



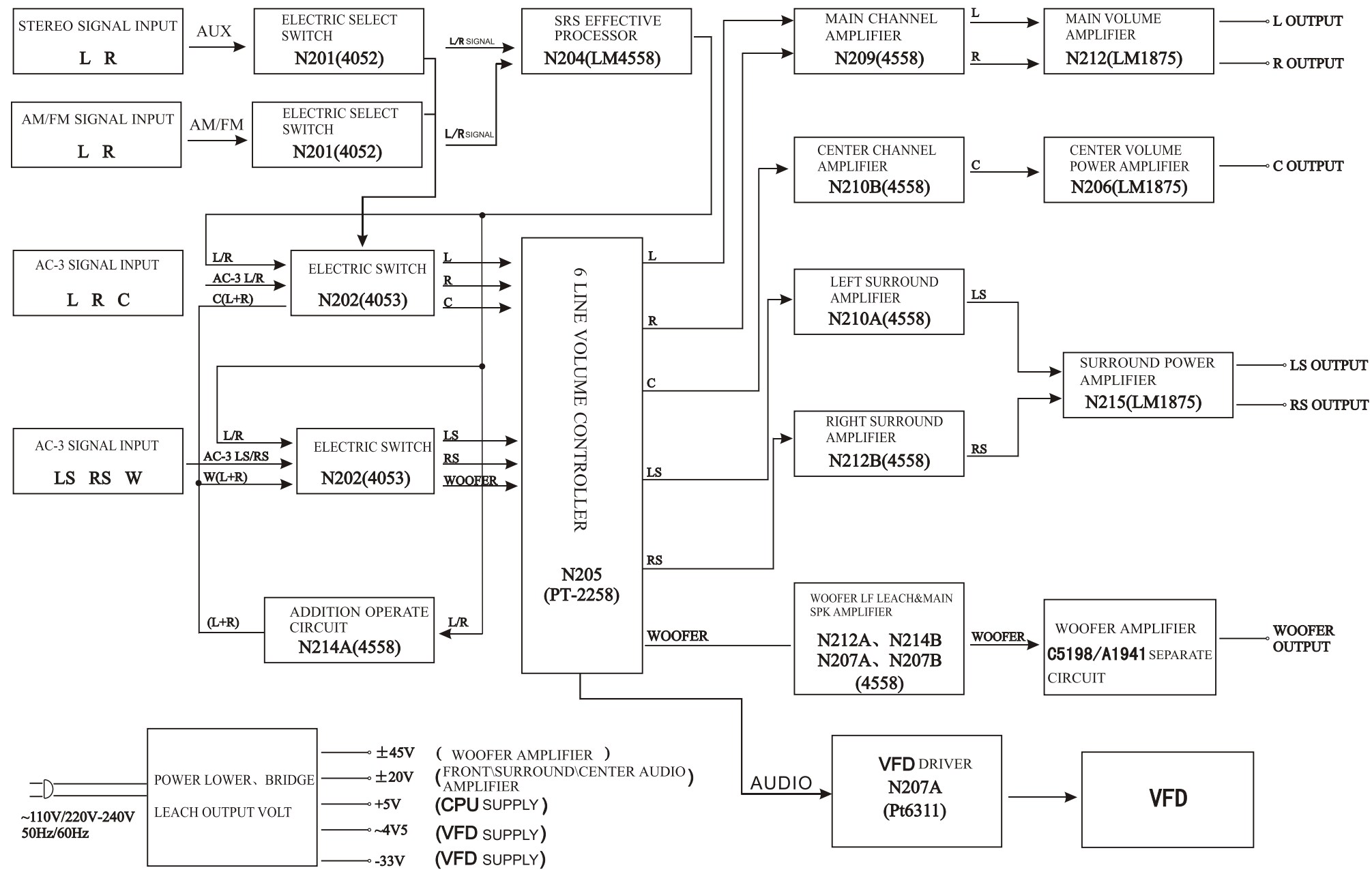
Home Theatre System Service Manual

MODEL: HTB-300

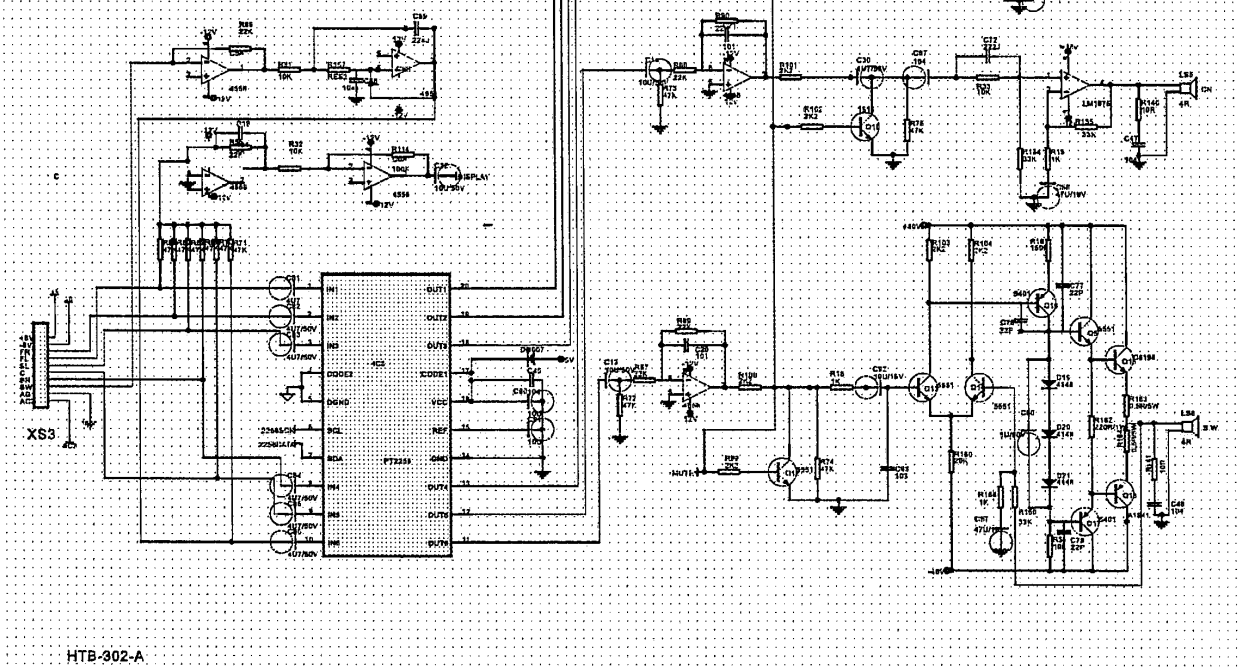
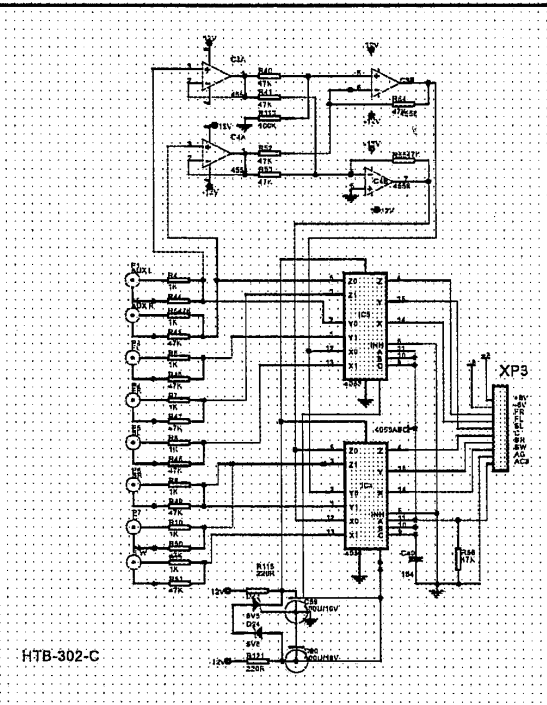
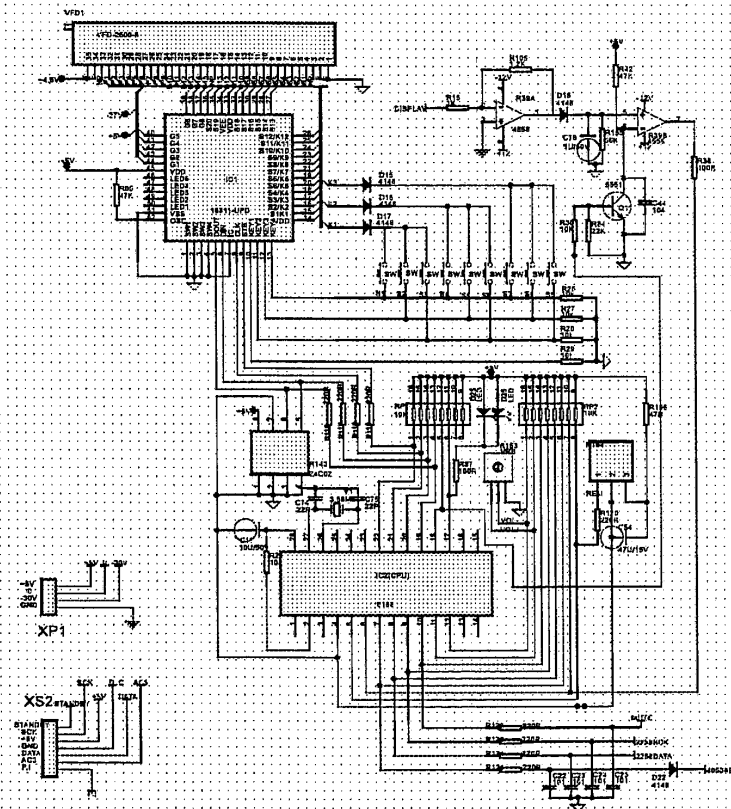
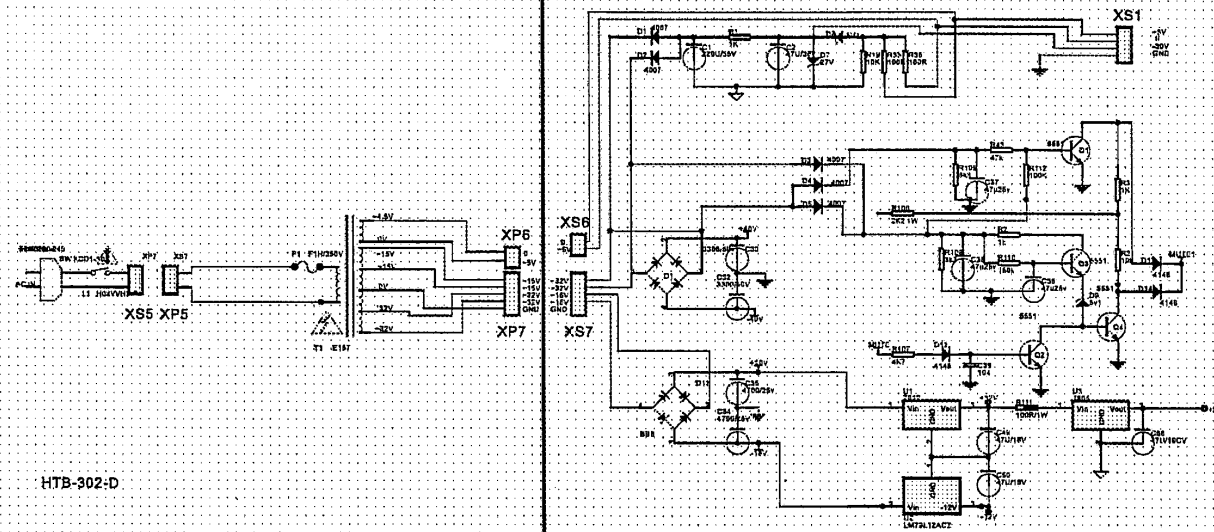
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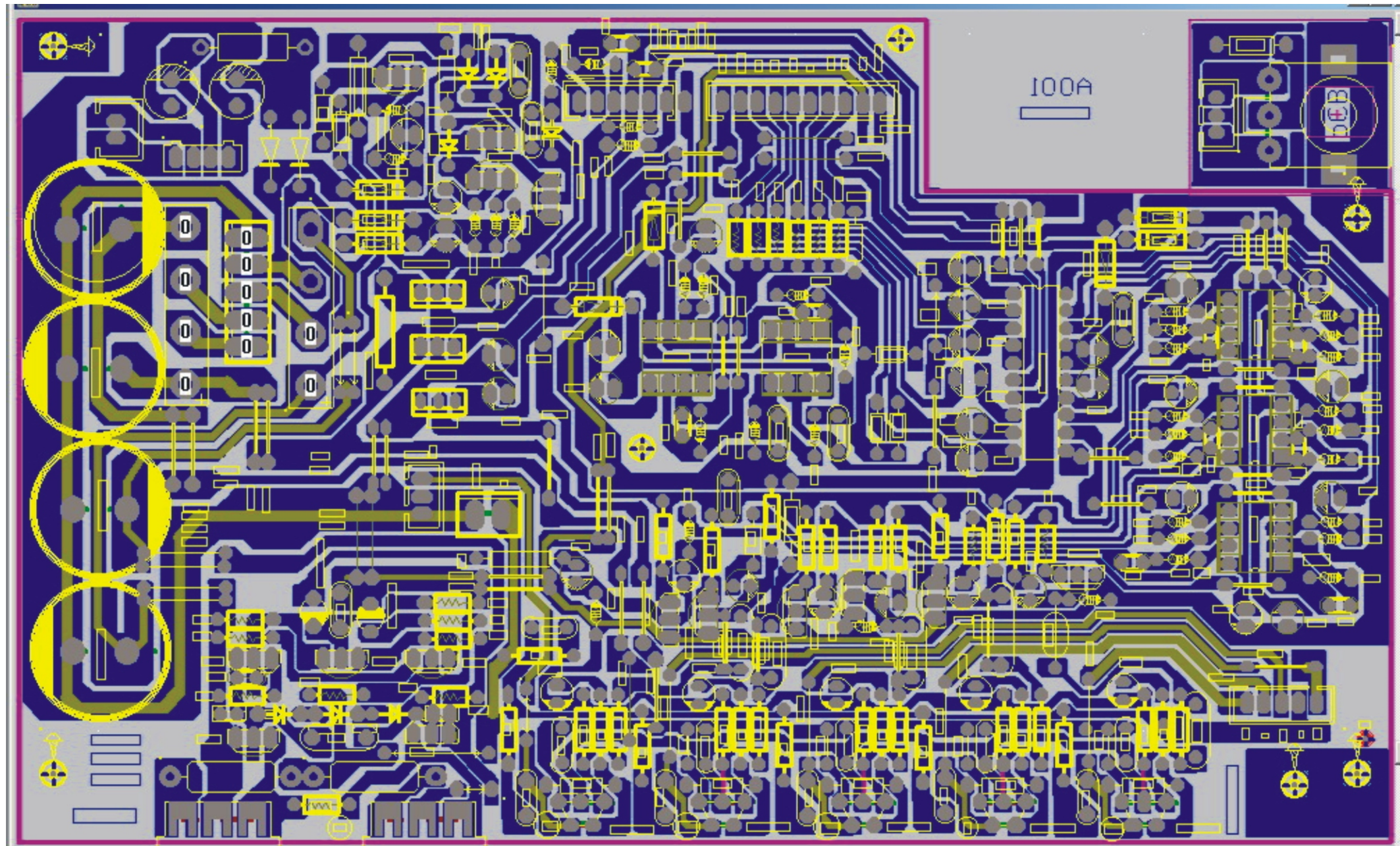
CIRCUIT PANE DIAGRAM



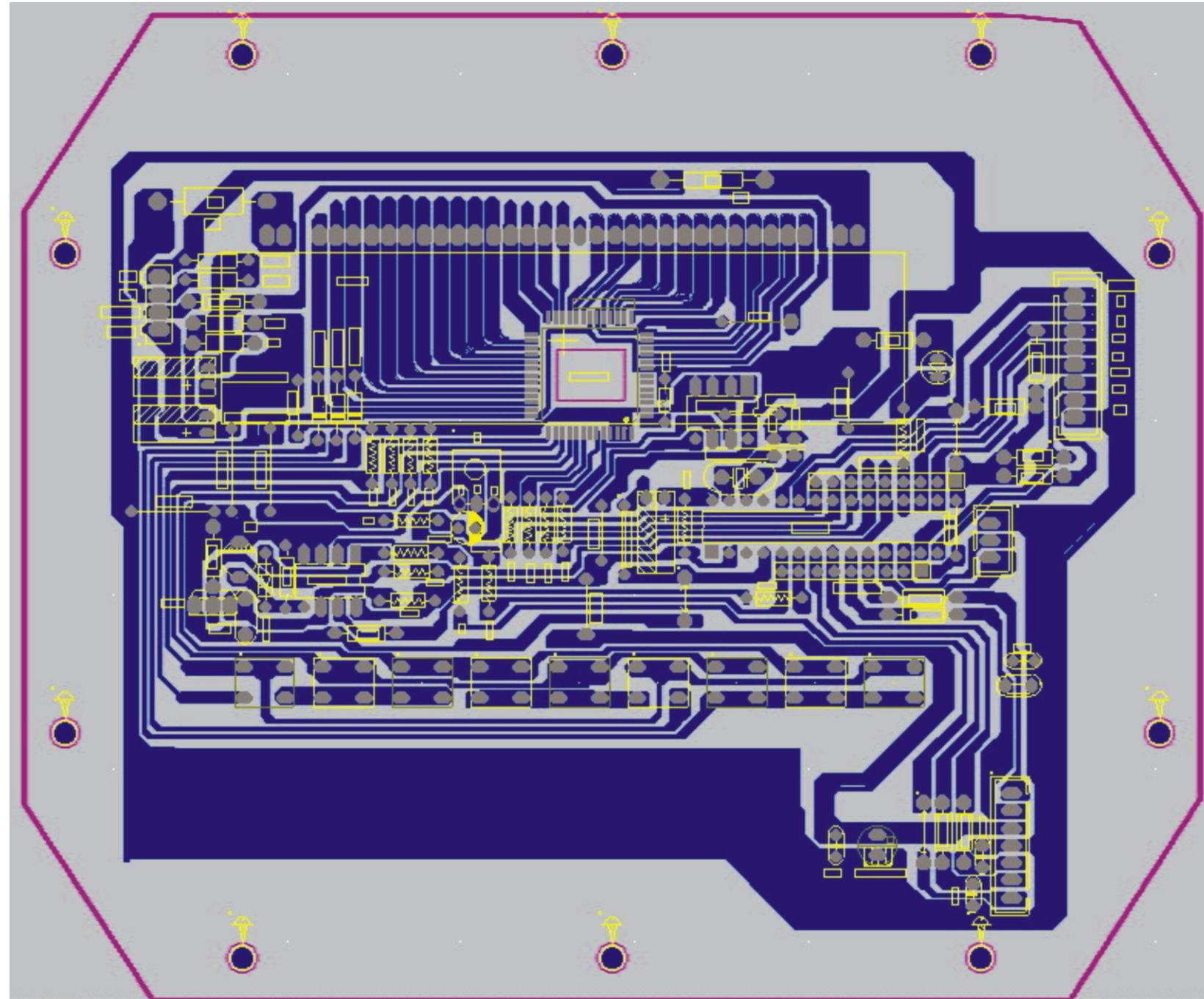
CIRCUIT SCHEME DIAGRAM



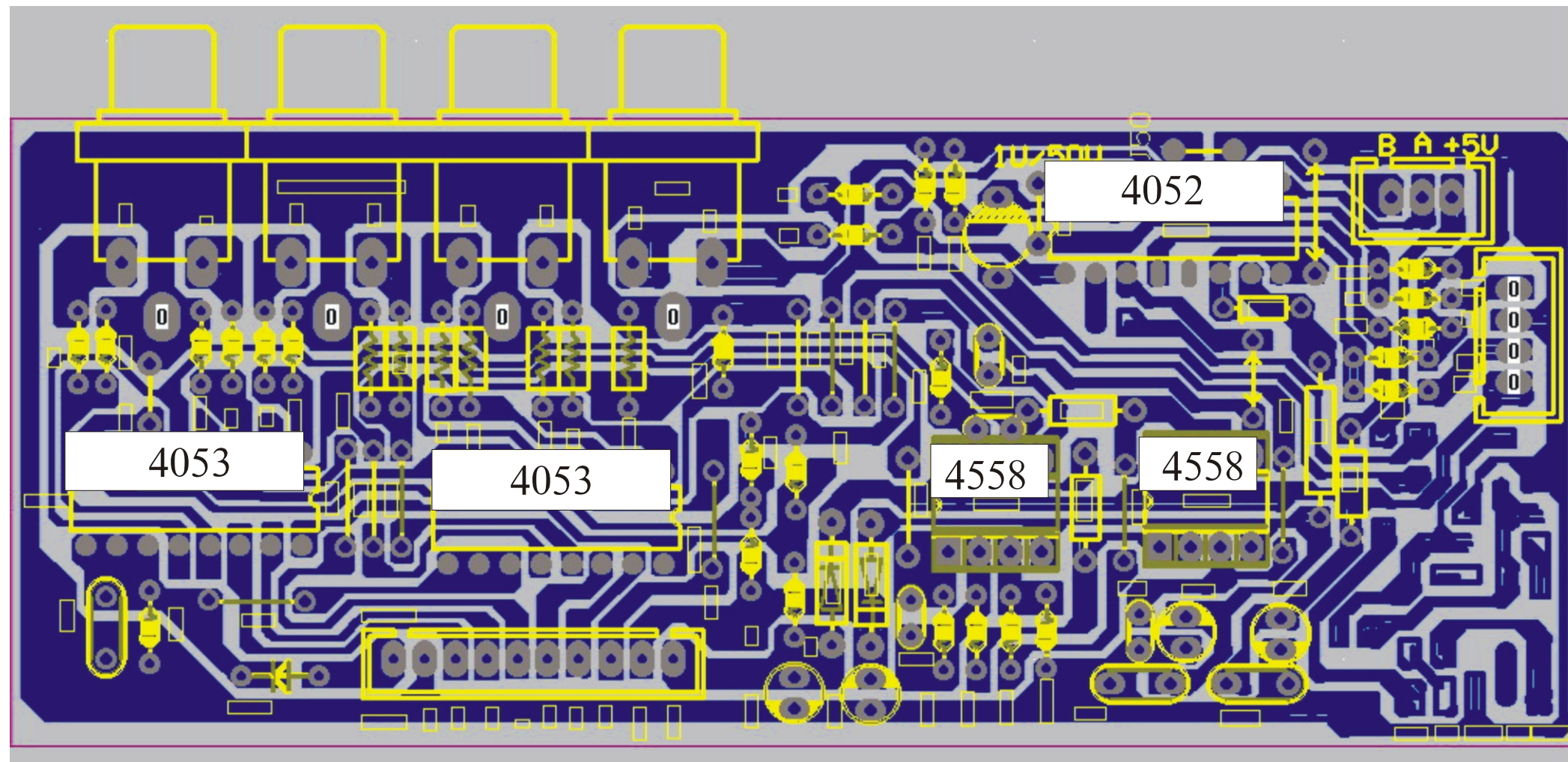
PCB BOARD



PCB BOARD



PCB BOARD



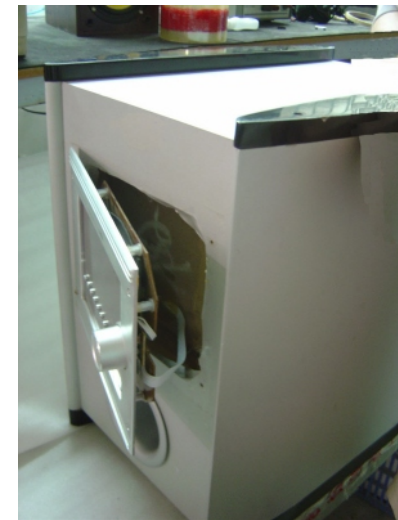
EXPLODED VIEW



1. Assemble woofer speaker



2. Woofer flare tube



3. Woofer aluminium panel



4. Woofer rear panel



5. Woofer transformer

CIRCUIT COMPOSEMENT

VFD Display Control and CPU control

VFD display include VFD1 (display), AMP9B(frequency sample circuit) IC2 (CPU) and ICI (PT6311 display drive) etc, related circuit, it mainly control the operation and keyboard scan, which includes 3 groups power, they are XP1(1) (2) pin, 5V AC filament power and XP1(3) pin -30V display cathode as well as Pic 2 U3 (7805) output +5V power, and VFD1, IC1 are main component of display and drive, among IC2(CPU) IC5 (memorizer) RF1(remote receiver, Y1 (3,58Mhz crystal) etc. IC2(CPU) are center. They all composed remote control receiver management and main unit operation control.

Power Supply

The power lowered by transformer and output dual 15V and dual 32V AC and 5V AC filament power, the dual 15V AC after commute and bridge output DC $\pm 18V$ power for C/S power amplifier, dual 32V AC power after commute and bridge output $\pm 40V$ DC power for woofer amplifier and at the same time, $\pm 18V$ DC pass U1(7812 IC) and U2 (7912 IC) output $\pm 12V$ for AMP (4558), U3 (7805) output +5V stalbe power for CPU and drive IC.

Input

Mainly include IC4, IC5 (4053 electric switch) C3A, C3B, C4B etc IC4, IC5 (4053) is controlled by CPU high and low directly control the signal source as well as stereo input (AUX input) change to 5.1 CH process.

Volume Control and Amplfier

When input signal to IC3 (PT2258-6 channel electric volume switch) (1) (2) (3) (8) (9) (10) pin IC3 receive CPU data and then adjust the related volume and control, pass by IC3 and all channel signals were amplified, finally pass by N1, N2, N3, N4, N5 (LM1875-AMP IC) and woofer power amplifier for corresponding power amplify then recover to original voice through speaker.

SECOND PART TYPICAL MALFUNCTION ANALYSE AND REPAIR WAY

No Display, Input Signal Without Any Response

Analyse: Because the unit display is directly controlled by CPU, when input signal and no response, then the problem must lies in CPU surround circuit and related parts.

Repair:

First check U3(7805) 3 pins whether have stable +5V output, (if no, then use divide way to make sure its before or after U3, if U3 disconnected and its load and voltage is incorrect, test if U3(1) pin have +12V (usually its normal) remove C58 (47uF/16V) have leak power phenomenon then can conclude U3 (7805) damaged, replace with a new one.

If U3 disconnected and its load power is normal, then the problem lies in CPU and display drive.

Gradually remove over loaded ICs, replace with new one and then solve the problem.

If power is normal, still no display and when input signal no response, then can conclude its IC2 (CPU) damaged, replace it.

No Output and Have Display

Analyse: It has display proves the display drive and control circuit basically normal, the problem usually lies in electric volume.

Repair:

First use probe to visit IC3 (PT2258 electric volume) (6) (7) pin it should have relevant clock and data impulse, enlarge the volume (any channel) its correpondent channel should have output (when +5V is normal). If it doesn't have any output, then can conclude IC3 is damaged, replace U39(PT2253) and the problem can be solved.

Woofers or C/S both Have Noise Output

Analyse: Because its both have noise output, that means its not the driver units problem, its should be the power supplier.

Repair:

Mainly inspect the power supply if woofer have noise (refer to Pic 4 power supply), use multimeter to test C33 and C32 voltage, can find out that there is one voltage lowered distinctly, this is because C33 or C32 invalid or weld off, replace it can solve the problem. If C/S and woofer both have noise, the inspection way is same as the woofer, but stress on $\pm 18V$ power supply.

Reception of Radio Parts

It is mainly accomplished by receiver, related control and power supply. The receiver will finish the related transfer and control after received the data pulse and clock of the CPU.

No reception of radio

Analyse: The circuit is more singleness, so it is mainly inspect hitch by the receiver.

Repair: First inspect receiver plate and power of 12V is natural, make sure receiver power is natural, inspect clock port and data port have opposite pulse signal by probe, it is natural, exclude the possibility of cable make sure receiver is damaged, the hitch is obviated immediately by exchange the receiver.

CIRCUIT ANALYSE

All procedures accomplished with electric scheme diagram/ PCB diagram/ pane diagram and instruction manual.

Main channel signal process analyse: AUX/AC-3 signal is input by panel C lotus plug and then transferred to IC4053 and IC4053 control the signal channel.

Signal passed to Panel A to test 10P as well as other channel signals and supply power is normal.

All signals passed by 10P and introduced to Panel A entered electric volume IC PT2258 (1, 2, 3, 8, 9, 10 foot) adjust the volume and out output by (11, 12, 13, 18, 19, 20 foot) then amplified by 4558 (input 2.6 foot, output by 1.7 foot). Finally the signal passed by electrical audian 1815' and 1875 amplified by woofer 1941/5198.

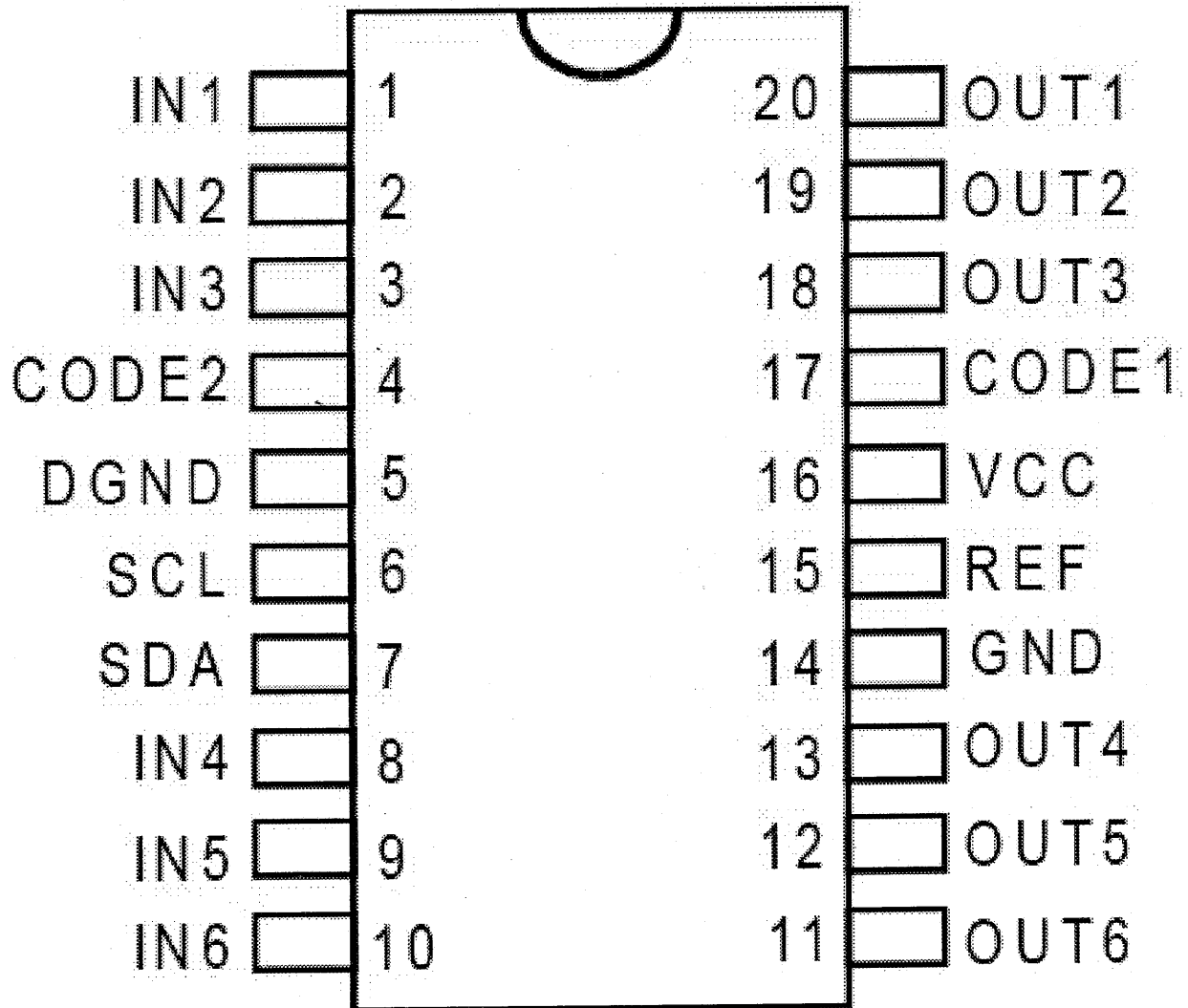
Display electrical circuit

Test CPU2 foot power +5V normal 26, 27 foot crystal vibration 5 foot received the orders from infrared collectors. 4, 6, 18 foot control the VFD display. CPU control each function after testing and receiving orders.

HOW TO REPAIR SPEAKERS MALFUNCTION

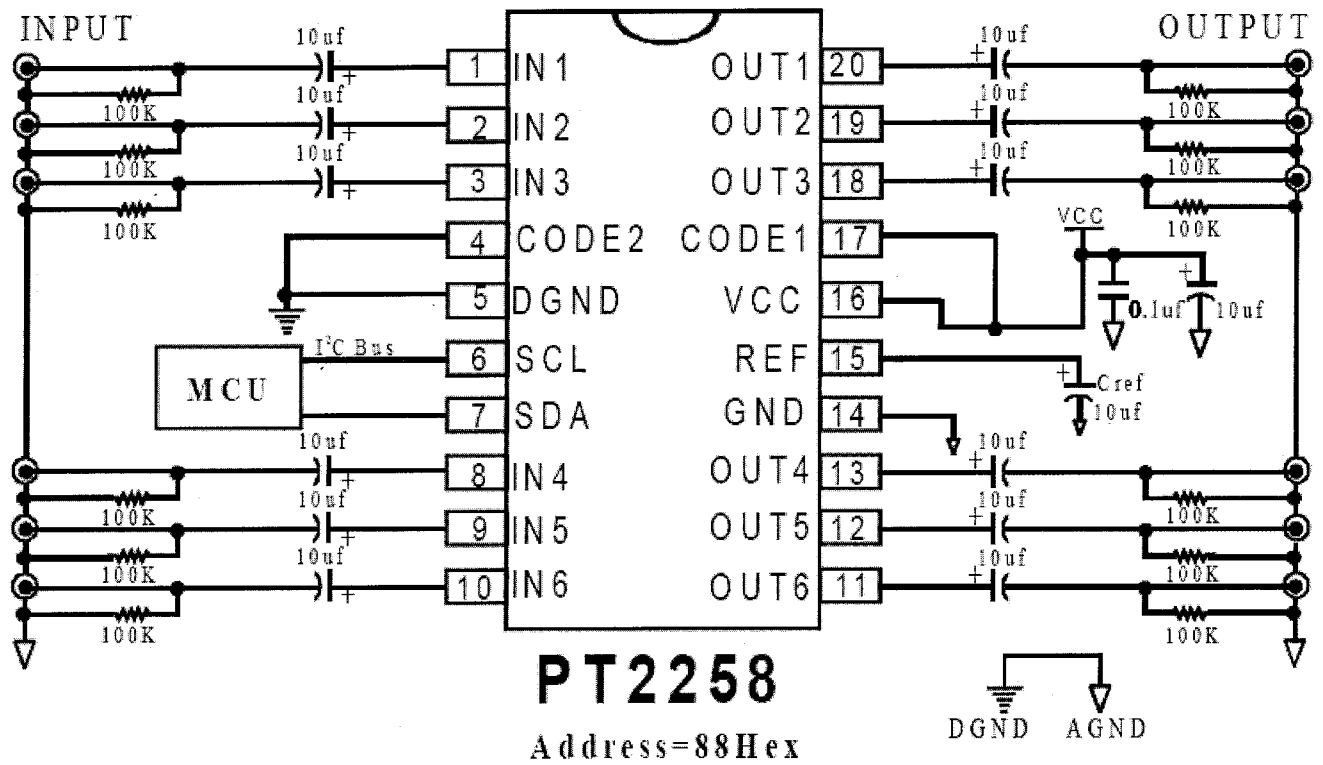
Reason	Repair step
No voice	Speaker burned, speaker output line broke. Collectors with amplifier is incorrect.
Low Voice	Speaker quality is poor, woofer phase is in opposite position.
Voice distortion	Speaker magnetic loop deflection or speaker magnetic iron part deflection; speaker plate distortion; amplifier power is too large.
Voice noise	Speaker plate broke; speaker case gap broke; speaker rear panel loose; speaker grill loose.
High Frequency poor	High frequency crossover capacitor quality is poor; speaker unit is poor; grill incorrect use.
Low Frequency poor	Frequency crossover net is bad, low frequency speaker unit is poor.
Echo Voice poor	Speaker Location is incorrect; two speaker collector +- is incorrect.

PIN CONFIGURATION



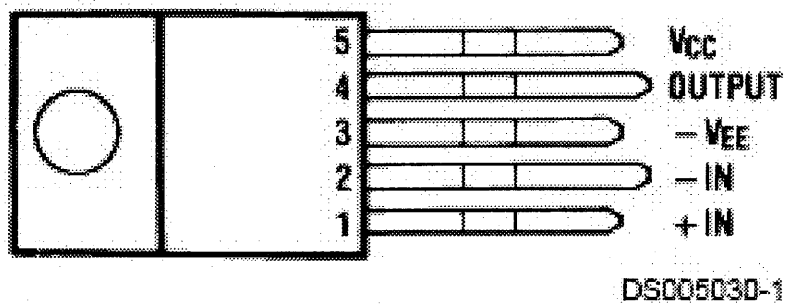
PT2258

APPLICATION CIRCUIT



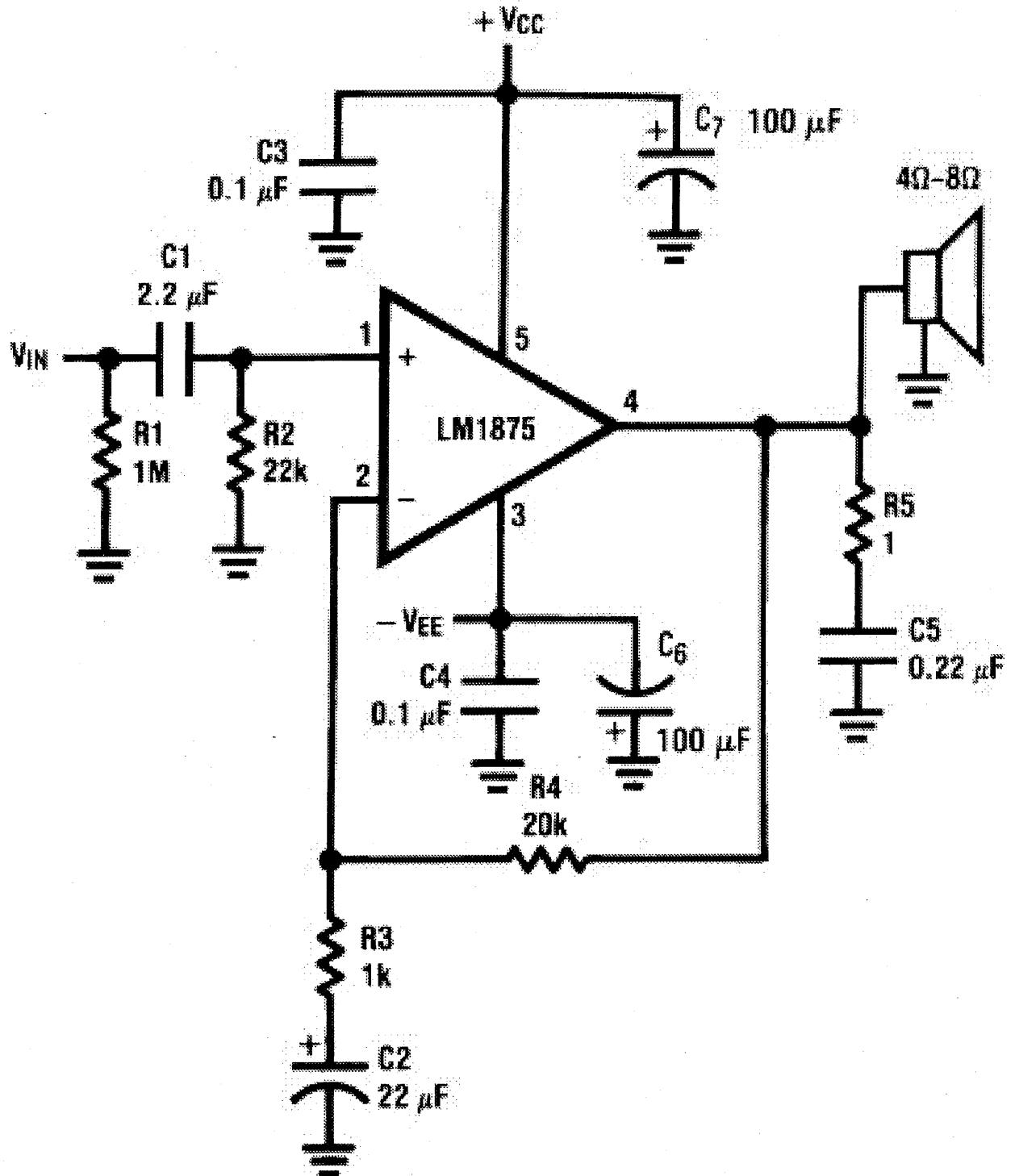
CONNECTION DIAGRAM

Package	Ordering Info	NSC package Number
For Straight Leads	LM1875T SL108949	T05A
For Stagger Bend	LM1875T LB03	T05D
For 90° Stagger Bend	LM1875T LB05	T05E
For 90° Stagger Bend	LM1875T LB02	TA05B



Front View

TYPICAL APPLICATION



ELECTRICAL CHARACTERISTICS

$V_{CC}=+25V$, $-V_{EE}=-25V$, $T_{AMBIENT}=25^{\circ}C$, $R_L=8\Omega$, $A_V=20(26dB)$, $F_o=1kHz$, unless otherwise specified.

Parameter	Conditions	Typical	Test Limits	Units
Supply Current	$P_{out}=0W$	70	100	MA
Output Power (note 2)	THD=1%	25		W
THD (NOTE 2)	$P_{OUT}=20W$, $F_o=1kHz$	0.015	0.4	%
	$P_{OUT}=20W$, $F_o=20kHz$	0.05		%
	$P_{OUT}=20W$, $R_L=4\Omega$, $f_o=1kHz$	0.022		%
	$P_{OUT}=20W$, $R_L=4\Omega$, $f_o=20kHz$	0.07		%
Offset Voltage		± 1	± 15	MV
Input Bias Current		± 0.2	± 2	μA
Input Offset Current		0	± 0.5	μA
Gain-Bandwidth Product	$F_o=20kHz$	5.5		MHz
Open Loop Gain	DC	90		dB
PSRR	V_{CC} , 1kHz, 1Vrms	95	52	dB
	V_{EE} , 1kHz, 1 Vrms	83	52	dB
Max Slew Rate	20W, 8 Ω , 70kHzBW	8		V μs
Current Limit	$V_{OUT}=V_{SUPPLY}-10V$	4	3	A
Equivalent Input Noise Voltage	TS=600 Ω , CCIR	3		$\mu Vrms$