AV250T Service Manual

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1. **No output for Karaoke**
2. **Power supply not connected**
3. **No on screen display (OSD)**
4. **No output**

Schematic & PCB wiring diagram

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Chapter One Brief Introduction to Product

General Description

AV110T is a 5.1CH audio power amplifier for home theatre usage, with the main features and functions shown as follows:

1) Two-way audio signal input: VCD, DVD;
2) With 5.1CH input terminal, capable of connection with AC-3, DTS decode output signal;
3) One way subwoofer signal line output, capable of connecting with active subwoofer speaker;
4) Automatically signal search when power on;
5) 6CH digital volume control and separate channel level adjustment;
6) Three sound field modes: Hi-Fi, Standard and Cyber Logic;
7) Six preset EQ modes, multi-band electronic equalization adjustment snd scene surround function;
8) Save/Call of user-set parameter;
9) Digital Karaoke, with microphone volume, echo and delay adjustment;
10) Auto mute function;
11) Dynamic display screen; multiple spectrum display modes; English intelligent operation interface;
12) Bass enhancer function;
13) Digital tuning function;
14) Video switch function;
15) Headphone output function;
16) Full remote control operation.

Chapter Two Operating Principle

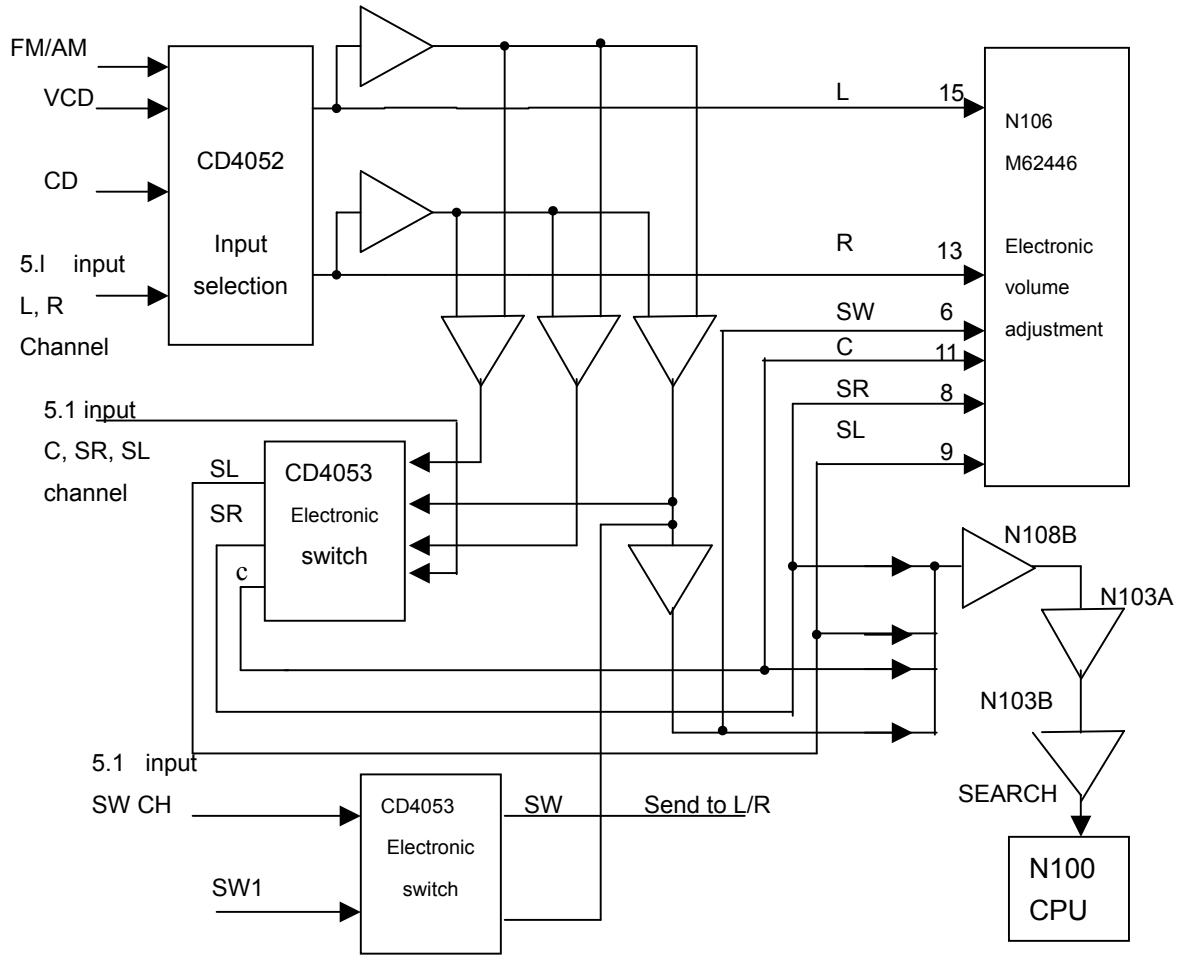
Section One Overall structure

The whole unit of AV250T is mainly composed of the following parts:
2.1.1 Volume board: input selection, Cyber Logic and bass enhancer control.
2.1.2 Signal processing board: Karaoke signal processing and front stage amplifying of 5.1Ch signal.
2.1.3 CPU board: whole machine control unit, breadth sampling circuit and auto searching circuit.
2.1.4 Control panel: VFD display, remote control and keyboard scanning and fulfill man-machine conversation function.
2.1.5 Power amplifier board: perform power amplifying for 5.1CH signal or other analog signals.
2.1.6 Power board: supply the working voltage required by each unit circuit, and over-current/over-voltage protection unit.
2.1.7 Digital tuner: receive radio signal and then send to power amplifier to perform signal-amplifying processing.
2.1.8 Video input and output board: fulfill video input/output and video switch function.

Section Two Volume board

AV250T has 4 kinds of input modes in all: FM/AM, VCD, DVD and 5.1CH.

By sampling from L/R channel of AV250T, after Cyber Logic function, C, SL and SW channel signals are achieved. In this circuit, electronic analog switch is adopted to fulfill the switch in all states, and the signal flow chart is as



follows:

2.2.1 Input selection and sound field processing mode

The input selection of AV250T is achieved via electronic switches CD4052 and CD4053, and the truth tables are as follows:

CD4052 Truth table

	Tuner	VCD	DVD	5.1
A	0	0	1	1
B	0	1	0	1

CD4053 Truth table

A	X	B	Y	C	Z
0	X0	0	Y0	0	Z0
1	X1	1	Y1	1	Z1

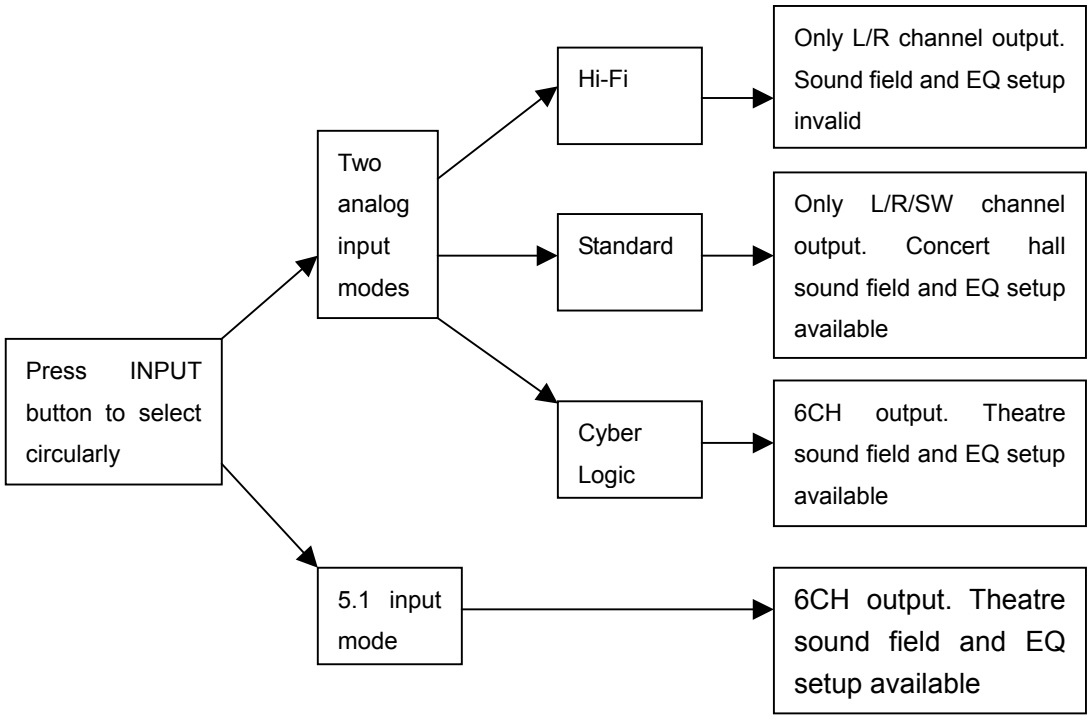
5.1CH input mode: Now A/B/5.1CH control pins of M62446 are in high level. L/R channel signals of 5.1 input terminal is outputted from pin 3/13 of N101 and sent to IC N106 for volume and tone adjustment; meanwhile, C/SR/SL signals of 5.1CH input terminal are outputted from pin 14/15/4 of N102 and then respectively sent to IC N106 for independent volume adjustment. And SW signal of 5.1CH is outputted via pin 4 of N103 and then sent to M62446 after being amplified by N107A.

Three analog input modes: AV250T totally has three analog input modes: digital tuning demodulation signal, VCD and DVD, which are controlled via A/B signal respectively.

AV250T totally has three sound field modes: Standard, Cyber Logic and Hi-Fi.

1. Standard: Under the control of overall CPU, when bass enhancer is off, L/R channel and subwoofer output are available; when bass enhancer is on, only L/R channel output is available.
2. Hi-Fi: Under the control of overall CPU, only L/R channel output is available to M62446.
3. Cyber Logic: Pin 9/10 of electronic switch N101 (CD4052) select a group of analog L/R channel input signals according to the truth table. L/R signals are outputted from pin 13/3 via the internal electronic switch of N101, and divided into two ways. One way is respectively sent into pin 13/15 of M62446 for electronic volume and tone adjustment. The other way produces SW/S-SR/S-SL and S-C signals via buffer, adder-subtractor and low-pass filter. S-C/S-SR/S-SL signals are sent to pin 12/2/5 of N102. N102 select Cyber Logic signal input (see CD4053 truth table) from Cyber Logic and 5.1Ch signals, outputs C/SR/SL signals from pin 14/15/4 and sends into pin 11/8/9 of M62446 for volume adjustment. Still another way of SW signal directly sends to pin 6 of M62446 after being outputted from N107A. 5.1CH signal sent into M62446 is outputted from pin 31-36 after volume and tone adjustment, and then outputted to signal board by XS20 power distributor.

The relation between sound sources in input circuit and sound processing modes is as the following figure.



2.2.2 Control circuit

Pin 23/26/27 of CPU (N100) output data, PVST and clock signals send to pin 39/40/41 of M62446, control pin 1/2/3/4 of M62446 output control level, so as to select input signal and spectrum sampling signal. It is worth noting that PVST signal is a latch control signal. When data and clock of CPU are sent to M62446, an identification signal will be added, indicating that this signal can only be used by M62446 while other IC of I^2C bus cannot use current data and clock signal.

2.2.3 Frequency spectrum sampling circuit

Only S-C/S-SR/S-SL/SW signals are sampled during frequency spectrum sampling in AV250T and added to pin 14 of N103 via a 150K sampling resistor. Another S-C cyber logic signal is added to pin 1 of N103, called S-C′. 5.1CH and LR-T of M62446 select sampling signals. When cyber logic is selected, the control signal of 5.1CH is of low level while pin 9/11 of N103 is of low level. According to the truth table, it is known that the outputs are X0/Z0. Sampling signal is grounded while LR-T is of H level. Select Y1, S-C′ signal is outputted from pin 15 of N103 to N108B, adding to OK-R signal for the amplification of frequency spectrum signal, and then sent to frequency point gating and auto search circuits via XS20.

2.2.4 Tuning function

The tuning function directly controls tuner and receives audio frequency signal mainly via CPU and then outputs after amplification via power amplifier. The clock and data line of tuner are shared with LM62446 and the other two control lines are connected to CPU directly. L, R signal processed by the tuner can be sent to N101 IC CD4052 directly to input the selected channel.

Section Three Signal processing board

The signal processing board superposes, mixes and amplifies 5.1CH signal sent from the volume board, voice signal from the voice board and Karaoke signal.

2.3.1 Karaoke circuit of AV250T

This circuit processes human voice through power amplifier and reproduces it via speaker. It includes human voice beautification circuit, wide sound field processing circuit, Karaoke echo and delay adjusting circuit.

IC and its functions for Karaoke:

S.N. of IC	Name of IC	Functions of IC
N201	PT2308	Transmittal, pre-amplification for Karaoke signal
N200	PT2315	Karaoke volume control, including tone control
N205	CD4053	Electronic switch
N209	PT2399	Karaoke echo processing
N207	CD4051	Karaoke delay adjustment
N208	CD4051	Karaoke echo adjustment

N204	4558	Phase inverter

PT2315 functional pin

S.N.	Name of pin	Description
1	REF	Reference voltage (1/2VDD)
2	VDD	Power supply
3	AGND	Analog
4	TREB L	Treble control pin of L/R channel
5	TREB R	
6	RIN	R channel input
7	LOUD-R	Loudness control pin of R channel
9	LOUD-L	Loudness control pin of LR channel
11	LIN	L channel input
12	BIN L	Bass control input/output pin of L channel
13	BOUT L	
14	BIN R	Bass control input/output pin of R channel
15	BOUT R	
16	RFOUT	R channel output
17	LFOUT	L channel output
18	DGND	Digital
19	DATA	Control data of sequence transmission (DATA)
20	LCK	Clock input of sequence transmission
8，10	NC	Not connected

2.3.2 Flow chart of Karaoke signal

When the microphone is inserted, MIC signal is sent via MIC to the transmittal circuit combined by N201A for amplification. Amplified MIC signal gives CPU a MIC identification signal after N202A amplification, followed by VD201 rectification and filtering control triode V200. CPU sends PKM signal, which is of low level, causing cutoff of triode V103/V105 and enabling output of MIC signals; another way reaches pin 6 and 11 of PT2315 after C219/C222 coupling, outputs from pin 16/17 after internal volume and tone control, mixed into one way and sent to N202B and then reversely send to N203B for amplification. Signals amplified by N203B are divided into two ways: one way is directly outputted; and the other way is outputted from pin 14 after being coupled by R222/C247 to PT2399 for internal delayed echo adjustment, reversed by N204B and outputted by mixing with karaoke signal. While OK-R is outputted from pin 14 after being gated by N205 and superposed to L/R channel.

In this circuit, the bass boost network made up of triode V201 connected to the negative terminal of N202B is primarily for bass boost of 75HZ low frequency signal.

During delay adjustment for PT2399, first control signal is given to CPU, which controls N207 after being expanded via N211 IC CD4094 and connects with pin 6 of PT2399 by selecting different resistance values for purpose of delay

adjustment.
Echo control is to change the resistance value at the connection point to R229, so as to change the superposition on through connect signal for echo control.
The wide sound field processing control signal of SOK's karaoke is in wide sound field mode when it is high level, and now the signal of OK-R is the OK signal inverted by N204A.
A sense signal of OK-SW on the MIC plug detection together with the network made up of V200. When MIC is not plugged, it is low level; when plugged, it is of high level.
Karaoke auto mute function is also available. When P-KT fails to detect signal for a continuous period, CPU will send a P-KM signal to mute karaoke and avoid MIC receiving noise, which may affect on sound effect.

Signal flow chart of scene mode

AV250T has a special function that switching between 5 scene modes is available without karaoke, which is fulfilled through part of karaoke.
When pin 9/10 of N205 are of high level, sampled L/R/C signals are outputted via pin 3 through N205 gating. After amplification by N203, one way is connected directly; and another way is sent to internal of PT2399 for echo delay adjustment (controlled by IC CD4049), with the adjusted effect superposed to L/R/C channel to form different scene modes.
In this circuit, MIC shall not be inserted and is only available in 5.1CH mode. N203A is for the purpose of reversal.
In addition, this device is added headphone output function. PHSW is low level and each channel has output when headphone is not inserted. But when headphone is inserted, PHSW will be high level for the mechanical settings thus LRM and SCM signals change into high level at the same time to realize muting in each channel, so the signal is only outputted from headphone, that is, there is not signal output with each channel when connecting with headphone output.

2.3.3 Bass enhancer circuit

P-BURST is the switch signal of bass enhancer. When it is of high level and added to the base electrode of V102, V102 will be switched into conduction. When the collector electrode outputs low level, V107 will be cutoff; when the collector electrode is of low level, V100 will also be cutoff. SW signal is normally outputted to external terminal. Meanwhile, the high level signal of P-BURST is added to the emitter electrode of V108. V108 is positively biased and switched into conduction. The collector electrode adds high level to the base electrode of V101. V101 is positively biased and switched into conduction, and ground SW signal, not superposing it to L/R signal.
In reverse, when P-BURST is of high level, V100 will be switched into conduction and SWM cannot be outputted from external terminal. Meanwhile, V101 is cut off and SW signal is superposed to L/R channel signal.
The bass enhancer of AV250T can be divided into three steps. This principle is to change the volume of bass enhancer by changing the SW output volume of

M62446.

2.3.4 Mixing and amplification circuit of 5.1 signal and karaoke signal

When L/R channel signal of 5.1 signal is superposed with SW signal and amplified by N101B/N100B, it is sent to the reverse phase of N101A/N100A. Meanwhile, OK-R/OK-L signals are also respectively added to the reverse phases of N101A/N100A. After mixing and amplification by N100A/N101A, they are respectively outputted from pin 1 of N100A/N101A to power amplification circuit for power amplification.

Meanwhile, the C-1 signal sent by volume board is added to the reverse phase of pin 6 of N102B and added to the reverse phase of N102A after amplification. Now C1-1 signal after electronic echo processing is also added to the reverse phase of N102A and sent to power amplification circuit after mixing and amplification.

SR-1/SL-1 of another volume board is also added to the reverse phase of N103B and N104B for amplification and then sent to N103A and N104A for further amplification, and later sent to power amplification circuit.

One way of 5.1 signal after being mixed and amplified is sent to power amplification circuit passing through XS9, and the other way forms DIST (distortion error detecting signal) signal passing through R111-R113/R142/R145/VD100-VD104, which will be added to CPU for automatic gain adjustment, so as to control volume output.

Section Four CPU board

2.4.1 CPU control unit

N100, the overall CPU, is the overall control center, inputting all kinds of control instructions to controlled circuits to achieve all kinds of control functions. It adopts +5V supply with pin 40 as its supply pin. Pin 18 and pin 19 connect externally with 12M crystal oscillator to provide working clock frequency for itself. Pin 9 is its reset pin. When starting, +5V charges C106 via R100. The voltage of two ends of capacitance cannot be mutated, thus B-pole of triode V100 is low level, that is, V100 conduction gives a high-level reset signal to CPU. When capacitance C106 finishes charge, V100 stops and then reset finishes. The form of this reset circuit is to reset high level and keep low level.

When the machine is working, the static information of Power-on logo on screen and Chinese characters are stored in CPU internal static memory. N101, a status memory, can record the current working status of machine when powering off and show the status when next time power on, avoiding users to re-adjust. The sound field mode set by users is also stored in it and can be called when necessary.

2.4.2 Detect input signal and automatically search circuit

DISPLAY signal from volume board is sent to N103A to amplify and limit level, and then sent to inverse end of voltage comparator N103B after capacitance coupling. It inputs from pin 7 of N103B and then is sent to pin 16 of CPU via

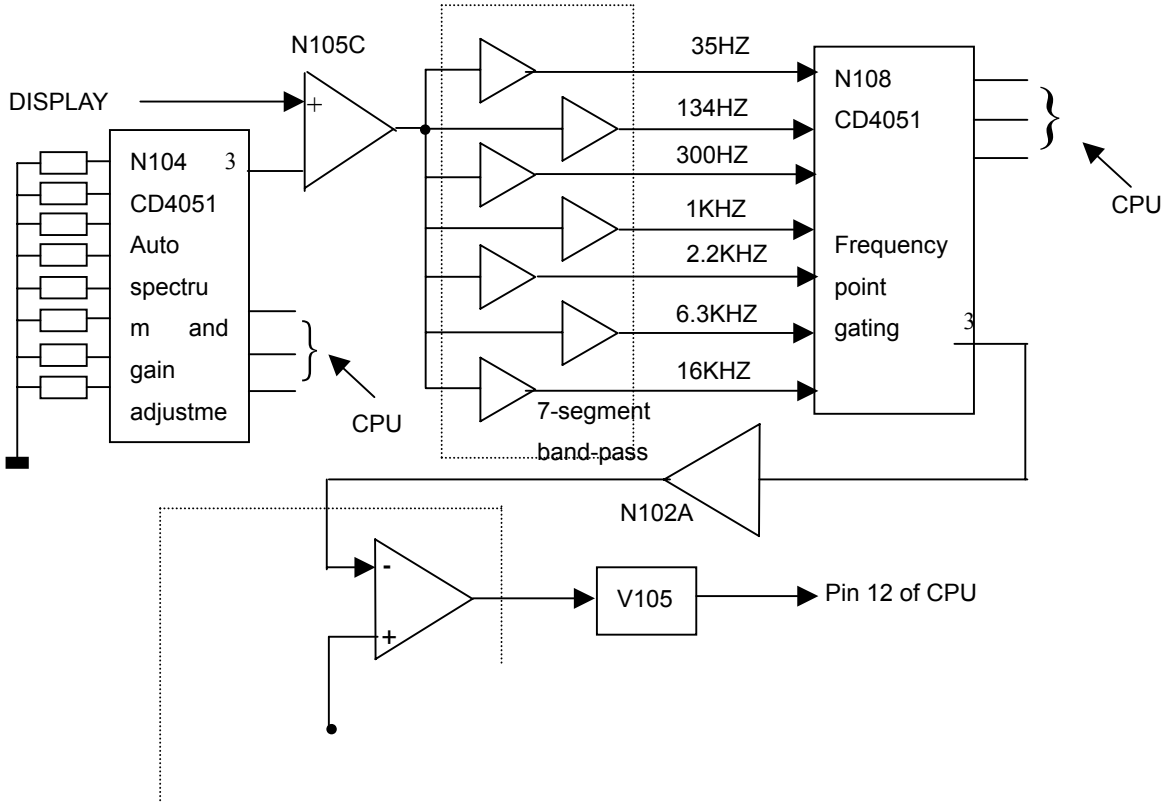
VD103, V101, R109 and R107. When N103B inputs a high level, VD103 is in reverse cut-off status, B-pole of switch tube V101 is high level and is in conducting status, then gets an about +5V high level (signal input) to CPU after VD101's stabilization and stop searching. When the output end of N103B outputs a low level, VD103 is in conducting status, B-pole of switching tube V101 is low level and is in cut-off status, and then CPU detects the low level (no signal input). Its working principles are as follows:

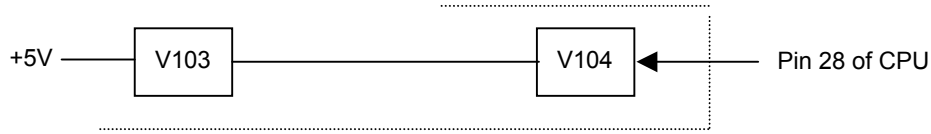
① After starting up, under CPU internal program's control, a data signal is outputted via pin 23 to M62446, and then M62446 scans each input port of N101, N102 and N103 by emitting high and low levels. When the input ports have no signal input, it automatically becomes standby status. When any of ports has signal input, channel paths of input N101, N102 and N103 has A/C signal which is amplified and limited level by N108B and N103A of CPU board, then compares with pin 5 of N103B and gets plus-minus level close to supply power. The co-phase voltage of N103B is about 0.1V. After the direct current voltage is over 0.1V, the output end of N103B outputs low level is close to negative-power voltage, VD103 positive-bias conducts, switch tube V101 (S9014) stops, emitter outputs a low level to pin 16 of CPU which by controlling IC M62446 makes search level lock on the port through which signal inputs, to enter normal play.

② When pressing "SEARCH" button on the remote controller, it is converted from optical signal to electric signal by the remote control receiver of panel. Pin 14 of CPU emits a high level to conduct V102 and search according to the same previous process.

2.4.3 Spectrum Analysis Circuit (see the following figure)

Spectrum analysis circuit is divided into three parts:





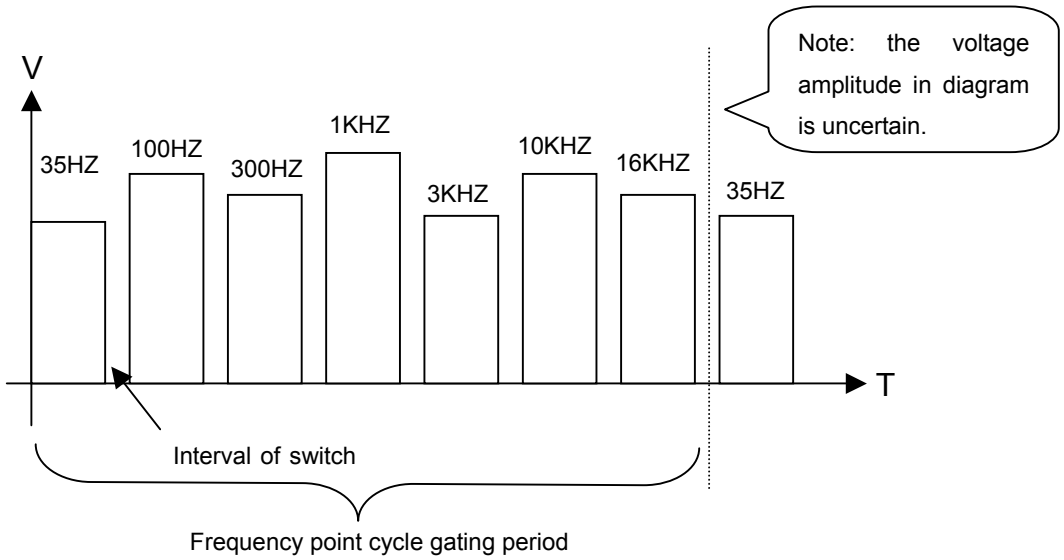
Automatic spectrum gain adjustment circuit: To avoid two situations that spectrum display amplitude is too low when input signal is too weak or spectrum display is in full screen when input signal is too strong, AV250T sets automatic spectrum gain adjustment circuit, using a single-track one-from-eight electronic analog switch, its true value diagram is as follows:

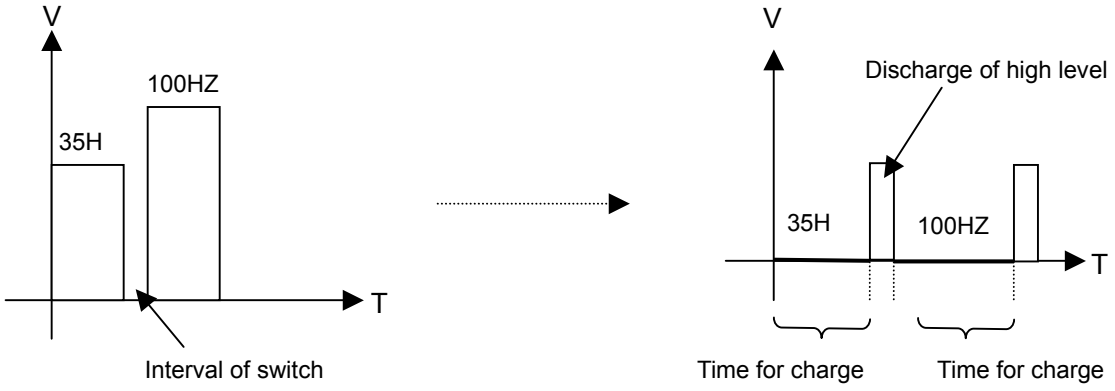
CD4051Truth table

	X0	X1	X2	X3	X4	X5	X6	X7
A	0	1	0	1	0	1	0	1
B	0	0	1	1	0	0	1	1
C	0	0	0	0	1	1	1	1

Its main working principle is to change the value of inverse ground resistance of transmittal N104 to change the transmittal gain multiple. Let's see the detailed work of the whole circuit. We've referred that spectrum analysis signal source (DISPLAY) is sent to the co-phase input end of transmittal N105C to amplify. Its amplification factor is determined by the value of the resistance connecting with the electronic switch of its inverse end N104. When the main volume is large, CPU will automatically increase the value of ground resistance and decrease the amplification factor; when the main volume is small, CPU will automatically decrease the value of ground resistance and increase the amplification factor.

Amplitude sampling circuit: signal amplified by N105C is sent via C115 coupling to seven band-pass filters composed of transmittals. By setting its capacity of feedback capacitance, its frequency-band range can be determined. The frequency value of superscript of the output points is the central frequency-point of the frequency band. The output end of each band-pass filter is connected with a half-wave rectifier circuit. The amplified A/C signal is rectified to direct current. The circuit is mainly to achieve frequency-point sample. It can display the amplitude of all frequency-points of the whole sound signal via direct-current voltage. If the low frequency of sound signal is stronger, the current voltage of output end of 35HZ and 100HZ band-pass filter is higher. When high frequency is stronger, the current voltage of 10K and 16K band-pass filter is higher. The output ends of the seven band-pass filter are connected with the seven input ends of electronic switch N108 (CD4051). These electronic switches will quickly circularly-switch among frequency points (referring to previous true value diagram). Pin 3 output end of N108 will output a string voltage value representing frequency point signal amplitude (see next diagram).





A/D conversion and output circuit display (two situations):

1. When no signal input, pin 28 of CPU sends a high level to B-pole of V104. The positive end of N102B is low voltage, the inverse end of N102B gets partial voltage of R189 and R172, making N102B output a low level, that is, triode V105 stops and C-pole of V105 will give a high level to pin 12 of CPU to let CPU not conduct AD conversion (pin 6/7/8 of CPU are inactive and keep high level).

2. When the machine has detected the signal (the inverse end of N102B has a current voltage representing 35HZ signal amplitude), pin 28 of CPU is converted into low level and +5V voltage charges for C137 via V103. When reaching the voltage value of inverse end, the comparator converts and N102B outputs high level. Once CPU receives low-level signal, it stops 35HZ level gating and converts into next frequency point 100HZ. During conversion, pin 28 of CPU outputs an instant high level to conduct V104, leak the voltage

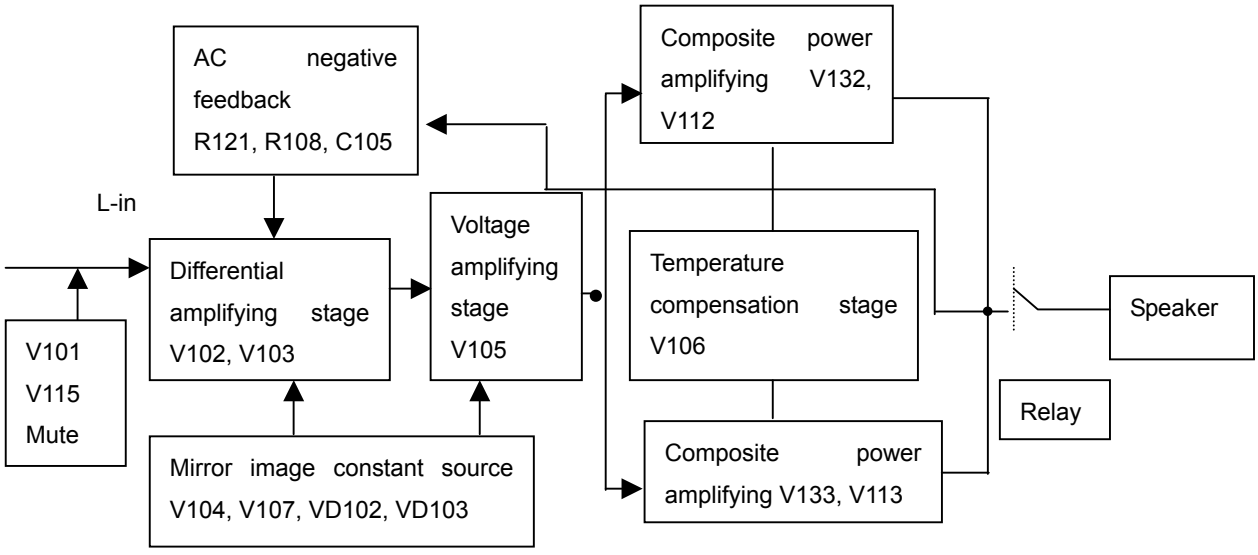
capacity of C137 and make the co-phase end of N102B restart to charge 100HZ from 0-level. When the charge of 100HZ finishes, the charge and discharge of next frequency point begin, and such process occurs circularly under the control of CPU. The charge time form 0-level to the occurrence of output conversion represents the signal amplitude of current frequency point—the larger the amplitude, the longer the time and the amplitude displaying in screen is higher; the smaller the amplitude, the shorter the time and the amplitude displaying in screen is lower. Digital pulse outputted from N102B output end is added by V105's inverse to pin 12 of CPU which handle it and output to panel to display dynamic frequency in screen. The display of original frequency points is sequential. However, the above circular process is extremely quick, thus, what we see in screen is the progress of the whole spectrum displaying synchronously.

Section Five Panel control and display circuit

The panel control and display circuit of AV110 adopts the special IC 101 (PT6311), whose external buttons of pin 10/11/12/13 scan buttons matrix. After receiving the control command of users to the machine, processing is done inside and then outputted by two ways: one way is sent to display screen to display the working status; and the other way is transmitted to CPU through pin 5/6/8/9 to ask for performing and finishing the corresponding control function.
N102 is remote control receiver, which transforms the received infrared remote control signal into electronic signal and then send it to pin 13 of CPU so as to complete remote control function.

Section Six Power amplifier board

1. L/R channel power amplifying circuit: L/R channel power amplifying circuit of AV250T (RU) is composed of discrete components, with the composed frame diagram shown as follows. (Take L channel as an example)



L channel signal is sent to pole B of differential amplifying stage V102 after being coupled by R101, R103 and C101; V102 and V103 compose single ended input/output differential amplifying circuit. Sound signal outputs from pole C of V102 to pole B of voltage amplifying stage V105, and then outputs to composite power amplifying stage after voltage amplifying. V104, V107, VD102 and VD103 compose mirror image constant source circuit. VD102, VD103 provide V104, V107 with constant base electrode current. Emitter resistor of V104 determines working current of differential amplifying stage; and emitter resistor of V107 determines working current of voltage amplifying stage. V132 and V112 compose multiple unit tube amplifying to supply strong current amplifying capacity for final stage of power amplifier, which composes waveform positive half cycle amplifying. V133 and V113 compose waveform negative half cycle amplifying and the circuit structure is the same with the above. The function of temperature compensation tube V106 in circuit has two: it is the base bias of geminate transistors firstly and its working state determines the static working current of composite power amplifying stage, that is, through adjusting the gating degree of V106, we may set the static working point of composite power amplifying stage. The usual means is to change the base electrode resistor of V107; it may also automatically adjust the working state of composite power amplifying stage after the temperature increases, with the adjustment process shown as follows:

Total current of output stage = working current + leakage current

When temperature increases, the increase of leakage current leads to drift of static working point, and meanwhile leakage current of V106 increases. The decrease of Uce makes the bias current of output stage decrease, the working state change and the working current of back stage decrease to achieve the function of temperature compensation.

Introduce voltage negative feedback into power amplifier circuit of AV250T, composed of R121, R109, C105, which is capable of stabilizing static working point of differential stage. AV250T adopts direct output means and R111, C116 connected to output terminal compose Joubert Network, capable of avoiding high frequency self-excitation caused by the AC inductive reactance of speakers voice coil.

Mote control: when pressing MUTE button on remote controller, a mute signal, achieved through signal photoelectric conversion performed by remote control receiver, is sent to CPU, and then a high level mute order is outputted from pin 35, 36 of CPU to make V115, V101 and V116 on, left/right channel signal has short circuit to ground to fulfill mute control function.

C, SR, SL power amplifying circuit: compared with the former models, the three channels of AV250T adopt special power amplifiers LM1876 and IC LM1875. As for LM1876, it has 15 pins in all, in which pin 2, 15, 4 are its positive/negative power pin; and pin 7, 8, 12, 13 are its in-phase or reverse input terminal. The rated output power of each channel of this power IC may be up to 20W, with auto mute function when power on; as for 1875, it has 5 pins in

all. It is a good performance power amplifying IC, with very simple application circuit and 15W power output in rated state. Pin 5 and 3 are positive and negative power supply pin.

Section Seven Power board

Power board supplies working voltage required by each unit circuit and over-current/over-voltage protection unit. Protection unit circuit is emphasized here.

The protection means of L, R, and C channel is fulfilled through disconnecting relay Y100 when starting up so as to disconnect the output. SR and SL channel achieves protection function through mute. AV250T is with power-on protection, central point over-voltage-over-current protection and standby protection.

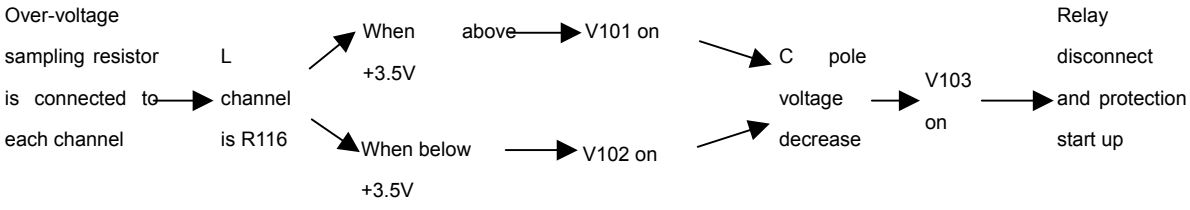
1. Power-on delay attracting protection circuit:

The working of circuit is unstable when power on and the generated percussive current does great harm to speaker and power amplifying circuit, so delay attracting protection circuit is set. This circuit is divided into two steps:

1) C, L, R. The working process is: a 22V voltage is achieved after AC outputted by transformer being rectified and filtered by VD113, C110, and then charges C115 through R108 to make VD111 struck through reversely and make V105 and V104 in-phase on to finally make Y100 attract to reach delay effect.
2) Surround left and right channels perform anti-percussion protection when power on: after machine system resets, pin 33 of CPU outputs a high level to pin 9, 14 of LM1876 through R164 to make LM1876 output mute. After delay start-up of machine succeeds, pin 33 of CPU converses to low level immediately and outputs normally through SL/SR channel.

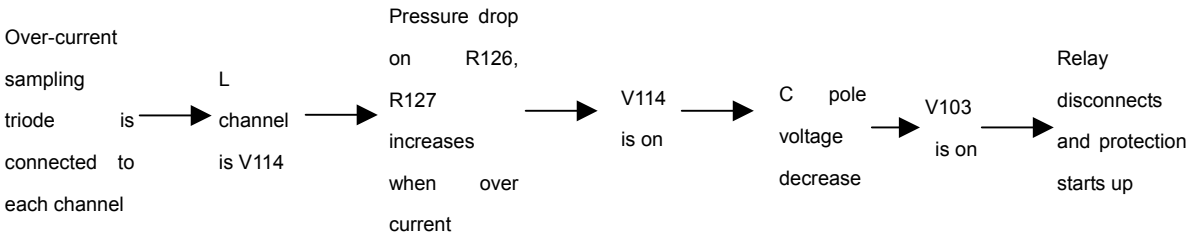
2. Central point over-voltage protection:

An over-voltage sampling resistor is connected to the output terminal of each channel. L channel is R116, R channel is R117, C is R118, SR and SL channels are R119 and R120 respectively. Only when one channel's central point voltage is above +3.5V or below -3.5V, V101 or V102 is on to make their C pole voltage decrease, then V103 on, relay disconnected and protection circuit start up finally.



Over-current and short circuit protection:

An over-current sampling triode is connected to the output load resistor of L/R channel. Sampling tube of L channel is V114 and load resistance is R126 and R127. The other three channels' power amplifying IC is with over-current protection inside. Only L channel appears over current, the pressure drop produced on R126 and R127 will increase quickly. Once the pressure drop on R129 is above 0.7V, V114 will be on, and V103 is also on. Finally relay disconnects and protection circuit starts up.



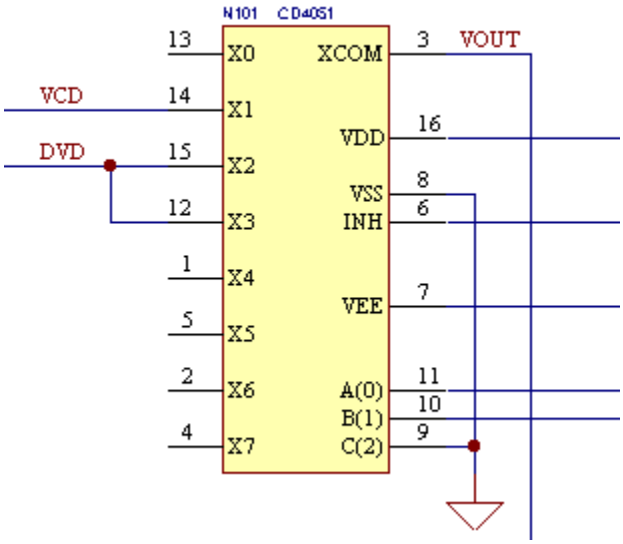
The same, when R channel has over current, voltage on R159 will be above 0.7V to make V129 on, and then V103 on. Finally relay disconnects to reach the purpose of protecting speaker.

4. Standby protection:

When standby time is up to 10 minutes and standby by force is needed, PRC signal outputted from pin 34 of CPU is high level, which makes V100 saturated and on through VD108, R101 to make V103 on. Finally relay disconnects to reach the result of standby and energy saving.

Section Eight Video board

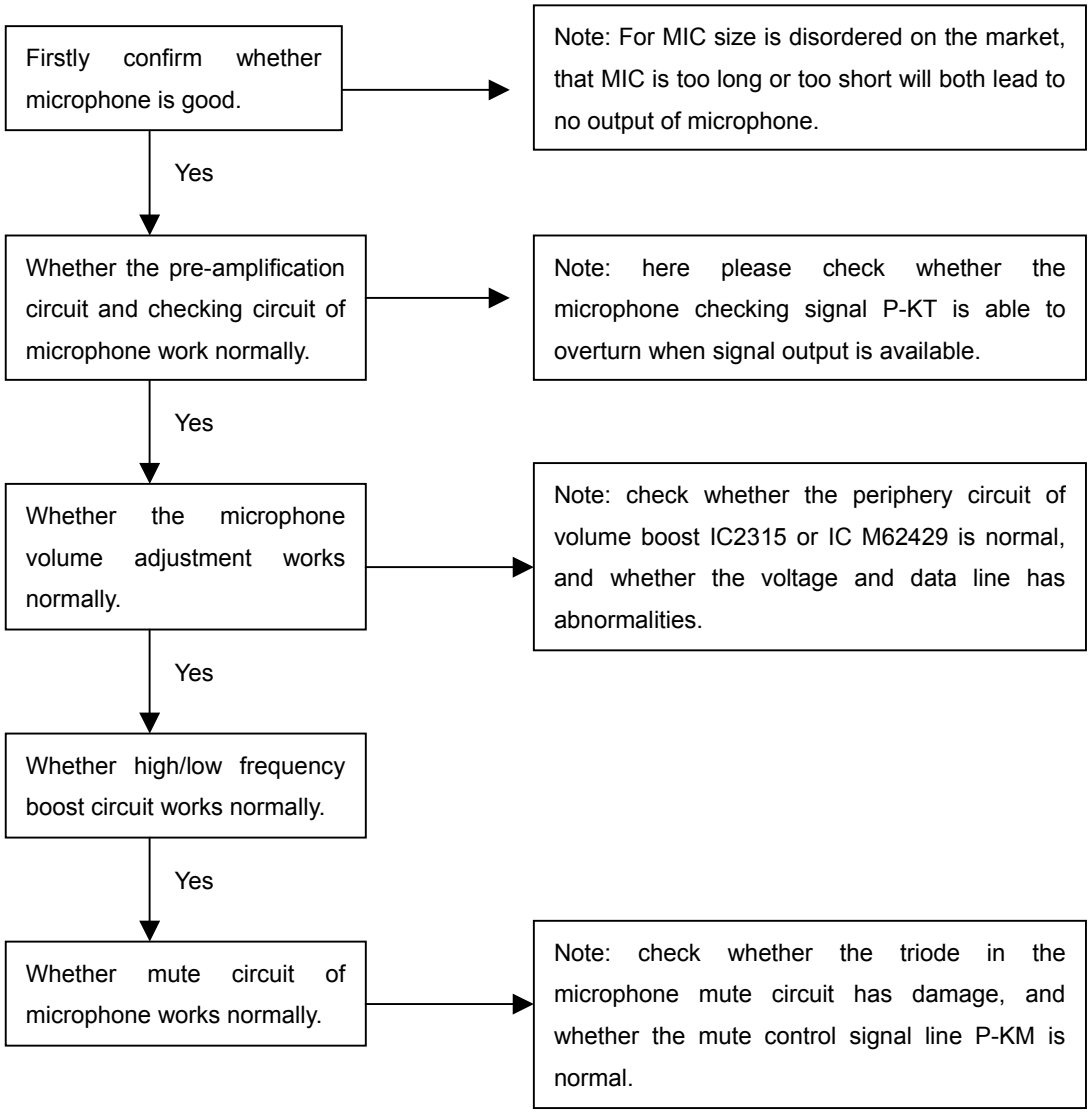
Video board fulfills the functions of input, output and switch of the video, with the schematic diagram shown as the following figure:



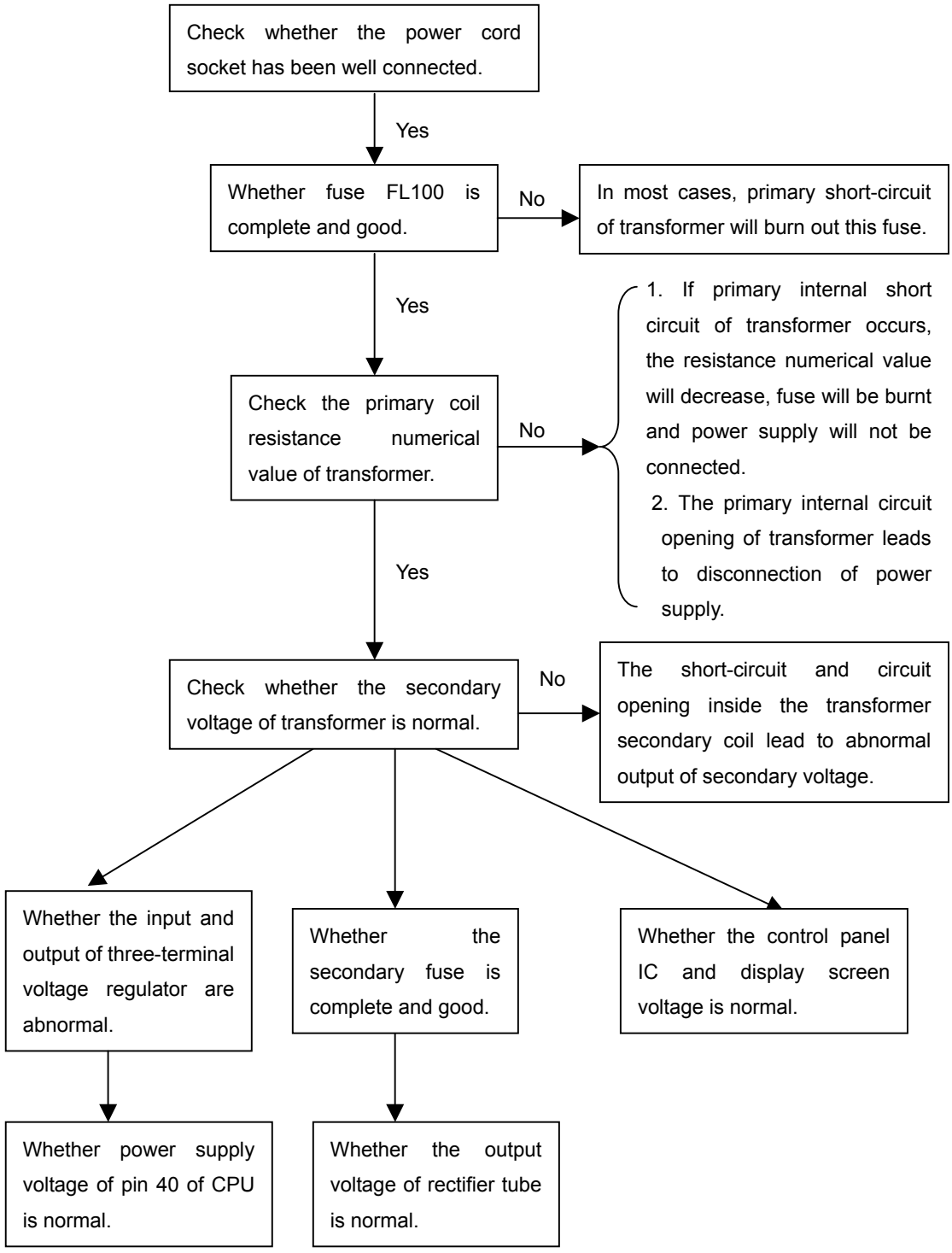
This switch function is realized through an electronic switch IC CD4051. When high and low level of control signal A and B are changing, IC CD4051 switches between VCD and DVD, and video signal is outputted by pin 3 VOUT.

Chapter Three Servicing Process

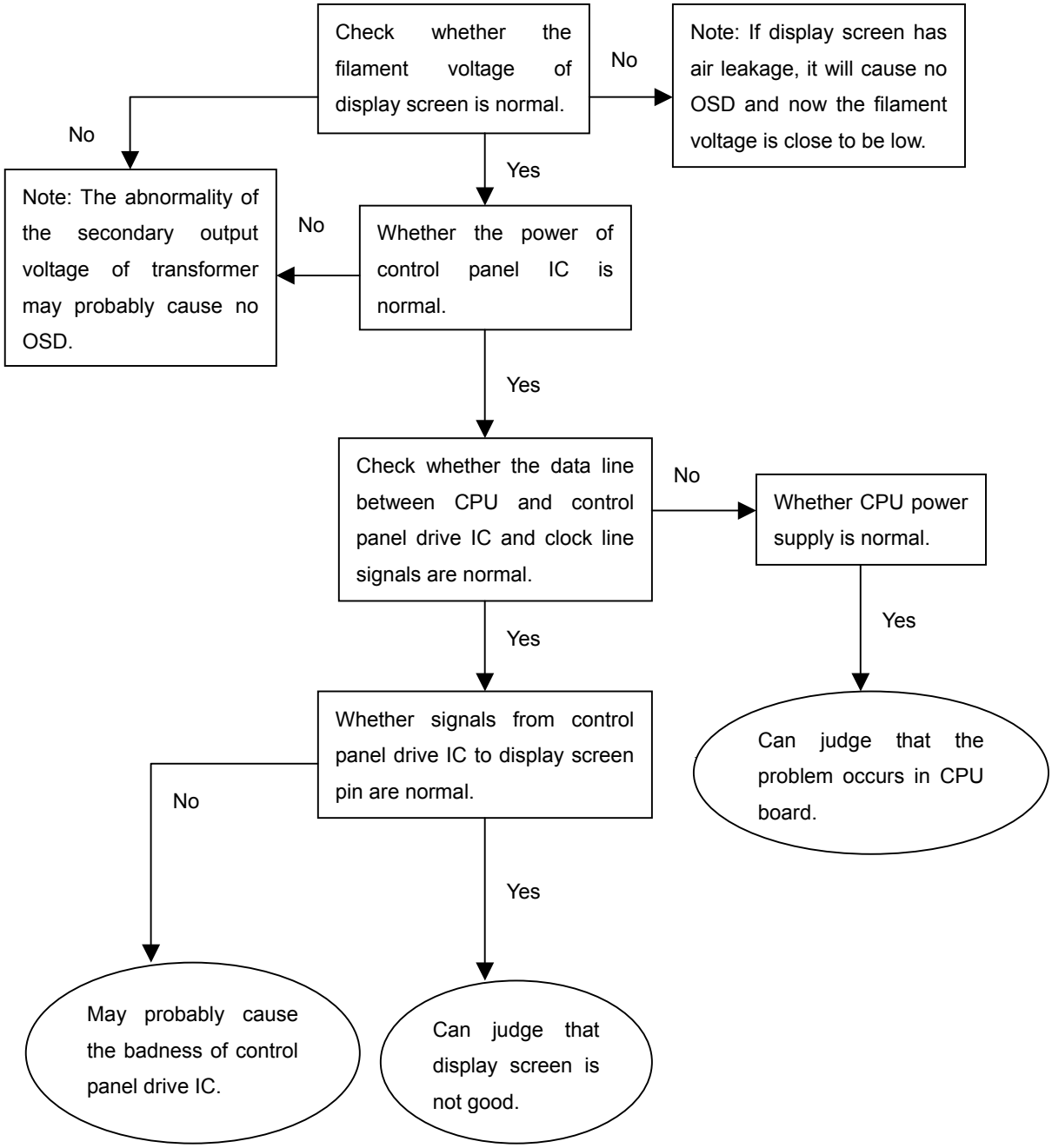
1. No output for Karaoke



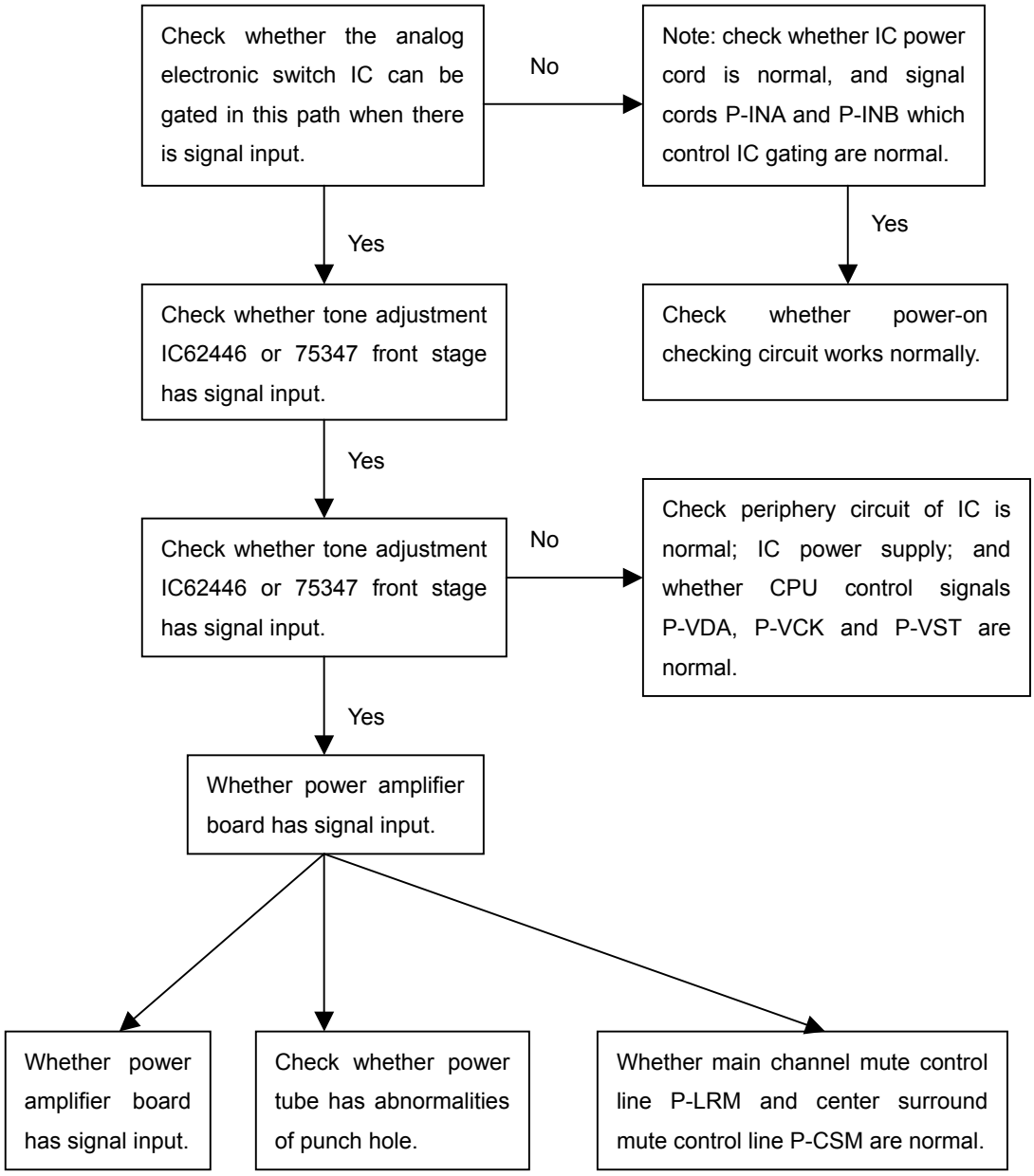
2. Power supply not connected



3. No on screen display (OSD)

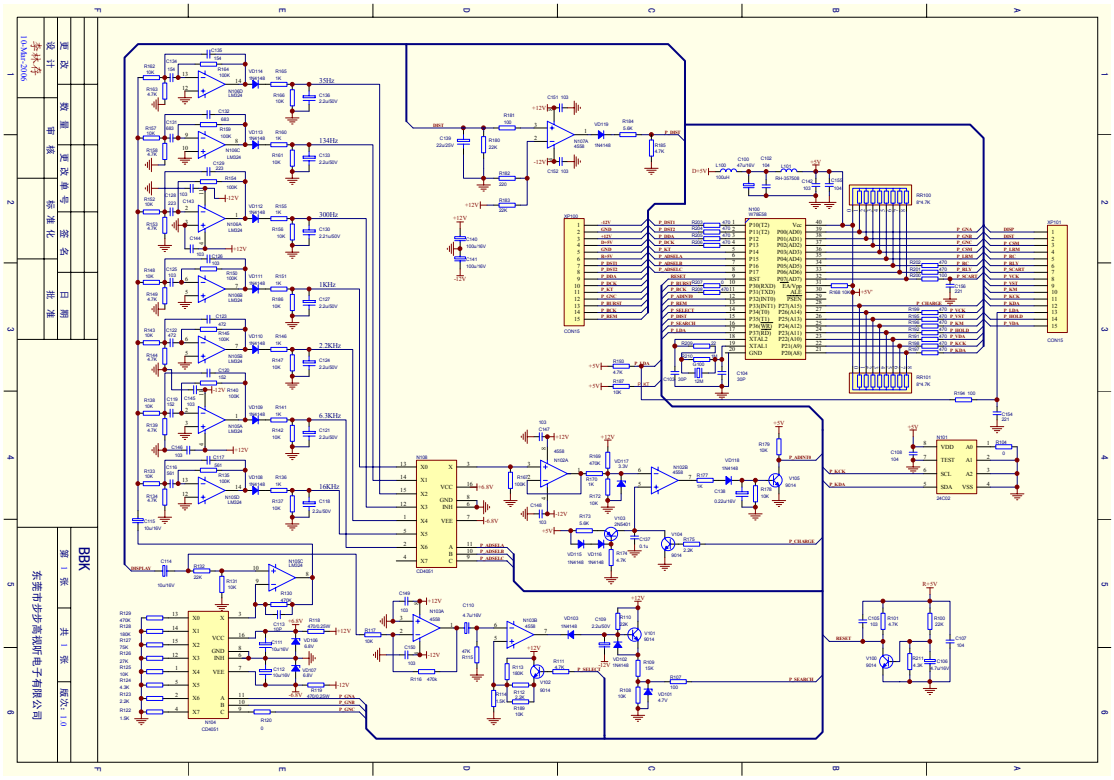


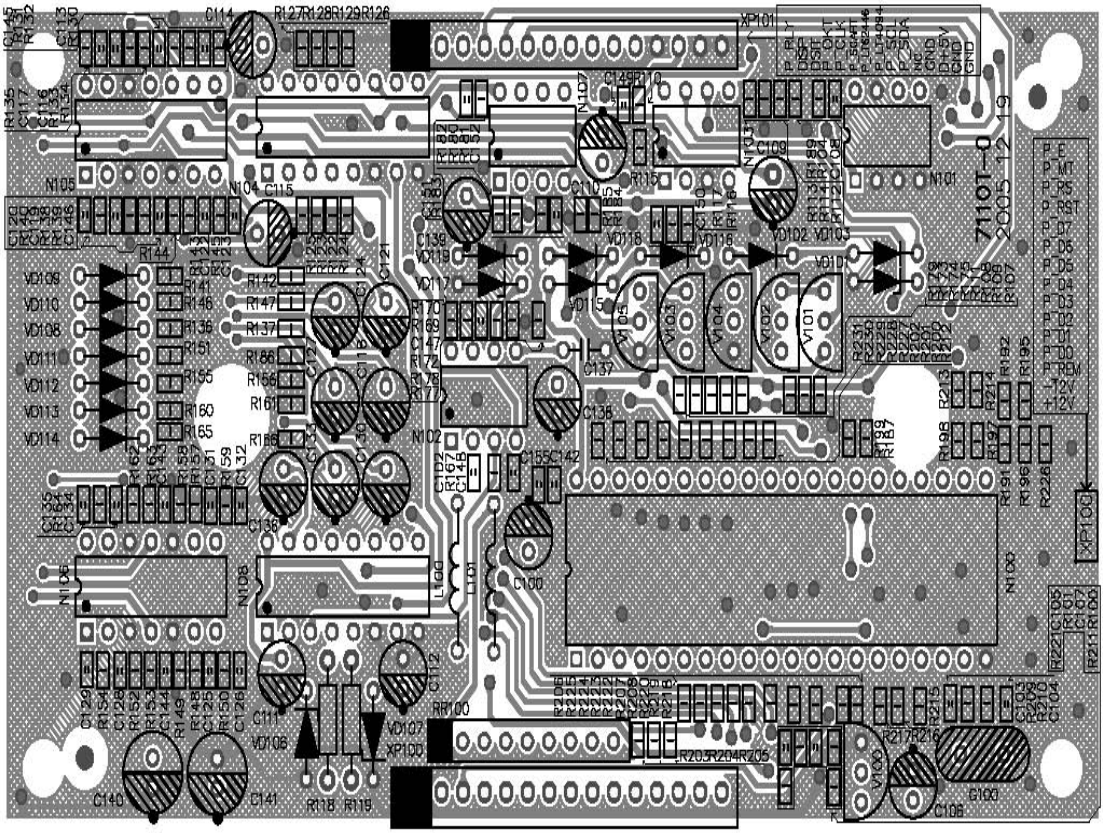
4. No output


Check whether the analog electronic switch IC can be gated in this path when there is signal input.
No
Note: check whether IC power cord is normal, and signal cords P-INA and P-INB which control IC gating are normal.
Yes
Yes
Check whether tone adjustment IC62446 or 75347 front stage has signal input.
Check whether power-on checking circuit works normally.
Yes
Check whether tone adjustment IC62446 or 75347 front stage has signal input.
No
Check periphery circuit of IC is normal; IC power supply; and whether CPU control signals P-VDA, P-VCK and P-VST are normal.
Yes
Whether power amplifier board has signal input.
Whether power amplifier board has signal input.
Check whether power tube has abnormalities of punch hole.
Whether main channel mute control line P-LRM and center surround mute control line P-CSM are normal.

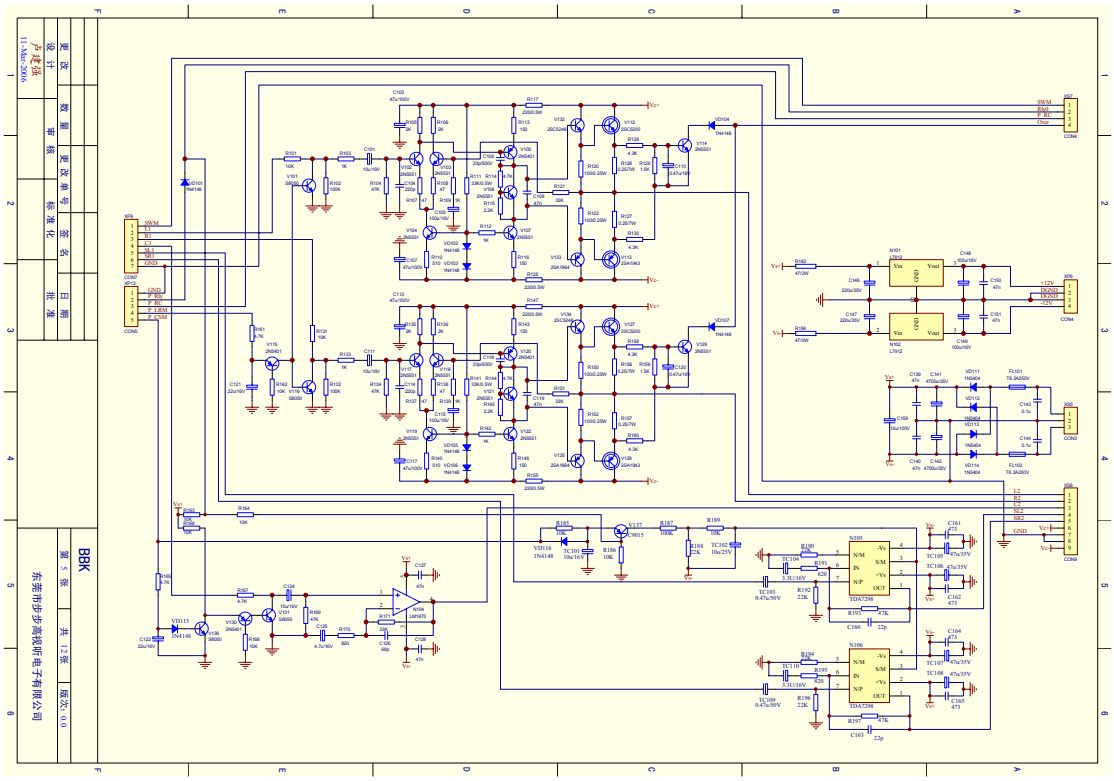
Schematic & PCB wiring diagram

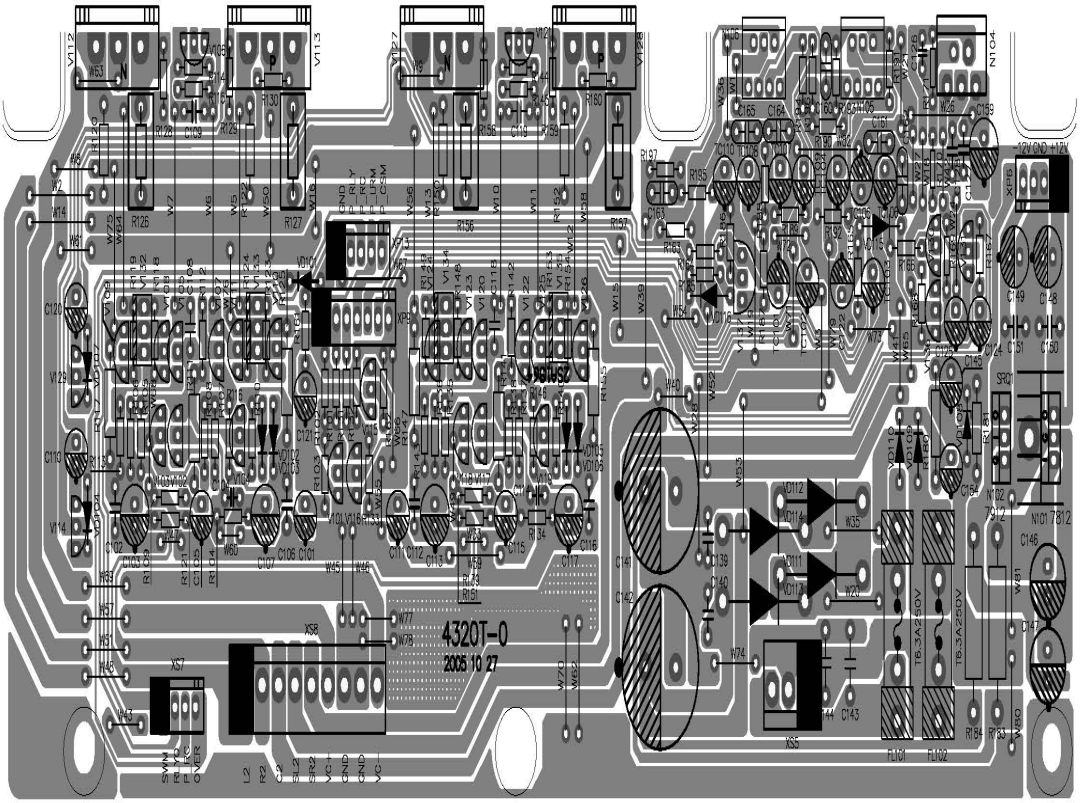
CPU board schematic & PCB wiring diagram



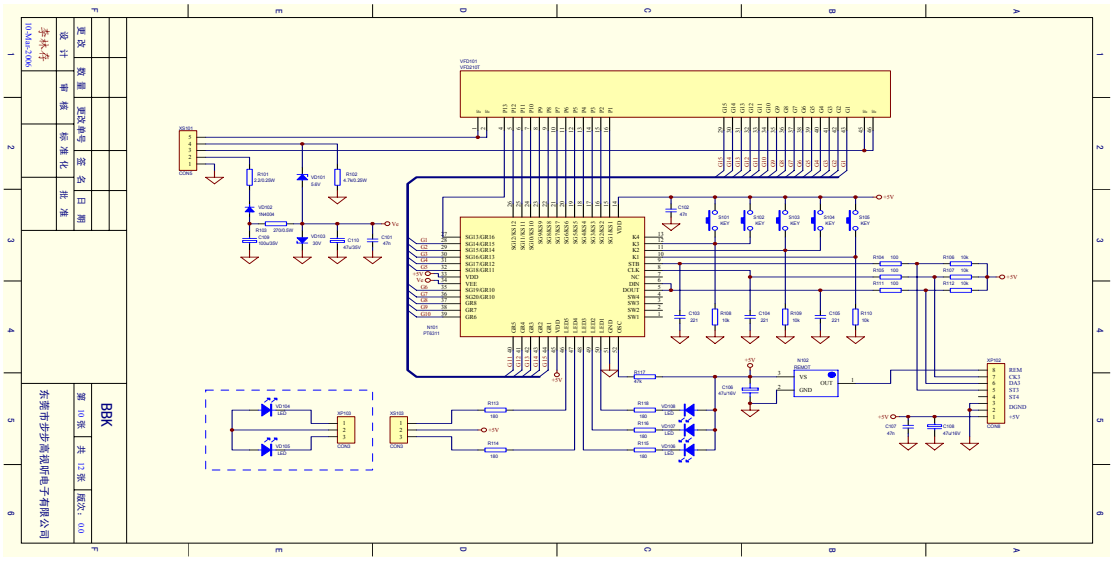


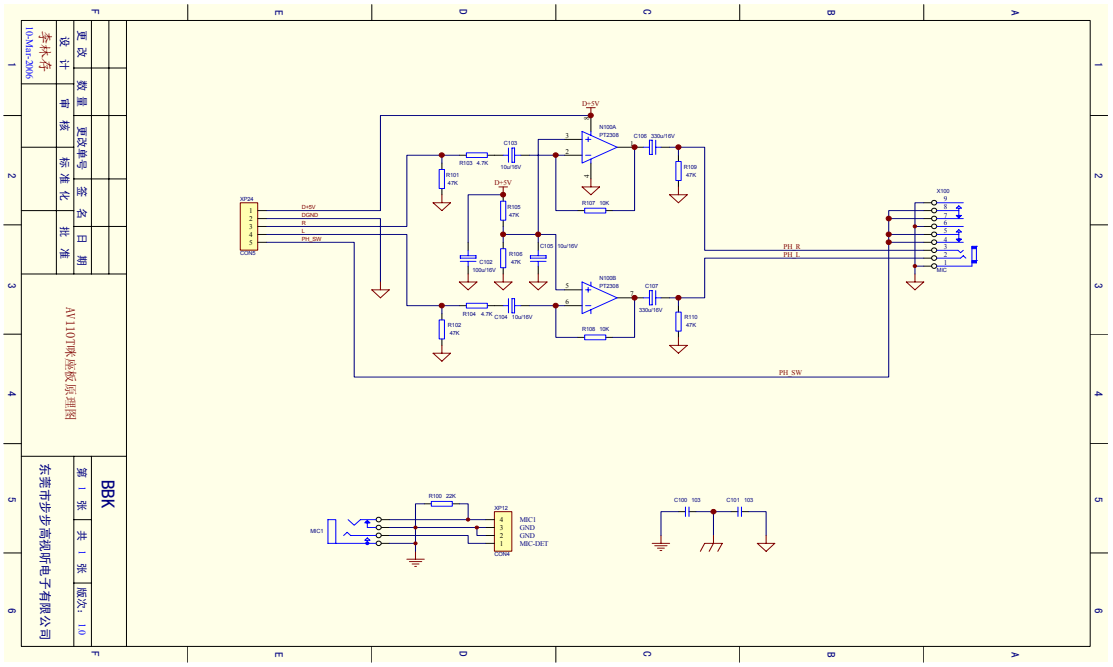
Power Amplifer board schematic & PCB wiring diagram

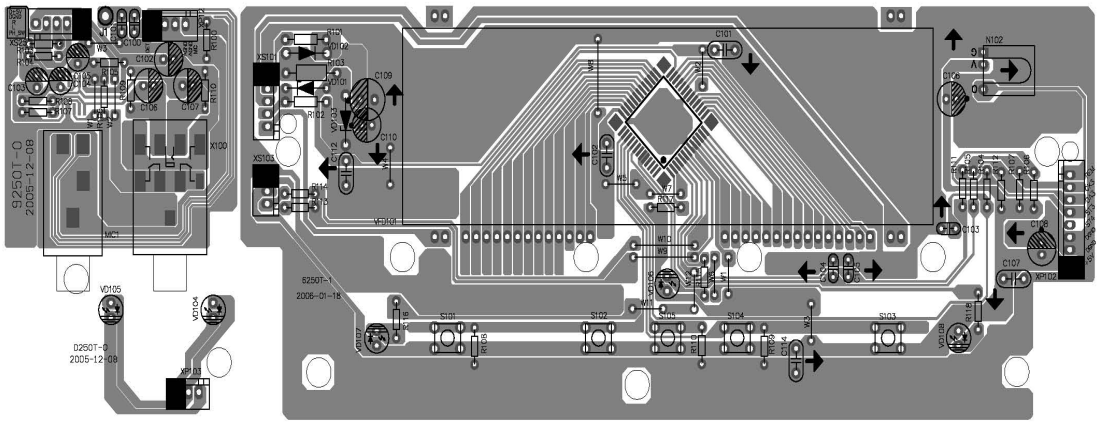




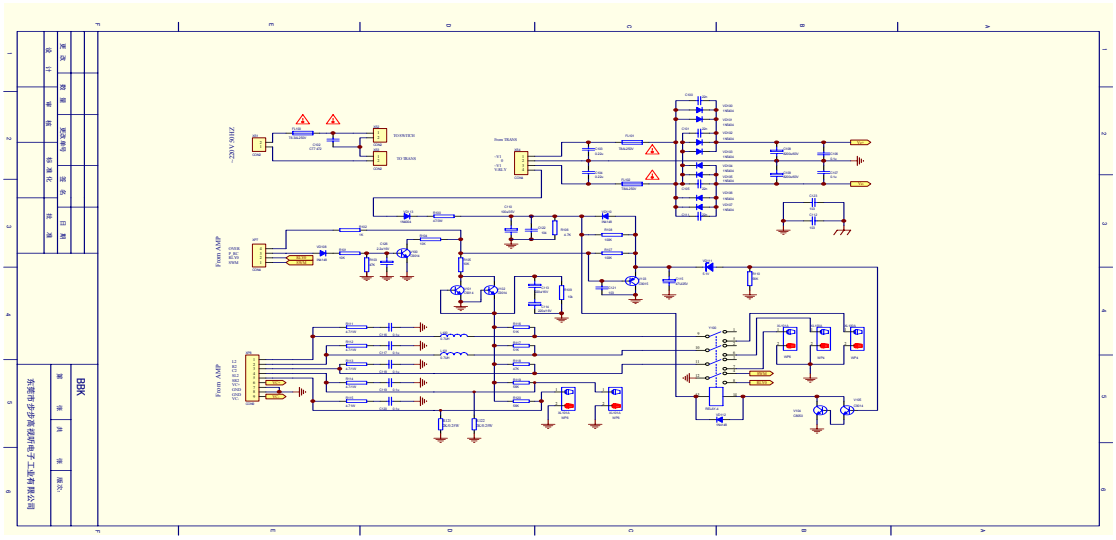
Front Panel schematic & PCB wiring diagram

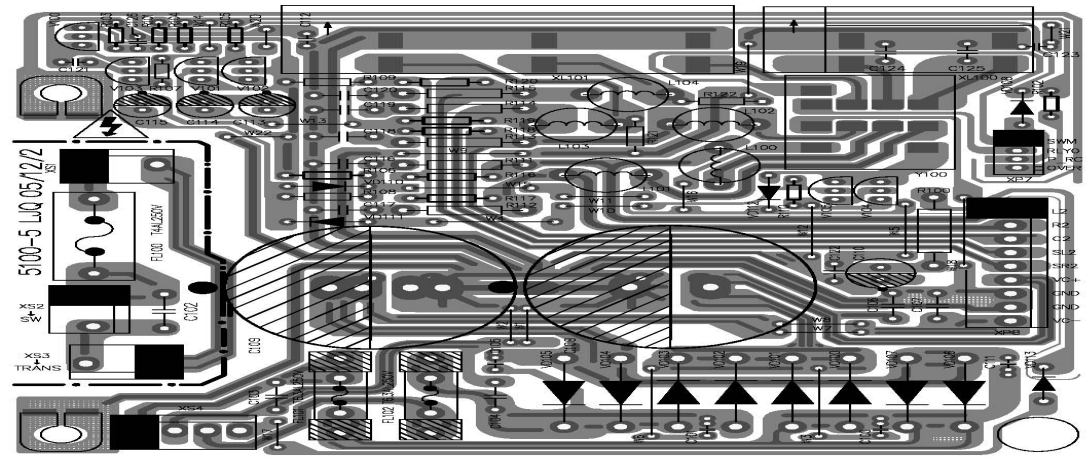




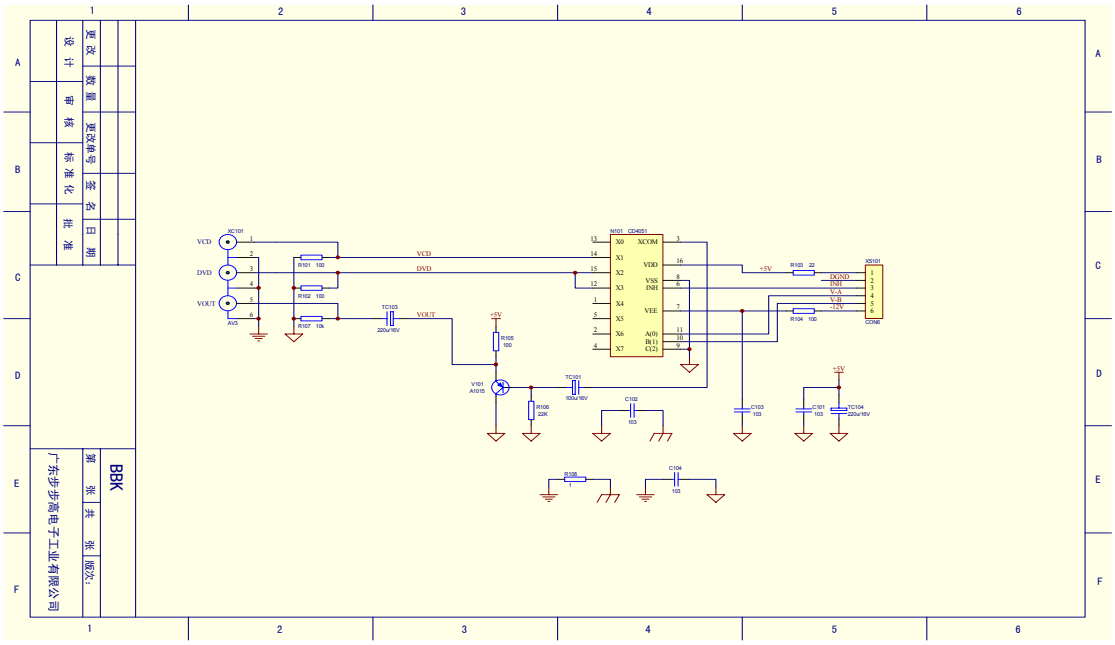


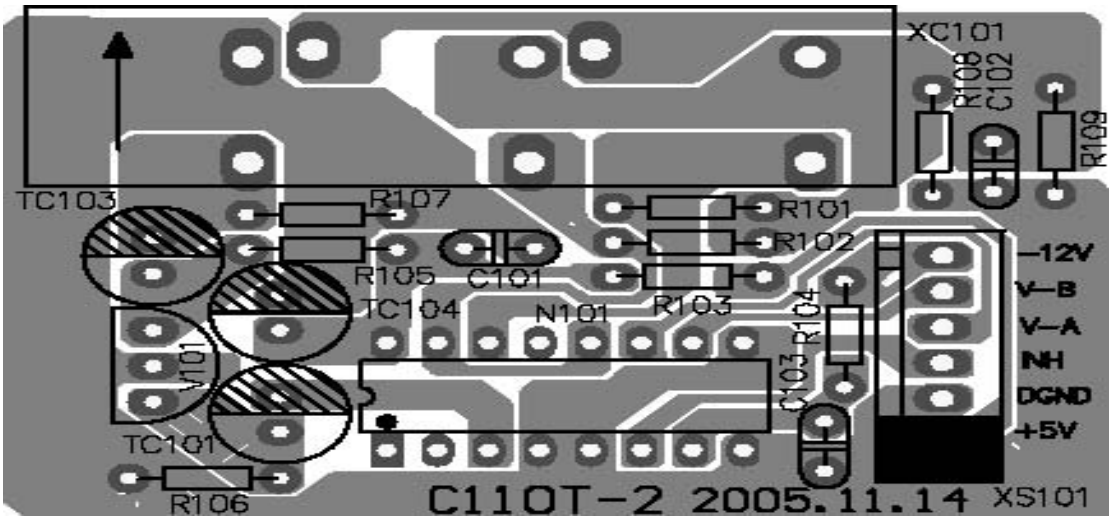
Power board schematic & PCB wiring diagram



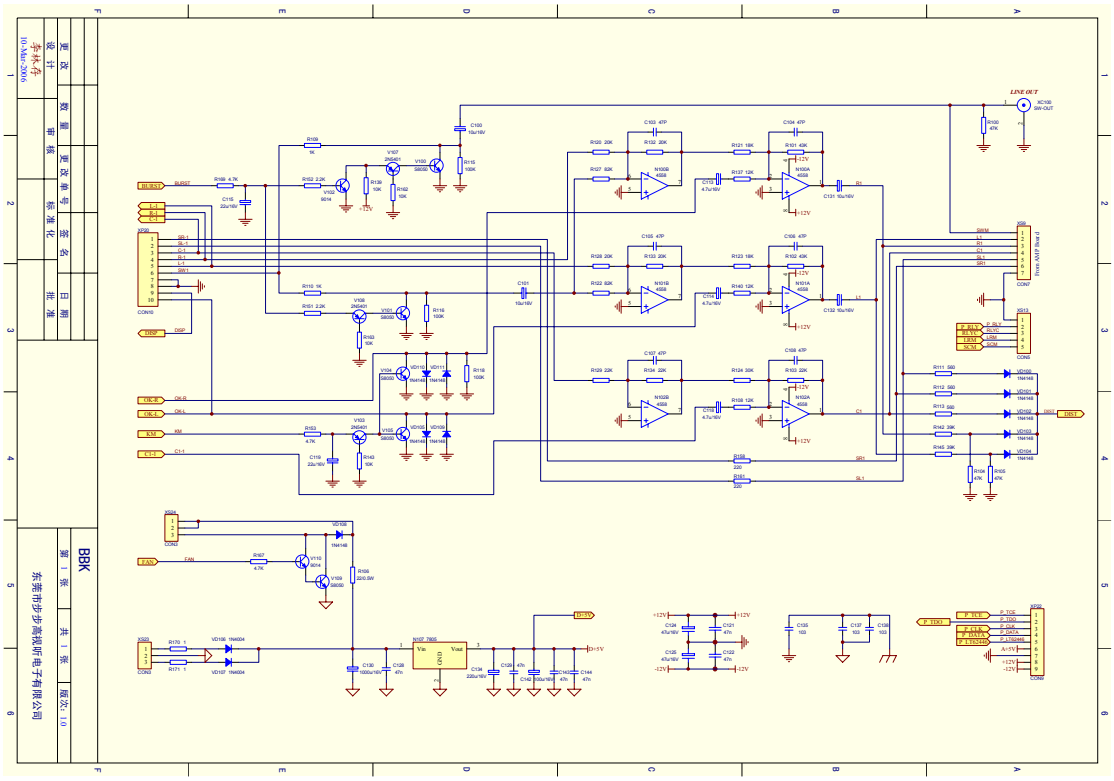


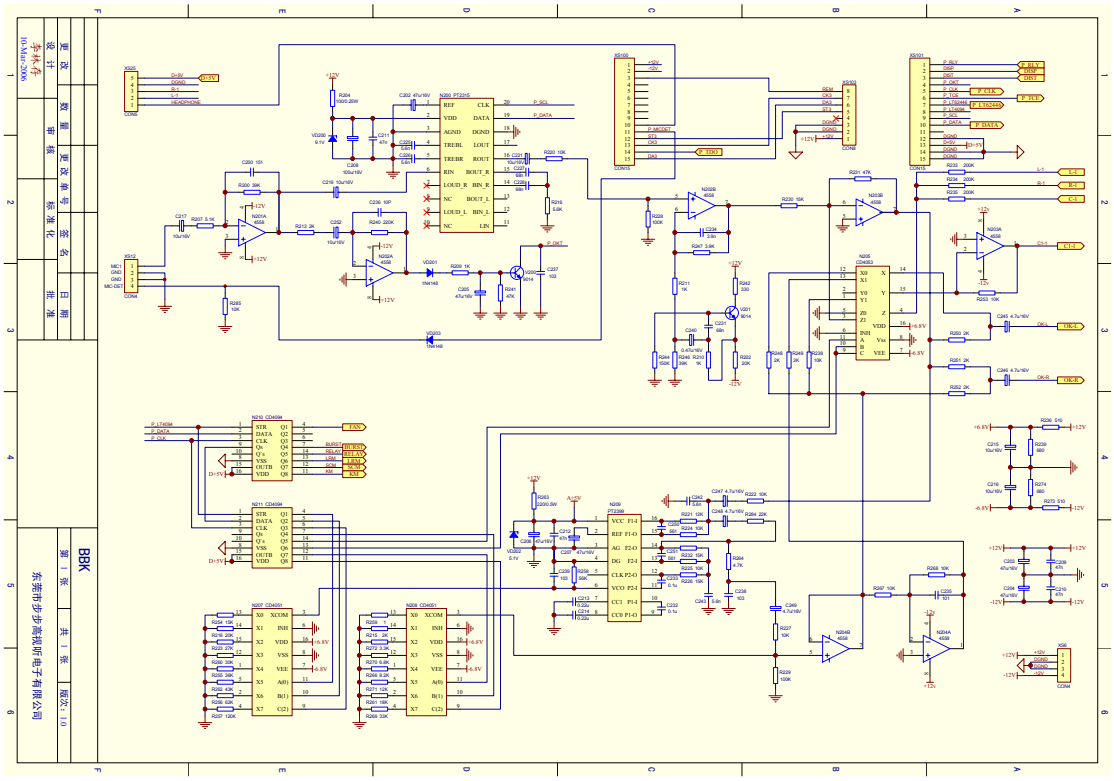
Video board schematic & PCB wiring diagram

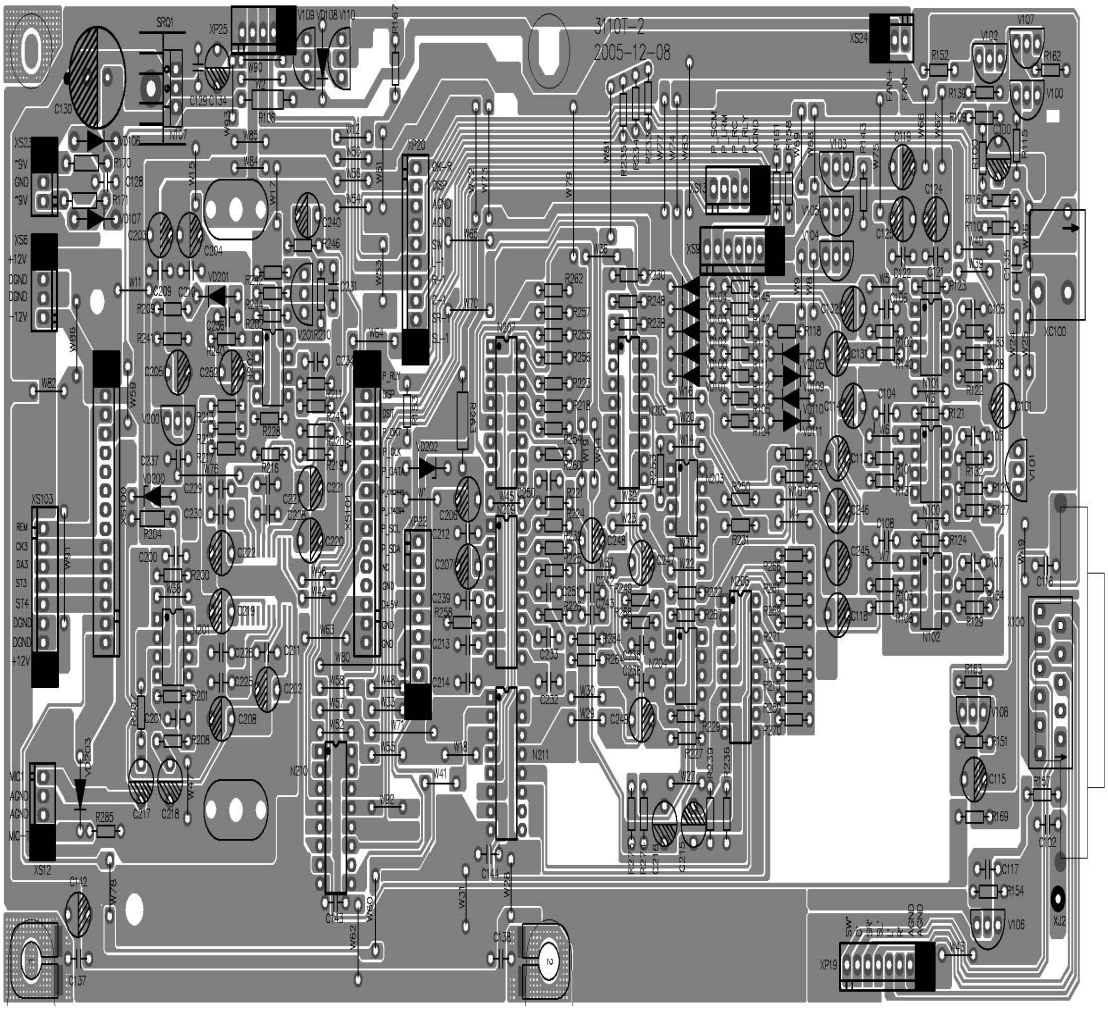




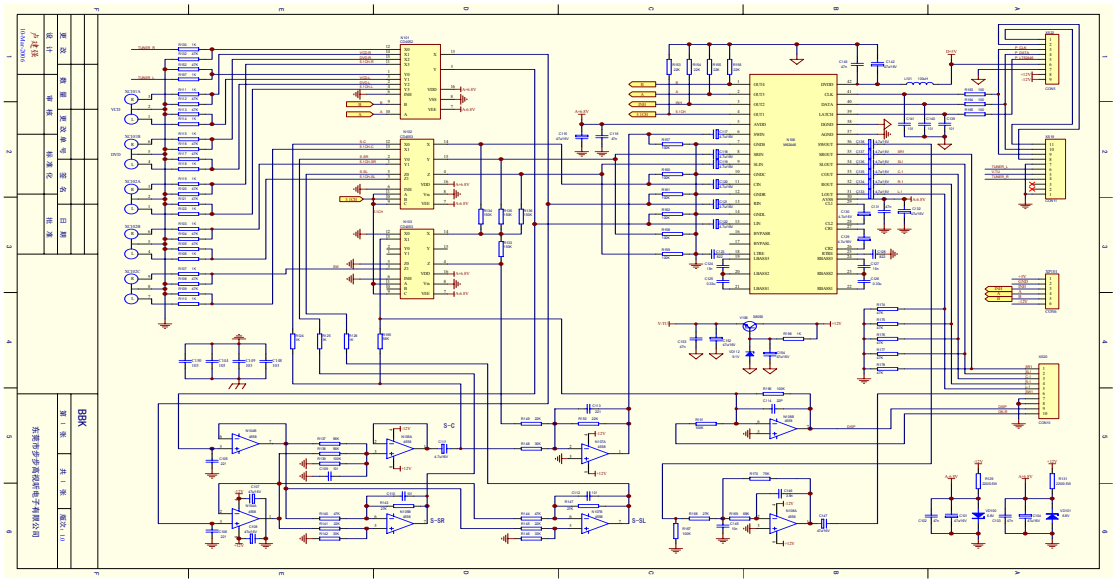
Signal Processing Board schematic & PCB wiring diagram

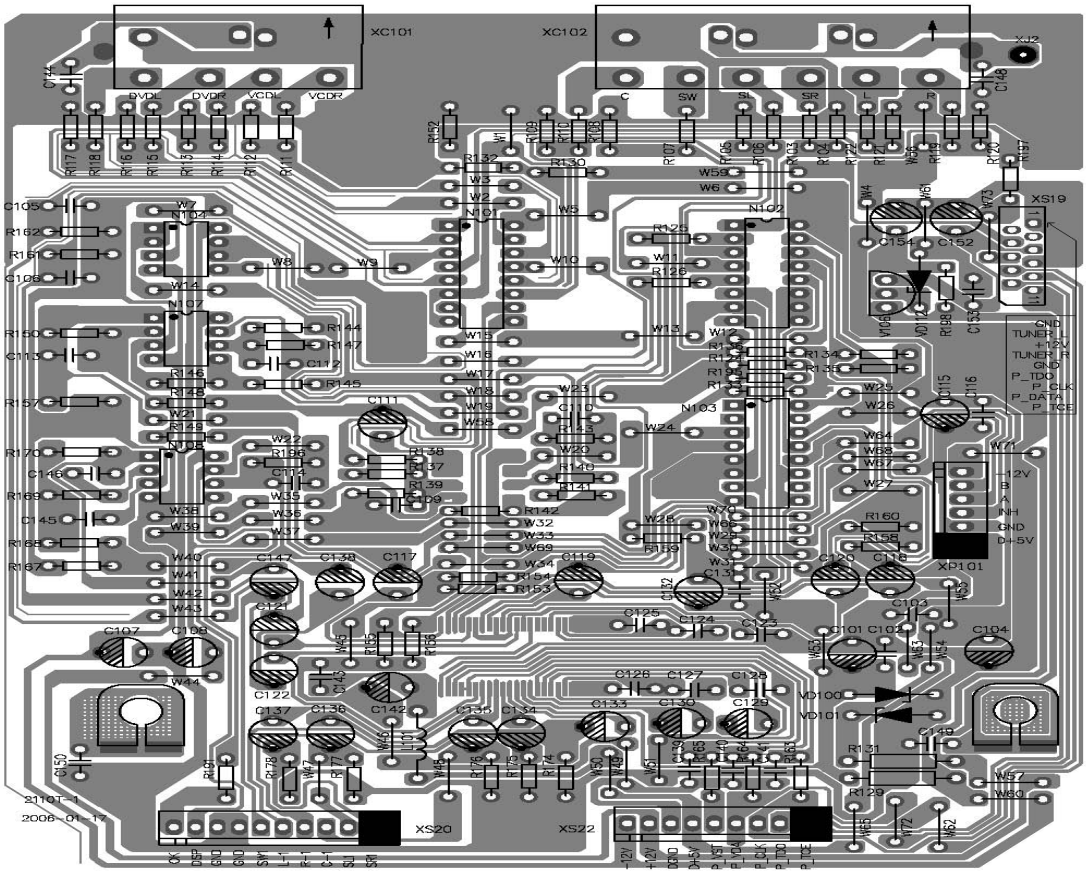






Volume Board schematic & PCB wiring diagram





Spare parts list

Signal processing Board

MATERIAL CODE	MATERIAL NAME	SPECS & MODEL	UNIT	QTY	LOCATION
0880230	IC	PT2399 DIP	PCS	1	N209

0880417	IC	CD4053BCN DIP	PCS	1	N205
0881430	IC	CD4053BE DIP	PCS	1	N205
0880379	IC	LM7805 GOLD SEALED TO-220	PCS	1	N107
0880247	IC	MC7805CT GOLD SEALED TO-220	PCS	1	N107
0880499	IC	L7805CV GOLD SEALED TO-220	PCS	1	N107
0881743	IC	F4558 DIP	PCS	4	N201~N204
0882161	IC	AZ4558 DIP	PCS	4	N201~N204
0880445	IC	4558C DIP	PCS	4	N201~N204
0880124	IC	NJM4558D DIP	PCS	4	N201~N204
0881393	IC	IL4558N DIP	PCS	4	N201~N204
0882223	IC	NE5532 DIP	PCS	3	N100~N102
0880807	IC	PT2315 SOP	PCS	1	N200
0880271	IC	CD4051 DIP	PCS	2	N207,N208
0881428	IC	CD4094BCN DIP	PCS	2	N207,N208
0880444	IC	TC4094BP DIP	PCS	2	N210,N211
0880654	IC	CD11 16V1000U±20% 10×16 5	PCS	2	N210,N211
0882338	IC	1/2W22Ω±5% SHAPED 12.5	PCS	2	N210,N211
0260030	CD	15P 40mm2.54mm OUTSIDE DISTANCE BETWEEN GLUE CORE 28.4mm	PCS	1	C130
0010226	METAL OXIDE FILM RESISTOR	5P140 2.5 2PLUG WITH NEEDLE	PCS	1	R106
1970064	NEEDLE NETWORKS	10P75 2.5 2PLUG WITH NEEDLE IN-PHASE	PCS	2	BETWEEN XS100~XP100, BETWEEN XS101~XP101
2120296	FLAT CABLE	9P75 2.5 2PLUG WITH NEEDLE	PCS	1	XP25

		IN-PHASE			
2121187	FLAT CABLE	3P 2.5mm	PCS	1	XP20
2121561	FLAT CABLE	4P 2.5mm	PCS	1	XP22
1940002	SOCKET	7P 2.5mm	PCS	2	XS23,XS24
1940003	SOCKET	8P 2.5mm	PCS	2	XS6,XS12
1940004	SOCKET	AV1-8.4-5G BLACK	PCS	1	XS13
1940007	SOCKET	14×8×16 AV130	PCS	1	XS9
1940009	SOCKET	AV100	PCS	1	XS103
1910034	TERMINAL SOCKET	H=28.4mm AV230	PCS	1	XC100
3580092	HEAT RADIATION BOARD	BT3×8 NICKEL	PCS	1	STICK TO 7805（N107）
3870591	GROUNDING PIECE	BT 3×6H WHITE NICKEL	PCS	2	
3026724	PLASTIC BRACKET	3110T-2 AV250T(RU) AI	PCS	2	SIGNAL PROCESSING BOARD/CPU BOARD
4000197	SELF-TAPPING SCREW	7228-1 AV250T(RU)	PCS	4	2 PCS FOR PLASTIC BRACKET/SIGNAL PROCESSING BOARD, 2PCS FOR PLASTIC BRACKET/CPU BOARD
4000462	SELF-TAPPING SCREW		PCS	1	HEAT RADIATION BOARD/IC
5447830	SEMI-FINISHED PCB		PCS	1	
5447837	SEMI-FINISHED PCB		PCS	1	

MATERIAL CODE	MATERIAL NAME	SPECS & MODEL	UNIT	QTY	LOCATION
2100003	CONNECTION CORDS	Φ0.6 SHAPED 7.5mm	PCS	60	W1,W3~W33,W34,W36~W42,W44~W48,W50,W52~W59,W78,W82,W84,W85,W92,W93
2100004	CONNECTION CORDS	Φ0.6 SHAPED 10mm	PCS	13	W60~W70,W90,W2

2100007	CONNECTION CORDS	Φ0.6 SHAPED 15mm	PCS	8	W71~W77,W91
2100017	CONNECTION CORDS	Φ0.6 SHAPED 20mm	PCS	4	W79~W81,W83
00000029	CARBON FILM RESISTOR	1/6W1Ω±5%	PCS	1	R259
00000119	CARBON FILM RESISTOR	1/6W220Ω±5%	PCS	2	R158,R161
00000139	CARBON FILM RESISTOR	1/6W330Ω±5%	PCS	1	R242
00000179	CARBON FILM RESISTOR	1/6W510Ω±5%	PCS	2	R236,R273
00000189	CARBON FILM RESISTOR	1/6W560Ω±5%	PCS	3	R111~R113
00000199	CARBON FILM RESISTOR	1/6W680Ω±5%	PCS	2	R239,R274
00000229	CARBON FILM RESISTOR	1/6W1K±5%	PCS	5	R110,R109,R209~R211
00000269	CARBON FILM RESISTOR	1/6W2K±5%	PCS	7	R248~R252,R213,R215
00000279	CARBON FILM RESISTOR	1/6W2.2K±5%	PCS	2	R151,R152
00000309	CARBON FILM RESISTOR	1/6W3.3K±5%	PCS	1	R272
00000329	CARBON FILM RESISTOR	1/6W3.9K±5%	PCS	1	R247
00000349	CARBON FILM RESISTOR	1/6W4.7K±5%	PCS	4	R153,R169,R264,R167
00000359	CARBON FILM RESISTOR	1/6W 5.1K±5%	PCS	1	R207

00000369	CARBON FILM RESISTOR	1/6W5.6K±5%	PCS	1	R216
00000379	CARBON FILM RESISTOR	1/6W6.8K±5%	PCS	1	R270
00000389	CARBON FILM RESISTOR	1/6W8.2K±5%	PCS	1	R266
00000409	CARBON FILM RESISTOR	1/6W10K±5%	PCS	13	R139,R220,R222,R238, R253,R267,R268,R143, R162,R163,R224,R225, R227
00000419	CARBON FILM RESISTOR	1/6W12K±5%	PCS	4	R271,R221,R137,R140
00000439	CARBON FILM RESISTOR	1/6W15K±5%	PCS	4	R232,R254,R226,R230
00000449	CARBON FILM RESISTOR	1/6W18K±5%	PCS	3	R261,R121,R123
00000459	CARBON FILM RESISTOR	1/6W20K±5%	PCS	5	R202,R129,R218,R120, R128
00000469	CARBON FILM RESISTOR	1/6W22K±5%	PCS	4	R284,R132,R133,R134
00000489	CARBON FILM RESISTOR	1/6W27K±5%	PCS	1	R223
00000499	CARBON FILM RESISTOR	1/6W30K±5%	PCS	2	R260,R124
00000509	CARBON FILM RESISTOR	1/6W33K±5%	PCS	1	R269
00000519	CARBON FILM RESISTOR	1/6W39K±5%	PCS	4	R246,R200,R142,R145
00000589	CARBON FILM RESISTOR	1/6W82K±5%	PCS	2	R127,R122

00000529	CARBON FILM RESISTOR	1/6W47K±5%	PCS	6	R100,R103,R241,R231, R104,R105
00000549	CARBON FILM RESISTOR	1/6W56K±5%	PCS	1	R258
00000559	CARBON FILM RESISTOR	1/6W62K±5%	PCS	1	R256
00000599	CARBON FILM RESISTOR	1/6W100K±5%	PCS	5	R115,R116,R228,R229, R118
00000609	CARBON FILM RESISTOR	1/6W120K±5%	PCS	1	R257
00000629	CARBON FILM RESISTOR	1/6W150K±5%	PCS	1	R244
00000659	CARBON FILM RESISTOR	1/6W200K±5%	PCS	3	R233,R234,R235
00000669	CARBON FILM RESISTOR	1/6W220K±5%	PCS	1	R240
00001759	CARBON FILM RESISTOR	1/4W100Ω±5%	PCS	1	R204
00003459	CARBON FILM RESISTOR	1/6W36K±5%	PCS	1	R255
00003519	CARBON FILM RESISTOR	1/6W43K±5%	PCS	3	R262,R101,R102
00003609	CARBON FILM RESISTOR	1/6W 7.5K±5%	PCS	1	R108
00006239	CARBON FILM RESISTOR	1/2W220Ω±5%	PCS	1	R263
00102289	METAL OXIDE FILM RESISTOR	1/4W1Ω±5%	PCS	2	R170,R171

02600019	CD	CD11 16V22U±20% 5×11 C5	PCS	2	C119,C115
02600029	CD	CD11 16V47U±20% 5×11 C5	PCS	8	C124,C125,C202~C207
02601819	CD	CD11 16V220U±20% 6×12 C5	PCS	1	C134
02601889	CD	CD11 16V100U±20% 6×12 C5	PCS	2	C142,C208
02603909	CD	CD11 50V0.47U±20% 5×11C5	PCS	1	C240
02604379	CD	CD11 16V4.7U±20% 5×11C5	PCS	10	C131,C100,C101,C132, C215~C217,C219,C221, C252
02604389	CD	50V 47P±10% SHAPED 5mm	PCS	8	C113,C114,C118,C245~ C249
02003069	PORCELAIN CAPACITOR	50V 101±10% SHAPED 5mm	PCS	6	C103~C108
02003079	PORCELAIN CAPACITOR	50V 103±10% SHAPED 5mm	PCS	1	C235
02003109	PORCELAIN CAPACITOR	50V 10P ± 10 % SHAPED 5mm	PCS	6	C237~C239,C135,C138, C137
02003159	PORCELAIN CAPACITOR	50V561±10% SHAPED 5mm	PCS	1	C236
02003299	PORCELAIN CAPACITOR	50V151±10% SHAPED 5mm	PCS	2	C250,C251
02003309	PORCELAIN CAPACITOR	100V 683 ±10% SHAPED 5mm	PCS	1	C200

02100689	TERYLENE CAPACITOR	100V392±10% C5	PCS	3	C227,C228,C231
02101439	TERYLENE CAPACITOR	100V 473 ±10% SHAPED 5mm	PCS	1	C234
02101489	TERYLENE CAPACITOR	100V 473 ±5% SHAPED 5mm	PCS	10	C121,C122,C128,C129, C143,C144,C209~C212
02102209	TERYLENE CAPACITOR	100V 562±10% SHAPED 5mm	PCS	10	C121,C122,C128,C129, C143,C144,C209~C212
02101579	TERYLENE CAPACITOR	100V 562±5% SHAPED 5mm	PCS	4	C225,C226,C242,C243
02102219	TERYLENE CAPACITOR	CL21X100V224K C5BD	PCS	4	C225,C226,C242,C243
02101049	METAL POLYESTER FILM CAPACITOR	CL21X 100V 104K C5	PCS	2	C213,C214
02101459	METAL POLYESTER FILM CAPACITOR	1N4004	PCS	2	C232,C233
05700049	DIODE	1N4148	PCS	2	VD106,VD107
0570006	DIODE	5.1V 1/2W	PCS	12	VD201,VD203,VD108, VD100~VD105,VD109~ VD111
05800069	VOLTAGE REGULATOR DIODE	9.1V 1/2W	PCS	1	VD202
05800099	VOLTAGE REGULATOR DIODE	2N5401	PCS	1	VD200
07800259	TRIODE	9014C	PCS	3	V103,V107,V108
07800329	TRIODE	8050D	PCS	4	V102,V200,V201,V110
07801389	TRIODE	3110T-2	PCS	5	V105,V101,V104,V100, V109

01564101	PCB		PCS	1	

CPU Board

MATERIAL CODE	MATERIAL NAME	SPECS & MODEL	UNIT	QTY	LOCATION
0100008	RESISTOR NETWORK	1/6W 4.7K ±5% 9P	PCS	1	RR100
0390168	INDUCTOR	100UH ± 10 % 0410 SHAPED 12.5mm	PCS	1	L100
0390353	MAGNETIC BEADS INDUCTOR	RH-357508 SHAPED 12.5mm	PCS	1	L101
0000279	CARBON FILM RESISTOR	1/4W470Ω±5% SHAPED 10	PCS	2	R118,R119
0260019	CD	CD11 16V10U±20%5×11 2	PCS	5	C111,C112,C114,C115, C139
0260025	CD	CD11 16V47U±20%5×11 2	PCS	1	C100
0260049	CD	CD11 50V0.22U±20%5×11 2	PCS	1	C138
0260067	CD	CD11 50V2.2U±20%5×11 2	PCS	8	C118,C121,C124,C127, C130,C133,C136,C109
0260096	CD	CD110 16V100U±20%6×12 2.5	PCS	2	C140,C141
0260127	CD	CD11 16V4.7U±20%5×11 2	PCS	2	C110,C106
0210111	METAL POLYESTER FILM CAPACITOR	CL21X 63V 104± 5% 5	PCS	1	C137

0570006	DIODE	1N4148	PCS	13	VD102,VD103,VD108, VD109,VD110,VD111, VD112,VD113,VD114, VD115,VD116,VD118, VD119
05800019	VOLTAGE REGULATOR DIODE	3.3V 1/2W	PCS	1	VD117
05800059	VOLTAGE REGULATOR DIODE	4.7V 1/2W	PCS	1	VD101
05800459	VOLTAGE REGULATOR DIODE	6.8V 1/2W	PCS	2	VD106,VD107
0780025	TRIODE	2N5401	PCS	1	V103
0780032	TRIODE	9014C	PCS	5	V101,V104,V102,V105, V100
0880013	IC	LM324N DIP	PCS	2	N105,N106
0880271	IC	CD4051 DIP	PCS	2	N104,N108
0881428	IC	CD4051BE DIP	PCS	2	N104,N108
0880664	IC	24C02 DIP	PCS	1	N101
0881743	IC	F4558 DIP	PCS	3	N102,N103,N107
0882161	IC	AZ4558 DIP	PCS	3	N102,N103,N107
0880445	IC	4558C DIP	PCS	3	N102,N103,N107
0880124	IC	NJM4558D DIP	PCS	3	N102,N103,N107
0881393	IC	IL4558N DIP	PCS	3	N102,N103,N107
0970002	CERAMIC RESONATOR	12.0MHz	PCS	1	G100
0890277	SOFTWARE PROGRAM CPU	CPU250T(RU)-0	PCS	1	
1850005	DUAL LINE IC SOCKET	40P DIP	PCS	1	N100
5447838	SEMI-FINISHED PCB	7228-1-SMD AV250T(RU)	PCS	1	

MATERIAL CODE	MATERIAL NAME	SPECS & MODEL	UNIT	QTY	LOCATION

0090001	SMD RESISTOR	1/16W 0Ω ±5% 0603	PCS	1	R104
0090004	SMD RESISTOR	1/16W 22Ω ±5% 0603	PCS	1	R209
0090011	SMD RESISTOR	1/16W 470Ω ±5% 0603	PCS	33	R191,R192,R195~R208, R215~R231
0090014	SMD RESISTOR	1/16W 1K ±5% 0603	PCS	9	R136,R141,R146,R151, R155,R160,R165,R170, R177
0090016	SMD RESISTOR	1/16W 1.5K ±5% 0603	PCS	2	R122,R114
0090017	SMD RESISTOR	1/16W 2.2K ±5% 0603	PCS	3	R112,R123,R175
0090019	SMD RESISTOR	1/16W 4.7K ±5% 0603	PCS	11	R111,R134,R139,R144, R149,R153,R158,R163, R174,R185,R101
0090023	SMD RESISTOR	1/16W 10K ±5% 0603	PCS	26	R108,R117,R125,R131, R133,R137,R138,R142, R143,R147,R148,R152, R156,R157,R161,R162, R166,R172,R178,R179, R186,R187,R189,R212, R213,R214
0090024	SMD RESISTOR	1/16W 15K ±5% 0603	PCS	1	R109
0090026	SMD RESISTOR	1/16W 22K ±5% 0603	PCS	4	R100,R110,R132,R183
0090027	SMD RESISTOR	1/16W 27K ±5% 0603	PCS	1	R126
0090029	SMD RESISTOR	1/16W 47K ±5% 0603	PCS	2	R115,R180
0090034	SMD RESISTOR	1/16W 100K ±5% 0603	PCS	8	R135,R140,R145,R150, R154,R159,R164,R167
0090109	SMD RESISTOR	1/16W 1MΩ ±5% 0603	PCS	1	R210
0090009	SMD RESISTOR	1/16W 330Ω ±5% 0603	PCS	1	R182
0090181	SMD RESISTOR	1/16W 100Ω ±5% 0603	PCS	2	R107,R181
0090184	SMD RESISTOR	1/16W 4.3K ±5% 0603	PCS	2	R124,R211
0090199	SMD RESISTOR	1/16W 180K ±5% 0603	PCS	2	R128,R113

0090208	SMD RESISTOR	1/16W 470K ±5% 0603	PCS	4	R129,R130,R116,R169
0090225	SMD RESISTOR	1/16W 5.6K ±5% 0603	PCS	2	R173,R184
0090242	SMD RESISTOR	1/16W 75K ±5% 0603	PCS	1	R127
0310067	SMD CAPACITOR	50V 152 ±10% 0603	PCS	2	C119,C120
0310072	SMD CAPACITOR	50V 103 ±10% 0603	PCS	14	C105,C142,C143,C144, C145,C146,C147,C148, C149,C150,C125,C126, C152,C151
0310594	SMD CAPACITOR	25V 104±10% X7R 0603	PCS	4	C102,C107,C108,C155
0310188	SMD CAPACITOR	50V 10P ±5% NPO 0603	PCS	1	C113
0310191	SMD CAPACITOR	50V 30P ±5% NPO 0603	PCS	2	C103,C104
0310471	SMD CAPACITOR	50V 561±5% NPO 0603	PCS	2	C116,C117
0310198	SMD CAPACITOR	50V 472 ±10% 0603	PCS	2	C122,C123
0310202	SMD CAPACITOR	50V 223 ±10% 0603	PCS	2	C128,C129
0310206	SMD CAPACITOR	50V 683 ±10% 0603	PCS	2	C131,C132
0310634	SMD CAPACITOR	25V 154 ±10% X7R 0603	PCS	2	C134,C135
1632936	PCB	7110T-0	PCS	1	

Volume Board

MATERIAL CODE	MATERIAL NAME	SPECS & MODEL	UNIT	QTY	LOCATION

0881743	IC	F4558 DIP	PCS	1	N108
0882161	IC	AZ4558 DIP	PCS	1	N108
0880445	IC	4558C DIP	PCS	1	N108
0880124	IC	NJM4558D DIP	PCS	1	N108
0881393	IC	IL4558N DIP	PCS	1	N108
0882223	IC	NE5532 DIP	PCS	3	N104,N105,N107
0880417	IC	CD4053BCN DIP	PCS	2	N103,N102
0881430	IC	CD4053BE DIP	PCS	2	N103,N102
0881429	IC	CD4052BE DIP	PCS	1	N101
0880443	IC	CD4052BCN DIP	PCS	1	N101
0881380	IC	M62446AFP SOP	PCS	1	N106
0390425	INDUCTOR	100UH ±10% 0307 SHAPED 12.5	PCS	1	L101
1910117	TERMINAL SOCKET	AV6-8.4-13/ES	PCS	1	XC102
1910118	TERMINAL SOCKET	AV4-8,4-13/ES	PCS	1	XC101
1940072	CABLE SOCKET	6/5P 1.25mm DUAL LINE STRAIGHT PLUG	PCS	1	XS19
2120325	FLAT CABLE	6P140 2.5 2PLUG WITH NEEDLE	PCS	1	XP101
1940029	SOCKET	9P 2.5mm	PCS	1	XS22
1940030	SOCKET	10P 2.5mm	PCS	1	XS20
3870591	GROUNDING PIECE	AV100	PCS	2	
5447608	SEMI-FINISHED PCB	2110T-0 AV110T(RU) AI	PCS	1	

MATERIAL CODE	MATERIAL NAME	SPECS & MODEL	UNIT	QTY	LOCATION
2100003	CONNECTION CORDS	Φ 0.6 SHAPED 7.5mm	PCS	73	W1~W73
00000099	CARBON FILM	1/6W100Ω±5%	PCS	3	R163,R164,R165

	RESISTOR				
00000229	CARBON FILM RESISTOR	1/6W1K±5%	PCS	16	R103,R106,R107,R110, R111,R114,R115,R118, R119,R122,R124~R126, R197,R130,R198
00000469	CARBON FILM RESISTOR	1/6W22K±5%	PCS	8	R141,R145,R149,R150, R153,R154,R155,R156
00000489	CARBON FILM RESISTOR	1/6W27K±5%	PCS	3	R143,R147,R168
00000499	CARBON FILM RESISTOR	1/6W30K±5%	PCS	1	R148
00000509	CARBON FILM RESISTOR	1/6W33K±5%	PCS	2	R142,R146
00000529	CARBON FILM RESISTOR	1/6W47K±5%	PCS	19	R104,R105,R108,R109, R112,R113,R116,R120, R117,R132,R121,R144, R140,R152,R174~R178
00000549	CARBON FILM RESISTOR	1/6W56K±5%	PCS	3	R137,R138,R195
00000569	CARBON FILM RESISTOR	1/6W68K±5%	PCS	1	R169
00000579	CARBON FILM RESISTOR	1/6W75K±5%	PCS	1	R170
00000599	CARBON FILM RESISTOR	1/6W100K±5%	PCS	10	R139,R157~R162,R167, R191,R196
00000629	CARBON FILM	1/6W150K±5%	PCS	4	R133,R134,R135,R136

	RESISTOR				
00006239	CARBON FILM RESISTOR	1/2W220Ω±5%	PCS	2	R129,R131
02600029	CD	CD11 16V47U±20% 5×11 C5	PCS	10	C101,C104,C107,C108, C115,C132,C142,C147, C152,C154
02604389	CD	CD11 16V4.7U±20% 5×11C5	PCS	15	C111,C117,C118,C119, C120,C121,C122,C129, C130,C133,C134,C135, C138,C136,C137
02003059	PORCELAIN CAPACITOR	50V 22P±10% SHAPED 5mm	PCS	1	C114
02003079	PORCELAIN CAPACITOR	50V 101±10% SHAPED 5mm	PCS	6	C109,C110,C112,C139, C140,C141
02003089	PORCELAIN CAPACITOR	50V 221±10% SHAPED 5mm	PCS	3	C105,C106,C113
02003109	PORCELAIN CAPACITOR	50V 103±10% SHAPED 5mm	PCS	2	C144,C148
02003149	PORCELAIN CAPACITOR	50V 822±10% SHAPED 5mm	PCS	2	C123,C128
02101439	TERYLENE CAPACITOR	100V392±10% C5	PCS	1	C146
02101449	TERYLENE CAPACITOR	100V 153 ±10% C5	PCS	2	C124,C127
02101489	TERYLENE CAPACIT	100V 473 ±10% SHAPED 5mm	PCS	6	C102, C103,C116,C131,C143, C153

	OR				
02102209	TERYLENE CAPACITOR	100V 473 ±5% SHAPED 5mm	PCS	6	C102, C103,C116,C131,C143, C153
02101599	TERYLENE CAPACITOR	100V 103 ±10% SHAPED 5mm	PCS	1	C145
02102239	TERYLENE CAPACITOR	100V 103 ±5% SHAPED 5mm	PCS	1	C145
02101419	METAL POLYESTER FILM CAPACITOR	CL21X100V334KC5	PCS	2	C125,C126
05800459	VOLTAGE REGULATOR DIODE	6.8V 1/2W	PCS	2	VD100,VD101
05800099	VOLTAGE REGULATOR DIODE	9.1V 1/2W	PCS	1	VD112
07801389	TRIODE	8050D	PCS	1	V106
1564053	PCB	2110T-0	PCS	1	

Power Amplifer Board

MATERIAL CODE	MATERIAL NAME	SPECS & MODEL	UNIT	QTY	LOCATION
2100003	CONNECTION CORDS	Φ0.6 SHAPED 7.5mm	PCS	13	W16,W18,W27,W40,W42,W43,W54,W55,W61, W72,W76,W77,W78
2100004	CONNECTION CORDS	Φ0.6 SHAPED 10mm	PCS	19	W8,W9,W15,W21,W24, W36,W41,W45,W46,W48,W51,W57,W63,W65,W69,W71,W73,W74,W80
2100006	CONNECTION CORDS	Φ0.6 SHAPED 12.5mm	PCS	7	W3,W20,W35,W59,W62, W66,W70
2100007	CONNECTION	Φ0.6 SHAPED 15mm	PCS	10	W2,W14,W19,W26,W50, W53,W67,W79,W81,W82

	CORDS				
2100010	CONNECTION CORDS	Φ0.6 SHAPED 5mm	PCS	6	W1,W33,W47,W49,W60,W68
2100016	CONNECTION CORDS	Φ0.6 SHAPED 18mm	PCS	4	W39,W52,W58,W75
2100017	CONNECTION CORDS	Φ0.6 SHAPED 20mm	PCS	2	W28,W56
2100024	CONNECTION CORDS	Φ0.6 SHAPED 22mm	PCS	8	W5,W6,W7,W10,W11,W12,W13,W64
0000125	CARBON FILM RESISTOR	1/6W510Ω±5% SHAPED 7.5	PCS	2	R110,R140
0000128	CARBON FILM RESISTOR	1/6W820Ω±5% SHAPED 7.5	PCS	3	R170,R191,R195
0000129	CARBON FILM RESISTOR	1/6W1K±5% SHAPED 7.5	PCS	6	R103,R109,R112,R133,R139,R142
0000132	CARBON FILM RESISTOR	1/6W2.2K±5% SHAPED 7.5	PCS	2	R115,R145
0000131	CARBON FILM RESISTOR	1/6W1.5K±5% SHAPED 7.5	PCS	2	R129,R159
0000133	CARBON FILM RESISTOR	1/6W4.7K±5% SHAPED 7.5	PCS	5	R161,R167,R114,R144,R165
0000137	CARBON FILM RESISTOR	1/6W10K±5% SHAPED 7.5	PCS	10	R101,R131,R162,R163,R168,R164,R166,R185,R186,R189
0000140	CARBON FILM RESISTOR	1/6W22K±5% SHAPED 7.5	PCS	5	R190,R192,R194,R196,R188
0000141	CARBON FILM RESISTOR	1/6W27K±5% SHAPED 7.5	PCS	1	R171
0000142	CARBON FILM RESISTOR	1/6W33K±5% SHAPED 7.5	PCS	2	R121,R151

0000144	CARBON FILM RESISTOR	1/6W47K±5% SHAPED 7.5	PCS	5	R104,R134,R169,R193, R197
0000146	CARBON FILM RESISTOR	1/6W100K±5% SHAPED 7.5	PCS	3	R102,R132,R187
0000276	CARBON FILM RESISTOR	1/4W100Ω±5% SHAPED 10	PCS	4	R120,R122,R150,R152
0000379	CARBON FILM RESISTOR	1/6W6.8K±5%	PCS	4	R105,R106,R135,R136
0000452	CARBON FILM RESISTOR	1/6W150Ω±5% SHAPED 7.5	PCS	4	R113,R116,R143,R146
0000533	CARBON FILM RESISTOR	1/2W220Ω±5% SHAPED R 12.5×8	PCS	4	R117,R125,R147,R155
0000495	CARBON FILM RESISTOR	1/6W4.3K±5% SHAPED 7.5	PCS	4	R128,R130,R158,R160
0000556	CARBON FILM RESISTOR	1/6W47Ω±5% SHAPED 7.5	PCS	4	R107,R108,R137,R138
0040069	CEMENT RESISTOR	7W0.25Ω±5% SQM SHAPED R 10×5	PCS	4	R126,R127,R156,R157
0010321	METAL OXIDE FILM RESISTOR	1/2W33K±5% SHAPED 12.5	PCS	2	R111,R141
0010210	METAL OXIDE FILM RESISTOR	3W47 Ω ± 5 % SHAPED R 20×8	PCS	1	R184
0010268	METAL OXIDE FILM RESISTOR	3W22Ω±5% SHAPED R 20×8	PCS	1	R183
0260389	CD	CD1150V0.22U ±20%5×11C5	PCS	3	C124,TC103,TC109
0260036	CD	CD11 25V10U±20% 5×11 2	PCS	3	C101,C111,TC102

0260021	CD	CD11 16V22U±20% 5×11 2	PCS	5	C121,C122,C125,TC104, TC110
0260027	CD	CD11 16V100U±20% 6×12 2.5	PCS	4	C105,C115,C148,C149
0260063	CD	CD11 50V1U±20% 5×11 2	PCS	2	C110,C120
0260302	CD	CD11 100V47U±20％8×15 3.5	PCS	4	C103,C107,C113,C117
0260447	CD	LUA 35V4700U±20％18×35 7.5	PCS	2	C141,C142
0260234	CD	CD11 35V4700U±20% 19×35 7.5	PCS	2	C141,C142
0260465	CD	CD11 100V10U±20％6.3×11 2.5	PCS	1	C159
0260487	CD	CD11K35V220U±20% 8×16 3.5	PCS	2	C146,C147
0200018	PORCELAIN CAPACITOR	50V 22P ±10% NPO 2.5mm	PCS	2	C160,C163
0200066	PORCELAIN CAPACITOR	50V 221 ±10% 2.5mm	PCS	2	C104,C114
0200333	PORCELAIN CAPACITOR	500V33P±10% NPO SHAPED 5mm	PCS	2	C108,C118
0210147	TERYLENE CAPACITOR	100V 473 ±10% 5mm	PCS	12	C109,C119,C127,C128, C139,C140,C150,C151, C161,C162,C164,C165
0210025	TERYLENE CAPACITOR	100V 473 ±5% 6mm	PCS	12	C109,C119,C127,C128, C139,C140,C150,C151, C161,C162,C164,C165
0570006	DIODE	1N4148	PCS	8	VD101~VD107,VD115
0570020	DIODE	1N5404	PCS	4	VD111,VD112,VD113, VD114
0780025	TRIODE	2N5401	PCS	5	V105,V115,V120,V130, V137

0780026	TRIODE	2N5551	PCS	12	V102~V104,V106~V107, V114,V117~V119,V121~ V122,V129
0780138	TRIODE	8050D	PCS	4	V101,V116,V131,V136
0780070	TRIODE	2SA1964E	PCS	2	V133,V135
0780255	TRIODE	2SA940	PCS	2	V133,V135
0780257	TRIODE	KSA940	PCS	2	V133,V135
0780072	TRIODE	2SC5248E	PCS	2	V132,V134
0780021	TRIODE	2SC2073	PCS	2	V132,V134
0780258	TRIODE	KSC2073	PCS	2	V132,V134
0780097	TRIODE	2SC5200R	PCS	2	V112,V127
0780071	TRIODE	2SC5200O	PCS	2	V112,V127
0780096	TRIODE	2SA1943R	PCS	2	V113,V128
0780069	TRIODE	2SA1943O	PCS	2	V113,V128
0882646	IC	CW7812CS TO-220	PCS	1	N101
0880131	IC	L7812CV GOLD SEALED TO-220	PCS	1	N101
0880380	IC	LM7812 GOLD SEALED TO-220	PCS	1	N101
0881418	IC	UA7812C GOLD SEALED TO ─ 220	PCS	1	N101
0880324	IC	MC7812CT GOLD SEALED TO-220	PCS	1	N101
0880325	IC	MC7912CT GOLD SEALED TO-220	PCS	1	N102
0880381	IC	LM7912CT GOLD SEALED TO-220	PCS	1	N102
0882618	IC	CD1875CZ TO-220	PCS	1	N104
0882913	IC	TDA2052V GOLD SEALED TO-220	PCS	2	N105,N106
1940003	SOCKET	4P 2.5mm	PCS	1	XS7
1940040	SOCKET	3P 3.96mm	PCS	1	XS5
1940155	SOCKET	9P 3.96mm	PCS	1	XS8

2120267	FLAT CABLE	4P140 2.5 2PLUG WITH NEEDLE	PCS	1	XP6
2121182	FLAT CABLE	5P 125 2.5 2PLUG WITH NEEDLE IN-PHASE	PCS	1	XP13
2121183	FLAT CABLE	7P 145 2.5 2PLUG WITH NEEDLE IN-PHASE	PCS	1	XP9
2300005	FUSE	T6.3AL 250V	PCS	2	FL101,FL102
3870057	FUSE HOLDER	0	PCS	4	FL101,FL102
3580085	HEAT RADIATION BOARD	15.4×10.7×45 AV220	PCS	1	SRQ1
3580092	HEAT RADIATION BOARD	14×8×16 AV130	PCS	1	STICK TO 7912
3580215	LARGE HEAT RADIATOR	261×128×80 AV250T	PCS	1	
3870603	PCB BRACKET	AV130	PCS	3	3PCS FOR POWER AMPLIFIER BOARD/HEAT RADIATOR
4000516	SELF-TAPPING SCREW	PT 3×12H WHITE NICKEL	PCS	7	4PCS FOR POWER PIPE/LARGE HEAT RADIATOR; 1PC FOR CD1875/LARGE HEAT RADIATOR; 2PCS FOR TDA2052/LARGE HEAT RADIATOR
4000453	SELF-TAPPING SCREW	BT 3×8H WHITE NICKEL	PCS	4	3PCS FOR PCB BRACKET/HEAT RADIATOR; 1PC FOR 7812/HEAT RADIATION BOARD
4000462	SELF-TAPPING SCREW	BT 3×6H WHITE NICKEL	PCS	4	3PCS FOR PCB BRACKET/POWER AMPLIFIER BOARD; 1PC FOR 7912/HEAT

					RADIATION BOARD
4450012	SCREW SPACER	Φ3×7.2×0.5	PCS	7	4PCS FOR SELF-TAPPING SCREW/POWER PIPE; 1PC FOR TAPPING SCREW/CD1875; 2PCS FOR TAPPING SCREW/TDA2052
4490001	SPRING SPACER	Φ3	PCS	7	4PCS FOR SELF-TAPPING SCREW/POWER PIPE; 1PC FOR TAPPING SCREW/CD1875; 2PCS FOR TAPPING SCREW/TDA2052
5230395	INSULATION SPACER CASING	Φ3×6×3	PCS	3	1PC FOR CD1875/SELF-TAPPING SCREW
5230979	MIC SPACER	28×22×0.1	PCS	4	4PCS FOR POWER PIPE/HEAT RADIATOR
5230928	MICA SPACER	18×13×0.1	PCS	3	1PC FOR CD1875/LARGE HEAT RADIATOR; 2PCS FOR TDA2052/LARGE HEAT RADIATOR
5232006	SOFT SPONGE SPACER	80×12×1.5 SINGLE-SIDED SOFT	PCS	1	FLAT CABLE XP9, XP13/HEAT RADIATOR
1564051	PCB	4320T-0	PCS	1	

Video_Board

MATERIAL CODE	MATERIAL NAME	SPECS & MODEL	UNIT	QTY	LOCATION
0000120	CARBON FILM RESISTOR	1/6W22Ω±5% SHAPED 7.5	PCS	1	R103
0000122	CARBON FILM RESISTOR	1/6W100Ω±5% SHAPED 7.5	PCS	4	R101,R102,R104,R105
0000140	CARBON FILM	1/6W22K±5% SHAPED 7.5	PCS	1	R106

	RESISTOR				
0000137	CARBON FILM RESISTOR	1/6W10K±5% SHAPED 7.5	PCS	1	R107
0000599	CARBON FILM RESISTOR	1/6W1Ω±5% SHAPED 7.5	PCS	3	R108,焊在 PCB 背后
0200174	PORCELAIN CAPACITOR	50V 103 ±10% 2.5mm	PCS	4	C101,C102,C103,C104
0260027	CD	CD11 16V100U±20%6×12 2.5	PCS	1	TC101
0260028	CD	CD11 16V220U±20%6×12 2.5	PCS	2	TC103,TC104
0880271	IC	CD4051 DIP	PCS	1	N101
0881428	IC	CD4051BE DIP	PCS	1	N101
0780043	TRIODE	2SA1015	PCS	1	V101
1940006	SOCKET	6 芯 2.5mm	PCS	1	XS101
1910239	TERMINAL SOCKET	AV3-8.4-14/ES-10	PCS	1	XC101
1564076	PCB	C210T-0	PCS	1	

Front Panel Board

MATERIAL CODE	MATERIAL NAME	SPECS & MODEL	UNIT	QTY	LOCATION
3004192	SURFACE CASING	AV250T SILVERY	PCS	1	
3071946	LIGHT CONDUCT RING 1	AV250T TRANSPARENT WHITE	PCS	1	POWER SWITCH
3071947	LIGHT CONDUCT RING 2	AV250T TRANSPARENT WHITE	PCS	1	Q-PLAY
3071948	LIGHT CONDUCT STRIP	AV250T TRANSPARENT WHITE	PCS	2	PACK TO BUTTON BRACKET
3071949	BUTTON BRACKET	AV250T	PCS	1	

3871823	MIC PREFORM	AV250T	PCS	1	MIC SOCKET/PANEL
3071950	DECORATION GLASS	AV250T GLASS FACE	PCS	1	
3871821	ALUMINUM DECORATION BOARD	AV250T SILVERY	PCS	1	
3871822	ALUMINUM DECORATION STRIP	AV250T SILVERY	PCS	2	STICK TO LIGHT CONDUCT STRIP
3110527	ALUMINUM-ALLOY POWER BUTTON	AV168 SILVERY WHITE	PCS	1	
3110380	POWER BUTTON DECORATION CASING	AV138 SILVERY WHITE	PCS	1	
3029205	POWER BUTTON	AV138	PCS	1	
4000048	SELF-TAPPING SCREW	PB 3×8 COLORFUL ZINC	PCS	9	7PCS FOR PANEL/CONTROL PANEL; 2PCS FOR PANEL/POWER SWITCH BOARD
4000120	SELF-TAPPING SCREW	PB 3×10 COLORFUL ZINC	PCS	5	2PCS FOR POWER SWITCH/PANEL; 3PCS FOR PANEL/MIC HOLDER PREFORM
5447833	SEMI-FINISHED PCB	6250T-0 AV250T(RU)	PCS	1	
5447834	SEMI-FINISHED PCB	D250T-0 AV250T(RU)	PCS	1	
5447835	SEMI-FINISHED PCB	9250T-0 AV250T(RU)	PCS	1	

Power Board

MATERIAL CODE	MATERIAL NAME	SPECS & MODEL	UNIT	QTY	LOCATION

2100003	CONNECTION CORDS	Φ 0.6 SHAPED 7.5mm	PCS	4	W14,W16,W17,W22
2100004	CONNECTION CORDS	Φ 0.6 SHAPED 10mm	PCS	10	W7,W8,W10,W11,W1,W2,L102,L103,L104,W13
2100007	CONNECTION CORDS	Φ 0.6 SHAPED 15mm	PCS	6	W5,W12,W15,W4,W9,W19
2100008	CONNECTION CORDS	Φ 0.6 SHAPED 6mm	PCS	2	W20,W21
2100017	CONNECTION CORDS	Φ 0.6 SHAPED 20mm	PCS	3	W18,W3,W6
0000129	CARBON FILM RESISTOR	1/6W1K±5% SHAPED 7.5	PCS	2	R101,R102
0000137	CARBON FILM RESISTOR	1/6W10K±5% SHAPED 7.5	PCS	2	R104,R105
0000144	CARBON FILM RESISTOR	1/6W47K±5% SHAPED 7.5	PCS	1	R103
0000146	CARBON FILM RESISTOR	1/6W100K±5% SHAPED 7.5	PCS	1	R107
0000289	CARBON FILM RESISTOR	1/4W4.7K±5% SHAPED 10	PCS	1	R106
0000294	CARBON FILM RESISTOR	1/4W10K±5% SHAPED 10	PCS	1	R109
0000301	CARBON FILM RESISTOR	1/4W47K±5% SHAPED 10	PCS	3	R118,R119,R120
0000436	CARBON FILM RESISTOR	1/4W2K±5% SHAPED 10	PCS	2	R121,R122
0000302	CARBON FILM RESISTOR	1/4W51K±5% SHAPED 10	PCS	2	R116,R117
0000305	CARBON FILM	1/4W100K±5% SHAPED 10	PCS	1	R108

	RESISTOR				
0000476	CARBON FILM RESISTOR	1/6W56K±5% SHAPED 7.5	PCS	1	R110
0000499	CARBON FILM RESISTOR	1W4.7 Ω ±5% SHAPED R 15×9	PCS	5	R111~R115
0000622	CARBON FILM RESISTOR	2W22 Ω ±5% SHAPED R 20×8	PCS	1	R100
0260028	CD	CD11 16V220U±20%6×12 2.5	PCS	2	C113,C114
0260039	CD	CD11 25V47U±20%5×11 2	PCS	1	C115
0260452	CD	CD11 35V220U±20% 8×14 3.5	PCS	1	C110
0260572	CD	CD293 63V15000u±20 % 35×70 10	PCS	2	C108,C109
0200138	PORCELAIN CAPACITOR	50V 104 ±20% 5mm	PCS	1	C122
0200174	PORCELAIN CAPACITOR	50V 103 ±10% 2.5mm	PCS	4	C121,C112,C123,C126
0200338	CERAMIC CAPACITOR	CT7 400VAC 472 ±20% 2E4 10mm	PCS	1	C102
0210022	TERYLENE CAPACITOR	100V 223 ±5% 5mm	PCS	4	C100,C101,C105,C111
0210029	TERYLENE CAPACITOR	100V 104 ±5% 7mm	PCS	7	C106,C107,C116~C120
0210031	TERYLENE	100V 224 ±10% 8mm	PCS	2	C103,C104

	CAPACITOR				
0210213	TERYLENE CAPACITOR	100V 224 ±5% 8mm	PCS	2	C103,C104
0410007	INDUCTOR COIL	0.7UH SC-0.8×8.0×11.5	PCS	2	L100,L101
0570004	DIODE	1N4004	PCS	1	VD113
0570006	DIODE	1N4148	PCS	3	VD112,VD108,VD110
0570020	DIODE	1N5404	PCS	8	VD100~VD107
05800069	VOLTAGE REGULATOR DIODE	5.1V 1/2W	PCS	1	VD111
0780032	TRIODE	9014C	PCS	4	V100,V101,V102,V105
0780033	TRIODE	9015C(200-600) TO-92	PCS	1	V103
0780138	TRIODE	8050D	PCS	1	V104
1250025	RELAY	JH1806-012-(3H1＋1Z1) DC12V	PCS	1	Y100
2120535	FLAT CABLE	4P60 2.5 2PLUG WITH NEEDLE	PCS	1	XP7
2121040	FLAT CABLE	9P60 3.96 1PLUG	PCS	1	XP8
1940037	SOCKET	4P 3.96mm	PCS	1	XS4
1940074	SOCKET	2P 7.92mm	PCS	3	XS1~XS3
2010003	SPEAKERS CORD	WP4-10A	PCS	1	XL100
2010004	SPEAKERS CORD	WP6-10A	PCS	1	XL101
2300005	FUSE	T6.3AL 250V	PCS	1	FL100
2300008	FUSE	T8AL 250V	PCS	2	FL101,FL102
3020402	FUSE HOLDER	BLX-2	PCS	1	FL100
3870057	FUSE HOLDER	0	PCS	4	FL101,FL102
3540076	SCREEN-SHIEDED PIECE	AV100 OUTPUT TERMINAL	PCS	1	

3870591	GROUNDING PIECE	AV100	PCS	2	
5180263	GLUE STICKER	T8AL 250V	PCS	2	STICK TO FL101, BESIDE FL102, COVER T6.3AL250V
5180388	GLUE STICKER	T6.3AL250V 18×3	PCS	1	STICK BESIDE FL100, COVER T4AL250V
1564105	PCB	@5100-5 CQC	PCS	1	