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# HD74AC245/HD74ACT245

Octal Bidirectional Transceiver with 3-State Input/Output

# HITACHI

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## Description

The HD74AC245/HD74ACT245 contains eight non-inverting bidirectional buffers with 3-state outputs and is intended for bus-oriented applications. Current sinking capability is 24 mA at both the A and B ports. The Transmit/Receive ( $T/\bar{R}$ ) input determines the direction of data flow through the bidirectional transceiver. Transmit (active-High) enables data from A ports to B ports; Receive (active-Low) enables data from B ports to A ports. The Output Enable input, when High, disables, both A and B ports by placing them in a High Z condition.

## Features

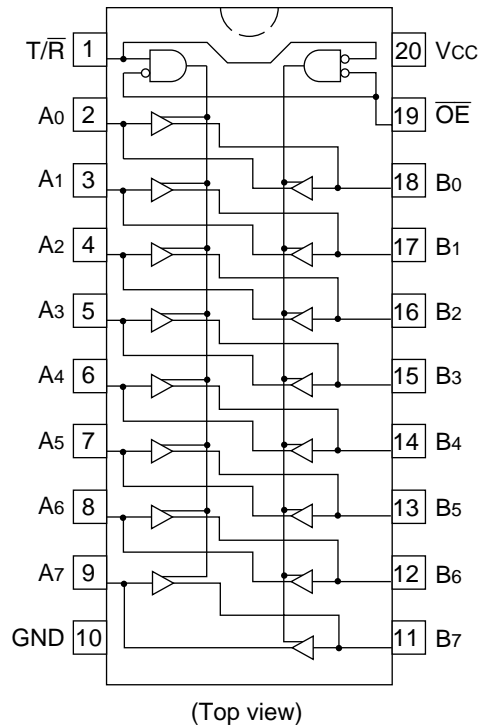
- Noninverting Buffers
- Bidirectional Data Path
- A and B Outputs Source/Sink 24 mA
- HD74ACT245 has TTL-Compatible Inputs

## Pin Names

$\overline{OE}$	Output Enable Input
$T/\bar{R}$	Transmit/Receive Input
$A_0$ to $A_7$	Side A 3-State Inputs or 3-State Outputs
$B_0$ to $B_7$	Side B 3-State Inputs or 3-State Outputs

# HD74AC245/HD74ACT245

## Pin Arrangement



## Truth Tables

### Inputs

$\overline{OE}$	$T/\overline{R}$	Outputs
L	L	Bus B Data to Bus A
L	H	Bus A Data to Bus B
H	X	High Z State

H : High Voltage Level

L : Low Voltage Level

X : Immaterial

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**DC Characteristics** (unless otherwise specified)

Item	Symbol	Max	Unit	Condition
Maximum quiescent supply current	$I_{CC}$	80	$\mu\text{A}$	$V_{IN} = V_{CC}$ or ground, $V_{CC} = 5.5\text{ V}$ , $T_a = \text{Worst case}$
Maximum quiescent supply current	$I_{CC}$	8.0	$\mu\text{A}$	$V_{IN} = V_{CC}$ or ground, $V_{CC} = 5.5\text{ V}$ , $T_a = 25^\circ\text{C}$
Maximum additional $I_{CC}$ /input (HD74ACT245)	$I_{CCT}$	1.5	mA	$V_{IN} = V_{CC} - 2.1\text{ V}$ , $V_{CC} = 5.5\text{ V}$ , $T_a = \text{Worst case}$

**AC Characteristics: HD74AC245**

Item	Symbol	$V_{CC} (\text{V})^{*1}$	$T_a = +25^\circ\text{C}$ $C_L = 50\text{ pF}$			$T_a = -40^\circ\text{C to } +85^\circ\text{C}$ $C_L = 50\text{ pF}$		Unit
			Min	Typ	Max	Min	Max	
Propagation delay	$t_{PLH}$	3.3	1.0	5.0	8.5	1.0	9.0	ns
		5.0	1.0	3.5	6.5	1.0	7.0	
Data to output	$t_{PHL}$	3.3	1.0	5.0	8.5	1.0	9.0	ns
		5.0	1.0	3.5	6.0	1.0	7.0	
Output enable time	$t_{PZH}$	3.3	1.0	7.0	11.5	1.0	12.5	ns
		5.0	1.0	5.0	8.5	1.0	9.0	
Output enable time	$t_{PZL}$	3.3	1.0	7.5	12.0	1.0	13.5	ns
		5.0	1.0	5.5	9.0	1.0	9.5	
Output disable time	$t_{PHZ}$	3.3	1.0	6.5	12.0	1.0	12.5	ns
		5.0	1.0	5.5	9.0	1.0	10.0	
Output disable time	$t_{PLZ}$	3.3	1.0	7.0	11.5	1.0	13.0	ns
		5.0	1.0	5.5	9.0	1.0	10.0	

Note: 1. Voltage Range 3.3 is  $3.3\text{ V} \pm 0.3\text{ V}$   
Voltage Range 5.0 is  $5.0\text{ V} \pm 0.5\text{ V}$

# HD74AC245/HD74ACT245

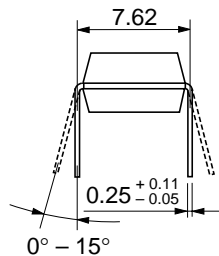
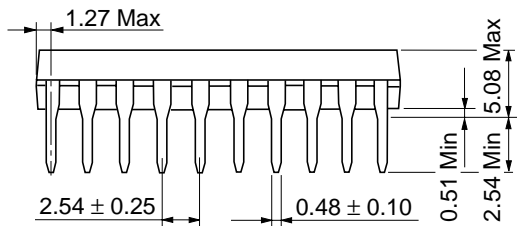
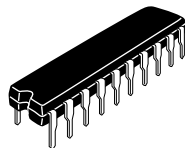
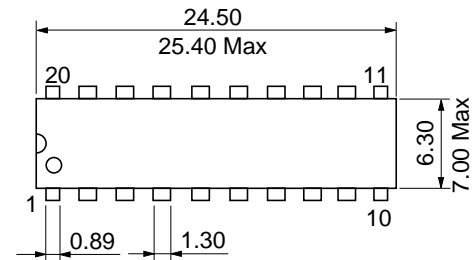
## AC Characteristics: HD74ACT245

Item	Symbol	$V_{CC}$ (V)*1	$T_a = +25^{\circ}\text{C}$ $C_L = 50\text{ pF}$			$T_a = -40^{\circ}\text{C to } +85^{\circ}\text{C}$ $C_L = 50\text{ pF}$		Unit
			Min	Typ	Max	Min	Max	
Propagation delay Data to output	$t_{PLH}$	5.0	1.0	4.0	7.5	1.0	8.0	ns
Propagation delay Data to output	$t_{PHL}$	5.0	1.0	4.0	8.0	1.0	9.0	ns
Output enable time	$t_{PZH}$	5.0	1.0	5.0	10.0	1.0	11.0	ns
Output enable time	$t_{PZL}$	5.0	1.0	5.5	10.0	1.0	12.0	ns
Output disable time	$t_{PHZ}$	5.0	1.0	5.5	10.0	1.0	11.0	ns
Output disable time	$t_{PLZ}$	5.0	1.0	5.0	10.0	1.0	11.0	ns

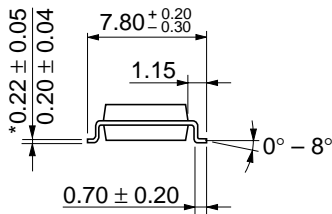
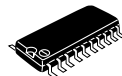
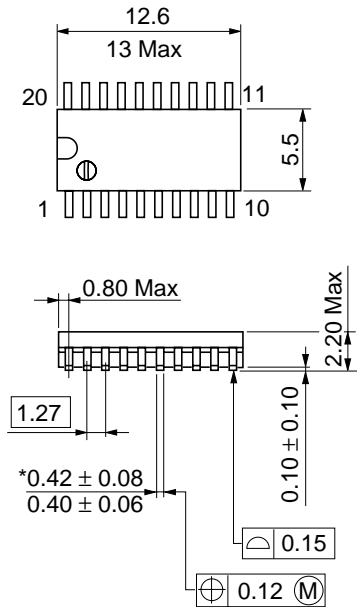
Note: 1. Voltage Range 5.0 is  $5.0\text{ V} \pm 0.5\text{ V}$

## Capacitance

Item	Symbol	Typ	Unit	Condition
Input capacitance	$C_{IN}$	4.5	pF	$V_{CC} = 5.5\text{ V}$
Input/output capacitance	$C_{I/O}$	15.0	pF	$V_{CC} = 5.5\text{ V}$
Power dissipation capacitance	$C_{PD}$	45.0	pF	$V_{CC} = 5.0\text{ V}$

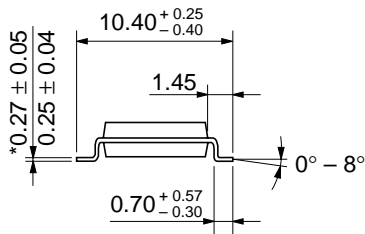
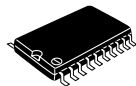
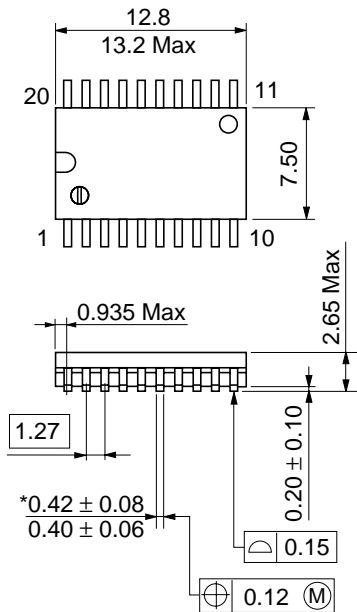


Hitachi Code	DP-20N
JEDEC	—
EIAJ	Conforms
Weight (reference value)	1.26 g



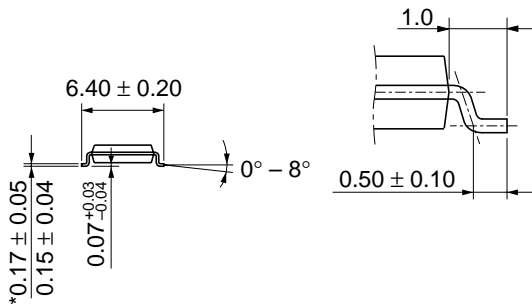
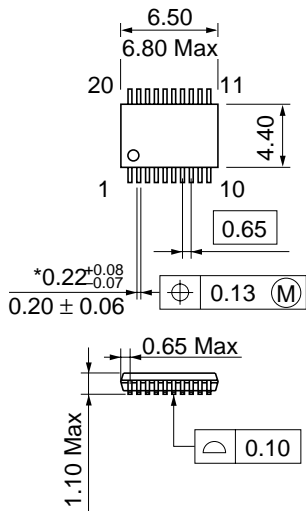
Hitachi Code	FP-20DA
JEDEC	—
EIAJ	Conforms
Weight (reference value)	0.31 g

\*Dimension including the plating thickness  
Base material dimension



\*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

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



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# HITACHI

## Hitachi, Ltd.

Semiconductor & Integrated Circuits.  
Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan  
Tel: Tokyo (03) 3270-2111 Fax: (03) 3270-5109

URL      North America      : <http://semiconductor.hitachi.com/>  
             Europe                : <http://www.hitachi-eu.com/hel/ecg>  
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## For further information write to:

Hitachi Semiconductor  
(America) Inc.  
179 East Tasman Drive,  
San Jose, CA 95134  
Tel: <1> (408) 433-1990  
Fax: <1> (408) 433-0223

Hitachi Europe GmbH  
Electronic components Group  
Dornacher Straße 3  
D-85622 Feldkirchen, Munich  
Germany  
Tel: <49> (89) 9 9180-0  
Fax: <49> (89) 9 29 30 00

Hitachi Europe Ltd.  
Electronic Components Group.  
Whitebrook Park  
Lower Cookham Road  
Maidenhead  
Berkshire SL6 8YA, United Kingdom  
Tel: <44> (1628) 585000  
Fax: <44> (1628) 778322

Hitachi Asia Pte. Ltd.  
16 Collyer Quay #20-00  
Hitachi Tower  
Singapore 049318  
Tel: 535-2100  
Fax: 535-1533

Hitachi Asia Ltd.  
Taipei Branch Office  
3F, Hung Kuo Building, No.167,  
Tun-Hwa North Road, Taipei (105)  
Tel: <886> (2) 2718-3666  
Fax: <886> (2) 2718-8180

Hitachi Asia (Hong Kong) Ltd.  
Group III (Electronic Components)  
7/F., North Tower, World Finance Centre,  
Harbour City, Canton Road, Tsim Sha Tsui,  
Kowloon, Hong Kong  
Tel: <852> (2) 735 9218  
Fax: <852> (2) 730 0281  
Telex: 40815 HITEC HX

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