

# AN5275

## 15W × 2Ch. Low Frequency Power Amplifier Circuit for TV

### ■ Overview

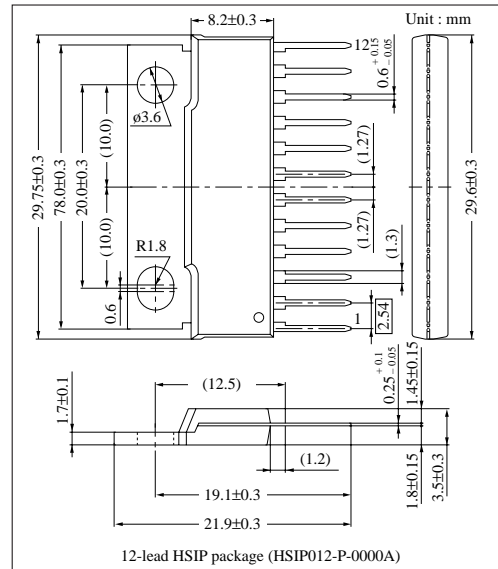
The AN5275 is an audio power IC developed for TV sound output (15W × 2Ch.).

High density mounting is possible and it can contribute to cost reduction, because it requires fewer external components.

It incorporates various protective circuits to provide high reliability and breakage resistance.

### ■ Features

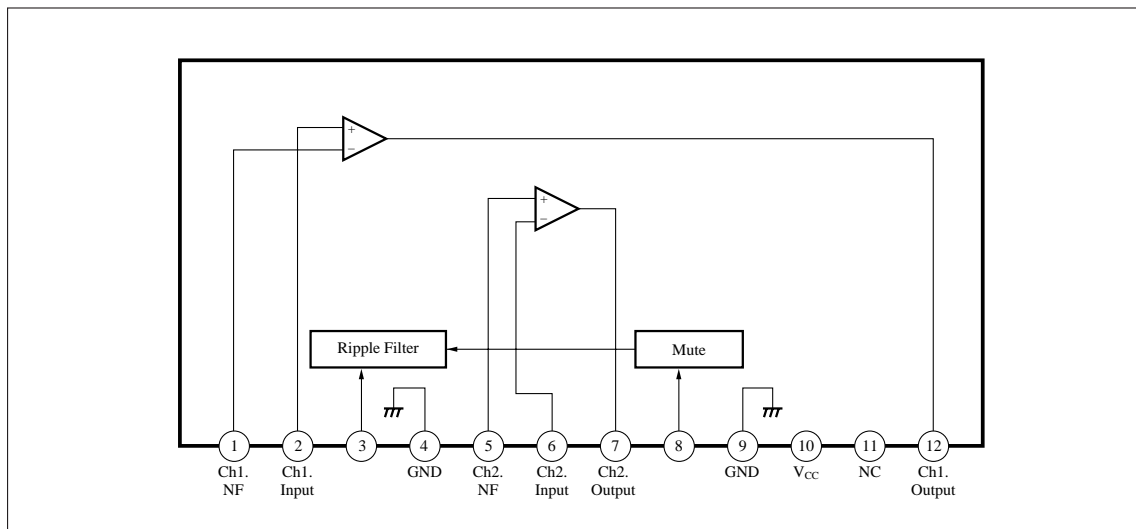
- Wide operating supply voltage range (10 to 40V)
- Little distortion and noise
- Fewer external components
  - BS (boot-strap) electrolytic capacitor not required
- Audio muting function built-in
- Very small shock noise at power ON/OFF
- Various protective circuits built-in
  - Load short-circuit protection. Protection against over-voltage and – current. Temperature protection



### ■ Pin Description

| Pin No. | Pin Description        | Pin No. | Pin Description         |
|---------|------------------------|---------|-------------------------|
| 1       | Ch.1 NF pin            | 7       | Ch.2 output pin         |
| 2       | Ch.1 input pin         | 8       | Muting pin              |
| 3       | Ripple filter pin      | 9       | GND (sound output side) |
| 4       | GND (sound input side) | 10      | Supply voltage          |
| 5       | Ch.2 input pin         | 11      | NC                      |
| 6       | Ch.2 NF pin            | 12      | Ch.1 output pin         |

### ■ Block Diagram



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

| Parameter                              | Symbol             | Rating       | Unit |
|--|--------------------|--------------|------|
| Supply Voltage                         | V <sub>CC</sub>    | 4.5          | V    |
| Supply Current                         | I <sub>CC</sub>    | 4.0          | A    |
| Power Dissipation <sup>Note 1)</sup>   | P <sub>D</sub>     | 25           | W    |
| Peak Supply Voltage <sup>Note 2)</sup> | V <sub>surge</sub> | 60           | V    |
| Operating Ambient Temperature          | T <sub>opr</sub>   | - 25 ~ + 80  | °C   |
| Storage Temperature                    | T <sub>stg</sub>   | - 55 ~ + 150 | °C   |

Note 1) R<sub>th(j-c)</sub> = 2°C/W

Note 2) t = 0.2s

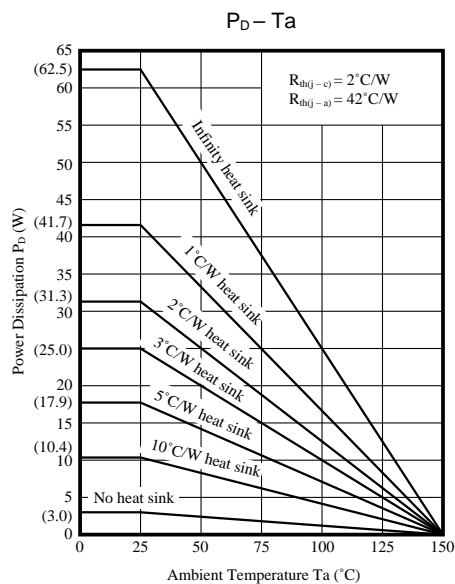
### ■ Recommended Operating Range (Ta = 25°C)

| Parameter                      | Symbol          | Range         |
|--------------------------------|-----------------|---------------|
| Operating Supply Voltage Range | V <sub>CC</sub> | 10.0V ~ 40.0V |

### ■ Electrical Characteristics (V<sub>CC</sub>= 32V, f<sub>req.</sub>= 1kHz, Ta= 25±2°C)

| Parameter                                   | Symbol          | Condition   | min. | typ. | max. | Unit  |
|---|-----------------|---|------|------|------|-------|
| Static Circuit Current                      | I <sub>CQ</sub> | V <sub>IN</sub> = 0mV, R <sub>L</sub> = 8Ω  | —    | 100  | 200  | mA    |
| Output End Noise Voltage <sup>Note 1)</sup> | V <sub>NO</sub> | R <sub>g</sub> = 4.7kΩ, R <sub>L</sub> = 8Ω   | —    | 0.12 | 0.4  | mVrms |
| Voltage Gain                                | G <sub>V</sub>  | V <sub>IN</sub> = 57mV, R <sub>L</sub> = 8Ω   | 32   | 34   | 36   | dB    |
| Total Harmonics Distortion                  | THD             | V <sub>IN</sub> = 57mV, R <sub>L</sub> = 8Ω   | —    | 0.05 | 0.40 | %     |
| Max. Output Power                           | P <sub>O</sub>  | THD= 10%, R <sub>L</sub> = 8Ω   | 11   | 15   | —    | W     |
| Ripple Rejection Ratio <sup>Note 1)</sup>   | RR              | R <sub>L</sub> = 8Ω, V <sub>r</sub> = 1Vrms<br>f <sub>r</sub> = 120Hz, R <sub>g</sub> = 4.7kΩ | 45   | 57   | —    | dB    |
| Channel Balance                             | CB              | V <sub>IN</sub> = 57mV, R <sub>L</sub> = 8Ω   | -1   | 0    | 1    | dB    |

Note 1) 15Hz to 30kHz (12dB/OCT) filter is used for measurement.



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