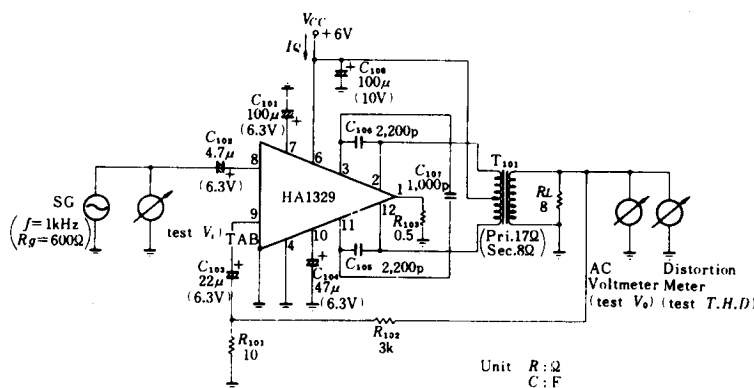


■ ELECTRICAL CHARACTERISTICS ($V_{CC}=6V$, $f=1kHz$, $R_g=600\Omega$, $R_L=8\Omega$, $T_a=25^\circ C$)

Item	Symbol	Test Condition	min	typ	max	Unit
Quiescent Current	I_0		—	27.5	55	mA
Voltage Gain	G_v		—	49	—	dB
Output Power	P_{out}	$T.H.D=10\%$	1.8	2.5	—	W
Total Harmonic Distortion	$T.H.D$	$P_{out}=0.1W$	—	0.5	2.0	%
Output Noise Voltage	V_n	$R_g=0\Omega$	—	0.38	1.5	mV
Input Resistance	R_{in}		—	10	—	k Ω
Hum Rejection*	HR	$f=100Hz$, $R_g=0\Omega$	—	50	—	dB

*Connect to AC voltage ($f=100Hz$, $v=-10dBm$, $R_g\leq 27\Omega$) in series the V_{CC}

■ TEST CIRCUIT



- Notes:
1. External Resistance Accuracy: $\pm 1\%$
 2. External Capacitance Accuracy: $\pm 10\%$
 3. AC Voltmeter Accuracy: $\pm 1\%$
It is an average response voltmeter

■ NOTES ON EXTERNAL PARTS

● Resistors

R_{101} and R_{102} are resistors used to determine voltage gain. It is possible to select an arbitrary voltage gain by varying the ratio of R_{102}/R_{101} . However, when this ratio is made greater than the recommended value, it produces degrading effects on the distortion factor, hum rejection ratio, and signal-to-noise ratio; and when this ratio is made smaller than the recommended value, there is a risk of oscillation due to excessive feedback; thus, variation of this ratio may exert an ill effect to a large extent. Also, when R_{101} is made greater with the ratio of R_{102}/R_{101} left unchanged, feedback occurs inside the IC to decrease release voltage gain, thus producing impairing effects on characteristics.

R_{103} is a current limiter resistor for a power transistor. Exercise care never to make R_{103} less than 0.47Ω .

● Capacitor

C_{101} is a capacitor used to remove supply ripple voltage. A withstand voltage of 6.3V is sufficient, since terminal voltage on pin 7 will not exceed 6V.

C_{102} is used for input coupling.

C_{103} is a capacitor for AC feedback. When this capacitance is made smaller than the rated value, it produces impairing effects on distortion in the low-frequency area; if this capacitance is made greater, a louder "popping" noise is produced when the power is turned ON.

C_{104} is used as an AC filter of a DC feedback amplifier. To increase this capacitance results in extension of the period of time from turning ON the power to arrival at a steady bias. To decrease this capacitance causes feedback to occur in the low frequency area, decreasing the gain; thus, impairing effects are produced on the distortion factor and so on.

C_{105} through C_{107} are phase compensator capacitors.

● Transformers

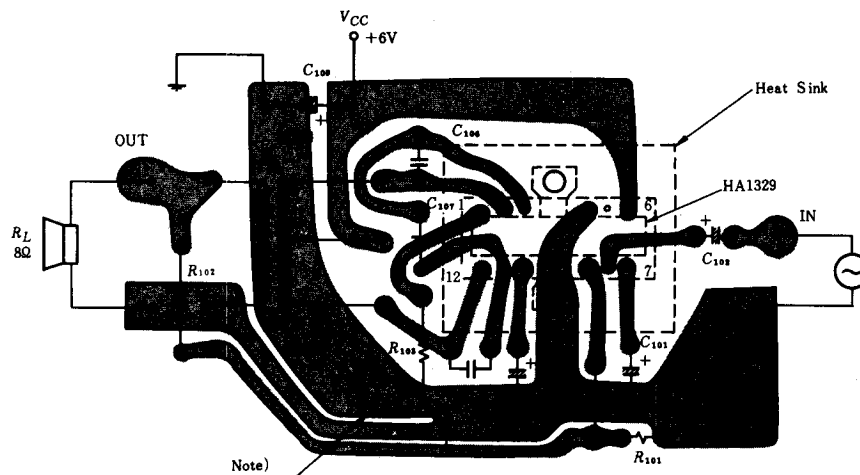
Recommended specifications for output transformer are as follows:

- Impedance : Primary 17Ω , secondary 8Ω at 1 kHz and 1V.
- Max. DC resistance : Primary 1.5Ω , secondary 0.75Ω
- Winding balance : 35dB or above
- Core form : EI-28

■ PRECAUTIONS ON OPERATION

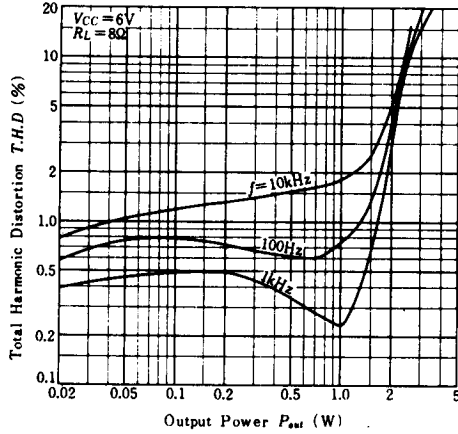
- 1) Maximum ratings: Maximum ratings must not be exceeded. Operating at the above rating will result in an extreme increase of breakdown and IC failure rate.
- 2) Breakdown due to short circuit across pins: When the power is turned ON with pins on the IC remaining short-circuited, there is a possibility of breakdown or degradation of the IC. Regarding this IC, exercise the utmost care to prevent the high-potential, low-impedance terminal pins 2, 6, and 12 from being short-circuited to pins 3, 5 and 11.
- 3) Breakdown due to load short circuit: When the state of load short circuit continues for an extended period, breakdown of the IC will result. Also, a repetition of load short circuit will cause degradation to the IC. Exercise care !
- 4) Grounding: The GND pin 4 and the TAB printed circuit board should be securely grounded. Incomplete grounding will cause abnormal operation. Exercise care that the resistance measured across pin 4 and TAB is held to within $10\text{m}\Omega$.
- 5) IC arrangement: When an IC is used a radio power amplifier, there is a possibility that harmonic radiation will cause abnormal operation of the set. Exercise care to use an IC at a place as far as way from the antenna as possible.
- 6) Print pattern: The print pattern should conform to the recommended pattern. An inadequate print pattern may result in abnormal operation such as oscillation.
- 7) External parts: Use standard external parts as a rule.
- 8) Upper limit of load impedance: Excessive increase of load impedance may result in oscillation. Exercise care that load impedance is held to within 100Ω .
- 9) Popping noise: When an increase in signal source resistance causes an irritating "popping" noise to be produced, insert a capacitance of $47\mu\text{F}$ (6.3V) between the pin 5 and the ground to suppress the noise.

■ PRINTED CIRCUIT BOARD (Bottom View)

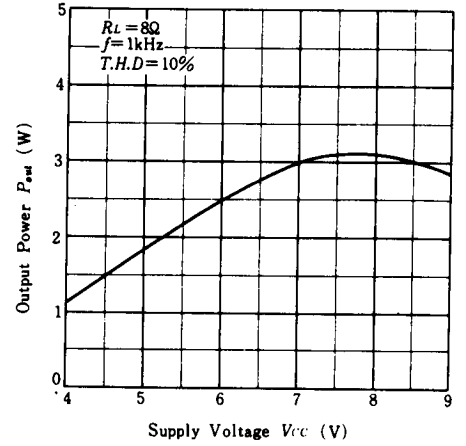


Note: The notch of ground line prevents the distortion from growing worse at flowed full-wave rectification current from the R_{103} .

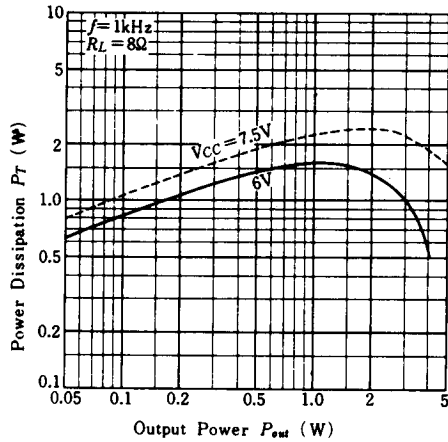
TOTAL HARMONIC DISTORTION VS. OUTPUT POWER



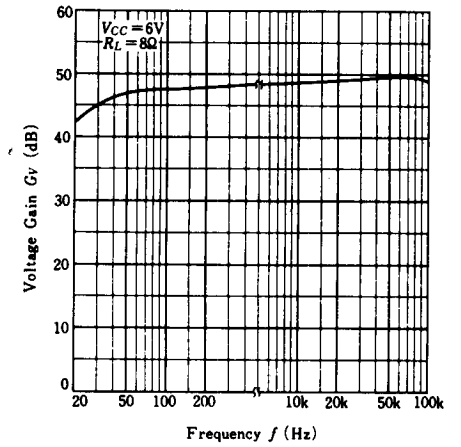
OUTPUT POWER VS. SUPPLY VOLTAGE



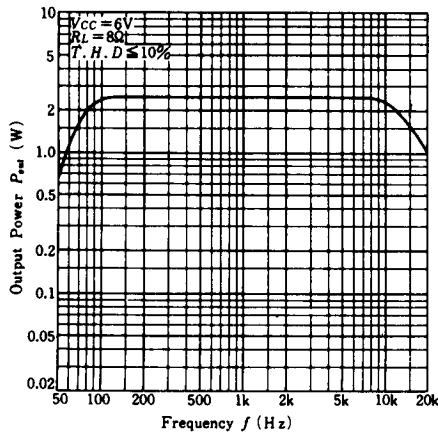
POWER DISSIPATION VS. OUTPUT POWER



VOLTAGE GAIN VS. FREQUENCY



OUTPUT POWER VS. FREQUENCY



TOTAL HARMONIC DISTORTION VS. FREQUENCY

