

Dual 4-bit Binary Ripple Counter

CJ74HC/HCT393 Logic

1 Introduction

The CJ74HC/HCT393 is a dual 4-stage binary ripple counter.

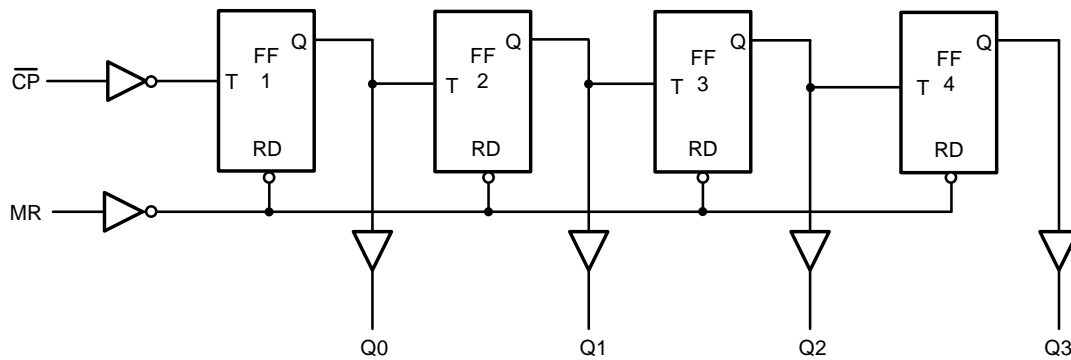
2 Available Packages

PART NUMBER	PACKAGE
CJ74HC393	SOP14
	TSSOP14
CJ74HCT393	SOP14
	TSSOP14

Note: For all available packages, please refer to the part Orderable Information.

3 Features

- Supply voltage range:
 - CJ74HC393: 2~6V
 - CJ74HCT393: 4.5~5.5V
- Input levels:
 - CJ74HC393: CMOS level
 - CJ74HCT393: TTL level
- Temperature range: -40°C to +125°C



Logic symbol

4 Orderable Information

DEVICE	PACKAGE	OP TEMP	ECO PLAN	MSL	PACKING OPTION	SORT
CJ74HC393ADN	SOP14	-40~125°C	RoHS & Green	Level 3 168HR	Tape and Reel 4000 Units / Reel	Active
CJ74HCT393ADN	SOP14	-40~125°C	RoHS & Green	Level 3 168HR	Tape and Reel 4000 Units / Reel	Active
CJ74HC393BDN	TSSOP14	-40~125°C	RoHS & Green	Level 3 168HR	Tape and Reel 5000 Units / Reel	Active
CJ74HCT393BDN	TSSOP14	-40~125°C	RoHS & Green	Level 3 168HR	Tape and Reel 5000 Units / Reel	Active

Note:

ECO PLAN: For the RoHS and Green certification standards of this product, please refer to the official report provided by JSCJ.

MSL: Moisture Sensitivity Level. Determined according to JEDEC industry standard classification.

SORT: Specifically defined as follows:

Active: Recommended for new products;

Customized: Products manufactured to meet the specific needs of customers;

Preview: The device has been released and has not been fully mass produced. The sample may or may not be available;

NoRD: It is not recommended to use the device for new design. The device is only produced for the needs of existing customers;

Obsolete: The device has been discontinued.

5 Pin Configuration and Marking Information

5.1 Pin Configuration

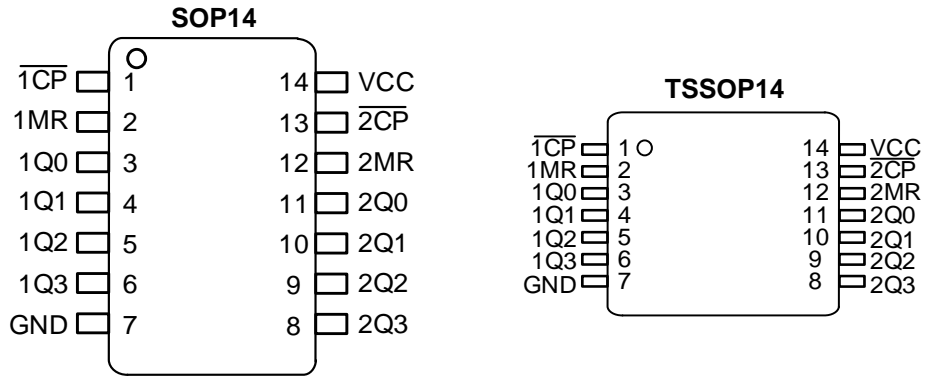


Figure 5-1 Pin configuration

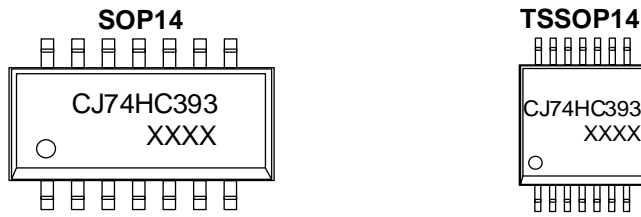
5.2 Pin Function

PIN		I/O ⁽¹⁾	DESCRIPTION
No.	NAME		
1	$\overline{1CP}$	I	Clock input (HIGH-to-LOW, edge-triggered)
2	1MR	I	Asynchronous master reset input (active HIGH)
3	1Q0	O	Flip-flop output
4	1Q1	O	Flip-flop output
5	1Q2	O	Flip-flop output
6	1Q3	O	Flip-flop output
7	GND	G	Ground (0V)
8	2Q3	O	Flip-flop output
9	2Q2	O	Flip-flop output
10	2Q1	O	Flip-flop output
11	2Q0	O	Flip-flop output
12	2MR	I	Asynchronous master reset input (active HIGH)
13	$\overline{2CP}$	I	Clock input (HIGH-to-LOW, edge-triggered)
14	VCC	P	Supply voltage

(1) I-Input, O-Output, P-Power, G-Ground.

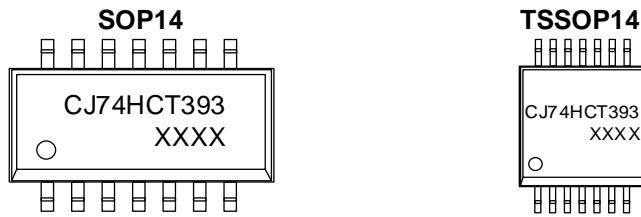
5.3 Marking Information

5.3.1 CJ74HC393



XXXX: Code, indicates weekly record information.

5.3.2 CJ74HCT393



XXXX: Code, indicates weekly record information.

6 Specifications

6.1 Absolute Maximum Ratings

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT	
V _{CC}	Supply voltage	-	-0.5	+7	V	
I _{CC}	Supply current	-	-	50	mA	
I _{GND}	Ground current	-	-50	-	mA	
I _{IK}	Input clamping current	V _I < -0.5V or V _I > V _{CC} +0.5V	-	±20	mA	
I _{OK}	Output clamping current	V _O < -0.5V or V _O > V _{CC} +0.5V	-	±20	mA	
I _O	Output current	-0.5V < V _O < V _{CC} +0.5V	-	±25	mA	
T _{stg}	Storage temperature	-	-65	+150	°C	
T _L	Soldering temperature	10s	SOP/TSSOP	-	260	°C

Note: Absolute maximum ratings indicate sustained limits beyond which damage to the device may occur. All voltage parameters are absolute voltages referenced to GND. The thermal resistance and power dissipation ratings are measured under board mounted and still air conditions.

6.2 Recommended Operating Conditions

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
CJ74HC393						
V _{CC}	Supply voltage	-	2.0	5.0	6.0	V
V _I	Input voltage	-	0	-	V _{CC}	V
V _O	Output voltage	-	0	-	V _{CC}	V
T _{amb}	Ambient temperature	-	-40	-	+125	°C
CJ74HCT393						
V _{CC}	Supply voltage	-	4.5	5.0	5.5	V
V _I	Input voltage	-	0	-	V _{CC}	V
V _O	Output voltage	-	0	-	V _{CC}	V
T _{amb}	Ambient temperature	-	-40	-	+125	°C

6.3 ESD Ratings

SYMBOL	ESD RATINGS		VALUE	UNIT
V _{ESD-HBM}	Electrostatic discharge	Human body model (HBM) ⁽¹⁾	±1000	V

(1) JEDEC document JEP155 states that 500-V H1BM allows safe manufacturing with a standard ESD control process.

6.4 Electrical Characteristics
6.4.1 DC Characteristics 1
 $T_{amb} = -40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$, voltages are referenced to GND (ground=0V), unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
CJ74HC393						
V_{IH}	HIGH-level input voltage	$V_{CC}=2.0\text{V}$	1.5	-	-	V
		$V_{CC}=4.5\text{V}$	3.15	-	-	V
		$V_{CC}=6.0\text{V}$	4.2	-	-	V
V_{IL}	LOW-level input voltage	$V_{CC}=2.0\text{V}$	-	-	0.5	V
		$V_{CC}=4.5\text{V}$	-	-	1.35	V
		$V_{CC}=6.0\text{V}$	-	-	1.8	V
V_{OH}	HIGH-level output voltage	$I_o=-20\mu\text{A}; V_{CC}=2.0\text{V}$	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
		$I_o=-4.0\text{mA}; V_{CC}=4.5\text{V}$	3.84	4.32	-	V
		$I_o=-5.2\text{mA}; V_{CC}=6.0\text{V}$	5.34	5.81	-	V
V_{OL}	LOW-level output voltage	$I_o=20\mu\text{A}; V_{CC}=2.0\text{V}$	-	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	0.33	V
		$I_o=5.2\text{mA}; V_{CC}=6.0\text{V}$	-	0.16	0.33	V
I_i	Input leakage current	$V_i=V_{CC}$ or GND; $V_{CC}=6.0\text{V}$	-	-	± 1	μA
I_{oz}	OFF-state output current	$V_i=V_{IH}$ or $V_{IL}; V_o=V_{CC}$ or GND; $V_{CC}=6.0\text{V}$	-	-	± 5	μA
I_{CC}	Supply current	$V_i=V_{CC}$ or GND; $I_o=0\text{A}; V_{CC}=6.0\text{V}$	-	-	80	μA
CJ74HCT393						
V_{IH}	HIGH-level input voltage	$V_{CC}=4.5\text{V}$ to 5.5V	2.0	-	-	V
V_{IL}	LOW-level input voltage	$V_{CC}=4.5\text{V}$ to 5.5V	-	-	0.8	V
V_{OH}	HIGH-level output voltage	$I_o=-20\mu\text{A}; V_{CC}=4.5\text{V}$	4.4	4.5	-	V
		$I_o=-4.0\text{mA}; V_{CC}=4.5\text{V}$	3.84	4.32	-	V
V_{OL}	LOW-level output voltage	$I_o=20\mu\text{A}; V_{CC}=4.5\text{V}$	-	0	0.1	V
		$I_o=4.0\text{mA}; V_{CC}=4.5\text{V}$	-	0.15	0.33	V
I_i	Input leakage current	$V_i=V_{CC}$ or GND; $V_{CC}=5.5\text{V}$	-	-	± 1	μA
I_{oz}	OFF-state output current	$V_i=V_{IH}$ or $V_{IL}; V_o=V_{CC}$ or GND; $V_{CC}=5.5\text{V}$	-	-	± 5	μA
I_{CC}	Supply current	$V_i=V_{CC}$ or GND; $I_o=0\text{A}; V_{CC}=6.0\text{V}$	-	-	80	μA
ΔI_{CC}	Additional supply current	One input at $V_i=V_{CC}-2.1\text{V}$; Other inputs at V_{CC} or GND; $I_o=0\text{A}; V_{CC}=4.5\text{V}$ to 5.5V	-	-	135	μA

6.4.2 DC Characteristics 2
 $T_{amb} = -40^{\circ}\text{C}$ to $+125^{\circ}\text{C}$, voltages are referenced to GND (ground=0V), unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
CJ74HC393						
V_{IH}	HIGH-level input voltage	$V_{CC}=2.0\text{V}$	1.5	-	-	V
		$V_{CC}=4.5\text{V}$	3.15	-	-	V
		$V_{CC}=6.0\text{V}$	4.2	-	-	V
V_{IL}	LOW-level input voltage	$V_{CC}=2.0\text{V}$	-	-	0.5	V
		$V_{CC}=4.5\text{V}$	-	-	1.35	V
		$V_{CC}=6.0\text{V}$	-	-	1.8	V
V_{OH}	HIGH-level output voltage	$I_o=-20\mu\text{A}; V_{CC}=2.0\text{V}$	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
V_{OL}	LOW-level output voltage	$I_o=20\mu\text{A}; V_{CC}=2.0\text{V}$	-	-	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
I_i	Input leakage current	$V_i=V_{CC}$ or GND; $V_{CC}=6.0\text{V}$	-	-	± 1	μA
I_{OZ}	OFF-state output current	$V_i=V_{IH}$ or $V_{IL}; V_o=V_{CC}$ or GND; $V_{CC}=6.0\text{V}$	-	-	± 10	μA
I_{CC}	Supply current	$V_i=V_{CC}$ or GND; $I_o=0\text{A}; V_{CC}=6.0\text{V}$	-	-	160	μA
CJ74HCT393						
V_{IH}	HIGH-level input voltage	$V_{CC}=4.5\text{V}$ to 5.5V	2.0	-	-	V
V_{IL}	LOW-level input voltage	$V_{CC}=4.5\text{V}$ to 5.5V	-	-	0.8	V
V_{OH}	HIGH-level output voltage	$I_o=-20\mu\text{A}; V_{CC}=4.5\text{V}$	4.4	-	-	V
		$I_o=-4.0\text{mA}; V_{CC}=4.5\text{V}$	3.7	-	-	V
V_{OL}	LOW-level output voltage	$I_o=20\mu\text{A}; V_{CC}=4.5\text{V}$	-	-	0.1	V
		$I_o=4.0\text{mA}; V_{CC}=4.5\text{V}$	-	-	0.4	V
I_i	Input leakage current	$V_i=V_{CC}$ or GND; $V_{CC}=5.5\text{V}$	-	-	± 1	μA
I_{OZ}	OFF-state output current	$V_i=V_{IH}$ or $V_{IL}; V_o=V_{CC}$ or GND; $V_{CC}=5.5\text{V}$	-	-	± 10	μA
I_{CC}	Supply current	$V_i=V_{CC}$ or GND; $I_o=0\text{A}; V_{CC}=6.0\text{V}$	-	-	160	μA
ΔI_{CC}	Additional supply current	One input at $V_i=V_{CC}-2.1\text{V}$; Other inputs at V_{CC} or GND; $I_o=0\text{A}; V_{CC}=4.5\text{V}$ to 5.5V	-	-	147	μA

6.4.3 AC Characteristics 1

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT	
CJ74HC393							
t _{PLH} , t _{PHL}	nCP to nQ0 propagation delay	See Figure 7-3	V _{CC} =2.0V; C _L =50pF	-	41	155	ns
			V _{CC} =4.5V; C _L =50pF	-	15	31	ns
			V _{CC} =5.0V; C _L =15pF	-	12	-	ns
			V _{CC} =6.0V; C _L =50pF	-	12	26	ns
	nQx to nQ(x+1) propagation delay	See Figure 7-3	V _{CC} =2.0V; C _L =50pF	-	14	55	ns
			V _{CC} =4.5V; C _L =50pF	-	5	11	ns
			V _{CC} =5.0V; C _L =15pF	-	5	-	ns
			V _{CC} =6.0V; C _L =50pF	-	4	9	ns
t _{PHL}	nMR to nQx HIGH to LOW Propagation delay	See Figure 7-4	V _{CC} =2.0V; C _L =50pF	-	39	175	ns
			V _{CC} =4.5V; C _L =50pF	-	14	35	ns
			V _{CC} =5.0V; C _L =15pF	-	11	-	ns
			V _{CC} =6.0V; C _L =50pF	-	11	30	ns
t _{THL} , t _{TLH}	Transition time	See Figure 7-3	V _{CC} =2.0V; C _L =50pF	-	19	95	ns
			V _{CC} =4.5V; C _L =50pF	-	7	19	ns
			V _{CC} =6.0V; C _L =50pF	-	6	16	ns
t _w	nCP HIGH or LOW pulse width	See Figure 7-3	V _{CC} =2.0V; C _L =50pF	100	17	-	ns
			V _{CC} =4.5V; C _L =50pF	20	6	-	ns
			V _{CC} =6.0V; C _L =50pF	17	5	-	ns
	nMR HIGH pulse width	See Figure 7-4	V _{CC} =2.0V; C _L =50pF	100	19	-	ns
			V _{CC} =4.5V; C _L =50pF	20	7	-	ns
			V _{CC} =6.0V; C _L =50pF	17	6	-	ns
t _{rec}	nMR to nCP recovery time	See Figure 7-4	V _{CC} =2.0V; C _L =50pF	5	3	-	ns
			V _{CC} =4.5V; C _L =50pF	5	1	-	ns
			V _{CC} =6.0V; C _L =50pF	5	1	-	ns
f _{clk(max)}	Maximum clock frequency	See Figure 7-3	V _{CC} =2.0V; C _L =50pF	5	30	-	MHz
			V _{CC} =4.5V; C _L =50pF	24	90	-	MHz
			V _{CC} =5.0V; C _L =15pF	-	99	-	MHz
			V _{CC} =6.0V; C _L =50pF	28	107	-	MHz
CJ74HCT393							
t _{PLH} , t _{PHL}	nCP to nQ0 propagation delay	See Figure 7-3	V _{CC} =4.5V; C _L =50pF	-	15	31	ns
			V _{CC} =5.0V; C _L =15pF	-	20	-	ns
	nQx to nQ(x+1) propagation delay	See Figure 7-3	V _{CC} =4.5V; C _L =50pF	-	6	13	ns
			V _{CC} =5.0V; C _L =15pF	-	6	-	ns
t _{PHL}	nMR to nQx	See Figure 7-4	V _{CC} =4.5V; C _L =50pF	-	18	40	ns

	HIGH to LOW propagation delay		$V_{CC}=5.0V; C_L=15pF$	-	15	-	ns
t_{THL}, t_{TLH}	Transition time	See Figure 7-3	$V_{CC}=4.5V; C_L=50pF$	-	7	19	ns
t_w	nCP HIGH or LOW pulse width	See Figure 7-3	$V_{CC}=4.5V; C_L=50pF$	24	11	-	ns
	nMR HIGH pulse width	See Figure 7-4	$V_{CC}=4.5V; C_L=50pF$	20	6	-	ns
t_{rec}	nMR to nCP recovery time	See Figure 7-4	$V_{CC}=4.5V; C_L=50pF$	5	0	-	ns
$f_{clk(max)}$	Maximum clock frequency	See Figure 7-3	$V_{CC}=4.5V; C_L=15pF$	22	48	-	MHz
			$V_{CC}=5.0V; C_L=15pF$	-	53	-	MHz

6.4.4 AC Characteristics 2

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT	
CJ74HC393							
t_{PLH}, t_{PHL}	nCP to nQ0 propagation delay nQx to nQ(x+1) propagation delay	See Figure 7-3	$V_{CC}=2.0V; C_L=50pF$	-	-	190	ns
			$V_{CC}=4.5V; C_L=50pF$	-	-	38	ns
			$V_{CC}=6.0V; C_L=50pF$	-	-	32	ns
	nQx to nQ(x+1) propagation delay	See Figure 7-3	$V_{CC}=2.0V; C_L=50pF$	-	-	70	ns
			$V_{CC}=4.5V; C_L=50pF$	-	-	14	ns
			$V_{CC}=6.0V; C_L=50pF$	-	-	12	ns
t_{PHL}	nMR to nQx HIGH to LOW propagation delay	See Figure 7-4	$V_{CC}=2.0V; C_L=50pF$	-	-	210	ns
			$V_{CC}=4.5V; C_L=50pF$	-	-	42	ns
			$V_{CC}=6.0V; C_L=50pF$	-	-	36	ns
t_{THL}, t_{TLH}	Transition time	See Figure 7-3	$V_{CC}=2.0V; C_L=50pF$	-	-	110	ns
			$V_{CC}=4.5V; C_L=50pF$	-	-	22	ns
			$V_{CC}=6.0V; C_L=50pF$	-	-	19	ns
t_w	nCP HIGH or LOW pulse width	See Figure 7-3	$V_{CC}=2.0V; C_L=50pF$	120	-	-	ns
			$V_{CC}=4.5V; C_L=50pF$	24	-	-	ns
			$V_{CC}=6.0V; C_L=50pF$	20	-	-	ns
	nMR HIGH pulse width	See Figure 7-4	$V_{CC}=2.0V; C_L=50pF$	120	-	-	ns
			$V_{CC}=4.5V; C_L=50pF$	24	-	-	ns
			$V_{CC}=6.0V; C_L=50pF$	20	-	-	ns
t_{rec}	nMR to nCP recovery time	See Figure 7-4	$V_{CC}=2.0V; C_L=50pF$	5	-	-	ns
			$V_{CC}=4.5V; C_L=50pF$	5	-	-	ns
			$V_{CC}=6.0V; C_L=50pF$	5	-	-	ns
$f_{clk(max)}$	Maximum clock frequency	See Figure 7-3	$V_{CC}=2.0V; C_L=50pF$	4	-	-	MHz
			$V_{CC}=4.5V; C_L=50pF$	20	-	-	MHz
			$V_{CC}=6.0V; C_L=50pF$	24	-	-	MHz
CJ74HCT393							

t_{PLH}, t_{PHL}	\overline{nCP} to $nQ0$ propagation delay	See Figure 7-3	$V_{CC}=4.5V; C_L=50pF$	-	-	38	ns
	nQx to $nQ(x+1)$ propagation delay	See Figure 7-3	$V_{CC}=4.5V; C_L=50pF$	-	-	15	ns
t_{PHL}	nMR to nQx HIGH to LOW propagation delay	See Figure 7-4	$V_{CC}=4.5V; C_L=50pF$	-	-	48	ns
t_{THL}, t_{TLH}	Transition time	See Figure 7-3	$V_{CC}=4.5V; C_L=50pF$	-	-	22	ns
t_w	\overline{nCP} HIGH or LOW pulse width	See Figure 7-3	$V_{CC}=4.5V; C_L=50pF$	29	-	-	ns
	nMR HIGH pulse width	See Figure 7-4	$V_{CC}=4.5V; C_L=50pF$	24	-	-	ns
t_{rec}	nMR to nCP recovery time	See Figure 7-4	$V_{CC}=4.5V; C_L=50pF$	5	-	-	ns
$f_{clk(max)}$	Maximum clock frequency	See Figure 7-3	$V_{CC}=4.5V; C_L=50pF$	18	-	-	MHz

7 Detailed Description

7.1 Overview

The CJ74HC393/HCT393 is a dual 4-stage binary ripple counter.

7.2 Functional Block Diagram

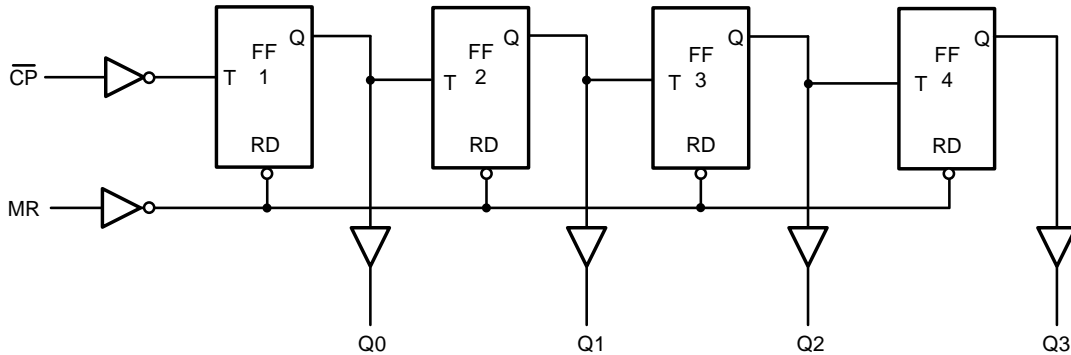


Figure 7-1 Logic symbol

7.3 Function Table⁽¹⁾

COUNT	OUTPUT			
	nQ3	nQ2	nQ1	nQ0
0	L	L	L	L
1	L	L	L	H
2	L	L	H	L
3	L	L	H	H
4	L	H	L	L
5	L	H	L	H
6	L	H	H	L
7	L	H	H	H
8	H	L	L	L
9	H	L	L	H
10	H	L	H	L
11	H	L	H	H
12	H	H	L	L
13	H	H	L	H
14	H	H	H	L
15	H	H	H	H

(1) H=HIGH voltage level; L=LOW voltage level.

7.4 Testing Circuit

7.4.1 AC Testing Circuit

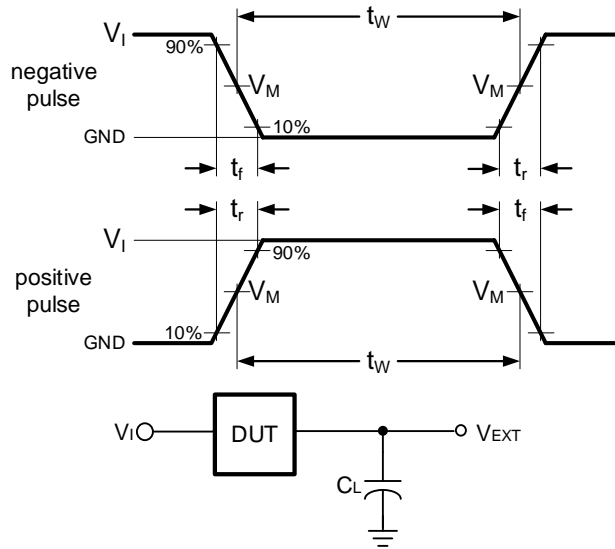


Figure 7-2 Test circuit for measuring switching times

Definitions for test circuit:

C_L includes probe and jig capacitance.

7.4.2 AC Testing Waveforms

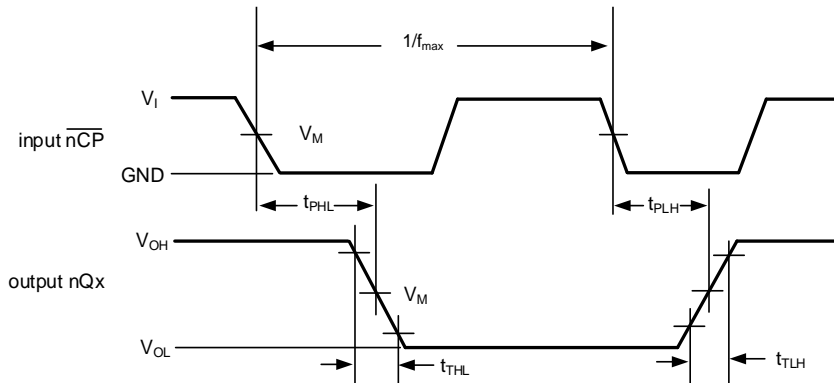


Figure 7-3 Propagation delay, output transition time

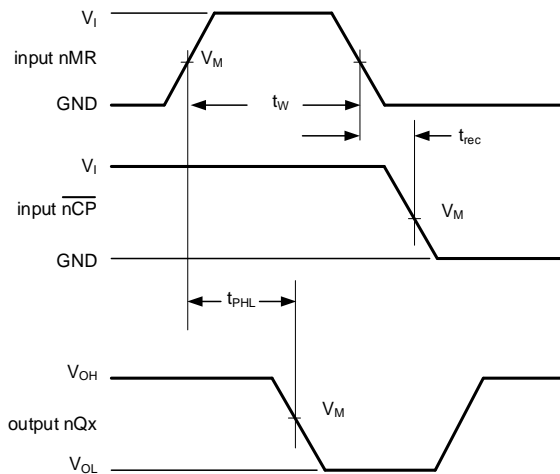


Figure 7-4 Propagation delays clock (nCP) to output (nQx), pulse width master reset (nMR), and recovery time master reset (nMR) to clock (nCP)

7.4.3 Measurement Points

TYPE	INPUT	OUTPUT
	V_M	V_M
CJ74HC393	$0.5 \times V_{CC}$	$0.5 \times V_{CC}$
CJ74HCT393	1.3V	1.3V

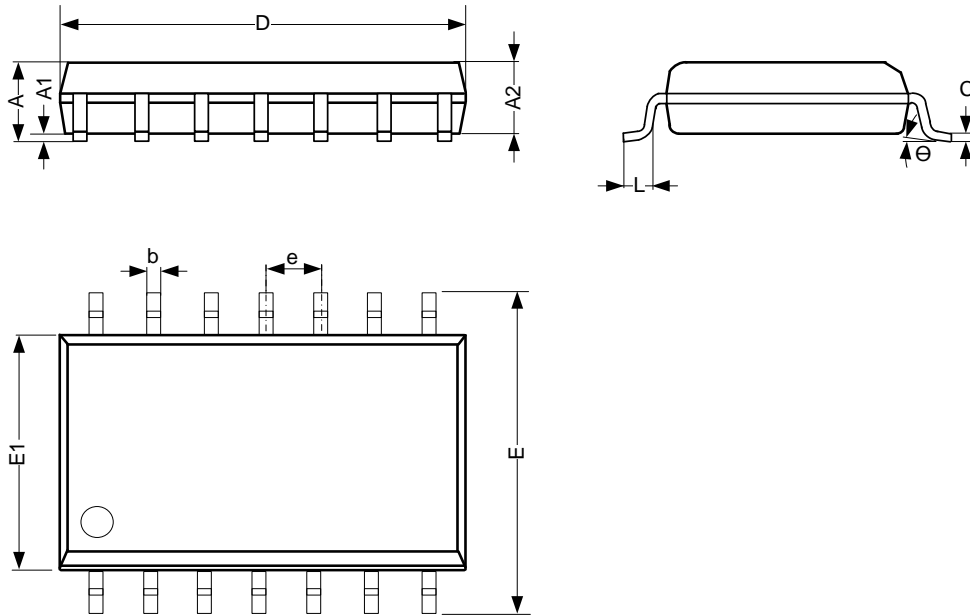
7.4.4 Test Data

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}
CJ74HC393	V_{CC}	6.0ns	15pF, 50pF	Open	V_{CC}	GND
CJ74HCT393	3.0V	6.0ns	15pF, 50pF	Open	V_{CC}	GND

8 Mechanical Information

8.1 SOP14 Mechanical Information

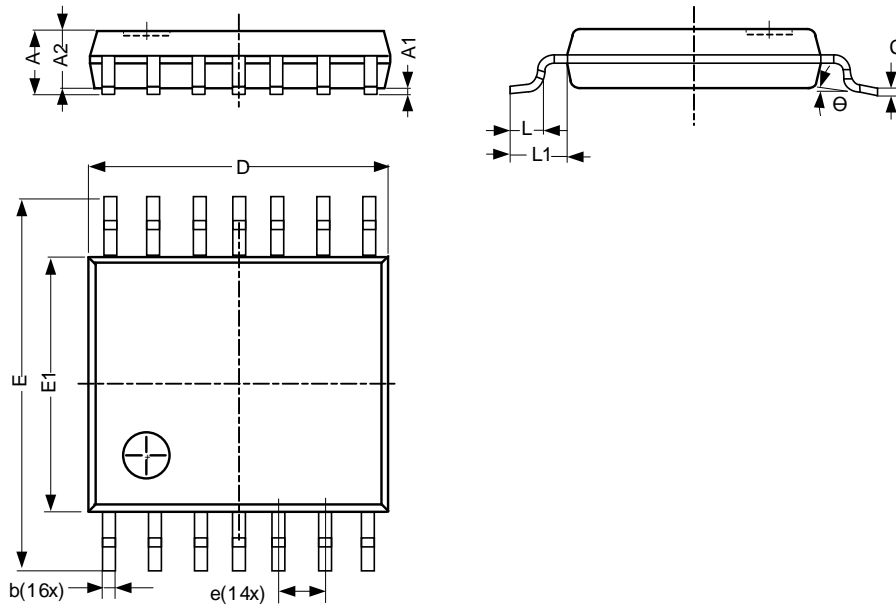
8.1.1 SOP14 Outline Dimensions



SYMBOL	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	1.50	-	1.75
A1	0.05	-	0.25
A2	1.30	-	-
b	0.33	-	0.50
c	0.19	-	0.25
D	8.43	-	8.76
E	5.80	-	6.25
E1	3.75	-	4.00
e	1.27 BSC		
L	0.40	-	0.89
Θ	0°	-	8°
Unit: mm			

8.2 TSSOP14 Mechanical Information

8.2.1 TSSOP14 Outline Dimensions



SYMBOL	Dimensions In Millimeters		
	Min.	Typ.	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
E	6.20	-	6.60
E1	4.30	-	4.50
e	0.65 BSC		
L	0.45	-	0.75
L1	-	1.00	-
θ	0°	-	8°
Unit: mm			

9 Notes and Revision History

9.1 Associated Product Family and Others

To view other products of the same type or IC products of other types, click the official website of JSCJ -- <https://www.jscj-elec.com> for more details.

9.2 Notes

Electrostatic Discharge Caution



This IC may be damaged by ESD. Relevant personnel shall comply with correct installation and use specifications to avoid ESD damage to the IC. If appropriate measures are not taken to prevent ESD damage, the hazards caused by ESD include but are not limited to degradation of integrated circuit performance or complete damage of integrated circuit. For some precision integrated circuits, a very small parameter change may cause the whole device to be inconsistent with its published specifications.

DISCLAIMER

IMPORTANT NOTICE, PLEASE READ CAREFULLY

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