

# DIGITAL KARAOKE MIXING AMPLIFIER

# KMA-1080/KMA-980

## SERVICE MANUAL

For T model

KMA-1080/KMA-980

### 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.

## ■ TO SERVICE PERSONNEL

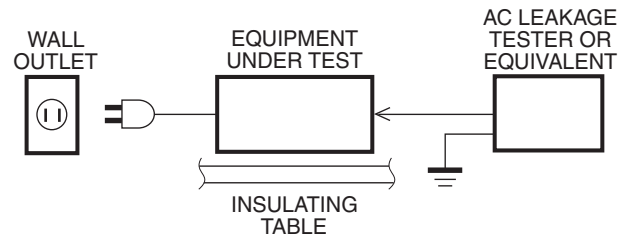
### 1. Critical Components Information

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 0.15µF.



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



### “CAUTION”

“F401: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE 2.5A, 250V FUSE.”

“F402: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE 4A, 250V (KMA-1080) / 3.15A, 250V (KMA-980) FUSE.”

## 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 WHAT SO EVER!**

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.

## WARNING: Lithium batteries

### CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type.

**WARNING:** Lithium batteries are dangerous because they can be exploded by improper handling. Observe the following precautions when handling or replacing lithium batteries.

- Leave lithium battery replacement to qualified service personnel.
- Always replace with batteries of the same type.
- When installing on the PC board by soldering, solder using the connection terminals provided on the battery cells. Never solder directly to the cells. Perform the soldering as quickly as possible.
- Never reverse the battery polarities when installing.
- Do not short the batteries.
- Do not attempt to recharge these batteries.
- Do not disassemble the batteries.
- Never heat batteries or throw them into fire.

### ADVARSEL!

Lithiumbatteri –Eksplussionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

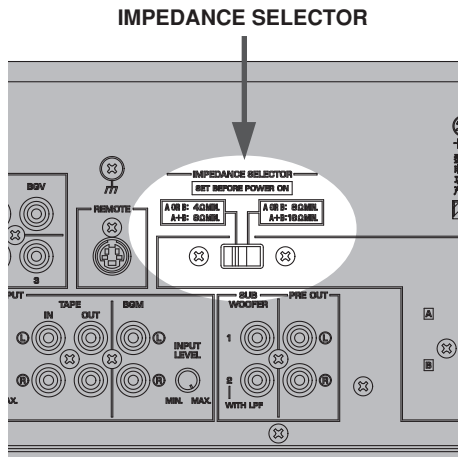
### VARNING

Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

### VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

## ■ IMPEDANCE SELECTOR



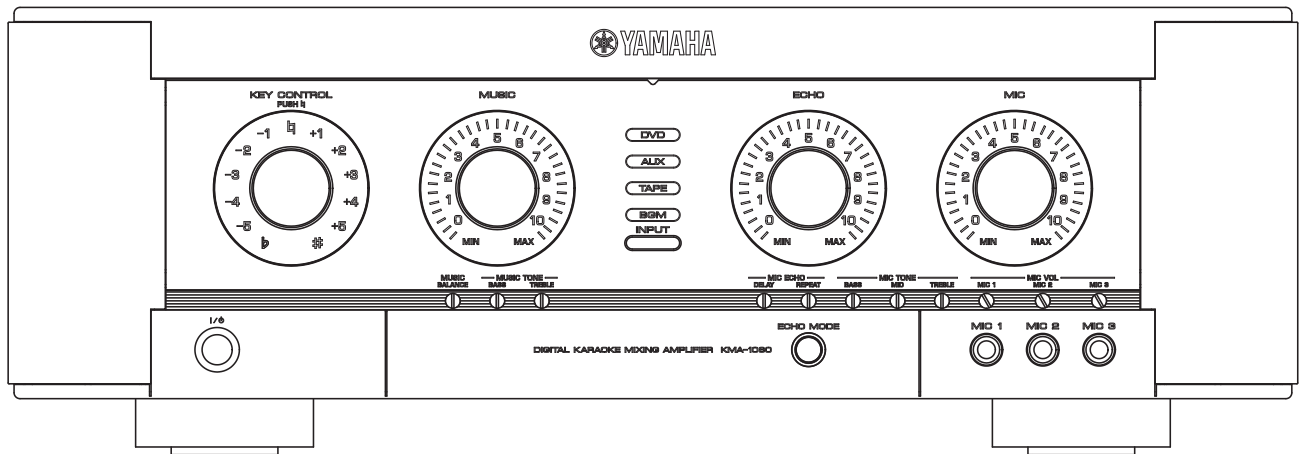
### KMA-1080 model

**WARNING:**

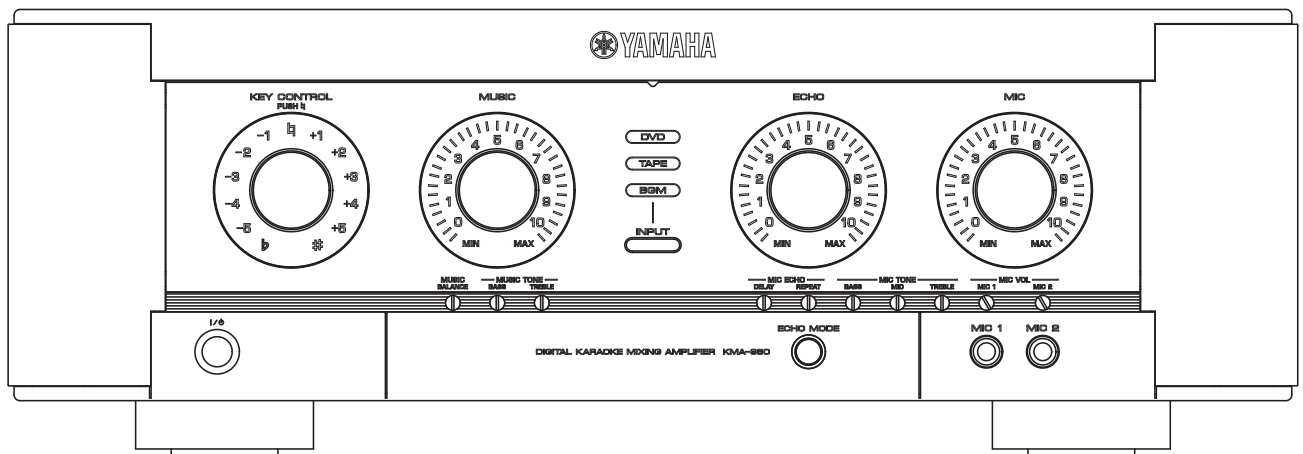
Do not change IMPEDANCE SELECTOR setting while the power to this unit is on, otherwise this unit may be damaged.

## ■ FRONT PANELS

### ▼ KMA-1080

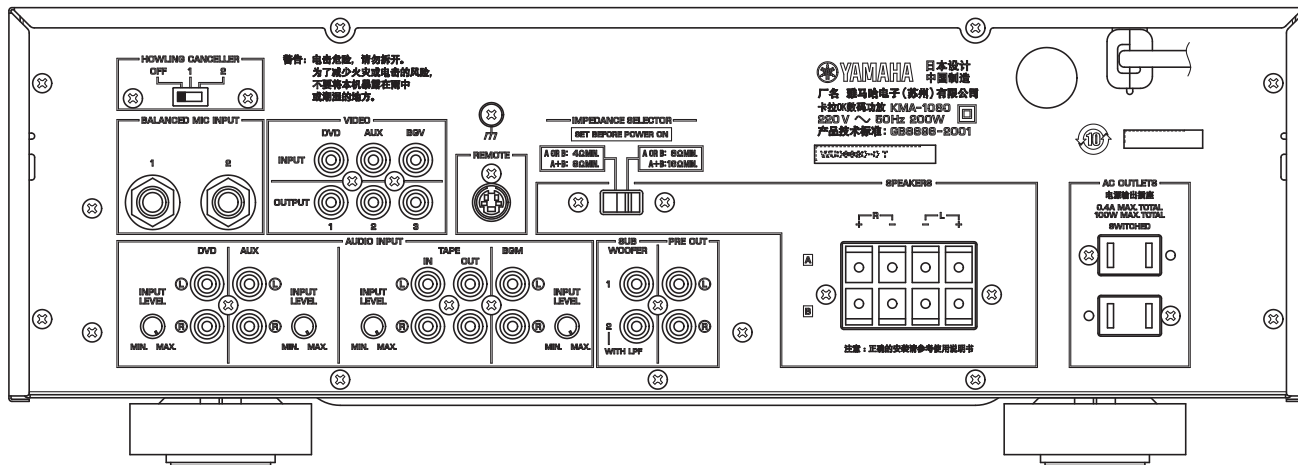


### ▼ KMA-980

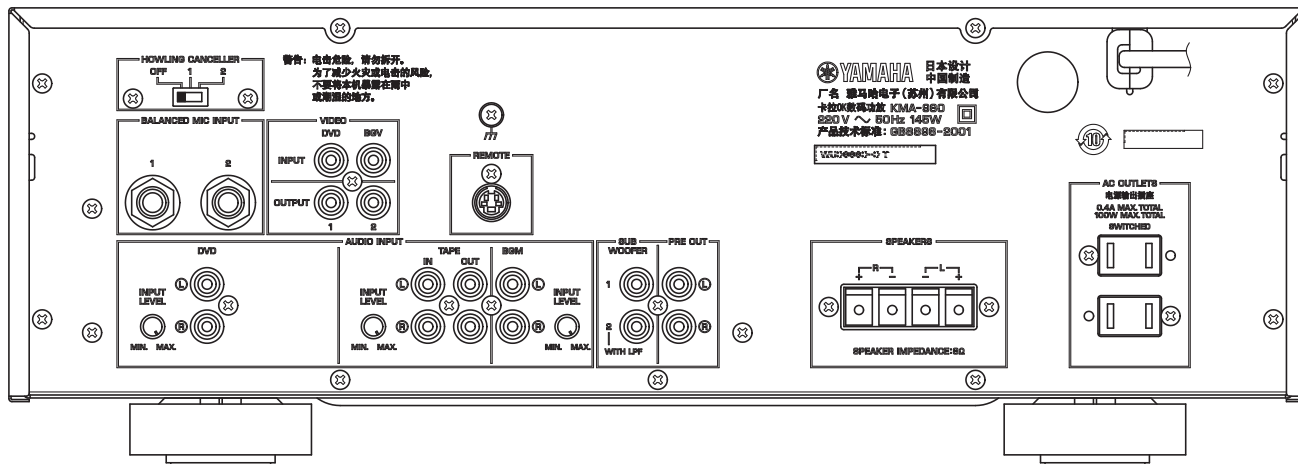


# REAR PANELS

## ▼ KMA-1080



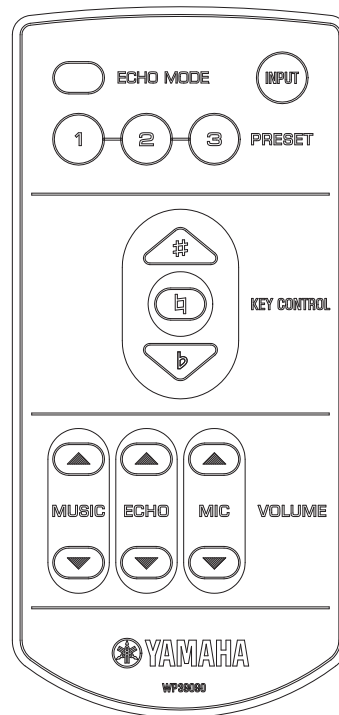
## ▼ KMA-980



KMA-1080/KMA-980



## ■ REMOTE CONTROL PANEL



## ■ SPECIFICATIONS

### AMPLIFIER SECTION

Minimum RMS Output Power		
L/R (1 kHz, 1% THD, 8-ohms)		
KMA-1080	160 W + 160 W	
KMA-980	120 W + 120 W	
Maximum Useful Output Power (JEITA)		
L/R (1 kHz, 10% THD, 8-ohms)		
KMA-1080	200 W + 200 W	
KMA-980	150 W + 150 W	
Damping Factor		
20 Hz to 20 kHz, 8-ohms	60 or more	
Input Sensitivity/Input Impedance		
DVD etc.	200 mV/42 k-ohms	
MIC	6 mV/20 k-ohms	
Maximum Input Voltage		
DVD etc.	2.3 V or more	
MIC	60 mV or more	
Rated Output Voltage/Output Impedance		
SUBWOOFER	2.0 V/1.2 k-ohms	
REC OUT/PRE OUT	1.0 V/1.2 k-ohms	
Total Harmonic Distortion (1 kHz)		
DVD etc. to SP OUT		
KMA-1080 (80 W/8-ohms)	0.1% or less	
KMA-980 (60 W/8-ohms)	0.1% or less	
Signal to Noise Rate (IHF-A Network)		
DVD etc., Input shorted (200 mV)	85 dB or more	
MIC, Input shorted (6 mV)	75 dB or more	
Residual Noise (IHF-A Network)		
	180 $\mu$ V or less	
Channel Separation (1 kHz)		

DVD etc., Input 5.1 k-ohms shorted	55 dB or more
Tone Control Characteristics	
MUSIC	
Bass boost/cut (100 Hz)	$\pm$ 12 dB
Treble boost/cut (10 kHz)	$\pm$ 12 dB
MIC	
Bass boost/cut (100 Hz)	$\pm$ 12 dB
Mid boost/cut (1 kHz)	$\pm$ 12 dB
Treble boost/cut (10 kHz)	$\pm$ 10 dB
Gain Tracking Error (0 to -60 dB)	2.0 dB or less

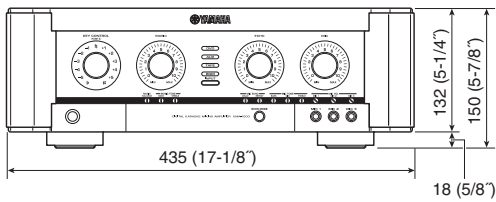
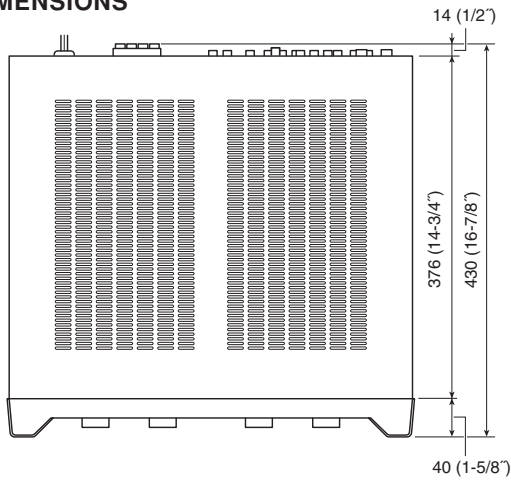
### GENERAL

Power Supply	AC220 V, 50 Hz
Power Consumption	
KMA-1080	200 W
KMA-980	145 W
AC Outlet	
2 switched outlets	100 W max. total
Dimensions (W x H x D)	
	435 x 150 x 430 mm (17-1/8" x 5-7/8" x 16-7/8")
Weight	
KMA-1080	11.3 kg (24.9 lbs.)
KMA-980	10.7 kg (23.6 lbs.)
Finish	
	Black color
Accessories	
	Remote control x 1 Lithium battery (CR2025) x 1

\* Specifications are subject to change without notice.

**T..... Chinese model**

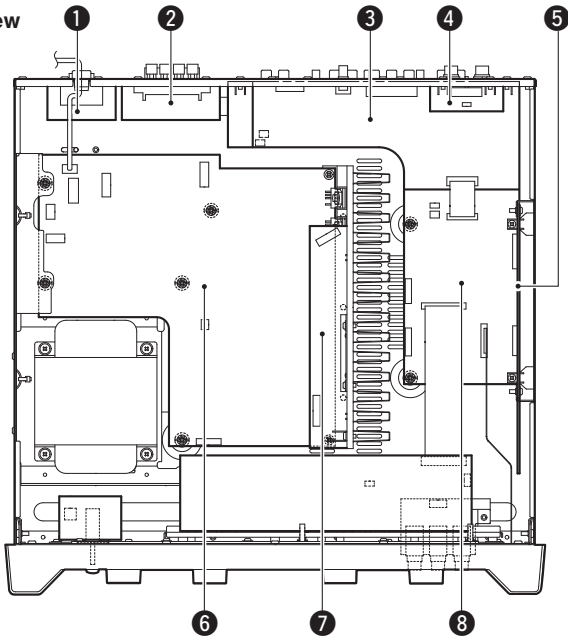
**DIMENSIONS**



Unit : mm (inch)

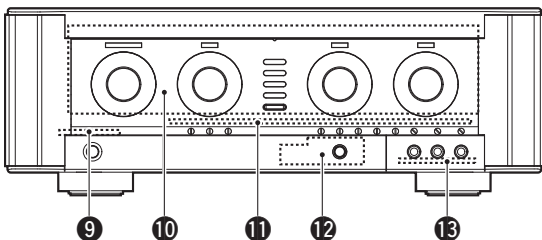
**INTERNAL VIEW**

Top view



- ① MAIN (5) P.C.B.
- ② MAIN (3) P.C.B. (KMA-1080)  
MAIN (4) P.C.B. (KMA-980)
- ③ OPERATION (1) P.C.B.
- ④ DSP (2) P.C.B.
- ⑤ DSP (1) P.C.B.
- ⑥ MAIN (1) P.C.B.
- ⑦ MAIN (2) P.C.B.
- ⑧ FUNCTION (1) P.C.B.
- ⑨ OPERATION (7) P.C.B.
- ⑩ OPERATION (2) P.C.B.
- ⑪ FUNCTION (2) P.C.B.
- ⑫ OPERATION (5) P.C.B. (KMA-1080)  
OPERATION (6) P.C.B. (KMA-980)
- ⑬ OPERATION (4) P.C.B.

Front view



## ■ DISASSEMBLY PROCEDURES

(Remove parts in the order as numbered.)

### 1. Removal of Top Cover

- Remove 8 screws (①) and 2 screws (②). (Fig. 1)
- Slide the top cover rearward to remove it. (Fig. 1)

### 2. Removal of Front Panel Unit

- Remove 5 screws (③) and 4 screws (④). (Fig. 1)
- Remove CB2 (FUNCTION(1) P.C.B.), CB3, CB15 and CB562. (Fig. 1)
- Remove the front panel unit. (Fig. 1)

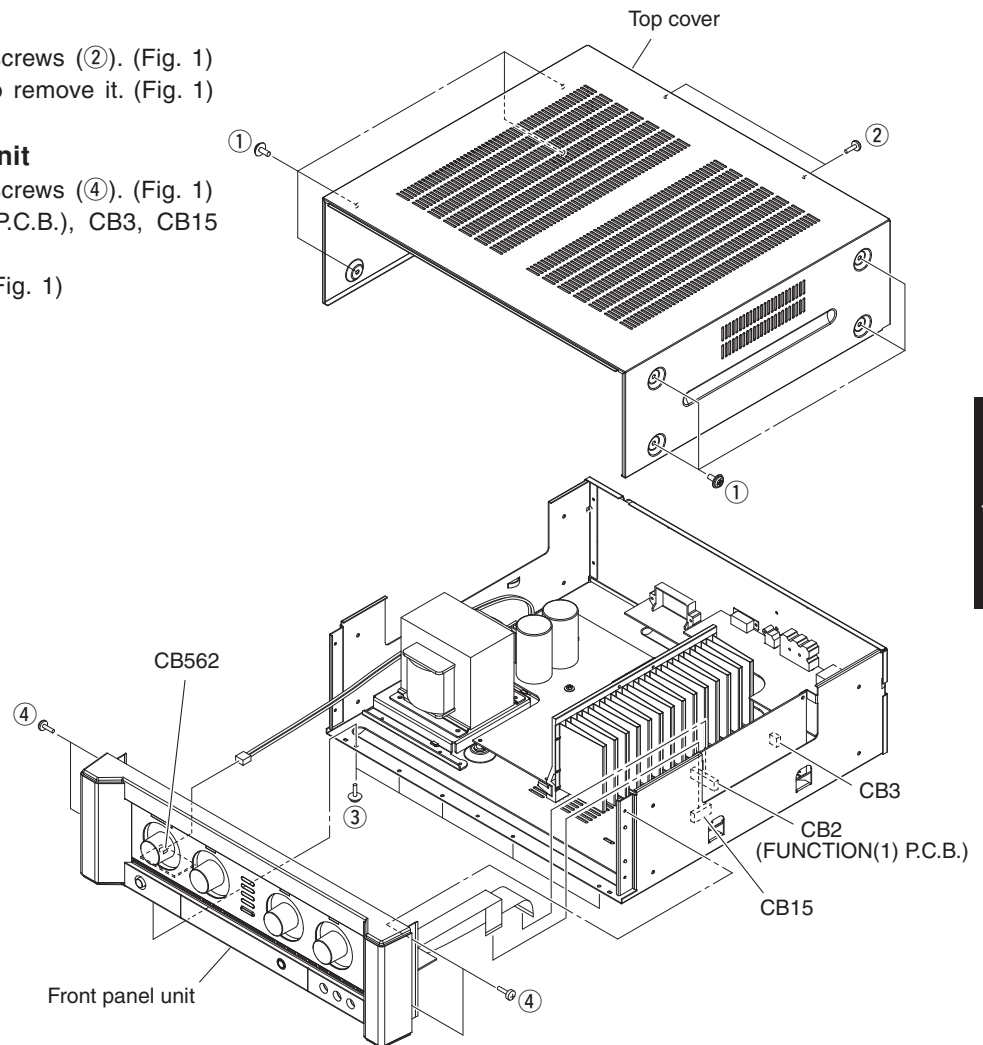


Fig. 1

### 3. Removal of OPERATION (1) P.C.B.

- Remove 6 (KMA-1080) / 3 (KMA-980) screws (⑤) and 2 nuts (⑥). (Fig. 2)
- Remove CB237. (Fig. 2)
- Remove CB238 and CB411 (KMA-1080). (Fig. 2)
- Remove the OPERATION (1) P.C.B.. (Fig. 2)

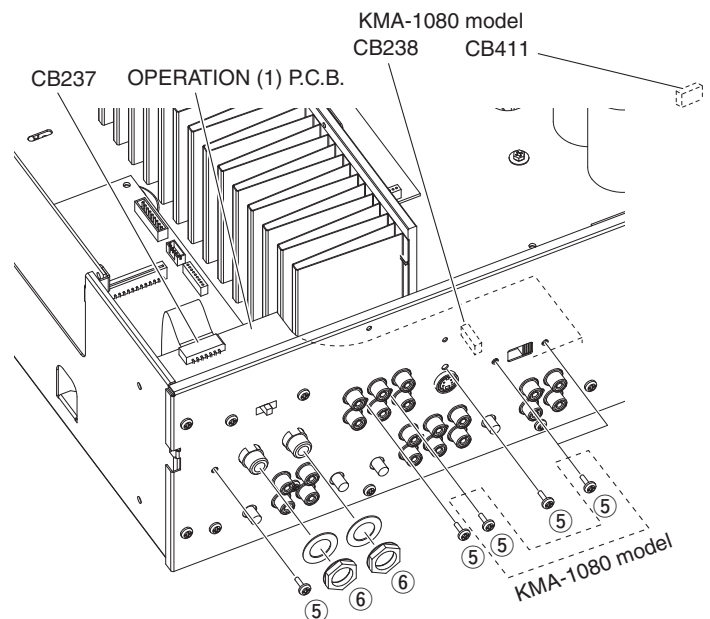
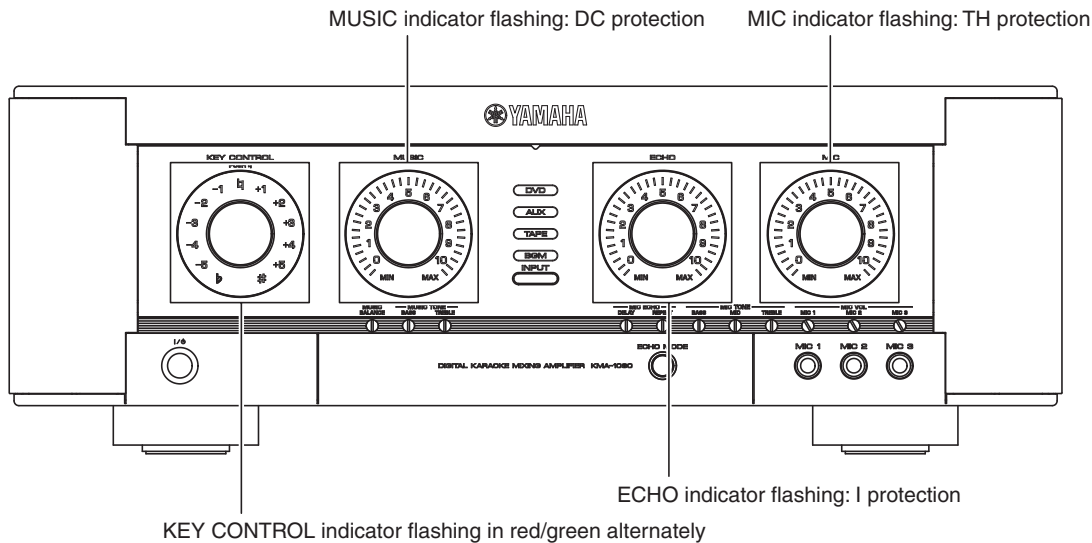


Fig. 2

## ■ INDICATION OF PROTECTION INFORMATION

If any of indicators shown below flashes after turning on the power to this unit, it means that the protection function is at work and normal operation is not available.



### ● Details of Protection Information

#### a. DC protection

Cause: Abnormal DC voltage of amplifier output L/R  
 Normal value: 0.312 to 2.327 V  
 Detection port: PRD (58 pin of microprocessor IC15)  
 Detected at: Amplifier output L/Rch of MAIN P.C.B.

#### b. I protection

Cause: Excess current flow into amplifier  
 Normal value: Low (0 V)  
 Detection port: PRI (56 pin of microprocessor IC15)  
 Detected at: Amplifier output L/Rch of MAIN P.C.B.

#### c. TH protection

Cause 1: Abnormal temperature of heatsink.  
 Normal value: 0.3 to 1.5 V  
 Detection port: TH\_R (57 pin of microprocessor IC15)  
 Detected at: Heatsink temperature detection IC401 of MAIN P.C.B.

Cause 2: Abnormal temperature of power transformer.  
 Normal value: 0.3 to 1.4 V  
 Detection port: TH\_R2 (54 pin of microprocessor IC15)  
 Detected at: Power transformer temperature detection IC402 of MAIN P.C.B.

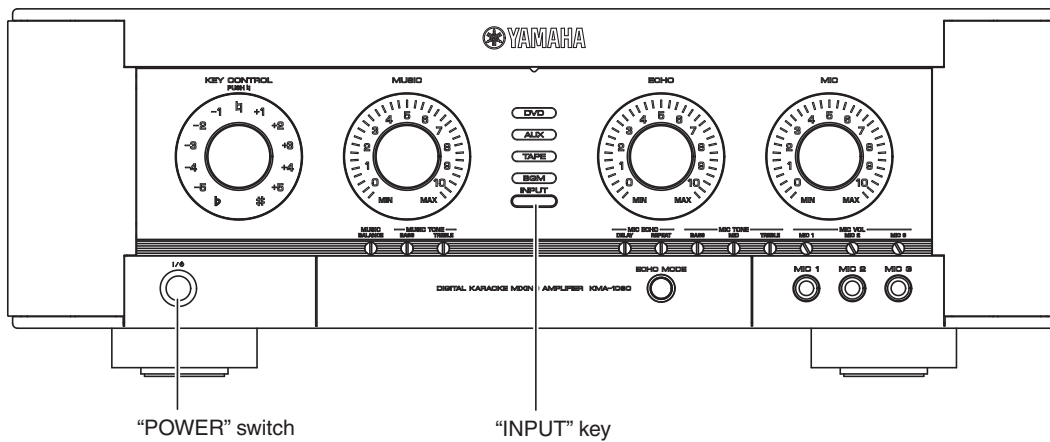
## ■ SELF-DIAGNOSTIC FUNCTION

This unit has self-diagnostic functions that are intended for inspection, measurement and location of faulty point. There are 12 main menu items, each of which has sub-menu items. Listed in the table below are main menu items and sub-menu items.

No.	Main menu	Sub-menu	
1	FIRMWARE VERSION	a	Main Microprocessor Firmware Version
		b	DSP Microprocessor Firmware Version
2	TEMPERATURE of HEATSINK	a	Monitor
		b	Maximum
		c	Minimum
3	TEMPERATURE of POWER TRANSFORMER	a	Monitor
		b	Maximum
		c	Minimum
4	DC VOLTAGE	a	DC Voltage
5	PROTECTION HISTORY	a	History 1
		b	History 2
		c	History 3
6	CHECKSUM	a	Upper bit
		b	Lower bit
7	ANALOG CHECK	a	DVD
		b	AUX (KMA-1080) / TAPE (KMA-980)
		c	TAPE (KMA-1080) / BGM (KMA-980)
		d	BGM (KMA-1080) / – (KMA-980)
8	DSP MUSIC CHECK	a	DVD
		b	AUX (KMA-1080) / TAPE (KMA-980)
		c	TAPE (KMA-1080) / BGM (KMA-980)
		d	BGM (KMA-1080) / – (KMA-980)
9	DSP MIC CHECK	a	L ch
		b	R ch
10	INDICATOR CHECK	a	All Light up
		b	All Off
		c	Automatic Sequential Lighting
11	INPUT MODE	a	DVD
		b	AUX (KMA-1080) / TAPE (KMA-980)
		c	TAPE (KMA-1080) / BGM (KMA-980)
		d	BGM (KMA-1080) / – (KMA-980)

● Starting Self-Diagnostic Function

While pressing the “INPUT” key of this unit, press the “POWER” switch to turn ON the power.



● Canceling Self-Diagnostic Function

Press the “POWER” switch of this unit to turn OFF the power.

● Operation Procedure of Main menu and Sub-menu

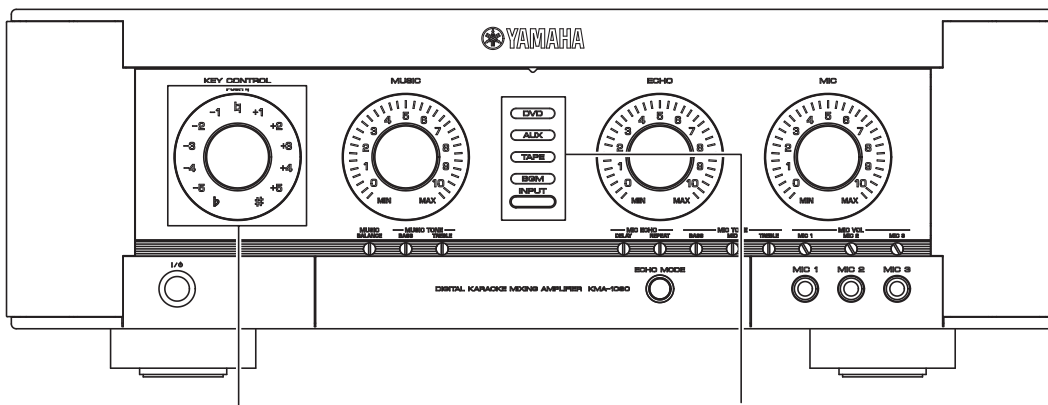
There are 12 main menu items, each of them having sub-menu items.

**Main menu selection**

Select the main menu using “KEY CONTROL” knob.

**Sub-menu selection**

Select the sub-menu using “INPUT” key.



Main menu indicator (lit in red)

Main menu No.	KEY CONTROL indicators
1	h
2	+ 1
3	+ 2
4	+ 3
5	+ 4
6	+ 5
7	- 1
8	- 2
9	- 3
10	- 4
11	- 5

Sub-menu indicator

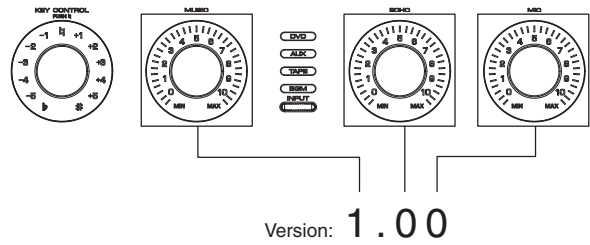
Sub-menu Code	INPUT indicators	
	KMA-1080	KMA-980
a	DVD	DVD
b	AUX	TAPE
c	TAPE	BGM
d	BGM	-

● Details of Self-Diagnostic Function menu

**1. FIRMWARE VERSION**

The firmware version is indicated.

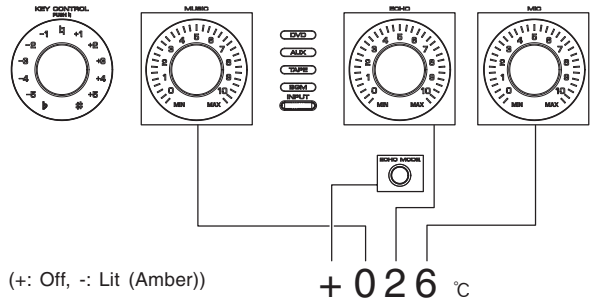
- a. Main Microprocessor Firmware Version
- b. DSP Microprocessor Firmware Version



**2. TEMPERATURE of HEATSINK**

The temperature of heatsink is indicated.

- a. Monitor: Current temperature
- b. Maximum: Highest value
- c. Minimum: Lowest value

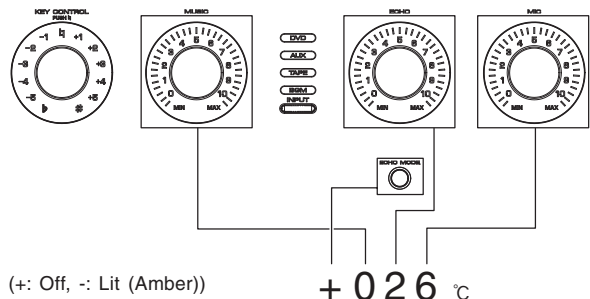


(+: Off, -: Lit (Amber))

**3. TEMPERATURE of POWER TRANSFORMER**

The temperature of power transformer is indicated.

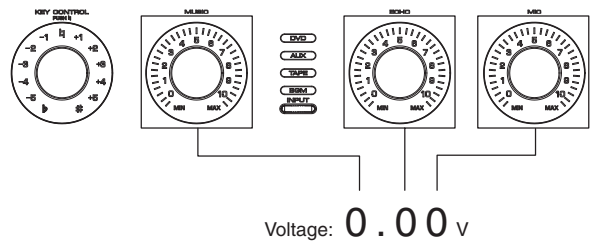
- a. Monitor: Current temperature
- b. Maximum: Highest value
- c. Minimum: Lowest value



(+: Off, -: Lit (Amber))

**4. DC VOLTAGE**

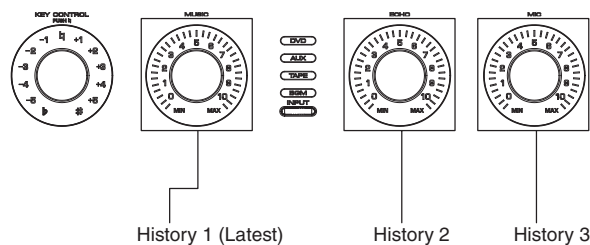
The DC voltage of amplifier output L/R is indicated.



**5. PROTECTION HISTORY**

The 3 protection histories are indicated.

- 0. No protection
- 1. DC protection
- 2. I protection
- 3. TH protection



History 1 (Latest)

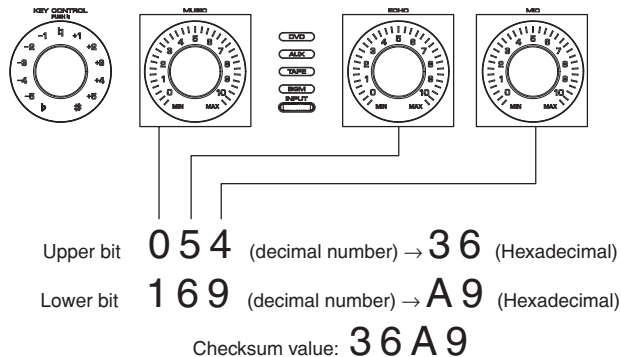
History 2

History 3

### 6. CHECKSUM

The checksum value is indicated in the decimal number.

- a. Upper bit
- b. Lower bit



### 7. ANALOG CHECK

The signal passage is checked. (Fig. 3)

INPUT select: DVD, AUX (KMA-1080 model), TAPE, BGM  
 MUTE ON/OFF: "ECHO MODE" key (ON: Lit (amber), OFF: Off)

### 8. DSP MUSIC CHECK

The signal passage is checked. (Fig. 3)

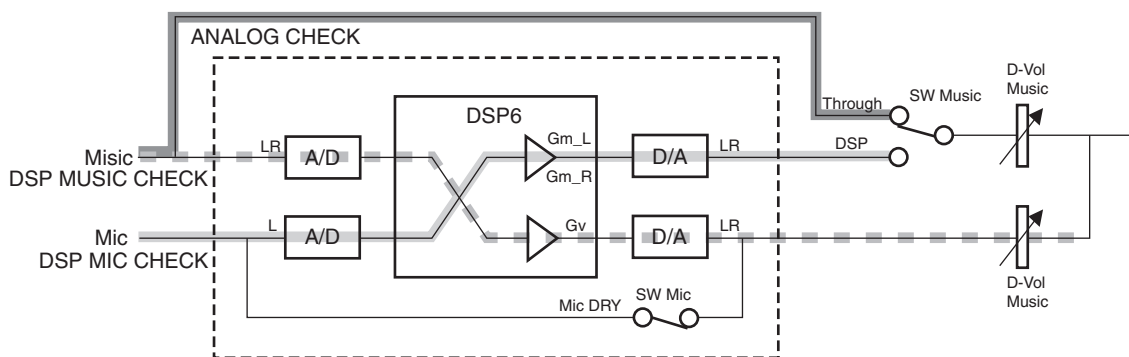
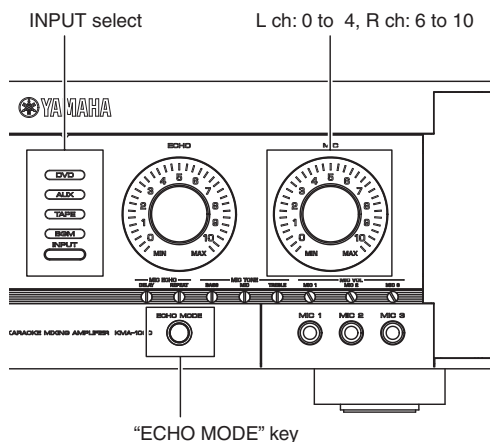
INPUT select: DVD, AUX (KMA-1080 model), TAPE, BGM

### 9. DSP MIC CHECK

The signal passage is checked. (Fig. 3)

Channel select: "ECHO MODE" key

- a. L ch (0 to 4 of MIC indicator light up)
- b. R ch (6 to 10 of MIC indicator light up)



Menu	KEY CONTROL	Volume			INPUT	Gm_L	Gm_R	Gv	SW Music	SW Mic
		MUSIC	ECHO	MIC						
ANALOG CHECK	⏏	Active (Min)	Min	Active (Min)	Active (DVD)	- ∞	- ∞	- ∞	through	- (on)
DSP MUSIC CHECK	⏏	- ∞	0 dB	Active (Min)	Active (DVD)	- ∞	- ∞	0 dB	(through)	- (on)
DSP MIC CHECK L ch	⏏	Active (Min)	Min	- ∞	off	0 dB	- ∞	- ∞	DSP	- (on)
DSP MIC CHECK R ch	⏏	Active (Min)	Min	- ∞	off	- ∞	0 dB	- ∞	DSP	- (on)

Fig. 3

KMA-1080/KMA-980



**10. INDICATOR CHECK**

This menu is used to check the indicators.

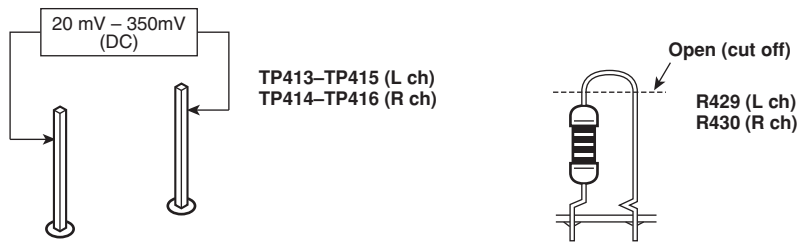
- a. All Light up
- b. All Off
- c. Automatic Sequential Lighting

**11. INPUT MODE**

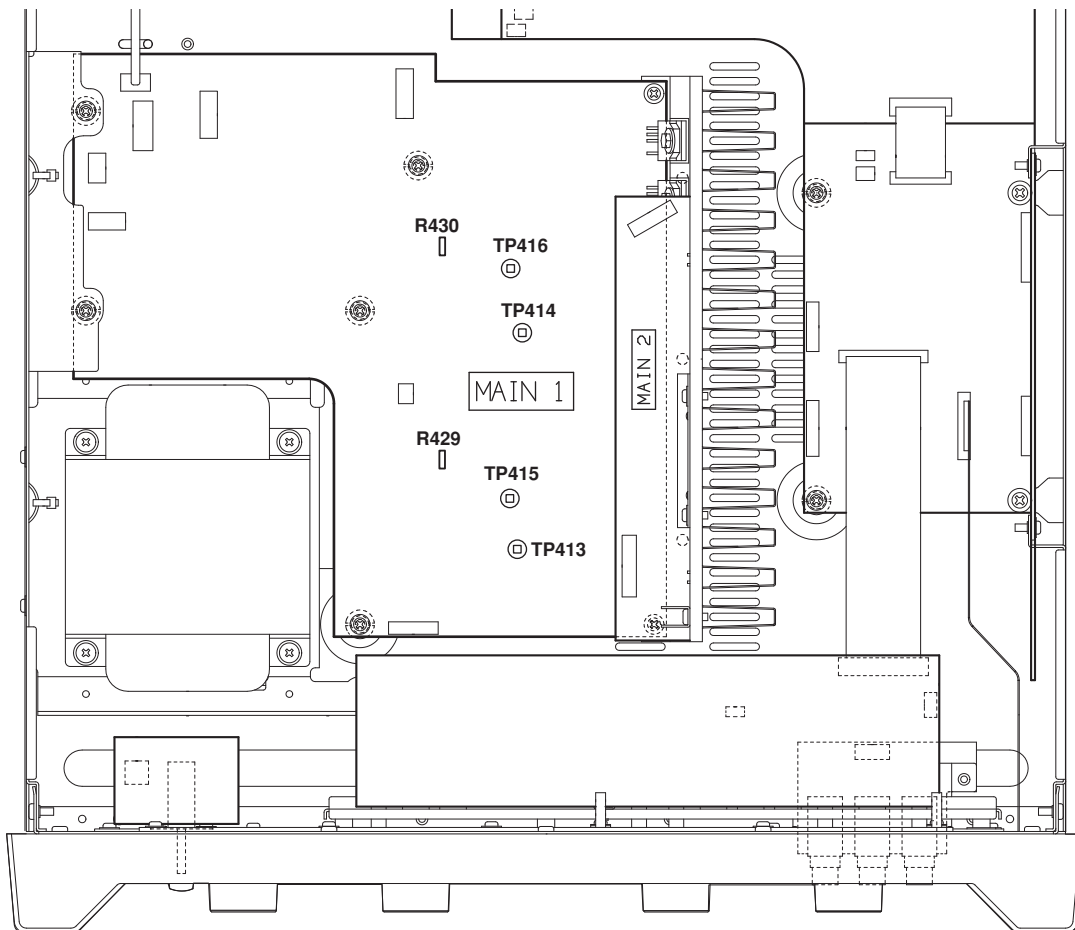
Both Auto and Manual of INPUT mode are activated.

## ■ CONFIRMATION OF IDLING CURRENT OF AMP UNIT

Item	Condition	Test point	Rating	Remark
Idling current	No input signal Wait for 2–3 minutes	TP413–TP415 (L ch)	DC 20–350mV	If measured voltage exceeds 350 mV, open (cut off) R429 (L ch), R430 (R ch) and reconfirm the voltage.  <b>Attention</b> If the measured voltage exceeds 350mV after an amplifier repair, first check for a defective component before cutting the bias resistor.
		TP414–TP416 (R ch)		



Rear side

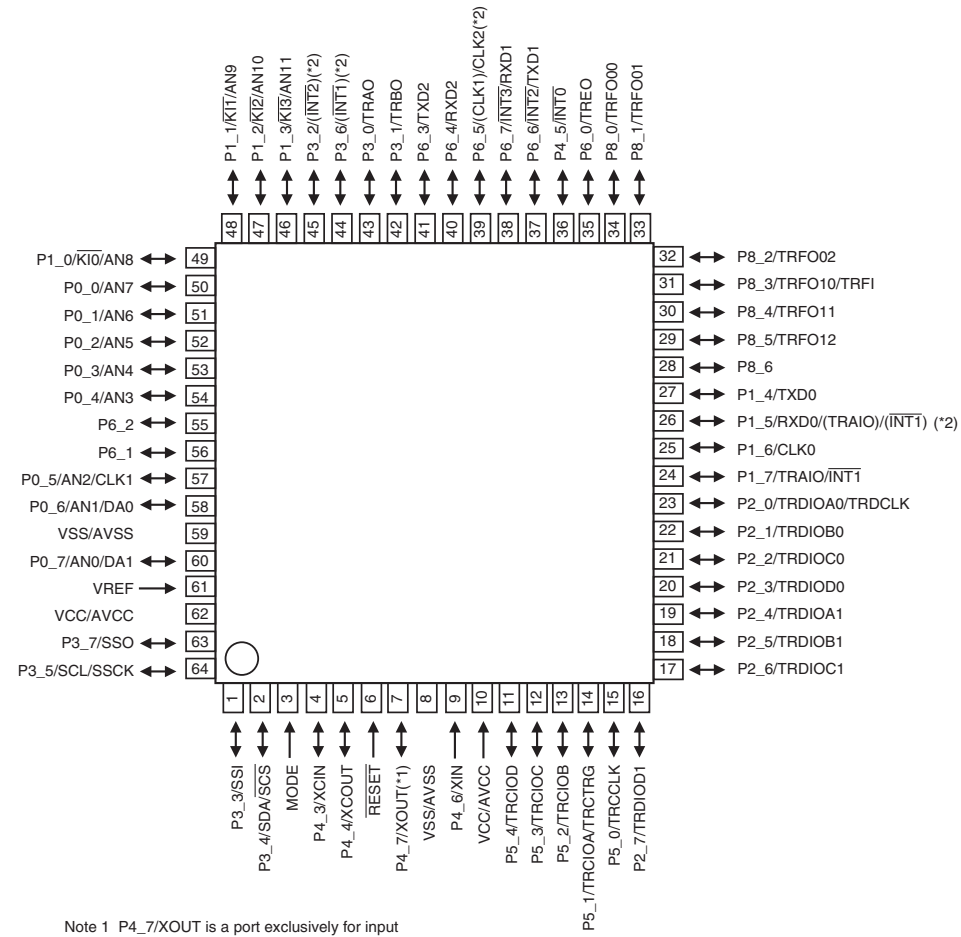


Front side

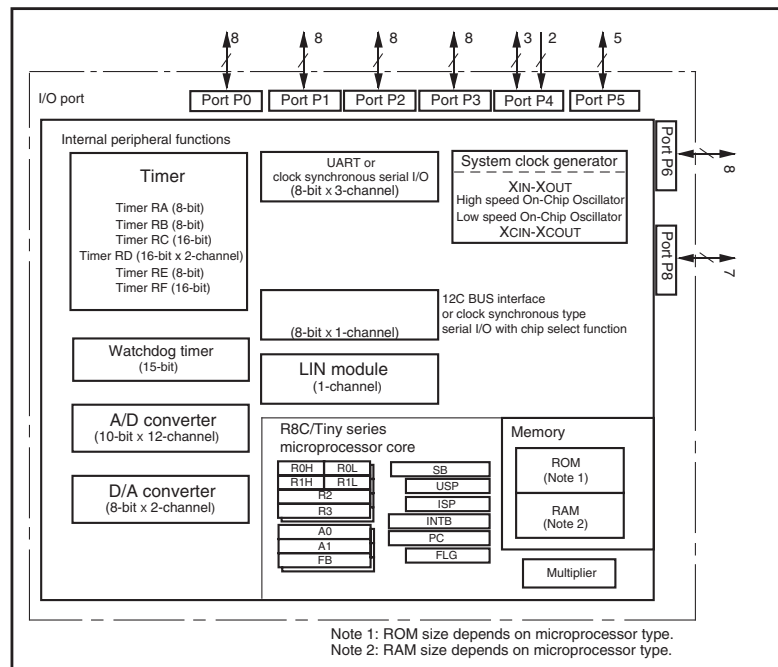
KMA-1080/KMA-980

IC DATA

IC15: R5F212A8SNFA (FUNCTION P.C.B.)  
Main Microprocessor



Note 1 P4\_7/XOUT is a port exclusively for input  
Note 2 Arrangement to the terminal in parentheses ( ) is available by programming.



Note 1: ROM size depends on microprocessor type.  
Note 2: RAM size depends on microprocessor type.

Pin No.	Port Name	Function Name	I/O	Detail of Function	Default
1	P3_3/SSI	SDATA	O	For device, commonly used	DATA Low
2	P3_4/SDA/SCS	FSTL	O	LED/key	PT6313 / NJM7318 STB High
3	MODE	MODE			
4	P4_3/XCIN	SSDATA	O	LED/key	PT6313 / NJM7318 DATA Low
5	P4_4/XCOUT	SSCLK	O	LED/key	PT6313 / NJM7318 SCK Low
6	RESET	/RESET			
7	P4_7/XOUT	XOUT			
8	VSS/AVSS	VSS/AVSS			
9	P4_6/XIN	XIN			
10	VCC/AVCC	VCC/AVCC			
11	P5_4/TRCIOD	MUTE_PRE	O	MUTE control	Low
12	P5_3/TRCIOC	MUTE_REC	O	MUTE control	Low
13	P5_2/TRCIOB	MUTE_PAMP	O	MUTE control	Low
14	P5_1/TRCIOA/TRCTR	/VL_ICN	O	Interface for electronic volume	YSS520 ICN Low
15	P5_0/TRCCLK	/VL_CS1	O	Interface for electronic volume	YSS520 CS High
16	P2_7/TRDIOD1	MODEL	I	Model detection	x
17	P2_6/TRDIOC1	SEL_ST	O	Audio analog switch	NJM7313 ST Low
18	P2_5/TRDIOB1	/MS	O	Interface for DSP microprocessor	/MS High
19	P2_4/TRDIOA1	RCK	O	Video analog switch	TC74VHC595 RCK Low
20	P2_3/TRDIOD0	KP_IC	O	Interface for DSP microprocessor	IC Low
21	P2_2/TRDIOC0	EVOL_DATA	O	Interface for electronic volume	YSS520 DATA Low
22	P2_1/TRDIOB0	VIDEO_DET	I	For video input detection	x
23	P2_0/TRDIOA0/TRDCLK	Pre_S	O	MUSIC pre-output select	TC74VHC595 /G Low
24	P1_7/TRAIO/INT1	/KP_CS	O	Interface for DSP microprocessor	/CS High
25	P1_6/CLK0	EVOL_CLK	O	Interface for electronic volume	YSS520 CLK Low
26	P1_5/RXD0/(TRAIO)/(INT1)	RXD_PC	I	PC interface (RX)	RX x
27	P1_4/TXD0	TXD_PC	O	PC interface (TX)	TX x
28	P8_6	MUS_RA	I	Rotary encoder input for MUSIC volume	EC12E2460814 A signal x
29	P8_5/TRFO12	MUS_RB	I	Rotary encoder input for MUSIC volume	B signal x
30	P8_4/TRFO11	MIC_RA	I	Rotary encoder input for MIC volume	EC12E2460814 A signal x
31	P8_3/TRFO10/TRFI	MIC_RB	I	Rotary encoder input for MIC volume	B signal x
32	P8_2/TRFO02	ECHO_RA	I	Rotary encoder input for ECHO volume	EC12E2460814 A signal x
33	P8_1/TRFO01	ECHO_RB	I	Rotary encoder input for ECHO volume	B signal x
34	P8_0/TRFO00	KEY_RA	I	Rotary encoder input for KEY CONTROL volume	EC12E2460814 A signal x
35	P6_0/TREO	KEY_RB	I	Rotary encoder input for KEY CONTROL volume	B signal x
36	P4_5/INT0	REM	I	For front remote controller reception	High
37	P6_6/INT2/TXD1	TXD_WR	O	ICE, for FLASH writing	x
38	P6_7/INT3/RXD1	RXD_WR	I	ICE, for FLASH writing	x
39	P6_5/(CLK1)/CLK2	PA_S	O	MIC power amplifier output select	Low
40	P6_4/RXD2	ASW_DATA	O	Audio analog switch	NJM7313 DATA Low
41	P6_3/TXD2	ASW_CLK	O	Audio analog switch	NJM7313 CLK Low
42	P3_1/TRBO	/EROM_CS	O	EEPROM	CS High
43	P3_0/TRAO	EROM_DIN	I	EEPROM	DATA x
44	P3_6/(INT1)	RM_IN	I	Panel back expansion remote controller	x
45	P3_2/(INT2)	RM_DIR	I		?
46	P1_3/KI3/AN11	TAPE_IN	I		Low
47	P1_2/KI2/AN10	AUX_IN	I		Low
48	P1_1/KI1/AN9	DVD_IN	I		Low
49	P1_0/KI0/AN8	VOL_REPEAT	I	AD volume	Repeat x
50	P0_0/AN7	PDET	I	Input for power detect	? x
51	P0_1/AN6	VOL_DELAY	I	AD volume	Delay x
52	P0_2/AN5	SPA	O	Speaker relay control	Low
53	P0_3/AN4	VOL_BAL	I	AD volume	Balance x
54	P0_4/AN3	TH_R2	I	Temperature of power transformer detection	? x
55	P6_2	DIAG_AD	O	Volume maximum detection at self-diagnostic function mode	Low
56	P6_1	PRI	I	Excess current detection	Low
57	P0_5/AN2/CLK1	TH_R	I	Temperature of heatsink detection	? x
58	P0_6/AN1/DA0	PRD	I	Power amplifier DC detection	? x
59	VSS/AVSS	VSS/AVSS			
60	P0_7/AN0/DA1	DIAG	O	Self-diagnostic function mode detection	Low
61	VREF	VREF			
62	VCC/AVCC	VCC/AVCC			
63	P3_7/SSO	SDOUT	I	Key input	Low
64	P3_5/SCL/SSCK	SCK	O	For device, commonly used	SCK Low

## IC2: R4F24245NFPV (DSP P.C.B.)

## DSP Microprocessor

\* No replacement part available.

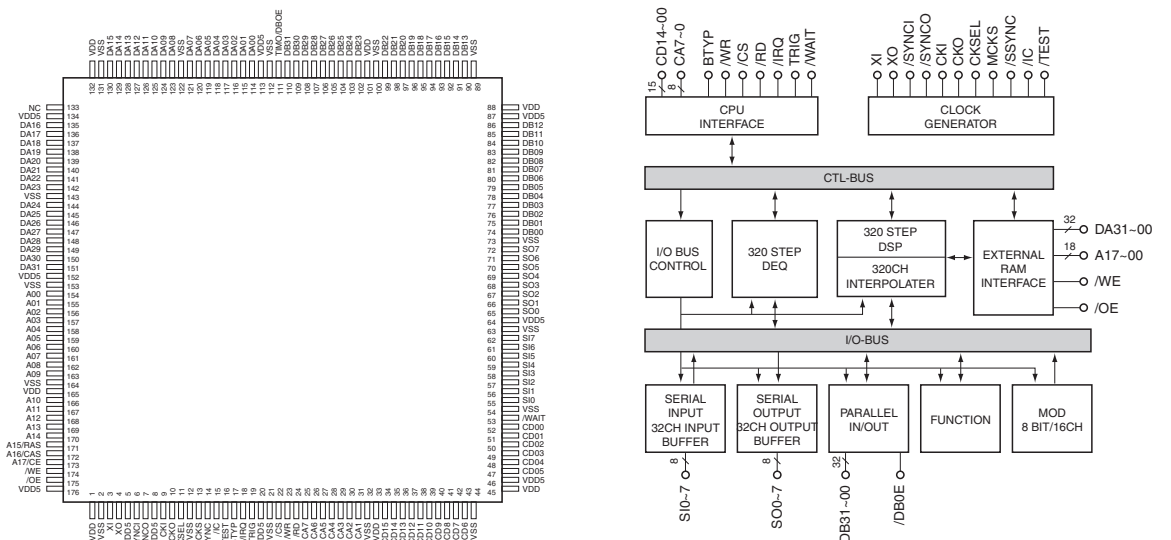
No.	Pin Name	Function Name	Type	I/O	Description of Function	Hardware terminal treatment	Software terminal treatment	Remarks
1	MD2	MD2	IO	I	Setting of MCU operation mode	H	-	Mode 7
2	Vcc	VCC				VCC		
3	PC0/A0	A0	IO	O	BUS A0	GND	L	Free 2
4	PC1/A1	A1	A1	O	DSP6 interface	-	-	
5	PC2/A2	A2	A2	O	DSP6 interface	-	-	
6	PC3/A3	A3	A3	O	DSP6 interface	-	-	
7	PC4/A4	A4	A4	O	DSP6 interface	-	-	
8	Vss	VSS				GND		
9	PC5/A5	A5	A5	O	DSP6 interface	-	-	
10	PC6/A6	A6	A6	O	DSP6 interface	-	-	
11	PC7/A7	A7	A7	O	DSP6 interface	-	-	
12	PB0/A8	PB0	IO	O	BUS A8	GND	L	Free 2
13	PB1/A9	PB1	IO	O	BUS A9	GND	L	Free 2
14	PB2/A10	PB2	IO	O	BUS A10	GND	L	Free 2
15	PB3/A11	PB3	IO	O	BUS A11	GND	L	Free 2
16	PB4/A12	PB4	IO	O	BUS A12	GND	L	Free 2
17	Vss	VSS				GND		
18	PB5/A13	PB5	IO	O	BUS A13	GND	L	Free 2
19	PB6/A14	PB6	IO	O	BUS A14	GND	L	Free 2
20	PB7/A15	PB7	IO	O	BUS A15	GND	L	Free 2
21	PA0/A16	PA0	IO	O	BUS A16	GND	L	Free 2
22	Vss	VSS				GND		
23	PA1/A17/TxD4-B	PA1	IO	O		GND	L	Free 1
24	PA2/A18/RxD4-B	PA2	IO	O		GND	L	Free 1
25	PA3/A19/SCK4-B	PA3	IO	O		GND	L	Free 1
26	PA4/A20/IRQ4-A/SCS0-B	H8_CS	SSU	I	Host interface	CS	L	Communication with R8C
27	PA5/A21/IRQ5-A/SSCK0-B	H8_SCK	SSU	I	Host interface	SCK	L	Communication with R8C
28	PA6/A22/IRQ6-A/SSI0-B	H8_READ	SSU	I	Host interface	READ	L	Communication with R8C
29	PA7/A23/CS7/IRQ7-A/SSO0-B	H8_WRITE	SSU	O	Host interface	WRITE	L	Communication with R8C
30	EMLE	E10A_EMLE	IO	I	Interface for E10A		L	In normal state : Low / When E10A connected : High
31	WDTOVF	E10A_WDTOVF	IO	O	Interface for E10A		L	In normal state : Low / When E10A connected : High
32	NMI	NMI	IO	O			H	Unused
33	VCL	VCL						※ 1
34	P10/DREQ0/PO8/TIOCA0	CODEC_RES	IO	O	CODEC contrtol	Reset	H	In normal state : High / Reset : Low
35	P11/DREQ1/PO9/TIOCB0	DSP6_RES	IO	O	DSP6 interface	Reset	L	In normal stare : High / Reset : Low
36	P12/TEND0/PO10/TIOCC0/TCLKA	DRY_CTRL	IO	O	MIC DRY path control	Switch	L	High : DRY ON / Low : DRY OFF
37	P13/TEND1/PO11/TIOCD0/TCLKB	P13	IO	O			GND	Free 1
38	P14/DACK0/PO12/TIOCA1/SSO0-A	P14	IO	O	SSU SSO0-A		GND	Free 2
39	P15/DACK1/PO13/TIOCB1/TCLKC/SSI0-A	P15	IO	O	SSU SSI0-A		GND	Free 2
40	P16/PO14/TIOCA2/SSCK0-A	P16	IO	O	SSU SCK0-A		GND	Free 2
41	P17/PO15/TIOCB2/TCLKD/SCS0-A	P17	IO	O	SSU SCS0-A		GND	Free 2
42	P20/PO0-A/TIOCA3-A/TMRI0-A	P20	IO	O			GND	Free 1

No.	Pin Name	Function Name	Type	I/O	Description of Function	Hardware terminal treatment	Software terminal treatment	Remarks	
43	P21/PO1-A/TIOCB3-A/TMRI1-A	P21	IO	O		GND	L	Free 1	
44	P22/PO2-A/TIOCC3-A/TMCI0-A	P22	IO	O		GND	L	Free 1	
45	P23/PO3-A/TIOCD3-A/TMCI1-A/TxD4-A	P23	IO	O		GND	L	Free 1	
46	P24/PO4-A/TIOCA4-A/TMO0-A/RxD4-A	P24	IO	O		GND	L	Free 1	
47	P25/WAIT-B/PO5-A/TIOCB4-A/TMO1-A	DSP6_WAIT	IO	I	DSP6 interface	WAIT	H	Bus wait input	
48	P26/PO6/TIOCA5/SDA2/ADTRG1	ISP_P26	IO	O	Writer (for ISP-310)		H	H	
49	P27/PO7/TIOCB5/SCL2	ISP_P27	IO	O	Writer (for ISP-310)		H	H	
50	P85/PO5-B/TIOCB4-B/TMO1-B/SCK3	P28	IO	O		GND	L	Free 1	
51	PE0/D0/AD0	DSP6_D0	D0	-	DSP6 interface	Data	H	-	
52	PE1/D1/AD1	DSP6_D1	D1	-	DSP6 interface	Data	H	-	
53	PE2/D2/AD2	DSP6_D2	D2	-	DSP6 interface	Data	H	-	
54	PE3/D3/AD3	DSP6_D3	D3	-	DSP6 interface	Data	H	-	
55	PE4/D4/AD4	DSP6_D4	D4	-	DSP6 interface	Data	H	-	
56	PE5/D5/AD5	DSP6_D5	D5	-	DSP6 interface	Data	H	-	
57	PE6/D6/AD6	DSP6_D6	D6	-	DSP6 interface	Data	H	-	
58	Vss	VSS				GND			
59	PE7/D7/AD7	DSP6_D7	D7	-	DSP6 interface	Data	H	-	
60	Vcc	VCC				VCC			
61	D8/AD8	DSP6_D8	D8	-	DSP6 interface	Data	H	-	
62	D9/AD9	DSP6_D9	D9	-	DSP6 interface	Data	H	-	
63	D10/AD10	DSP6_D10	D10	-	DSP6 interface	Data	H	-	
64	D11/AD11	DSP6_D11	D11	-	DSP6 interface	Data	H	-	
65	D12/AD12	DSP6_D12	D12	-	DSP6 interface	Data	H	-	
66	D13/AD13	DSP6_D13	D13	-	DSP6 interface	Data	H	-	
67	D14/AD14	DSP6_D14	D14	-	DSP6 interface	Data	H	-	
68	D15/AD15	DSP6_D15	D15	-	DSP6 interface	Data	H	-	
69	PF0/WAIT-A/OE-A*/ADTRG0-B/SCS0-C	PF0	IO	O	Bus wait / SSU		GND	L	Free 2
70	PF1/CS5/UCAS*/SSCK0-C	PF1	IO	O	SSU		GND	L	Free 2
71	PF2/CS6/LCAS*/SSI0-C	PF2	IO	O	SSU		GND	L	Free 2
72	PF3/LWR/SSO0-C	PF3	IO	O	SSU		GND	L	Free 2
73	HWR	DSP6_WR	HWR	O	DSP6 interface	WRITE	H	-	
74	RD	DSP6_RD	RD	O	DSP6 interface	READ	H	-	
75	PF6/AS/AH	PF6	IO	O	Bus as		GND	L	Free 2
76	PLLVcc	PLLVCC				VCC			
77	RES	H8_/RES	IO	I	Both R8C interface/E10A interface		H	-	※ Note1
78	PLLVss	PLLVSS				GND			
79	PF7/φ	PF7	IO	O	Clock output to external clock		GND	L	Free 2
80	Vss	VSS				GND			
81	XTAL	XTAL							
82	EXTAL	EXTAL							
83	Vcc	VCC				VCC			
84	Vcc	VCC				VCC			
85	P83/PO3-B/TIOCD3-B/TMCI1-B/RxD3	P83	IO	O		GND	L	Free 1	
86	P81/PO1-B/TIOCB3-B/TMRI1-B/TxD3	P81	IO	O		GND	L	Free 1	

No.	Pin Name	Function Name	Type	I/O	Description of Function	Hardware terminal treatment	Software terminal treatment	Remarks
87	Vss	VSS				GND		
88	STBY	STBY	IO	I	Standby input	H	-	
89	PG0/CS0	PG0	IO	O		GND	L	Free 1
90	PG1/CS1	DSP6_CS	CS1	O	DSP6 interface	H	-	CS
91	PG2/CS2/RAS2*	PG2	IO	O		GND	L	Free 1
92	PG3/CS3/RAS3*	PG3	IO	O		GND	L	Free 1
93	AVcc	AVCC				VCC		
94	Vref	VREF				VCC		
95	P40/IRQ0-B/ AN0_0	P40	IO	O	AD-0	GND	L	Free 2 (for input only)
96	P41/IRQ1-B/ AN1_0	P41	IO	O	AD-1	GND	L	Free 2 (for input only)
97	P42/IRQ2-B/ AN2_0	P42	IO	O	AD-2	GND	L	Free 2 (for input only)
98	P43/IRQ3-B/ AN3_0	P43	IO	O	AD-3	GND	L	Free 2 (for input only)
99	P44/IRQ4-B/ AN4_0	DSP6_INT	INT	I	DSP6 interface	H		INT
100	P45/IRQ5-B/ AN5_0	DSP6_LEVEL	IO	I	DSP6 interface	L		Level flag PORT
101	P46/IRQ6-B/ AN6_0	HR_CTRL1	IO	I	Howling reduction mode detection 1	H	-	
102	P47/IRQ7-B/ AN7_0	HR_CTRL2	IO	I	Howling reduction mode detection 2	H	-	
103	P94/AN12_1/DA2	P94	IO	O	DA-2	GND	L	Free 2
104	P95/AN13_1/DA3	DIAG_IN	IO	I	Input for PCB inspection	L	-	In normal state : Low / For inspection : High
105	AVss	AVSS				GND		
106	PG4/BREQO-A/ CS4	E10A_PG4	IO	I	Interface for E10A	L	-	In normal state : Low / When E10A connected : High
107	PG5/BACK-A	E10A_PG5	IO	I	Interface for E10A	L	-	In normal state : Low / When E10A connected : High
108	PG6/BREQ-A	E10A_PG6	IO	I	Interface for E10A	L	-	In normal state : Low / When E10A connected : High
109	P50/BREQO-B/ IRQ0-A/PO0-B/ TIOCA3-B/ TMR10-B/TxD2/ SDA3	P50	IO	O		GND	L	Free 1
110	P51/BREQ-B/ IRQ1-A/PO2-B/ TIOCC3-B/ TMC10-B/RxD2/ SCL3	P51	IO	O		GND	L	Free 1
111	P52/BACK-B/ IRQ2-A/PO4-B/ TIOCA4-B/ TMO0-B/SCK2	P52	IO	O		GND	L	Free 1
112	P53/IRQ3-A/ ADTRG0-A	E10A_P53	IO	I	Interface for E10A	L	-	In normal state : Low / When E10A connected : High
113	P35/OE-B*/SCK1/ SCL0	ISP_SCK1	IO	O	Writer (for ISP-310)	H	H	
114	P34/SCK0/ SCK4-A/SDA0	P34	IO	O		GND	L	Free 1
115	P33/RxD1/SCL1	ISP_RXD1	IO	O	Writer (for ISP-310)	H	H	
116	P32/RxD0/IrRxD/ SDA1	P32	IO	I	For inspection of DSP PCB (loop back)	L	-	In normal state : Low / For inspection : High
117	P31/TxD1	ISP_TXD1	IO	O	Writer (for ISP-310)	H	H	
118	P30/TxD0/IrTxD	P30	IO	O	For inspection of DSP PCB (loop back)	-	L	Inspection result O K : High, N G : Low
119	MD0	MD0	IO	I	MCU operation mode setting	H	-	Mode 7
120	MD1	MD1	IO	I	MCU operation mode setting	H	-	Mode 7

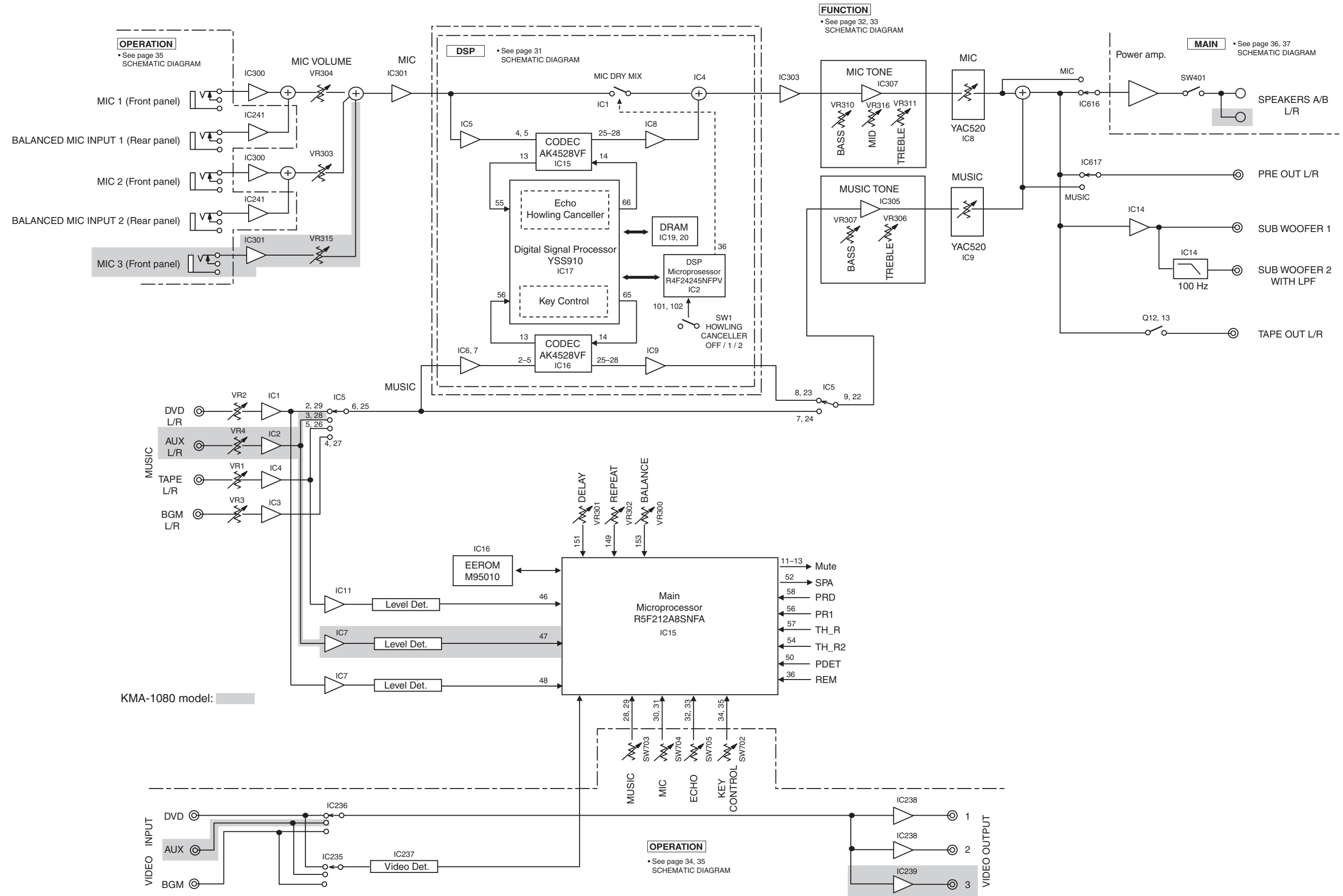
※ 1: Do not connect to the power source but connect to Vss via 0.1μF (recommended value) capacitor. (Position near the terminal.)

**IC17: YSS910C-VZ (DSP P.C.B.)  
DSP6 (Digital Signal Processor)**  
\* No replacement part available.



Port Name	I/O	Function
XI	I	System master clock input (60MHz or 30MHz)
XO	O	System master clock output (60MHz or 30MHz)
/SYNCI	I	System synchronous signal input
CKI	I	System clock input (30MHz)
/SYNCO	O	System synchronous signal output
CKO	O	System clock output (30MHz)
CKSEL	I	System master clock select (0:60MHz, 1: 30MHz)
MCKS	I	Master clock input for serial I/O (128 x Fs)
/SSYNC	I	Synchronous signal input for serial I/O
/IC	Is	Initial clear
/TEST	I+	Test mode setting (0: Test, 1: Normal)
CD14-00	I/O	Host CPU data bus
CA0/CD15	I/O	Host CPU address bus / data bus
CA7-1	I	Host CPU address bus
BTYP	I	Host CPU data bus width select (0: 8 bit, 1: 16 bit)
/CS	Is+	Chip select signal input
/RD	Is+	Read signal input
/WR	Is+	Write signal input
/IRQ	O	IRQ output
TRIG	I/O	Transfer trigger signal input/output
/WAIT	O	WAIT output
SI7-0	I+	Serial data input
SO7-0	O	Serial data output
DB31-00	I+/O	Parallel data bus
TIMO/DBOE	I/O	Timing signal output / parallel data bus output control input
DA31-00	I+/O	External memory data bus
A17/CE	O	External memory address (SRAM), /CE (PSRAM)
A16/CAS	O	External memory address (SRAM, PSRAM), /CAS (DRAM)
A15/RAS	O	External memory address (SRAM, PSRAM), /RAS (DRAM)
A14-12	O	External memory address (SRAM, PSRAM)
A11-00	O	External memory address (SRAM, PSRAM, DRAM)
/WE	O	External memory Write Enable signal
/OE	O	External memory Output Enable signal
(N.C.)	-	No connection
VDD5	-	+5V
VDD	-	+3.3V
VSS	-	Ground

■ BLOCK DIAGRAM





# PIN CONNECTION DIAGRAMS

## ICs

<p>KIA7912PI</p>	<p>LM61CIZ</p>	<p>NJM7805FA NJM7812FA</p>	<p>NJM78M05DL1A</p>
<p>PQ033EZ01ZP</p>	<p>NJU3718AM</p>	<p>NJU7313AM AK4528VF</p>	<p>YAC520-EE2</p>
<p>TC4052BF</p>	<p>TC74HC4053AFT TC74HC595AF</p>	<p>BA7649AF SN74AHC74PWR TC74VHC393FT</p>	<p>TC74HCU04AFEL</p>
<p>TC74VHC175FT</p>	<p>TC7WU04U</p>	<p>NJM2267M UPC4570G2-E1-A</p>	<p>M95010-WMN6TP</p>
<p>MSM5416258B-28J3DR</p>	<p>R5F212A8SNFA</p>	<p>R4F24245NFPV</p>	<p>YSS910C-VZ</p>

## Transistors

<p>2N5401C-AT 2SA970-GR 2SA1015-Y</p>	<p>2N5551C-AT</p>	<p>2SC1815-Y</p>	<p>2SA1037K</p>	<p>2SC2412K</p>	<p>2SC4081 T106 2SD1938F</p>
<p>2SB1237</p>	<p>2SA1689 E,F 2SC4449 E,F</p>	<p>KRA102M-AT</p>	<p>DTC114ESA-TP</p>	<p>DTC114EKA</p>	
<p>2SA1837/2SC4793</p>	<p>STD04P/STD04N</p>		<p>STD04P</p>	<p>STD04N</p>	

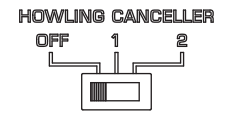
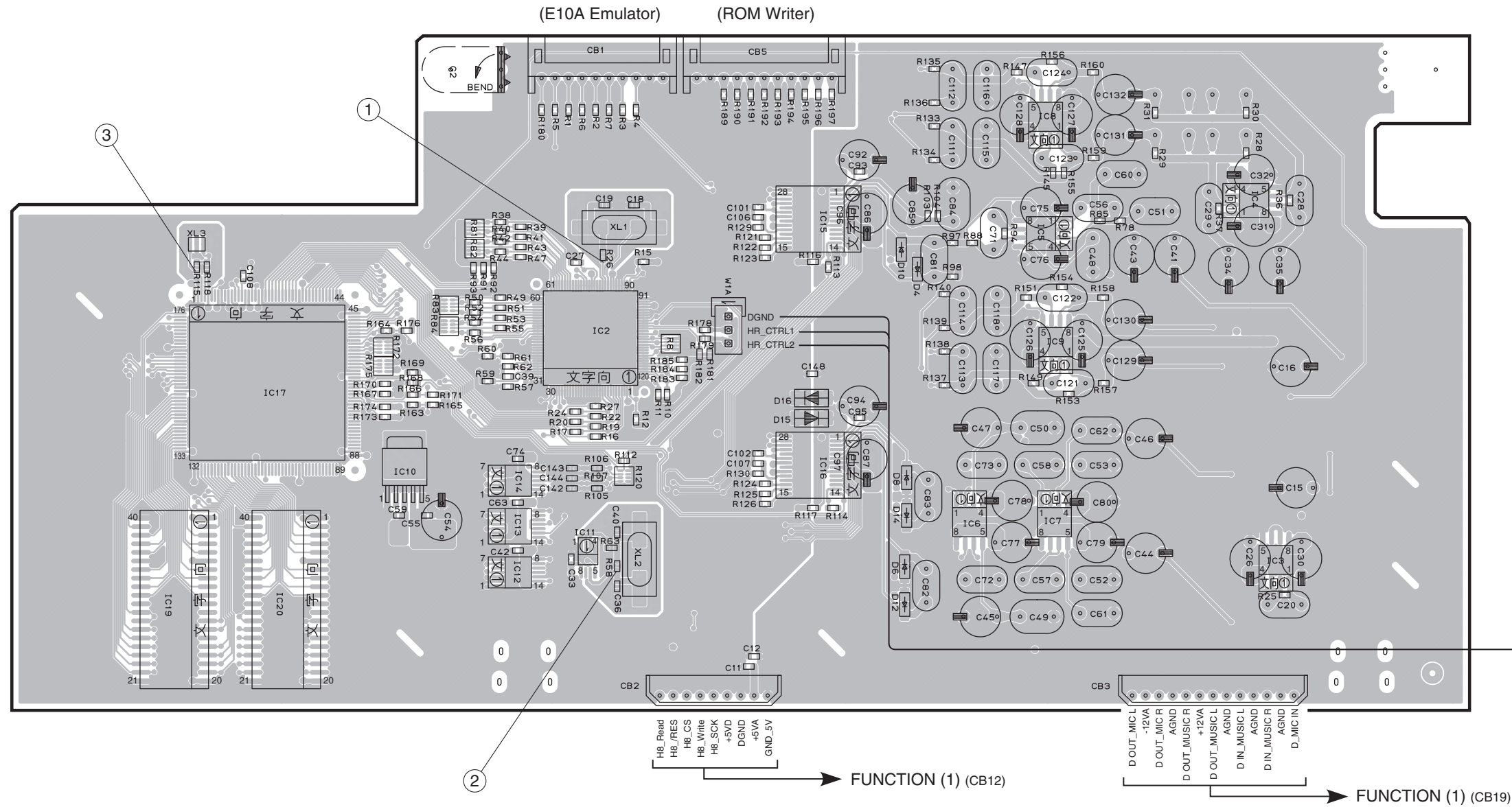
## Diodes

<p>1SR139 ISR140 1SS133 1SS176 1SS270A 1T2 EL02ZLF S2L20U</p>	<p>1SS355</p>	<p>1SS226 (TE85R)</p>	<p>MA8047-M 4.7V</p>	<p>RB160L-60</p>
<p>MTZJ12B MTZJ12C MTZJ5.1C MTZJ5.6B</p>	<p>RLZ4.7A 4.7V RLZ5.1B 5.1V RLZ8.2C 8.2V</p>	<p>D15XBN20</p>	<p>RS203M</p>	<p>RS403M</p>

PRINTED CIRCUIT BOARDS

DSP (1) (Side A)

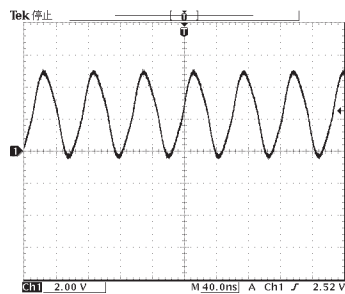
DSP (2) (Side A)



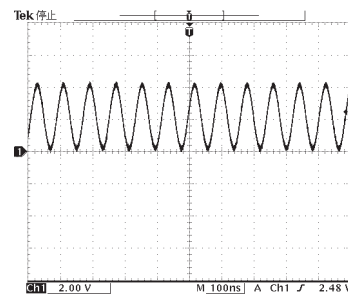
• Semiconductor Location

Ref. No.	Location
D4	D3
D6	D4
D8	D3
D10	D2
D12	D4
D14	D4
D15	D3
D16	D3
IC2	C3
IC3	F4
IC4	F2
IC5	E2
IC6	E4
IC7	E4
IC8	E2
IC9	E3
IC10	B3
IC11	C4
IC12	C4
IC13	C4
IC14	C3
IC15	D2
IC16	D3
IC17	B3
IC19	A4
IC20	B4

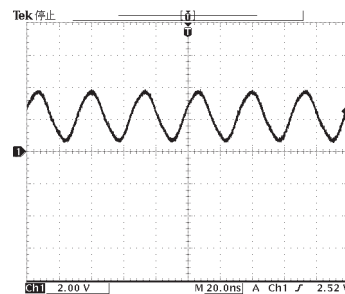
Point ① Pin 81 of IC2



Point ② Pin 6 of IC11



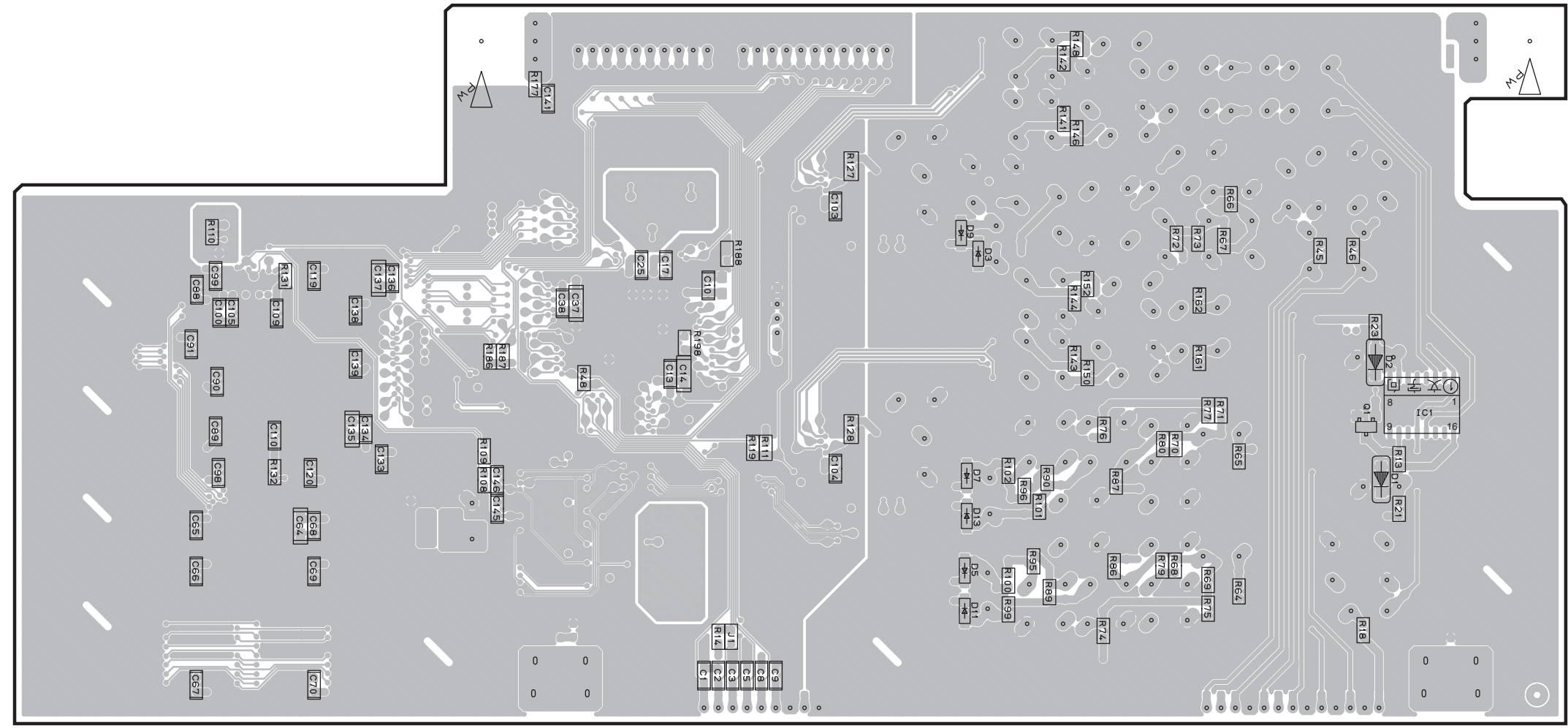
Point ③ Pin 3 of IC17



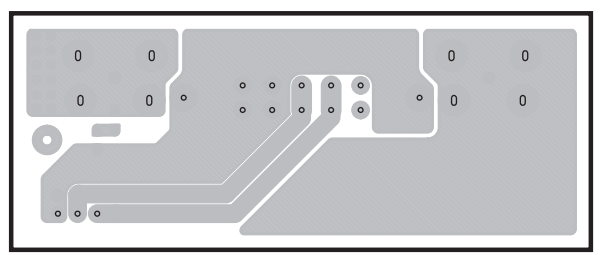


1  
2  
3  
4  
5  
6

DSP (1) (Side B)



DSP (2) (Side B)



● Semiconductor Location

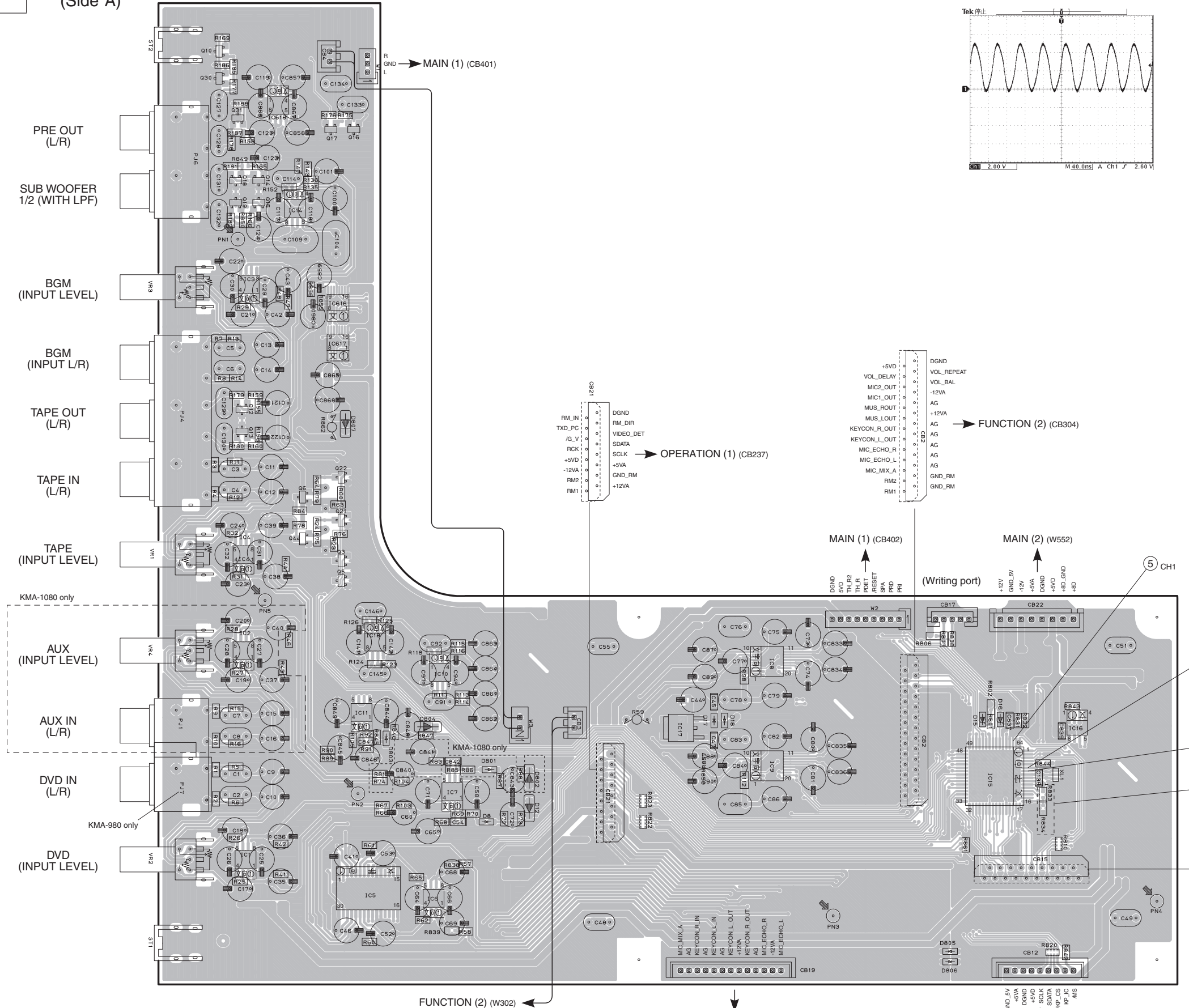
Ref. No.	Location
D1	F3
D2	F3
D3	D3
D5	D4
D7	D3
D9	D2
D11	D4
D13	D4
IC1	F3
Q1	F3

FUNCTION (1)

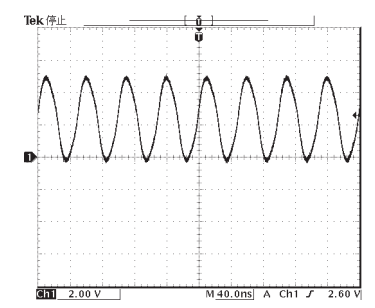
(Side A)

● Semiconductor Location

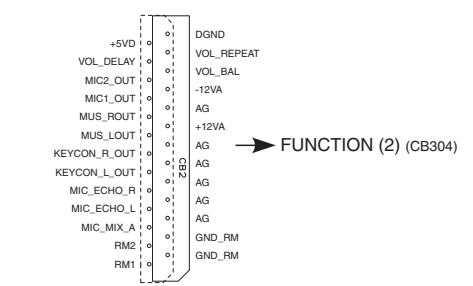
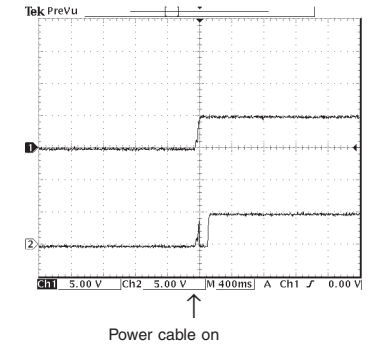
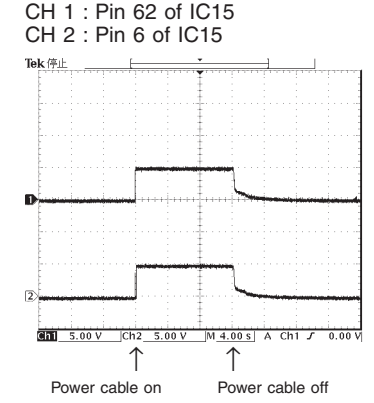
Ref. No.	Location
D8	D5
D12	D5
D15	F4
D16	G4
D17	E4
D18	E4
D801	D5
D802	D5
D803	D4
D804	D4
D805	F5
D806	F5
D807	C3
IC1	C5
IC2	C4
IC3	C2
IC4	C4
IC5	D5
IC6	D5
IC7	D5
IC8	E4
IC9	E4
IC10	D4
IC11	D4
IC14	C2
IC15	F5
IC16	G4
IC17	E4
IC18	D4
IC616	C2
IC617	C3
IC618	C1
Q3	C4
Q4	C3
Q5	C4
Q6	C3
Q10	C1
Q12	C3
Q13	C3
Q14	C2
Q15	C2
Q16	C2
Q17	C2
Q18	C2
Q19	C2
Q21	C3
Q22	C3
Q30	C1
Q31	C1



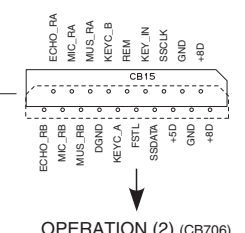
Point ④ Pin 7 of IC15



Point ⑤ CH 1 : Pin 62 of IC15  
CH 2 : Pin 6 of IC15



	R833	R834
KMA-1080	no use	100K
KMA-980	100K	no use

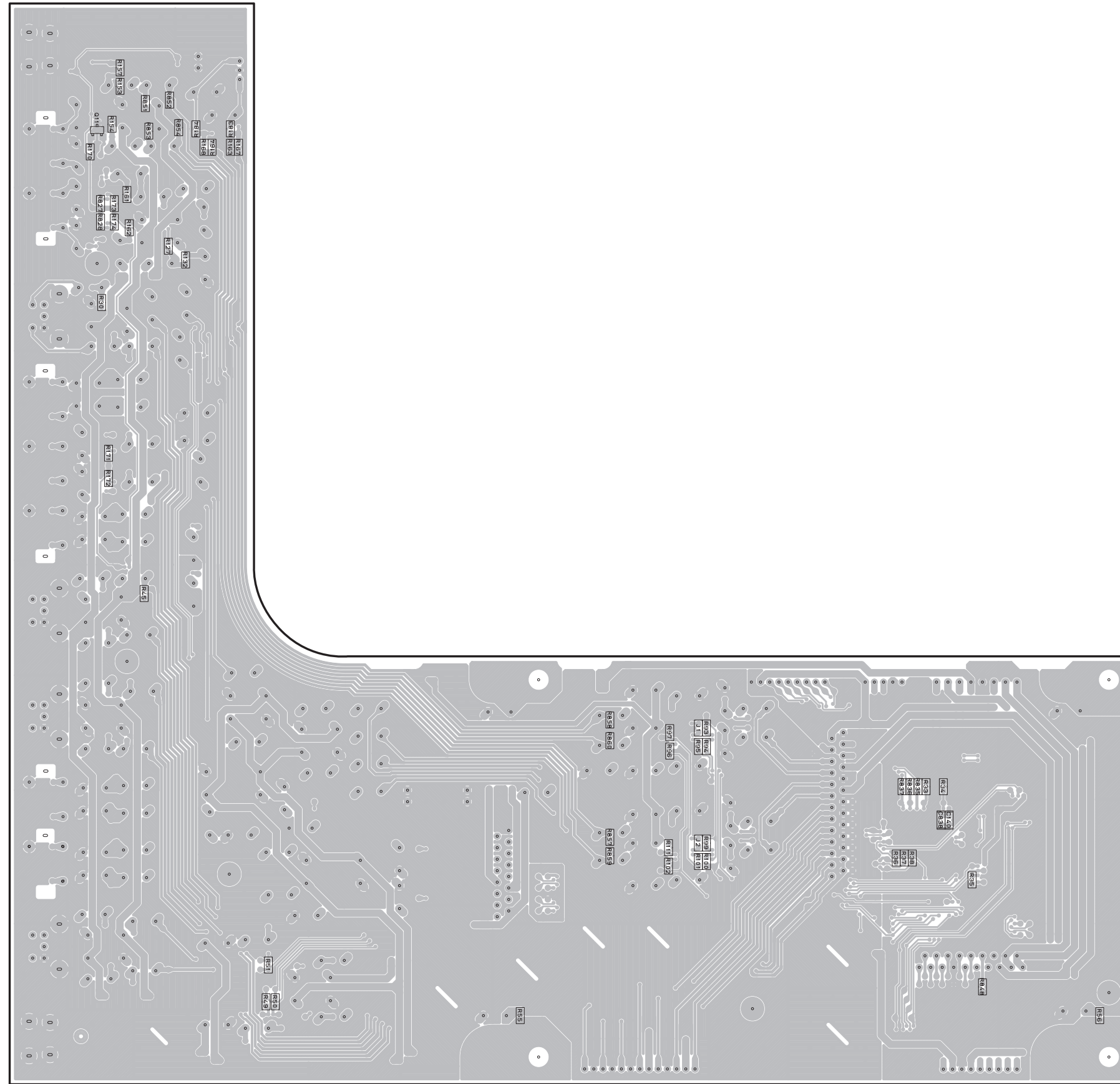


**FUNCTION (1)**

(Side B)

● Semiconductor Location

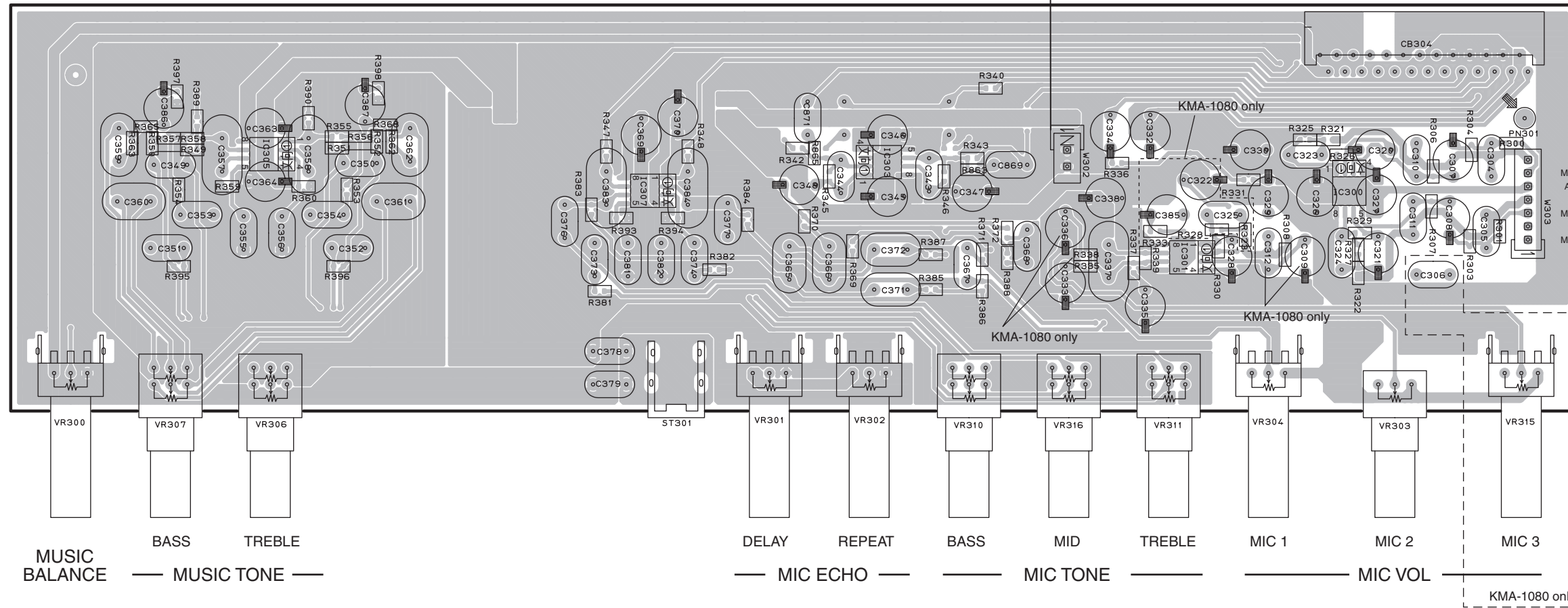
Ref. No.	Location
Q11	C1





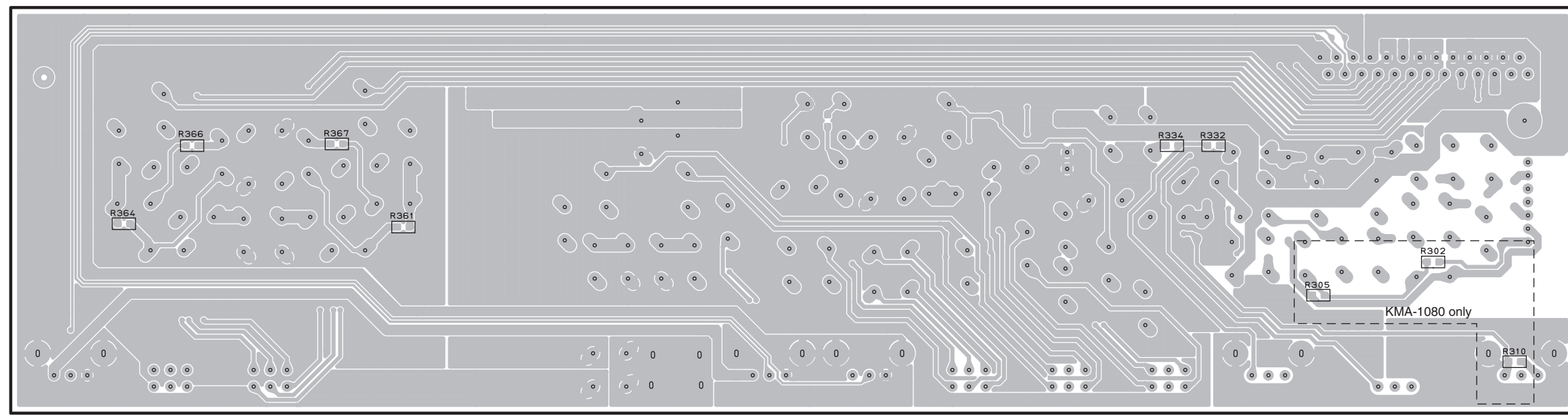
FUNCTION (2)

(Side A)

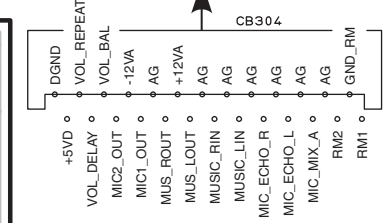


FUNCTION (2)

(Side B)



FUNCTION (1) (CB2)



OPERATION (4) (CB901)

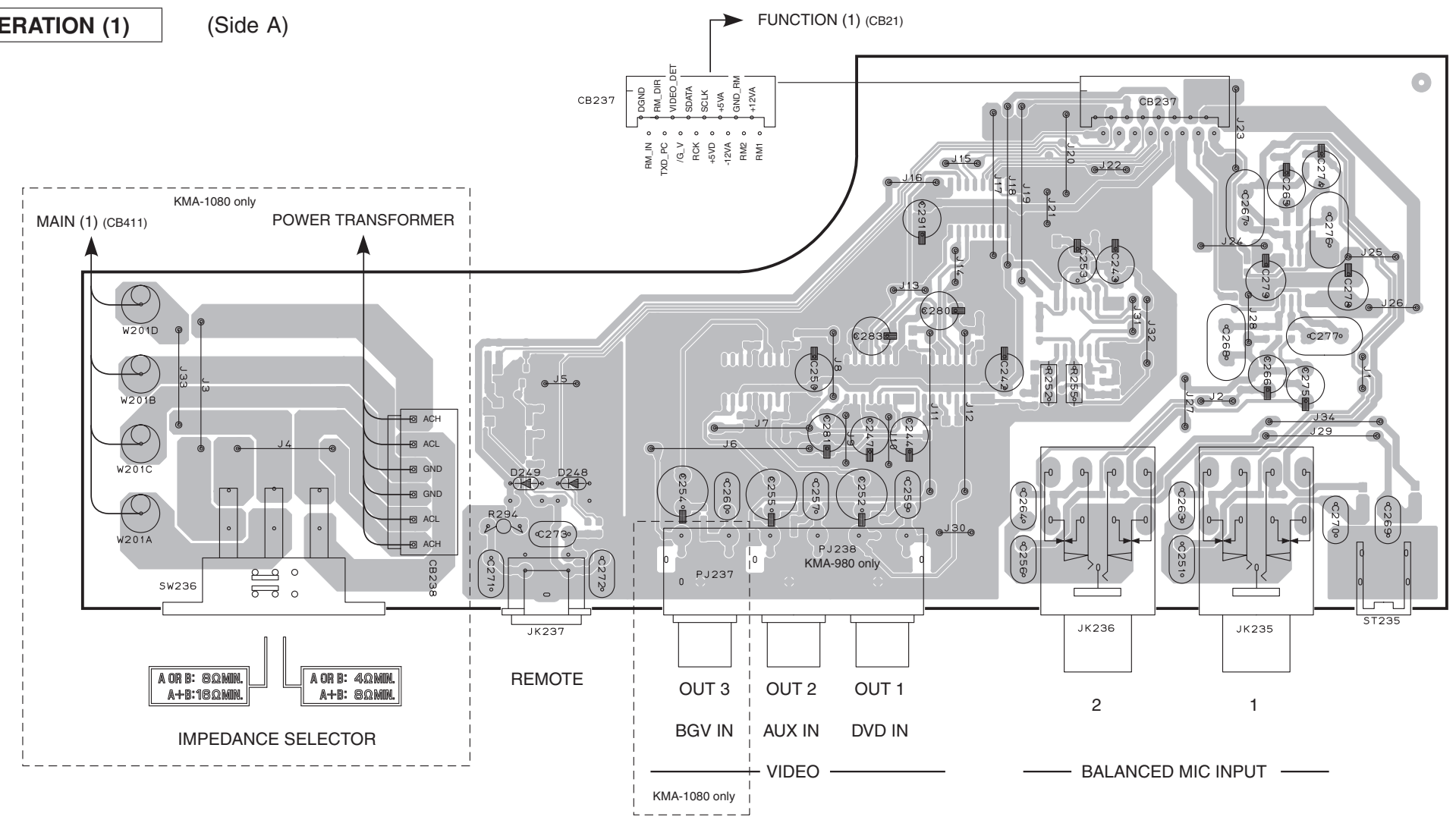


● Semiconductor Location

Ref. No.	Location
IC300	F2
IC301	F2
IC303	D2
IC305	B2
IC307	C2

1  
2  
3  
4  
5  
6

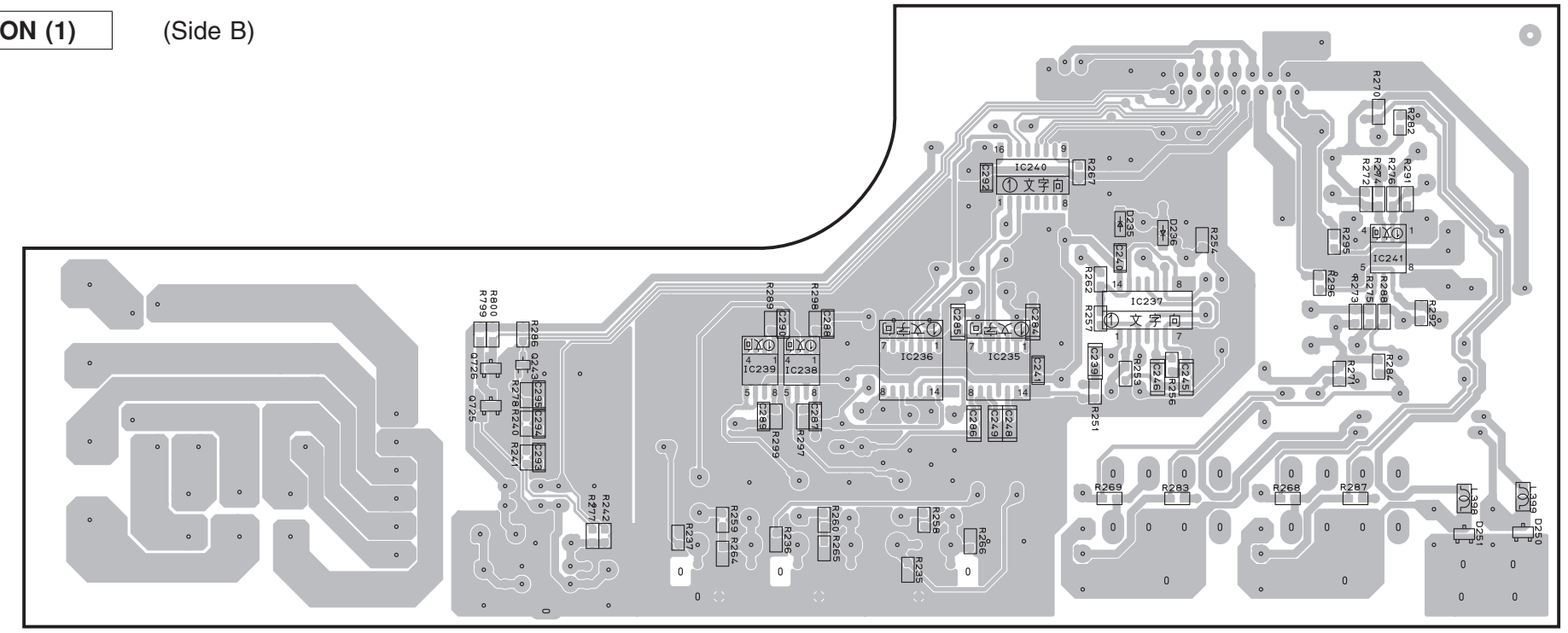
OPERATION (1) (Side A)



● Semiconductor Location

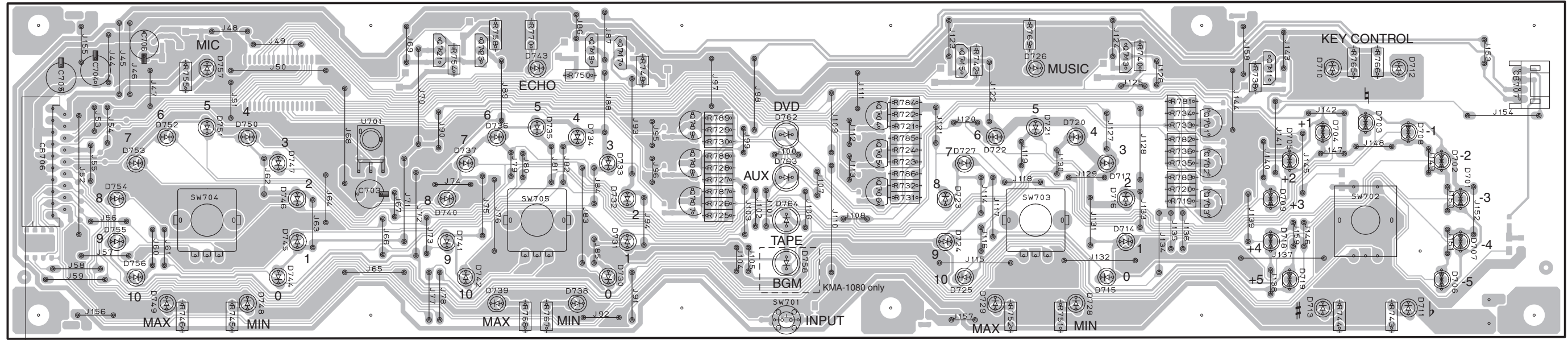
Ref. No.	Location
D235	E5
D236	E5
D248	D3
D249	C3
D250	G5
D251	F5
IC235	E5
IC236	E5
IC237	E5
IC238	D5
IC239	D5
IC240	E4
IC241	F5
Q243	C5
Q725	C5
Q726	C5

OPERATION (1) (Side B)



OPERATION (2)

(Side A)



RV-LED-OUT  
RKEY-OUT  
RV-LED-G  
RV-LED-R

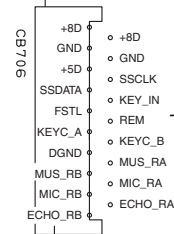
MIC

ECHO

MUSIC

KEY CONTROL

KMA-1080: OPERATION (5) (w701)  
KMA-980: OPERATION (6) (w702)



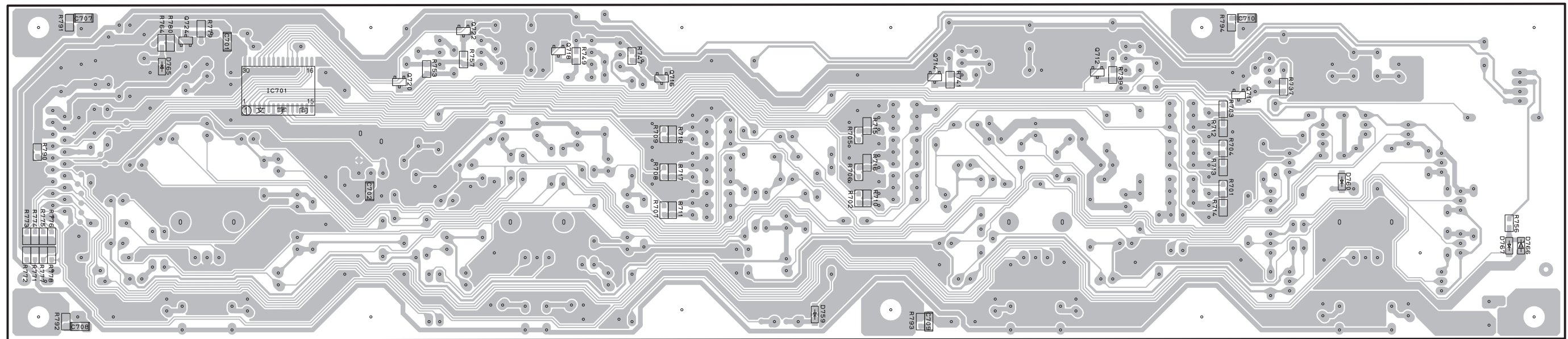
FUNCTION (1)  
(CB15)

● Semiconductor Location

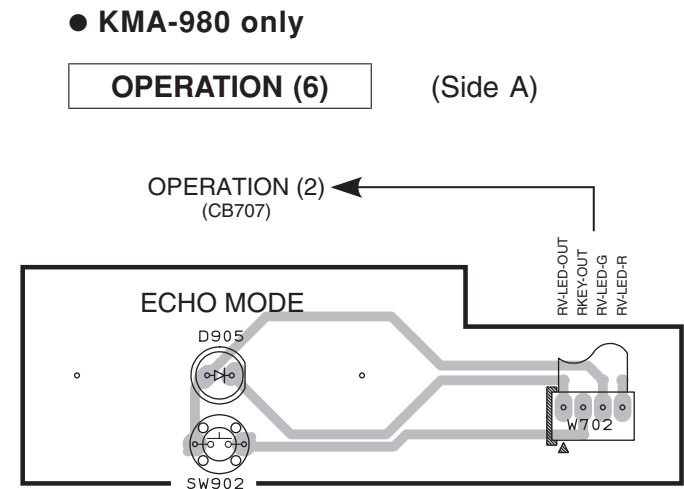
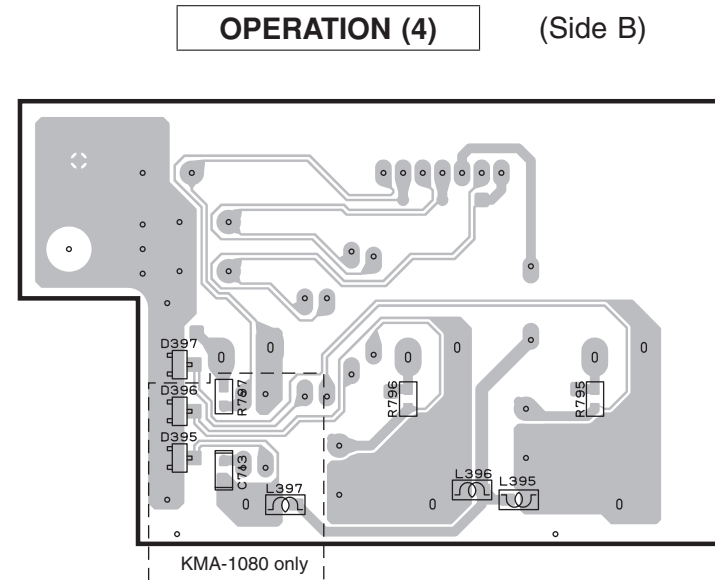
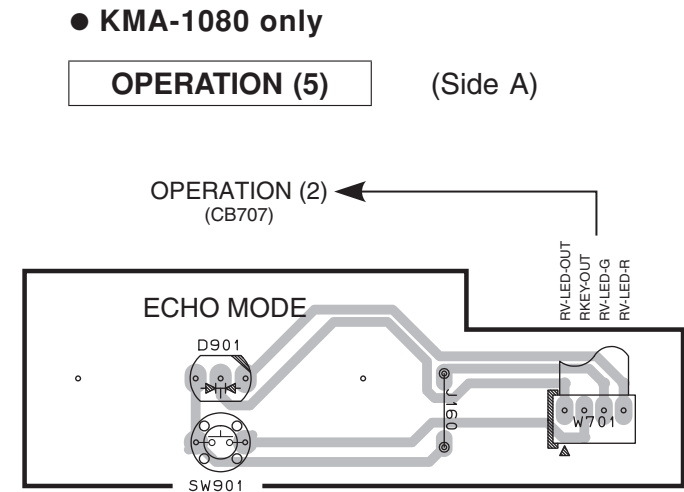
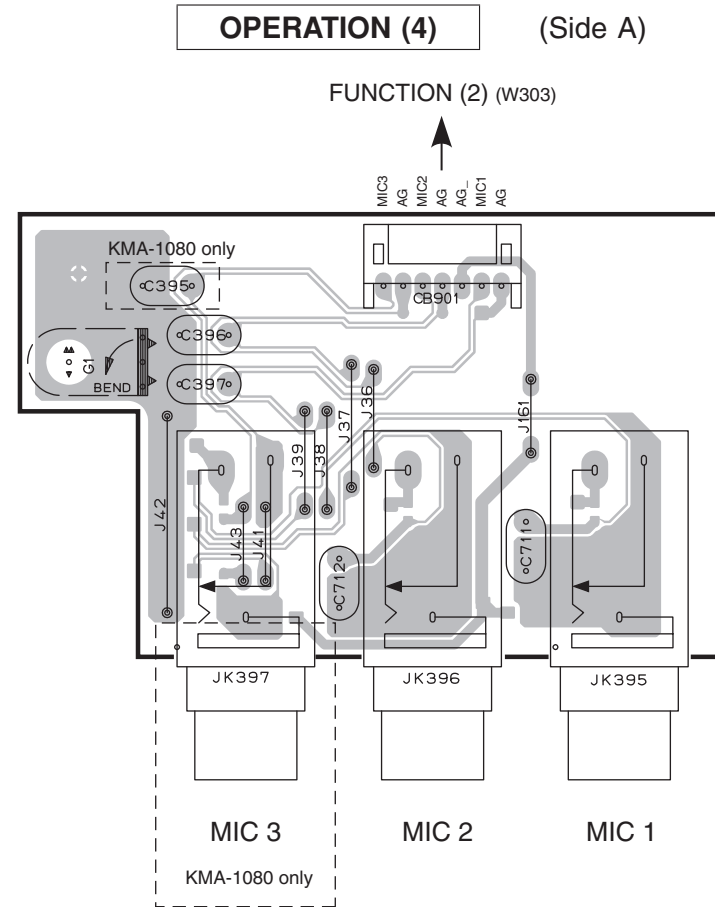
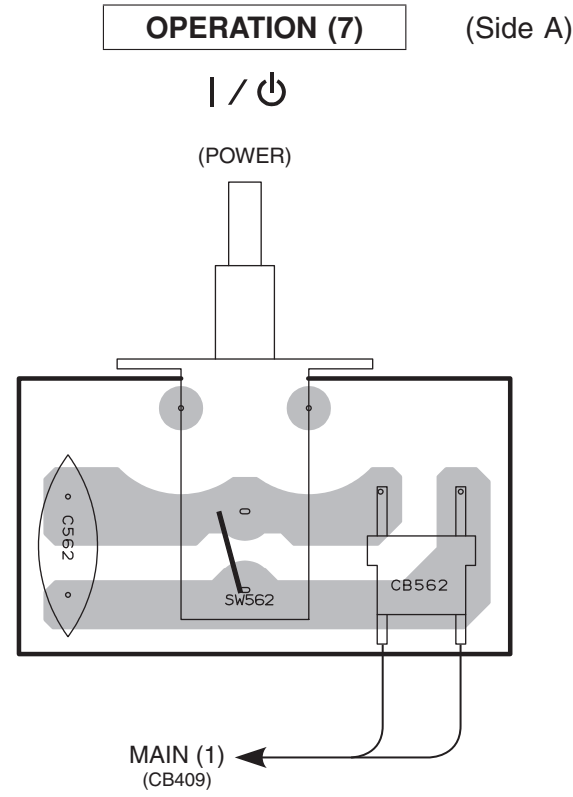
Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location	Ref. No.	Location
D701	H2	D713	G2	D725	F2	D737	C2	D749	B2	D762	E2	Q706	E2
D702	H2	D714	F2	D726	F1	D738	D2	D750	B2	D763	E2	Q707	D2
D703	G2	D715	F2	D727	F2	D739	C2	D751	B2	D764	E2	Q708	D2
D704	G2	D716	F2	D728	F2	D740	C2	D752	B2	D765	B4	Q709	D2
D705	G2	D717	F2	D729	F2	D741	C2	D753	B2	D766	H5	Q710	G4
D706	H2	D718	G2	D730	D2	D742	C2	D754	B2	D767	H5	Q711	G1
D707	H2	D719	G2	D731	D2	D743	D1	D755	B2	IC701	B4	Q712	F4
D708	H2	D720	F2	D732	D2	D744	B2	D756	B2	Q701	G2	Q713	F1
D709	G2	D721	F2	D733	D2	D745	B2	D757	B1	Q702	G2	Q714	E4
D710	G1	D722	F2	D734	D2	D746	B2	D758	E2	Q703	G2	Q715	E1
D711	H2	D723	E2	D735	D2	D747	B2	D759	E5	Q704	E2	Q716	D4
D712	H1	D724	E2	D736	C2	D748	B2	D760	G5	Q705	E2	Q717	D1
												Q718	D4
												Q719	D1
												Q720	C4
												Q721	C1
												Q722	C4
												Q723	C1
												Q724	B4

OPERATION (2)

(Side B)



1  
2  
3  
4  
5  
6



● **Semiconductor Location**

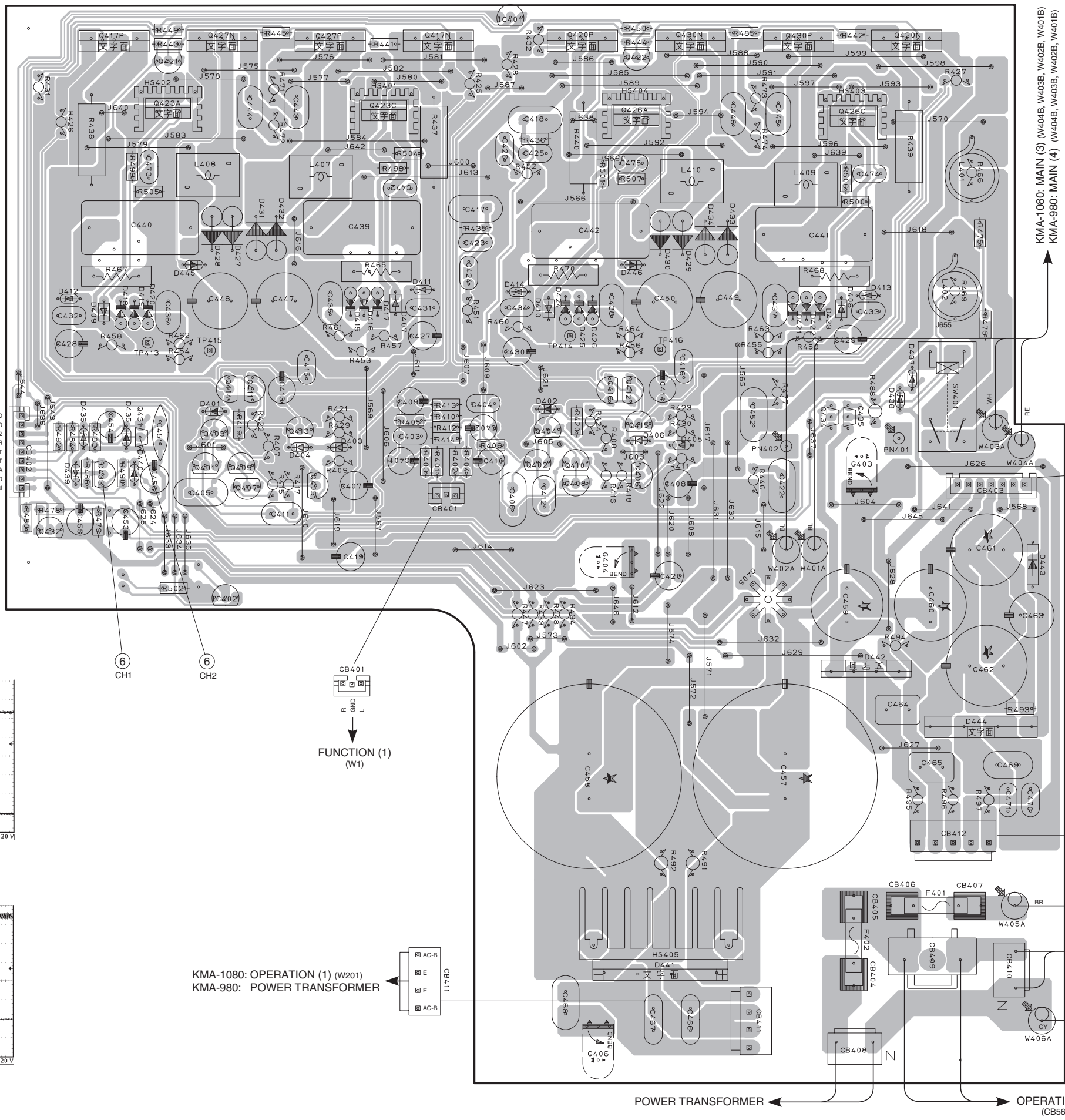
Ref. No.	Location
D395	C5
D396	C5
D397	C4
D901	F2



MAIN (1) (Side A)

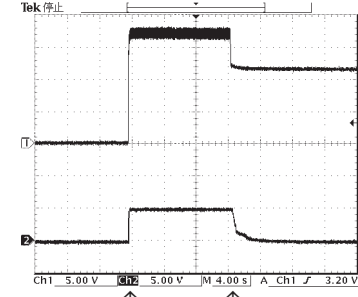
• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D401	D3	IC401	E1
D402	E3	IC402	D4
D403	D3	Q401	D3
D404	D3	Q402	E3
D405	F3	Q403	D3
D406	F3	Q404	E3
D407	E2	Q405	D3
D408	G2	Q406	F3
D409	C2	Q407	D3
D410	E2	Q408	E3
D411	E2	Q409	D3
D412	C2	Q410	E3
D413	G2	Q411	D3
D414	E2	Q412	F3
D415	D2	Q413	D3
D416	D2	Q414	D3
D417	D2	Q415	F3
D418	C2	Q416	E3
D419	C2	Q417N	E1
D420	C2	Q417P	C1
D421	F2	Q420N	G1
D422	F2	Q420P	E1
D423	F2	Q421	C1
D424	E2	Q422	F1
D425	E2	Q423A	C1
D426	E2	Q423C	D1
D427	D2	Q426A	F1
D428	D2	Q426C	G1
D429	F2	Q427N	D1
D430	F2	Q427P	D1
D431	D2	Q430N	F1
D432	D2	Q430P	F1
D433	F2	Q431	C3
D434	F2	Q432	C3
D435	C3	Q433	C3
D436	C3	Q434	F3
D437	G3	Q435	G3
D438	G3		
D439	C3		
D440	C3		
D441	F5		
D442	G4		
D443	G3		
D444	G4		
D445	D2		
D446	F2		

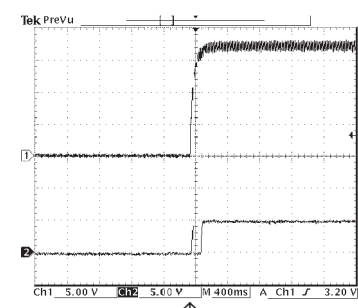


FUNCTION (1) (W2)

Point ⑥  
CH 1 : Emitter of Q433  
CH 2 : Collector of Q433



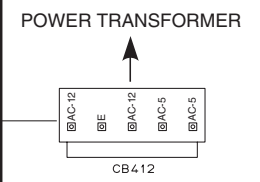
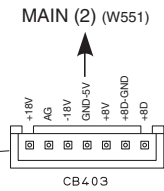
Power cable on Power cable off



Power cable on

KMA-1080: OPERATION (1) (W201)  
KMA-980: POWER TRANSFORMER

KMA-1080: MAIN (3) (W404B, W403B, W402B, W401B)  
KMA-980: MAIN (4) (W404B, W403B, W402B, W401B)



MAIN (5) (W405B, W406B)

AC IN

POWER TRANSFORMER

OPERATION (7) (CB562)



1

MAIN (2)

(Side A)

2

3

4

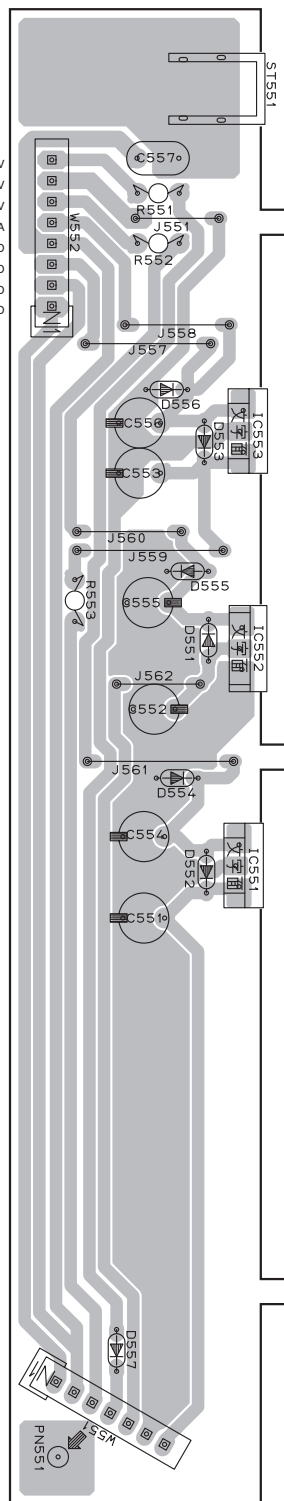
5

6

7

FUNCTION (1) (CB22)

+12V  
GND\_5V  
-12V  
+5VA  
DGND  
+5VD  
+8D\_GND  
+8D



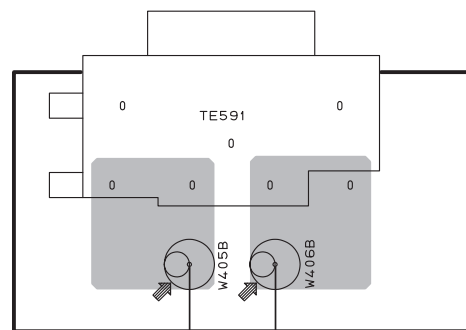
• Semiconductor Location

Ref. No.	Location
D551	B3
D552	B4
D553	B3
D554	B4
D555	B3
D556	B3
D557	B4
IC551	B4
IC552	B3
IC553	B3

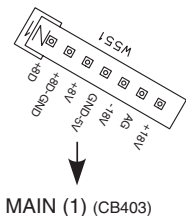
MAIN (5)

(Side A)

AC OUTLETS



MAIN (1)  
(W405A, W406A)



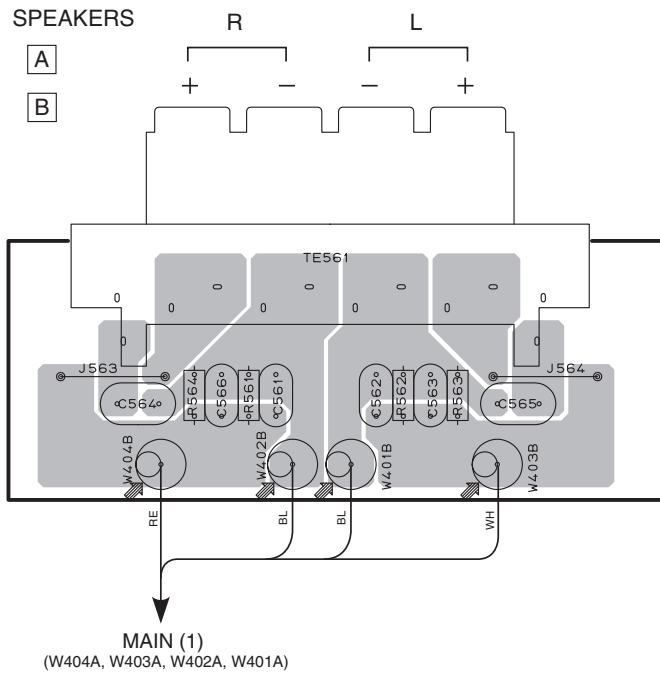
MAIN (1) (CB403)

**KMA-1080/KMA-980**

● **KMA-1080**

**MAIN (3)**

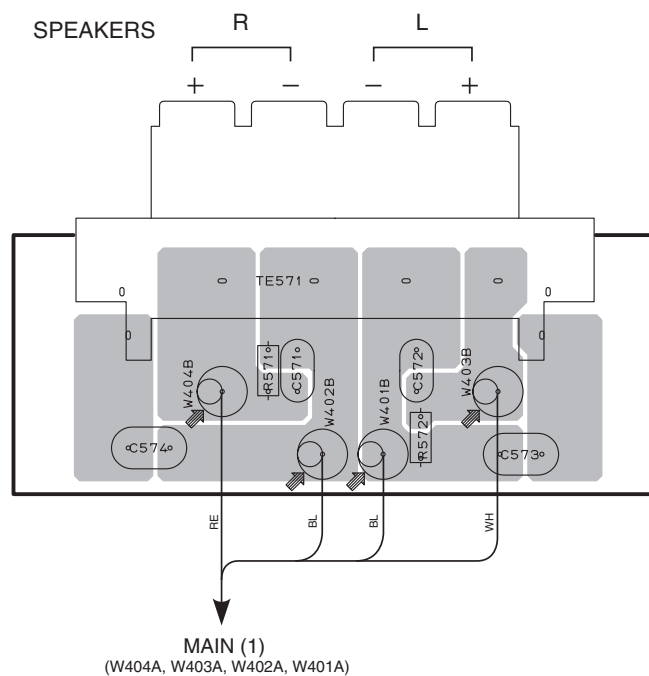
(Side A)



● **KMA-980**

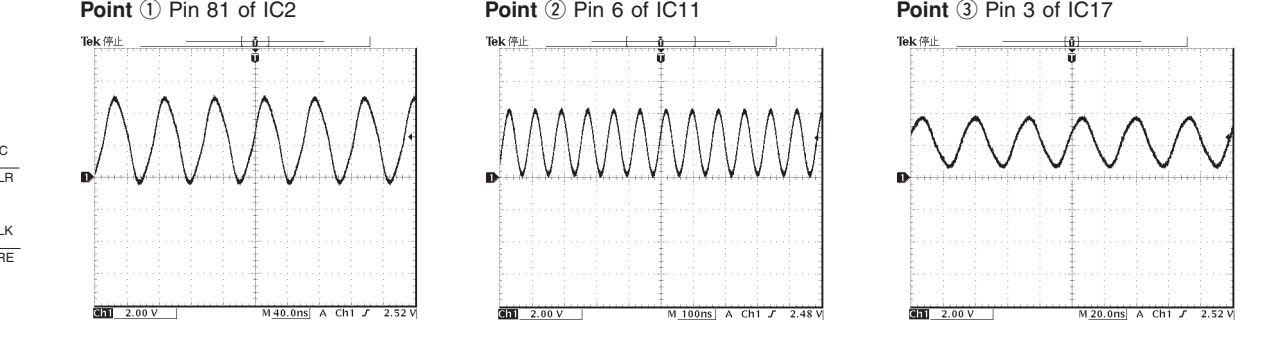
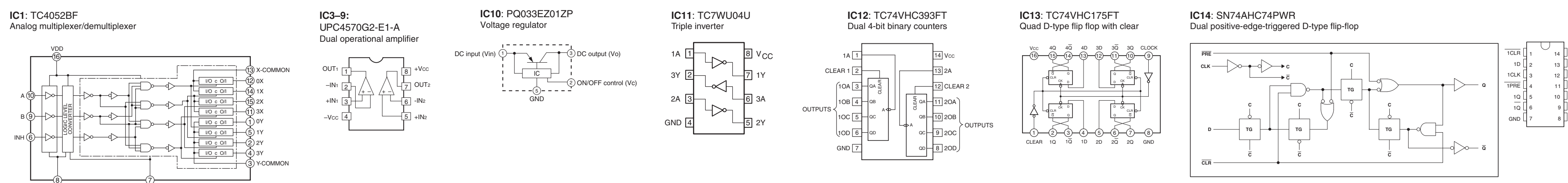
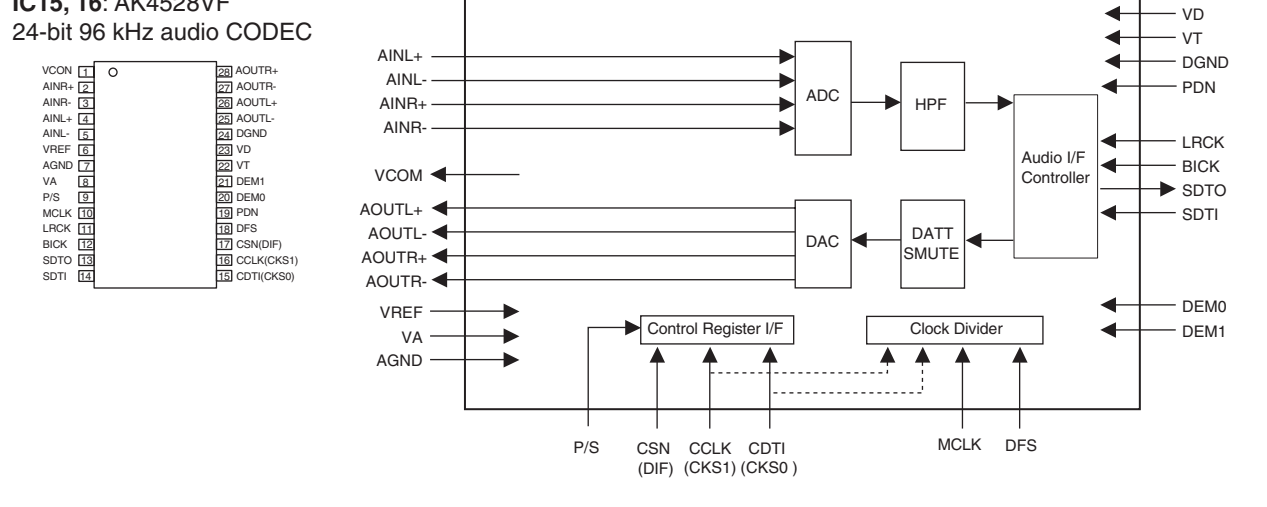
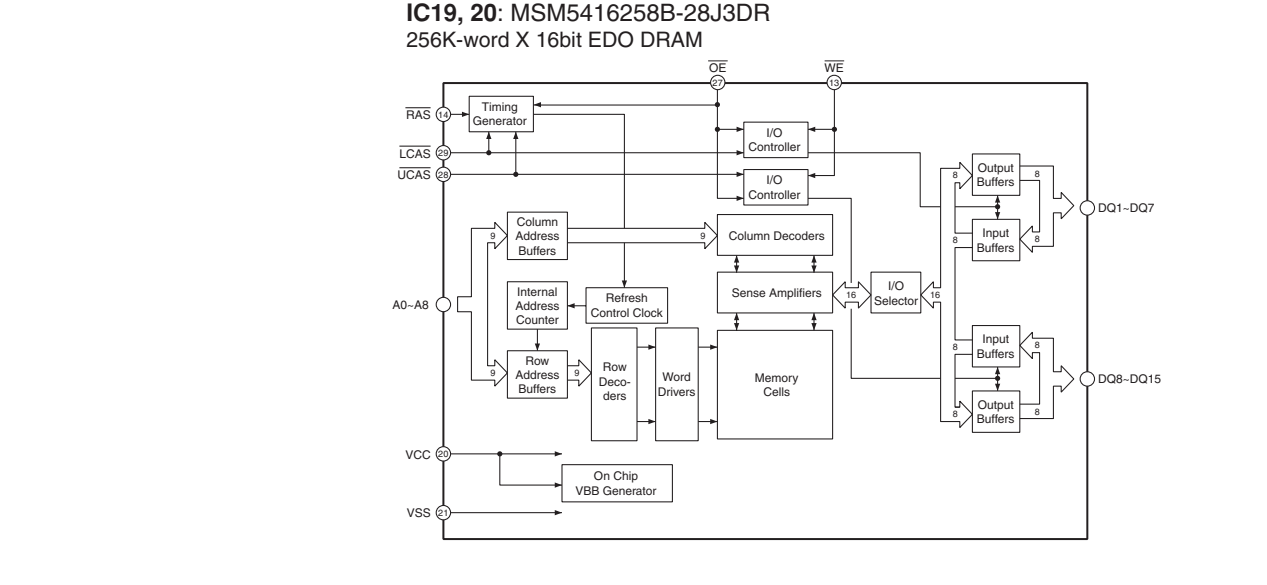
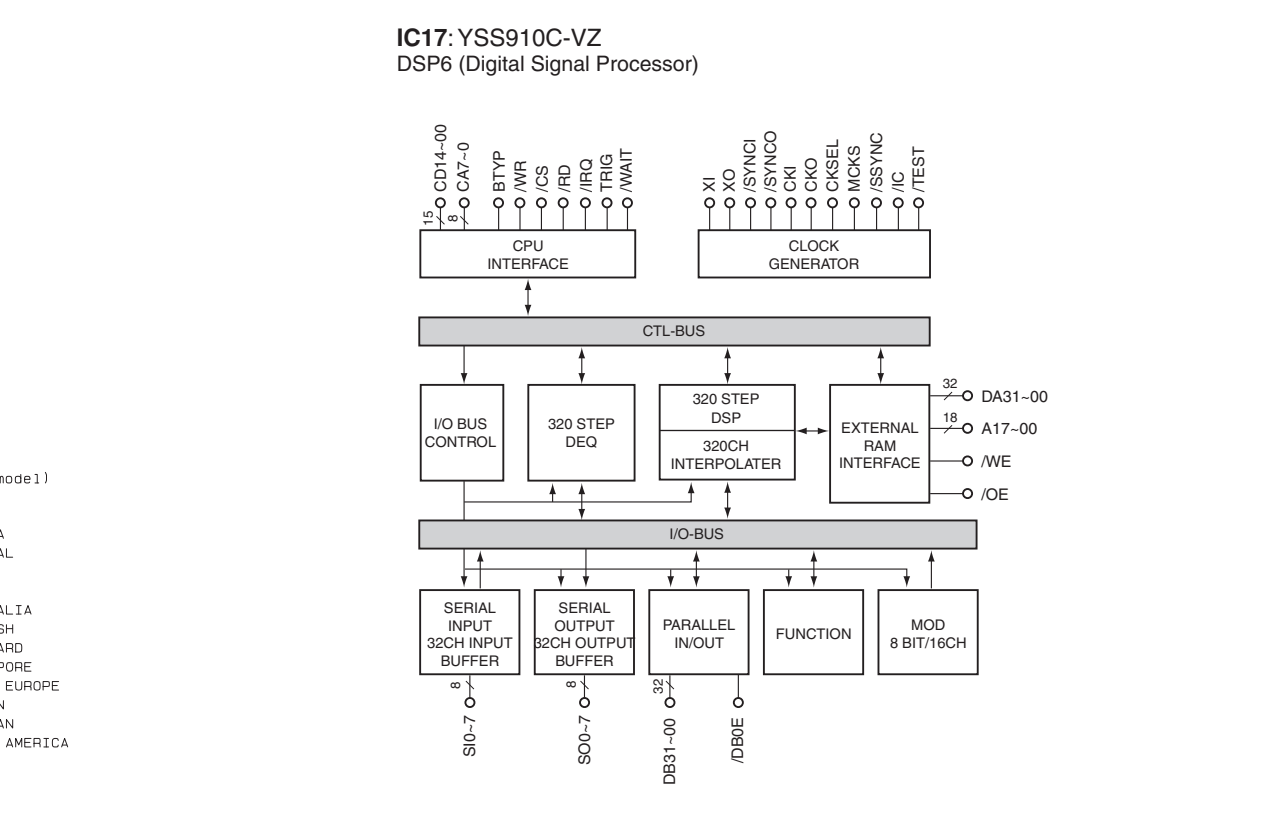
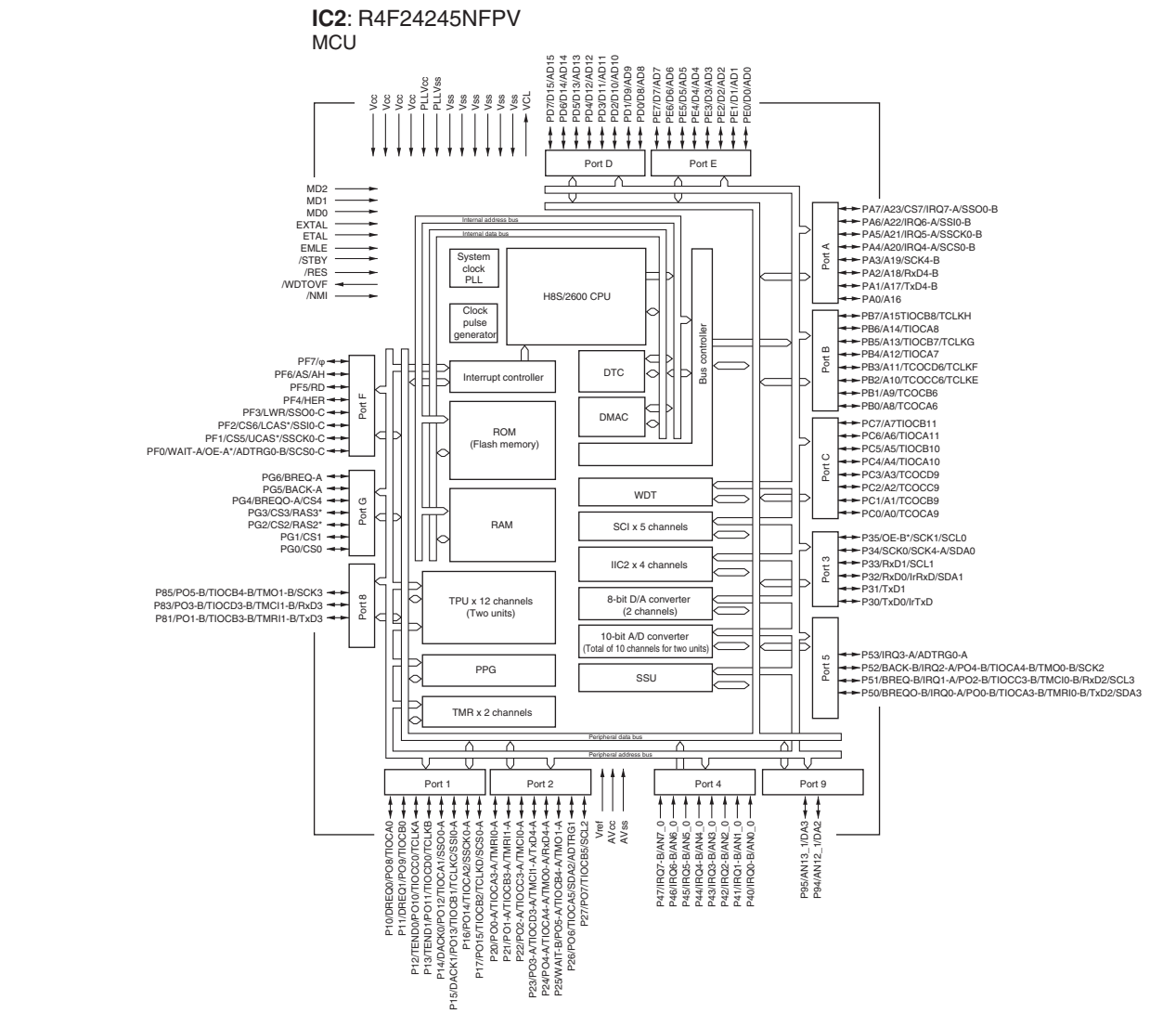
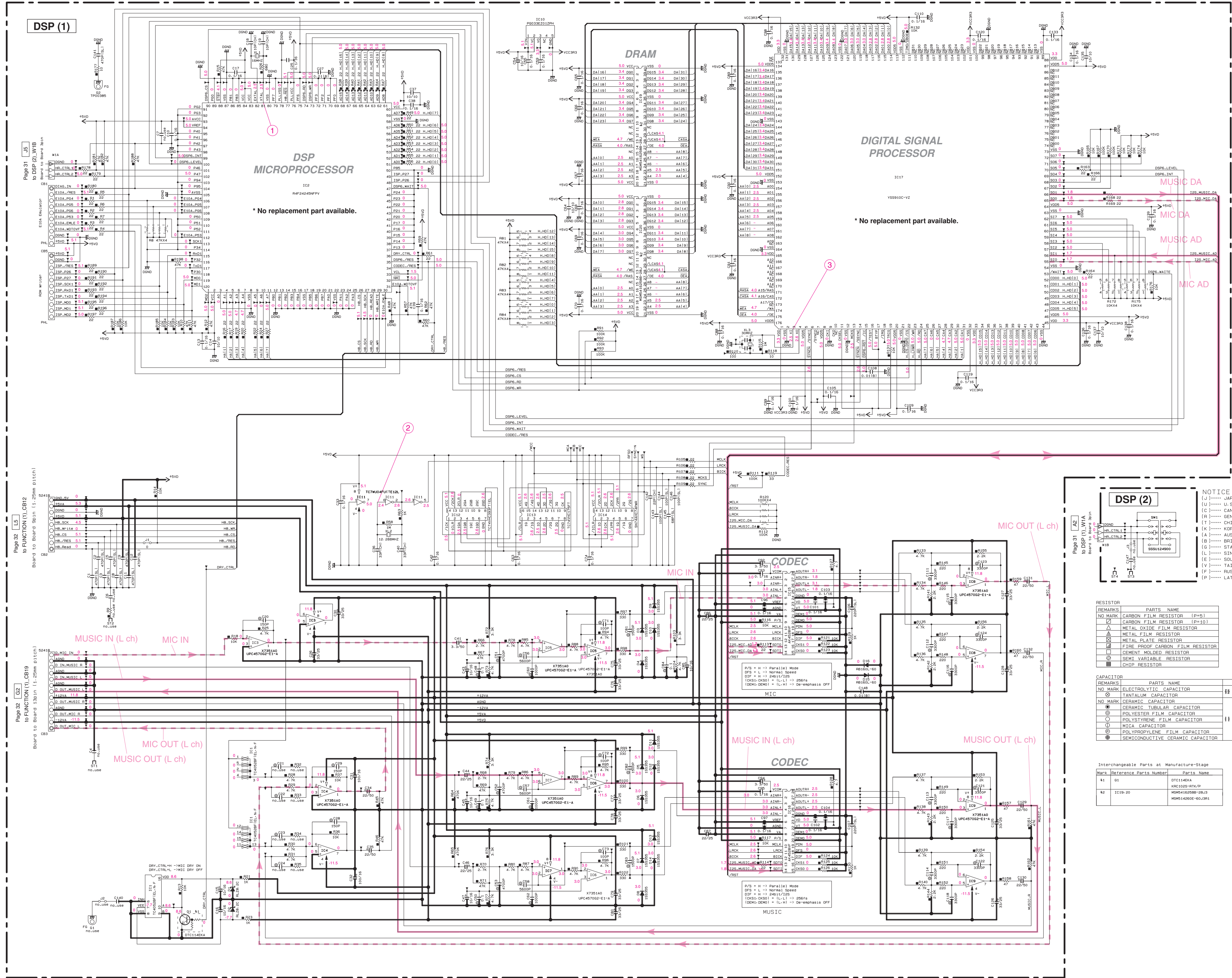
**MAIN (4)**

(Side A)



SCHEMATIC DIAGRAMS

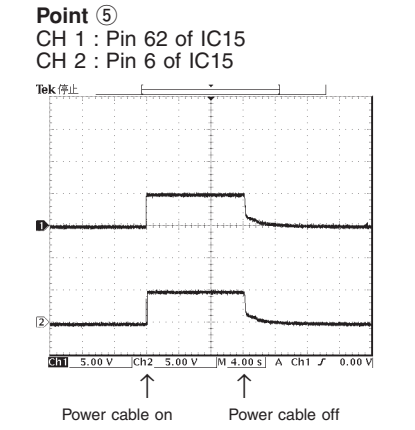
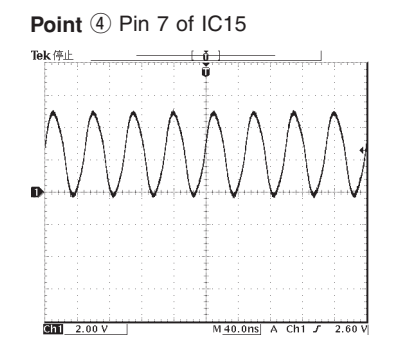
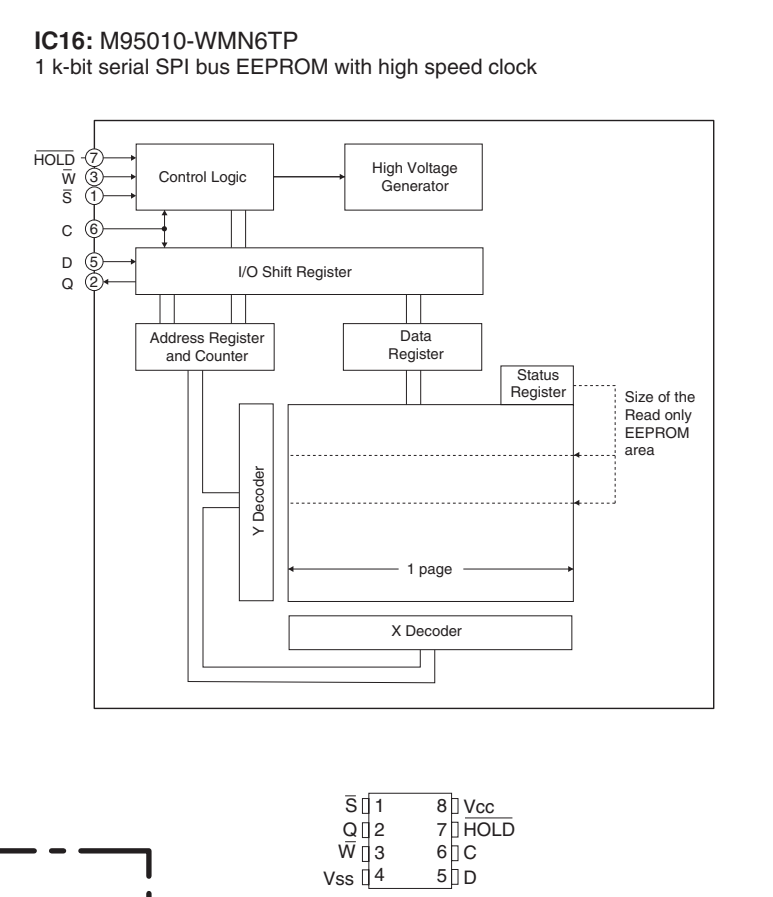
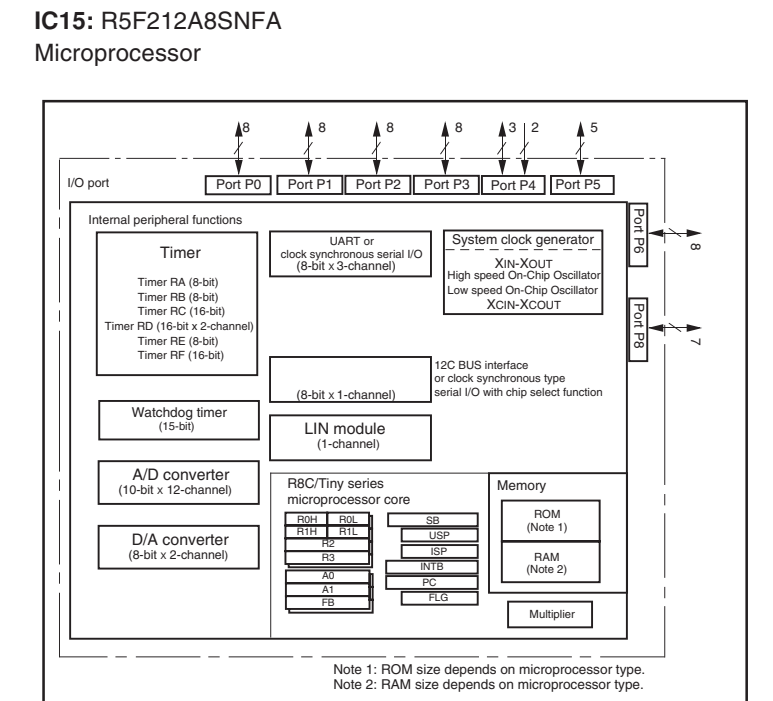
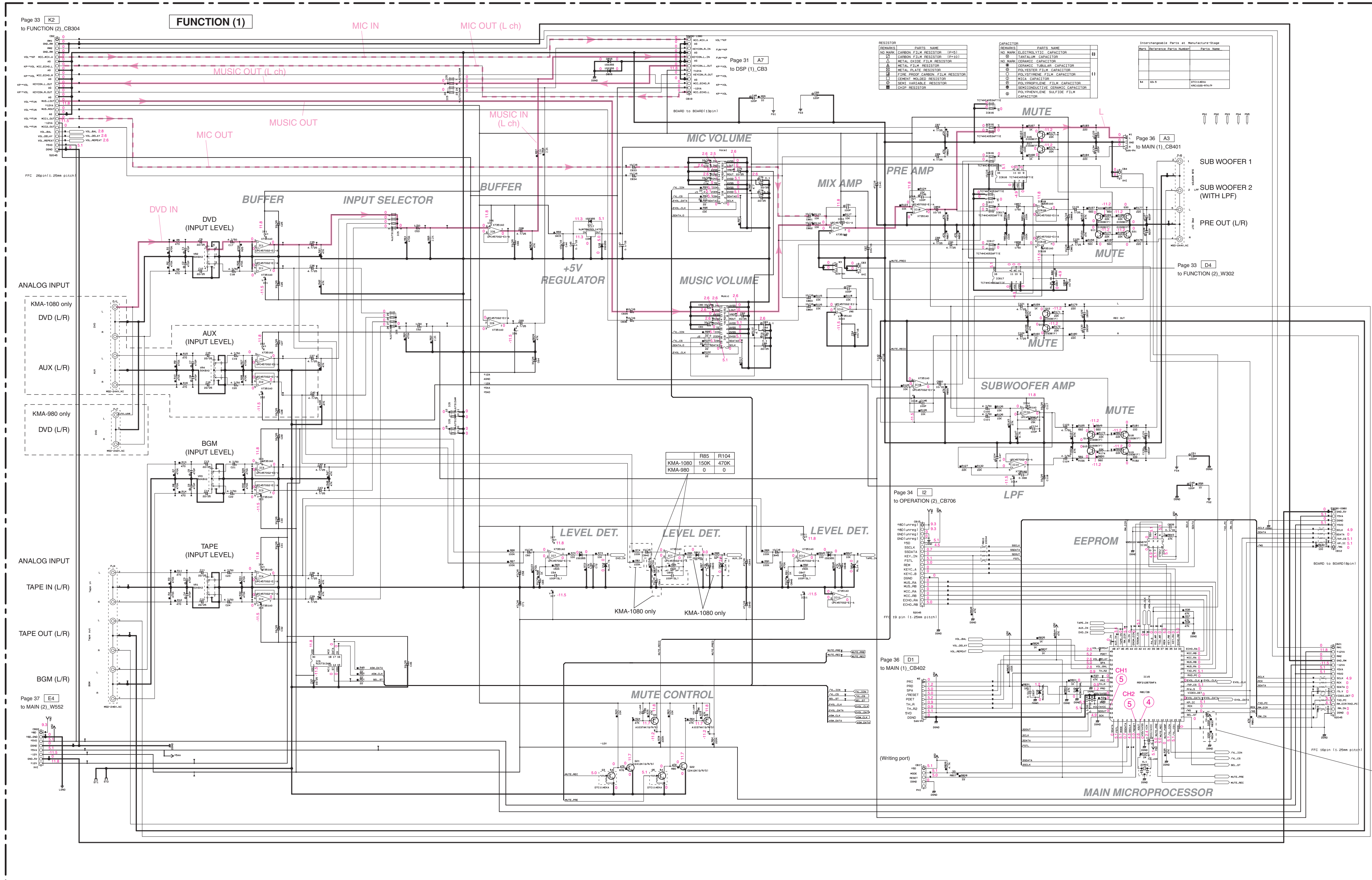
DSP



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



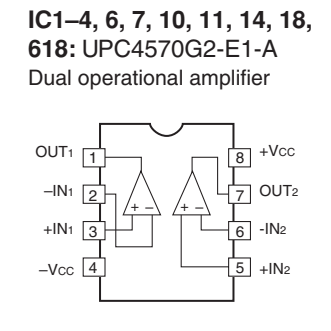
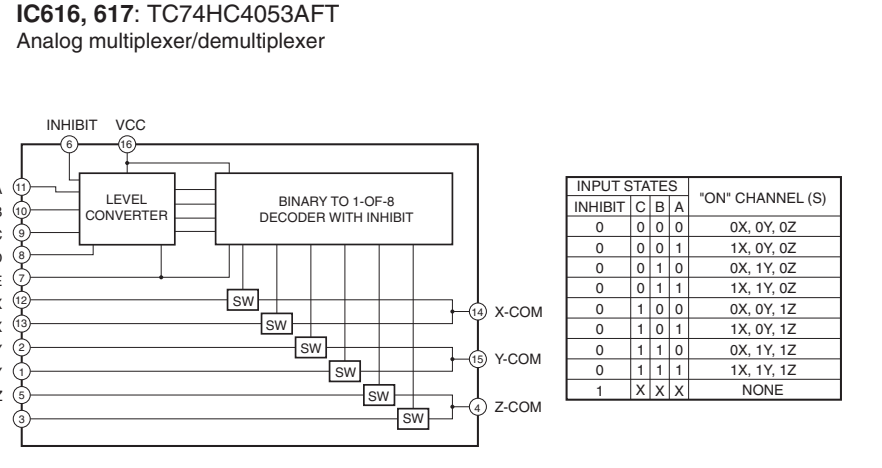
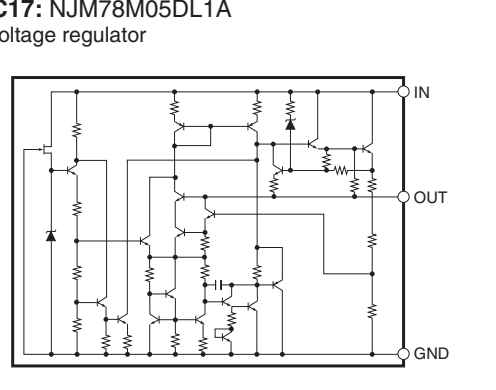
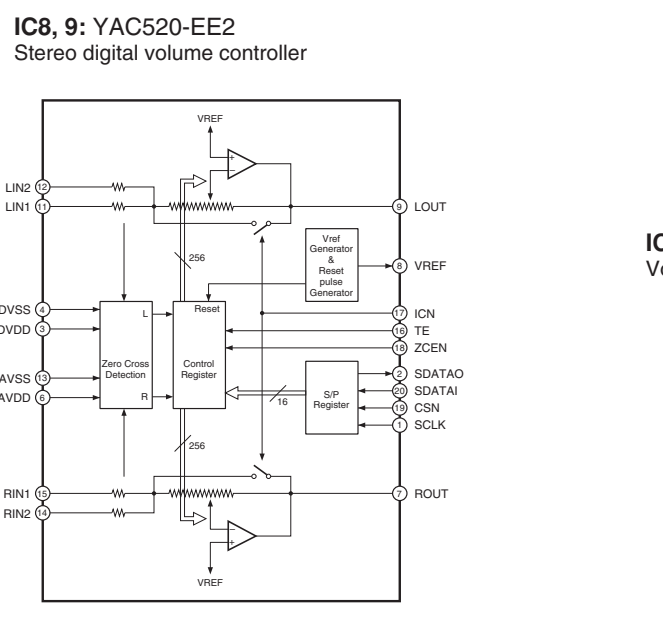
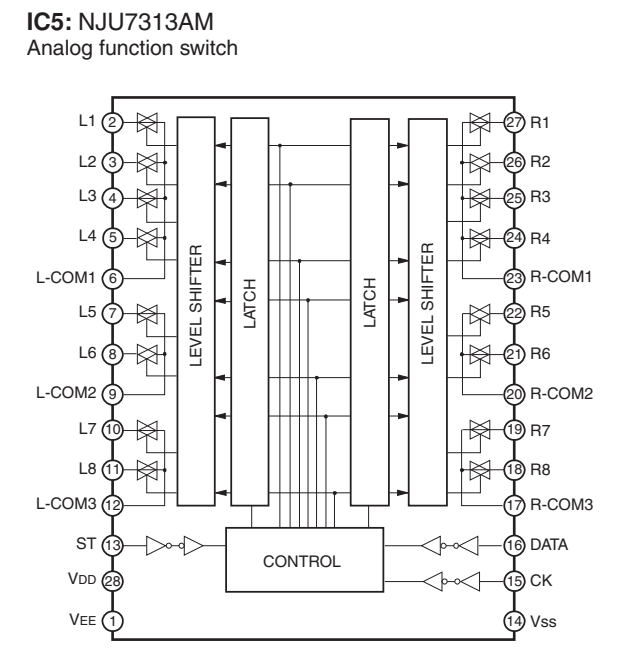
FUNCTION 1/2



Page 31 [A5] to DSP (1)\_CB2

Page 35 [L4] to OPERATION (1)\_CB27

	R833	R834
KMA-1080	no_use	100K
KMA-980	100K	no_use



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

FUNCTION 2/2

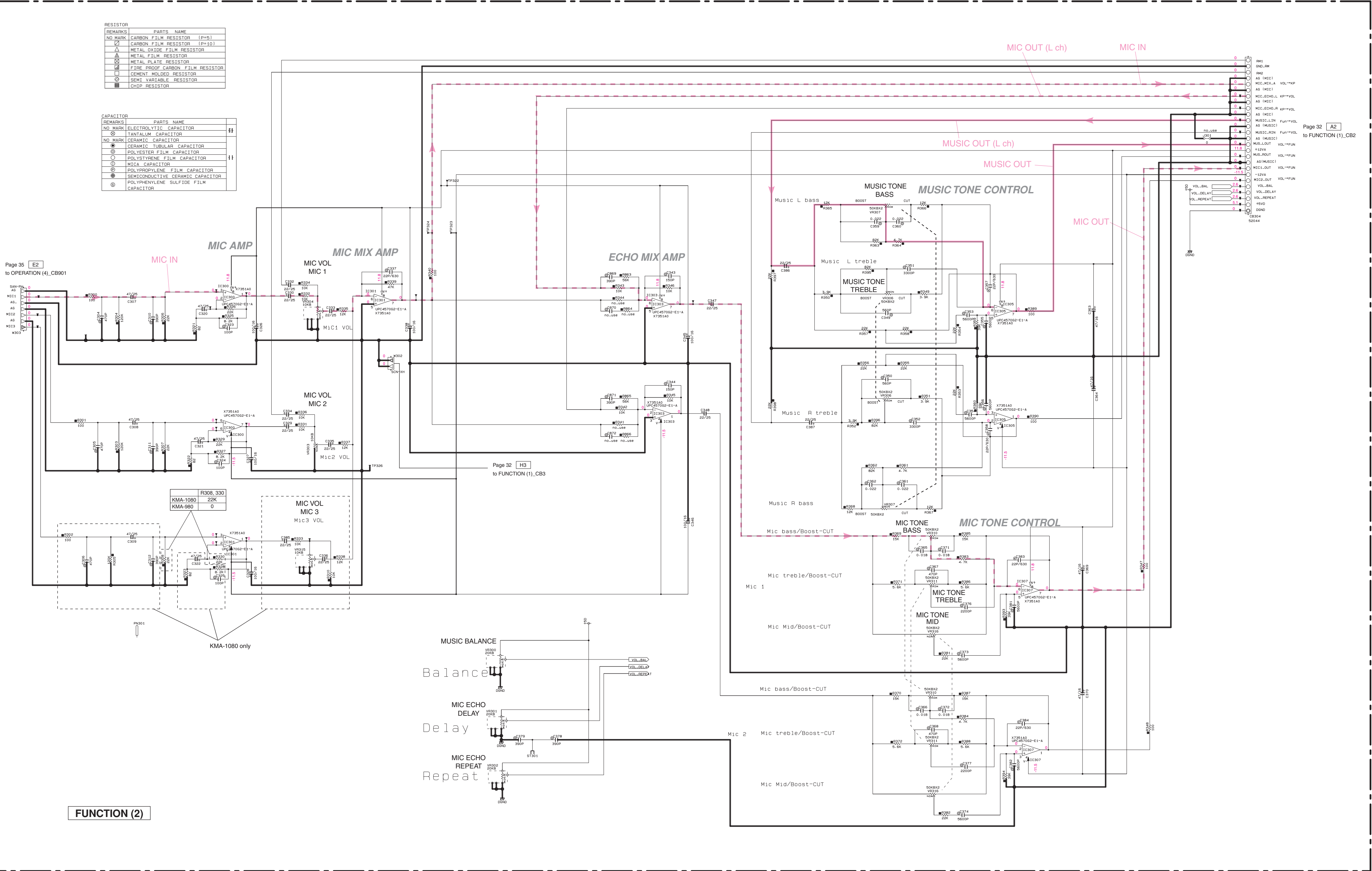
RESISTOR	
REMARKS	PARTS NAME
NO. MARK	CARBON FILM RESISTOR (P-P)
□	CARBON FILM RESISTOR (P-10)
△	METAL OXIDE FILM RESISTOR
▲	METAL FILM RESISTOR
■	METAL PLATE RESISTOR
▨	FILM PROOF CARBON FILM RESISTOR
□	CEMENT HOUSED RESISTOR
○	SEMI-VARIABLE RESISTOR
■	CHIP RESISTOR

CAPACITOR	
REMARKS	PARTS NAME
NO. MARK	ELECTROLYTIC CAPACITOR
⊖	TANTALUM CAPACITOR
□	CERAMIC CAPACITOR
⊖	CERAMIC TUBULAR CAPACITOR
⊖	POLYESTER FILM CAPACITOR
⊖	POLYSTYRENE FILM CAPACITOR
⊖	MICA CAPACITOR
⊖	POLYPROPYLENE FILM CAPACITOR
⊖	SEMICONDUCTIVE CERAMIC CAPACITOR
⊖	POLYPHENYLENE SULFIDE FILM CAPACITOR

Page 35 E2  
to OPERATION (4)\_CB901

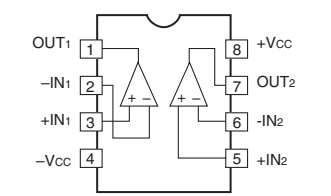
Page 32 H3  
to FUNCTION (1)\_CB3

Page 32 A2  
to FUNCTION (1)\_CB2



FUNCTION (2)

IC300, 301, 303, 305, 307:  
UPC4570G2-E1-A  
Dual operational amplifier

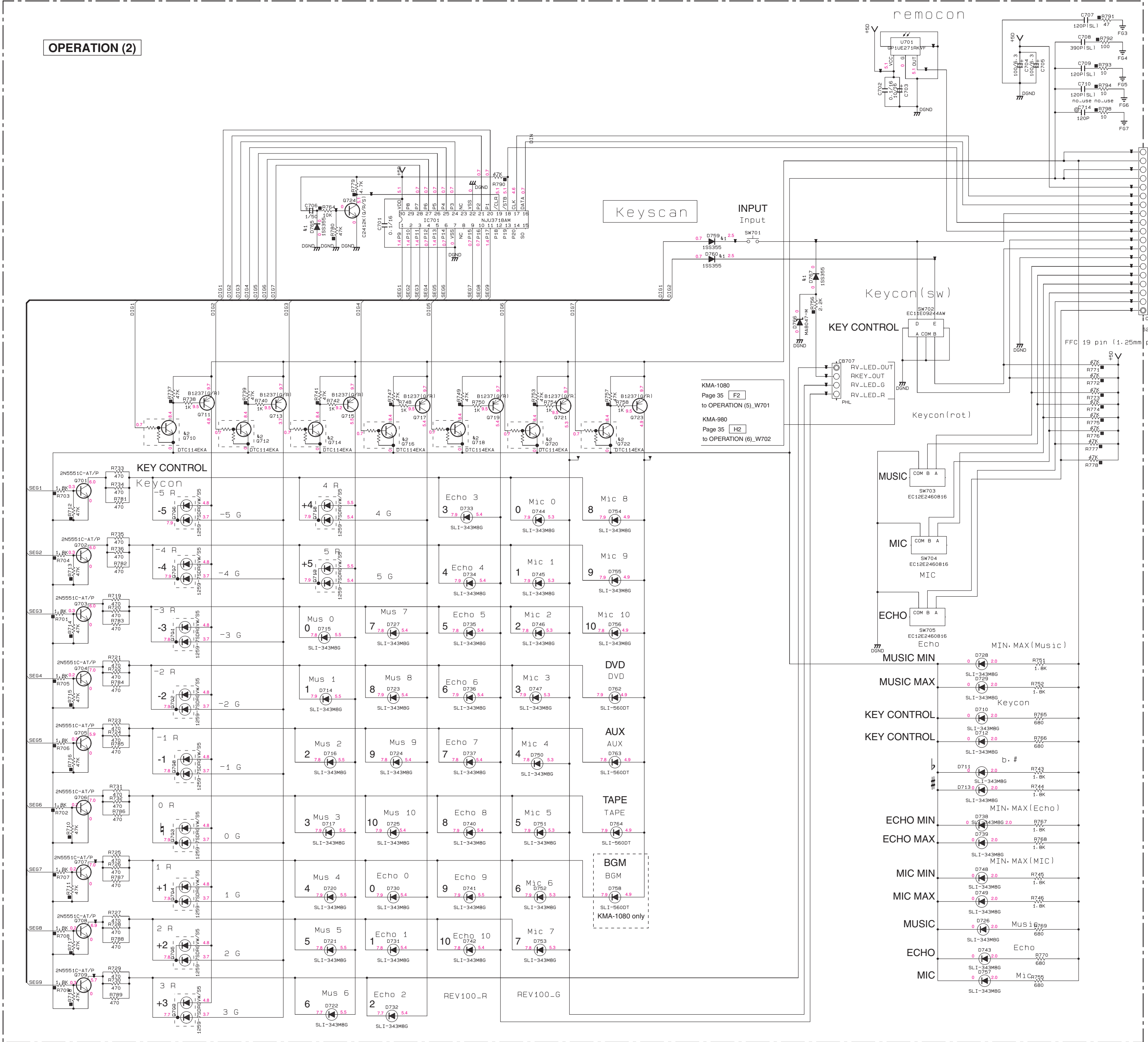


• All voltages are measured with a 10MΩ/V DC electronic volt meter.  
• Components having special characteristics are marked △ and must be replaced with parts having specifications equal to those originally installed.  
• Schematic diagram is subject to change without notice.



OPERATION 1/2

OPERATION (2)



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

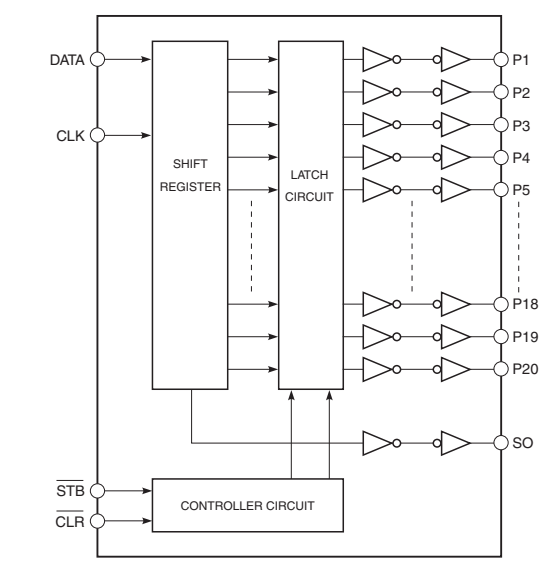
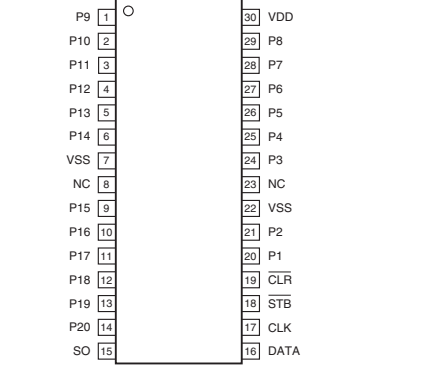
REMARKS	PARTS NAME
NO MARK	ELECTROLYTIC CAPACITOR
⊗	TANTALUM CAPACITOR
NO MARK	CERAMIC CAPACITOR
●	CERAMIC TUBULAR CAPACITOR
○	POLYESTER FILM CAPACITOR
⊙	POLYSTYRENE FILM CAPACITOR
⊖	MICA CAPACITOR
⊕	POLYPROPYLENE FILM CAPACITOR
⊘	SEMICONDUCTIVE CERAMIC CAPACITOR
⊚	POLYPHENYLENE SULFIDE FILM CAPACITOR

Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
k1	D235-236-759-760-765-767	ISS355
k2	D710-712-714-716-718-720	DTC114EKA
	722	KRC1025-RH/P
k3	D245-246-248-249	HSS104
		ISS176
		ISS133

IC701: NUJ3718AM

20-bit Serial parallel converter

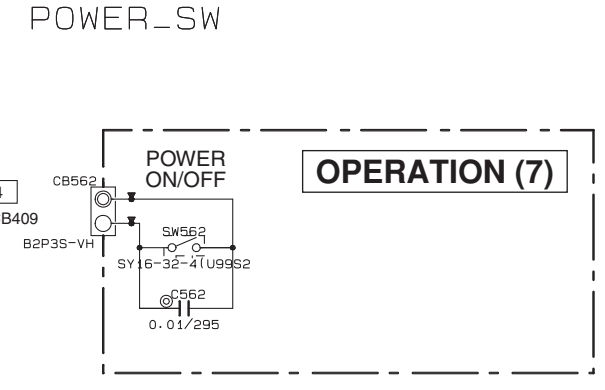
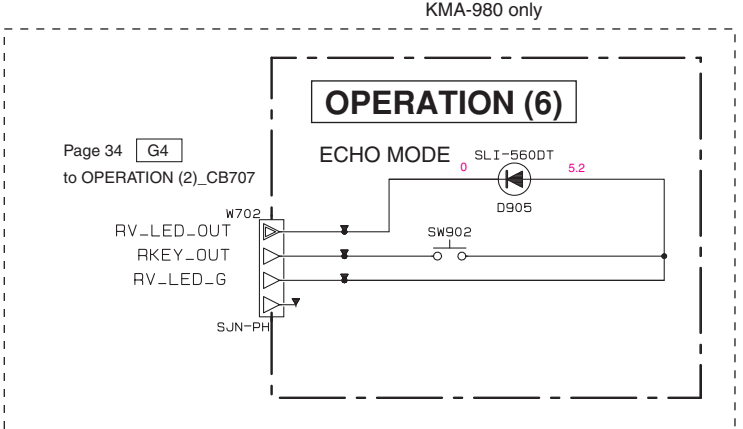
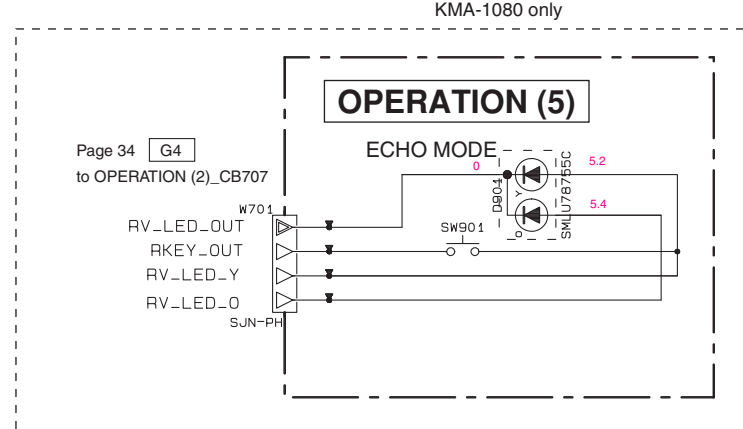
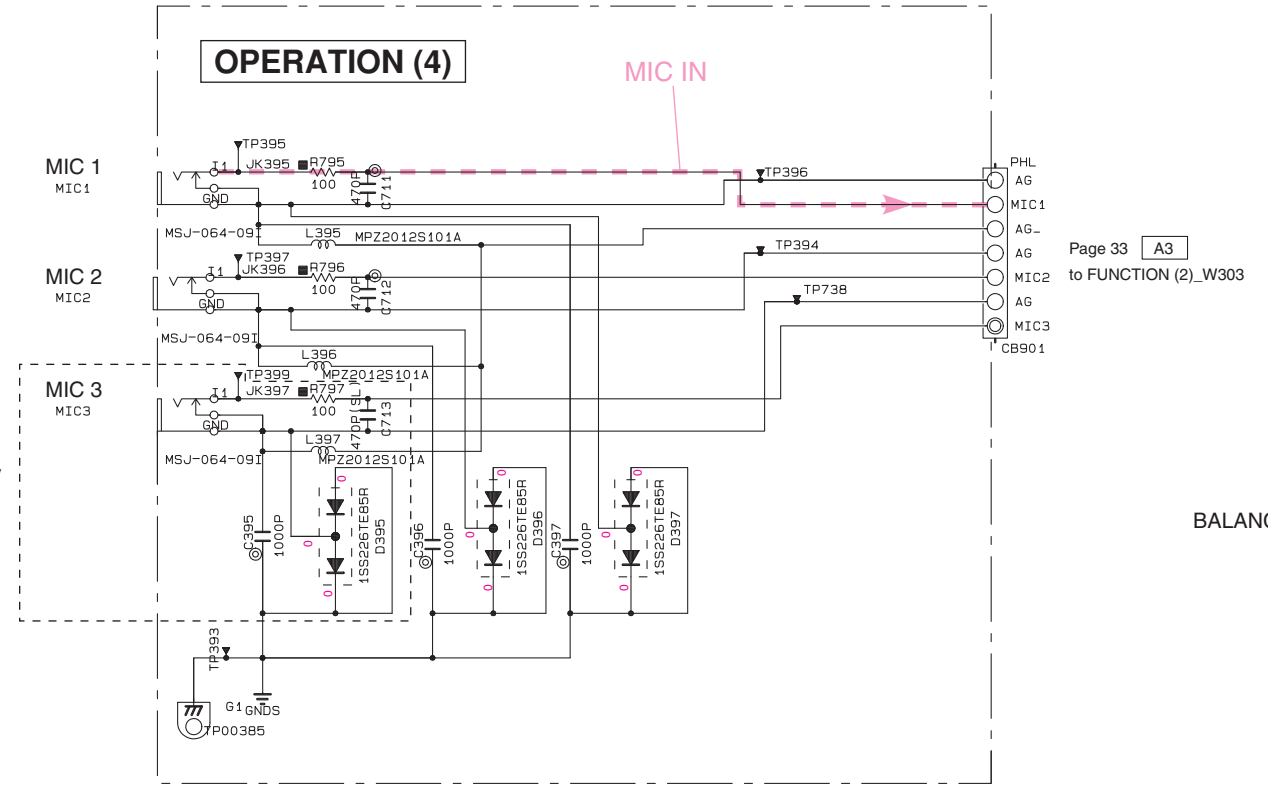


Page 32 to FUNCTION (1), CB15

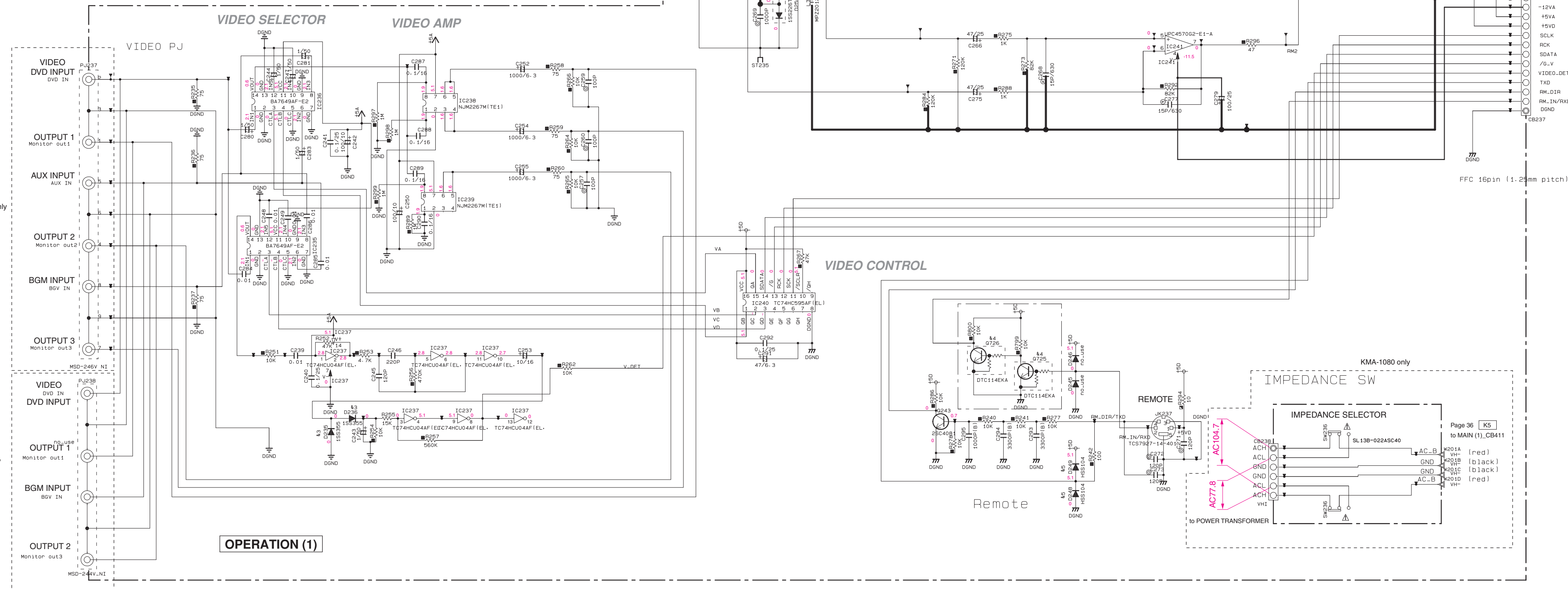
\* All voltages are measured with a 10MΩ/V DC electronic volt meter.  
 \* Components having special characteristics are marked △ and must be replaced with parts having specifications equal to those originally installed.  
 \* Schematic diagram is subject to change without notice.

OPERATION 2/2

MIC JACK



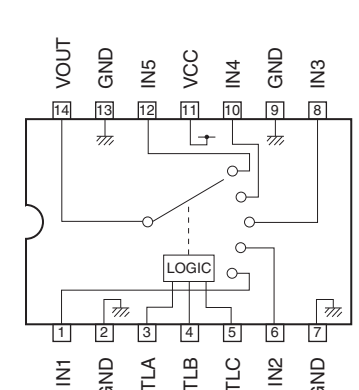
VIDEO



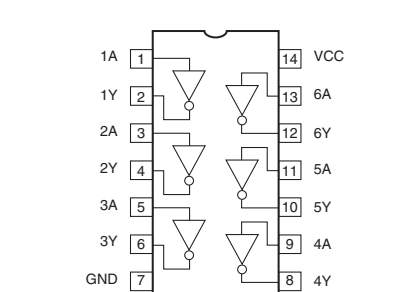
EXTERNAL (REMOTE IN) CODE

Command name	Code 1	Code 2
MUSIC up	7B-84	87-82
MUSIC down	7B-85	87-83
MIC up	7B-86	87-84
MIC down	7B-87	87-85
ECHO up	7B-88	87-86
ECHO down	7B-89	87-87
INPUT	7B-8C	-
DVD	7B-8E	-
TAPE	7B-8F	-
BGM	7B-90	-
AUX	7B-91	-
ECHO MODE	7B-92	-
KEY CONTROL up	7B-96	-
KEY CONTROL # 5	-	87-9D
KEY CONTROL # 4	-	87-88
KEY CONTROL # 3	-	87-89
KEY CONTROL # 2	-	87-8A
KEY CONTROL # 1	-	87-8B
KEY CONTROL 1	7B-97	87-8C
KEY CONTROL 1 1	-	87-8D
KEY CONTROL 1 2	-	87-8E
KEY CONTROL 1 3	-	87-8F
KEY CONTROL 1 4	-	87-90
KEY CONTROL 1 5	-	87-9E
KEY CONTROL down	7B-98	87-92
ECHO 1	7B-C2	-
ECHO 2	7B-C3	-
ECHO 3	7B-C4	-
PRESET 1	7B-DD	-
PRESET 2	7B-DE	-
PRESET 3	7B-DF	-

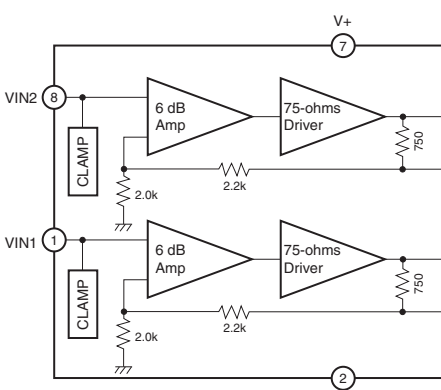
IC235, 236: BA7649AF-E2 Video signal switcher for VTR, TV



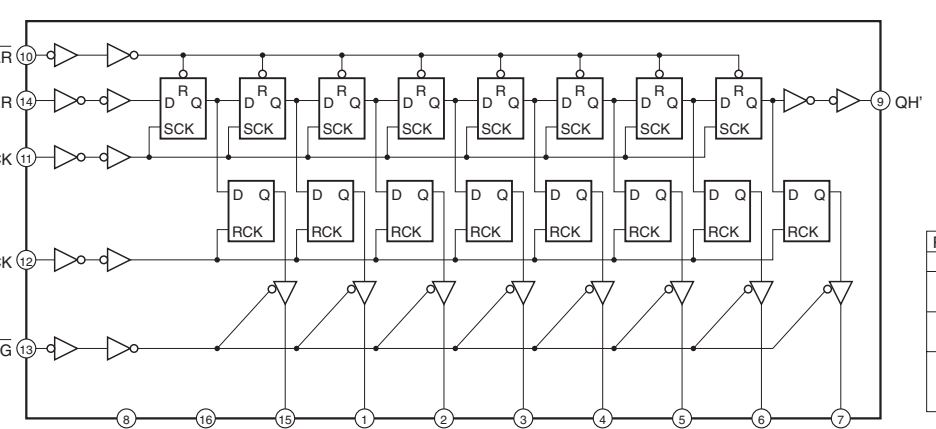
IC237: TC74HCU04FEL Hex inverters



IC238, 239: NJM2267M Dual video 6 dB amplifier with 75-ohms driver

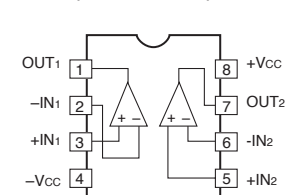


IC240: TC74HC595AF 8-bit Shift register/latch (3-state)



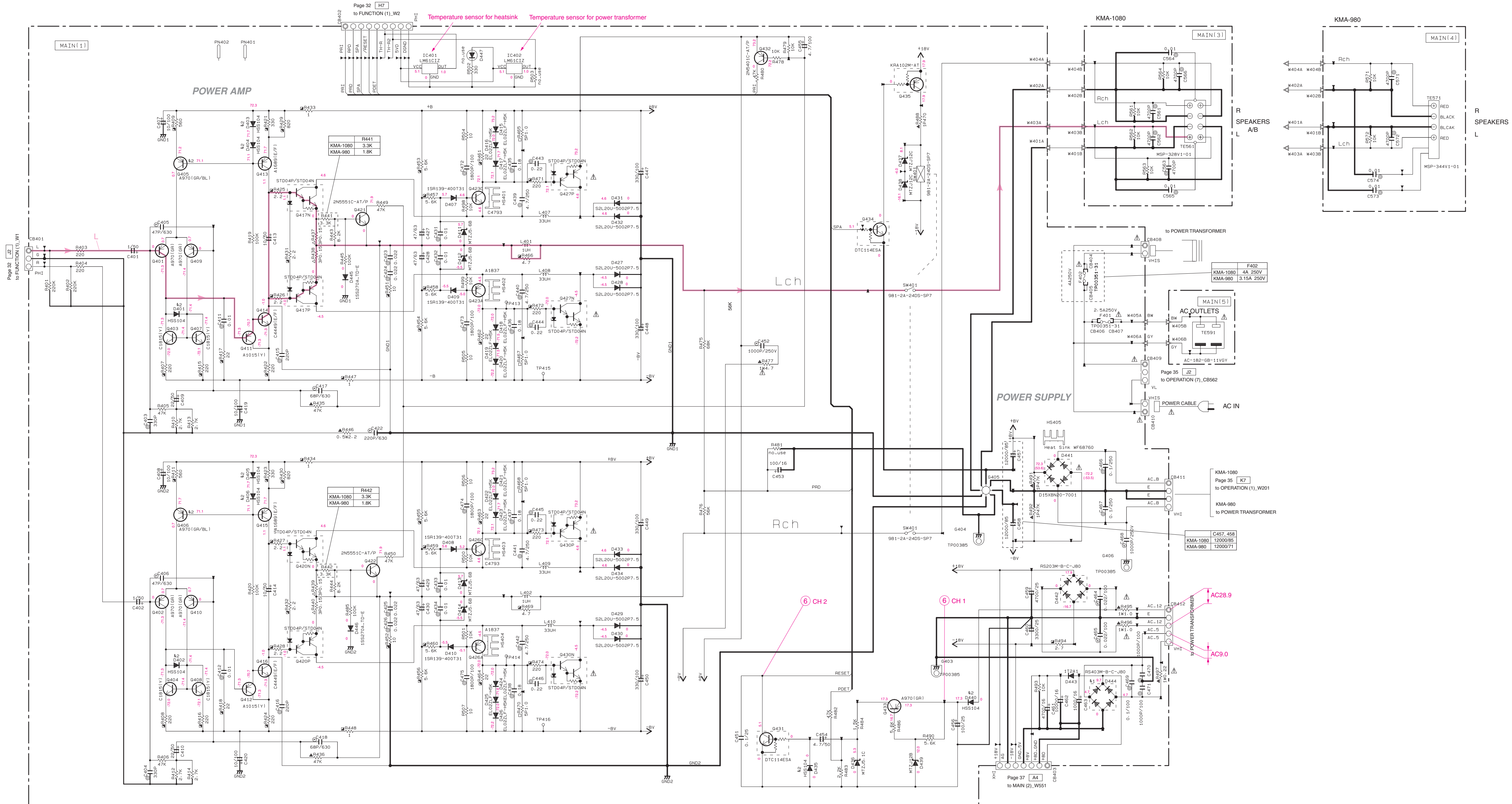
RCK	SCK	SCLR	G	FUNCTION
X	X	X	1	QA thru QH = Tri-State
X	X	L	X	Shift Register cleared
X	X	H	X	Shift Register clocked
X	X	H	X	Contents of Shift Register transferred to output latches

IC241: UPC4570G2-E1-A Dual operational amplifier

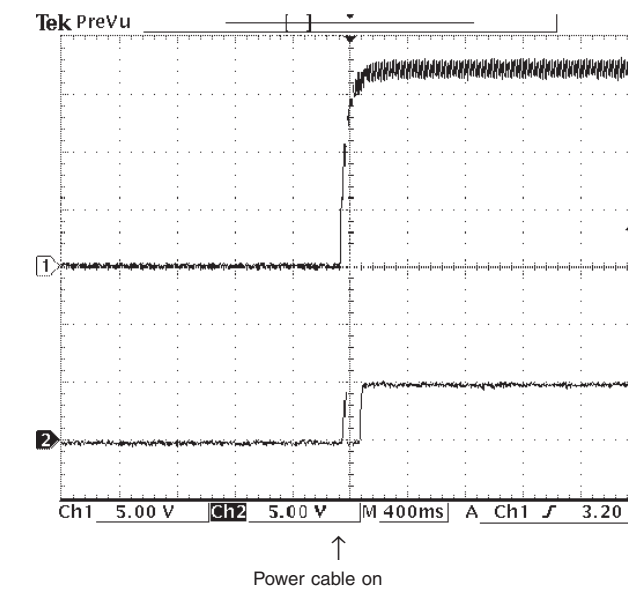
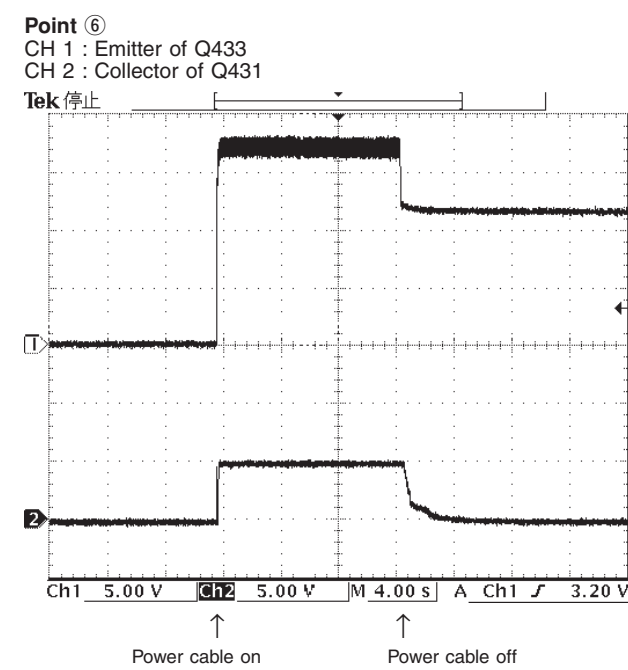
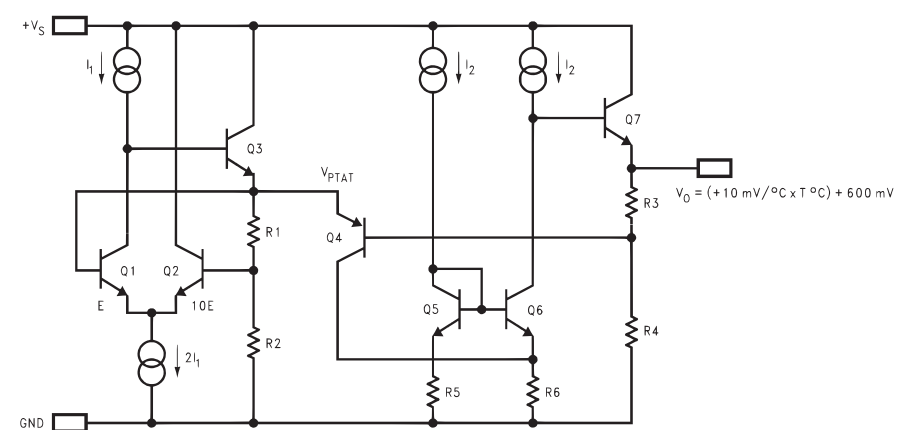


All voltages are measured with a 10MΩ/V DC electronic volt meter.  
 Components having special characteristics are marked Δ and must be replaced with parts having specifications equal to those originally installed.  
 Schematic diagram is subject to change without notice.





IC401, 402: LM61C1Z  
Temperature sensor



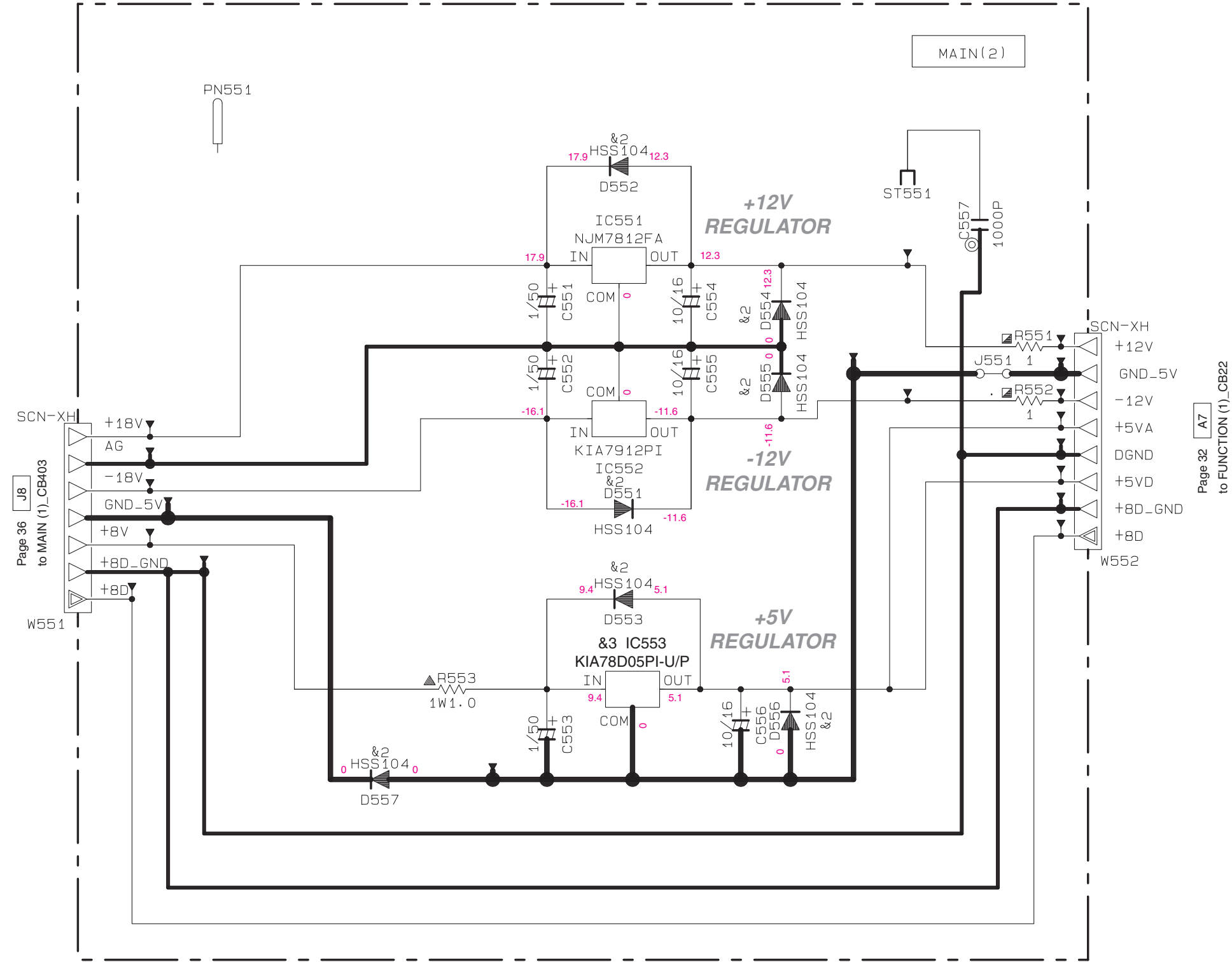
\* All voltages are measured with a 10M $\Omega$ /V DC electronic volt meter.  
\* Components having special characteristics are marked  $\Delta$  and must be replaced with parts having specifications equal to those originally installed.  
\* Schematic diagram is subject to change without notice.



MAIN 2/2

Interchangeable Parts at Manufacture-Stage

Mark	Reference Parts Number	Parts Name
&1	D444	RS403M-B-C-J80 TS4803G-07
&2	D401-406, 435, 440, 551-557	HSS104 1SS133 1SS176
&3	IC553	KIA78D05PI-U/P UPC2405AHF



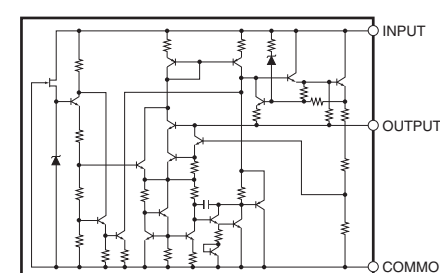
RESISTOR

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

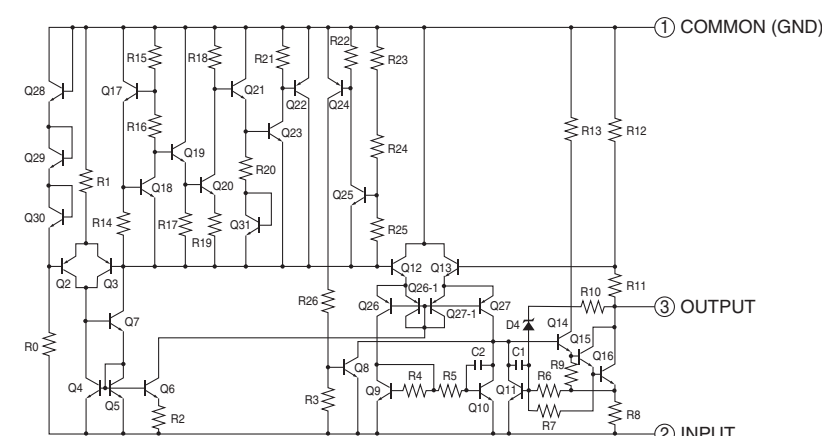
CAPACITOR

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

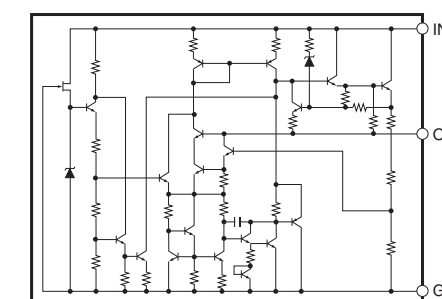
IC551: NJM7812FA  
Voltage regulator



IC552: KIA7912PI  
Voltage regulator



IC553: NJM78M05DL1A  
Voltage regulator



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

## ■ REPLACEMENT PARTS LIST

### ● ELECTRICAL COMPONENT PARTS

#### WARNING

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

## P.C.B. DSP

Ref No.	Part No.	Description	Markets
*	WU078300	P. C. B.	DSP
CB1	VB858900	CN. BS. PIN	10P
CB2	VQ961200	CN. BS. PIN	9P
CB3	VQ961600	CN	13P
CB5	VB389600	CN. BS. PIN	11P
C1-3	US062470	C. CE. CHP	470pF 50V B
C5	US062470	C. CE. CHP	470pF 50V B
C8-9	US062470	C. CE. CHP	470pF 50V B
C10	US135100	C. CE. CHP	0. 1uF 16V
C11-12	US062470	C. CE. CHP	470pF 50V B
C13	US135100	C. CE. CHP	0. 1uF 16V
C14	WH311600	C. CE. CHP	10uF 10V
C15-16	UR837100	C. EL	10uF 16V
C17	US135100	C. CE. CHP	0. 1uF 16V
C18-19	US061100	C. CE. CHP	10pF 50V B
C20	WJ603000	C. MYLAR	150pF 50V
C25	US135100	C. CE. CHP	0. 1uF 16V
C26	UR147330	C. EL	33uF 25V
C27	US064100	C. CE. CHP	0. 01uF 50V B
C28-29	WJ603000	C. MYLAR	150pF 50V
C30	UR147330	C. EL	33uF 25V
C31-32	UR838100	C. EL	100uF 16V
C33	US135100	C. CE. CHP	0. 1uF 16V
* C34-35	WU673100	C. EL	22uF 50V
C36	US061330	C. CE. CHP	33pF 50V B
C37	WH311600	C. CE. CHP	10uF 10V
C38-39	US135100	C. CE. CHP	0. 1uF 16V
C40	US061330	C. CE. CHP	33pF 50V B
C41	UR166330	C. EL	3. 3uF 50V
C42	US135100	C. CE. CHP	0. 1uF 16V
C43	UR137100	C. EL	10uF 16V
C44	UR147220	C. EL	22uF 25V
C45	UR137100	C. EL	10uF 16V
C46	UR147220	C. EL	22uF 25V
C47	UR137100	C. EL	10uF 16V
C48-50	UA355100	C. MYLAR	0. 1uF 50V
C51-53	WJ604500	C. MYLAR	4700pF 50V
C54	UR837100	C. EL	10uF 16V
C55	US135100	C. CE. CHP	0. 1uF 16V
C56-58	WJ604600	C. MYLAR	5600pF 50V
C59	US135100	C. CE. CHP	0. 1uF 16V
C60-62	WJ603700	C. MYLAR	1000pF 50V
C63	US135100	C. CE. CHP	0. 1uF 16V
C64	WH311600	C. CE. CHP	10uF 10V
C65-70	US135100	C. CE. CHP	0. 1uF 16V
C71-73	WJ602900	C. MYLAR	100pF 50V K
C74	US135100	C. CE. CHP	0. 1uF 16V
C75-80	UR147330	C. EL	33uF 25V
C81-83	WJ603900	C. MYLAR	1500pF 50V
C84	UA355100	C. MYLAR	0. 1uF 50V
C85	UR137100	C. EL	10uF 16V
C86-87	UR147220	C. EL	22uF 25V
C88-91	US135100	C. CE. CHP	0. 1uF 16V
C92	UR166330	C. EL	3. 3uF 50V

\* New Parts ( 新規部品 )

Ref No.	Part No.	Description	Markets
C93	US135100	C. CE. CHP	0. 1uF 16V
C94	UR166330	C. EL	3. 3uF 50V
C95-105	US135100	C. CE. CHP	0. 1uF 16V
C106-107	US062220	C. CE. CHP	220pF 50V B
C108	US064100	C. CE. CHP	0. 01uF 50V B
C109-110	US135100	C. CE. CHP	0. 1uF 16V
C111-118	WJ604300	C. MYLAR	3300pF 50V
C119-120	US135100	C. CE. CHP	0. 1uF 16V
C121-124	WJ604300	C. MYLAR	3300pF 50V
C125-128	UR147330	C. EL	33uF 25V
* C129-132	WU673100	C. EL	22uF 50V
C133-134	US135100	C. CE. CHP	0. 1uF 16V
C135	WH311600	C. CE. CHP	10uF 10V
C136	US135100	C. CE. CHP	0. 1uF 16V
C137	WH311600	C. CE. CHP	10uF 10V
C138-139	US135100	C. CE. CHP	0. 1uF 16V
C141	US062470	C. CE. CHP	470pF 50V B
C142	US061220	C. CE. CHP	22pF 50V B
C143-144	US062100	C. CE. CHP	100pF 50V B
C145	US061680	C. CE. CHP	68pF 50V B
C146	US062100	C. CE. CHP	100pF 50V B
C148	US064100	C. CE. CHP	0. 01uF 50V B
D1-2	VV659700	DIODE. ZENR	RLZ8. 2C 8. 2V
D3-14	VT332900	DIODE	1SS355
D15-16	V8409200	DIODE. CHP	RB160L-60
IC1	XG903A00	IC	TC4052BF MPX
* IC2	YC701A00	IC. CPU. DSP	R4F24245NFPV written
IC3-9	X7351A00	IC	UPC4570G2-E1-A
IC10	X3402A00	IC	PQ033EZ01ZP 3. 3V
IC11	XQ805A00	IC	TC7WU04FU
IC12	XZ510A00	IC	TC74VHC393FT COUNT
IC13	X4059A00	IC	TC74VHC175FT DFF
IC14	X3099A00	IC	SN74AHC74PWR
IC15-16	XY624A00	IC	AK4528VF
* IC19-20	X9777A00	IC	MSM5416258B-28J3DR
Q1	VV655400	TR. DGT	DTC114EKA
ST3-4	WA789600	SCR. TERM	M3
SW1	VD179500	SW. SLIDE	SSSU12
XL1	VP864900	RSNR. CRY5	16MHz SMD-49
XL2	VY891500	RSNR. CRY5	12. 288MHz SMD-49
XL3	V6677700	RSNR. CE	30M CSTCW30

\* New Parts ( 新規部品 )

## P.C.B. FUNCTION

Ref No.	Part No.	Description	Markets
* *	WU077800	P. C. B.	FUNCTION KMA-1080
	WU077900	P. C. B.	FUNCTION KMA-980
CB2	VN520900	CN. BS. PIN	52045 26P TE
CB3-4	LB918020	CN. BS. PIN	2P
CB12	VQ963000	CN. BS. PIN	9P
CB15	VQ047400	CN. BS. PIN	19P
CB17	VB390100	CN. BS. PIN	5P
CB19	VQ963400	CN. BS. PIN	13P
CB21	VM859700	CN. BS. PIN	16P
CB22	LB918080	CN. BS. PIN	8P
CB304	VQ045500	CN. BS. PIN	26P
C1-8	WJ603300	C. MYLAR	470pF 50V J
C9-16	UR147220	C. EL	22uF 25V
C17-24	UR166470	C. EL	4. 7uF 50V
C25-32	UR147330	C. EL	33uF 25V
C35-40	UR146470	C. EL	4. 7uF 25V
C41	UR847330	C. EL	33uF 25V
C42-43	UR146470	C. EL	4. 7uF 25V
C44	UR838100	C. EL	100uF 16V
C45	US135100	C. CE. CHP	0. 1uF 16V
C46	UR847330	C. EL	33uF 25V
C47	US135100	C. CE. CHP	0. 1uF 16V
C48-49	UA352120	C. MYLAR	120pF 50V
C51	WJ603700	C. MYLAR	1000pF 50V
C52-53	UR166100	C. EL	1uF 50V
C54	US062100	C. CE. CHP	100pF 50V B
C55	UA352120	C. MYLAR	120pF 50V
C58	UR837470	C. EL	47uF 16V
C60	UR837100	C. EL	10uF 16V
C64	UR147330	C. EL	33uF 25V
C65	UR837100	C. EL	10uF 16V
C66	UR147330	C. EL	33uF 25V
C68-69	UR146470	C. EL	4. 7uF 25V
C71	UR837470	C. EL	47uF 16V
C72	UR866100	C. EL	1uF 50V
C73-74	UR147330	C. EL	33uF 25V
C75	UR147100	C. EL	10uF 25V
C76	UA355100	C. MYLAR	0. 1uF 50V
C77	UR147220	C. EL	22uF 25V
C78	UA355100	C. MYLAR	0. 1uF 50V
C79	UR147220	C. EL	22uF 25V
C80-81	UR147330	C. EL	33uF 25V
C82	UR147100	C. EL	10uF 25V
C83	UA355100	C. MYLAR	0. 1uF 50V
C84	UR147220	C. EL	22uF 25V
C85	UA355100	C. MYLAR	0. 1uF 50V
C86	UR147220	C. EL	22uF 25V
C87-90	UR146470	C. EL	4. 7uF 25V
C91-92	WJ602900	C. MYLAR	100pF 50V K
C94	UR838100	C. EL	100uF 16V
C97	UR838100	C. EL	100uF 16V
C100-101	UR166470	C. EL	4. 7uF 50V
C104	WJ605800	C. MYLAR	0. 047uF 50V J
C109	WJ606000	C. MYLAR	0. 068uF 50V

Ref No.	Part No.	Description	Markets
C114	WJ602900	C. MYLAR	100pF 50V K
C117-118	UR147330	C. EL	33uF 25V
C119-122	UR146470	C. EL	4. 7uF 25V
C123-124	UR166470	C. EL	4. 7uF 50V
C127-128	WJ603600	C. MYLAR	820pF 50V J
C129-132	WJ604000	C. MYLAR	1800pF 50V
C133-134	WJ603100	C. MYLAR	220pF 50V
C139-140	US135100	C. CE. CHP	0. 1uF 16V
C141-142	UR137470	C. EL	47uF 16V
C145-146	WJ602900	C. MYLAR	100pF 50V K
C304-306	WJ603300	C. MYLAR	470pF 50V J
C307-309	UR147470	C. EL	47uF 25V
C310-312	WP172700	C. MYLAR	390pF 50V
C320-322	UR147470	C. EL	47uF 25V
C323-325	WJ602900	C. MYLAR	100pF 50V K
C326-328	UR238100	C. EL	100uF 16V
C329-330	UR147220	C. EL	22uF 25V
C332-336	UR147220	C. EL	22uF 25V
C337	WE100200	C. PP	22pF 630V K
C338	UR238100	C. EL	100uF 16V
C343-344	WJ603000	C. MYLAR	150pF 50V
C345-346	UR838100	C. EL	100uF 16V
C347-348	UR147220	C. EL	22uF 25V
C349-350	WJ603400	C. MYLAR	560pF 50V
C351-352	WJ604300	C. MYLAR	3300pF 50V
C353-356	WJ604600	C. MYLAR	5600pF 50V
C357-358	WE100200	C. PP	22pF 630V K
C359-362	WJ605400	C. MYLAR	0. 022uF 50V J
C363-364	UR137470	C. EL	47uF 16V
C365-366	WJ605300	C. MYLAR	0. 018uF 50V
C367-368	WJ603300	C. MYLAR	470pF 50V J
C369-370	UR137470	C. EL	47uF 16V
C371-372	WJ605300	C. MYLAR	0. 018uF 50V
C373-374	WJ604600	C. MYLAR	5600pF 50V
C376-377	WJ604100	C. MYLAR	2200pF 50V
C378-379	WP172700	C. MYLAR	390pF 50V
C381-382	WJ604600	C. MYLAR	5600pF 50V
C383-384	WE100200	C. PP	22pF 630V K
C385-387	UR147220	C. EL	22uF 25V
C833-836	UR137100	C. EL	10uF 16V
C837	US064100	C. CE. CHP	0. 01uF 50V B
C838-839	US135100	C. CE. CHP	0. 1uF 16V
C840-841	UR837100	C. EL	10uF 16V
C842	US062100	C. CE. CHP	100pF 50V B
C843	UR866100	C. EL	1uF 50V
C844	UR837470	C. EL	47uF 16V
C845-846	UR837100	C. EL	10uF 16V
C847	US062100	C. CE. CHP	100pF 50V B
C848	UR866100	C. EL	1uF 50V
C849	UR837470	C. EL	47uF 16V
C857-858	UR166100	C. EL	1uF 50V
C859-868	UR137100	C. EL	10uF 16V
C869	WP172700	C. MYLAR	390pF 50V
C871	WP172700	C. MYLAR	390pF 50V

\* New Parts ( 新規部品 )

\* New Parts ( 新規部品 )

P.C.B. FUNCTION and OPERATION

Ref No.	Part No.	Description	Markets
D8	VT332900	DIODE	1SS355
D12	VV657700	DIODE. ZENR	RLZ4. 7A 4. 7V
D15-16	VU992200	DIODE. ZENR	MAZ8047GML 4. 7V
D17-18	VT332900	DIODE	1SS355
D801	VT332900	DIODE	1SS355
D802	VV657700	DIODE. ZENR	RLZ4. 7A 4. 7V
D803	VT332900	DIODE	1SS355
D804	VV657700	DIODE. ZENR	RLZ4. 7A 4. 7V
D805-806	VT332900	DIODE	1SS355
D807	VV658100	DIODE. ZENR	RLZ5. 1B 5. 1V
IC1-4	X7351A00	IC	UPC4570G2-E1-A
IC5	X5043A00	IC	NJU7313AM
IC6-7	X7351A00	IC	UPC4570G2-E1-A
IC8-9	XZ545A00	IC	YAC520-EE2
IC10-11	X7351A00	IC	UPC4570G2-E1-A
IC14	X7351A00	IC	UPC4570G2-E1-A
* IC15	YC700A00	IC. CPU. MAIN	R5F212A8SNFA written
IC16	X7802A00	IC	M95010-WMNGTP
IC17	XS534A00	IC	NJM78M05DL1A
IC18	X7351A00	IC	UPC4570G2-E1-A
IC300-301	X7351A00	IC	UPC4570G2-E1-A
IC303	X7351A00	IC	UPC4570G2-E1-A
IC305	X7351A00	IC	UPC4570G2-E1-A
IC307	X7351A00	IC	UPC4570G2-E1-A
IC616-617	XV944A00	IC	TC74HC4053AFT
IC618	X7351A00	IC	UPC4570G2-E1-A
PJ1	WP307400	JACK. PIN	4P
PJ4	WP307500	JACK. PIN	6P
PJ6	WP335400	JACK. PIN	4P
PJ7	WP307300	JACK. PIN	2P
Q3	VV655400	TR. DGT	DTC114EKA
Q4	VV556500	TR	2SA1037K Q, R, S
Q5	VV655400	TR. DGT	DTC114EKA
Q6	VV556500	TR	2SA1037K Q, R, S
Q10-19	VZ725900	TR	2SD1938F S, T
Q21-22	VV556400	TR	2SC2412K Q, R, S
Q30-31	VZ725900	TR	2SD1938F S, T
R59	WB625500	R. MTL. OXD	15 Ω 1W
R862	HV755680	R. CAR. FP	680 Ω 1/4W
ST1-2	WA789600	SCR. TERM	M3
ST301	WA789600	SCR. TERM	M3
VR1-4	WN954400	VR	B 50K Ω
VR300-302	WS021300	VR	B 20K Ω RK09K1110D4
VR303	WQ335000	VR	B 10K Ω RK09711106
VR304	WN960900	VR	B 10K Ω
VR306-307	WN961000	VR	B 50K Ω
VR310-311	WN961000	VR	B 50K Ω
VR315	WN960900	VR	B 10K Ω
VR316	WN961000	VR	B 50K Ω
XL1	WF997400	RSNR. CE	20MHz

Ref No.	Part No.	Description	Markets
	WR479600	P. C. B.	KMA-1080
	WR479700	P. C. B.	KMA-980
CB237	VQ044700	CN. BS. PIN	16P
CB238	LB932060	CN. BS. PIN	6P
CB562	VP245600	CN	2P
CB706	VQ044900	CN. BS. PIN	19P
CB707	VB858300	CN. BS. PIN	4P
CB901	VB858600	CN. BS. PIN	7P
C239	UB044100	C. CE. CHP	0. 01uF 50V
C240-241	US145100	C. CE. CHP	0. 1uF 25V
C242	UR828100	C. EL	100uF 10V
C243-244	UR866100	C. EL	1uF 50V
C245	UB052120	C. CE. CHP	120pF 50V
C246	UB012220	C. CE. CHP	220pF 50V
C247	UR866100	C. EL	1uF 50V
C248-249	UB044100	C. CE. CHP	0. 01uF 50V
C250	UR828100	C. EL	100uF 10V
C251	WJ603700	C. MYLAR	1000pF 50V
C252	UR819100	C. EL	1000uF 6. 3V
C253	UR837100	C. EL	10uF 16V
C254-255	UR819100	C. EL	1000uF 6. 3V
C256	WJ603700	C. MYLAR	1000pF 50V
C257	WJ602900	C. MYLAR	100pF 50V K
C259-260	WJ602900	C. MYLAR	100pF 50V K
C263-264	WJ603700	C. MYLAR	1000pF 50V
C265-266	UR147470	C. EL	47uF 25V
C267-268	WE100100	C. PP	15pF 630V K
C269-270	WJ603700	C. MYLAR	1000pF 50V
C271-273	UA352120	C. MYLAR	120pF 50V
C274-275	UR147470	C. EL	47uF 25V
C276-277	WE100100	C. PP	15pF 630V K
C278-279	UR148100	C. EL	100uF 25V
C280-281	UR866100	C. EL	1uF 50V
C283	UR866100	C. EL	1uF 50V
C284-286	UB044100	C. CE. CHP	0. 01uF 50V
C287-290	US135100	C. CE. CHP	0. 1uF 16V
C291	UR817470	C. EL	47uF 6. 3V
C292	US145100	C. CE. CHP	0. 1uF 25V
C293-294	US063330	C. CE. CHP	3300pF 50V B
C295	US063100	C. CE. CHP	1000pF 50V B
C395-397	WJ603700	C. MYLAR	1000pF 50V
C562	WB121400	C. CE. SAFTY	0. 01uF 295V
C701-702	US135100	C. CE. CHP	0. 1uF 16V
C703	UM397100	C. EL	10uF 16V
C704-705	UM388100	C. EL	100uF 10V
C706	UM416100	C. EL	1uF 50V
C707	US062120	C. CE. CHP	120pF 50V B
C708	US062390	C. CE. CHP	390pF 50V B
C709-710	US062120	C. CE. CHP	120pF 50V B
C711-712	WJ603300	C. MYLAR	470pF 50V J
C713	US062470	C. CE. CHP	470pF 50V B
D235-236	VT332900	DIODE	1SS355
D248-249	VD631600	DIODE	1SS133, 176
D250-251	VD303900	DIOD. ARRAY	1SS226 TE85R

\* New Parts ( 新規部品 )

\* New Parts ( 新規部品 )

KMA-1080/KMA-980



## P.C.B. OPERATION and MAIN

Ref No.	Part No.	Description	Markets
D395-397	VD303900	DIOD. ARRAY	KMA-1080
* D701-709	WT666800	LED	
D710-717	WP354200	LED	
* D718-719	WT666800	LED	
D720-757	WP354200	LED	
D758	WP484900	LED	KMA-1080
D759-760	VT332900	DIODE	
D762-764	WP484900	LED	
D765	VT332900	DIODE	
D766	VU992200	DIODE. ZENR	
D767	VT332900	DIODE	
D901	WQ270700	LED. 2COLOR	KMA-1080
D905	WP484900	LED	KMA-980
IC235-236	XT398A00	IC	
IC237	XD598A00	IC	
IC238-239	XT396A00	IC	
IC240	X6292A00	IC	
IC241	X7351A00	IC	
IC701	X9730A00	IC	
JK235-236	WP945900	JACK. PHONE	
JK237	VJ875300	JACK. DIN	
JK395-397	WN753900	JACK. PHONE	
PJ237	WP307600	JACK. PIN	KMA-1080
PJ238	WP323900	JACK. PIN	KMA-980
Q243	VQ986700	TR	
Q701-709	WC398400	TR	
Q710	VV655400	TR. DGT	
Q711	VE613300	TR	
Q712	VV655400	TR. DGT	
Q713	VE613300	TR	
Q714	VV655400	TR. DGT	
Q715	VE613300	TR	
Q716	VV655400	TR. DGT	
Q717	VE613300	TR	
Q718	VV655400	TR. DGT	
Q719	VE613300	TR	
Q720	VV655400	TR. DGT	
Q721	VE613300	TR	
Q722	VV655400	TR. DGT	
Q723	VE613300	TR	
Q724	VV556400	TR	
Q725-726	VV655400	TR. DGT	
R294	HV754100	R. CAR. FP	
ST235	WA789600	SCR. TERM	
SW236	V4104200	SW. SLIDE	KMA-1080
SW562	V9661700	SW. PUSH	
SW701	WD483100	SW. TACT	
SW702	WK413900	ENCODER	
SW703-705	WQ336800	SW. RT. ENC	
SW901-902	WD483100	SW. TACT	KMA-1080
U701	WK918500	L. DTCT	
	WQ478000	SPACER	KMA-1080

\* New Parts ( 新規部品 )

Ref No.	Part No.	Description	Markets
	WR479200	P. C. B.	KMA-1080
	WR479300	P. C. B.	KMA-980
CB401	VB389900	GN. BS. PIN	3P
CB402	VB390500	GN. BS. PIN	9P
CB403	LB918070	GN. BS. PIN	7P
CB404-407	WN103000	CLIP. FUSE	TP00351-31
CB408	VG879900	GN. BS. PIN	2P
CB409	VZ120400	GN. BS. PIN	3P
CB410	VG879900	GN. BS. PIN	2P
CB411	LB932040	GN. BS. PIN	4P
CB412	LB932050	GN. BS. PIN	5P
C401-402	UU266100	C. EL	1uF 50V
C403-404	WJ603200	C. MYLAR	330pF 50V
C405-406	WE100400	C. PP	47pF 630V K
C407-408	UR297100	C. EL	10uF 100V
C409-410	UR267220	C. EL	22uF 50V
C411-412	WJ605000	C. MYLAR	0.01uF 50V J
C413-414	UR267100	C. EL	10uF 50V
C415-416	WJ603100	C. MYLAR	220pF 50V
C417-418	WG221900	C. PP	68pF 630V
C419-420	UR297100	C. EL	10uF 100V
C422	WE100900	C. PP	220pF 630V K
C423-426	UA354220	C. MYLAR	0.022uF 50V
C427-430	UR277470	C. EL	47uF 63V
C431-434	UA354100	C. MYLAR	0.01uF 50V
C435-438	VE326300	C. MYLAR	0.18uF 50V
C439-442	V5058000	C. MYLAR	4.7uF 250V
C443-446	VE326400	C. MYLAR	0.22uF 50V
C447-450	UR298330	C. EL	330uF 100V
C451	V8689300	C. CE. SMI	0.1uF 25V
C452	WN156000	C. PP	1000pF 250V
C453	UR838100	C. EL	100uF 16V
C454	UR866470	C. EL	4.7uF 50V
C455	UR896470	C. EL	4.7uF 100V
C456	UR848100	C. EL	100uF 25V
C457	WR080900	C. EL	12000uF 85V
C457	WJ788600	C. EL	12000uF 71V
C458	WR080900	C. EL	12000uF 85V
C458	WJ788600	C. EL	12000uF 71V
C459	URO49470	C. EL	4700uF 25V
C460	URO49330	C. EL	3300uF 25V
C461	WH930500	C. EL	4700uF 16V
C462	UR73A100	C. EL	10000uF 16V
C463	UR839100	C. EL	1000uF 16V
C464-465	WN165500	C. PP	0.022uF 100V
C466-467	WB540200	C. POL. MTL	0.1uF 250V
C468	WN156000	C. PP	1000pF 250V
C469	VR324900	C. MYLAR	0.1uF 100V
C470-471	WJ608900	C. MYLAR	1000pF 100V
C472-475	WJ609200	C. MYLAR	1800pF 100V
C551-553	UR266100	C. EL	1uF 50V
C554-556	WK041800	C. EL	10uF 16V
C557	WJ603700	C. MYLAR	1000pF 50V
C561-563	WJ604500	C. MYLAR	4700pF 50V

\* New Parts ( 新規部品 )

P.C.B. MAIN

Ref No.	Part No.	Description	Markets
C564-565	WJ605000	C. MYLAR 0.01uF 50V J	KMA-1080
C566	WJ604500	C. MYLAR 4700pF 50V	KMA-1080
C571-572	WJ604500	C. MYLAR 4700pF 50V	MKA-980
C573-574	WJ605000	C. MYLAR 0.01uF 50V J	MKA-980
D401-406	VD631600	DIODE 1SS133, 176	
D407-410	VU264100	DIODE 1SR139, 400	
D411-414	VG437700	DIODE. ZENR MTZJ5. 6B 5. 6V	
D415-426	V6934100	DIODE EL02ZLF-H5K	
D427-434	VP779200	DIODE S2L20U	
D435	VD631600	DIODE 1SS133, 176	
D436	VG437500	DIODE. ZENR MTZJ5. 1C 5. 1V	
D437-438	VG440300	DIODE. ZENR MTZJ12C 12V	
D439	VG440200	DIODE. ZENR MTZJ12B 12V	
D440	VD631600	DIODE 1SS133, 176	
D441	WK878000	DIODE. BRG D15XBN20-7001 15A	
D442	WH487300	DIODE. BRG RS203M 2. 0A 200V	
D443	VS997800	DIODE 1T2	
D444	WJ286700	DIODE. BRG RS403M 4A 140V	
D445-446	VN008700	DIODE 1SS270A	
D551-557	VD631600	DIODE 1SS133, 176	
F401	VV071600	FUSE 2. 5A 250V	
F402	VV071800	FUSE 4A 250V	KMA-1080
F402	VV071700	FUSE 3. 15A 250V	KMA-980
G405	V5995800	PLATE. GND	
IC401-402	X0515A00	IC LM61C1Z THERMAL	
IC551	XJ608A00	IC NJM7812FA	
IC552	X4154A00	IC K1A7912P1	
IC553	X9491A00	IC K1A78D05P1-U/P 5VR	
Q401-402	iA097040	TR 2SA970 GR	
Q403-404	iC181510	TR 2SC1815 Y	
Q405-406	iA097030	TR 2SA970 GR, BL	
Q407-408	iC181510	TR 2SC1815 Y	
Q409-410	iA097040	TR 2SA970 GR	
Q411-412	iA101510	TR 2SA1015 Y	
Q413	V5876800	TR 2SA1689 E, F	
Q414	V5876900	TR 2SC4449 E, F	
Q415	V5876800	TR 2SA1689 E, F	
Q416	V5876900	TR 2SC4449 E, F	
Q417	WN970800	TR. PAIR STD04P/STD04N	
Q420	WN970800	TR. PAIR STD04P/STD04N	
Q421-422	WC398400	TR 2N5551C-AT	
Q423	VQ116600	TR. PAIR 2SA1837/C4793 O, Y	
Q426	VQ116600	TR. PAIR 2SA1837/C4793 O, Y	
Q427	WN970800	TR. PAIR STD04P/STD04N	
Q430	WN970800	TR. PAIR STD04P/STD04N	
Q431	VV911900	TR. DGT DTC114ESA TP	
Q432	WC397700	TR 2N5401C-AT	
Q433	iA097040	TR 2SA970 GR	
Q434	VV911900	TR. DGT DTC114ESA TP	
Q435	WC398500	TR. DGT KRA102M-AT	
R407-408	HV755220	R. CAR. FP 220 Ω 1/4W	
R409	HV755560	R. CAR. FP 560 Ω 1/4W	
R411	HV755560	R. CAR. FP 560 Ω 1/4W	
R415-416	HV755220	R. CAR. FP 220 Ω 1/4W	

Ref No.	Part No.	Description	Markets
R417-418	HV754220	R. CAR. FP 22 Ω 1/4W	
R421	HV755330	R. CAR. FP 330 Ω 1/4W	
R422	HV755220	R. CAR. FP 220 Ω 1/4W	
R423	HV755330	R. CAR. FP 330 Ω 1/4W	
R424	HV755220	R. CAR. FP 220 Ω 1/4W	
R425-428	HV753220	R. CAR. FP 2. 2 Ω 1/4W	
R429-430	HV755820	R. CAR. FP 820 Ω 1/4W	
R431-432	HV753220	R. CAR. FP 2. 2 Ω 1/4W	
R433-434	HV753100	R. CAR. FP 1 Ω 1/4W	
R435-436	WC799900	R. MTL. FLM 47K Ω 1/4W	
R437-440	VG730500	R. MTL. OXD 0. 15 Ω 3W	
R446	WB630200	R. MTL. FLM 2. 2 Ω 1/2W	
R447-448	HV753100	R. CAR. FP 1 Ω 1/4W	
R451-452	HV754100	R. CAR. FP 10 Ω 1/4W	
R453-460	HV756560	R. CAR. FP 5. 6K Ω 1/4W	
R461-464	HV754220	R. CAR. FP 22 Ω 1/4W	
R465	WR462900	R. CEMENT 1. 0 Ω 5W K	
R466	HV753470	R. CAR. FP 4. 7 Ω 1/4W	
R467-468	WR462900	R. CEMENT 1. 0 Ω 5W K	
R469	HV753470	R. CAR. FP 4. 7 Ω 1/4W	
R470	WR462900	R. CEMENT 1. 0 Ω 5W K	
R471-474	HV755220	R. CAR. FP 220 Ω 1/4W	
R477	WB625100	R. MTL. FLM 4. 7 Ω 1W J	
R488	WJ685600	R. MTL. FLM 470 Ω 1W J	
R491-492	WJ688000	R. MTL. FLM 47K Ω 1W	
R494	HV753270	R. CAR. FP 2. 7 Ω 1/4W	
R495-496	WB624700	R. MTL. FLM 1 Ω 1W	
R497	WB624300	R. MTL. FLM 0. 22 Ω 1W	
R551-552	HV753100	R. CAR. FP 1 Ω 1/4W	
R553	WB624700	R. MTL. FLM 1 Ω 1W	
ST551	WA789700	SCR. TERM D3. 5	
SH401	WJ122400	RELAY 981-2A-24DS-SP7	
TE561	WN667400	TERM. SP 8P MSP-328V1-01 LF	KMA-1080
TE571	WP226400	TERM. SP 4P MSP-344V1-02	KMA-980
TE591	V5867400	OUTLET. AC 2P	
	WE774200	SCR. BND. HD 3x10 MFZN2W3	
	WE996500	SCR. PAN. HD 3x8 SP MFZN2W3	

KMA-1080/KMA-980

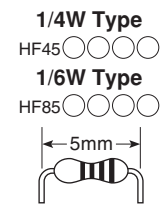
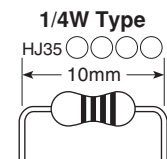


\* New Parts ( 新規部品 )

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**Carbon Resistors**

Value	1/4W Type Part No.	1/6W Type Part No.	Value	1/4W Type Part No.	1/6W Type Part No.
1.0 Ω	HJ35 3100	HF85 3100	10 kΩ	HF45 7100	HF45 7100
1.8 Ω	HJ35 3180	*	11 kΩ	HF45 7110	HF45 7110
2.2 Ω	HJ35 3220	HF85 3220	12 kΩ	HJ35 7120	HF85 7120
3.3 Ω	HJ35 3330	HF85 3330	13 kΩ	HF45 7130	HF45 7130
4.7 Ω	HJ35 3470	HF85 3470	15 kΩ	HF45 7150	HF45 7150
5.6 Ω	HJ35 3560	HF85 3560	18 kΩ	HF45 7180	HF45 7180
10 Ω	HF45 4100	HF45 4100	22 kΩ	HF45 7220	HF45 7220
15 Ω	HJ35 4150	HF85 4150	24 kΩ	HF45 7240	HF45 7240
22 Ω	HF45 4220	HF45 4220	27 kΩ	HJ35 7270	HF85 7270
27 Ω	HJ35 4270	HF85 4270	30 kΩ	HF45 7300	HF45 7300
33 Ω	HF45 4330	HF45 4330	33 kΩ	HF45 7330	HF45 7330
39 Ω	HJ35 4470	HF85 4390	36 kΩ	HF45 7360	HF45 7360
47 Ω	HF45 4470	HF45 4470	39 kΩ	HF45 7390	HF45 7390
56 Ω	HF45 4560	HF45 4560	47 kΩ	HF45 7470	HF45 7470
68 Ω	HF45 4680	HF45 4680	51 kΩ	HF45 7510	HF45 7510
75 Ω	HF45 4750	HF45 4750	56 kΩ	HF45 7560	HF45 7560
82 Ω	HF45 4820	HF45 4820	62 kΩ	HF45 7620	HF45 7620
91 Ω	HF45 4910	HF45 4910	68 kΩ	HF45 7680	HF45 7680
100 Ω	HF45 5100	HF45 5100	82 kΩ	HF45 7820	HF45 7820
110 Ω	HJ35 5110	HF85 5110	91 kΩ	HF45 7910	HF45 7910
120 Ω	HF45 5120	HF45 5120	100 kΩ	HF45 8100	HF45 8100
150 Ω	HF45 5150	HF45 5150	110 kΩ	HF45 8110	HF45 8110
160 Ω	HJ35 5160	*	120 kΩ	HF45 8120	HF45 8120
180 Ω	HF45 5180	HF45 5180	130 kΩ	HF45 8130	HF45 8130
200 Ω	HF45 5200	HF45 5200	150 kΩ	HF45 8150	HF45 8150
220 Ω	HF45 5220	HF45 5220	180 kΩ	HF45 8180	HF45 8180
270 Ω	HF45 5270	HF45 5270	220 kΩ	HJ35 8220	HF85 8220
330 Ω	HF45 5330	HF45 5330	270 kΩ	HF45 8270	HF45 8270
390 Ω	HF45 5390	HF45 5390	300 kΩ	HF45 8300	HF45 8300
430 Ω	HF45 5430	HF45 5430	330 kΩ	HF45 8330	HF45 8330
470 Ω	HF45 5470	HF45 5470	390 kΩ	HJ35 8390	HF85 8390
510 Ω	HF45 5510	HF45 5510	470 kΩ	HF45 8470	HF45 8470
560 Ω	HF45 5560	HF45 5560	560 kΩ	HJ35 8560	HF85 8560
680 Ω	HF45 5680	HF45 5680	680 kΩ	HJ35 8680	HF85 8680
820 Ω	HF45 5820	HF45 5820	820 kΩ	HJ35 8820	HF85 8820
910 Ω	HF45 5910	HF45 5910	1.0 MΩ	HF45 9100	HF45 9100
1.0 kΩ	HF45 6100	HF45 6100	1.2 MΩ	HJ35 9120	*
1.2 kΩ	HF45 6120	HF45 6120	1.5 MΩ	HJ35 9150	HF85 9150
1.5 kΩ	HF45 6150	HF45 6150	1.8 MΩ	HJ35 9180	HF85 9180
1.8 kΩ	HF45 6180	HF45 6180	2.2 MΩ	HJ35 9220	HF85 9220
2.0 kΩ	HJ35 6200	HF85 6200	3.3 MΩ	HJ35 9330	HF85 9330
2.2 kΩ	HF45 6220	HF45 6220	3.9 MΩ	HJ35 9390	*
2.4 kΩ	HJ35 6240	HF85 6240	4.7 MΩ	HJ35 9470	HF85 9470
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			





KMA-1080/KMA-980

● OVERALL ASS'Y

1

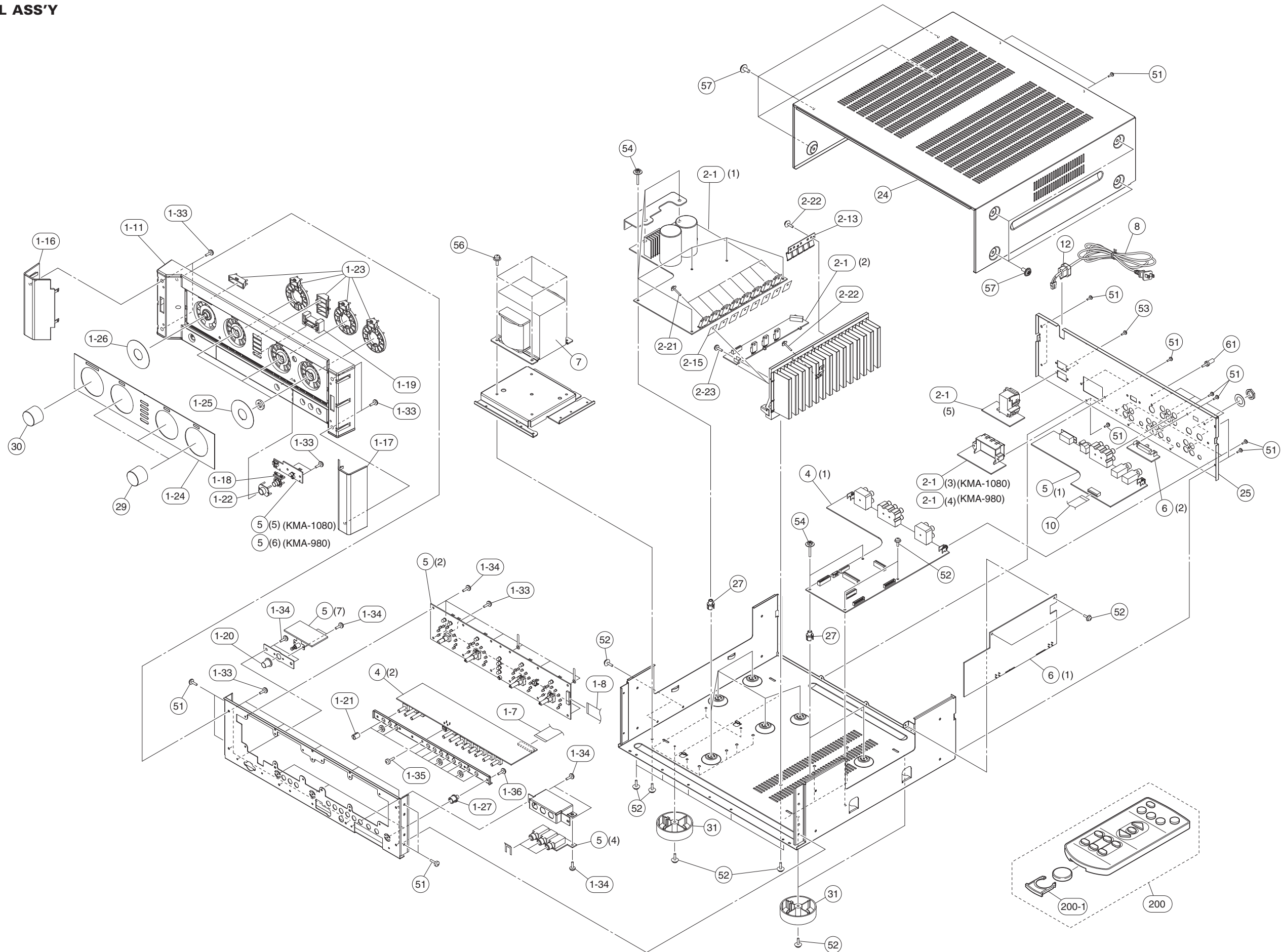
2

3

4

5

6



Ref No.	Part No.	Description	Remarks	Markets
1-7	WR401600	FLEXIBLE FLAT CABLE	26P 180mm P=1.25	
1-8	WR394100	FLEXIBLE FLAT CABLE	19P 250mm P=1.25	
* 1-11	WU089100	FRONT PANEL		KMA-1080
* 1-11	WU089000	FRONT PANEL		KMA-980
1-16	WR976300	PANEL SIDE L		
1-17	WR976500	PANEL SIDE R		
1-18	WP332800	BUTTON ECHO ASS'Y		
1-19	WN974600	BUTTON INPUT		
1-20	WN975100	BUTTON POWER		
1-21	WN996600	KNOB CAP VOLUME		
1-22	WN976700	LENS ECHO		
1-23	WP180800	REFLECTOR LED		
1-24	WR901800	SHEET PANEL		KMA-1080
1-24	WR901900	SHEET PANEL		KMA-980
1-25	WN979300	SHEET VOLUME		
1-26	WN979500	SHEET KEY-CONTROL		
1-27	WH242000	SUPPORT H8		
1-33	WF266600	BIND HEAD P-TIGHT SCREW	3x8 MFZN2B3	
1-34	WF002600	PW HEAD B-TIGHT SCREW	3x8 MFZN2W3	
1-35	WE774100	BIND HEAD BONDING B-T. SCREW	3x8 MFZN2B3	
1-36	WQ315900	PW HEAD B-TIGHT SCREW	3x15 MFZN2W3	
2-1	WR479200	P. C. B. ASS'Y	MAIN	KMA-1080
2-1	WR479300	P. C. B. ASS'Y	MAIN	KMA-980
2-15	WM280900	MICA SHEET	TBM-51W	
2-21	WM220800	HEXAGONAL HEAD B-TIGHT SCREW	3x15 SP MFZN2W3	
2-22	WF002600	PW HEAD B-TIGHT SCREW	3x8 MFZN2W3	
2-23	WE774300	BIND HEAD B-TIGHT SCREW	3x8 MFZN2W3	
2-25	WE774200	BIND HEAD B-TIGHT SCREW	3x10 MFZN2W3	
2-26	WE996500	PAN HEAD SCREW	3x8 SP MFZN2W3	
* 4	WU077800	P. C. B. ASS'Y	FUNCTION	KMA-1080
* 4	WU077900	P. C. B. ASS'Y	FUNCTION	KMA-980
5	WR479600	P. C. B. ASS'Y	OPERATION	KMA-1080
5	WR479700	P. C. B. ASS'Y	OPERATION	KMA-980
* 6	WU078300	P. C. B. ASS'Y	DSP	KMA-1080
* 6	WU078300	P. C. B. ASS'Y	DSP	KMA-980
△ * 7	YA676A00	POWER TRANSFORMER		KMA-1080
△ * 7	YA675A00	POWER TRANSFORMER		KMA-980
△ 8	WB120600	POWER CABLE	2m	
10	WR390000	FLEXIBLE FLAT CABLE	16P 80mm P=1.25	
12	V2438700	CORD STOPPER	10P1	
24	WN988500	TOP COVER		
* 25	WU088900	REAR PANEL		KMA-1080
* 25	WU088800	REAR PANEL		KMA-980
27	WH242000	SUPPORT H8		
29	WR976600	KNOB	D28 MUSIC	KMA-1080
29	WQ165400	KNOB	D28 MUSIC	KMA-980
30	WR976700	KNOB	D28 KEY CONTROL	KMA-1080
30	WQ165500	KNOB	D28 KEY CONTROL	KMA-980
31	WE622300	LEG	D60 H21	
51	WE774100	BIND HEAD BONDING B-T. SCREW	3x8 MFZN2B3	
52	WF002600	PW HEAD B-TIGHT SCREW	3x8 MFZN2W3	
53	WE774300	BIND HEAD B-TIGHT SCREW	3x8 MFZN2W3	
54	WQ315900	PW HEAD B-TIGHT SCREW	3x15 MFZN2W3	
56	WE774700	BIND HEAD S-TIGHT SCREW	4x10 MFZN2W3	

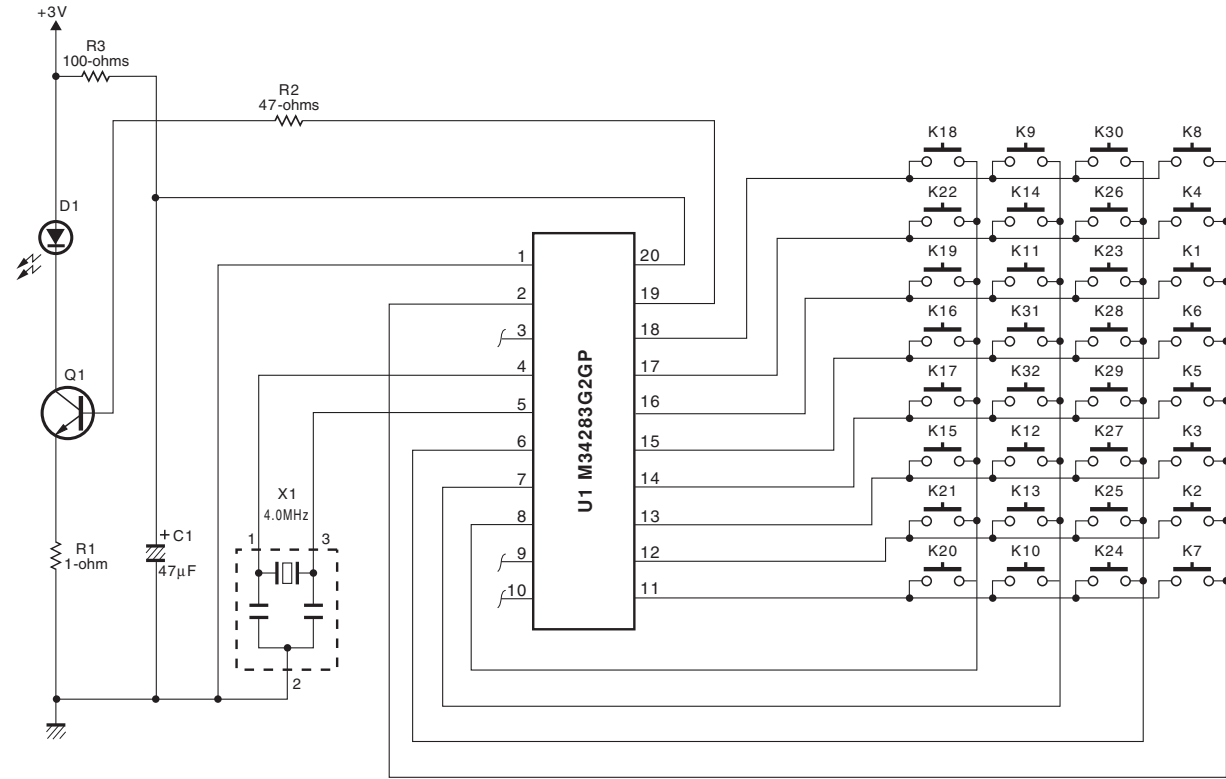
\* New Parts ( 新規部品 )

Ref No.	Part No.	Description	Remarks	Markets
57	VH313200	PW HEAD S-TIGHT SCREW	4x8-10 MFN13BL	
61	AA627310	GROUND TERMINAL		
200	WP390900	ACCESSORIES		
200-1	AAX71770	REMOTE CONTROL		
		BATTERY HOLDER	CG-4335 Black	2AA041110
		LITHIUM BATTERY	CR2025 1pc	

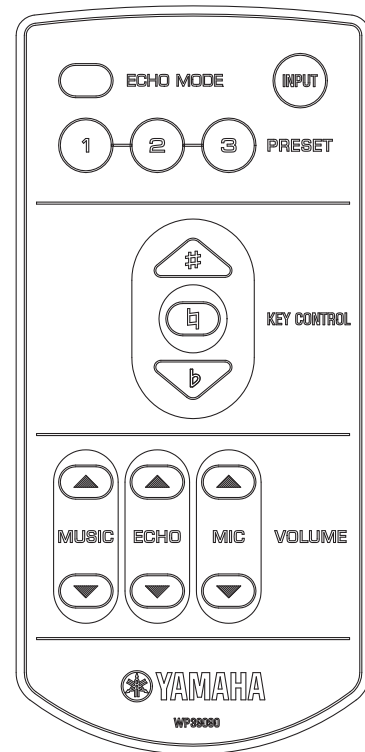
\* New Parts ( 新規部品 )

# REMOTE CONTROL

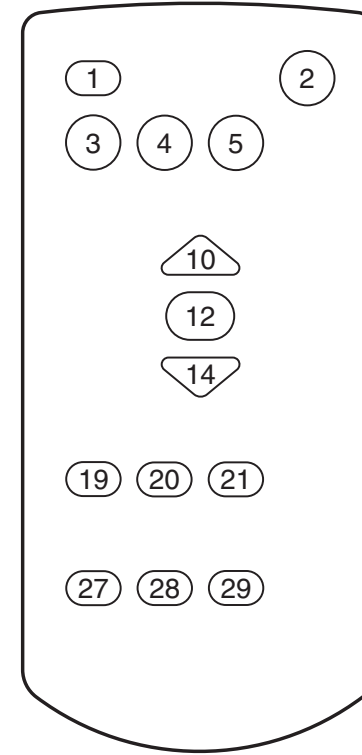
## SCHEMATIC DIAGRAM



## PANEL



## KEY NO. LAYOUT



## KEY CODE

Key no.	Key name	Custom code	Data code
1	ECHO MODE	7B	92
2	INPUT	7B	8C
3	PRESET 1	7B	DD
4	PRESET 2	7B	DE
5	PRESET 3	7B	DF
10	KEY CONTROL #	7B	96
12	KEY CONTROL ↑	7B	97
14	KEY CONTROL ↓	7B	98
19	MUSIC UP	7B	84
20	ECHO UP	7B	88
21	MIC UP	7B	86
27	MUSIC DOWN	7B	85
28	ECHO DOWN	7B	89
29	MIC DOWN	7B	87

## EXTERNAL (REMOTE IN) CODE

Command name	Code 1	Code 2
MUSIC up	7B-84	87-82
MUSIC down	7B-85	87-83
MIC up	7B-86	87-84
MIC down	7B-87	87-85
ECHO up	7B-88	87-86
ECHO down	7B-89	87-87
INPUT	7B-8C	-
DVD	7B-8E	-
TAPE	7B-8F	-
BGM	7B-90	-
AUX	7B-91	-
ECHO MODE	7B-92	-
KEY CONTROL up	7B-96	-
KEY CONTROL # 5	-	87-9D
KEY CONTROL # 4	-	87-88
KEY CONTROL # 3	-	87-89
KEY CONTROL # 2	-	87-8A
KEY CONTROL # 1	-	87-8B
KEY CONTROL ↑	7B-97	87-8C
KEY CONTROL ↓ 1	-	87-8D
KEY CONTROL ↓ 2	-	87-8E
KEY CONTROL ↓ 3	-	87-8F
KEY CONTROL ↓ 4	-	87-90
KEY CONTROL ↓ 5	-	87-9E
KEY CONTROL down	7B-98	87-92
ECHO 1	7B-C2	
ECHO 2	7B-C3	
ECHO 3	7B-C4	
PRESET 1	7B-DD	
PRESET 2	7B-DE	
PRESET 3	7B-DF	

(KMA-1080 model)

## ■ SETUP MODE

### 设定模式

#### ■ 设定模式中的菜单

在设定模式中可以设定以下菜单：

##### 1. 开机 ON 调用

选择最后记忆或预设，在本机打开时调用 MIC 音量 / ECHO 量 / MUSIC 音量 / ECHO MODE 设定。

**最后记忆\*：**调用本机最后一次关闭时的设定。

**预设：**调用保存至 PRESET 1 的设定。

##### 2. 输入模式

将输入模式设定为自动或手动。

**自动\*：**自动设定输入源。

**手动：**通过 INPUT 选择输入源。

按照 DVD、AUX\*\*、TAPE、BGM 顺序选择来源。

##### 3. 自动输入条件

设定步骤 2 所述的自动输入模式中每个来源 (DVD、AUX\*\* 和 TAPE) 的条件。

**音频\*：**根据音频信号切换来源。

**视频：**根据视频信号切换来源。

**音频 / 视频：**根据音频或视频信号切换来源。

仅对于此菜单，在选择想要项目之前通过 INPUT 选择想要的来源。

##### 4. ECHO MODE 自动重设

当前歌曲播放结束后，选择是否重设所选的 ECHO MODE。当歌曲没有声音超过 4 秒钟时，本机认为歌曲播放已结束。

**关闭\*：**本机保留最后所选的 ECHO MODE。

**打开：**ECHO MODE 重设至本机打开时调用的模式。请参阅本页上的“开机 ON 调用”。

##### 5. 遥控模式

设定接收设备。

**前面板和外部\*：**前面板和外部遥控卫星均接收遥控信号。

**前面板：**仅前面板接收信号。

**外部：**仅外部遥控卫星接收信号。

**禁用：**禁用遥控器。

##### 6. MIC/MUSIC 最大电平

设定 MIC 和 MUSIC 的最大音量。

**10\*：**无设定。

**9-3：**最大音量设定至指示的音量 (不能设定为 2-0)。

##### 7. MIC/MUSIC 音量选择

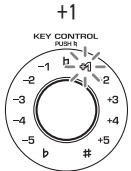
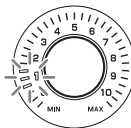
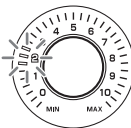
选择转动控制钮时 MIC 和 MUSIC 音量如何增大 / 减小 (如，音量曲线)。

**模式 1：**陡峭曲线。

**模式 2\*：**一般陡峭曲线。

**模式 3：**最小陡峭曲线，最适合微调。

#### ■ 设定模式表

菜单	KEY CONTROL	项目 /MUSIC	
1. 开机 ON 调用		最后记忆: 1 	预设: 2 

##### 8. 外部输出选择

设定 PRE OUT/SPEAKERS 的输出信号。

**普通\*：**PRE OUT/SPEAKERS 同时输出麦克风 / 音乐信号。

**单独：**PRE OUT 输出音乐；SPEAKERS 输出麦克风信号。

##### 9. 功率放大器模式

可将本机用作 2 声道功率放大器。本机上的大多数功能在功率放大器模式中无效。默认设定为普通 (卡拉 OK 数码功放)。请参阅第 14 页警告。

##### 10. 初始化

设定模式中设定的所有设定复位至默认设定。

**取消：**不执行初始化。

**初始化：**执行初始化。

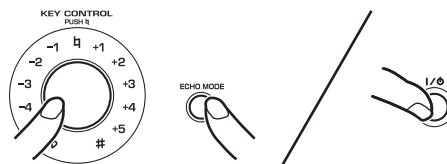
在 MUSIC 设定为 3 时按 KEY CONTROL，即执行初始化。

\* 默认设置

\*\* 仅适用 KMA-1080

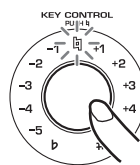
若要设定上述每个菜单，请根据以下步骤按照第 12 至 13 页上“设定模式表”中的说明设定相应的控制钮。

- 若要进入设定模式，先关闭主机，然后按住 KEY CONTROL 和 ECHO MODE，同时按 I/O。



- 根据第 12 页“设定模式表”将 KEY CONTROL 和 MUSIC 设定为想要的菜单和项目。  
对于自动输入条件，在选择项目之前选择想要的播放源。  
操作步骤 3 之前设定要更改的所有设定。

- 按 KEY CONTROL 输入设定。



设定输入时“1”闪烁一次。

- 若要停止设定模式，关闭主机。

菜单	KEY CONTROL	项目 /MUSIC
2. 输入模式	+2 	自动: 1 手动: 2
3. 自动输入条件	+3 	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>KMA-1080</p> </div> <div style="text-align: center;"> <p>KMA-980</p> </div> </div> <p>使用 INPUT 选择想要来源。例如: DVD</p> 音频: 1       视频: 2       音频 / 视频: 3
4. ECHO MODE 自动重设	+4 	关闭: 1 打开: 2
5. 遥控模式	+5 	前面板和外部: 1 前面板: 2 外部: 3 禁用: 4
6. MIC/MUSIC 最大电平	-1 	无设定: 10 设定至指示音量: 9-3 例如: 3
7. MIC/MUSIC 音量选择	-2 	模式 1: 1 模式 2: 2 模式 3: 3
8. 外部输出选择	-3 	普通: 1 单独: 2
9. 功率放大器模式	-4 	普通: 1 功率放大器: 2 请参阅第 14 页警告。
10. 初始化	-5 	取消: 1 初始化: 3

KMA-1080/KMA-980

**警告**

- 通常使用时，功率放大器模式应始终使用默认设定。
- 如果设定了“功率放大器: 2”，本机的音量电平将达到最大，且无法通过转动前面板上的 MUSIC 对其进行控制。
- 请注意不要疏忽此设定，以免造成过大的音量输出。
- 当以功率放大器模式使用本机时请咨询经销商。

# KMA-1080/KMA-980

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KMA-1080/KMA-980

