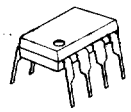
DUAL LOW POWER OPERATIONAL AMPLIFIER

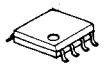
■ GENERAL DESCRIPTION

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

■ PACKAGE OUTLINE

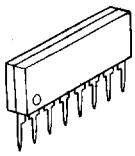


NJM022BD



NJM022BM

NJM022BV

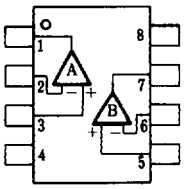


NJM022BL

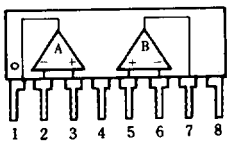
■ FEATURES

- Operating Voltage (±2V～±18V)
- Low Operating Current (250 μA typ)
- Slew Rate (1V/μs typ)
- Short-Circuit Protection
- Package Outline DIP8, DMP8, SIP8, (SSOP8)
- Bipolar Technology

■ PIN CONFIGURATION



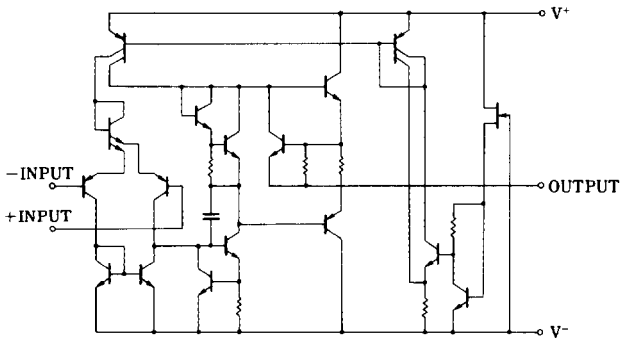
NJM022BD
NJM022BM
NJM022BV



NJM022BL

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^-	±18	V
Input Voltage	V_I	±15	V
Differential Input Voltage	V_{ID}	±30	V
Power Dissipation	P_D	(DIP8) 500	mW
		(DMP8) 300	mW
		(SSOP8) 250	mW
		(SIP8) 800	mW
Operating Temperature Range	T_{opr}	−20～+75	℃
Storage Temperature Range	T_{stg}	−40～+125	℃

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

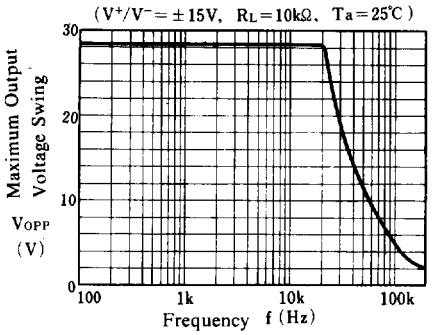
■ ELECTRICAL CHARACTERISTICS

(Ta =+25℃, V^+/V^-=±15V)

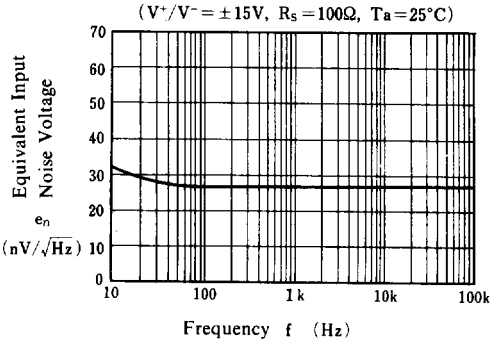
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V_{IO}	R_S≦10kΩ	—	1	5	mV
Input Offset Current	I_{IO}		—	1	80	nA
Input Bias Current	I_B		—	20	250	nA
Large Signal Voltage Gain	A_V	R_L≧10kΩ, V_O=±10V	60	88	—	dB
Common Mode Rejection Ratio	CMR	R_S≦10kΩ	60	92	—	dB
Response Time (Rise 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
Operating Current	I_{CC}		—	250	500	μA
Maximum Peak-to-Peak Output Voltage	V_{OM}	R_L =10kΩ	±10	±14	—	V

■ TYPICAL CHARACTERISTICS

Muximum Output Voltage Swing vs. Frequency



Equivalent Input Noise Voltage vs. Frequency



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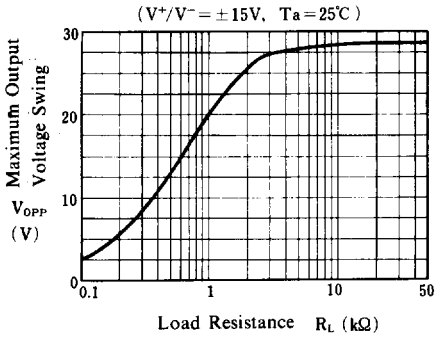
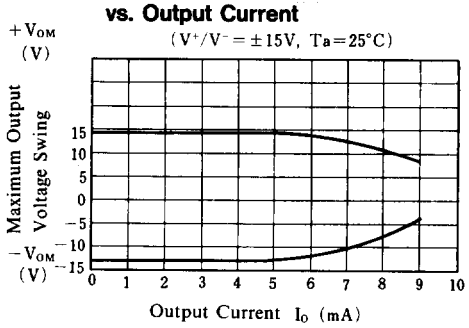
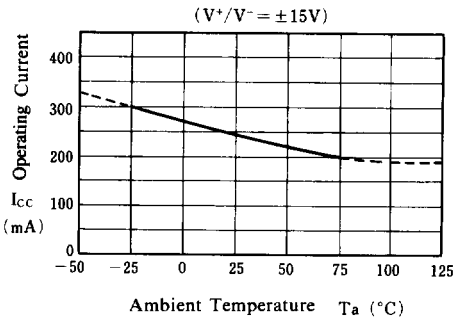
Maximum Output Voltage Swing vs. Load Resistance



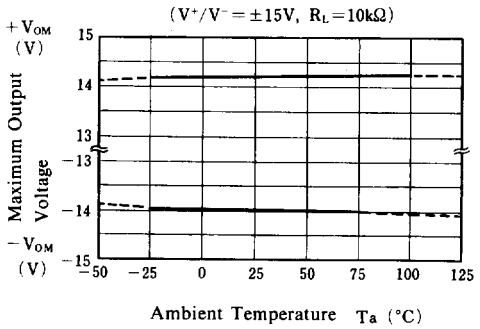
Maximum Output Voltage Swing vs. Output Current



Operating Current vs. Temperature

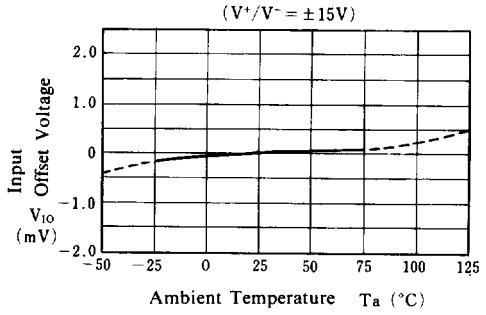


Maximum Output Voltage vs. Temperature

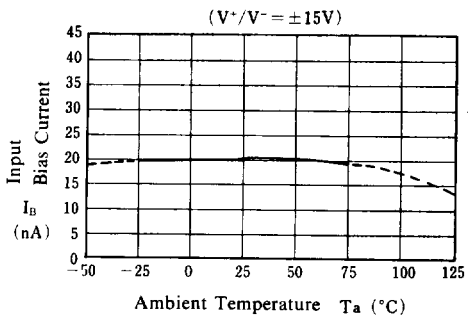


■ TYPICAL CHARACTERISTICS

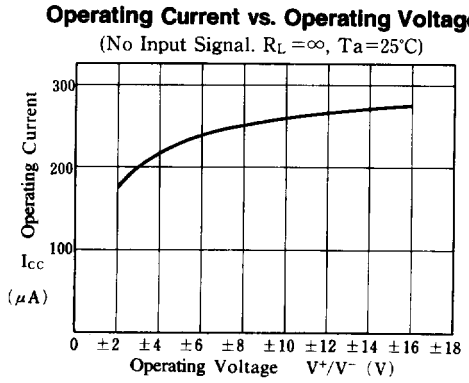
Input Offset Voltage vs. Temperature



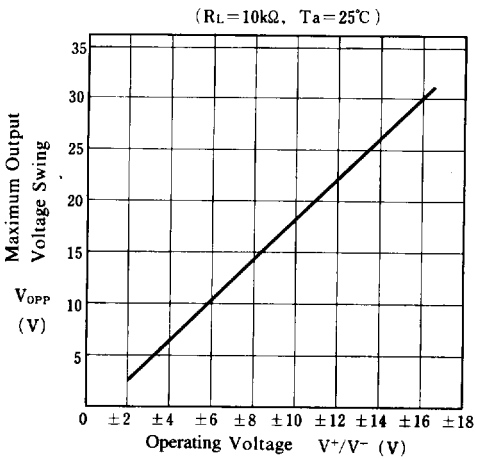
Input Bias Current vs. Temperature



Operating Current vs. Operating Voltage



Maximum Output Voltage Swing vs. Operating Voltage



Voltage Gain, Phase vs. Frequency