



# SN74HC/HCT112

## Dual JK flip-flop with set and reset; negative-edge trigger

### Product Specification

#### Specification Revision History:

Version	Date	Description
2023-06-A0	2023-06	New
2023-11-A1	2023-11	Parameter modification



# Contents

<b>1、 General Description.....</b>	<b>1</b>
<b>2、 Block Diagram And Pin Description .....</b>	<b>4</b>
2.1、 Block Diagram .....	4
2.2、 Pin Configurations .....	4
2.3、 Pin Description.....	5
<b>3、 Electrical Parameter .....</b>	<b>6</b>
3.1、 Absolute Maximum Ratings.....	6
3.2、 Electrical Characteristics.....	6
3.2.1、 DC Characteristics 1 .....	6
3.2.2、 DC Characteristics 2.....	7
3.3.3、 AC Characteristics 1 .....	8
3.3.4、 AC Characteristics 2.....	9
<b>4、 Testing Circuit .....</b>	<b>12</b>
4.1、 DC Testing Circuit.....	12
4.2、 AC Testing Circuit.....	12
4.3、 AC Testing Waveforms.....	13
4.4、 Measurement Points .....	14
<b>5、 Package Information .....</b>	<b>15</b>
5.1、 DIP16.....	15
5.2、 SOP16.....	16
5.3、 TSSOP16.....	17
<b>6、 Statements And Notes .....</b>	<b>18</b>
6.1、 The name and content of Hazardous substances or Elements in the product .....	18
6.2、 Notes.....	18



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## 1、General Description

The SN74HC/HCT112 is a dual negative-edge triggered JK flip-flop.

### Features:

- Supply voltage range:  
SN74HC112: 2~6V  
SN74HCT112: 4.5~5.5V
- Input levels:  
SN74HC112: CMOS level  
SN74HCT112: TTL level
- Temperature range: -40°C to +125°C
- Packaging information: DIP16/SOP16/TSSOP16



**Ordering Information:**

**Tube packing specifications:**

Part number	Packaging form	Marking code	Tube quantity	Boxed tube quantity	Boxed quantity	Notes
SN74HC112N(LX)	DIP16	SN74HC112N	25 PCS/tube	40 tube/box	1000 PCS/box	Dimensions of plastic enclosure: 19.0mm×6.4mm Pin spacing: 2.54mm
SN74HCT112N(LX)	DIP16	SN74HCT112N	25 PCS/tube	40 tube/box	1000 PCS/box	Dimensions of plastic enclosure: 19.0mm×6.4mm Pin spacing: 2.54mm
SN74HC112D(LX)	SOP16	HC112	50 PCS/tube	200 tube/box	10000 PCS/box	Dimensions of plastic enclosure: 10.0mm×3.9mm Pin spacing: 1.27mm
SN74HCT112D(LX)	SOP16	HCT112	50 PCS/tube	200 tube/box	10000 PCS/box	Dimensions of plastic enclosure: 10.0mm×3.9mm Pin spacing: 1.27mm
SN74HC112P(LX)	TSSOP16	HC112	96 PCS/tube	200 tube/box	19200 PCS/box	Dimensions of plastic enclosure: 5.0mm×4.4mm Pin spacing: 0.65mm
SN74HCT112P(LX)	TSSOP16	HCT112	96 PCS/tube	200 tube/box	19200 PCS/box	Dimensions of plastic enclosure: 5.0mm×4.4mm Pin spacing: 0.65mm



**Reel packing specifications:**

Part number	Packaging form	Marking code	Reel quantity	Boxed reel quantity	Notes
SN74HC112DR(LX)	SOP16	HC112	2500 PCS/reel	5000 PCS/box	Dimensions of plastic enclosure: 10.0mm×3.9mm Pin spacing:1.27mm
SN74HCT112DR(LX)	SOP16	HCT112	2500 PCS/reel	5000 PCS/box	Dimensions of plastic enclosure: 10.0mm×3.9mm Pin spacing:1.27mm
SN74HC112PR(LX)	TSSOP16	HC112	5000 PCS/reel	10000 PCS/box	Dimensions of plastic enclosure: 5.0mm×4.4mm Pin spacing:0.65mm
SN74HCT112PR(LX)	TSSOP16	HCT112	5000 PCS/reel	10000 PCS/box	Dimensions of plastic enclosure: 5.0mm×4.4mm Pin spacing:0.65mm

Note 1: "XX" refers to variable content, meaning year and package batch serial number.

Note 2: If the physical information is inconsistent with the ordering information, please refer to the actual product.



## 2、Block Diagram And Pin Description

### 2.1、Block Diagram

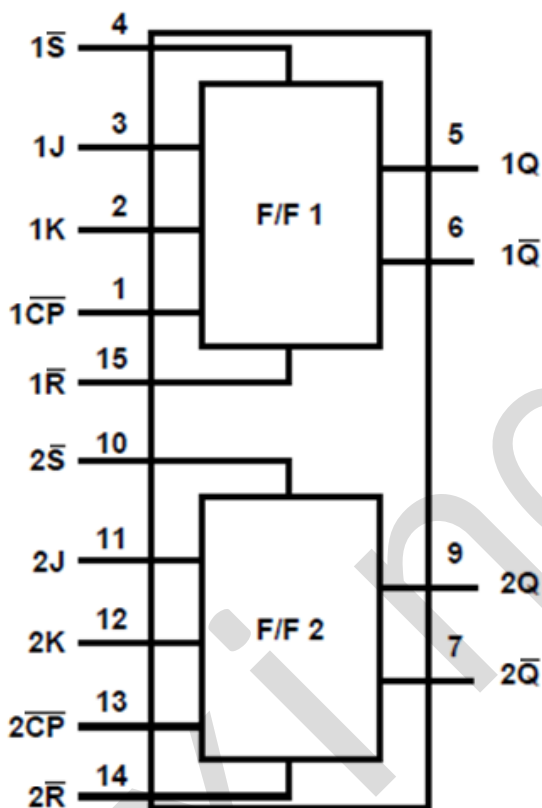
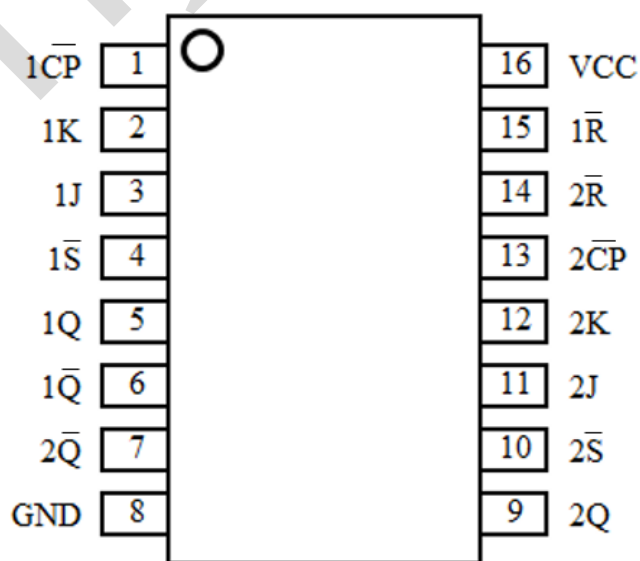


Figure 1. Functional diagram

### 2.2、Pin Configurations





### 2.3、Pin Description

Pin No.	Pin Name	Description
1	$\overline{1CP}$	clock input (HIGH-to-LOW; edge-triggered)
2	1K	data input
3	1J	data input
4	$\overline{1S}$	set input (active LOW)
5	1Q	true flip-flop output
6	$\overline{1Q}$	complement flip-flop output
7	$\overline{2Q}$	complement flip-flop output
8	GND	ground (0V)
9	2Q	true flip-flop output
10	$\overline{2S}$	set input (active LOW)
11	2J	data input
12	2K	data input
13	$\overline{2CP}$	clock input (HIGH-to-LOW; edge-triggered)
14	$\overline{2R}$	reset input (active LOW)
15	$\overline{1R}$	reset input (active LOW)
16	VCC	supply voltage

### 2.4、Function Table

Inputs					Outputs	
$\overline{S}$	$\overline{R}$	$\overline{CP}$	J	K	Q	$\overline{Q}$
L	H	X	X	X	H	L
H	L	X	X	X	L	H
L	L	X	X	X	H(Note 1)	H(Note 1)
H	H	↓	L	L	No Change	
H	H	↓	H	L	H	L
H	H	↓	L	H	L	H
H	H	↓	H	H	Toggle	
H	H	H	X	X	No Change	

H= High Level (Steady State)

L= Low Level (Steady State)

X= Don't Care

↓ = High-to-Low Transition

NOTE 1: Output states unpredictable if both S and R go High simultaneously after both being low at the same time



### 3、Electrical Parameter

#### 3.1、Absolute Maximum Ratings

( $T_{amb}=25^{\circ}\text{C}$ , All voltage referenced to  $V_{ss}$ , unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Max.	Unit
supply voltage	$V_{CC}$	-	-0.5	+7	V
supply current	$I_{CC}$	-	-	50	mA
ground current	$I_{GND}$	-	-50	-	mA
input clamping current	$I_{IK}$	$V_I < -0.5\text{V}$ or $V_I > V_{CC}+0.5\text{V}$	-	$\pm 20$	mA
output clamping current	$I_{OK}$	$V_O < -0.5\text{V}$ or $V_O > V_{CC}+0.5\text{V}$	-	$\pm 20$	mA
output current	$I_O$	$-0.5\text{V} < V_O < V_{CC}+0.5\text{V}$	-	$\pm 25$	mA
storage temperature	$T_{stg}$	-	-65	+150	$^{\circ}\text{C}$
soldering temperature	$T_L$	10s	DIP	245	$^{\circ}\text{C}$
			SOP/TSSOP	260	

#### 3.2、Electrical Characteristics

##### 3.2.1、DC Characteristics 1

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

Parameter	Symbol	$V_{CC}$	Conditions	Min.	Typ.	Max.	Unit
<b>SN74HC112</b>							
HIGH-level input voltage	$V_{IH}$	2.0V	-	1.5	1.2	-	V
		4.5V	-	3.15	2.4	-	V
		6.0V	-	4.2	3.2	-	V
LOW-level input voltage	$V_{IL}$	2.0V	-	-	0.8	0.5	V
		4.5V	-	-	2.1	1.35	V
		6.0V	-	-	2.8	1.8	V
HIGH-level output voltage	$V_{OH}$	2.0V	$I_O=-20\mu\text{A}$	1.9	2.0	-	V
		4.5V	$I_O=-20\mu\text{A}$	4.4	4.5	-	V
		6.0V	$I_O=-20\mu\text{A}$	5.9	6.0	-	V
		4.5V	$I_O=-4.0\text{mA}$	3.84	4.32	-	V
		6.0V	$I_O=-5.2\text{mA}$	5.34	5.81	-	V
LOW-level output voltage	$V_{OL}$	2.0V	$I_O=20\mu\text{A}$	-	0	0.1	V
		4.5V	$I_O=20\mu\text{A}$	-	0	0.1	V
		6.0V	$I_O=20\mu\text{A}$	-	0	0.1	V
		4.5V	$I_O=4.0\text{mA}$	-	0.15	0.33	V
		6.0V	$I_O=5.2\text{mA}$	-	0.16	0.33	V
input leakage current	$I_I$	6.0V	$V_I=V_{CC}$ or GND	-	-	$\pm 1$	$\mu\text{A}$
supply current	$I_{CC}$	6.0V	$V_I=V_{CC}$ or GND; $I_O=0\text{A}$	-	-	80	$\mu\text{A}$
<b>SN74HCT112</b>							
HIGH-level input voltage	$V_{IH}$	4.5~5.5V	-	2.0	1.6	-	V
LOW-level input voltage	$V_{IL}$	4.5~5.5V	-	-	1.2	0.8	V
HIGH-level	$V_{OH}$	4.5V	$I_O=-20\mu\text{A}$	4.4	4.5	-	V





output voltage			$I_O=-4.0mA$	3.84	4.32	-	V
LOW-level output voltage	$V_{OL}$	4.5V	$I_O=20\mu A$	-	0	0.1	V
			$I_O=4.0mA$	-	0.15	0.33	V
input leakage current	$I_I$	5.5V	$V_I=V_{CC}$ or GND	-	-	$\pm 1$	$\mu A$
supply current	$I_{CC}$	6.0V	$V_I=V_{CC}$ or GND; $I_O=0A$	-	-	80	$\mu A$
additional supply current	$\Delta I_{CC}$	4.5~5.5V	One input at $V_I=V_{CC}-2.1V$ ; Other inputs at $V_{CC}$ or GND; $I_O=0A$	-	-	135	$\mu A$

### 3.2.2、DC Characteristics 2

( $T_{amb}=-40^{\circ}C$  to  $+125^{\circ}C$ , voltages are referenced to  $V_{SS}$  (ground=0V), unless otherwise specified.)

Parameter	Symbol	$V_{CC}$	Conditions	Min.	Typ.	Max.	Unit
<b>SN74HC112</b>							
HIGH-level input voltage	$V_{IH}$	2.0V	-	1.5	-	-	V
		4.5V	-	3.15	-	-	V
		6.0V	-	4.2	-	-	V
LOW-level input voltage	$V_{IL}$	2.0V	-	-	-	0.5	V
		4.5V	-	-	-	1.35	V
		6.0V	-	-	-	1.8	V
HIGH-level output voltage	$V_{OH}$	2.0V	$I_O=-20\mu A$	1.9	-	-	V
		4.5V	$I_O=-20\mu A$	4.4	-	-	V
		6.0V	$I_O=-20\mu A$	5.9	-	-	V
		4.5V	$I_O=-4.0mA$	3.7	-	-	V
		6.0V	$I_O=-5.2mA$	5.2	-	-	V
LOW-level output voltage	$V_{OL}$	2.0V	$I_O=20\mu A$	-	-	0.1	V
		4.5V	$I_O=20\mu A$	-	-	0.1	V
		6.0V	$I_O=20\mu A$	-	-	0.1	V
		4.5V	$I_O=4.0mA$	-	-	0.4	V
		6.0V	$I_O=5.2mA$	-	-	0.4	V
input leakage current	$I_I$	6.0V	$V_I=V_{CC}$ or GND	-	-	$\pm 1$	$\mu A$
supply current	$I_{CC}$	6.0V	$V_I=V_{CC}$ or GND; $I_O=0A$	-	-	160	$\mu A$
<b>SN74HCT112</b>							
HIGH-level input voltage	$V_{IH}$	4.5~5.5V	-	2.0	-	-	V
LOW-level input voltage	$V_{IL}$	4.5~5.5V	-	-	-	0.8	V
HIGH-level output voltage	$V_{OH}$	4.5V	$I_O=-20\mu A$	4.4	-	-	V
			$I_O=-4.0mA$	3.7	-	-	V
LOW-level output voltage	$V_{OL}$	4.5V	$I_O=20\mu A$	-	-	0.1	V
			$I_O=4.0mA$	-	-	0.4	V
input leakage current	$I_I$	5.5V	$V_I=V_{CC}$ or GND	-	-	$\pm 1$	$\mu A$
supply current	$I_{CC}$	6.0V	$V_I=V_{CC}$ or GND; $I_O=0A$	-	-	160	$\mu A$
additional	$\Delta I_{CC}$	4.5~	One input at $V_I=V_{CC}-2.1V$ ;	-	-	147	$\mu A$



supply current		5.5V	Other inputs at V <sub>CC</sub> or GND; I <sub>O</sub> =0A				
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**3.3.3、AC Characteristics 1**

(T<sub>amb</sub>=-40°C to +85°C, V<sub>SS</sub>=0V, unless otherwise specified.)

Parameter	Symbol	V <sub>CC</sub>	Conditions	Min.	Typ.	Max.	Unit	
<b>SN74HC112</b>								
nCP to nQ propagation delay		2.0V	C <sub>L</sub> =50pF	see Figure 5	-	55	220	ns
		4.5V	C <sub>L</sub> =50pF		-	20	44	ns
		5.0V	C <sub>L</sub> =15pF		-	17	-	ns
		6.0V	C <sub>L</sub> =50pF		-	16	37	ns
nCP to nQ propagation delay	t <sub>PLH</sub> , t <sub>PHL</sub>	2.0V	C <sub>L</sub> =50pF	see Figure 5	-	55	220	ns
		4.5V	C <sub>L</sub> =50pF		-	20	44	ns
		5.0V	C <sub>L</sub> =15pF		-	17	-	ns
		6.0V	C <sub>L</sub> =50pF		-	16	37	ns
nR to nQ、nQ propagation delay		2.0V	C <sub>L</sub> =50pF	see Figure 6	-	58	225	ns
		4.5V	C <sub>L</sub> =50pF		-	21	45	ns
		5.0V	C <sub>L</sub> =15pF		-	18	-	ns
		6.0V	C <sub>L</sub> =50pF		-	17	38	ns
nS to nQ、nQ propagation delay		2.0V	C <sub>L</sub> =50pF	see Figure 6	-	50	295	ns
		4.5V	C <sub>L</sub> =50pF		-	18	39	ns
		5.0V	C <sub>L</sub> =15pF		-	15	-	ns
		6.0V	C <sub>L</sub> =50pF		-	14	33	ns
transition time	t <sub>THL</sub> , t <sub>TLH</sub>	2.0V	C <sub>L</sub> =50pF	see Figure 5	-	19	95	ns
		4.5V	C <sub>L</sub> =50pF		-	7	19	ns
		6.0V	C <sub>L</sub> =50pF		-	6	16	ns
nCP HIGH or LOW pulse width	t <sub>w</sub>	2.0V	C <sub>L</sub> =50pF	see Figure 5	100	22	-	ns
		4.5V	C <sub>L</sub> =50pF		20	8	-	ns
		6.0V	C <sub>L</sub> =50pF		17	6	-	ns
nS,nR LOW pulse width		2.0V	C <sub>L</sub> =50pF	see Figure 6	100	22	-	ns
		4.5V	C <sub>L</sub> =50pF		20	8	-	ns
		6.0V	C <sub>L</sub> =50pF		17	6	-	ns
nR to nCP recovery time	t <sub>rec</sub>	2.0V	C <sub>L</sub> =50pF	see Figure 6	125	22	-	ns
		4.5V	C <sub>L</sub> =50pF		25	8	-	ns
		6.0V	C <sub>L</sub> =50pF		21	6	-	ns
nS to nCP recovery time		2.0V	C <sub>L</sub> =50pF	see Figure 6	100	-19	-	ns
		4.5V	C <sub>L</sub> =50pF		20	-7	-	ns
		6.0V	C <sub>L</sub> =50pF		17	-6	-	ns
nJ and nK to nCP set-up time	t <sub>su</sub>	2.0V	C <sub>L</sub> =50pF	see Figure 5	100	19	-	ns
		4.5V	C <sub>L</sub> =50pF		20	7	-	ns
		6.0V	C <sub>L</sub> =50pF		17	6	-	ns
nJ and nK to nCP hold time	t <sub>h</sub>	2.0V	C <sub>L</sub> =50pF	see Figure 5	0	-11	-	ns
		4.5V	C <sub>L</sub> =50pF		0	-4	-	ns
		6.0V	C <sub>L</sub> =50pF		0	-3	-	ns
maxiumum	f <sub>max</sub>	2.0V	C <sub>L</sub> =50pF	see Figure 5	4.8	20	-	MHz



frequency		4.5V	$C_L=50\text{pF}$		24	60	-	MHz
		5.0V	$C_L=15\text{pF}$		-	66	-	MHz
		6.0V	$C_L=50\text{pF}$		28	71	-	MHz
<b>SN74HCT112</b>								
$\overline{nCP}$ to $\overline{nQ}$ propagation delay	$t_{PLH}, t_{PHL}$	4.5V	$C_L=50\text{pF}$	see Figure 5	-	21	44	ns
		5.0V	$C_L=15\text{pF}$		-	19	-	ns
$\overline{nCP}$ to $\overline{nQ}$ propagation delay		4.5V	$C_L=50\text{pF}$	see Figure 5	-	23	50	ns
		5.0V	$C_L=15\text{pF}$		-	19	-	ns
$\overline{nR}$ to $\overline{nQ}$ 、 $\overline{nQ}$ propagation delay		4.5V	$C_L=50\text{pF}$	see Figure 6	-	22	46	ns
		5.0V	$C_L=15\text{pF}$		-	19	-	ns
$\overline{nS}$ to $\overline{nQ}$ 、 $\overline{nQ}$ propagation delay	4.5V	$C_L=50\text{pF}$	see Figure 6	-	18	40	ns	
	5.0V	$C_L=15\text{pF}$		-	15	-	ns	
transition time	$t_{THL}, t_{TLH}$	4.5V	$C_L=50\text{pF}$	see Figure 5	-	7	19	ns
$\overline{nCP}$ HIGH or LOW pulse width	$t_w$	4.5V	$C_L=50\text{pF}$	see Figure 5	20	8	-	ns
$\overline{nS}, \overline{nR}$ LOW pulse width		4.5V	$C_L=50\text{pF}$	see Figure 6	23	10	-	ns
$\overline{nR}$ to $\overline{nCP}$ recovery time	$t_{rec}$	4.5V	$C_L=50\text{pF}$	see Figure 6	25	11	-	ns
$\overline{nS}$ to $\overline{nCP}$ recovery time		4.5V	$C_L=50\text{pF}$	see Figure 6	25	-8	-	ns
$\overline{nJ}$ and $\overline{nK}$ to $\overline{nCP}$ set-up time	$t_{su}$	4.5V	$C_L=50\text{pF}$	see Figure 5	20	7	-	ns
$\overline{nJ}$ and $\overline{nK}$ to $\overline{nCP}$ hold time	$t_h$	4.5V	$C_L=50\text{pF}$	see Figure 5	0	-7	-	ns
maximum frequency	$f_{max}$	4.5V	$C_L=50\text{pF}$	see Figure 5	24	64	-	MHz
		5.0V	$C_L=15\text{pF}$		-	70	-	MHz

### 3.3.4、AC Characteristics 2

( $T_{amb}=-40^\circ\text{C}$  to  $+125^\circ\text{C}$ ,  $V_{SS}=0\text{V}$ , unless otherwise specified.)

Parameter	Symbol	$V_{CC}$	Conditions	Min.	Typ.	Max.	Unit	
<b>SN74HC112</b>								
$\overline{nCP}$ to $\overline{nQ}$ propagation delay	$t_{PLH}, t_{PHL}$	2.0V	$C_L=50\text{pF}$	see Figure 3	-	-	265	ns
		4.5V	$C_L=50\text{pF}$		-	-	53	ns
		6.0V	$C_L=50\text{pF}$		-	-	45	ns
$\overline{nCP}$ to $\overline{nQ}$ propagation delay		2.0V	$C_L=50\text{pF}$	see Figure 3	-	-	265	ns
		4.5V	$C_L=50\text{pF}$		-	-	53	ns
		6.0V	$C_L=50\text{pF}$		-	-	45	ns
$\overline{nR}$ to $\overline{nQ}$ 、 $\overline{nQ}$ propagation	2.0V	$C_L=50\text{pF}$	see Figure 4	-	-	270	ns	
	4.5V	$C_L=50\text{pF}$		-	-	54	ns	



delay		6.0V	$C_L=50pF$		-	-	46	ns
$\bar{n}S$ to $\bar{n}Q$ 、 $\bar{n}Q$ propagation delay		2.0V	$C_L=50pF$	see Figure 4	-	-	235	ns
		4.5V	$C_L=50pF$		-	-	47	ns
		6.0V	$C_L=50pF$		-	-	40	ns
		6.0V	$C_L=50pF$		-	-	40	ns
transition time	$t_{THL}, t_{TLH}$	2.0V	$C_L=50pF$	see Figure 3	-	-	110	ns
		4.5V	$C_L=50pF$		-	-	22	ns
		6.0V	$C_L=50pF$		-	-	19	ns
$\bar{n}CP$ HIGH or LOW pulse width	$t_w$	2.0V	$C_L=50pF$	see Figure 3	120	-	-	ns
		4.5V	$C_L=50pF$		24	-	-	ns
		6.0V	$C_L=50pF$		20	-	-	ns
$\bar{n}S, \bar{n}R$ LOW pulse width	$t_w$	2.0V	$C_L=50pF$	see Figure 4	120	-	-	ns
		4.5V	$C_L=50pF$		24	-	-	ns
		6.0V	$C_L=50pF$		20	-	-	ns
$\bar{n}R$ to $\bar{n}CP$ recovery time	$t_{rec}$	2.0V	$C_L=50pF$	see Figure 4	150	-	-	ns
		4.5V	$C_L=50pF$		30	-	-	ns
		6.0V	$C_L=50pF$		26	-	-	ns
$\bar{n}S$ to $\bar{n}CP$ recovery time	$t_{rec}$	2.0V	$C_L=50pF$	see Figure 4	120	-	-	ns
		4.5V	$C_L=50pF$		24	-	-	ns
		6.0V	$C_L=50pF$		20	-	-	ns
$\bar{n}J$ and $\bar{n}K$ to $\bar{n}CP$ set-up time	$t_{su}$	2.0V	$C_L=50pF$	see Figure 3	120	-	-	ns
		4.5V	$C_L=50pF$		24	-	-	ns
		6.0V	$C_L=50pF$		20	-	-	ns
$\bar{n}J$ and $\bar{n}K$ to $\bar{n}CP$ hold time	$t_h$	2.0V	$C_L=50pF$	see Figure 3	0	-	-	ns
		4.5V	$C_L=50pF$		0	-	-	ns
		6.0V	$C_L=50pF$		0	-	-	ns
maximum frequency	$f_{max}$	2.0V	$C_L=50pF$	see Figure 3	4.0	-	-	MHZ
		4.5V	$C_L=50pF$		20	-	-	MHZ
		6.0V	$C_L=50pF$		24	-	-	NHZ

**SN74HCT112**

$\bar{n}CP$ to $\bar{n}Q$ propagation delay	$t_{PLH}, t_{PHL}$	4.5V	$C_L=50pF$	see Figure 3	-	-	53	ns
$\bar{n}CP$ to $\bar{n}Q$ propagation delay		4.5V	$C_L=50pF$	see Figure 3	-	-	60	ns
$\bar{n}R$ to $\bar{n}Q$ 、 $\bar{n}Q$ propagation delay		4.5V	$C_L=50pF$	see Figure 4	-	-	56	ns
$\bar{n}S$ to $\bar{n}Q$ 、 $\bar{n}Q$ propagation delay		4.5V	$C_L=50pF$	see Figure 4	-	-	48	ns
transition time	$t_{THL}, t_{TLH}$	4.5V	$C_L=50pF$	see Figure 3	-	-	22	ns
$\bar{n}CP$ HIGH or LOW pulse width	$t_w$	4.5V	$C_L=50pF$	see Figure 3	24	-	-	ns
$\bar{n}S, \bar{n}R$ LOW		4.5V	$C_L=50pF$	see Figure 4	27	-	-	ns



pulse width								
nR to nCP recovery time	trec	4.5V	C <sub>L</sub> =50pF	see Figure 4	30	-	-	ns
nS to nCP recovery time		4.5V	C <sub>L</sub> =50pF	see Figure 4	30	-	-	ns
nJ and nK to n CP set-up time	tsu	4.5V	C <sub>L</sub> =50pF	see Figure 3	24	-	-	ns
nJ and nK to n CP hold time	th	4.5V	C <sub>L</sub> =50pF	see Figure 3	0	-	-	ns
maximum frequency	fmax	4.5V	C <sub>L</sub> =50pF	see Figure 3	20	-	-	MHZ

## 4、Testing Circuit

### 4.1、DC Testing Circuit

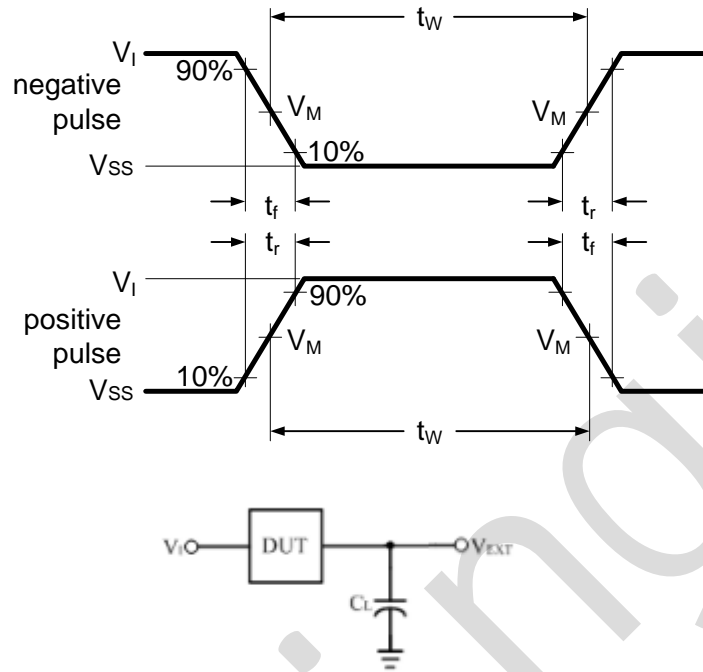


Figure 2 Load circuit

$C_L$  includes probe and jig capacitance.

### 4.2、AC Testing Circuit

Type	Input		Load	$V_{EXT}$		
	$V_I$	$t_r = t_f$	$C_L$	$t_{PLH}/t_{PHL}$	$t_{PLZ}/t_{PZL}$	$t_{PHZ}/t_{PZH}$
SN74HC112	$V_{CC}$	6.0ns	50pF	Open	$V_{CC}$	GND
SN74HCT112	3.0V	6.0ns	50pF	Open	$V_{CC}$	GND



### 4.3、AC Testing Waveforms

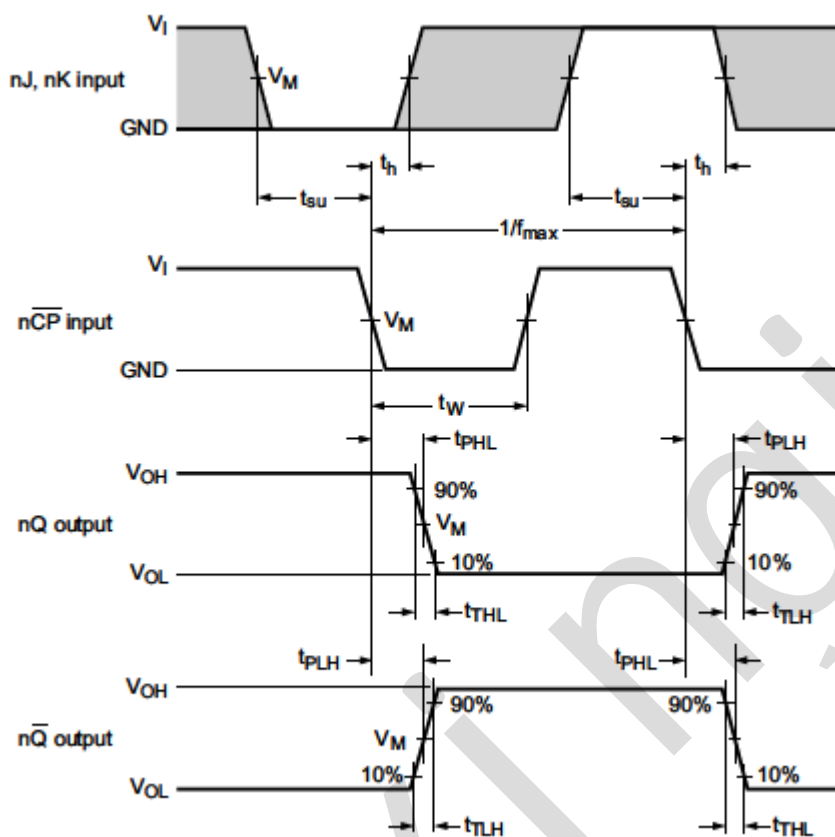


Figure 3 Clock propagation delays, output transition time, pulse width, set-up, hold times, and maximum frequency

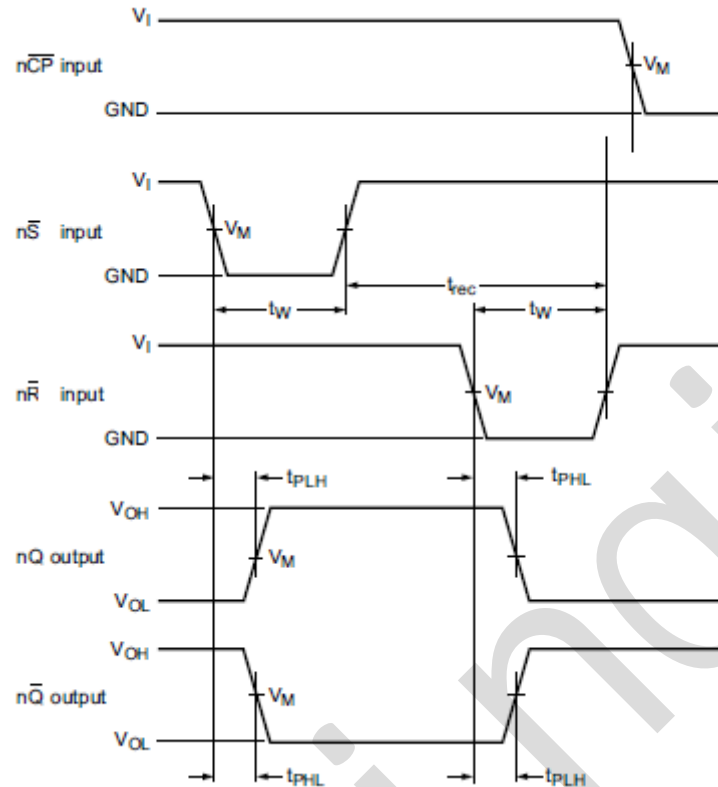


Figure 4 Set and reset propagation delays, pulse widths and recovery time

#### 4.4. Measurement Points

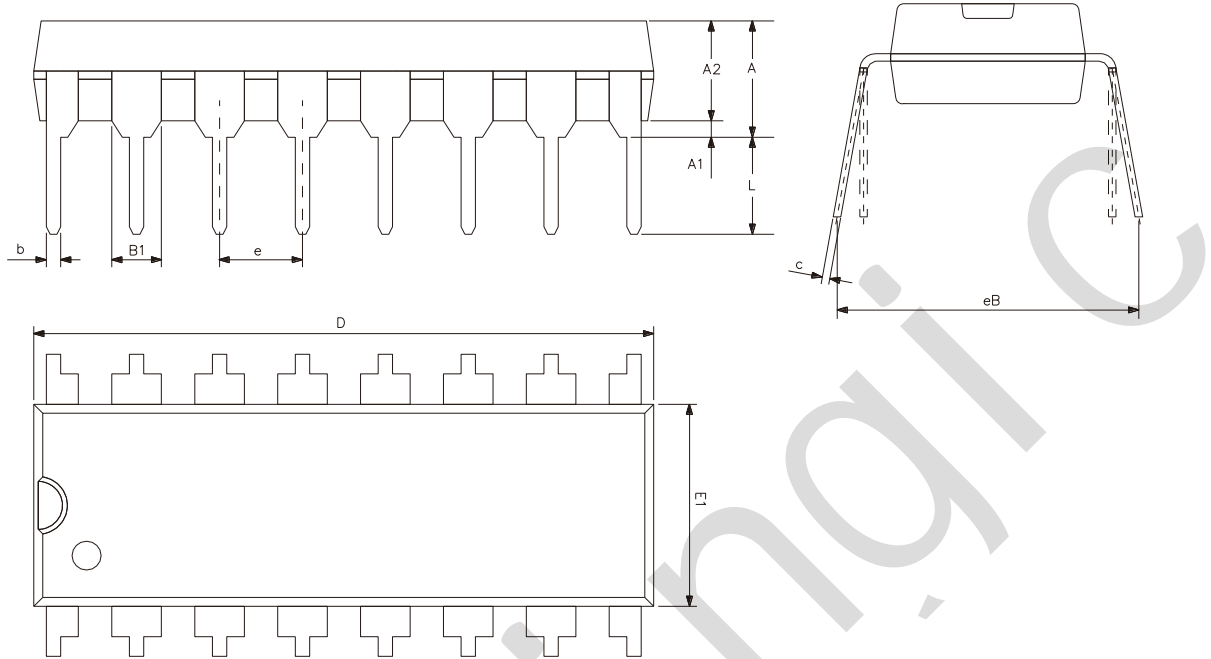
Type	Input	Output		
	$V_M$	$V_M$	$V_X$	$V_Y$
SN74HC112	$0.5 \times V_{CC}$	$0.5 \times V_{CC}$	$0.1 \times V_{CC}$	$0.9 \times V_{CC}$
SN74HCT112	1.3V	1.3V	$0.1 \times V_{CC}$	$0.9 \times V_{CC}$





## 5、Package Information

### 5.1、DIP16

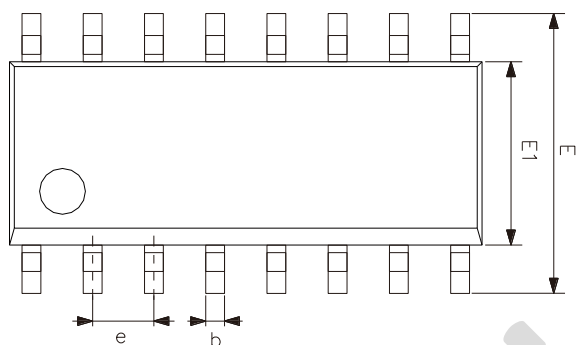
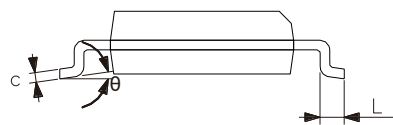
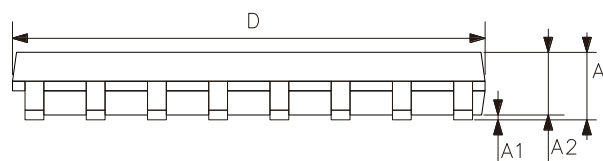


Symbol	Dimensions (mm)	
	Min.	Max.
A2	3.20	3.60
A1	0.51	-
A	3.60	5.33
L	3.00	3.60
b	0.36	0.56
B1	1.52	
D	18.80	19.94
E1	6.20	6.60
e	2.54	
c	0.20	0.36
eB	7.62	9.30



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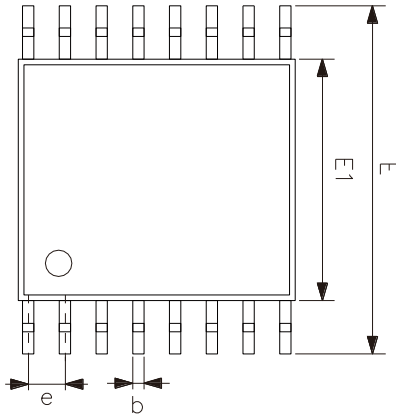
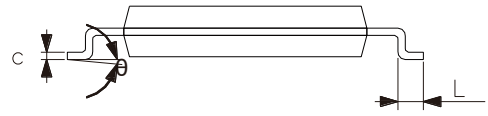
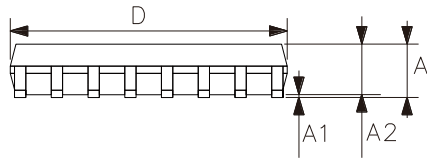
## 5.2、SOP16



Symbol	Dimensions (mm)	
	Min.	Max.
A	1.35	1.80
A1	0.10	0.25
A2	1.25	1.55
b	0.33	0.51
c	0.19	0.25
D	9.50	10.10
E	5.80	6.30
E1	3.70	4.10
e	1.27	
L	0.35	0.89
$\theta$	0°	8°



### 5.3、TSSOP16



Symbol	Dimensions (mm)	
	Min.	Max.
A	-	1.20
A1	0.05	0.15
A2	0.80	1.05
b	0.19	0.30
c	0.09	0.20
D	4.90	5.10
E1	4.30	4.50
E	6.20	6.60
e	0.65	
L	0.45	0.75
$\theta$	0°	8°



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[HT4093ARZ](#) [SN74HC374ANSR](#) [CD4528BE](#) [CD4027BE](#) [RS74HC74XQ](#) [RS1G79XC5](#) [CD40106BM-JSM](#) [74HCT273PW-Q100J](#)  
[CLVC2G74QDCURG4Q1](#) [CD4067TA24.TB](#) [CD4013SA.TR](#) [AIP74HCT14TA14.TB](#) [CD4013BPWRG](#) [AiP74LVC74TA14.TB](#)  
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[SN74LVC2G14DC\(LX\)](#) [74VHCT574AFT](#) [TC4013BF\(EL,N,F\)](#) [74VHCT9541AFT](#) [74LCX374FT\(AJ\)](#) [TC7WZ74FK,LXGJ\(CT](#)  
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[SN74HC112N\(LX\)](#) [SN74HC74DR\(LX\)](#) [CD40174BE\(LX\)](#) [CD40175BE\(LX\)](#) [SN74LS374N](#) [SN74HC173N](#) [SN74HC107DR\(LX\)](#)  
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