

## Input/Output Full-Swing High Output Current Dual C-MOS Operational Amplifier

### ■ GENERAL DESCRIPTION

The NJU7043 is a dual C-MOS operational amplifier permitting a full-swing input and output in full-swing under high load.

Based on C-MOS technology, there are excellent features such as high output current, low current consumption, low operating voltage.

### ■ FEATURES

- Operating Voltage
- Input/Output Full-Swing
- High Output Current
  
- Input Offset Voltage
- Wide Input Common Mode Voltage Range
- Operating Current
- High Input Impedance
- Low Input Bias Current
- Ground Sensing
- Tiny Package

$V_{DD}=1.8$  to  $5.0V$

$I_{source}>40mA$  typ. at  $V_o$

$I_{sink}<-40mA$  typ. at  $V_o$

$V_{IO}=7mV$  max.

$V_{SS}$  to  $V_{DD}$

$I_{DD}=700\mu A$  typ.

$1T\Omega$  typ.

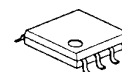
$I_{IB}=1pA$  typ.

DIP8, DMP8, SSOP8, TVSP8

### ■ PACKAGE OUTLINE



NJU7043D



NJU7043M

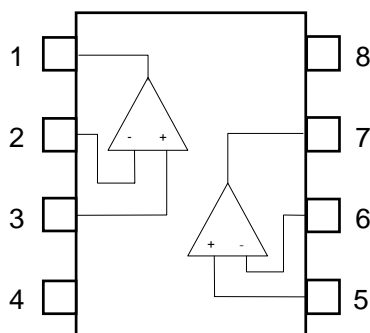


NJU7043V



NJU7043RB1

### ■ PIN CONFIGURATION



### PIN FUNCTION

- 1.OUTPUT1
- 2.-INPUT1
- 3.+INPUT1
4. $V_{SS}$
- 5.+INPUT2
- 6.-INPUT2
- 7.OUTPUT2
8. $V_{DD}$

# NJU7043

## PRELIMINARY

### ■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATING	UNIT
Supply Voltage	V <sub>DD</sub>	5.5	V
Power Dissipation	P <sub>D</sub>	500 (DIP8) 250 (SSOP8) 300 (DMP8) 320 (TVSP8)	mW
Operating Temperature Range	T <sub>opr</sub>	-40 to +85	°C
Storage Temperature Range	T <sub>stg</sub>	-55 to +125	°C

(Note 1)

If the supply voltage (V<sub>DD</sub>) is less than 5.5V, the input voltage must not over the V<sub>DD</sub> level through 5.5V is limit specified.

(Note 2)

Decoupling capacitor should be connected between V<sub>DD</sub> and V<sub>SS</sub> due to the stabilized operation for the circuit.

### ■ RECOMMENDED OPERATION CONDITION

(Ta=25°C)

PARAMETER	SYMBOL	RATING	UNIT
Supply Voltage	V <sub>DD</sub>	1.8 to 5.0	V

### ■ ELECTRICAL CHARACTERISTICS

#### ● DC CHARACTERISTICS

(V<sub>DD</sub>=3.0V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Operating Current	I <sub>DD</sub>	No Signal, Dual Circuits	-	600	1,000	μA
Input Offset Voltage	V <sub>IO</sub>		-	-	7	mV
Input Bias Current	I <sub>B</sub>		-	1	-	pA
Input Offset Current	I <sub>IO</sub>		-	1	-	pA
Voltage Gain	A <sub>V</sub>	R <sub>L</sub> =10kΩ	70	90	-	dB
Common Mode Rejection Ratio	CMR	0 ≤ V <sub>CM</sub> ≤ 1.5V, 1.5 ≤ V <sub>CM</sub> ≤ 3.0V (Note)	45	60	-	dB
Supply Voltage Rejection Ratio	SVR	2.4V ≤ V <sub>DD</sub> ≤ 5.0V, V <sub>CM</sub> =V <sub>DD</sub> /2	70	80	-	dB
H Level Output Voltage 1	V <sub>OH1</sub>	R <sub>L</sub> =10kΩ	2.95	-	-	V
L Level Output Voltage 1	V <sub>OL1</sub>	R <sub>L</sub> =10kΩ	-	-	0.05	V
H Level Output Voltage 2	V <sub>OH2</sub>	R <sub>L</sub> =600Ω	2.90	-	-	V
L Level Output Voltage 2	V <sub>OL2</sub>	R <sub>L</sub> =600Ω	-	-	0.10	V
Input Common Mode Voltage Range	V <sub>ICM</sub>	CMR > 45dB	0	-	3	V

(Note) CMR is represented by either CMR+ or CMR- which has lower value.

CMR+ is measured with 1.5V ≤ V<sub>CM</sub> ≤ 3V and CMR- is measured with 0V ≤ V<sub>CM</sub> ≤ 1.5V.

#### ● AC CHARACTERISTICS

(V<sub>DD</sub>=3.0V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Unity Gain Bandwidth	GB	R <sub>L</sub> =10kΩ	-	0.8	-	MHz
Total Harmonic Distortion	THD	f=1kHz, Vin=1Vpp, A <sub>v</sub> =0dB	-	0.05	-	%
Equivalent Input Noise Voltage	e <sub>n</sub>	f=1kHz	-	40	-	nV/ √Hz

#### ● TRANSIENT CHARACTERISTICS

(V<sub>DD</sub>=3.0V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Slew Rate	SR	R <sub>L</sub> =10kΩ	-	0.7	-	V/μs

#### [CAUTION]

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