



Single Ultra-High speed and Wide Band Operational Amplifier

■ GENERAL DESCRIPTION

The **NJM2721** is single and ultra-high speed and wide band operational amplifier.

The NJM2721 is 500V/ μ s slew rate and 150ohm load drive is possible, at supply voltage of ± 2.5 V.

The NJM2721 is suitable for video signal processing, video line driver, video buffer, pulse amplifiers, ADC input buffer, measuring instrument, and digital communication.

■ PACKAGE OUTLINE



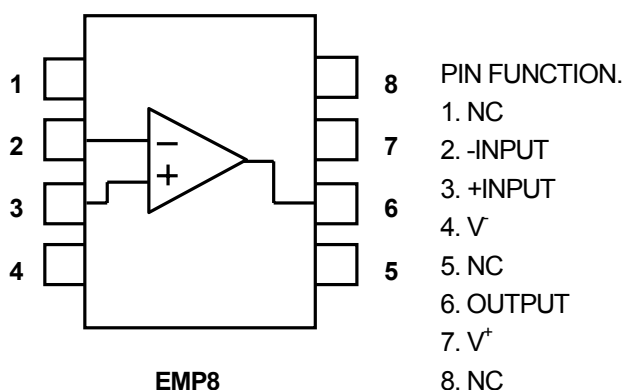
NJM2721E

■ FEATURES

- Operating Voltage : ± 2.5 V to ± 5.0 V
- Slew Rate : 500V/ μ s Typ. (at $V^+/V^- = \pm 2.5$ V, $R_L = 150\Omega$)
- Unity-Gain : 120MHz Typ.
- Output Voltage : $V_{OH} = +1.35$ V Typ. (at $V^+/V^- = \pm 2.5$ V, $R_L = 150\Omega$)
: $V_{OL} = -1.35$ V Typ. (at $V^+/V^- = \pm 2.5$ V, $R_L = 150\Omega$)
- Offset Voltage : 3mV Typ.
- Operating Current : 11.3 mA Typ.
- Adequate phase margin : $\Phi_M = 60$ deg. Typ. (at $R_L = 2k\Omega$, voltage follower)
- Bipolar Technology
- Package Outline : EMP8

■ PIN CONFIGURATION

(Top View)



NJM2721

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺	11.0	V
Power Dissipation	P _D	EMP8 : 730 (Note1)	mW
Differential Input Voltage Range	V _{ID}	±3.0	V
Common Mode Input Voltage Range	V _{ICM}	11.0	V
Operating Temperature Range	T _{opr}	-40 to +85	°C
Storage Temperature Range	T _{stg}	-40 to +125	°C

(Note 1) On the PCB " EIA/JEDEC (76.2x11.43x1.6mm, four layers, FR-4) "

■ RECOMMENDED OPERATING CONDITION

(Ta=25°C)

PARAMETER	SYMBOL	RATING	UNIT
Supply Voltage	V ⁺ /V ⁻	±2.5 to ±5.0	V

■ ELECTRICAL CHARACTERISTICS

●DC CHARACTERISTICS

(V⁺/V⁻=±2.5V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current	I _{CC}	No Signal	-	11.3	18.3	mA
Input Offset Voltage	V _{IO}		-	3.0	22.0	mV
Input Bias Current	I _B		-	15.0	50.0	μA
Input Offset Current	I _{IO}		-	150	900	nA
Large Signal Voltage Gain	A _V	R _L =2kΩ	50	60	-	dB
Input Common Mode Voltage Range	V _{ICM}		+1.5 -1.0	+1.7 -1.2	- -	V V
Common Mode Rejection Ratio	CMR	-1.0V≤V _{ICM} ≤+1.5V	60	80	-	dB
Supply Voltage Rejection Ratio	SVR	±2.5V≤V ⁺ /V ⁻ ≤±5.0V	50	60	-	dB
Maximum Output Voltage Swing	V _{OM}	R _L =150Ω	±1.1	±1.35	-	V

●AC CHARACTERISTICS

(V⁺/V⁻=±2.5V, Ta=25°C)

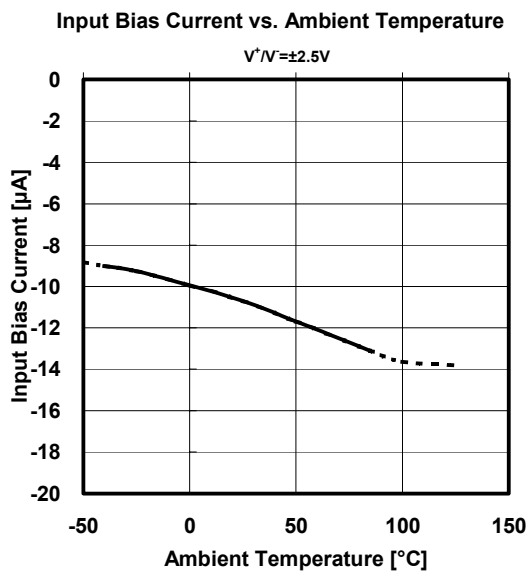
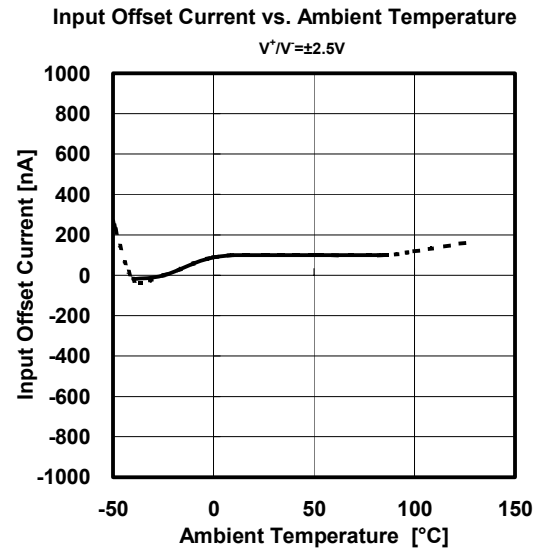
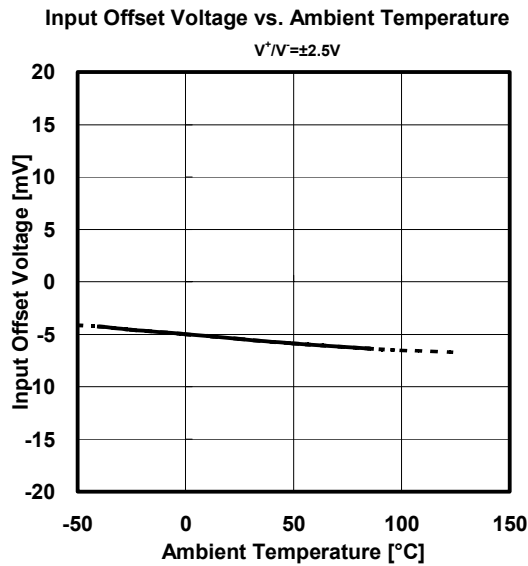
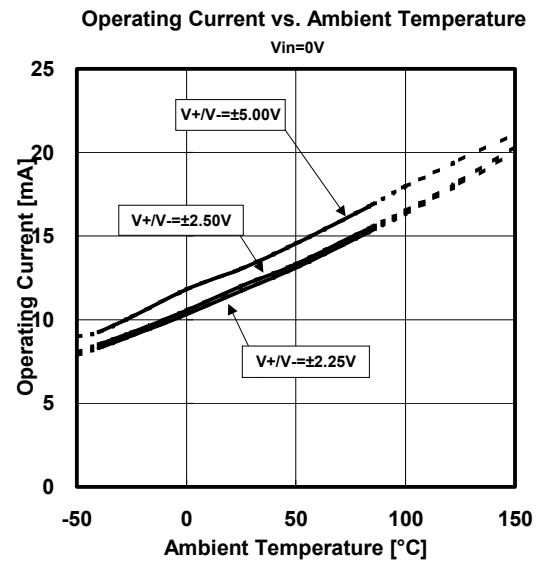
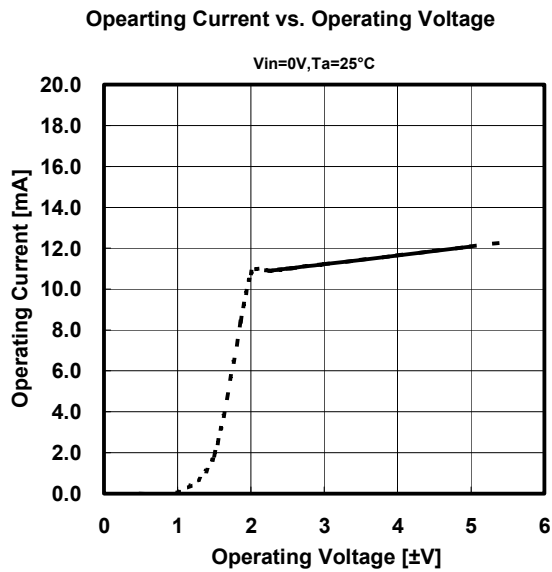
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Unity Gain Frequency	f _T	A _V =40dB, R _F =1.98kΩ R _G =20Ω, R _L =∞, C _L =5pF	-	120	-	MHz
Phase Margin	Φ _M	A _V =40dB, R _F =1.98kΩ R _G =20Ω, R _L =∞, C _L =5pF	-	60.0	-	Deg

●AC CHARACTERISTICS

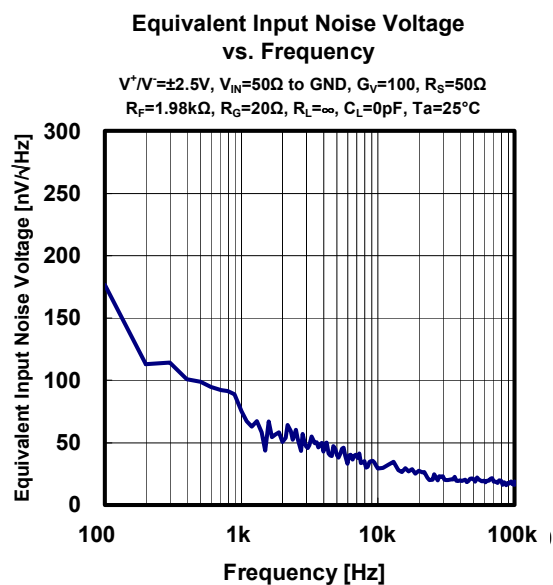
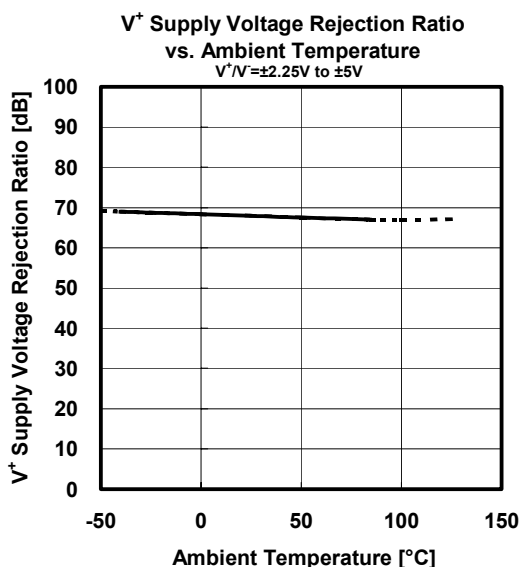
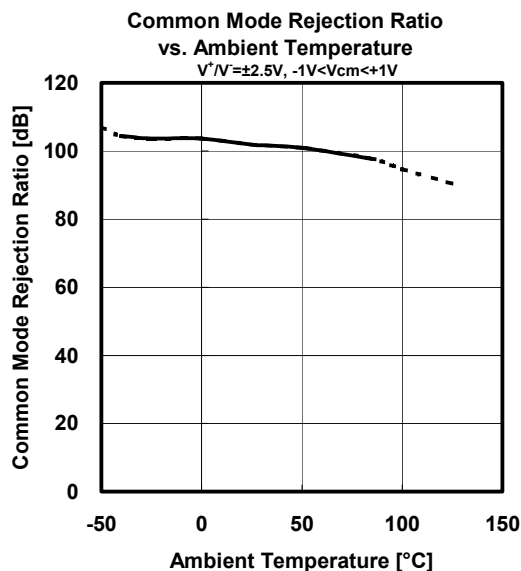
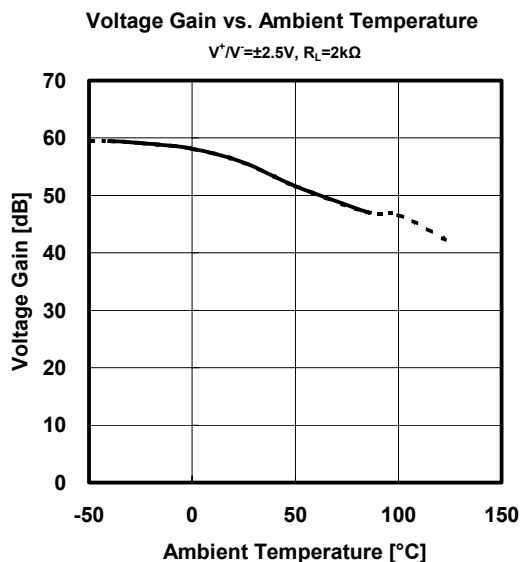
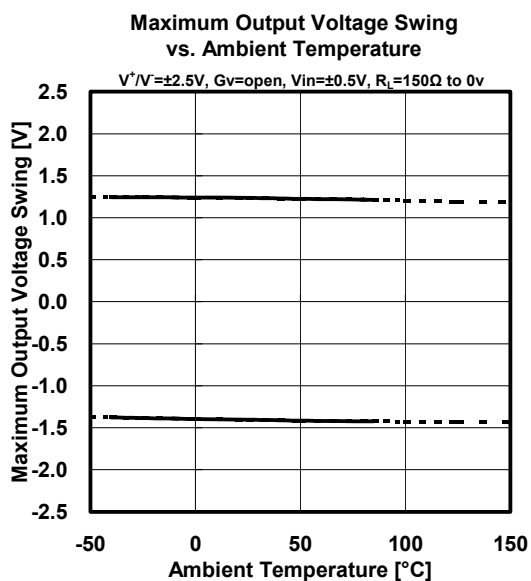
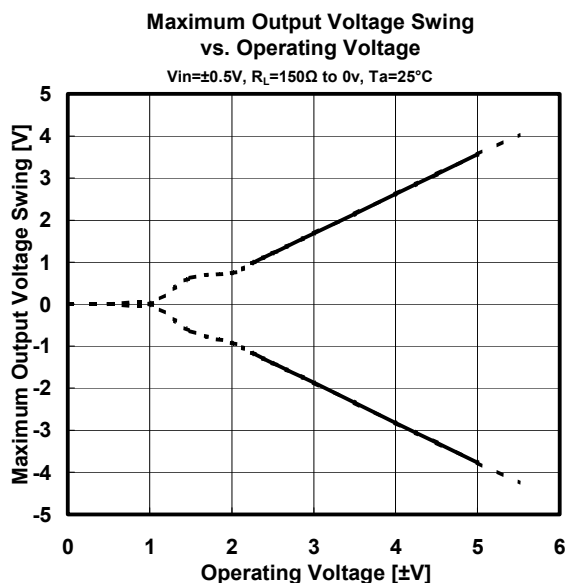
(V⁺/V⁻=±2.5V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Slew Rate	SR	A _V =0dB, R _F =0Ω, R _G =∞ R _L =150Ω, C _L =5pF V _{IN} =2V _{PP}	-	500	-	V/μs

■ TYPICAL CHARACTERISTICS



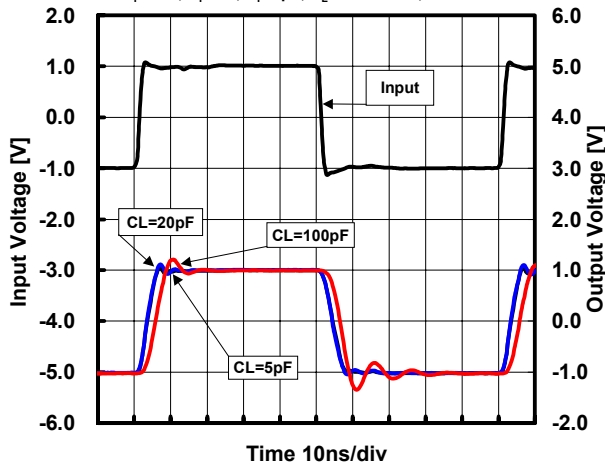
■ TYPICAL CHARACTERISTICS



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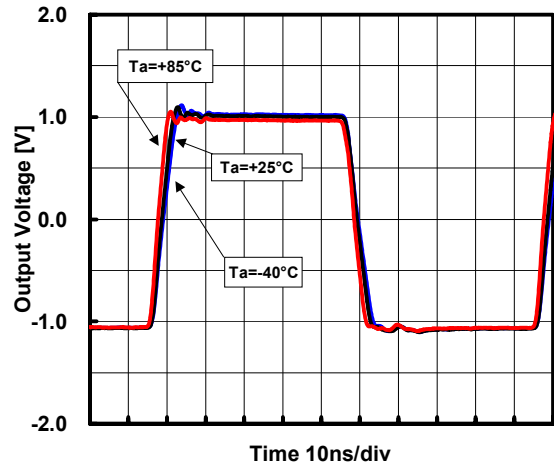
Pulse Response (with Capacitive load)

$V^+/V^- = \pm 2.5V$, $f = 10MHz$, $V_O = 2V_{pp}$, $G_V = 0dB$
 $R_T = 50\Omega$, $R_F = 0\Omega$, $C_F = 0pF$, $R_L = 150\Omega$ to 0Ω , $T_a = +25^\circ C$



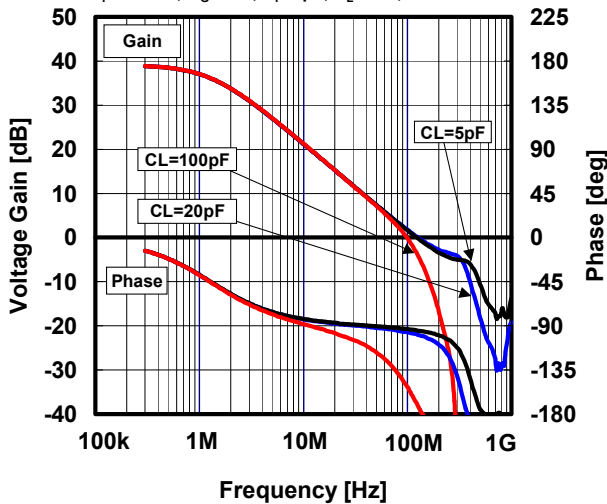
Pulse Response (correlation with T_a)

$V^+/V^- = \pm 2.5V$, $f = 10MHz$, $V_O = 2V_{pp}$, $G_V = 0dB$
 $R_T = 50\Omega$, $R_F = 0\Omega$, $C_F = 0pF$, $C_L = 5pF$, $R_L = 150\Omega$ to 0Ω



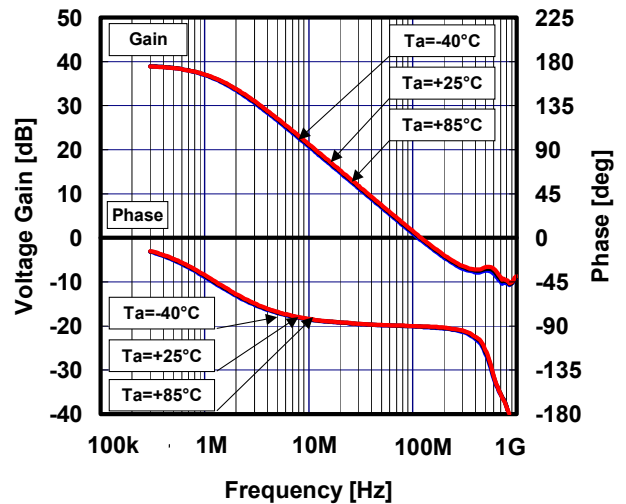
Voltage Gain vs. Frequency (with Capacitive load)

$V^+/V^- = \pm 2.5V$, $V_{IN} = 0.02V_{pp}$, $G_V = 40dB$, $R_T = 50\Omega$
 $R_F = 1.98k\Omega$, $R_G = 20\Omega$, $C_F = 0pF$, $R_L = 2k\Omega$, $T_a = +25^\circ C$



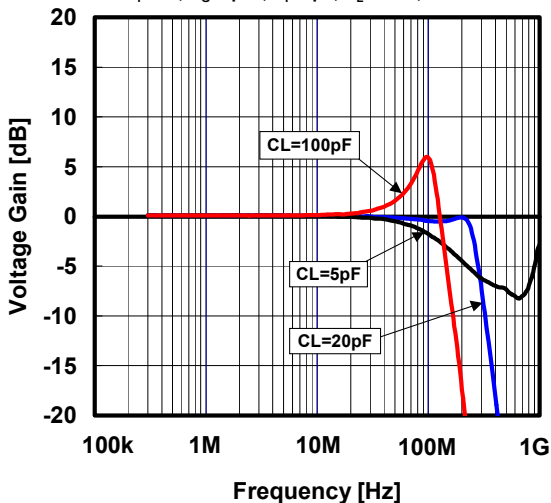
Voltage Gain vs. Frequency (correlation with T_a)

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 $R_F = 1.98k\Omega$, $R_G = 20\Omega$, $C_F = 0pF$, $R_L = 150\Omega$, $C_L = 5pF$



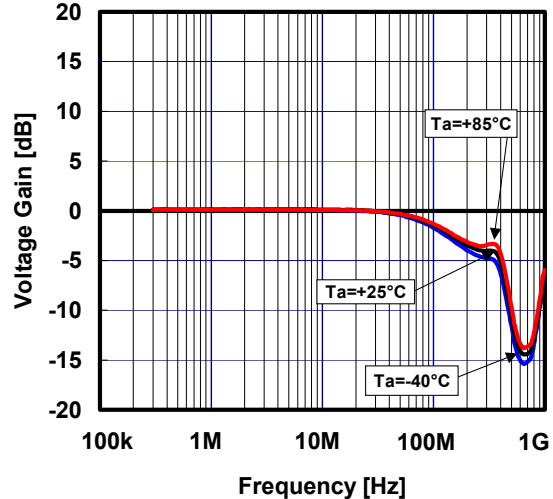
Voltage Gain vs. Frequency (with Capacitive load)

$V^+/V^- = \pm 2.5V$, $V_{IN} = 0.02V_{pp}$, $G_V = 0dB$, $R_T = 50\Omega$
 $R_F = 0\Omega$, $R_G = \text{open}$, $C_F = 0pF$, $R_L = 150\Omega$, $T_a = +25^\circ C$



Voltage Gain vs. Frequency (correlation with T_a)

$V^+/V^- = \pm 2.5V$, $V_{IN} = 0.02V_{pp}$, $G_V = 0dB$, $R_T = 50\Omega$
 $R_F = 0\Omega$, $R_G = \text{open}$, $C_F = 0pF$, $R_L = 150\Omega$, $C_L = 5pF$



[CAUTION]
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