

UTC TA7368P LINEAR INTEGRATED CIRCUIT

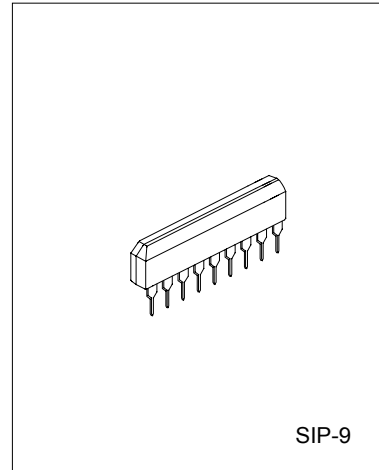
0.6W AUDIO POWER AMPLIFIER

DESCRIPTION

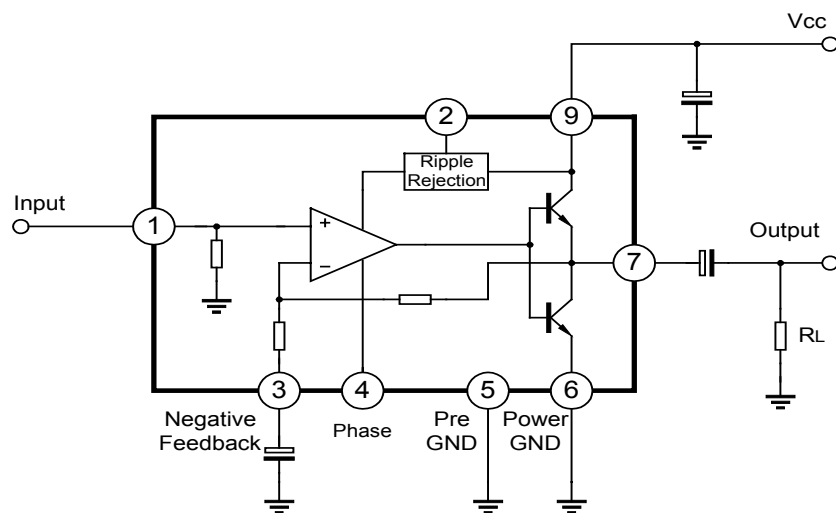
The UTC TA7368P is suitable for the audio power amplifier of portable cassette tape recorder and radio.

FEATURES

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



BLOCK DIAGRAM



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ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

PARAMETER	SYMBOL	VALUE	UNIT
Supply Voltage	VCC	14	V
Power Dissipation	PD	900	mW
Operating Temperature	TOPR	-20 ~ 75	°C
Storage Temperature	TSTG	-55 ~ 150	°C

Note: Derated Ta>25°C, in the proportion of 7.2mW/°C

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Quiescent Circuit Current	ICQ	VCC=3V, Vin=0		5.5		mA
		VCC=6V, Vin=0		6.6		
		VCC=9V, Vin=0		7.5		
Voltage Gain	GV	Vin=0.5mVrms	37	40	43	dB
Output Power	Pout	VCC=3V, RL=4Ω, THD=10%		120		mW
		VCC=6V, RL=4Ω, THD=10%	500	720		
		VCC=6V, RL=8Ω, THD=10%	300	450		
		VCC=9V, RL=8Ω, THD=10%	800	1100		
		VCC=9V, RL=16Ω, THD=10%	450	610		
Total Harmonic Distortion	THD	Pout=100mW		0.3	1	%
Output Noise Voltage	Vno	Rg=10kΩ, BPF=20Hz~20kHz		0.2	0.5	mVrms
Ripple Rejection	RR	fr=100Hz, Vr=0.3Vrms, Crip=0		25		dB
Input Resistance	Rin			27		kΩ

TERMINAL DC VOLTAGE

Pin No.	1	2	3	4	5	6	7	8	9
Value(V)	0	2.4	0.62	0.64	0	0	2.61	NC	6

PRECAUTION FOR APPLICATION

1. Input stage (Figure 1)

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 eliminates 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 (figure 2)

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 Figure 2. In this case, the voltage gain is obtained by the following equation: $Gv=20\log(R5+R4+Rf)/(R4+Rf)$. It is recommended to use this IC with the voltage gain of Gv=28dB or over.

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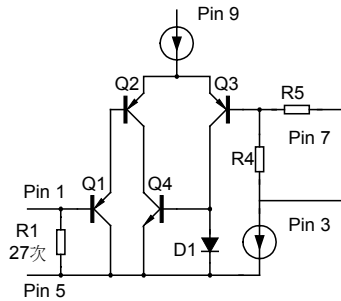


Figure 1

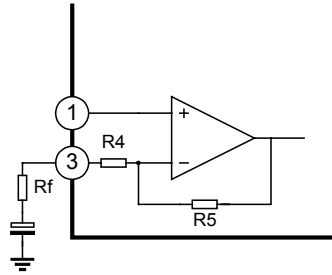


Figure 2

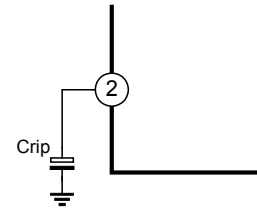


Figure 3

3. Ripple rejection (Figure 3)

Adding Crip, to the ripple terminal 2 as shown in Figure 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 be over maximum rating depending on operating condition.

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

5. Phase-compensation

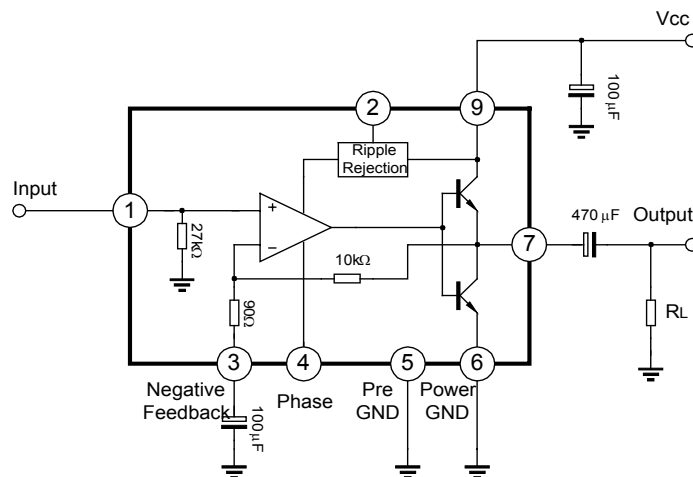
Small temperature coefficient and excellent frequency characteristics is needed by capacitor below:

*Oscillation preventing capacitor for power amplifier output

*Bypass capacitor for ripple filter

*Capacitor between Vcc and GND

TEST CIRCUIT



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