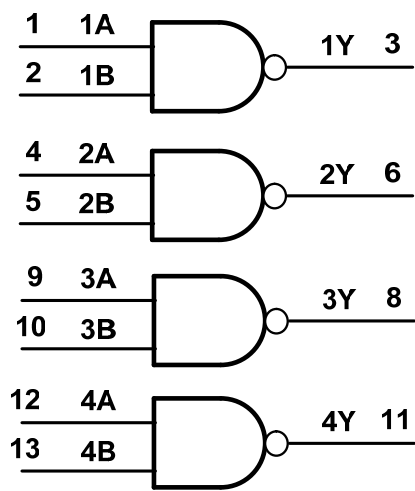


### Pin Descriptions

Pin Number	Pin Name	Function
1	1A	Data Input
2	1B	Data Input
3	1Y	Data Output
4	2A	Data Input
5	2B	Data Input
6	2Y	Data Output
7	GND	Ground
8	3Y	Data Output
9	3A	Data Input
10	3B	Data Input
11	4Y	Data Output
12	4A	Data Input
13	4B	Data Input
14	Vcc	Supply Voltage

### Logic Diagram



### Function Table

Inputs		Output
A	B	Y
L	L	H
L	H	H
H	L	H
H	H	L

**Absolute Maximum Ratings** (Note 4) (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Symbol	Description	Rating	Unit
ESD HBM	Human Body Model ESD Protection	2	KV
ESD CDM	Charged Device Model ESD Protection	1	KV
ESD MM	Machine Model ESD Protection	200	V
V <sub>CC</sub>	Supply Voltage Range	-0.5 to +7.0	V
V <sub>I</sub>	Input Voltage Range (Note 5)	-0.5 to +7.0	V
I <sub>IK</sub>	Input Clamp Current V <sub>I</sub> < -0.5V or V <sub>I</sub> > V <sub>CC</sub> + 0.5V	±20	mA
I <sub>OK</sub>	Output Clamp Current V <sub>O</sub> < -0.5V or V <sub>O</sub> > V <sub>CC</sub> + 0.5V	±20	mA
I <sub>O</sub>	Continuous Output Current -0.5V < V <sub>O</sub> < V <sub>CC</sub> + 0.5V	+/- 25	mA
I <sub>CC</sub>	Continuous Current Through V <sub>CC</sub>	50	mA
I <sub>GND</sub>	Continuous Current Through GND	-50	mA
T <sub>J</sub>	Operating Junction Temperature	-40 to +150	°C
T <sub>STG</sub>	Storage Temperature	-65 to +150	°C
P <sub>TOT</sub>	Total Power Dissipation	500	mW

- Notes: 4. Stresses beyond the absolute maximum may result in immediate failure or reduced reliability. These are stress values and device operation should be within recommend values.  
 5. Input Voltage cannot exceed V<sub>CC</sub> to the extent the Maximum clamp current is exceeded.

**Recommended Operating Conditions** (Note 6) (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Symbol	Parameter	Conditions	Min	Max	Unit
V <sub>CC</sub>	Supply Voltage		4.5	5.5	V
V <sub>I</sub>	Input Voltage		0	V <sub>CC</sub>	V
V <sub>O</sub>	Output Voltage		0	V <sub>CC</sub>	V
Δt/ΔV	Input Transition Rise or Fall Rate	V <sub>CC</sub> = 4.5V to 5.5V		500	ns/V
T <sub>A</sub>	Operating Free-Air Temperature		-40	+125	°C

Note: 6. Unused inputs should be held at V<sub>CC</sub> or Ground.

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Symbol	Parameter	Test Conditions	V <sub>CC</sub>	T <sub>A</sub> = -40°C to +85°C		T <sub>A</sub> = -40°C to +125°C		Unit
				Min	Max	Min	Max	
V <sub>IH</sub>	High-level Input Voltage		4.5V to 5.5V	2.0		2.0		V
V <sub>IL</sub>	Low-level Input Voltage		4.5V to 5.5V		0.8		0.8	V
V <sub>OH</sub>	High-level Output Voltage	I <sub>OH</sub> = -20μA	4.5V	4.4		4.4		V
		I <sub>OH</sub> = -4mA	4.5V	3.84		3.70		
V <sub>OL</sub>	Low-level Output Voltage	I <sub>OL</sub> = 20μA	4.5V		0.1		0.1	V
		I <sub>OL</sub> = 4.0mA	4.5V		0.33		0.4	
I <sub>I</sub>	Input Current	V <sub>I</sub> = GND to 6.0V	6.0V		± 1		± 1	μA
I <sub>CC</sub>	Supply Current	V <sub>I</sub> = GND or V <sub>CC</sub> , I <sub>O</sub> = 0	6.0V		20		40	μA
ΔI <sub>CC</sub>	Additional Supply Current	One Input at V <sub>CC</sub> -2.1V Other pins at V <sub>CC</sub> or GND	4.5V to 5.5V		675		735	μA

## Switching Characteristics

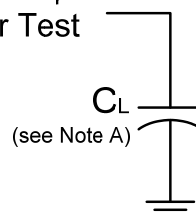
Symbol	Parameter	Test Conditions	V <sub>CC</sub>	T <sub>A</sub> = +25°C			-40°C to +85°C	-40°C to +125°C	Unit
				Min	Typ	Max	Max	Max	
t <sub>PD</sub>	Propagation Delay A <sub>N</sub> to Y <sub>N</sub>	Figure 1 C <sub>L</sub> = 50pF	4.5V	—	12	22	24	29	ns
t <sub>t</sub>	Transition Time	Figure 1 C <sub>L</sub> = 50pF	4.5V	—	7	22	22	29	ns

## Operating Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

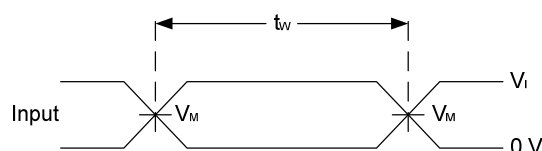
Parameter		Test Conditions	V <sub>CC</sub> = 5.5V	Unit
			Typ	
C <sub>pd</sub>	Power Dissipation Capacitance per Gate	f = 1 MHz	12	pF
C <sub>I</sub>	Input Capacitance	V <sub>I</sub> = V <sub>CC</sub> – or GND	3.5	pF

## Parameter Measurement Information

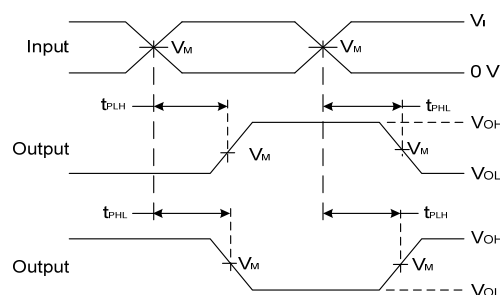
From Output  
Under Test



V <sub>CC</sub>	Inputs		V <sub>M</sub>	C <sub>L</sub>
	V <sub>I</sub>	t <sub>r</sub> /t <sub>f</sub>		
4.5V	3.0V	3ns	1.5V	V <sub>OH</sub> /2



**Voltage Waveform  
Pulse Duration**

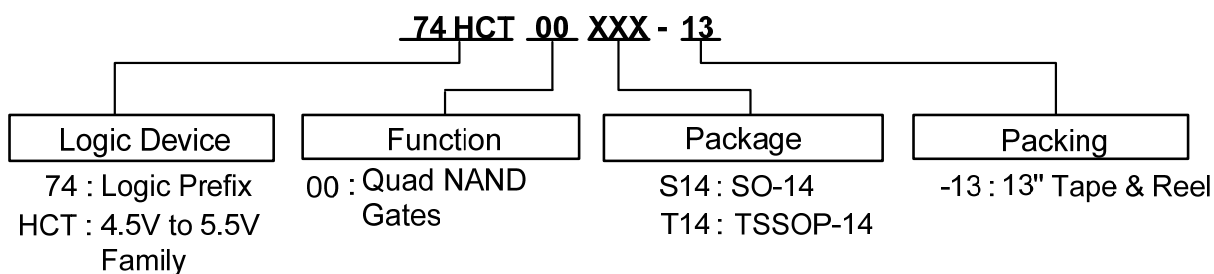


**Voltage Waveform  
Propagation Delay Times  
Inverting and Non Inverting Outputs**

- Notes:
- A. Includes test lead and test apparatus capacitance.
  - B. All pulses are supplied at pulse repetition rate ≤ 1 MHz.
  - C. Inputs are measured separately one transition per measurement.
  - D. t<sub>PLH</sub> and t<sub>PHL</sub> are the same as t<sub>PD</sub>.

**Figure 1 Load Circuit and Voltage Waveforms**

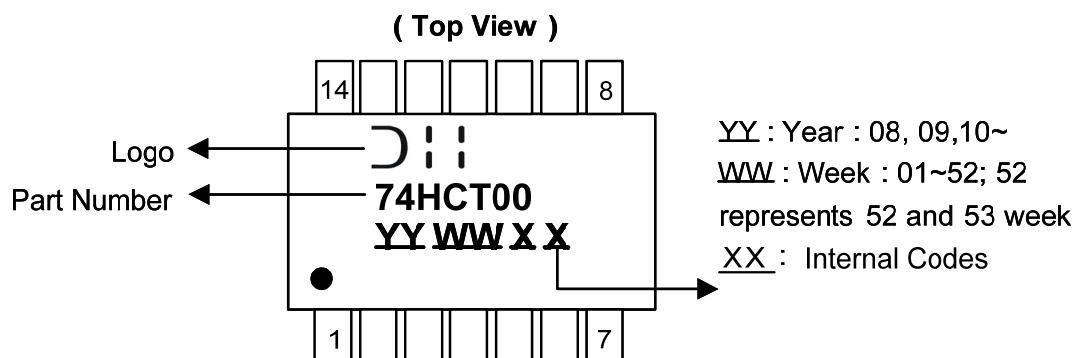
## Ordering Information



Device	Package Code	Packaging	7" Tape and Reel	
			Quantity	Part Number Suffix
74HCT00S14-13	S14	SO-14	2500/Tape & Reel	-13
74HCT00T14-13	T14	TSSOP-14	2500/Tape & Reel	-13

## Marking Information

(1) SO-14, TSSOP-14

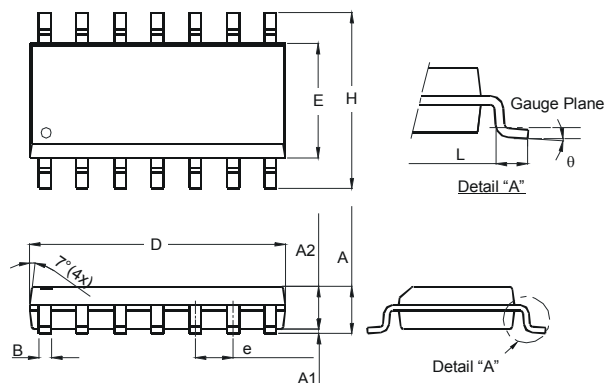


Part Number	Package
74HCT00S14	SO-14
74HCT00T14	TSSOP-14

## Package Outline Dimensions (All dimensions in mm.)

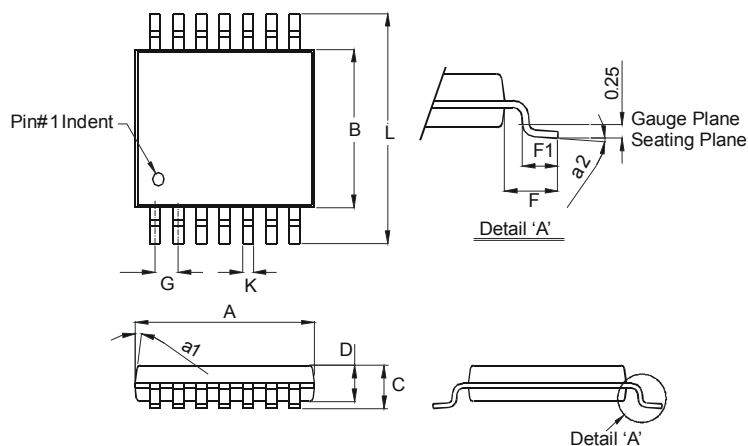
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.

### Package Type: SO-14



SO-14		
Dim	Min	Max
A	1.47	1.73
A1	0.10	0.25
A2	1.45 Typ	
B	0.33	0.51
D	8.53	8.74
E	3.80	3.99
e	1.27 Typ	
H	5.80	6.20
L	0.38	1.27
θ	0°	8°
All Dimensions in mm		

### Package Type: TSSOP-14

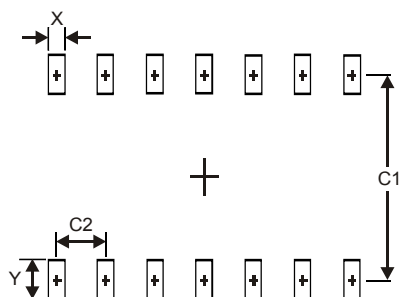


TSSOP-14		
Dim	Min	Max
a1	7° (4X)	
a2	0°	8°
A	4.9	5.10
B	4.30	4.50
C	—	1.2
D	0.8	1.05
F	1.00 Typ	
F1	0.45	0.75
G	0.65 Typ	
K	0.19	0.30
L	6.40 Typ	
All Dimensions in mm		

## Suggested Pad Layout

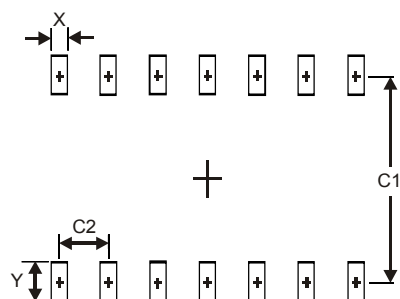
Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for latest version.

### Package Type: SO-14



Dimensions	Value (in mm)
<b>X</b>	0.60
<b>Y</b>	1.50
<b>C1</b>	5.4
<b>C2</b>	1.27

### Package Type: TSSOP-14



Dimensions	Value (in mm)
<b>X</b>	0.45
<b>Y</b>	1.45
<b>C1</b>	5.9
<b>C2</b>	0.65

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