

## NJM 2100

NJM 2100 is a low supply voltage and low saturation output voltage ( $\pm 2.0$  V p-p at supply voltage  $\pm 2.5$  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	$V^+ / V^-$	$\pm 3.5$ V
Differential Input Voltage	$V_{ID}$	$\pm 7$ V
Power Dissipation	$P_D$ (D-type)	500mW
	(M-type)	300mW
	(V-Type)	250mW
	(L-type)	800mW
Operational Temperature Range	$T_{opr}$	$-20 \sim +75^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	$-40 \sim +125^\circ\text{C}$

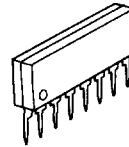
### Package Outline



NJM 2100D



NJM2100M  
NJM2100E

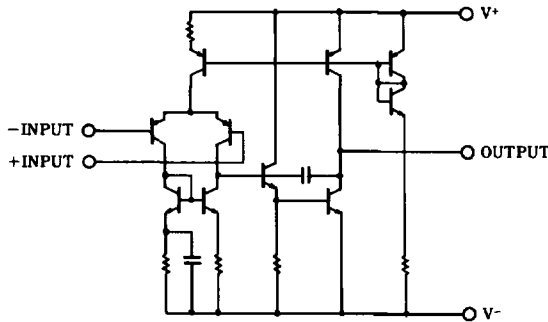


NJM 2100L

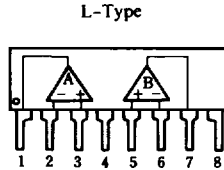
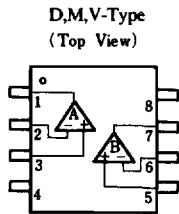


NJM2100V

### Equivalent Circuit (1/2 shown)



### Connection Diagram



### 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	$V_{IO}$	$R_S \leq 10\text{k}\Omega$	—	1	6	mV
Input Bias Current	$I_{IB}$		—	100	300	nA
Large Signal Voltage Gain	$A_V$	$R_L \geq 10\text{k}\Omega$	60	80	—	dB
Maximum Output Voltage Swing	$V_{OM}$	$R_L \geq 2.5\text{k}\Omega$	$\pm 2$	$\pm 2.2$	—	V
Input Common Mode Voltage Range	$V_{ICM}$		$\pm 1.5$	—	—	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	$A_V = 1, V_{IN} = \pm 1\text{V}$	—	4	—	$\text{V}/\mu\text{S}$
Gain-Bandwidth product	GB	$f = 10\text{kHz}$	—	12	—	MHz

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

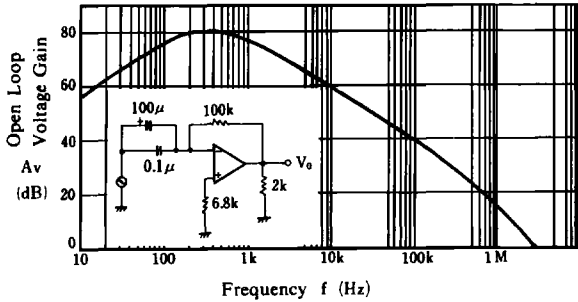
(Note 2) Special care being required for input common mode voltage range and the oscillation due to the capacitive load when operating on voltage follower.

(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

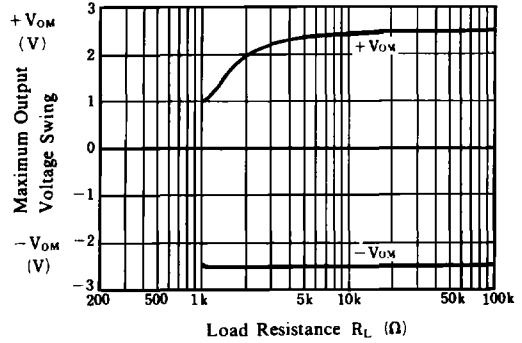
Open Loop Voltage Gain vs. Frequency

( $V^+/V^- = \pm 2.5V, T_a = 25^\circ C$ )



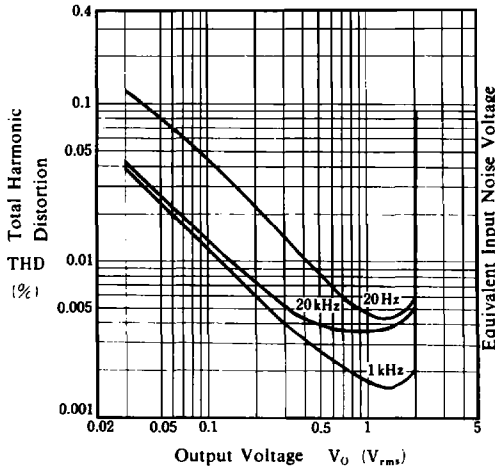
Maximum Output Voltage Swing vs. Load Resistance

( $V^+/V^- = \pm 2.5V, T_a = 25^\circ C$ )



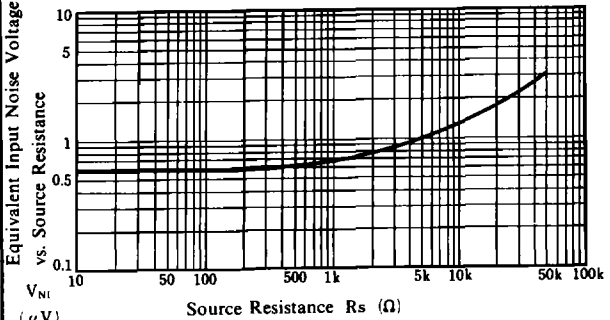
Total Harmonic Distortion vs. Output Voltage

( $V^+/V^- = \pm 3V, R_L = 4k\Omega, \text{Gain} = 10dB, T_a = 25^\circ C$ )



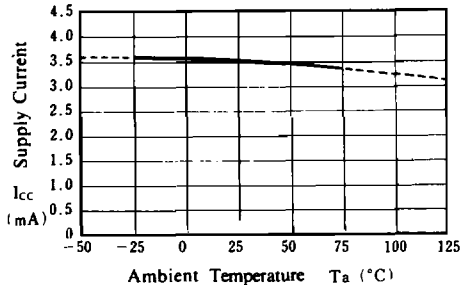
Equivalent Input Noise Voltage vs. Source Resistance

( $V^+/V^- = \pm 3V, \text{JISA}, T_a = 25^\circ C$ )



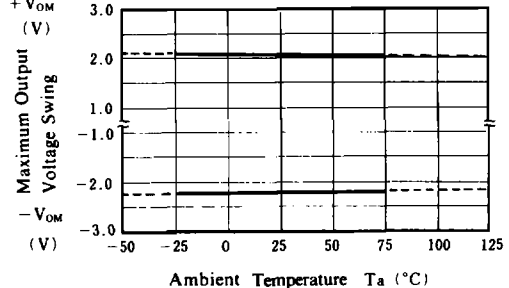
Supply Current vs. Temperature

( $V^+ V^- = \pm 2.5V$ )



Maximum Output Voltage Swing vs. Temperature

( $V^+/V^- = \pm 2.5V, R_L = 2.5k\Omega$ )



## ■ Typical Characteristics

