

ICs for Audio Common Use

Panasonic

AN7135

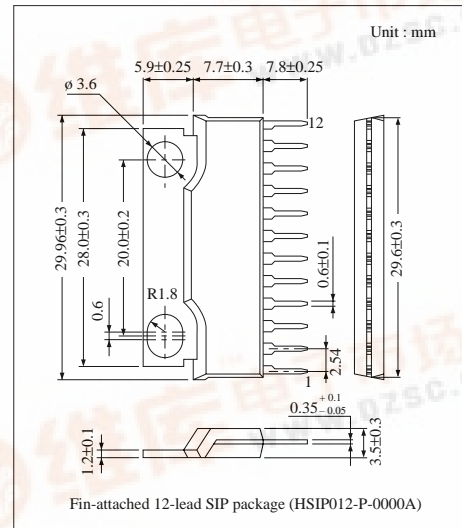
Dual 7.5W Low Frequency Power Amplifier Circuit

Overview

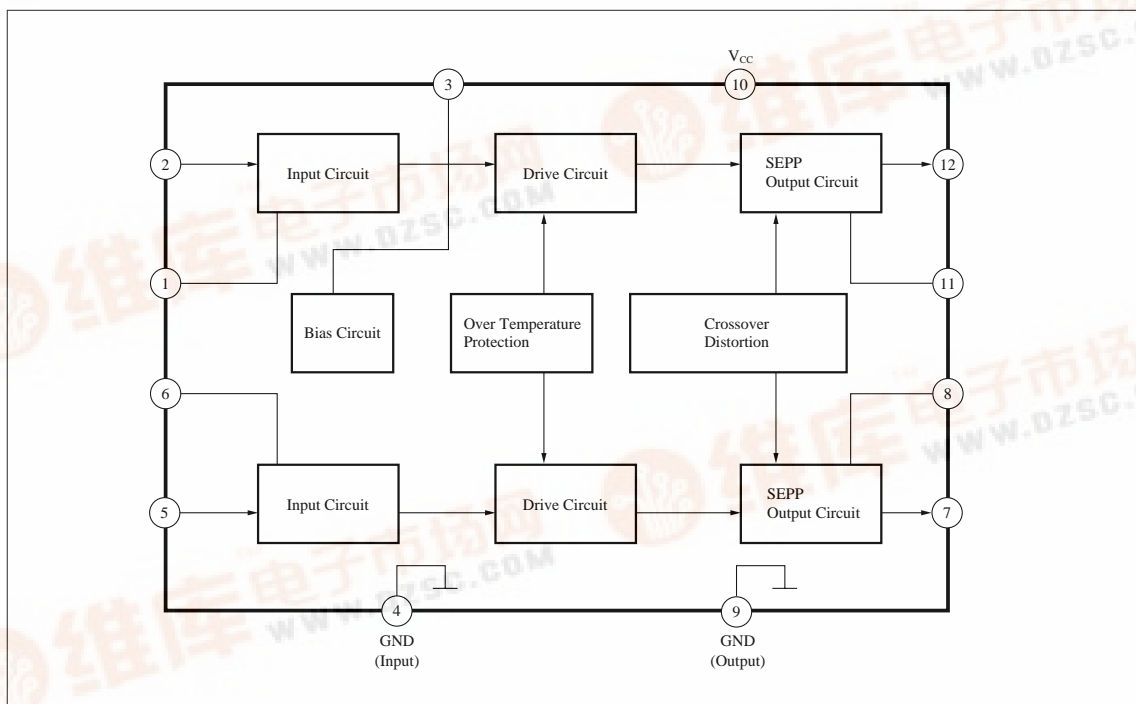
The AN7135 is a power amplifier circuit of 7.5W (15.0V, 3Ω) output. It can provide stereo operation since two amplifiers are incorporated in a chip. Static circuit current is very smaller than conventional IC for power amplifier, and various protective circuits are incorporated, thus providing high reliability. For its feature of very small static circuit current, it is best suitable for dry cell operating sets (e.g. radio cassette recorder). It requires smaller number of external components because it has little distortion and low noise and can support the stand-by condition.

Features

- Small static circuit current
- Stand-by condition supported
- Good oscillation stability
- Little unwanted radiation to RF portion of AM/FM
- Little distortion
- Low noise
- Small shock noise at power ON/OFF, stand-by ON/OFF
- Fewer external components



Block Diagram



■ Pin Name

| Pin No. | Pin Name | Pin No. | Pin Name |
|---------|-----------------------------------|---------|-----------------|
| 1 | Negative Feedback Ch.1 | 7 | Output Ch.2 |
| 2 | Input Ch.1 | 8 | Boot-strap Ch.2 |
| 3 | Ripple filter/Stand-by Controller | 9 | GND (Output) |
| 4 | GND (Input) | 10 | V _{CC} |
| 5 | Input Ch.2 | 11 | Boot-strap Ch.1 |
| 6 | Negative Feedback Ch.2 | 12 | Output Ch.1 |

■ Absolute Maximum Ratings (T_a= 25°C)

| Parameter | Symbol | Rating | Unit |
|--------------------------------------|------------------|--------------|------|
| Supply Voltage | V _{CC} | 24 | V |
| Supply Current | I _{CC} | 4 | A |
| Power Dissipation ^{Note 1)} | P _D | 62.5 | W |
| Operating Ambient Temperature | T _{opr} | - 30 ~ + 75 | °C |
| Storage Temperature | T _{stg} | - 55 ~ + 150 | °C |

Note) $\theta_{j-c} = 2^{\circ}\text{C/W}$

■ Recommended Operating Range (T_a= 25°C)

| Parameter | Symbol | Range |
|--------------------------------|-----------------|--------------|
| Operating Supply Voltage Range | V _{CC} | 5.5V ~ 18.0V |

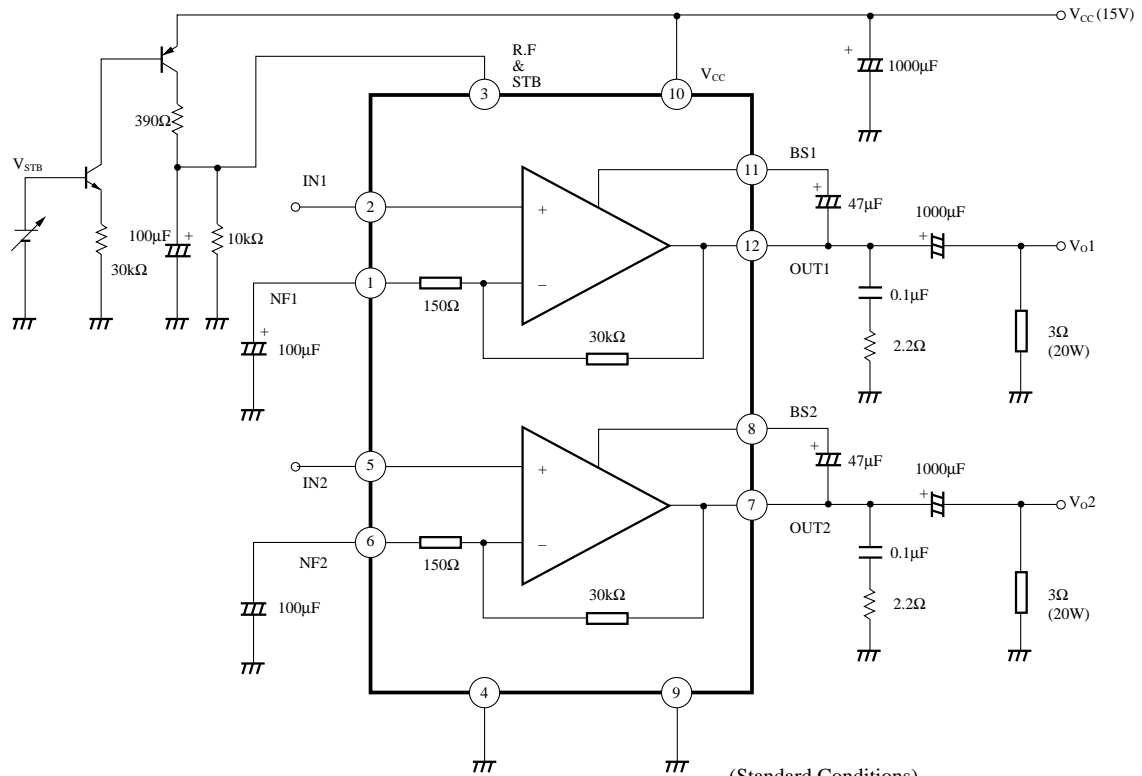
Note) 24V at no signals

■ Electrical Characteristics (V_{CC} = 15V, f_{IN} = 1kHz, R_L = 3Ω, Both channel drive, T_a = 25°C ± 2°C)

| Parameter | Symbol | Condition | min. | typ. | max. | Unit |
|---|-----------------------|--|------|------|------|------|
| Quiescent Current | I _{CQ} | V _{IN} = 0mV | — | 14 | 20 | mA |
| Output End Noise Voltage ^{Note 1)} | V _{NO} | V _{IN} = 0mV, R _g = 10kΩ | — | 0.25 | 0.50 | mV |
| Voltage Gain | G _V | V _{IN} = 3mV | 42.5 | 44.5 | 46.5 | dB |
| Total Harmonics Distortion | THD | V _{IN} = 3mV | — | 0.40 | 0.75 | % |
| Max. Output Power | P _O | THD = 10% | 7.0 | 7.5 | — | W |
| Channel Balance | CB | V _{IN} = 3mV | -1 | 0 | +1 | dB |
| Ripple Rejection Ratio ^{Note 1)} | RR | V _{CC (ripple)} = 280mV, f _(ripple) = 120Hz R _g = 0Ω Sine wave | 45 | 50 | — | dB |
| Input Offset Voltage | V _{IN (O.S)} | Input pin open | — | 10 | 30 | mV |
| Stand-by Current | I _{STB} | Pin3 open | — | — | 30 | μA |

Note 1) Measured through 15Hz to 30kHz (12dB/OCT) filter

■ Application Circuit



(Standard Conditions)

- $V_{CC} = 15V$
 - $R_L = 3\Omega$
 - $f_{IN} = 1kHz$
 - $V_{IN} = 10mV$ or $3mV$
 - $R_g = 600\Omega$
 - $V_{STB} = 5.0V$
- Both Ch. Drive
With heat sink
Tr for stand-by SW
NPN... 2SC828A
PNP... 2SA564A

