

NJM324

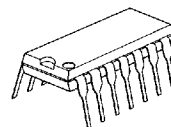
The NJM324 consists of four independent, high gain, internally frequency compensated operational amplifiers which were designed specifically to operate from a single power supply over a wide range of voltages. Operation from split power supplies is also possible and the low power supply current drain is independent of the magnitude of the power supply voltage.

Application areas include transducer amplifiers, DC gain blocks and all the conventional op amp circuits which now can be more easily implemented in single power supply systems. For example, the NJM 324 can be directly operated off of the standard +5V_{DC} power supply voltage which is used in digital systems and will easily provide the required interface electronics without requiring the additional $\pm 15V_{DC}$ power supplies.

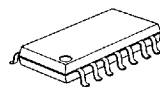
■ Package Outline

■ Absolute Maximum Ratings (Ta=25°C)

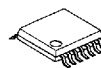
Supply Voltage	V ⁺ /V ⁻	32V (or $\pm 16V$)
Differential Input Voltage	V _{ID}	32V
Input Voltage	V _I	-0.3~+32V
Power Dissipation	P _D (D-Type)	570mW
	(M,V-Type)	300mW
Operating Temperature Range	T _{opr}	-20~+75°C
Storage Temperature Range	T _{stg}	-40~+125°C



NJM324D



NJM324M



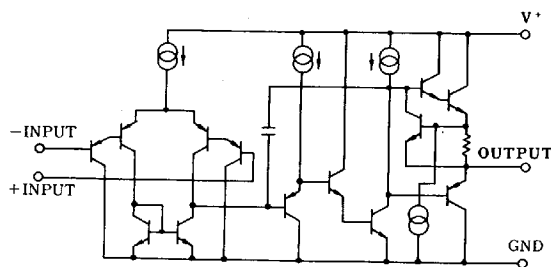
NJM324V

■ Electrical Characteristics (Ta=25°C, V⁺=5V)

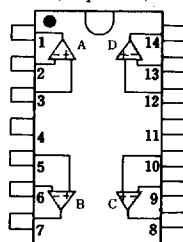
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input Offset Voltage	V _{IO}	R _S =0Ω, V ⁺ =5~30V _{DC}	—	2	7	mV
Input Offset Current	I _{IO}		—	5	50	nA
Input Bias Current	I _B		—	20	250	nA
Input Common Mode Voltage Range	V _{ICM}		0~3.5	—	—	V
Quiescent Current	I _{CC}	R _L =∞	—	0.7	1.2	mA
Large-signal Voltage Gain	A _V	R _L ≥2kΩ, V ⁺ =15V	88	100	—	dB
Maximum Peak-to-peak Output Voltage Swing	V _{OPP}	R _L =2kΩ	3.5	—	—	V
Common Mode Rejection Ratio	CMR	DC	65	70	—	dB
Supply Voltage Rejection Ratio	SVR	DC	65	100	—	dB
Output Source Current	I _{SOURCE}	V _{IN} ⁺ /V _{IN} ⁻ =1/0V, V ⁺ =15V	20	40	—	mA
Output Sink Current	I _{SINK1}	V _{IN} ⁺ /V _{IN} ⁻ =0/1V, V ⁺ =15V	10	20	—	mA
	I _{SINK2}	V _{IN} ⁺ /V _{IN} ⁻ =0/1V, V _O =200mV	12	50	—	μA
Channel Separation Ratio	CS	f=1kHz~20kHz, Input Referred	—	120	—	dB

■ Equivalent Circuit

(1/4 Shown)



■ Connection Diagram

D,M-Type
(Top View)

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. GND
12. D+INPUT
13. D-INPUT
14. D OUTPUT

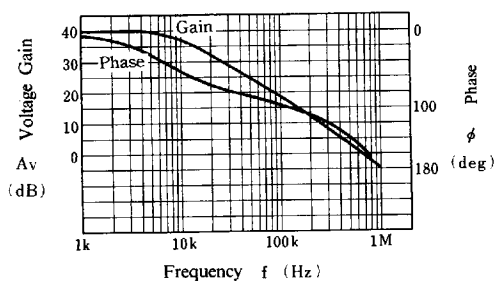
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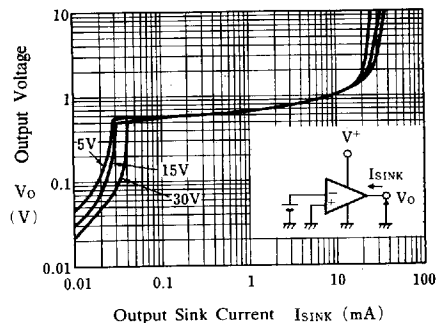
New Japan Radio Co., Ltd.

■ Typical Characteristics

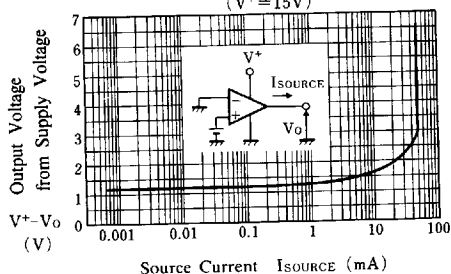
Voltage Gain, Phase vs. Frequency



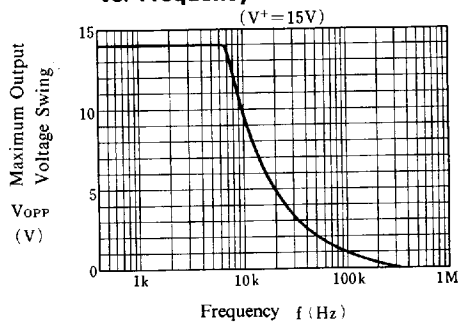
Output Sink Current



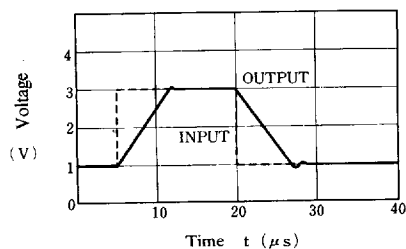
Output Source Current
($V^+ = 15V$)



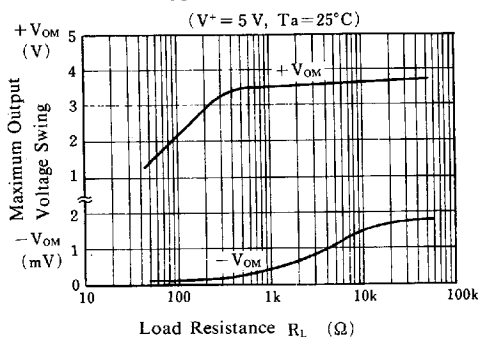
Maximum Output Voltage Swing
vs. Frequency



Pulse Response
($V^+ = 15V$, $R_L = 2k\Omega$)

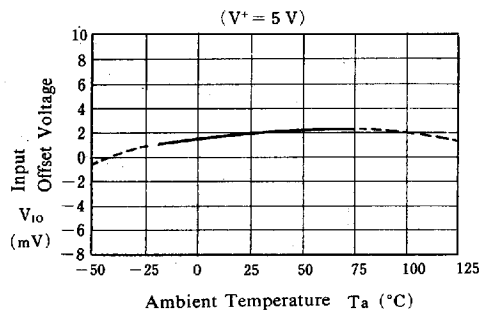


Maximum Output Voltage Swing
vs. Load Resistance

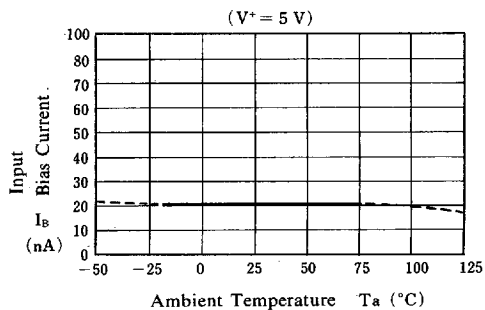


■ Typical Characteristics

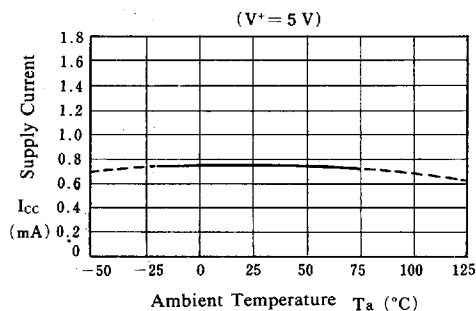
Input Offset Voltage vs. Temperature



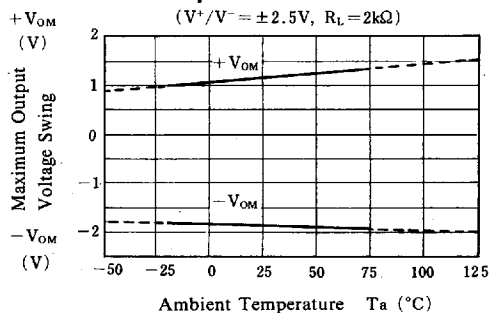
Input Bias Current vs. Temperature



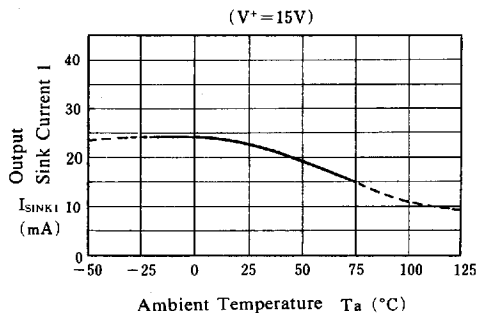
Supply Current vs. Temperature



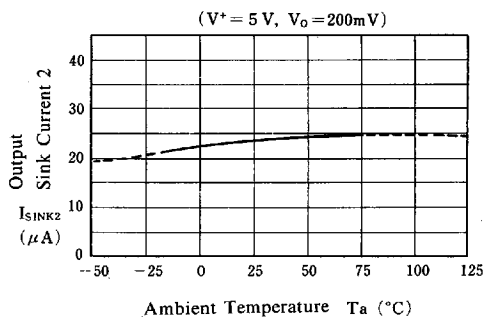
Maximum Output Voltage Swing vs. Temperature



Output Sink Current 1 vs. Temperature



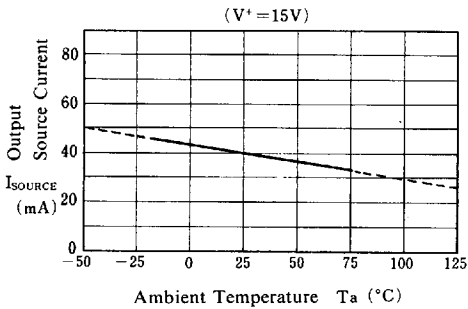
Output Sink Current 2 vs. Temperature



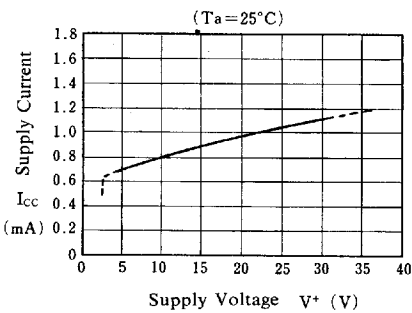
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■ Typical Characteristics

Output Source Current vs. Temperature



Supply Current vs. Supply Voltage



Maximum Output Voltage Swing vs. Supply Voltage

