

## 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.

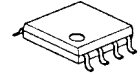
$I_B=1pA$  typ.

DIP8, DMP8, SSOP8, TVSP8

### ■ PACKAGE OUTLINE



NJU7043D



NJU7043M

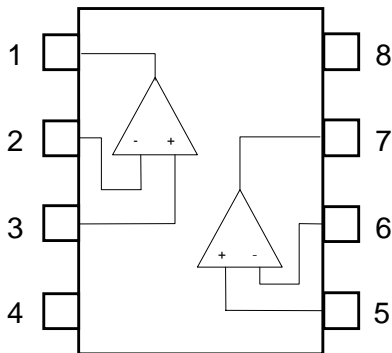


NJU7043V



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	Topr	-40 to +85	°C
Storage Temperature Range	Tstg	-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, Av=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]

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.