

DUAL J-FET INPUT OPERATIONAL AMPLIFIER

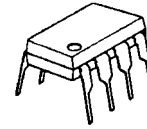
■ GENERAL DESCRIPTION

The NJM2082 is JFET input dual operational amplifiers. The NJM2082 features low input offset and bias current, high input impedance. The NJM2082 ideally suits for fast integrator, DA converter, sample & hold and audio applications. The NJM2082 is improved version of the NJM082.

■ FEATURES

- Operating Voltage ($\pm 4V \sim \pm 18V$)
- High Input Resistance ($10^{12}\Omega$ typ.)
- High Slew Rate ($20V/\mu s$ typ.)
- Package Outline DIP8, DMP8, SIP8, SSOP8
- Bipolar Technology

■ PACKAGE OUTLINE



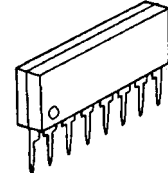
NJM2082D



NJM2082M

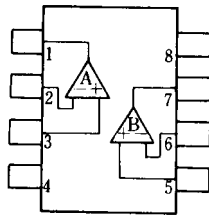


NJM2082V

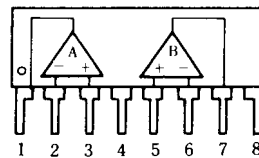


NJM2082L

■ PIN CONFIGURATION



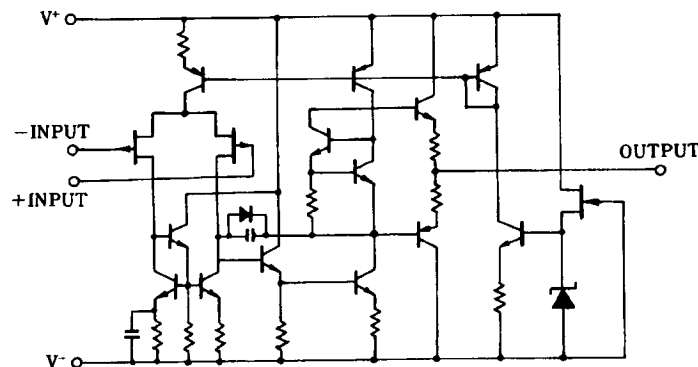
NJM2082D
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NJM2082V



NJM2082L

- 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)



NJM2082

■ 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 (note) | V |
| Power Dissipation | P_D | (DIP8) 500 (DMP8) 300 (SIP8) 800 (SSOP8) 250 | mW |
| Operating Temperature Range | T_{opr} | -40~+85 | °C |
| Storage Temperature Range | T_{stg} | -40~+125 | °C |

(note) For supply voltage less than ±15V, the absolute maximum input voltage is equal to the supply voltage.

■ ELECTRICAL CHARACTERISTICS

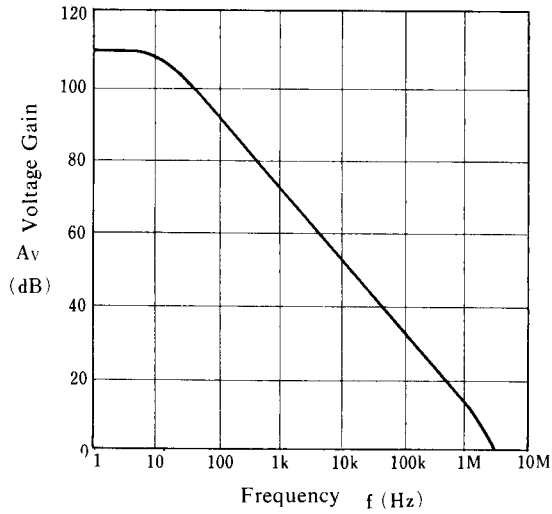
(Ta=+25°C, $V^+ / V^- = \pm 15V$)

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|----------------------------------|-----------|------------------------------------|------|--------------|------|-----------------|
| Input Offset Voltage | V_{IO} | $R_S = 50\Omega$ | - | 2 | 10 | mV |
| Input Offset Current | I_{IO} | | - | 5 | 200 | pA |
| Input Bias Current | I_B | | - | 30 | 400 | pA |
| Input Resistance | R_{IN} | | - | 10^{12} | - | Ω |
| Large Signal Voltage Gain | A_V | $R_L \geq 2k\Omega, V_O = \pm 10V$ | 86 | 110 | - | dB |
| Maximum Output Voltage Swing | V_{OM} | $R_L = 2k\Omega$ | ± 12 | +13.5, -13.0 | - | V |
| Input Common Mode Voltage Range | V_{ICM} | | ± 12 | +15.0, -12.5 | - | V |
| Common Mode Rejection Ratio | CMR | $R_S \leq 10k\Omega$ | 70 | 90 | - | dB |
| Supply Voltage Rejection Ratio | SVR | $R_S \leq 10k\Omega$ | 76 | 100 | - | dB |
| Operating Current | I_{CC} | | - | 4 | 6 | mA |
| Slew Rate | SR | | - | 20 | - | V/ μ s |
| Gain Bandwidth Product | GB | $f = 10kHz$ | - | 5 | - | MHz |
| Equivalent Input Noise Voltage 1 | e_n | $R_S = 100\Omega, f = 1kHz$ | - | 13 | - | nV/ \sqrt{Hz} |
| Equivalent Input Noise Voltage 2 | V_{NI} | RIAA $R_S = 2.2k\Omega, 30kHz$ LPF | - | 1.6 | - | μ Vrms |

■ TYPICAL CHARACTERISTICS

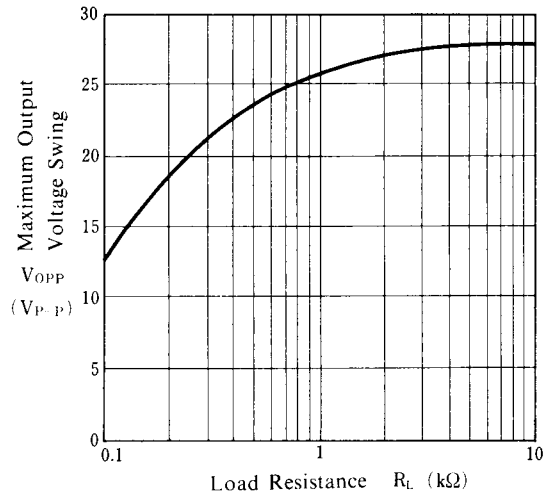
Voltage Gain vs. Frequency

($V^+/V^- = \pm 15V$, $R_L = 2k\Omega$, $T_a = 25^\circ C$)



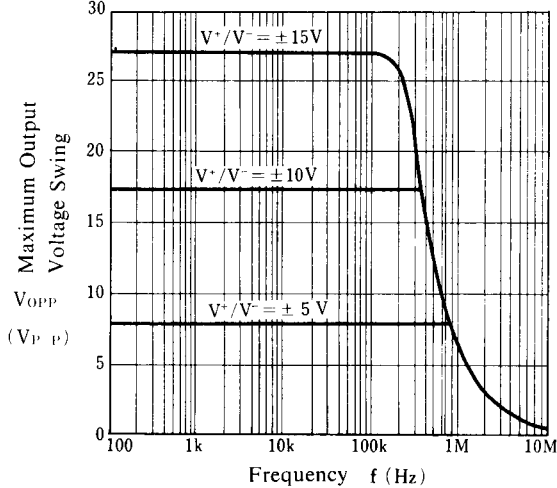
Maximum Output Voltage Swing vs. Load Resistance

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



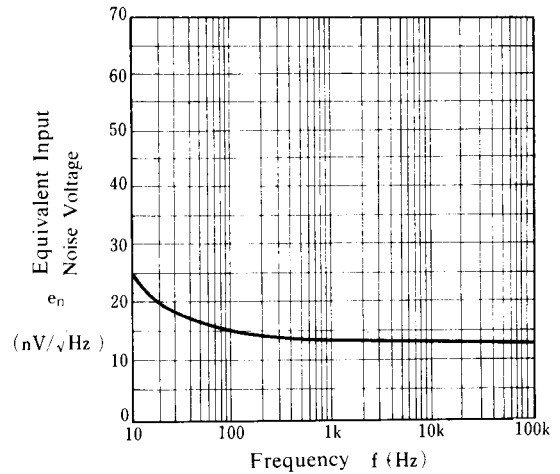
Maximum Output Voltage Swing vs. Frequency

($R_L = 2k\Omega$, $T_a = 25^\circ C$)



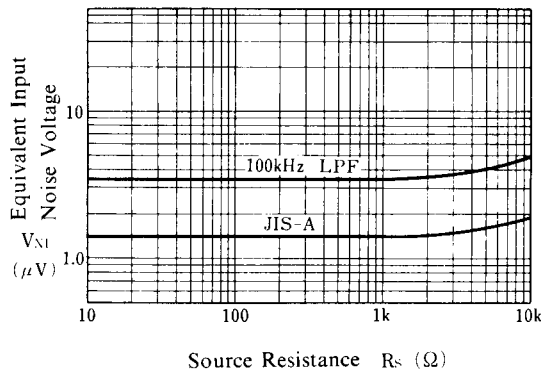
Equivalent Input Noise Voltage vs. Frequency

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



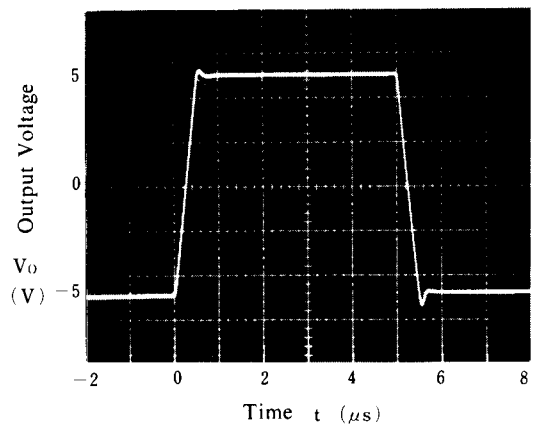
Equivalent Input Noise Voltage vs. Source Resistance

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



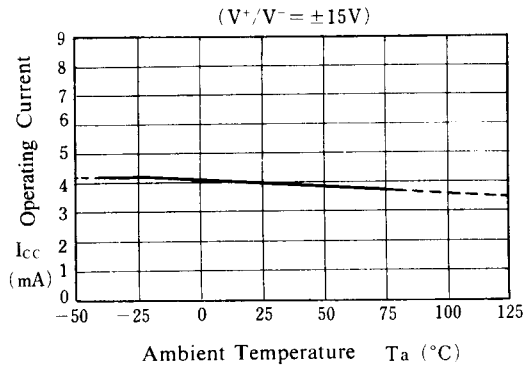
Voltage Follower Pulse Response

($V^+/V^- = \pm 15V$, $R_L = 2k\Omega$, $C_L = 100pF$, $T_a = 25^\circ C$)

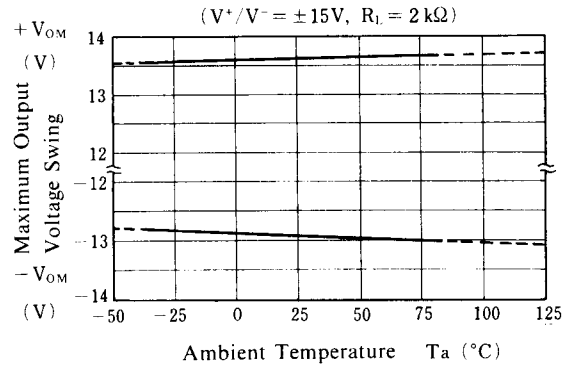


■ TYPICAL CHARACTERISTICS

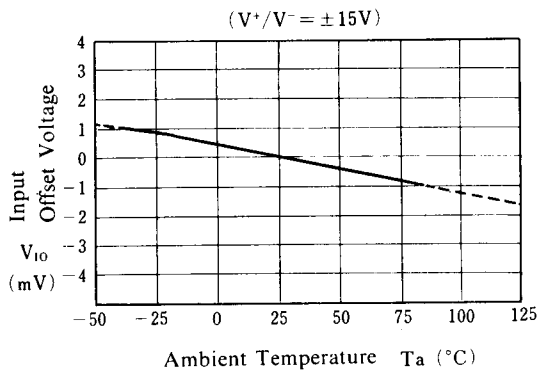
Operating Current vs. Temperature



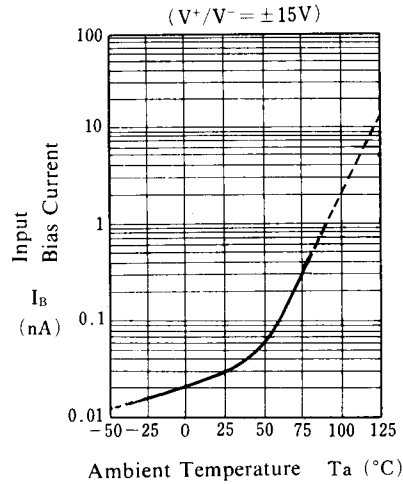
Maximum Output Voltage Swing vs. Temperature



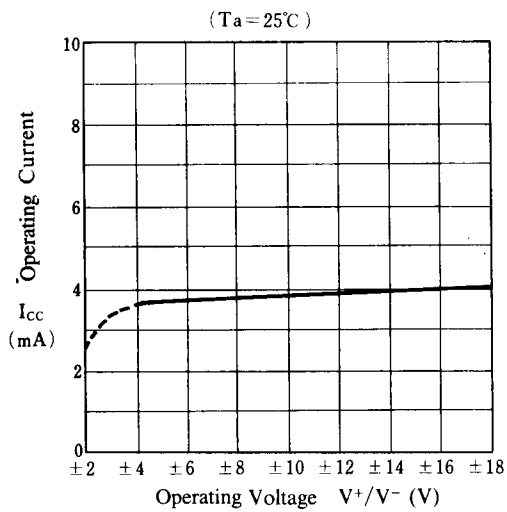
Input Offset Voltage vs. Temperature



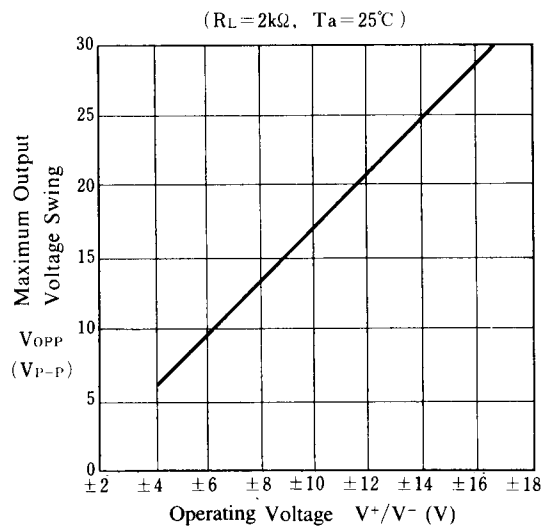
Input Bias Current vs. Temperature



Operating Current vs. Operating Voltage



Maximum Output Voltage Swing vs. Operating Voltage



[CAUTION]

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