

DUAL LOW POWER OPERATIONAL AMPLIFIER

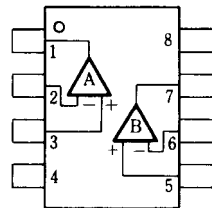
■ GENERAL DESCRIPTION

The NJM022B is a dual low-power operational amplifier. Like the NJM022, the NJM022B is the wide operating voltage range, high input impedance, 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.

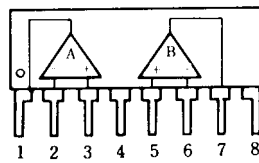
■ FEATURES

- Operating Voltage ($\pm 2V \sim \pm 18V$)
- Low Operating Current ($250\mu A$ typ.)
- Slew Rate ($1V/\mu s$ typ.)
- Short-Circuit Protection
- Package Outline DIP8, DMP8, SIP8, (SSOP8)
- Bipolar Technology

■ PIN CONFIGURATION



NJM022BD
NJM022BM
NJM022BV

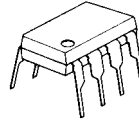


NJM022BL

PIN FUNCTION

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

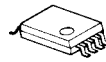
■ PACKAGE OUTLINE



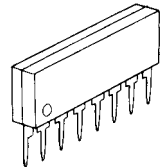
NJM022BD



NJM022BM

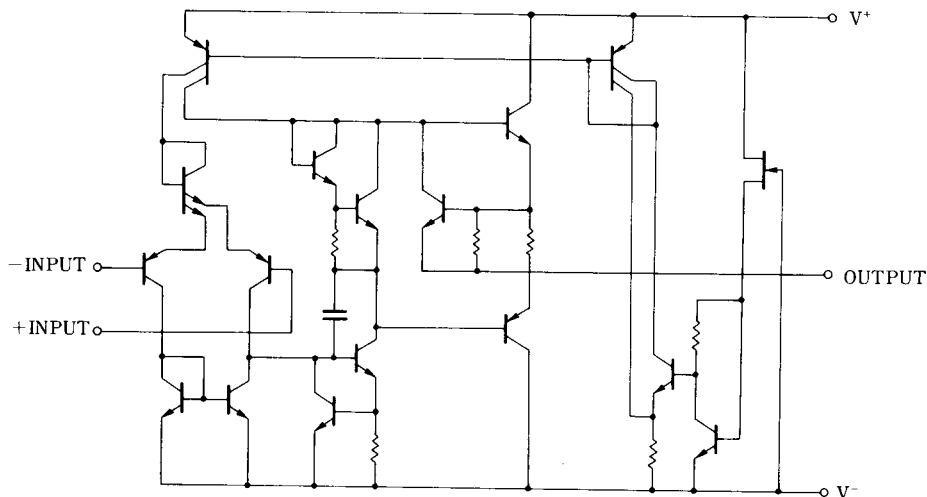


NJM022BV



NJM022BL

■ EQUIVALENT CIRCUIT (1/2 Shown)



NJM022B

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+ / V^-	± 18	V
Input Voltage	V_{IC}	± 15	V
Differential Input Voltage	V_{ID}	± 30	V
Power Dissipation	P_D	(DIP8) 500 (DMP8) 300 (SSOP8) 250 (SIP8) 800	mW
Operating Temperature Range	T_{opr}	-40~+85	°C
Storage Temperature Range	T_{stg}	-40~+125	°C

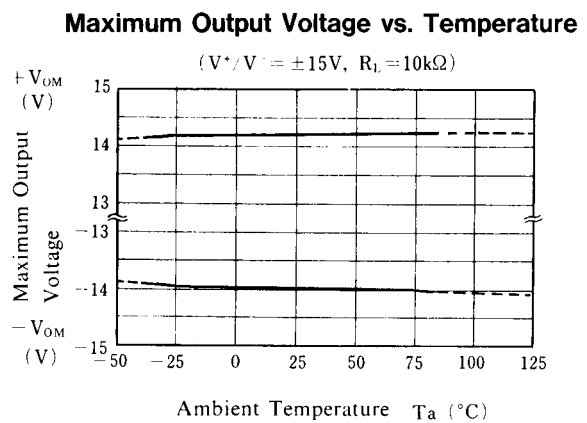
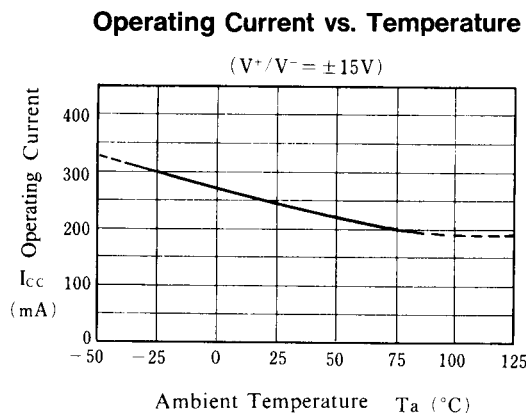
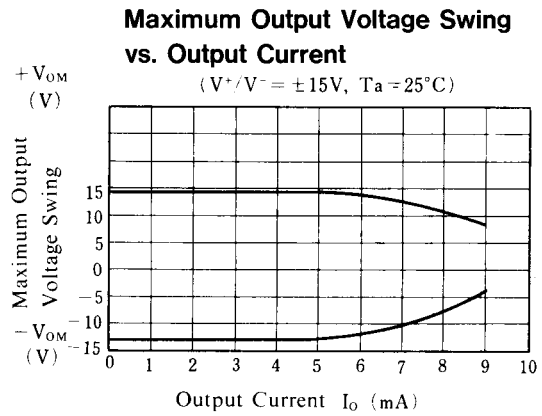
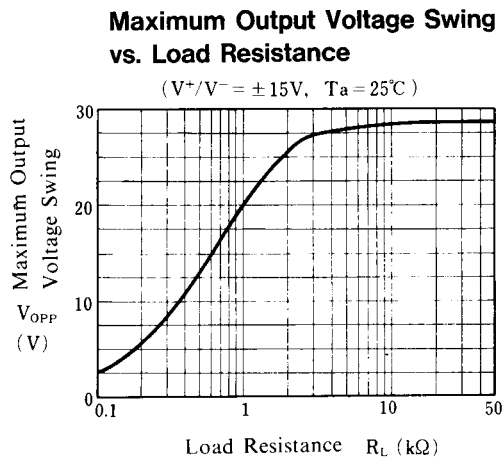
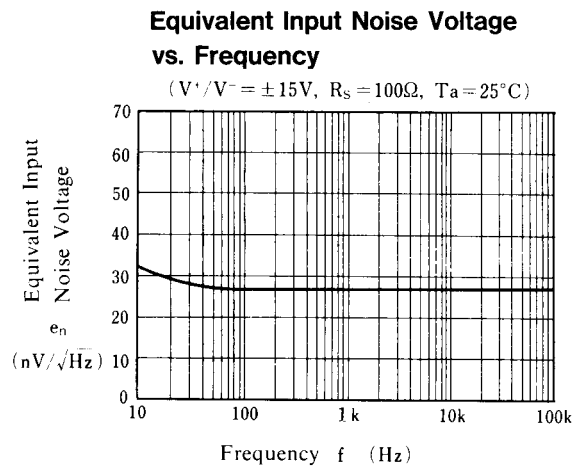
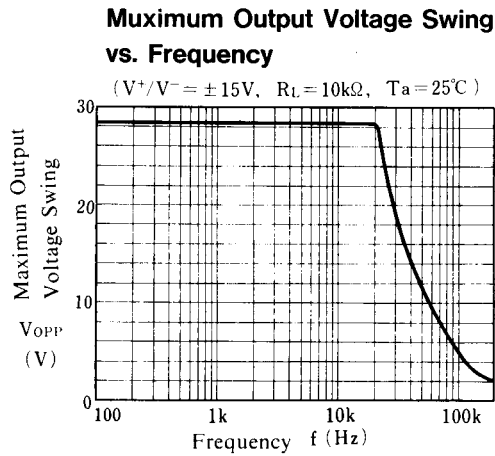
(note) For supply voltage less than $\pm 15V$, the absolute maximum input voltage is equal to the supply voltage.

■ ELECTRICAL CHARACTERISTICS

(Ta=+25°C, $V^+ / V^- = \pm 15V$)

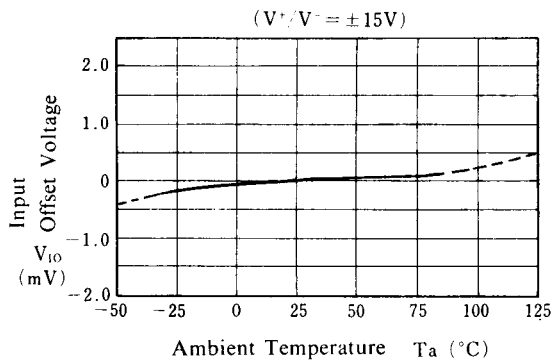
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V_{IO}	$R_S \leq 10k\Omega$	-	1	5	mV
Input Offset Current	I_{IO}		-	1	80	nA
Input Bias Current	I_B		-	20	250	nA
Large Singal Voltage Gain	A_V	$R_L \geq 10k\Omega, V_O = \pm 10V$	60	88	-	dB
Common Mode Rejection Ratio	CMR	$R_S \leq 10k\Omega$	60	92	-	dB
Response Time (Rise Time)	t_r	$V_{IN} = 20mV, R_L = 10k\Omega, C_L = 100pF$	-	0.18	-	μs
Slew Rate	SR	$V_{IN} = 10V, R_L = 10k\Omega, C_L = 100pF$	-	1	-	V/ μs
Input Common Mode Voltage Range	V_{ICM}		± 12	± 13	-	V
Supply Voltage Rejection Ratio	SVR	$R_S \leq 10k\Omega$	74	110	-	dB
Equivalent Input Noise Voltage	e_n	$A_V = 20dB, f = 1kHz$	-	25	-	nV/ \sqrt{Hz}
Short-circuit Output Current	I_{OS}		-	± 8	-	mA
Operating Current	I_{CC}		-	250	500	μA
Maximum Peak-to-Peak Output Voltage	V_{OM}	$R_L = 10k\Omega$	± 10	± 14	-	V

■ TYPICAL CHARACTERISTICS

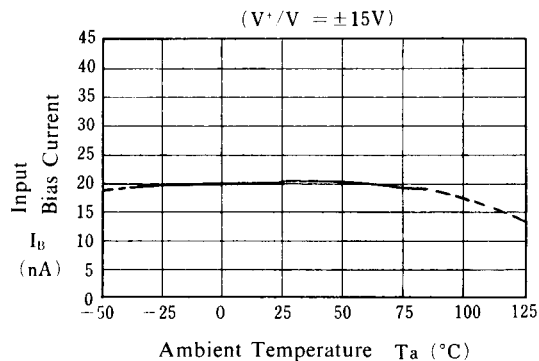


■ TYPICAL CHARACTERISTICS

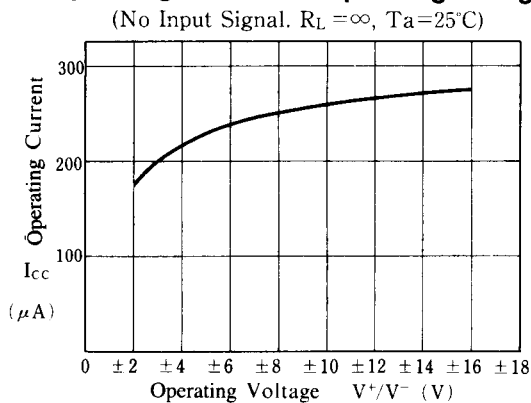
Input Offset Voltage vs. Temperature



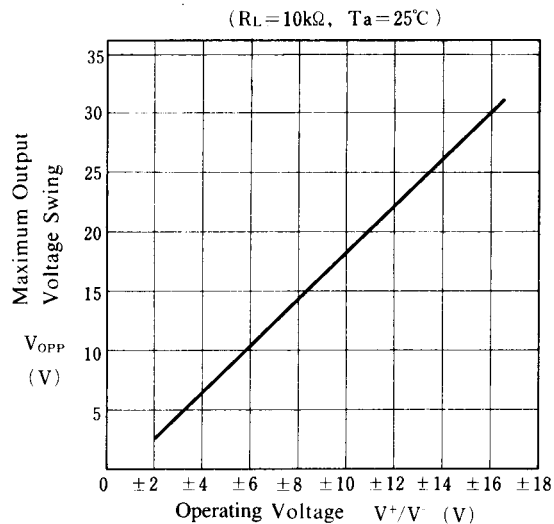
Input Bias Current vs. Temperature



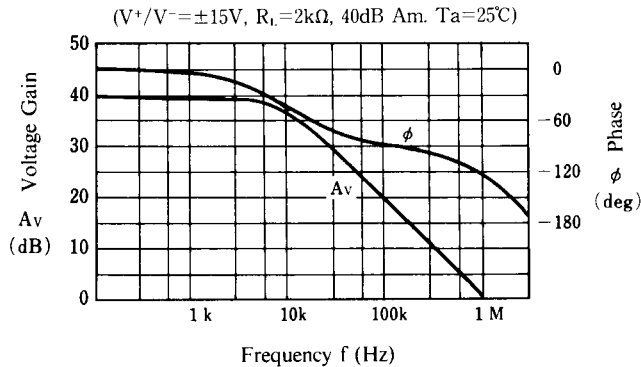
Operating Current vs. Operating Voltage



Maximum Output Voltage Swing vs. Operating Voltage



Voltage Gain, Phase vs. Frequency



[CAUTION]

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