



U74HC573

CMOS IC

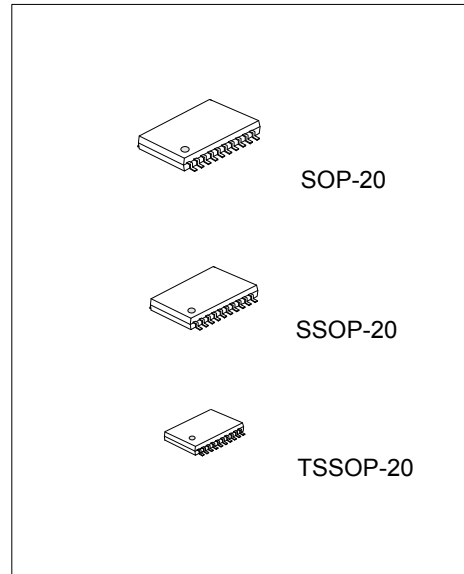
OCTAL TRANSPARENT D-TYPE LATCHES WITH 3-STATE OUTPUTS

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 $V_{CC}=4.5V, T_a=25^{\circ}C$

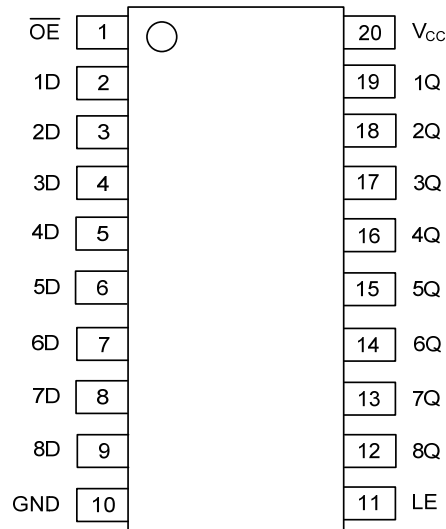


ORDERING INFORMATION

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

<p>U74HC573L-S20-R</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Lead Plating</p>	<p>(1) R: Tape Reel</p> <p>(2) S20: SOP-20, P20: TSSOP-20, R20: SSOP-20</p> <p>(3) G: Halogen Free, L: Lead Free</p>
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■ PIN CONFIGURATION

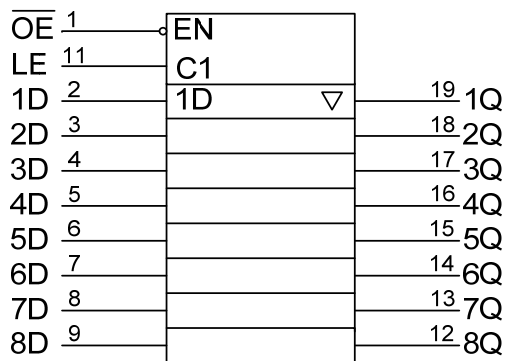


■ FUNCTION TABLE

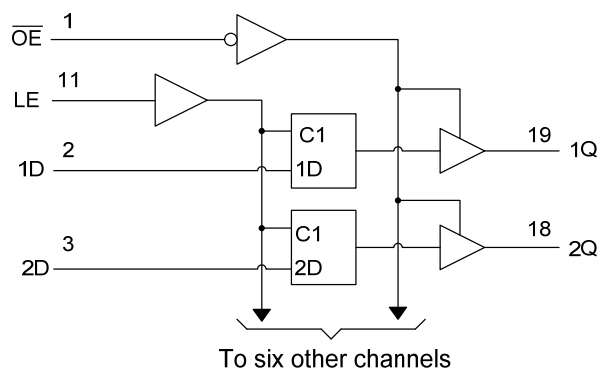
INPUTS(\overline{OE})	INPUTS(LE)	INPUTS(D)	OUTPUT(Q)
L	H	H	H
L	H	L	L
L	L	X	Q_0
H	X	X	Z

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

■ LOGIC SYMBOL



■ LOGIC DIAGRAM



■ ABSOLUTE MAXIMUM RATING

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	SOP-20	60	°C/W
	SSOP-20	70	°C/W
	TSSOP-20	83	°C/W

■ RECOMMENDED OPERATING CONDITIONS

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 ($T_a=25^\circ C$)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Output Voltage High-Level	V_{OH}	$V_{CC}=2.0V, I_{OH}=-20\mu A$	1.9	1.998		V
		$V_{CC}=4.5V, I_{OH}=-20\mu A$	4.4	4.499		V
		$V_{CC}=6.0V, I_{OH}=-20\mu A$	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}	$V_{CC}=2.0V, I_{OL}=20\mu A$		2	100	mV
		$V_{CC}=4.5V, I_{OL}=20\mu A$		1	100	mV
		$V_{CC}=6.0V, I_{OL}=20\mu A$		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}	$V_{CC}=2.0V\sim 6.0V$		3	10	pF

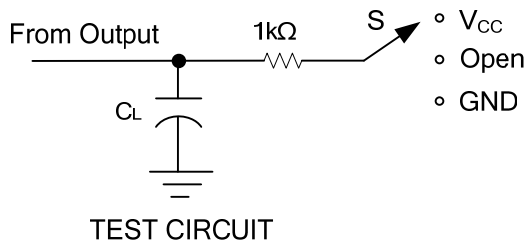
■ SWITCHING CHARACTERISTICS (See TEST CIRCUIT AND WAVEFORMS)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
From D to 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
From LE to Q	t_{PLH}/t_{PHL}	$V_{CC}=2.0V, C_L=50pF$		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
From \overline{OE} to 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
From \overline{OE} to 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

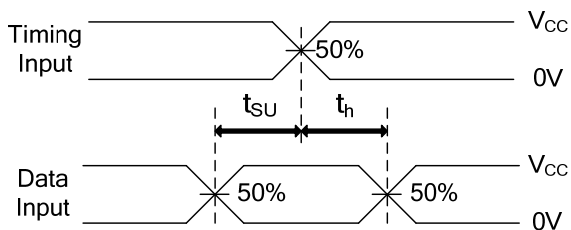
■ OPERATING CHARACTERISTICS ($T_a=25^\circ C$)

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

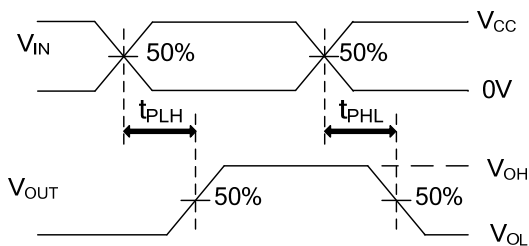
■ TEST CIRCUIT AND WAVEFORMS



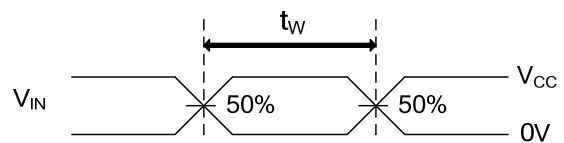
TEST	S
t_{PLH}/t_{PHL}	Open
t_{PHZ}/t_{PZH}	GND
t_{PLZ}/t_{PZL}	V_{CC}



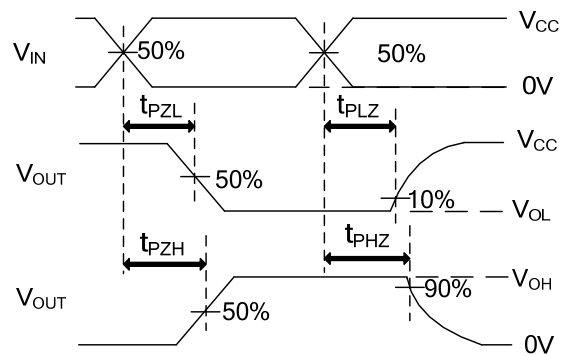
SETUP TIME AND HOLD TIME



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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