# LOW INPUT OFFSET VOLTAGE C-MOS OPERATIONAL AMPLIFIER

#### ■ GENERAL DESCRIPTION

The NJU7061, 62 and 64 are single, dual and quad C-MOS Operational Amplifiers operated on a single-power-supply, low voltage and low operating current.

The input offset voltage is lower than 2mV, and the input bias current is as low as less than 1pA, consequently the very small signal around the ground level can be amplified.

The minimum operating voltage is 3V and the output stage permits output signal to swing between both of the supply rails.

Furthermore, the operating current is also as low as  $150\,\mu\text{A}(\text{typ})$  per circuit, therefore it can be applied especially to battery operated items.

#### FEATURES

Single-Power-Supply

• Low Input Offset Voltage  $(V_{IO}=2mVmax)$ • Wide Operating Voltage  $(V_{DD}=3\sim16V)$ 

• Wide Output Swing Range (V<sub>OM</sub>=9.98V typ. at V<sub>DD</sub>=10V)

Low Operating Current (150 μA/circuit)

Low Bias Current (I<sub>IB</sub>=1pA)

• Internal Compensation Capacitor

• External Offset Null Adjustment (Only NJU7061)

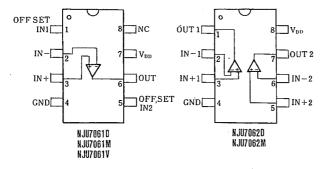
Package Outline
 DIP/DMP/SSOP 8 (NJU7061)

DIP/DMP 8 (NJU7062)

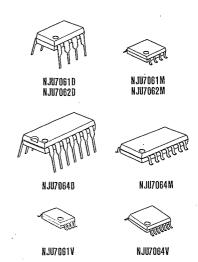
DIP/DMP/SSOP 14 (NJU7064)

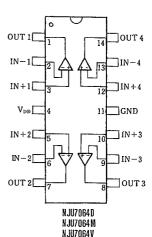
C-MOS Technology

#### **■ PIN CONFIGURATION**

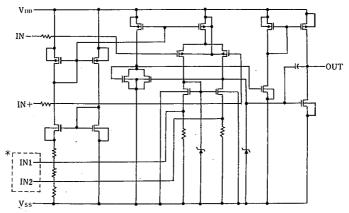


#### **■ PACKAGE OUTLINE**





### **■ EQUIVALENT CIRCUIT**



IN1, IN2 are only for NJU7061(NJU7062/64 don,t have these terminals).

### ■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sub>DD</sub>	18	V
Differential Input Voltage	V <sub>ID</sub>	±18 *1	V
Common Mode Input Voltage	V <sub>IC</sub>	-0.3~18	V
Power Dissipation	PD	(DIP14) 700	mW-
		(DIP8) 500	,
		(DMP8,14) 300	
		(SSOP8,14) 300	
Operating Temperature	Topr	-20~+75	℃
Storage Temperature	Tstg	-40~+125	. ℃

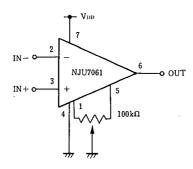
<sup>\*</sup> 1) If the supply voltage (V<sub>DD</sub>) is less than 18V, the input voltage must not over the V<sub>DD</sub> level though 18V is limit specified.

### **■ ELECTRICAL CHARACTERISTICS**

 $(Ta=25^{\circ}C, V_{DD}=3V, R_L=\infty)$ 

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT.
Input Offset Voltage	V <sub>IO</sub>	Rs=50 Ω			. 2	mV
Input Offset Current	IIO			1		pA
Input Bias Current	IıB			1		pA
Input Impedance	Rin			1		ТΩ
Large Signal Voltage Gain	Av		80	95		dB
Input Common Mode Voltage Range	Vicm		0~9			V
Maximum Output Swing Voltage	Vом	R <sub>L</sub> =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	IDD			150	300	μΑ
Slew Rate	SR			0.40		V/ μs
Unity Gain Bandwidth	Fı	Av=40dB CL=10pF		0.4		MHz

## ■ OFFSET ADJUSTMENT CIRCUIT (ONLY FOR NJU7061)



# NJU7061/62/64

# **MEMO**

[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.