General Description

The SN74HC/HCT175 is a quad positive-edge triggered D-type flip-flop with individual data inputs (Dn) and complementary outputs (Qn and Qn).

Features

- Input levels:
  For SN74HC175: CMOS level
  For SN74HCT175: TTL level
- Four edge-triggered D-type flip-flops
- Asynchronous master reset
- Specified from -40℃ to +125℃
- Packaging information:DIP16/SOP16/TSSOP16

Ordering Information

Product Model	Package Type	Marking	Packing	Packing Qty
XBLW SN74HC175N	DIP-16	74HC175N	Tube	1000Pcs/Box
XBLW SN74HC175DTR	SOP-16	74HC175	Tape	2500Pcs/Reel
XBLW SN74HC175TDTR	TSSOP-16	74HC175	Tape	3000Pcs/Reel
XBLW SN74HCT175N	DIP-16	74HCT175N	Tube	1000Pcs/Box
XBLW SN74HCT175DTR	SOP-16	74HCT175	Tape	2500Pcs/Reel
XBLW SN74HCT175TDTR	TSSOP-16	74HCT175	Tape	3000Pcs/Reel

Block Diagram And Pin Description

Block Diagram

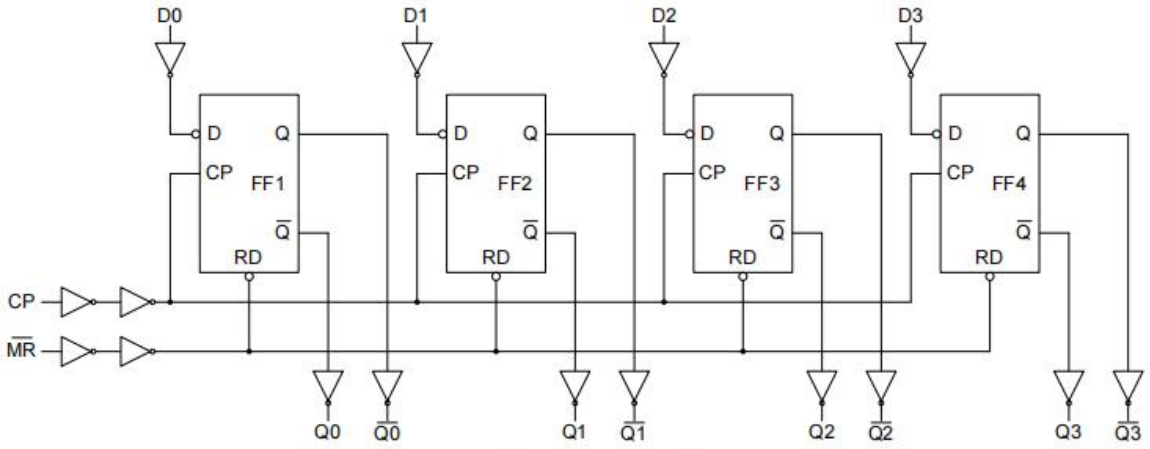
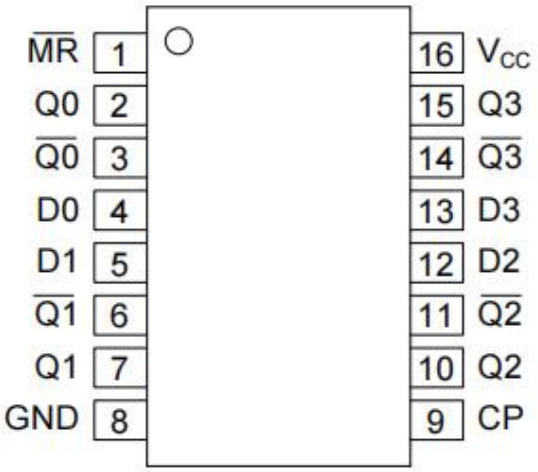


Figure 1. Logic diagram

Pin Configurations



Pin Description

Pin No.	Pin Name	Description
1	$\overline{MR}$	asynchronous master reset input (active LOW)
2	Q0	flip-flop output
3	$\overline{Q0}$	complementary flip-flop output
4	D0	data input
5	D1	data input
6	$\overline{Q1}$	complementary flip-flop output
7	Q1	flip-flop output
8	GND	ground (0V)
9	CP	clock input (LOW-to-HIGH edge-triggered)
10	Q2	flip-flop output
11	$\overline{Q2}$	complementary flip-flop output
12	D2	data input
13	D3	data input
14	$\overline{Q3}$	complementary flip-flop output
15	Q3	flip-flop output
16	VCC	positive supply voltage

2.4、Function table

Operating mode	Inputs			Outputs	
	$\overline{MR}$	CP	Dn	Qn	$\overline{Q}$ n
reset (clear)	L	X	X	L	H
load “1”	H	↑	h	H	L
load “0”	H	↑	l	L	H

Note:

H=HIGH voltage level; L=LOW voltage level; X=don’t care;

↑=LOW-to-HIGH clock transition;

h=HIGH voltage level one set-up time prior to the LOW-to-HIGH clock transition;

l=LOW voltage level one set-up time prior to the LOW-to-HIGH clock transition.

Electrical Parameter

Absolute Maximum Ratings

(T_{amb}=25℃, voltages are referenced to GND (ground=0V), unless otherwise specified)

Characteristic	Symbol	Conditions		Min.	Max.	Unit
supply voltage	V_{CC}	-		-0.5	+7.0	V
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	V_O=-0.5V to (V_{CC}+0.5V)		-	±25	mA
supply current	I_{CC}	-		-	+50	mA
ground current	I_{GND}	-		-50	-	mA
storage temperature	T_{stg}	-		-65	+150	℃
total power dissipation	P_{tot}	-		-	500	mW
soldering temperature	T_L	10s	DIP	245		℃
			SOP/TSSOP	260		℃

Recommended Operating Conditions

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
SN74HC175						
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	℃
SN74HCT175						
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	℃

DC Characteristics 1

(T_{amb}=25℃, voltages are referenced to GND (ground=0V), unless otherwise specified)

Parameter	Symbol	Conditions		Min.	Typ.	Max.	Unit
SN74HC175							
HIGH-level input voltage	V_{IH}	V_{CC}=2.0V		1.5	1.2	-	V
		V_{CC}=4.5V		3.15	2.4	-	V
		V_{CC}=6.0V		4.2	3.2	-	V
LOW-level input voltage	V_{IL}	V_{CC}=2.0V		-	0.8	0.5	V
		V_{CC}=4.5V		-	2.1	1.35	V
		V_{CC}=6.0V		-	2.8	1.8	V
HIGH-level output voltage	V_{OH}	V_I=V_{IH} or V_{IL}	I_O=-20uA; V_{CC}=2.0V	1.9	2.0	-	V
			I_O=-20uA; V_{CC}=4.5V	4.4	4.5	-	V
			I_O=-20uA; V_{CC}=6.0V	5.9	6.0	-	V
			I_O=-4mA; V_{CC}=4.5V	3.98	4.32	-	V
			I_O=-5.2mA; V_{CC}=6.0V	5.48	5.81	-	V
LOW-level output voltage	V_{OL}	V_I=V_{IH} or V_{IL}	I_O=20uA; V_{CC}=2.0V	-	0	0.1	V
			I_O=20uA; V_{CC}=4.5V	-	0	0.1	V
			I_O=20uA; V_{CC}=6.0V	-	0	0.1	V
			I_O=4mA; V_{CC}=4.5V	-	0.15	0.26	V
			I_O=5.2mA; V_{CC}=6.0V	-	0.16	0.26	V

input leakage current	I_I	V_I=V_{CC} or GND; V_{CC}=6.0V		-	-	±1	uA
supply current	I_{CC}	V_I=V_{CC} or GND; I_O=0A; V_{CC}=6.0V		-	-	1	uA
SN74HCT175							
HIGH-level input voltage	V_{IH}	V_{CC}=4.5V to 5.5V		2.0	1.6	-	V
LOW-level input voltage	V_{IL}	V_{CC}=4.5V to 5.5V		-	1.2	0.8	V
HIGH-level output voltage	V_{OH}	V_I=V_{IH} orV_{IL}	I_O=-20uA; V_{CC}=4.5V	4.4	4.5	-	V
			I_O=-4mA; V_{CC}=4.5V	3.98	4.32	-	V
LOW-level output voltage	V_{OL}	V_I=V_{IH} orV_{IL}	I_O=20uA; V_{CC}=4.5V	-	0	0.1	V
			I_O=5.2mA; V_{CC}=5.5V	-	0.15	0.26	V
input leakage current	I_I	V_I=V_{CC} or GND; V_{CC}=5.5V		-	-	±1	uA
supply current	I_{CC}	V_I=V_{CC} or GND; I_O=0A; V_{CC}=5.5V		-	-	1	uA
additional supply current	ΔI_{CC}	per input pin; V_I=V_{CC}-2.1V; other inputs at V_{CC} or GND; V_{CC}=4.5V to 5.5V	Dn input	-	40	144	uA
			CP input	-	60	216	uA
			$\overline{MR}$ input	-	100	360	uA

DC Characteristics 2

(T_{amb}=-40℃ to +85℃, voltages are referenced to GND (ground=0V), unless otherwise specified)

Parameter	Symbol	Conditions		Min.	Typ.	Max.	Unit
SN74HC175							
HIGH-level input voltage	V_{IH}	V_{CC}=2.0V		1.5	-	-	V
		V_{CC}=4.5V		3.15	-	-	V
		V_{CC}=6.0V		4.2	-	-	V
LOW-level input voltage	V_{IL}	V_{CC}=2.0V		-	-	0.5	V
		V_{CC}=4.5V		-	-	1.35	V
		V_{CC}=6.0V		-	-	1.8	V
HIGH-level output voltage	V_{OH}	V_I=V_{IH} or V_{IL}	I_O=-20uA; V_{CC}=2.0V	1.9	-	-	V
			I_O=-20uA; V_{CC}=4.5V	4.4	-	-	V
			I_O=-20uA; V_{CC}=6.0V	5.9	-	-	V
			I_O=-4mA; V_{CC}=4.5V	3.84	-	-	V
			I_O=-5.2mA; V_{CC}=6.0V	5.34	-	-	V
LOW-level output voltage	V_{OL}	V_I=V_{IH} or V_{IL}	I_O=20uA; V_{CC}=2.0V	-	-	0.1	V
			I_O=20uA; V_{CC}=4.5V	-	-	0.1	V
			I_O=20uA; V_{CC}=6.0V	-	-	0.1	V
			I_O=4mA; V_{CC}=4.5V	-	-	0.33	V
			I_O=5.2mA; V_{CC}=6.0V	-	-	0.33	V
input leakage current	I_I	V_I=V_{CC} or GND; V_{CC}=6.0V		-	-	±2	uA
supply current	I_{CC}	V_I=V_{CC} or GND; I_O=0A; V_{CC}=6.0V		-	-	2	uA
SN74HCT175							
HIGH-level input voltage	V_{IH}	V_{CC}=4.5V to 5.5V		2.0	-	-	V
LOW-level input voltage	V_{IL}	V_{CC}=4.5V to 5.5V		-	-	0.8	V
HIGH-level output voltage	V_{OH}	V_I=V_{IH} orV_{IL}	I_O=-20uA; V_{CC}=4.5V	4.4	-	-	V
			I_O=-4mA; V_{CC}=4.5V	3.84	-	-	V
LOW-level output voltage	V_{OL}	V_I=V_{IH} orV_{IL}	I_O=20uA; V_{CC}=4.5V	-	-	0.1	V
			I_O=5.2mA; V_{CC}=5.5V	-	-	0.33	V

input leakage current	I_I	V_I=V_{CC} or GND; V_{CC}=5.5V		-	-	±2	uA
supply current	I_{CC}	V_I=V_{CC} or GND; I_O=0A; V_{CC}=5.5V		-	-	2	uA
additional supply current	ΔI_{CC}	per input pin; V_I=V_{CC}-2.1V; other inputs at V_{CC} or GND; V_{CC}=4.5V to 5.5V	Dn input	-	-	180	uA
			CP input	-	-	270	uA
			$\overline{MR}$ input	-	-	450	uA

DC Characteristics 3

(T_{amb}=-40℃ to +125℃, voltages are referenced to GND (ground=0V), unless otherwise specified)

Parameter	Symbol	Conditions		Min.	Typ.	Max.	Unit
SN74HC175							
HIGH-level input voltage	V_{IH}	V_{CC}=2.0V		1.5	-	-	V
		V_{CC}=4.5V		3.15	-	-	V
		V_{CC}=6.0V		4.2	-	-	V
LOW-level input voltage	V_{IL}	V_{CC}=2.0V		-	-	0.5	V
		V_{CC}=4.5V		-	-	1.35	V
		V_{CC}=6.0V		-	-	1.8	V
HIGH-level output voltage	V_{OH}	V_I=V_{IH} or V_{IL}	I_O=-20uA; V_{CC}=2.0V	1.9	-	-	V
			I_O=-20uA; V_{CC}=4.5V	4.4	-	-	V
			I_O=-20uA; V_{CC}=6.0V	5.9	-	-	V
			I_O=-4mA; V_{CC}=4.5V	3.7	-	-	V
			I_O=-5.2mA; V_{CC}=6.0V	5.2	-	-	V
LOW-level output voltage	V_{OL}	V_I=V_{IH} or V_{IL}	I_O=20uA; V_{CC}=2.0V	-	-	0.1	V
			I_O=20uA; V_{CC}=4.5V	-	-	0.1	V
			I_O=20uA; V_{CC}=6.0V	-	-	0.1	V
			I_O=4mA; V_{CC}=4.5V	-	-	0.4	V
			I_O=5.2mA; V_{CC}=6.0V	-	-	0.4	V
input leakage current	I_I	V_I=V_{CC} or GND; V_{CC}=6.0V		-	-	±4	uA
supply current	I_{CC}	V_I=V_{CC} or GND; I_O=0A; V_{CC}=6.0V		-	-	4	uA
SN74HCT175							
HIGH-level input voltage	V_{IH}	V_{CC}=4.5V to 5.5V		2.0	-	-	V
LOW-level input voltage	V_{IL}	V_{CC}=4.5V to 5.5V		-	-	0.8	V
HIGH-level output voltage	V_{OH}	V_I=V_{IH} orV_{IL}	I_O=-20uA; V_{CC}=4.5V	4.4	-	-	V
			I_O=-4mA; V_{CC}=4.5V	3.7	-	-	V
LOW-level output voltage	V_{OL}	V_I=V_{IH} orV_{IL}	I_O=20uA; V_{CC}=4.5V	-	-	0.1	V
			I_O=5.2mA; V_{CC}=5.5V	-	-	0.4	V
input leakage current	I_I	V_I=V_{CC} or GND; V_{CC}=5.5V		-	-	±4	uA
supply current	I_{CC}	V_I=V_{CC} or GND; I_O=0A; V_{CC}=5.5V		-	-	4	uA
additional supply current	ΔI_{CC}	per input pin; V_I=V_{CC}-2.1V; other inputs at V_{CC} or GND; V_{CC}=4.5V to 5.5V	Dn input	-	-	196	uA
			CP input	-	-	294	uA
			$\overline{MR}$ input	-	-	490	uA

AC Characteristics 1

(T_{amb}=25℃, GND=0V, C_L=50pF, unless otherwise specified)

Parameter	Symbol	Conditions		Min.	Typ.	Max.	Unit
SN74HC175							
propagation delay	t_{PLH}/t_{PHL}	CP to Qn, $\overline{Qn}$; see Figure 4	V_{CC}=2.0V	-	55	175	ns
			V_{CC}=4.5V	-	50	35	ns
			V_{CC}=5.0V C_L=15pF	-	17	-	ns
			V_{CC}=6.0V	-	16	30	ns
HIGH to LOW propagation delay	t_{PHL}	$\overline{MR}$ to Qn, Qn ; see Figure 6	V_{CC}=2.0V	-	50	150	ns
			V_{CC}=4.5V	-	18	30	ns
			V_{CC}=5.0V C_L=15pF	-	15	-	ns
			V_{CC}=6.0V	-	14	26	ns
transition time	t_t	Qn output; see Figure 4	V_{CC}=2.0V	-	19	75	ns
			V_{CC}=4.5V	-	7	15	ns
			V_{CC}=6.0V	-	6	13	ns
pulse width	t_W	CP input HIGH or LOW; see Figure 4	V_{CC}=2.0V	80	22	-	ns
			V_{CC}=4.5V	16	8	-	ns
			V_{CC}=6.0V	14	6	-	ns
		$\overline{MR}$ input LOW; see Figure 6	V_{CC}=2.0V	80	19	-	ns
			V_{CC}=4.5V	16	7	-	ns
			V_{CC}=6.0V	14	6	-	ns
recovery time	t_{rec}	$\overline{MR}$ to CP; see Figure 6	V_{CC}=2.0V	5	-33	-	ns
			V_{CC}=4.5V	5	-12	-	ns
			V_{CC}=6.0V	5	-10	-	ns
set-up time	t_{su}	Dn to CP; see Figure 4	V_{CC}=2.0V	80	3	-	ns
			V_{CC}=4.5V	16	1	-	ns
			V_{CC}=6.0V	14	1	-	ns
hold time	t_h	Dn to CP; see Figure 4	V_{CC}=2.0V	25	2	-	ns
			V_{CC}=4.5V	5	0	-	ns
			V_{CC}=6.0V	4	0	-	ns
maximum frequency	f_{max}	CP input; see Figure 4	V_{CC}=2.0V	6	25	-	ns
			V_{CC}=4.5V	30	75	-	ns
			V_{CC}=5.0V C_L=15pF	-	83	-	ns
			V_{CC}=6.0V	35	89	-	ns
SN74HCT175							
propagation delay	t_{PLH}/t_{PHL}	CP to Qn, $\overline{Qn}$; see Figure 4	V_{CC}=4.5V	-	19	33	ns
			V_{CC}=5V; C_L=15pF	-	16	-	ns
HIGH to LOW propagation delay	t_{PHL}	$\overline{MR}$ to Qn; see Figure 6	V_{CC}=4.5V	-	22	38	ns
			V_{CC}=5V; C_L=15pF	-	19	-	ns
		$\overline{MR}$ to $\overline{Qn}$; see Figure 6	V_{CC}=4.5V	-	19	35	ns
			V_{CC}=5V; C_L=15pF	-	16	-	ns
transition time	t_t	Qn output; see Figure 4	V_{CC}=4.5V	-	7	15	ns
pulse width	t_W	CP input; see Figure 4	V_{CC}=4.5V	20	12	-	ns

		MR input LOW; see Figure 6	V_{CC}=4.5V	20	11	-	ns
recovery time	t_{rec}	$\overline{MR}$ to CP; see Figure 6	V_{CC}=4.5V	5	-10	-	ns
set-up time	t_{su}	Dn to CP; see Figure 4	V_{CC}=4.5V	16	5	-	ns
hold time	t_h	Dn to CP; see Figure 4	V_{CC}=4.5V	5	0	-	ns
maximum frequency	f_{max}	CP input; see Figure 4	V_{CC}=4.5V	25	49	-	ns

AC Characteristics 2

(T_{amb}=-40℃ to +85℃, GND=0V, C_L=50pF, unless otherwise specified)

Parameter	Symbol	Conditions		Min.	Typ.	Max.	Unit
SN74HC175							
propagation delay	t_{PLH}/t_{PHL}	CP to Qn, $\overline{Qn}$; see Figure 4	V_{CC}=2.0V	-	-	220	ns
			V_{CC}=4.5V	-	-	44	ns
			V_{CC}=6.0V	-	-	37	ns
HIGH to LOW propagation delay	t_{PHL}	$\overline{MR}$ to Qn, $\overline{Qn}$; see Figure 6	V_{CC}=2.0V	-	-	190	ns
			V_{CC}=4.5V	-	-	38	ns
			V_{CC}=6.0V	-	-	33	ns
transition time	t_t	Qn output; see Figure 4	V_{CC}=2.0V	-	-	95	ns
			V_{CC}=4.5V	-	-	19	ns
			V_{CC}=6.0V	-	-	16	ns
pulse width	t_W	CP input HIGH or LOW; see Figure 4	V_{CC}=2.0V	100	-	-	ns
			V_{CC}=4.5V	20	-	-	ns
			V_{CC}=6.0V	17	-	-	ns
		$\overline{MR}$ input LOW; see Figure 6	V_{CC}=2.0V	100	-	-	ns
			V_{CC}=4.5V	20	-	-	ns
			V_{CC}=6.0V	17	-	-	ns
recovery time	t_{rec}	$\overline{MR}$ to CP; see Figure 6	V_{CC}=2.0V	5	-	-	ns
			V_{CC}=4.5V	5	-	-	ns
			V_{CC}=6.0V	5	-	-	ns
set-up time	t_{su}	Dn to CP; see Figure 4	V_{CC}=2.0V	100	-	-	ns
			V_{CC}=4.5V	20	-	-	ns
			V_{CC}=6.0V	17	-	-	ns
hold time	t_h	Dn to CP; see Figure 4	V_{CC}=2.0V	30	-	-	ns
			V_{CC}=4.5V	6	-	-	ns
			V_{CC}=6.0V	5	-	-	ns
maximum frequency	f_{max}	CP input; see Figure 4	V_{CC}=2.0V	4.8	-	-	ns
			V_{CC}=4.5V	24	-	-	ns
			V_{CC}=6.0V	28	-	-	ns
SN74HCT175							
propagation delay	t_{PLH}/t_{PHL}	CP to Qn, $\overline{Qn}$; see Figure 4	V_{CC}=4.5V	-	-	41	ns

HIGH to LOW propagation delay	t_{PHL}	MR to Qn; see Figure 6	V_{CC}=4.5V	-	-	48	ns
		$\overline{MR}$ to $\overline{Qn}$; see Figure 6	V_{CC}=4.5V	-	-	44	ns
transition time	t_t	Qn output; see Figure 4	V_{CC}=4.5V	-	-	19	ns
pulse width	t_W	CP input; see Figure 4	V_{CC}=4.5V	25	-	-	ns
		$\overline{MR}$ input LOW; see Figure 6	V_{CC}=4.5V	25	-	-	ns
recovery time	t_{rec}	$\overline{MR}$ to CP; see Figure 6	V_{CC}=4.5V	5	-	-	ns
set-up time	t_{su}	Dn to CP; see Figure 4	V_{CC}=4.5V	20	-	-	ns
hold time	t_h	Dn to CP; see Figure 4	V_{CC}=4.5V	5	-	-	ns
maximum frequency	f_{max}	CP input; see Figure 4	V_{CC}=4.5V	20	-	-	ns

AC Characteristics 3

(T_{amb}=-40℃ to +125℃, GND=0V, C_L=50pF, unless otherwise specified)

Parameter	Symbol	Conditions		Min.	Typ.	Max.	Unit
SN74HC175							
propagation delay	t_{PLH}/t_{PHL}	CP to Qn, $\overline{Qn}$; see Figure 4	V_{CC}=2.0V	-	-	265	ns
			V_{CC}=4.5V	-	-	53	ns
			V_{CC}=6.0V	-	-	45	ns
HIGH to LOW propagation delay	t_{PHL}	$\overline{MR}$ to Qn, $\overline{Qn}$; see Figure 6	V_{CC}=2.0V	-	-	225	ns
			V_{CC}=4.5V	-	-	45	ns
			V_{CC}=6.0V	-	-	38	ns
transition time	t_t	Qn output; see Figure 4	V_{CC}=2.0V	-	-	110	ns
			V_{CC}=4.5V	-	-	22	ns
			V_{CC}=6.0V	-	-	19	ns
pulse width	t_W	CP input HIGH or LOW; see Figure 4	V_{CC}=2.0V	120	-	-	ns
			V_{CC}=4.5V	24	-	-	ns
			V_{CC}=6.0V	20	-	-	ns
		$\overline{MR}$ input LOW; see Figure 6	V_{CC}=2.0V	120	-	-	ns
			V_{CC}=4.5V	24	-	-	ns
			V_{CC}=6.0V	20	-	-	ns
recovery time	t_{rec}	$\overline{MR}$ to CP; see Figure 6	V_{CC}=2.0V	5	-	-	ns
			V_{CC}=4.5V	5	-	-	ns
			V_{CC}=6.0V	5	-	-	ns
set-up time	t_{su}	Dn to CP; see Figure 4	V_{CC}=2.0V	120	-	-	ns
			V_{CC}=4.5V	24	-	-	ns
			V_{CC}=6.0V	20	-	-	ns
hold time	t_h	Dn to CP; see Figure 4	V_{CC}=2.0V	40	-	-	ns
			V_{CC}=4.5V	8	-	-	ns

			V_{CC}=6.0V	7	-	-	ns
maximum frequency	f_{max}	CP input; see Figure 4	V_{CC}=2.0V	4	-	-	ns
			V_{CC}=4.5V	20	-	-	ns
			V_{CC}=6.0V	24	-	-	ns
SN74HCT175							
propagation delay	t_{PLH}/t_{PHL}	CP to Qn, $\overline{Qn}$; see Figure 4	V_{CC}=4.5V	-	-	50	ns
HIGH to LOW propagation delay	t_{PHL}	$\overline{MR}$ to Qn; see Figure 6	V_{CC}=4.5V	-	-	57	ns
		$\overline{MR}$ to $\overline{Qn}$; see Figure 6	V_{CC}=4.5V	-	-	53	ns
transition time	t_t	Qn output; see Figure 4	V_{CC}=4.5V	-	-	22	ns
pulse width	t_W	CP input; see Figure 4	V_{CC}=4.5V	30	-	-	ns
		$\overline{MR}$ input LOW; see Figure 6	V_{CC}=4.5V	30	-	-	ns
recovery time	t_{rec}	$\overline{MR}$ to CP; see Figure 6	V_{CC}=4.5V	5	-	-	ns
set-up time	t_{su}	Dn to CP; see Figure 4	V_{CC}=4.5V	24	-	-	ns
hold time	t_h	Dn to CP; see Figure 4	V_{CC}=4.5V	5	-	-	ns
maximum frequency	f_{max}	CP input; see Figure 4	V_{CC}=4.5V	17	-	-	ns

Testing Circuit

AC Testing Circuit

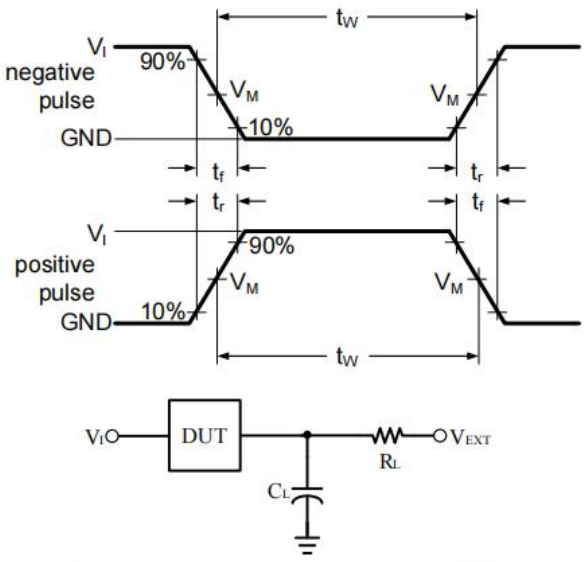


Figure 3. Test circuit for measuring switching times

Definitions for test circuit:
C_L includes probe and jig capacitance

AC Testing Waveforms

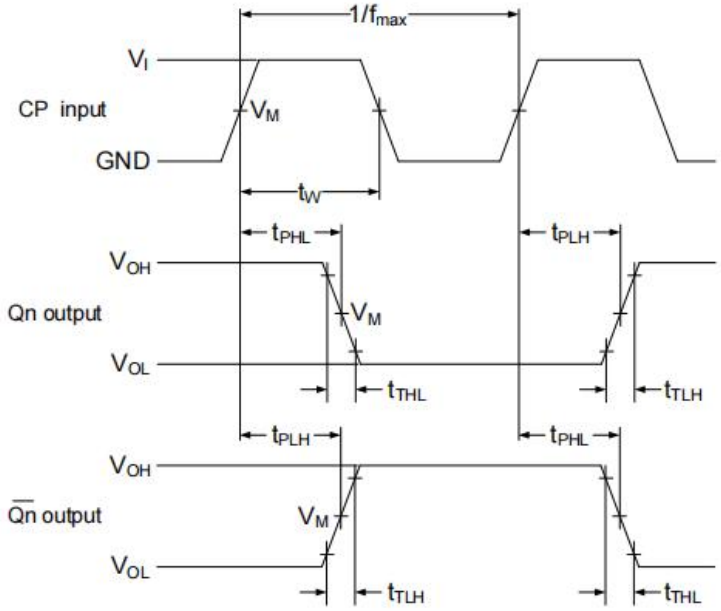


Figure 4. Input to output propagation delay, output transition time, clock input pulse width and maximum frequency

Measurement Points

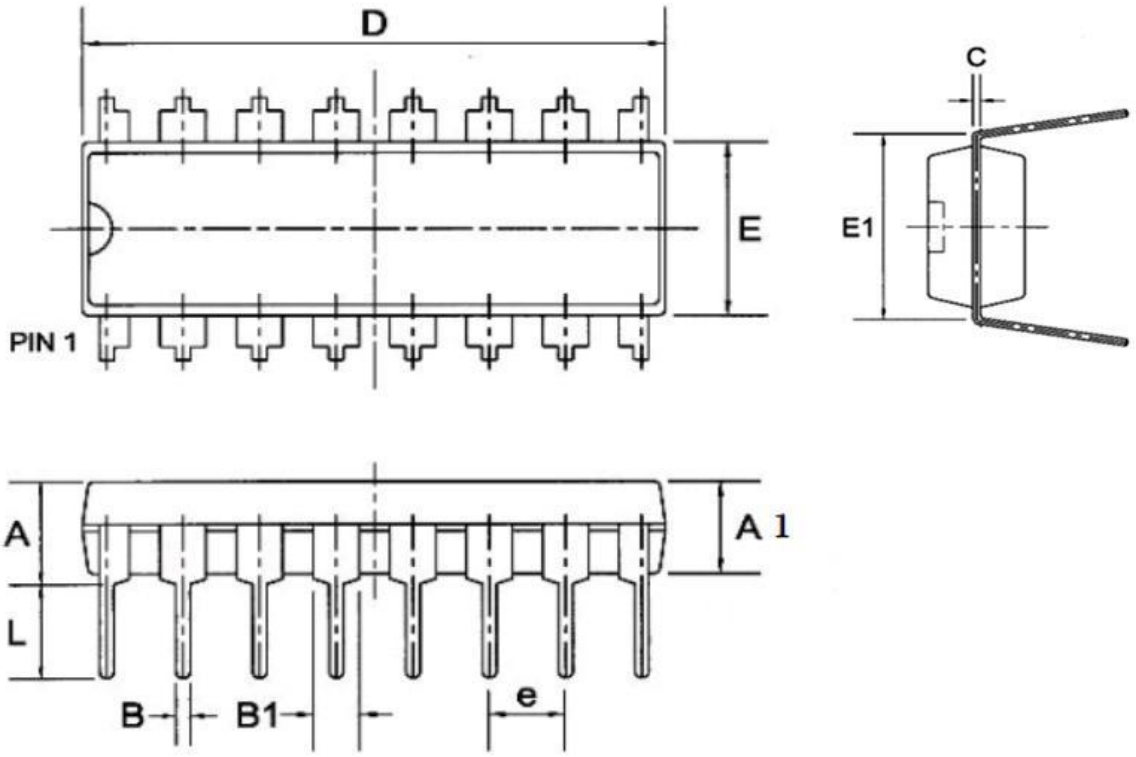
Type	Input		Output
	V_I	V_M	V_M
SN74HC175	V_{CC}	0.5×V_{CC}	0.5×V_{CC}
SN74HCT175	3V	1.3V	1.3V

Test Data

Type	Input		Load		Test
	V_I	t_r ,t_f	C_L	R_L	
SN74HC175	V_{CC}	3.0ns	15pF, 50pF	1kΩ	t_{PLH}, t_{PHL}
SN74HCT175	3.0V	3.0ns	15pF, 50pF	1kΩ	t_{PLH}, t_{PHL}

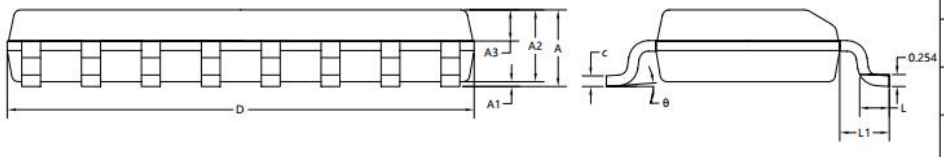
Package Information

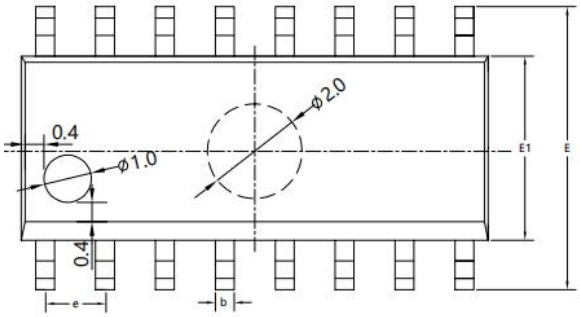
DIP16



Symbol	Dimensions in Millimeters		
	Min	Nom	Max
A	--	--	4.31
A1	3.15	3.30	3.65
B	--	0.50	--
B1	--	1.6	--
C	--	0.27	--
D	19.00	19.20	19.60
E	6.20	6.50	6.60
E1	--	8.0	--
e	--	2.3	--
L	3.00	3.20	3.60

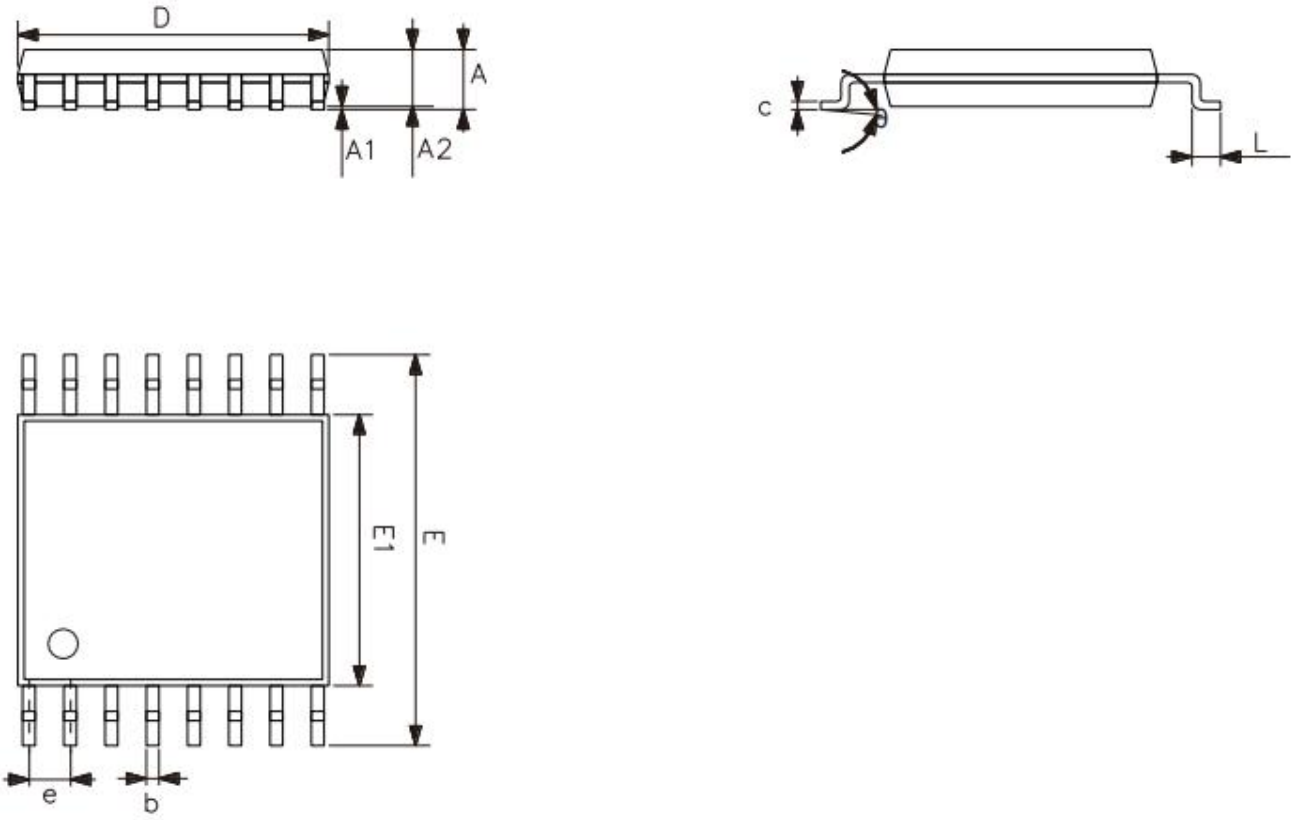
SOP16





SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	1.50	1.60	1.70
A1	0.10	0.15	0.25
A2	1.40	1.45	1.50
A3	0.60	0.65	0.70
b	0.30	0.40	0.50
c	0.15	0.20	0.25
D	9.80	9.90	10.00
E	5.80	6.00	6.20
E1	3.85	3.90	3.95
e	1.27BSC		
L	0.50	0.60	0.70
L1	1.05BSC		
θ	0°	4°	8°

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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