

PHOENIX

SW - 8

SW - 10

SW - 12

Service Manual

SW-8 Principle and Servicing

1. Block diagram of the player

Block diagram of the player is shown in the figure 1.1:

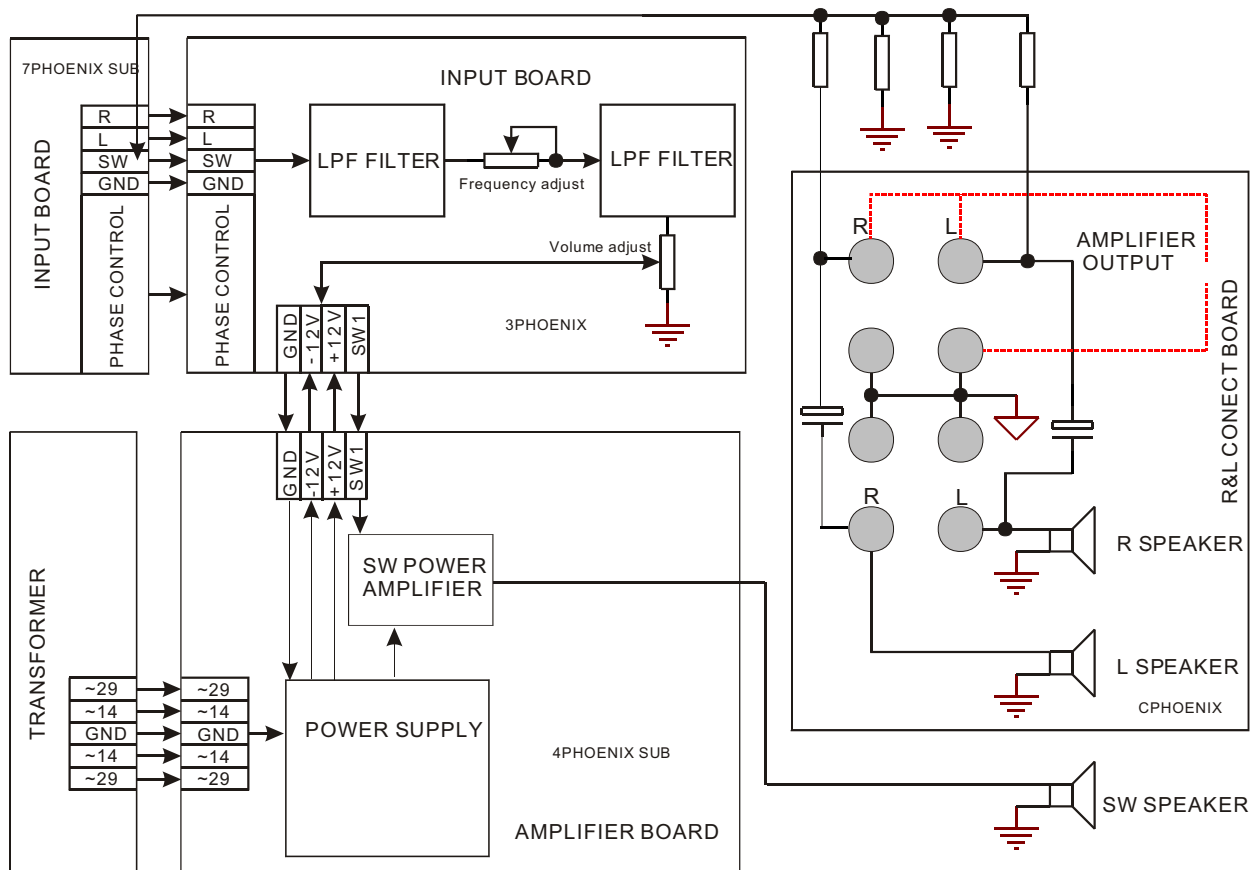


Figure 1.1 Block diagram of the player

2. SW-8 working principle

SW-8 is composed of a bass loudspeaker and left/right channel loudspeaker; signals input from input board; left and right channel signals (L, R) directly output to left and right loudspeaker; bass signals (SW) perform pre-amplifying processing through 4558 and fulfil phase and volume control, and

Then input to power amplifying circuit of power amplifier board. SW signals perform differential amplifying through the differential circuit composed by V301~V304, and then perform composite power amplifying through rear stage triode and output to bass loudspeaker.

To protect bass loudspeaker, this player has over-voltage and over-current protection circuit. Protection method is that disconnect loudspeaker output through disconnecting relay Y301 when protection starts up.

A over-voltage sampling circuit is connected on SW output end which is composed of R353 and R337. When output central point of a channel is over +4.3V or lower than -4.3V DC voltage, V318 or V317 is on to make their C electrode voltage decrease, V319 is also on and finally relay disconnects and loudspeaker output is disconnected. Over-current protection principle is the same with that of over-voltage, a over-current sampling triode V313 is connected on output load resistor and load resistance is R323, R324. When over-current trouble appears, voltage drop that produces on R323, R324 will increase quickly, once it exceeds B electrode voltage of V303, V313 is on and V319 is also on, finally relay is connected and loudspeaker output is disconnected.

3、 Function introduction to 4558

(1) Description

The RC4558 and RM4558 devices are dual general-purpose operational amplifiers with each half electrically similar to the A741 except that offset null capability is not provided.

The high common-mode input voltage range and the absence of latch-up make these amplifiers ideal for voltage-follower applications. The devices are short-circuit protected and the internal frequency compensation ensures stability without external components.

The RC4558 is characterized for operation from 0°C to 70°C, and the RM4558 is characterized for operation over the full military temperature range of 55 C to 125 C.

(2) FEATURES

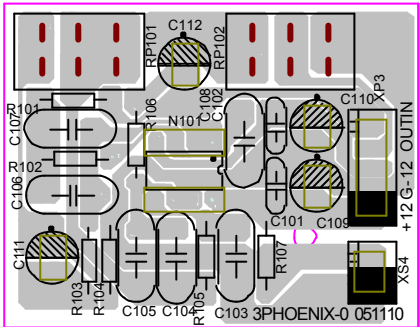
- ◆ Continuous-Short-Circuit Protection
- ◆ Wide Common-Mode and Differential
- ◆ Voltage Ranges. No Latch-Up
- ◆ No Frequency Compensation Required
- ◆ Low Power Consumption
- ◆ Unity-Gain Bandwidth . . . 3 MHz Typ
- ◆ Gain and Phase Match Between Amplifiers
- ◆ Low Noise . . . 8 nV $\sqrt{\text{Hz}}$ Typ at 1 kHz
- ◆ Designed To Be Interchangeable With
- ◆ Raytheon RC4558 and RM4558 Devices

(3) PIN CONFIGURATION

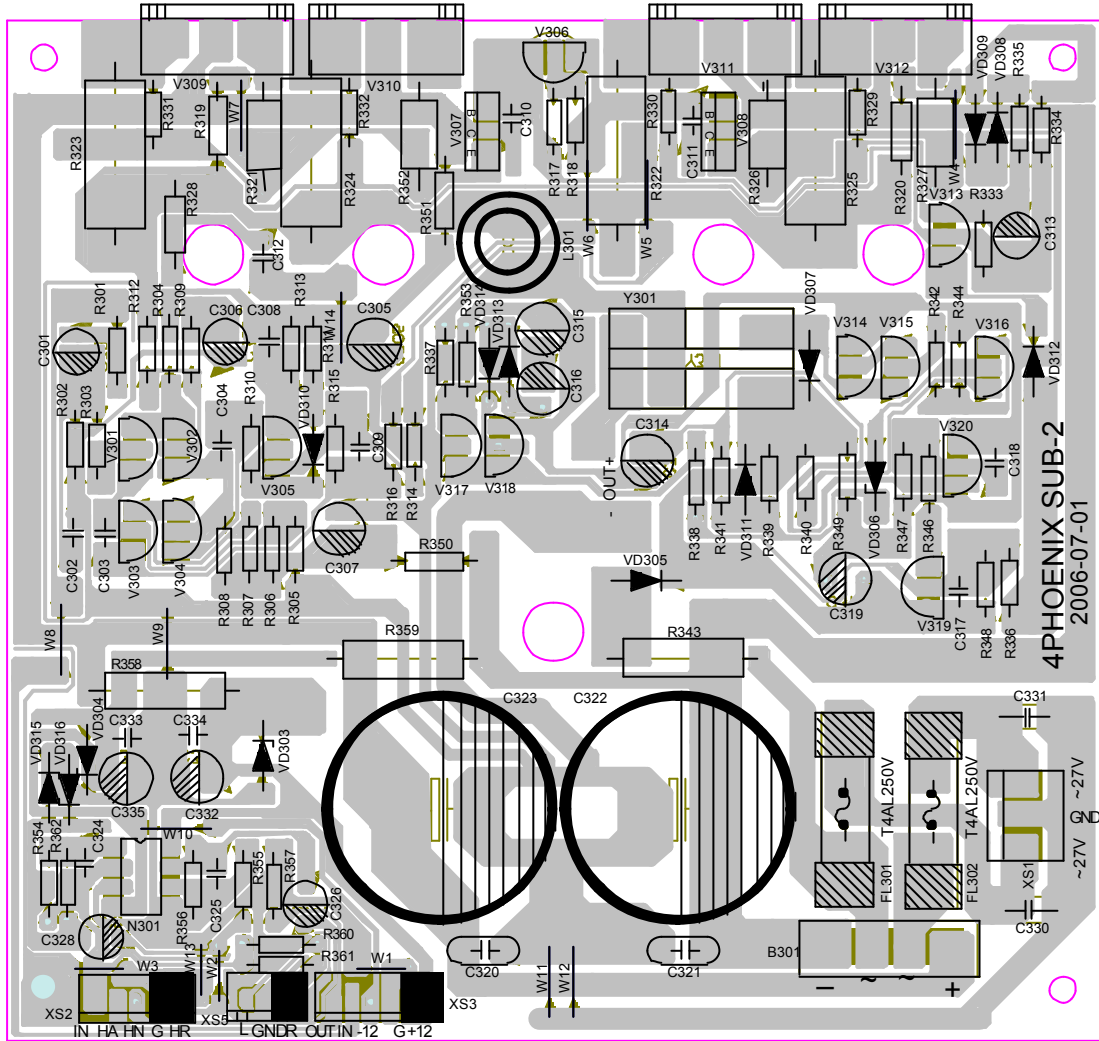
PIN No	Symbol	I/O	Description
1	1OUT	O	Output 1
2	1IN \square	I	Inverting Input Pin 1
3	1IN+	I	Non-Inverting Input Pin 1
PIN No.	Symbol	I/O	Description
PIN No.	Symbol	I/O	Description
4	VCC \square	I	Negative Power Supply
5	2IN+	I	Non-Inverting Input Pin 2
6	2IN \square	I	Inverting Input Pin 2
7	2OUT	O	Output 2
8	VCC+	I	Positive Power Supply

4. PCB Board

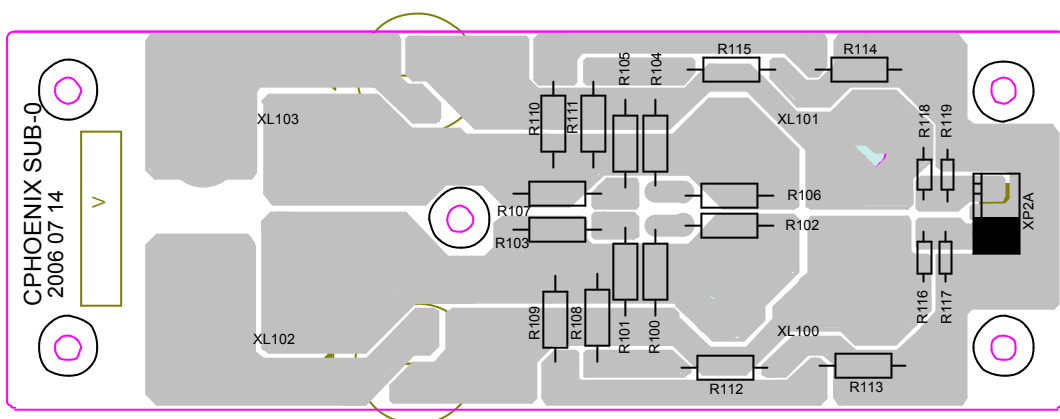
(1) signal Board



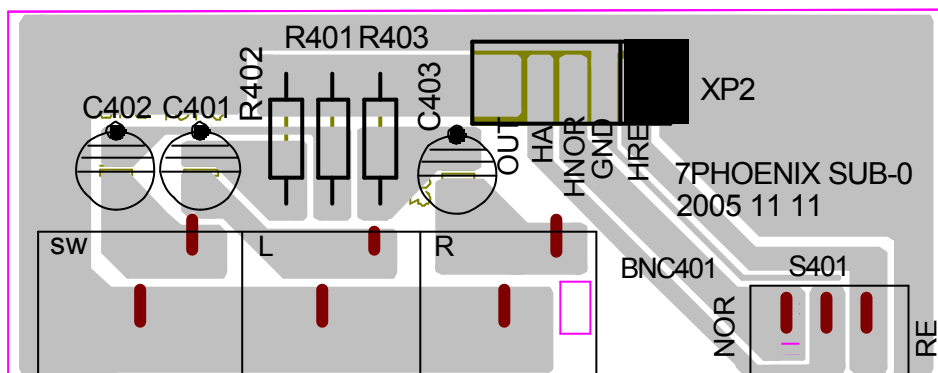
(2) audio power amplifying Board



(3) on / off Board

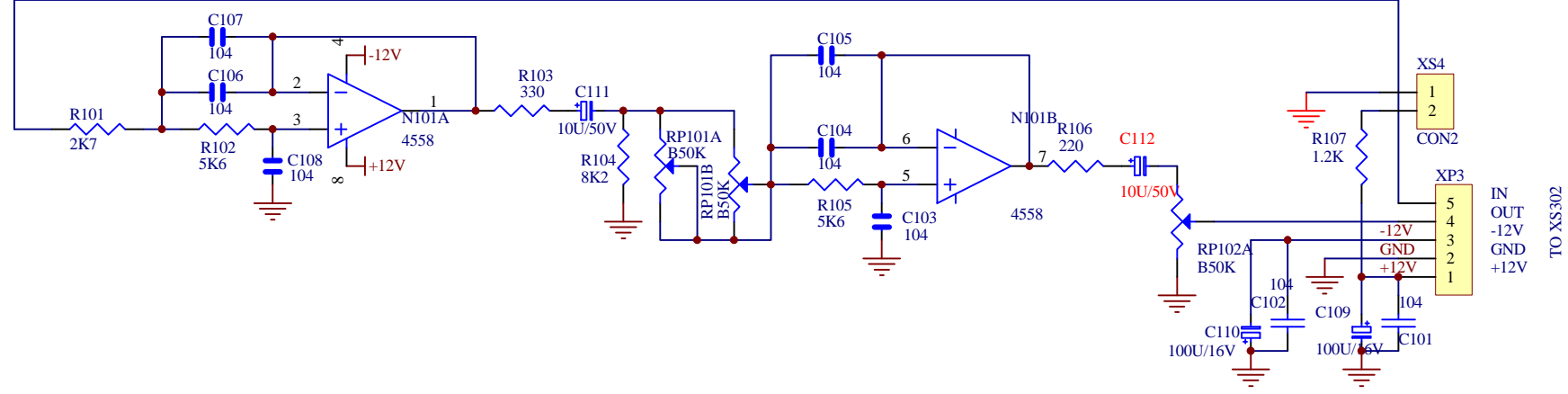


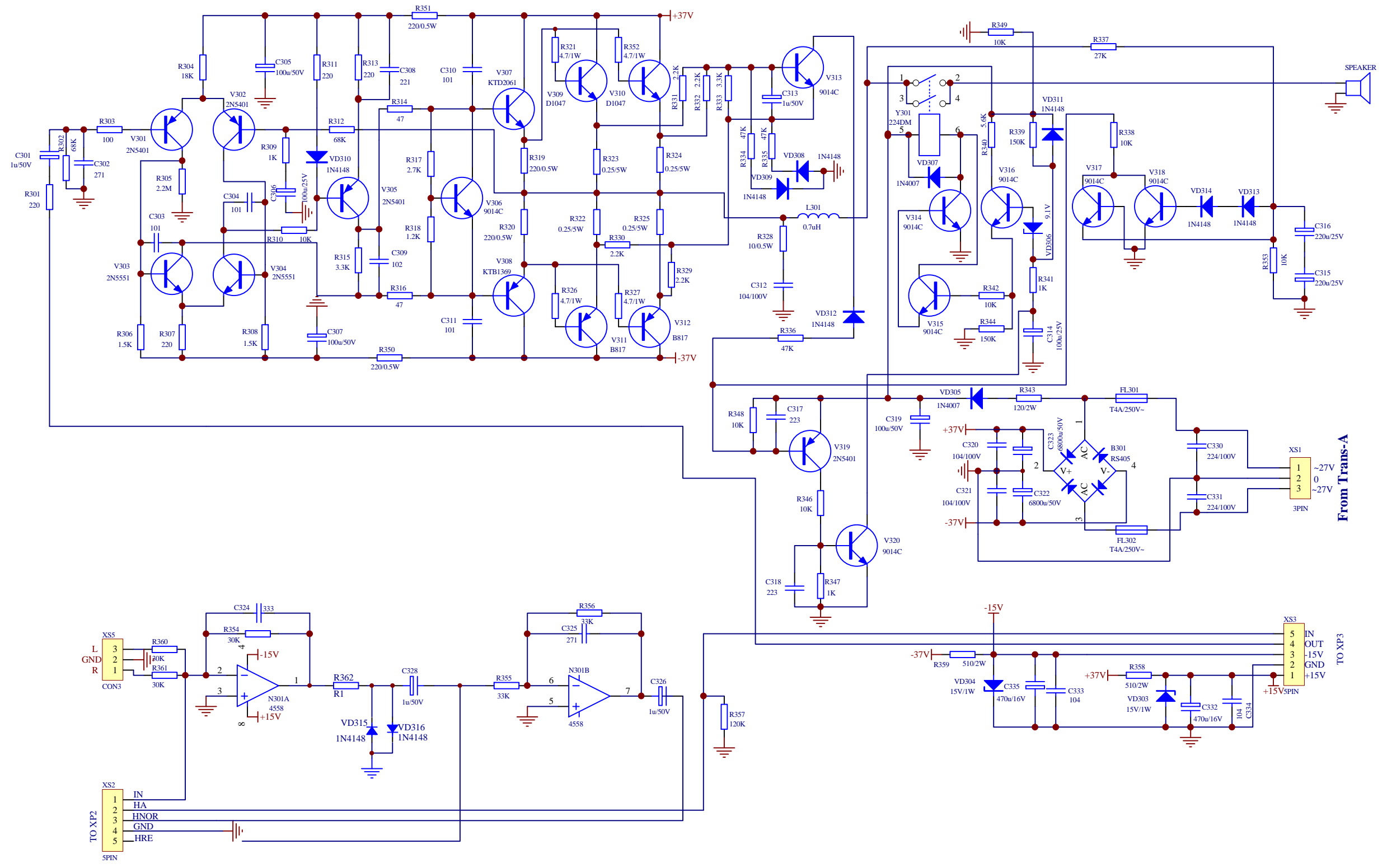
(4) audio IN Board



5. circuit diagram

audio power amplifying





6、 BOM List

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	LOCATION
Phoenix SW-8 BLACK CHERRY RED			
SIGNAL DISPOSAL BOARD(3PHOENIX SW-10)		5448950	
2100002	LEAD	F 0.6	
00001859	CARBON FILM RESISTOR	1/4W330O±5% BELT	R103
00001969	CARBON FILM RESISTOR	1/4W1.2K±5% BELT	R107
00001819	CARBON FILM RESISTOR	1/4W220O±5% BELT	R106
00002029	CARBON FILM RESISTOR	1/4W2.7K±5% BELT	R101,R102,R105
00002149	CARBON FILM RESISTOR	1/4W8.2K±5% BELT	R104
02002279	PORCELAIN CAPACITOR	50V 104±10% 5mmBELT	C101,C102
0210028	TERYLENE CAPACITOR	100V 683±10% 6mm	C103-C108
0260027	CD	CD11 16V100U±20%6×12 2.5	C109,C110
0260074	CD	CD11 50V10U±10%5×11 2	C111,C112
0881743	IC	F4558 DIP	N101
0882161	IC	AZ4558 DIP	N101
0880445	IC	4558C DIP	N101
0880124	IC	NJM4558D DIP	N101
0881393	IC	IL4558N DIP	N101
1940001	SOCKET	2P 2.5mm	XS4
1940004	SOCKET	5P 2.5mm	XS3
0160213	ROTATED POTENTIOMETER	R1660GOJH1-B503FG0041	RP1,RP2
1564071	PCB	3PHOENIX-0	
Phoenix SW-8 BLACK CHERRY RED			
AMPLIFIER BOARD		5449077	
2100003	LEAD	F 0.6 SHAPED 7.5mm	W1-W3,W13
2100004	LEAD	F 0.6 SHAPED 10mm	W4-W12,W14
00001699	CARBON FILM RESISTOR	1/4W47O±5% BELT	R314,R316
00001759	CARBON FILM RESISTOR	1/4W100O±5% BELT	R303
00001999	CARBON FILM RESISTOR	1/4W2K±5% BELT	R333
00001959	CARBON FILM RESISTOR	1/4W1K±5% BELT	R341,R347
00001989	CARBON FILM RESISTOR	1/4W1.5K±5% BELT	R306,R308
00002009	CARBON FILM RESISTOR	1/4W2.2K±5% BELT	R330,R332

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	LOCATION
00002049	CARBON FILM RESISTOR	1/4W3.3K±5% BELT	R315
00002109	CARBON FILM RESISTOR	1/4W5.6K±5% BELT	R340
00002169	CARBON FILM RESISTOR	1/4W10K±5% BELT	R310,R338,R346,R348,R353,R342,R349
00002219	CARBON FILM RESISTOR	1/4W18K±5%BELT	R304
00002259	CARBON FILM RESISTOR	1/4W27K±5% BELT	R337
00002309	CARBON FILM RESISTOR	1/4W47K±5% BELT	R334,R335,R336
00002419	CARBON FILM RESISTOR	1/4W150K±5% BELT	R344,R339
00001969	CARBON FILM RESISTOR	1/4W1.2K±5% BELT	R318 , R309
00001819	CARBON FILM RESISTOR	1/4W220O±5% BELT	R301,R307,R311,R313
00002349	CARBON FILM RESISTOR	1/4W68K±5% BELT	R302,R312
00002269	CARBON FILM RESISTOR	1/4W30K±5% BELT	R354,R355,R356,R360,R361
00002029	CARBON FILM RESISTOR	1/4W2.7K±5% BELT	R317
0000458	CARBON FILM RESISTOR	1/2W100±5% SHAPED 12.5	R328
0000466	CARBON FILM RESISTOR	1/2W220O±5% SHAPED 12.5	R319,R320,R350,R351
00002599	CARBON FILM RESISTOR	1/4W2.2MO±5% BELT	R305
0000480	CARBON FILM RESISTOR	2W120O±5% SHAPED R 20 ×8	R343
0000499	CARBON FILM RESISTOR	1W4.7O±5% SHAPED R 15 ×9	R326,R352
00002399	CARBON FILM RESISTOR	1/4W120K±5% BELT	R357
0000516	CARBON FILM RESISTOR	2W510O±5% SHAPED R 20 ×8	R358,R359
0040044	CEMENT RESISTANCE	7W0.25O±5% SHAPED,R 25 ×8	R322,R324
02000409	PORCELAIN CAPACITOR	50V 101±10% NPO 5mm BELT	C303,C304
02000469	PORCELAIN CAPACITOR	50V 271±5% NPO 5mm BELT	C325,C302
02002939	PORCELAIN CAPACITOR	50V 271±10% 5mm BELT	C325,C302
02001099	PORCELAIN CAPACITOR	50V 221±10% 5mmBELT	C308
02001239	PORCELAIN CAPACITOR	50V 102±10% 5mm BELT	C309
02001349	PORCELAIN CAPACITOR	50V 223±20%5mm BELT	C317,C318
02002279	PORCELAIN CAPACITOR	50V 104±10% 5mmBELT	C334,C333
02002339	PORCELAIN CAPACITOR	100V 101±10% 5mm BELT	C310,C311
0210029	TERYLENE CAPACITOR	100V 104±5% 7mm	C320,C321,C312
0210023	TERYLENE CAPACITOR	100V 223±10% 5mm	C324
0210022	TERYLENE CAPACITOR	100V 223±5% 5mm	C324
0410007	INDUCTOR COIL	0.7UH SC-0.8×8.0×1.5	L301

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	LOCATION
0210094	METAL POLYESTER FILM CAPACITOR	CL21X 100V224±10% 7.5	C330,C331
0260385	CD	CD11 16V470U±20%8×12 C5	C332,C335
0260182	CD	CD11 25V100U±20%6×12 C5	C306,C314
0260004	CD	CD11 25V220U±20%8×12 C5	C315,C316
0260005	CD	CD11 50V1U±20%5×11 C5	C301,C313,C328,C326
0260183	CD	CD11 50V100U±20%8×12 C5	C305,C307,C319
0260273	CD	LUA 50V6800U±20%30×50 10	C322,C323
0260236	CD	USR 50V6800U±20%30×35 10	C322,C323
0260238	CD	LR 50V6800U±20%30×50 10	C322,C323
0881743	IC	F4558 DIP	N301
0882161	IC	AZ4558 DIP	N301
0880445	IC	4558C DIP	N301
0880124	IC	NJM4558D DIP	N301
0881393	IC	IL4558N DIP	N301
0570005	DIODE	1N4007	VD305,VD307
05700069	DIODE	1N4148 BELT	VD308-VD314,VD315,VD316
05800099	VOLTAGE REGULATOR DIODE	9.1V±5% 1/2W BELT	VD306
05800229	VOLTAGE REGULATOR DIODE	12V±5% 1W BELT	VD303,VD304
0780025	TRIODE	2N5401	V301,V302,V305,V319
0780026	TRIODE	2N5551	V303,V304
0780032	TRIODE	9014C	V306,V313-V318,V320
0780323	TRIODE	KTB1369 T0-220IS	V308
0780322	TRIODE	KTD2061 T0-220IS	V307
0780321	TRIODE	KTB817 TO-3P	V311
0780320	TRIODE	KTD1047 TO-3P	V310
0670002	SILICON BRIDGE	RS405 KBU4J	B301
1940040	SOCKET	3P 3.96mm	XS1
1940004	SOCKET	5P 2.5mm	XS2
1940002	SOCKET	3P 2.5mm	XS5
2150282	FLAT CABLE	5P500 2.5 2 PIN,2P SHIELD,WITH NEEDLE,TOGETHER DIRECTION	XP3
2110179	LEAD	18# 340mm RED	OUT+
2110180	LEAD	18# 340mm BLACK	OUT-

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	LOCATION
1250018	RELAY	JH4237-024-2H DC24V	Y301
3580238	RADIATOR	150×90×32 SW-8	
4000297	SELF-TAPPING SCREW	PT 3×12 WHITE NICKEL	
5230462	MICA PAD	24×20×0.1	
4450012	BOLT PAD	F 3×7.2×0.5	
4490001	SPRING PAD	F 3	
5231100	PVC ROUND PAD	F 10×F 3.1×0.5 SINGLE-FACED WITH GLUE IN REAR SIDE	
2300006	FUSE	T4AL 250V	FL301,FL302
3870057	FUSE HOLDER		FL301,FL302
1564454	PCB	4PHOENIX SUB-3	
Phoenix SW-8 BLACK CHERRY RED			
INPUT BOARD		5447695	
0260063	CD	CD11 50V1U±20%5×11 2	C401,C402,C403
00002169	CARBON FILM RESISTOR	1/4W10K±5% BELT	R401
00002239	CARBON FILM RESISTOR	1/4W22K±5% BELT	R402,R403
1310033	STIR SWITCH	SK-22F25-G5	S401
1910045	TERMINAL SOCKET	AV3-8.4-2	BNC401
2150283	FLAT CABLE	5P150 2.5 2 PIN,4P SHIELD,WITH NEEDLE,TOGETHER DIRECTION	XP2
1564072	PCB	7PHOENIX SUB-0	
Phoenix SW-8 BLACK CHERRY RED			
CONNECTIVE BOARD		5448952	
0260747	NPCD	CD73 100V150U±10% 16×27 7.5	C100,C101
0000466	CARBON FILM RESISTOR	1/2W2200±5% SHAPED 12.5	R100-R107
0000471	CARBON FILM RESISTOR	1/2W1000±5% SHAPED 12.5	R108-R115
00000599	CARBON FILM RESISTOR	1/6W100K±5% BELT	R116,R118
00000459	CARBON FILM RESISTOR	1/6W20K±5% BELT	R117,R119
2150275	FLAT CABLE	3P220 2.5 2 PIN 2P SHIELD,REVERSE	XP2A
1564401	PCB	CPHOENIX SUB-0	
Phoenix SW-8 BLACK CHERRY RED			
CONTROL BOARD UNIT		5462476	
4450055	ROUND PAD	F 7.2×F 12×0.5	

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	LOCATION
3071870	ADJUST BUTTON	SW230(RU) SILVER	
3071871	POWER BUTTON	SW230(RU) SILVER	
3071872	DECORATIVE BOARD(SIDE)	SW230(RU) BLACK	
3060507	PREVENT GAS LEAKAGE COVER	SW230(RU)	
4000423	SELF-TAPPING SCREW	BB 3x10 H NICKEL	
4400028	NUT OF POTENTIOMETER	M7	
5230396	PYROCONDENSATION SLEEVE	F 30	
0200338	CERAMIC CAPACITOR	CT7 400VAC 472±20% 2E4 10mm	C201
0200378	CERAMIC CAPACITOR	@400VAC 472 ±20% 10mm VDE	C201
1350006	POWER SUPPLY SWITCH	PS4D-A-062	S201
2110581	LEAD	@18#100mm RED,DOUBLE DECK INSULATION UL	
1564070	PCB	APHOENIX SUB-0	
5448950	PCB SEMI-FINISHED PRODUCT	3PHOENIX-0 PHOENIX SW-10	
Phoenix SW-8 BLACK CHERRY RED			
AMPLIFIER UNIT		5462506)	
3872104	REAR BOARD	SW-8(RU)BLACK	
2140316	POWER SUPPLY CORD	@2P 2.25m 2.5A WITH FUSE CASE VDE	
3060454	PREVENT GAS LEAKAGE COVER	SW500 BLACK	
3872135	HEXAGONAL IRON COLUMN	M3x10 WHITE NICKEL	
3872134	HEXAGONAL IRON COLUMN	F 3.5x1.5 WHITE NICKEL	
3073292	PLASTIC BRACKET	F 15x12	
4000197	SELF-TAPPING SCREW	BT3x8 NICKEL	
4000153	SELF-TAPPING SCREW	BT 3x10 BLACK	
4000562	SELF-TAPPING SCREW	PWT 3x19x7H WHITE NICKEL	
4210003	MACHINE-TAPPING SCREW	PM 3x6 BLACK	
4210010	MACHINE-TAPPING SCREW	PWM 3x6x7 BLACK	
4210027	MACHINE-TAPPING SCREW	PM 2x6 BLACK	
4400057	CONNECTION COLUMN NUT	M4 WITH CHRYSANTHEMUMPAD	
3071597	INSULATED PRESS PIECE	DK1017S TRANSPARENCY	
3872088	CONNECTION COLUMN	DH-3062-45 RED WITHOUT WELD PIECE/NUT/PAD	
3872089	CONNECTION COLUMN	DH-3062-45 BLACK WITHOUT WELD PIECE/NUT/PAD	

MATERIAL CODE	MATERIAL NAME	SPECIFICATIONS	LOCATION
5235798	AIRPROOF FRAME	149.6×89.6×1.5 SPONGE	
5235664	AIRPROOF STRIP	159×10×1 SPONGE SINGLE-FACED WITH GLUE IN REAR SIDE	
5235476	LEFT AIRPROOF STRIP	332×14×1 SPONGE	
5235477	RIGHT AIRPROOF STRIP	332×14×1 SPONGE	
5235734	SOFT SPONGE SPACER	39×38×1.5 SINGLE-FACED,HARD	
2300004	FUSE	T3.15AL 250V	
5180216	NOT DMETAL OXIDE FILM RESISTOR GLUE LABELL	FUSE T3.15AL 250V	
5447695	PCB SEMI-FINISHED PRODUCT	7PHOENIX SUB-0 Phoenix sub	
5449077	PCB SEMI-FINISHED PRODUCT	4PHOENIX SUB-3 SW-8	
5448952	PCB SEMI-FINISHED PRODUCT	CPHOENIX SUB-0 PHOENIX SW-10	