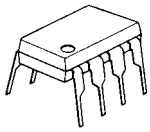
C-MOS COMPARATOR WITH OPEN DRAIN OUTPUT

■ GENERAL DESCRIPTION

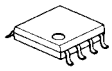
The NJU7112A and 14A dual and quad C-MOS Comparators performing wide operating voltage from 3 to 16V,low operating current and low offset voltage.

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

■ PACKAGE OUTLINE



NJU7112AD



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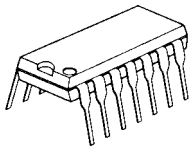

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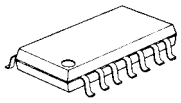
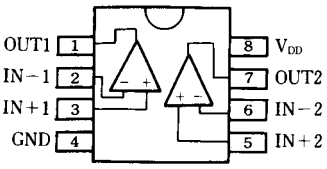


NJU7114AM

■ FEATURES

- Single-Power-Supply
- Wide Operating Voltage (V_{DD}=3~16V)
- Low Operating Current (11μA/circuit typ.)
- Wide Common Mode Input Voltage (0~3.8V @ V_{DD}=5V)
- High Input Impedance
- Low Bias Current (I_{IB}=1pA)
- Low Offset Voltage
- Open Drain Output
- Package Outline DIP/DMP8 (NJU7112A)
  DIP/DMP14 (NJU7114A)
- C-MOS Technology

■ PIN CONFIGURATION



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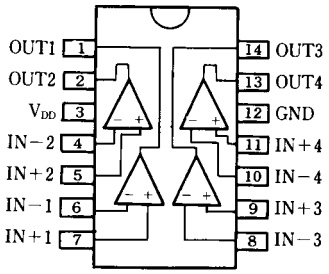
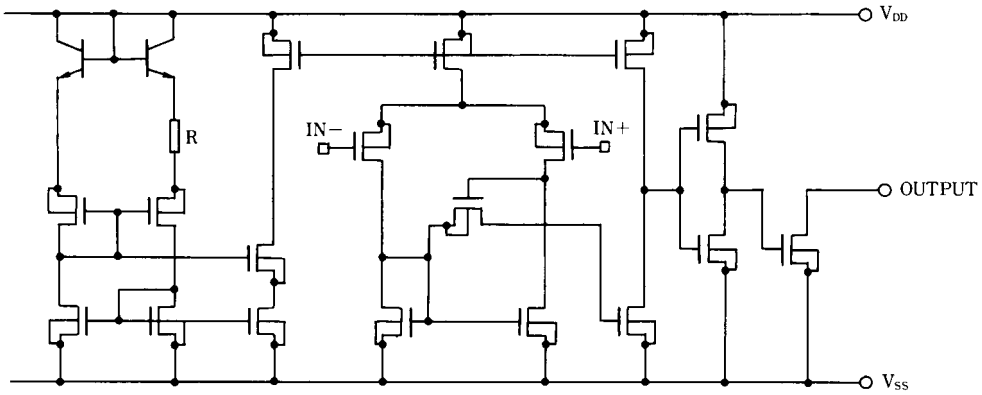


NJU7114AD/AM

■ EQUIVALENT CIRCUIT



■ ABSOLUTE MAXIMUM RATINGS

(Ta=25˚C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{DD}	18	V
Differential Input Voltage	V_{ID}	± 18 (note1)	V
Input Voltage	V_I	18	V
Output Voltage	V_O	18	V
Output Current	I_O	20	mA
Power Dissipation	P_D	(DIP8) 500 (DIP14) 700 (DMP8) 300 (DMP14) 300	mW
Operating Temperature Range	T_{opr}	0~+70	˚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}=5V)

PARAMETER	SYMBOL	TEST CONDITION	NJU7112A			NJU7114A			UNIT
			MIN.	TYP.	MAX.	MIN.	TYP.	MAX.	
Operating Voltage	V_{DD}		3	-	16	3	-	16	V
Input Offset Voltage	V_{IO}	$V_{IC}=V_{ICMin}$ (note2)	-	1.4	12	-	1.4	12	mV
Input Offset Current	I_{IO}		-	1	-	-	1	-	pA
Input Bias Current	I_{IB}		-	1	-	-	1	-	pA
Input Common Mode Voltage Range	V_{ICM}		0	-	3.8	0	-	3.8	V
High Level Output Current	I_{OH}	V_{ID}=+1V,V_{OH}=+5V	-	2	40	-	2	40	nA
Low Level Output Voltage	V_{OL}	V_{ID}=+1V,I_{OL}=+6mA	-	0.35	0.40	-	0.35	0.40	V
Common Mode Rejection Ratio	CMR	$V_{IC}=V_{ICMin}$	-	71	-	-	75	-	dB
Supply Voltage Rejection Ratio	SVR	V_{DD}=5~10V	-	80	-	-	85	-	dB
Operating Current	I_{DD}	No Load,V_O=0V	-	22	40	-	44	80	μA

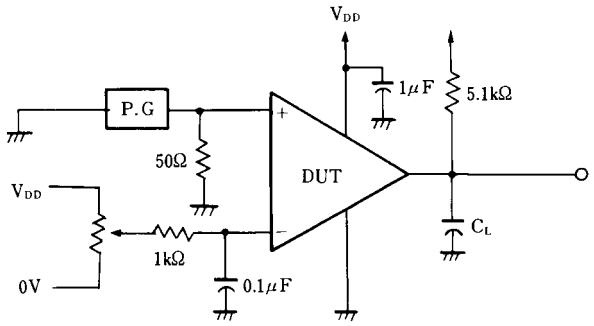
(note2) This condition is available for operating voltage V_{DD}=5~10V and driving voltage is over 4.5V or under 0.3V.

■ SWITCHING CHARACTERISTICS

(Ta=25˚C,V_{DD}=5V,f=10kHz,C_L=15pF)

PARAMETER	SYMBOL	CONDITIONS		NJU7112A			NJU7114A			UNIT
				MIN.	TYP.	MAX.	MIN.	TYP.	MAX.	
Propagation Delay High to Low	t_{PHL}	V_{IC}=0V	Over Drive=5mV	-	2.7	-	-	2.9	-	μs
			TTL level step	-	0.16	-	-	0.16	-	
Propagation Delay Low to High	t_{PLH}	V_{IC}=0V	Over Drive=5mV	-	1.5	-	-	1.5	-	μs
			TTL level step	-	0.7	-	-	0.8	-	
Output Signal Falling Time	t_{THL}	Over Drive=50mV		-	20	-	-	20	-	ns

■ MEASUREMENT CIRCUIT



■ TIMING WAVEFORM