

# AN7134NR

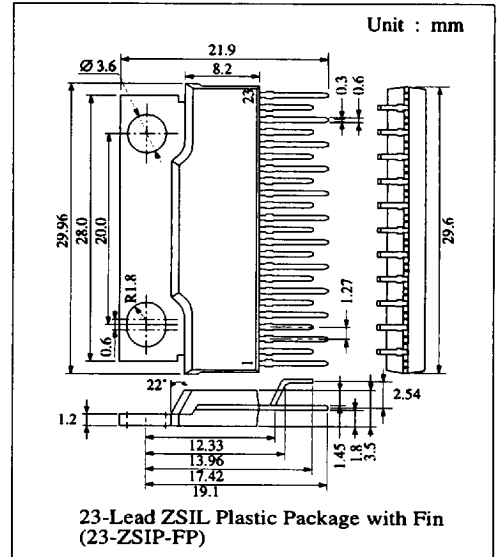
## Dual 7.5W Audio Power Amplifier

### ■ Description

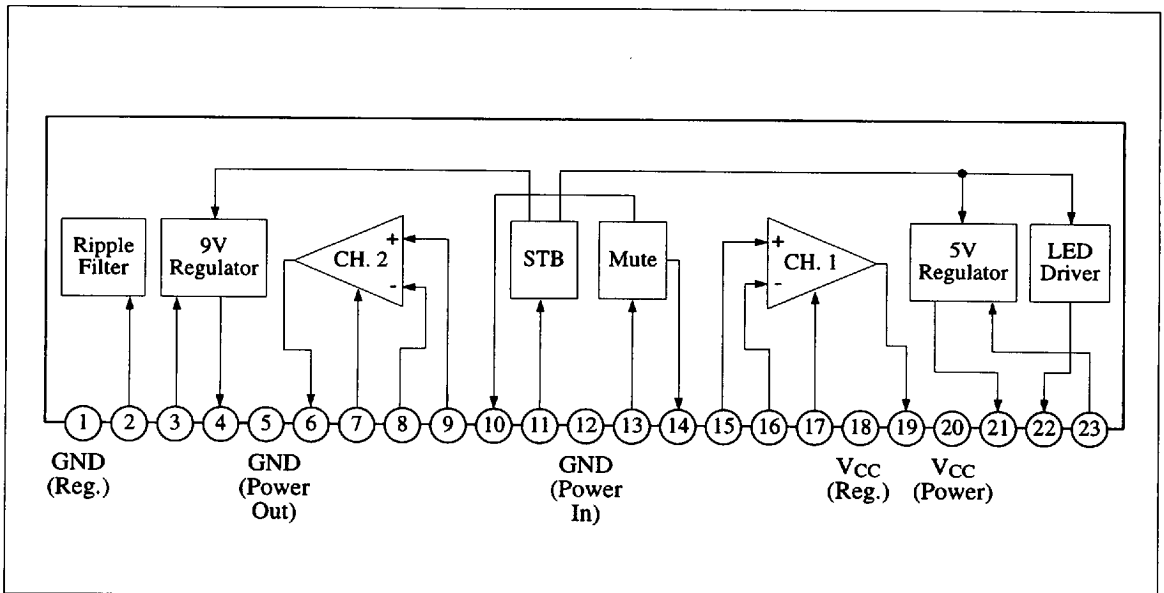
The AN7134NR is a monolithic integrated circuit designed for dual audio high power amplifiers suitable for radio cassette recorder with CD, 9V/5V regulator and LED driver, interlocked with stand-by function, allow you to control all system power supply with the AN7134NR.

### ■ Features

- Audio Output 7.5W x 2 ch.
- Possible to use as power supply of pre-amp./tuner/microcomputer, etc. with 9V/5V regulator built-in ( $I_{out} = 300mA$ )
- LED driver built-in
- With stand-by function
- Muting function built-in
- Wide operating supply voltage:  $V_{CC} = 6V \sim 18V$



### ■ Block Diagram



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

| Item                          | Symbol           | Rating     | Unit |
|-------------------------------|------------------|------------|------|
| Supply Voltage                | V <sub>CC</sub>  | 24         | V    |
| Supply Current                | I <sub>CC</sub>  | 6          | A    |
| Power Dissipation             | P <sub>D</sub>   | 62.5       | W    |
| Operating Ambient Temperature | T <sub>opr</sub> | -25 ~ +75  | °C   |
| Storage Temperature           | T <sub>stg</sub> | -55 ~ +150 | °C   |

Operating Supply Voltage Range: V<sub>CC</sub> = 6.0V ~ 18.0V

### ■ Electrical Characteristics (V<sub>CC</sub>=15V, R<sub>L</sub>=3Ω, f=1kHz, Ta=25°C)

| Item              | Symbol           | Condition                                    | min. | typ. | max. | Unit |
|-------------------|------------------|----------------------------------------------|------|------|------|------|
| Quiescent Current | I <sub>CQ</sub>  | V <sub>in</sub> = 0mV, V <sub>STB</sub> = 0Ω |      | 20   | 35   | mA   |
| Standby Current   | I <sub>STB</sub> | STB-Off                                      |      |      | 100  | μA   |

#### Power Amp. Section

|                           |                 |                                                                                            |    |      |      |    |
|---------------------------|-----------------|--------------------------------------------------------------------------------------------|----|------|------|----|
| Output Noise Voltage      | V <sub>no</sub> | V <sub>in</sub> = 0mV, R <sub>g</sub> = 10kΩ, DIN/AUDIO                                    |    | 0.29 | 0.75 | mV |
| Voltage Gain              | G <sub>v</sub>  | V <sub>in</sub> = 10mV                                                                     | 43 | 45   | 47   | dB |
| Total Harmonic Distortion | THD             | V <sub>in</sub> = 10mV                                                                     |    | 0.2  | 0.6  | %  |
| Maximum Output            | P <sub>O</sub>  | THD = 10%                                                                                  | 7  | 7.5  |      | W  |
| Ripple Rejection          | RR              | V <sub>in</sub> = 0mV, R <sub>g</sub> = 0Ω, V <sub>r</sub> = 300mV, f <sub>r</sub> = 120Hz | 45 | 54   |      | dB |
| Channel Balance           | CB              | V <sub>in</sub> = 10mV                                                                     | -1 | 0    | +1   | dB |
| Muting Effect             | MUT             | I <sub>mute</sub> = 2mA, Source Impedance = 5kΩ                                            | 42 | 47   |      | dB |

#### 9V Power Supply Section

|                  |                    |                                                                          |     |    |     |    |
|------------------|--------------------|--------------------------------------------------------------------------|-----|----|-----|----|
| Output Voltage   | V <sub>out 1</sub> | I <sub>out</sub> = 300mA                                                 | 8.5 | 9  | 9.5 | V  |
| Load Stability   | REG <sub>L1</sub>  | I <sub>out</sub> = 0mA/300mA                                             |     |    | 5   | %  |
| Ripple Rejection | RR <sub>1</sub>    | I <sub>out</sub> = 300mA, V <sub>r</sub> = 300mV, f <sub>r</sub> = 120Hz | 40  | 45 |     | dB |

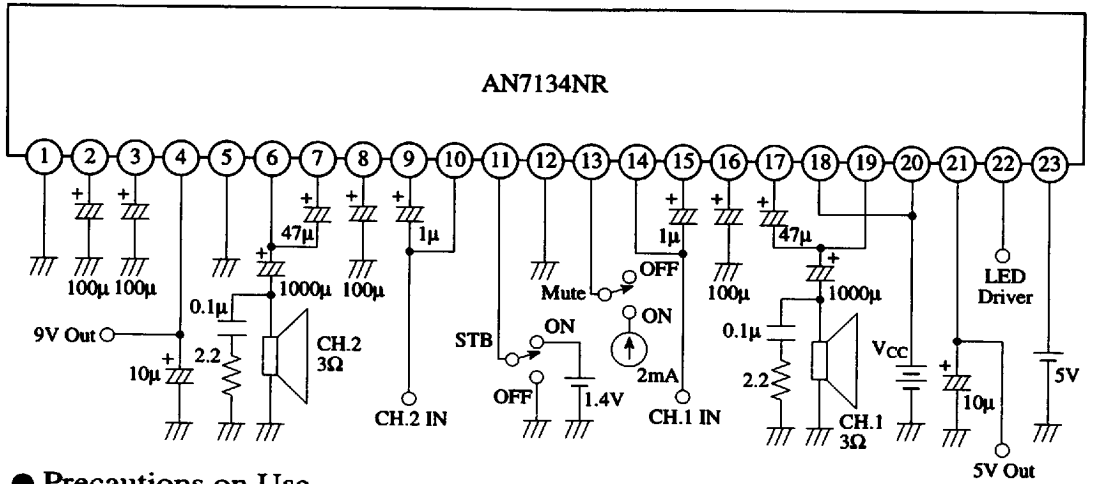
#### 5V Power Supply Section

|                  |                    |                                                                          |      |    |      |    |
|------------------|--------------------|--------------------------------------------------------------------------|------|----|------|----|
| Output Voltage   | V <sub>out 2</sub> | I <sub>out</sub> = 300mA                                                 | 4.75 | 5  | 5.25 | V  |
| Load Stability   | REG <sub>L2</sub>  | I <sub>out</sub> = 0mA/300mA                                             |      |    | 5    | %  |
| Ripple Rejection | RR <sub>2</sub>    | I <sub>out</sub> = 300mA, V <sub>r</sub> = 300mV, f <sub>r</sub> = 120Hz | 50   | 58 |      | dB |

#### LED Driver Section

|                |                    |                       |    |  |  |    |
|----------------|--------------------|-----------------------|----|--|--|----|
| Maximum Output | I <sub>out 3</sub> | R <sub>L</sub> = 300Ω | 30 |  |  | mA |
|----------------|--------------------|-----------------------|----|--|--|----|

■ Application Circuit



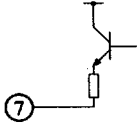
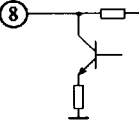
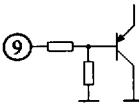
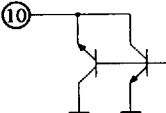
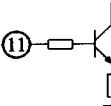
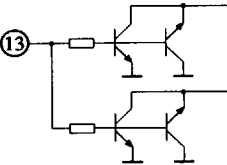
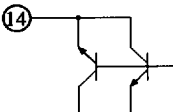
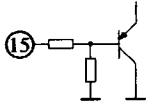
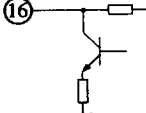
● Precautions on Use

- 1) Don't short output pin to power supply and GND at  $V_{CC} \geq 18V$
- 2) Don't short inter-pin

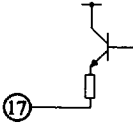
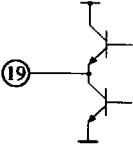
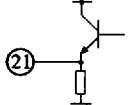
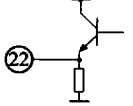
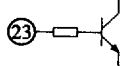
■ Pin Descriptions

| Pin No. | Pin Name                          | Equivalent Circuit | Description                                                             |
|---------|-----------------------------------|--------------------|-------------------------------------------------------------------------|
| 1       | GND (regulator side)              |                    | GND pin for regulator.                                                  |
| 2       | Ripple Filter (audio side)        |                    | Connect capacitor to raise audio output circuit ripple rejection ratio. |
| 3       | Ripple filter (9V regulator side) |                    | Connect capacitor to raise 9V regulator ripple rejection ratio.         |
| 4       | 9V Regulator Output               |                    | 9V constant voltage output pin (Output current more than 300mA).        |
| 5       | GND (audio output side)           |                    | GND pin for audio output circuit.                                       |
| 6       | Ch. 2 Audio Output                |                    | Ch. 2 audio output pin.                                                 |

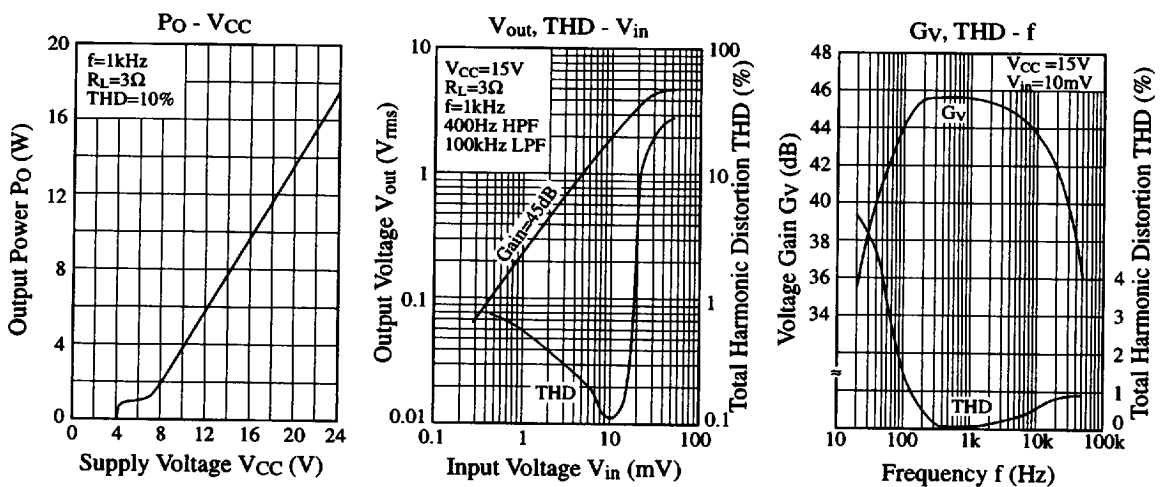
### ■ Pin Descriptions (Continue)

| Pin No. | Pin Name                | Equivalent Circuit                                                                  | Description                                        |
|---------|-------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------|
| 7       | Ch. 2 Bootstrap         |    | Ch. 2 bootstrap pin.                               |
| 8       | Ch. 2 Negative Feedback |    | Ch. 2 negative feedback pin.                       |
| 9       | Ch. 2 Input             |    | Ch. 2 input signal applied pin.                    |
| 10      | Ch. 2 Muting            |    | Ch. 2 input signal muting pin.                     |
| 11      | Stand-by                |    | Circuit mode (stand-by ↔ Operation) switching pin. |
| 12      | GND (audio input side)  |                                                                                     | GND pin for input signal source.                   |
| 13      | Muting Control          |  | Muting ON ↔ OFF switching pin.                     |
| 14      | Ch. 1 Muting            |  | Ch. 1 input signal muting pin.                     |
| 15      | Ch. 1 Input             |  | Ch. 1 input signal applied pin.                    |
| 16      | Ch. 1 Negative Feedback |  | Ch. 1 negative feedback pin.                       |

■ Pin Descriptions (Continue)

| Pin No. | Pin Name                       | Equivalent Circuit                                                                  | Description                                                     |
|---------|--------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| 17      | Ch.1 Bootstrap                 |    | Ch. 1 bootstrap pin                                             |
| 18      | Supply Pin (audio output side) |                                                                                     | Supply pin for audio output circuit                             |
| 19      | Ch. 1 Audio Output             |    | Ch. 1 Audio Signal Output Pin (Gv = 45dB)                       |
| 20      | Supply Pin (regulator side)    |                                                                                     | Supply pin for regulator                                        |
| 21      | 5V Regulator Output            |    | 5V constant voltage output pin (Output current more than 300mA) |
| 22      | LED Driver                     |    | LED driver pin (Output current more than 300mA)                 |
| 23      | 5V Input                       |  | 5V voltage input pin                                            |

■ Characteristics Curve



PD vs Ta, please refer to AN7177.