

DUAL OPERATIONAL AMPLIFIER

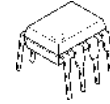
■ GENERAL DESCRIPTION

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.

■ FEATURES

- Operating Voltage ($\pm 4V \sim \pm 18V$)
- High Voltage Gain (100dB typ.)
- High Input Resistance ($5M\Omega$ typ.)
- Bipolar Technology
- Package Outline DIP8, DMP8, SIP8
SOP8 JEDEC 150mil,
SSOP8

■ PACKAGE OUTLINE



NJM4558D
(DIP8)



NJM4558M
(DMP8)



NJM4558V
(SSOP8)

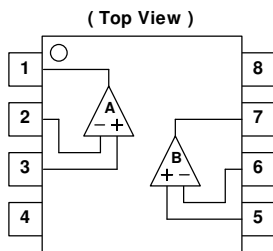


NJM4558L
(SIP8)

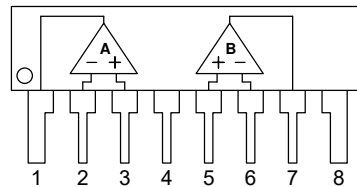


NJM4558E
(SOP8)

■ PIN CONFIGURATION



NJM4558D, NJM4558M,
NJM4558E, NJM4558V

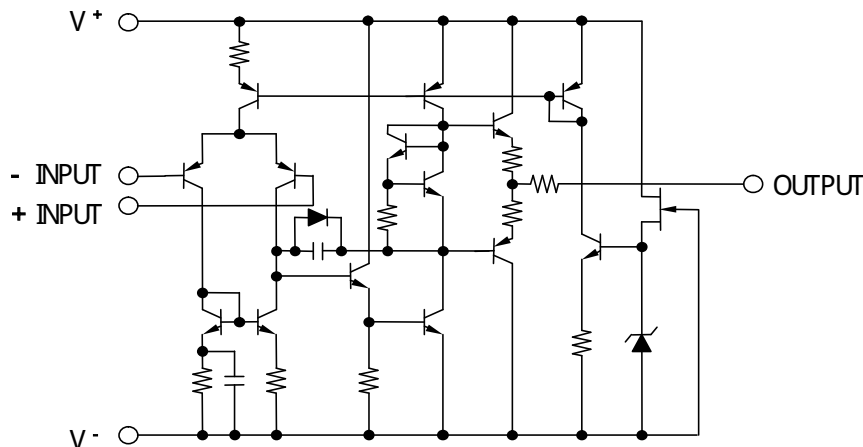


NJM4558L

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)



■ 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

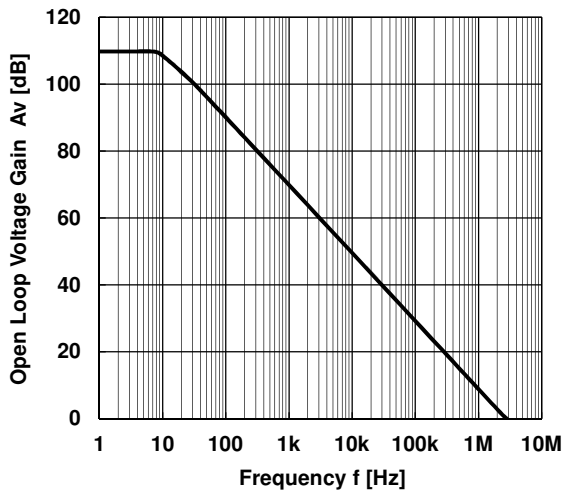
($V^+ / V^- = \pm 15V, Ta = 25^\circ C$)

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

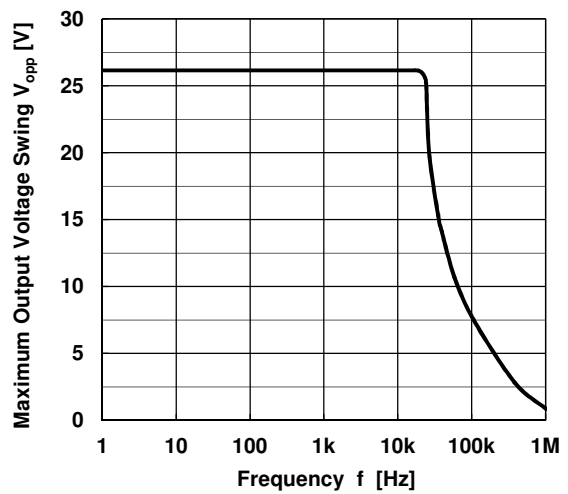
(note2) In regard to Noise Standard, NJRC is preparing for special D Rank type products ($V_{NI} = 1.8\mu V$ max.) except for SSOP package.

■ TYPICAL CHARACTERISTICS

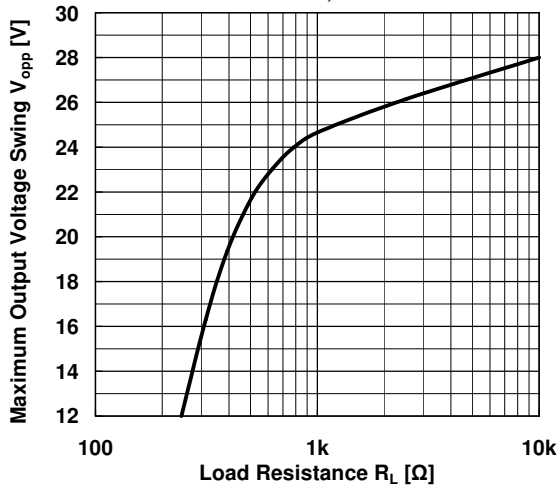
Open Loop Voltage Gain vs. Frequency
 $V^+/V^-=\pm 15V, R_L=2k\Omega, T_a=25^\circ C$



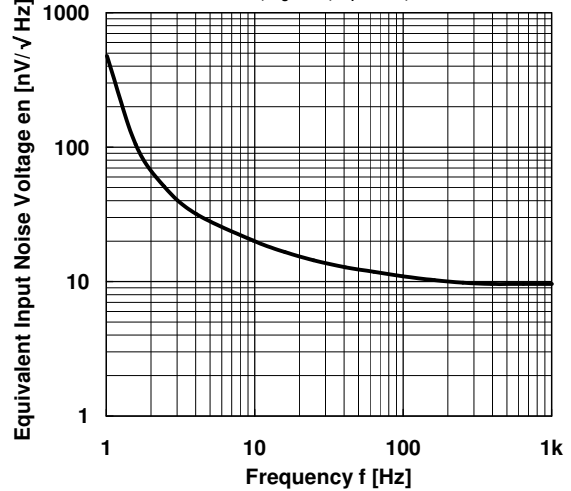
Maximum Output Voltage Swing vs. Frequency
 $V^+/V^-=\pm 15V, R_L=2k\Omega, T_a=25^\circ C$



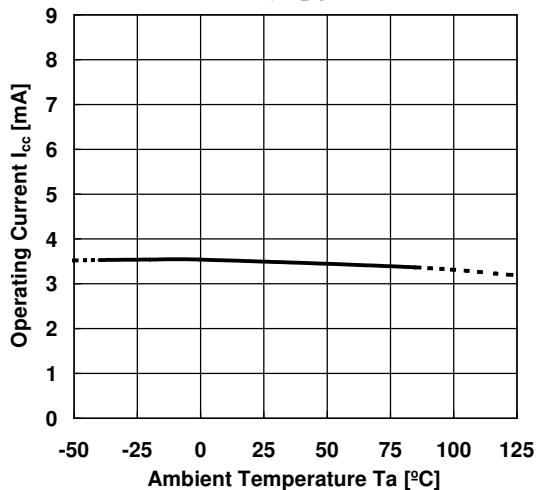
Maximum Output Voltage Swing vs. Load Resistance
 $V^+/V^-=\pm 15V, T_a=25^\circ C$



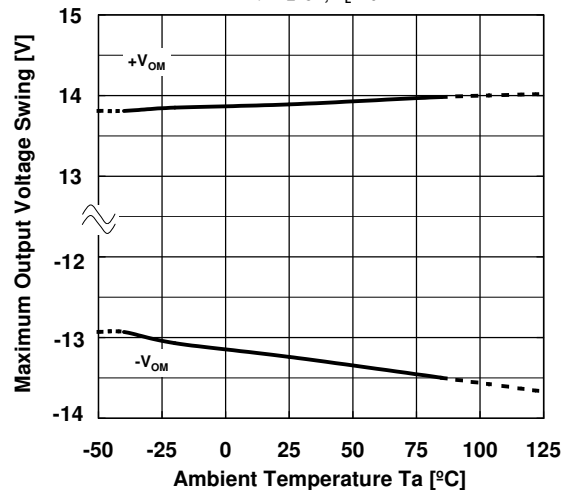
Equivalent Input Noise Voltage vs. Frequency
 $V^+/V^-=\pm 15V, R_S=50\Omega, A_v=60dB, T_a=25^\circ C$



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

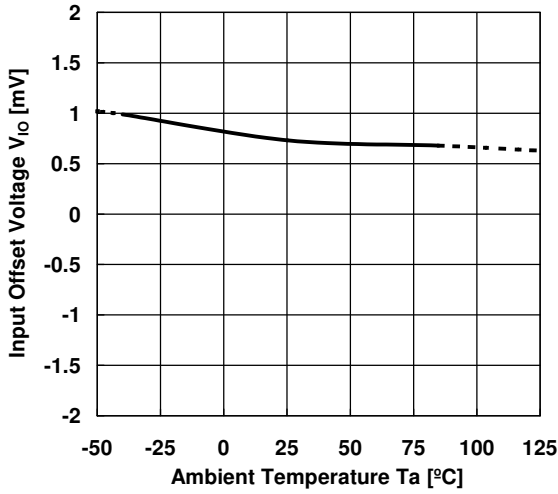


Maximum Output Voltage Swing vs. Temperature
 $V^+/V^-=\pm 15V, R_L=10k\Omega$

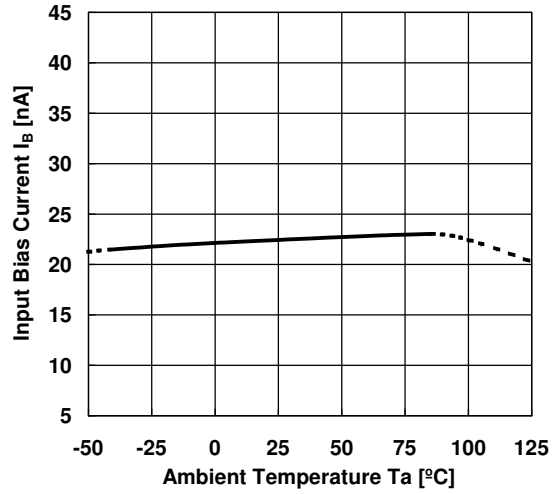


■ TYPICAL CHARACTERISTICS

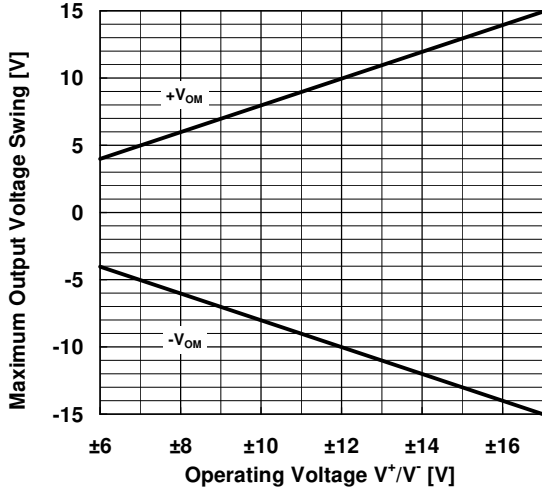
Input Offset Voltage vs. temperature
 $V^+/V^-=\pm 15V$



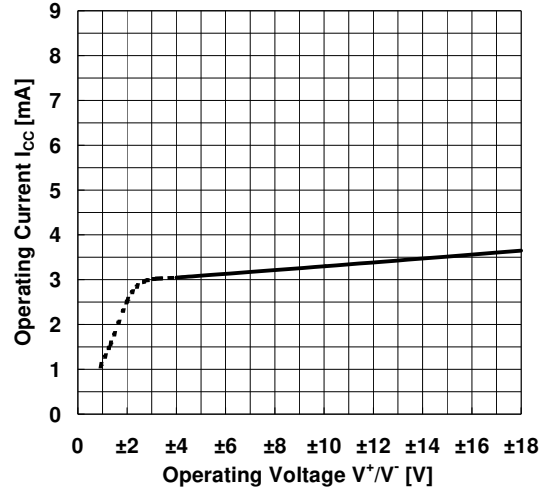
Input Bias Current vs. Temperature
 $V^+/V^-=\pm 15V$



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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