

HD74HCT563/HD74HCT573

Octal Transparent Latches (with 3-state outputs)

HITACHI

ADE-205-559 (Z)
1st. Edition
Sep. 2000

Description

When the latch enable (LE) input is high, the Q outputs of HD74HCT563 will follow the inversion of the D inputs and the Q outputs of HD74HCT573 will follow the D inputs.

When the latch enable goes low, data at the D inputs will be retained at the outputs until latch enabled returns high again. When a high logic level is applied to the output control input, all outputs go to a high impedance state, regardless of what signals are present at the other inputs and the state of the storage elements.

Features

- LSTTL Output Logic Level Compatibility as well as CMOS Output Compatibility
- High Speed Operation: t_{pd} (D to Q, $\overline{Q}$) = 13 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 μ A max
- Low Quiescent Supply Current: I_{CC} (static) = 4 μ A max (T_a = 25°C)

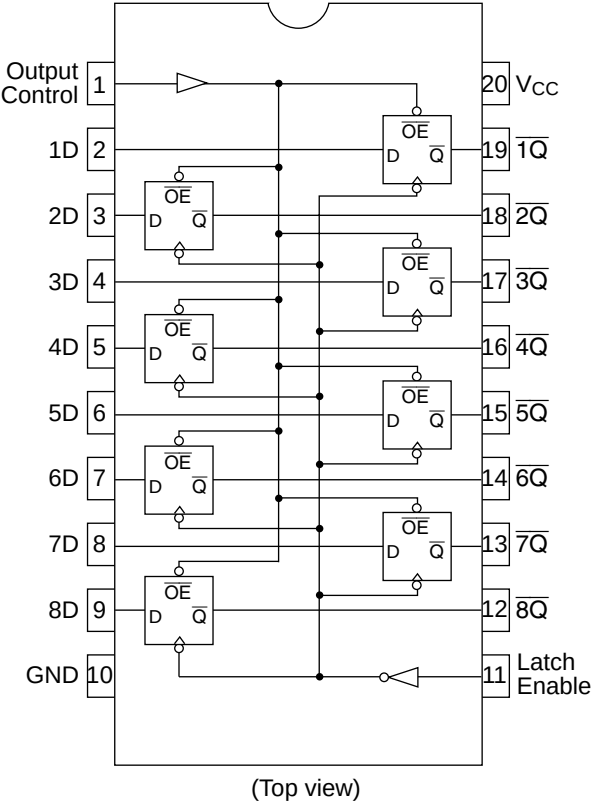
Function Table

Output Control	Latch Enable	Data	Outputs	
			HD74HCT563	HD74HCT573
L	H	H	L	H
L	H	L	H	L
L	L	X	$\overline{Q}_0$	Q_0
H	X	X	Z	Z

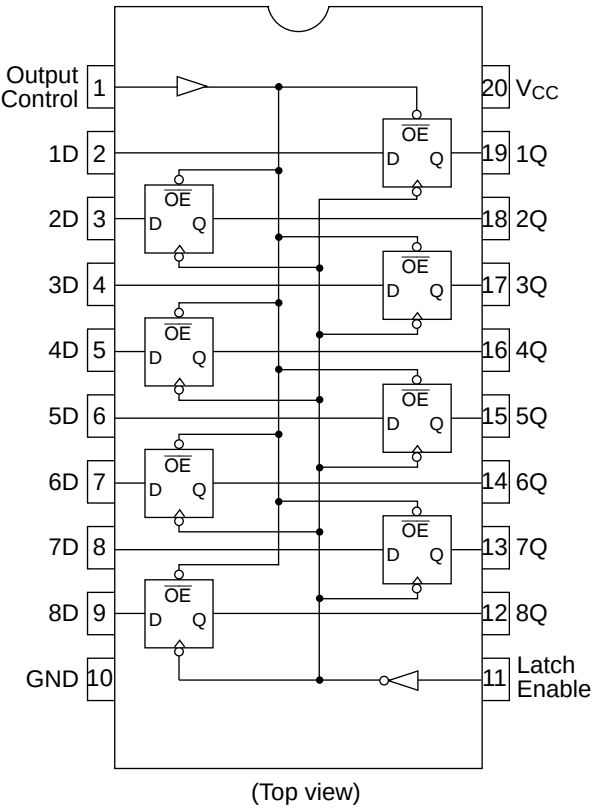
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Pin Arrangement

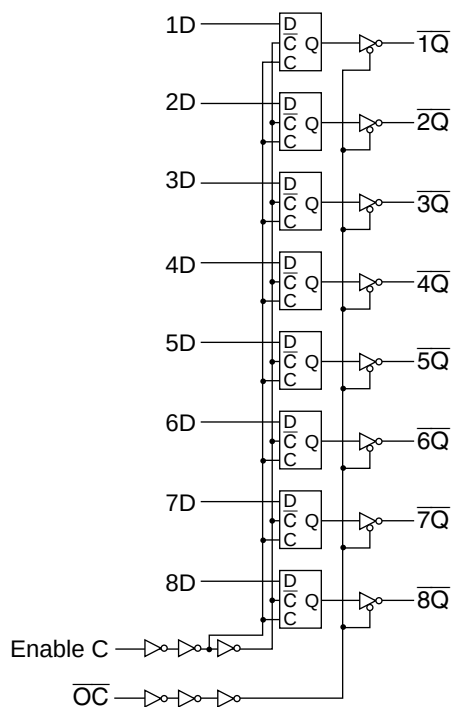
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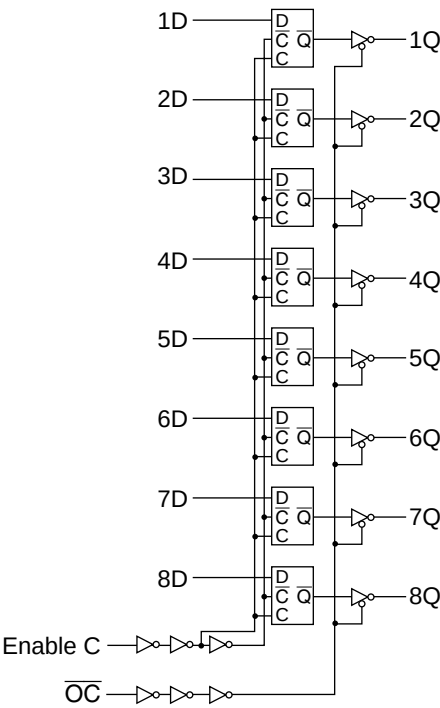
HD74HCT573



Block Diagram

HD74HCT563**HITACHI**

HD74HCT573



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
DC current drain per pin	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

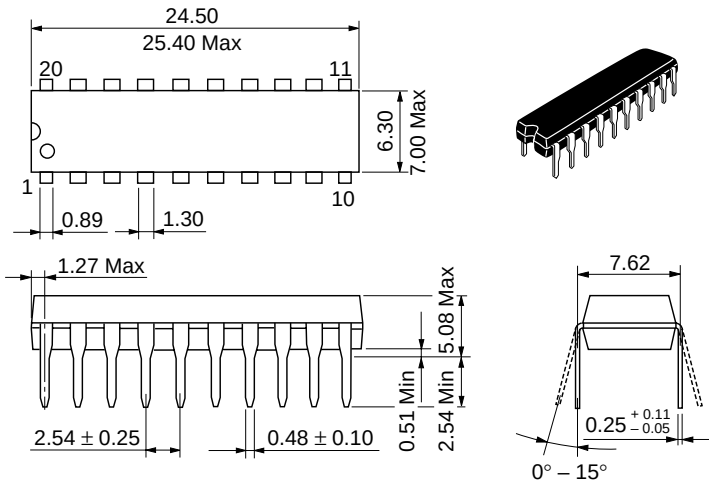
Item	Symbol	Ta = 25°C			Ta = -40 to +85°C		Unit	Test Conditions	
		Min	Typ	Max	Min	Max		V _{CC} (V)	
Input voltage	V _{IH}	2.0	—	—	2.0	—	V	4.5 to 5.5	
	V _{IL}	—	—	0.8	—	0.8	V	4.5 to 5.5	
Output voltage	V _{OH}	4.4	—	—	4.4	—	V	4.5	Vin = V _{IH} or V _{IL} I _{OH} = -20 μA
		4.18	—	—	4.13	—		4.5	I _{OH} = -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	I _{in}	—	—	±0.1	—	±1.0	μA	5.5	Vin = V _{CC} or GND
Quiescent 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)

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 _{PLH}	—	13	22	—	28	ns	4.5	Data to Q, $\overline{Q}$
	t _{PHL}	—	13	22	—	28		4.5	
	t _{PLH}	—	14	23	—	29	ns	4.5	Enable G to Q, $\overline{Q}$
	t _{PHL}	—	14	23	—	29		4.5	
Output enable time	t _{ZL}	—	14	30	—	38	ns	4.5	
	t _{ZH}	—	15	30	—	38		4.5	
Output disable time	t _{LZ}	—	16	30	—	38	ns	4.5	
	t _{HZ}	—	17	30	—	38		4.5	
Setup time	t _{su}	15	3	—	19	—	ns	4.5	
Hold time	t _h	5	-1	—	5	—	ns	4.5	
Pulse width	t _w	16	4	—	20	—	ns	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	—	

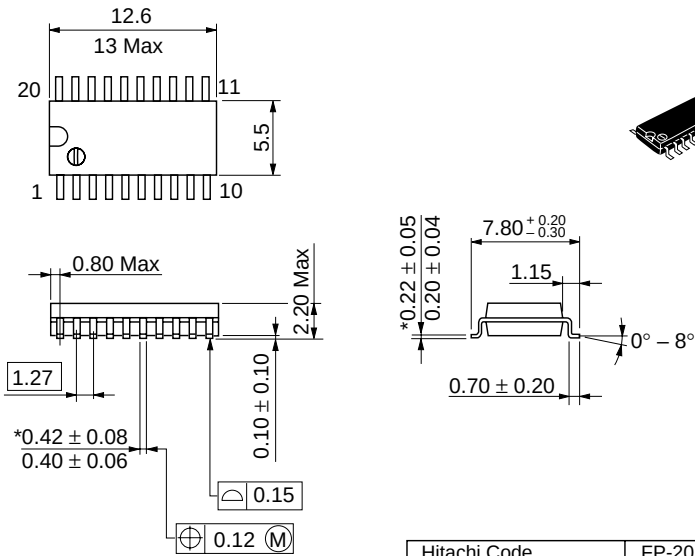
Package Dimensions

Unit: mm



Hitachi Code	DP-20N
JEDEC	—
EIAJ	Conforms
Mass (reference value)	1.26 g

Unit: mm

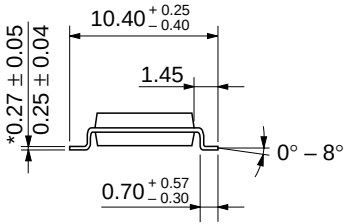
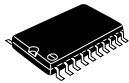
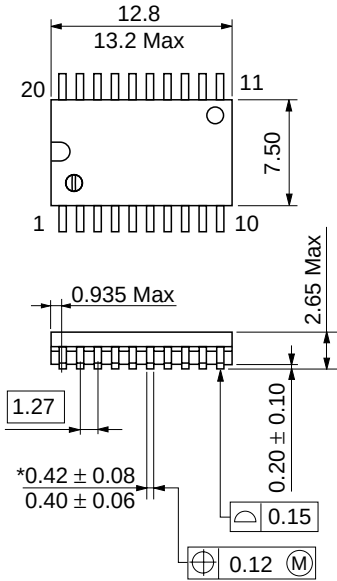


*Dimension including the plating thickness
Base material dimension

Hitachi Code	FP-20DA
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.31 g

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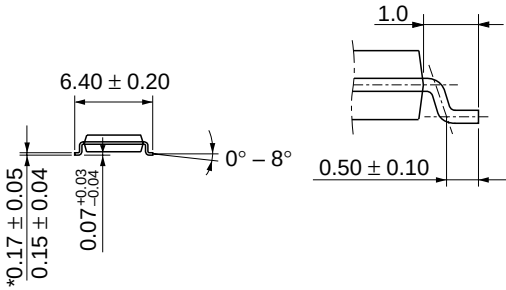
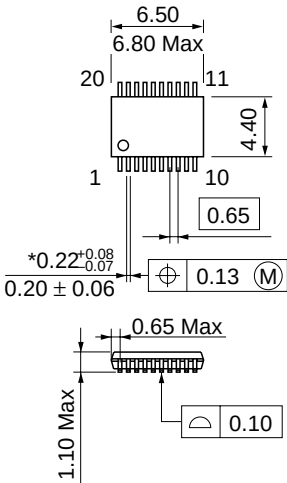
Unit: mm



*Dimension including the plating thickness
Base material dimension

Hitachi Code	FP-20DB
JEDEC	Conforms
EIAJ	—
Mass (reference value)	0.52 g

Unit: mm



*Dimension including the plating thickness
Base material dimension

Hitachi Code	TTP-20DA
JEDEC	—
EIAJ	—
Mass (reference value)	0.07 g

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