

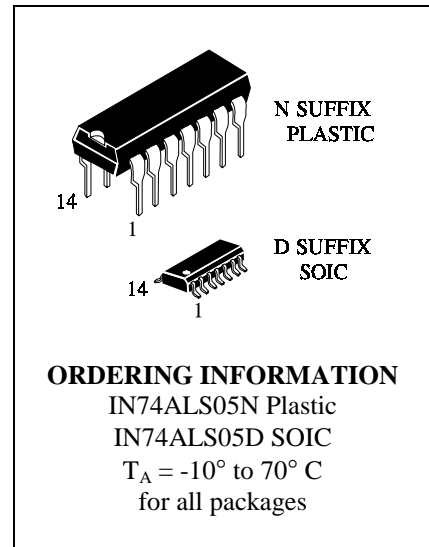
IN74ALS05

**Hex Inverter
with Open-Drain Outputs**

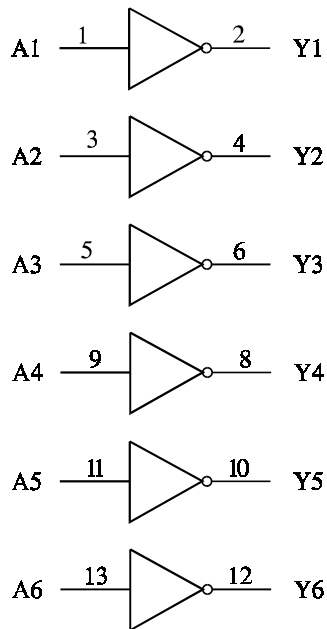
Advanced Low Power Schottky TTL

This device contains six independent gates, each of which performs the logic INVERT function. The open-collector outputs require external pull-up resistors for proper logical operation. They may be connected to other open-collector outputs to implement active-low wired-OR or active-high wired-AND function.

- Switching specifications at 50 pF
- Switching specifications guaranteed over full temperature and V_{CC} range
- Functionally and pin for pin compatible with Schottky and low power Schottky TTL counterpart
- Improved AC performance over Schottky and low power Schottky counterparts

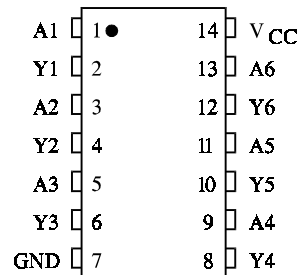


LOGIC DIAGRAM



PIN 14 = V_{CC}
 PIN 7 = GND

PIN ASSIGNMENT



FUNCTION TABLE

Inputs	Output
A	Y
L	Z
H	L

Z = High Impedance

MAXIMUM RATINGS*

Symbol	Parameter	Value	Unit
V _{CC}	Supply Voltage	7.0	V
V _{IN}	Input Voltage	7.0	V
V _{OUT}	Output Voltage	5.5	V
T _{stg}	Storage Temperature Range	-65 to +150	°C

*Maximum Ratings are those values beyond which damage to the device may occur. Functional operation should be restricted to the Recommended Operating Conditions.

RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Min	Max	Unit
V _{CC}	Supply Voltage	4.5	5.5	V
V _{IH}	High Level Input Voltage	2.0		V
V _{IL}	Low Level Input Voltage		0.8	V
U _{OH}	High Level Output Voltage		5.5	V
I _{OL}	Low Level Output Current		8.0	mA
T _A	Ambient Temperature Range	-10	+70	°C

DC ELECTRICAL CHARACTERISTICS over full operating conditions

Symbol	Parameter	Test Conditions	Guaranteed Limit		Unit	
			Min	Max		
V _{IK}	Input Clamp Voltage	V _{CC} = min, I _{IN} = -18 mA		-1.5	V	
I _{OH}	High Level Output Current	V _{CC} = min, V _{OH} = max		0.1	mA	
V _{OL}	Low Level Output Voltage	V _{CC} = min, I _{OL} = 4 mA		0.4	V	
		V _{CC} = min, I _{OL} = 8 mA		0.5		
I _{IH}	High Level Input Current	V _{CC} = max, V _{IN} = 2.7 V		20	μA	
		V _{CC} = max, V _{IN} = 7.0 V		0.1	mA	
I _{IL}	Low Level Input Current	V _{CC} = max, V _{IN} = 0.4 V		-0.1	mA	
I _{CC}	Supply Current	V _{CC} = max	Outputs High		1.1	mA
			Outputs Low		3.8	

AC ELECTRICAL CHARACTERISTICS over full operating conditions ($V_{CC} = 5.0\text{ V} \pm 10\%$, $C_L = 50\text{ pF}$, $R_L = 500\ \Omega$, Input $t_r = t_f = 2.0\text{ ns}$)

Symbol	Parameter	Guaranteed Limit		Unit
		Min	Max	
t_{PLH}	Propagation Delay, Input A to Output Y (Figures 1,2)		54	ns
t_{PHL}	Propagation Delay, Input A to Output Y (Figures 1,2)		14	ns

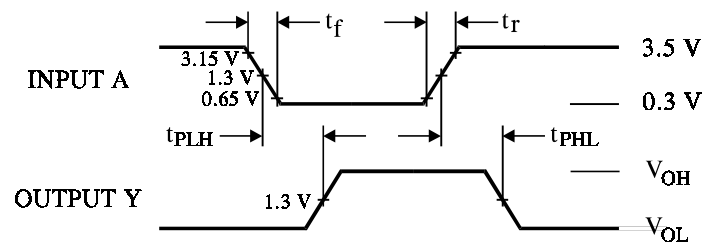
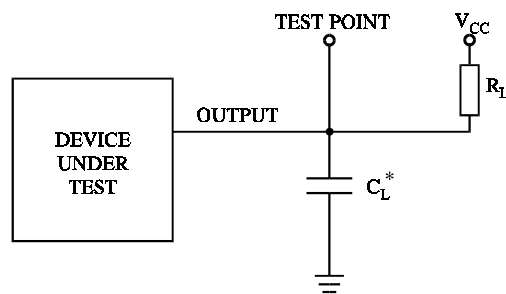


Figure 1. Switching Waveforms



* Includes all probe and jig capacitance

Figure 2. Test Circuit