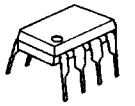
NJM2100

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

■ Absolute Maximum Ratings

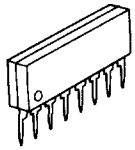
Supply Voltage	V^+/V^-	±3.5V
Differential Input Voltage	V_{ID}	±7V
Power Dissipation	P_D (D-type)	500mW
	(M-type)	300mW
	(V-Type)	250mW
	(L-type)	800mW
Operational Temperature Range	T_{opr}	−20～+75°C
Storage Temperature Range	T_{stg}	−40～+125°C

■ Package Outline



NJM2100D

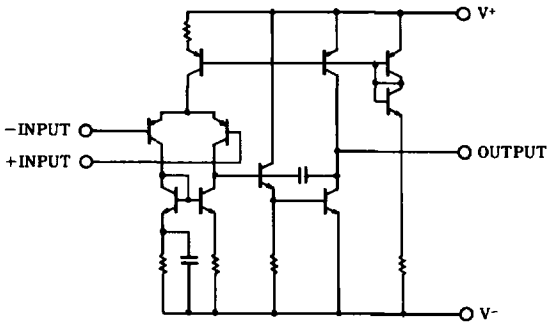
NJM2100M
NJM2100E



NJM2100L

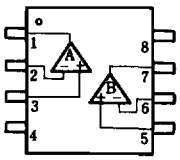
NJM2100V

■ Equivalent Circuit (1/2 shown)

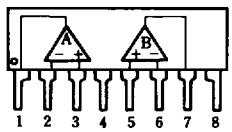


■ Connection Diagram

D,M,V-Type
(Top View)



L-Type



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

■ Electrical Characteristics

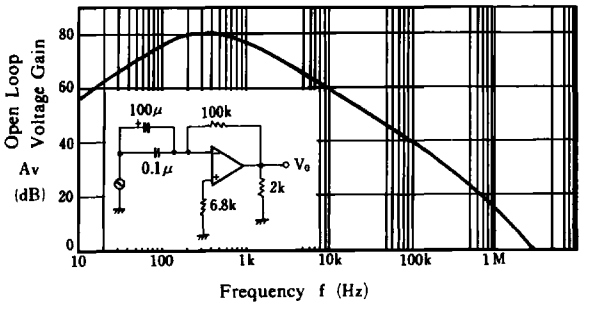
Parameters	Symbols	Test Conditions	Min.	Typ.	Max.	Units
Input Offset Voltage	V_{IO}	$R_S \leqq 10k\Omega$	—	1	6	mV
Input Bias Current	I_{IB}		—	100	300	nA
Large Signal Voltage Gain	A_V	$R_L \geqq 10k\Omega$	60	80	—	dB
Maximum Output Voltage Swing	V_{OM}	$R_L \geqq 2.5k\Omega$	±2	±2.2	—	V
Input Common Mode Voltage Range	V_{ICM}		±1.5	—	—	V
Common Mode Rejection Ratio	CMR		60	74	—	dB
Supply Voltage Rejection Ratio	SVR		60	80	—	dB
Supply 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

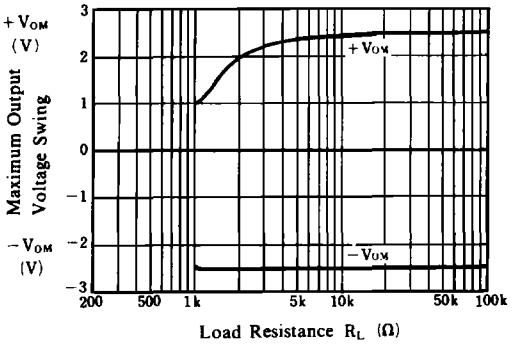
Open Loop Voltage Gain vs. Frequency

(V+/V− = ±2.5V, Ta = 25°C)



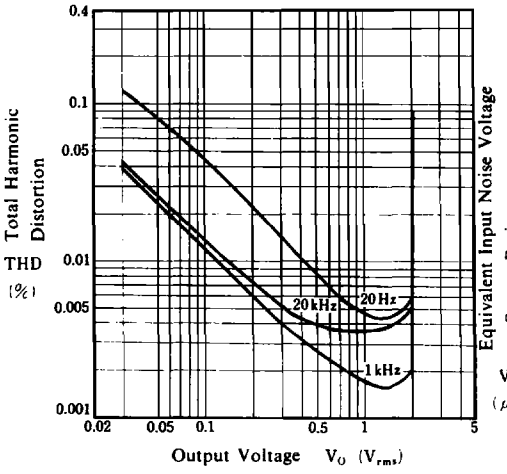
Maximum Output Voltage Swing vs. Load Resistance

(V+/V− = ±2.5V, Ta = 25°C)



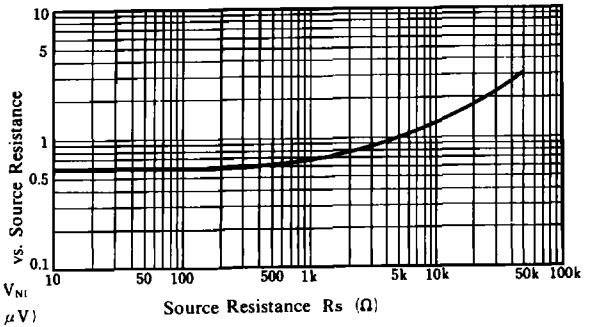
Total Harmonic Distortion vs. Output Voltage

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



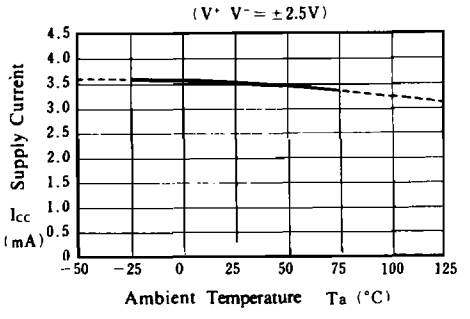
Equivalent Input Noise Voltage vs. Source Resistance

(V+/V− = ±3V, JISA, Ta = 25°C)



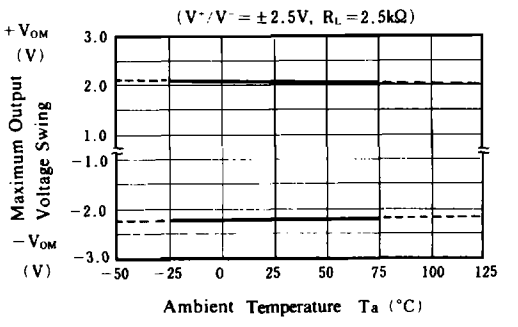
Supply Current vs. Temperature

(V+ V− = ±2.5V)



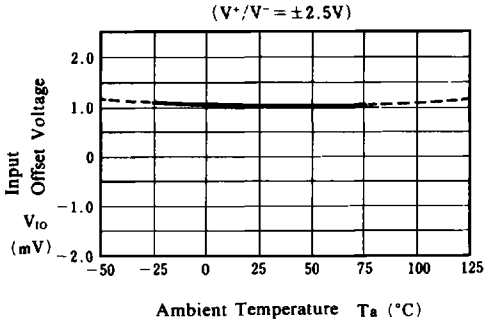
Maximum Output Voltage Swing vs. Temperature

(V+/V− = ±2.5V, RL = 2.5kΩ)

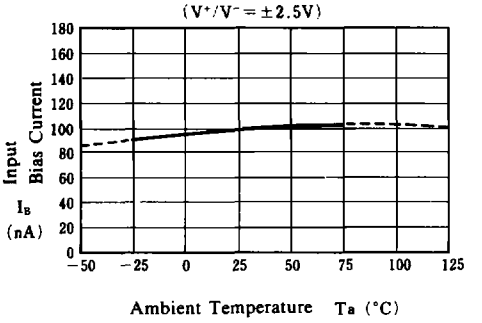


■ Typical Characteristics

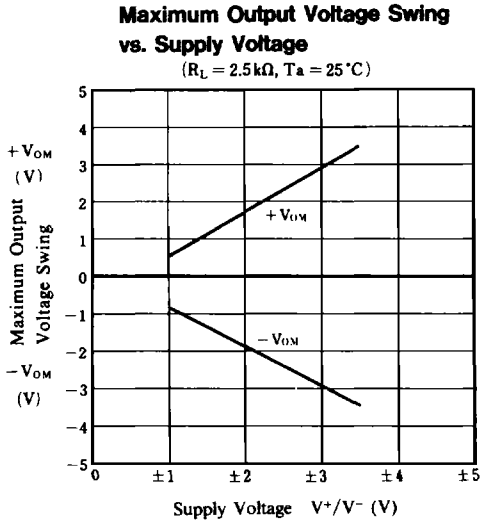
Input Offset Voltage vs. Temperature



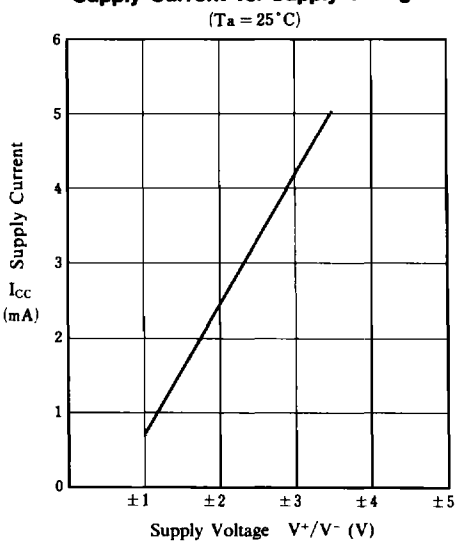
Input Bias Current vs. Temperature



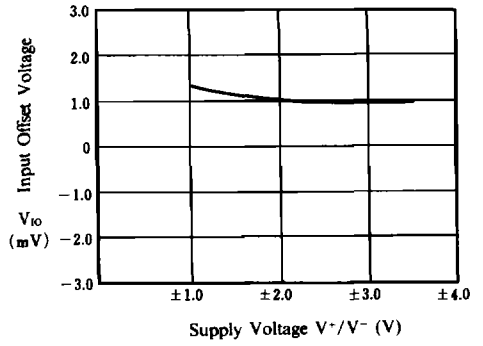
Maximum Output Voltage Swing vs. Supply Voltage



Supply Current vs. Supply Voltage



Input Offset Voltage vs. Supply Voltage



Maximum Output Voltage vs. Frequency