



灵星芯微 芯片经营

深圳市灵星芯微电子科技有限公司

Shenzhen Lingxing Microelectronics Technology Co., Ltd.

Tab: 835-12-B4

Number: SN74HC/HCT597-AX-LJ-A097EN

SN74HC/HCT597

8-bit Shift Register with Input Flip-flops

Product Specification

Specification Revision History:

Version	Date	Description
2023-06-A1	2023-06	New



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1、General Description

The 74HC597/74HCT597 is an 8-bit shift register with input flip-flops

Features:

- Supply voltage range:
SN74HC597: 2~6V
SN74HCT597: 4.5~5.5V
- Input levels:
SN74HC597: CMOS level
SN74HCT597: TTL level
- Temperature range: -40°C to +125°C
- Packaging information: DIP16/SOP16/TSSOP16



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Ordering Information:**Tube packing specifications:**

Part number	Packaging form	Marking code	Tube quantity	Boxed tube quantity	Boxed quantity	Notes
SN74HC597N	DIP16	SN74HC597N	25 PCS/tube	40 tube/box	1000 PCS/box	Dimensions of plastic enclosure: 19.0mm×6.4mm Pin spacing: 2.54mm
SN74HCT597N	DIP16	SN74HCT597N	25 PCS/tube	40 tube/box	1000 PCS/box	Dimensions of plastic enclosure: 19.0mm×6.4mm Pin spacing: 2.54mm
SN74HC597D	SOP16	SN74HC597	50 PCS/tube	200 tube/box	10000 PCS/box	Dimensions of plastic enclosure: 10.0mm×3.9mm Pin spacing: 1.27mm
SN74HCT597D	SOP16	SN74HCT597	50 PCS/tube	200 tube/box	10000 PCS/box	Dimensions of plastic enclosure: 10.0mm×3.9mm Pin spacing: 1.27mm
SN74HC597PWR	TSSOP16	SN74HC597	96 PCS/tube	200 tube/box	19200 PCS/box	Dimensions of plastic enclosure: 5.0mm×4.4mm Pin spacing: 0.65mm
SN74HCT597PWR	TSSOP16	SN74HCT597	96 PCS/tube	200 tube/box	19200 PCS/box	Dimensions of plastic enclosure: 5.0mm×4.4mm Pin spacing: 0.65mm



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Reel packing specifications:

Part number	Packaging form	Marking code	Reel quantity	Boxed reel quantity	Notes
SN74HC597	SOP16	SN74HC597	4000 PCS/reel	8000 PCS/box	Dimensions of plastic enclosure: 10.0mm×3.9mm Pin spacing: 1.27mm
SN74HCT597	SOP16	SN74HCT597	4000 PCS/reel	8000 PCS/box	Dimensions of plastic enclosure: 10.0mm×3.9mm Pin spacing: 1.27mm
SN74HC597	TSSOP16	SN74HC597	5000 PCS/reel	10000 PCS/box	Dimensions of plastic enclosure: 5.0mm×4.4mm Pin spacing: 0.65mm
SN74HCT597	TSSOP16	SN74HCT597	5000 PCS/reel	10000 PCS/box	Dimensions of plastic enclosure: 5.0mm×4.4mm Pin spacing: 0.65mm

Note: 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

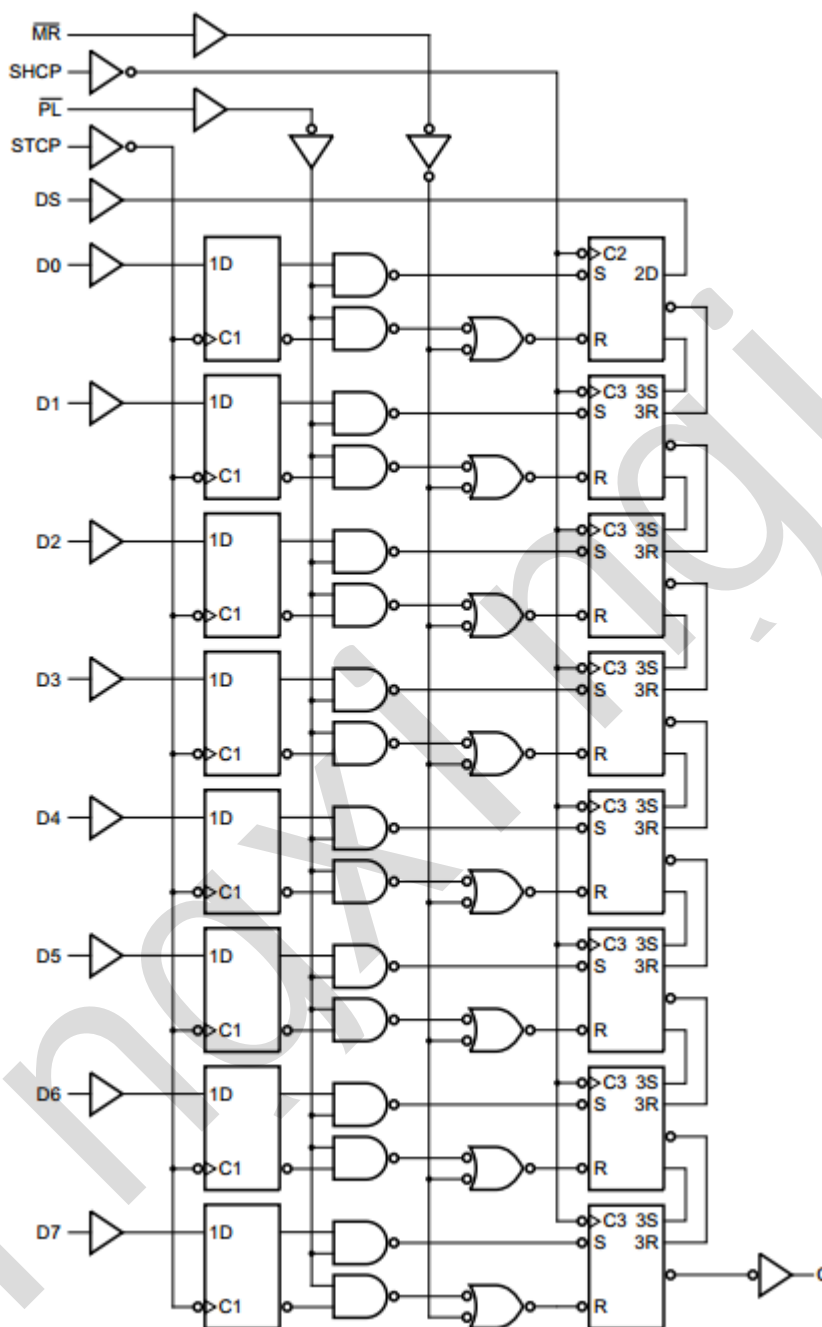
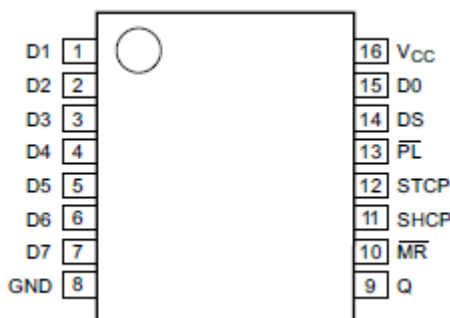


Figure 1. Logic symbol

2.2、Pin Configurations



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2.3、Pin Description

Pin No.	Pin Name	Description
1	D1	parallel data output
2	D2	parallel data output
3	D3	parallel data output
4	D4	parallel data output
5	D5	parallel data output
6	D6	parallel data output
7	D7	parallel data output
8	GND	ground (0V)
9	Q	serial data output
10	$\overline{\text{MR}}$	asynchronous master reset input (active LOW)
11	SHCP	shift register clock input (LOW-to-HIGH, edge-triggered)
12	STCP	storage register clock input (LOW-to-HIGH, edge-triggered)
13	$\overline{\text{PL}}$	parallel load input (active LOW)
14	DS	serial data input
15	D0	parallel data inputs
16	V _{cc}	supply voltage

2.4、Function Table

Input				Function
STCP	SHCP	$\overline{\text{PL}}$	$\overline{\text{MR}}$	
↑	X	X	X	data loaded to input latches
↑	X	L	H	data loaded from inputs to shift register
No clock edge	X	L	H	data transferred from input flip-flops to shift register
X	X	L	L	invalid logic, state of shift register is indeterminate when signals removed
X	X	H	L	shift register cleared
X	↑	H	H	shift register clocked Q _n = Q _{n-1} , Q ₀ = DS

Note: H=HIGH voltage level; L=LOW voltage level. ↑=LOW-to-HIGH transition .X= don't care



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

3.2、Recommended Operating Conditions

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
SN74HC597						
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
ambient temperature	T_{amb}	-	-40	-	+125	$^{\circ}C$
SN74HCT597						
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
ambient temperature	T_{amb}	-	-40	-	+125	$^{\circ}C$



3.3、Electrical Characteristics

3.3.1、DC Characteristics 1

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

Parameter	Symbol	V _{CC}	Conditions	Min.	Typ.	Max.	Unit
SN74HC597							
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 = -20uA	1.9	2.0	-	V
		4.5V	I _O = -20uA	4.4	4.5	-	V
		6.0V	I _O = -20uA	5.9	6.0	-	V
		4.5V	I _O = -4.0mA	3.84	4.32	-	V
		6.0V	I _O = -5.2mA	5.34	5.81	-	V
LOW-level output voltage	V _{OL}	2.0V	I _O = 20uA	-	0	0.1	V
		4.5V	I _O = 20uA	-	0	0.1	V
		6.0V	I _O = 20uA	-	0	0.1	V
		4.5V	I _O = 4.0mA	-	0.15	0.33	V
		6.0V	I _O = 5.2mA	-	0.16	0.33	V
input leakage current	I _I	6.0V	V _I = V _{CC} or GND	-	-	±2	uA
supply current	I _{CC}	6.0V	V _I = V _{CC} or GND; I _O = 0A	-	-	80	uA
SN74HCT597							
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 output voltage	V _{OH}	4.5V	I _O = -20uA	4.4	4.5	-	V
			I _O = -4.0mA	3.84	4.32	-	V
LOW-level output voltage	V _{OL}	4.5V	I _O = 20uA	-	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	-	-	±2	uA
supply current	I _{CC}	6.0V	V _I = V _{CC} or GND; I _O = 0A	-	-	80	uA
additional supply current	ΔI _{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	uA



3.3.2、DC Characteristics 2

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

Parameter	Symbol	V _{CC}	Conditions	Min.	Typ.	Max.	Unit
SN74HC597							
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 = -20uA	1.9	-	-	V
		4.5V	I _O = -20uA	4.4	-	-	V
		6.0V	I _O = -20uA	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 = 20uA	-	-	0.1	V
		4.5V	I _O = 20uA	-	-	0.1	V
		6.0V	I _O = 20uA	-	-	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	-	-	±4	uA
supply current	I _{CC}	6.0V	V _I = V _{CC} or GND; I _O = 0A	-	-	160	uA
SN74HCT597							
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 = -20uA	4.4	-	-	V
			I _O = -4.0mA	3.7	-	-	V
LOW-level output voltage	V _{OL}	4.5V	I _O = 20uA	-	-	0.1	V
			I _O = 4.0mA	-	-	0.4	V
input leakage current	I _I	5.5V	V _I = V _{CC} or GND	-	-	±4	uA
supply current	I _{CC}	6.0V	V _I = V _{CC} or GND; I _O = 0A	-	-	160	uA
additional supply current	ΔI _{CC}	4.5~5.5V	One input at V _I = V _{CC} - 2.1V; Other inputs at V _{CC} or GND; I _O = 0A	-	-	147	uA



3.3.3、AC Characteristics 1

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

Parameter	Symbol	V _{CC}	Conditions	Min.	Typ.	Max.	Unit	
SN74HC597								
SHCP to Q propagation delay		2.0V	C _L =50pF	see Figure 5	-	55	220	ns
		4.5V	C _L =50pF		-	20	44	ns
		5.0V	C _L =15pF		-	17	-	ns
		6.0V	C _L =50pF		-	16	37	ns
MR to Q propagation delay		2.0V	C _L =50pF	see Figure 6	-	58	220	ns
		4.5V	C _L =50pF		-	21	44	ns
		6.0V	C _L =50pF		-	17	37	ns
STCP to Q propagation delay	t _{PLH} , t _{PHL}	2.0V	C _L =50pF	see Figure 5	-	80	315	ns
		4.5V	C _L =50pF		-	29	63	ns
		5.0V	C _L =15pF		-	25	-	ns
		6.0V	C _L =50pF		-	23	54	ns
PL to Q propagation delay		2.0V	C _L =50pF	see Figure 7	-	69	270	ns
		4.5V	C _L =50pF		-	25	54	ns
		5.0V	C _L =15pF		-	21	-	ns
		6.0V	C _L =50pF		-	20	46	ns
transition time	tt	2.0V	C _L =50pF	see Figure 5	-	19	95	ns
		4.5V	C _L =50pF		-	7	19	ns
		6.0V	C _L =50pF		-	6	16	ns
STCP(HIGH or LOW) pulse width		2.0V	C _L =50pF	see Figure 5	100	11	-	ns
		4.5V	C _L =50pF		20	4	-	ns
		6.0V	C _L =50pF		17	3	-	ns
SHCP(HIGH or LOW) pulse width		2.0V	C _L =50pF	see Figure 5	100	14	-	ns
		4.5V	C _L =50pF		20	5	-	ns
		6.0V	C _L =50pF		17	4	-	ns
MR LOW		2.0V	C _L =50pF	see Figure 6	100	22	-	ns
		4.5V	C _L =50pF		20	8	-	ns
		6.0V	C _L =50pF		17	6	-	ns
PL LOW		2.0V	C _L =50pF	see Figure 7	100	22	-	ns
		4.5V	C _L =50pF		20	8	-	ns
		6.0V	C _L =50pF		17	6	-	ns
Dn to STCP Set_up time		2.0V	C _L =50pF	see Figure 9	75	8	-	ns
		4.5V	C _L =50pF		15	3	-	ns
		6.0V	C _L =50pF		13	2	-	ns
DS to SHCP Set_up time	tsu	2.0V	C _L =50pF	see Figure 9	75	11	-	ns
		4.5V	C _L =50pF		15	4	-	ns
		6.0V	C _L =50pF		13	3	-	ns
PL to SHCP Set_up time		2.0V	C _L =50pF	see Figure 10	75	11	-	ns
		4.5V	C _L =50pF		15	4	-	ns
		6.0V	C _L =50pF		13	3	-	ns
Dn to STCP hold time	th	2.0V	C _L =50pF	see Figure 9	5	-3	-	ns
		4.5V	C _L =50pF		5	-1	-	ns



DS TO SHCP hold time		6.0V	$C_L=50\text{pF}$	see Figure 9	5	-1	-	ns
		2.0V	$C_L=50\text{pF}$		5	-3	-	ns
		4.5V	$C_L=50\text{pF}$		5	-1	-	ns
		6.0V	$C_L=50\text{pF}$		5	-1	-	ns
$\overline{\text{PL}}$ TO SHCP hold time		2.0V	$C_L=50\text{pF}$	see Figure 10	5	-6	-	ns
		4.5V	$C_L=50\text{pF}$		5	-2	-	ns
		6.0V	$C_L=15\text{pF}$		5	-2	-	ns
$\overline{\text{MR}}$ to SHCP recovery time	trec	2.0V	$C_L=50\text{pF}$	see Figure 8	75	-3	-	ns
		4.5V	$C_L=50\text{pF}$		15	-1	-	ns
		6.0V	$C_L=50\text{pF}$		13	-1	-	ns
SHCP maximum frequency	fmax	2.0V	$C_L=50\text{pF}$	see Figure 5	4.8	29	-	MHZ
		4.5V	$C_L=50\text{pF}$		24	87	-	MHZ
		5.0V	$C_L=15\text{pF}$		-	96	-	MHZ
		6.0V	$C_L=50\text{pF}$		28	104	-	MHZ
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SHCP to Q propagation delay		4.5V	$C_L=50\text{pF}$	see Figure 5	-	23	50	ns
		5.0V	$C_L=15\text{pF}$		-	20	-	ns
$\overline{\text{MR}}$ to Q propagation delay	$t_{\text{PLH}}, t_{\text{PHL}}$	4.5V	$C_L=50\text{pF}$	see Figure 6	-	28	61	ns
STCP to Q propagation delay		4.5V	$C_L=50\text{pF}$	see Figure 5	-	33	71	ns
		5.0V	$C_L=15\text{pF}$		-	29	-	ns
$\overline{\text{PL}}$ to Q propagation delay		4.5V	$C_L=50\text{pF}$	see Figure 7	-	30	65	ns
	5.0V	$C_L=15\text{pF}$	-		26	-	ns	
transition time	tt	4.5V	$C_L=50\text{pF}$	see Figure 5	-	7	19	ns
STCP(HIGH or LOW) pulse width	tw	4.5V	$C_L=50\text{pF}$	see Figure 5	20	6	-	ns
SHCP(HIGH or LOW) pulse width		4.5V	$C_L=50\text{pF}$	see Figure 5	20	7	-	ns
$\overline{\text{MR}}$ LOW		4.5V	$C_L=50\text{pF}$	see Figure 6	31	14	-	ns
$\overline{\text{PL}}$ LOW		4.5V	$C_L=50\text{pF}$	see Figure 7	25	10	-	ns
Dn to STCP Set up time	tsu	4.5V	$C_L=50\text{pF}$	see Figure 9	15	5	-	ns
DS to SHCP Set up time		4.5V	$C_L=50\text{pF}$	see Figure 9	15	2	-	ns
$\overline{\text{PL}}$ to SHCP Set up time		4.5V	$C_L=50\text{pF}$	see Figure 10	15	4	-	ns
Dn to SHCP hold time	th	4.5V	$C_L=50\text{pF}$	see Figure 9	5	-1	-	ns
DS to SHCP hold time		4.5V	$C_L=50\text{pF}$	see Figure 9	5	-2	-	ns
$\overline{\text{PL}}$ to SHCP hold time		4.5V	$C_L=50\text{pF}$	see Figure 10	5	-2	-	ns



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MR to SHCP recovery time	trec	4.5V	$C_L=50\text{pF}$	see Figure 8	15	-2	-	ns
maximum frequency	fmax	4.5V	$C_L=15\text{pF}$	see Figure 5	24	75	-	MHZ
		5.0V	$C_L=15\text{pF}$		-	83	-	MHZ

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3.3.4、AC Characteristics 2

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

Parameter	Symbol	V _{CC}	Conditions	Min.	Typ.	Max.	Unit		
SN74HC597									
SHCP to Q propagation delay	t_{PLH}, t_{PHL}	2.0V	$C_L=50\text{pF}$	see Figure 5	-	-	265	ns	
		4.5V	$C_L=50\text{pF}$		-	-	53	ns	
		6.0V	$C_L=50\text{pF}$		-	-	45	ns	
$\overline{\text{MR}}$ to Q propagation delay		2.0V	$C_L=50\text{pF}$	see Figure 6	-	-	265	ns	
		4.5V	$C_L=50\text{pF}$		-	-	53	ns	
		6.0V	$C_L=50\text{pF}$		-	-	45	ns	
STCP to Q propagation delay		2.0V	$C_L=50\text{pF}$	see Figure 5	-	-	375	ns	
		4.5V	$C_L=50\text{pF}$		-	-	75	ns	
		6.0V	$C_L=50\text{pF}$		-	-	64	ns	
$\overline{\text{PL}}$ to Q propagation delay	2.0V	$C_L=50\text{pF}$	see Figure 7	-	-	325	ns		
	4.5V	$C_L=50\text{pF}$		-	-	65	ns		
	6.0V	$C_L=50\text{pF}$		-	-	55	ns		
transition time	tt	2.0V	$C_L=50\text{pF}$	see Figure 5	-	-	110	ns	
		4.5V	$C_L=50\text{pF}$		-	-	22	ns	
		6.0V	$C_L=50\text{pF}$		-	-	19	ns	
STCP(HIGH or LOW) pulse width	tw	2.0V	$C_L=50\text{pF}$	see Figure 5	120	-	-	ns	
		4.5V	$C_L=50\text{pF}$		24	-	-	ns	
		6.0V	$C_L=50\text{pF}$		20	-	-	ns	
SHCP(HIGH or LOW) pulse width		2.0V	$C_L=50\text{pF}$	see Figure 5	120	-	-	ns	
		4.5V	$C_L=50\text{pF}$		24	-	-	ns	
		6.0V	$C_L=50\text{pF}$		20	-	-	ns	
$\overline{\text{MR}}$ LOW		2.0V	$C_L=50\text{pF}$	see Figure 6	120	-	-	ns	
		4.5V	$C_L=50\text{pF}$		24	-	-	ns	
		6.0V	$C_L=50\text{pF}$		20	-	-	ns	
$\overline{\text{PL}}$ LOW		2.0V	$C_L=50\text{pF}$	see Figure 7	120	-	-	ns	
		4.5V	$C_L=50\text{pF}$		24	-	-	ns	
		6.0V	$C_L=50\text{pF}$		20	-	-	ns	
Dn to STCP Set_up time		tsu	2.0V	$C_L=50\text{pF}$	see Figure 9	90	-	-	ns
			4.5V	$C_L=50\text{pF}$		18	-	-	ns
			6.0V	$C_L=50\text{pF}$		15	-	-	ns
DS to SHCP Set_up time			2.0V	$C_L=50\text{pF}$	see Figure 9	90	-	-	ns
			4.5V	$C_L=50\text{pF}$		18	-	-	ns
			6.0V	$C_L=50\text{pF}$		15	-	-	ns
$\overline{\text{PL}}$ to SHCP Set_up time	2.0V		$C_L=50\text{pF}$	see Figure 10	90	-	-	ns	
	4.5V		$C_L=50\text{pF}$		18	-	-	ns	
	6.0V		$C_L=50\text{pF}$		15	-	-	ns	
Dn to STCP hold time	th		2.0V	$C_L=50\text{pF}$	see Figure 9	5	-	-	ns
			4.5V	$C_L=50\text{pF}$		5	-	-	ns
			6.0V	$C_L=50\text{pF}$		5	-	-	ns
DS to SHCP hold time			2.0V	$C_L=50\text{pF}$	see Figure 9	5	-	-	ns
			4.5V	$C_L=50\text{pF}$		5	-	-	ns



PL to SHCP hold time		6.0V	$C_L=50\text{pF}$	see Figure 10	5	-	-	ns
		2.0V	$C_L=50\text{pF}$		5	-	-	ns
		4.5V	$C_L=50\text{pF}$		5	-	-	ns
		6.0V	$C_L=15\text{pF}$		5	-	-	ns
MR to SHCP recovery time	trec	2.0V	$C_L=50\text{pF}$	see Figure 8	90	-	-	ns
		4.5V	$C_L=50\text{pF}$		18	-	-	ns
		6.0V	$C_L=50\text{pF}$		15	-	-	ns
SHCP maximum frequency	fmax	2.0V	$C_L=50\text{pF}$	see Figure 5	4.8	-	-	MHZ
		4.5V	$C_L=50\text{pF}$		24	-	-	MHZ
		6.0V	$C_L=50\text{pF}$		28	-	-	MHZ
SN74HCT597								
SHCP to Q propagation delay	t _{PLH} , t _{PHL}	4.5V	$C_L=50\text{pF}$	see Figure 5	-	-	60	ns
MR to Q propagation delay		4.5V	$C_L=50\text{pF}$	see Figure 6	-	-	74	ns
STCP to Q propagation delay		4.5V	$C_L=50\text{pF}$	see Figure 5	-	-	86	ns
PL to Q propagation delay		4.5V	$C_L=50\text{pF}$	see Figure 7	-	-	78	ns
transition time	tt	4.5V	$C_L=50\text{pF}$	see Figure 5	-	-	22	ns
STCP(HIGH or LOW) pulse width	tw	4.5V	$C_L=50\text{pF}$	see Figure 5	24	-	-	ns
SHCP(HIGH or LOW) pulse width		4.5V	$C_L=50\text{pF}$	see Figure 5	24	-	-	ns
MR LOW		4.5V	$C_L=50\text{pF}$	see Figure 6	38	-	-	ns
PL LOW		4.5V	$C_L=50\text{pF}$	see Figure 7	30	-	-	ns
Dn to STCP Set up time		tsu	4.5V	$C_L=50\text{pF}$	see Figure 9	18	-	-
DS to SHCP Set up time	4.5V		$C_L=50\text{pF}$	see Figure 9	18	-	-	ns
PL to SHCP Set up time	4.5V		$C_L=50\text{pF}$	see Figure 10	18	-	-	ns
Dn to SHCP hold time	th	4.5V	$C_L=50\text{pF}$	see Figure 9	5	-	-	ns
DS to SHCP hold time		4.5V	$C_L=50\text{pF}$	see Figure 9	5	-	-	ns
PL to SHCP hold time		4.5V	$C_L=50\text{pF}$	see Figure 10	5	-	-	ns
MR to SHCP recovery time	trec	4.5V	$C_L=50\text{pF}$	see Figure 8	18	-	-	ns
maximum frequency	fmax	4.5V	$C_L=15\text{pF}$	see Figure 5	20	-	-	MHZ



4、Testing Circuit

4.1、AC Testing Circuit

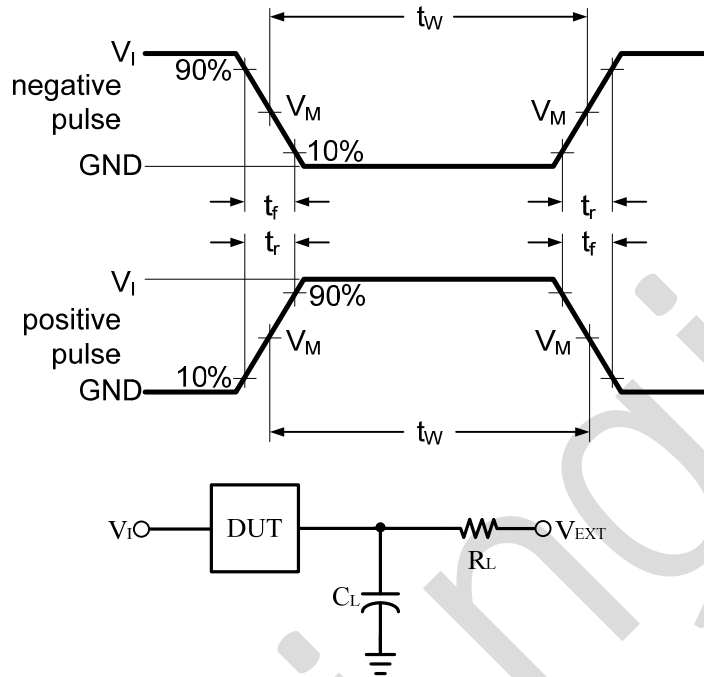


Figure 4. Test circuit for measuring switching times

C_L includes probe and jig capacitance.

4.2、Test Data

Type	Input		Load		V_{EXT}		
	V_I	$t_r = t_f$	C_L	R_L	t_{PLH}/t_{PHL}	t_{PLZ}/t_{PZL}	t_{PHZ}/t_{PZH}
SN74HC597	V_{CC}	3.0ns	15pF, 50pF	1K Ω	Open	V_{CC}	GND
SN74HCT597	3.0V	3.0ns	15pF, 50pF	1K Ω	Open	V_{CC}	GND



4.3、AC Testing Waveforms

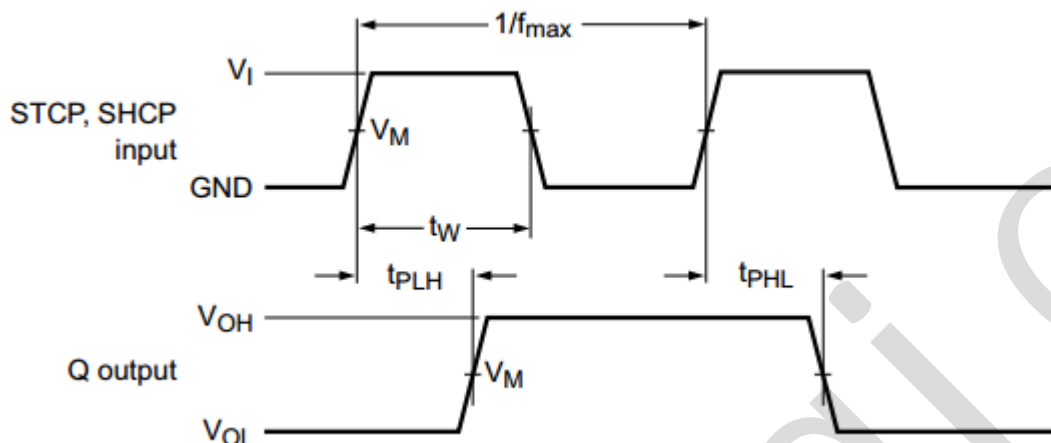


Figure 5. Shift clock and storage clock inputs to output, propagation delays, pulse widths and maximum clock frequency

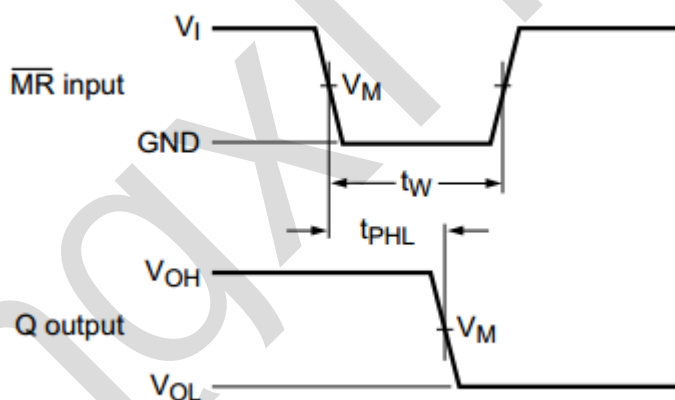


Figure 6. input (\overline{MR}) to (Q), output propagation delays and (\overline{MR}) pulse width

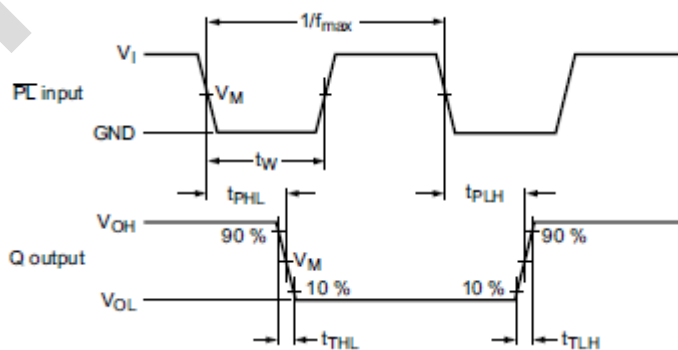


Figure 7 Input (\overline{PL}) to (Q), output propagation delays, \overline{PL} pulse width and output transition times

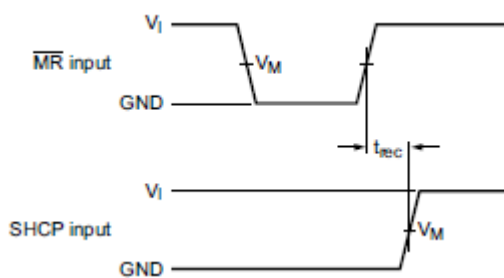


Figure 8 Input ($\overline{\text{MR}}$) to shift clock (SHCP) and storage clock (STCP) recovery times

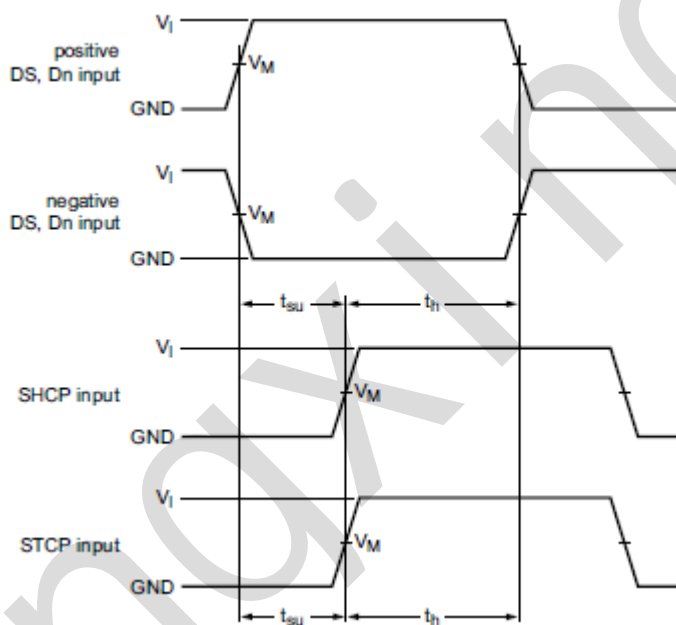


Figure 9 Hold and set-up times for (DS), (Dn) inputs to (SHCP), (STCP) inputs

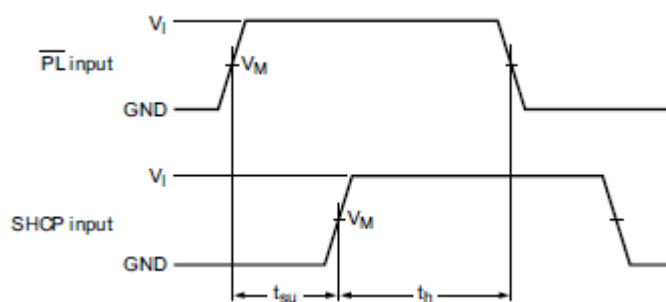




Figure 10 Set-up times for (PL) input to (SHCP) input

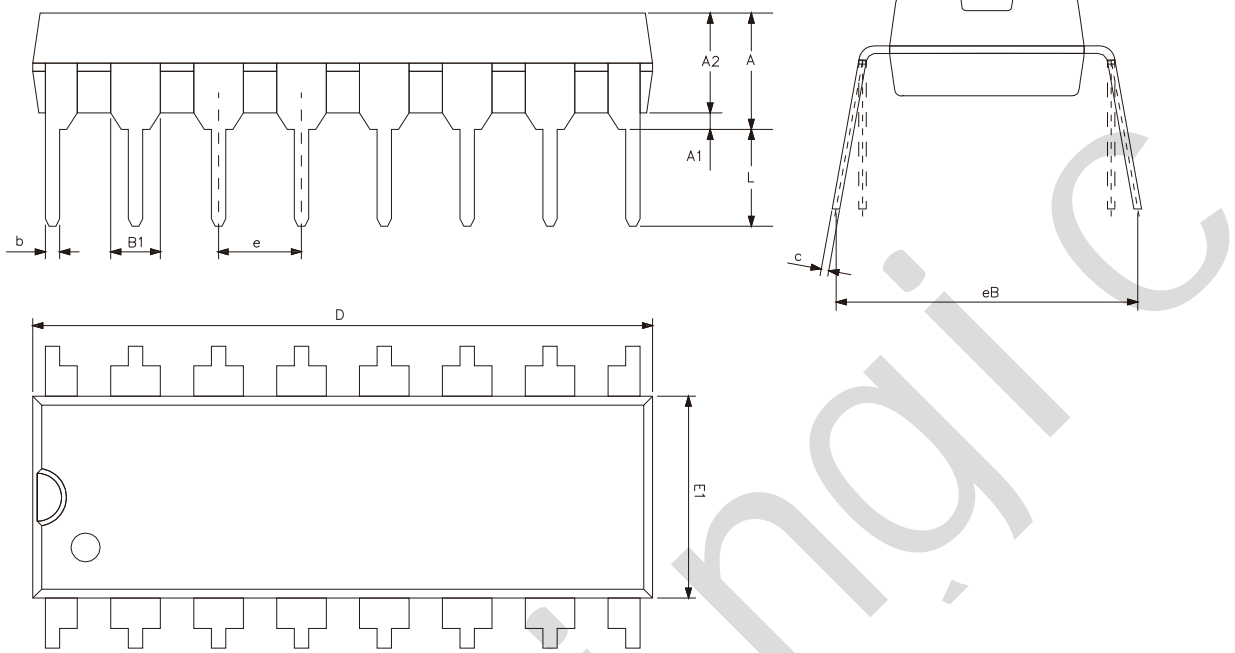
4.4、Measurement Points

Type	Input	Output		
	V_M	V_M	V_X	V_Y
SN74HC597	$0.5 \times V_{CC}$	$0.5 \times V_{CC}$	$0.1 \times V_{CC}$	$0.9 \times V_{CC}$
SN74HCT597	1.3V	1.3V	$0.1 \times V_{CC}$	$0.9 \times V_{CC}$



5、Package Information

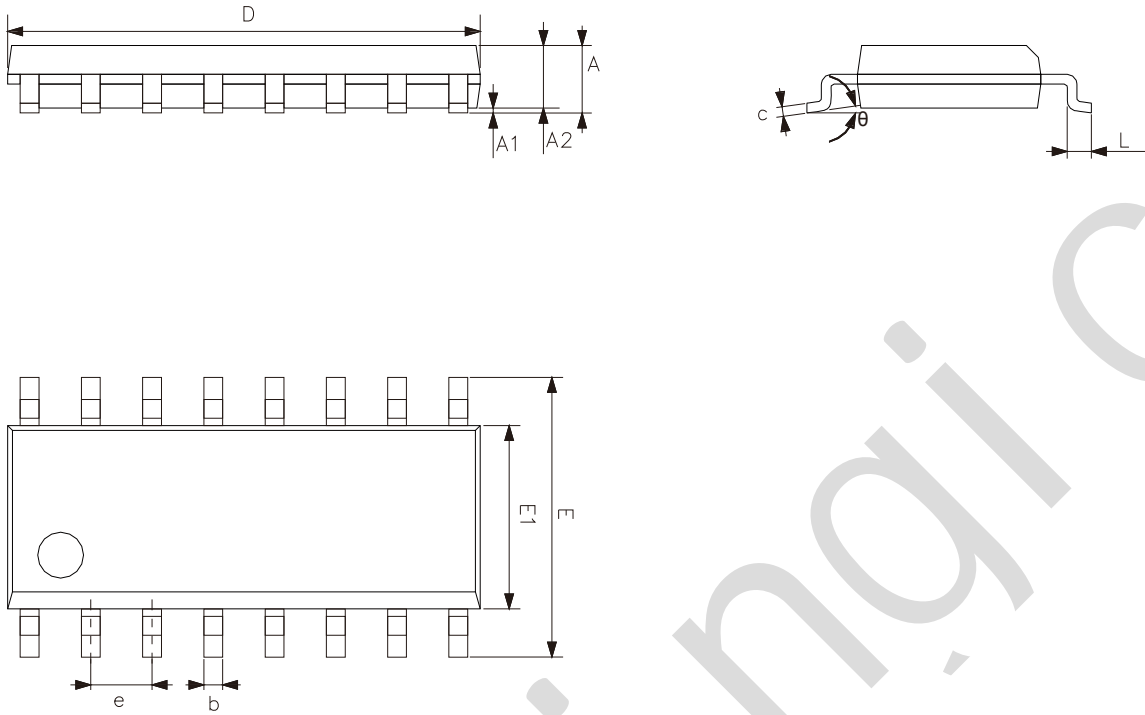
5.1、DIP16



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



5.2、SOP16

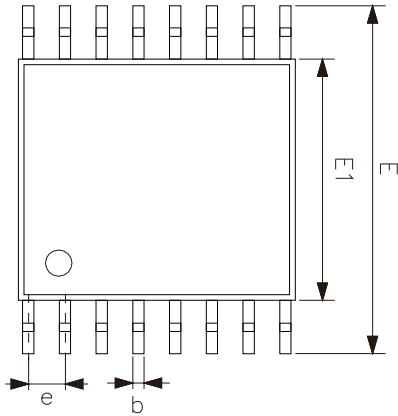
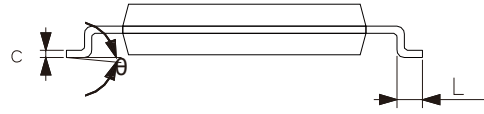
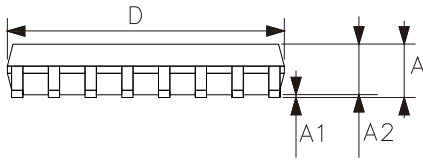


Symbol	Dimensions (mm)	
	Min.	Max.
A	1.35	1.80
A1	0.10	0.25
A2	1.25	1.55
b	0.33	0.51
c	0.19	0.25
D	9.50	10.10
E	5.80	6.30
E1	3.70	4.10
e	1.27	
L	0.35	0.89
θ	0°	8°



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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
θ	0°	8°



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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 SJ/T11363-2006 standard. ×: Indicates that the content of hazardous substances or elements exceeding the SJ/T11363-2006 Standard limit requirements.									

6.2、Notes

Recommended carefully reading this information before the use of this product;

The information in this document are subject to change without notice;

This information is using to the reference only, the company is not responsible for any loss;

The company is not responsible for the any infringement of the third party patents or other rights of the responsibility.