

8-CHANNEL MULTIPLEXER WITH SAMPLE AND HOLD

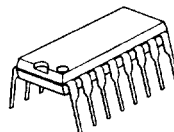
GENERAL DESCRIPTION

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

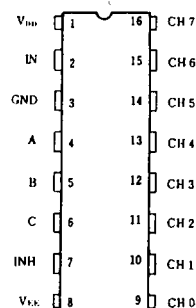


NJU7304D

FEATURES

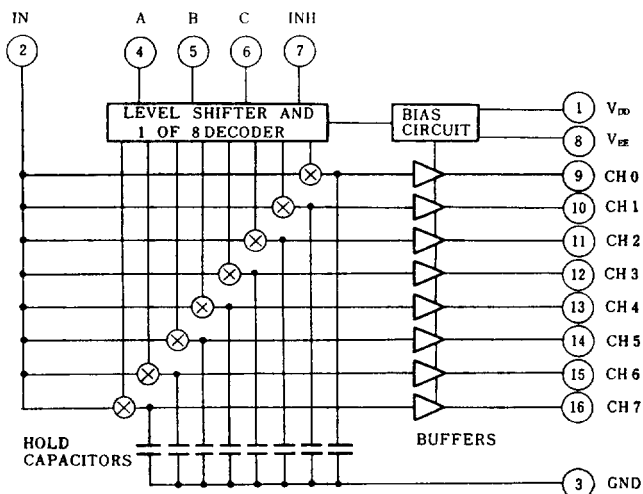
- Multi-signal-input in combination with a Microprocessor and D/A converter.
- Wide Operating Voltage -- 20V
- Low Droop -- 1mV/5ms Typ.
- C-MOS compatible Input
- Package Outline -- DIP 16
- C-MOS Technology

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	F U N C T I O N	NO.	SYMBOL	F U N C T I O N
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)

P A R A M E T E R	S Y M B O L	R A T I N G S	U N I T
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)

P A R A M E T E R	S Y M B O L	C O N D I T I O N S	M I N	T Y P	M A X	U N I T
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

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

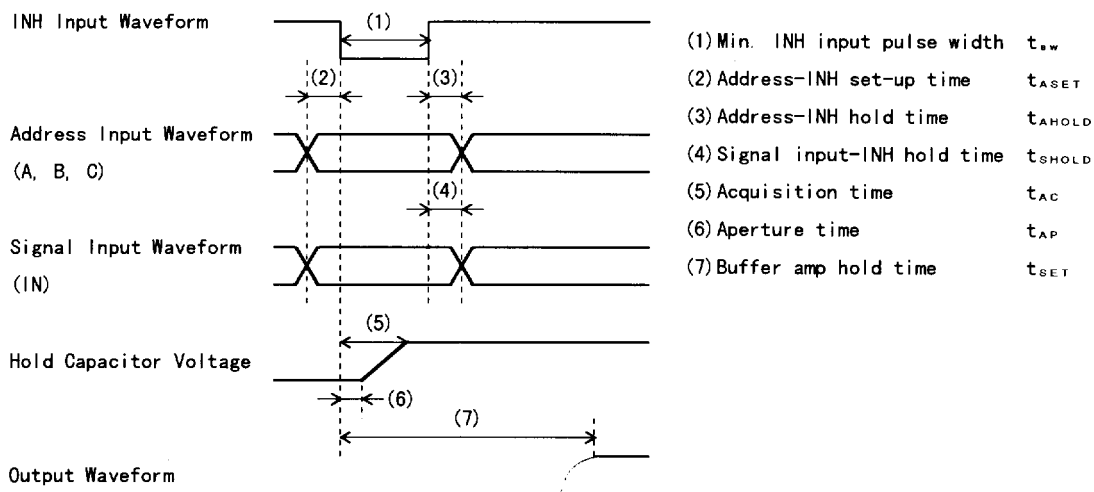
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Acquisition Time	t_{AC}			700		ns
Aperture Time	t_{AP}			150		ns
Feedthrough	V_{FTH}	$T_a=50^\circ C$, $V_{INAN}=0V$, 5V			± 15	mV
Droop	V_{DRP}	$T_a=50^\circ C$, $V_{INAN}=0V$, 5V			± 10	mV
Buffer Amp. Settling Time	t_{SET}			20		μs

■ CONTROL INPUT SWITCHING CHARACTERISTICS

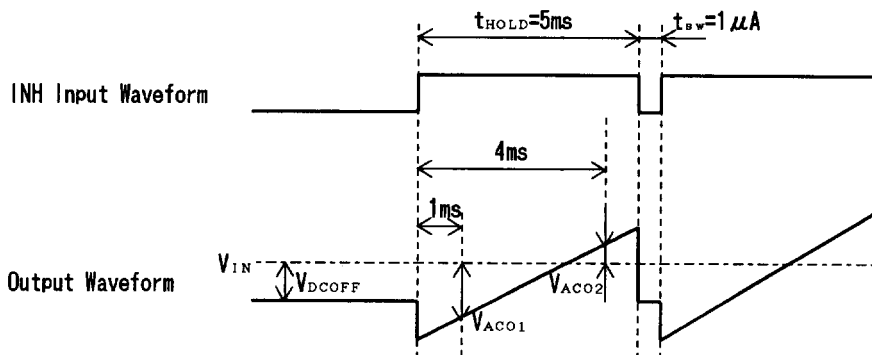
($V_{DD}=15V$, $V_{EE}=-2V$, $t_{\text{pw}}=1\mu s$, $t_{\text{HOLD}}=5ms$, $T_a=25^\circ C$)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
INH Min. Input Pulse Width	t_{pw}		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

■ TIMING CHART



OFF SET VOLTAGE, FEEDTHROUGH, DROOP MEASUREMENT METHOD



Offset voltage, feedthrough and droop are :

- (1) Offset Voltage $V_{OFF} = (V_{ACO1} + V_{ACO2}) / 2$
- (2) Feedthrough $V_{FTH} = V_{ACO1} - V_{DCOFF}$
- (3) Droop $V_{DRP} = V_{ACO2} - V_{ACO1}$