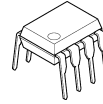


DUAL OPERATIONAL AMPLIFIER

■ GENERAL DESCRIPTION

The NJM4558 is a dual high-gain operational amplifier with internal compensation circuit and constructed on a single silicon chip. It offers excellent characteristics by combining the parameters adjusted for a monolithic chip. The channel separation characteristic is suitable for measuring instruments.

■ PACKAGE OUTLINE



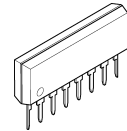
NJM4558D
(DIP8)



NJM4558M
(DMP8)



NJM4558V
(SSOP8)



NJM4558L
(SIP8)

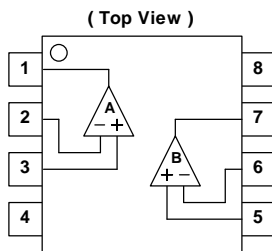


NJM4558E
(SOP8)

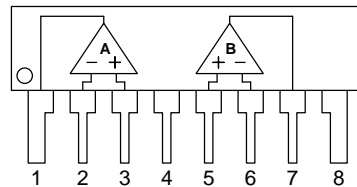
■ FEATURES

- Operating Voltage (±4V~±18V)
- High Voltage Gain (100dB typ.)
- High Input Resistance (5MΩ typ.)
- Bipolar Technology
- Package Outline DIP8, DMP8, SIP8
SOP8 JEDEC 150mil,
SSOP8

■ PIN CONFIGURATION



**NJM4558D, NJM4558M,
NJM4558E, NJM4558V**

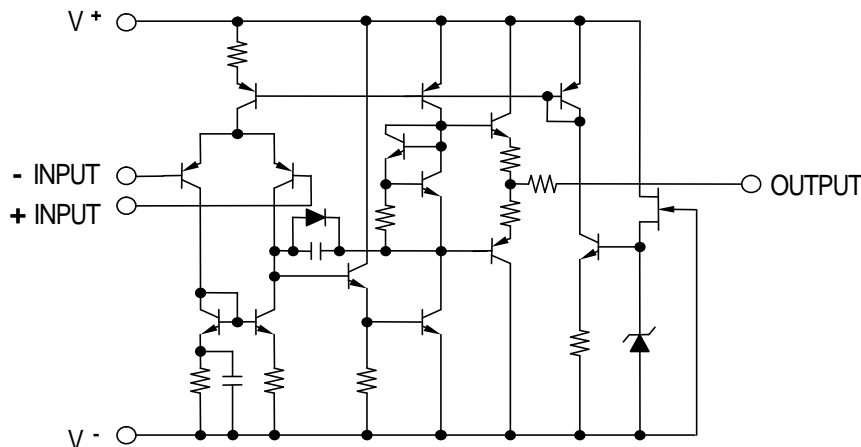


NJM4558L

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)



NJM4558

■ 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 | (DIP8) 500 (DMP8) 300 (SOP8) 300 (SSOP8) 250 (SIP8) 800 | mW |
| Operating Temperature Range | T_{opr} | -40~+85 | °C |
| Storage Temperature Range | T_{stg} | -40~+125 | °C |

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

■ ELECTRICAL CHARACTERISTICS

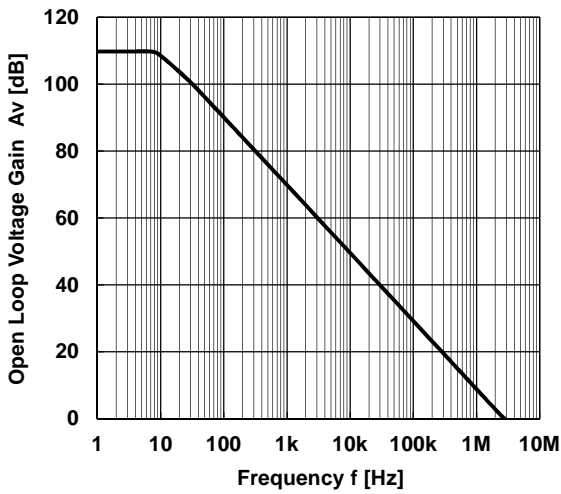
($V^+V^- = \pm 15V, T_a = 25^\circ C$)

| PARAMETER | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|--|-----------|-------------------------------------|------|------|------|-------|
| Input Offset Voltage | V_{IO} | $R_S \leq 10k\Omega$ | - | 0.5 | 6 | mV |
| Input Offset Current | I_{IO} | | - | 5 | 200 | nA |
| Input Bias Current | I_B | | - | 25 | 500 | nA |
| Input Resistance | R_{IN} | | 0.3 | 5 | - | MΩ |
| Large Signal Voltage Gain | A_V | $R_L \geq 2k\Omega, V_O = \pm 10V$ | 86 | 100 | - | dB |
| Maximum Output Voltage Swing 1 | V_{OM1} | $R_L \geq 10k\Omega$ | ± 12 | ± 14 | - | V |
| Maximum Output Voltage Swing 2 | V_{OM2} | $R_L \geq 2k\Omega$ | ± 10 | ± 13 | - | V |
| Input Common Mode Voltage Range | V_{ICM} | | ± 12 | 14 | - | V |
| Common Mode Rejection Ratio | CMR | $R_S \leq 10k\Omega$ | 70 | 90 | - | dB |
| Supply Voltage Rejection Ratio | SVR | $R_S \leq 10k\Omega$ | 76.5 | 90 | - | dB |
| Operating Current | I_{CC} | | - | 3.5 | 5.7 | mA |
| Slew Rate | SR | | - | 1 | - | V/μs |
| Equivalent Input Noise Voltage (note2) | V_{NI} | RIAA, $R_S = 2.2k\Omega, 30kHz$ LPF | - | 1.4 | - | μVrms |
| Gain Bandwidth Product | GB | | - | 3 | - | MHz |

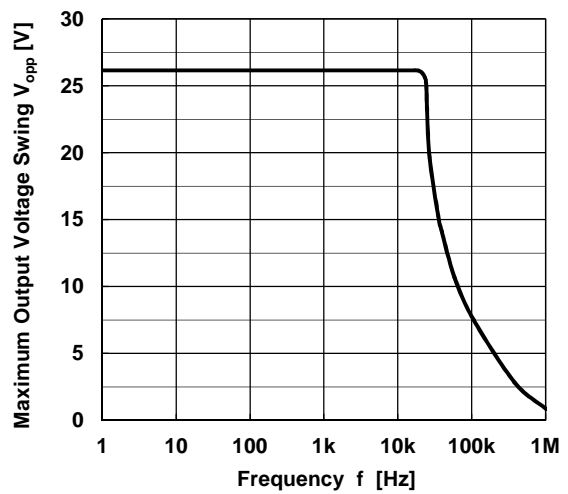
(note2) In regard to Noise Standard, NJRC is preparing for special D Rank type products ($V_{NI} = 1.8\mu V$ max.) except for SSOP package.

TYPICAL CHARACTERISTICS

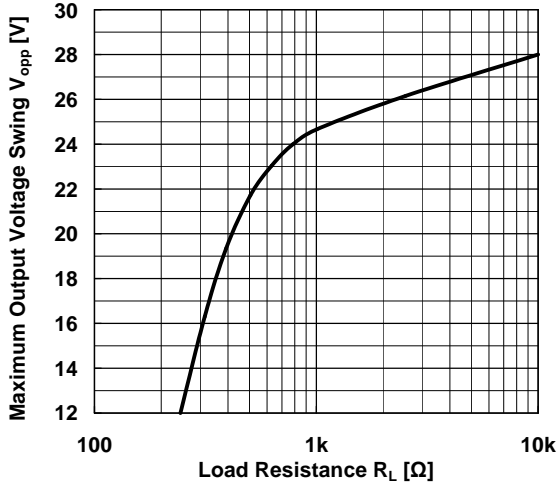
Open Loop Voltage Gain vs. Frequency
 $V^+/V^- = \pm 15V, R_L = 2k\Omega, T_a = 25^\circ C$



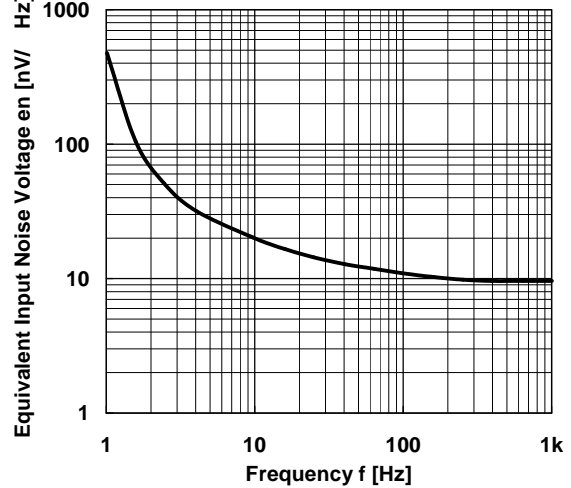
Maximum Output Voltage Swing vs. Frequency
 $V^+/V^- = \pm 15V, R_L = 2k\Omega, T_a = 25^\circ C$



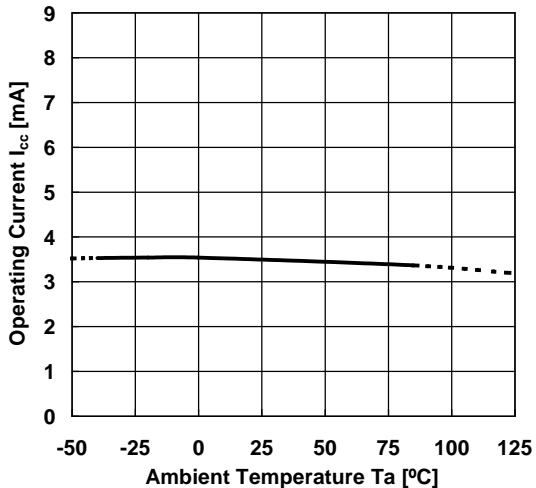
Maximum Output Voltage Swing vs. Load Resistance
 $V^+/V^- = \pm 15V, T_a = 25^\circ C$



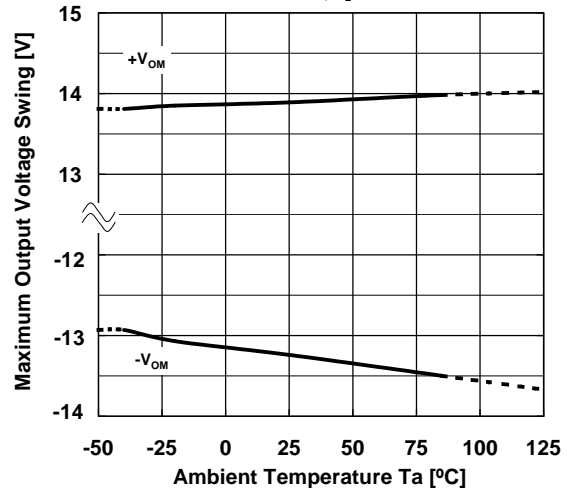
Equivalent Input Noise Voltage vs. Frequency
 $V^+/V^- = \pm 15V, R_s = 50\Omega, A_v = 60dB, T_a = 25^\circ C$



Operating Current vs. Temperature
 $V^+/V^- = \pm 15V$

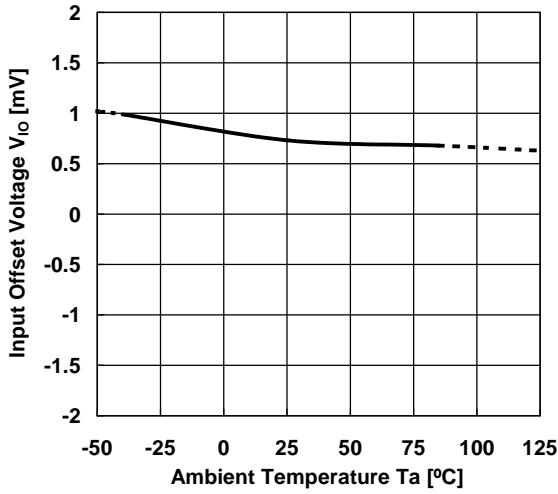


Maximum Output Voltage Swing vs. Temperature
 $V^+/V^- = \pm 15V, R_L = 10k\Omega$

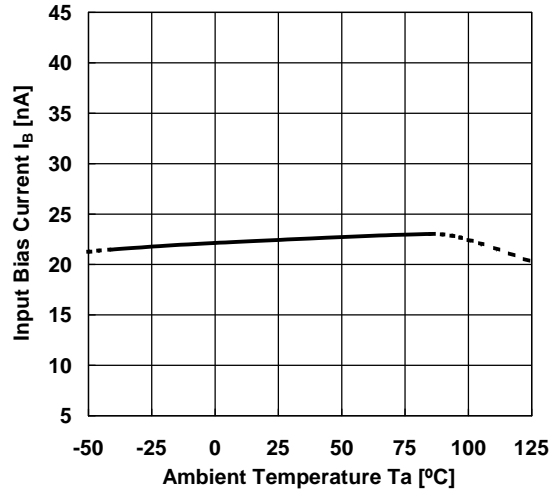


■ TYPICAL CHARACTERISTICS

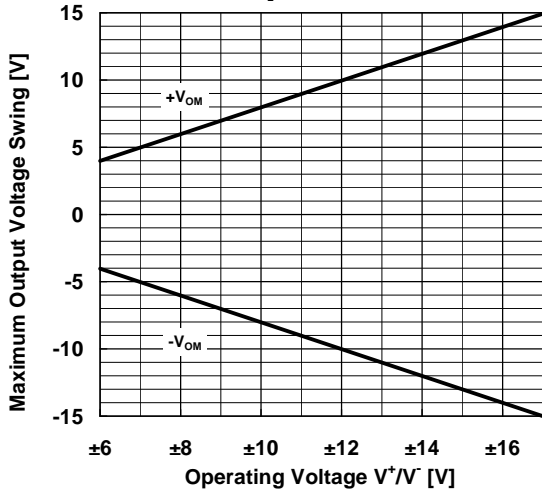
Input Offset Voltage vs. temperature
 $V^+/V^- = \pm 15V$



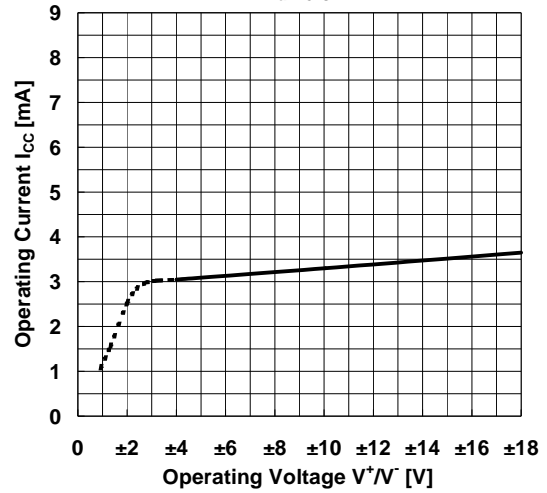
Input Bias Current vs. Temperature
 $V^+/V^- = \pm 15V$



Maximum Output Voltage Swing vs. Operating Voltage
 $R_L = 2k\Omega, T_a = 25^\circ C$



Operating Current vs. Operating Voltage
 $T_a = 25^\circ C$



[CAUTION]

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