

8-CHANNEL MULTIPLEXER WITH SAMPLE AND HOLD

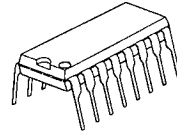
■ GENERAL DESCRIPTION

The NJU7304 is a C-MOS 8-channel multiplexer with sample and hold function.

It consists of C-MOS op amplifier, analog switch, hold-capacitor and 1/8 decoder.

Any channels can be selected by 3-bit control input signal.

■ PACKAGE OUTLINE

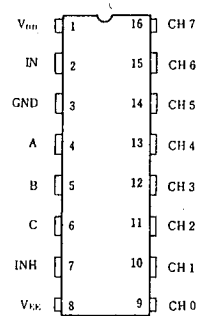


NJU7304D

■ FEATURES

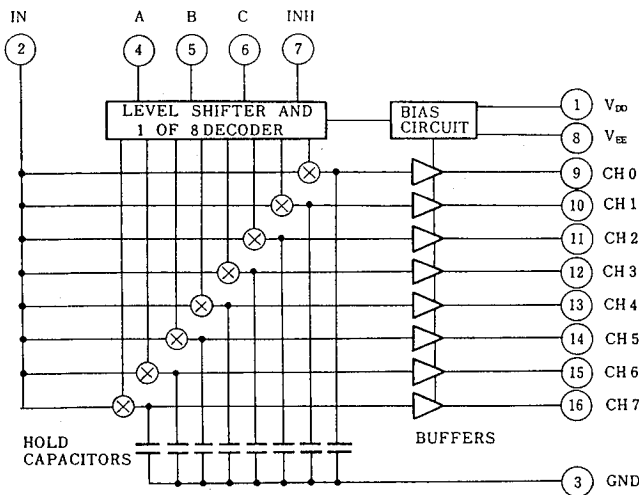
- Multi-signal-input in combination with a Microprocessor and D/A converter.
- Wide Operating Voltage -- 20V
- Low Droop -- 1mV/5ms Typ.
- C-MOS compatible Input
- Package Outline -- DIP 16
- C-MOS Technology

■ PIN CONFIGURATION



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■ BLOCK DIAGRAM



■ TRUTH TABLE

INH	C	B	A	OUTPUT
0	0	0	0	CH0
0	0	0	1	CH1
0	0	1	0	CH2
0	0	1	1	CH3
0	1	0	0	CH4
0	1	0	1	CH5
0	1	1	0	CH6
0	1	1	1	CH7
1	X	X	X	X

x: Output signal is kept during INH=1.

■ TERMINAL DESCRIPTION

NO.	SYMBOL	FUNCTION	NO.	SYMBOL	FUNCTION
1	V _{DD}	Positive Power Supply	7	INH	INH Input
2	IN	Signal Input	8	V _{EE}	Negative Power Supply
3	GND	Ground	9~16	CH0 ~ CH7	Output
4, 5, 6	A, B, C	Address Input			

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V _{DD} - GND	- 0.5 ~ + 20	V
	V _{DD} - V _{EE}	- 0.5 ~ + 20	V
Input Voltage	V _{IN}	V _{EE} -0.5 ~ V _{DD} +0.5	V
Output Voltage	V _{OUT}	V _{EE} -0.5 ~ V _{DD} +0.5	V
Input Current	I _{IN}	- 10 ~ + 10	mA
Output Current	I _{OUT}	- 10 ~ + 10	mA
Power Dissipation	P _D	500 (DIP)	mW
Operating Temperature Range	T _{opr}	0 ~ + 75	°C
Storage Temperature Range	T _{stg}	- 40 ~ + 125	°C

■ ELECTRICAL CHARACTERISTICS

• DC Characteristics

 (V_{DD}=15V, V_{EE}=-2V, t_{rw}=1μs, t_{HOLD}=5ms, Ta=25°C)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Operating Current	I _{DD}	All Input=GND, No Load			8	mA
Input Voltage	V _{INAN}		0		10	V
Off-set Voltage 1	V _{OFF1}	CH0~ V _{INAN} =0V, R _L =50kΩ			±30	mV
Off-set Voltage 2	V _{OFF2}	CH7 V _{INAN} =5V, R _L =50kΩ			±30	
Off-set Differential Voltage	ΔV _{OFF}	V _{OFF1} (n) - V _{OFF2} (n) n=0, 1, ... 7			20	mV
Input Current	I _{IH}	V _{IN} =GND or V _{DD}			±10	μA
Control Input	High Input Voltage	V _{IH}	4		5	V
	Low Input Voltage	V _{IL}	0		1	
Output Current	I _{OL}	V _{INAN} =0V, V _{OL} =0.5V	0.5			mA
	I _{OH}	V _{INAN} =10V, V _{OH} =9.5V			- 1	

• AC Characteristics

 ($V_{DD}=15V$, $V_{EE}=-2V$, $t_{sw}=1\mu s$, $t_{HOLD}=5ms$, $T_a=25^\circ C$)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Acquisition Time	t_{AC}			700		ns
Aperture Time	t_{AP}			150		ns
Feedthrough	V_{FTH}	$T_a=50^\circ C$, $V_{INAN}=0V, 5V$			± 15	mV
Droop	V_{DRP}	$T_a=50^\circ C$, $V_{INAN}=0V, 5V$			± 10	mV
Buffer Amp. Settling Time	t_{SET}			20		μs

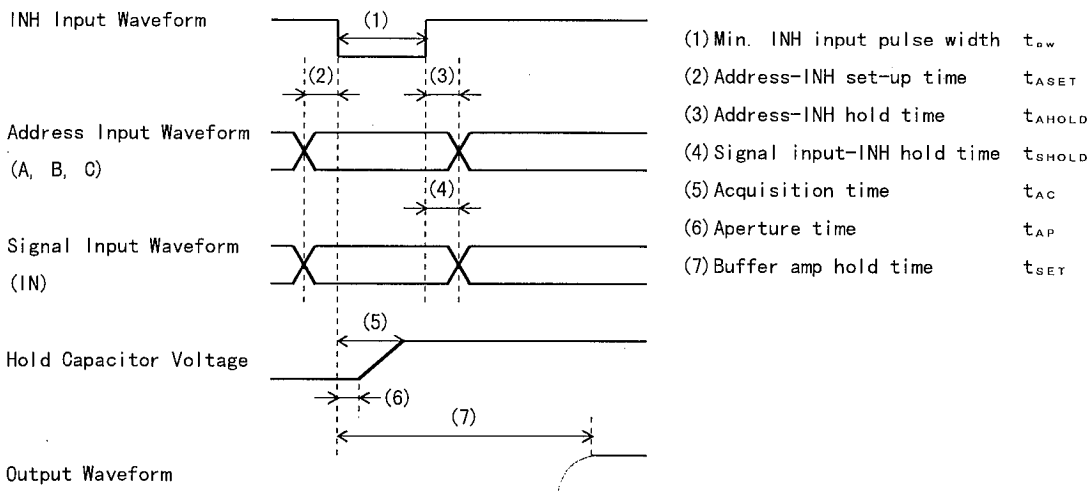
■ CONTROL INPUT SWITCHING CHARACTERISTICS

 ($V_{DD}=15V$, $V_{EE}=-2V$, $t_{sw}=1\mu s$, $t_{HOLD}=5ms$, $T_a=25^\circ C$)

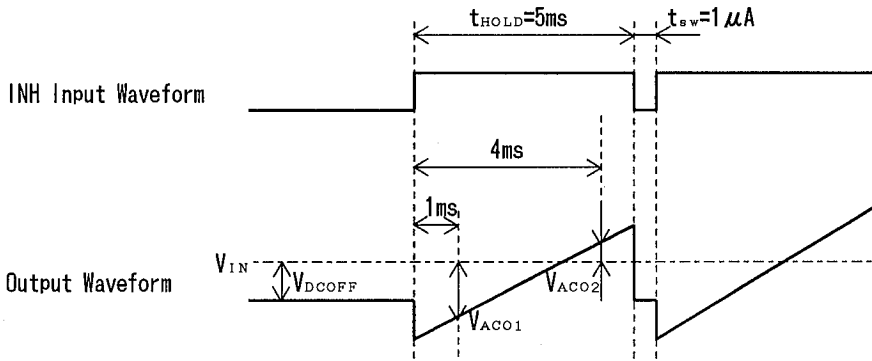
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
INH Min. Input Pulse Width	t_{sw}		1	5		μs
Address-INH Set-up Time	t_{ASET}		300			ns
Address-INH Hold Time	t_{AHOLD}		300			ns
Signal-INH Hold Time	t_{SHOLD}		300			ns

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■ TIMING CHART



■ OFF SET VOLTAGE, FEEDTHROUGH, DROOP MEASUREMENT METHOD



Offset voltage, feedthrough and droop are :

(1) Offset Voltage $V_{\text{OFF}} = (V_{\text{ACO1}} + V_{\text{ACO2}}) / 2$

(2) Feedthrough $V_{\text{FTH}} = V_{\text{ACO1}} - V_{\text{DCOFF}}$

(3) Droop $V_{\text{DRP}} = V_{\text{ACO2}} - V_{\text{ACO1}}$

MEMO

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