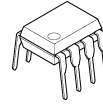


## DUAL OPERATIONAL AMPLIFIER

### ■ 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



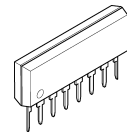
**NJM4558D**  
(DIP8)



**NJM4558M**  
(DMP8)



**NJM4558V**  
(SSOP8)



**NJM4558L**  
(SIP8)

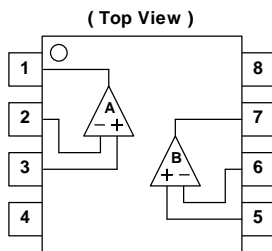


**NJM4558E**  
(SOP8)

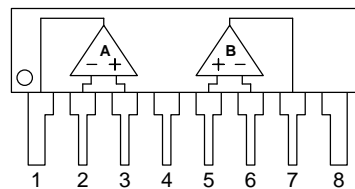
### ■ FEATURES

- 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**

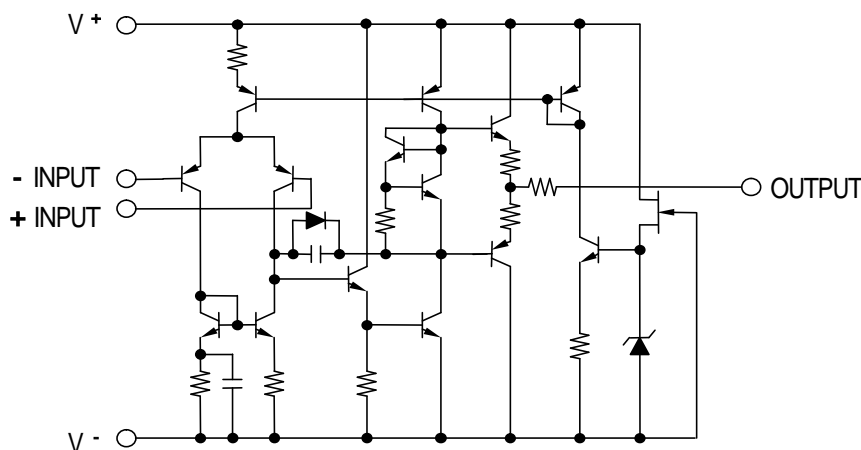


**NJM4558L**

### PIN FUNCTION

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

### ■ 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

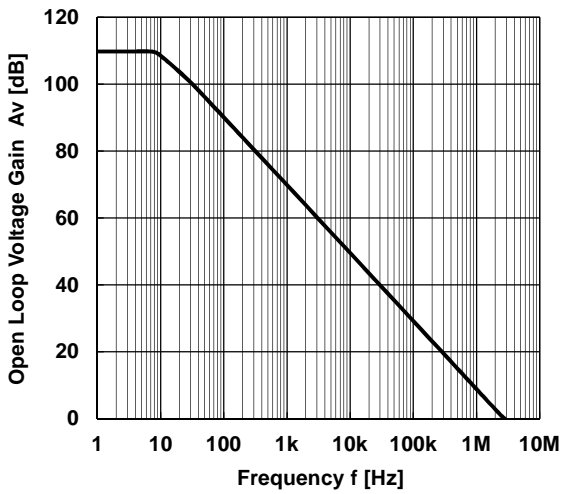
(  $V^+V^- = \pm 15V, T_a = 25^\circ C$  )

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

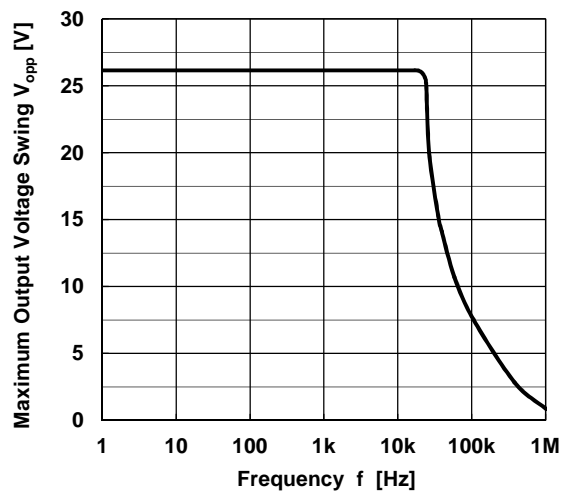
(note2) In regard to Noise Standard, NJRC is preparing for special D Rank type products ( $V_{NI} = 1.8\mu V$  max.) except for SSOP package.

## TYPICAL CHARACTERISTICS

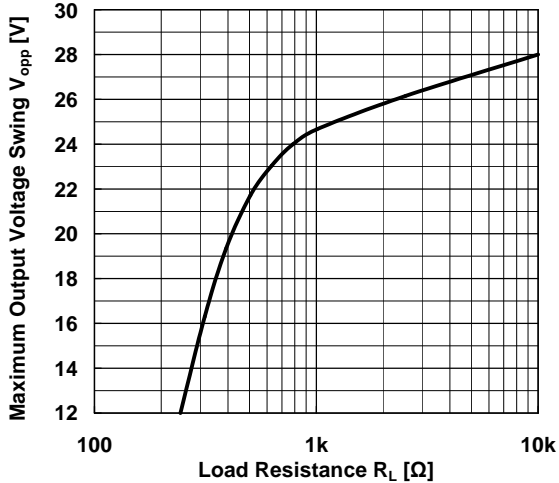
Open Loop Voltage Gain vs. Frequency  
 $V^+/V^- = \pm 15V, R_L = 2k\Omega, T_a = 25^\circ C$



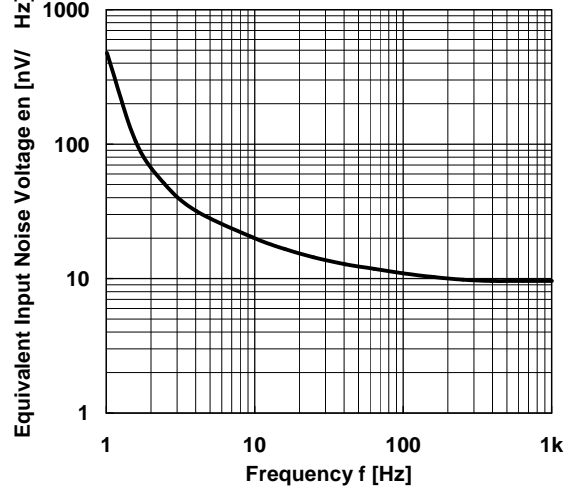
Maximum Output Voltage Swing vs. Frequency  
 $V^+/V^- = \pm 15V, R_L = 2k\Omega, T_a = 25^\circ C$



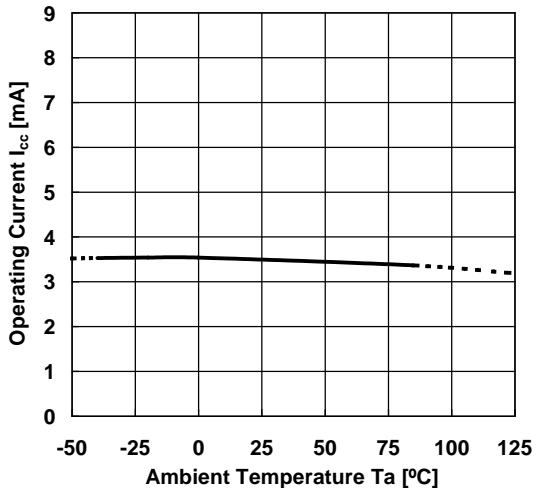
Maximum Output Voltage Swing vs. Load Resistance  
 $V^+/V^- = \pm 15V, T_a = 25^\circ C$



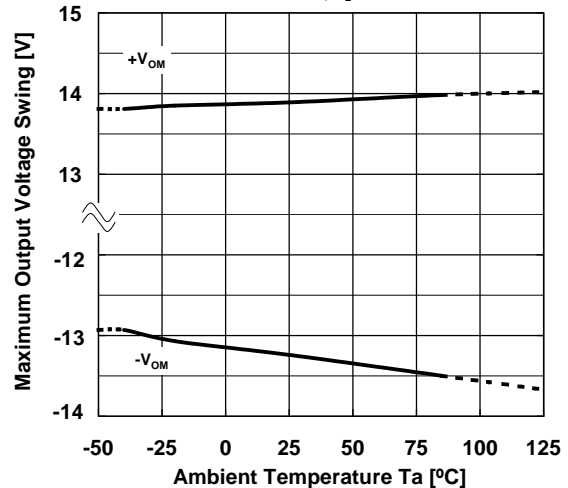
Equivalent Input Noise Voltage vs. Frequency  
 $V^+/V^- = \pm 15V, R_s = 50\Omega, A_v = 60dB, T_a = 25^\circ C$



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

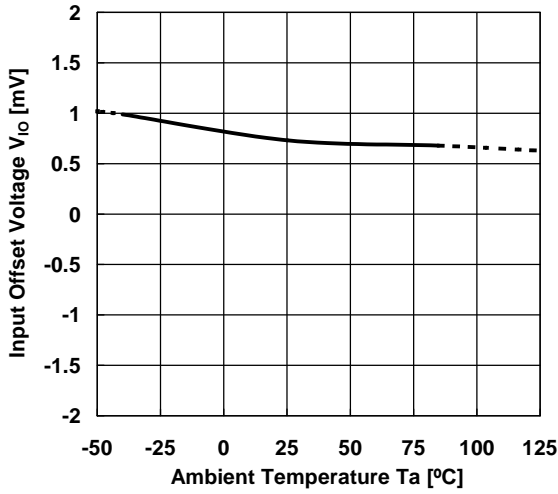


Maximum Output Voltage Swing vs. Temperature  
 $V^+/V^- = \pm 15V, R_L = 10k\Omega$

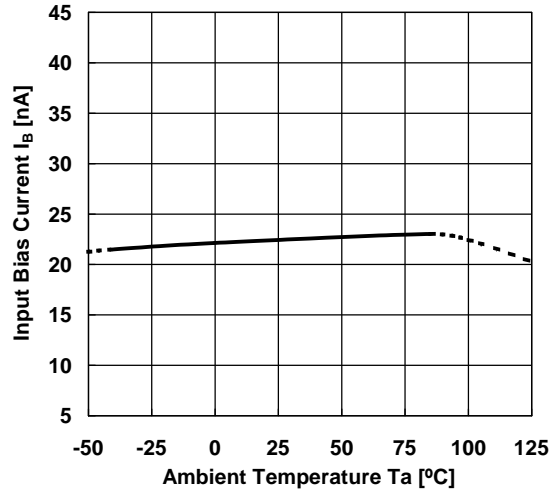


## ■ TYPICAL CHARACTERISTICS

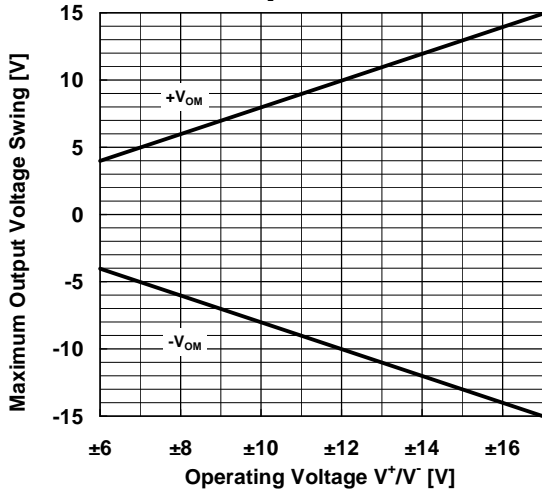
Input Offset Voltage vs. temperature  
 $V^+/V^- = \pm 15V$



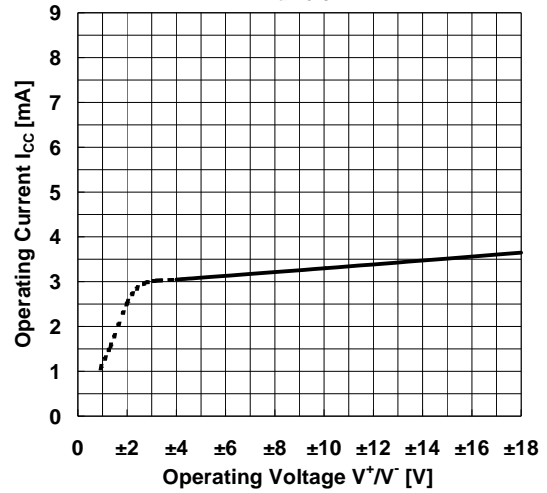
Input Bias Current vs. Temperature  
 $V^+/V^- = \pm 15V$



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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