

UTC7368P

LINEAR INTEGRATED CIRCUIT

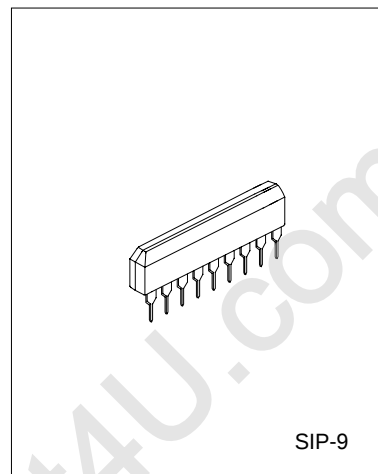
0.6W AUDIO POWER AMPLIFIER

DESCRIPTION

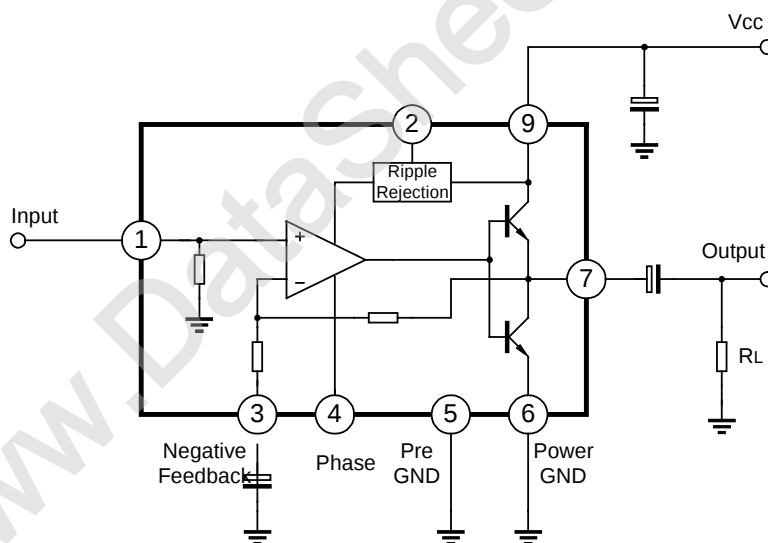
The UTC7368P is suitable for the audio power amplifier of portable cassette tape recorder and radio.

FEATURES

- *Very few external components(only three capacitors)
- *Low quiescent current
- *High Voltage Gain: $G_v=40\text{dB}$



BLOCK DIAGRAM



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

Characteristic	Symbol	Value	Unit
Supply Voltage	V_{cc}	14	V
Operating Temperature	T_{opr}	-20 to +75	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to 150	$^\circ\text{C}$
Power dissipation	P_d	900	mW

Note: Derated above $T_a=25^\circ\text{C}$ in the proportion of $7.2\text{mW}/^\circ\text{C}$

ELECTRICAL CHARACTERISTICS

(Ta=25°C, Vcc=6V, RL=4Ω, RG=600Ω, f=1kHz, unless otherwise specified)

Characteristic	Symbol	Test Condition	Min	Typ.	Max	Unit
Quiescent circuit current	IccQ	Vcc=3V, Vi=0		5.5		mA
		Vcc=6V, Vi=0		6.6		mA
		Vcc=9V, Vi=0		7.5		mA
Output Power	Po	Vcc=3V, RL=4Ω, THD=10%		120		mW
		Vcc=6V, RL=4Ω, THD=10%	500	720		mW
		Vcc=6V, RL=8Ω, THD=10%	300	450		mW
		Vcc=9V, RL=8Ω, THD=10%	800	1100		mW
		Vcc=9V, RL=16Ω, THD=10%	450	610		mW
Total Harmonic Distortion	THD	Po=100mW		0.3	1.0	%
Voltage Gain	Gv	Vi=0.5mVrms	37	40	43	dB
Output Noise voltage	Vno	RG=10kΩ BPF=20Hz~20kHz		0.2	0.5	mVrms
Ripple Rejection	RR	fr=100Hz, Vr=0.3Vrms, without Crip		25		dB
Input Resistance	Ri			27		kΩ

TERMINAL DC VOLTAGE

Pin Number	1	2	3	4	5	6	7	8	9
Value(V)	0	2.4	0.62	0.64	0	0	2.61	NC	6.0

PRECAUTION FOR APPLICATION**1. Input stage**

The input stage of power amplifier is comprised of a PNP differential Pair(Q2 and Q3) preceded by a PNP emitter follower(Q1) which allows DC referencing of the source signal to GND. This eliminated the need for an input coupling capacitor, However, in case the brush noise of volume becomes a problem, provide serially a coupling capacitor to the input side.

2. Adjustment of the Voltage Gain

The voltage gain is fixed at Gv=40dB by the resistors(R4 and R5) in IC, its reduction is possible through adding Rf as shown In Fig.2 In this case, the voltage gain is obtained by the following equation:

$$Gv = 20 \cdot \log \left(\frac{R5 + R4 + Rf}{R4 + Rf} \right)$$

It is recommended to use this IC with the voltage gain of Gv=28dB or over.

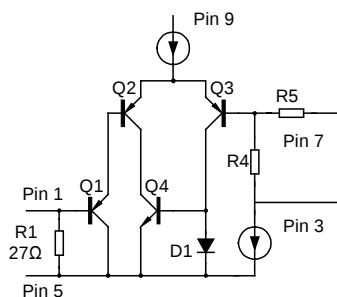


Fig.1

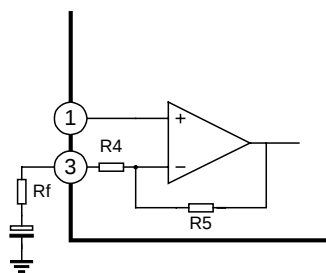


Fig.2

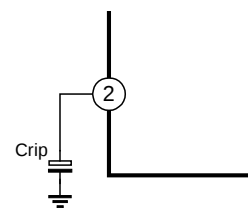


Fig.3

3. Ripple Rejection

Adding Crip, to the ripple terminal 2 as shown in Fig.3, the ripple rejection ratio is improved from -25dB to -45dB.

4. Power Dissipation

Casre should be taken to use IC below maximum power dissipation. Because it may over maximum rating depending on operating condition.

$P_d=900\text{mW}(T_a=25)$

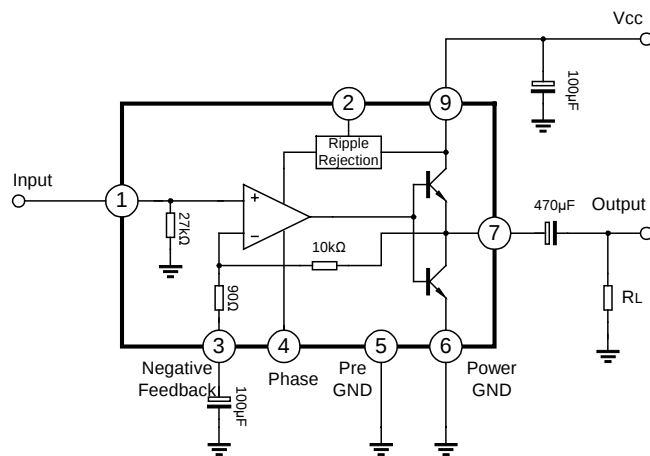
5. Phase-compensation

Small temperature coefficient and excellent frequency characteristics is needed by capacitor below.

*Oscillation preventing capacitor for power amplifier output

*Bypass capacitor for ripple filter

*Capacitor between Vcc and GND.

TEST CIRCUIT

TYPICAL PERFORMANCE CHARACTERISTICS

