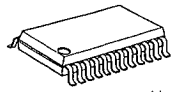
HEX OPERATIONAL AMPLIFIER

■ GENERAL DESCRIPTION

NJM 2097 is a high performance hex operational amplifiers featuring wide operating supply voltage (±2 to ±7.5V), high slew rate (5V/μS) and large gain bandwidth product (10MHz). Supply voltage can be applied to dual (2ch.), quad (4ch.) and hex (6ch.) operational amplifiers. NJM 2097 can be applied for the circuit which requires a lot of operational amplifiers like that of active filter.

■ PACKAGE OUTLINE

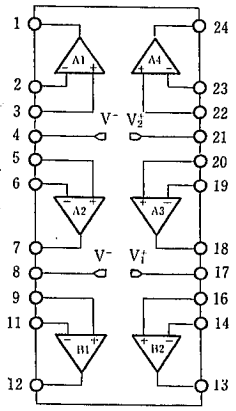


NJM2097M

■ FEATURES

- Operating Voltage (±2V～±7.5V)
- Hex Circuit
- High Slew Rate (5V/μs typ.)
- Unity Gain Bandwidth (10MHz typ.)
- Package Outline DMP24
- Bipolar Technology

■ PIN CONFIGURATION



NJM2097M

Pin Function
1. A1 OUTPUT
2. A1 −INPUT
3. A1 +INPUT
4. V⁻
5. A2 +INPUT
6. A2 −INPUT
7. A2 OUTPUT
8. V⁻
9. B1 +INPUT
10. NC
11. B1 −INPUT
12. B1 OUTPUT
13. B2 OUTPUT
14. B2 −INPUT
15. NC
16. B2 +INPUT
17. V_1^+
18. A3 OUTPUT
19. A3 −INPUT
20. A3 +INPUT
21. V_2^+
22. A4 +INPUT
23. A4 −INPUT
24. A4 OUTPUT

(Note) Applied power supply

Supply voltage can be applied to dual (2ch.), quad (4ch.) and hex (6ch.) on this operational anplifier.

(1) 2ch. (B1, B2) V_1^+ to 17pin, V^- to 4, 8pins

(2) 4ch. (A1, A2, A3, A4) V_2^+ to 21pin. V^- to 4, 8pins

(3) 6ch.(A1, A2, A3, A4, B1, B2)V_1^+ to 17pin and V_2^+ to 21pin, V- to 4,8pins

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25℃)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+/V^-	±7.5	V
Differential Input Voltage	V_{ID}	±15	V
Input Voltage	V_{IC}	±7.5	V
Power Dissipation	P_D	700	mW
Operating Temperature Range	T_{opr}	−20～+75	℃
Storage Temperature Range	T_{stg}	−40～+125	℃

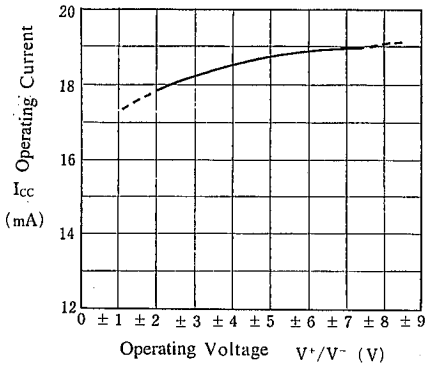
■ ELECTRICAL CHARACTERISTICS

(V^+/V^-=±5V, Ta=25℃)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current	I_{CC}	$R_L=\infty$ (On all amplifiers)	—	15	30	mA
Input Offset Voltage	V_{IO}	$R_S \leqq 10k\Omega$	—	0.5	6	mV
Input Offset Current	I_{IO}		—	20	200	nA
Input Bias Current	I_B		—	120	600	nA
Input Resistance	R_{IN}		100	500	—	kΩ
Large Signal Voltage Gain	A_V	$R_L \geqq 2k\Omega$, $V_O=\pm 3V$	80	110	—	dB
Maximum Output Voltage Swing	V_{OM}	$R_L \geqq 2k\Omega$	±2	±3.5	—	V
Input Common Mode Voltage Range	V_{ICM}		±2	±3.5	—	V
Common Mode Rejection Ratio	CMR	$R_S \leqq 10k\Omega$	70	100	—	dB
Supply Voltage Rejection Ratio	SVR	$R_S \leqq 10k\Omega$	75	100	—	dB
Slew Rate	SR	$R_L \geqq 2k\Omega$, $A_V=1$	—	5.0	—	V/μS
Gain Bandwidth product	GB		—	10	—	MHz
Equivalent Input Noise Voltage	V_{NI}	$R_S=100k\Omega$, 30KHz LPF	—	3	—	μV_{p-p}

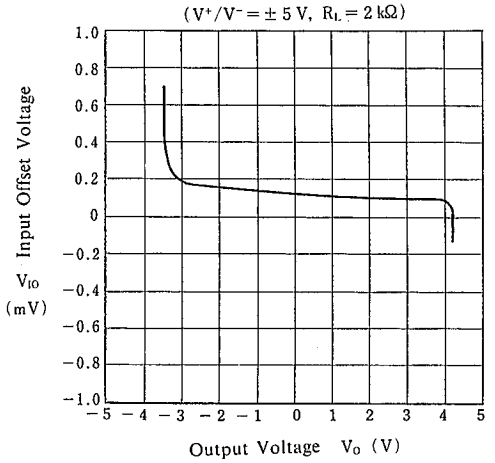
■ TYPICAL CHARACTERISTICS

Operating Current vs. Operating Voltage



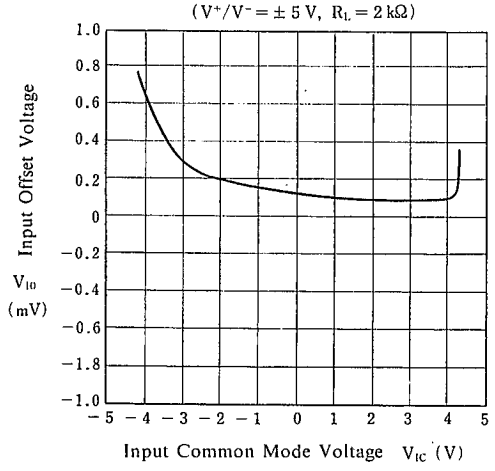
Input Offset Voltage vs. Output Voltage

($V^+/V^- = \pm 5$ V, $R_L = 2$ kΩ)



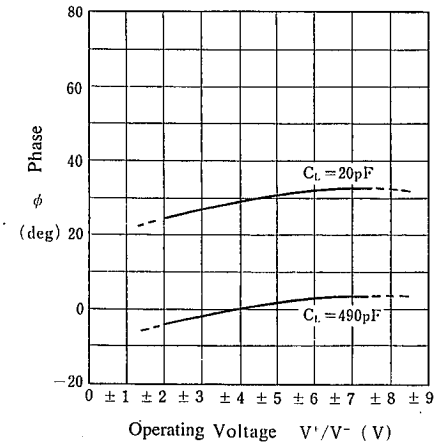
Input Offset Voltage vs. Input Common Mode Voltage

($V^+/V^- = \pm 5$ V, $R_L = 2$ kΩ)



Phase vs. Operating Voltage

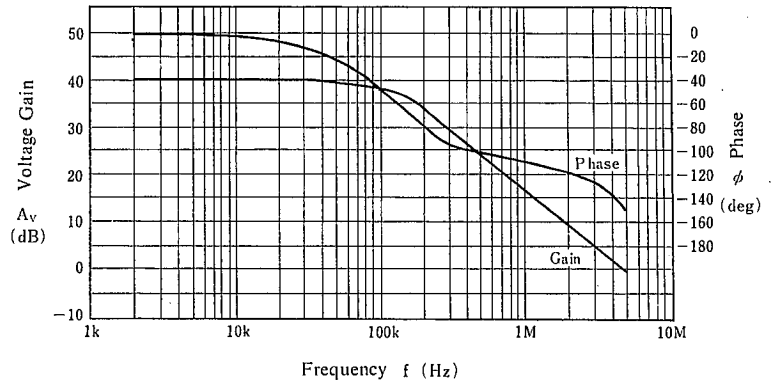
(Zero Cross Phase)



■ TYPICAL CHARACTERISTICS

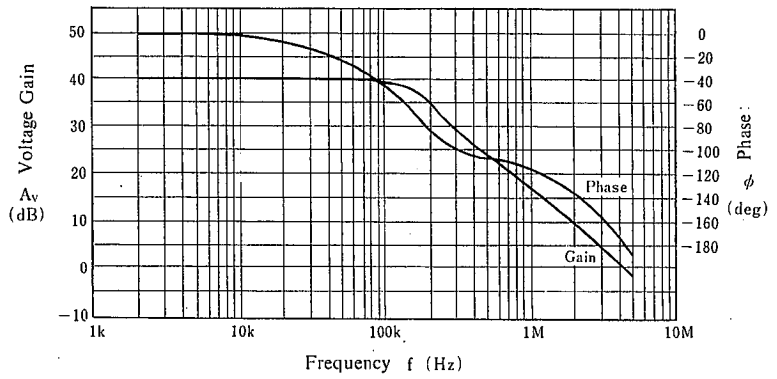
Voltage Gain, Phase vs. Frequency

($V^+/V^-=\pm 5$ V, $C_L=20$pF)



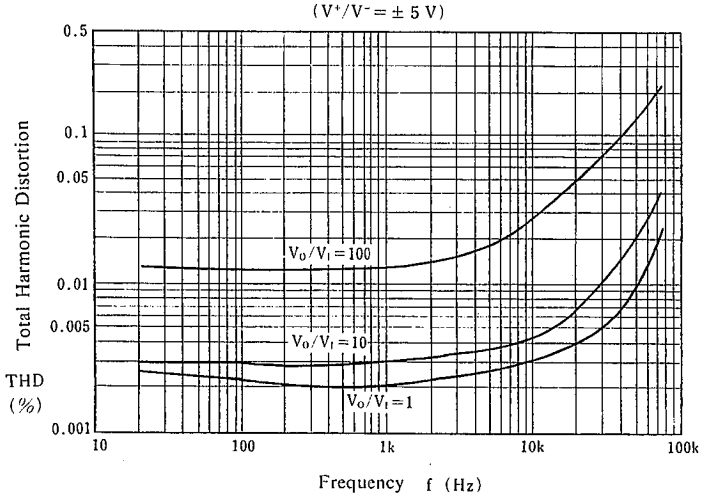
Voltage Gain, Phase vs. Frequency

($V^+/V^-=\pm 5$ V, $C_L=490$pF)



Total Harmonic Distortion vs. Frequency

($V^+/V^-=\pm 5$ V)



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