LOW VOLTAGE C-MOS OPERATIONAL AMPLIFIER

■ GENERAL DESCRIPTION

The NJU7031/32/34 are single, dual and quad single supply, low offset, output full swing C-MOS Operational Amplifiers.

The wide operating voltage 3V to 16V, High slew rate 3.5V/μs and output full swing are suitable for fast signal processing amplifiers. Additionally, low input bias current 1pA, and single supply operation offer amplification of the very small signal around the ground level.

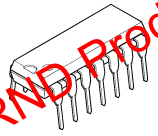
The NJU7031 has external offset null function.

■ PACKAGE OUTLINE

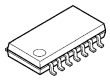
NJU7031D
NJU7032D

NJU7031M
NJU7032M

NJU7031V



NJU7034D



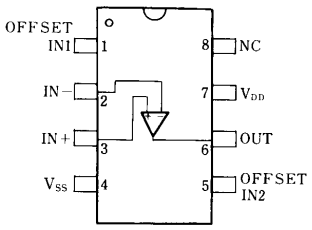
NJU7034M

NJU7034V

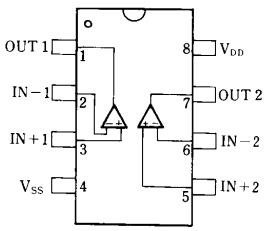
■ FEATURES

- High Slew Rate 3.5V/μs
- Wide Operating Voltage +3V to +16V
- Output Voltage with full Swing V_{OM}=9.98V typ. (@V_{DD}=10V)
- Input Common Mode Voltage Range
  V_{ICM}=0V to 9V (@V_{DD}=10V)
- Low Bias Current I_{IB}=1pA typ.
- Input Common Mode Voltage range includes ground.
- External Offset Null Adjustment (Only NJU7031)
- C-MOS Technology
- Package Outline NJU7031 (single) DIP8, DMP8, SSOP8
  NJU7032 (dual) DIP8, DMP8
  NJU7034 (quad) DIP14, DMP14, SSOP14

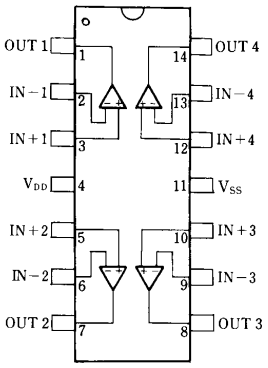
■ PIN CONFIGURATION



NJU7031D
NJU7031M
NJU7031V

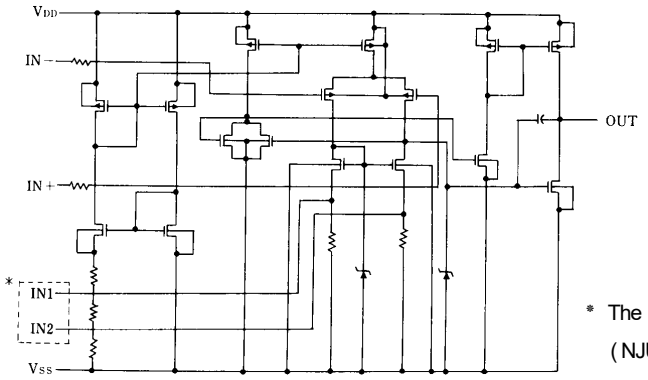


NJU7032D
NJU7032M



NJU7034D
NJU7034M
NJU7034V

■ EQUIVALENT CIRCUIT



* The terminals IN1, IN2 are only for NJU7031
(NJU7032/34 don't have these terminals).

DIP14 is the NRND product
as of February,2023

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25˚C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{DD}	18	V
Differential Input Voltage	V_{ID}	± 18 (note1)	V
Common Mode Input Voltage	V_{IC}	-0.3~18	V
Power Dissipation	P_D	(DIP14) 700 (DIP8) 500 (DMP8,14) 300 (SSOP14) 300 (SSOP8) 250	mW
Operating Temperature Range	T_{opr}	-40~+85	˚C
Storage Temperature Range	T_{stg}	-40~+125	˚C

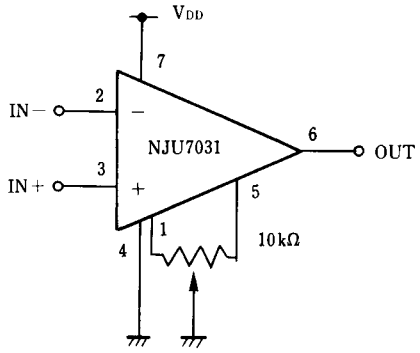
(note1) If the supply voltage (V_{DD}) is less than 18V, the input voltage must not over the V_{DD} level though 18V is limit specified.

■ ELECTRICAL CHARACTERISTICS

(Ta=25˚C,V_{DD}=10V,R_L=∞)

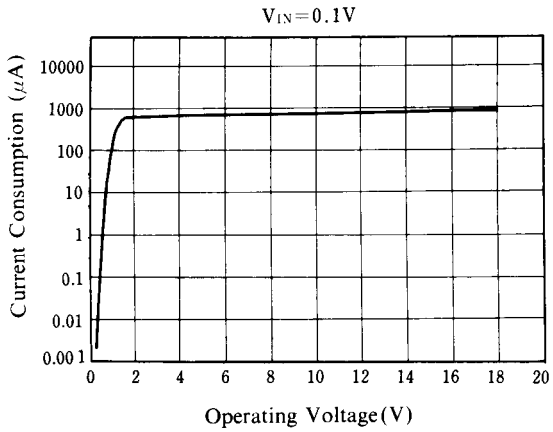
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V_{IO}	R_S=50Ω	-	-	10	mV
Input Offset Current	I_{IO}		-	1	-	pA
Input Bias Current	I_{IB}		-	1	-	pA
Input Impedance	R_{IN}		-	1	-	TΩ
Large Signal Voltage Gain	A_V		80	95	-	dB
Input Common Mode Voltage Range	V_{ICM}		0~9	-	-	V
Maximum Output Swing Voltage	V_{OM}	R_L=1MΩ	9.80	9.98	-	V
Common Mode Rejection Ratio	CMR		60	75	-	dB
Supply Voltage Rejection Ratio	SVR		60	75	-	dB
Operating Current/Circuit	I_{DD}		-	1	2	mA/Cir
Slew Rate	SR		-	3.5	-	V/μs
Unity Gain Bandwidth	F_t	A_V=40dB,C_L=10pF	-	1.5	-	MHz

■ OFFSET ADJUSTMENT CIRCUIT (Only For NJU7031)

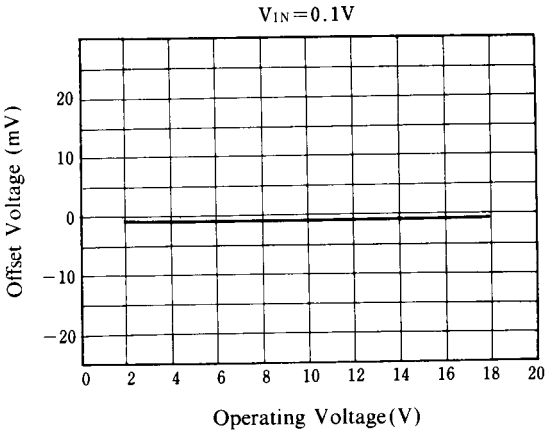


■ TYPICAL CHARACTERISTICS

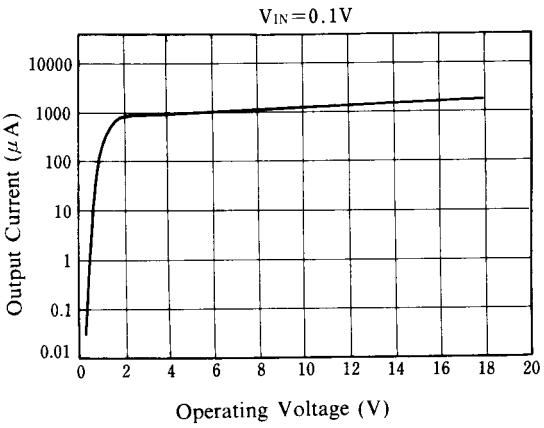
Current Consumption vs. Operating Voltage



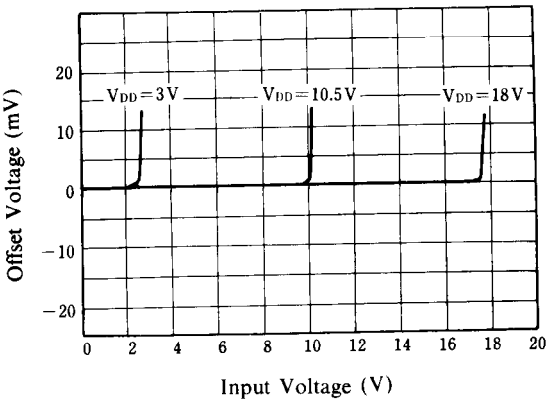
Offset Voltage vs. Operating Voltage



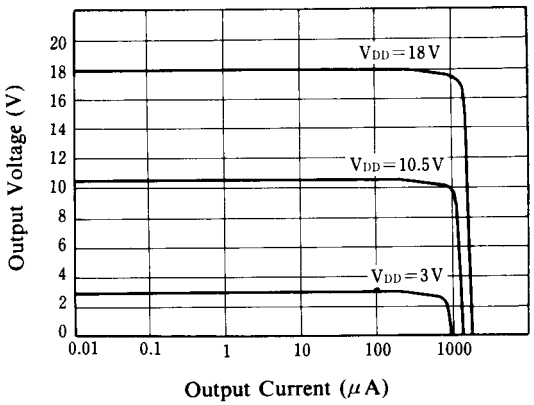
Output Current vs. Operating Voltage



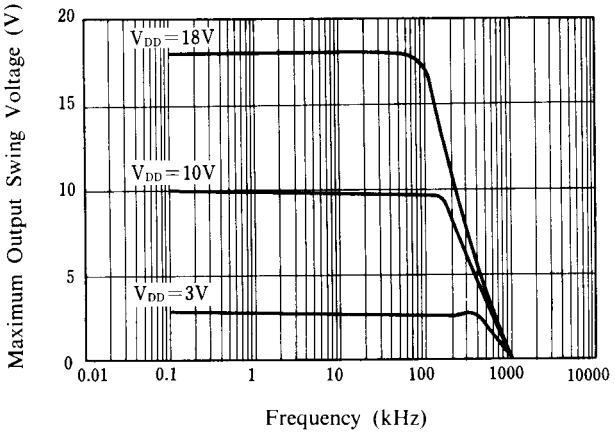
Offset Voltage vs. Input Voltage



Output Voltage vs. Output Current



Maximum Output Swing Voltage vs. Frequency



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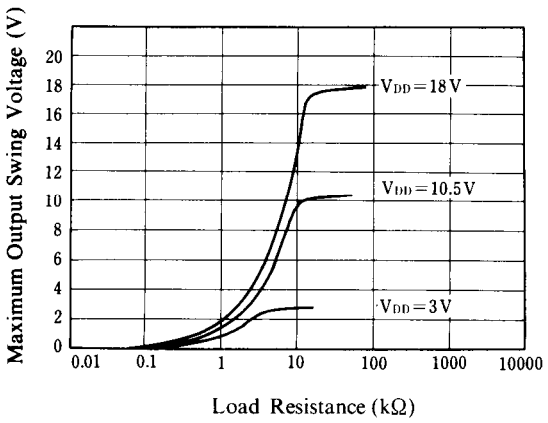
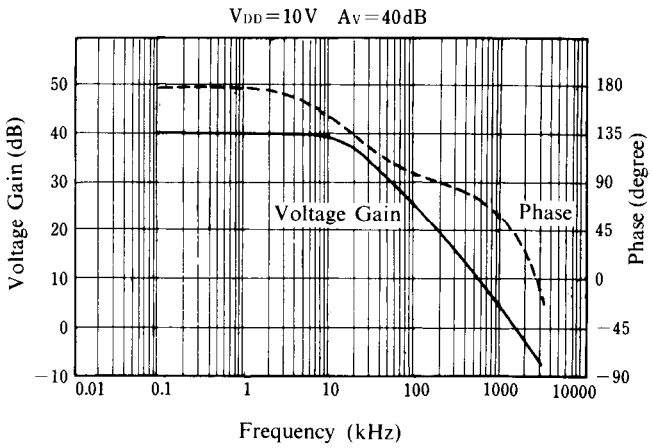
as of February,2023

■ TYPICAL CHARACTERISTICS

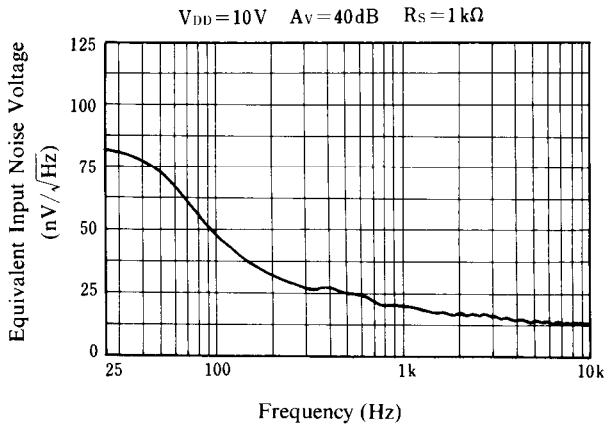
Maximum Output Swing Voltage vs. Frepuency



Voltage Gain · Phase vs. Frequency



Equivalent Input Noise Voltage vs. Frequency



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