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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.

■ FEATURES

 High Slew Rate 3.5V/µs +3V to +16V Wide Operating Voltage

●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 $I_{\rm IB}$ =1pA typ.

• Input Common Mode Voltage range includes ground.

• External Offset Null Adjustment (Only NJU7031)

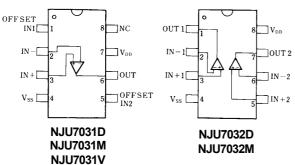
C-MOS Technology

 Package Outline NJU7031 (single) DIP8, DMP8, SSOP8

NJU7032 (dual) DIP8, DMP8

NJU7034 (quad) DIP14, DMP14, SSOP14

■ PIN CONFIGURATION



OFFSET

■ PACKAGE OUTLINE

NJM7031D

NJU7032D

OUT 1



NJM7031M

NJU7032M

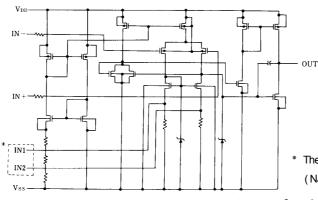


NJM7031V

NJM7034M NJM7034D

N.IM7034V

■ EQUIVALENT CIRCUIT



OUT 4 □ IN + 4 V_{DD} $11 \square V_{SS}$ IN + 2 $\prod IN + 3$ OUT 2 **⊓оит** з **NJU7034D**

NJU7034M

NJU7034V

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

■ 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 (SSOP8,14) 300	mW
Operating Temperature Range	Topr	-40~+85	°C
Storage Temperature Range	T _{stg}	-40~+125	°C

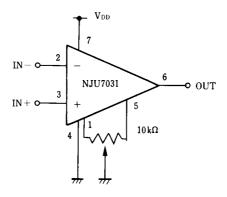
(note1) If the supply voltage (V_{DD}) is less than 18V, the input voltage must not over the V_{DD} level though 18V is limit specified.

■ ELECTRICAL CHARACTERISTICS

(Ta=25°C,V_{DD}=10V,R_L=∞)

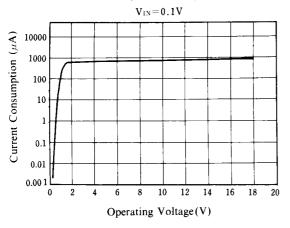
PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Input Offset Voltage	V _{IO}	R _S =50Ω	-	-	10	mV
Input Offset Current	I _{IO}		_	1	-	pА
Input Bias Current	I_{IB}		-	1	-	pА
Input Impedance	R _{IN}		-	1	-	ΤΩ
Large Signal Voltage Gain	A_V		80	95	-	dB
Input Common Mode Voltage Range	V_{ICM}		0~9	-	-	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	Ft	A_V =40dB,C _L =10pF	-	1.5	-	MHz

■ OFFSET ADJUSTMENT CIRCUIT (Only For NJU7031)

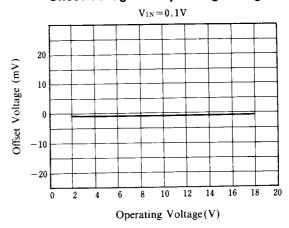


■ TYPICAL CHARACTERISTICS

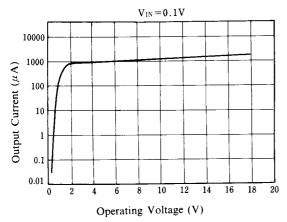
Current Consumption vs. Operating Voltage



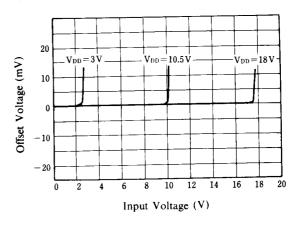
Offset Voltage vs. Operating Voltage



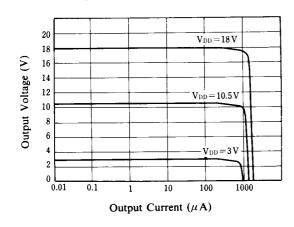
Output Current vs. Operating Voltage



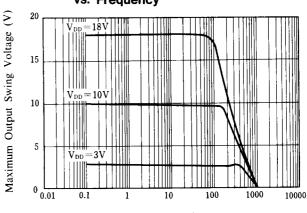
Offset Voltage vs. Input Voltage



Output Voltage vs. Output Current

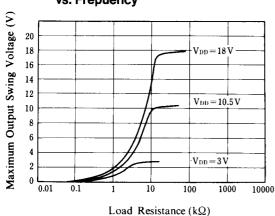


Maximum Output Swing Voltage vs. Frequency

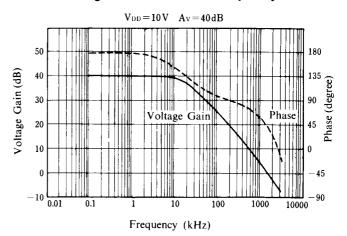


■ TYPICAL CHARACTERISTICS

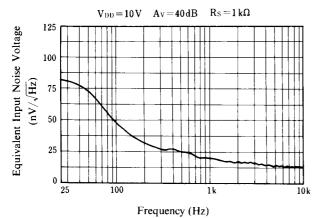
Maximum Output Swing Voltage vs. Frepuency



Voltage Gain · Phase vs. Frequency



Equivalent Input Noise Voltage vs. Frequency



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