

# 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.

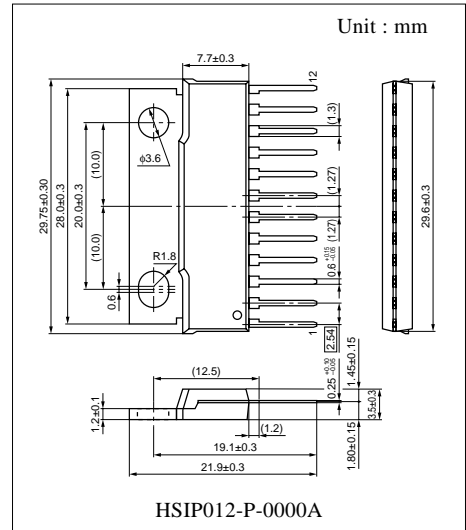
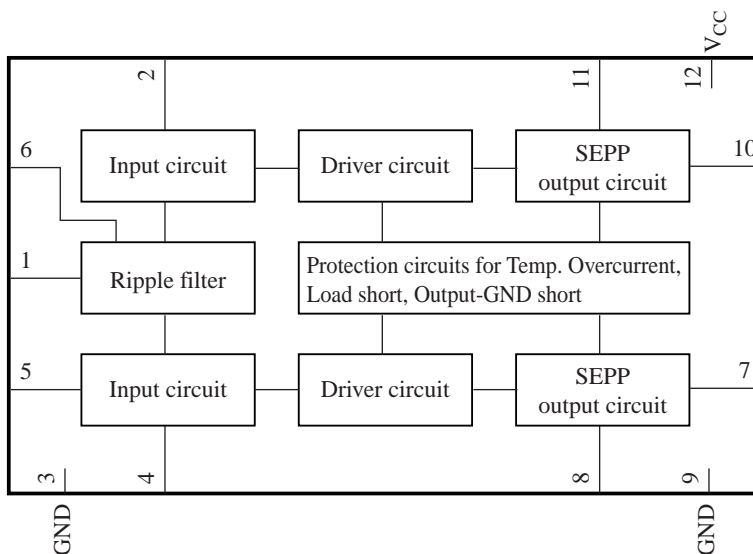
### ■ Features

- 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, $R_L = 8$ $\Omega$ , $f = 1$ 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 $\Omega$	—	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.	$R_g = 0$ $\Omega$ , power supply ripple	45	51	—	dB
Standby current	$I_{STB}$	Pin 6 open	—	—	3	$\mu\text{A}$

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

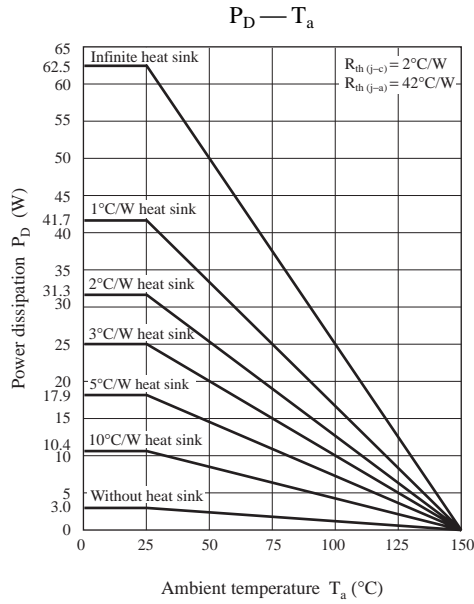
\*2 : Power supply ripple ..... 120 Hz Sine wave, 1V[rms]

■ 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

