HD74AC245/HD74ACT245

Octal Bidirectional Transceiver with 3-State Input/Output

HITACHI

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 ($T/\overline{R}$) 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

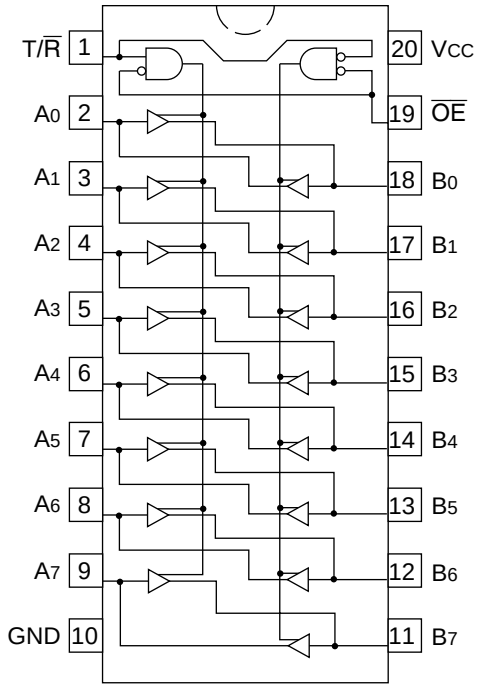
- Noninverting Buffers
- Bidirectional Data Path
- A and B Outputs Source/Sink 24 mA
- HD74ACT245 has TTL-Compatible Inputs

Pin Names

$\overline{OE}$	Output Enable Input
$T/\overline{R}$	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

Hitachi semiconductor

Pin Arrangement



(Top view)

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

DC Characteristics (unless otherwise specified)

Item	Symbol	Max	Unit	Condition
Maximum quiescent supply current	I_{CC}	80	µA	V_{IN} = V_{CC} or ground, V_{CC} = 5.5 V, Ta = Worst case
Maximum quiescent supply current	I_{CC}	8.0	µA	V_{IN} = V_{CC} or ground, V_{CC} = 5.5 V, Ta = 25°C
Maximum additional I_{CC}/input (HD74ACT245)	I_{CCT}	1.5	mA	V_{IN} = V_{CC} – 2.1 V, V_{CC} = 5.5 V, Ta = Worst case

AC Characteristics: HD74AC245

			Ta = +25°C C_L = 50 pF			Ta = –40°C to +85°C C_L = 50 pF		
Item	**Symbol**	**V_{cc} (V)*[1]**	**Min**	**Typ**	**Max**	**Min**	**Max**	**Unit**
Propagation delay	t_{PLH}	3.3	1.0	5.0	8.5	1.0	9.0	ns
Data to output		5.0	1.0	3.5	6.5	1.0	7.0	
Propagation delay	t_{PHL}	3.3	1.0	5.0	8.5	1.0	9.0	ns
Data to output		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 V ± 0.3 V
Voltage Range 5.0 is 5.0 V ± 0.5 V

AC Characteristics: HD74ACT245

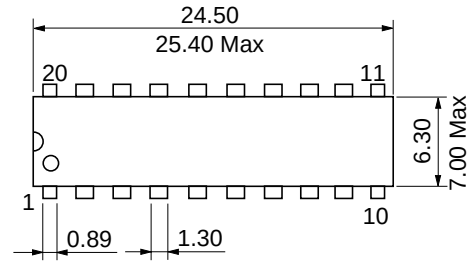
			Ta = +25°C C_L = 50 pF			Ta = –40°C to +85°C C_L = 50 pF		
Item	**Symbol**	**V_{cc} (V)*[1]**	**Min**	**Typ**	**Max**	**Min**	**Max**	**Unit**
Propagation delay Data to output	t_{PLH}	5.0	1.0	4.0	7.5	1.0	8.0	ns
Propagation delay Data to output	t_{PHL}	5.0	1.0	4.0	8.0	1.0	9.0	ns
Output enable time	t_{PZH}	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

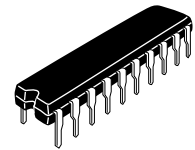
Note: 1. Voltage Range 5.0 is 5.0 V ± 0.5 V

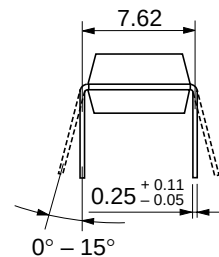
Capacitance

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

Unit: mm

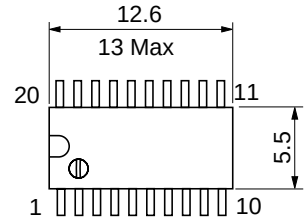


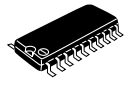


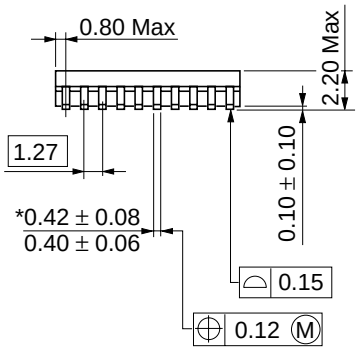


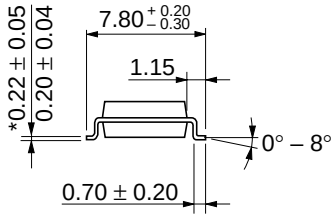
Hitachi Code	DP-20N
JEDEC	—
EIAJ	Conforms
Weight (reference value)	1.26 g

Unit: mm





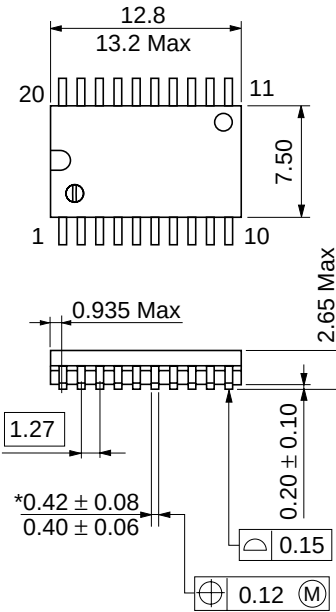


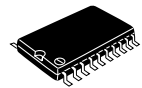


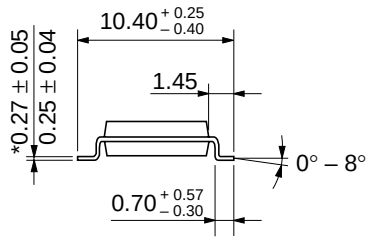
*Dimension including the plating thickness
Base material dimension

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

Unit: mm



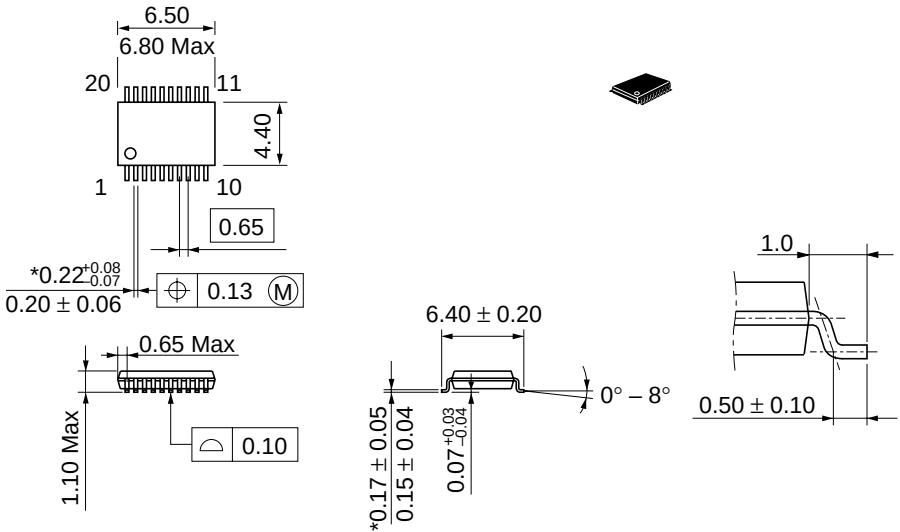




*Dimension including the plating thickness
Base material dimension

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

Unit: mm



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

*Dimension including the plating thickness
Base material dimension

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