

# AN7086S

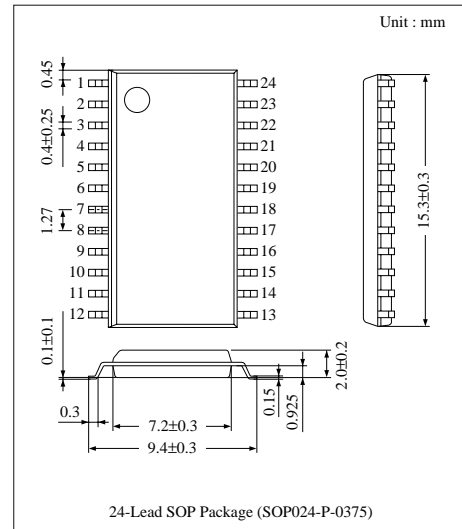
## Recording/Playback Pre-/Power Amplifier IC for 3V Microcassette

### ■ Overview

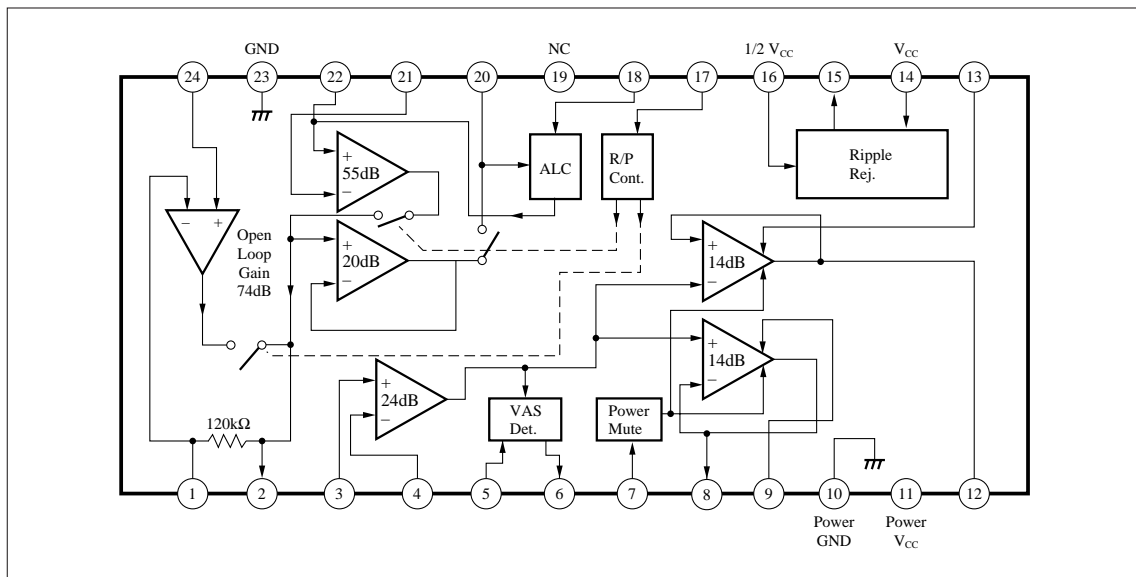
The AN7086S is an integrated circuit developed for recording playback pre-/power amp., built-in VAS (Voice Activated System) function especially.

### ■ Features

- Rec. playback pre-/power amp. IC
- VAS function built-in
- Earphone monitor at recording is possible
- 350mW BTL, OCL power amp. built-in
- Mic. amp built-in
- ALC function built-in
- Rec./Play switching is possible with a single circuit switch



### ■ Block Diagram



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

| Parameter                     | Symbol           | Rating      | Unit |
|-------------------------------|------------------|-------------|------|
| Supply Voltage                | V <sub>CC</sub>  | 6           | V    |
| Supply Current                | I <sub>CC</sub>  | 1000        | mA   |
| Power Dissipation             | P <sub>D</sub>   | 520         | mW   |
| Operating Ambient Temperature | T <sub>opr</sub> | -20 ~ + 75  | °C   |
| Storage Temperature           | T <sub>stg</sub> | -55 ~ + 125 | °C   |

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

| Parameter                      | Symbol          | Range       |
|--------------------------------|-----------------|-------------|
| Operating Supply Voltage Range | V <sub>CC</sub> | 1.8V ~ 4.5V |

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

| Parameter                 | Symbol           | Condition            | min. | typ. | max. | Unit |
|---------------------------|------------------|----------------------|------|------|------|------|
| Quiescent Circuit Current | I <sub>tot</sub> | At No Input/Playback | 10   | 20   | 35   | mA   |

#### <Pre-Amp.>

|                                 |                  |   |     |     |     |       |
|---------------------------------|------------------|---|-----|-----|-----|-------|
| Open Circuit Gain               | G <sub>V1</sub>  | V <sub>in</sub> = - 85dBV, R <sub>g</sub> = 1kΩ | 65  | 74  | —   | dB    |
| Total Harmonic Distortion       | THD <sub>I</sub> | V <sub>in</sub> = 3mVrms, R <sub>g</sub> = 1kΩ  | —   | 0.1 | 1   | %     |
| Maximum Output Voltage          | V <sub>O1</sub>  | THD= 1%, R <sub>g</sub> = 1kΩ                   | 0.3 | 0.6 | —   | Vrms  |
| Noise Voltage Referred to Input | V <sub>ni</sub>  | R <sub>g</sub> = 1kΩ,<br>DIN/AUDIO Filter       | —   | 1   | 1.8 | μVrms |

#### <Recording Amp.>

|                           |                  |   |      |      |      |      |
|---------------------------|------------------|---|------|------|------|------|
| Close Circuit Gain        | G <sub>V2</sub>  | V <sub>in</sub> = - 80dBV                   | 69.5 | 72.5 | 75.5 | dB   |
| Total Harmonic Distortion | THD <sub>R</sub> | V <sub>in</sub> = - 80dBV                   | —    | 1.3  | 3    | %    |
| Maximum Output Voltage    | V <sub>oR</sub>  | THD = 5%                                    | 0.8  | 1.08 | —    | Vrms |
| Output Noise Voltage      | V <sub>nR</sub>  | R <sub>g</sub> = 2.2kΩ,<br>DIN/AUDIO Filter | —    | -46  | -42  | dBV  |

#### <Power Amp.>

|                           |                                |   |      |      |      |     |
|---------------------------|--------------------------------|---|------|------|------|-----|
| Closed Circuit Gain       | G <sub>V - P<sub>O</sub></sub> | V <sub>in</sub> = 5mVrms, R <sub>L</sub> = 8Ω                 | 38.5 | 41   | 43.5 | dB  |
| Total Harmonic Distortion | THD - P <sub>O</sub>           | V <sub>in</sub> = 5mVrms, R <sub>L</sub> = 8Ω                 | —    | 0.11 | 1    | %   |
| Maximum Output Voltage    | V <sub>O - P<sub>O</sub></sub> | THD = 10%, R <sub>L</sub> = 8Ω                                | 300  | 350  | —    | mW  |
| Output Noise Voltage      | V <sub>n - P<sub>O</sub></sub> | R <sub>g</sub> = 0Ω, R <sub>L</sub> = 8Ω,<br>DIN/AUDIO Filter | —    | -74  | -65  | dBV |
| Output Offset Voltage     | V <sub>DC</sub>                | R <sub>g</sub> = 0Ω, R <sub>L</sub> = 8Ω,                     | -50  | 0    | 50   | mV  |

#### <VAS>

|                             |     |   |   |    |    |       |
|-----------------------------|-----|---|---|----|----|-------|
| VAS Operation Input Voltage | VAS | Mic. input level at Piny<br>Voltage= 0.2V | 8 | 14 | 18 | μVrms |
|-----------------------------|-----|---|---|----|----|-------|

#### <ALC>

|                   |                  |   |      |      |      |     |
|-------------------|------------------|---|------|------|------|-----|
| Effective Voltage | V <sub>ALC</sub> | V <sub>in</sub> = - 60dBV, R <sub>g</sub> = 1.5kΩ | -6.6 | -4.5 | -2.5 | dBV |
| Effective width   | W <sub>ALC</sub> | V <sub>in</sub> = - 30dBV, R <sub>g</sub> = 1.5kΩ | —    | 1.5  | 3    | %   |

#### <Ripple Rejection>

|                                   |                 |   |   |     |     |     |
|-----------------------------------|-----------------|---|---|-----|-----|-----|
| Playback System Ripple Rejection  | RR <sub>P</sub> | f <sub>r</sub> = 270Hz, V <sub>r</sub> = 30mVrms,<br>R <sub>g</sub> = 1kΩ   | — | -70 | -50 | dBV |
| Recording System Ripple Rejection | RR <sub>R</sub> | f <sub>r</sub> = 270Hz, V <sub>r</sub> = 30mVrms,<br>R <sub>g</sub> = 2.2kΩ | — | -40 | -30 | dBV |

#### <Switching Pin>

|                             |                  |                |     |   |     |   |
|-----------------------------|------------------|----------------|-----|---|-----|---|
| Rec./Playback Switching Pin | V <sub>PB</sub>  | Playback mode  | 0.1 | — | 0.3 | V |
| Rec./Playback Switching Pin | V <sub>REC</sub> | Recording mode | 1.6 | — | 2.3 | V |

■ Characteristics Curve

