

DN74LS14

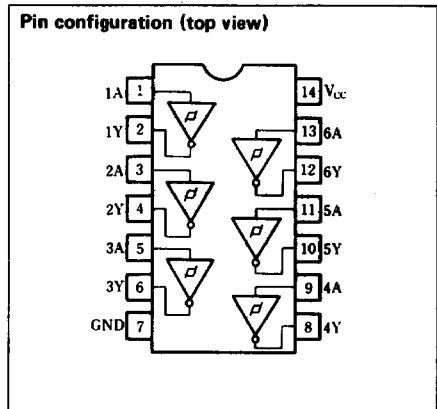
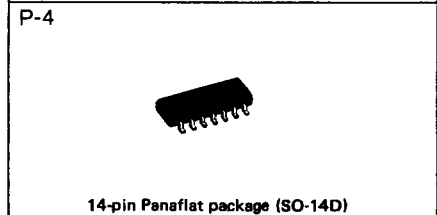
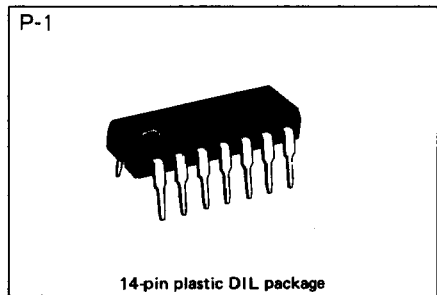
Hex Schmitt-Trigger Inverters

Description

DN74S14 contains six inverter circuits with Schmitt triggers.

Features

- Ideal for waveform shaping
- Low power consumption ($P_d = 50\text{mW}$ typical)
- High speed ($t_{pd} = 15\text{ns}$ typical)
- Wide operating temperature range ($T_a = -20$ to $+75^\circ\text{C}$)



Recommended operating conditions

Parameter	Sym	Min	Typ	Max	Unit
Supply voltage	V_{cc}	4.75	5.00	5.25	V
Output current	I_{OH}			-400	μA
	I_{OL}			8	mA
Operating temperature range	T_{opr}	-20	25	75	$^\circ\text{C}$

■ DC characteristics (Ta = -20 ~ +75°C)

Parameter	Sym	Test conditions	Min	Typ*	Max	Unit
Input threshold voltage	V _{T+}	V _{CC} = 5V	1.4	1.6	1.9	V
	V _{T-}	V _{CC} = 5V	0.5	0.8	1.0	V
Hysteresis	ΔV _T	V _{CC} = 5V	0.4	0.8		V
Output voltage	V _{OH}	V _{CC} = 4.75V, I _{OH} = -400μA V _I = 0.5V	2.7	3.4		V
	V _{OL}	V _{CC} = 4.75V, I _{OL} = 4mA V _I = 1.9V		0.25	0.4	V
	V _{OL}	V _{CC} = 4.75V, I _{OL} = 8mA V _I = 1.9V		0.35	0.5	V
Input threshold current	I _{T+}	V _{CC} = 5V V _I = V _{T+}		-0.14		mA
	I _{T-}	V _{CC} = 5V V _I = V _{T-}		-0.18		mA
Input current	I _{IH}	V _{CC} = 5.25V V _I = 2.7V			20	μA
	I _{IL}	V _{CC} = 5.25V V _I = 0.4V			-0.4	mA
	I _I	V _{CC} = 5.25V V _I = 7V			0.1	mA
Output short circuit current**	I _{OS}	V _{CC} = 5.25V V _O = 0V	-15		-100	mA
Input clamp voltage	V _{IK}	V _{CC} = 4.75V V _I = -18mA			-1.5	V
Supply current	I _{CCH}	V _{CC} = 5.25V		8.6	16	mA
	I _{CCL}	V _{CC} = 5.25V		12	21	mA

* When constant at V_{CC} = 5V, Ta = 25°C.

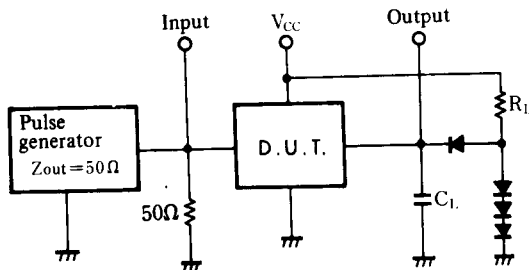
** Only one output at a time short circuited to GND. Also, short circuit time to GND within 1 second.

■ Switching characteristics (V_{CC} = 5V, Ta = 25°C)

Parameter	Sym	Test conditions	Min	Typ	Max	Unit
Propagation delay time	t _{PLH}	C _L = 15pF, R _L = 2kΩ		15	22	ns
	t _{PHL}			15	22	ns

※ Switching parameter measurement information

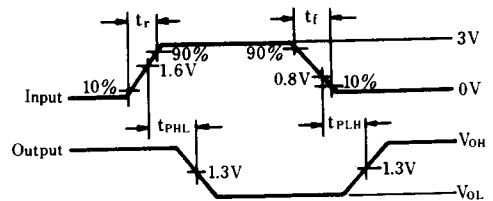
1. Measurement circuit



Notes

- C_L includes probe and tool floating capacitance.
- Diodes are all MA161.

2. Waveforms



Notes

- Input waveform: tr ≤ 15ns, tf ≤ 6ns, PRR = 1MHz, duty cycle = 50%.