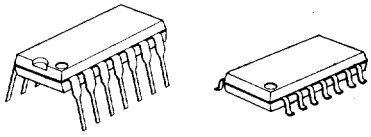
GENERAL PURPOSE QUAD OPERATIONAL AMPLIFIER

■ 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

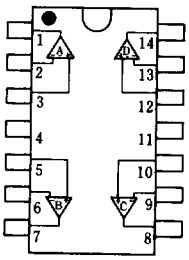


NJM4741D NJM4741M

■ 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

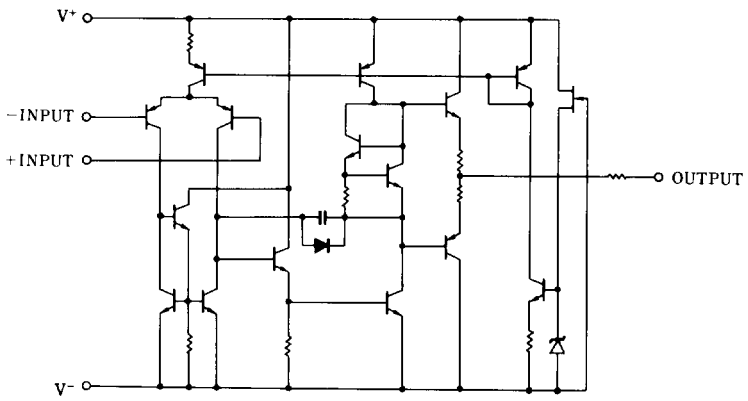
■ CONNECTION DIAGRAM



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_I	±15 (note)	V
Power Dissipation	P_D	(DIP14) 500	mW
		(DMP14) 300	mW
		(SSOP14) 300	mW
Operating Temperature Range	T_{opr}	−20~+75	℃
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)

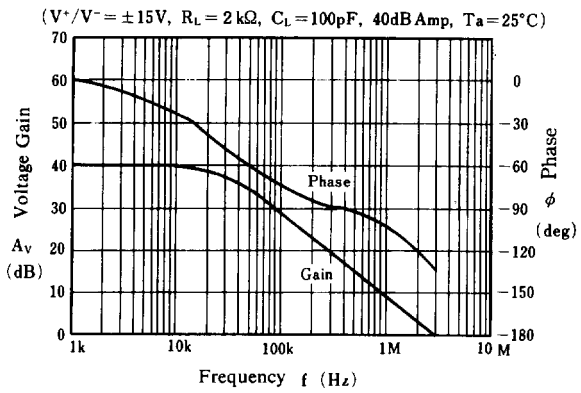
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V_{IO}	$R_S \leqq 100k\Omega$	—	1.0	5.0	mV
Input Offset Current	I_{IO}		—	30	50	nA
Input Bias Current	I_B		—	100	300	nA
Large Signal Voltage Gain	A_V	$R_L \geqq 2k\Omega$, $V_O = \pm 10V$	88	94	—	dB
Operating Current	I_{CC}		—	—	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	—	$nA\sqrt{Hz}$
Channel Separation	CS	f=10kHz, Input Referred	—	108	—	dB

(note):

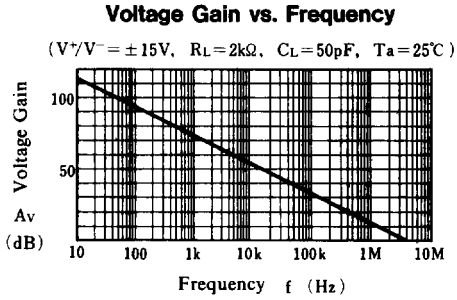
The application which leads to the extreme difference of power dissipation between channels may cause the mutual interference by the temperature gradient on the chip.

■ TYPICAL CHARACTERISTICS

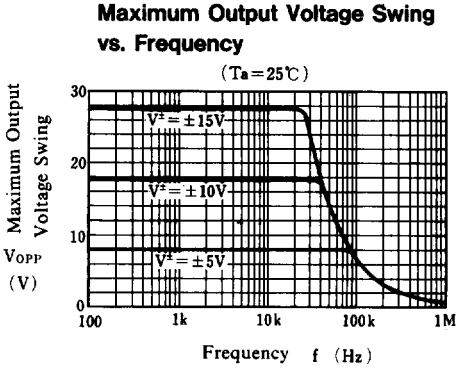
Voltage Gain, Phase vs. Frequency



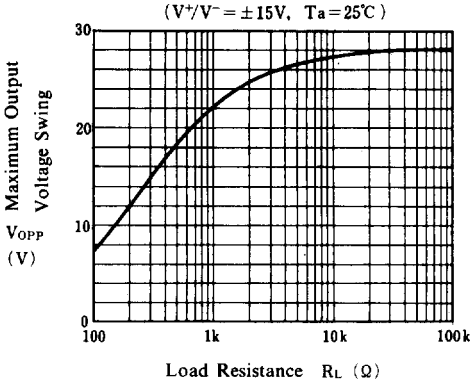
Voltage Gain vs. Frequency



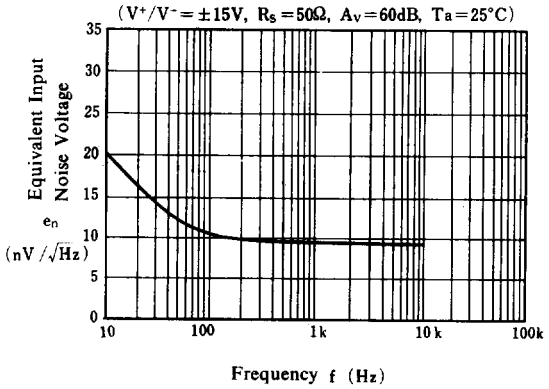
Maximum Output Voltage Swing vs. Frequency



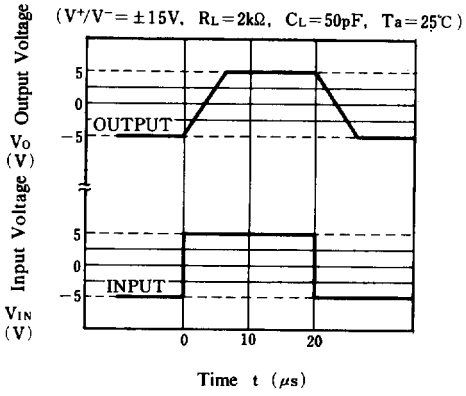
Maximum Output Voltage Swing vs. Load Resistance



Equivalent Input Noise Voltage vs. Frequency

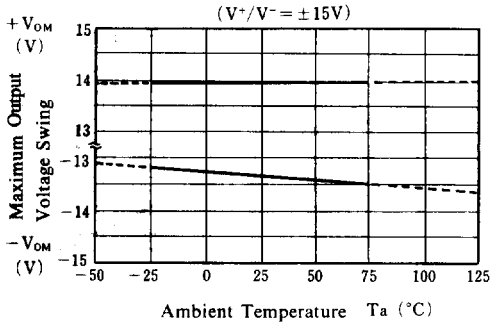


Pulse Response

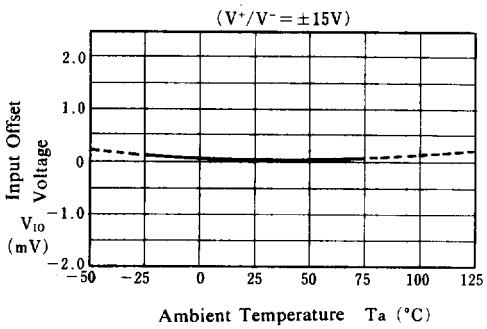


■ TYPICAL CHARACTERISTICS

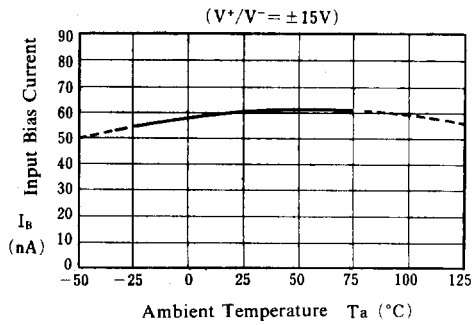
Maximum Outout Voltage Swing vs. Temperature



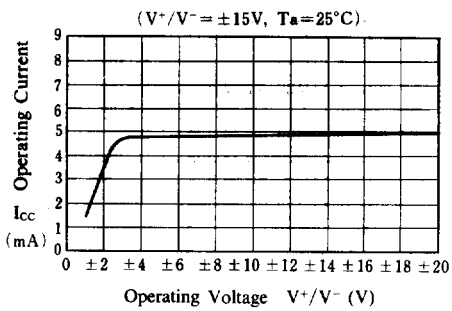
Input Offset Voltage vs. Temperature



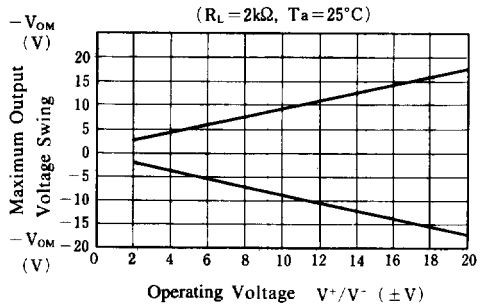
Input Bias Current vs. Temperature



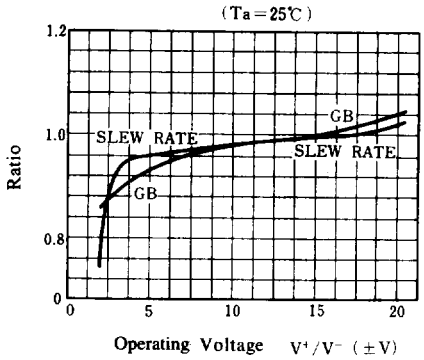
Operating Current vs. Operating Voltage



Maximum Output Voltage Swing vs. Operating Voltage



Slew Rate, Unity Gain Bandwidth vs. Operating Voltage



■ TYPICAL CHARACTERISTICS

Operating Current vs. Temperature

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