J-FET INPUT OPERATIONAL AMPLIFIER

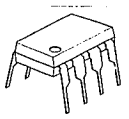
■ GENERAL DESCRIPTION

The NJM062/064 are J-FET input operational amplifiers which were designed as low-power versions of the NJM082. They feature high input impedance, wide bandwidth, high slew rate, and low input offset and bias current. The NJM062 features the same terminal assignments as the NJM4558/2043/2904/3404/072 and NJM064 features the same terminal assignments as the NJM2902/3403/2058/2059/2060. Each of these JFET-input operational amplifiers incorporates well-matched, high voltage JFET and bipolar transisters in a monolithic integrated circuit.

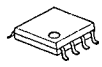
■ FEATURES

- Operating Voltage (±2V～±18V)
- J-FET Input
- High Input Resistarce ($10^{12}\Omega$ typ.)
- Low Operating Current (200 μA/circuit typ.)
- High Slew Rate (3.5V/μs typ.)
- Wide Unity Gain Bandwidth (1MHz typ.)
- Package Outline DIP8/14, DMP8/14, SSOP8/14, SIP8
- Bipolar Technology

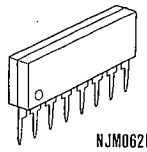
■ PACKAGE OUTLINE



NJM062D

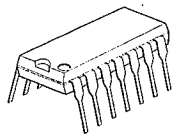


NJM062M



NJM062L

NJM062V



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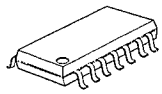

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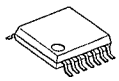
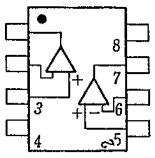
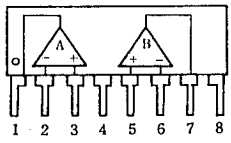


NJM064V

■ PIN CONFIGURATION

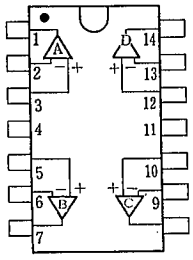


NJM062D
NJM062M
NJM062V



NJM062L

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

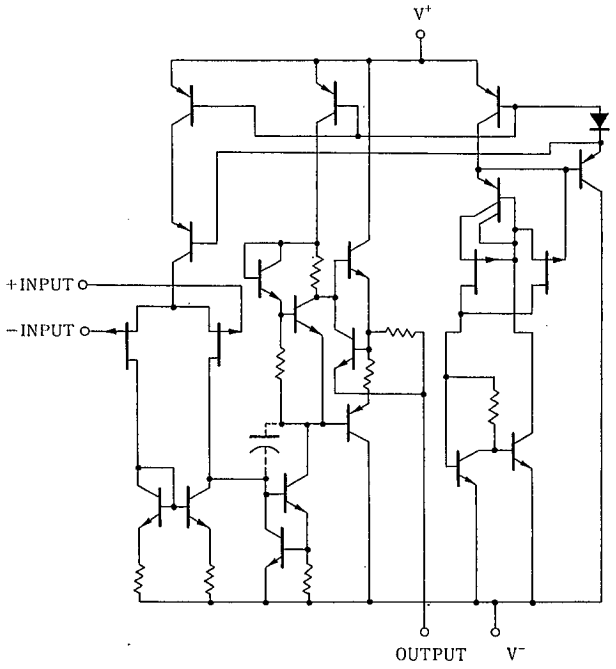


NJM064D
NJM064M
NJM064V

PIN FUNCTION
1. A OUTPUT
2. A−INPUT
3. A+INPUT
4. V⁺
5. B+INPUT
6. B−INPUT
7. B OUTPUT
8. C OUTPUT
9. C−INPUT
10. C+INPUT
11. V⁻
12. D+INPUT
13. D−INPUT
14. D OUTPUT

■ EQUIVALENT CIRCUIT

(062 is 1/2 Shown. 064 is 1/4 Shown)



■ ABSOLUTE MAXIMUM RATINGS

(Ta=25℃)

PARAMETER	SYMBOL	RATINGS		UNIT
Supply Voltage	V^+/V^-	±18		V
Differential Input Voltage	V_{ID}	±30		V
Input Voltage	V_{IC}	±15		V
Power Dissipation	P_D	(DIP8) 500		mW
		(DMP8) 300		mW
		(SIP8) 800		mW
		(SSOP8) 250		mW
		(DIP14) 700		mW
		(DMP14) 700	(note 2)	mW
		(SSOP14) 300		mW
Operating Temperature Range	T_{opr}	−40～+85		℃
Storage Temperature Range	T_{stg}	−40～+125		℃

(note 1) For supply voltage less than ±15V. the absolute maximum input voltage is equal to the supply voltage.
(note 2) at on PC board

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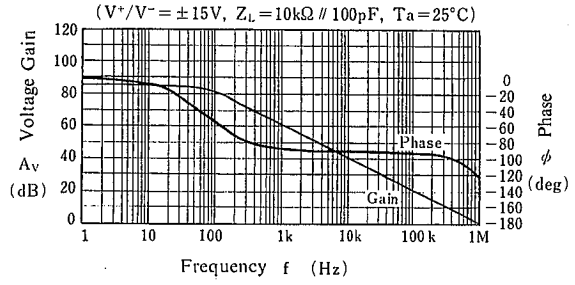
■ ELECTRICAL CHARACTERISTICS (V^+/V^-=±15V, Ta=25℃)

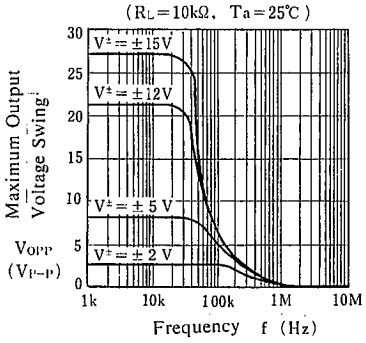
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Supply Voltage	V^+/V^-		±2	—	±18	V
Input Offset Voltage	V_{IO}	R_S =50Ω	—	3	15	mV
Input Offset Current	I_{IO}		—	1	200	pA
Input Bias Current	I_B		—	2	400	pA
Input Common Mode voltage Range	V_{ICM}		±13	$^{+15}_{-13.5}$	—	V
Maximum Peak-to-peak Output Voltage Swing	V_{OM}	R_L =10kΩ	±13	$^{+14.2}_{-14.0}$	—	V
Large-signal Voltage Gain	A_V	R_L ≧10kΩ, V_O =±10V	70	80	—	dB
Unity Gain Bandwidth	f_T	R_L =10kΩ	—	1	—	MHz
Input Resistance	R_{IN}		—	10^{12}	—	Ω
Common Mode Rejection Ratio	CMR	R_S ≦10kΩ	70	90	—	dB
Supply voltage Rejection Ratio	SVR	R_S ≦10kΩ	70	100	—	dB
Operating Current	I_{CC}	R_L =∞ each amplifier	—	200	250	μA
Slew Rate	SR	R_L =10kΩ	—	3.5	—	V/μs
Equivalent Input Noise Voltage	en	RS=100Ω, f=1kHz	—	35	—	nV/$\sqrt{Hz}$

■ TYPICAL CHARACTERISTICS

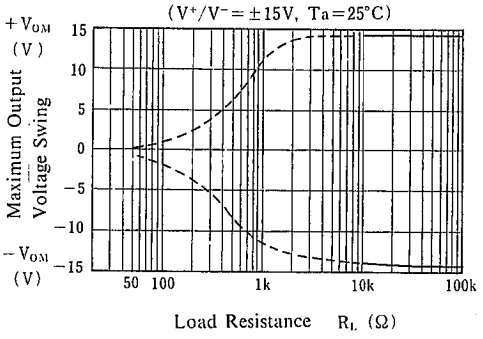
Voltage Gain, Phase Shift vs. Frequency



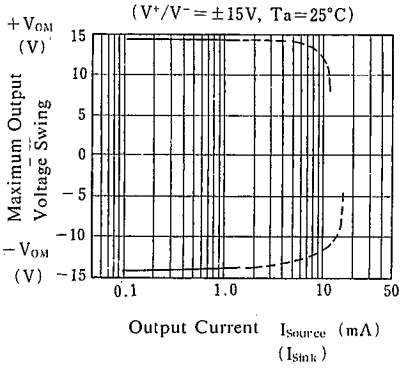
Maximum Output Voltage Swing vs. Frequency



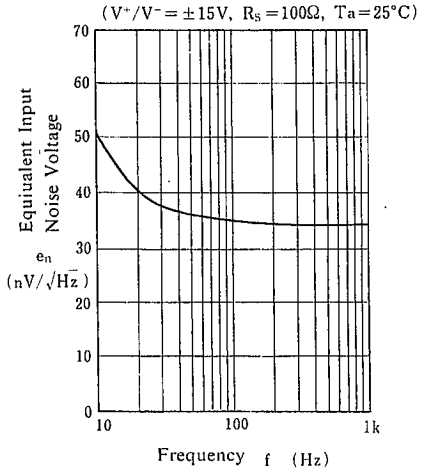
Maximum Output Voltage Swing vs. Load Resistance



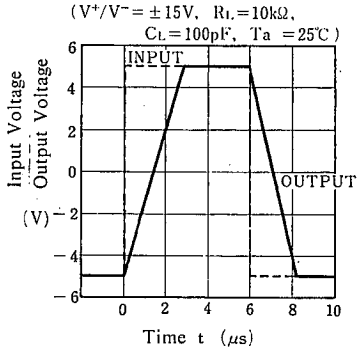
Maximum Output Voltage Swing vs. Output Current



Equivalent Input Noise Voltage vs. Frequency

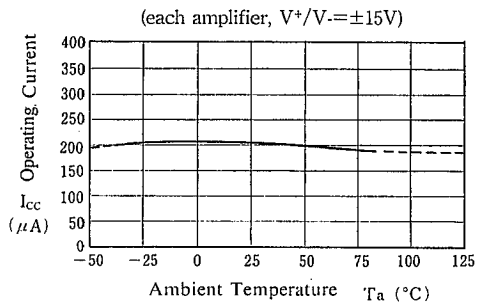


Voltage Follower Large Signal Pulse Response

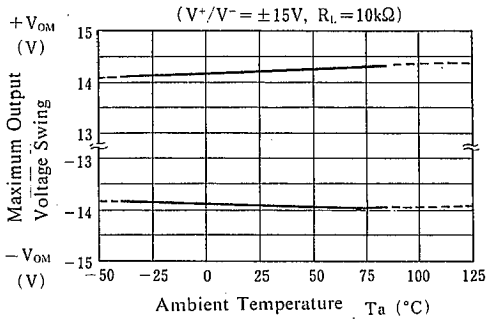


■ TYPICAL CHARACTERISTICS

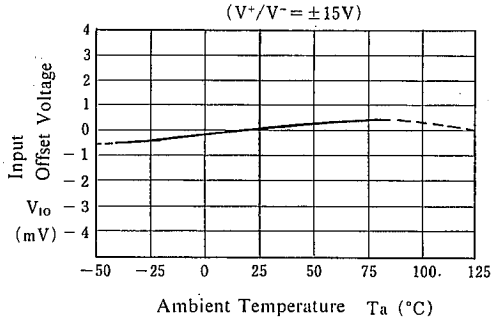
Operating Current vs. Temperature



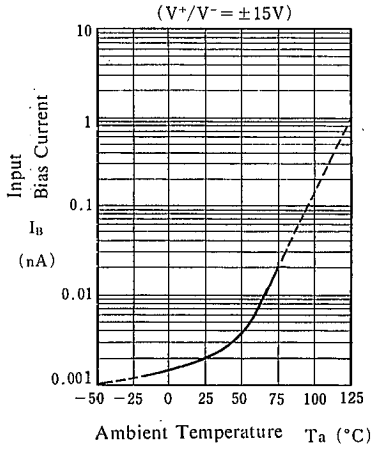
Maximum Output Voltage Swing vs. Temperature



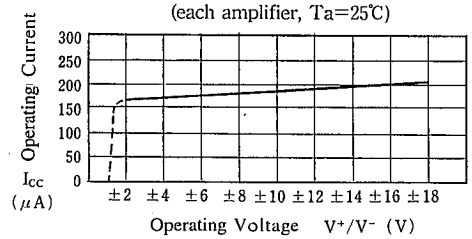
Input Offset Voltage vs. Temperature



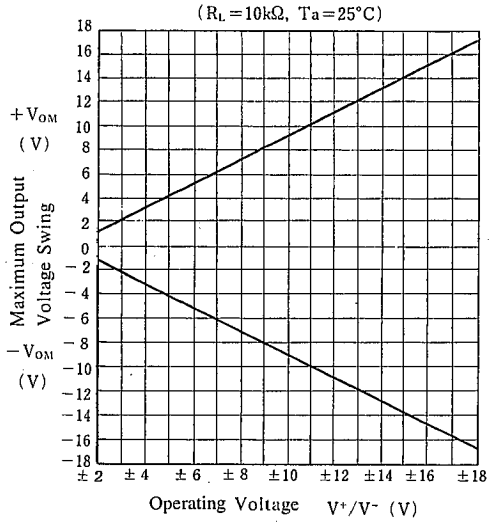
Input Bias Current vs. Tenperature



Operating Current vs. Operating Voltage



Maximum Output Voltage Swing vs. Operating Voltage



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