

# HD74AC540/HD74ACT540

# HD74AC541/HD74ACT541

• Octal Buffer/Line Driver with 3-State Output

## Description

The HD74AC540/HD74ACT540 and HD74AC541/HD74ACT541 are octal buffer/line drivers designed to be employed as memory and address drivers, clock drivers and bus oriented transmitter/receivers. The HD74AC541/HD74ACT541 is a noninverting option of the HD74AC540/HD74ACT540.

These devices are similar in function to the HD74AC240/HD74ACT240 and HD74AC244/HD74ACT244 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
- Output Source/Sink 24 mA
- HD74AC540/HD74ACT540 Provides Inverted Outputs
- HD74AC541/HD74ACT541 Provides Noninverted Outputs
- HD74ACT540 and HD74ACT541 has TTL-Compatible Inputs

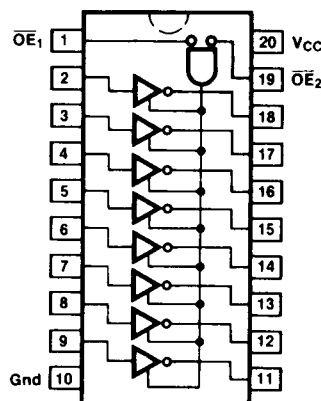
## Truth Table

Inputs			Outputs	
$\overline{OE}_1$	$\overline{OE}_2$	D	HD74AC540/ HD74ACT540	HD74AC541/ HD74ACT541
L	L	H	L	H
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

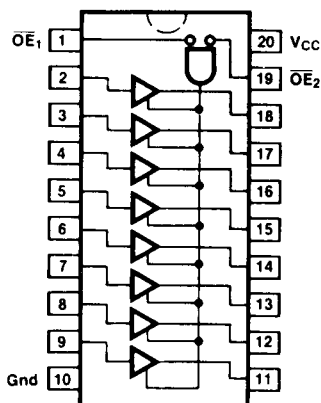
## Pin Assignment

### HD74AC540/HD74ACT540



(Top View)

### HD74AC541/HD74ACT541



(Top View)

## DC Characteristics (unless otherwise specified)

Symbol	Parameter	Max	Unit	Condition
$I_{cc}$	Maximum Quiescent Supply Current	80	$\mu A$	$V_{IN} = V_{CC}$ or Ground, $V_{CC} = 5.5V$ , $T_a = \text{Worst Case}$
$I_{cc}$	Maximum Quiescent Supply Current	8.0	$\mu A$	$V_{IN} = V_{CC}$ or Ground, $V_{CC} = 5.5V$ , $T_a = 25^\circ C$
$I_{ccr}$	Maximum Additional $I_{cc}$ /Input (HD74ACT540/HD74ACT541)	1.5	mA	$V_{IN} = V_{CC} - 2.1V$ $V_{CC} = 5.5V$ , $T_a = \text{Worst Case}$

# HD74AC540/HD74ACT540, HD74AC541/HD74ACT541

## AC Characteristics : HD74AC540, HD74AC541

Symbol	Parameter	V <sub>cc</sub> * (V)	Ta = +25°C CL = 50pF			Ta = -40°C to +85°C CL = 50pF		Unit
			Min	Typ	Max	Min	Max	
t <sub>PLH</sub>	Propagation Delay Data to Output (HD74AC540)	3.3	1.0	5.5	7.5	1.0	8.0	ns
		5.0	1.0	4.0	6.0	1.0	6.5	
t <sub>PHL</sub>	Propagation Delay Data to Output (HD74AC540)	3.3	1.0	5.0	7.0	1.0	7.5	ns
		5.0	1.0	4.0	5.5	1.0	6.0	
t <sub>PZH</sub>	Output Enable Time (HD74AC540)	3.3	1.0	8.5	11.0	1.0	12.0	ns
		5.0	1.0	6.5	8.5	1.0	9.5	
t <sub>PZL</sub>	Output Enable Time (HD74AC540)	3.3	1.0	7.5	10.0	1.0	11.0	ns
		5.0	1.0	6.0	7.5	1.0	8.5	
t <sub>PHZ</sub>	Output Disable Time (HD74AC540)	3.3	1.0	8.5	13.0	1.0	14.0	ns
		5.0	1.0	7.5	10.5	1.0	11.0	
t <sub>PLZ</sub>	Output Disable Time (HD74AC540)	3.3	1.0	7.0	10.0	1.0	11.0	ns
		5.0	1.0	6.0	8.0	1.0	9.0	
t <sub>PLH</sub>	Propagation Delay Data to Output (HD74ACT541)	3.3	1.0	5.5	8.0	1.0	9.0	ns
		5.0	1.0	4.0	6.0	1.0	6.5	
t <sub>PHL</sub>	Propagation Delay Data to Output (HD74ACT541)	3.3	1.0	5.5	8.0	1.0	8.5	ns
		5.0	1.0	4.0	6.0	1.0	6.5	
t <sub>PZH</sub>	Output Enable Time (HD74ACT541)	3.3	1.0	8.0	11.5	1.0	12.5	ns
		5.0	1.0	6.0	8.5	1.0	9.5	
t <sub>PZL</sub>	Output Enable Time (HD74ACT541)	3.3	1.0	7.0	10.0	1.0	11.5	ns
		5.0	1.0	5.5	7.5	1.0	8.5	
t <sub>PHZ</sub>	Output Disable Time (HD74ACT541)	3.3	1.0	9.0	12.5	1.0	14.0	ns
		5.0	1.0	7.0	9.5	1.0	10.5	
t <sub>PLZ</sub>	Output Disable Time (HD74ACT541)	3.3	1.0	6.5	9.5	1.0	10.5	ns
		5.0	1.0	5.5	7.5	1.0	8.5	

\*Voltage Range 3.3 is 3.3V ± 0.3V

Voltage Range 5.0 is 5.0V ± 0.5V

## AC Characteristics: HD74ACT540, HD74ACT541 Preliminary

Symbol	Parameter	V <sub>cc</sub> * (V)	Ta = +25°C CL = 50pF			Ta = -40°C to +85°C CL = 50pF		Unit
			Min	Typ	Max	Min	Max	
t <sub>PLH</sub>	Propagation Delay Data to Output (HD74ACT540)	5.0		6.0			ns	
t <sub>PHL</sub>	Propagation Delay Data to Output (HD74ACT540)	5.0		5.5			ns	
t <sub>ZH</sub>	Output Enable Time (HD74ACT540)	5.0		8.0			ns	
t <sub>PZH</sub>	Output Enable Time (HD74ACT540)	5.0		6.5			ns	
t <sub>PZL</sub>	Output Disable Time (HD74ACT540)	5.0		10.0			ns	
t <sub>PHZ</sub>	Output Disable Time (HD74ACT540)	5.0		7.0			ns	
t <sub>PLZ</sub>	Propagation Delay Data to Output (HD74ACT541)	5.0		6.0			ns	
t <sub>PHL</sub>	Propagation Delay Data to Output (HD74ACT541)	5.0		6.0			ns	
t <sub>PZH</sub>	Output Enable Time (HD74ACT541)	5.0		8.0			ns	
t <sub>PZL</sub>	Output Enable Time (HD74ACT541)	5.0		6.5			ns	
t <sub>PHZ</sub>	Output Disable Time (HD74ACT541)	5.0		10.0			ns	
t <sub>PLZ</sub>	Output Disable Time (HD74ACT541)	5.0		7.0			ns	

\*Voltage Range 5.0 is 5.0V ± 0.5V

## HD74AC540/HD74ACT540, HD74AC541/HD74ACT541

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### Capacitance

Symbol	Parameter	Typ	Unit	Condition
C <sub>IN</sub>	Input Capacitance	4.5	pF	V <sub>CC</sub> = 5.5V
C <sub>PD</sub>	Power Dissipation Capacitance	30.0	pF	V <sub>CC</sub> = 5.0V

# Package Information

In the HD74AC series of Advanced CMOS logic, either plastic DIP and small outline packages can be selected.  
 To order, please refer to the following package code.

• Package code of Advanced CMOS Logic

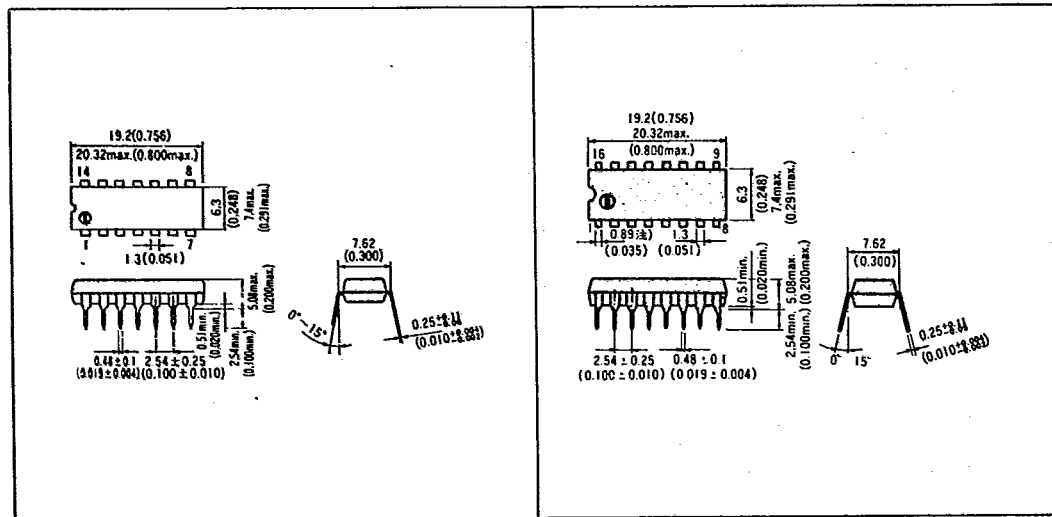
## HD74AC XXXX P

Package code  
 P: Plastic DIP,  
 FP: Small outline package  
 Individual device code  
 74AC: Commercial FACT  
 74ACT: Commercial  
 TTL-Compatible  
 Advanced CMOS  
 Initial cad of Hitachi  
 digital IC

Plastic DIP Package [Unit: mm (inch)]

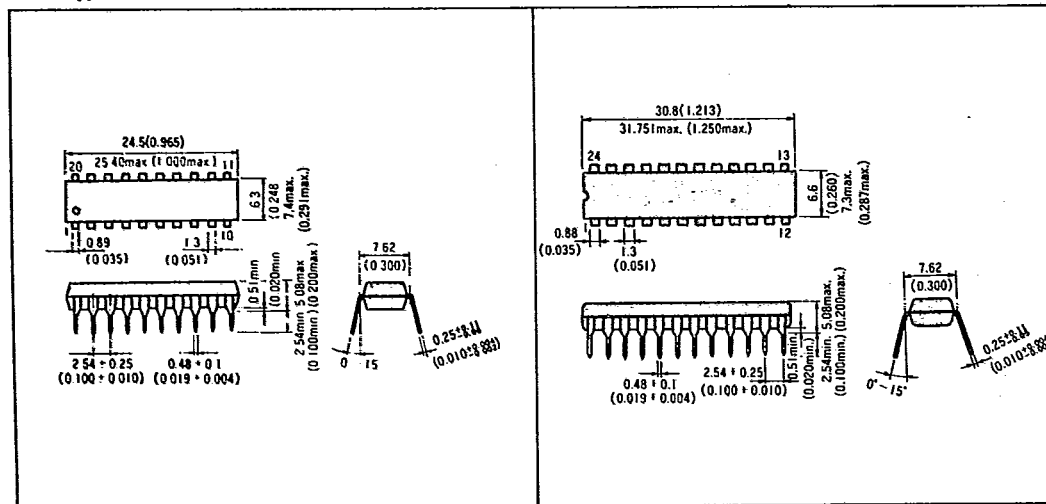
14 Pin type

16 Pin type



20 Pin type

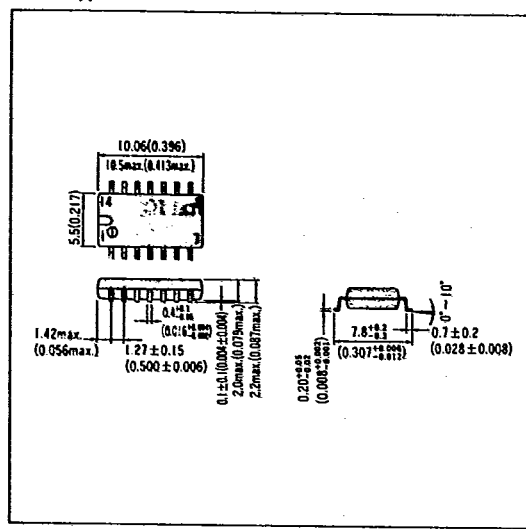
24 Pin type



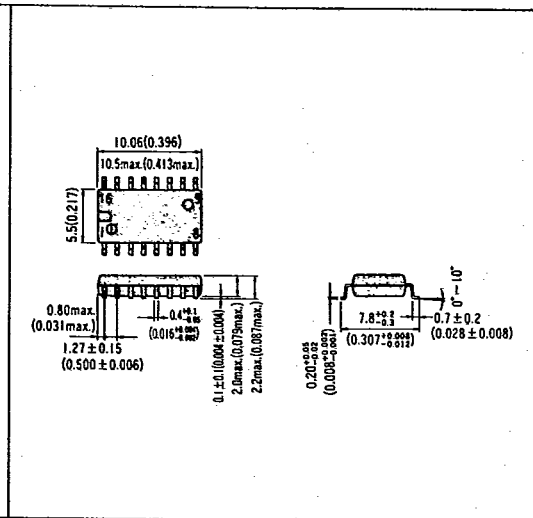
### Package Information

Small Outline Package [Unit: mm (inch)]

14 Pin type



16 Pin type



20 Pin type

