To all our customers

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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

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Keep safety first in your circuit designs!

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   Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of nonflammable material or (iii) prevention against any malfunction or mishap.

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HD74HCT125/HD74HCT126

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

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 μA max
- Low Quiescent Supply Current: I_{CC} (static) = 4 μA max (Ta = 25°C)

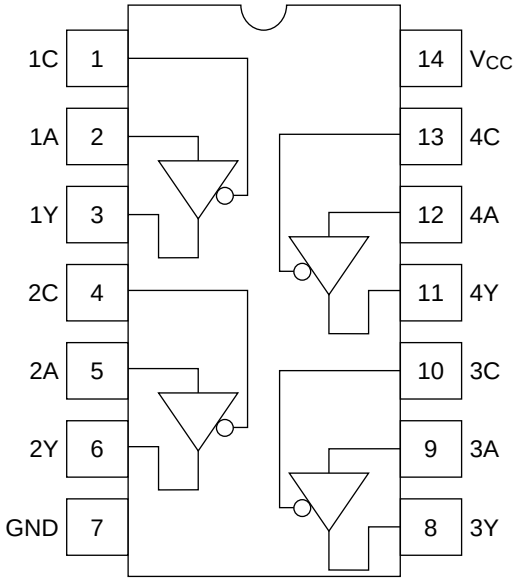
Function Table

Input				
C			Output Y	
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.

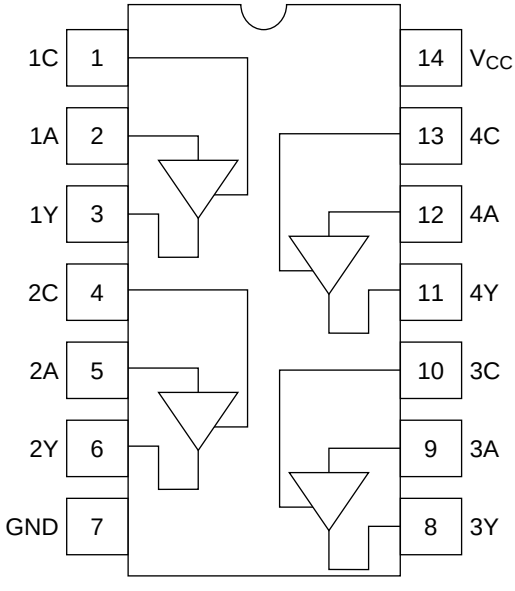
Pin Arrangement

HD74HCT125



(Top view)

HD74HCT126



(Top view)

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

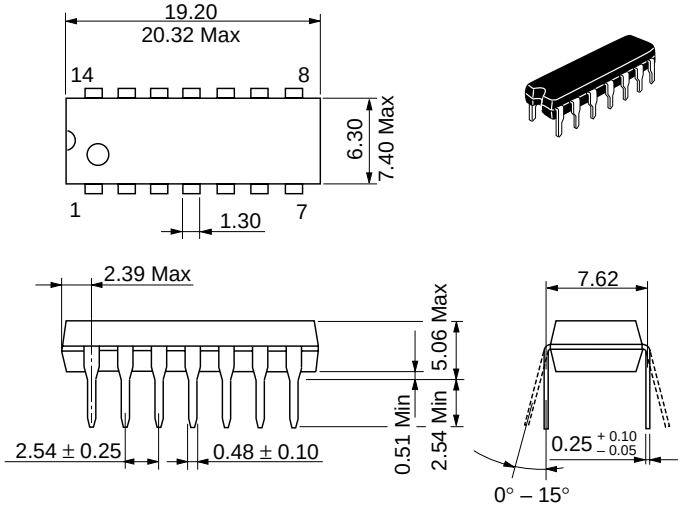
		Ta = 25°C			Ta = –40 to +85°C			Test Conditions		
Item	Symbol	Min	Typ	Max	Min	Max	Unit	V_{CC} (V)		
Input voltage	V_{IH}	2.0	—	—	2.0	—	V	4.5 to 5.5		
	V_{IL}	—	—	0.8	—	0.8	V	4.5 to 5.5		
Output voltage	V_{OH}	4.4	—	—	4.4	—	V	4.5	Vin = V_{IH} or V_{IL}	I_{OH} = –20 µA
		4.18	—	—	4.13	—		4.5		I_{OH} = –6 mA
	V_{OL}	—	—	0.1	—	0.1	V	4.5	Vin = V_{IH} or V_{IL}	I_{OL} = 20 µA
		—	—	0.26	—	0.33		4.5		I_{OL} = 6 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	Iin	—	—	±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	

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

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

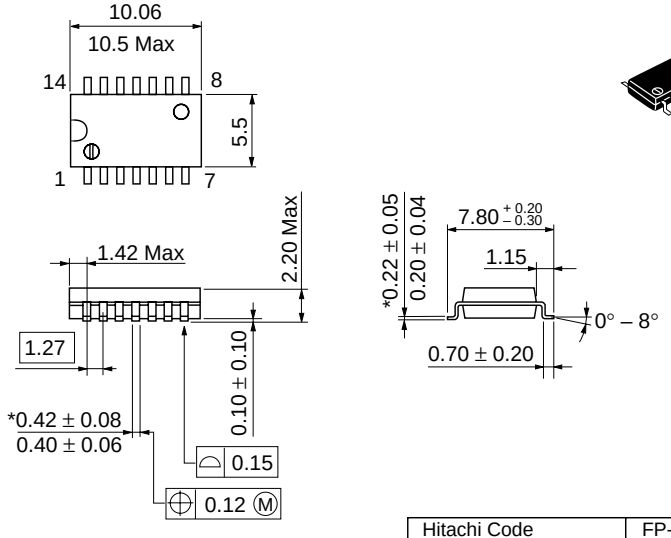
Package Dimensions

Unit: mm



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

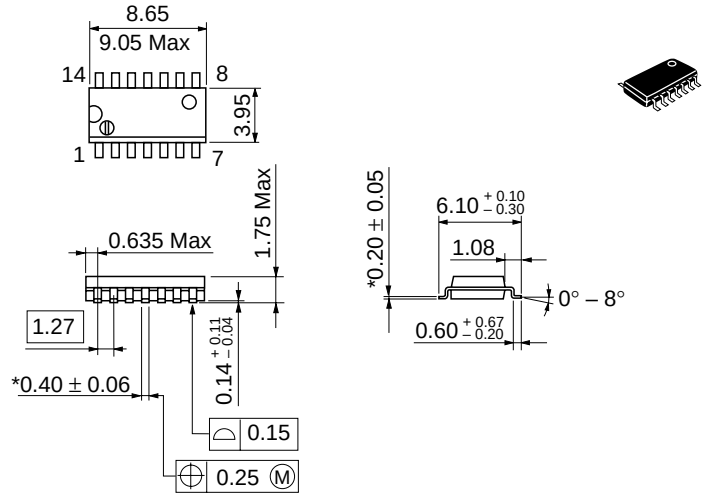
Unit: mm



*Dimension including the plating thickness
Base material dimension

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

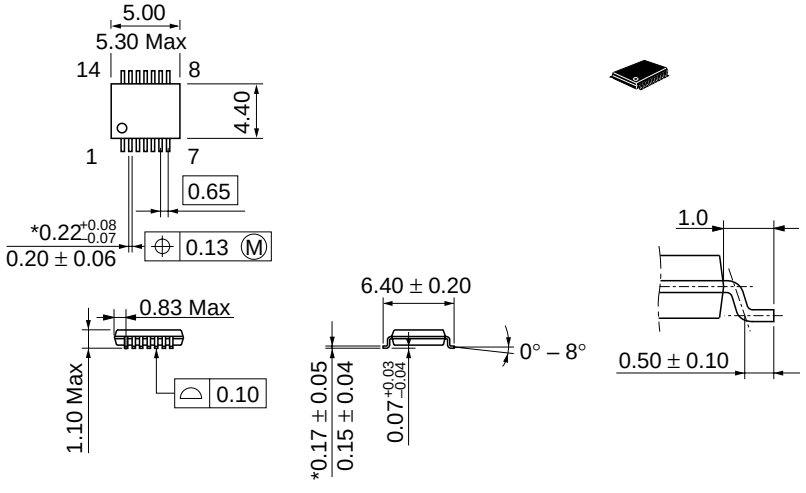
Unit: mm



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

*Pd plating

Unit: mm



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

*Dimension including the plating thickness
Base material dimension

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