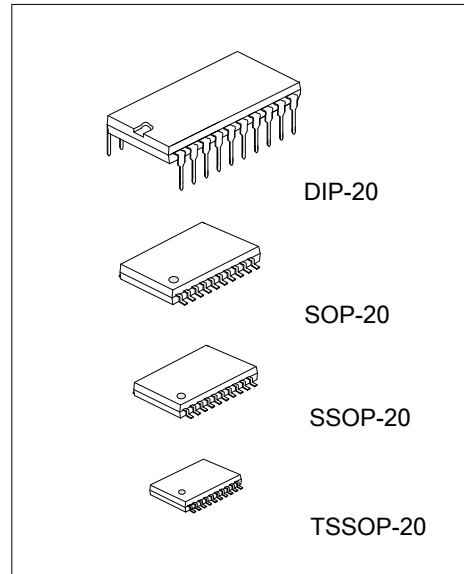




# U74HC573

**CMOS IC**

## OCTAL TRANSPARENT D-TYPE LATCHES WITH 3-STATE OUTPUTS



■ **DESCRIPTION**

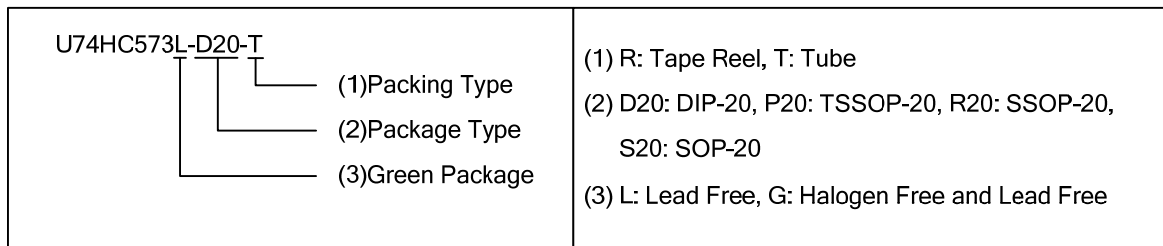
The UTC **U74HC573** is a octal transparent D-type latch with 3-state outputs, and it has 8 channels.

■ **FEATURES**

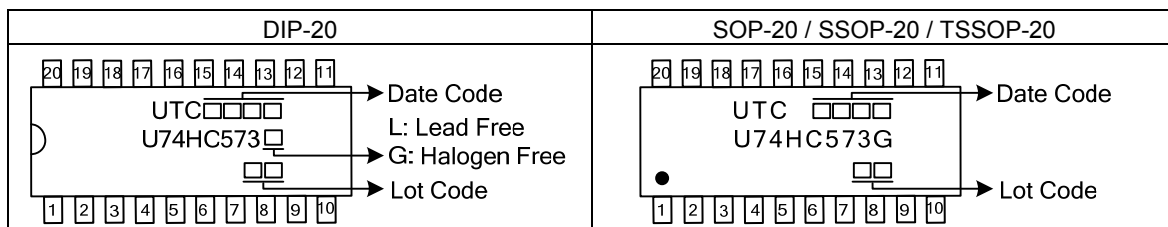
- \* Operate from 2V to 6V
- \* Max  $t_{PD}$  of 57ns at 4.5 V
- \* Typical  $V_{OL} < 0.17V$  at  $V_{CC}=4.5V, T_A=25^\circ C$
- \* Typical  $V_{OH} > 4.3V$  at  $V_{CC}=4.5V, T_A=25^\circ C$

■ **ORDERING INFORMATION**

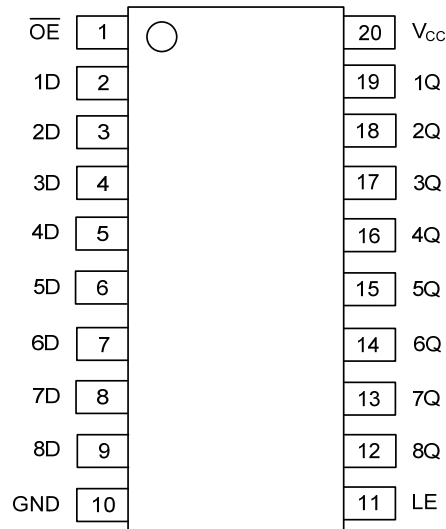
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74HC573L-D20-T	U74HC573G-D20-T	DIP-20	Tube
-	U74HC573G-S20-R	SOP-20	Tape Reel
-	U74HC573G-R20-R	SSOP-20	Tape Reel
-	U74HC573G-P20-R	TSSOP-20	Tape Reel



■ **MARKING**



## PIN CONFIGURATION

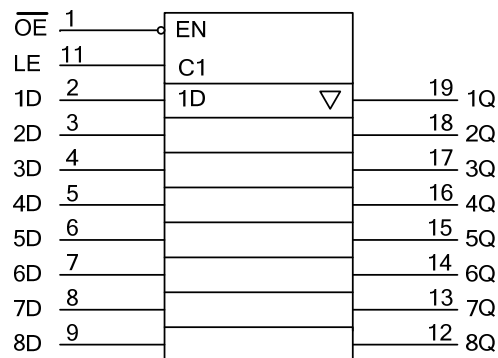


## FUNCTION TABLE

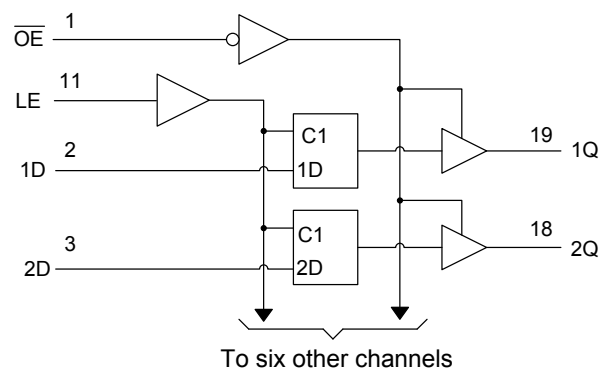
INPUTS( $\overline{OE}$ )	INPUTS(LE)	INPUTS(D)	OUTPUT(Q)
L	H	H	H
L	H	L	L
L	L	X	$Q_0$
H	X	X	Z

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

## LOGIC SYMBOL



## LOGIC DIAGRAM



■ ABSOLUTE MAXIMUM RATING (T<sub>A</sub>=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sub>CC</sub>	-0.5 ~ 7	V
V <sub>CC</sub> or GND Current	I <sub>CC</sub>	±70	mA
Output Current	I <sub>OUT</sub>	±35	mA
Input Clamp Current	I <sub>IK</sub>	±20	mA
Output Clamp Current	I <sub>OK</sub>	±20	mA
Operating Temperature	T <sub>OPR</sub>	-40 ~ + 85	°C
Storage Temperature	T <sub>STG</sub>	-65 ~ + 150	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.  
 Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT	
Junction to Ambient	DIP-20	θ <sub>JA</sub>	52	°C/W
	SOP-20		80	°C/W
	SSOP-20		96	°C/W
	TSSOP-20		103	°C/W

■ RECOMMENDED OPERATING CONDITIONS (T<sub>A</sub>=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V <sub>CC</sub>		2	5	6	V
High-level Input Voltage	V <sub>IH</sub>	V <sub>CC</sub> =2.0V	1.5			V
		V <sub>CC</sub> =4.5V	3.15			V
		V <sub>CC</sub> =6.0V	4.2			V
Low-level Input Voltage	V <sub>IL</sub>	V <sub>CC</sub> =2.0V	0		0.5	V
		V <sub>CC</sub> =4.5V	0		1.35	V
		V <sub>CC</sub> =6.0V	0		1.8	V
Input Voltage	V <sub>IN</sub>		0		V <sub>CC</sub>	V
Output Voltage	V <sub>OUT</sub>	High or low state	0		V <sub>CC</sub>	V
Input Rise or Fall Times	t <sub>R</sub> , t <sub>F</sub>	V <sub>CC</sub> =2.0V	0		1	μs
		V <sub>CC</sub> =4.5V	0		0.5	μs
		V <sub>CC</sub> =6.0V	0		0.4	μs

■ ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage High-Level	V <sub>OH</sub>	V <sub>CC</sub> =2.0V, I <sub>OH</sub> =-20μA	1.9	1.998		V
		V <sub>CC</sub> =4.5V, I <sub>OH</sub> =-20μA	4.4	4.499		V
		V <sub>CC</sub> =6.0V, I <sub>OH</sub> =-20μA	5.9	5.999		V
		V <sub>CC</sub> =4.5V, I <sub>OH</sub> =-6mA	3.98	4.3		V
		V <sub>CC</sub> =6.0V, I <sub>OH</sub> =-7.8mA	5.48	5.8		V
Output Voltage Low-Level	V <sub>OL</sub>	V <sub>CC</sub> =2.0V, I <sub>OL</sub> =20μA		2	100	mV
		V <sub>CC</sub> =4.5V, I <sub>OL</sub> =20μA		1	100	mV
		V <sub>CC</sub> =6.0V, I <sub>OL</sub> =20μA		1	100	mV
		V <sub>CC</sub> =4.5V, I <sub>OL</sub> =6mA		170	260	mV
		V <sub>CC</sub> =6.0V, I <sub>OL</sub> =7.8mA		150	260	mV
Input Leakage Current	I <sub>I(LEAK)</sub>	V <sub>CC</sub> =6.0V, V <sub>IN</sub> =V <sub>CC</sub> or GND		±0.1	±100	nA
Disable Output Leakage Current	I <sub>OZ</sub>	V <sub>CC</sub> =6.0V, V <sub>OUT</sub> =V <sub>CC</sub> or GND		±0.01	±0.5	μA
Quiescent Supply Current	I <sub>Q</sub>	V <sub>CC</sub> =6.0V, V <sub>IN</sub> =V <sub>CC</sub> or GND, I <sub>OUT</sub> =0			8	μA
Input Capacitance	C <sub>IN</sub>	V <sub>CC</sub> =2.0V~6.0V		3	10	pF

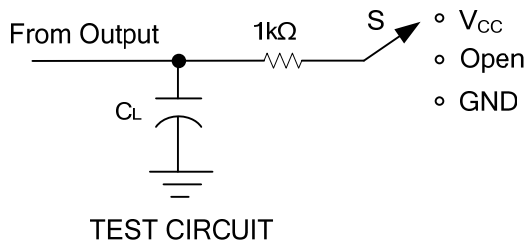
■ SWITCHING CHARACTERISTICS (See TEST CIRCUIT AND WAVEFORMS)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation delay from input (D) to output (Q)	$t_{PLH}/t_{PHL}$	$V_{CC}=2.0V, C_L=50pF$		77	175	ns
		$V_{CC}=4.5V, C_L=50pF$		26	35	ns
		$V_{CC}=6.0V, C_L=50pF$		23	30	ns
		$V_{CC}=2.0V, C_L=150pF$		95	200	ns
		$V_{CC}=4.5V, C_L=150pF$		33	40	ns
		$V_{CC}=6.0V, C_L=150pF$		21	34	ns
Propagation delay from input (LE) to output (Q)		$V_{CC}=2.0V, C_L=50pF$		87	175	ns
		$V_{CC}=4.5V, C_L=50pF$		27	35	ns
		$V_{CC}=6.0V, C_L=50pF$		23	30	ns
		$V_{CC}=2.0V, C_L=150pF$		103	225	ns
		$V_{CC}=4.5V, C_L=150pF$		33	45	ns
		$V_{CC}=6.0V, C_L=150pF$		29	38	ns
Output enable time from input ( $\overline{OE}$ ) to output (Q)	$t_{PZL}/t_{PZH}$	$V_{CC}=2.0V, C_L=50pF$		68	150	ns
		$V_{CC}=4.5V, C_L=50pF$		24	30	ns
		$V_{CC}=6.0V, C_L=50pF$		21	26	ns
		$V_{CC}=2.0V, C_L=150pF$		85	200	ns
		$V_{CC}=4.5V, C_L=150pF$		29	40	ns
		$V_{CC}=6.0V, C_L=150pF$		26	34	ns
Output disable time from input ( $\overline{OE}$ ) to output (Q)	$t_{PLZ}/t_{PHZ}$	$V_{CC}=2.0V, C_L=50pF$		47	150	ns
		$V_{CC}=4.5V, C_L=50pF$		23	30	ns
		$V_{CC}=6.0V, C_L=50pF$		21	26	ns
Pulse Width	$t_w$	$V_{CC}=2.0V$	80			ns
		$V_{CC}=4.5V$	16			ns
		$V_{CC}=6.0V$	14			ns
Setup Time	$t_{SU}$	$V_{CC}=2.0V$	50			ns
		$V_{CC}=4.5V$	10			ns
		$V_{CC}=6.0V$	9			ns
Hold Time	$t_H$	$V_{CC}=2.0V$	20			ns
		$V_{CC}=4.5V$	5			ns
		$V_{CC}=6.0V$	5			ns

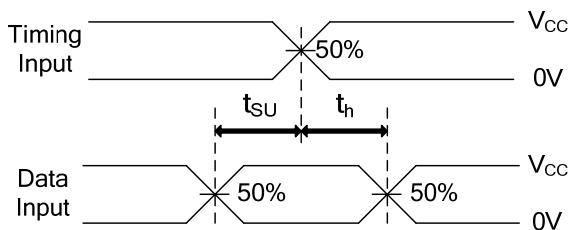
■ OPERATING CHARACTERISTICS ( $T_A=25^\circ C$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	$C_{PD}$	No load		50		pF

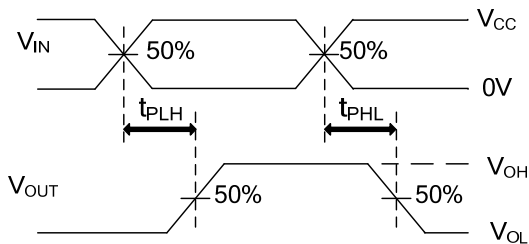
## ■ TEST CIRCUIT AND WAVEFORMS



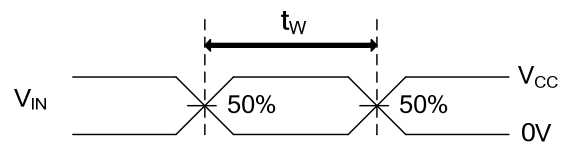
TEST	S
$t_{PLH}/t_{PHL}$	Open
$t_{PHZ}/t_{PZH}$	GND
$t_{PLZ}/t_{PZL}$	$V_{CC}$



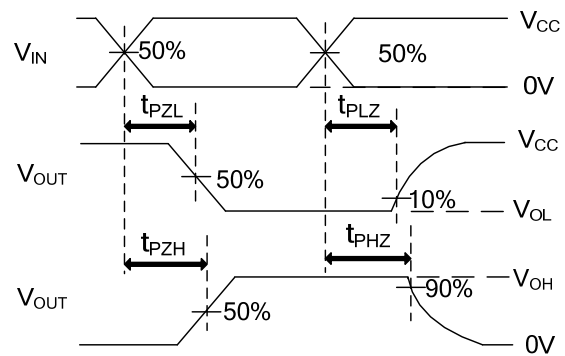
**SETUP TIME AND HOLD TIME**



**PROPAGATION DELAY TIMES**



**PULSE WIDTH**



**ENABLE AND DISABLE TIMES**

Note:  $C_L$  includes probe and jig capacitance.  
 $PRR \leq 1\text{MHz}$ ,  $Z_o = 50\Omega$ ,  $t_R \leq 6\text{ns}$ ,  $t_F \leq 6\text{ns}$

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