

HD74HCT125/HD74HCT126

Quad. Bus Buffer Gates (with 3-state outputs)

HITACHI

ADE-205-545 (Z)
1st. Edition
Sep. 2000

Description

The HD74HCT125, HD74HCT126 require the 3-state control input C to be taken high to put the output into the high impedance condition, whereas the HD74HCT125, HD74HCT126 requires the control input to be low to put the output into high impedance.

Features

- LSTTL Output Logic Level Compatibility as well as CMOS Output Compatibility
- High Speed Operation: t_{pd} (A to Y) = 12 ns typ ($C_L = 50$ pF)
- High Output Current: Fanout of 15 LSTTL Loads
- Wide Operating Voltage: $V_{CC} = 4.5$ to 5.5 V
- Low Input Current: $1 \mu A$ max
- Low Quiescent Supply Current: I_{CC} (static) = $4 \mu A$ max ($T_a = 25^\circ C$)

Function Table

Input			Output Y	
C				
HCT125	HCT126	A	HD74HCT125	HD74HCT126
H	L	X	Z	Z
L	H	L	L	L
L	H	H	H	H

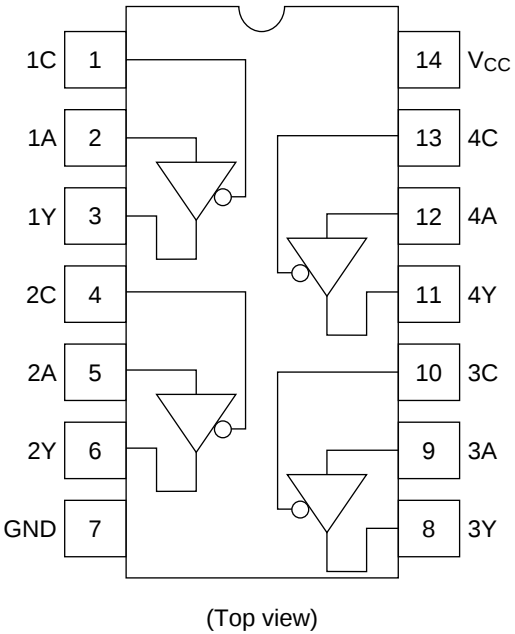
Notes: X: Irrelevant
Z: Off (High-impedance) state of a 3-state output.



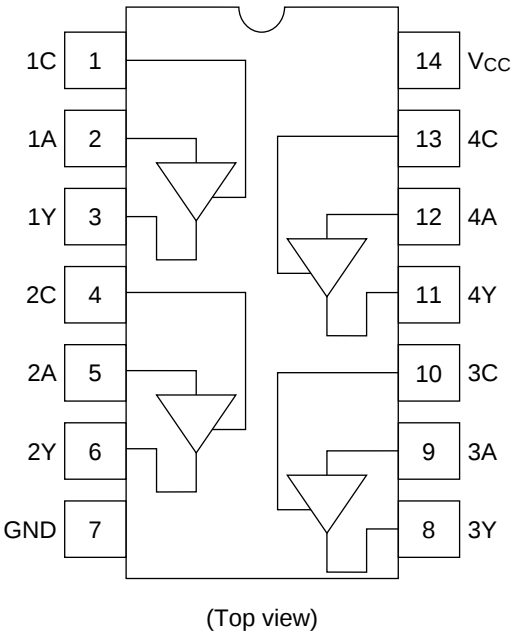
HD74HCT125/HD74HCT126

Pin Arrangement

HD74HCT125



HD74HCT126



Absolute Maximum Ratings

Item	Symbol	Rating	Unit
Supply voltage range	V_{CC}	-0.5 to +7.0	V
Input voltage	V_{IN}	-0.5 to $V_{CC} + 0.5$	V
Output voltage	V_{OUT}	-0.5 to $V_{CC} + 0.5$	V
Output current	I_{OUT}	± 35	mA
DC current drain per V_{CC} , GND	I_{CC}, I_{GND}	± 75	mA
DC input diode current	I_{IK}	± 20	mA
DC output diode current	I_{OK}	± 20	mA
Power dissipation per package	P_T	500	mW
Storage temperature	Tstg	-65 to +150	°C

DC Characteristics

Item	Symbol	Ta = 25°C		Ta = -40 to +85°C		Unit	Test Conditions	
		Min	Typ	Max	Min		V_{CC} (V)	
Input voltage	V_{IH}	2.0	—	—	2.0	—	V	4.5 to 5.5
	V_{IL}	—	—	0.8	—	0.8	V	4.5 to 5.5
Output voltage	V_{OH}	4.4	—	—	4.4	—	V	4.5 Vin = V_{IH} or V_{IL} $I_{OH} = -20 \mu A$
		4.18	—	—	4.13	—		4.5 $I_{OH} = -6 \text{ mA}$
	V_{OL}	—	—	0.1	—	0.1	V	4.5 Vin = V_{IH} or V_{IL} $I_{OL} = 20 \mu A$
		—	—	0.26	—	0.33		4.5 $I_{OL} = 6 \text{ mA}$
Off-state output current	I_{OZ}	—	—	± 0.5	—	± 5.0	μA	5.5 Vin = V_{IH} or V_{IL} , Vout = V_{CC} or GND
Input current	I_{in}	—	—	± 0.1	—	± 1.0	μA	5.5 Vin = V_{CC} or GND
Quiescent supply current	I_{CC}	—	—	4.0	—	40	μA	5.5 Vin = V_{CC} or GND, Iout = 0 μA

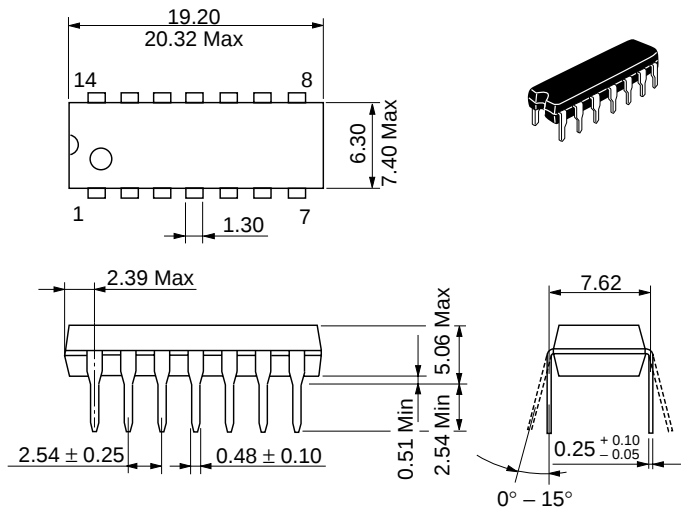
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AC Characteristics (C_L = 50 pF, Input t_r = t_f = 6 ns)

Item	Symbol	Ta = 25°C			Ta = -40 to +85°C		Unit	Test Conditions
		Min	Typ	Max	Min	Max		V _{CC} (V)
Propagation delay time	t _{PHL}	—	12	20	—	25	ns	4.5
	t _{PLH}	—	12	20	—	25		4.5
Output enable time	t _{ZL}	—	12	30	—	38	ns	4.5
	t _{ZH}	—	12	30	—	38		4.5
Output disable time	t _{LZ}	—	15	30	—	38	ns	4.5
	t _{HZ}	—	15	30	—	38		4.5
Output rise/fall time	t _{TLH}	—	4	12	—	15	ns	4.5
	t _{THL}	—	4	12	—	15		4.5
Input capacitance	C _{in}	—	5	10	—	10	pF	—

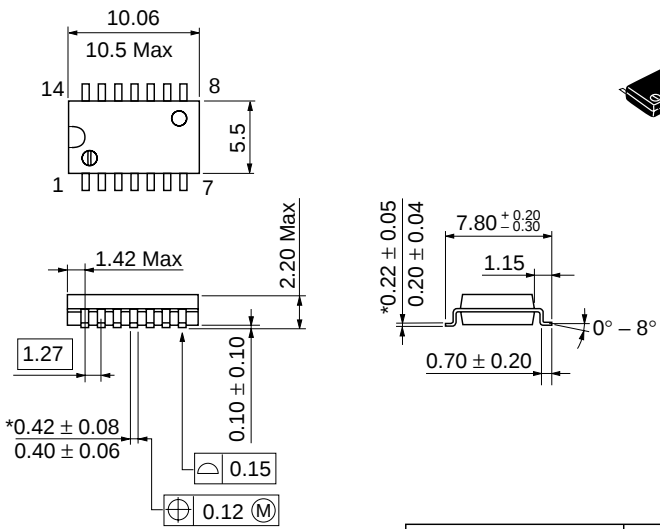
Package Dimensions

Unit: mm



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

Unit: mm

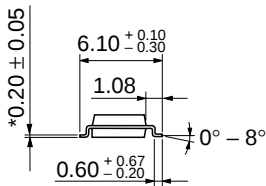
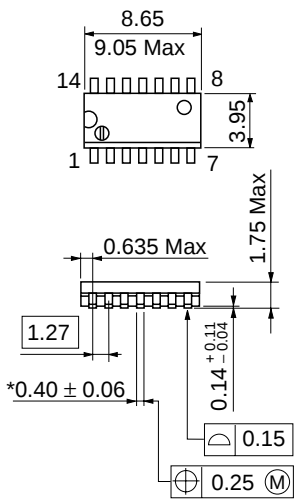


*Dimension including the plating thickness
Base material dimension

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

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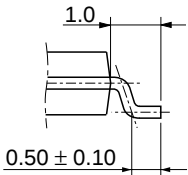
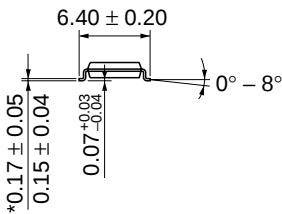
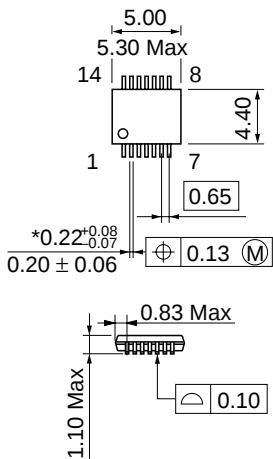
Unit: mm



*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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