

Single Ultra-High speed and Wide Band Operational Amplifier

■ GENERAL DESCRIPTION

The **NJM2720** is a single, ultra-high speed and wide band operational amplifier that features 250V/ μ s slew rate and 150ohm load drive, at supply voltage of ± 2.5 V.

The NJM2720 is suitable for video signal processing, video line driver, video buffer, pulse amplifiers, ADC input buffer, measuring instrument, and digital communication.

■ PACKAGE OUTLINE



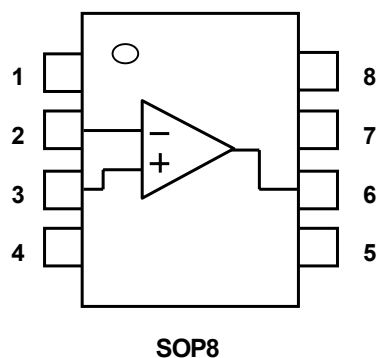
NJM2720E
(SOP8)

■ FEATURES

- Operating Voltage : ± 2.5 V to ± 5.0 V
- Slew Rate : 250V/ μ s Typ. (at $V^+/V^- = \pm 2.5$ V, $R_L = 150\Omega$)
- Unity-Gain : 120MHz Typ.
- Output Voltage : $V_{OH} = +1.4$ V Typ. (at $V^+/V^- = \pm 2.5$ V, $R_L = 150\Omega$)
: $V_{OL} = -1.4$ V Typ. (at $V^+/V^- = \pm 2.5$ V, $R_L = 150\Omega$)
- Offset Voltage : 1.5mV Typ.
- Operating Current : 9.0 mA Typ.
- Adequate phase margin : $\Phi_M = 60$ deg. Typ. (at $R_L = 2k\Omega$, voltage follower)
- Bipolar Technology
- Package Outline : SOP8 JEDEC 150mil

■ PIN CONFIGURATION

(Top View)



PIN FUNCTION.

1. NC
2. - INPUT
3. +INPUT
4. V^-
5. NC
6. OUTPUT
7. V^+
8. NC

NJM2720

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+/V^-	± 5.5	V
Power Dissipation	P_D	SOP8 : 730 (Note1)	mW
Differential Input Voltage Range	V_{ID}	± 3.0	V
Common Mode Input Voltage Range	V_{ICM}	± 5.5 (Note2)	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) "

(Note 2) For supply voltage less than $\pm 5.5V$, the absolute maximum input voltage is equal to the supply voltage.

■ RECOMMENDED OPERATING CONDITION

(Ta=25°C)

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

■ ELECTRICAL CHARACTERISTICS

● DC CHARACTERISTICS

($V^+/V^- = \pm 2.5V$, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current	I_{CC}	No Signal	-	9.0	15.0	mA
Input Offset Voltage	V_{IO}		-	1.5	16.0	mV
Input Bias Current	I_B		-	7.5	30.0	μA
Input Offset Current	I_{IO}		-	100	900	nA
Large Signal Voltage Gain	A_V	$R_L = 2k\Omega$	50	60	-	dB
Input Common Mode Voltage Range	V_{ICM}		+1.7	+2.0	-	V
			-1.2	-1.5	-	V
Common Mode Rejection Ratio	CMR	$-1.2V \leq V_{ICM} \leq +1.7V$	60	80	-	dB
Supply Voltage Rejection Ratio	SVR	$\pm 2.5V \leq V^+/V^- \leq \pm 5.0V$	55	65	-	dB
Maximum Output Voltage Swing	V_{OM}	$R_L = 150\Omega$	± 1.2	± 1.4	-	V

● AC CHARACTERISTICS

($V^+/V^- = \pm 2.5V$, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Unity Gain Frequency	f_T	$A_V = 40dB$, $R_F = 1.98k\Omega$ $R_G = 20\Omega$, $R_L = \infty$, $C_L = 5pF$	-	120	-	MHz
Phase Margin	Φ_M	$A_V = 40dB$, $R_F = 1.98k\Omega$ $R_G = 20\Omega$, $R_L = \infty$, $C_L = 5pF$	-	60.0	-	Deg

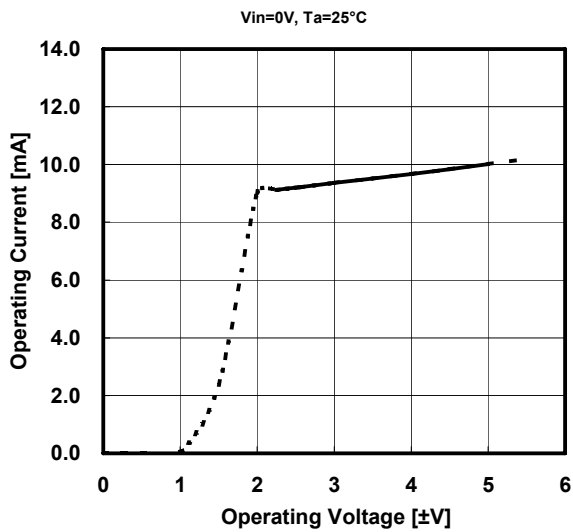
● AC CHARACTERISTICS

($V^+/V^- = \pm 2.5V$, Ta=25°C)

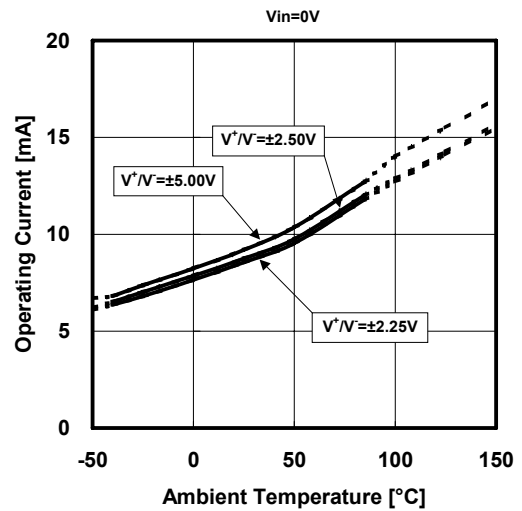
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Slew Rate	SR	$A_V = 0dB$, $R_F = 0\Omega$, $R_G = \infty$ $R_L = 150\Omega$, $C_L = 5pF$ $V_{IN} = 2V_{PP}$	-	250	-	V/ μs

■ TYPICAL CHARACTERISTICS

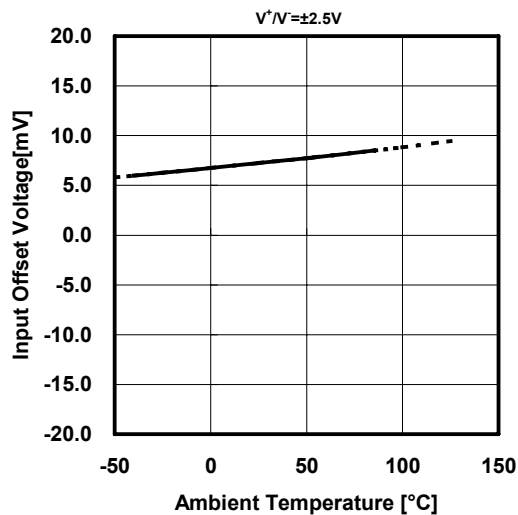
Operating Current vs. Operating Voltage



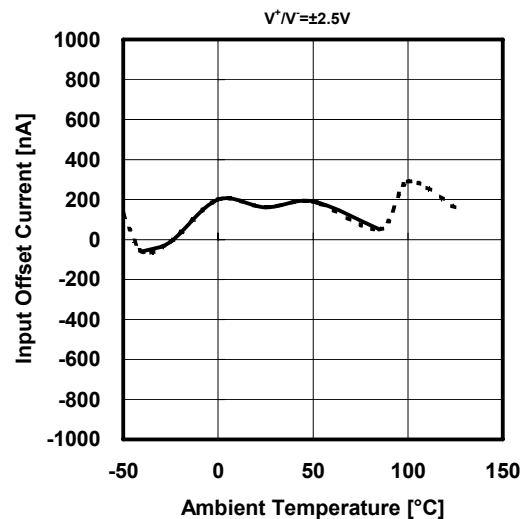
Operating Current vs. Ambient Temperature



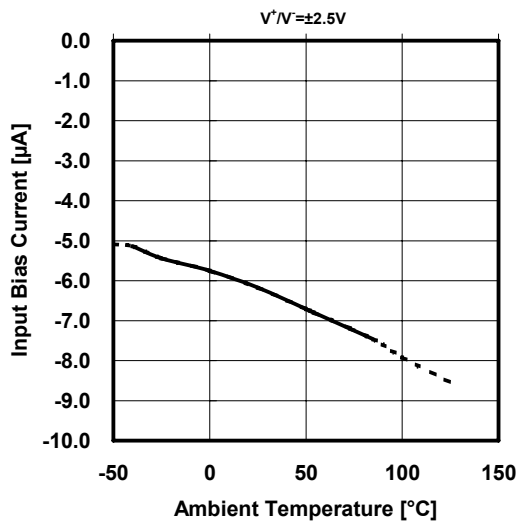
Input Offset Voltage vs. Ambient Temperature



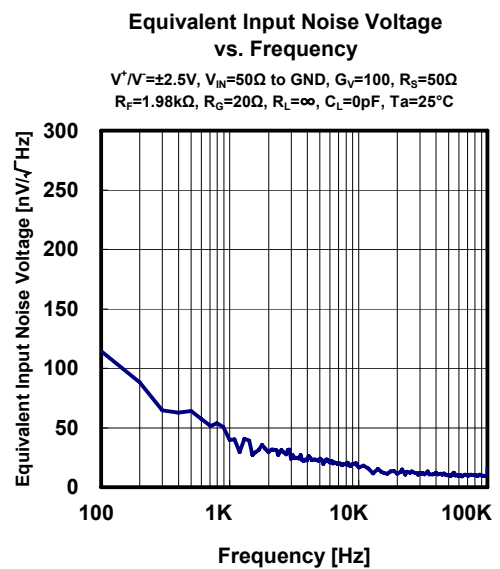
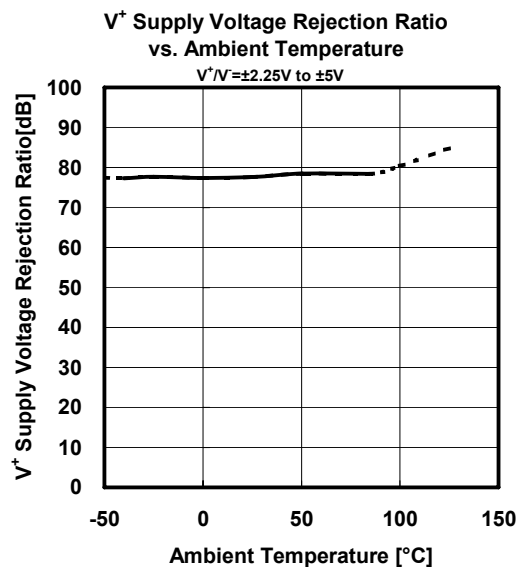
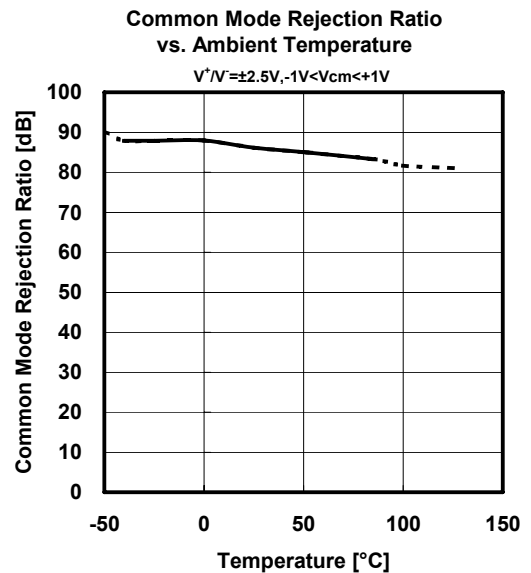
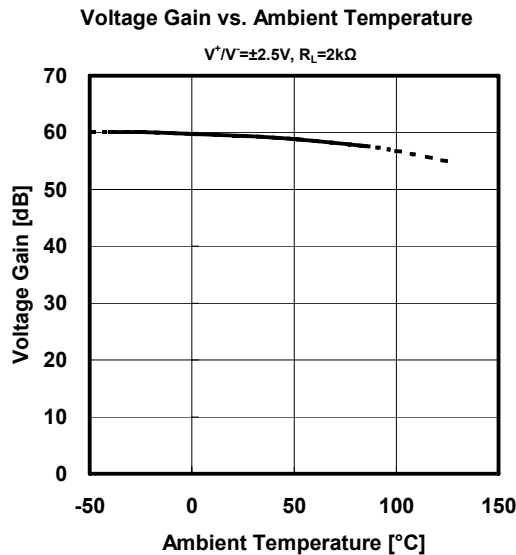
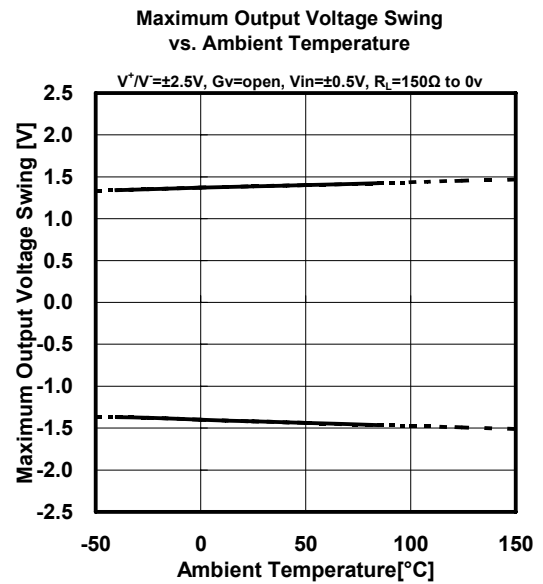
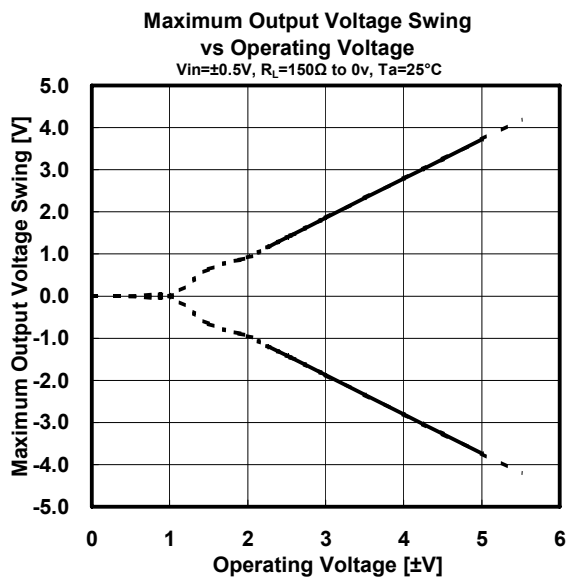
Input Offset Current vs. Ambient Temperature



Input Bias Current vs. Ambient Temperature

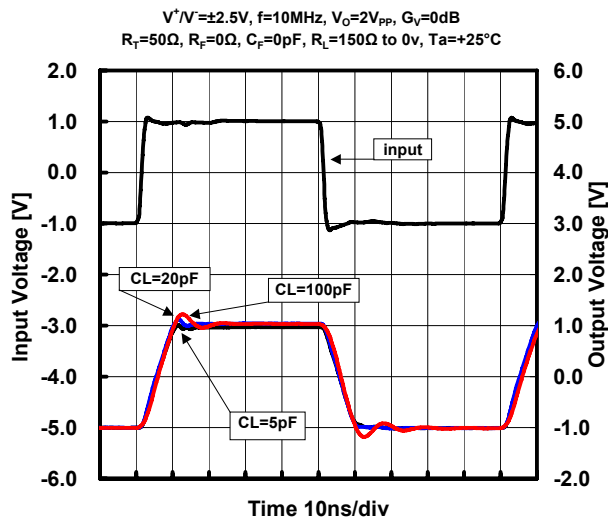


■ TYPICAL CHARACTERISTICS

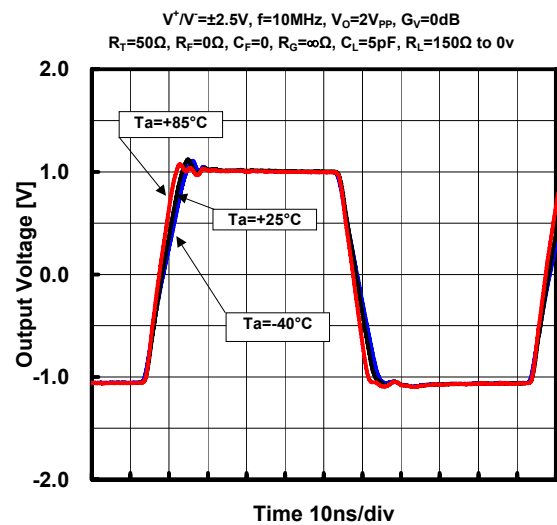


■ TYPICAL CHARACTERISTICS

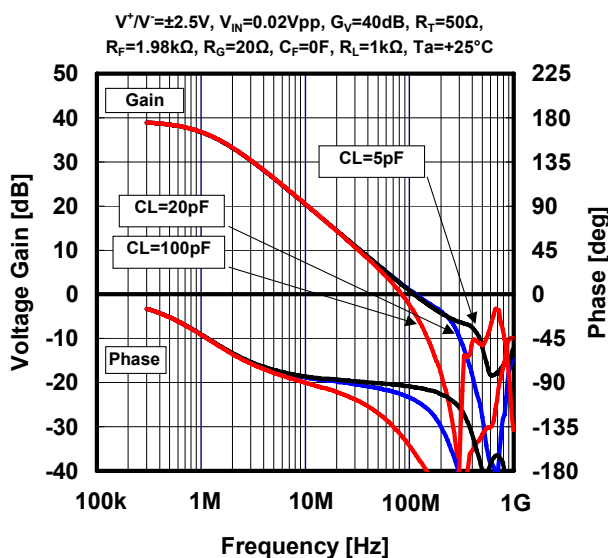
Pulse Response (with Capacitive load)



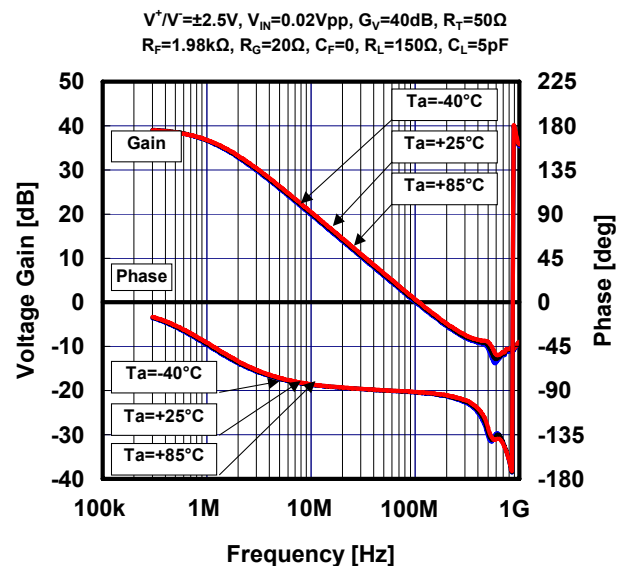
Pulse Response (correlation with T_a)



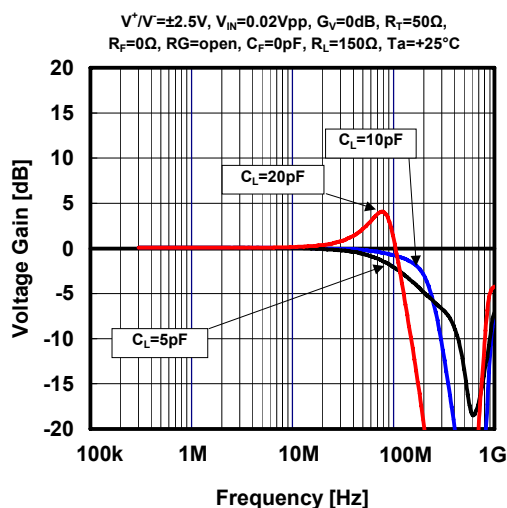
Voltage Gain vs. Frequency (with Capacitive Load)



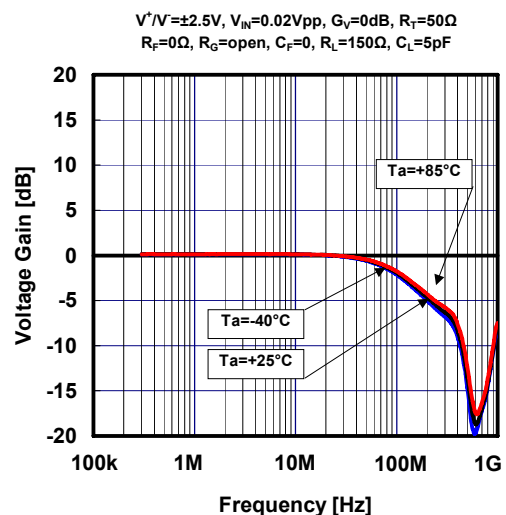
Voltage Gain vs. Frequency (correlation with T_a)



Voltage Gain vs. Frequency (with Capacitive Load)



Voltage Gain vs. Frequency (correlation with T_a)



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