

# AC245 • ACT245

## 54AC/74AC245 • 54ACT/74ACT245

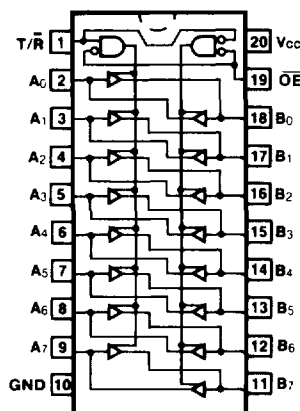
### Octal Bidirectional Transceiver With 3-State Inputs/Outputs

#### Description

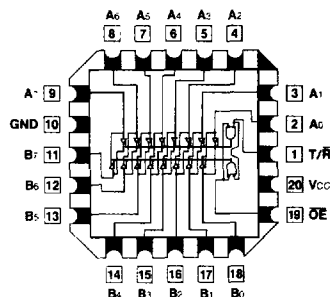
The 'AC/ACT245 contains eight non-inverting bidirectional buffers with 3-state outputs and is intended for bus-oriented applications. Current sinking capability is 24 mA at both the A and B ports. The Transmit/Receive (T/R) input determines the direction of data flow through the bidirectional transceiver. 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.

- Noninverting Buffers
- Bidirectional Data Path
- A and B Outputs Source/Sink 24 mA
- 'ACT245 has TTL-Compatible Inputs

#### Connection Diagrams



Pin Assignment for DIP, Flatpak and SOIC



Pin Assignment for LCC

Ordering Code: See Section 6

#### Pin Names

- OE Output Enable Input
- T/R Transmit/Receive Input
- A<sub>0</sub> - A<sub>7</sub> Side A 3-State Inputs or 3-State Outputs
- B<sub>0</sub> - B<sub>7</sub> Side B 3-State Inputs or 3-State Outputs

#### Truth Table

Inputs		Outputs
OE	T/R	
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)

Symbol	Parameter	54AC/ACT	74AC/ACT	Units	Conditions
I <sub>CC</sub>	Maximum Quiescent Supply Current	160	80	μA	V <sub>IN</sub> = V <sub>CC</sub> or Ground, V <sub>CC</sub> = 5.5 V, T <sub>A</sub> = Worst Case
I <sub>CC</sub>	Maximum Quiescent Supply Current	8.0	8.0	μA	V <sub>IN</sub> = V <sub>CC</sub> or Ground, V <sub>CC</sub> = 5.5 V, T <sub>A</sub> = 25°C
I <sub>CC(T)</sub>	Maximum Additional I <sub>CC</sub> /Input (ACT245)	1.6	1.5	mA	V <sub>IN</sub> = V <sub>CC</sub> - 2.1 V, V <sub>CC</sub> = 5.5 V, T <sub>A</sub> = Worst Case

## AC Characteristics

Symbol	Parameter	V <sub>CC</sub> * (V)	74AC			54AC		74AC		Units	Fig. No.
			T <sub>A</sub> = +25°C CL = 50 pF			T <sub>A</sub> = -55°C to +125°C CL = 50 pF		T <sub>A</sub> = -40°C to +85°C CL = 50 pF			
			Min	Typ	Max	Min	Max	Min	Max		
t <sub>PLH</sub>	Propagation Delay A <sub>n</sub> to B <sub>n</sub> or B <sub>n</sub> to A <sub>n</sub>	3.3 5.0	1.0 1.0	5.0 3.5	8.5 6.5	1.0 1.0	11.5 8.5	1.0 1.0	9.0 7.0	ns	3-5
t <sub>PHL</sub>	Propagation Delay A <sub>n</sub> to B <sub>n</sub> or B <sub>n</sub> to A <sub>n</sub>	3.3 5.0	1.0 1.0	5.0 3.5	8.5 6.0	1.0 1.0	10.0 7.5	1.0 1.0	9.0 7.0	ns	3-5
t <sub>PZH</sub>	Output Enable Time	3.3 5.0	1.0 1.0	7.0 5.0	11.5 8.5	1.0 1.0	13.5 10.0	1.0 1.0	12.5 9.0	ns	3-7
t <sub>PZL</sub>	Output Enable Time	3.3 5.0	1.0 1.0	7.5 5.5	12.0 9.0	1.0 1.0	14.5 10.5	1.0 1.0	13.5 9.5	ns	3-8
t <sub>PHZ</sub>	Output Disable Time	3.3 5.0	1.0 1.0	6.5 5.5	12.0 9.0	1.0 1.0	13.5 10.5	1.0 1.0	12.5 10.0	ns	3-7
t <sub>PLZ</sub>	Output Disable Time	3.3 5.0	1.0 1.0	7.0 5.5	11.5 9.0	1.0 1.0	14.0 10.5	1.0 1.0	13.0 10.0	ns	3-8

\*Voltage Range 3.3 is 3.3 V ± 0.3 V  
Voltage Range 5.0 is 5.0 V ± 0.5 V

Military parameters given herein are for general references only. For current military specifications and subgroup testing information please request Fairchild's Table I data sheet from your Fairchild sales engineer or account representative.

## AC Characteristics

Symbol	Parameter	V <sub>CC</sub> * (V)	74ACT			54ACT		74ACT		Units	Fig. No.
			T <sub>A</sub> = + 25°C C <sub>L</sub> = 50 pF			T <sub>A</sub> = - 55°C to + 125°C C <sub>L</sub> = 50 pF		T <sub>A</sub> = - 40°C to + 85°C C <sub>L</sub> = 50 pF			
			Min	Typ	Max	Min	Max	Min	Max		
t <sub>PLH</sub>	Propagation Delay A <sub>n</sub> to B <sub>n</sub> or B <sub>n</sub> to A <sub>n</sub>	5.0	1.0	4.0	7.5	1.0	9.0	1.0	8.0	ns	3-5
t <sub>PHL</sub>	Propagation Delay A <sub>n</sub> to B <sub>n</sub> or B <sub>n</sub> to A <sub>n</sub>	5.0	1.0	4.0	8.0	1.0	10.0	1.0	9.0	ns	3-5
t <sub>PZH</sub>	Output Enable Time	5.0	1.0	5.0	10.0	1.0	12.0	1.0	11.0	ns	3-7
t <sub>PZL</sub>	Output Enable Time	5.0	1.0	5.5	10.0	1.0	13.0	1.0	12.0	ns	3-8
t <sub>PHZ</sub>	Output Disable Time	5.0	1.0	5.5	10.0	1.0	12.0	1.0	11.0	ns	3-7
t <sub>PLZ</sub>	Output Disable Time	5.0	1.0	5.0	10.0	1.0	12.0	1.0	11.0	ns	3-8

\*Voltage Range 5.0 is 5.0 V ± 0.5 V

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## Capacitance

Symbol	Parameter	54/74AC/ACT	Units	Conditions
		Typ		
C <sub>IN</sub>	Input Capacitance	4.5	pF	V <sub>CC</sub> = 5.5 V
C <sub>I/O</sub>	Input/Output Capacitance	15.0	pF	V <sub>CC</sub> = 5.5 V
C <sub>PD</sub>	Power Dissipation Capacitance	45.0	pF	V <sub>CC</sub> = 5.5 V