

DN74LS37 DN74LS37

Quad 2-input Positive NAND Buffers

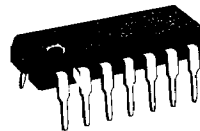
■ **Description**

DN74LS37 contains four 2-input positive isolation NAND buffer gate circuits.

■ **Features**

- High fan-out ($I_{OL} = 24\text{mA}$, $I_{OH} = -1.2\text{mA}$)
- Low power consumption ($P_d = 17.5\text{mW}$ typical)
- High speed ($t_{pd} = 12\text{ns}$ typical)
- Low output impedance
- Wide operating temperature range ($T_a = -20$ to $+75^\circ\text{C}$)

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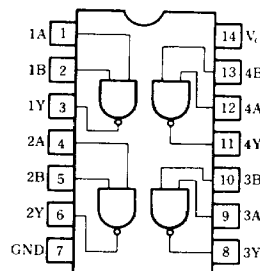


14-pin plastic DIL package

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14-pin Pinflat package (SO-14D)

Pin configuration (top view)■ **Recommended operating conditions**

Parameter	Sym	Min	Typ	Max	Unit
Supply voltage	V_{CC}	4.75	5.00	5.25	V
HIGH level output voltage	I_{OH}			1200	μA
LOW level output voltage	I_{OL}			24	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} = 4.75 V, V _{IL} = 0.8 V I _{OH} = -1.2 mA	2.7	3.4		V
	V _{OL1}	V _{CC} = 4.75 V I _{OL} = 12 mA		0.25	0.4	V
	V _{OL2}	V _{IH} = 2 V I _{OL} = 24 mA		0.35	0.5	V
Input current	I _{IH}	V _{CC} = 5.25 V V _I = 2.7 V			20	μA
	I _{IIL}	V _{CC} = 5.25 V V _I = 0.4 V			-0.4	mA
	I _I	V _{CC} = 5.25 V V _I = 7 V			0.1	mA
Output short circuit current**	I _{OS}	V _{CC} = 5.25 V, V _O = 0 V	-15		-100	mA
Input clamp voltage	V _{IK}	V _{CC} = 4.75 V I _I = -18 mA			-1.5	V
Supply current	I _{CCH}	V _{CC} = 5.25 V		0.9	2.0	mA
	I _{CCL}	V _{CC} = 5.25 V		6	12	mA

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

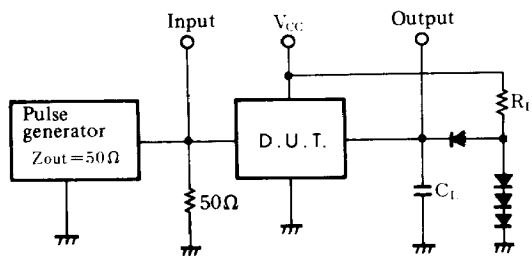
** Only one output at a time short circuited to GND. Also, short circuit time to GND within 1 second.

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

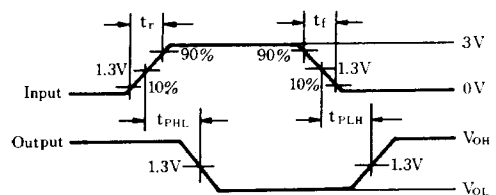
Parameter	Sym	Test conditions	Min	Typ	Max	Unit
Propagation delay time	t _{PLH}	C _L = 45 pF, R _L = 667 Ω		12	24	ns
	t _{PHL}			12	24	ns

※ Switching parameter measurement information

1. Measurement circuit



2. Waveforms



Notes

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

Notes

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