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# HD74HC245

Octal Bus Transceivers (with 3-state outputs)

# HITACHI

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## Description

Each 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 HD74HC245 transfers true data from one bus to the other. This device does not have schmitt trigger inputs.

## Features

- High Speed Operation:  $t_{pd} = 8 \text{ ns typ (} C_L = 50 \text{ pF)}$
- High Output Current: Fanout of 15 LSTTL Loads
- Wide Operating Voltage:  $V_{CC} = 2 \text{ to } 6 \text{ V}$
- Low Input Current:  $1 \mu\text{A max}$
- Low Quiescent Supply Current:  $I_{CC} \text{ (static)} = 4 \mu\text{A max (} T_a = 25^\circ\text{C)}$

## Function Table

Enable G	Direction Control DIR	Operation
L	L	B data to A bus
L	H	A data to B bus
H	X	Isolation

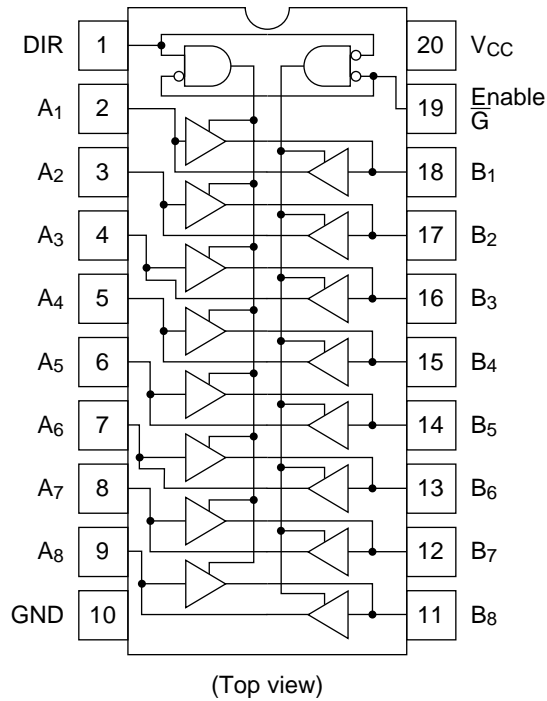
H : high level

L : low level

X : irrelevant

# HD74HC245

## 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	$^{\circ}\text{C}$

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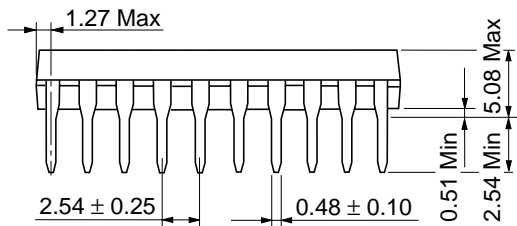
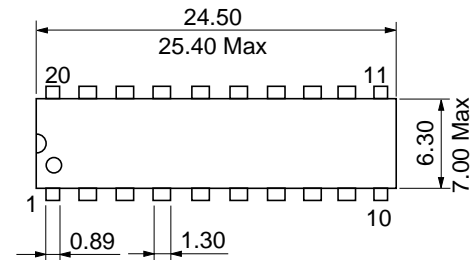
**DC Characteristics**

Item	Symbol	V <sub>CC</sub> (V)	Ta = 25°C			Ta = -40 to +85°C		Unit	Test Conditions	
			Min	Typ	Max	Min	Max			
Input voltage	V <sub>IH</sub>	2.0	1.5	—	—	1.5	—	V		
		4.5	3.15	—	—	3.15	—			
		6.0	4.2	—	—	4.2	—			
	V <sub>IL</sub>	2.0	—	—	0.5	—	0.5	V		
		4.5	—	—	1.35	—	1.35			
		6.0	—	—	1.8	—	1.8			
Output voltage	V <sub>OH</sub>	2.0	1.9	2.0	—	1.9	—	V	Vin = V <sub>IH</sub> or V <sub>IL</sub> I <sub>OH</sub> = -20 μA	
		4.5	4.4	4.5	—	4.4	—			
		6.0	5.9	6.0	—	5.9	—			
		4.5	4.18	—	—	4.13	—			I <sub>OH</sub> = -6 mA
		6.0	5.68	—	—	5.63	—			I <sub>OH</sub> = -7.8 mA
		V <sub>OL</sub>	2.0	—	0.0	0.1	—			0.1
	4.5		—	0.0	0.1	—	0.1			
	6.0		—	0.0	0.1	—	0.1			
	4.5		—	—	0.26	—	0.33	I <sub>OL</sub> = 6 mA		
	6.0	—	—	0.26	—	0.33	I <sub>OL</sub> = 7.8 mA			
Off-state output current	I <sub>OZ</sub>	6.0	—	—	±0.5	—	±5.0	μA	Vin = V <sub>IH</sub> or V <sub>IL</sub> , Vout = V <sub>CC</sub> or GND	
Input current	I <sub>in</sub>	6.0	—	—	±0.1	—	±1.0	μA	Vin = V <sub>CC</sub> or GND	
Quiescent supply current	I <sub>CC</sub>	6.0	—	—	4.0	—	40	μA	Vin = V <sub>CC</sub> or GND, Iout = 0 μA	

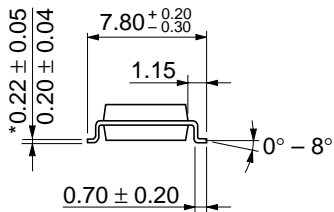
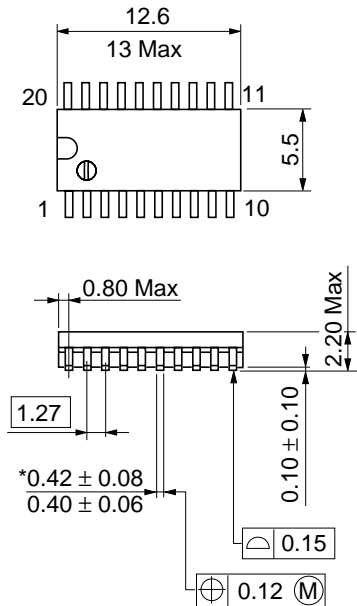
# HD74HC245

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

Item	Symbol	$V_{CC}$ (V)	$T_a = 25^\circ\text{C}$			$T_a = -40$ to $+85^\circ\text{C}$		Unit	Test Conditions
			Min	Typ	Max	Min	Max		
Propagation delay time	$t_{PLH}$	2.0	—	—	90	—	115	ns	
		4.5	—	8	18	—	23		
		6.0	—	—	15	—	20		
	$t_{PHL}$	2.0	—	—	90	—	115	ns	
		4.5	—	8	18	—	23		
		6.0	—	—	15	—	20		
Output enable time	$t_{ZL}$	2.0	—	—	150	—	190	ns	
		4.5	—	16	30	—	38		
		6.0	—	—	26	—	32		
	$t_{ZH}$	2.0	—	—	150	—	190	ns	
		4.5	—	12	30	—	38		
		6.0	—	—	26	—	32		
Output disable time	$t_{LZ}$	2.0	—	—	150	—	190	ns	
		4.5	—	17	30	—	38		
		6.0	—	—	26	—	32		
	$t_{HZ}$	2.0	—	—	150	—	190	ns	
		4.5	—	18	30	—	38		
		6.0	—	—	26	—	32		
Output rise/fall time	$t_{TLH}$	2.0	—	—	60	—	75	ns	
	$t_{THL}$	4.5	—	4	12	—	15		
		6.0	—	—	10	—	13		
Input capacitance	$C_{in}$	—	—	5	10	—	10	pF	

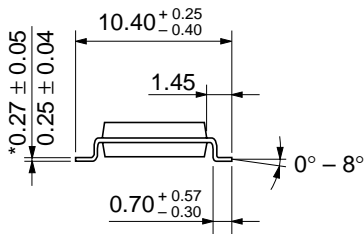
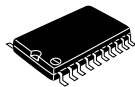
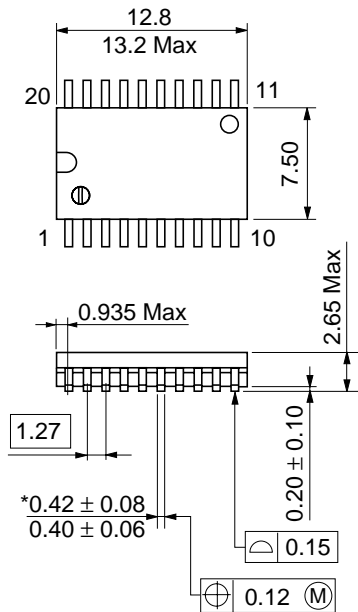


Hitachi Code	DP-20N
JEDEC	—
EIAJ	Conforms
Weight (reference value)	1.26 g



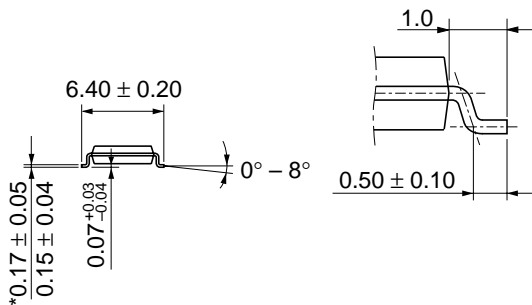
Hitachi Code	FP-20DA
JEDEC	—
EIAJ	Conforms
Weight (reference value)	0.31 g

\*Dimension including the plating thickness  
Base material dimension



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

\*Dimension including the plating thickness  
Base material dimension



\*Dimension including the plating thickness  
Base material dimension

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



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