

# AN5277

## Dual Channel SEPP Power Amplifier

### ■ Overview

The AN5277 is a monolithic integrated circuit designed for 10.0 W (26 V, 8 W) output audio power amplifier. It is a dual channel SEPP IC suitable for stereo operation in TV application.

### ■ Features

- Few external components :
  - No Boucherot cells(output C, R)
  - No Bootstrap Capacitors
  - No Negative Feedback Capacitors
- Built-in muting circuit
- Built-in standby circuit
- Built-in various protection circuits (Load-short, thermal, over-voltage and current)
- High ripple rejection(55 dB)
- Compatible with AN5275, AN5276
- Operating voltage range 10 ~ 32 V(26 V typ.)

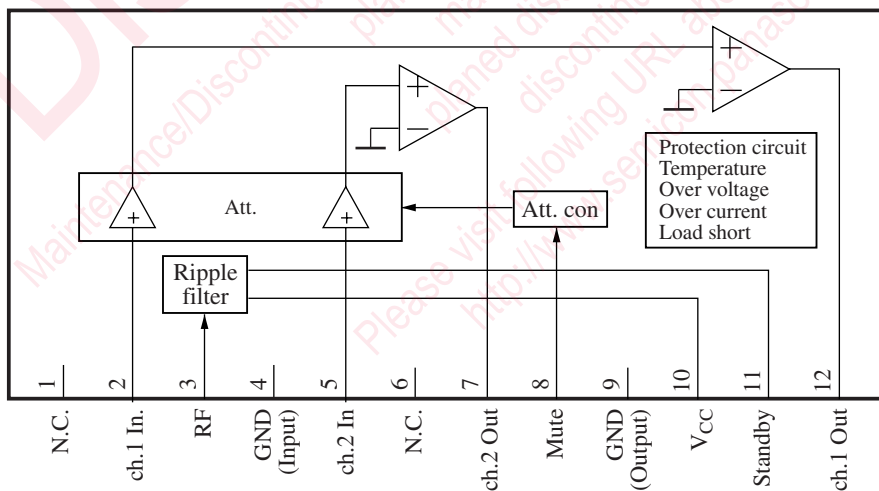
### ■ Applications

- TV

### ■ Package

- HSIP012-P-0000E

### ■ Block Diagram



### ■ Pin Descriptions

Pin No.	Description	Pin No.	Description
1	N.C.	7	ch.2 Output
2	ch.1 Input	8	Mute
3	Ripple Filter	9	Output GND
4	Input GND	10	V <sub>CC</sub>
5	ch.2 Input	11	Standby
6	N.C.	12	ch.1 Output

### ■ Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Supply voltage	V <sub>CC</sub>	35.0	V
Supply current	I <sub>CC</sub>	4.0	A
Power dissipation *2	P <sub>D</sub>	37.5	W
Operating ambient temperature *1	T <sub>opr</sub>	-25 to +75	°C
Storage temperature *1	T <sub>stg</sub>	-55 to +150	°C

Note) \*1 : T<sub>a</sub> = 25 °C except operating ambient temperature and storage temperature.

\*2 : At T<sub>a</sub> = 70 °C.

### ■ Recommended Operating Range

Parameter	Symbol	Range	Unit
Supply voltage	V <sub>CC</sub>	10.0 to 32.0	V

### ■ Electrical Characteristics at V<sub>CC</sub> = 26 V, R<sub>L</sub> = 8 Ω, f = 1 kHz, T<sub>a</sub> = 25 °C

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Quiescent current	I <sub>CQ</sub>	V <sub>IN</sub> = 0 mV	—	40	80	mA
Output end noise voltage *1	V <sub>NO</sub>	No input, R <sub>G</sub> = 10 k	—	0.22	0.4	mV
Voltage gain	G <sub>V</sub>	V <sub>IN</sub> = 57 mV	32	34	36	dB
Total harmonic distortion *1	THD	V <sub>IN</sub> = 57 mV	—	0.2	0.4	%
Maximum output power	P <sub>O</sub>	V <sub>CC</sub> = 26 V, THD = 10 %	8.0	10.0	—	W
Ripple rejection ratio *1	RR	V <sub>R</sub> = 1 Vrms, f <sub>R</sub> = 120 Hz, R <sub>G</sub> = 10 kΩ,	45	55	—	dB
Channel balance	CB	V <sub>IN</sub> = 57 mV	-1.0	0	1.0	dB
Muting ratio	MR	V <sub>IN</sub> = 57 mV	70	80	—	dB
Muting control voltage	V <sub>MUTE</sub>	V <sub>IN</sub> = 57 mV, MR ≥ 70 dB	3.0	—	—	V
Standby control voltage 'on'	V <sub>STDON</sub>	No input, I <sub>CC</sub> ≤ 0.1 mA	—	—	5.0	V
Standby control voltage 'off'	V <sub>STDOFF</sub>	No input, I <sub>CC</sub> ≥ 20 mA	8.5	—	—	V
Channel crosstalk	CT	V <sub>IN</sub> = 57 mV, R <sub>G</sub> = 10 kΩ	50	60	—	dB

Note) \*1 : For this measurement, use the 20 Hz to 20 kHz (12 dB/OCT) filter.

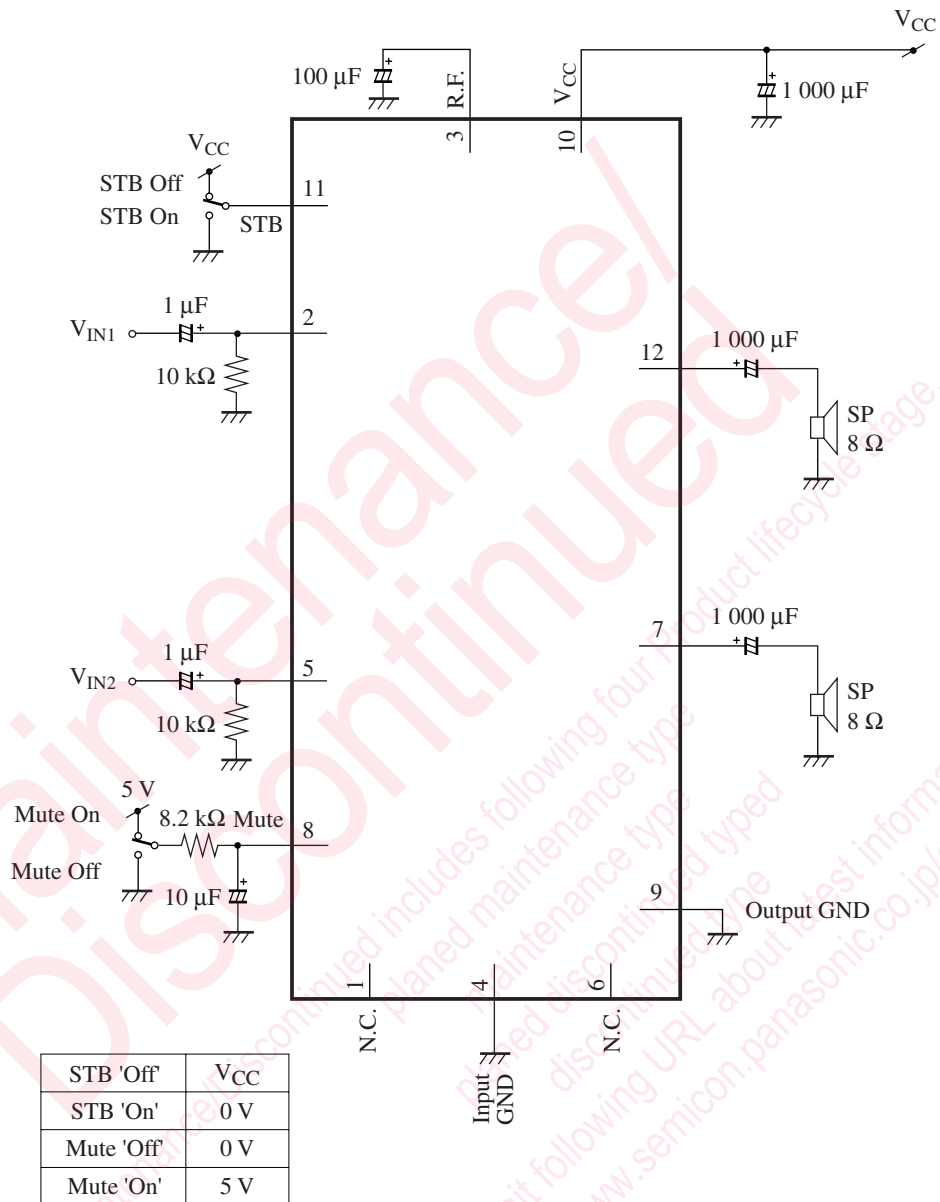
■ Terminal Equivalent Circuit

Pin No.	Equivalent Circuit	Description	DC Voltage
1	—	Not connected	—
2		ch.1 Input : This is the amplifier input pins.	0 V
3		Ripple Filter : This is the pin to connect the positive terminal of a ripple filter capacitor.	$V_{CC} - 1.5 V_{BE}$
4	—	Input GND : Input ground pin.	0 V
5	Refer to Pin2	ch.2 Input : This is the amplifier input pins.	—
6	—	Not connected	—
7		ch.2 Output : ch.2 output pin	$V_{CC}/2$

■ Terminal Equivalent Circuit (continued)

Pin No.	Equivalent Circuit	Description	DC Voltage
8		<p>Mute :</p> <p>Mute input pin.</p> <p>Mute 'On' = 5 V</p> <p>Mute 'Off' = 0 V</p>	—
9	—	Output GND : ch.1 & ch.2 output ground.	0 V
10	—	V <sub>CC</sub> : This is the power supply pin.	typ. : 26 V
11		<p>Standby :</p> <p>This is the standby control pin.</p>	—
12		<p>ch.1 Output :</p> <p>ch.1 output pin</p>	V <sub>CC</sub> /2

■ Application Circuit Example



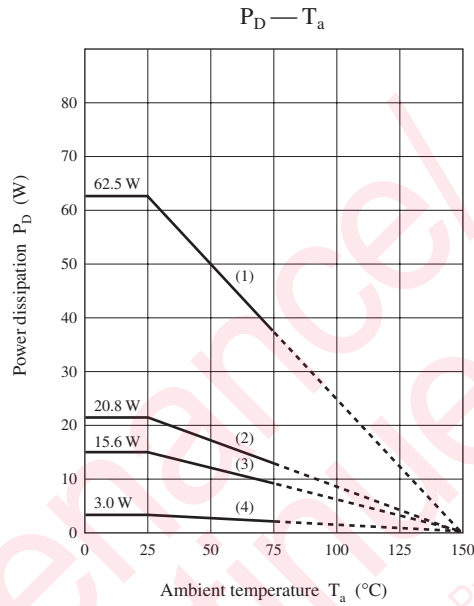
■ Usage Notes

1. External heatsink is needed when used. External heatsink should be fixed to the chassis.
2. Fin of the IC can be connected to GND.
3. Please prevent output to V<sub>CC</sub> short and output to GND short.
4. Load short protection will only prevent the IC from damaging if operating V<sub>CC</sub> < 30 V
5. The temperature protection circuit will operate at T<sub>j</sub> around 150 °C.

However, if temperature decrease, the protection circuit will automatically be deactivated and resume normal operation.

## ■ Technical Information

- $P_D$  —  $T_a$  Curves of HSIP012-P-0000E



1.  $T_C = T_a$ , 62.5 W ( $\theta_{j-c} = 2$  °C/W)
2. 20.83 W ( $\theta_f = 4.0$  °C/W)  
With a 100 cm<sup>2</sup> X 3 mm Al heat sink (black colour coated) or a 200 cm<sup>2</sup> X 2 mm Al heat sink (not lacquered)
3. 15.63 W ( $\theta_f = 6.0$  °C/W)  
With a 100 cm<sup>2</sup> X 2 mm Al heat sink (not lacquered)
4. 3.0 W at  $T_a = 25$  °C ( $\theta_{j-a} = 42$  °C/W)  
Without heat sink

## utions in using the technical information and scribed in this book

s book is to be exported or provided to non-residents, the laws and  
rd to security export control, must be observed.

ly to show the main characteristics and application circuit examples  
l property right or other right owned by our company or any other  
any as to the infringement upon any such right owned by any other  
rmation described in this book.

standard applications or general electronic equipment (such as office  
and household appliances).

ng applications:

biles, traffic control equipment, combustion equipment, life support  
reliability are required, or if the failure or malfunction of the prod-

ck are subject to change without notice for modification and/or im-  
use of the products, therefore, ask for the most up-to-date Product  
atisfy your requirements.

bsolute maximum rating and the guaranteed operating conditions  
(.). Especially, please be careful not to exceed the range of absolute  
er-off and mode-switching. Otherwise, we will not be liable for any


take into the consideration of incidence of break down and failure  
n the systems such as redundant design, arresting the spread of fire  
al injury, fire, social damages, for example, by using the products.

own and characteristics change due to external factors (ESD, EOS,  
mounting or at customer's process. When using products for which  
shelf life and the elapsed time since first opening the packages.

ly or partially, without the prior written permission of Matsushita

## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

 [View AN5277 on WIN SOURCE](#)

 [Panasonic Information](#)

## Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management