



MOTOROLA

Product Preview

**Octal Buffer/Line Driver
with 3-State Outputs**

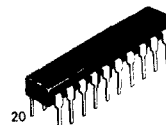
The MC74AC540/74ACT540 and MC74AC541/74ACT541 are octal buffer/line drivers designed to be employed as memory and address drivers, clock drivers and bus oriented transmitter/receivers. The MC74AC541/74ACT541 is a noninverting option of the MC74AC540/74ACT540.

These devices are similar in function to the MC74AC240/74ACT240 and MC74AC244/74ACT244 while providing flow-through architecture (inputs on opposite side from outputs). This pinout arrangement makes these devices especially useful as output ports for microprocessors, allowing ease of layout and greater PC board density.

- 3-State Outputs
- Inputs and Outputs Opposite Side of Package, Allowing Easier Interface to Microprocessors
- Outputs Source/Sink 24 mA
- MC74AC540/74ACT540 Provides Inverted Outputs
- MC74AC541/74ACT541 Provides Noninverted Outputs
- 'ACT540 and 'ACT541 Have TTL Compatible Inputs

**MC74AC540
MC74ACT540
MC74AC541
MC74ACT541**

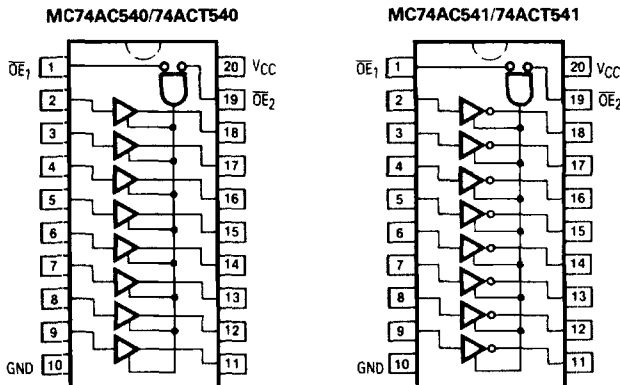
**OCTAL
BUFFER/LINE DRIVER
WITH 3-STATE
OUTPUTS**



**N SUFFIX
CASE 738-03
PLASTIC**



**DW SUFFIX
CASE 751D-03
PLASTIC**



TRUTH TABLE

Inputs			Outputs	
OE ₁	OE ₂	D	'540	'541
L	L	H	L	L
H	X	X	Z	Z
X	H	X	Z	Z
L	L	L	H	L

H = HIGH Voltage Level
L = LOW Voltage Level
X = Immaterial
Z = High Impedance

This document contains information on a product under development. Motorola reserves the right to change or discontinue this product without notice.

MC74AC540 • MC74ACT540 • MC74AC541 • MC74ACT541

DC CHARACTERISTICS (unless otherwise specified)

Symbol	Parameter	Value	Units	Test Conditions
I _{CC}	Maximum Quiescent Supply Current	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	μA	V _{IN} = V _{CC} or Ground, V _{CC} = 5.5 V, T _A = 25°C
I _{CC(T)}	Maximum Additional I _{CC} /Input ('ACT540/541)	1.5	mA	V _{IN} = V _{CC} - 2.1 V, V _{CC} = 5.5 V, T _A = Worst Case

AC CHARACTERISTICS (For Figures and Waveforms — See Section 3)

Symbol	Parameter	V _{CC} * (V)	74AC			74AC		Units	Fig. No.
			T _A = +25°C C _L = 50 pF			T _A = -40°C to +85°C C _L = 50 pF			
			Min	Typ	Max	Min	Max		
t _{PLH}	Propagation Delay Data to Output ('AC540)	3.3 5.0	1.0 1.0	5.5 4.0	7.5 6.0	1.0 1.0	8.0 6.5	ns	3-5
t _{PHL}	Propagation Delay Data to Output ('AC540)	3.3 5.0	1.0 1.0	5.0 4.0	7.0 5.5	1.0 1.0	7.5 6.0	ns	3-5
t _{PZH}	Output Enable Time ('AC540)	3.3 5.0	1.0 1.0	8.5 6.5	11 8.5	1.0 1.0	12 9.5	ns	3-7
t _{PZL}	Output Enable Time ('AC540)	3.3 5.0	1.0 1.0	7.5 6.0	10 7.5	1.0 1.0	11 8.5	ns	3-8
t _{PHZ}	Output Disable Time ('AC540)	3.3 5.0	1.0 1.0	8.5 7.5	13 10.5	1.0 1.0	14 11	ns	3-7
t _{PLZ}	Output Disable Time ('AC540)	3.3 5.0	1.0 1.0	7.0 6.0	10 8.0	1.0 1.0	11 9.0	ns	3-8
t _{PLH}	Propagation Delay Data to Output ('AC541)	3.3 5.0	1.0 1.0	5.5 4.0	8.0 6.0	1.0 1.0	9.0 6.5	ns	3-5
t _{PHL}	Propagation Delay Data to Output ('AC541)	3.3 5.0	1.0 1.0	5.5 4.0	8.0 6.0	1.0 1.0	8.5 6.5	ns	3-5
t _{PZH}	Output Enable Time ('AC541)	3.3 5.0	1.0 1.0	8.0 6.0	11.5 8.5	1.0 1.0	12.5 9.5	ns	3-7
t _{PZL}	Output Enable Time ('AC541)	3.3 5.0	1.0 1.0	7.0 5.5	10 7.5	1.0 1.0	11.5 8.5	ns	3-8
t _{PHZ}	Output Disable Time ('AC541)	3.3 5.0	1.0 1.0	9.0 7.0	12.5 9.5	1.0 1.0	14 10.5	ns	3-7
t _{PLZ}	Output Disable Time ('AC541)	3.3 5.0	1.0 1.0	6.5 5.5	9.5 7.5	1.0 1.0	10.5 8.5	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

5

MC74AC540 • MC74ACT540 • MC74AC541 • MC74ACT541

AC CHARACTERISTICS (For Figures and Waveforms — See Section 3)

Symbol	Parameter	V _{CC} * (V)	74ACT			74ACT		Units	Fig. No.
			T _A = +25°C C _L = 50 pF			T _A = -40°C to +85°C C _L = 50 pF			
			Min	Typ	Max	Min	Max		
t _{PLH}	Propagation Delay Data to Output ('ACT540)	5.0		6.0				ns	3-5
t _{PHL}	Propagation Delay Data to Output ('ACT540)	5.0		5.5				ns	3-5
t _{PZH}	Output Enable Time ('ACT540)	5.0		8.0				ns	3-7
t _{PZL}	Output Enable Time ('ACT540)	5.0		6.5				ns	3-8
t _{PHZ}	Output Disable Time (ACT540)	5.0		10				ns	3-7
t _{PLZ}	Output Disable Time (ACT540)	5.0		7.0				ns	3-8
t _{PLH}	Propagation Delay Data to Output ('ACT541)	5.0		6.0				ns	3-5
t _{PHL}	Propagation Delay Data to Output ('ACT541)	5.0		6.0				ns	3-5
t _{PZH}	Output Enable Time ('ACT541)	5.0		8.0				ns	3-7
t _{PZL}	Output Enable Time ('ACT541)	5.0		6.5				ns	3-8
t _{PHZ}	Output Disable Time ('ACT541)	5.0		10				ns	3-7
t _{PLZ}	Output Disable Time ('ACT541)	5.0		7.0				ns	3-8

*Voltage Range 5.0 is 5.0 V ± 0.5 V

CAPACITANCE

Symbol	Parameter	Value Typ	Units	Test Conditions
C _{IN}	Input Capacitance	4.5	pF	V _{CC} = 5.0 V
CPD	Power Dissipation Capacitance	30	pF	V _{CC} = 5.0 V