

SINGLE-SUPPLY DUAL HIGH CURRENT OPERATIONAL AMPLIFIER

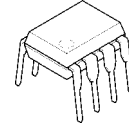
■ GENERAL DESCRIPTION

The NJM3414A integrated circuit is a high gain, high output current, high output voltage swing dual operational amplifier capable of driving 70mA.

■ FEATURES

- Single Supply
- Operating Voltage (+3V~+15V)
- High Output Current (70mA typ.)
- Slew Rate (1.0V/μs typ.)
- Package Outline DIP8, DMP8, SIP8, SSOP8
- Bipolar Technology

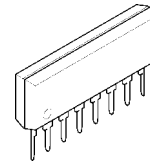
■ PACKAGE OUTLINE



NJM3414AD



NJM3414AM

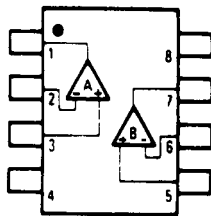


NJM3414AL

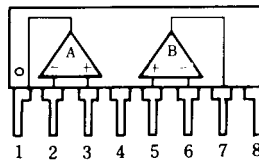


NJM3414AV

■ PIN CONFIGURATION



NJM3414AD
NJM3414AM
NJM3414AV

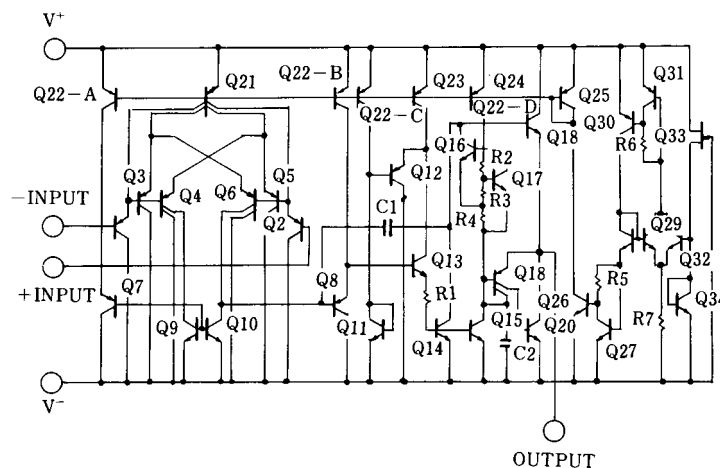


NJM3414AL

PIN FUNCTION

- 1.A OUTPUT
- 2.A -INPUT
- 3.A +INPUT
- 4.V⁻
- 5.B +INPUT
- 6.B -INPUT
- 7.B OUTPUT
- 8.V⁺

■ EQUIVALENT CIRCUIT (1/2 Shown)



NJM3414A

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

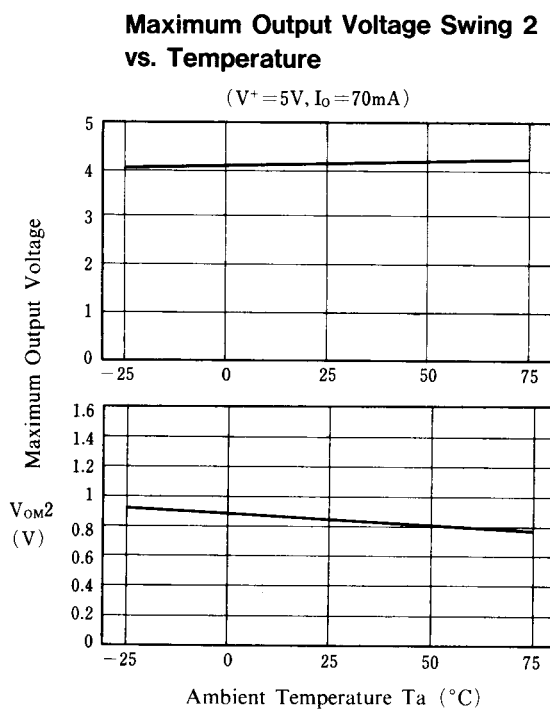
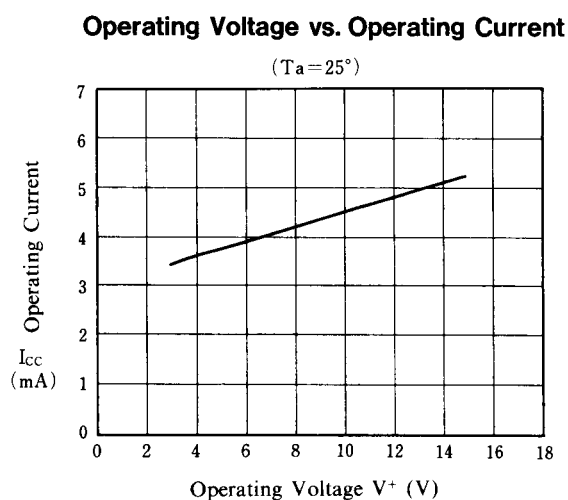
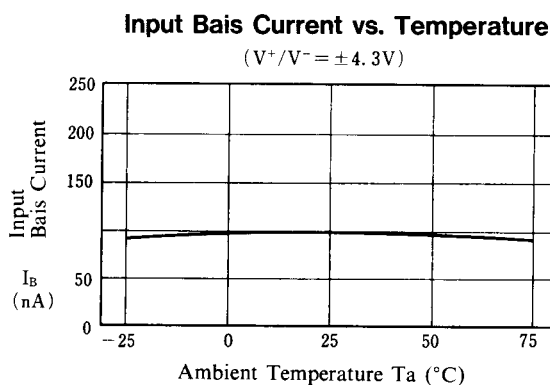
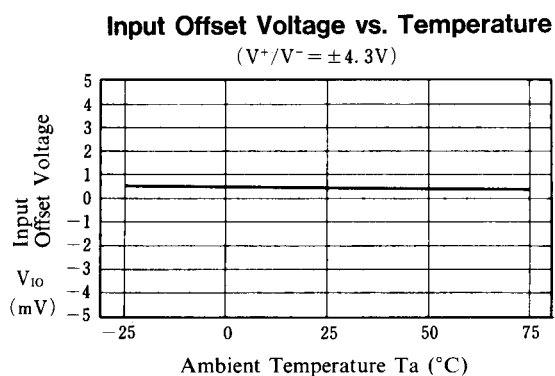
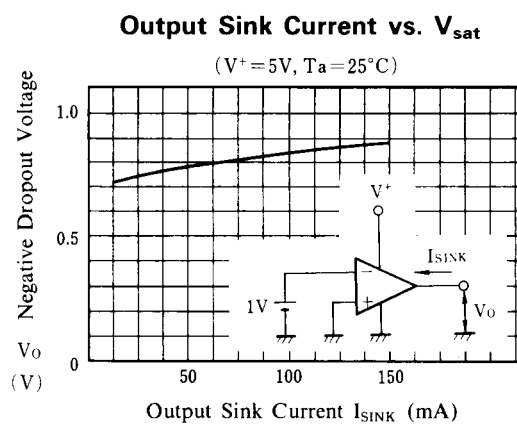
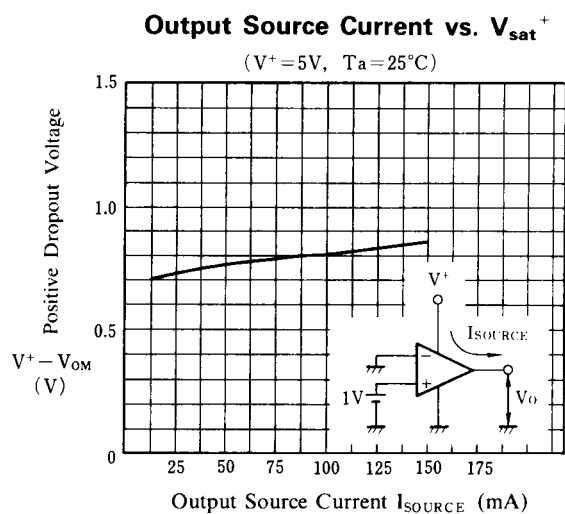
| PARAMETER | SYMBOL | RATINGS | UNIT |
|-----------------------------|--------------|---|------|
| Supply Voltage | $V^+(V^-/V)$ | 15V (or ± 7.5) | V |
| Differential Input Voltage | V_{ID} | 15 | V |
| Input Voltage | V_{IC} | -0.3~+15 | V |
| Power Dissipation | P_D | (DIP8) 500 (DMP8) 300 (SSOP8) 250 (SIP8) 800 | mW |
| Operating Temperature Range | T_{opr} | -40~+85 | °C |
| Storage Temperature Range | T_{stg} | -40~+125 | °C |

■ ELECTRICAL CHARACTERISTICS

(Ta=25°C, $V^+=8.6V$)

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|--------------------------------|-----------|-----------------------------|---------|------|------|------------|
| Input Offset Voltage | V_{IO} | $R_S=0\Omega$ | - | 2 | 5 | mV |
| Input Offset Current | I_{IO} | | - | 5 | 100 | nA |
| Input Bias Current | I_B | | - | 100 | 500 | nA |
| Large Signal Voltage Gain | A_v | $R_L=2k\Omega$ | 88 | 100 | - | dB |
| Input Common Voltage Range | V_{ICM} | | V^+-2 | - | - | V |
| Maximum Output Voltage Swing 1 | V_{OM1} | $R_L \geq 2k\Omega, V^+=5V$ | 3.5 | - | - | V |
| Maximum Output Voltage Swing 2 | V_{OM2} | $I_O=70mA, V^+=5V$ | 3.2 | - | - | V |
| Common Mode Rejection Ratio | CMR | | 80 | 90 | - | dB |
| Supply Voltage Rejection Ratio | SVR | | 80 | 90 | - | dB |
| Operating Current | I_{CC} | $R_L=\infty$ | 3 | 4 | 5 | mA |
| Slew Rate | SR | | - | 1.0 | - | V/ μs |
| Gain Bandwidth Product | GB | | - | 1.3 | - | MHz |
| Operating Voltage Range | V^+ | | - | - | 15 | V |

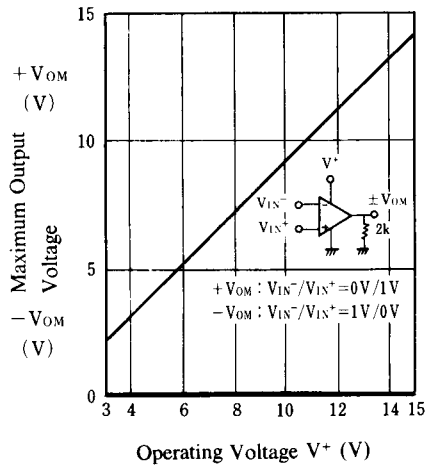
■ TYPICAL CHARACTERISTICS



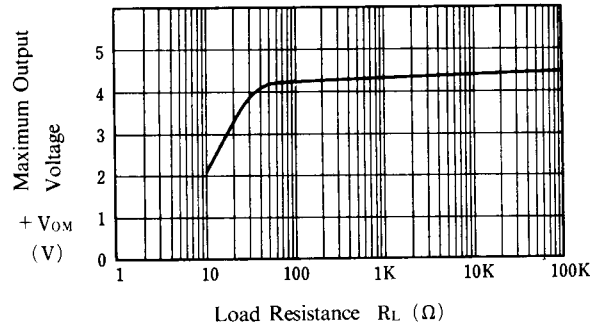
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■ TYPICAL CHARACTERISTICS

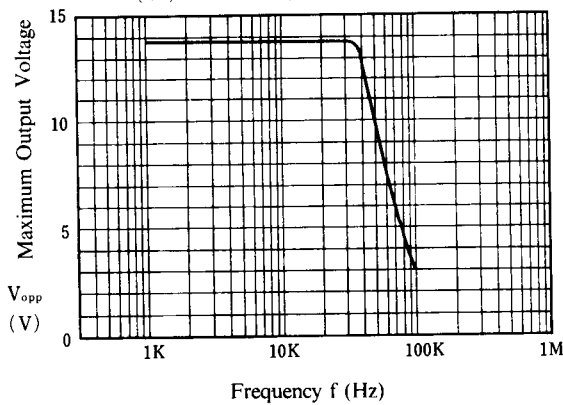
Maximum Output Voltage vs. Operating Voltage
($R_L = 2\text{ k}\Omega$, $T_a = 25^\circ\text{C}$)



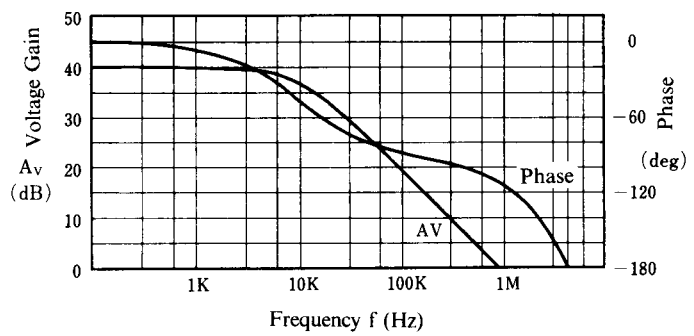
Maximum Output Voltage vs. Load Resistance
($V^+ = 5V$, $T_a = 25^\circ\text{C}$)



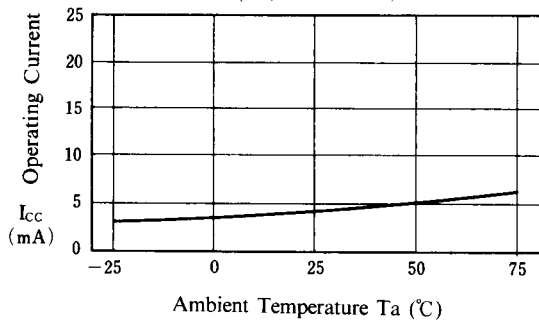
Maximum Output Voltage vs. Frequency
($V^+/V^- = \pm 7.5V$, $R_L = 2\text{ k}\Omega$, $T_a = 25^\circ\text{C}$)



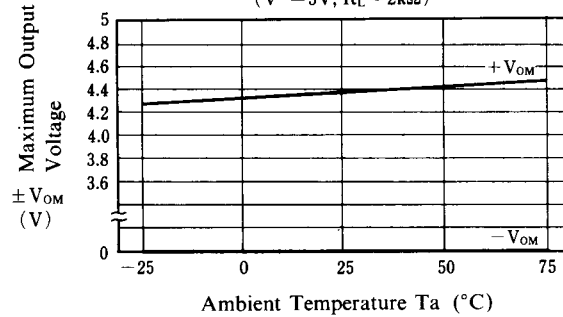
Voltage Gain, Phase vs. Frequency
($V^+/V^- = \pm 4.3V$, $R_L = 2\text{ k}\Omega$, $A_V = 40\text{ dB}$, $T_a = 25^\circ\text{C}$)



Operating Current vs. Temperature
($V^+/V^- = \pm 4.3V$)



Maximum Output Voltage vs. Temperature
($V^+ = 5V$, $R_L = 2\text{ k}\Omega$)



[CAUTION]

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