

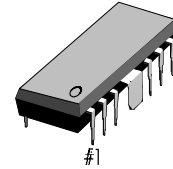
## INTRODUCTION

The S1A2206D01 is a monolithic integrated circuit consisting of a 2-channel power amplifier. It is suitable for the stereo and bridge amplifier application of a radio cassette tape recorder.

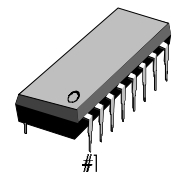
## FEATURES

- High power output  
Stereo :  $P_O = 2.3 \text{ W (Typ)}$  at  $V_{CC} = 9 \text{ V}$ ,  $R_L = 4$   
Bridge :  $P_O = 4.7 \text{ W (Typ)}$  at  $V_{CC} = 9 \text{ V}$ ,  $R_L = 8$
- Low switching distortion at high frequency
- Reduced shock noise at the time of power on/off due to a built-in muting circuit
- Good ripple rejection due to a built-in ripple filter
- Good channel separation
- Soft tone at the time of output saturation
- Closed loop voltage gain fixed at 45dB (Bridge : 51 dB) but availability with external resistor added
- Minimum number of external parts required
- Easy-to-design radiator fin

12-DIPH-300



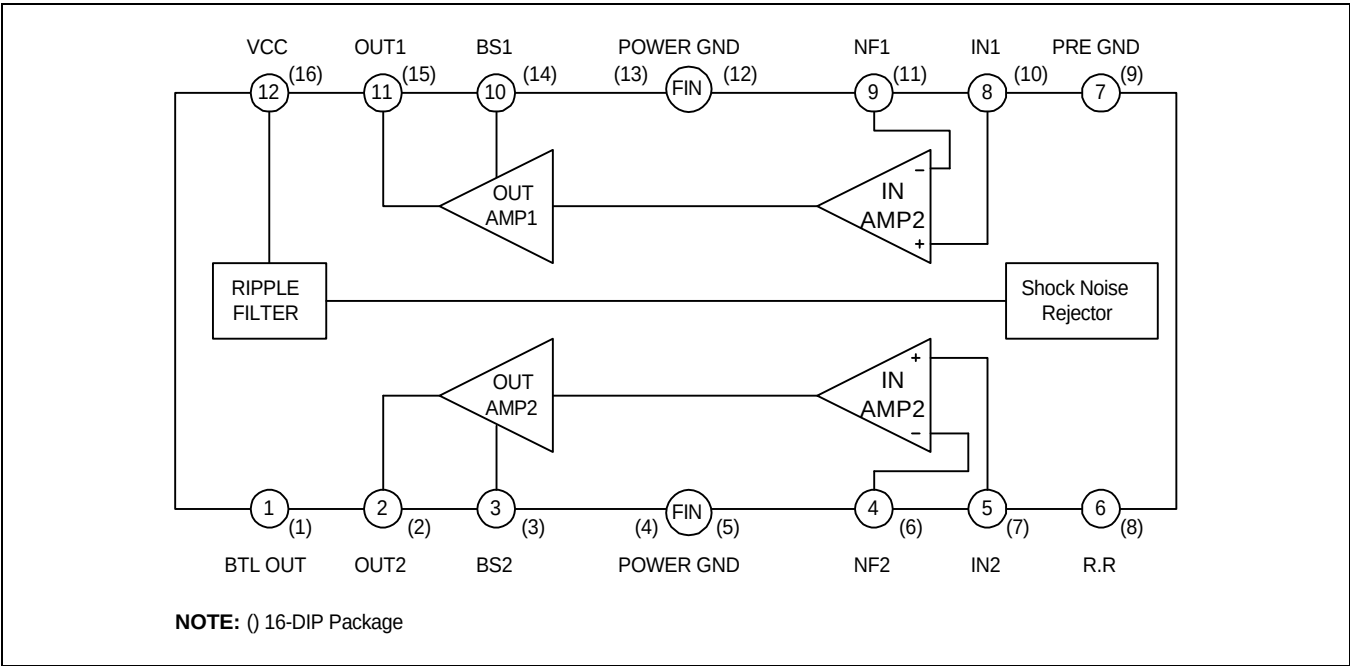
16-DIP-300A



## ORDERING INFORMATION

| Device          | Package     | Operating Temperature |
|-----------------|-------------|-----------------------|
| S1A2206D01-H0B0 | 12-DIPH-300 | - 20°C – + 70°C       |
| S1A2206D01-D0B0 | 16-DIP-300A |                       |

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

| Characteristic        | Symbol           | Value       | Unit |
|-----------------------|------------------|-------------|------|
| Supply Voltage        | V <sub>CC</sub>  | 15          | V    |
| Power Dissipation     | P <sub>D</sub>   | (*) 4       | W    |
| Operating Temperature | T <sub>OPR</sub> | − 20 — +70  | °C   |
| Storage Temperature   | T <sub>STG</sub> | − 40 — +150 | °C   |

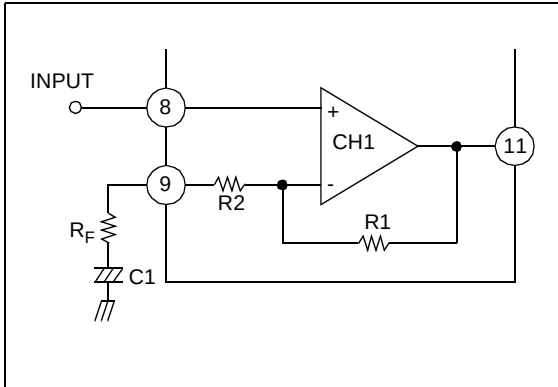
\* Fin is soldered on the PCB

**ELECTRICAL CHARACTERISTICS**( Ta = 25°C, V<sub>CC</sub> = 9V, f = 1kHz, R<sub>G</sub> = 600Ω, unless otherwise specified )

| Characteristic            | Symbol           | Test Conditions                                               |                                                 | Min | Typ | Max | Unit |
|---------------------------|------------------|---------------------------------------------------------------|-------------------------------------------------|-----|-----|-----|------|
| Operating Supply Voltage  | V <sub>CC</sub>  | —                                                             |                                                 | —   | 9   | 11  | V    |
| Quiescent Circuit Current | I <sub>CCQ</sub> | V <sub>I</sub> = 0, Stereo                                    |                                                 | —   | 40  | 55  | mA   |
| Closed Loop Voltage Gain  | G <sub>VC</sub>  | Stereo                                                        | V <sub>I</sub> = -45 dBm                        | 43  | 45  | 47  | dB   |
|                           |                  | Bridge                                                        |                                                 | 49  | 51  | 53  | dB   |
| Channel Balance           | CB               | Stereo                                                        | —                                               | −1  | 0   | +1  | dB   |
| Power Output              | PO               | Stereo                                                        | R <sub>L</sub> = 4, THD = 10 %,                 | 1.7 | 2.3 | —   | W    |
|                           |                  |                                                               | R <sub>L</sub> = 8, THD = 10 %,                 | —   | 1.3 | —   | W    |
|                           |                  | Bridge                                                        | R <sub>L</sub> = 8, THD = 10 %,                 | —   | 4.7 | —   | W    |
| Total Harmonic Distortion | THD              | Stereo                                                        | P <sub>O</sub> = 250 mW,<br>R <sub>L</sub> = 4Ω | —   | 0.3 | 1.5 | %    |
|                           |                  | Bridge                                                        |                                                 | —   | 0.5 | —   | %    |
| Input Resistance          | R <sub>I</sub>   | —                                                             |                                                 | 21  | 30  | —   | kΩ   |
| Ripple Rejection Ratio    | RR               | Stereo,R <sub>G</sub> = 0, V <sub>I</sub> = 150mW<br>f =100Hz |                                                 | 40  | 46  | —   | dB   |
| Output Noise Voltage      | V <sub>NO</sub>  | Stereo,R <sub>G</sub> = 0Ω                                    |                                                 | —   | 0.3 | 1.0 | mV   |
|                           |                  | Stereo,R <sub>G</sub> = 10kΩ                                  |                                                 | —   | 0.5 | 2.0 | mV   |
| Cross Talk                | CT               | Stereo,R <sub>G</sub> = 10kΩ, V <sub>O</sub> = 0dBm           |                                                 | 40  | 55  | —   | dB   |

## APPLICATION INFORMATION

## 1. Stereo Application



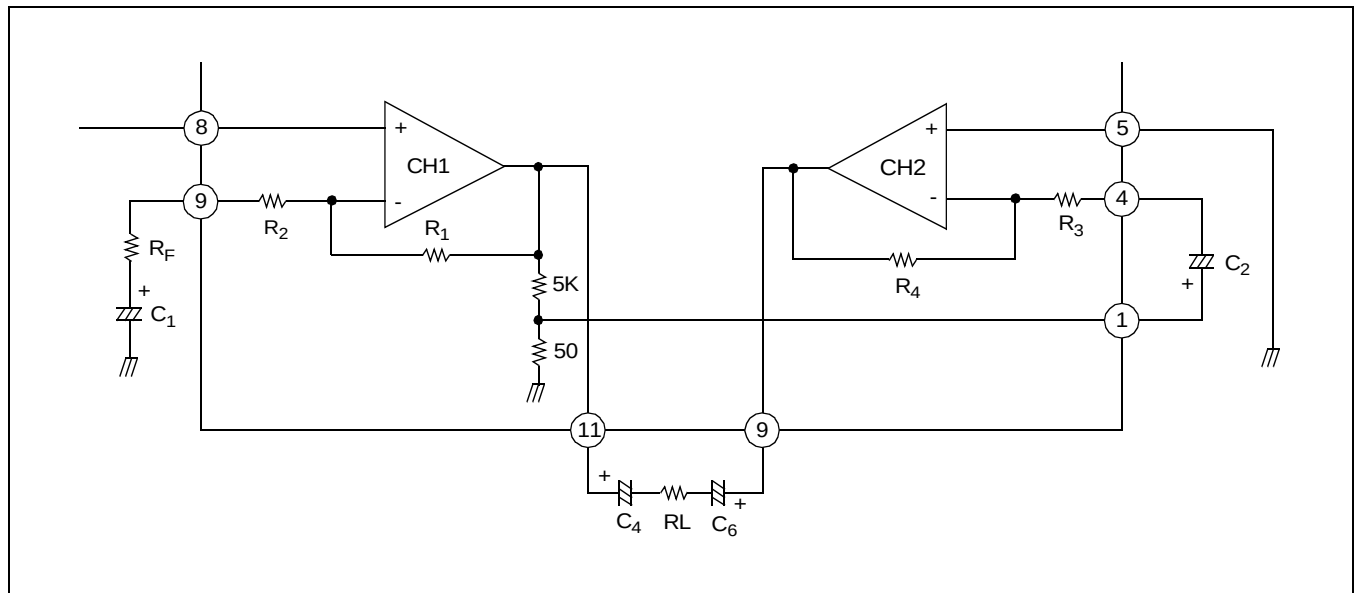
- i) Fixed voltage gain  
(Pin 9 connected to GND directly)

$$G_v = 20 \log \frac{R_1}{R_2} (dB)$$

- ii) Variable voltage gain  
(Rf and C<sub>1</sub> connected with pin 9)

$$G_v = 20 \log \frac{R_1}{R_2 + R_F} (dB)$$

## 2. Bridge Application



- i) Fixed voltage gain (Pin 9 connected to GND directly)

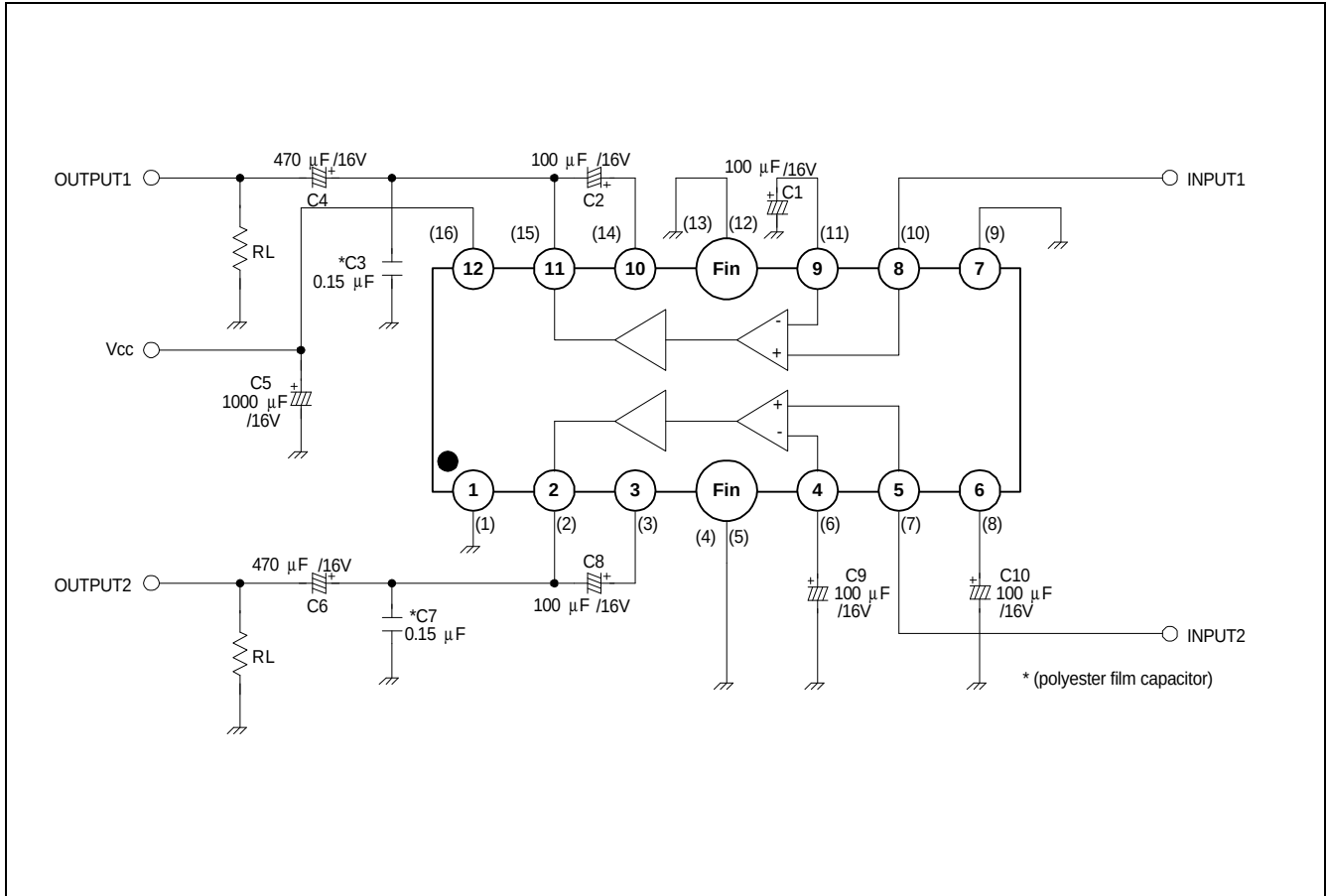
$$G_v = 20 \log \left( \frac{R_1}{R_2} + 6 \right) (dB)$$

- ii) Variable voltage gain R<sub>F</sub> and C<sub>1</sub> connected with pin 9)

$$G_v = 20 \log \left( \frac{R_1}{R_2 + R_F} + 6 \right) (dB)$$

## APPLICATION CIRCUIT

## 1. Stereo Amplifier



## 2. Bridge Amplifier

