

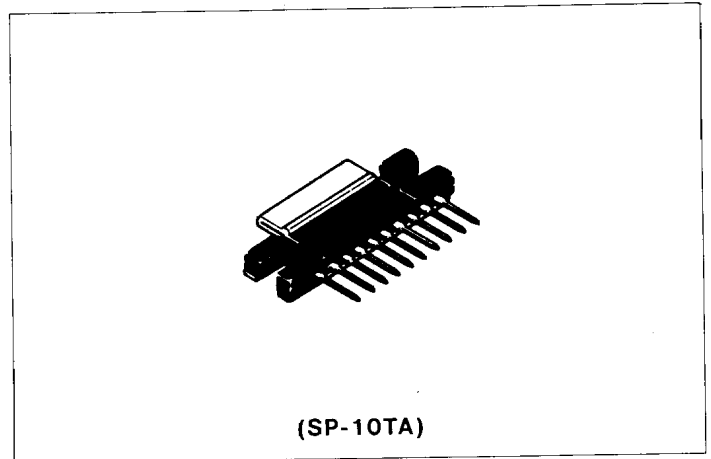
HA1389/R

4 to 7W Audio Power Amplifier

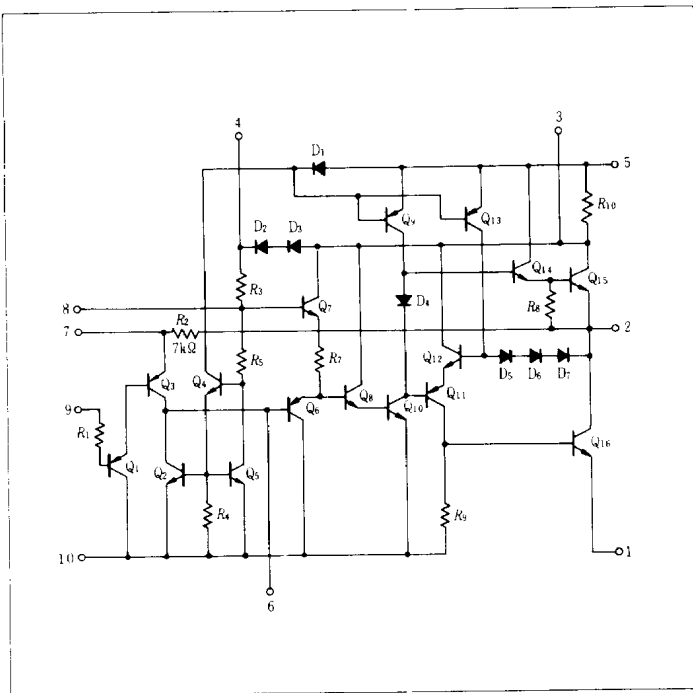
Hitachi HA1389/HA1389R is a class-B power amplifier designed especially for home type stereo amplifiers encapsulated in a 10-lead single-in-line plastic package. The HA1389/HA1389R provides an output power of 5 watts at 19 volts, and also 7 watts at 22 volts to 8 ohm load with 10 percent distortion.

FEATURES

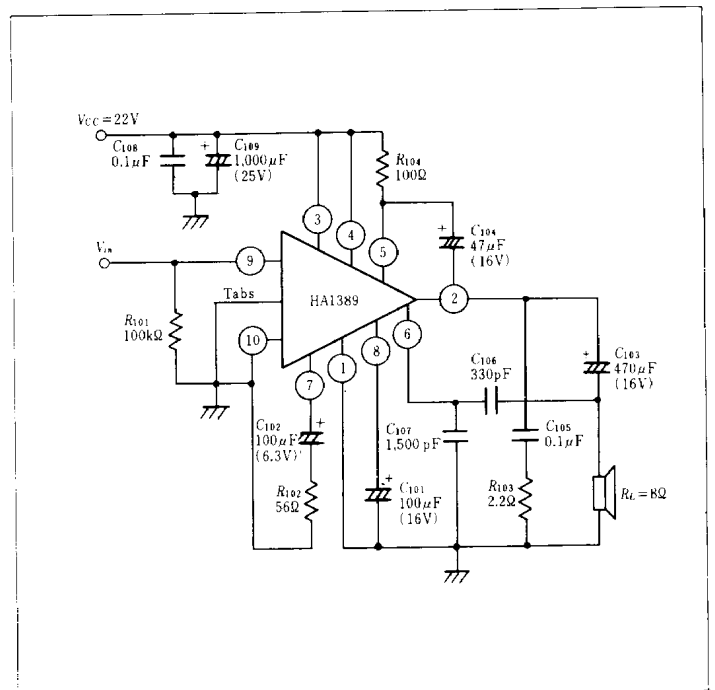
- Two kinds of pin configuration are available: normal (HA1389) and reverse (HA1389R) for easier layout design of pc-board when used in stereo application.
- Easy to mount a chassis by heat-sink, due to the single-in-line package with no electrical isolation
- High Output power:
7W typ. ($V_{CC}=22V$, $R_L=8\Omega$, THD = 10%)
- Wide Range of Supply Voltage: from 5 to 30V
- Very Low Harmonic and Crossover Distortion.
- Thermal shut-down circuit provided.



CIRCUIT SCHEMATIC



TYPICAL APPLICATION CIRCUIT



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

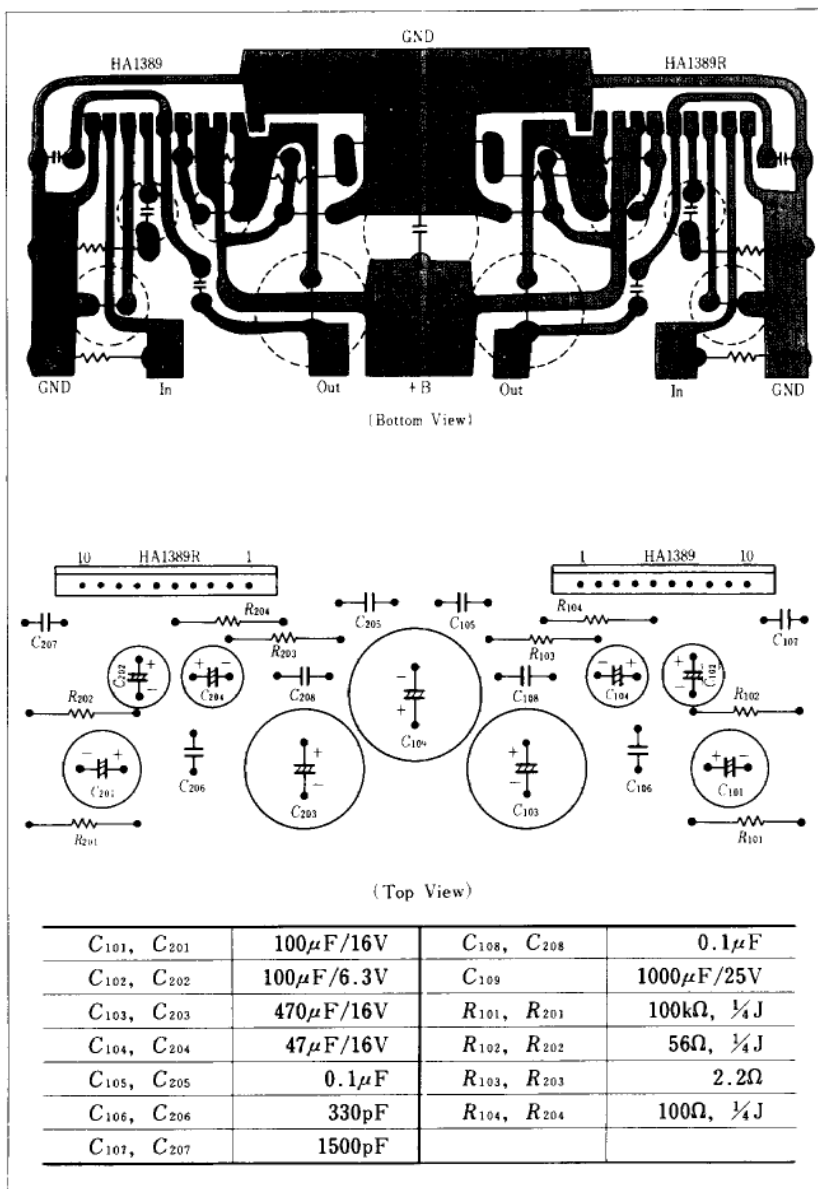
Item	Symbol	Ratings	Unit
Supply Voltage	V_{CC}	30	V
Output Current	I_o	3.75	A
Power Dissipation	P_T^*	7.2	W
Thermal Resistance (Junction-Case)	θ_{j-c}	10	$^\circ\text{C}/\text{W}$
Junction Temperature	T_j	150	$^\circ\text{C}$
Operating Temperature	T_{opr}	-20 to +70	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +125	$^\circ\text{C}$

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

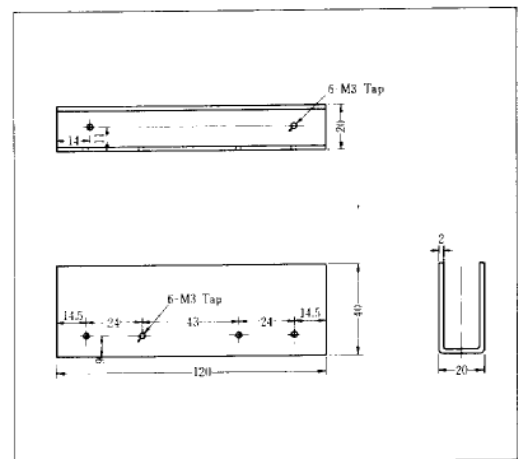
■ ELECTRICAL CHARACTERISTICS ($V_{CC}=22V, R_L=8\Omega, T_a=25^\circ C$)

Item	Symbol	Test Condition	min.	typ.	max.	Unit
Quiescent Output Voltage	V_Q		10	11	12	V
Quiescent Current Drain	I_Q		—	9	20	mA
Input Bias Current	I_b		—	1	—	μA
Output Power	P_o	$THD=10\%, f=1kHz$	5.8	7	—	W
Total Harmonic Distortion	$T.H.D$	$P_{out}=0.5W, f=1kHz$	—	0.06	0.8	%
Voltage Gain (open loop)	$G_{V(OL)}$	$f=1kHz$	—	75	—	dB
Voltage Gain (closed loop)	G_V	$f=1kHz$	39	42	45	dB
Noise Output	WBN	$R_s=10k\Omega, B=20Hz \text{ to } 20kHz$	—	0.3	1.5	mV
Input Resistance	R_{in}	$f=1kHz$	—	100	—	k Ω
Frequency Response (-3dB)	$B.W$	$C_{106}=330pF, \Delta G_V=-3dB$	—	60 to 30k	—	Hz
Supply Voltage Rejection Ratio	SVR	$f_{ripple}=100Hz, R_s=600\Omega$	38	45	—	dB
Power Band Width (-3dB)	$P.B.W$	$C_{106}=330pF$	—	40 to 70k	—	Hz

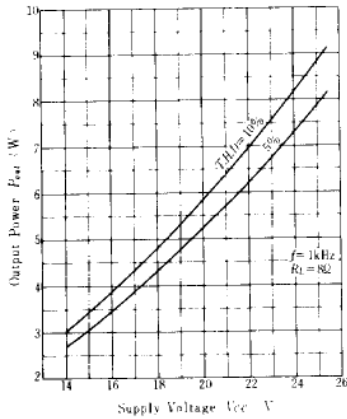
■ PC. BOARD LAYOUT PATTERN (FOR STEREO USE)



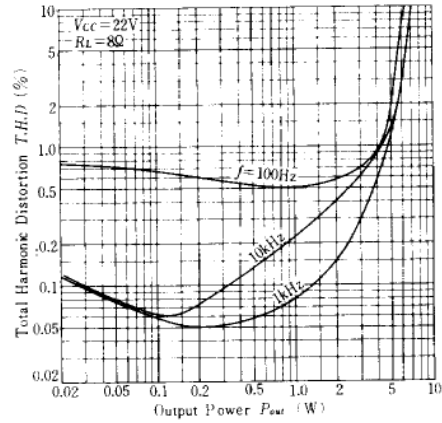
■ EXAMPLE OF HEAT SINK (FOR STEREO USE)



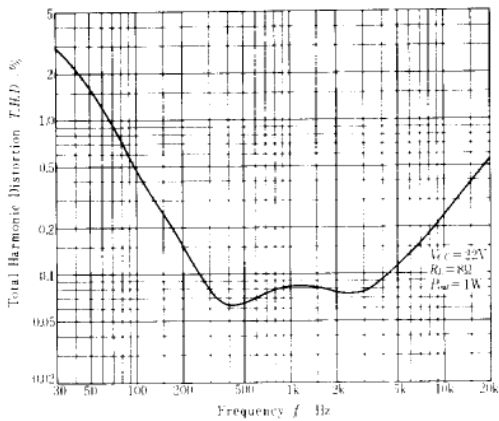
OUTPUT POWER VS. SUPPLY VOLTAGE



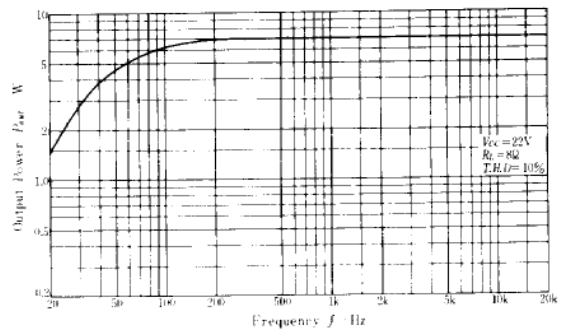
TOTAL HARMONIC DISTORTION VS. OUTPUT POWER



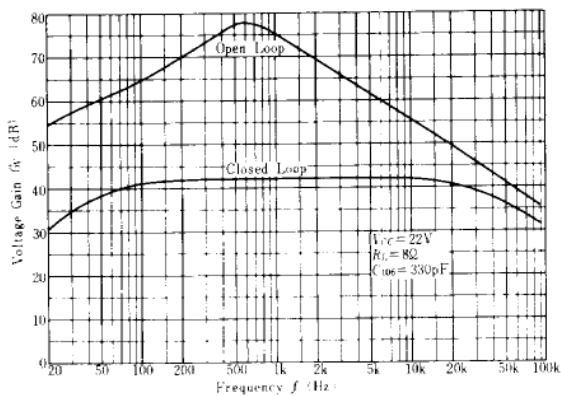
TOTAL HARMONIC DISTORTION VS. FREQUENCY



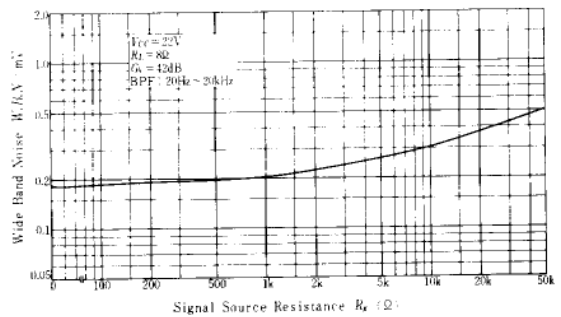
OUTPUT POWER VS. FREQUENCY



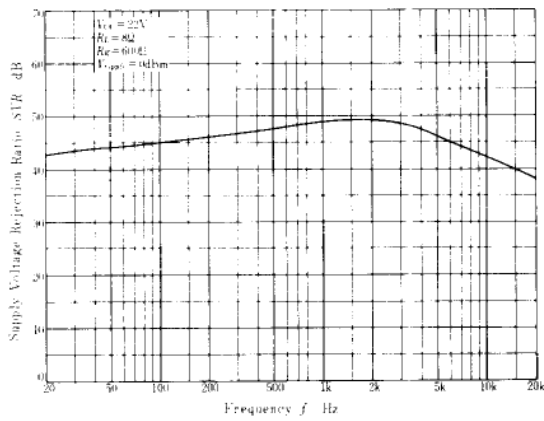
VOLTAGE GAIN VS. FREQUENCY



WIDE BAND NOISE VS. SIGNAL SOURCE RESISTANCE



SUPPLY VOLTAGE REJECTION RATIO VS. FREQUENCY



QUIESCENT OUTPUT VOLTAGE AND QUIESCENT CURRENT DRAIN VS. SUPPLY VOLTAGE

