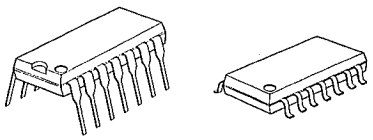
GENERAL PURPOSE QUAD OPERATIONAL AMPLIFIER

■ GENERAL DESCRIPTION

The NJM4741 consists of four independent high-gain operational amplifiers that are designed for high slew rate, wide band, good noise characteristics.

■ PACKAGE OUTLINE

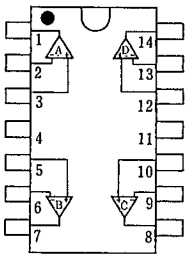


NJM4741D NJM4741M

■ FEATURES

- Operating Voltage (±4V～±20V)
- WideBand (3.5MHz typ.)
- Slew Rate (1.6V/μs typ.)
- Low Input Noise Voltage (9nV/ Hzs typ.)
- Low Distortion (0.0005% typ.)
- Package Outline DIP14, DMP14
- Bipolar Technology

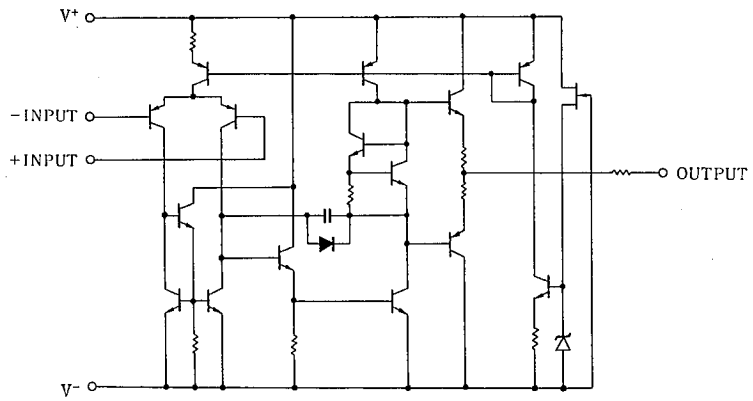
■ CONNECTION DIAGRAM



NJM4741D
NJM4741M

PIN FUNCTION
1. A OUTPUT
2. A−INPUT
3. A+INPUT
4. V+
5. B+INPUT
6. B−INPUT
7. B OUTPUT
8. C OUTPUT
9. C−INPUT
10. C+INPUT
11. V−
12. D+INPUT
13. D−INPUT
14. D OUTPUT

■ EQUIVALENT CIRCUIT (1/4 Shown)



■ ABSOLUTE MAXIMUM RATINGS

(Ta=25℃)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+/V^-	±20	V
Differential Input Voltage	V_{ID}	±30	V
Input Voltage	V_{IC}	±15 (note)	V
Power Dissipation	P_D	(DIP14) 500	mW
		(DMP14) 300	mW
		(SSOP14) 300	mW
Operating Temperature Range	T_{opr}	−40～+85	℃
Storage Temperature Range	T_{stg}	−40～+125	℃

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

■ ELECTRICAL CHARACTERISTICS

(Ta=25℃, V^+/V^-=±15V)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V_{IO}	$R_S \leqq 100k\Omega$	—	1.0	5.0	mV
Input Offset Current	I_{IO}		—	30	50	nA
Input Bias Current	I_B		—	100	300	nA
Large Signal Voltage Gain	A_V	$R_L \geqq 2k\Omega$, $V_O = \pm 10V$	88	94	—	dB
Operating Current	I_{CC}		—	—	7	mA
Common Mode Rejection Ratio	CMR		80	120	—	dB
Supply Voltage Rejection Ratio	SVR		80	120	—	dB
Maximum Output Voltage 1	V_{OM1}	$R_L \geqq 10k\Omega$	±12	±13.7	—	V
Maximum Output Voltage 2	V_{OM2}	$R_L \geqq 2k\Omega$	±10	±12.5	—	V
Input Common Mode Voltage Range	V_{ICM}		±12	±14	—	V
Slew Rate	SR	$A_V = 1$	—	1.6	—	V/μs
Equivalent Input Noise Voltage	en	f=1kHz	—	9	—	$nV\sqrt{Hz}$
Channel Separation	CS	f=10kHz, Input Referred	—	108	—	dB

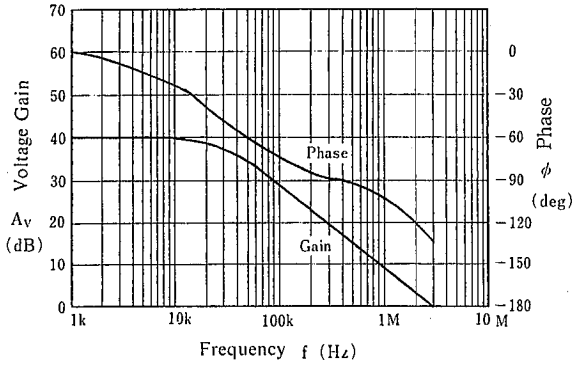
(note):

The application which leads to the extreme difference of power dissipation between channels may cause the mutual interference by the temperature gradient on the chip.

■ TYPICAL CHARACTERISTICS

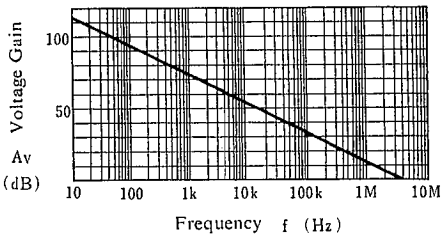
Voltage Gain, Phase vs. Frequency

($V^+/V^-=\pm15V$, $R_L=2k\Omega$, $C_L=100pF$, 40dB Amp, $Ta=25°C$)



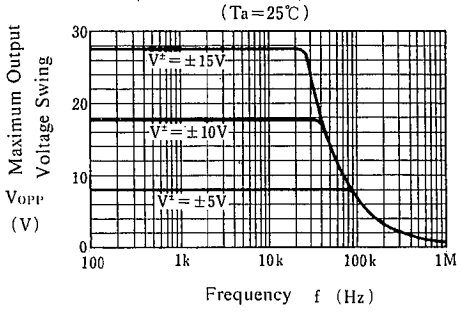
Voltage Gain vs. Frequency

($V^+/V^-=\pm15V$, $R_L=2k\Omega$, $C_L=50pF$, $Ta=25°C$)



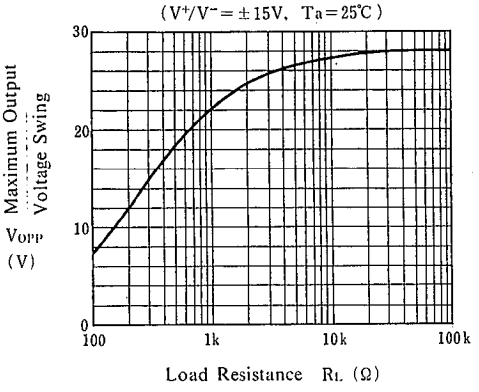
Maximum Output Voltage Swing vs. Frequency

($Ta=25°C$)



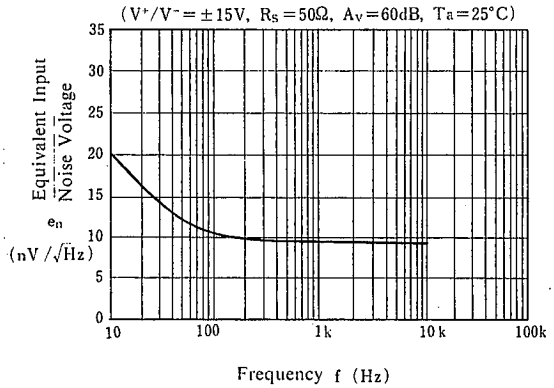
Maximum Output Voltage Swing vs. Load Resistance

($V^+/V^-=\pm15V$, $Ta=25°C$)



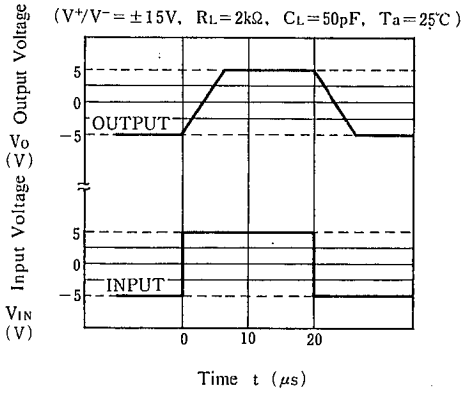
Equivalent Input Noise Voltage vs. Frequency

($V^+/V^-=\pm15V$, $R_S=50\Omega$, $A_V=60dB$, $Ta=25°C$)



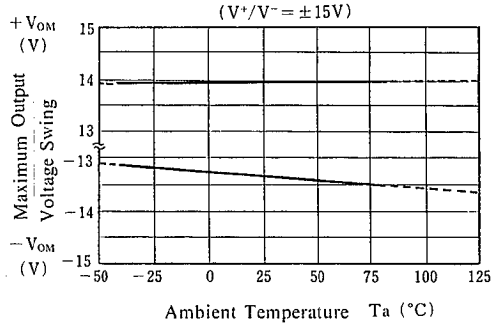
Pulse Response

($V^+/V^-=\pm15V$, $R_L=2k\Omega$, $C_L=50pF$, $Ta=25°C$)

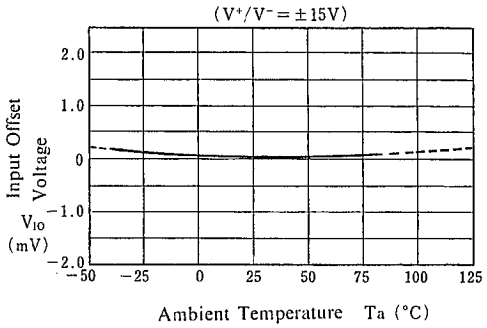


■ TYPICAL CHARACTERISTICS

Maximum Outout Voltage Swing vs. Temperature



Input Offset Voltage vs. Temperature



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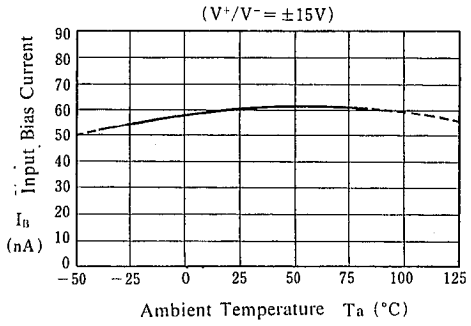
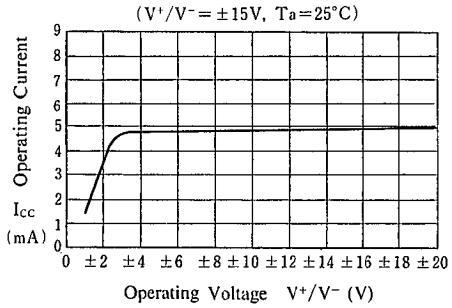
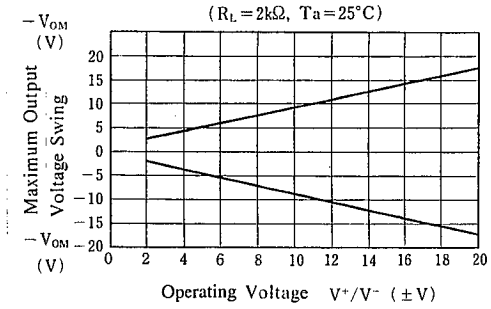
Input Bias Current vs. Temperature



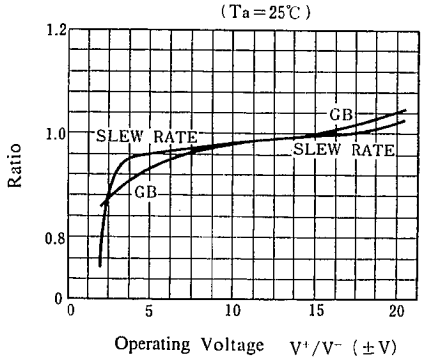
Operating Current vs. Operating Voltage



Maximum Output Voltage Swing vs. Operating Voltage



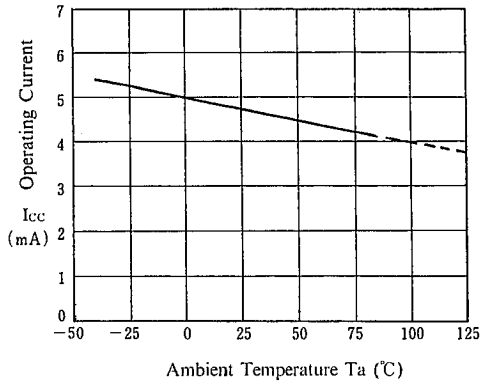
Slew Rate, Unity Gain Bandwidth vs. Operating Voltage



■ TYPICAL CHARACTERISTICS

Operating Current vs. Temperature

($V^+/V^-=\pm15V$, $R_L=2k\Omega$)



MEMO