J-FET INPUT OPERATIONAL AMPLIFIER

■ GENERAL DESCRIPTION

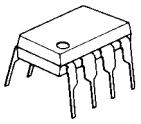
The NJM2162/64 combines feature of the NJM062/064 as well as and providing the capability of wider bandwidth and higher slew rate.

It is suitable for telecom application (active filters etc.).

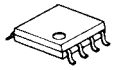
■ FEATURES

- Operating Voltage (±2V~±18V)
- High Input Resistance ($10^{12}\Omega$ typ.)
- Low Operating Current (1.2mA typ.)
- High Slew Rate (10V/μs typ.)
- J-FET Input
- Wide Unity Gain Bandwidth (3MHz typ.)
- Bipolar Technology
- Package Outline DIP8/14,DMP8/14,SIP8,SSOP8/14

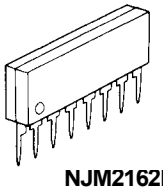
■ PACKAGE OUTLINE



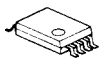
NJM2162D



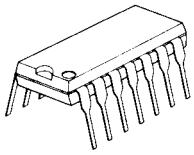
NJM2162M



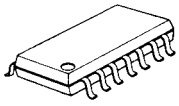
NJM2162L



NJM2162V



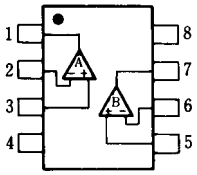
NJM2164D



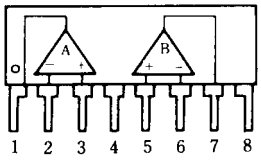
NJM2164M

NJM2164V

■ PIN CONFIGURATION



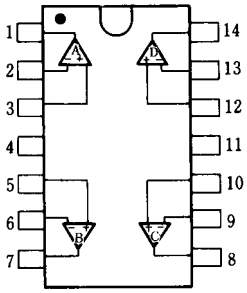
NJM2162D
NJM2162M
NJM2162V



NJM2162L

PIN FUNCTION

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

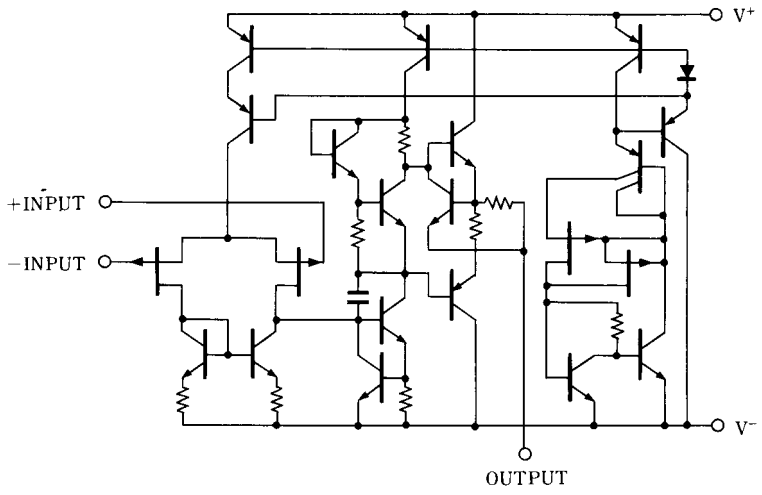


NJM2164D
NJM2164M
NJM2164V

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 (2162 is1/2 Shown,2164 is 1/4 Shown)



■ ABSOLUTE MAXIMUM RATINGS

(Ta=25˚C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V^+/V^-	± 18	V
Differential Input Voltage	V_{ID}	± 30	V
Input Voltage	V_{IC}	± 15 (note1)	V
Power Dissipation	P_D	(DIP8) 500 (DMP8) 300 (SIP8) 800 (SSOP8) 250 (DIP14) 700 (DMP14) 700 (note2) (SSOP14) 300	mW
Operating Temperature Range	T_{opr}	-20~+75	˚C
Storage Temperature Range	T_{stg}	-40~+125	˚C

(note1) For supply voltage less than ±15V, the absolute maximum input voltage is equal to the supply voltage.
(note2) At on PC board

■ ELECTRICAL CHARACTERISTICS

(V^+/V^-=±15V,Ta=25˚C)

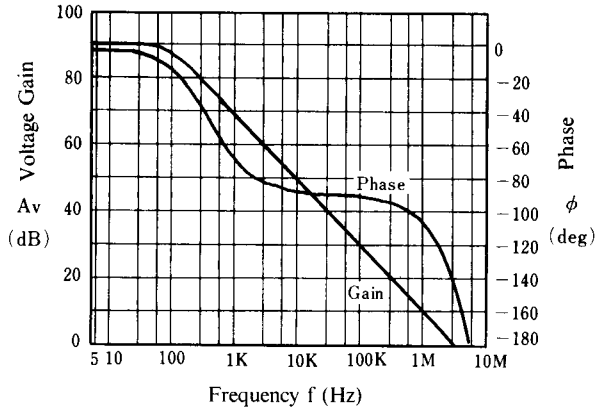
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V^+/V^-		± 2	-	± 18	V
Input Offset Voltage	V_{IO}	R_S=50Ω	-	5	15	mV
Input Offset Current	I_{IO}		-	1	200	pA
Input Bias Current	I_B		-	2	400	pA
Input Common Mode Voltage Range	V_{ICM}		± 13	+15 -13.5	-	V
Maximum Output Voltage Swing	V_{OM}	R_L=10kΩ	± 13	+14 -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=10Ω	-	3	-	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= ∞ (1 circuit)	-	0.3	0.45	mA
Slew Rate	SR	R_L=10kΩ	-	10	-	V/μs
Equivalent Input Noise Voltage	en	R_S=100Ω,f=1kHz	-	40	-	nV/√Hz

(Note) The NJM2162/64 is the product in which the AC feature have been made much higher comparing to NJM062/64.Therefore special care being required for the oscillation due to the capacitive load when operation on voltage follower.

■ TYPICAL CHARACTERISTICS

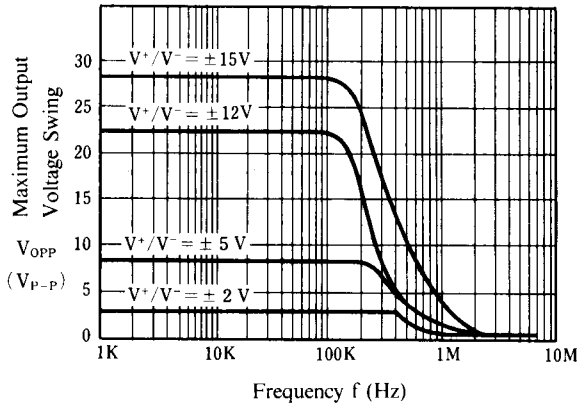
Voltage Gain, Phase Shift vs. Frequency

($V^+/V^-=\pm15V$, $Z_L=10k\Omega//100pF$, $Ta=25°C$)



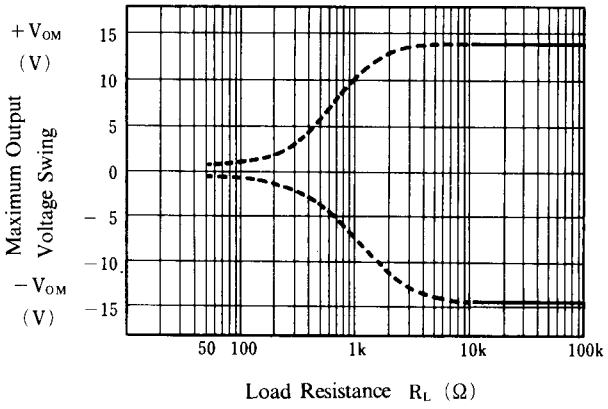
Maximum Output Voltage Swing vs. Frequency

($R_L=10k\Omega$, $Ta=25°C$)



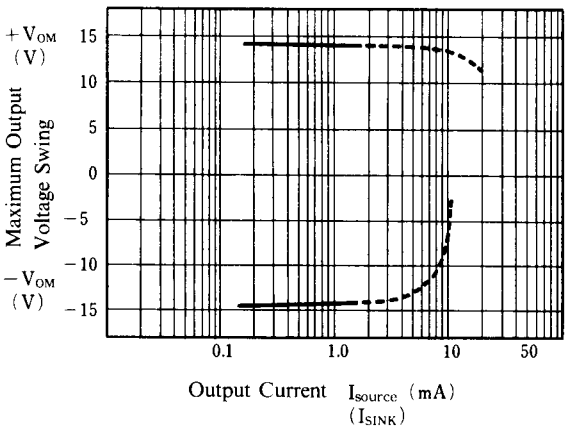
Maximum Output Voltage Swing vs. Load Resistance

($V^+/V^-=\pm15V$, $Ta=25°C$)



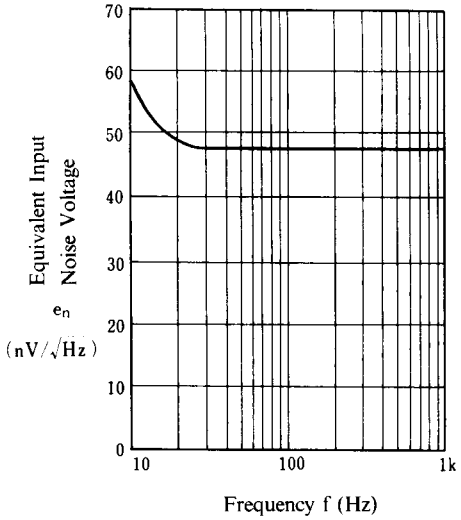
Maximum Output Voltage Swing vs. Output Current

($V^+/V^-=\pm15V$, $Ta=25°C$)



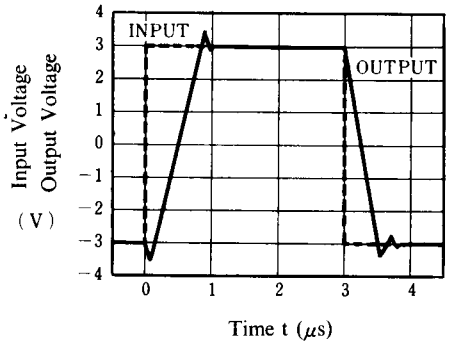
Equivalent Input Noise Voltage vs. Frequency

($V^+/V^-=\pm15V$, $Rs=100\Omega$, $Ta=25°C$)



Voltage Follower Large Signal Pulse Response

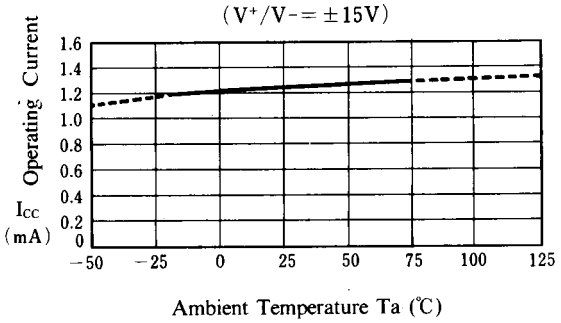
($V^+/V^-=\pm15V$, $R_L=10k\Omega$, $C_L=100pF$, $Ta=25°C$)



■ TYPICAL CHARACTERISTICS

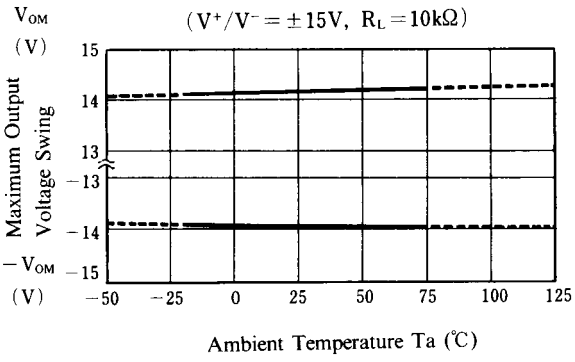
Operating Current vs. Temperature

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



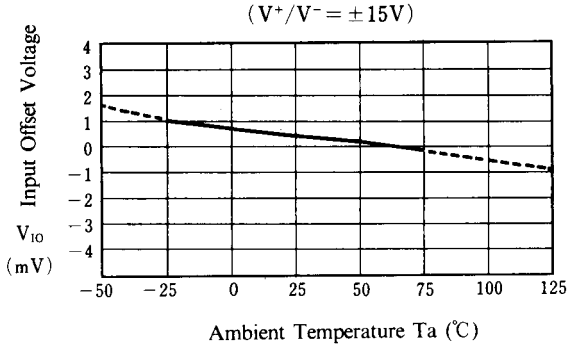
Maximum Output Voltage Swing vs. Temperature

($V^+/V^-=\pm15V$, $R_L=10k\Omega$)



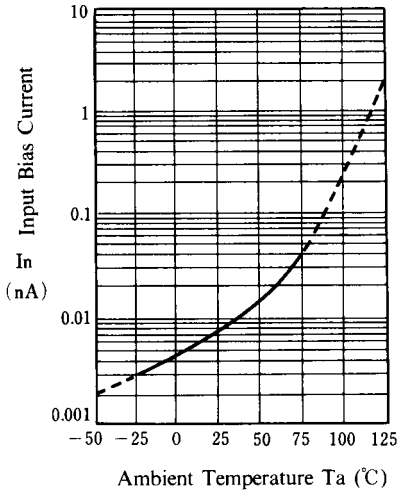
Input offset Voltage vs. Temperature

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



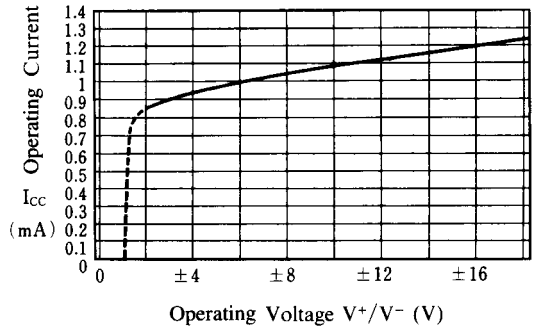
Input Bias Current vs. Temperature

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



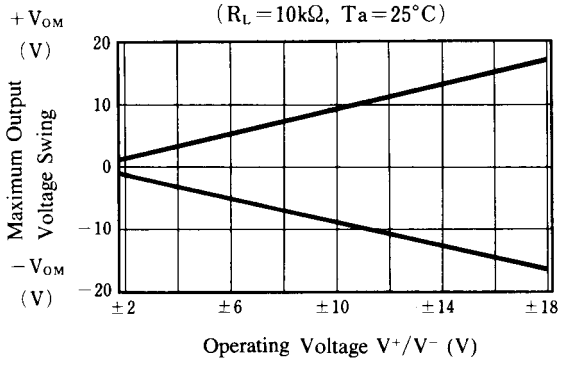
Operating Current vs. Operating Voltage

(Ta=25℃)



Maximum Output Voltage Swing vs. Operating Voltage

($R_L=10k\Omega$, Ta=25°C)



[CAUTION]
The specifications on this databook are only given for information , without any guarantee as regards either mistakes or omissions. The application circuits in this databook are described only to show representative usages of the product and not intended for the guarantee or permission of any right including the industrial rights.