

# AN7112

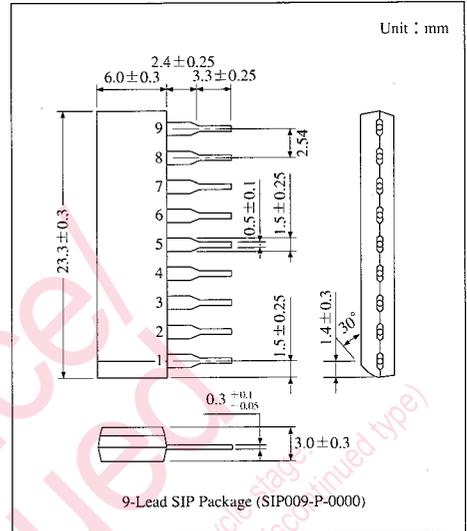
## 0.5W Audio Power Amplifier Circuit

### Overview

The AN7112 is an integrated circuit designed for 0.5W audio power amplifier.

### Features

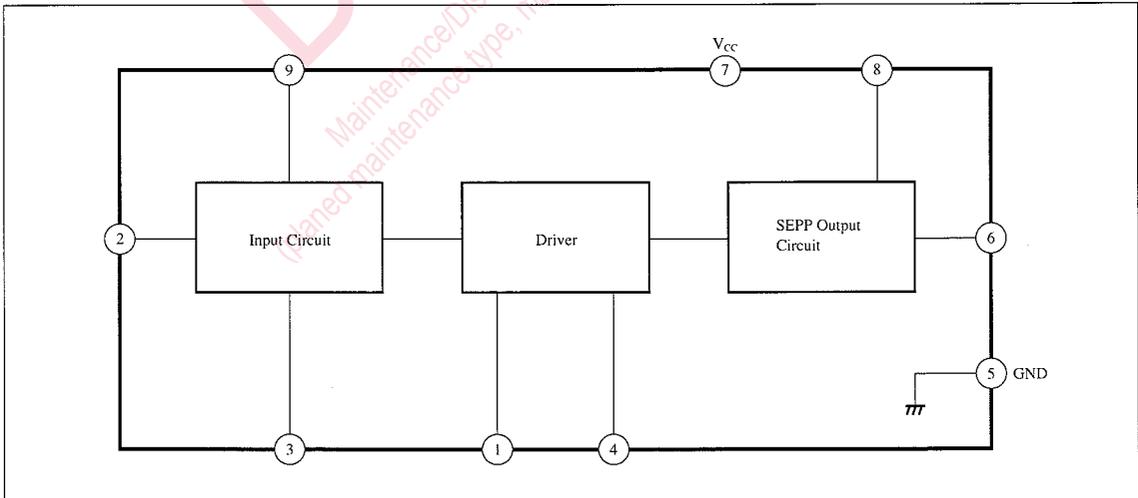
- Wide operating supply voltage range :  $V_{CC}=4V \sim 14V$
- Low quiescent current :  $I_{CQ}=15mA$  (at  $V_{CC}=6V, R_L=8 \Omega$ )



### Pin Descriptions

Pin No.	Pin Name
1	Phase Compensation
2	Input
3	Negative Feedback
4	Phase Compensation
5	GND
6	Output
7	$V_{CC}$
8	Bootstrap
9	Ripple Filter

### Block Diagram

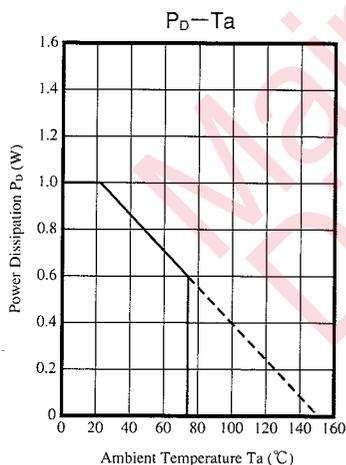


### ■ Absolute Maximum Ratings ( $T_a=25^\circ\text{C}$ )

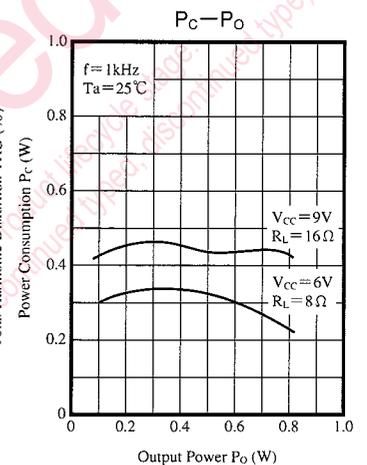
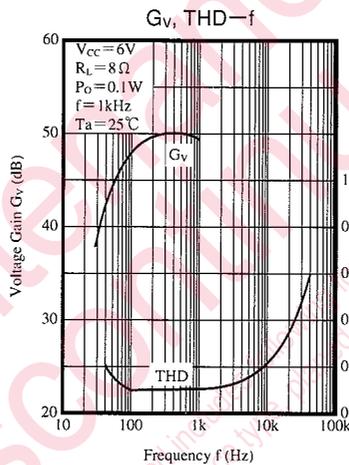
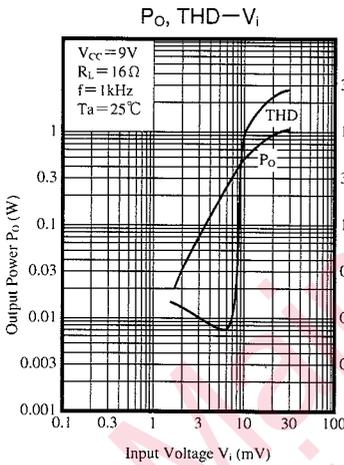
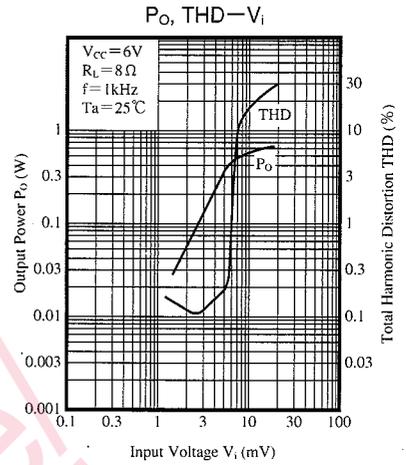
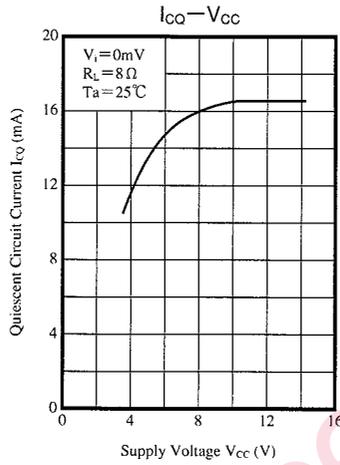
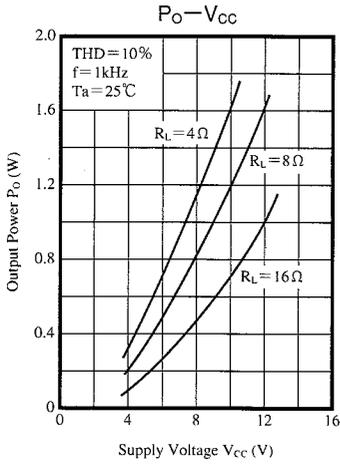
Parameter	Symbol	Rating	Unit
Supply Voltage	$V_{CC}$	14	V
Total Supply Current	$I_{CC(\text{peak})}$	500	mA
Power Dissipation	$P_D$	1	W
Operating Ambient Temperature	$T_{opr}$	$-25 \sim +75$	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	$-55 \sim +150$	$^\circ\text{C}$

### ■ Electrical Characteristics ( $V_{CC}=6\text{V}$ , $R_L=8\ \Omega$ , $f=1\text{kHz}$ , $T_a=25^\circ\text{C}$ )

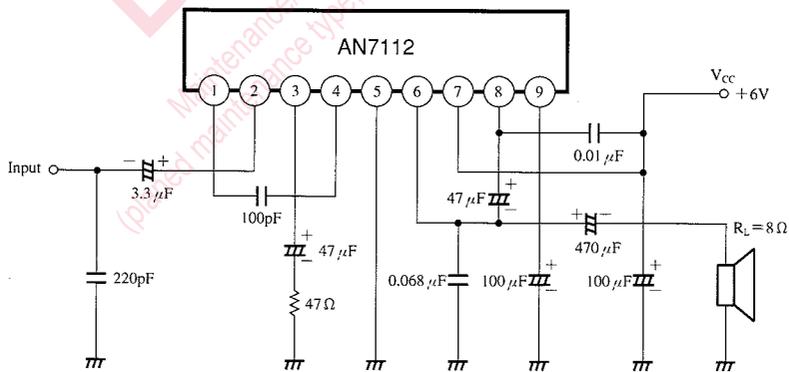
Parameter	Symbol	Condition	min.	typ.	max.	Unit
Quiescent Circuit Current	$I_{CQ}$	$V_{CC}=4\text{V}$ , $V_i=0\text{mV}$	5	—	—	mA
	$I_{CQ}$	$V_{CC}=6\text{V}$ , $V_i=0\text{mV}$	—	15	20	mA
	$I_{CQ}$	$V_{CC}=9\text{V}$ , $V_i=0\text{mV}$	—	17	23	mA
Open Circuit Voltage Gain	$G_{VO}$	$P_O=100\text{mW}$ , $R_{NF}=0\ \Omega$	65	71	—	dB
Closed Circuit Voltage Gain	$G_{VC}$	$P_O=100\text{mW}$ , $R_{NF}=47\ \Omega$	47	50	52	dB
Maximum Output Power	$P_O$	$V_{CC}=6\text{V}$ , $\text{THD}=10\%$	0.45	0.5	—	W
	$P_O$	$V_{CC}=9\text{V}$ , $R_L=16\ \Omega$ , $\text{THD}=10\%$	—	0.7	—	W
Total Harmonic Distortion	THD	$P_O=100\text{mW}$	—	0.3	1.0	%
Input Resistance	$R_i$		—	15	—	k $\Omega$
Output Noise Voltage	$V_{no}$	$\text{BW}=50\text{Hz} \sim 20\text{kHz}$ , $R_g=10\text{k}\ \Omega$	—	0.4	1.0	mV



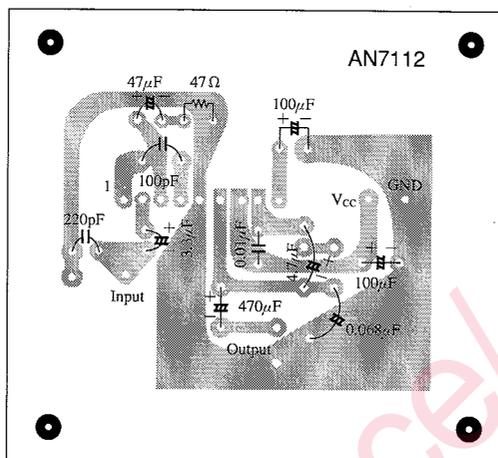
ICs for  
Audio  
Common  
Use



■ Application Circuit



■ Printed Circuit Board Layout



Maintenance/Discontinued

Maintenance/Discontinued includes following four Product lifecycle stage.  
(planned maintenance type, maintenance type, planned discontinued typed, discontinued type)



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