

# AN7310N

## Dual Pre-Amplifier for Car Radio

### ■ Description

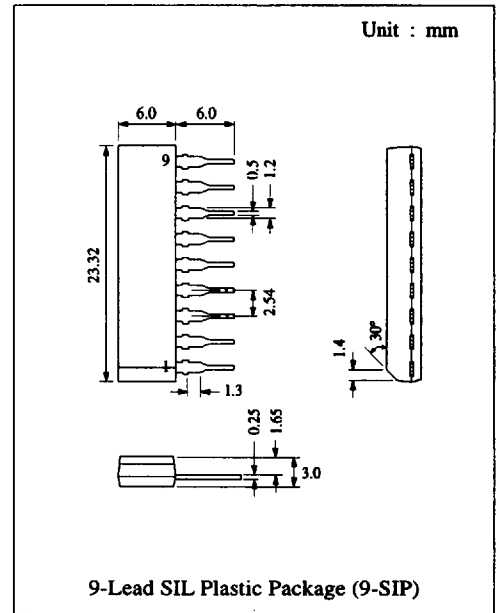
The AN7310N is a monolithic integrated circuit designed for dual pre-amplifier suitable for car stereo, portable stereo and portable cassette tape recorder. Stabilized characteristics can be obtained for high gain, low distortion, low noise and high output voltage, etc owing to the fact that 2 channels are built-in one chip.

### ■ Features

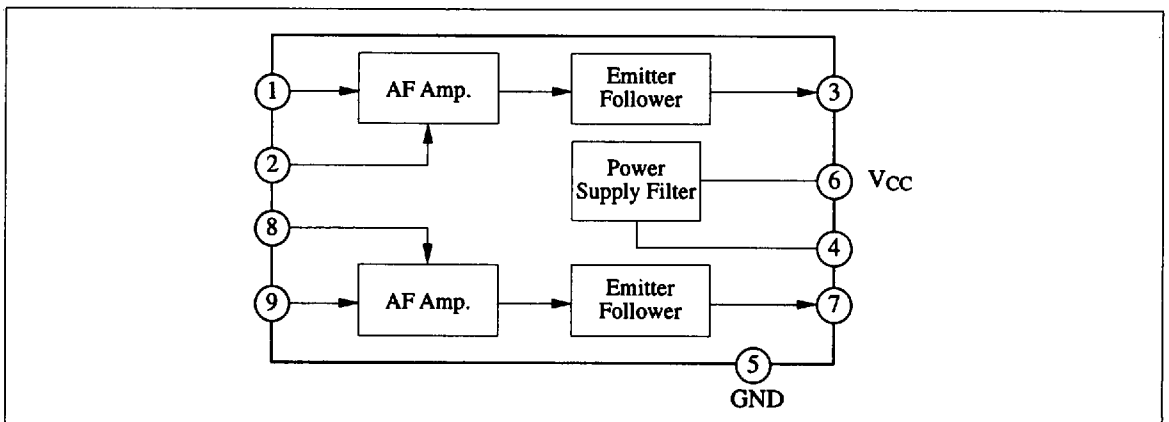
- High gain, low distortion and low noise
- Power ON/OFF noise suppression
- Easy for designing due to single-in-line package
- Good channel separation

### ■ Pin

| Pin No. | Pin Name        |
|---------|-----------------|
| 1       | Input Ch. 1     |
| 2       | N.F.B. Ch. 1    |
| 3       | Output Ch. 1    |
| 4       | Ripple Filter   |
| 5       | GND             |
| 6       | V <sub>CC</sub> |
| 7       | Output Ch. 2    |
| 8       | N.F.B. Ch. 2    |
| 9       | Input Ch. 2     |



### ■ Block Diagram



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

| Item                          | Symbol          | Rating     | Unit |
|-------------------------------|-----------------|------------|------|
| Supply Voltage                | V <sub>CC</sub> | 16         | V    |
| Supply Current                | I <sub>CC</sub> | 15         | mA   |
| Power Dissipation (Ta=75°C)   | P <sub>D</sub>  | 240        | mW   |
| Operating Ambient Temperature | Topr            | -30 ~ +75  | °C   |
| Storage Temperature           | Tstg            | -55 ~ +125 | °C   |

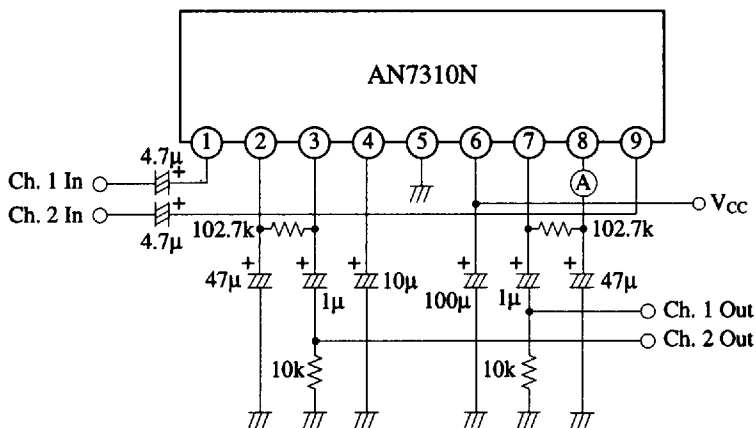
Operating Supply Voltage Range: V<sub>CC</sub> = 4.0V ~ 16.0V

## ■ Electrical Characteristics (V<sub>CC</sub>=8V, f=1kHz, R<sub>L</sub>=10kΩ Ta=25°C)

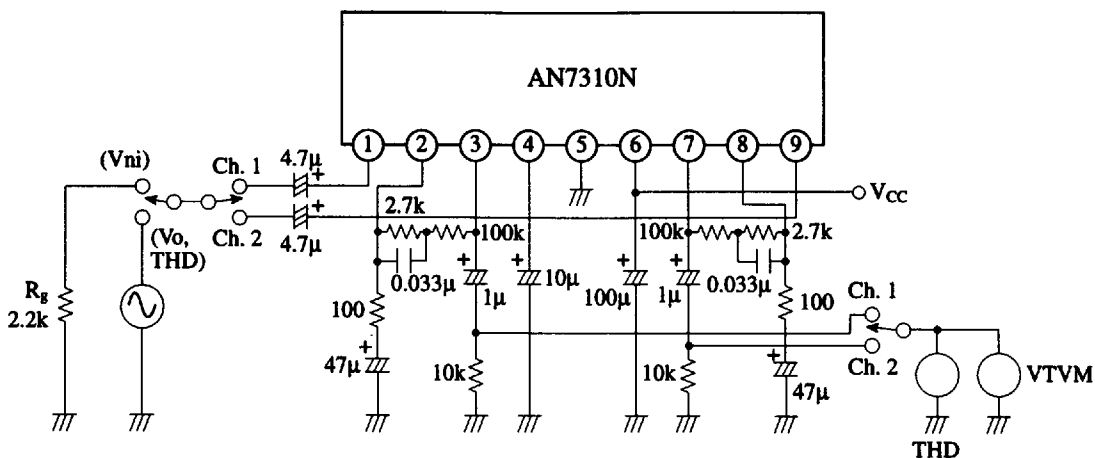
| Item                            | Symbol            | Test Circuit | Condition                         | min. | typ. | max. | Unit |
|---------------------------------|-------------------|--------------|-----------------------------------|------|------|------|------|
| Quiescent Current               | I <sub>cQ</sub>   | 1            | V <sub>in</sub> = 0mV             |      | 4    | 8    | mA   |
| Open Loop Voltage Gain          | G <sub>vo</sub>   | 1            | V <sub>in</sub> = 20mV            | 80   | 90   |      | dB   |
| Output Voltage                  | V <sub>O</sub>    | 2            | THD = 1%                          | 1.2  | 2.2  |      | V    |
| Total Harmonic Distortion       | THD               | 2            | V <sub>O</sub> = 0.3V             |      | 0.03 | 0.1  | %    |
| Noise Voltage Referred to Input | V <sub>ni</sub> * | 2            | R <sub>g</sub> = 2.2kΩ            |      | 1.2  | 2    | μV   |
| Input Impedance                 | Z <sub>in</sub>   |              |                                   |      | 100  |      | kΩ   |
| Crosstalk                       | CT                |              | R <sub>g</sub> = 2.2kΩ, f = 10kHz |      | -74  |      | dB   |

\* Measure with 15Hz ~ 30kHz (-3dB) filter

### Test Circuit 1 (I<sub>tot</sub>, G<sub>VO</sub>)



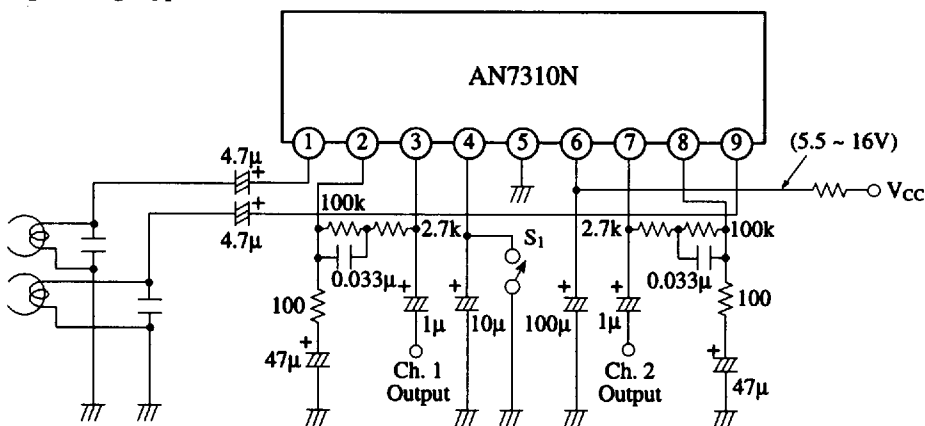
Test Circuit 2 (Vo, THD, Vni)



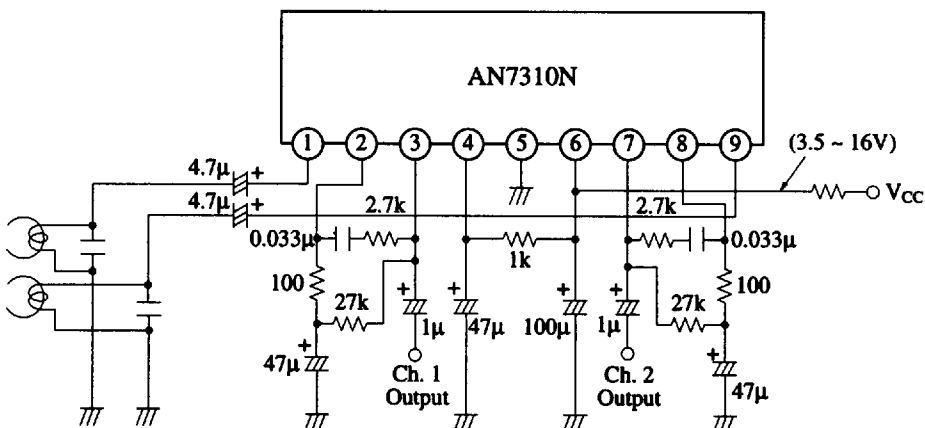
Note 1) THD is measured by equipment with 400Hz low pass filter  
 Note 2) V<sub>ni</sub> is measured by equipment with 15Hz ~ 30kHz band pass filter

Application Circuit

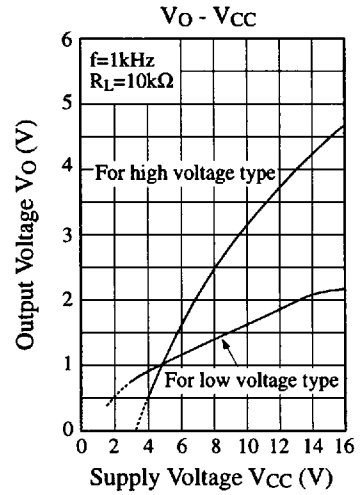
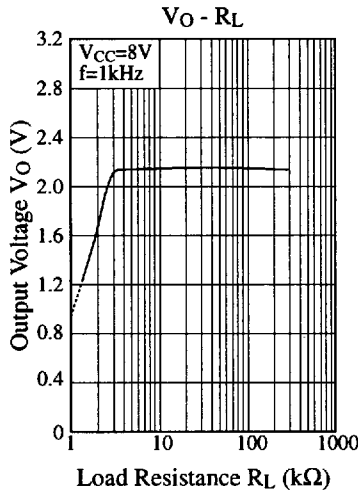
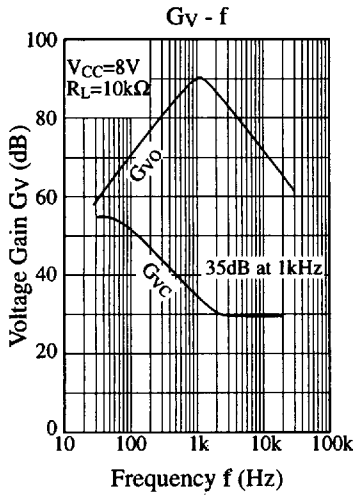
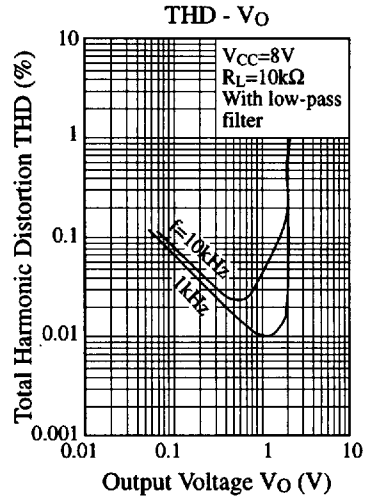
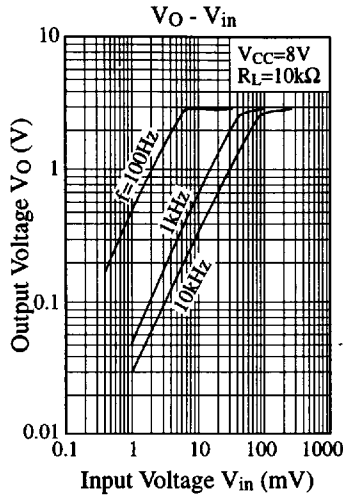
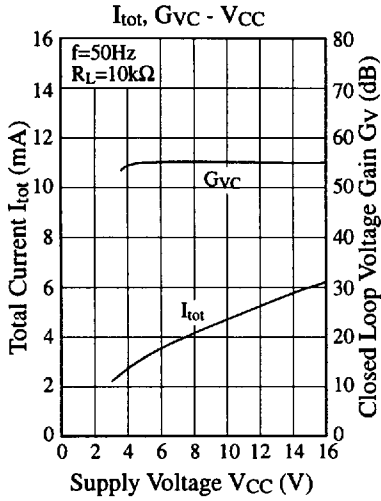
1. For high voltage type



2. For low voltage type



■ Characteristics Curve



■ Printed Circuit Board Layout (Scale: 1:1)

