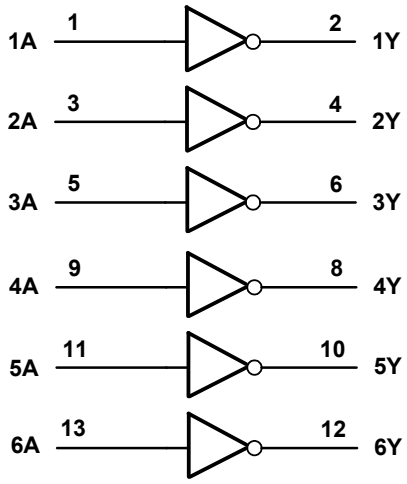
NEW PRODUCT

Pin Descriptions

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

Logic Diagram



Function Table

Input	Output
A	**Y**
L	H
H	L

Absolute Maximum Ratings (Note 4) (@T_A = +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_{CC}	Supply Voltage Range	-0.5 to +7.0	V
V_I	Input Voltage Range	-0.5 to +7.0	V
I_{IK}	Input Clamp Current V_I < -0.5V	-20	mA
I_{OK}	Output Clamp Current V_O < -0.5V	-20	mA
I_{OK}	Output Clamp Current V_O > V_{CC} +0.5V	25	mA
I_O	Continuous Output Current -0.5V < V_O V_{CC} +0.5V	+/- 25	mA
I_{CC}	Continuous Current Through V_{CC}	75	mA
I_{GND}	Continuous Current Through GND	-75	mA
T_J	Operating Junction Temperature	-40 to +150	°C
T_{STG}	Storage Temperature	-65 to +150	°C
P_{TOT}	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.

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Recommended Operating Conditions (Note 5) (@T_A = +25°C, unless otherwise specified.)

Symbol	Parameter	Conditions	Min	Max	Unit
V_{CC}	Supply Voltage		2.0	5.5	V
V_I	Input Voltage		0	5.5	V
V_O	Output Voltage		0	V_{CC}	V
Δt/ΔV	Input Transition Rise or Fall Rate	V_{CC} = 3.0V to 3.6V		100	ns/V
		V_{CC} = 4.5V to 5.5V		20	
T_A	Operating Free-Air Temperature		-40	+125	°C

5. Unused inputs should be held at V_{CC} or Ground.

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Symbol	Parameter	Test Conditions	V_{CC}	T_A = -40°C to +85°C		T_A = -40°C to +125°C		Unit
				Min	Max	Min	Max	
V_{IH}	High-Level Input Voltage		2.0V	1.5		1.5		V
			3.0V	2.1		2.1		
			5.5V	3.85		3.85		
V_{IL}	Low-Level Input Voltage		2.0V		0.5		0.5	V
			3.0V		0.9		0.9	
			5.5V		1.65		1.65	
V_{OH}	High-Level Output Voltage	I_{OH} = -50μA	2.0V	1.9		1.9		V
		I_{OH} = -50μA	3.0V	2.9		2.9		
		I_{OH} = -50μA	4.5V	4.4		4.4		
		I_{OH} = -4mA	3.0V	2.48		2.40		
		I_{OH} = -8mA	4.5V	3.80		3.70		
V_{OL}	Low-Level Output Voltage	I_{OL} = 50μA	2.0V		0.1		0.1	V
		I_{OL} = 50μA	3.0V		0.1		0.1	
		I_{OL} = 50μA	4.5V		0.1		0.1	
		I_{OL} = 4mA	3.0V		0.44		0.55	
		I_{OL} = 8mA	4.5V		0.44		0.55	
I_I	Input Current	V_I =GND to 5.5V	3.6V		±1		±2	μA
I_{CC}	Supply Current	V_I = GND or V_{CC}, I_O=0	3.6V		20		40	μA

Operating Characteristics

Parameter		Test Conditions	V_{CC} = 2.0V	V_{CC} = 3.3V	V_{CC} = 5V	Unit
			Typ	Typ	Typ	
C_{pd}	Power Dissipation Capacitance per Gate	f = 1MHz	9.7	11.2	15	pF
C_i	Input Capacitance	V_i = V_{CC} – or GND	4.0	4.0	4.0	pF

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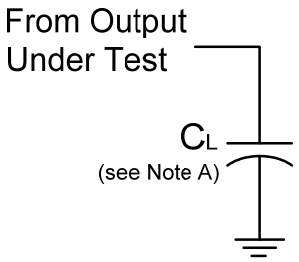
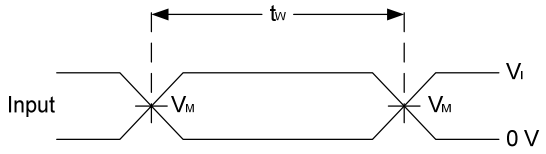
Switching Characteristics

Symbol	Parameter	Test Conditions	V_{CC}	T_A = +25°C			-40°C to +85°C		-40°C to +125°C		Unit
				Min	Typ	Max	Min	Max	Min	Max	
t_{PD}	Propagation Delay A_N to Y_N	Figure 1 C_L = 15pF	3.0V to 3.6V	0.5	4.0	8.5	0.5	10.5	0.5	11.0	ns
			4.5V to 5.5V	0.5	3.0	5.5	0.5	6.5	0.5	7.0	
		Figure 1 C_L = 50pF	3.0V to 3.6V	0.5	6.0	11.4	0.5	13.0	0.5	14.5	
			4.5V to 5.5V	0.5	4.5	7.5	0.5	8.5	0.5	9.5	

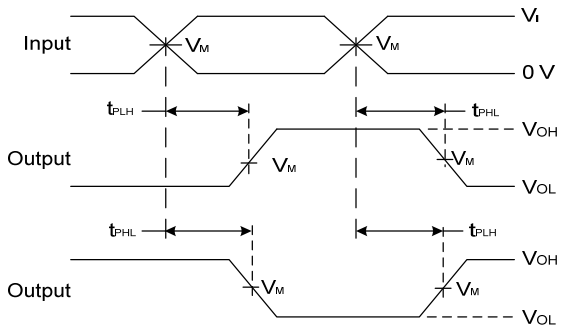
Parameter Measurement Information



V_{CC}	Inputs		V_M	C_L
	V_I	t_r/t_f		
3.3V -3.6V	V_{CC}	3ns	$V_{CC}/2$	15pF, 50pF
4.5V to 5.5V	V_{CC}	3ns	$V_{CC}/2$	15pF, 50pF



Voltage Waveform
Pulse Duration



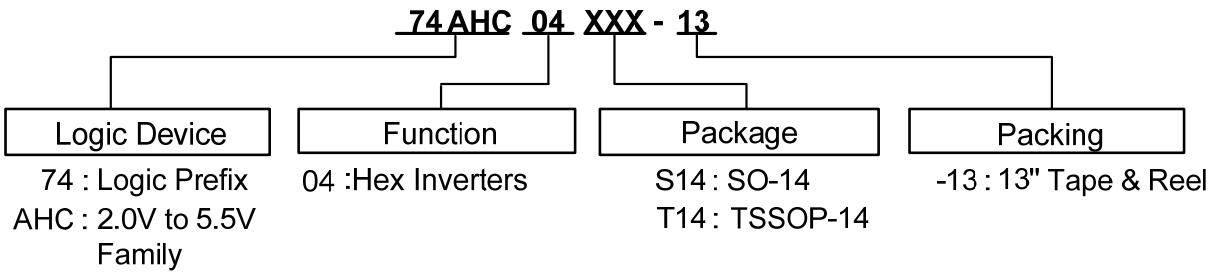
Voltage Waveform
Propagation Delay Times
Inverting and Non Inverting Outputs

Figure 1 Load Circuit and Voltage Waveforms

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_{PLH} and t_{PHL} are the same as t_{PD}.

NEW PRODUCT

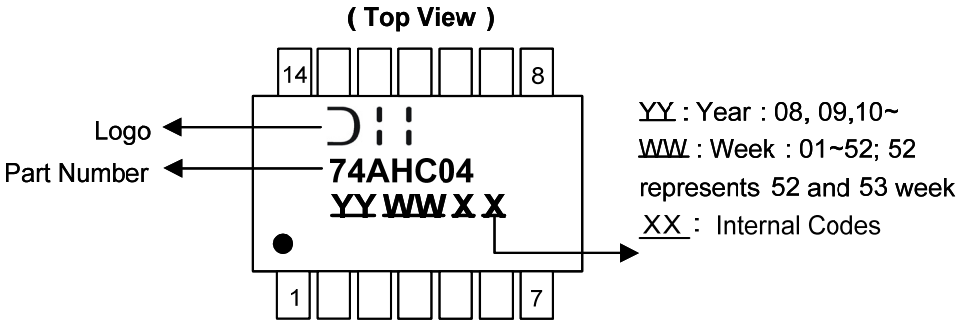
Ordering Information



Device	Package Code	Packaging	7" Tape and Reel	
			Quantity	Part Number Suffix
74AHC04S14-13	S14	SO-14	2500/Tape & Reel	-13
74AHC04T14-13	T14	TSSOP-14	2500/Tape & Reel	-13

Marking Information

(1) SO-14, TSSOP-14



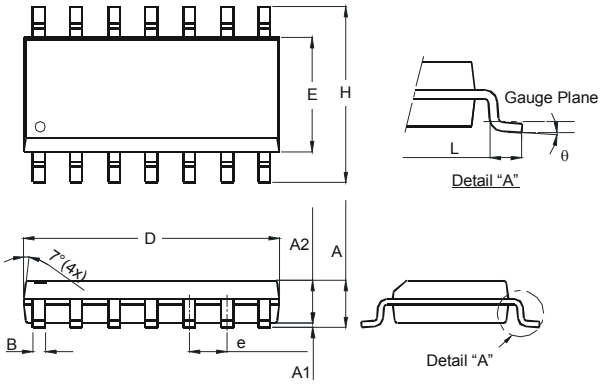
Part Number	Package
74AHC04S14	SO-14
74AHC04T14	TSSOP-14

NEW PRODUCT

Package Outline Dimensions (All dimensions in mm.)

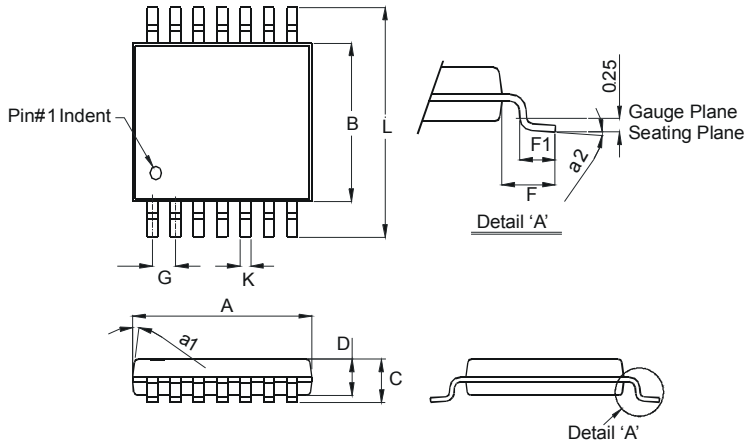
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.

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		

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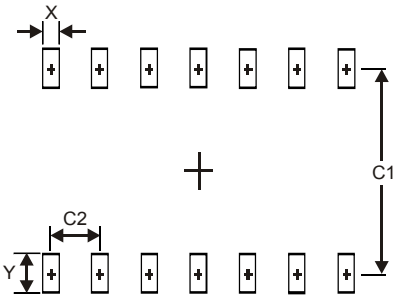
Suggested Pad Layout

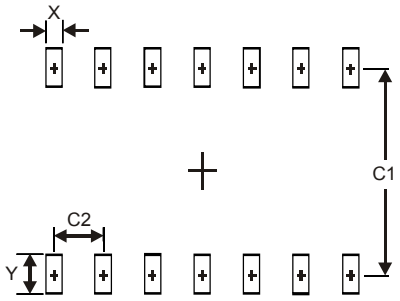
Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.

Package Type: SO-14



Dimensions	Value (in mm)
X	0.60
Y	1.50
C1	5.4
C2	1.27

Package Type: TSSOP-14



Dimensions	Value (in mm)
X	0.45
Y	1.45
C1	5.9
C2	0.65

NEW PRODUCT

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