

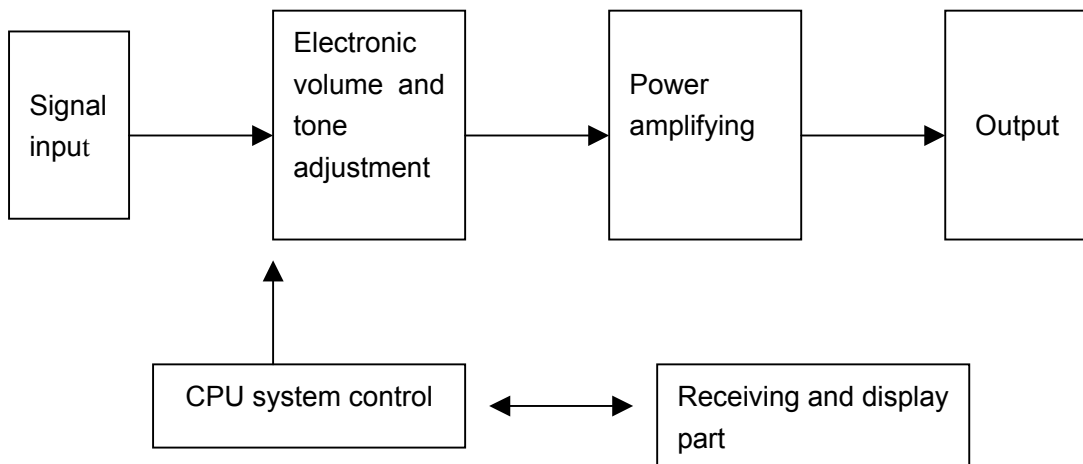
MA-960S Principle and Maintenance

1. Product profile

MA-960S is a medium-grade active speaker consisting of 5 satellite speakers, that is, one subwoofer speaker, two front speakers, two surround speakers and one center speaker. The product features excellent sound effect in appropriate space and it has the following features:

- (1) 2.1/5.1CH output;
- (2) Visualization 2/5 conversion and volume adjustment;
- (3) Built-in 5CH power amplifying, adaptable to AC-3/DTS and stereo music replay;
- (4) With 6CH volume adjustment and independent level control, and with tone adjustment function.

2. Principle block diagram



3. System composition

This device comprises input board, output board, power amplification board and control panel. The input board and output board are only composed of a few terminals. The main part is power amplification board. System control, amplification part and power supply are all composed inside. The following is the brief description of the principles for the power amplification board.

1) Power supply part

In consideration of the big output power of the subwoofer, the device employs a ring transformer for power supply. A group of 18V (AC) voltage is outputted from the transformer, which will be subject to rectification and filtering and will output +22V voltage to power IC TDA8947 and IC TDA9843 for power supply.

One line of output 22V voltage goes through the current limiting resistor R101, voltage regulating diode VD104 and capacitor C108 and then outputs +9V voltage to IC PT2322; the other line goes through R100 and voltage

regulating diode VD105 and then outputs 5V power supply for the CPU and the control panel.

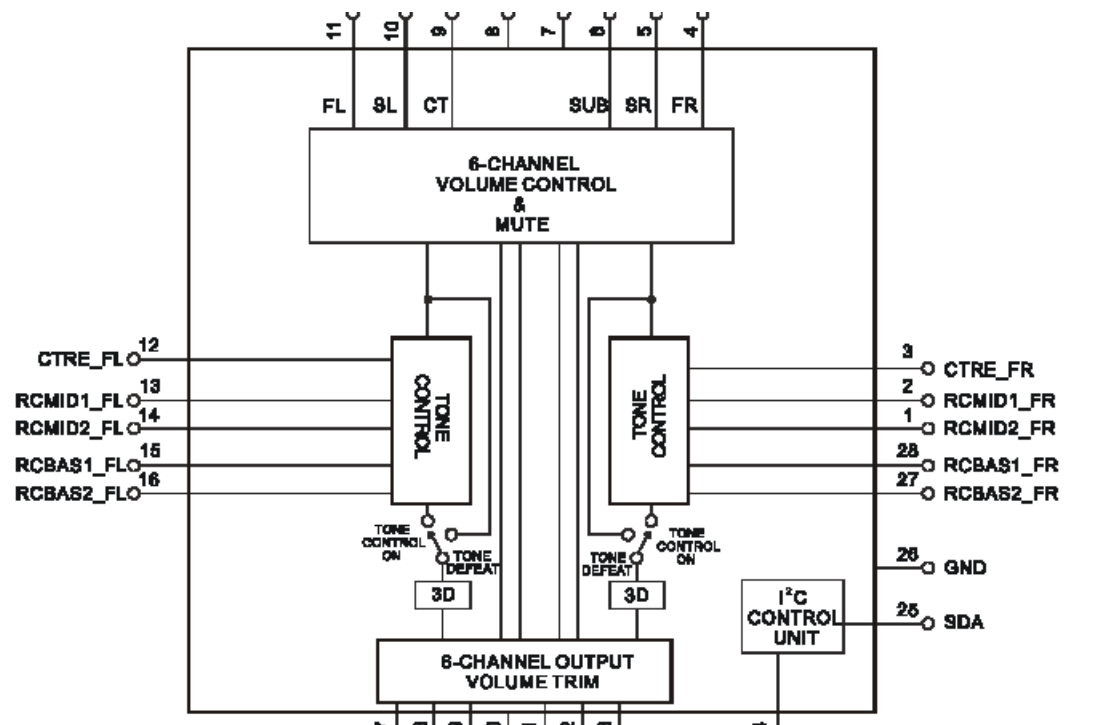
2) Signal input, volume and tone adjustment

The device has six channels for signal input. The signals input through each channel will go through the filtering capacitor before being directly delivered to the IC PT2322 for volume and tone adjustment. In addition, one line of signals will be delivered from the L and R main sound channels and overlapped on the SW input. As a result, 2.1 output effect will be achieved even when there are only L and R channel inputs.

IC PT2322 is an IC with 6-channel independent volume and tone adjustment. With its gains adjustable from 0 to 95 signal DB; it is applicable to home theatre products. With benefits such as big range of power supply, low power consumption and wide temperature scope, it is quite competent IC, and the functions of its main pins are listed in the following table:

Pin name	Pin number	Pin description
FLIN	11	Signal input
FRIN	4	Signal input
RL	10	Signal input
RR	5	Signal input
C	9	Signal input
SBW	6	Signal input
FLOUT	17	Signal output
FROUT	23	Signal output
COUT	19	Signal output
RLOUT	18	Signal output
RROUT	22	Signal output
SBWOUT	21	Signal output
VREF	7	Reference voltage
VDD	20	Power supply
DI	25	Data control line
CL	24	Clock control line

The IC internal unit equivalent circuit:



3). Amplifying circuit part

Principles: as far as the IC PT2322 are concerned, the signals of the main channel will be delivered to N101 IC TDA9843 for power amplification; the central surround signals will be filtered and delivered to the N106 IC TDA8947 for power amplification; the subwoofer signals will first pass experience amplitude limit (the amplitude limit circuit comprises VD110 and VD113 diodes) and pretreatment before being delivered to the N102 IC TDA9843. Amplitude limit is aimed at preventing excessive size of signals, which may, after amplification, damage the loudspeaker due to excessive power. Because the power supply of the amplification IC is fulfilled by a single power source, all amplified and output signals will have DC, therefore, the signals will still experience filtering before being output to the loudspeaker.

IC TDA9843J is used for dual channel power amplification. With standby and mute modes, free from switch impact, and with functions such as short circuit protection and overheat protection, it can effectively be prevented from being damaged in case of IC abnormality. In ordinary output mode, the IC can supply for each channel a maximum of 20W power output. When BTL output is employed, the power can be as high as 40W. In addition, the IC features powerful anti-ripple performance, with little power consumption in the standby mode.

The functions of the various pins of the IC TDA9843J are listed in the following table:

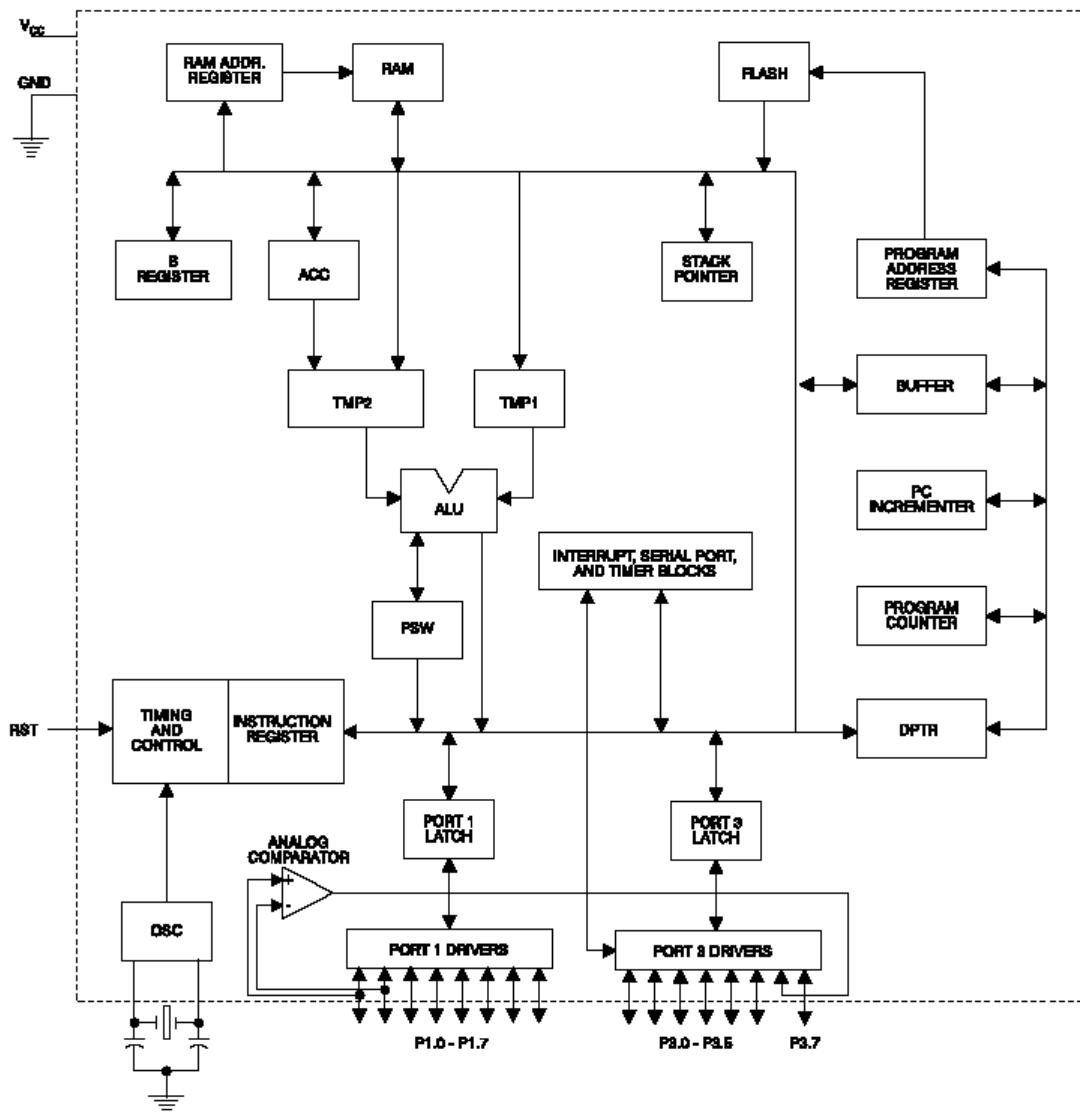
Symbol	Pin	Function
IN2+	1	2 nd channel input
OUT2-	2	2 nd channel output
CIV	3	Common mode input signal suppression
1N1+	4	1 st channel input
GND	5	Ground
SVR	6	Reference voltage
MODE	7	Mode selection
OUT1+	8	1 st channel output
VCC	9	Power supply

IC TDA8947J is used for four-channel power amplification. Its features are similar to those of the IC TDA9843J, however, its output power is bigger, and a signal sound channel can be as high as 25W.

4). Control circuit

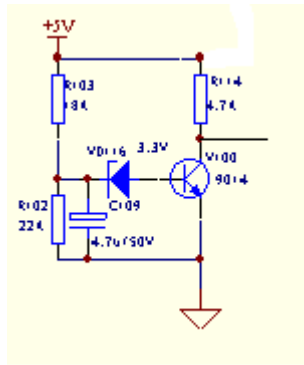
MA-960S employs IC AT89C2051 to serve as its core part to control the operation of the whole device. With low voltage and high performance, it employs 8-bit 2K bytes flash and ROM single-chip. Boasting 15 I/O ports and six interrupt sources; it has features such as low power consumption and standby mode.

The principle block diagram of the IC is illustrated in the following figure:



Reset circuit:

MA-960S employs high level for resetting. By making use of the feature of the capacitor C109 that there is no jump of voltage, the device ensures that there is no jump of capacitor voltage at the instant of power on. The base electrode of the triode V100 has low level, so that the triode is not on, and the 5V voltage is added to the first pin of the CPU through R114. With capacitor charging, the positive voltage of the capacitor gradually climbs; when the voltage attains a certain limit, the voltage regulating diode is reversely on, so that the base electrode of the triode has high level, the triode is on; the reset pin voltage turns o=into low level, thus fulfilling resetting. The circuit diagram is illustrated in the following figure:



Reset circuit

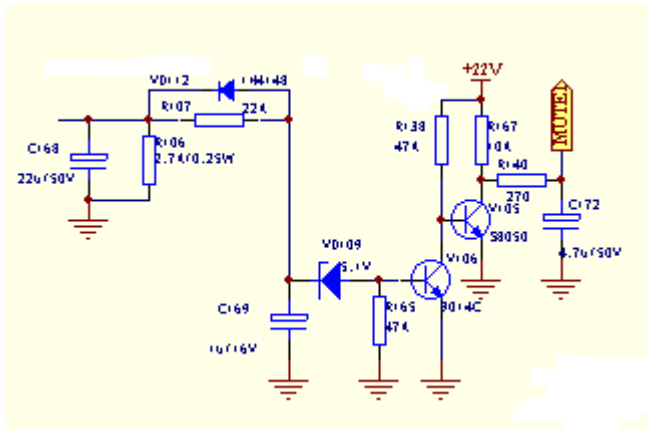
Mainly remote control is employed for adjustment of the status of the device. The signals received by the remote controller are delivered to the sixth pin of the CPU. After the signals are processed inside the CPU, pins 7, 8, and 9 deliver control signals to adjust the volume and tone of the device. Then there will be corresponding display on the control panel through PI port, so that users are able to understand the status of the device. In addition, pin 2 and 3 of the CPU are used to control the mute state of the main channel and the central surround.

5). Control panel

The control panel of the device consists of a remote control receiver and a nixie tube. Because the device is operated through remote control, the remote control receiver is the sole path for man-machine communication. The nixie tube is used to display the ongoing operation and the state of the whole system.

6). Power on/off mute and mute circuit

Power on/off mute: as shown in the figure, at the instant of power on, the voltages on both sides of capacitor C169 won't experience jump-off, as a result, the low level will remain unchanged, the triode V106 is off, V105 is on, MUTE1 output turns into low level, LRM and SCM signal levels turn lower, and then there is mute. When the capacitor is charged to turn on VD109 5.1V voltage regulator tube and V104 9014 triode, the level of the V105 base electrode will become lower, so that triode V105 turns off, MUTE1 outputs high level, and the mute then comes to an end. The same case applies to power off. Capacitor C169 experiences fast discharge through diode VD112, so that the positive voltage experiences fast decrease, triode V106 turns off. V105 turns on, MUTE outputs low level and turns on. It is through this circuit that we achieve no impact sound when power is on/off.



Mute circuit: the mute function is realized through the mute signals transmitted by the CP. Press the MUTE key on the remote controller, the remote control receiver will receive signals and transmitted them to the CPU for processing. Then, pins 2 and 3 of the CPU will transmit high level, so that triodes V107 and V108 turn on, LRM and SCM levels become lower, and the mute is on. It makes use of the mode selection feature of the IC TDA9843 and IC TDA8947. For more details, please refer to the information for the IC TDA9843.

4. Troubleshooting

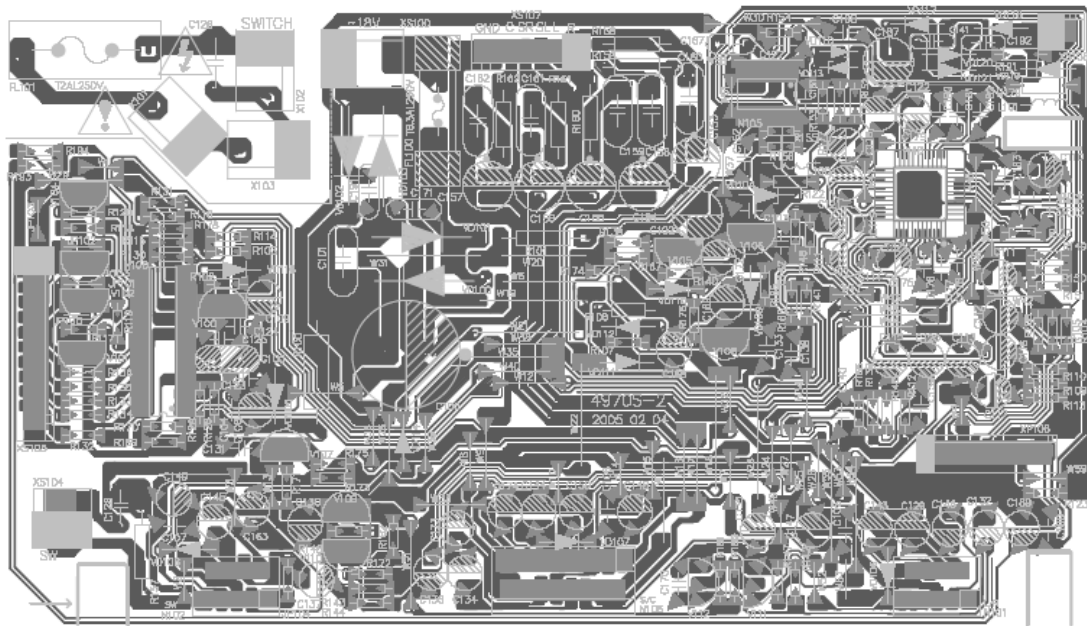
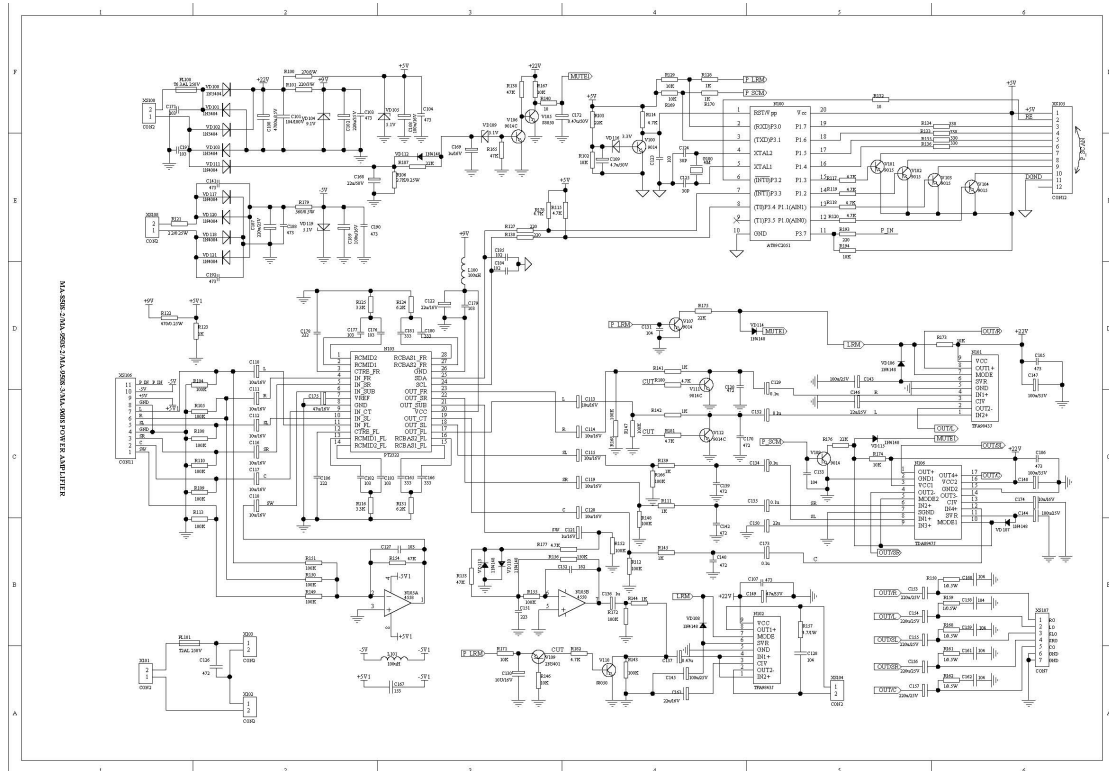
The electronic circuit inside the device is relatively simple, without too many complicated control and detection circuits. As a result, signal injection method is employed for the maintenance of the device; namely, signals are added to the input end, and flow along the signal procedure. If signals are interrupted at a certain place, then we can determine that the fault may happen here.

The maintenance of the device is in compliance with the following procedure:

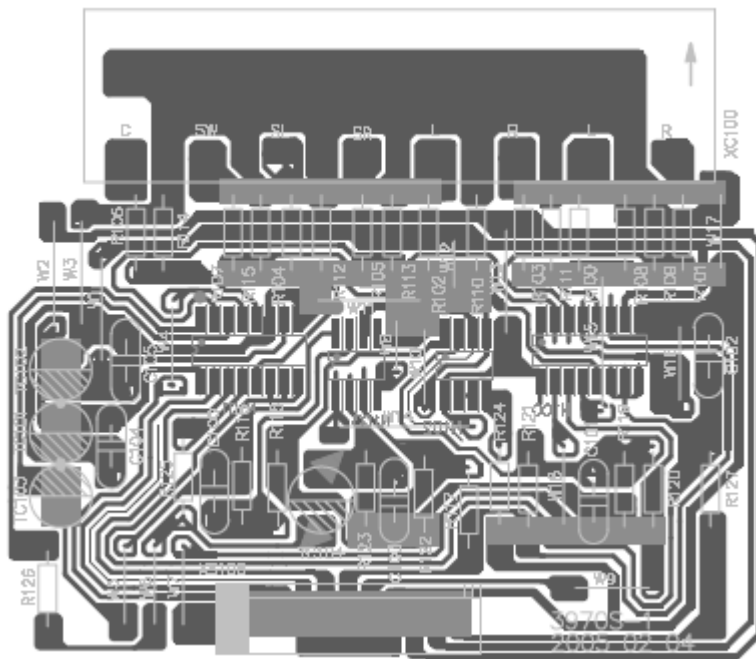
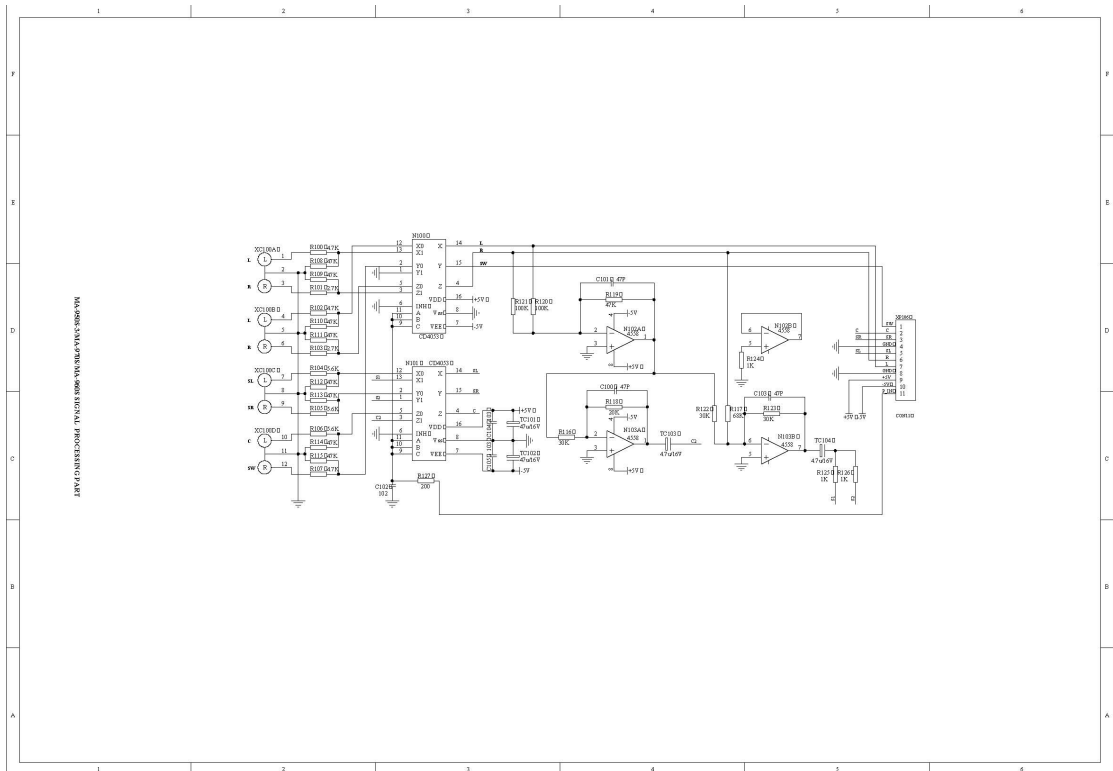
- 1) Check whether the power supply is normal; namely, check whether the power supply of 22V, 9V and 5V is normal;
- 2) In case of abnormal sound but normal power supply, check whether the mute is normal, and then consider whether it is attributed to the wrongness of other parts;
- 3) For a device with abnormal display, first determine there is anything wrong with the nixie tube, and then check whether there is anything wrong with the nixie tube, and then check whether there is anything wrong with the CPU.

5. Schematic & PCB diagram

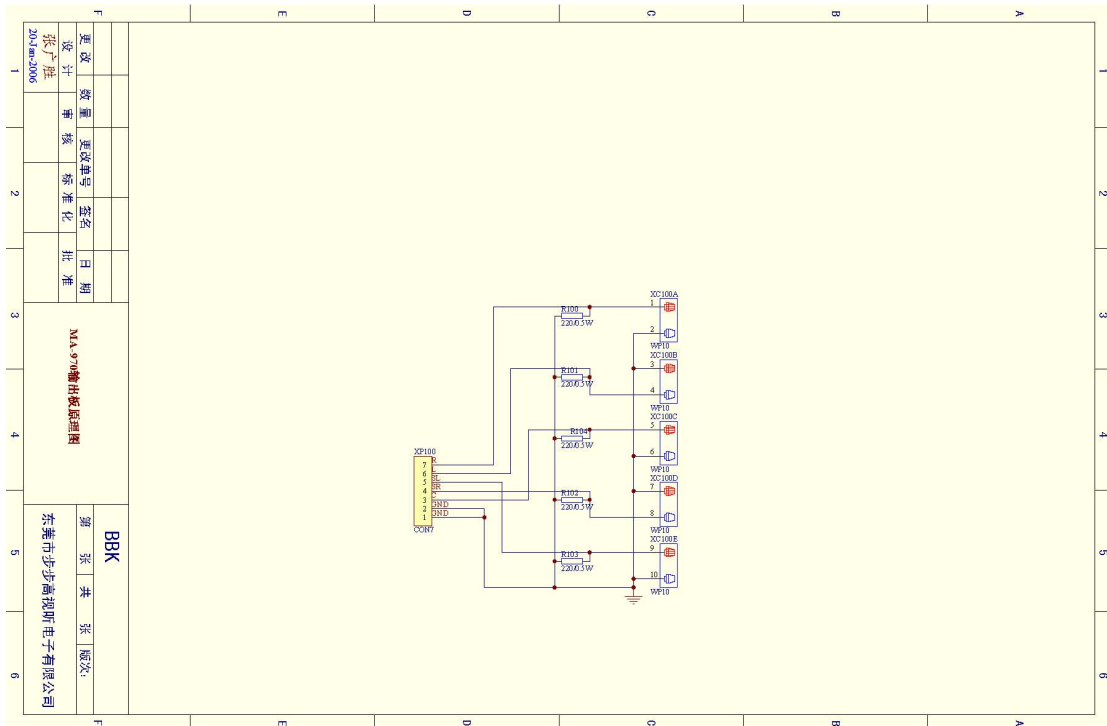
1. Power & amplifier board



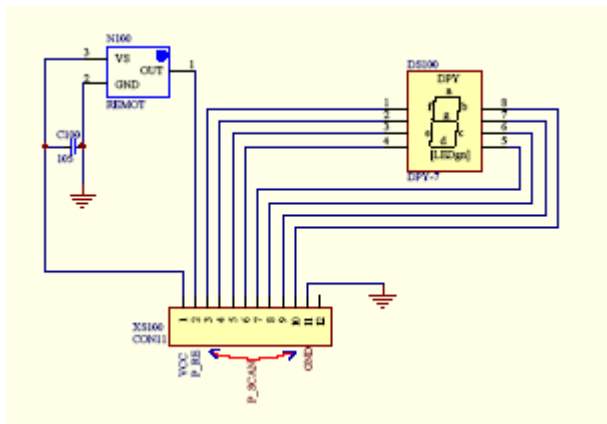
2. Input board Part



3. Output Board Part



4. Panel Board



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power & amplifier board

MATERIAL CODE	MATERIAL NAME	SPECS & MODEL	UNIT	QTY	LOCATION
1563618	PCB	4950S2-0	PCS	1	
2100017	CONNECTION CORDS	Φ 0.6 SHAPED 20mm	PCS	6	W6,W18,W23,W31,W54,W55
2100003	CONNECTION CORDS	Φ 0.6 SHAPED 7.5mm	PCS	19	W25,W14,W2,W10,W13,JP104,W47,W1,W41,W49,W52,W53,W57,W59,W61,W4,W40,W42,W44
2100004	CONNECTION CORDS	Φ 0.6 SHAPED 10mm	PCS	12	W27,W32,W24,W15,W28,W39,W8,W3,W34,W36,W46,W37
2100006	CONNECTION CORDS	Φ 0.6 SHAPED 12.5mm	PCS	10	W5,W9,W17,W16,W26,W33,W38,W43,W12,W58
2100016	CONNECTION CORDS	Φ 0.6 SHAPED 18mm	PCS	3	W21,W19,W22
2100007	CONNECTION CORDS	Φ 0.6 SHAPED 15mm	PCS	4	W35,W29,W20,W51
00000039	CARBON FILM RESISTOR	1/6W10 Ω ±5%	PCS	2	R132,R140
00000119	CARBON FILM RESISTOR	1/6W220 Ω ±5%	PCS	3	R130,R127,R193
00000139	CARBON FILM RESISTOR	1/6W330 Ω ±5%	PCS	4	R133~R136
00000229	CARBON FILM RESISTOR	1/6W1K±5%	PCS	9	R111,R123,R128,R142,R145,R170,R139,R141,R144
00000309	CARBON FILM RESISTOR	1/6W3.3K±5%	PCS	2	R116,R125
00000349	CARBON FILM RESISTOR	1/6W4.7K±5%	PCS	11	R114,R115,R117~R120,R177,R178,R180,R181,R182
00004099	CARBON FILM RESISTOR	1/6W6.2K±5%	PCS	2	R124,R131
00000409	CARBON FILM RESISTOR	1/6W10K±5%	PCS	8	R169,R129,R146,R167,R171,R173,R174,R194
00000449	CARBON FILM RESISTOR	1/6W18K±5%	PCS	1	R102
00000469	CARBON FILM RESISTOR	1/6W22K±5%	PCS	4	R103,R107,R175,R176
00000529	CARBON FILM RESISTOR	1/6W47K±5%	PCS	4	R165,R138,R153,R154
00000599	CARBON FILM RESISTOR	1/6W100K±5%	PCS	18	R147,R112,R152,R155,R166,R143,R146,R149,R150,R151,R166,R172,R104,R105,R108,R110,R109,R112
00000629	CARBON FILM RESISTOR	1/6W150K±5%	PCS	1	R156
02002889	PORCELAIN CAPACITOR	50V30P±10% SHAPED 5mm	PCS	1	C125
02003109	PORCELAIN CAPACITOR	50V 103±10% SHAPED 5mm	PCS	2	C123,C127
02102029	TERYLENE CAPACITOR	100V 222±10% SHAPED 5mm	PCS	2	C178,C186
02102259	TERYLENE CAPACITOR	100V 222±5% SHAPED 5mm	PCS	2	C178,C186
02101589	TERYLENE CAPACITOR	100V 472±10% SHAPED 5mm	PCS	5	C138~C140,C142,C170

QR-1.4-20
第 1 页共 4 页

MATERIAL CODE	MATERIAL NAME	SPECS & MODEL	UNIT	QTY	LOCATION
02102229	TERYLENE CAPACITOR	100V 472±5% SHAPED 5mm	PCS	5	C138~C140,C142,C170
02100229	TERYLENE CAPACITOR	100V 223 ±5% 5mm	PCS	1	C151
02101489	TERYLENE CAPACITOR	100V 473 ±10% SHAPED 5mm	PCS	7	C103~C107,C188,C190
02102209	TERYLENE CAPACITOR	100V 473 ±5% SHAPED 5mm	PCS	7	C103~C107,C188,C190
02101809	TERYLENE CAPACITOR	100V 182 ±10% SHAPED 5mm	PCS	1	C152
02003329	TERYLENE CAPACITOR	50V 102±10% SHAPED 5mm	PCS	1	C184
02101599	TERYLENE CAPACITOR	100V 103 ±10% SHAPED 5mm	PCS	3	C171,C179,C191
02102239	TERYLENE CAPACITOR	100V 103 ±5% SHAPED 5mm	PCS	3	C171,C179,C191
02600019	CD	CD11 16V22U±20%5×11 C5	PCS	4	C150,C163,C146,C122
02605389	CD	CD11 35V47U±20%6×12 C5	PCS	4	C147,C148,C149,C175
02603909	CD	CD11 50V0.47U±20%5×11C5	PCS	2	C137,C172
02600059	CD	CD11 50V1U±20%5×11 C5	PCS	3	C121,C136,C169
02604939	CD	CD11 50V0.1U±20% 5×11 C5	PCS	5	C129,C132,C173,C134,C135
02601369	CD	CD11 50V4.7U±20%5×11 C5	PCS	1	C109
02601829	CD	CD11 25V100U±20%6×12 C5	PCS	5	C143~C145,C108,C189
02604379	CD	CD11 16V10U±20%5×11C5	PCS	13	C110~C120,C130,C174
02601379	CD	CD11 50V22U±20%5×11 C5	PCS	1	C168
05700049	DIODE	1N4004	PCS	1	VD111
0570006	DIODE	1N4148	PCS	6	VD106~VD108,VD112,VD114,VD115
05800069	VOLTAGE REGULATOR DIODE	5.1V 1/2W	PCS	2	VD105,VD119
05800019	VOLTAGE REGULATOR DIODE	3.3V 1/2W	PCS	1	VD116
07800329	TRIODE	9014C	PCS	6	V100,V106,V107,V108,V111,V112
07801389	TRIODE	8050D	PCS	2	V105,V110
07800259	TRIODE	2N5401	PCS	1	V109
07800339	TRIODE	9015C	PCS	4	V101~V104

QR-1.4-20

MATERIAL CODE	MATERIAL NAME	SPECS & MODEL	UNIT	QTY	LOCATION
2100017	CONNECTION CORDS	Φ0.6 SHAPED 20mm	PCS	1	W30
2100007	CONNECTION CORDS	Φ0.6 SHAPED 15mm	PCS	1	W11
2100004	CONNECTION CORDS	Φ0.6 SHAPED 10mm	PCS	1	W7
0000279	CARBON FILM RESISTOR	1/4W470Ω±5% SHAPED 10	PCS	1	R122
0000441	CARBON FILM RESISTOR	1/4W2.7K±5% SHAPED 10	PCS	1	R106
0000499	CARBON FILM RESISTOR	1W4.7Ω±5% SHAPED R 15×9	PCS	1	R157
0000675	CARBON FILM RESISTOR	1/2W 1Ω±5% SHAPED 12.5	PCS	5	R158-R162
0010164	METAL OXIDE FILM RESISTOR	3W 270Ω±5% SHAPED R 20×8	PCS	1	R100
0010223	METAL OXIDE FILM RESISTOR	1/4W 2.2Ω±5% SHAPED 10	PCS	1	R121
0010302	METAL OXIDE FILM RESISTOR	2W220Ω±5% SHAPED FLAT 15×8	PCS	1	R101
0010242	METAL OXIDE FILM RESISTOR	1/2W560Ω±5% SHAPED 12.5	PCS	1	R179
0200288	PORCELAIN CAPACITOR	50V 30P ±10% 5mm	PCS	1	C124
0200338	CERAMIC CAPACITOR	CT7 400VAC 472 ±20% 2E4 10mm	PCS	1	C126
0210140	METAL POLYESTER FILM CAPACITOR	CL21X63V153±5% C5	PCS	1	C167
0210159	TERYLENE CAPACITOR	100V 103 ±10% SHAPED 5mm	PCS	4	C176,C177,C182,C183
0210223	TERYLENE CAPACITOR	100V 103 ±5% SHAPED 5mm	PCS	4	C176,C177,C182,C183
0210162	TERYLENE CAPACITOR	100V 333±10% SHAPED 5mm	PCS	4	C165,C166,C180,C181
0210224	TERYLENE CAPACITOR	100V 333±5% SHAPED 5mm	PCS	4	C165,C166,C180,C181
0210147	TERYLENE CAPACITOR	100V 473 ±10% 5mm	PCS	2	C141,C192
0210025	TERYLENE CAPACITOR	100V 473 ±5% 6mm	PCS	2	C141,C192
0210030	TERYLENE CAPACITOR	100V 104 ±10% 7mm	PCS	9	C101,C158-C162,C128,C131,C133
0210029	TERYLENE CAPACITOR	100V 104 ±5% 7mm	PCS	9	C101,C158-C162,C128,C131,C133
0200123	PORCELAIN CAPACITOR	50V 102 ±10% 5mm	PCS	1	C185
0260041	CD	CD11 25V220U±20% 8×12 3.5	PCS	7	C102,C155,C156,C157,C187,C153,C154
0260447	CD	LUA 35V4700U±20% 18×35 7.5	PCS	1	C100

QR-1.4-20
第 1 页共 6 页

MATERIAL CODE	MATERIAL NAME	SPECS & MODEL	UNIT	QTY	LOCATION
0390013	INDUCTOR	100UH ±10% 0307	PCS	1	L100
0390411	INDUCTOR	100UH ±10% 0307 SHAPED VERTICAL 10	PCS	1	L101
0580054	VOLTAGE REGULATOR DIODE	9.1V 1W	PCS	1	VD104
05800069	VOLTAGE REGULATOR DIODE	5.1V 1/2W	PCS	1	VD109
0570020	DIODE	1N5404	PCS	4	VD100-VD103
0570004	DIODE	1N4004	PCS	4	VD117,VD118,VD120,VD121
0570006	DIODE	1N4148	PCS	2	VD110,VD113
0890246	SOFTWARE PROGRAM CPU	CPUMA950SRU3-0	PCS	1	N100
0882133	IC	TFA9843J SOT523-1	PCS	2	N101,N102
0882132	IC	TDA8947J SOT243-1	PCS	1	N106
0881743	IC	F4558 DIP	PCS	1	N105
0882161	IC	AZ4558 DIP	PCS	1	N105
0880445	IC	4558C DIP	PCS	1	N105
0880124	IC	NJM4558D DIP	PCS	1	N105
0881393	IC	IL4558N DIP	PCS	1	N105
0881695	IC	PT2322 SOP	PCS	1	N103
0970014	CERAMIC RESONATOR	ZTA 4.00MG (4.0MHZ)	PCS	1	G100
1940007	SOCKET	7P 2.5mm	PCS	1	XS107
2150234	FLAT CABLE	11P100 2.0 T2 6P SCREEN-SHIELDED WITH DUAL NEEDLE IN-PHASE	PCS	1	XS106
1940074	SOCKET	2P 7.92mm	PCS	4	XS100,X101-X103
1940110	SOCKET	12P 2.5mm	PCS	1	XS105
1940167	SOCKET	2P 3.96mm	PCS	1	XS104
2121755	FLAT CABLE	ZPT35 2.5 2P PLUG WITH NEEDLE IN-PHASE	PCS	1	XS108
3020402	FUSE HOLDER	BLX-2	PCS	1	FL101

QR-1.4-20
第 2 页共 6 页

MATERIAL CODE	MATERIAL NAME	SPECS & MODEL	UNIT	QTY	LOCATION
HOME THEATRE SPEAKER SYSTEM MA-960S (RU) RED	PRODUCT CODE	5780247	MODULE		POWER AMPLIFIER BOARD PCB SEMI-FINISHED P 5446551
3870057	FUSE HOLDER	0	PCS	2	FL100
2300005	FUSE TUBE	T6.3AL 250V	PCS	1	PACK TO FL100
2300003	FUSE TUBE	T2AL 250V	PCS	1	PACK TO BLX,FL101
3580121	HEAT RADIATION BOARD	178×97×46 DK929S(RU)	PCS	1	
4210082	TAPPING SCREW	PWM 3×12×7 BLACK	PCS	6	4PCS FOR HEAT RADIATION BOARD/POWER IC; 2PCS FOR PCB AND HEAT RADIATOR
4400001	NUT	M3	只	6	4PCS FOR HEAT RADIATION BOARD/POWER IC; 2PCS FOR PCB AND HEAT RADIATOR
4450012	SCREW SPACER	Φ3×7.2×0.5	PCS	6	4PCS FOR HEAT RADIATION BOARD/POWER IC; 2PCS FOR PCB AND HEAT RADIATOR
4490001	SPRING SPACER	Φ3	PCS	6	4PCS FOR HEAT RADIATION BOARD/POWER IC; 2PCS FOR PCB AND HEAT RADIATOR
5446362	PCB SEMI-FINISHED PRODUCT	4950S2-0 MA-950S(RU)-2 AI	PCS	1	

power & amplifier board

MATERIAL CODE	MATERIAL NAME	SPECS & MODEL	UNIT	QTY	LOCATION
1563631	PCB	3970S-1	PCS	1	
2100010	CONNECTION CORDS	Φ0.6 SHAPED 5mm	PCS	2	W8,W12
2100003	CONNECTION CORDS	Φ0.6 SHAPED 7.5mm	PCS	9	W4,W5,W6,W7,W9,W10,W16,W17,W18
2100004	CONNECTION CORDS	Φ0.6 SHAPED 10mm	PCS	5	W1,W2,W3,W11,W13
2100006	CONNECTION CORDS	Φ0.6 SHAPED 12.5mm	PCS	2	W14,W15
0000610	CARBON FILM RESISTOR	1/6W200Ω±5% SHAPED 7.5	PCS	1	R127
0000129	CARBON FILM RESISTOR	1/6W1K±5% SHAPED 7.5	PCS	3	R124,R125,R126
0000475	CARBON FILM RESISTOR	1/6W2.7K±5% SHAPED 7.5	PCS	2	R101,R103
0000133	CARBON FILM RESISTOR	1/6W4.7K±5% SHAPED 7.5	PCS	3	R100,R102,R107
0000135	CARBON FILM RESISTOR	1/6W5.6K±5% SHAPED 7.5	PCS	3	R104,R105,R106
0000139	CARBON FILM RESISTOR	1/6W20K±5% SHAPED 7.5	PCS	1	R118
0000386	CARBON FILM RESISTOR	1/6W30K±5% SHAPED 7.5	PCS	3	R116,R122,R123
0000144	CARBON FILM RESISTOR	1/6W47K±5% SHAPED 7.5	PCS	9	R108~R115,R119
0000507	CARBON FILM RESISTOR	1/6W68K±5% SHAPED 7.5	PCS	1	R117
0000146	CARBON FILM RESISTOR	1/6W100K±5% SHAPED 7.5	PCS	2	R120,R121
0200035	PORCELAIN CAPACITOR	50V 47P ±5% NPO 5mm	PCS	3	C100,C101,C103
0200123	PORCELAIN CAPACITOR	50V 102 ±10% 5mm	PCS	1	C102
0200131	PORCELAIN CAPACITOR	50V 103 ±10% 5mm	PCS	2	C104,C105
0260127	CD	CD11 16V4.7U±20%5×11 2	PCS	1	TC103
0260438	CD	CD11 16V4.7U±20%5×11C5	PCS	1	TC104
0260025	CD	CD11 16V47U±20%5×11 2	PCS	2	TC101,TC102
0882655	IC	74HC4053D SOP	PCS	2	N100,N101

MATERIAL CODE	MATERIAL NAME	SPECS & MODEL	UNIT	QTY	LOCATION
0881992	IC	HC4053M SOIC	PCS	2	N100,N101
0881742	IC	F4558 SOP	PCS	2	N102,N103
0880185	IC	NJM4558M SOP	PCS	2	N102,N103
0880361	IC	4558 SOP	PCS	2	N102,N103
0880608	IC	A4558F SOP	PCS	2	N102,N103
0880754	IC	UTC MC4558 SOP	PCS	2	N102,N103
0881226	IC	RC4558D SOP	PCS	2	N102,N103
1910213	TERMINAL SOCKET	AV8-8.4-13B	PCS	1	XC100

control board

MATERIAL CODE	MATERIAL NAME	SPECS & MODEL	UNIT	QTY	LOCATION
0230047	MONOSOLIC CAPACITOR	50V 824 ±20% 5mm	PCS	1	C100
0230048	MONOSOLIC CAPACITOR	50V 105 ±20% 5mm	PCS	1	C100
2121399	FLAT CABLE	12P 250 2.5 2PLUG WITH NEEDLE IN-PHASE	PCS	1	
1631808	PCB	6MA950S-1	PCS	1	
2360002	RECEIVER	HS0038B	PCS	1	N100
0620146	LED DIGITAL TUBE	TOD-4201PFH-B	PCS	1	DS100
5233971	SOFT SPONGE SPACER	10×7×2 SINGLE-SIDED HARD	PCS	1	STICK N100

output board

MATERIAL CODE	MATERIAL NAME	SPECS & MODEL	UNIT	QTY	LOCATION
0000466	CARBON FILM RESISTOR	1/2W220Ω±5% SHAPED 12.5	PCS	5	R100-R104
1563617	PCB	7970S-0	PCS	1	
1990018	EXTERNAL CONNECTION SOCKET	WP10-11	PCS	1	XC100
2121406	FLAT CABLE	7P120 2.5 2PLUG WITH NEEDLE REVERSE	PCS	1	XP107
1940001	SOCKET	2P 2.5mm	PCS	2	XS100,XS101 (CONNECT WITH POWER AMPLIFIER BOARD XS108 AND TRANSFORMER INDIVIDUALLY)