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 (0.3mA/ch typ.)
- High Slew Rate (10V/μs typ.)
- J-FET Input
- Wide Unity Gain Bandwidth (3MHz typ.)
- Bipolar Technology
- Package Outline DIP8/14,DMP8/14,SSOP8/14

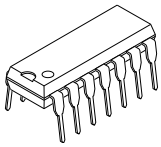
■ PACKAGE OUTLINE

NJM2162D

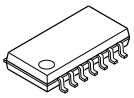
NJM2162M

NJM2162V

NJM2164V

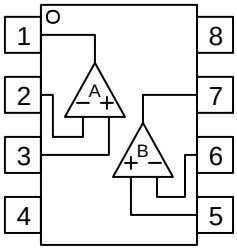


NJM2164D



NJM2164M

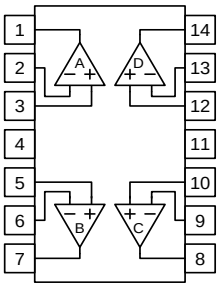
■ PIN CONFIGURATION



NJM2162M
NJM2162V
NJM2162D

PIN FUNCTION

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

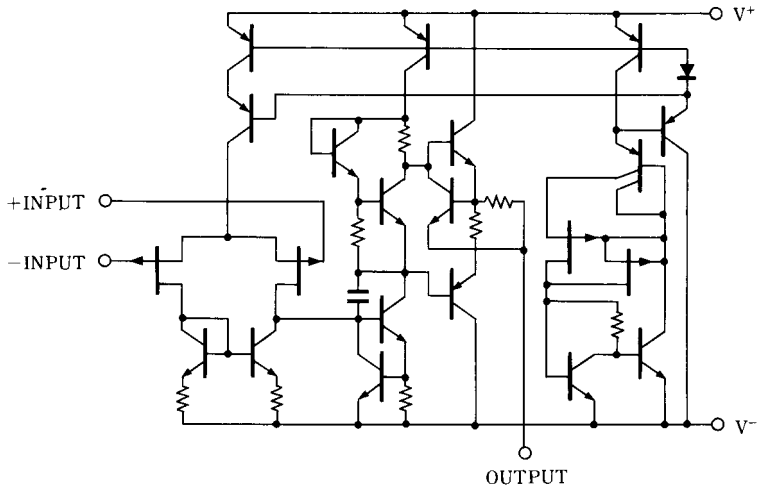


NJM2164M,NJM2164V
NJM2164D

PIN FUNCTION

1.A OUTPUT	8.C OUTPUT
2.A –INPUT	9.C -INPUT
3.A +INPUT	10.C +INPUT
4.V^+	11.V^-
5.B +INPUT	12.D +INPUT
6.B –INPUT	13.D -INPUT
7.B OUTPUT	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 (SSOP8) 250 (DIP14) 700 (DMP14) 300 (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.

■ ELECTRICAL CHARACTERISTICS

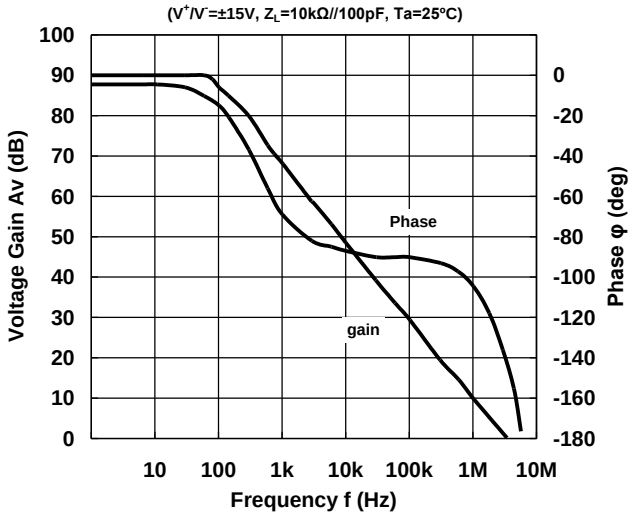
(V^+/V^-=±15V,Ta=25˚C)

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	+14.2 -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=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	-	45	-	nV/√Hz

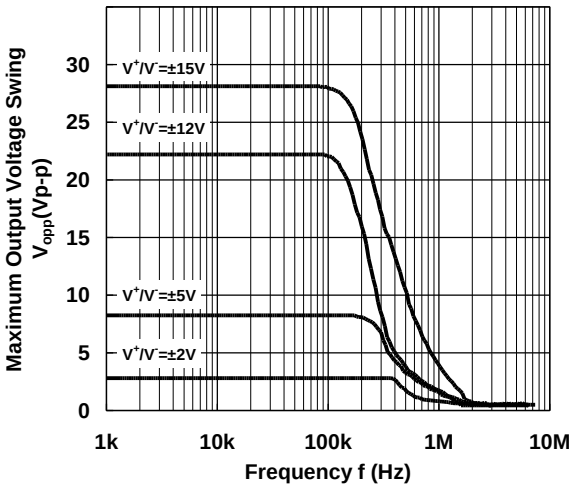
(Note) The NJM2162/64 is the product in which the AC feature have been made much higher comparing to NJM062/64.Therefore special care being required for the oscillation due to the capacitive load when operation on voltage follower.

■ TYPICAL CHARACTERISTICS

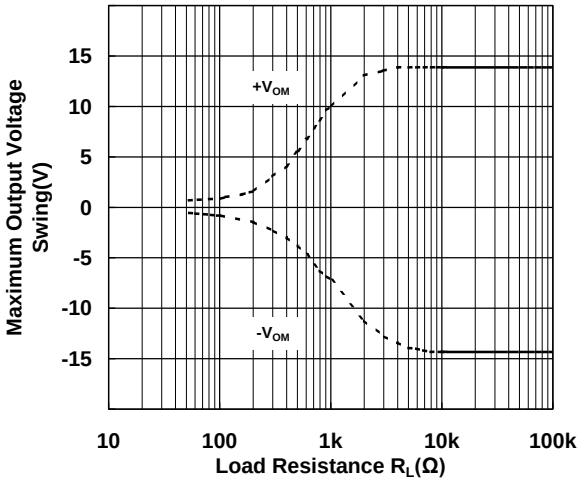
Voltage Gain, Phase Shift vs. Frequency
(V^+/V^-=±15V, Z_L=10kΩ//100pF, Ta=25°C)



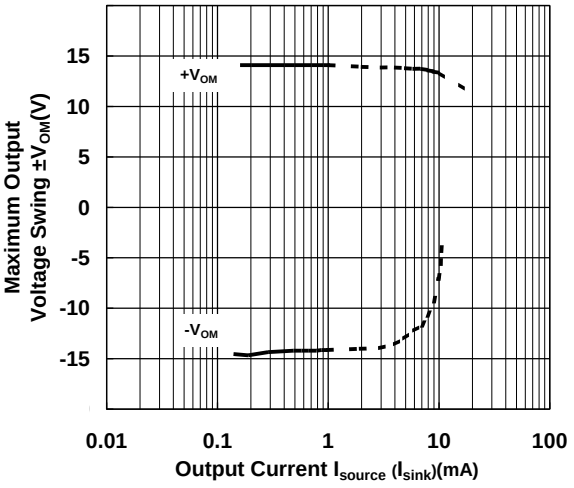
Maximum Output Voltage Swing vs. Frequency
(R_L=10kΩ, Ta=25°C)



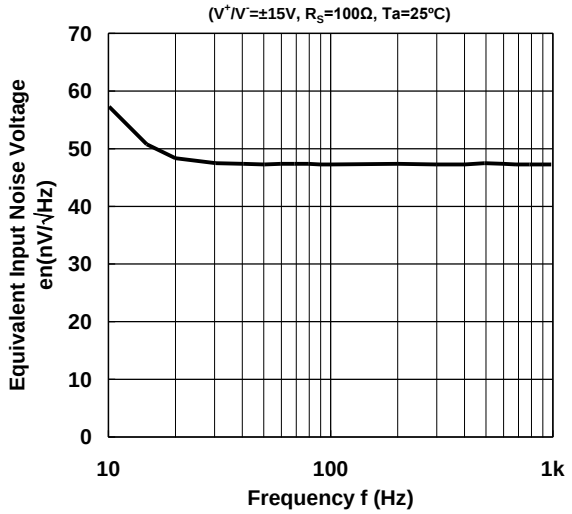
Maximum Output Voltage Swing vs. Load Resistance
(V^+/V^-=±15V, Ta=25°C)



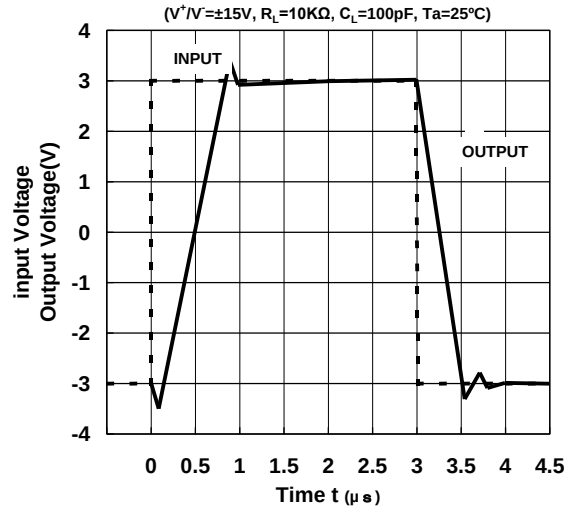
Maximum Output Voltage Swing vs. Output Current
(V^+/V^-=±15V, Ta=25°C)



Equivalent Input Noise Voltage vs. Load Resistance
(V^+/V^-=±15V, R_S=100Ω, Ta=25°C)

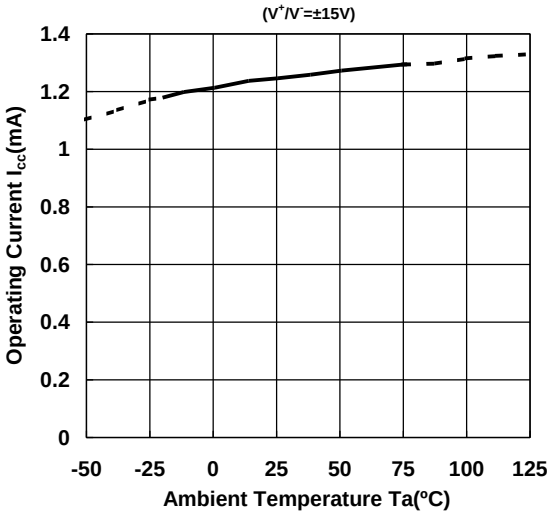


Voltage Follower Large Signal Pulse Response
(V^+/V^-=±15V, R_L=10KΩ, C_L=100pF, Ta=25°C)

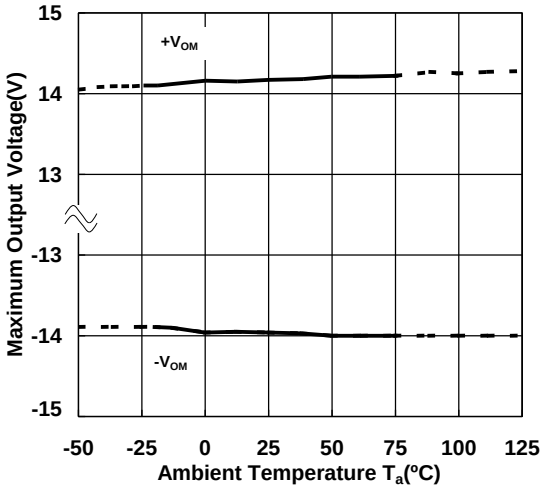


■ TYPICAL CHARACTERISTICS

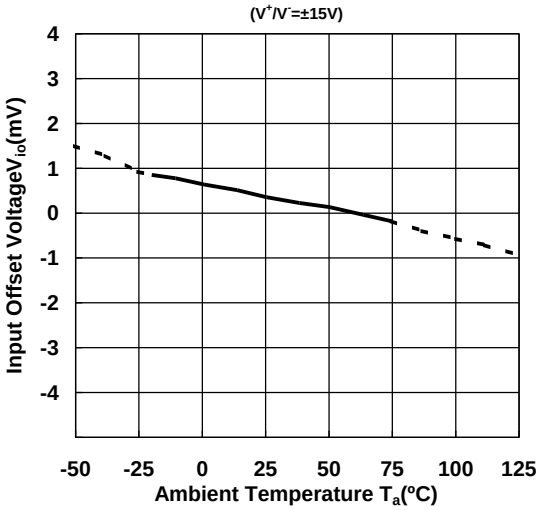
Operating Current vs. Temperature
(V^+/V^-=±15V)



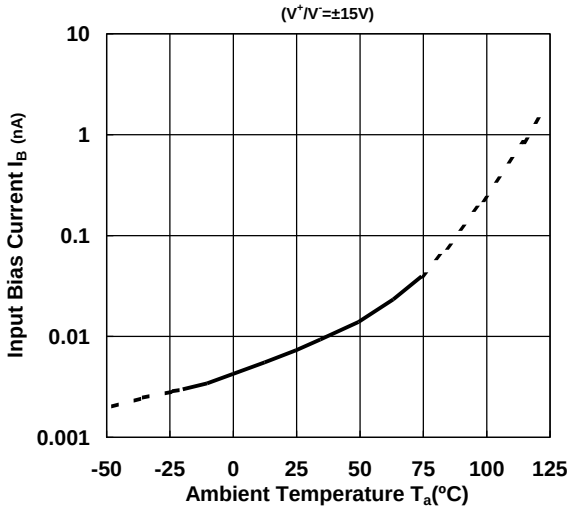
Maximum Output Voltage Swing vs. Temperature
(V^+/V^-=±15V, R_L=10kΩ)



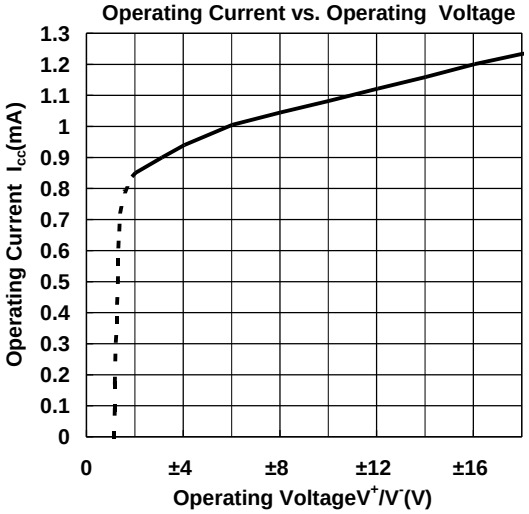
Input Offset Voltage vs. Temperature
(V^+/V^-=±15V)



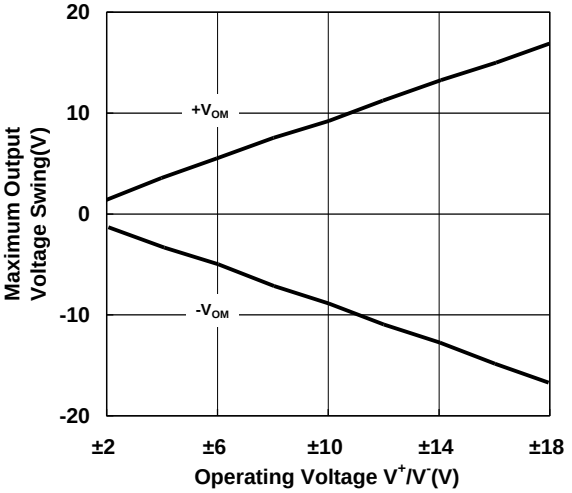
Input Bias Current vs.Temperature
(V^+/V^-=±15V)



Operating Current vs. Operating Voltage



Maximum Output Voltage Swing vs.Operating Voltage
(R_L=10kΩ, Ta=25ºC)



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