

Monaural Microphone Amplifier

■ GENERAL DESCRIPTION

The **NJU7907A** is a monaural microphone amplifier IC including regulator for microphone capcel, pre-amplifier and line amplifier.

The **NJU7907A** features low consumption current, wide dynamic range, wide operating voltage range, wide operating temperature and urtla small and thin package.

It is suitable for microphone module, headset for conference system, automotive microphone for eCall, and any portable applications.

■ PACKAGE OUTLINE



NJU7907AUC4

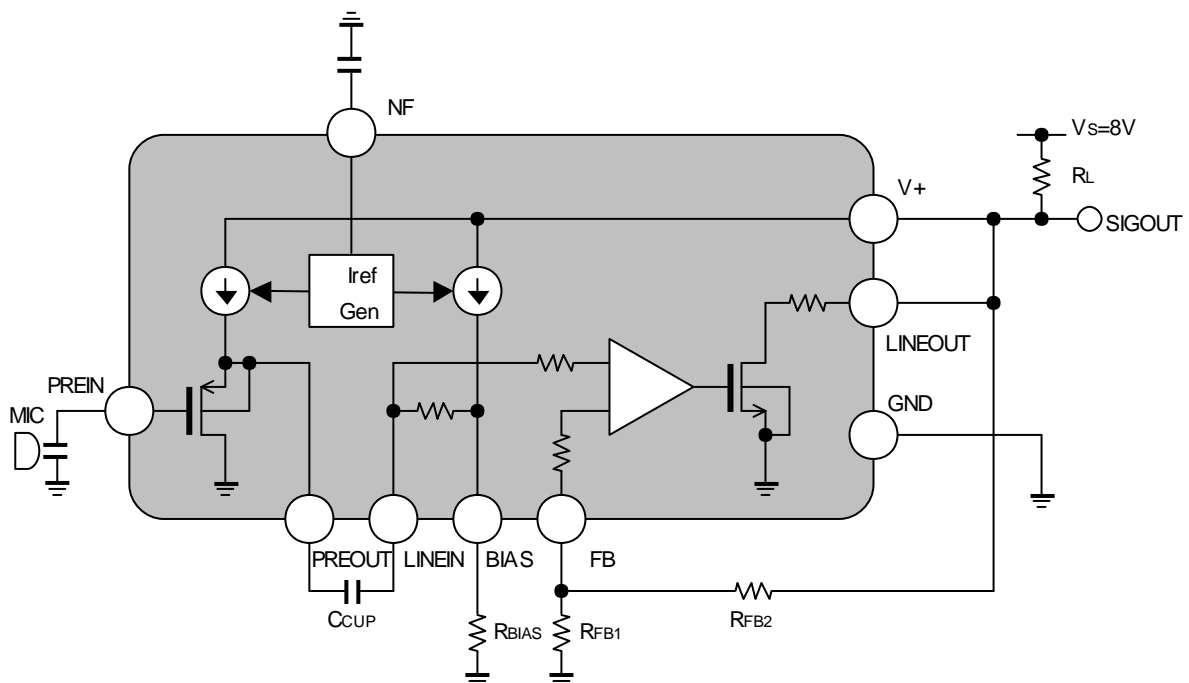


NJU7907ARB2

■ FEATURES

- Operating Voltage 4.5 to 16V
- Low Consumption Current
- Wide Dynamic Range
- Wide Operating Temperature
- CMOS Technology
- Package Outline EPFFP10-C4, MSOP10(TVSP10)

■ BLOCK DIAGRAM



NJU7907A

■ ABSOLUTE MAXIMUM RATING (Ta=25°C)

| PARAMETER | SYMBOL | RATING | UNIT |
|-----------------------------|-------------------|---|------------------|
| Supply Voltage | V ⁺ | 18 | V |
| Power Dissipation | P _D | 340(EPFFP10-C4) / 470(MSOP10) <small>NOTE: EIA/JEDEC STANDARD Test board (76.2x114.3x1.6mm, 2layer, FR-4) mounting</small> | mW |
| Maximum Input Voltage | V _{imax} | 0.3 | V _{rms} |
| Operating Temperature Range | T _{opr} | -40 to +85 | °C |
| Storage Temperature Range | T _{stg} | -40 to +125 | °C |

■ ELECTRICAL CHARACTERISTICS (Ta=25°C, V_S=8V, G_V=37.8dB, f=1kHz unless otherwise specified)

◆DC CHARACTERISTICS (R_g=0Ω, R_L=680Ω unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|-------------------|------------------|---|------|------|------|------|
| Operating Voltage | V _S | | 4.5 | 8.0 | 16.0 | V |
| Supply Current1 | I _{DD1} | No Signal | - | 4.85 | 6.0 | mA |
| Supply Current2 | I _{DD2} | R _{FB1} =0Ω, R _{FB2} =∞ | - | 220 | 320 | μA |
| Supply Current3 | I _{DD3} | R _L =0Ω | - | 28.0 | 50.0 | mA |
| Reference Current | I _{ref} | No Signal | 8.0 | 9.0 | 10.0 | μA |
| Output DC Voltage | V _{OUT} | No Signal, LINEOUT | - | 4.7 | - | V |

◆PreAmp CHARACTERISTICS (C_{IN}=1nF, R_L=100kΩ unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---------------------------|------------------|--|------|------|------|------|
| Voltage Gain | G _V | V _{in} =50mV _{rms} | -0.8 | -0.5 | -0.2 | dB |
| Frequency Response | ΔG _f | 1kHz-10kHz | -0.5 | 0 | 0.5 | dB |
| Input Capacitance | C _i | | - | 1.0 | - | pF |
| Input Resistance | R _i | | 200 | - | - | MΩ |
| Total Harmonic Distortion | THD | V _{in} =100mV _{rms} BW=400Hz to 30kHz | - | 0.1 | 0.5 | % |
| Output Noise Voltage 1 | V _{NO1} | Weighted-A, C _{NF} =None | - | -108 | -103 | dBV |
| Output Noise Voltage 2 | V _{NO2} | Weighted-A, C _{NF} =1nF | - | -112 | -108 | dBV |

◆LineAmp CHARACTERISTICS (R_g=0Ω, R_L=680Ω unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---------------------------|-----------------|---|------|------|------|------------------|
| Maximum Output Voltage | V _{OM} | OUTPUT, THD=3% | 1.8 | 2.1 | - | V _{rms} |
| Voltage Gain | G _V | V _{in} =10mV _{rms} | 37.3 | 37.8 | 38.3 | dB |
| Total Harmonic Distortion | THD | V _o =1.6V _{rms} BW=400Hz to 30kHz | - | 0.1 | 0.5 | % |
| Output Noise Voltage | V _{NO} | Weighted-A | - | -78 | -72 | dBV |
| Output Resistance | R _o | | - | 5 | 10 | Ω |
| Input Resistance | R _i | | 60 | 100 | 130 | kΩ |
| Ripple Rejection | RR | V _{Ripple} =0.5V _{rms} PREIN→LINEOUT | 25 | 40 | - | dB |

[CAUTION]
The specifications on this databook are only given for information, without any guarantee as regards either mistakes or omissions. The application circuits in this databook are described only to show representative usages of the product and not intended for the guarantee or permission of any right including the industrial rights.