



## 1、 General Description

The 74HC04/74HCT04 is ahexinverter.

The inputs include clamp diodes that enable the use of currentlimitingresistors to interface inputs to voltages in excess of  $V_{CC}$ .

### Features:

For 74HC04: CMOS levelFor  
74HCT04: TTL level

- Specified from  $-40^{\circ}\text{C}$  to  $+105^{\circ}\text{C}$
- Packaging information: DIP14/SOP14/TSSOP14

## 2、 Block Diagram And Pin Description

### 2.1、 Block Diagram

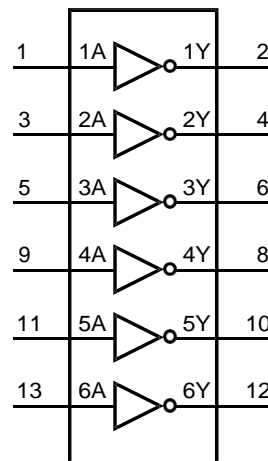


Figure 1. Logic symbol

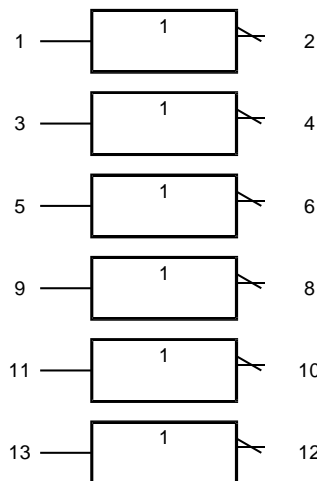


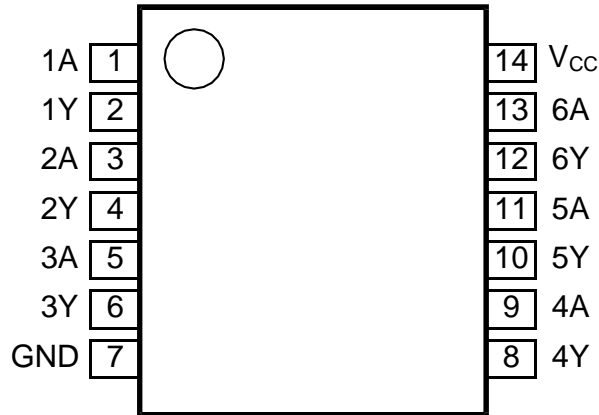
Figure 2. IEC logic symbol



Figure 3. Logic diagram for one gate



## 2.2、 Pin Configurations



## 2.3、 Pin Description

Pin No.	Pin Name	Description
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 (0V)
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	V <sub>CC</sub>	supply voltage

## 2.4、 Function Table

Input	Output
nA	nY
L	H
H	L

Note: H=HIGH voltage level; L=LOW voltage level.



### 3、Electrical Parameter

#### 3.1、Absolute Maximum Ratings

(Voltages are referenced to GND(ground=0V), unless otherwise specified.)

Parameter	Symbol	Conditions	Min.	Max.	Unit
supply voltage	$V_{CC}$	-	-0.5	+7	V
input clamping current	$I_{IK}$	$V_I < -0.5V$ or $V_I > V_{CC}+0.5V$	-	$\pm 20$	mA
output clamping current	$I_{OK}$	$V_O < -0.5V$ or $V_O > V_{CC}+0.5V$	-	$\pm 20$	mA
output current	$I_O$	$-0.5V < V_O < V_{CC}+0.5V$	-	$\pm 25$	mA
supply current	$I_{CC}$	-	-	50	mA
ground current	$I_{GND}$	-	-50	-	mA
total power dissipation	$P_{tot}$	-	-	500	mW
storage temperature	$T_{stg}$	-	-65	+150	°C
Soldering temperature	$T_L$	10s	DIP	245	°C
			SOP	250	

Note:

[1] For DIP14 packages: above 70°C the value of  $P_{tot}$  derates linearly with 12mW/K.

[2] For SOP14 packages: above 70°C the value of  $P_{tot}$  derates linearly with 8mW/K.

[3] For (T)SSOP14 packages: above 60°C the value of  $P_{tot}$  derates linearly with 5.5mW/K.

#### 3.2、Recommended Operating Conditions

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>74HC04</b>						
supply voltage	$V_{CC}$	-	2.0	5.0	6.0	V
input voltage	$V_I$	-	0	-	$V_{CC}$	V
output voltage	$V_O$	-	0	-	$V_{CC}$	V
input transition rise and fall rate	$\Delta t/\Delta V$	$V_{CC}=2.0V$	-	-	625	ns/V
		$V_{CC}=4.5V$	-	1.67	139	ns/V
		$V_{CC}=6.0V$	-	-	83	ns/V
ambient temperature	$T_{amb}$	-	-40	-	+105	°C
<b>74HCT04</b>						
supply voltage	$V_{CC}$	-	4.5	5.0	5.5	V
input voltage	$V_I$	-	0	-	$V_{CC}$	V
output voltage	$V_O$	-	0	-	$V_{CC}$	V
input transition rise and fall rate	$\Delta t/\Delta V$	$V_{CC}=2.0V$	-	-	-	ns/V
		$V_{CC}=4.5V$	-	1.67	139	ns/V
		$V_{CC}=6.0V$	-	-	-	ns/V
ambient temperature	$T_{amb}$	-	-40	-	+105	°C



### 3.3 、 Electrical Characteristics

#### 3.3.1、 DC Characteristics 1

( $T_{amb}=25^{\circ}\text{C}$ , voltages are referenced to GND (ground=0V), unless otherwise specified.)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	
<b>74HC04</b>							
HIGH-level input voltage	$V_{IH}$	$V_{CC}=2.0\text{V}$	1.5	1.2	-	V	
		$V_{CC}=4.5\text{V}$	3.15	2.4	-	V	
		$V_{CC}=6.0\text{V}$	4.2	3.2	-	V	
LOW-level input voltage	$V_{IL}$	$V_{CC}=2.0\text{V}$	-	0.8	0.5	V	
		$V_{CC}=4.5\text{V}$	-	2.1	1.35	V	
		$V_{CC}=6.0\text{V}$	-	2.8	1.8	V	
HIGH-level output voltage	$V_{OH}$	$V_I = V_{IH} \text{ or } V_{IL}$	$I_O=-20\mu\text{A}; V_{CC}=2.0\text{V}$	1.9	2.0	-	V
			$I_O=-20\mu\text{A}; V_{CC}=4.5\text{V}$	4.4	4.5	-	V
			$I_O=-20\mu\text{A}; V_{CC}=6.0\text{V}$	5.9	6.0	-	V
			$I_O=-4.0\text{mA}; V_{CC}=4.5\text{V}$	3.98	4.32	-	V
			$I_O=-5.2\text{mA}; V_{CC}=6.0\text{V}$	5.48	5.81	-	V
LOW-level output voltage	$V_{OL}$	$V_I = V_{IH} \text{ or } V_{IL}$	$I_O=20\mu\text{A}; V_{CC}=2.0\text{V}$	-	0	0.1	V
			$I_O=20\mu\text{A}; V_{CC}=4.5\text{V}$	-	0	0.1	V
			$I_O=20\mu\text{A}; V_{CC}=6.0\text{V}$	-	0	0.1	V
			$I_O=4.0\text{mA}; V_{CC}=4.5\text{V}$	-	0.15	0.26	V
			$I_O=5.2\text{mA}; V_{CC}=6.0\text{V}$	-	0.16	0.26	V
input leakage current	$I_I$	$V_I = V_{CC} \text{ or } \text{GND}; V_{CC}=6.0\text{V}$	-	-	$\pm 0.1$	$\mu\text{A}$	
supply current	$I_{CC}$	$V_I = V_{CC} \text{ or } \text{GND}; I_O=0\text{A}; V_{CC}=6.0\text{V}$	-	-	2.0	$\mu\text{A}$	
input capacitance	$C_I$	-	-	3.5	-	pF	
<b>74HCT04</b>							
HIGH-level input voltage	$V_{IH}$	$V_{CC}=4.5\text{V to } 5.5\text{V}$	2.0	1.6	-	V	
LOW-level input voltage	$V_{IL}$	$V_{CC}=4.5\text{V to } 5.5\text{V}$	-	1.2	0.8	V	
HIGH-level output voltage	$V_{OH}$	$V_I = V_{IH} \text{ or } V_{IL}$	$I_O=-20\mu\text{A}; V_{CC}=4.5\text{V}$	4.4	4.5	-	V
			$I_O=-4.0\text{mA}; V_{CC}=4.5\text{V}$	3.98	4.32	-	V
LOW-level output voltage	$V_{OL}$	$V_I = V_{IH} \text{ or } V_{IL}$	$I_O=20\mu\text{A}; V_{CC}=4.5\text{V}$	-	0	0.1	V
			$I_O=5.2\text{mA}; V_{CC}=4.5\text{V}$	-	0.15	0.26	V
input leakage current	$I_I$	$V_I = V_{CC} \text{ or } \text{GND}; V_{CC}=6.0\text{V}$	-	-	$\pm 0.1$	$\mu\text{A}$	
supply current	$I_{CC}$	$V_I = V_{CC} \text{ or } \text{GND}; I_O=0\text{A}; V_{CC}=5.5\text{V}$	-	-	2.0	$\mu\text{A}$	
additional supply current	$\Delta I_{CC}$	per input pin; $V_I = V_{CC}-2.1\text{V}; I_O=0\text{A};$ other inputs at $V_{CC}$ or $\text{GND}; V_{CC}=4.5\text{V to } 5.5\text{V}$	-	120	432	$\mu\text{A}$	
input capacitance	$C_I$	-	-	3.5	-	pF	



### 3.3.2 、 DC Characteristics 2

( $T_{amb}=-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ , voltages are referenced to GND (ground=0V), unless otherwise specified.)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	
<b>74HC04</b>							
HIGH-level input voltage	$V_{IH}$	$V_{CC}=2.0\text{V}$	1.5	-	-	V	
		$V_{CC}=4.5\text{V}$	3.15	-	-	V	
		$V_{CC}=6.0\text{V}$	4.2	-	-	V	
LOW-level input voltage	$V_{IL}$	$V_{CC}=2.0\text{V}$	-	-	0.5	V	
		$V_{CC}=4.5\text{V}$	-	-	1.35	V	
		$V_{CC}=6.0\text{V}$	-	-	1.8	V	
HIGH-level output voltage	$V_{OH}$	$V_I = V_{IH}$ or $V_{IL}$	$I_O=-20\mu\text{A}; V_{CC}=2.0\text{V}$	1.9	-	-	V
			$I_O=-20\mu\text{A}; V_{CC}=4.5\text{V}$	4.4	-	-	V
			$I_O=-20\mu\text{A}; V_{CC}=6.0\text{V}$	5.9	-	-	V
			$I_O=-4.0\text{mA}; V_{CC}=4.5\text{V}$	3.84	-	-	V
			$I_O=-5.2\text{mA}; V_{CC}=6.0\text{V}$	5.34	-	-	V
LOW-level output voltage	$V_{OL}$	$V_I = V_{IH}$ or $V_{IL}$	$I_O=20\mu\text{A}; V_{CC}=2.0\text{V}$	-	-	0.1	V
			$I_O=20\mu\text{A}; V_{CC}=4.5\text{V}$	-	-	0.1	V
			$I_O=20\mu\text{A}; V_{CC}=6.0\text{V}$	-	-	0.1	V
			$I_O=4.0\text{mA}; V_{CC}=4.5\text{V}$	-	-	0.33	V
			$I_O=5.2\text{mA}; V_{CC}=6.0\text{V}$	-	-	0.33	V
input leakage current	$I_I$	$V_I = V_{CC}$ or GND; $V_{CC}=6.0\text{V}$	-	-	$\pm 1$	$\mu\text{A}$	
supply current	$I_{CC}$	$V_I = V_{CC}$ or GND; $I_O=0\text{A}$ ; $V_{CC}=6.0\text{V}$	-	-	20	$\mu\text{A}$	
<b>74HCT04</b>							
HIGH-level input voltage	$V_{IH}$	$V_{CC}=4.5\text{V}$ to $5.5\text{V}$	2.0	-	-	V	
LOW-level input voltage	$V_{IL}$	$V_{CC}=4.5\text{V}$ to $5.5\text{V}$	-	-	0.8	V	
HIGH-level output voltage	$V_{OH}$	$V_I = V_{IH}$ or $V_{IL}$	$I_O=-20\mu\text{A}; V_{CC}=4.5\text{V}$	4.4	-	-	V
			$I_O=-4.0\text{mA}; V_{CC}=4.5\text{V}$	3.84	-	-	V
LOW-level output voltage	$V_{OL}$	$V_I = V_{IH}$ or $V_{IL}$	$I_O=20\mu\text{A}; V_{CC}=4.5\text{V}$	-	-	0.1	V
			$I_O=5.2\text{mA}; V_{CC}=4.5\text{V}$	-	-	0.33	V
input leakage current	$I_I$	$V_I = V_{CC}$ or GND; $V_{CC}=6.0\text{V}$	-	-	$\pm 1$	$\mu\text{A}$	
supply current	$I_{CC}$	$V_I = V_{CC}$ or GND; $I_O=0\text{A}$ ; $V_{CC}=5.5\text{V}$	-	-	20	$\mu\text{A}$	
additional supply current	$\Delta I_{CC}$	per input pin; $V_I = V_{CC}-2.1\text{V}$ ; $I_O=0\text{A}$ ; other inputs at $V_{CC}$ or GND; $V_{CC}=4.5\text{V}$ to $5.5\text{V}$	-	-	540	$\mu\text{A}$	



### 3.3.3 、 DC Characteristics 3

( $T_{amb}=-40^{\circ}\text{C}$  to  $+105^{\circ}\text{C}$ , voltages are referenced to GND (ground=0V), unless otherwise specified.)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	
<b>74HC04</b>							
HIGH-level input voltage	$V_{IH}$	$V_{CC}=2.0\text{V}$	1.5	-	-	V	
		$V_{CC}=4.5\text{V}$	3.15	-	-	V	
		$V_{CC}=6.0\text{V}$	4.2	-	-	V	
LOW-level input voltage	$V_{IL}$	$V_{CC}=2.0\text{V}$	-	-	0.5	V	
		$V_{CC}=4.5\text{V}$	-	-	1.35	V	
		$V_{CC}=6.0\text{V}$	-	-	1.8	V	
HIGH-level output voltage	$V_{OH}$	$V_I = V_{IH} \text{ or } V_{IL}$	$I_O=-20\mu\text{A}; V_{CC}=2.0\text{V}$	1.9	-	-	V
			$I_O=-20\mu\text{A}; V_{CC}=4.5\text{V}$	4.4	-	-	V
			$I_O=-20\mu\text{A}; V_{CC}=6.0\text{V}$	5.9	-	-	V
			$I_O=-4.0\text{mA}; V_{CC}=4.5\text{V}$	3.7	-	-	V
			$I_O=-5.2\text{mA}; V_{CC}=6.0\text{V}$	5.2	-	-	V
LOW-level output voltage	$V_{OL}$	$V_I = V_{IH} \text{ or } V_{IL}$	$I_O=20\mu\text{A}; V_{CC}=2.0\text{V}$	-	-	0.1	V
			$I_O=20\mu\text{A}; V_{CC}=4.5\text{V}$	-	-	0.1	V
			$I_O=20\mu\text{A}; V_{CC}=6.0\text{V}$	-	-	0.1	V
			$I_O=4.0\text{mA}; V_{CC}=4.5\text{V}$	-	-	0.4	V
			$I_O=5.2\text{mA}; V_{CC}=6.0\text{V}$	-	-	0.4	V
input leakage current	$I_I$	$V_I = V_{CC} \text{ or } \text{GND};$ $V_{CC}=6.0\text{V}$	-	-	$\pm 1$	$\mu\text{A}$	
supply current	$I_{CC}$	$V_I = V_{CC} \text{ or } \text{GND}; I_O=0\text{A};$ $V_{CC}=6.0\text{V}$	-	-	40	$\mu\text{A}$	
<b>74HCT04</b>							
HIGH-level input voltage	$V_{IH}$	$V_{CC}=4.5\text{V to } 5.5\text{V}$	2.0	-	-	V	
LOW-level input voltage	$V_{IL}$	$V_{CC}=4.5\text{V to } 5.5\text{V}$	-	-	0.8	V	
HIGH-level output voltage	$V_{OH}$	$V_I = V_{IH} \text{ or } V_{IL}$	$I_O=-20\mu\text{A}; V_{CC}=4.5\text{V}$	4.4	-	-	V
			$I_O=-4.0\text{mA}; V_{CC}=4.5\text{V}$	3.7	-	-	V
LOW-level output voltage	$V_{OL}$	$V_I = V_{IH} \text{ or } V_{IL}$	$I_O=20\mu\text{A}; V_{CC}=4.5\text{V}$	-	-	0.1	V
			$I_O=5.2\text{mA}; V_{CC}=4.5\text{V}$	-	-	0.4	V
input leakage current	$I_I$	$V_I = V_{CC} \text{ or } \text{GND};$ $V_{CC}=6.0\text{V}$	-	-	$\pm 1$	$\mu\text{A}$	
supply current	$I_{CC}$	$V_I = V_{CC} \text{ or } \text{GND}; I_O=0\text{A};$ $V_{CC}=5.5\text{V}$	-	-	40	$\mu\text{A}$	
additional supply current	$\Delta I_{CC}$	per input pin; $V_I = V_{CC}-2.1\text{V};$ $I_O=0\text{A};$ other inputs at $V_{CC}$ or $\text{GND};$ $V_{CC}=4.5\text{V to } 5.5\text{V}$	-	-	590	$\mu\text{A}$	



### 3.3.4 AC Characteristics 1

( $T_{amb}=25^{\circ}C$ , voltages are referenced to GND (ground=0V), unless otherwise specified.)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	
<b>74HC04</b>							
nA, nB to nY propagation delay	$t_{pd}$	see Figure 5 <sup>[1]</sup>	$V_{CC}=2.0V$	-	25	85	ns
			$V_{CC}=4.5V$	-	9	17	ns
			$V_{CC}=5.0V;C_L=15pF$	-	7	-	ns
			$V_{CC}=6.0V$	-	7	14	ns
transition time	$t_t$	see Figure 5 <sup>[2]</sup>	$V_{CC}=2.0V$	-	19	75	ns
			$V_{CC}=4.5V$	-	7	15	ns
			$V_{CC}=6.0V$	-	6	13	ns
power dissipation capacitance	$C_{PD}$	per package; $V_I=GND$ to $V_{CC}$ <sup>[3]</sup>	-	21	-	pF	
<b>74HCT04</b>							
nA, nB to nY propagation delay	$t_{pd}$	see Figure 5 <sup>[1]</sup>	$V_{CC}=4.5V$	-	10	19	ns
			$V_{CC}=5.0V;C_L=15pF$	-	8	-	ns
transition time	$t_t$	see Figure 5 <sup>[2]</sup>	$V_{CC}=4.5V$	-	7	15	ns
power dissipation capacitance	$C_{PD}$	per package; $V_I=GND$ to $V_{CC}-1.5V$ <sup>[3]</sup>	-	24	-	pF	

Note:

[1]  $t_{pd}$  is the same as  $t_{PLH}$  and  $t_{PHL}$ .

[2]  $t_t$  is the same as  $t_{THL}$  and  $t_{TLH}$ .

[3]  $C_{PD}$  is used to determine the dynamic power dissipation ( $P_D$  in uW).

$$P_D=(C_{PD}\times V_{CC}^2\times f_i\times N)+\sum(C_L\times V_{CC}^2\times f_o)$$
 where:

$f_i$ =input frequency in MHz;

$f_o$ =output frequency in MHz;

$C_L$ =output load capacitance in pF;

$V_{CC}$ =supply voltage in V;

$N$ =number of inputs switching;

$\sum(C_L\times V_{CC}^2\times f_o)$ =sum of outputs.



### 3.3.5 、 AC Characteristics 2

( $T_{amb}=-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ , voltages are referenced to GND (ground=0V), unless otherwise specified.)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	
<b>74HC04</b>							
nA, nB to nY propagation delay	$t_{pd}$	see Figure 5 <sup>[1]</sup>	$V_{CC}=2.0\text{V}$	-	-	105	ns
			$V_{CC}=4.5\text{V}$	-	-	21	ns
			$V_{CC}=6.0\text{V}$	-	-	18	ns
transition time	$t_t$	see Figure 5 <sup>[2]</sup>	$V_{CC}=2.0\text{V}$	-	-	95	ns
			$V_{CC}=4.5\text{V}$	-	-	19	ns
			$V_{CC}=6.0\text{V}$	-	-	16	ns
<b>74HCT04</b>							
nA, nB to nY propagation delay	$t_{pd}$	see Figure 5 <sup>[1]</sup>	$V_{CC}=4.5\text{V}$	-	-	24	ns
transition time	$t_t$	see Figure 5 <sup>[2]</sup>	$V_{CC}=4.5\text{V}$	-	-	19	ns

Note:

[1]  $t_{pd}$  is the same as  $t_{PLH}$  and  $t_{PHL}$ .

[2]  $t_t$  is the same as  $t_{THL}$  and  $t_{TLH}$ .

### 3.3.6 、 AC Characteristics 3

( $T_{amb}=-40^{\circ}\text{C}$  to  $+105^{\circ}\text{C}$ , voltages are referenced to GND (ground=0V), unless otherwise specified.)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	
<b>74HC04</b>							
nA, nB to nY propagation delay	$t_{pd}$	see Figure 5 <sup>[1]</sup>	$V_{CC}=2.0\text{V}$	-	-	130	ns
			$V_{CC}=4.5\text{V}$	-	-	26	ns
			$V_{CC}=6.0\text{V}$	-	-	22	ns
transition time	$t_t$	see Figure 5 <sup>[2]</sup>	$V_{CC}=2.0\text{V}$	-	-	110	ns
			$V_{CC}=4.5\text{V}$	-	-	22	ns
			$V_{CC}=6.0\text{V}$	-	-	19	ns
<b>74HCT04</b>							
nA, nB to nY propagation delay	$t_{pd}$	see Figure 5 <sup>[1]</sup>	$V_{CC}=4.5\text{V}$	-	-	29	ns
transition time	$t_t$	see Figure 5 <sup>[2]</sup>	$V_{CC}=4.5\text{V}$	-	-	22	ns

Note:

[1]  $t_{pd}$  is the same as  $t_{PLH}$  and  $t_{PHL}$ .

[2]  $t_t$  is the same as  $t_{THL}$  and  $t_{TLH}$ .





## 4、 Testing Circuit

### 4.1、 AC Testing Circuit

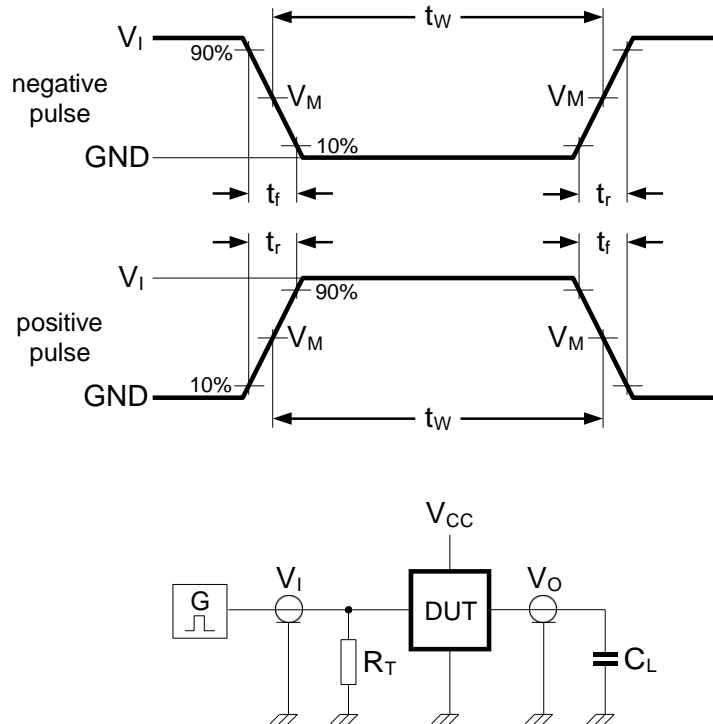


Figure 4. Test circuit for measuring switching times

Definitions for test circuit:

$C_L$ =load capacitance including jig and probe capacitance.

$R_T$ =termination resistance should be equal to the output impedance  $Z_o$  of the pulse generator.

### 4.2、 AC Testing Waveforms

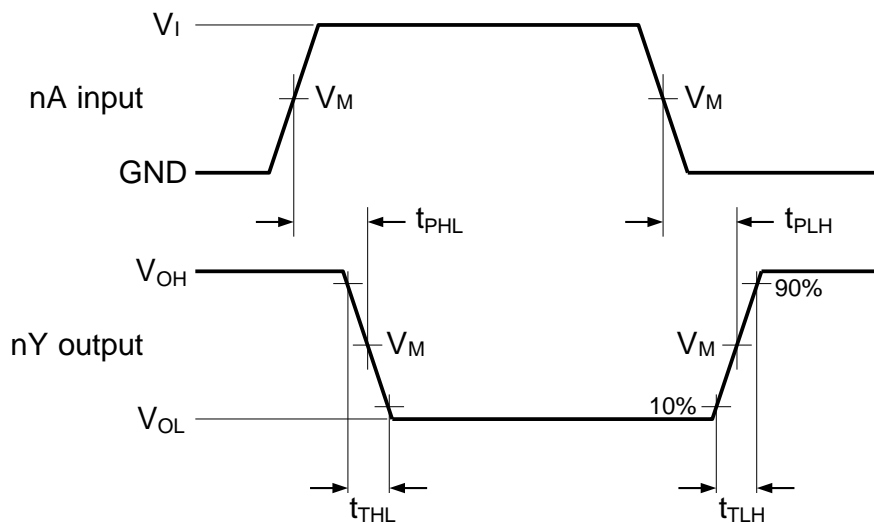


Figure 5. The input (nA) to output (nY) propagation delay times



#### 4.3、Measurement Points

Type	Input	Output
	$V_M$	$V_M$
74HC04	$0.5 \times V_{CC}$	$0.5 \times V_{CC}$
74HCT04	1.3V	1.3V

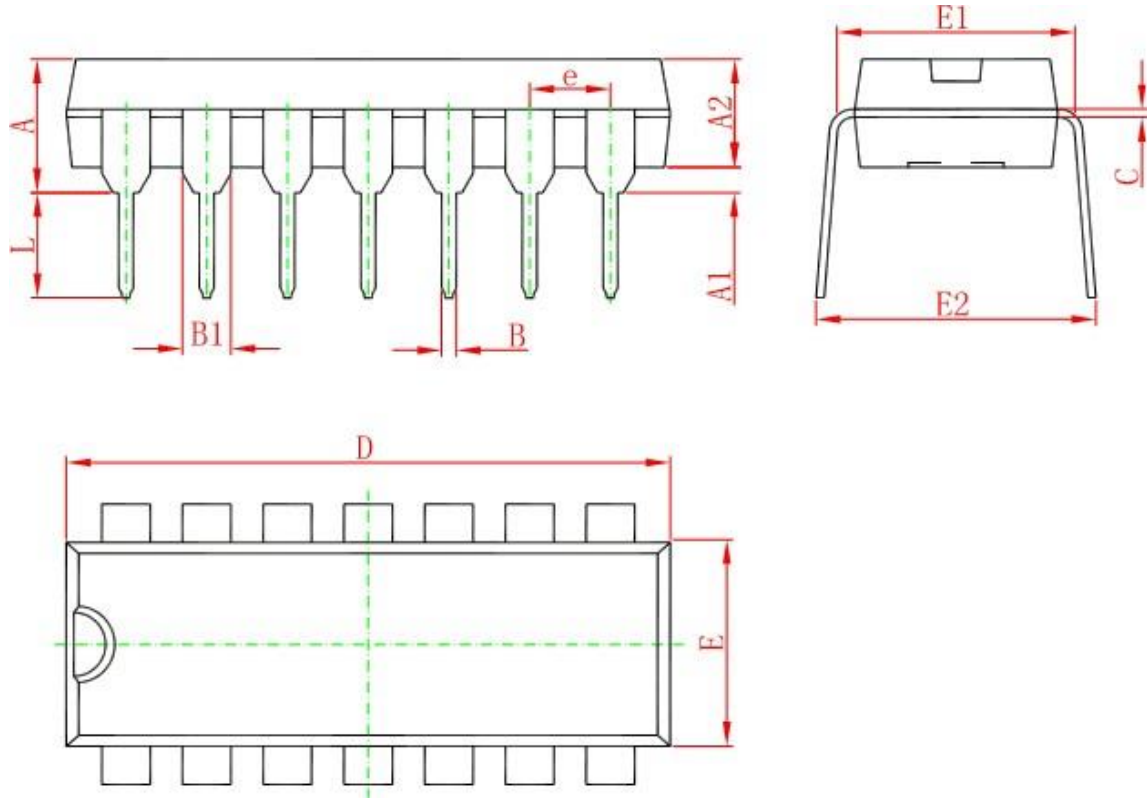
#### 4.4、Test Data

Type	Input		Load	Test
	$V_I$	$t_r, t_f$	$C_L$	
74HC04	$V_{CC}$	6.0ns	15pF, 50pF	$t_{PLH}, t_{PHL}$
74HCT04	3.0V	6.0ns	15pF, 50pF	$t_{PLH}, t_{PHL}$



## 5、 Package Information

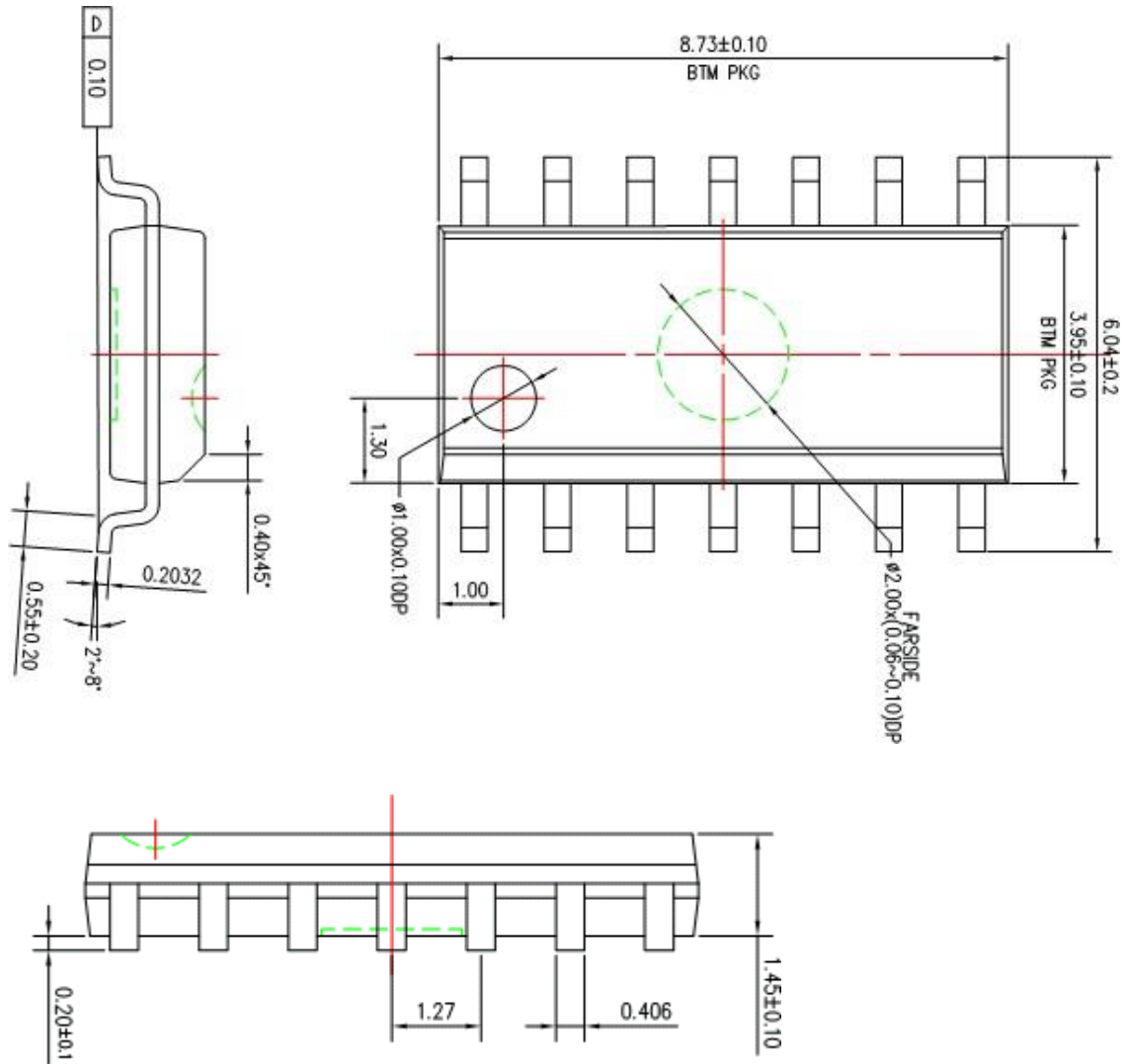
### 5.1、 DIP14



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.710	4.310	0.146	0.170
A1	0.510		0.020	
A2	3.200	3.600	0.126	0.142
B	0.380	0.570	0.015	0.022
B1	1.524 (BSC)		0.060 (BSC)	
C	0.204	0.360	0.008	0.014
D	18.800	19.200	0.740	0.756
E	6.200	6.600	0.244	0.260
E1	7.320	7.920	0.288	0.312
e	2.540 (BSC)		0.100 (BSC)	
L	3.000	3.600	0.118	0.142
E2	8.400	9.000	0.331	0.354

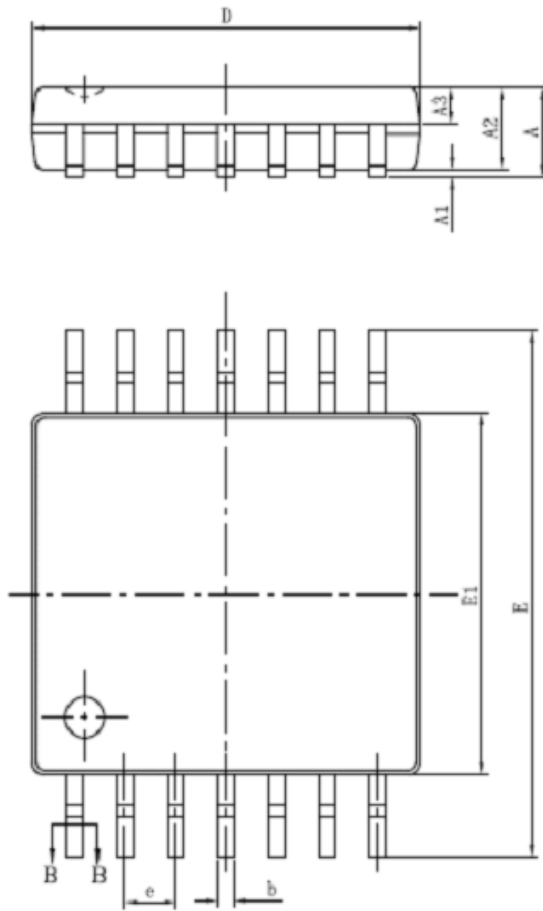


5.2、SOP14

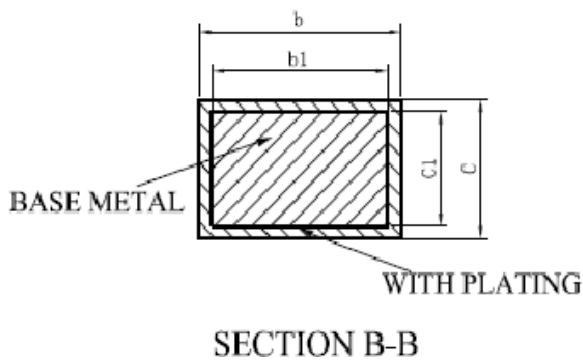




5.3、TSSOP14



SYMBOL	MILLIMETER	
	MIN	MAX
A	—	1.20
A1	0.05	0.15
A2	0.90	1.05
A3	0.39	0.49
b	0.20	0.30
b1	0.19	0.25
c	0.13	0.19
c1	0.12	0.14
D	4.86	5.06
E1	4.30	4.50
E	6.20	6.60
e	0.65BSC	
L	0.45	0.75
L1	1.00BSC	
θ	0	8°





## 6、 Statements And Notes

### 6.1 、 The name and content of Hazardous substances or Elements in the product

Part name	Hazardous substances or Elements									
	Lead and lead compounds	Mercury and mercury compounds	Cadmium and cadmium compounds	Hexavalent chromium compounds	Polybrominated biphenyls	Polybrominated biphenyl ethers	Dibutyl phthalate	Butylbenzyl phthalate	Di-2-ethylhexyl phthalate	Diisobutyl phthalate
Lead frame	○	○	○	○	○	○	○	○	○	○
Plastic resin	○	○	○	○	○	○	○	○	○	○
Chip	○	○	○	○	○	○	○	○	○	○
The lead	○	○	○	○	○	○	○	○	○	○
Plastic sheet installed	○	○	○	○	○	○	○	○	○	○
explanation	○: Indicates that the content of hazardous substances or elements in the detection limit of the following the SJ/T11363-2006 standard. ×: Indicates that the content of hazardous substances or elements exceeding the SJ/T11363-2006 Standard limit requirements.									



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