

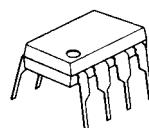
DUAL OPERATIONAL AMPLIFIER

■ GENERAL DESCRIPTION

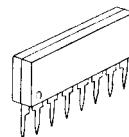
NJM4580 is the dual operational amplifier, specially designed for improving the tone control, which is most suitable for the audio application.

Featuring noiseless, higher gain bandwidth, high output current and low distortion ratio, and it is most suitable not only for acoustic electronic parts of audio pre-amp and active filter, but also for the industrial measurement tools. It is also suitable for the head phone amp at higher output current, and furthermore, it can be applied for the handy type set operational amplifier of general purpose in application of low voltage single supply type which is properly biased of the low voltage source.

■ PACKAGE OUTLINE



NJM4580D



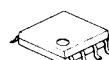
NJM4580L



NJM4580E



NJM4580V

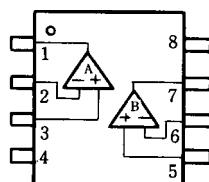
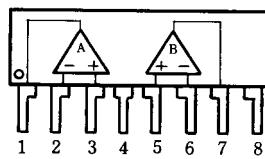


NJM4580M

■ FEATURES

- Operating Voltage ($\pm 2V \sim \pm 18V$)
- Low Input Noise Voltage ($0.8\mu V_{rms}$ typ.)
- Wide Gain Bandwidth Product (15MHz typ.)
- Low Distortion (0.0005% typ.)
- Slew Rate (5V/ μ s typ.)
- Package Outline DIP8,SIP8,EMP8,SSOP8,DMP8
- Bipolar Technology

■ PIN CONFIGURATION

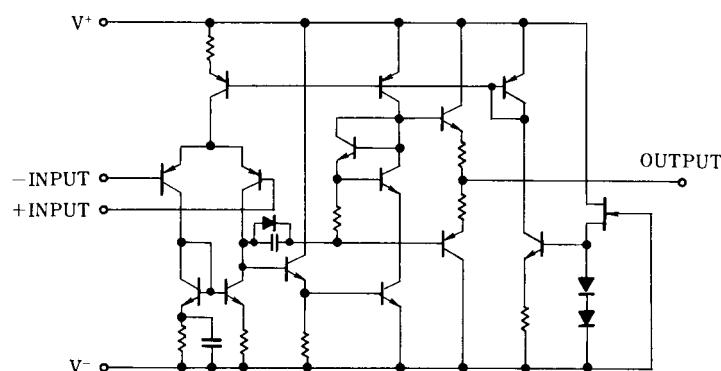
NJM4580D,NJM4580E
NJM4580M,NJM4580V

NJM4580L

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)



NJM4580

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

| PARAMETER | SYMBOL | RATINGS | UNIT |
|-----------------------------|-------------------|---|------|
| Supply Voltage | V ⁺ /V | ± 18 | V |
| Input Voltage | V _{IC} | ± 15 (note) | V |
| Differential Input Voltage | V _{ID} | ± 30 (note) | V |
| Output Current | I _O | ± 50 | mA |
| Power Dissipation | P _D | (DIP8) 800 (SIP8) 800 (DMP8) 300 (EMP8) 300 (SSOP8) 250 | mW |
| Operating Temperature Range | T _{opr} | -40~+85 | °C |
| Storage Temperature Range | T _{stg} | -40~+125 | °C |

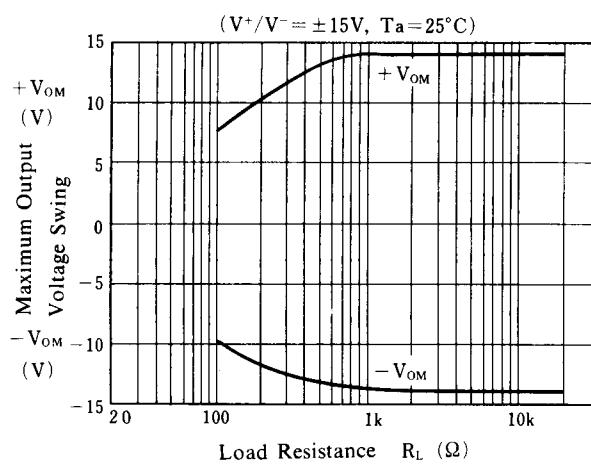
■ ELECTRICAL CHARACTERISTICS

(Ta=25°C, V⁺/V=±15V)

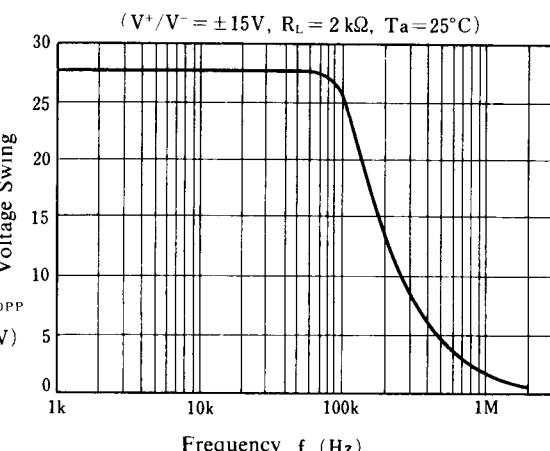
| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---------------------------------|------------------|---|------|--------|------|-------|
| Input Offset Voltage | V _{IO} | R _S ≤10kΩ | - | 0.5 | 3 | mV |
| Input Offset Current | I _{IO} | | - | 5 | 200 | nA |
| Input Bias Current | I _B | | - | 100 | 500 | nA |
| Large Signal Voltage Gain | A _V | R _L ≥2kΩ, V _O =±10V | 90 | 110 | - | dB |
| Output Voltage Swing | V _{OM} | R _L ≥2kΩ | ± 12 | ± 13.5 | - | V |
| Input Common Mode Voltage Range | V _{ICM} | | ± 12 | ± 13.5 | - | V |
| Common Mode Rejection Ratio | CMR | R _S ≤10kΩ | 80 | 110 | - | dB |
| Supply Voltage Rejection Ratio | SVR | R _S ≤10kΩ | 80 | 110 | - | dB |
| Operating Current | I _{CC} | | - | 6 | 9 | mA |
| Slew Rate | SR | R _L ≥2kΩ | - | 5 | - | V/μs |
| Gain Bandwidth Product | GB | f=10kHz | - | 15 | - | MHz |
| Total Harmonic Distortion | THD | A _V =20dB, V _O =5V, R _L =2kΩ, f=1kHz | - | 0.0005 | - | % |
| Input Noise Voltage | V _{NI} | RIAA, R _S =2.2kΩ, 30kHz LPF | - | 0.8 | - | μVrms |

■ TYPICAL CHARACTERISTICS

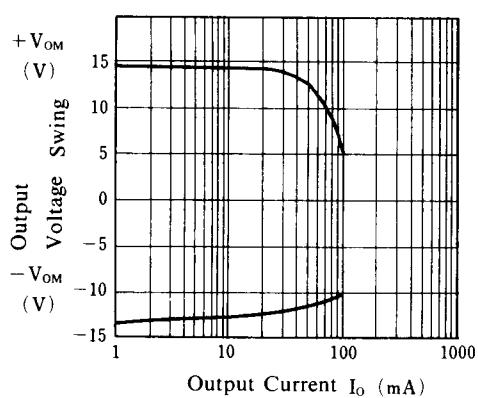
Maximum Output Voltage Swing vs. Load Resistance



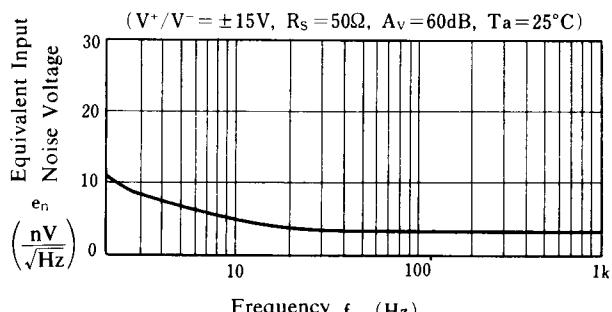
Maximum Output Voltage Swing vs. Frequency



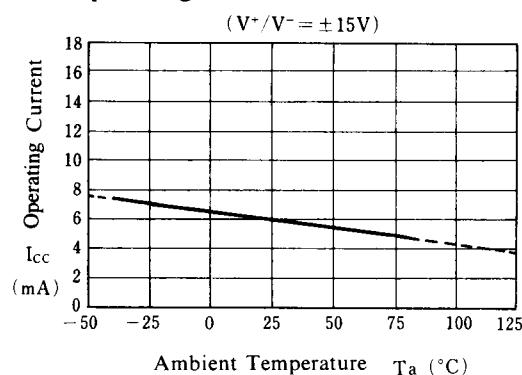
Output Voltage Swing vs. Output Current



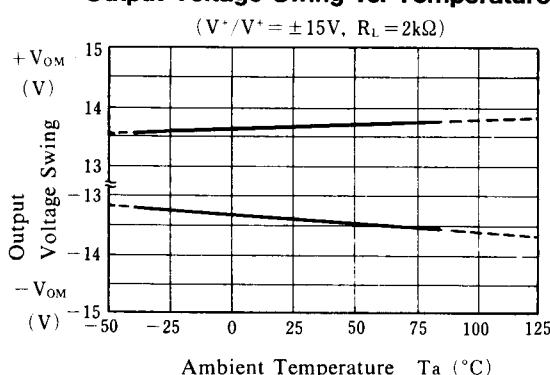
Equivalent Input Noise Voltage vs. Frequency



Operating Current vs. Temperature



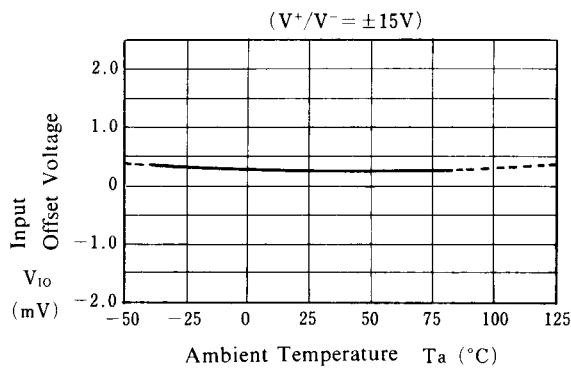
Output Voltage Swing vs. Temperature



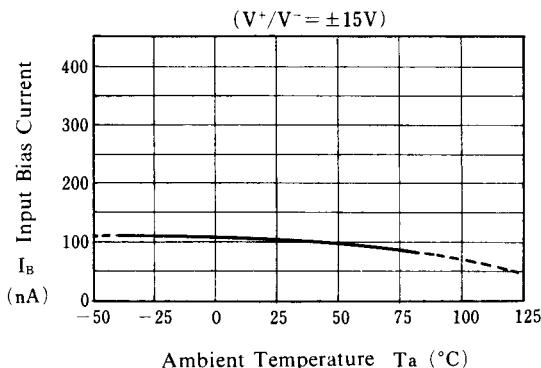
NJM4580

■ TYPICAL CHARACTERISTICS

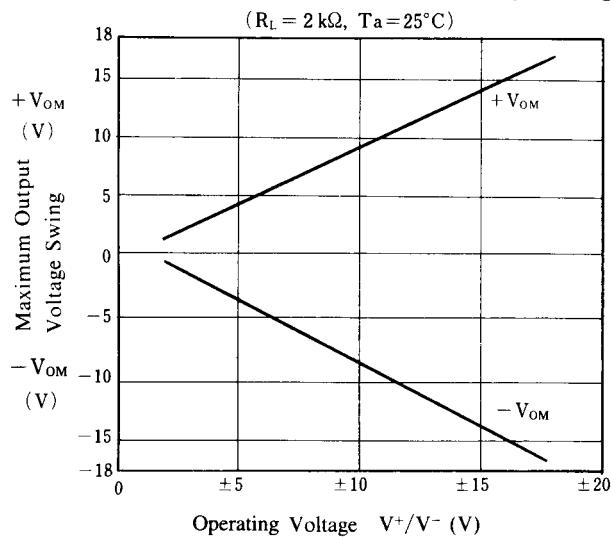
Input Offset Voltage vs. Temperature



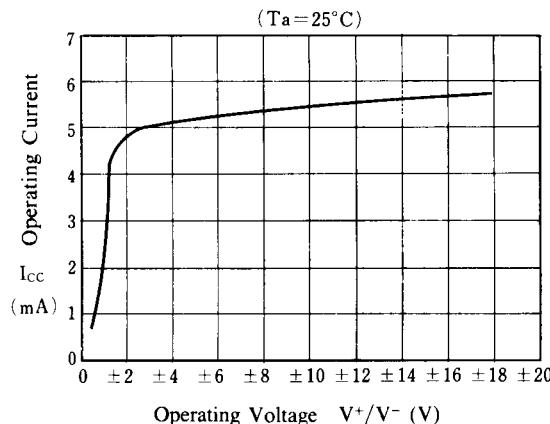
Input Bias Current vs. Temperature



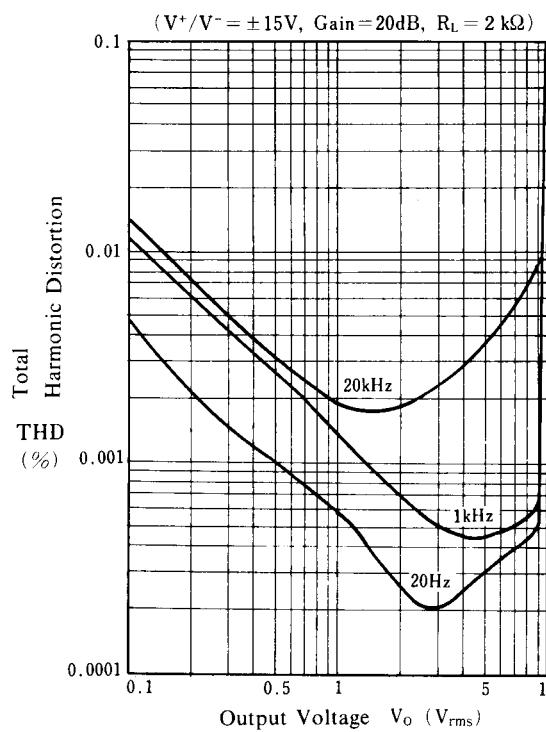
Maximum Output Voltage Swing vs. Operating Voltage



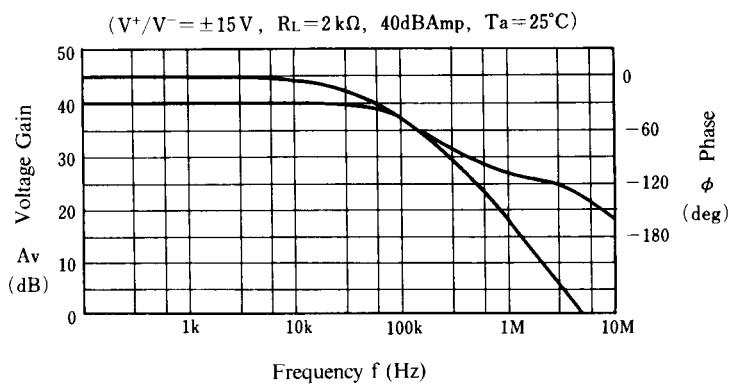
Operating Current vs. Operating Voltage



Total Harmonic Distortion vs. Output Voltage



Voltage Gain, Phase vs. Frequency



[CAUTION]
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