

DN74LS00

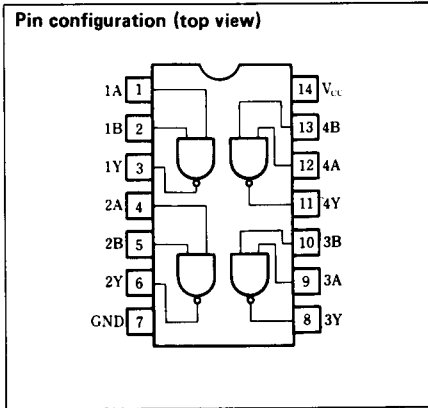
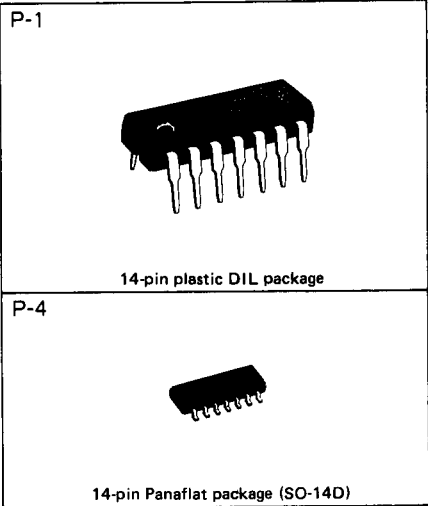
Quad 2-input Positive NAND Gates

Description

DN74LS00 Contains four 2-input positive isolation NAND gate circuits.

Features

- Low power consumption ($P_d = 8\text{mW}$ typical)
- High speed ($t_{pd} = 9.5\text{ns}$ typical)
- Low output impedance
- 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 voltage	V _{IH}		2.0			V
	V _{IL}				0.8	V
Output voltage	V _{OH}	V _{CC} = 4.75V, V _{IH} = 2.0V V _{IL} = 0.8V, I _{OH} = -400 μA	2.7	3.4		V
	V _{OL1}	V _{CC} = 4.75V		0.25	0.4	V
	V _{OL2}	V _{IH} = 2V		0.35	0.5	V
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 I _I = -18mA			-1.5	V
Supply current	I _{CCH}	V _{CC} = 5.25V		0.8	1.6	mA
	I _{CC1}	V _{CC} = 5.25V		2.4	4.4	mA

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

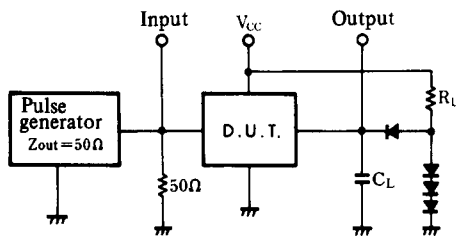
** Only one output at a time short circuited to GND. Also, short circuit time to GND within 1 second.

■ 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		9	15	ns
	t _{PHL}			10	15	ns

※ Switching parameter measurement information

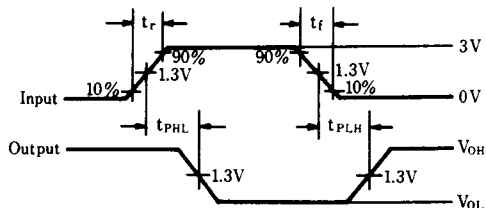
1. Measurement circuit



Notes

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

2. Waveforms



Notes

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