

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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HD74HCT240

Octal Buffers/Line Drivers/Line Receivers
(with inverted 3-state outputs)



ADE-205-550 (Z)
1st. Edition
Sep. 2000

Description

The HD74HCT240 is an inverting buffer and has two active low enables ($1\overline{G}$ and $2\overline{G}$). Each enable independently controls 4 buffers. This device does not have schmitt trigger inputs.

Features

- LSTTL Output Logic Level Compatibility as well as CMOS Output Compatibility
- High Speed Operation: t_{pd} (A to Y) = 11 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: $1\ \mu\text{A}$ max
- Low Quiescent Supply Current: I_{CC} (static) = $4\ \mu\text{A}$ max ($T_a = 25^\circ\text{C}$)

Function Table

Inputs		Output
$\overline{G}$	A	Y
H	X	Z
L	H	L
L	L	H

H : High level

L : Low level

X : Irrelevant

Z : Off (high impedance) state of a 3-state output

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	T_{stg}	−65 to +150	°C

DC Characteristics

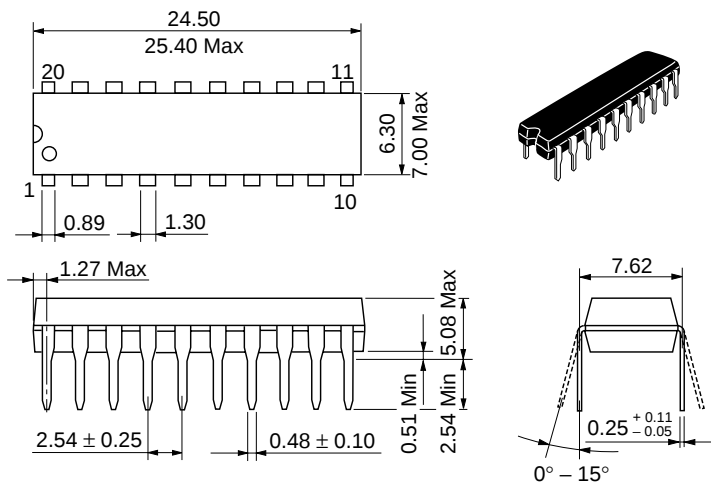
Item	Symbol	Ta = 25°C		Ta = −40 to +85°C		Unit	Test Conditions	
		Min	Typ	Max	Min		V_{CC} (V)	
Input voltage	V_{IH}	2.0	—	—	2.0	—	V	4.5 to 5.5
	V_{IL}	—	—	0.8	—	0.8	V	4.5 to 5.5
Output voltage	V_{OH}	4.4	—	—	4.4	—	V	$V_{in} = V_{IH}$ or V_{IL} $I_{OH} = -20 \mu A$
		4.18	—	—	4.13	—		$I_{OH} = -6 \text{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

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

Item	Symbol	Ta = −40 to						Unit	Test Conditions
		Ta = 25°C			+85°C				
		Min	Typ	Max	Min	Max			V _{CC} (V)
Propagation delay	t _{PHL}	—	13	20	—	25	ns	4.5	
time	t _{PLH}	—	9	20	—	25		4.5	
Output enable	t _{ZL}	—	14	30	—	38	ns	4.5	
time	t _{ZH}	—	12	30	—	38		4.5	
Output disable	t _{LZ}	—	14	30	—	38	ns	4.5	
time	t _{HZ}	—	18	30	—	38		4.5	
Output rise/fall	t _{TLH}	—	4	12	—	15	ns	4.5	
time	t _{THL}								
Input capacitance	C _{in}	—	5	10	—	10	pF	—	

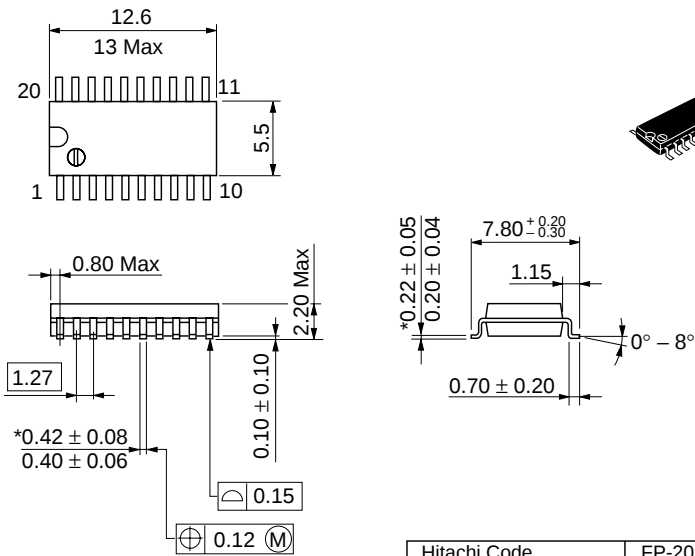
Package Dimensions

Unit: mm



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

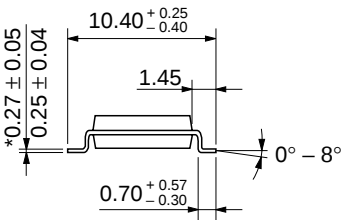
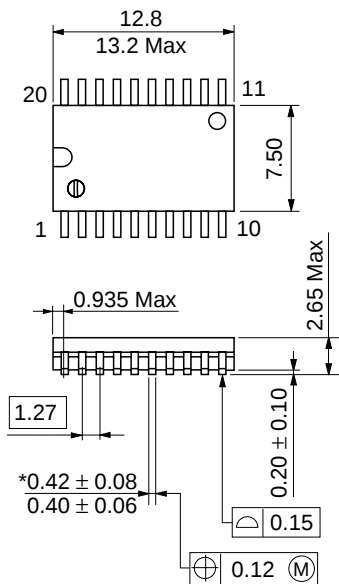
Unit: mm



*Dimension including the plating thickness
Base material dimension

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

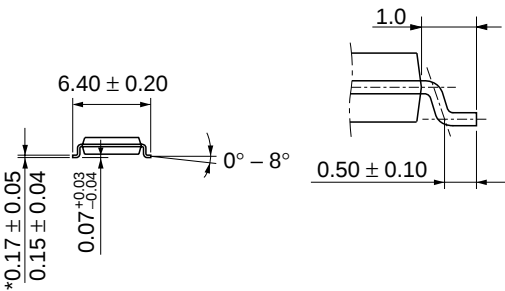
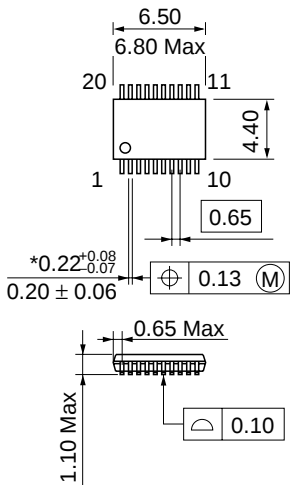
Unit: mm



*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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