

C-MOS COMPARATOR WITH OPEN DRAIN OUTPUT

■ GENERAL DESCRIPTION

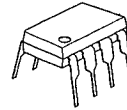
The NJU7112A and 14A dual and quad C-MOS Comparators performing wide operating voltage from 3 to 16V, low operating current and low offset voltage.

The NJU7112A and 14A operated on a single-power-supply can interface with most of TTL and C-MOS type standard logic ICs.

■ FEATURES

- Single-Power-Supply
- Wide Operating Voltage ( $V_{DD}=3 \sim 16V$ )
- Low Operating Current ( $11 \mu A$  / circuit typ.)
- Wide Common Mode Input Voltage ( $0 \sim 3.8V$  at  $V_{DD}=5V$ )
- High Input Impedance
- Low Bias Current ( $I_{in}=1pA$ )
- Low Offset Voltage
- Open Drain Output
- Package Outline  
DIP/DMP 8 (NJU7112A)  
DIP/DMP 14 (NJU7114A)
- C-MOS Technology

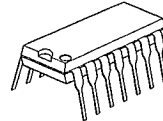
■ PACKAGE OUTLINE



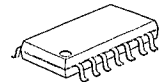
NJU7112AD



NJU7112AM

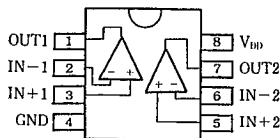


NJU7114AD

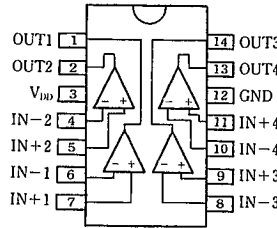


NJU7114AM

■ EQUIVALENT CIRCUIT

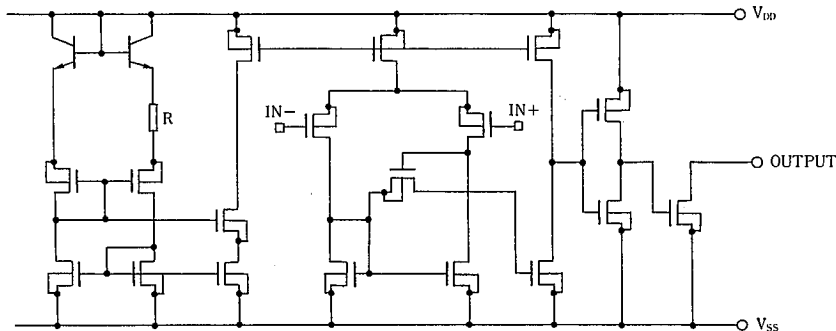


NJU7112AD/AM



NJU7114AD/AM

■ PIN CONFIGURATION



## ■ 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 (Note1)	V
Input Voltage	V <sub>I</sub>	18	V
Output Voltage	V <sub>O</sub>	18	V
Output Current	I <sub>O</sub>	20	mA
Power Dissipation	P <sub>D</sub>	(DIP8) 500 (DIP14) 700 (DMP8) 300 (DMP14) 300	mW
Operating Temperature	T <sub>opr</sub>	0~+70	°C
Storage Temperature	T <sub>stg</sub>	-40~+125	°C

(Note1) 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°C, V<sub>DD</sub>=5V)

PARAMETER	SYMBOL	CONDITIONS	NJU7112A			NJU7114A			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
Operating Voltage	V <sub>DD</sub>		3	—	16	3	—	16	V
Input Offset Voltage	V <sub>IO</sub>	V <sub>IC</sub> =V <sub>ICmin</sub> (Note2)	—	1.4	12	—	1.4	12	mV
Input Offset Current	I <sub>IO</sub>		—	1	—	—	1	—	pA
Input Bias Current	I <sub>IB</sub>		—	1	—	—	1	—	pA
Input Common Mode Voltage Range	V <sub>ICM</sub>		0	—	3.8	0	—	3.8	V
High Level Output Current	I <sub>OH</sub>	V <sub>ID</sub> =+1V, V <sub>OH</sub> =+5V	—	2	40	—	2	40	nA
Low Level Output Voltage	V <sub>OL</sub>	V <sub>ID</sub> =+1V, I <sub>OL</sub> =+6mA	—	0.35	0.40	—	0.35	0.40	V
Common Mode Rejection Ratio	CMR	V <sub>IC</sub> =V <sub>ICmin</sub>	—	71	—	—	75	—	dB
Supply Voltage Rejection Ratio	SVR	V <sub>DD</sub> =5~10V	—	80	—	—	85	—	dB
Operating Current	I <sub>DD</sub>	No Load, V <sub>O</sub> =0V		22	40	—	44	80	μA

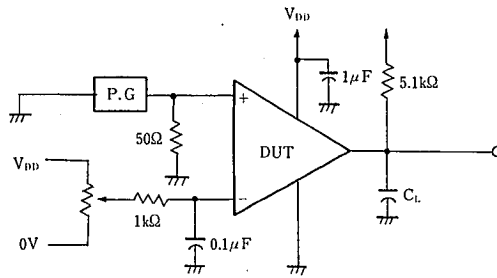
(Note2) This condition is available for operating voltage V<sub>DD</sub>=5~10V and driving voltage is over 4.5V or under 0.3V.

## ■ SWITCHING CHARACTERISTICS

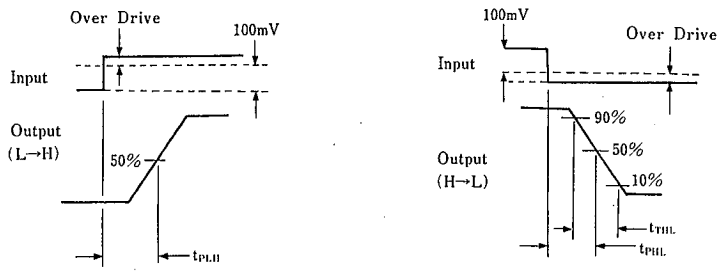
(Ta=25°C, V<sub>DD</sub>=5V f=10kHz, C<sub>L</sub>=15pF)

PARAMETER	SYMBOL	CONDITIONS	NJU7112A			NJU7114A			UNIT	
			MIN	TYP	MAX	MIN	TYP	MAX		
Propagation Delay High to Low	t <sub>PHL</sub>	V <sub>IC</sub> =0V	Over Drive=5mV	—	2.7	—	—	2.9	—	μs
			TTL level step	—	0.16	—	—	0.16	—	
Propagation Delay Low to High	t <sub>PLH</sub>	V <sub>IC</sub> =0V	Over Drive=5mV	—	1.5	—	—	1.5	—	μs
			TTL level step	—	0.7	—	—	0.8	—	
Output Signal Falling Time	t <sub>THL</sub>	Over Drive=50mV	—	20	—	—	20	—	ns	

■ MEASUREMENT CIRCUIT



■ TIMING WAVEFORM



## MEMO

**[CAUTION]**

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