

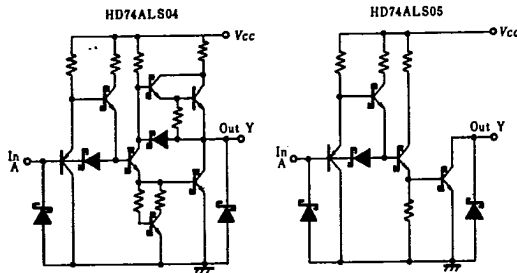
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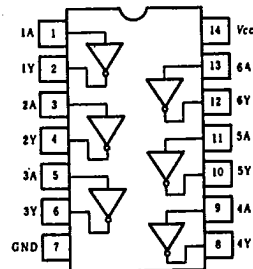
HD74ALS04 ●Hex Inverters

HD74ALS05 ●Hex Inverters (with open collector outputs)

■CIRCUIT SCHEMATICS (1/6)



■PIN ARRANGEMENT



(Top View)

■RECOMMENDED OPERATING CONDITIONS

Item	Symbol	HD74ALS04			HD74ALS05			Unit
		min	typ	max	min	typ	max	
High level output voltage	V_{OH}	—	—	—	—	—	5.5	V
High level output current	I_{OH}	—	—	-400	—	—	—	μA
Low level output current	I_{OL}^*	—	—	8	—	—	8	mA

* $V_{CC}=5.0\pm 0.25V$. Voltage value with respect to GND.

■ELECTRICAL CHARACTERISTICS ($T_a=-20\sim+75^\circ C$)

Item	Symbol	Test Conditions	min	typ*	max	Unit
Input voltage	V_{IH}		2.0	—	—	V
	V_{IL}		—	—	0.8	V
Output current	I_{OH}	$V_{CC}=4.5V, V_{IH}=2V, V_{IL}=0.8V, V_{OH}=5.5V$	'ALS05	—	—	100 μA
Output voltage	V_{OH}	$V_{CC}=4.5V, V_{IL}=0.8V, I_{OH}=-400\mu A$	'ALS04	2.5	—	V
		$V_{CC}=4.75V, V_{IL}=0.8V, I_{OH}=-400\mu A$		2.7	—	
	V_{OL}	$V_{CC}=4.5V, V_{IH}=2V, I_{OL}=4mA$		—	—	0.4
		$V_{CC}=4.75V, V_{IH}=2V, I_{OL}=8mA$		—	—	0.5
Input current	I_I	$V_{CC}=5.5V, V_I=7V$	—	—	0.1	mA
	I_{IH}	$V_{CC}=5.5V, V_I=2.7V$	—	—	20	μA
	I_{IL}	$V_{CC}=5.5V, V_I=0.4V$	—	—	-0.2	mA
Output drive current	I_{OD}	$V_{CC}=5.5V, V_I=0V, V_O=2.125V$	'ALS04	-10	—	-60 mA
Supply current	I_{CCN}	$V_{CC}=5.5V, V_I=0V$	—	0.66	1.2	mA
	I_{CCL}	$V_{CC}=5.5V, V_I=4.5V$	—	2.4	4.3	mA
Input clamp voltage	V_{IK}	$V_{CC}=4.5V, I_{IH}=-18mA$	—	—	1.5	V

* $V_{CC}=5V, T_a=25^\circ C$

■SWITCHING CHARACTERISTICS

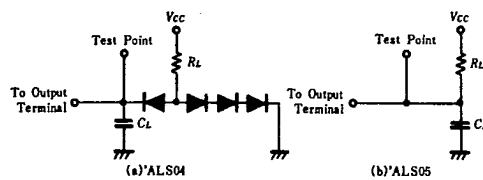
Item	Symbol	Test Conditions	HD74ALS04			HD74ALS05			Unit
			min	typ	max	min	typ	max	
Propagation delay time	t_{PLH}	$V_{CC}=5V, T_a=25^\circ C, C_L=15pF$	—	4	—	—	20	—	ns
	t_{PHL}	$R_L=500\Omega$ ('ALS04), $R_L=2k\Omega$ ('ALS05)	—	3	—	—	7	—	
	t_{PLH}	$V_{CC}=5\pm 0.5V, T_a=-20\sim+75^\circ C, C_L=50pF$	3	—	11	20	—	54	
	t_{PHL}	$R_L=500\Omega$ ('ALS04), $R_L=2k\Omega$ ('ALS05)	2	—	9	7	—	23	

HD74ALS04, HD74ALS05

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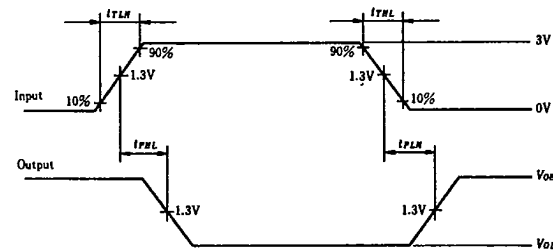
■ TESTING METHOD

Test Circuit



- Notes:
1. C_L includes probe and jig capacitance.
 2. All diodes are 1S2074 Φ .

Waveform



Input pulse: $t_{TLH} \leq 6\text{ns}$, $t_{THL} \leq 6\text{ns}$, $PRR = 1\text{MHz}$, duty cycle 50%