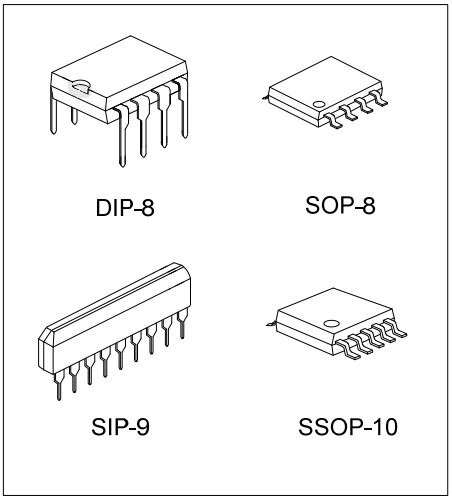
TA7368P

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: Gv=40dB

■ ORDERING INFORMATION

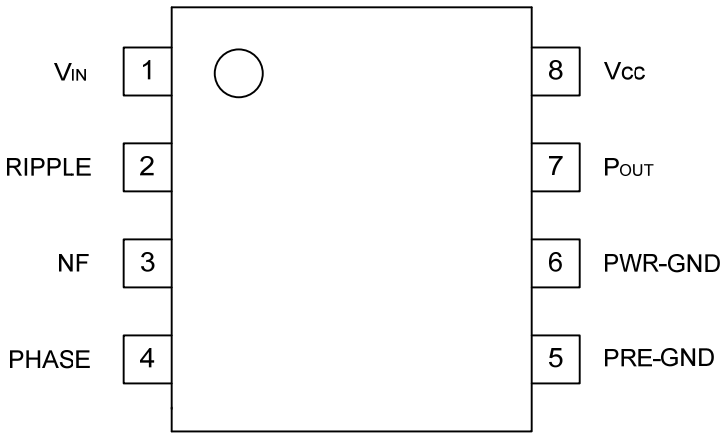
Ordering Number		Package	Packing
Lead Free	Halogen Free		
TA7368PL-D08-T	TA7368PG-D08-T	DIP-8	Tube
TA7368PL-S08-T	TA7368PG-S08-T	SOP-8	Tube
TA7368PL-S08-R	TA7368PG-S08-R	SOP-8	Tape Reel
TA7368PL-G09-T	TA7368PG-G09-T	SIP-9	Tube
TA7368PL-R10-T	TA7368PG-R10-T	SSOP-10	Tube
TA7368PL-R10-R	TA7368PG-R10-R	SSOP-10	Tape Reel

TA7368PL-D08-T
(1)Packing Type
(2)Package Type
(3)Lead Free

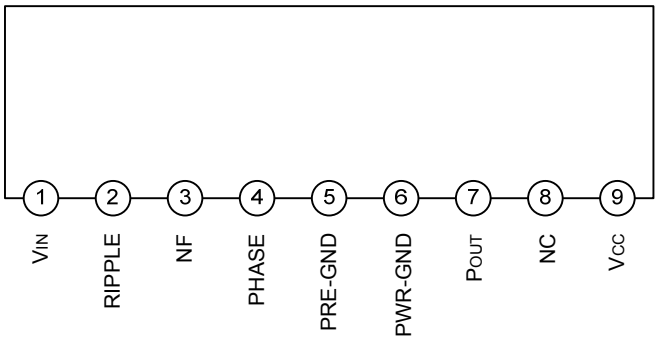
(1) T: Tube, R: Tape Reel
(2) D08: DIP-8, S08: SOP-8, G09: SIP-9, R10: SSOP-10
(3) L: Lead Free, G: Halogen Free

■ PIN CONFIGURATIONS

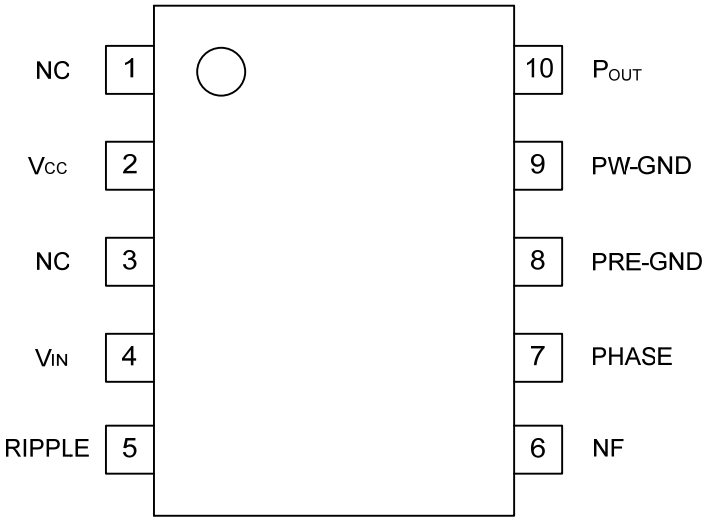
SOP-8/DIP-8



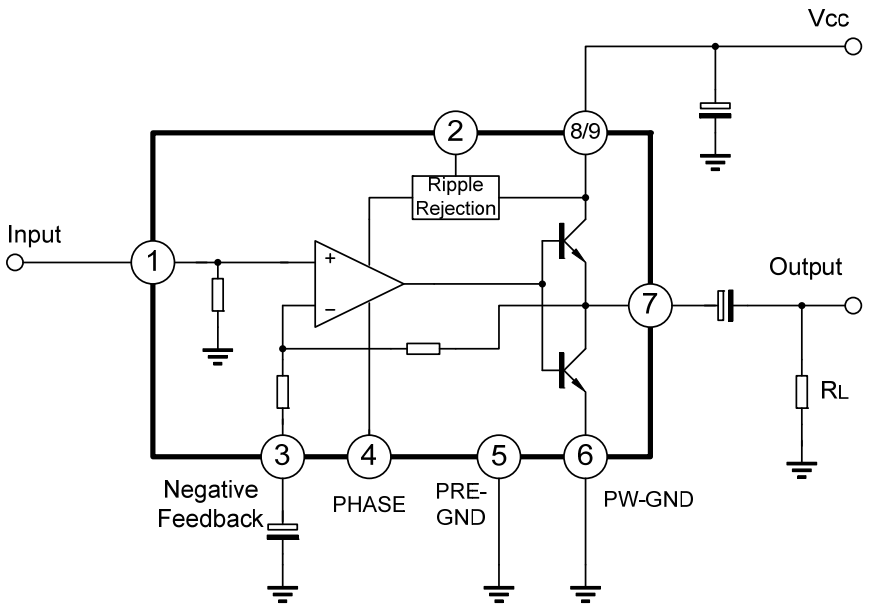
SIP-9



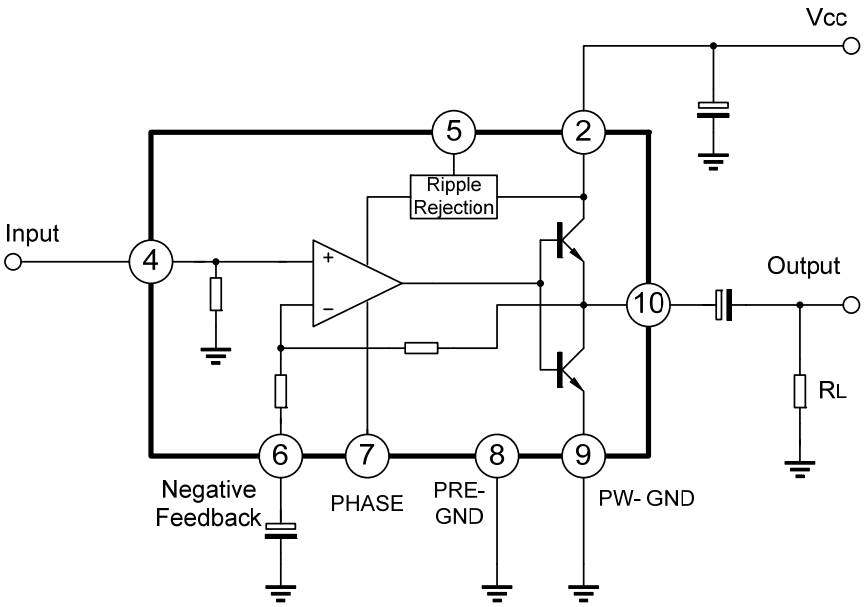
SSOP-10



■ BLOCK DIAGRAMS



Note: Pin connection
DIP-8/SOP-8: PIN⑧:V_{CC}
SIP-9: PIN⑧: NC, PIN⑨:V_{CC}



Note: Pin connection for SSOP-10 package only.

■ ABSOLUTE MAXIMUN RATINGS (T_A=25°C)

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V_{CC}	14	V
Power Dissipation	DIP-8	P_D	900	mW
	SIP-9		950	
	SOP-8/SSOP-10		400	
Operating Temperature		T_{OPR}	-20 ~ +75	°C
Storage Temperature		T_{STG}	-55 ~ +150	°C

Note: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.
2. Derated Ta>25°C, in the proportion of 7.2mW/°C

■ ELECTRONIC CHARACTERISTICS

(T_A=25°C, V_{CC}=6V, f=1kHz, Rg=600Ω, R_L=4Ω, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Quiescent Circuit Current	I_{CCQ}	V_{CC}=3V,V_{IN}=0		5.5		mA
		V_{CC}=9V,V_{IN}=0		6.6	18	
		V_{CC}=14V,V_{IN}=0		7.5	21	
Voltage Gain	G_V	V_{IN}=0.5mVrms	37	40	43	dB
Output Power	P_{OUT}	V_{CC}=3V,R_L=4Ω,THD=10%		120		mW
		V_{CC}=6V,R_L=4Ω,THD=10%	500	720		
		V_{CC}=9V,R_L=8Ω,THD=10%	800	1100		
Total Harmonic Distortion	THD	P_{OUT}=100mW		0.3	1	%
Output Noise Voltage	eN	R_G=10kΩ,BPF=20Hz~20kHz		0.2	0.5	mVrms
Ripple Rejection	RR	f_R=100Hz, V_R=0.3Vrms,Crip=0		25		dB
Input Resistance	R_{IN}			27		kΩ

■ TERMINAL DC VOLTAGE

Typical terminal DC Voltage at no signal with test circuit (V_{CC}=6V, T_A=25°C)

Pin No.	1	2	3	4	5	6	7	8	9	10
SOP-8/DIP-8	0	2.40	0.62	0.64	0	0	2.61	6.0	-	-
SIP-9	0	2.40	0.62	0.64	0	0	2.61	NC	6.0	-
SSOP-10	NC	6.0	NC	0	2.40	0.62	0.64	0	0	2.61

■ 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 G_V=40dB by the resistors(R4 and R5) in IC. Its reduction is possible through adding R_F as shown in Figure 2. In this case, the voltage gain is obtained by the following equation: G_V=20log(R5+R4+ R_F)/(R4+ R_F). It is recommended to use this IC with the voltage gain of G_V=28dB or over.

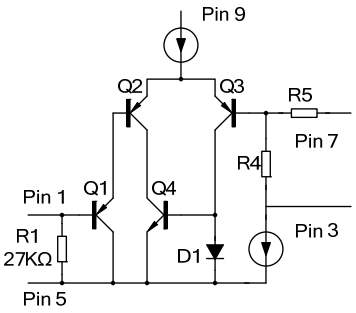


Figure 1

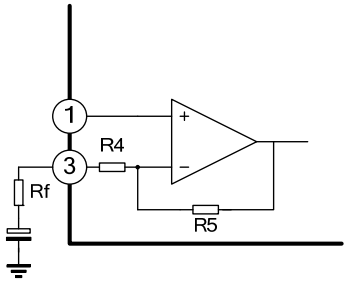


Figure 2

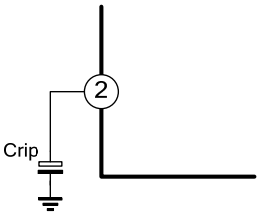


Figure 3

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=900mW (T_A=25°C)

5. Phase-compensation

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

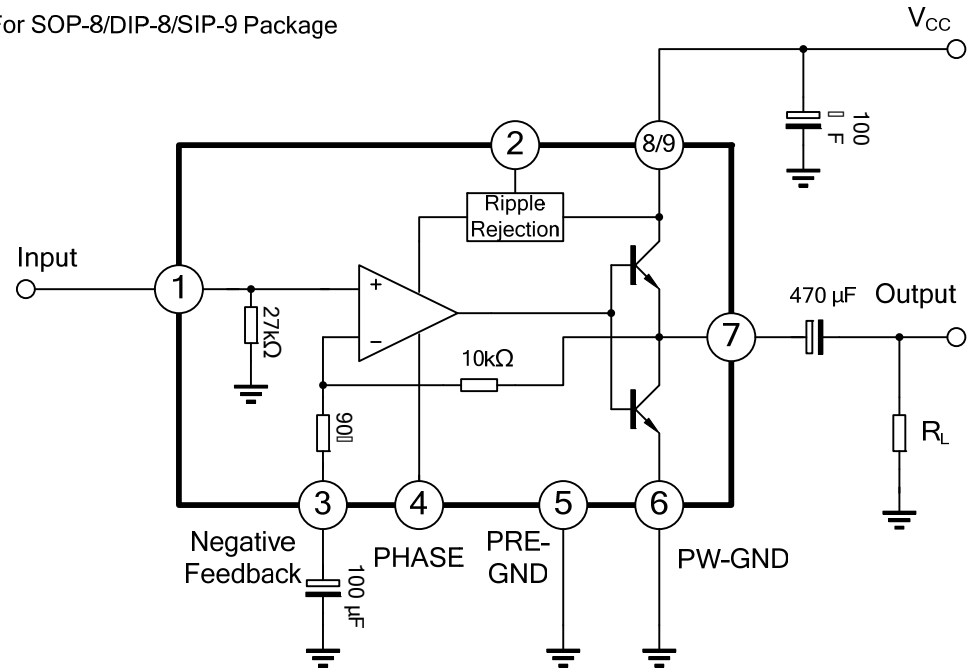
*Oscillation preventing capacitor for power amplifier output

*Bypass capacitor for ripple filter

*Capacitor between V_{CC} and GND

■ TEST CIRCUITS

For SOP-8/DIP-8/SIP-9 Package



For SSOP-10 Package