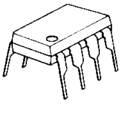
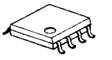
NJM022

The NJM022 is a dual low-power operational amplifier which was designed to replace higher-power devices in many applications without sacrificing system performance. High input impedance, low supply currents, and low equivalent input noise voltage over a wide range of operating supply voltages result in an extremely versatile operational amplifier for use in a variety of analog applications including battery-operated circuit. Internal frequency compensation, absence of latch-up, high slew rate, and output short-circuit protection assure ease of use.

■ Package Outline

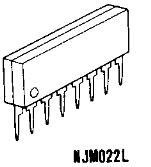


NJM022D



NJM022M

NJM022E



NJM022L

■ Absolute Maximum Ratings (Ta=25°C)

Supply Voltage	V^+/V^-	±18V
Input Voltage (note)	V_{IC}	±15V
Differential Input Voltage	V_{ID}	±30V
Power Dissipation	P_D (D-Type)	500mW
	(M,E-Type)	300mW
	(L-Type)	800mW
Operating Temperature Range	T_{opr}	−20～+75°C
Storage Temperature Range	T_{stg}	−40～+125°C

(note) For supply voltage less than ±15V, the absolute maximum input voltage is equal to the supply voltage.

■ Recommended Operating Condition

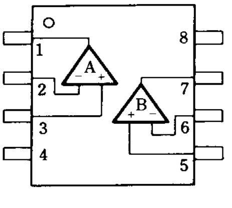
Supply Voltage V^+/V^- ±2～±18V

■ Electrical Characteristics (Ta=25°C, V^+/V^-=±15V)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Input Offset Voltage	V_{IO}	R_S≦10kΩ	—	1	5	mV
Input Offset Current	I_{IO}		—	15	80	nA
Input Bias Current	I_{IB}		—	100	250	nA
Large Signal Voltage Gain	A_V	R_L≧10kΩ, V_O=±10V	60	80	—	dB
Common Mode Rejection Ratio	CMR	R_S≦10kΩ	60	72	—	dB
Response Time (Rise Time)	t_R	V_{IN}=20mV, R_L=10kΩ, C_L=100pF	—	0.3	—	μs
Slew Rate	SR	V_{IN}=10V, R_L=10kΩ, C_L=100pF	—	0.5	—	V/μs
Input Common Mode Voltage Range	V_{ICM}		±12	±13	—	V
Supply Voltage Rejection Ratio	SVR	R_S≦10kΩ	74	94	—	dB
Equivalent Input Noise Voltage	V_{NI}	A_V=20dB, f=1kHz	—	50	—	nV/√Hz
Short-circuit Output Current	I_{OS}		—	±6	—	mA
Quiescent Current	I_{CC}		—	130	250	μA

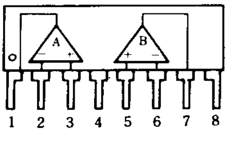
■ Connection Diagram

D,M,E-Type
(Top View)

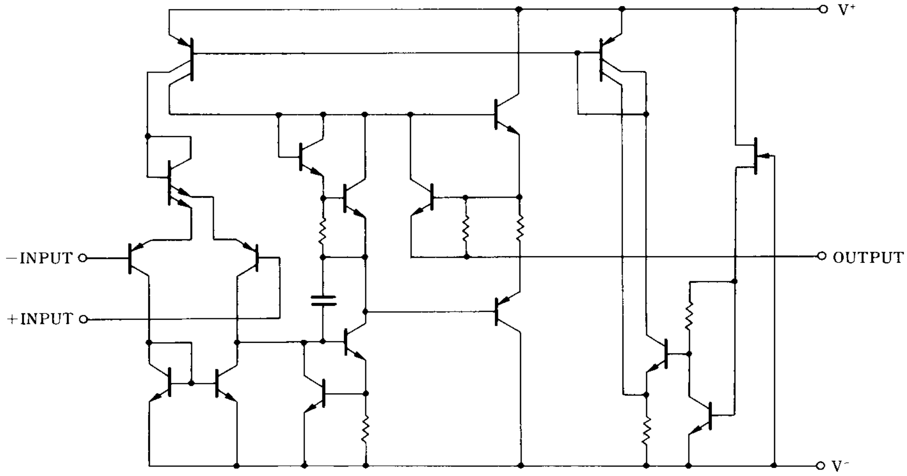


PIN FUNCTION
1. A OUTPUT
2. A−INPUT
3. A+INPUT
4. V^-
5. B+INPUT
6. B−INPUT
7. B OUTPUT
8. V^+

L-Type



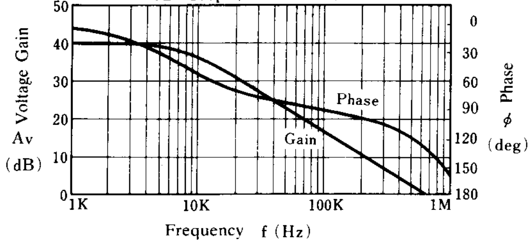
■ Equivalent Circuit (1/2 Shown)



■ Typical Characteristics

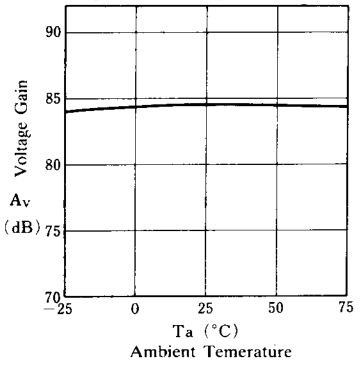
Voltage Gain, Phase vs. Frequency

($V^+/V^- = \pm15V$, $R_L = 10k\Omega$, $C_L = 100pF$, $Av = 40dB$, $Ta = 25°C$)



Voltage Gain vs. Temperature

($V^+/V^- = \pm15V$, $R_L = 10k\Omega$)

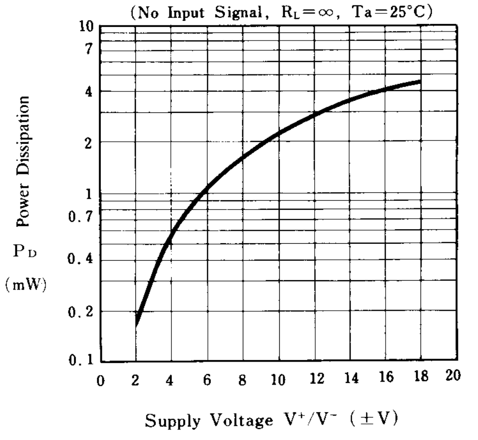


2

■ Typical Characteristics

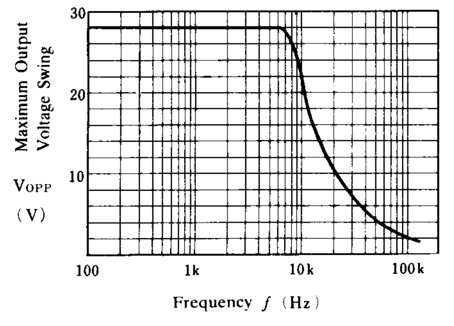
Power Dissipation vs. Supply Voltage

(No Input Signal, $R_L=\infty$, Ta=25°C)



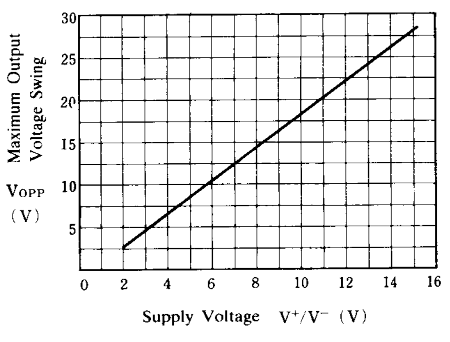
Maximum Output Voltage Swing vs. Frequency

($V^+/V^-=\pm15V$, $R_L=10k\Omega$, Ta=25°C)



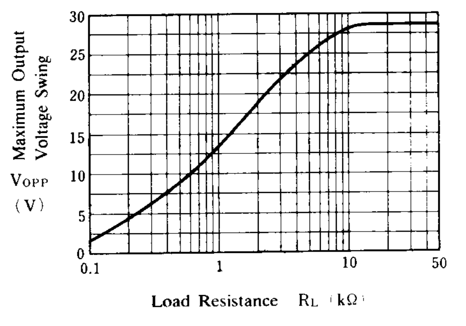
Maximum Output Voltage Swing vs. Supply Voltage

($R_L=10k\Omega$, Ta=25°C)



Maximum Output Voltage Swing vs. Load Resistance

($V^+/V^-=\pm15V$, Ta=25°C)



Supply Current vs. Supply Voltage

(No Input Signal, $R_L=\infty$, Ta=25°C)