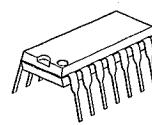


QUAD OPERATIONAL AMPLIFIER

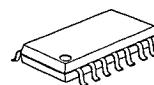
■ GENERAL DESCRIPTION

NJM 2112 is low operating voltage (± 1.0 V min.) and low saturation output voltage (± 2.0 V p-p at operating voltage ± 25 V) operational amplifier. It is applicable to HANDY TYPE CD, RADIO CASSETTE CD, and PORTABLE DAT, that are digital audio apparatus which require the 5 V single supply operation and high output voltage. The NJM2112 is quad operational amplifier. Each amplifier of the NJM2112 has the same electrical characteristic of the NJM2115.

■ PACKAGE OUTLINE



NJM2112D



NJM2112M

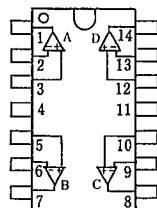


NJM2112V

■ FEATURES

- Operating Voltage $(\pm 1.0V \sim \pm 7.0V)$
- Low Saturation Output Voltage $(\pm 2.0V_{pp} @ V^+ = \pm 2.5V)$
- Package Outline DIP14, DMP14, SSOP14
- Bipolar Technology

■ PIN CONFIGURATION

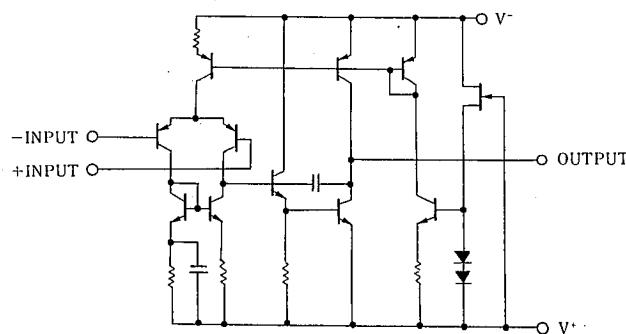


NJM2112D
NJM2112M
NJM2112V

PIN FUNCTION

- | | |
|-------------------|--------------------|
| 1. A OUTPUT | 8. C OUTPUT |
| 2. A -INPUT | 9. C -INPUT |
| 3. A +INPUT | 10. C +INPUT |
| 4. V ⁺ | 11. V ⁻ |
| 5. B +INPUT | 12. D +INPUT |
| 6. B -INPUT | 13. D -INPUT |
| 7. B OUTPUT | 14. D OUTPUT |

■ EQUIVALENT CIRCUIT (1/4 Shown)



■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V ⁺ /V ⁻	±7.0	V
Differential Input Voltage	V _{ID}	±14	V
Power Dissipation	P _D	(DIP14) 500 (DIM14) 300 (SSOP14) 300	mW mW mW
Operating Temperature Range	T _{opr}	-40~+85	°C
Storage Temperature Range	T _{stg}	-40~+125	°C

■ ELECTRICAL CHARACTERISTICS

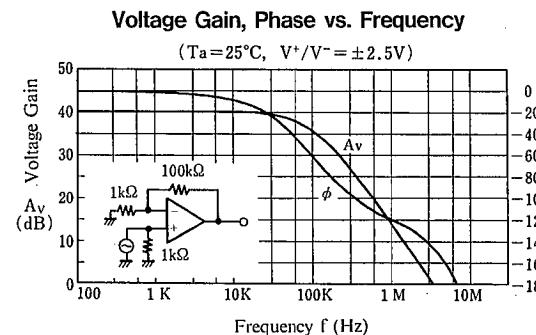
(V⁺/V⁻=±2.5V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V _{IO}	R _S ≤10kΩ	—	1	6	mV
Input Bias Current	I _B		—	100	300	nA
Large Signal Voltage Gain	A _V	R _L ≥10kΩ	60	80	—	dB
Maximum Output Voltage Swing	V _{OM}	R _L ≥2.5kΩ	±2	±2.2	—	V
Input Common Mode Voltage Range	V _{ICM}		±1.5	—	—	V
Common Mode Rejection Ratio	CMR		60	74	—	dB
Supply Voltage Rejection Ratio	SVR		60	80	—	dB
Operating Current	I _{CC}		—	8	11	mA
Slew Rate	SR	A _U =1, V _{IN} =±1V	—	3.2	—	V/μs
Gain Bandwidth product	GB	f=10kHz	—	9	—	MHz

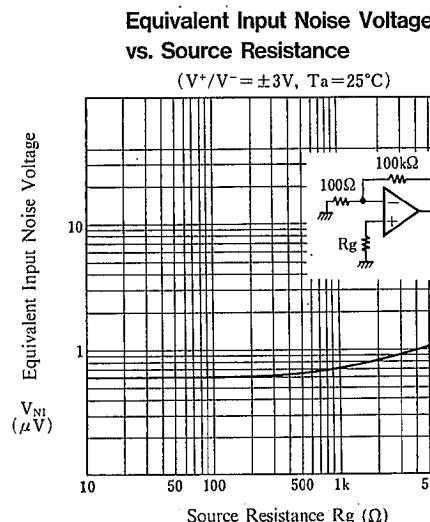
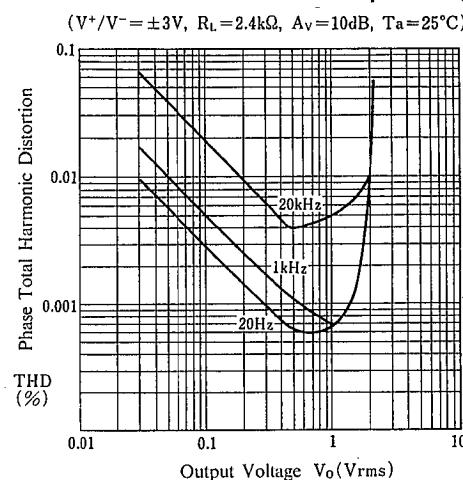
(note 1)Applied circuit voltage gain is desired to be operated within the range of 3 dB to 30 dB.

(note 2)Special care being required for input common mode voltage range and the oscillation due to the capacitive load when operating follower.

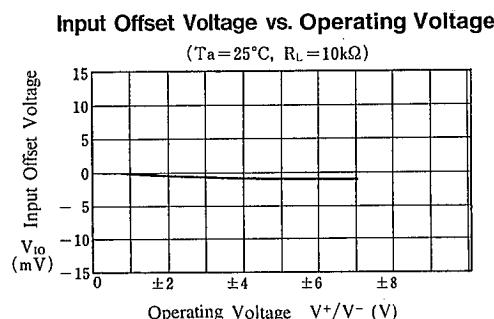
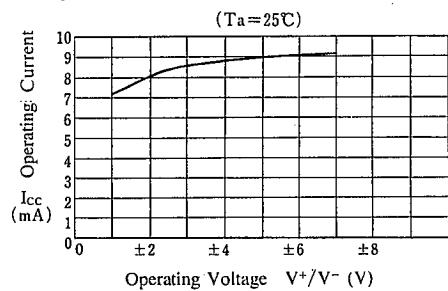
■ TYPICAL CHARACTERISTICS



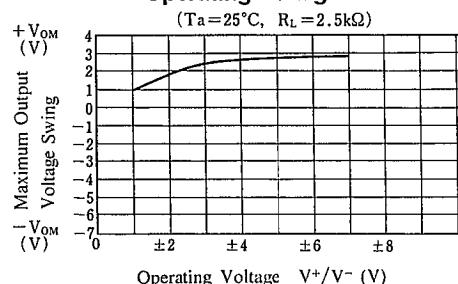
Total Harmonic Distortion vs. Output Voltage



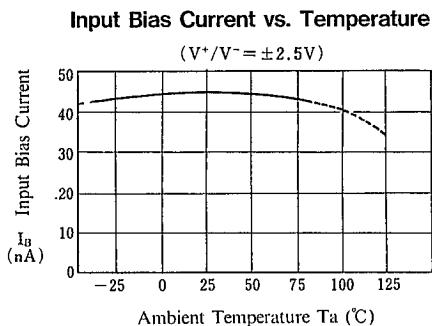
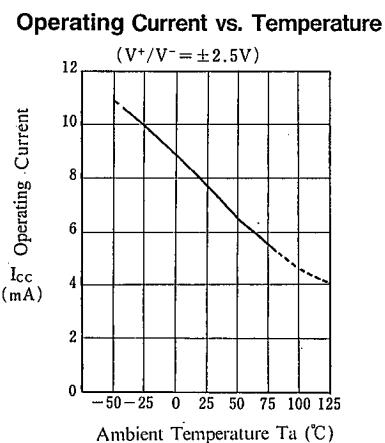
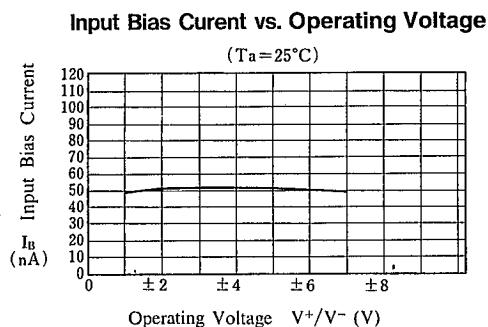
Operating Current vs. Operating Voltage



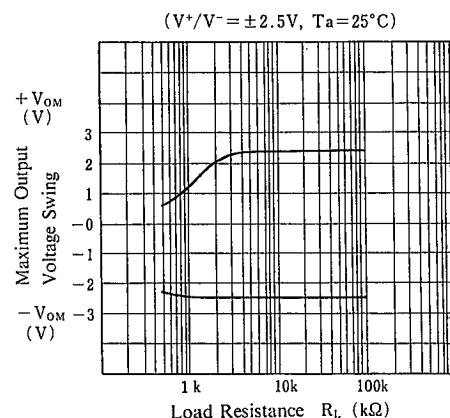
Maximum Output Voltage Swing vs. Operating Voltage



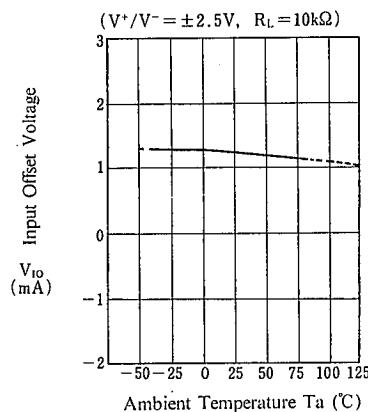
■ TYPICAL CHARACTERISTICS



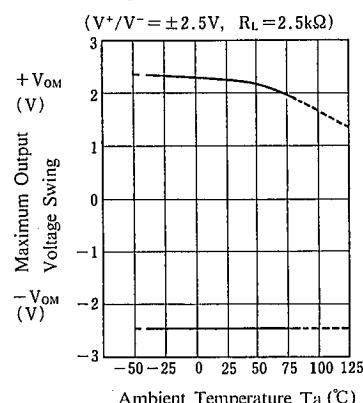
Maximum Output Voltage Swing vs. Load Resistance



Input Offset Voltage vs. Temperature



Maximum Output Voltage Swing vs. Temperature



MEMO

[CAUTION]

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