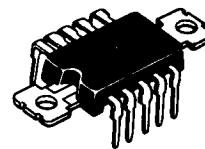


HA1372

5.5W AUDIO POWER AMPLIFIER

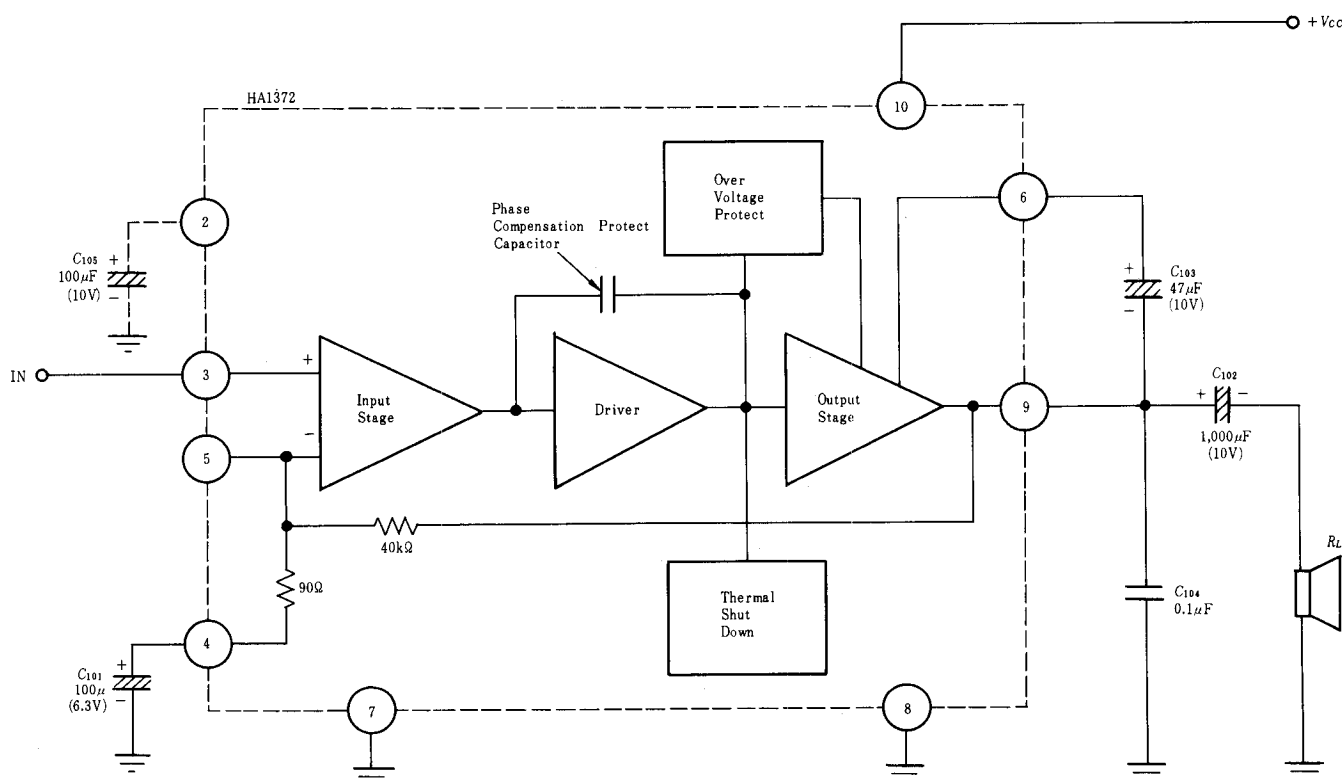
■ FEATURES

- Due to dual-in-line package, its package is rather small in height. And it is quite favorable for a set which is limited in its height.
- Only a few number of external components:
 - three electrolytic capacitors
 - one polyester film capacitor
- Thermal shut-down circuit provided:
If the chip temperature reaches 150°C , the output power and current drain are automatically reduced to maintain the device safely.
- Overvoltage handling capability up to 40 volts for 200 ms pulse duration
- No damage for reverse insertion on the pc-board
- Using BTL connection, output power of 13 watts at 10 percent distortion is obtained with 4 ohm load at 13.2V.



(DP-10T)

■ BLOCK DIAGRAM AND TYPICAL APPLICATION CIRCUIT



- Notes:
1. Terminal 1 has no connection.
 2. Terminal 7 is input stage GND, and terminal 8 is output stage GND.
 3. Recommended capacitor for C_{104} is a non-inductive polyester film type or the equivalent.
 4. When the shock noise occurring on supplying the power is to be reduced, the addition of C_{103} ($100\mu\text{F}$) is desirable. However, C_{101} is changed to $47\mu\text{F}$ when the C_{103} is used.
 5. The terminal 5 is for gain adjustment. When a resistor is connected between pin 5 and 4, G_V becomes higher. When a resistor and a capacitor are series connected between pin 5 and 9, G_V is reduced. Lower G_V than 40dB is not recommended.

■ ABSOLUTE MAXIMUM RATINGS ($T_a=25^{\circ}\text{C}$)

Item	Symbol	Rating	Unit	Notes
DC Supply Voltage	V_{cc}	18	V	1
Peak Supply Voltage	V_{surge}	40	V	2
Output Current	$I_{o(peak)}$	4.5	A	3
Power Dissipation	P_T	7.2	W	4
Junction Temperature	T_j	150	$^{\circ}\text{C}$	
Thermal Resistance	θ_{j-c}	10	$^{\circ}\text{C/W}$	
Operating Temperature	T_{opr}	-20 to +70	$^{\circ}\text{C}$	5
Storage Temperature	T_{stg}	-55 to +125	$^{\circ}\text{C}$	

Notes : 1. Standard operating voltage is 13.2V

2. Value at $t=200\text{ms}$

3. $I_{o(peak)}$ is determined from the ratio of V_{cc} to R_L .

4. Value at $T_c=78^{\circ}\text{C}$

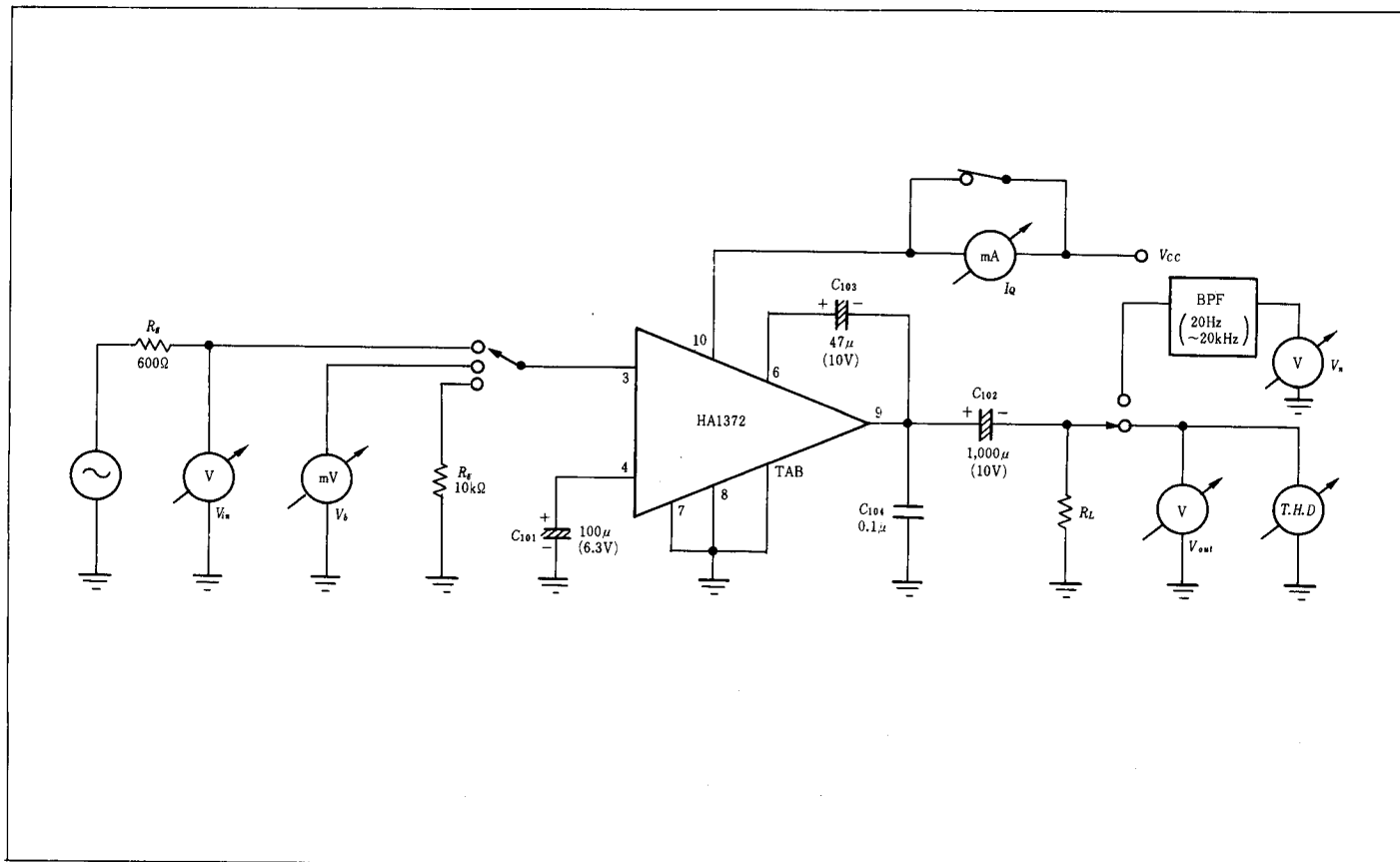
5. The value when 2.8W are dissipated mounted on an aluminium plate ($20\text{cm}^2 \times 1.5\text{mm}$). 2.8W is a maximum dissipation at $V_{cc}=13.2\text{V}$

■ ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}\text{C}$)

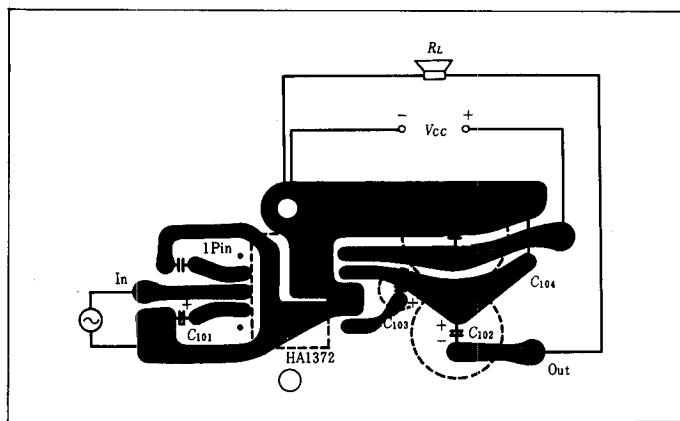
Item	Symbol	Test Condition	min	typ	max	Unit
Quiescent Current	I_q	$V_{in}=0$	—	30	60	mA
Input Bias Voltage	V_b	DC Biasing point between ④ and GND	—	—	20	mV
Voltage Gain	G_v	$f=1\text{kHz}$	50	52.5	55	dB
Output Power	P_{out}	$f=1\text{kHz}$, $T.H.D.=10\%$	4.5	5.5	—	W
Total Harmonic Distortion	$T.H.D$	$f=1\text{kHz}$, $P_{out}=0.5\text{W}$	—	0.2	1.5	%
Noise Output	V_N	$R_g=10\text{k}\Omega$, $BW=20$ to 20kHz	—	—	2.0	mV
Input Resistance	R_{in}	$f=1\text{kHz}$	—	24	—	$\text{k}\Omega$

Note : Standard test conditions are ; $V_{cc}=13.2\text{V}$, $R_L=4\Omega$, $R_g=600\Omega$

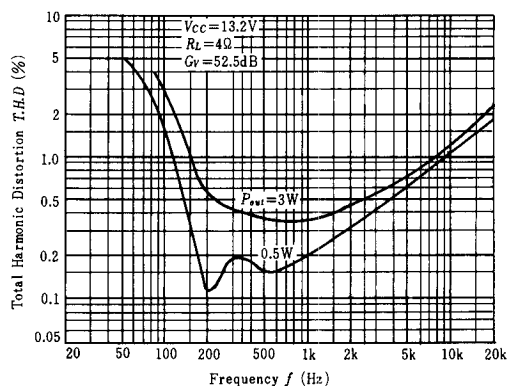
■ TEST CIRCUIT



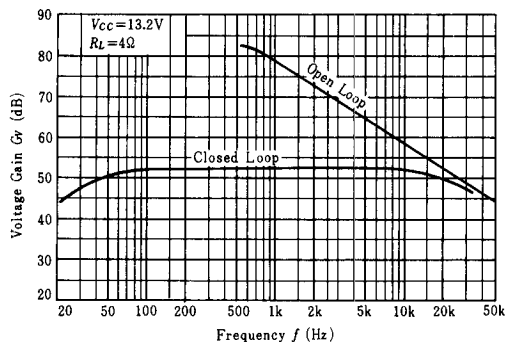
■ PC-BOARD LAYOUT PATTERN (Top View)



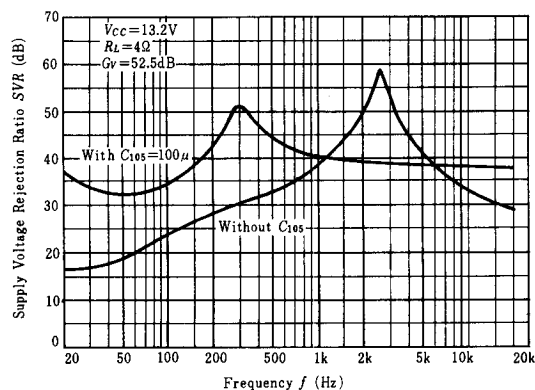
TOTAL HARMONIC DISTORTION VS. FREQUENCY



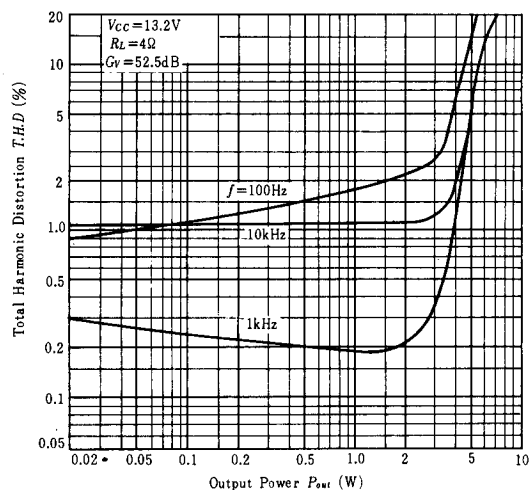
VOLTAGE GAIN VS. FREQUENCY



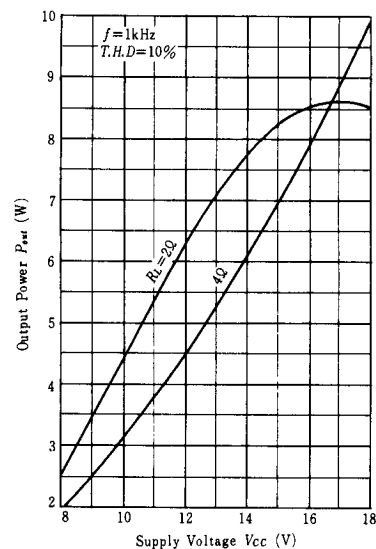
SUPPLY VOLTAGE REJECTION RATIO VS. FREQUENCY



TOTAL HARMONIC DISTORTION VS. OUTPUT POWER



OUTPUT POWER VS. SUPPLY VOLTAGE



OUTPUT POWER VS. CASE TEMPERATURE

