NJM062/064

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 thse JFET-input operational amplifiers incorporates well-matched, high-voltage JFET and bipolar transisters in a monolithic integrated circuit.

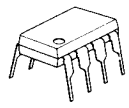
■ Absolute Maximum Ratings (Ta=25°C)

Supply Voltage	V^+/V^-	±18V
Differential Input Voltage	V_{ID}	±30V
Input Voltage (note 1)	V_I	±15V
Power Dissipation	P_D (DIP-8)	500mW
	(DMP-8, EMP-8)	300mW
	(SIP-8)	800mW
	(DIP14)	700mW
	(DMP14)(note2)	700mW
Operating Temperature Range	T_{opr}	−20~+75°C
Storage Temperature Range	T_{stg}	−40~+125°C

(note 1) For supply voltages less than ±15V, the absolute maximum input voltage is equal to the supply voltage.

(note 2) at on PC board

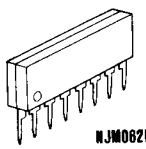
■ Package Outline



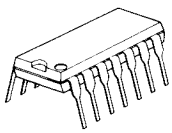
NJM062D

NJM062M

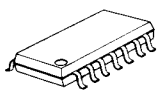
NJM062E



NJM062L



NJM064D



NJM064M

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

Parameter	Symbol	Test Condition	062 Min.	062 Typ.	062 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	$^{+15.0}_{-13.5}$	—	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	GB	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
Power Dissipation	P_D	R_L=∞each amplifier	—	6	7.5	mW
Quiescent Current	I_{CC}	R_L=∞each amplifier	—	200	250	μA
Slew Rate	SR	R_L=10kΩ	—	3.5	—	V/μs
Equivalent Input Noise Voltage	V_{NI}	R_S=100Ω, f=1kHz	—	35	—	nV/√Hz

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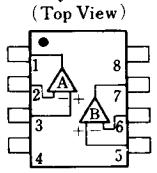
■ Electrical Characteristics (Ta=25°C, $V^+/V^-=\pm15V$)

Parameter	Symbol	Test Condition	064 Min.	064 Typ.	064 Max.	Unit
Input Offset Voltage	V_{IO}	$R_S=50\Omega$	—	3	15	mV
Input Offset Current	I_{IO}		—	5	200	pA
Input Bias Current	I_{IB}		—	30	400	pA
Input Common Mode Voltage Range	V_{ICM}		±10	±11	—	V
Maximum Peak-to-peak Output Voltage Swing	V_{OM}	$R_L=10k\Omega$	20	27	—	V
Large Signal Voltage Gain	A_V	$R_L\geqq10k\Omega$, $V_O=\pm10V$	70	76	—	dB
Unity Gain Bandwidth	GB	$R_L=10k\Omega$	—	1	—	MHz
Input Resistance	R_{IN}		—	10^{12}	—	Ω
Common Mode Rejection Ratio	CMR	$R_S\leqq10k\Omega$	70	76	—	dB
Supply Voltage Rejection Ratio	SVR	$R_S\leqq10k\Omega$	70	95	—	dB
Power Dissipation	P_D	$R_L=\infty$ each amplifier	—	6	7.5	mW
Quiescent Current	I_{CC}	$R_L=\infty$ each amplifier	—	200	250	μA
Slew Rate	SR	$R_L=10k\Omega$	—	3.5	—	V/μs
Equivalent Input Noise Voltage	V_{NI}	$R_S=100\Omega$, f=1kHz	—	42	—	$nV/\sqrt{Hz}$

■ Connection Diagram

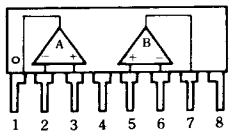
D,M,E-Type
(Top View)



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

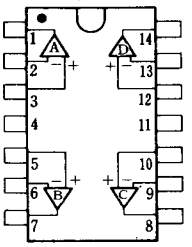
NJM062

L-Type



NJM062

D,M-Type
(Top View)

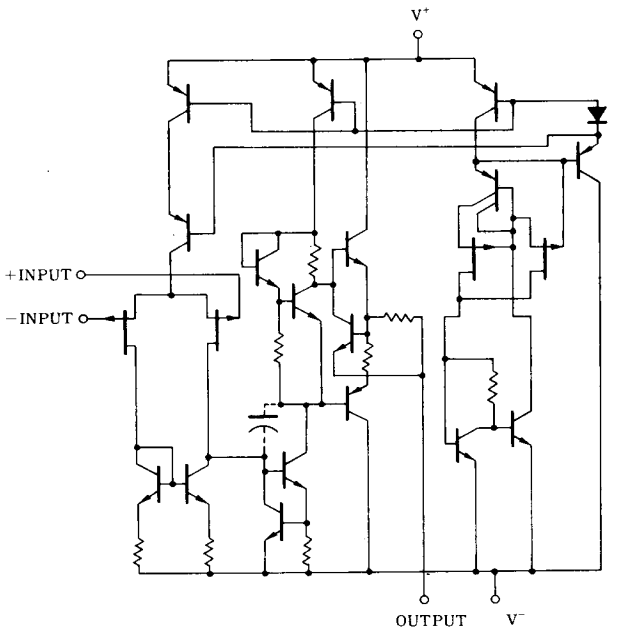


PIN FUNCTION
1. A OUTPUT
2. A−INPUT
3. A+INPUT
4. V^+
5. B+INPUT
6. B−INPUT
7. B OUTPUT
8. C OUTPUT
9. C−INPUT
10. C+INPUT
11. V^-
12. D+INPUT
13. D−INPUT
14. D OUTPUT

NJM064

■ Equivalent Circuit

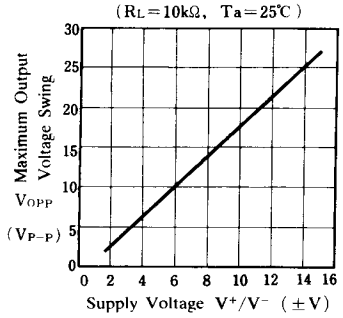
(062 is 1/2 Shown, 064 is 1/4 Shown)



■ Typical Characteristics

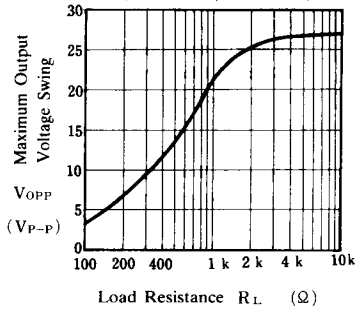
Maximum Output Voltage Swing vs. Supply Voltage

(R_L=10kΩ, Ta=25°C)



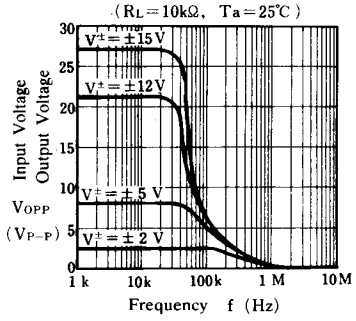
Maximum Output Voltage Swing vs. Load Resistance

(V^+/V^-=±15V, Ta=25°C)



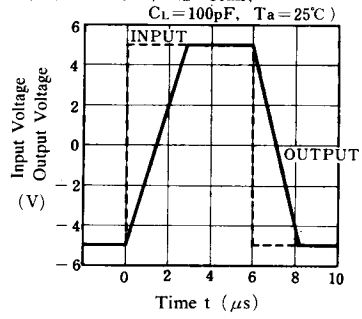
Maximum Output Voltage Swing vs. Frequency

(R_L=10kΩ, Ta=25°C)



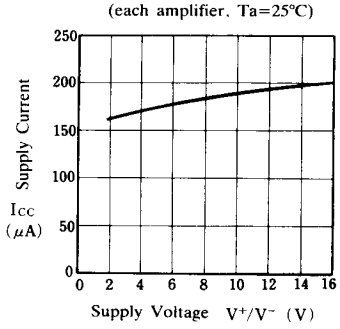
Voltage Follower Large Signal Pulse Response

(V^+/V^-=±15V, R_L=10kΩ, C_L=100pF, Ta=25°C)



Supply Current vs. Supply Voltage

(each amplifier, Ta=25°C)



Equivalent Input Noise Voltage vs. Frequency

(Ta=25°C, V^+/V^-=±15V, RS=100Ω)