

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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# HD74HCT245

Octal Bus Transceivers (with 3-state outputs)



ADE-205-554 (Z)  
1st. Edition  
Sep. 2000

## Description

This device has an active low enable input  $\overline{G}$  and a direction control input (DIR). When DIR is high, data flows from the A inputs to the B outputs. When DIR is low, data flows from the B inputs to the A outputs. The HD74HCT245 transfers true data from one bus to the other.

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) = 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 ( $T_a = 25^\circ\text{C}$ )

## Function Table

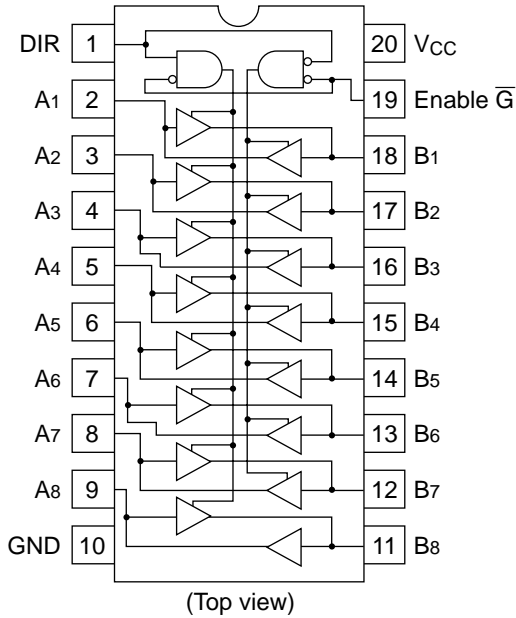
Enable $\overline{G}$	Direction Control DIR	Operation
L	L	B data to A bus
L	H	A data to B bus
H	X	Isolation

H : High level

L : Low level

X : Irrelevant

## Pin Arrangement



## 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	$I_{OUT}$	$\pm 35$	mA
DC current drain per $V_{CC}$ , GND	$I_{CC}$ , $I_{GND}$	$\pm 75$	mA
DC input diode current	$I_{IK}$	$\pm 20$	mA
DC output diode current	$I_{OK}$	$\pm 20$	mA
Power dissipation per package	$P_T$	500	mW
Storage temperature	Tstg	-65 to +150	°C

DC Characteristics

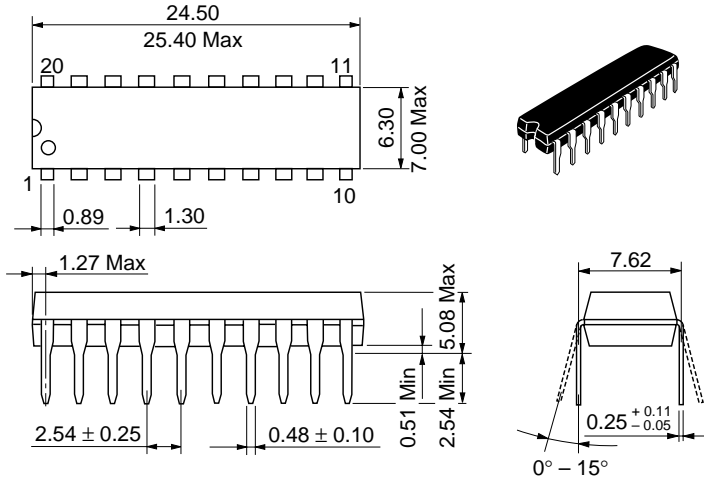
Item	Symbol	Ta = 25°C		Ta = -40 to +85°C		Unit	Test Conditions	
		Min	Typ	Max	Min		Max	V <sub>CC</sub> (V)
Input voltage	V <sub>IH</sub>	2.0	—	—	2.0	—	V	4.5 to 5.5
	V <sub>IL</sub>	—	—	0.8	—	0.8	V	4.5 to 5.5
Output voltage	V <sub>OH</sub>	4.4	—	—	4.4	—	V	Vin = V <sub>IH</sub> or V <sub>IL</sub> I <sub>OH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

AC Characteristics (C<sub>L</sub> = 50 pF, Input t<sub>r</sub> = t<sub>f</sub> = 6 ns)

Item	Symbol	Ta = 25°C		Ta = -40 to +85°C		Unit	Test Conditions	
		Min	Typ	Max	Min		Max	V <sub>CC</sub> (V)
Propagation delay time	t <sub>PLH</sub>	—	11	22	—	28	ns	4.5
	t <sub>PHL</sub>	—	13	22	—	28		4.5
Output enable time	t <sub>ZL</sub>	—	17	30	—	38	ns	4.5
	t <sub>ZH</sub>	—	14	30	—	38		4.5
Output disable time	t <sub>LZ</sub>	—	20	30	—	38	ns	4.5
	t <sub>HZ</sub>	—	22	30	—	38		4.5
Output rise/fall time	t <sub>TLH</sub> t <sub>THL</sub>	—	4	12	—	15	ns	4.5
Input capacitance	C <sub>in</sub>	—	5	10	—	10	pF	—

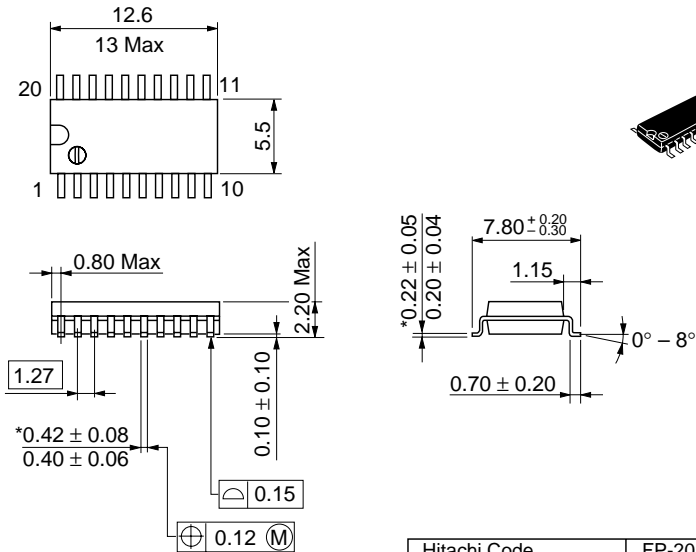
## Package Dimensions

Unit: mm



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

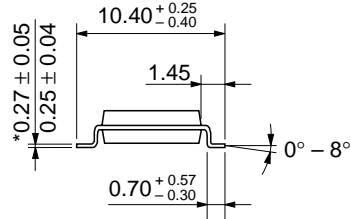
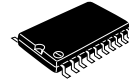
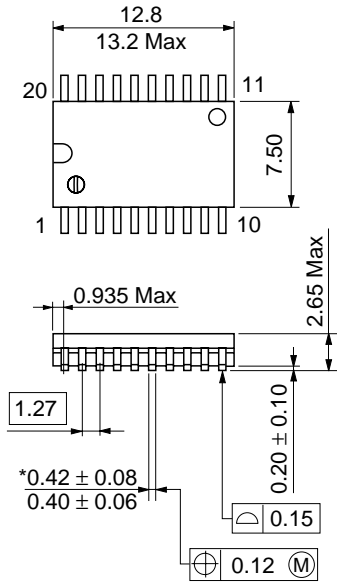
Unit: mm



\*Dimension including the plating thickness  
Base material dimension

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

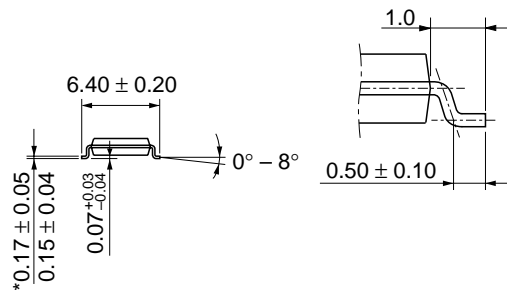
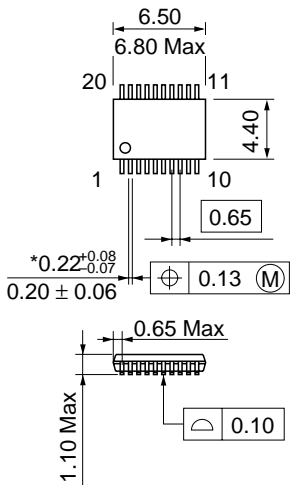
Unit: mm



\*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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