



LOW VOLTAGE POWER AMPLIFIER

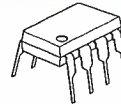
■ GENERAL DESCRIPTION

NJM2070 is a power amplification monolithic IC of wide Operating voltage range. It is applied for audio power amplifier in portable radio and handy cassette player.

■ FEATURES

- Operating Voltage (1.8V~15V)
- Low Operating Current 4mA typ: V+=6V)
- Package Outline DIP8, DMP8
- Bipolar Technology

■ PACKAGE OUTLINE

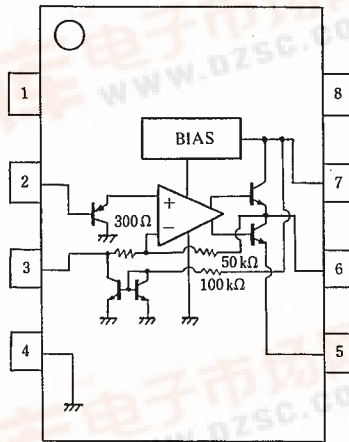


NJM2070D



NJM2070M

■ PIN CONFIGURATION



NJM2070D
NJM2070M

PIN FUNCTION

1. NC
2. +INPUT
3. -INPUT
4. GND
5. GND
6. OUTPUT
7. V+
8. NC



NJM2070

■ ABSOLUTE MAXIMUM RATINGS

($T_a=25^\circ\text{C}$)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|-----------------------------|-----------|---------------------------------|------------------|
| Supply Voltage | V^+ | 15 | V |
| Output Peak Current | I_{OP} | 1 | A |
| Power Dissipation | P_D | (DIP8) 700 (DMP8) 500 (note) | mW |
| Operating Temperature Range | T_{opr} | -40 ~ +85 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{stg} | -40 ~ +125 | $^\circ\text{C}$ |

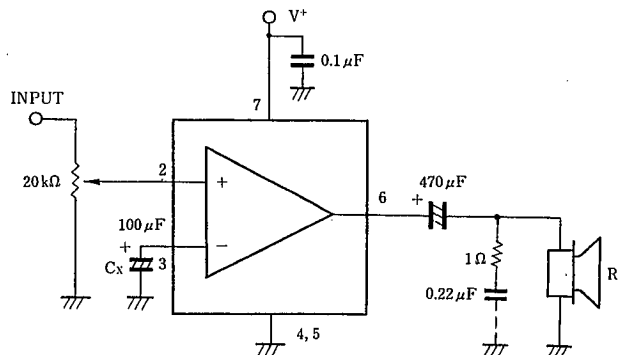
(note) At on PC board

■ ELECTRICAL CHARACTERISTICS

($V^+=6\text{V}$, $T_a=25^\circ\text{C}$)

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|--------------------------------|-----------|--|------|------|------|------------------|
| Operating Voltage | V^+ | | 1.8 | — | 15 | V |
| Output Voltage | V_O | | — | 2.7 | — | V |
| Operating Current | I_{CC} | $R_L = \infty$ | — | 4 | 7 | mA |
| Input Bias Current | I_{IB} | | — | 200 | — | nA |
| Output Power | P_O | THD=10%, $f=1\text{kHz}$ | | | | |
| | P_O | $V^+=6\text{V}$, $R_L=4\Omega$ | 0.5 | 0.6 | — | W |
| | P_O | $V^+=4.5\text{V}$, $R_L=4\Omega$ | — | 0.32 | — | W |
| | P_O | $V^+=3\text{V}$, $R_L=4\Omega$ | — | 120 | — | mW |
| | P_O | $V^+=2\text{V}$, $R_L=4\Omega$ | — | 30 | — | mW |
| | P_O | THD=1%, $f=1\text{kHz}$ | | | | |
| | P_O | $V^+=6\text{V}$, $R_L=4\Omega$ | — | 500 | — | mW |
| | P_O | $V^+=4.5\text{V}$, $R_L=4\Omega$ | — | 250 | — | mW |
| Total Harmonic Distortion | THD | $P_O=0.4\text{W}$, $R_L=4\Omega$, $f=1\text{kHz}$ | — | 0.25 | — | % |
| Voltage Gain | A_V | $f=1\text{kHz}$ | 41 | 44 | 47 | dB |
| Input Impedance | Z_{IN} | $f=1\text{kHz}$ | 100 | — | — | $\text{k}\Omega$ |
| Equivalent Input Noise Voltage | V_{NI1} | $R_S=10\text{k}\Omega$, A Curve | — | 2.5 | — | μV |
| | V_{NI2} | $R_S=10\text{k}\Omega$, B=22Hz~22kHz | — | 3 | — | μV |
| Ripple Rejection | RR | $f=100\text{Hz}$, $C_X=100\mu\text{F}$ | 24 | 30 | — | dB |
| Cut Off Frequency | f_H | $A_V=-3\text{dB}$ from $f=1\text{kHz}$ $R=8\Omega$, $P_O=250\text{mW}$ | — | 200 | — | kHz |

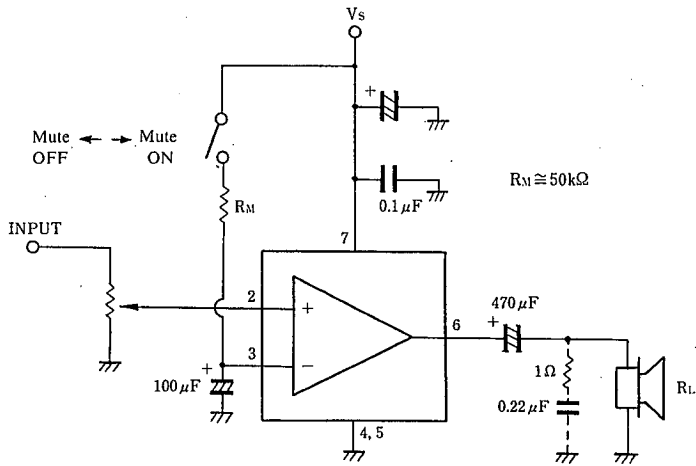
■ TYPICAL APPLICATION AND TEST CIRCUIT



■ OSCILLATION PREVENTION

Put in series a 1Ω resistor and a $0.22\mu\text{F}$ capacitor on parallel to load, if the load is speaker. Recommend putting in parallel between pin 4 and pin 7, $0.1\mu\text{F}$ and more than $100\mu\text{F}$ capacitors with good high frequency characteristics near to the ground and supply voltage pins on parallel.

■ MUTING CIRCUIT



NJM2070

MEMO

[CAUTION]

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