

HD74HC14

Hex Schmitt-trigger Inverters

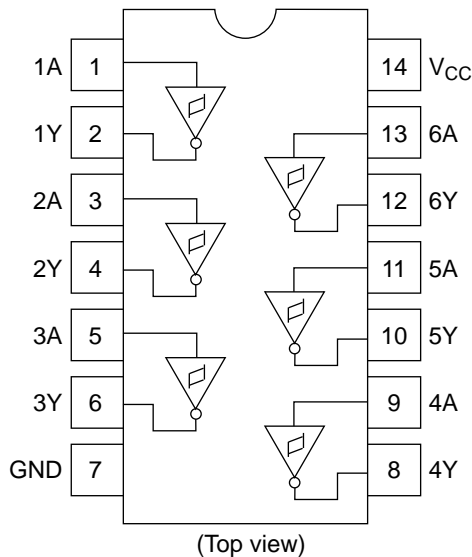
HITACHI

ADE-205-412 (Z)
1st. Edition
Sep. 2000

Features

- High Speed Operation: $t_{pd} = 10.5 \text{ ns typ}$ ($C_L = 50 \text{ pF}$)
- High Output Current: Fanout of 10 LSTTL Loads
- Wide Operating Voltage: $V_{CC} = 2 \text{ to } 6 \text{ V}$
- Low Input Current: $1 \mu\text{A max}$
- Low Quiescent Supply Current: $I_{CC}(\text{static}) = 1 \mu\text{A max}$ ($T_a = 25^\circ\text{C}$)

Pin Arrangement



DC Characteristics

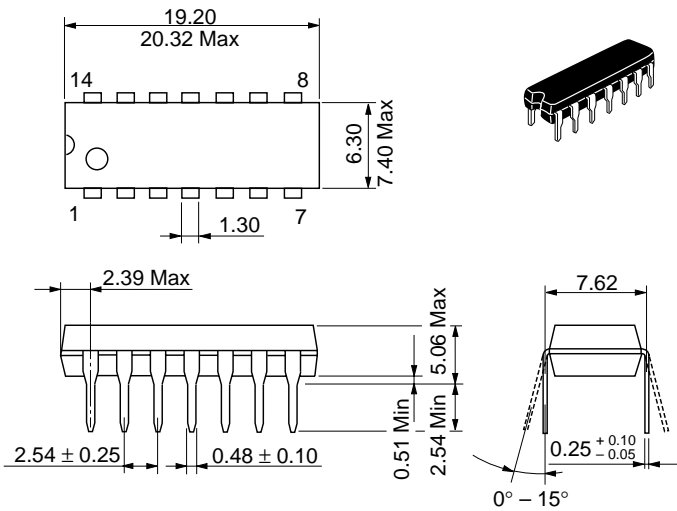
Item	Symbol	V _{cc} (V)	Ta = 25°C			Ta = -40 to +85°C		Unit	Test Conditions	
			Min	Typ	Max	Min	Max			
Threshold voltage	V _{IH}	2.0	—	—	1.5	—	1.5	V		
		4.5	—	—	3.15	—	3.15			
		6.0	—	—	4.2	—	4.2			
	V _{IL}	2.0	0.3	—	—	0.3	—	V		
		4.5	0.9	—	—	0.9	—			
		6.0	1.2	—	—	1.2	—			
Hysteresis voltage	V _H	2.0	0.2	—	1.2	0.2	1.2	V		
		4.5	0.4	—	2.25	0.4	2.25			
		6.0	0.6	—	3.0	0.6	3.0			
Output voltage	V _{OH}	2.0	1.9	2.0	—	1.9	—	V	Vin = V _{IH} or V _{IL} I _{OH} = -20 μA	
		4.5	4.4	4.5	—	4.4	—			
		6.0	5.9	6.0	—	5.9	—			
		4.5	4.18	—	—	4.13	—			I _{OH} = -4 mA
		6.0	5.68	—	—	5.63	—			I _{OH} = -5.2 mA
	V _{OL}	2.0	—	0.0	0.1	—	0.1	V	Vin = V _{IH} or V _{IL} I _{OL} = 20 μA	
		4.5	—	0.0	0.1	—	0.1			
		6.0	—	0.0	0.1	—	0.1			
		4.5	—	—	0.26	—	0.33			I _{OL} = 4 mA
		6.0	—	—	0.26	—	0.33			I _{OL} = 5.2 mA
Input current	I _{in}	6.0	—	—	±0.1	—	±1.0	μA	Vin = V _{CC} or GND	
Quiescent supply current	I _{CC}	6.0	—	—	1.0	—	10	μA	Vin = V _{CC} or GND, I _{out} = 0 μA	

AC Characteristics (C_L = 50 pF, Input t_r = t_f = 6 ns)

Item	Symbol	V _{CC} (V)	Ta = 25°C		Ta = -40 to +85°C		Unit	Test Conditions
			Min	Typ	Max	Min		
Propagation delay time	t _{PLH}	2.0	—	—	125	—	155	ns
		4.5	—	10	25	—	31	
		6.0	—	—	21	—	26	
	t _{PHL}	2.0	—	—	125	—	155	ns
		4.5	—	11	25	—	31	
		6.0	—	—	21	—	26	
Output rise time	t _{TLH}	2.0	—	—	75	—	95	ns
		4.5	—	5	15	—	19	
		6.0	—	—	13	—	16	
Output fall time	t _{THL}	2.0	—	—	75	—	95	ns
		4.5	—	5	15	—	19	
		6.0	—	—	13	—	16	
Input capacitance	C _{in}	—	—	5	10	—	10	pF

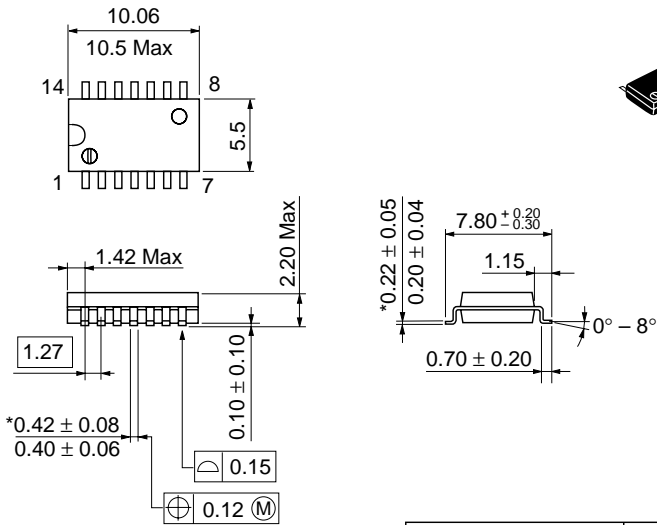
Package Dimensions

Unit: mm



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

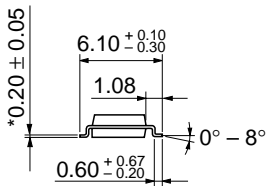
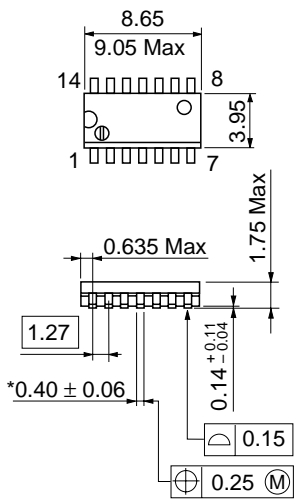
Unit: mm



*Dimension including the plating thickness
Base material dimension

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

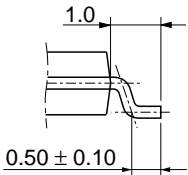
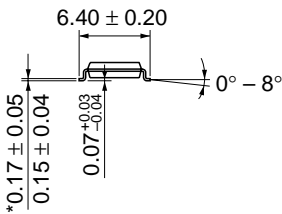
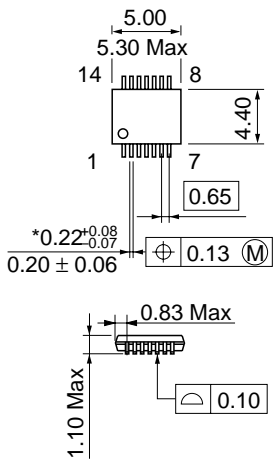
Unit: mm



*Pd plating

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

Unit: mm



*Dimension including the plating thickness
Base material dimension

Hitachi Code	TTP-14D
JEDEC	—
EIAJ	—
Mass (reference value)	0.05 g

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