

54AC/74AC640 • 54ACT/74ACT640

Octal Bidirectional Transceiver With 3-State Outputs

Description

The 'AC/ACT640 octal bus transceiver is designed for asynchronous two-way communication between data buses. The device transmits data from bus A to bus B when $T/\bar{R}$ = HIGH, or from bus B to bus A when $T/\bar{R}$ = LOW. The enable input can be used to disable the device so the buses are effectively isolated.

- Bidirectional Data Path
- A and B Outputs Sink 24 mA/Source -24 mA
- 'ACT640 has TTL-Compatible Inputs

Ordering Code: See Section 6

Pin Names

A₀ - A₇ Side A Inputs or 3-State Outputs
 $\bar{O}E$ Output Enable Input
 $T/\bar{R}$ Transmit/Receive Input
 B₀ - B₇ Side B Inputs or 3-State Outputs

Truth Table

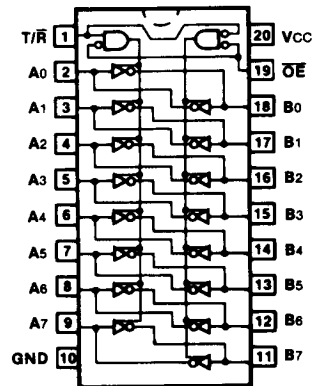
$\bar{O}E$	$T/\bar{R}$	Applied Inputs	Valid Direction I/P—O/P	Output
H	X	X	X	X
L	H	H	A to B	L
L	H	L	A to B	H
L	L	H	B to A	L
L	L	L	B to A	H

H = HIGH Voltage Level

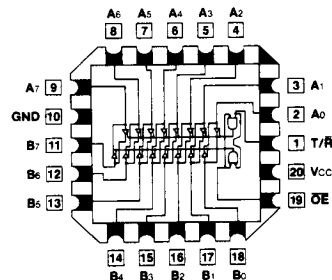
L = LOW Voltage Level

X = Immaterial

Connection Diagrams



**Pin Assignment
for DIP, Flatpak and SOIC**



**Pin Assignment
for LCC**

DC Characteristics (unless otherwise specified)

Symbol	Parameter	54AC/ACT	74AC/ACT	Units	Conditions
I _{CC}	Maximum Quiescent Supply Current	160	80	μA	V _{IN} = V _{CC} or Ground, V _{CC} = 5.5 V, T _A = Worst Case
I _{CC}	Maximum Quiescent Supply Current	8.0	8.0	μA	V _{IN} = V _{CC} or Ground, V _{CC} = 5.5 V, T _A = 25°C
I _{CC} T	Maximum Additional I _{CC} /Input (ACT640)	1.6	1.5	mA	V _{IN} = V _{CC} - 2.1 V V _{CC} = 5.5 V, T _A = Worst Case

AC Characteristics

Symbol	Parameter	Vcc* (V)	74AC			54AC		74AC		Units	Fig. No.
			TA = +25°C CL = 50 pF			TA = -55°C to +125°C CL = 50 pF		TA = -40°C to +85°C CL = 50 pF			
			Min	Typ	Max	Min	Max	Min	Max		
tPLH	Propagation Delay An to Bn or Bn to An	3.3 5.0		5.5 4.0					ns	3-5	
tPHL	Propagation Delay An to Bn or Bn to An	3.3 5.0		5.5 4.0					ns	3-5	
tPZH	Output Enable Time	3.3 5.0		8.0 6.0					ns	3-7	
tPZL	Output Enable Time	3.3 5.0		7.5 5.5					ns	3-8	
tPHZ	Output Disable Time	3.3 5.0		7.0 6.0					ns	3-7	
tPLZ	Output Disable Time	3.3 5.0		7.5 6.0					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	Vcc* (V)	74ACT			54ACT		74ACT		Units	Fig. No.
			TA = + 25°C CL = 50 pF			TA = - 55°C to + 125°C CL = 50 pF		TA = - 40°C to + 85°C CL = 50 pF			
			Min	Typ	Max	Min	Max	Min	Max		
tPLH	Propagation Delay An to Bn or Bn to An	5.0		5.0						ns	3-5
tPHL	Propagation Delay An to Bn or Bn to An	5.0		5.0						ns	3-5
tpZH	Output Enable Time	5.0		7.0						ns	3-7
tpZL	Output Enable Time	5.0		6.0						ns	3-8
tPHZ	Output Disable Time	5.0		6.5						ns	3-7
tPLZ	Output Disable Time	5.0		6.0						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		
CIN	Input Capacitance	4.5	pF	Vcc = 5.5 V
C _{I/O}	Input/Output Capacitance	15.0	pF	Vcc = 5.5 V
CPD	Power Dissipation Capacitance		pF	Vcc = 5.5 V