NJM022B

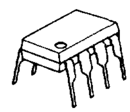
The NJM022B is a dual low-power operational amplifier. Like the NJM022, the NJM022B is the wide operating supply voltage range, high input impedance, low supply current, low input noise voltage, internally frequency compensated, latch-up free, high slew rate amplifier with the output short circuit protection. The NJM022B is twice the slew rate and half the input noise voltage comparing to the NJM022 with increased supply current.

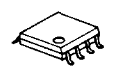
■ Absolute Maximum Ratings (Ta=25°C)

Supply Voltage	V^+/V^-	±18V
Input Voltage (note)	V_I	±15V
Differential Input Voltage	V_{ID}	±30V
Power Dissipation	P_D (D-Type)	500mW
	(M-Type)	300mW
	(V-Type)	250mW
	(L-Type)	800mW
Operating Temperature Range	T_{opr}	−20~+75°C
Storage Temperature Range	T_{stg}	−40~+125°C

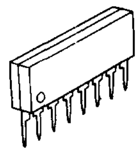
(note) For supply voltage less than ±15V, the absulote maximum input voltage is equal to the supply voltage.

■ Package Outline


NJM022BD


NJM022M
NJM022E


NJM022BV


NJM022BL

■ Recommended Operating Condition

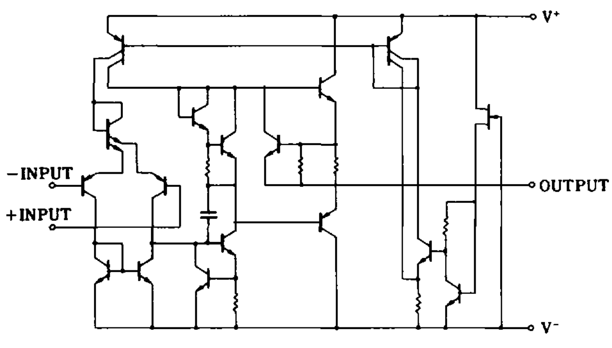
Supply Voltage	V^+/V^-	±2~±18V

■ 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}		—	1	80	nA
Input Bias Current	I_B		—	20	250	nA
Large Signal Voltage Gain	A_V	$R_L≧10kΩ$, V_O=±10V	60	88	—	dB
Common Mode Rejection Ratio	CMR	$R_S≦10kΩ$	60	92	—	dB
Response Time (Rise Time)	t_R	V_{IN}=20mV, R_L=10kΩ, C_L=100pF	—	0.18	—	μs
Slew Rate	SR	V_{IN}=10V, R_L=10kΩ, C_L=100pF	—	1	—	V/μs
Input Common Mode Voltage Range	V_{ICM}		±12	±13	—	V
Supply Voltage Rejection Ratio	SVR	$R_S≦10kΩ$	74	110	—	dB
Equivalent Input Noise Voltage	V_{NI}	A_V=20dB, f=1kHz	—	25	—	nV/√Hz
Short-circuit Output Current	I_{OS}		—	±8	—	mA
Supply Current	I_{CC}		—	250	500	μA
Maximum Peak-to-Peak Output Voltage	V_{OM}	R_L =10kΩ	±10	±14	—	V

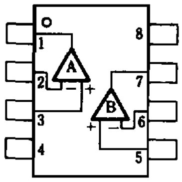
■ Equivalent Circuit

(1/2 Shown)

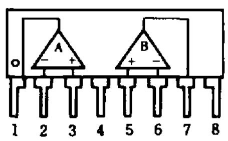


■ Connection Diagram

D, M,V-Type
(Top View)



L-Type

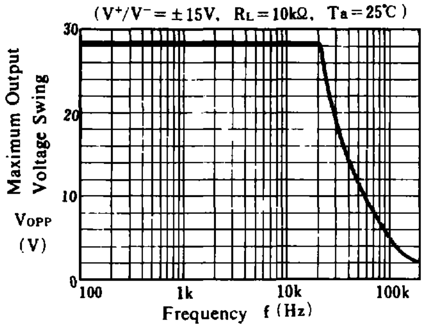


PIN FUNCTION
1. A OUTPUT
2. A−INPUT
3. A+INPUT
4. V−
5. B+INPUT
6. B−INPUT
7. B OUTPUT
8. V+

■ **Typical Characteristics**

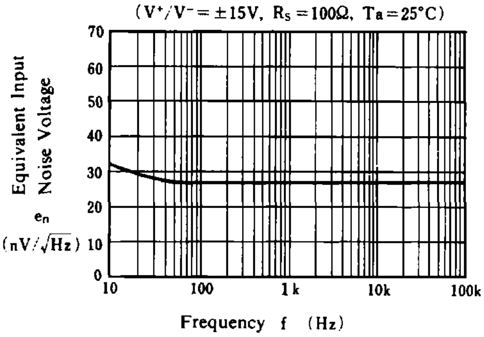
Muximum Output Voltage Swing vs. Frequency

(V⁺/V⁻=±15V, RL=10kΩ, Ta=25℃)



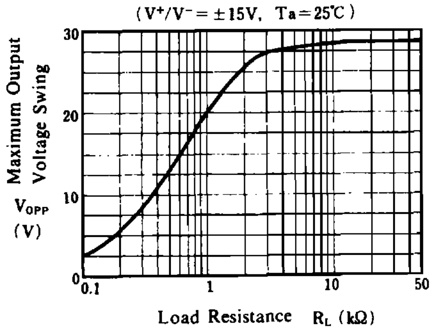
Equivalent Input Noise Voltage vs. Frequency

(V⁺/V⁻=±15V, Rs=100Ω, Ta=25°C)



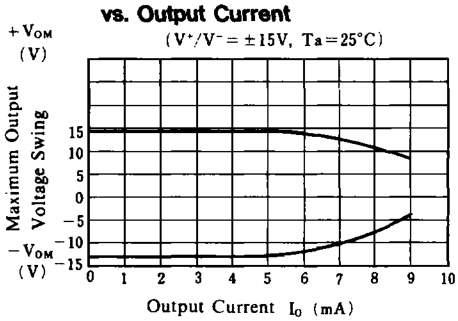
Maximum Output Voltage Swing vs. Load Resistance

(V⁺/V⁻=±15V, Ta=25℃)



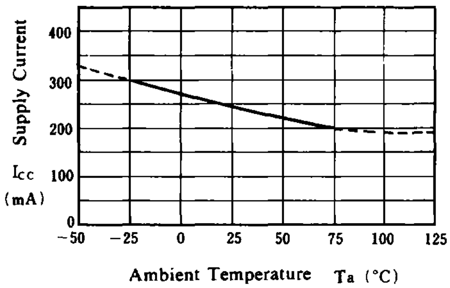
Maximum Output Voltage Swing vs. Output Current

(V⁺/V⁻=±15V, Ta=25°C)



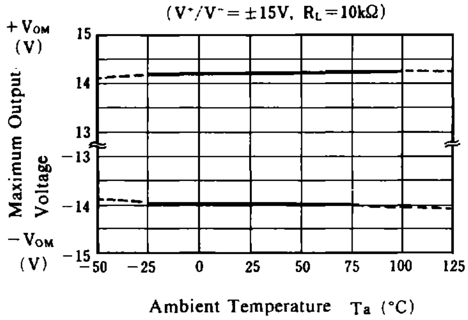
Supply Current vs. Temperature

(V⁺/V⁻=±15V)



Maximum Output Voltage vs. Temperature

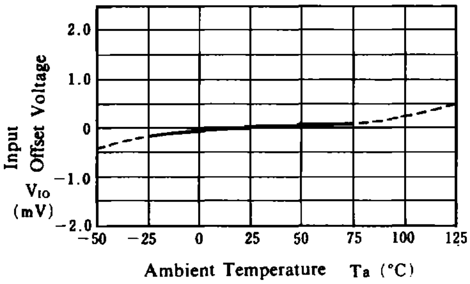
(V⁺/V⁻=±15V, RL=10kΩ)



■ Typical Characteristics

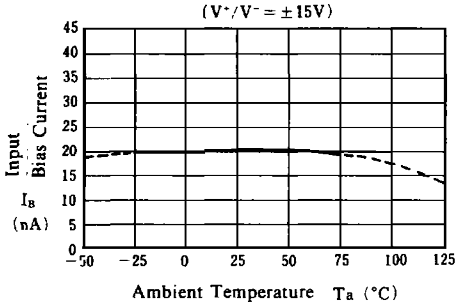
Input Offset Voltage vs. Temperature

($V^+/V^- = \pm15V$)



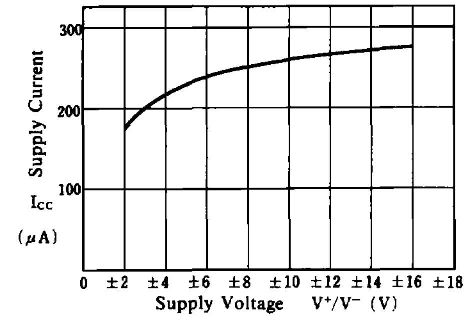
Input Bias Current vs. Temperature

($V^+/V^- = \pm15V$)



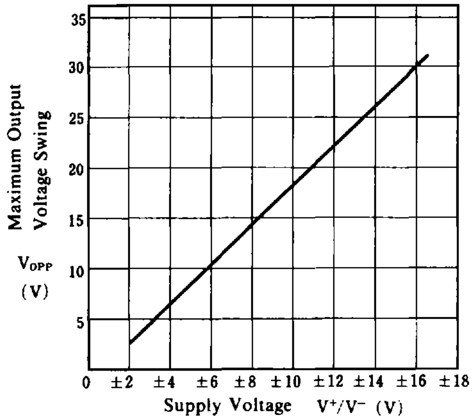
Supply Current vs. Supply Voltage

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



Maximum Output Voltage Swing vs. Supply Voltage

(R_L=10kΩ, Ta=25°C)



Voltage Gain, Phase vs. Frequency

(V^+/V^-=±15V, R_L=2kΩ, 40dB Am. Ta=25°C)