prevent static electricity using an earth band, etc.
4. Solder the short round of the pickup FPC for short circuit.
5. Disconnect the flexible wires from the connector CN301 and CN801 on the main board.
6. Remove the one screw **F** attaching the main board. Remove the main board and the battery holder, then reverse them.
7. Disconnect the flexible wire from connector CN601 on the main board.
8. Unsolder the soldered joint of the main board and the battery holder board.

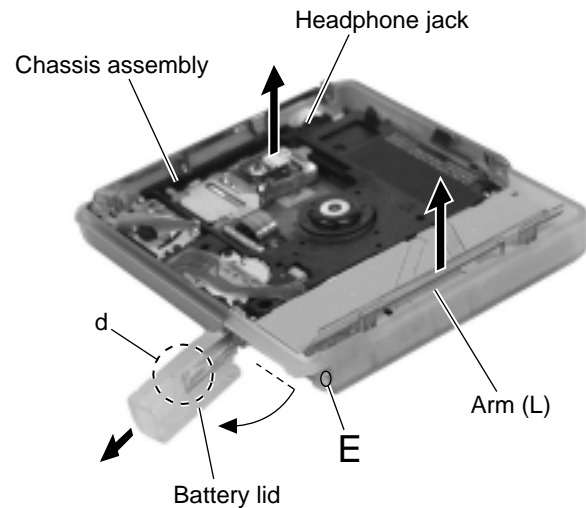


Fig.6

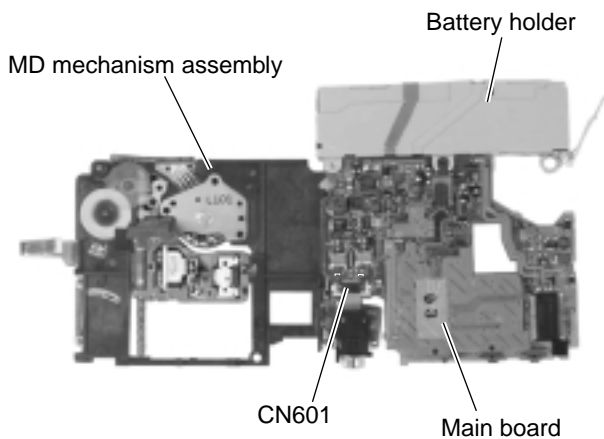


Fig.8

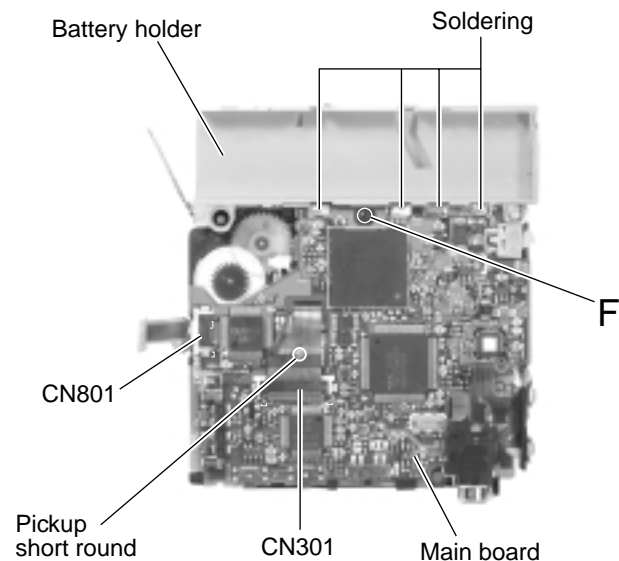


Fig.7

**<Removal of the MD mechanism>**

**■ Removing the spindle motor (See Fig.9)**

1. Unsolder the part **e** of the flexible wire extending from the underside of the chassis assembly to the spindle motor. At this time, do not spill flux on the gear and others.
2. Remove the three screws **G** attaching the spindle motor and detach it from the chassis assembly.

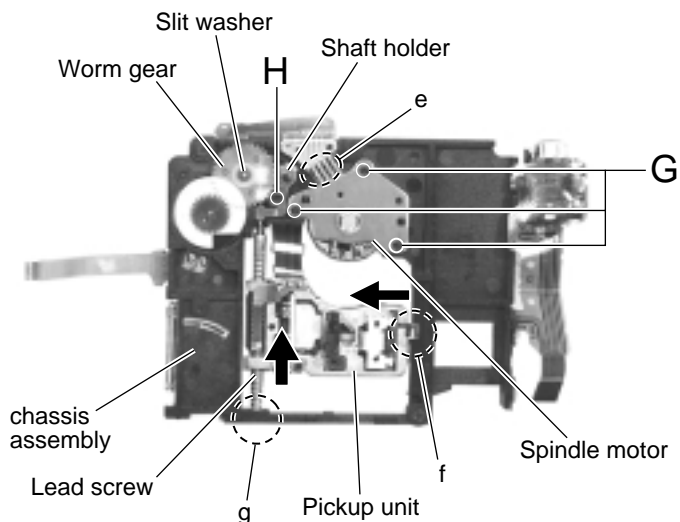


Fig.9

**■ Removing the pickup unit (See Fig.9)**

1. Remove the slit washer and the worm gear from the underside of the chassis assembly.
2. Remove the screw **H** attaching the shaft holder, then detach the shaft.
3. Pull out the part **f** and **g** in the directions of the arrows to remove the pickup unit and the lead screw.

**■ Removing the pickup (See Fig.10 and 11)**

1. Remove the screw **I** attaching the lead spring, then detach the lead spring.
2. Pull out the shaft from the pickup.

ATTENTION: When handling the pickup unit, touch the parts marked in Fig.11 only.

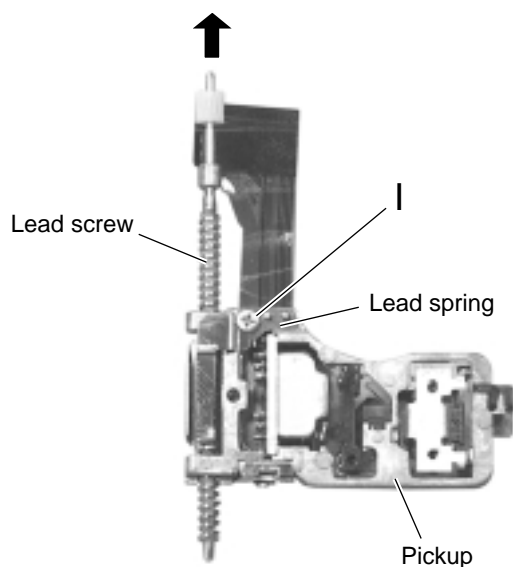


Fig.10

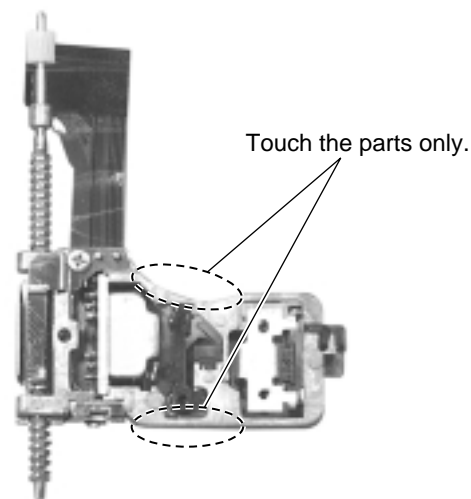


Fig.11

■ **Removing the feed motor (See Fig.12)**

1. Peel off the part **h** of the flexible wire on the underside of the feed motor.
2. Unsolder the solder joint **i** connecting the flexible wire to the feed motor.
3. Peel off the part **j** of the flexible wire.
4. Remove the two screws **j** attaching the feed motor on the upper side of the chassis assembly.

ATTENTION: When reassembling, reattach the flexible wire with an adhesive tape and solder the appropriate part.

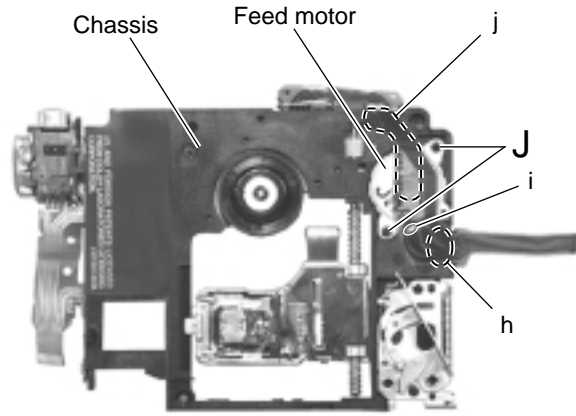


Fig.12

■ **Removing the switchi board assembly (See Fig.12)**

1. Remove the switchi board assembly attached to the side of the chassis assembly with the double-sided tape.
2. When reassembling, reattach the switchi board assembly with an adhesive tape as before.

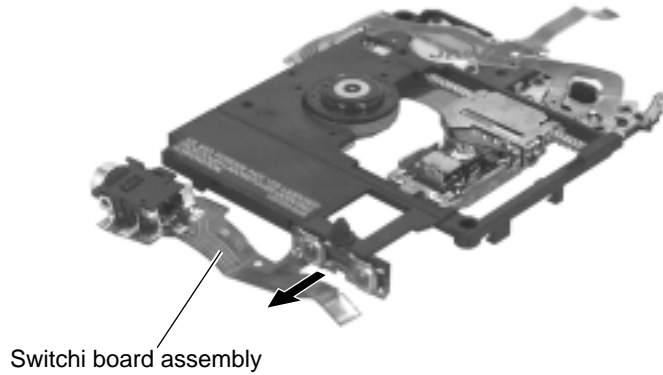


Fig.13



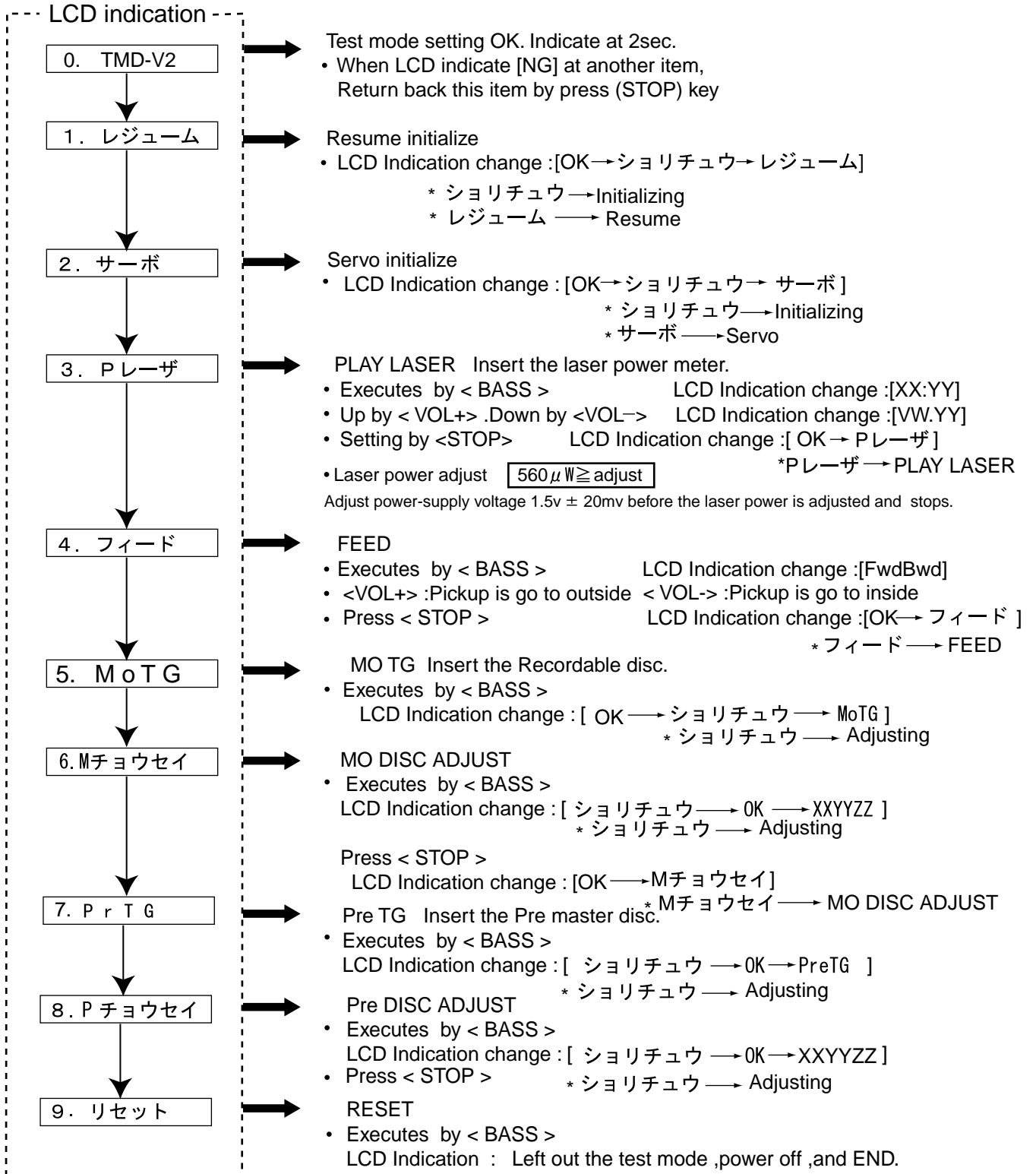
# Adjustment method

This model is auto adjustment by Remote Controller.  
Please adjust the attached remote controller.

- Equipments-----
- |                             |                    |
|-----------------------------|--------------------|
| 1. Remote controller        | 2. DC power supply |
| 3. Laser power meter        | 4. MO disc (AU-1)  |
| 5. Pre master disc (TGYS 1) |                    |

## <Test mode setting method>

Press < PLAY MODE + DISPLAY + BASS > and < PLAY >key together more than 3sec. at power off condition.  
< VOL- >→ next item .< VOL+ >before item.



## Maintenance of laser pickup

### 1. Cleaning of pickup lens

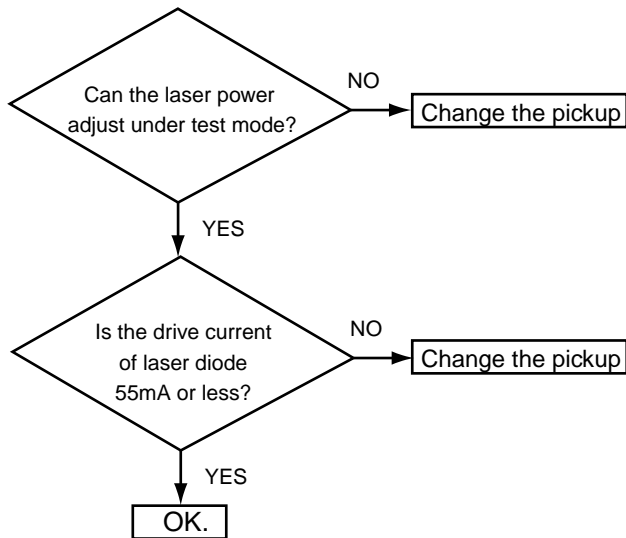
- (1) Prior to changing the pickup, clean the pickup lens.
- (2) For cleaning the lens, use the following cotton swab after mearsing it in alcohol.

Product No. JCB-B4; Manufacturer;Nippon Cotton Swab

### 2. Confirmation of the service life of laser diode when the service life of the laser diode has been exhausted, the following symptoms will appear.

- (1) The RF output (EFM output and eye pattern amplitude) will become lower.
- (2) The drive current required for light emitting of laser diode will be increased.

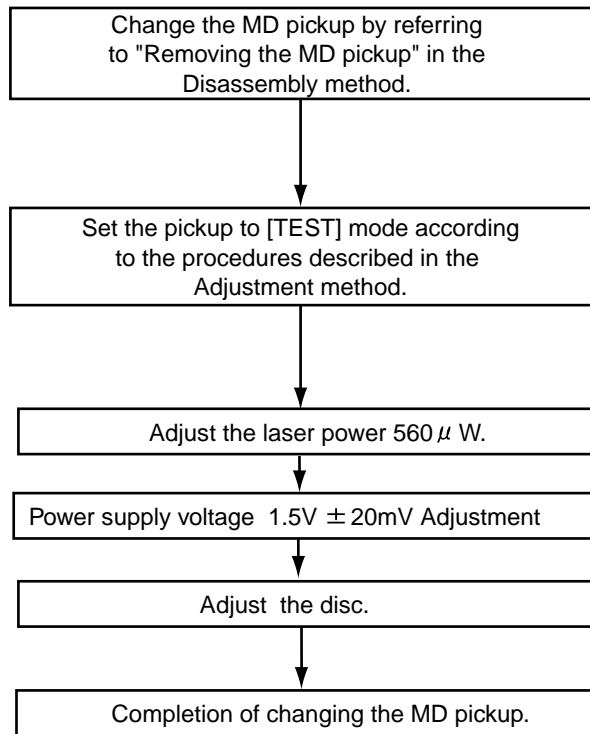
Confirm the service life according to the following flow chart:



### 3. Method of measuring the drive current of laser diode

When the voltage measured at the both side of carbon resistor R301 on the MD servo P.C. board (LVB20008) have become 12.1mV or over, the service life of the laser diode is judged to have been exhausted.

## Replacement of laser pickup



Be sure to perform not only adjustment and operation of this system so carefully as not to directly look at the laser beam or touch on the body.

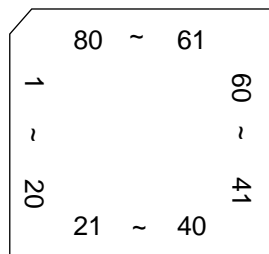
### 4. About Semi-solid state resistor of pick up

This is adjusted in the maker of pick up .  
Be careful please not to touch pick up .

# Description of major ICs

## ■ UPD784225GK-605(IC501) : CUP

### 1.Pin layout

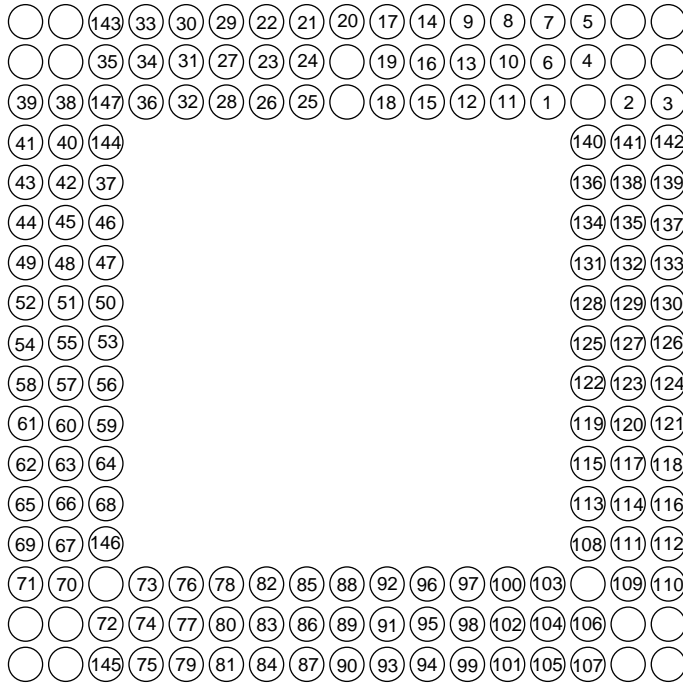


### 2.Function

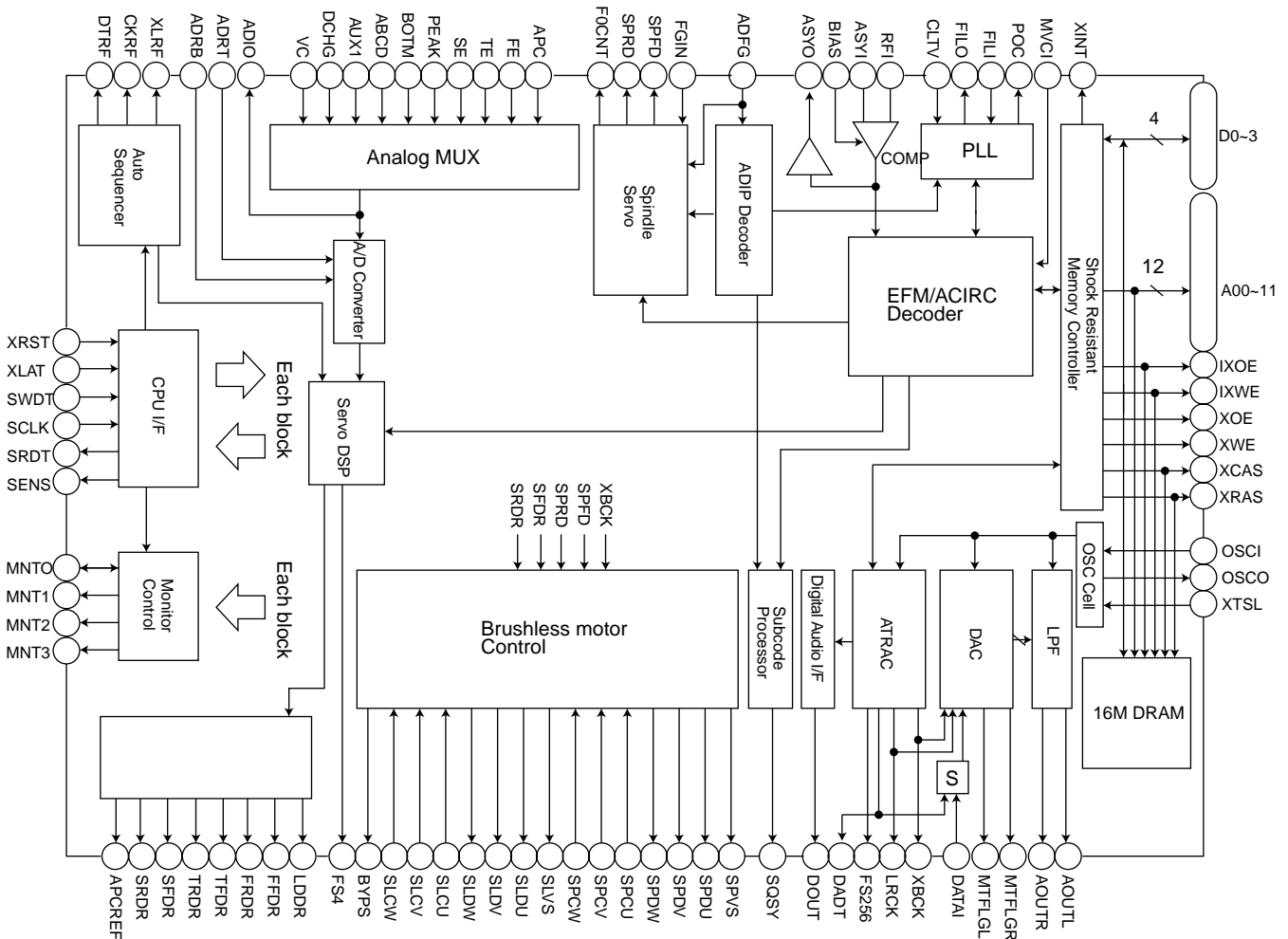
Pin NO.	Symbol	Function	Pin NO.	Symbol	Function
1	ANI5	Connect to GND	41	-	No connected
2	ANI6	Connect to GND	42	-	No connected
3	SPSEL	No connected	43	-	No connected
4	AVSS	Connect to GND	44	-	Test terminal
5	ACB	Test terminal	45	-	Test terminal
6	-	No connected	46	-	No connected
7	AVREF1	Standard voltage for analog	47	RFVCTL	Test terminal
8	RMRX	Remote control data input terminal	48	PSAVE	No connected
9	RMTX	Remote control data output terminal	49	RPON	RP ON signal output terminal
10	-	No connected	50	DPON	DP ON signal output terminal
11	SRDT	Serial data reading input	51	REMOFF	Remote control OFF signal output terminal
12	SWDT	Serial data writing input	52	CS2	Chip select 2
13	SCLK	Serial bus clock output	53	SCL	Serial clock signal output terminal
14	-	No connected	54	DI	Data output terminal
15	BEEP	BEEP output	55	CS1	Chip select 1
16	PSW	Power ON/OFF output terminal	56	MNT0	Monitor 0 input terminal
17	MONDATA	Test terminal	57	MNT3	Monitor 3 input terminal
18	MONCLK	Test terminal	58	SENS	DSP internal state input terminal
19	XRST2	Standby setting output terminal	59	DO	Data input terminal
20	TG	Tracking gain setting terminal	60	RESET	Reset signal input terminal
21	-	No connected	61	XINT	Interrupt status input terminal
22	-	No connected	62	SQSY	Sync input terminal
23	XRST	Reset signal output	63	-	No connected
24	XLAT	Serial bus latch output	64	RPLY	Remote control play detection terminal
25	LVCTL	LSI Power supply control signal output	65	DOOR	Door open/close detection terminal
26	LDON	Laser diode ON signal output terminal	66	PLAYKEY	PLAY key detection terminal
27	RFOFF	RF OFF signal output terminal	67	VSS0	Connect to GND
28	SLOFF	SLED OFF signal output terminal	68	VDD1	Standard voltage terminal
29	-	No connected	69	X2	Connect to crystal oscillation
30	MUTE	Mute signal output terminal	70	X1	Connect to crystal oscillation
31	POWER	No connected	71	VPP	Test terminal
32	DIR	Test terminal	72	XT2	No connected
33	DSS1	Connects to GND	73	XT1	Connect to GND
34	PS	Standby mode output terminal	74	VDD0	Connect to GND
35	SS	Start/Stop output terminal	75	AVD0	Standard voltage terminal
36	MON1	Test terminal	76	KEY	Remote control stop key detection terminal
37	MON2	Test terminal	77	BATTERY	Battery voltage detection terminal
38	MONXLAT	Test terminal	78	TEMP	Connect to temperature detector
39	-	No connected	79	ANI3	Connect to GND
40	-	No connected	80	ANI4	Connect to GND

■ CXD2661GA-1 (IC351) : DSP

1. Pin layout



2. Block diagram



## 2. Pin function (1/3)

Pin no.	Symbol	I/O	Function
1	VDCO	-	VDD for internal logic (1.8V)
2	MNT0	I/O	Monitor input/output
3	MNT1	O	Monitor output
4	MNT2	O	Monitor output
5	MNT3	O	Monitor output
6	SWDT	I	Microcomputer serial bus data writing input
7	SCLK	I	Microcomputer serial bus clock input
8	XLAT	I	Microcomputer serial bus latch input
9	VSCO	-	GND for internal logic (1.8V)
10	SRDT	O	Microcomputer serial bus data reading output
11	SENS	O	An internal state output to the address of the microcomputer serial bus.
12	XRST	I	Resets input "L"=reset
13	SQSY	O	PTGR=0 : ADIP sync output,PTGR=1 : DISC SUB-Q sync output
14	MTFLGL	O	Lch 0 data detection flag output
15	TST1	I	Test terminal "L"
16	XINT	O	Interrupt status output
17	TST2	I	Test terminal "L"
18	VDIOSC	-	Vdd for OSC cell (2.4V)
19	OSCI	I	X'tal oscillation circuit input
20	OSCO	O	X'tal oscillation circuit output
21	VSIOSC	-	GND for OSC cell
22	DAVSSL	-	Built in DAC GND (Lch)
23	VREFL	O	Built-in DAC VREF (Lch)
24	AOUTL	O	Built-in DAC Lch output
25	DAVDDL	-	Built-in DAC VDD (Lch 2.4V)
26	DAVDDR	-	Built-in DAC VDD (Lch 2.4V)
27	AOUTR	O	Built-in DAC Rch output
28	VREFR	O	Built-in DAC VREF (Rch)
29	DAVSSR	-	Built-inDAC GND (Rch)
30	VSC1	-	GND for internal logic
31	TST9	I	Test terminal "H"
32	TST3	I	Test terminal "L"
33	TST4	I	Test terminal "L"
34	DOUT	O	Digital audio output
35	NC	-	OPEN
36	VDC1	-	VDD for internal logic. (1.8V)
37	VDC2	-	VDD for internal logic. (1.8V)
38	DATA1	I	External audio data input terminal to internal DAC
39	TST5	I	Test terminal "L"
40	TST6	I	Test terminal "L"
41	TST7	I	Test terminal "L"
42	DADT	O	Data output to external D/A converter
43	LRCK	O	LR clock for external D/A converter (44.1kHz)
44	VSC2	-	GND for internal logic. (1.8V)
45	XBCK	O	Bit clock for external D/A converter (2.8224MHz)
46	F256	O	11.2896MHz clock output (X'tal)
47	A03	O	Address output for external DRAM When external DRAM is not used, OPEN.
48	A04	O	Address output for external DRAM When external DRAM is not used, OPEN.
49	A02	O	Address output for external DRAM When external DRAM is not used, OPEN.
50	A05	O	Address output for external DRAM When external DRAM is not used, OPEN.

2. Pin function (2/3)

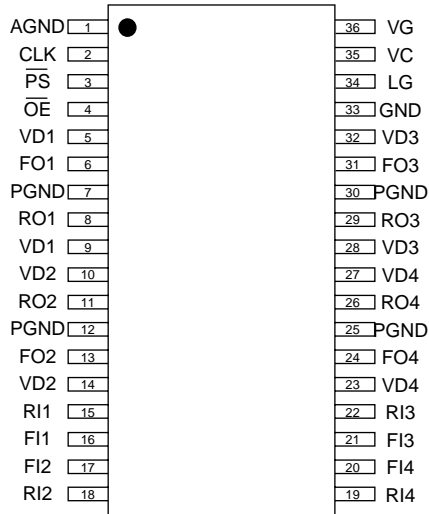
Pin no.	Symbol	I/O	Function	
51	A01	O	Address output for external DRAM	When external DRAM is not used, OPEN.
52	A06	O	Address output for external DRAM	When external DRAM is not used, OPEN.
53	VDIO1	-	VDD for I/O cell (2.4V)	
54	VSIO1	-	GND for I/O cell	
55	A00	O	Address output for external DRAM	When external DRAM is not used, OPEN.
56	A07	O	Address output for external DRAM	When external DRAM is not used, OPEN.
57	A10	O	Address output for external DRAM	When external DRAM is not used, OPEN.
58	A08	O	Address output for external DRAM	When external DRAM is not used, OPEN.
59	A09	O	Address output for external DRAM	When external DRAM is not used, OPEN.
60	XRAS	O	RAS output for external DRAM	When external DRAM is not used, OPEN.
61	IXOE	O	Open	
62	IXWE	O	Open	
63	XCAS	O	CAS output for external DRAM	When external DRAM is not used, OPEN.
64	D1	I/O	Data I/O for external DRAM	When external DRAM is not used, OPEN.
65	D2	I/O	Data I/O for external DRAM	When external DRAM is not used, OPEN.
66	D0	I/O	Data I/O for external DRAM	When external DRAM is not used, OPEN.
67	D3	I/O	Data I/O for external DRAM	When external DRAM is not used, OPEN.
68	VDC3	-	VDD for 1.8V internal logic	
69	VSC3	-	VSS for 1.8V internal logic	
70	A11	O	Open	
71	XOE	O	Output enable output for external DRAM	When external DRAM is not used, OPEN.
72	XWE	O	Write enable output for external DRAM	When external DRAM is not used, OPEN.
73	MVCI	I	Clock input from external VCO	
74	ASYO	O	Playback EFM binarization signal output	
75	ASYI	I	Playback EFM comparator slice level input	
76	AVD1	I	Analog power supply (2.4V)	
77	BIAS	I	Playback EFM comparator bias current input	
78	RFI	I	Playback EFM RF signal input	
79	AVS1	-	Analog GND	
80	PCO	O	Phase comparison output for playback EFM system mastering PLL	
81	FILI	I	Filter input for playback EFM system mastering PLL	
82	FILO	O	Filter output for playback EFM system mastering PLL	
83	CLTV	I	Internal VCO control voltage input for playback EFM system mastering PLL	
84	PEAK	I	Peak holding input of optical amount signal (From CXA2523AR)	
85	BOTM	I	Bottom holding input of optical amount signal	
86	ABCD	I	Optical amount signal input (From CXA2523AR)	
87	FE	I	Focus error signal input (From CXA2523AR)	
88	AUX1	I	Assistance A/D input (when not using .connect to analog power supply)	
89	VC	I	Middle point voltage input (From CXA2523AR)	
90	ADIO	O	Open	
91	ADRT	I	A/D converter operation range upper bound voltage input	
92	AVD2	-	Analog power supply (2.4V)	
93	AVS2	-	Analog GND	
94	ADRB	I	A/D converter operation range lower bound voltage input	
95	SE	I	SLED error input (From CXA2523AR)	
96	TE	I	Tracking error input (From CXA2523AR)	
97	DCHG	I	Connects with an analog power supply of low impedance	
98	APC	I	Error signal input for laser digital APC (From CXA2523AR)	
99	ADFG	I	ADIP binary-coded FM signal input (22.05 1kHz) (From CXA2523)	
100	VDIO2	-	VDD for I/O (2.4V)	

## 2. Pin function (3/3)

Pin no.	Symbol	I/O	Function
101	VSIO2	-	VSS for I/O (2.4V)
102	F0CONT	O	Filter cutting off control output of CXA2523
103	XLRF	O	Latch output for CXA2523 control
104	CKRF	O	Clock output for CXA2523 control
105	DTRF	O	Data output for CXA2523 control
106	APCREF	O	Reference PWM output for laser APC
107	LDDR	O	PWM output for laser digital APC
108	VDC4	-	VDD for internal logic (1.8V)
109	TRDR	O	Tracking servo drive PWM output (-)
110	TFDR	O	Tracking servo drive PWM output (+)
111	FFDR	O	Focus servo drive PWM output (+)
112	FRDR	O	Focus servo drive PWM output (-)
113	FS4	O	176.4KHZ clock output (X'tal)
114	SRDR	O	SLED servo drive PWM output (-)
115	SFDR	O	SLED servo drive PWM output (+)
116	VSC4	-	GND for internal logic
117	SPRD	O	Spindle servo drive output (PWM - or polarity)
118	SPFD	O	Spindle servo drive output (PWM + or PWM absolute value)
119	FGIN	I	FG input for spindle CAV servo
120	TEST1	I	Test input. Connects to GND.
121	TEST2	I	Test input. Connects to GND.
122	TEST3	I	Test input. Connects to GND.
123	MTFLGR	O	Rch 0 data detection flag output
124	SPVS	O	Brush less spindle moter Absolute value PWM output
125	VDIO3	-	VDD for I/O cell (2.4V)
126	VSIO3	-	VSS for I/O cell
127	SPDU	O	Brush less spindle moter three phases drive logic output.
128	SPDV	O	Brush less spindle moter three phases drive logic output.
129	SPDW	O	Brush less spindle moter three phases drive logic output.
130	SPCU	I	Brush less spindle moter drive compare input.
131	SPCV	I	Brush less spindle moter drive compare input.
132	SPCW	I	Brush less spindle moter drive compare input.
133	SLDU	O	Brush less SLED moter three phases drive logic output.
134	SLDV	O	Brush less SLED moter three phases drive logic output.
135	SLDW	O	Brush less SLED moter three phases drive logic output.
136	VDC5	-	VDD for internal logic.
137	VSC5	-	GND for internal logic.
138	SLCU	I	Brush less SLED moter three phases drive compare input.
139	SLCV	I	Brush less SLED moter three phases drive compare input.
140	SLCW	I/O	Brush less SLED moter three phases drive compare input.
141	SLVS	O	Brush less SLED moter absolute value PWM output.
142	BYPS	O	Brush less SLED moter supplementary output.
143	DVSS0	-	GND for built-in 16 M bits DRAM
144	DVDD0	-	VDD for built-in 16 M bits DRAM. (2.4V)
145	DVSS1	-	GND for built-in 16 M bits DRAM.
146	DVDD1	-	VDD for built-in 16 M bits DRAM. (2.4V)
147	TST8	-	OPEN


■ MPC17A139MTB-X (IC400) : 4ch bridge driver

1. Pin layout



2. Pin function

Clock detector

CLK	$\overline{PS}$	OSC.circuit
X	H	Auto
	H	Synchronization
X	L	Stop

Driver

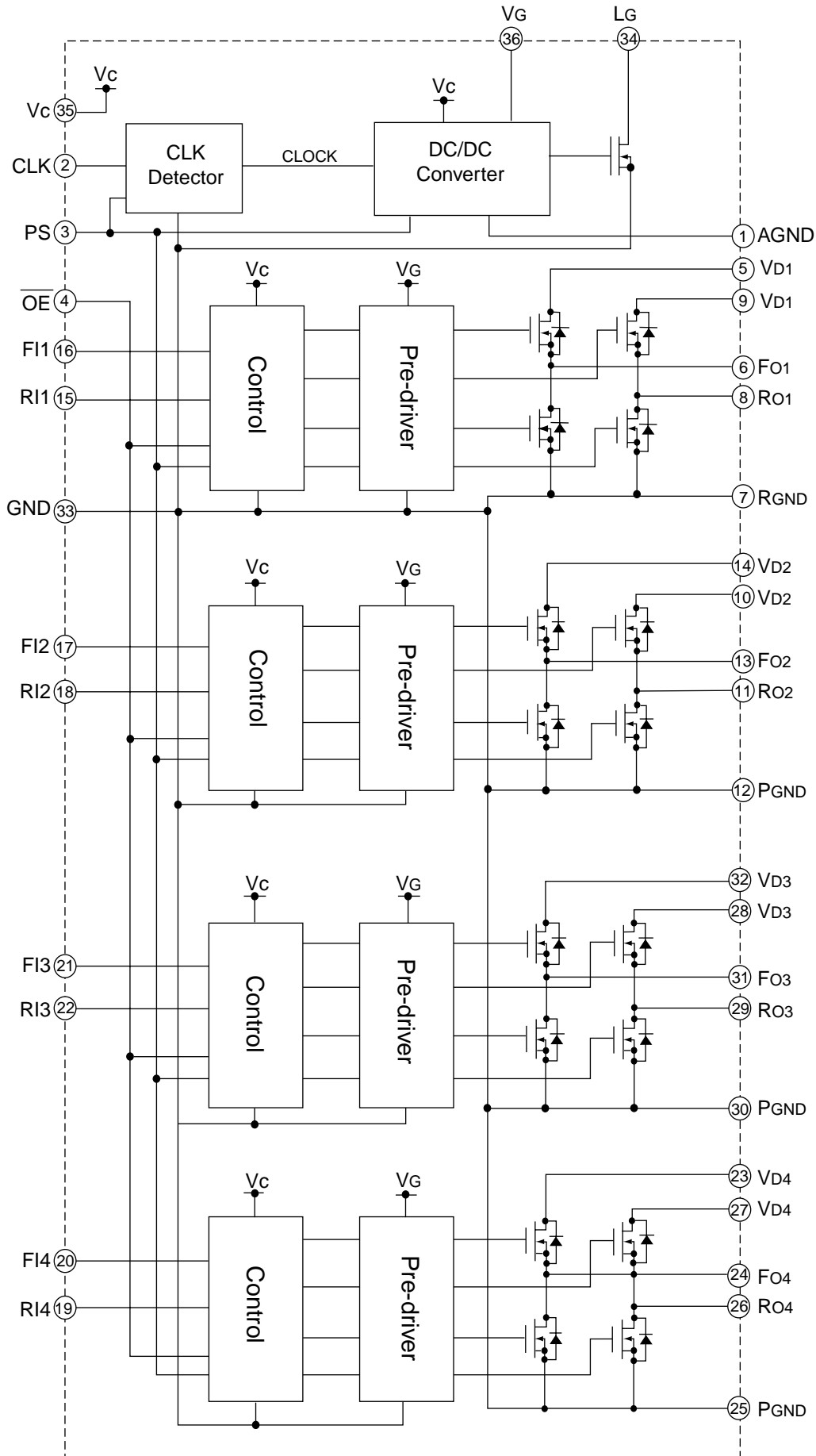
$\overline{PS}$ , $\overline{OE}$		INPUT		OUTPUT 1~4	
$\overline{PS}$	$\overline{OE}$	FI	RI	FO	RO
H	L	L	L	L	L
H	L	L	H	L	H
H	L	H	L	H	L
H	L	H	H	L	L
H	H	X	X	L	L
L	X	X	X	Z	Z

X:Don't care

Z:High impedance

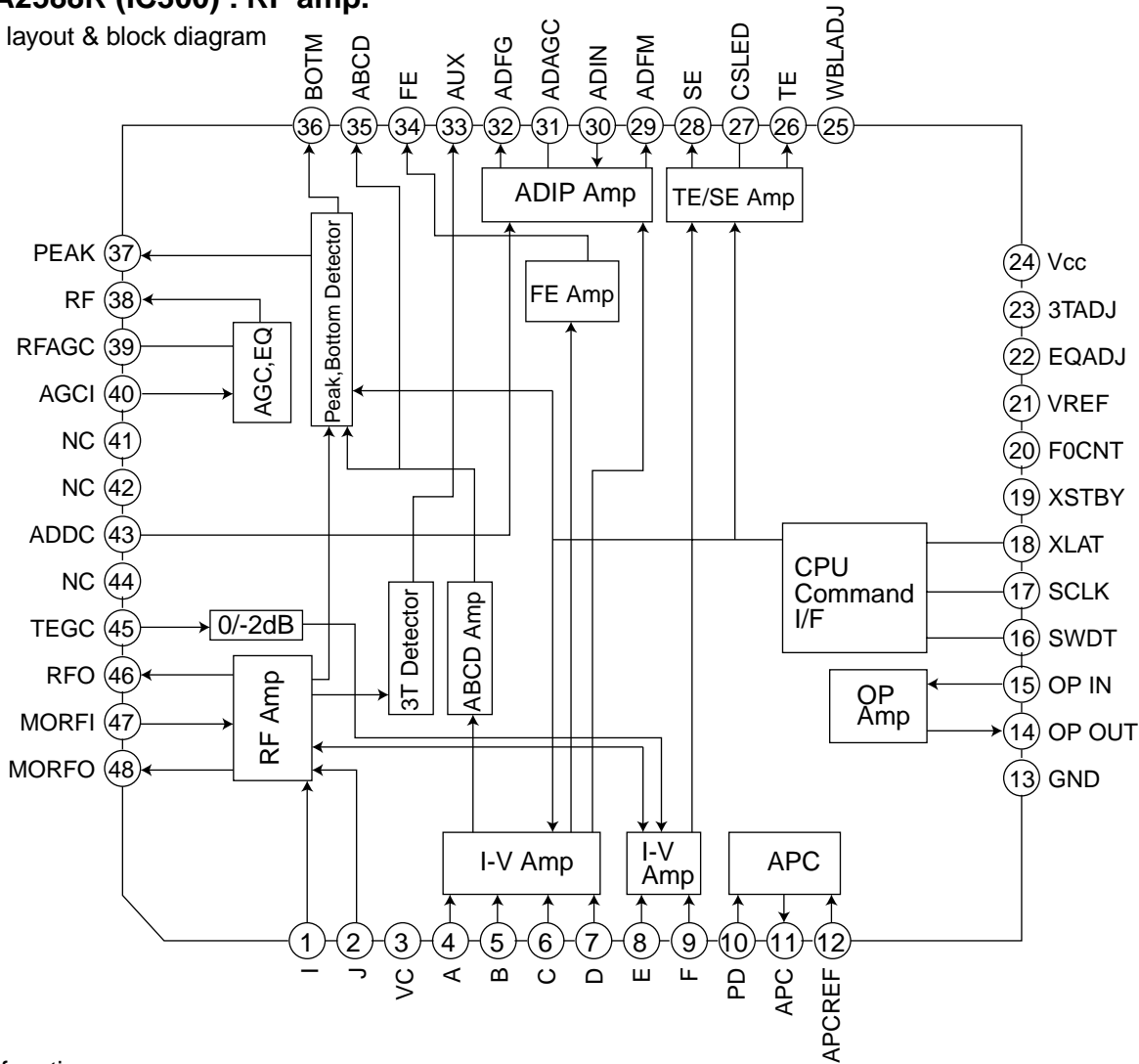


3. Block diagram



■ CXA2588R (IC300) : RF amp.

1. Pin layout & block diagram

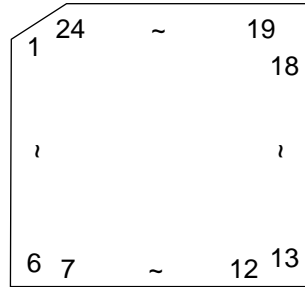


2. Pin function

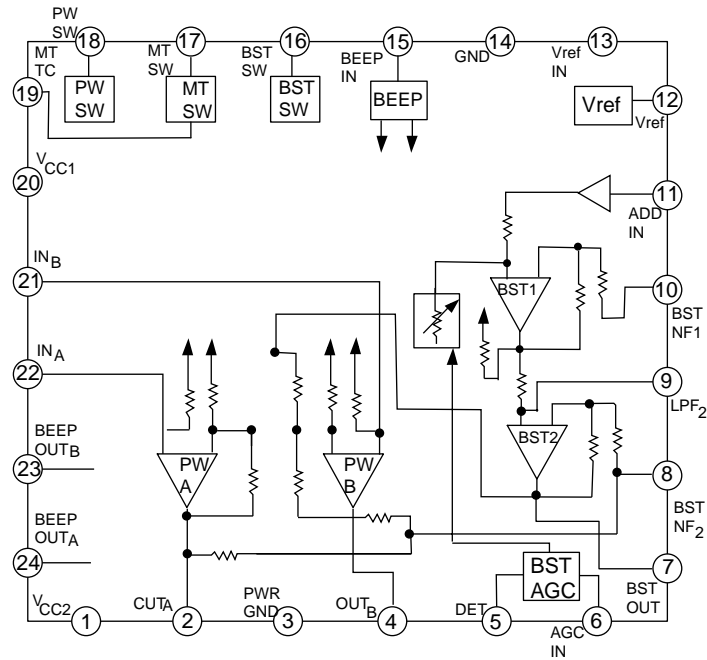
Pin No.	Symbol	I/O	Function	Pin No.	Symbol	I/O	Function
1	I	I	I-V converted RF signal I input	25	WBLADJ	I/O	BPF3T IF setting terminal
2	J	I	I-V converted RF signal J input	26	TE	O	Tracking error signal output terminal
3	VC	O	Vcc/2 voltage output	27	CSLED	-	Sled error signal LPF capacitor connect terminal
4	A	I	A current input for main beam servo signal	28	SE	O	Sled error signal output terminal
5	B	I	B current input for main beam servo signal	29	ADFM	O	ADIP FM signal output terminal
6	C	I	C current input for main beam servo signal	30	ADIN	I	ADIP signal completer input terminal
7	D	I	D current input for main beam servo signal	31	ADAGC	-	ADIP AGC capacitor connect terminal
8	E	I	E current input for side beam servo signal	32	ADFG	O	ADIP binary signal output
9	F	I	F current input for side beam servo signal	33	AUX	O	I3 output/temp.signal output
10	PD	I	Reflection light q'ty monitor signal input	34	FE	O	Focus error signal output
11	APC	O	Laser APC output	35	ABCD	O	Reflection light q'ty signal output for main beam servo detector
12	APCREF	I	Ref. voltage input for laser power intensity setting	36	BOTM	O	RF/ABCD bottom-hold signal output
13	GND	-	Ground	37	PEAK	O	RF/ABCD peak-hold signal output
14	OPOUT	O	Ope. amp output terminal	38	RF	O	RF equalizer output
15	OPIN	I	21dB ope. amp input terminal	39	RFAGC	-	RFAGC capacitor connection
16	SWDT	I	Serial data input terminal	40	AGCI	I	RFAGC input
17	SCLK	I	Shift clock input terminal	41	NC	-	Non connect
18	XLAT	I	Latch input terminal	42	NC	-	Non connect
19	XSTBY	I	Stand by setting terminal	43	ADDC	I/O	ADIP amp. feedback circuit capacitor connection
20	FOCNT	I	FO count setting terminal	44	NC	-	Non connection
21	VREF	O	Reference voltage output terminal	45	TEGC	I	TE amp. gain switching
22	EQADJ	I/O	EQ IF setting terminal	46	RFO	O	RF amp. output
23	3TADJ	I/O	BPF3T IF setting terminal	47	MORFI	I	Groove RF signal AC-coupled input
24	Vcc	-	Power supply	48	MORFO	O	Groove RF signal output

■ JCV8002-W (IC601) : Head phone amp

1. Pin layout



2. Block diagram

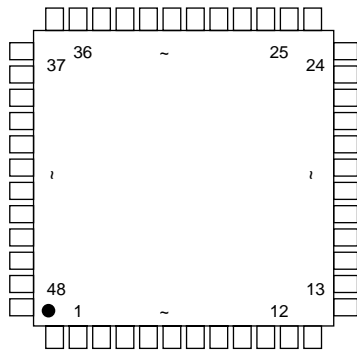


3. Pin function

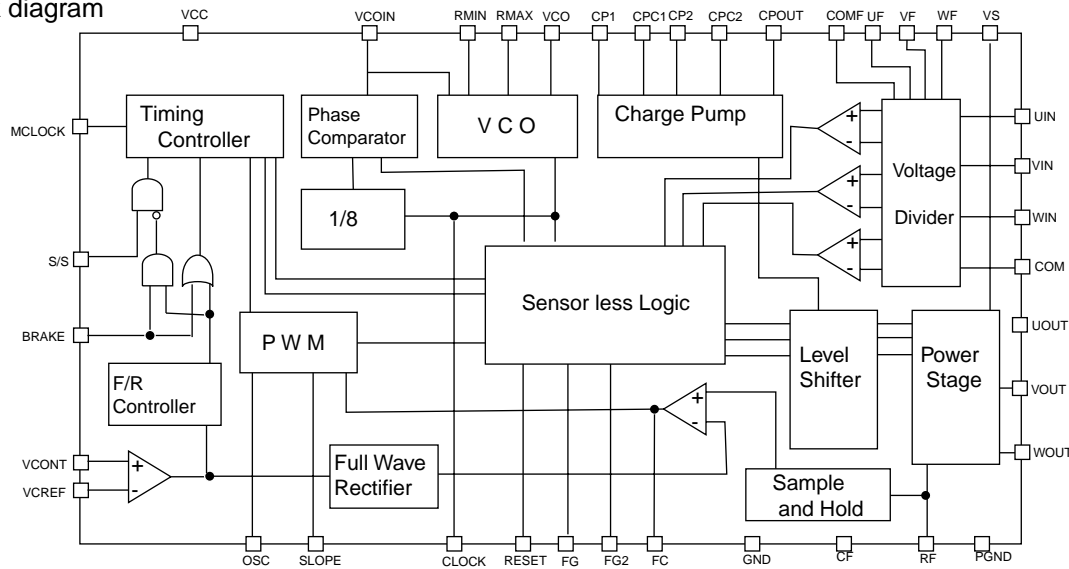
Pin no.	Symbol	FUNCTION
1	V <sub>CC2</sub>	V <sub>CC2</sub> (+B) in power amplifier output steps
2	OUT <sub>A</sub>	Power amplifier output
3	PWR GND	GND in power amplifier output steps
4	OUT <sub>B</sub>	Power amplifier output
5	DET	Smoothness of level detection of boost AGC
6	AGC IN	BST amplifier input signal level variable control by input lever to boost AGC input terminal
7	BST OUT	Output terminal of BST amplifier2
8	BST NF <sub>2</sub>	Terminal NF of BST amplifier2
9	LPF <sub>2</sub>	Output BST amplifier1
10	BST NF <sub>1</sub>	NF of BST amplifier1
11	ADD IN	ADD amplifier input
12	V <sub>ref</sub>	Standard potential circuit
13	V <sub>ref</sub> IN	Standard potential circuit
14	GND	Power part input steps GND
15	BEEP IN	Beep input terminal
16	BST SW	Beep output terminal
17	MT SW	Mute switch
18	PW SW	Power On/OFF switch
19	MT TC	Mute smoothing Power mute switch
20	V <sub>CC1</sub>	Main parts V <sub>CC</sub>
21	IN <sub>B</sub>	Power amplifier input
22	IN <sub>A</sub>	Power amplifier input
23	BEEP OUT <sub>B</sub>	Beep output terminal
24	BEEP OUT <sub>A</sub>	Beep output terminal

■ CXA8069M (IC450) : Sensorless moter driver

1. Pin layout



2. Block diagram

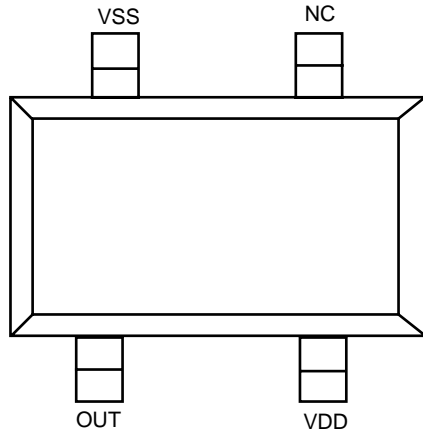


3. Pin function

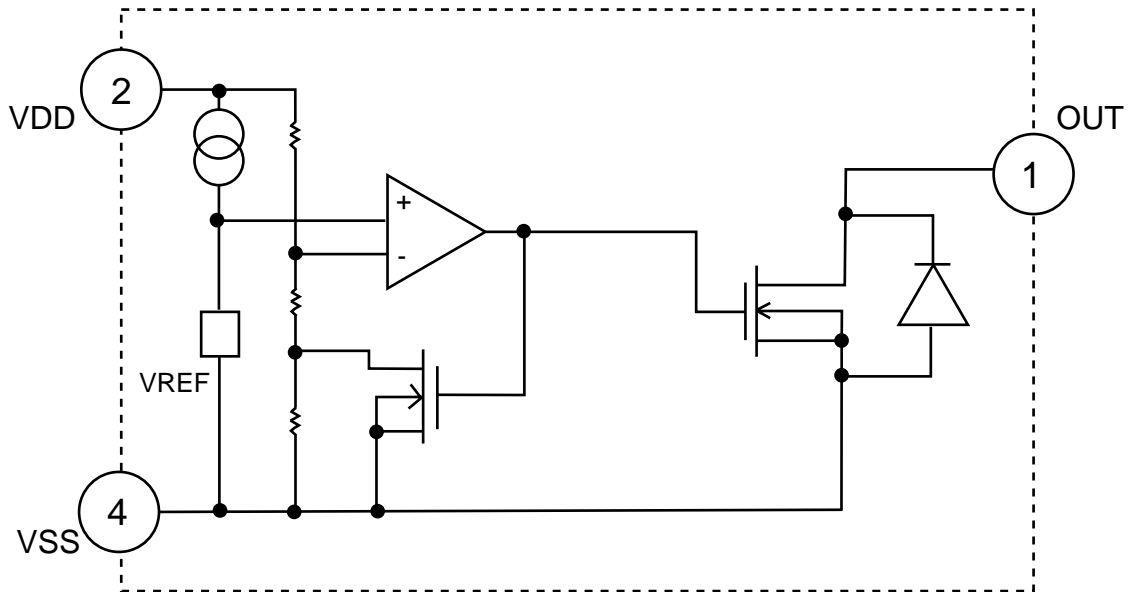
Pin no.	Symbol	Function	Pin no.	Symbol	Function
1	NC		25	VCOIN	For controlling frequency of VCO
2	RF	For monitoring motor current	26	CLOCK	For CLOCK signal monitor
3	VS	For supplying the voltage to the power stage	27	GND	
4	NC		28	CF	For sample and hold circuit to mesasure motor current
5	CPC1	For connecting to the first charge pump capacitor	29	OSC	For oscillating sawtooth PWM
6	CP1	For connecting to the first charge pump capacitor	30	SLOPE	For oscillating sawtooth for soft-switching
7	CPC2	For connecting to the second charge pump capacitor	31	MCLOCK	For input of clock
8	CP2	For connecting to the second charge pump capacitor	32	VCC	For supplying the voltage except the power section
9	CPOUT	For connecting to the third charge pump capacitor	33	NC	
10	GND	For GND except the power section	34	VS	For supplying the voltage to the power stage
11	S/S	For start and stop	35	RF	For monitoring motor current
12	BRAKE	For brake	36	NC	
13	VCONT	For controlling velocity	37	RESET	For resetting register
14	VCREF	For reference to control velocity	38	WIN	For sensing back electro magnetic force of coils
15	FG	For FG output	39	WOUT	For output
16	FG2	For FG output of dividing Pin15 signal by 2	40	NC	
17	FC	For control amp phase compensation	41	VIN	For sensing back electro magnetic force of coils
18	VCO	For setting oscilation frequency of VCO	42	VOUT	For output
19	RMAX	For setting max.frequency of VCO	43	NC	
20	RMIN	For setting min.frequency of VCO	44	NC	
21	COMF	For shaping waveform of motor voltage	45	UIN	For sensing back electro magnetic force of coils
22	WF	For shaping waveform of motor voltage	46	UOUT	For output
23	VF	For shaping waveform of motor voltage	47	COM	For the common voltage sensing
24	UF	For shaping waveform of motor voltage	48	PGND	For the GND for power stage guarding

**S-80822ANNP-W (IC504) : Reset switch**

1.Pin layout

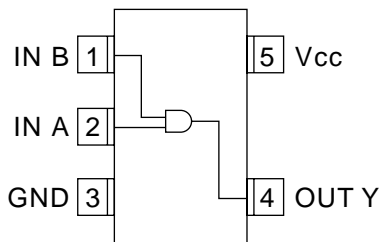


2.Block daiagram



**TC7S08FU-X (IC2) : Regulator**

1.Pni layout

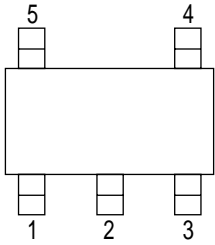


2.Pin function

Pin No.	Symbol	Function
1	IN B	Input voltage
2	IN A	Input voltage
3	GND	Ground
4	OUT Y	Output voltage
5	Vcc	Power supply

■ XC6367A241M-X (IC901) : Regulator

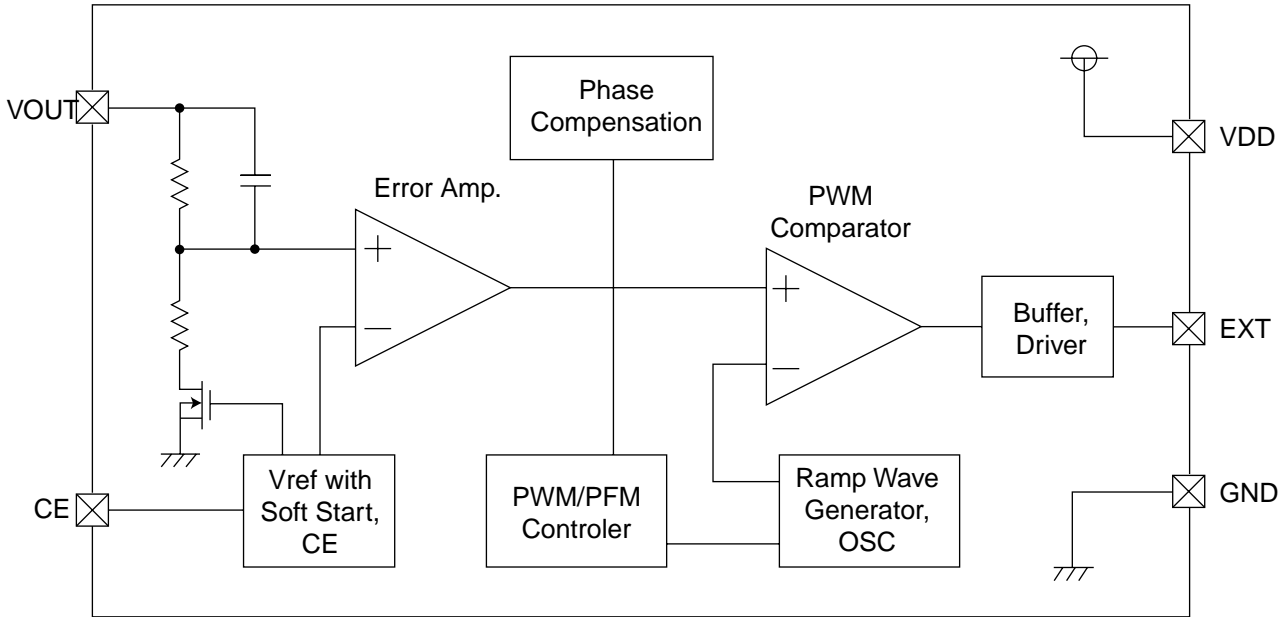
1. Pin layout



2. Pin function

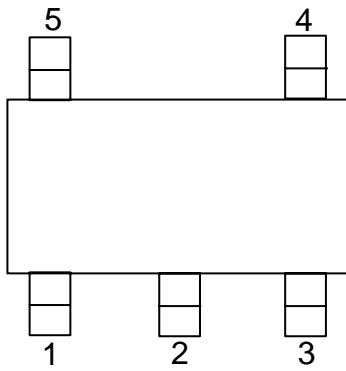
Pin No.	Symbol	Function
1	VOUT	Voltage output
2	VDD	Power supply
3	CE	Chip enable
4	GND	Ground
5	EXT	External transistor connection

3. Block diagram



**XC6367B101M-X (IC461,IC902,IC941) : Regulator**

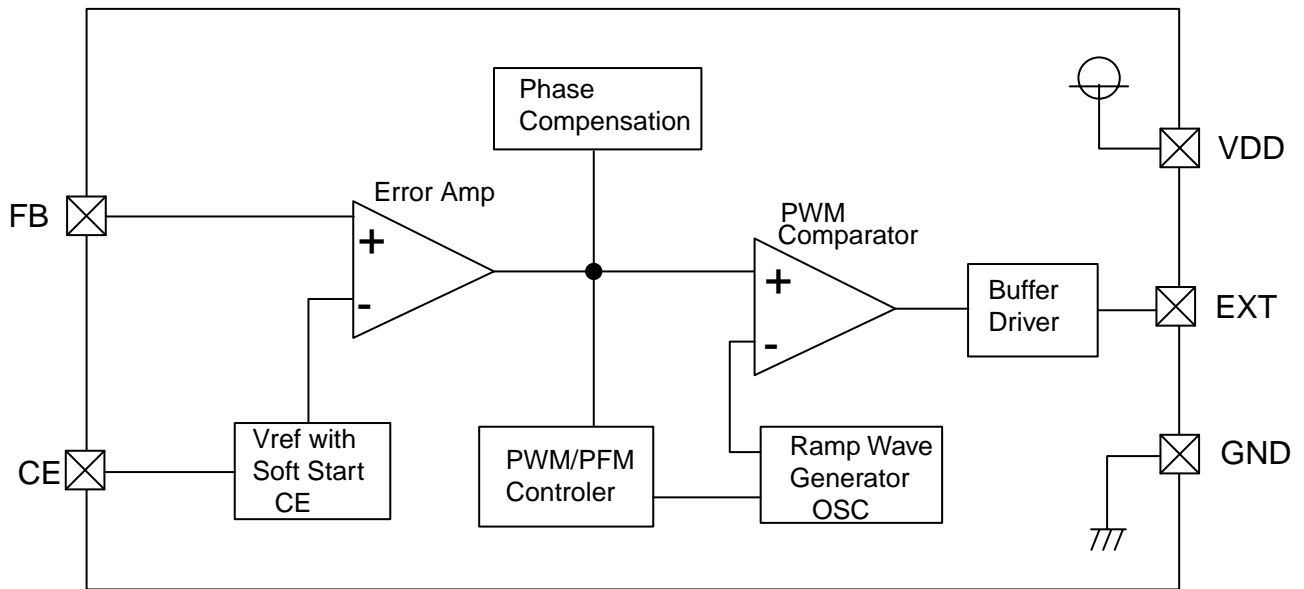
1.Pin layout



2.Pin function

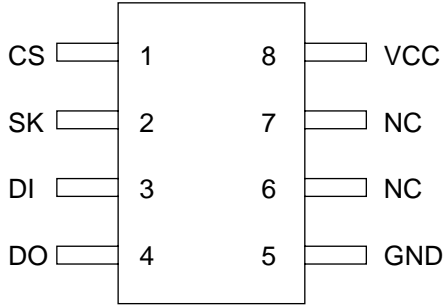
Pin NO.	Symbol	Function
1	FB	Output voltage feed back input
2	VDD	Power supply
3	CE	Chip enable
4	GND	Ground
5	EXT	External transistor connection

3.Block diagram



■ AK93C45BH-W (IC502,IC503) : EEPROM

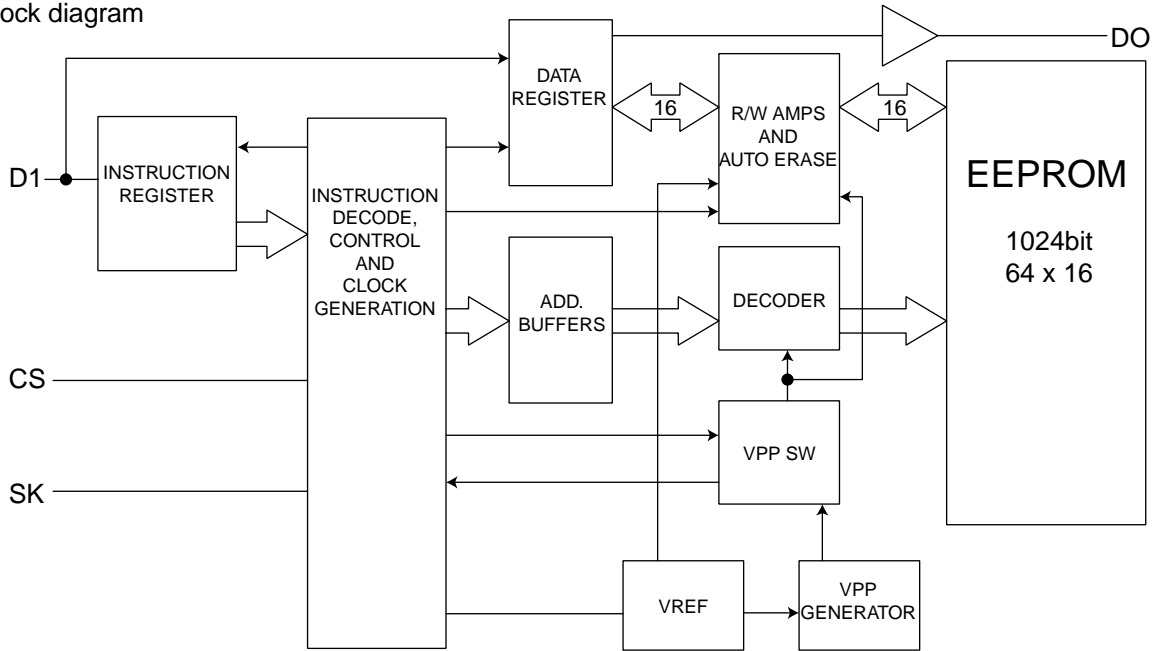
1.Pin layout



2.Pin function

Symbol	Function
CS	Chip select
SK	Clock input
DI	Data input
DO	Data output
Vcc	Poser supply
GND	Ground
NC	Non connect

3.Block diagram







**VICTOR COMPANY OF JAPAN, LIMITED**  
AUDIO & COMMUNICATION BUSINESS DIVISION  
PERSONAL & MOBILE NETWORK B.U. 10-1,1Chome,Ohwatari-machi,Maebashi-city,371-8543,Japan