

## SINGLE-SUPPLY DUAL HIGH CURRENT OPERATIONAL AMPLIFIER

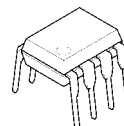
### ■ GENERAL DESCRIPTION

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

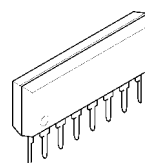
### ■ PACKAGE OUTLINE



NJM3414AD



NJM3414AM

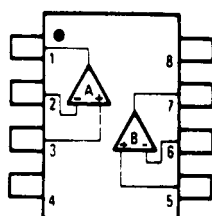


NJM3414AL

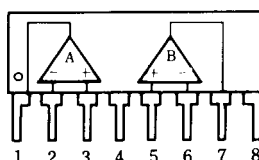


NJM3414AV

### ■ PIN CONFIGURATION



NJM3414AD  
NJM3414AM  
NJM3414AV

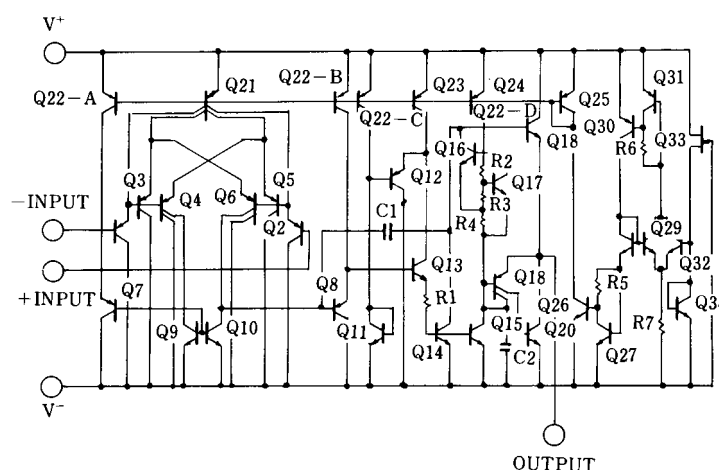


NJM3414AL

### PIN FUNCTION

- 1.A OUTPUT
- 2.A -INPUT
- 3.A +INPUT
- 4.V<sup>-</sup>
- 5.B +INPUT
- 6.B -INPUT
- 7.B OUTPUT
- 8.V<sup>+</sup>

### ■ EQUIVALENT CIRCUIT ( 1/2 Shown )



# NJM3414A

## ■ ABSOLUTE MAXIMUM RATINGS

( Ta=25°C )

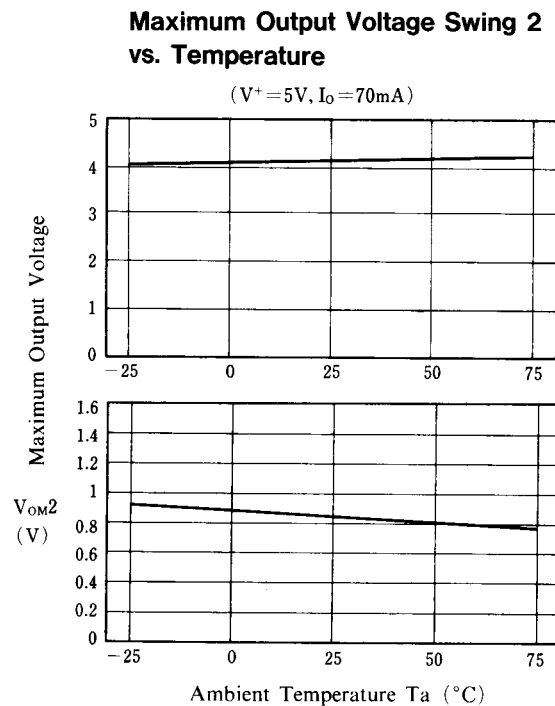
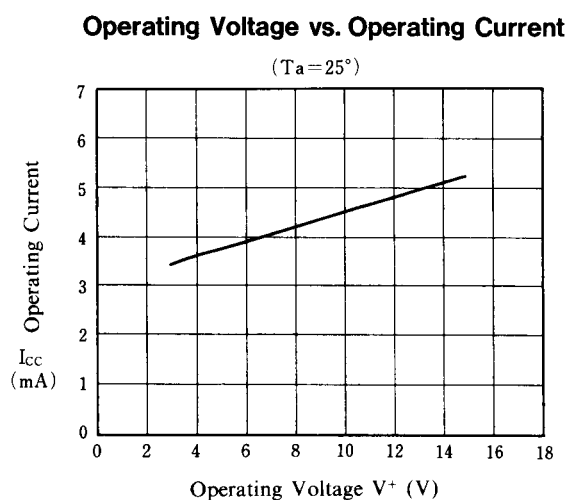
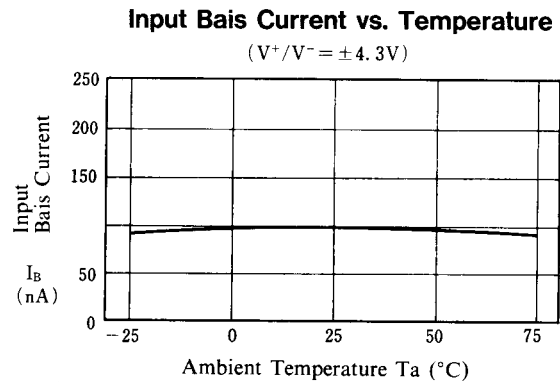
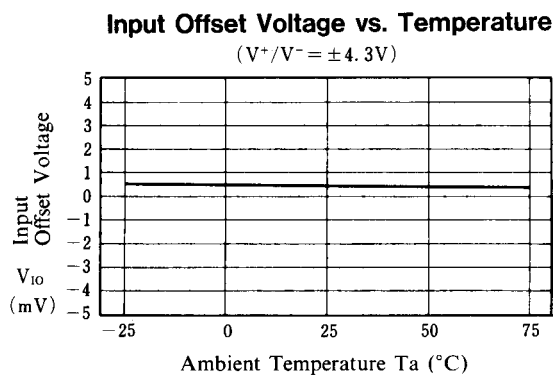
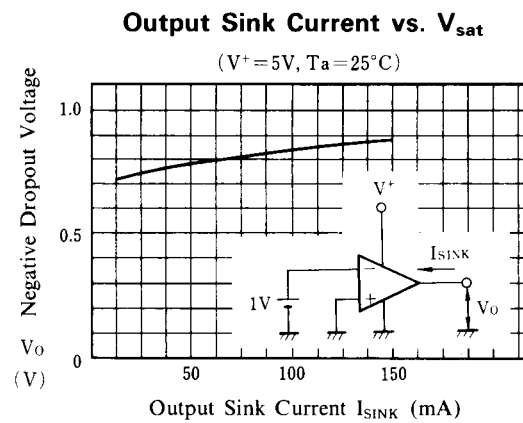
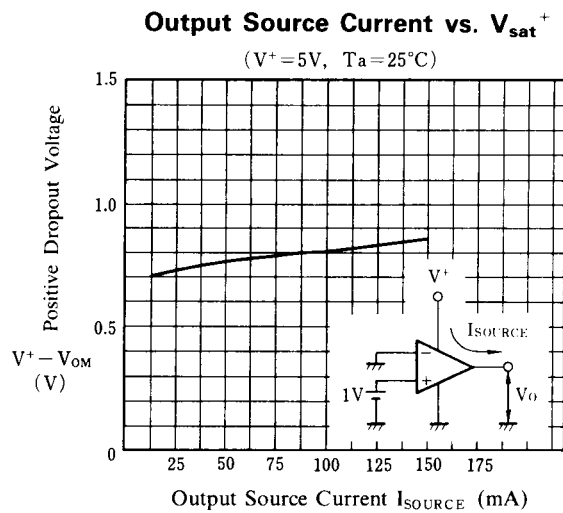
| PARAMETER                   | SYMBOL       | RATINGS                                                       | UNIT |
|-----------------------------|--------------|---------------------------------------------------------------|------|
| Supply Voltage              | $V^+(V^-/V)$ | 15V ( or $\pm 7.5$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

## ■ ELECTRICAL CHARACTERISTICS

( Ta=25°C,  $V^+=8.6V$  )

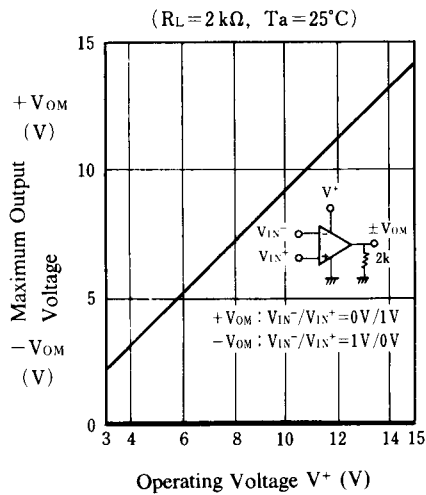
| PARAMETER                      | SYMBOL    | TEST CONDITION              | MIN.    | TYP. | MAX. | UNIT       |
|--------------------------------|-----------|-----------------------------|---------|------|------|------------|
| Input Offset Voltage           | $V_{IO}$  | $R_S=0\Omega$               | -       | 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/ $\mu s$ |
| Gain Bandwidth Product         | GB        |                             | -       | 1.3  | -    | MHz        |
| Operating Voltage Range        | $V^+$     |                             | -       | -    | 15   | V          |

## ■ TYPICAL CHARACTERISTICS

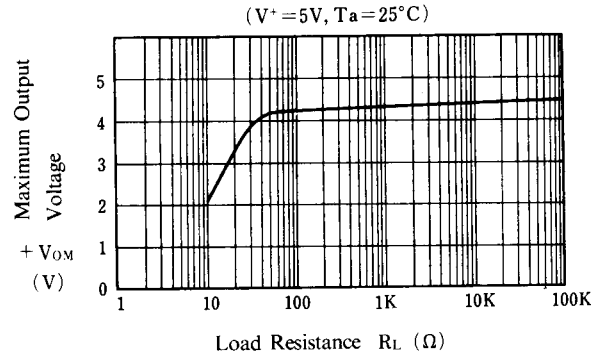


## ■ TYPICAL CHARACTERISTICS

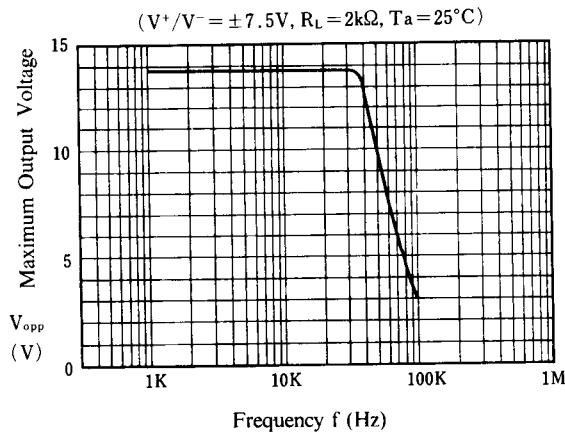
**Maximum Output Voltage  
vs. Operating Voltage**



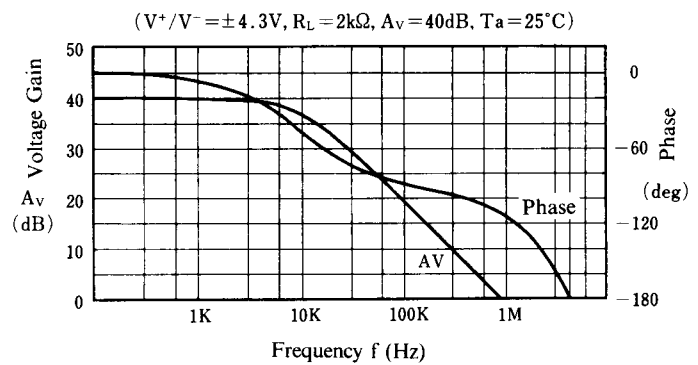
**Maximum Output Voltage  
vs. Load Resistance**



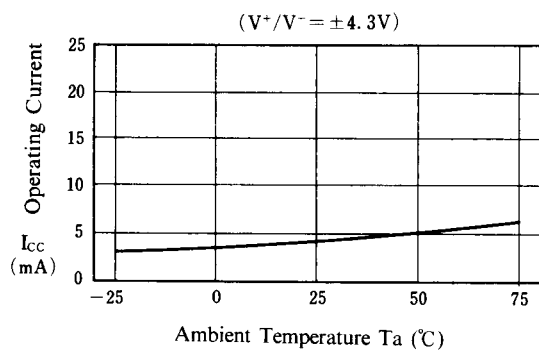
**Maximum Output Voltage vs. Frequency**



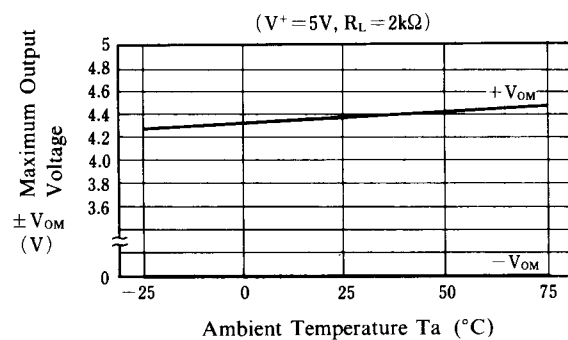
**Voltage Gain, Phase vs. Frequency**



**Operating Current vs. Temperature**



**Maximum Output Voltage vs. Temperature**



**[CAUTION]**

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