

QUAD J-FET INPUT OPERATIONAL AMPLIFIER

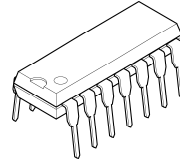
■ GENERAL DESCRIPTION

The NJM074 is a quad JFET input operational amplifier.

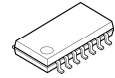
■ FEATURES

- Operating Voltage ($\pm 4V \sim \pm 18V$)
- J-FET Input
- High Input Resistance ($10^{12}\Omega$ typ.)
- Low Input Bias Current (30pA typ.)
- High Slew Rate ($13V/\mu s$ typ.)
- Wide Unity Gain Bandwidth (3MHz typ.)
- Package Outline DIP14, DMP14, SSOP14
- Bipolar Technology

■ PACKAGE OUTLINE



NJM074D

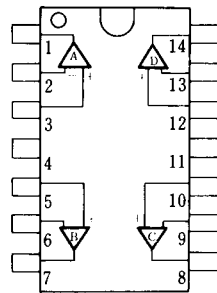


NJM074M



NJM074V

■ PIN CONFIGURATION

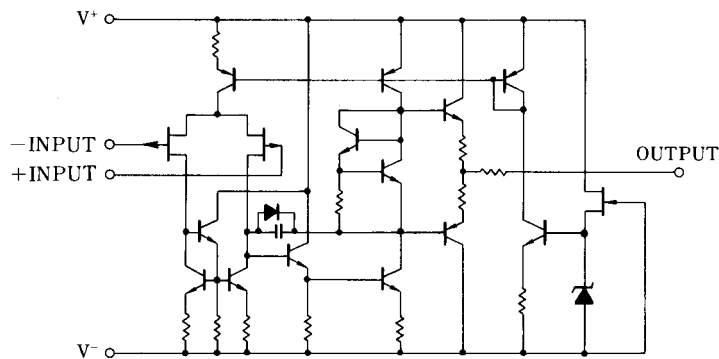


NJM074D
NJM074M
NJM074V

PIN FUNCTION

1. A OUTPUT
2. A -INPUT
3. A +INPUT
4. V^+
5. B +INPUT
6. B -INPUT
7. B OUTPUT
8. C OUTPUT
9. C -INPUT
10. C +INPUT
11. V^-
12. D +INPUT
13. D -INPUT
14. D OUTPUT

■ EQUIVALENT CIRCUIT (1/4 Shown)



NJM074

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|-----------------------------|-------------|--|------|
| Supply Voltage | V^+ / V^- | ± 18 | V |
| Differential Input Voltage | V_{ID} | ± 30 | V |
| Input Voltage | V_{IC} | ± 15 (note1) | V |
| Power Dissipation | P_D | (DIP14) 700 (DMP14) 700 (note2) (SSOP14) 300 | mW |
| Operating Temperature Range | T_{opr} | -40~+85 | °C |
| Storage Temperature Range | T_{stg} | -40~+125 | °C |

(note1) For supply voltage less than $\pm 15V$, the absolute maximum input voltage is equal to the supply voltage.

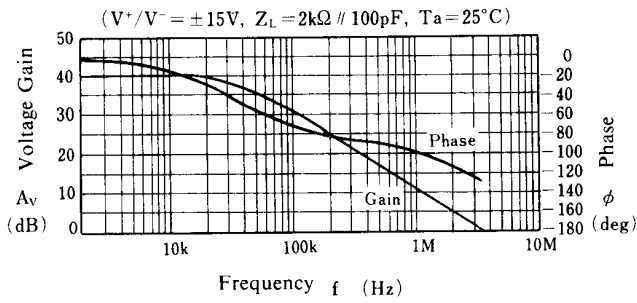
(note2) At on PC board

■ ELECTRICAL CHARACTERISTICS (Ta=+25°C, $V^+ / V^- = \pm 15V$)

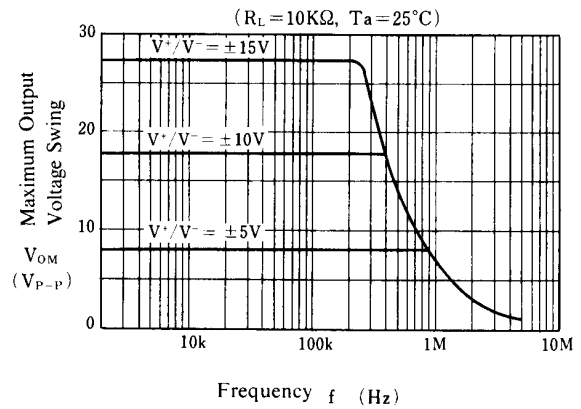
| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|-----------|---|----------|-----------|------|---------------|
| Input Offset Voltage | V_{IO} | $R_S = 50\Omega$ | - | 3 | 10 | mV |
| Input Offset Current | I_{IO} | | - | 5 | 50 | pA |
| Input Bias Current | I_B | | - | 30 | 200 | pA |
| Input Common Mode Voltage Range | V_{ICM} | | ± 10 | - | - | V |
| Maximum Peak-to-peak Output Voltage Swing | V_{OPP} | $R_L = 10k\Omega$ | 24 | 27 | - | V_{P-P} |
| Large-Signal Voltage Gain | A_V | $R_L \geq 2k\Omega, V_O = \pm 10V$ | 88 | 106 | - | dB |
| Unity Gain Bandwidth | f_T | | - | 3 | - | MHz |
| Input Resistance | R_{IN} | | - | 10^{12} | - | Ω |
| Common Mode Rejection Ratio | CMR | $R_S \leq 10k\Omega$ | 70 | 76 | - | dB |
| Supply Voltage Rejection Ratio | SVR | $R_S \leq 10k\Omega$ | 70 | 76 | - | dB |
| Operating Current | I_{CC} | | - | 6 | 10 | mA |
| Slew Rate | SR | | - | 13 | - | V/ μs |
| Equivalent Input Noise Voltage | V_{NI} | $R_S = 100\Omega, B.W. = 10 \sim 10kHz$ | - | 4 | - | μV_{rms} |

■ TYPICAL CHARACTERISTICS

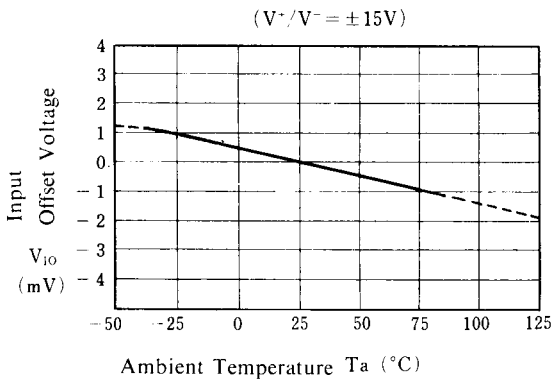
Voltage Gain, Phase Shift vs. Frequency



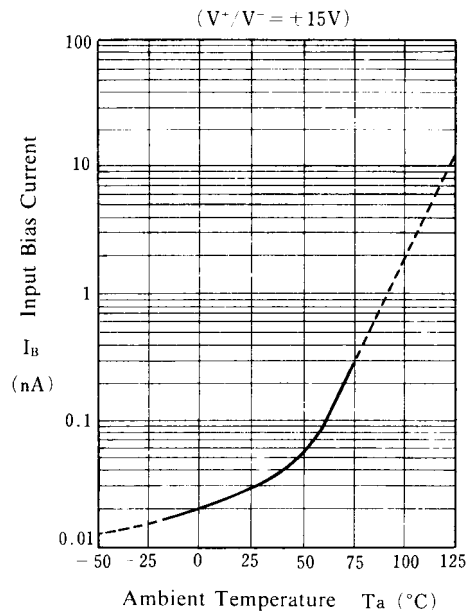
Maximum Output Voltage Swing vs. Frequency



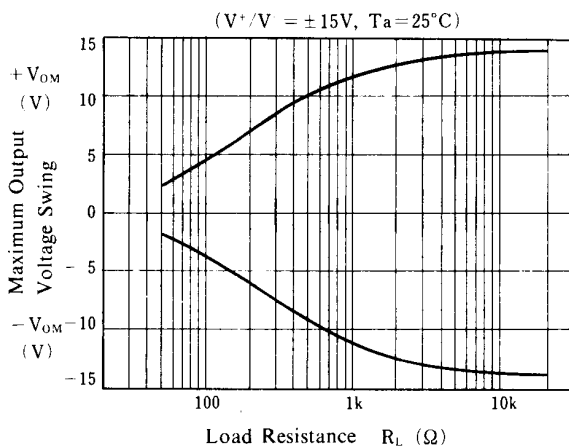
Input Offset Voltage vs. Temperature



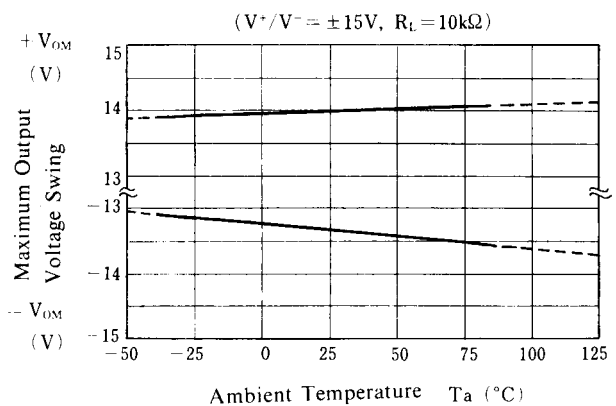
Input Bias Current vs. Temperature



Maximum Output Voltage Swing vs. Load Resistance



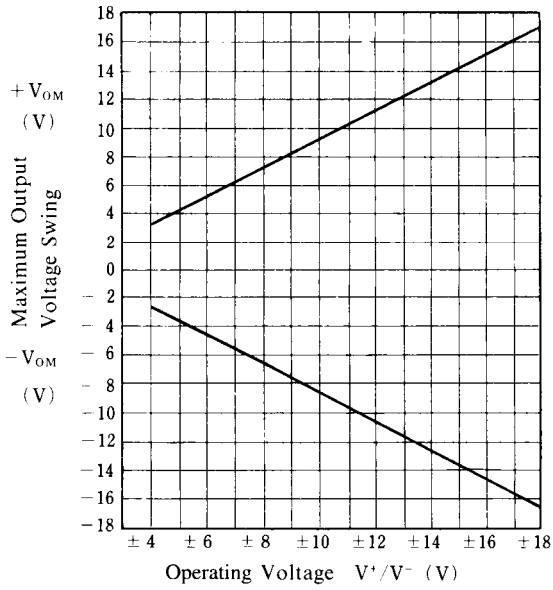
Maximum Output Voltage Swing vs. Temperature



■ TYPICAL CHARACTERISTICS

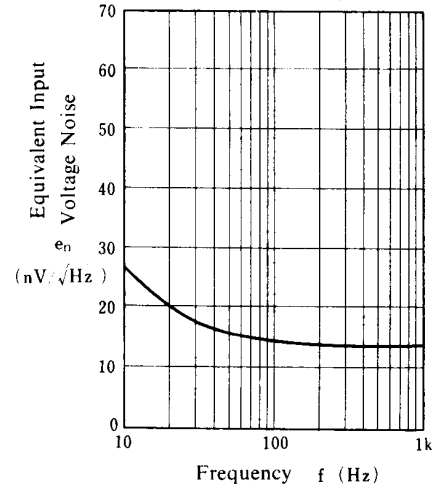
Maximum Output Voltage Swing vs. Operating Voltage

($R_L = 10k\Omega$, $T_a = 25^\circ C$)



Equivalent Input Voltage Noise vs. Frequency

($V^+/V^- = \pm 15V$, $R_S = 100\Omega$, $T_a = 25^\circ C$)



[CAUTION]

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