

# AN7158N

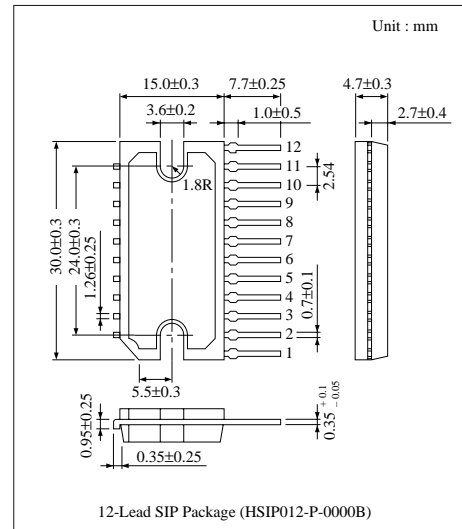
## Dual 7.5W Audio Power Amplifier Circuit

### ■ Overview

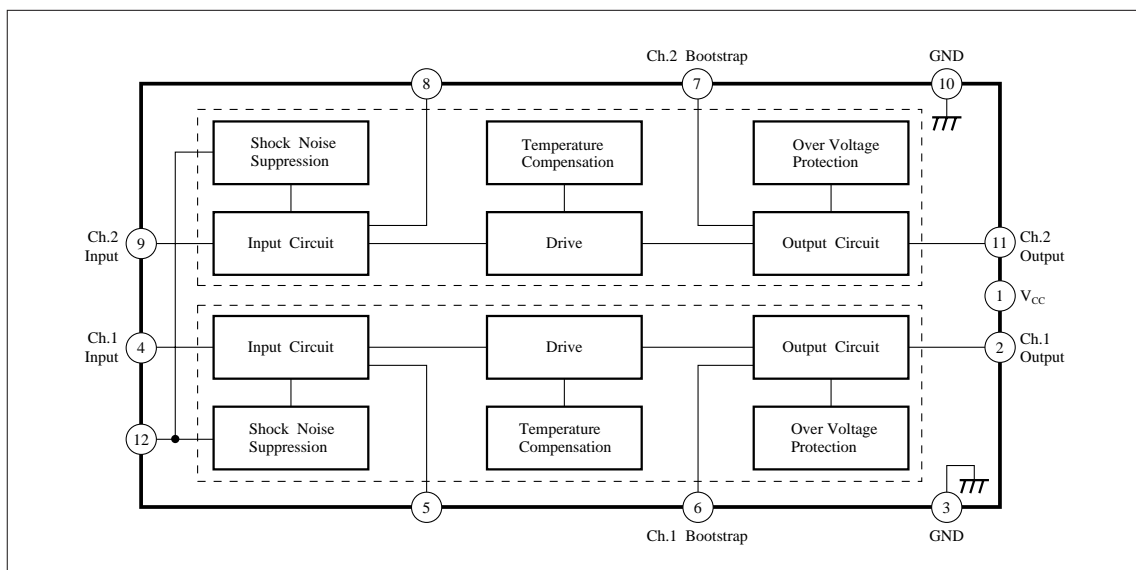
The AN7158N is an integrated circuit designed for power amplifier of 7.5W (16V, 4Ω) output with low noise and low distortion, and it suits TV set with multi-sound. Stereo operation is enabled due to incorporating two amplifiers on one chip. 12-pin SIL package enabled compact and high-densely mounted set.

### ■ Features

- Incorporating protection circuits (surge, thermal protection and etc.)
- Automatic operating point stabilizer circuit
- Low distortion, low 1/f noise
- Low shock noise from power ON/OFF operation
- Better channel separation
- Fewer external components



### ■ Block Diagram



### ■ Absolute Maximum Ratings (Ta= 25°C)

Parameter	Symbol	Rating	Unit
Supply Voltage <small>Note 1)</small>	V <sub>CC</sub>	24	V
Supply Voltage <small>Note 2)</small>	V <sub>CC</sub>	20	V
Supply Current	I <sub>CC</sub>	4	A
Power Dissipation (Ta= 45°C)	P <sub>D</sub>	30	W
Operating Ambient Temperature	T <sub>opr</sub>	- 30 ~ + 75	°C
Storage Temperature	T <sub>stg</sub>	- 55 ~ + 150	°C

Note 1) Without signal V<sub>CC</sub> = 24V (For non-stabilized supply)

Note 2) Operation V<sub>CC</sub> = 20V (For stabilized supply)

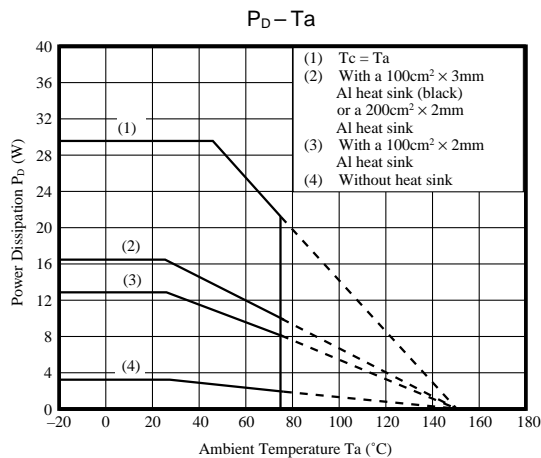
### ■ Electrical Characteristics (Ta = 25°C)

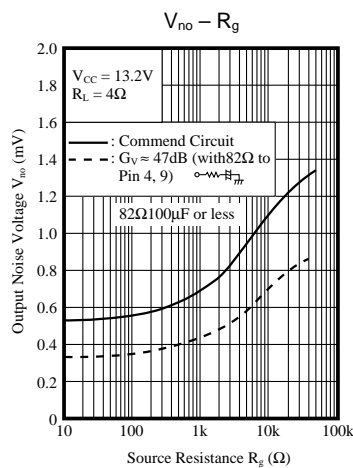
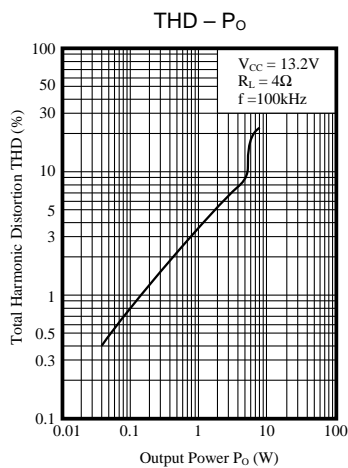
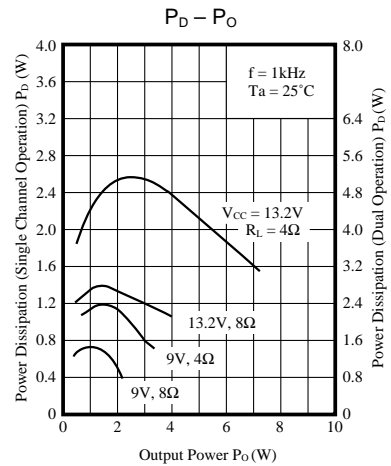
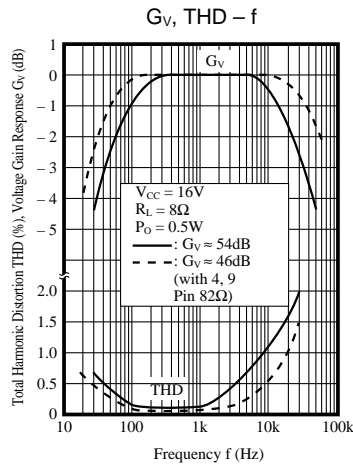
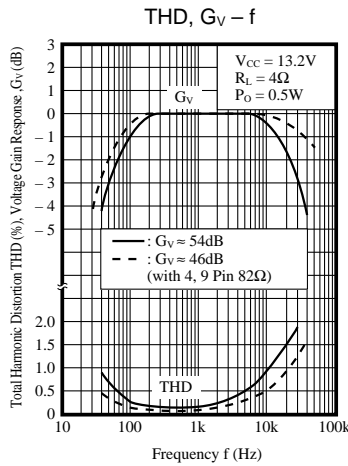
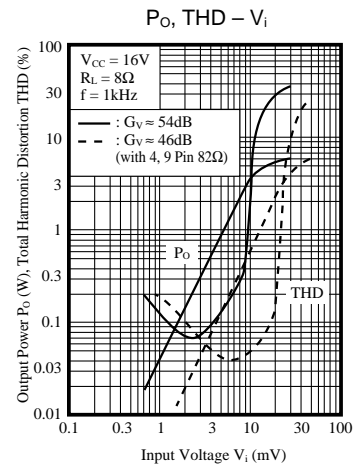
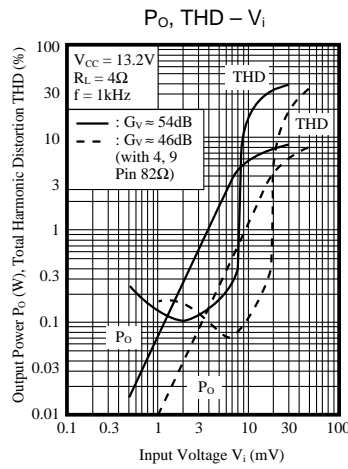
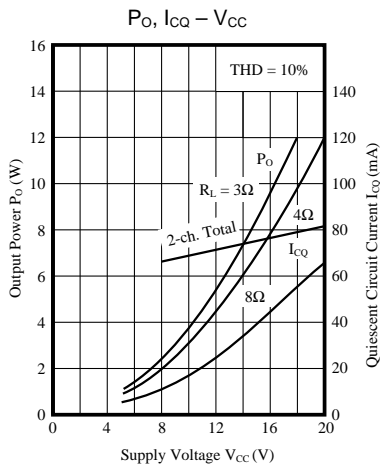
• V<sub>CC</sub>=13.2V, R<sub>L</sub>= 4Ω, f =1kHz

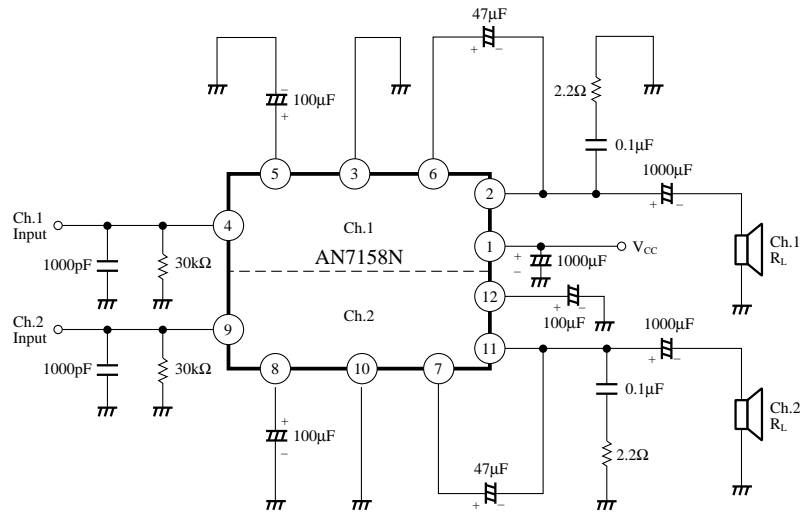
Parameter	Symbol	Condition	min.	typ.	max.	Unit
Quiescent Circuit Current	I <sub>CQ</sub>	V <sub>i</sub> = 0mV	40	70	120	mA
Voltage Gain	G <sub>V</sub>	V <sub>i</sub> = 3mV	52	54	56	dB
Output Power	P <sub>O</sub>	THD = 10%	4.8	5.5	—	W
Total Harmonic Distortion	THD	V <sub>i</sub> = 3mV	—	0.15	1	%
Output Noise Voltage	V <sub>no</sub>	R <sub>g</sub> = 10kΩ	—	1	3	mV
Channel Balance	CB	V <sub>i</sub> = 3mV	—	0	1	dB
Separation	Sep.		45	50	—	dB
Ripple Rejection Ratio	RR	f = 60Hz, R <sub>g</sub> = 600Ω	—	40	—	dB

• V<sub>CC</sub>=16V, R<sub>L</sub>= 8Ω, f =1kHz

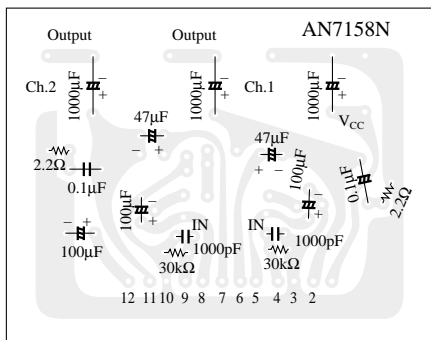
Parameter	Symbol	Condition	min.	typ.	max.	Unit
Quiescent Circuit Current	I <sub>CQ</sub>	V <sub>i</sub> = 0mV	40	80	140	mA
Voltage Gain	G <sub>V</sub>	V <sub>i</sub> = 4mV	52	54	56	dB
Output Power	P <sub>O</sub>	THD = 10%	4	4.5	—	W
		R <sub>L</sub> = 4Ω, THD = 10%	—	7.5	—	W
Total Harmonic Distortion	THD	V <sub>i</sub> = 4mV	—	0.1	1	%
Output Noise Voltage	V <sub>no</sub>	R <sub>g</sub> = 10kΩ	—	1	3	mV
Crosstalk	CT	V <sub>i</sub> = 4mV, R <sub>g</sub> = 10kΩ	45	—	—	dB







■ Printed Circuit Board Layout



■ Pin Descriptions

Pin No.	Pin Name	Pin No.	Pin Name
1	V <sub>CC</sub>	7	Bootstrap Ch.2
2	Output Ch.1	8	N.F.B Ch.2
3	GND	9	Input Ch.2
4	Input Ch.1	10	GND
5	N.F.B Ch.1	11	Output Ch.2
6	Bootstrap Ch.1	12	Ripple Filter