

AN7118/S

Low Voltage Dual 35mW Audio Power Amplifier Circuits (BTL 300mW)

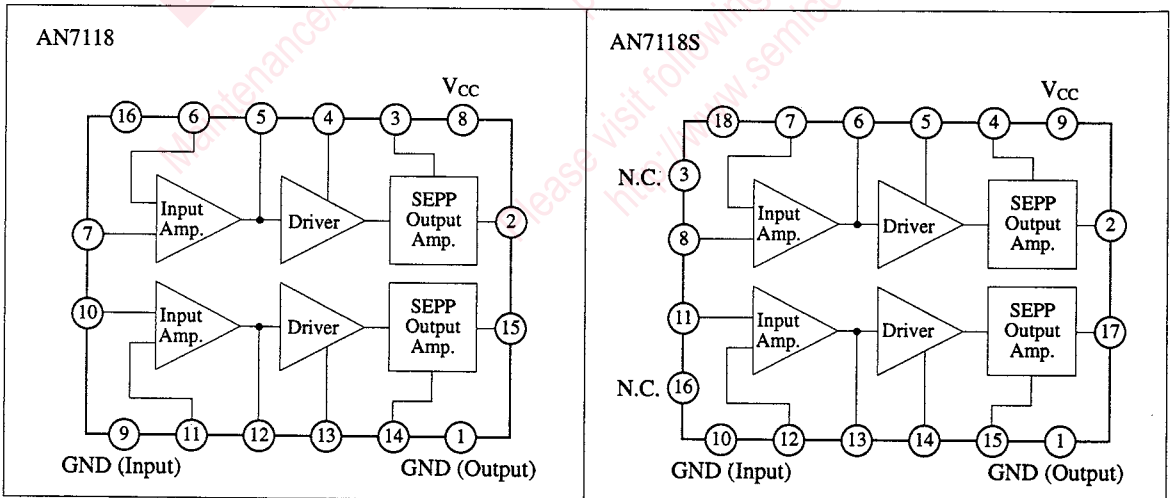
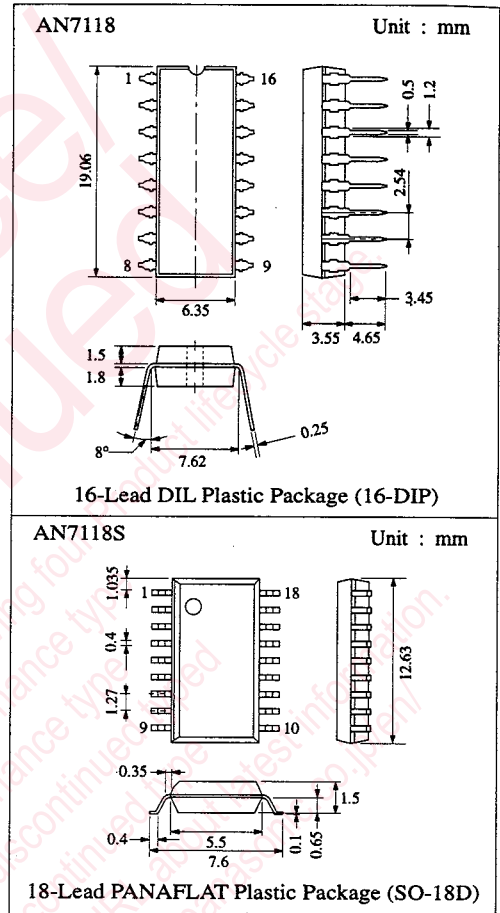
■ Description

The AN7118/S are the monolithic integrated circuits designed for low voltage dual 35mW audio power amplifier (BTL 300mW).

■ Features

- Low supply voltage operation: $V_{CC} = 1.8V \sim 4.5V$
- Reduced voltage operations is possible, making it suitable for the use of dry cells
- Low pop noise during switching ON and OFF of supply voltage
- With BTL connection, high output power is possible (Load 8Ω)
- Dual power operation is possible from a 4Ω load speaker to 32Ω headphones
- Input coupling capacitor is not necessary

■ Block Diagram



■ Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Rating	Unit
Supply Voltage	V _{CC}	4.5	V
Supply Current	I _{CC}	1	A
Power Dissipation	AN7118	900	mW
	AN7118S	400	
Operating Ambient Temperature	T _{opr}	-20 ~ +75	°C
Storage Temperature	T _{stg}	-50 ~ +150	°C

Operating Supply Voltage Range: V_{CC} = 1.8V ~ 4.5V

■ Electrical Characteristics (V_{CC}=3V, f=1kHz, Ta=25°C)

Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Quiescent Current	I _{CQ}	1	V _{in} = 0mV		13	18	mA

DUAL

Voltage Gain	G _v	1	V _{in} = 1.5mV, R _L = 4Ω	43	45	47	dB
Output Power 1	P _{O1}	1	THD = 10%, R _L = 4Ω x 2 CH	110	130		mW
Output Power 2	P _{O2}	1	THD = 10%, R _L = 32Ω x 2 CH		35		mW
Total Harmonic Distortion 1	THD ₁	1	V _{in} = 1.5mV, R _L = 4Ω x 2 CH		0.6	1.5	%
Total Harmonic Distortion 2	THD ₂	1	V _{in} = 1.5mV, R _L = 32Ω x 2 CH		0.3		%
Output Noise	V _{no}	1	R _g = 10kΩ, DIN/AUDIO		0.3	0.8	mV
Input Resistance	R _{in}	1			20		kΩ
Ripple Rejection	RR	1	f _r = 200mV, f = 100Hz		35		dB

BTL

Output Power	P _O	2	THD = 10%, R _L = 8Ω		300		mW
Total Harmonic Distortion	THD	2	V _{in} = 2mV, R _L = 8Ω		0.6		%

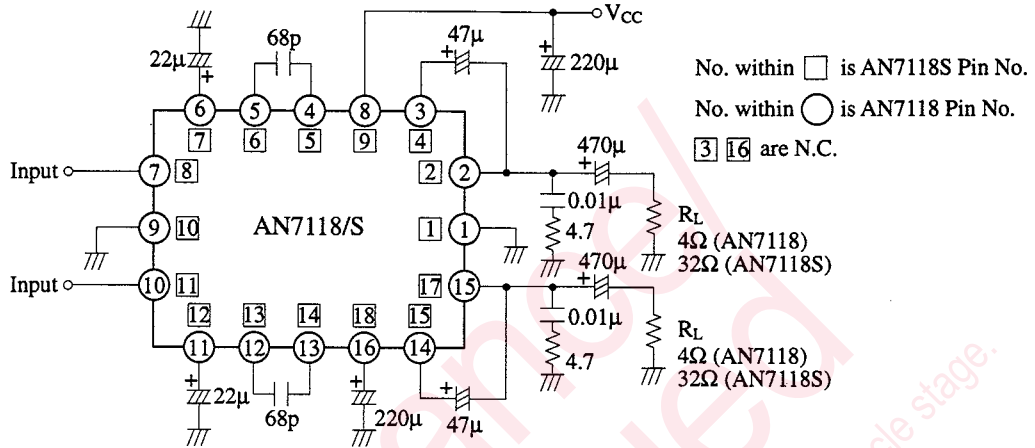
■ Pin (AN7118)

Pin No.	Pin Name
1	GND (Output)
2	Output Ch.1
3	Bootstrap
4	Phase Compensation
5	Phase Compensation
6	N.F.B.
7	Input Ch.1
8	V _{CC}
9	GND (Input)
10	Input Ch.2
11	N.F.B.
12	Phase Compensation
13	Phase Compensation
14	Bootstrap
15	Output Ch.2
16	Ripple Filter

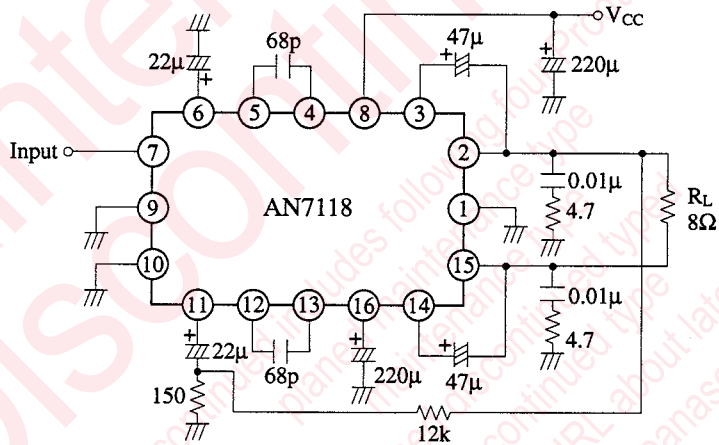
(AN7118S)

Pin No.	Pin Name
1	GND (Output)
2	Output Ch.1
3	N.C.
4	Bootstrap
5	Phase Compensation
6	Phase Compensation
7	N.F.B.
8	Input Ch.1
9	V _{CC}
10	GND (Input)
11	Input Ch.2
12	N.F.B.
13	Phase Compensation
14	Phase Compensation
15	Bootstrap
16	N.C.
17	Output Ch.2
18	Ripple Filter

Test Circuit 1 (IcQ, Gv, Po1, Po2, THD1, THD2, Vno, Ri, RR)

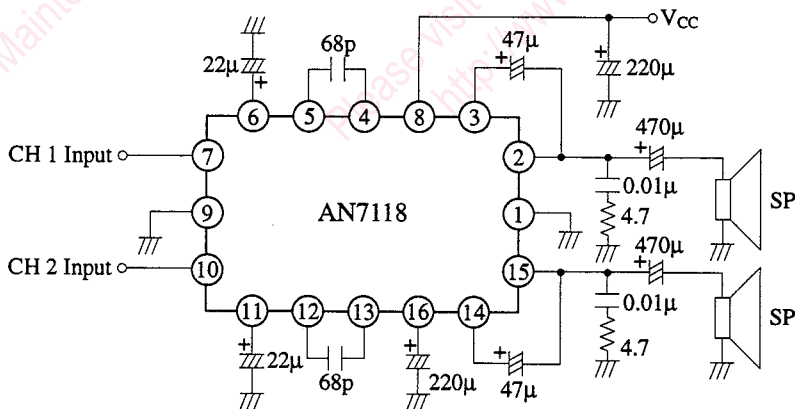


Test Circuit 2 (Po, THD)



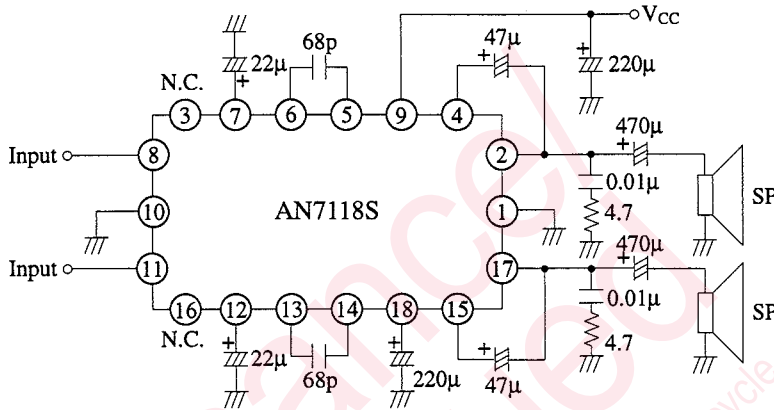
■ Application Circuit

AN7118 Dual Circuit

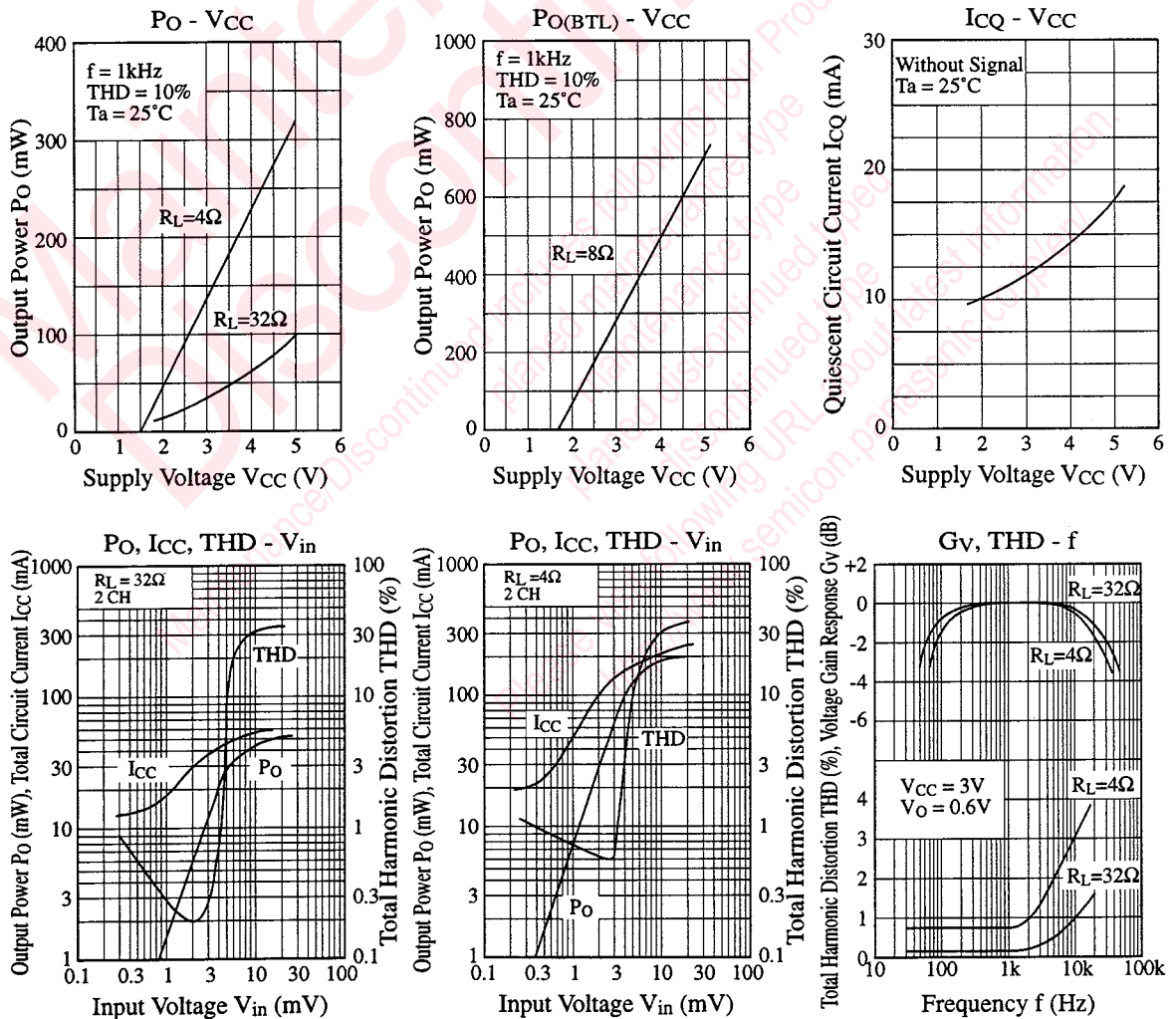


■ Application Circuit (Continue)

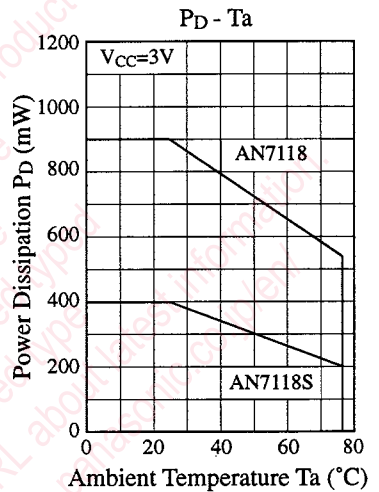
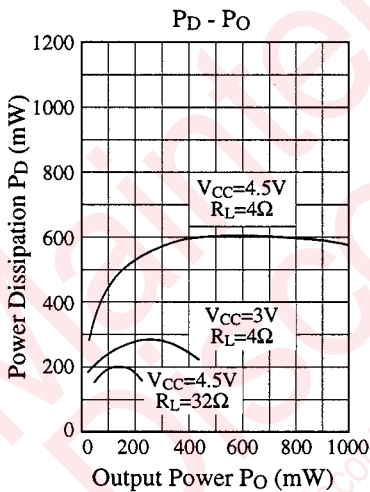
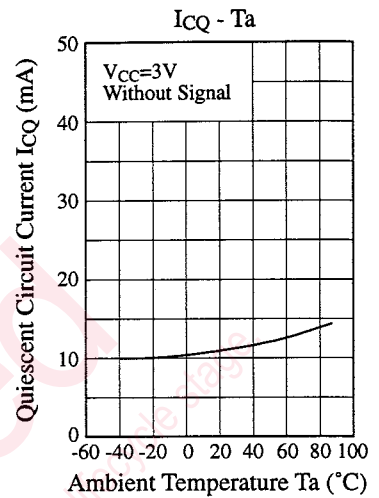
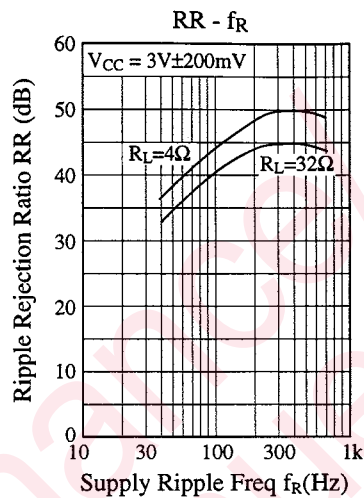
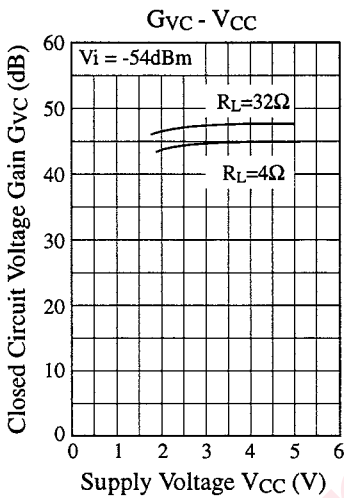
AN7118S Dual Circuit



■ Characteristics Curve



■ Characteristics Curve (Continue)



■ Supplementary Explanation of IC Characteristics

- Not necessary for input coupling capacitor. Input electric potential is about 0 bias, using PNP Tr for input stage.
- One Chip dual amp. (Stereo operation).
- Battery operation at 1.8V~4.5V.
- Good decreased voltage operation suits a long battery operation.
- BTL connection by external circuit. High output (load 8Ω).
- Load impedance can be driven from 4Ω, which makes it possible to use for both speaker and headphone.
- Small shock noise at power ON and OFF.

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