

AN7164

30 W BTL audio power amplifier

Overview

The AN7164 is an integrated circuit designed for 30 W ($V_{CC} = 21\text{ V}$, $8\ \Omega$) output power amplifier. High power output (BTL 30 W), low distortion and low noise are realized. High reliability is obtained due to various kinds of protectors built in. Furthermore, on-off of output is possible from standby terminal.

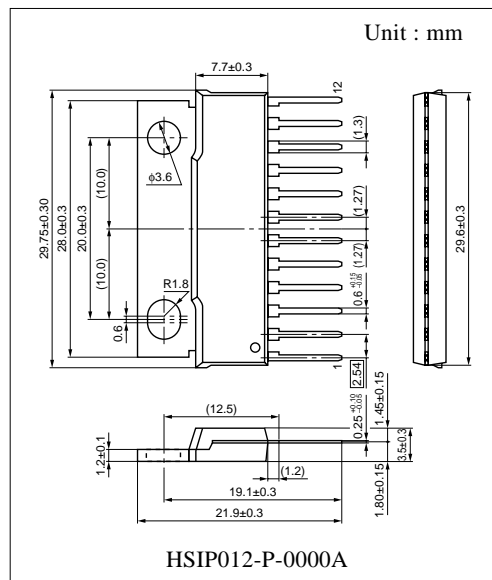
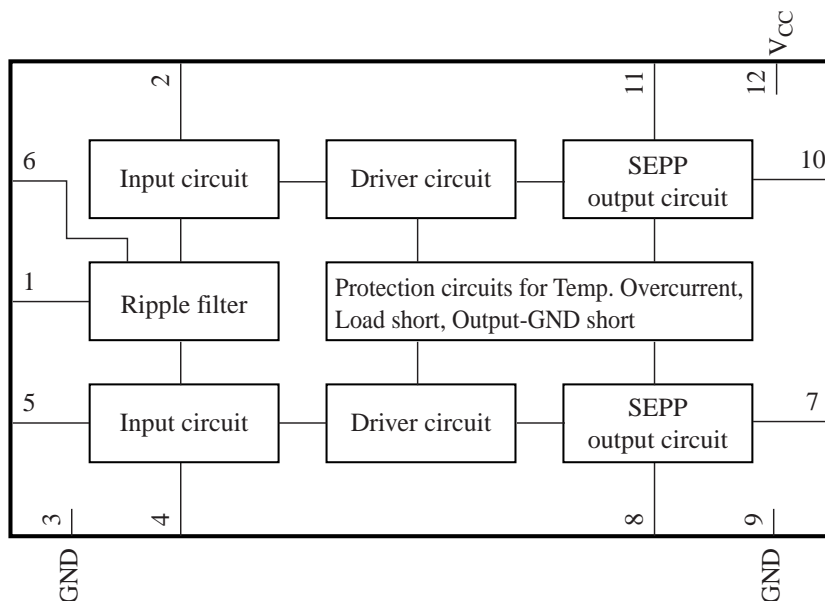
Features

- High power output
- Low distortion, Low noise
- Low shock noise when power supply is turned-on, off
- Built-in standby function
- Built-in protection circuits
(Temperature, Overcurrent, Load short circuit, Output - GND short circuit)

Applications

- Stereo, Karaoke, TV

Block Diagram



■ Pin Descriptions

Pin No.	Description	Pin No.	Description
1	Ripple filter	7	Output (ch.1)
2	Negative feedback (ch.2)	8	Bootstrap (ch.1)
3	GND (Input side)	9	GND (output side)
4	Negative feedback (ch.1)	10	Output (ch.2)
5	Input	11	Bootstrap (ch.2)
6	Standby	12	Supply voltage (V_{CC})

■ Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply voltage ^{*2}	V_{CC}	30	V
Supply current	I_{CC}	5.0	A
Power dissipation ^{*3}	P_D	62.5	W
Operating ambient temperature ^{*1}	T_{opr}	-30 to +75	°C
Storage temperature ^{*1}	T_{stg}	-55 to +150	°C

Note) *1 : $T_a = 25^\circ\text{C}$ except power dissipation, operating ambient temperature and storage temperature.

*2 : Without signal

*3 : $\theta_{j-c} = 2.0$ (°C/W)

■ Recommended Operating Range

Parameter	Symbol	Range	Unit
Supply voltage	V_{CC}	8.3 to 24	V

■ Electrical Characteristics at $V_{CC} = 21$ V, $R_L = 8$ Ω , $f = 1$ kHz, BTL operation, $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Quiescent current	I_{CQ}	$V_{IN} = 0$ V	—	55	100	mA
Output noise voltage ^{*1}	V_{NO}	$R_g = 10$ k Ω	—	0.85	1.3	mV
Output offset voltage	$V_{OFF SET}$	$V_{IN} = 0$ V	—	0	300	mV
Total harmonic distortion	THD	$P_O = 1$ W	—	0.07	0.3	%
Voltage gain	G_V	$P_O = 1$ W	49.5	51.5	53.5	dB
Maximum output power	P_O	THD = 10%	24	30	—	W
Ripple rejection ratio ^{*1, 2}	R.R.	$R_g = 0$ Ω , power supply ripple	45	51	—	dB
Standby current	I_{STB}	Pin 6 open	—	—	3	μA

Note) *1 : Measurement through the DIN audio filter.

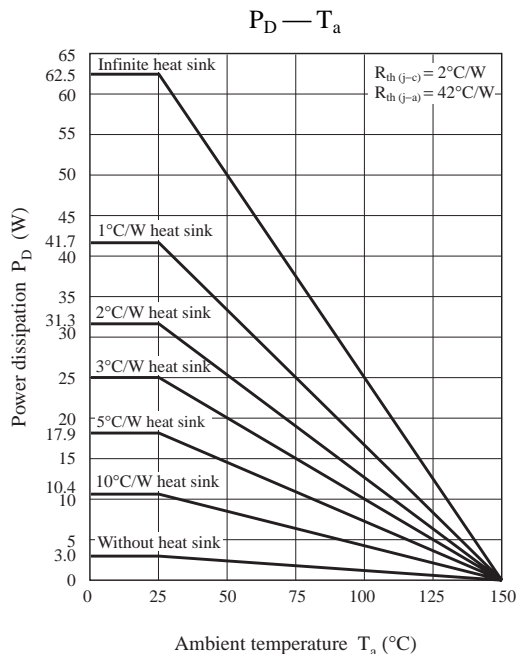
*2 : Power supply ripple 120 Hz Sine wave, 1V[rms]

■ Usage Notes

Standby-on (i.e. an application of 5 V to pin 6) under a high temperature may cause no-output due to the malfunction of rapid discharging circuit of the ripple filter. To avoid this, it is necessary to forcibly flow a current of 1 mA into pin 1 at standby-on.

■ Technical Information

- $P_D - T_a$ curves of HSIP012-P-0000A



■ Application Circuit Example

