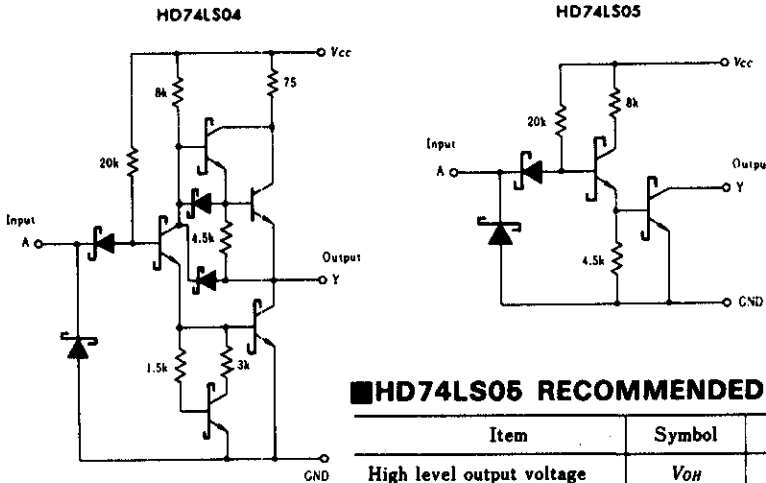
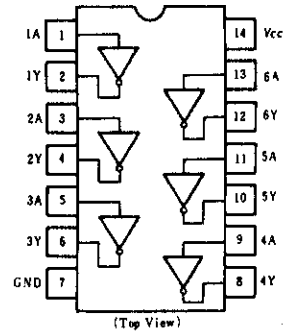


HD74LS04/HD74LS05 ● Hex Inverters ● Hex Inverters (with Open Collector Outputs)

■CIRCUIT SCHEMATIC(1/6)



■PIN ARRANGEMENT



■HD74LS05 RECOMMENDED OPERATING CONDITIONS

Item	Symbol	min	typ	max	Unit
High level output voltage	V_{OH}	—	—	5.5	V
Low level output current	I_{OL}	—	—	8	mA

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

Item	Symbol	Test Conditions	HD74LS04			HD74LS05			Unit	
			min	typ*	max	min	typ*	max		
Input voltage	V_{IH}		2.0	—	—	2.0	—	—	V	
	V_{IL}		—	—	0.8	—	—	0.8	V	
Output voltage	V_{OH}	$V_{CC} = 4.75\text{V}, V_{IL} = 0.8\text{V}, I_{OH} = -400\mu\text{A}$	2.7	—	—	—	—	—	V	
	V_{OL}	$V_{CC} = 4.75\text{V}, V_{IH} = 2\text{V}$	$I_{OL} = 8\text{mA}$	—	—	0.5	—	—	0.5	V
			$I_{OL} = 4\text{mA}$	—	—	0.4	—	—	0.4	
Output current	I_{OH}	$V_{CC} = 4.75\text{V}, V_{IL} = 0.8\text{V}, V_{OH} = 5.5\text{V}$	—	—	—	—	—	100	μA	
Input current	I_{IH}	$V_{CC} = 5.25\text{V}, V_i = 2.7\text{V}$	—	—	20	—	—	20	μA	
	I_{IL}	$V_{CC} = 5.25\text{V}, V_i = 0.4\text{V}$	—	—	-0.4	—	—	-0.4	mA	
	I_i	$V_{CC} = 5.25\text{V}, V_i = 7\text{V}$	—	—	0.1	—	—	0.1	mA	
Short-circuit output current	I_{OS}	$V_{CC} = 5.25\text{V}$	-20	—	-100	—	—	—	mA	
Supply current	I_{CCH}	$V_{CC} = 5.25\text{V}$	—	1.2	2.4	—	1.2	2.4	mA	
	I_{CCL}		—	3.6	6.6	—	3.6	6.6		
Input clamp voltage	V_{IK}	$V_{CC} = 4.75\text{V}, I_{IN} = -18\text{mA}$	—	—	-1.5	—	—	-1.5	V	

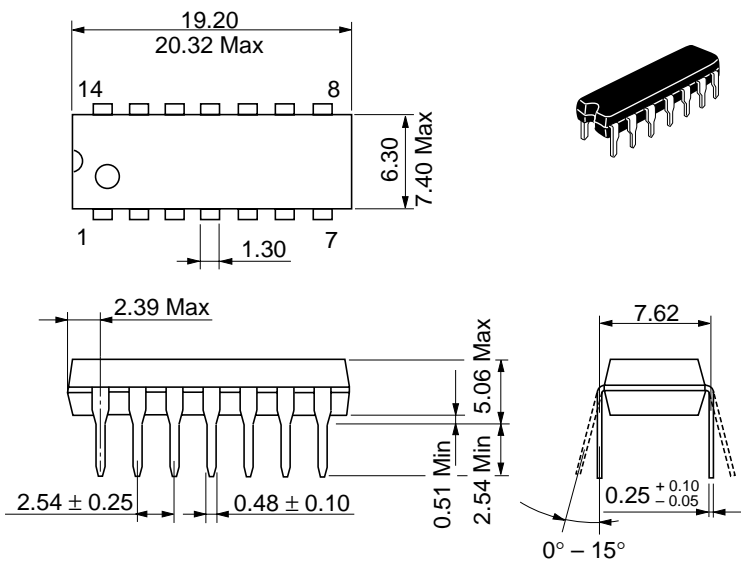
* $V_{CC} = 5\text{V}, T_a = 25^\circ\text{C}$

■SWITCHING CHARACTERISTICS ($V_{CC} = 5\text{V}, T_a = 25^\circ\text{C}$)

Item	Symbol	Test Conditions	HD74LS04			HD74LS05			Unit
			min	typ	max	min	typ	max	
Propagation delay time	t_{PLH}	$C_L = 15\text{pF}, R_L = 2\text{k}\Omega$	—	9	15	—	17	32	ns
	t_{PHL}		—	10	15	—	15	28	

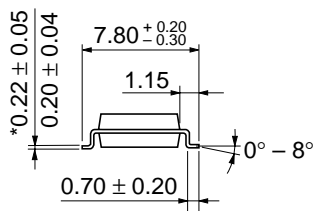
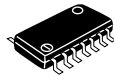
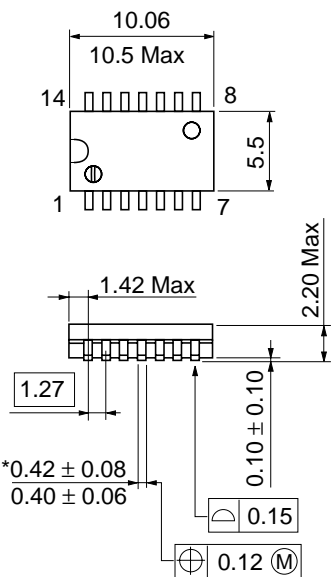
Note) Refer to Test Circuit and Waveform of the Common Item

Unit: mm



Hitachi Code	DP-14
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.97 g

Unit: mm

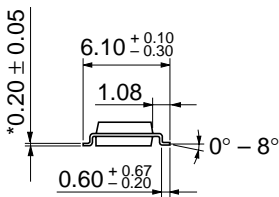
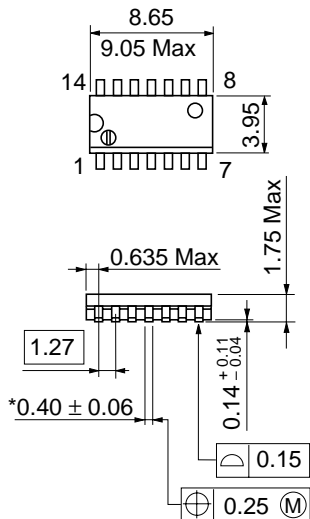


*Dimension including the plating thickness
Base material dimension

Hitachi Code	FP-14DA
JEDEC	—
EIAJ	Conforms
Weight (reference value)	0.23 g

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Unit: mm



Hitachi Code	FP-14DN
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.13 g

*Pd plating

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