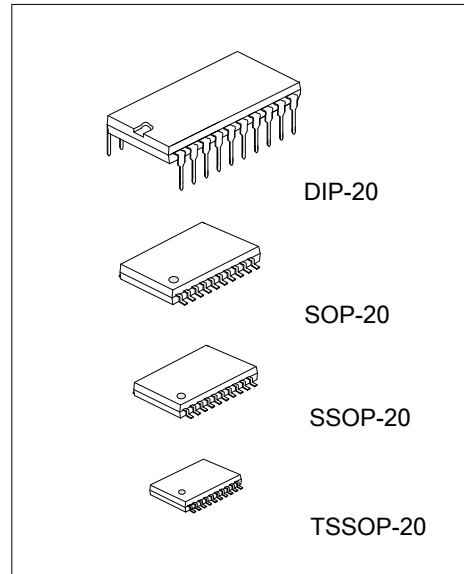




U74HC573

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**

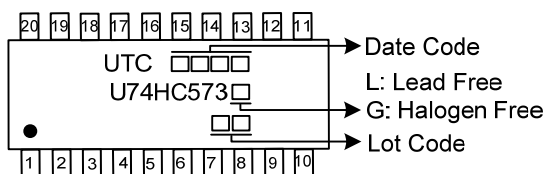
- * Operate from 2V to 6V
- * Max t_{PD} of 57ns at 4.5 V
- * Typical $V_{OL} < 0.17V$ at $V_{CC}=4.5V, T_A=25^\circ C$
- * Typical $V_{OH} > 4.3V$ at $V_{CC}=4.5V, T_A=25^\circ C$

■ **ORDERING INFORMATION**

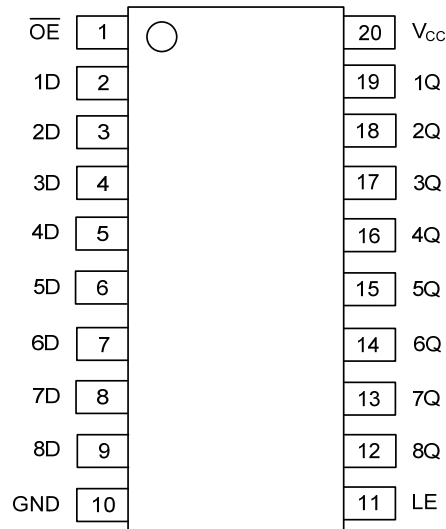
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74HC573L-D20-T	U74HC573G-D20-T	DIP-20	Tube
U74HC573L-S20-R	U74HC573G-S20-R	SOP-20	Tape Reel
U74HC573L-R20-R	U74HC573G-R20-R	SSOP-20	Tape Reel
U74HC573L-P20-R	U74HC573G-P20-R	TSSOP-20	Tape Reel

<p>U74HC573G-D20-T</p> <p>(1) Packing Type (2) Package Type (3) Green Package</p>	<p>(1) R: Tape Reel, T: Tube (2) D20: DIP-20, P20: TSSOP-20, R20: SSOP-20, S20: SOP-20 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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■ **MARKING**



■ PIN CONFIGURATION

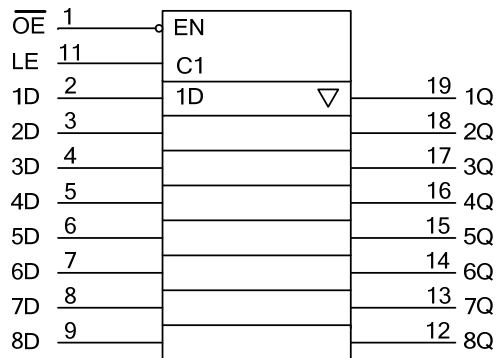


■ FUNCTION TABLE

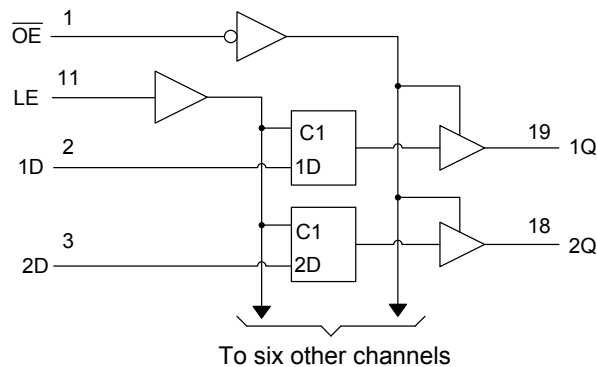
INPUTS(\overline{OE})	INPUTS(LE)	INPUTS(D)	OUTPUT(Q)
L	H	H	H
L	H	L	L
L	L	X	Q_0
H	X	X	Z

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

■ LOGIC SYMBOL



■ LOGIC DIAGRAM



■ ABSOLUTE MAXIMUM RATING (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V _{CC}	-0.5 ~ 7	V
V _{CC} or GND Current	I _{CC}	±70	mA
Output Current	I _{OUT}	±35	mA
Input Clamp Current	I _{IK}	±20	mA
Output Clamp Current	I _{OK}	±20	mA
Operating Temperature	T _{OPR}	-40 ~ + 85	°C
Storage Temperature	T _{STG}	-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 _{JA}	52	°C/W
	SOP-20		80	°C/W
	SSOP-20		96	°C/W
	TSSOP-20		103	°C/W

■ RECOMMENDED OPERATING CONDITIONS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V _{CC}		2	5	6	V
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		0.5	V
		V _{CC} =4.5V	0		1.35	V
		V _{CC} =6.0V	0		1.8	V
Input Voltage	V _{IN}		0		V _{CC}	V
Output Voltage	V _{OUT}	High or low state	0		V _{CC}	V
Input Rise or Fall Times	t _R , t _F	V _{CC} =2.0V	0		1	μs
		V _{CC} =4.5V	0		0.5	μs
		V _{CC} =6.0V	0		0.4	μs

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

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

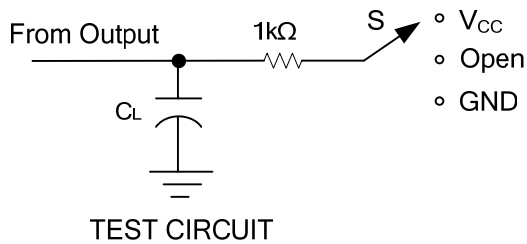
■ SWITCHING CHARACTERISTICS (See TEST CIRCUIT AND WAVEFORMS)

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

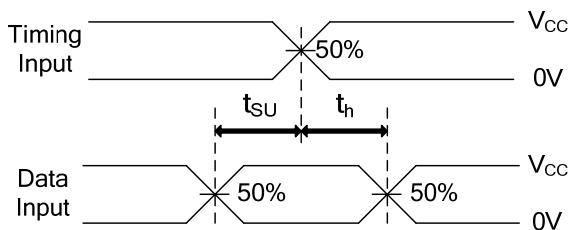
■ OPERATING CHARACTERISTICS ($T_A=25^\circ C$, unless otherwise specified)

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

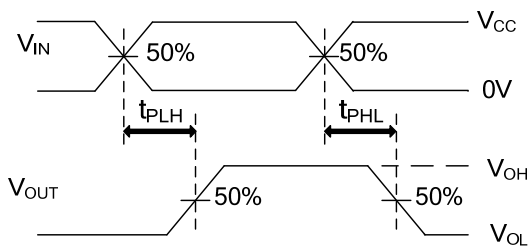
■ TEST CIRCUIT AND WAVEFORMS



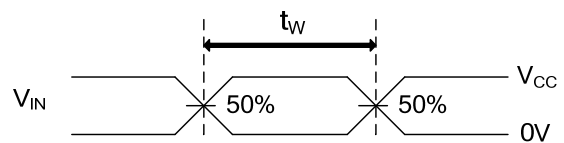
TEST	S
t_{PLH}/t_{PHL}	Open
t_{PHZ}/t_{PZH}	GND
t_{PLZ}/t_{PZL}	V_{CC}



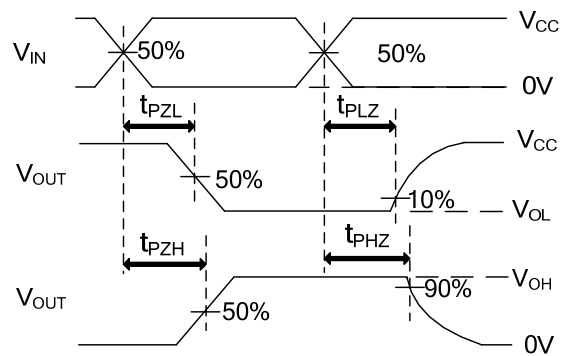
SETUP TIME AND HOLD TIME



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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