SINGLE OPERATIONAL AMPLIFIER

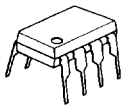
■ GENERAL DESCRIPTION

NJM 2100 is a low supply voltage and low saturation output voltage (±2.0 V p-p at supply voltage ±2.5V) 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.

■ FEATURES

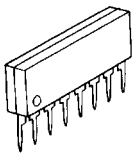
- Single Supply Operation
- Operating Voltage (±1.0V ~ ±3.5V)
- Low Saturation Output Voltage
- High Slew Rate (4V/ μs typ.)
- Package Outline DIP8, DMP8, SIP8, SSOP8
- Bipolar Technology

■ PACKAGE OUTLINE

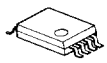


NJM2100D

NJM2100M

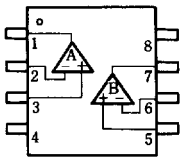


NJM2100L

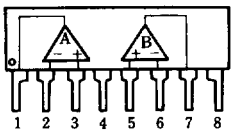


NJM2100V

■ PIN CONFIGURATION



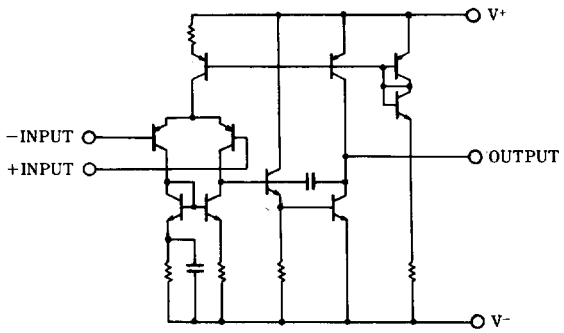
NJM2100D
NJM2100M
NJM2100V



NJM2100L

PIN FUNCTION
1. A OUTPUT
2. A −INPUT
3. A +INPUT
4. V⁻
5. B +INPUT
6. B −INPUT
7. B OUTPUT
8. V⁺

■ EQUIVALENT CIRCUIT (1/2 Shown)



■ ABSOLUTE MAXIMUM RATINGS

(Ta=25℃)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+/V^-	±3.5	V
Differential Input Voltage	V_{ID}	±7	V
Power Dissipation	P_D	(DIP8) 500	mW
		(DIM8) 300	mW
		(SSOP8) 250	mW
		(SIP8) 800	mW
Operating Temperature Range	T_{opr}	−20～+75	℃
Storage Temperature Range	T_{stg}	−40～+125	℃

■ ELECTRICAL CHARACTERISTICS

(Ta =25℃, V^+=5V)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V_{IO}	$R_S \leqq 10k\Omega$	—	1	6	mV
Input Bias Current	I_{IB}		—	100	300	nA
Large Signal Voltage Gain	A_V	$R_L \geqq 10k\Omega$	60	80	—	dB
Maximum Output Voltage Swing	V_{OM}	$R_L \geqq 2.5k\Omega$	±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}	$V_{IN}=0$, $R_L=\infty$	—	3.5	5	mA
Slew Rate	SR	$A_V=1$, $V_{IN}=\pm 1V$	—	4	—	V/μS
Gain-Bandwidth product	GB	f=10kHz	—	12	—	MHz

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

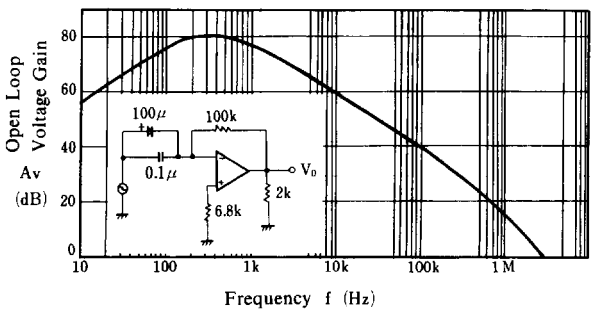
(Note 2) Special care being required for input common mode voltage range and the oscillation due to the capacitive load when operating on voltage follower.

(Note 3) Special care being required for the oscillation, yet having the gain when the supply voltage is applied at more than 5 V (single supply voltage 5 V).

■ TYPICAL CHARACTERISTICS

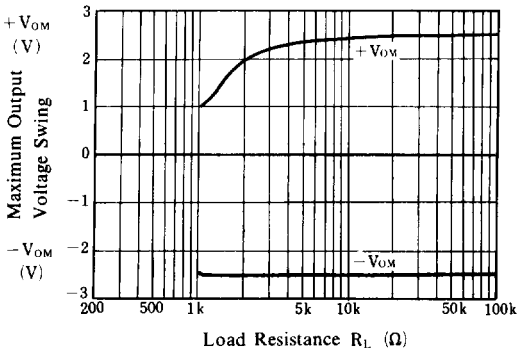
Open Loop Voltage Gain vs. Frequency

(V⁺/V⁻ = ±2.5 V, Ta = 25°C)



Maximum Output Voltage Swing vs. Load Resistance

(V⁺/V⁻ = ±2.5 V, Ta = 25°C)



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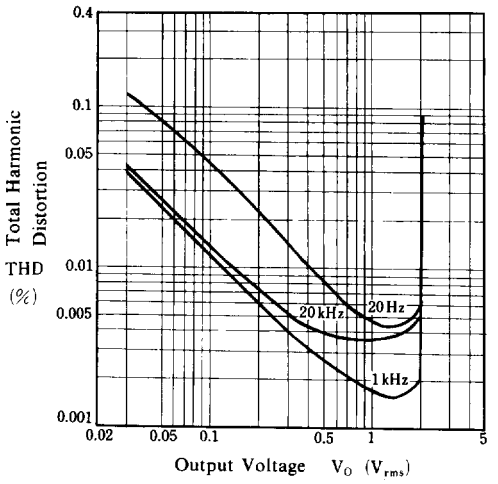
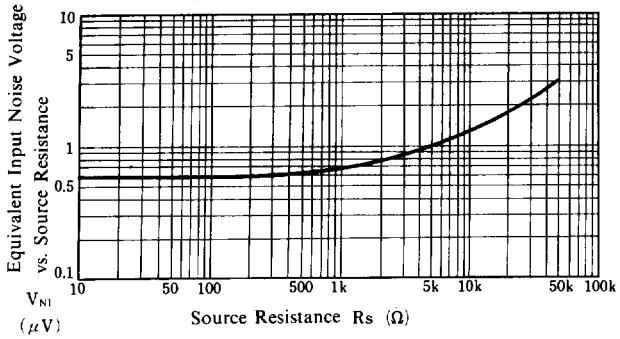
Total Harmonic Distortion vs. Output Voltage

(V⁺/V⁻ = ±3 V, RL = 4 kΩ, Gain = 10 dB, Ta = 25°C)



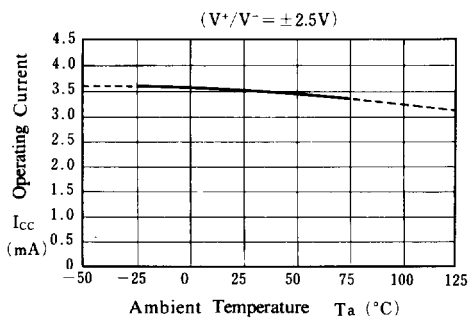
Equivalent Input Noise Voltage vs. Source Resistance

(V⁺/V⁻ = ±3 V, JISA, Ta = 25°C)



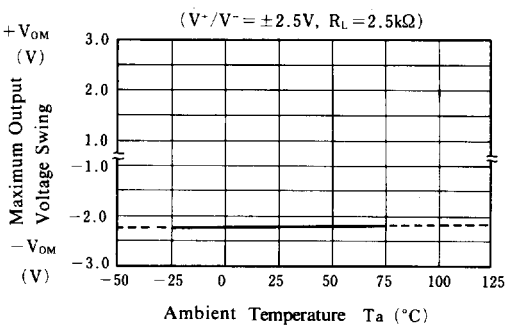
Operating Current vs. Temperature

(V⁺/V⁻ = ±2.5 V)



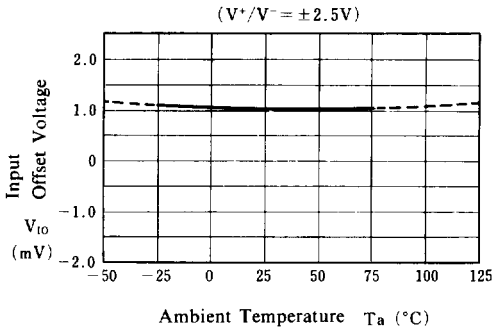
Maximum Output Voltage Swing vs. Temperature

(V⁺/V⁻ = ±2.5 V, RL = 2.5 kΩ)

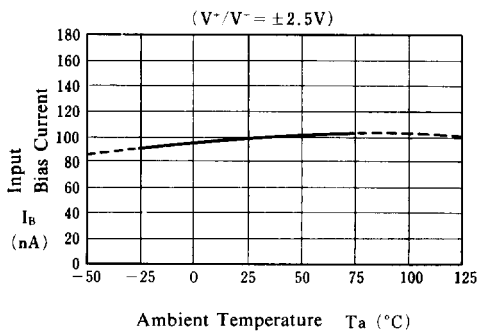


■ TYPICAL CHARACTERISTICS

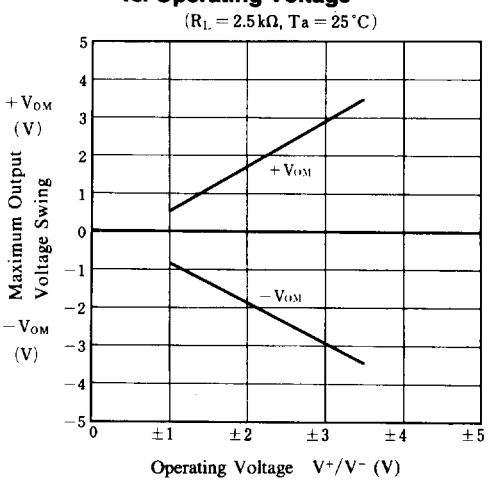
Input Offset Voltage vs. Temperature



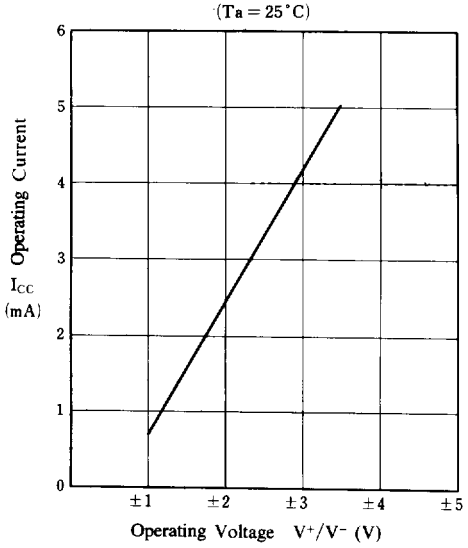
Input Bias Current vs. Temperature



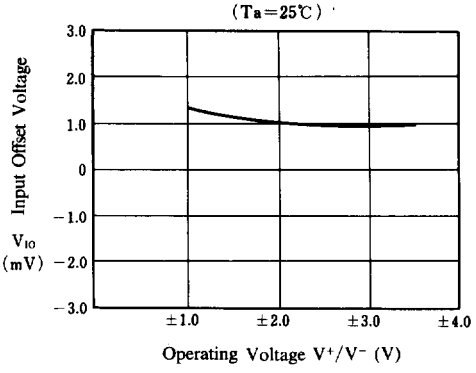
Maximum Output Voltage Swing vs. Operating Voltage



Operating Current vs. Operating Voltage



Input Offset Voltage vs. Operating Voltage



Maximum Output Voltage vs. Frequency