
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/\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

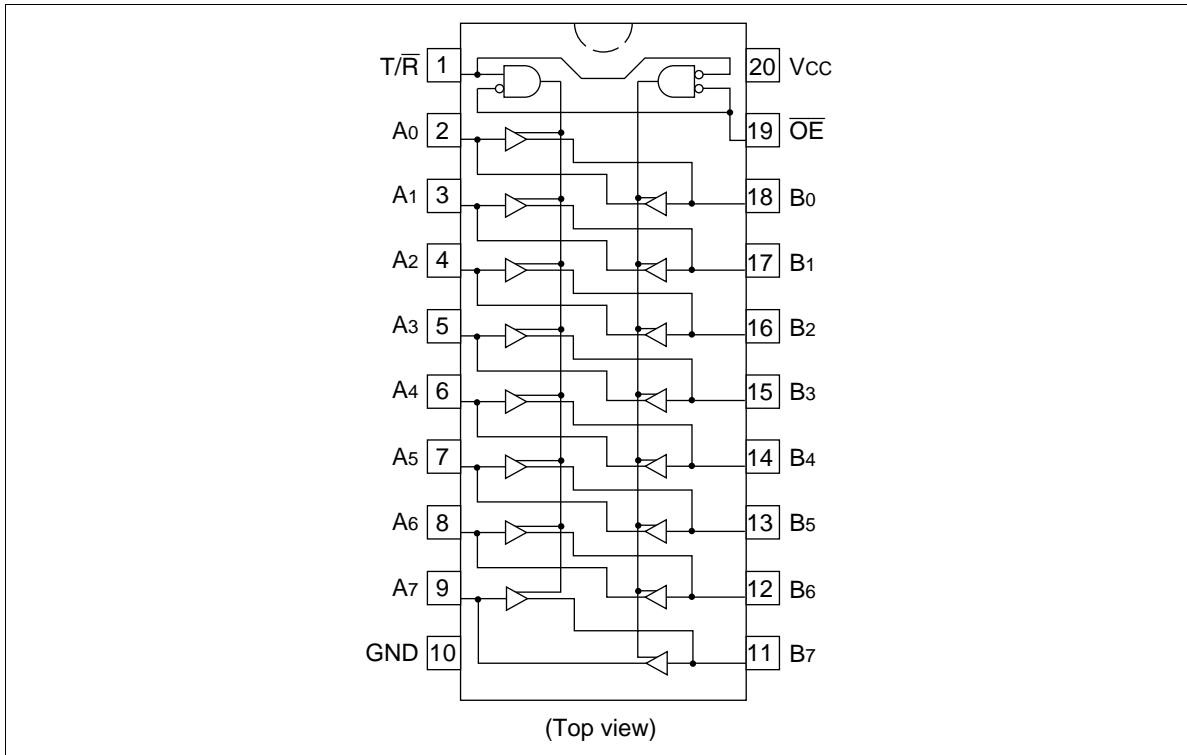
- Noninverting Buffers
- Bidirectional Data Path
- A and B Outputs Source/Sink 24 mA
- HD74ACT245 has TTL-Compatible Inputs

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

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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	μA	$V_{IN} = V_{CC}$ or ground, $V_{CC} = 5.5\text{ V}$, $T_a = \text{Worst case}$
Maximum quiescent supply current	I_{CC}	8.0	μA	$V_{IN} = V_{CC}$ 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
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 $3.3\text{ V} \pm 0.3\text{ V}$
Voltage Range 5.0 is $5.0\text{ V} \pm 0.5\text{ V}$

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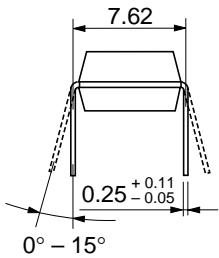
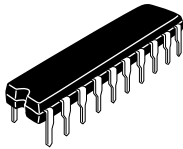
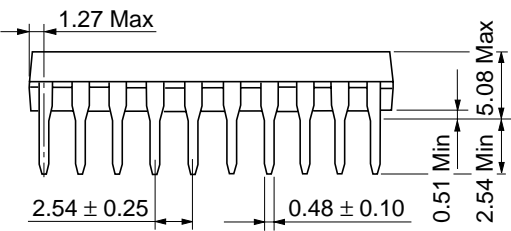
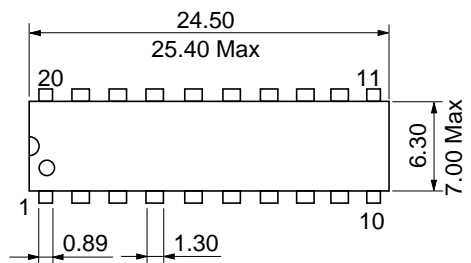
AC Characteristics: HD74ACT245

Item	Symbol	V _{CC} (V)* ¹	Ta = +25°C C _L = 50 pF			Ta = -40°C to +85°C C _L = 50 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 V ± 0.5 V

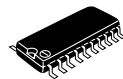
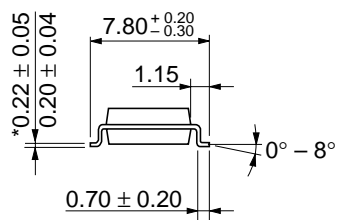
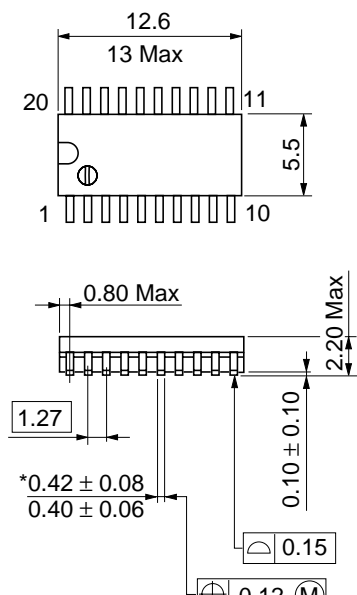
Capacitance

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

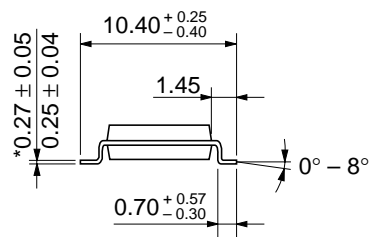
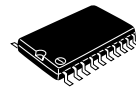
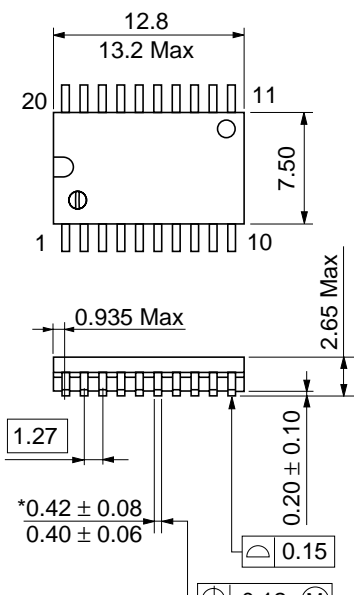


Unit: mm

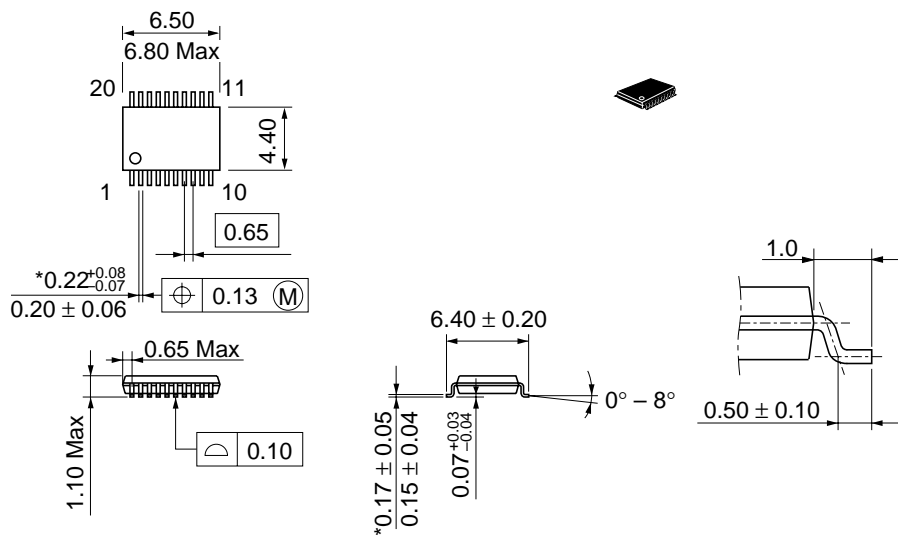
Unit: mm



Unit: mm



Unit: mm



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