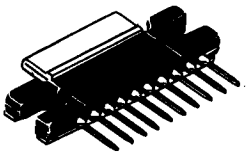
HA1368/R

5.3W AUDIO POWER AMPLIFIER

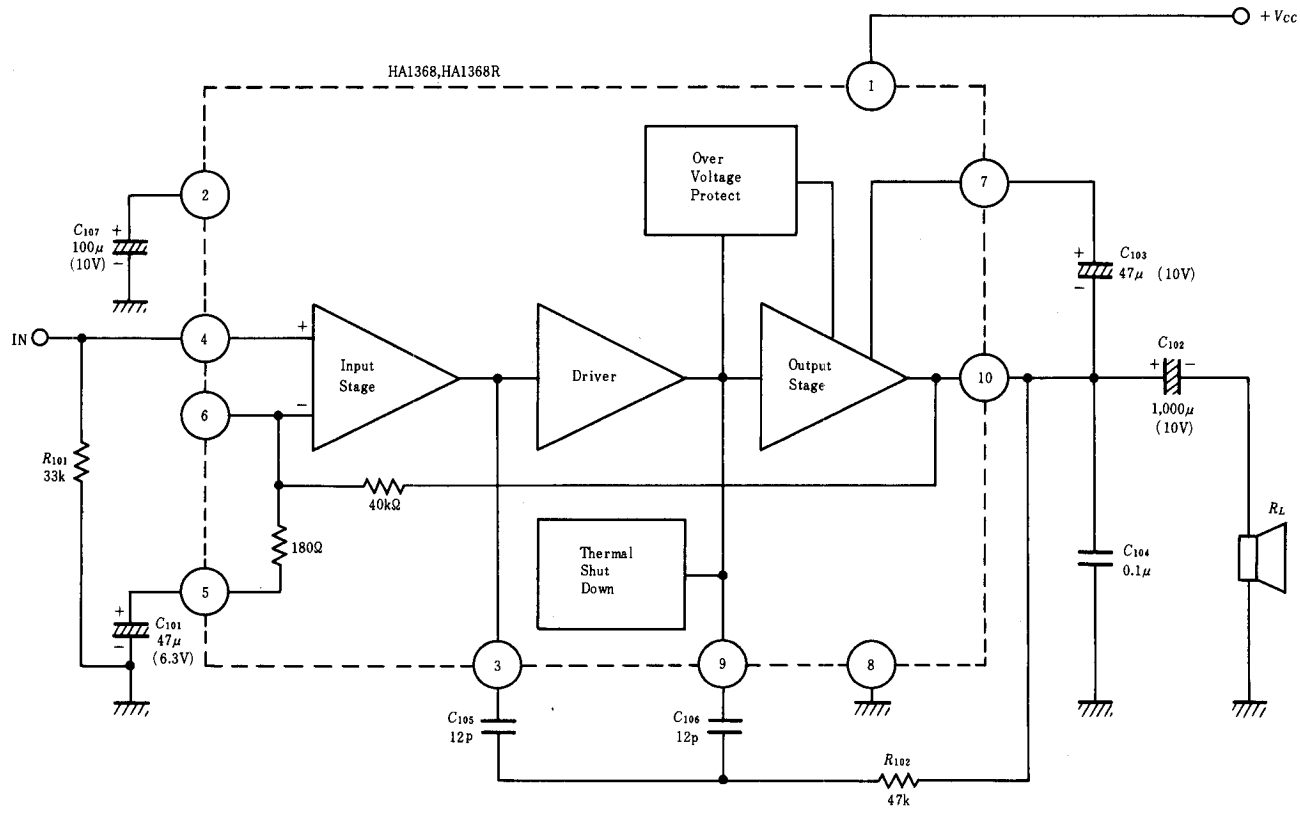
■ FEATURE

- Two kinds of pin configulation are available; normal (HA1368) and reverse (HA1368R) for easier layout design of printed circuit board when used in stereo applications
- Very low distortion in the wide range of frequency; Total harmonic distortion is lower than 0.5% (typ. 0.2%) when output power is from 0.1 watts to 3 watts and frequency range is from 100Hz to 10kHz.
- Easy to assemble a chassis by heat-sink, due to the single-in-line package with no electrical isolation.
- 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 printed circuit board.



(SP-10TA)

■ BLOCK DIAGRAM AND TYPICAL APPLICATION CIRCUIT



Notes: 1. Recommended capacitor for C_{104} is a non-inductive polyester film type or the equivalent.
2. The terminal 6 is for gain adjustment. When a resistor is connected between pin 6 and 5, G_V becomes higher. When a resistor and capacitor are series connected between pin 6 and 10, G_V is reduced.

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°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	°C	
Thermal Resistance	θ_{j-c}	10	°C/W	
Operating Temperature	T_{opr}	−20 to +70	°C	5
Storage Temperature	T_{stg}	−55 to +125	°C	

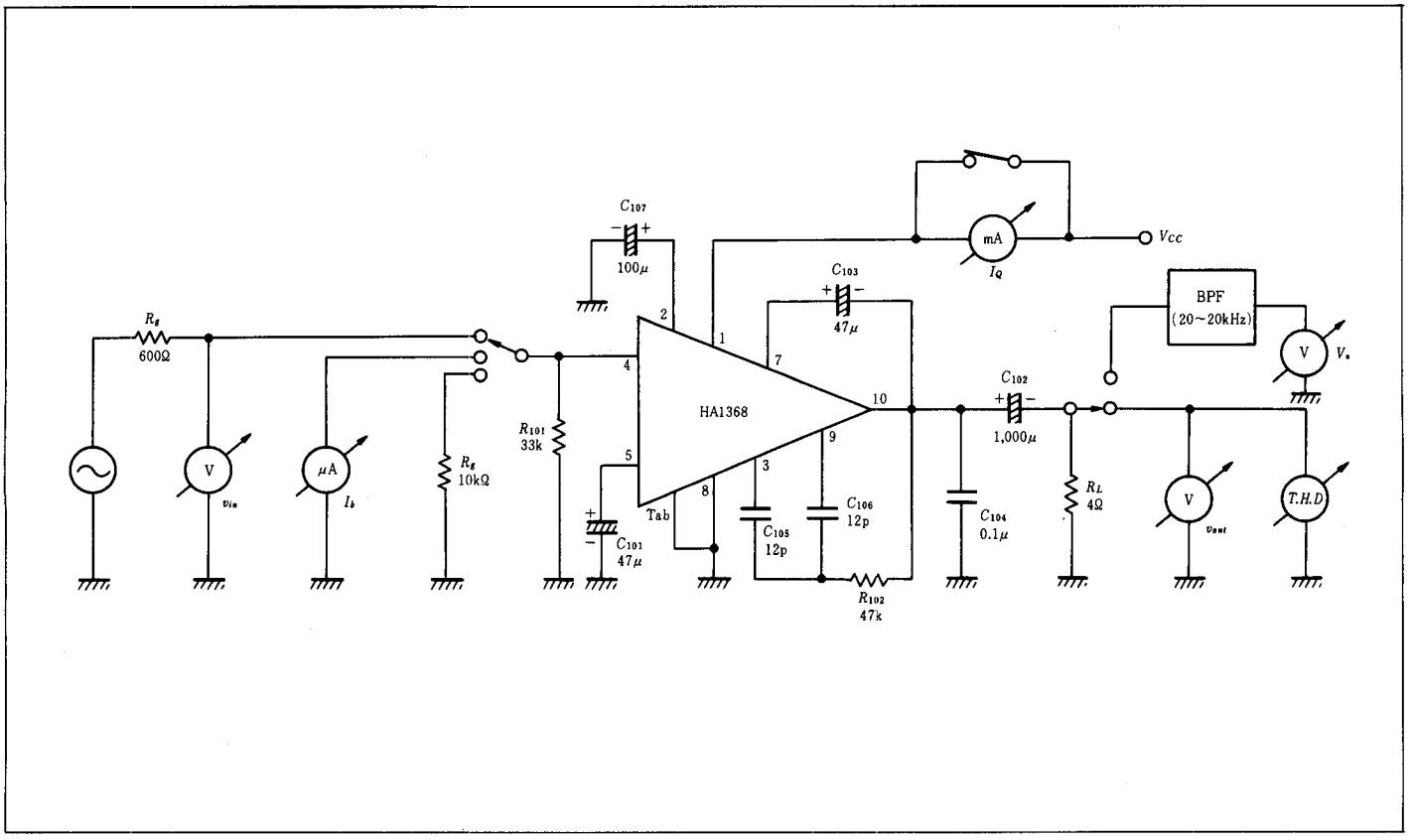
Notes : 1. Standard operating voltage is 13.2V
2. t=200ms
3. $i_{O(peak)}$ is determined from the ratio of V_{CC} to R_L.
4. Value at T_C=78°C
5. The value when 2.8 watts are dissipated mounted on an aluminium plate (20cm² × 1.5mmt). 2.8watts is a maximum dissipation at V_{CC}=13.2V

■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

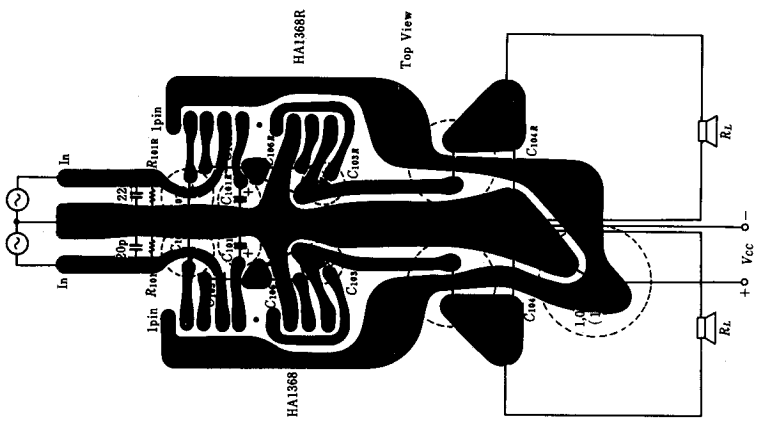
Item	Symbol	Test Conditions	min	typ	max	Unit
Quiescent Current	I_Q	V_{in}=0	—	40	80	mA
Input Bias Current	I_b		—	—	2	μA
Voltage Gain	G_V	f=1kHz	44.5	47	49.5	dB
Output Power	P_{out}	f=1kHz, $T.H.D$=10%	4.5	5.3	—	W
Total Harmonic Distortion	$T.H.D$	f=1kHz, P_{out}=0.5W	—	0.08	0.5	%
Noise Output	V_N	Rg=10kΩ, BW=20 to 20kHz	—	—	1.2	mV
Input Resistance	R_{in}	f=1kHz	—	33	—	kΩ

Note : Standard test conditions are,
V_{CC}=13.2V, R_L=4Ω, R_g=600Ω

■ TEST CIRCUIT



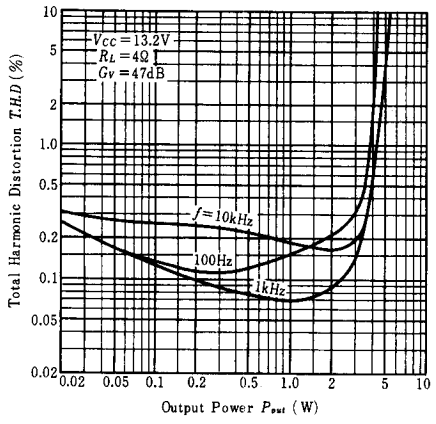
■ PC-BOARD LAYOUT PATTERN



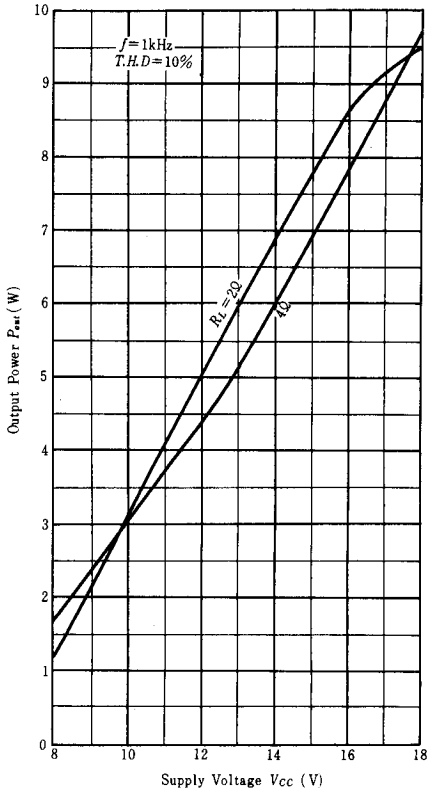
(Bottom View)

Note: Resistance of a printed circuit board must be taken special care to obtain as small value as possible.

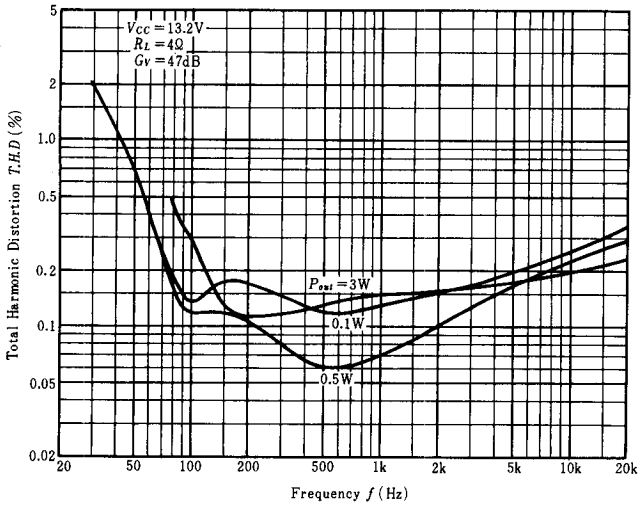
TOTAL HARMONIC DISTORTION VS. OUTPUT POWER



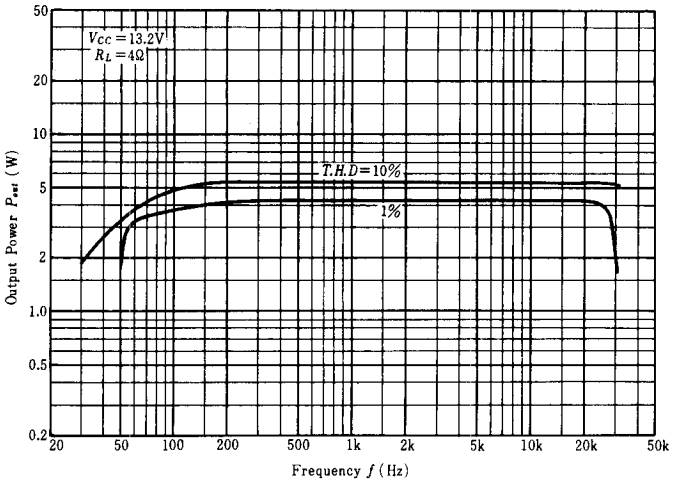
OUTPUT POWER VS. SUPPLY VOLTAGE



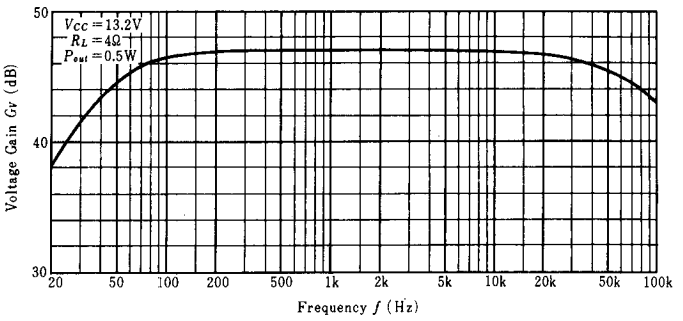
TOTAL HARMONIC DISTORTION VS. FREQUENCY



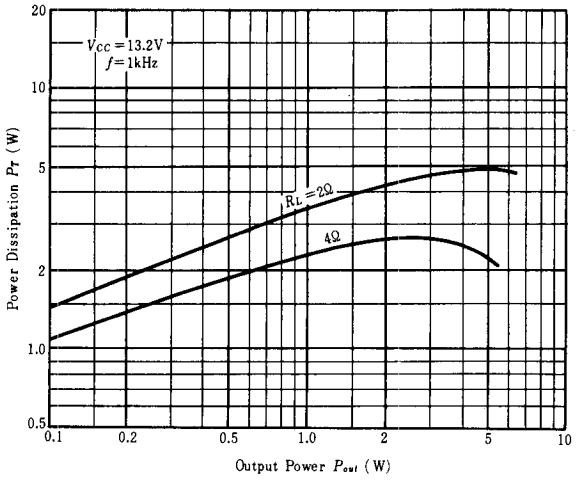
OUTPUT POWER VS. FREQUENCY



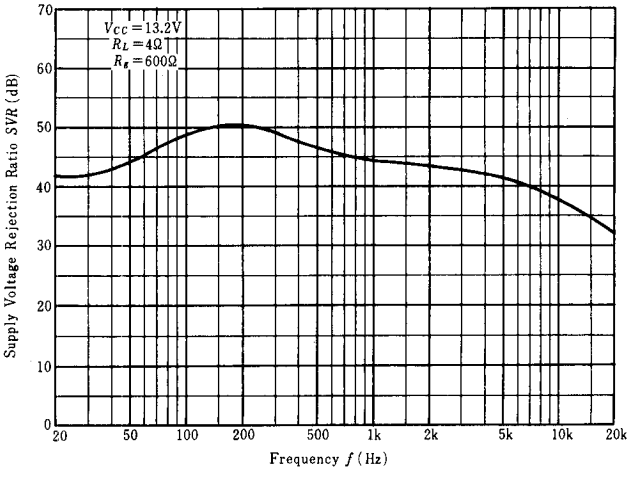
VOLTAGE GAIN VS. FREQUENCY



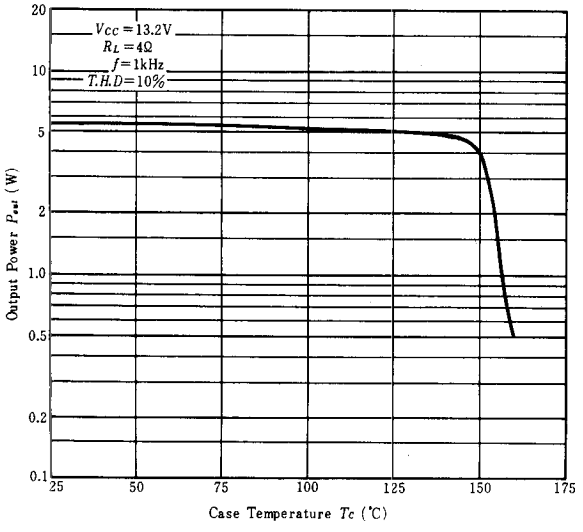
POWER DISSIPATION VS. OUTPUT POWER



SUPPLY VOLTAGE REJECTION RATIO VS. FREQUENCY



OUTPUT POWER VS. CASE TEMPERATURE



QUIESCENT CURRENT VS. SUPPLY VOLTAGE