



U74HC373

CMOS IC

OCTAL D-TYPE TRANSPARENT LATCH

DESCRIPTION

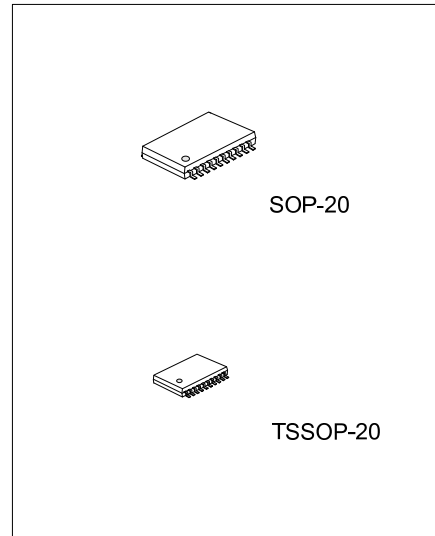
The **U74HC373** consists of eight D-type transparent latches with 3-state outputs. When latched-enable (LE) is high, the latches operate at the transparent mode, and the latches' output will change corresponding with the data present at D0 to D7. When output-enable (\overline{OE}) is low, the contents of the latches will be present at the outputs. The outputs will be in the high impedance when \overline{OE} goes high.

FEATURES

- * Operation Voltage Range: 2~6V
- * Drive Up to 15 LSTTL Loads
- * 3-State Outputs
- * Output Capability Suitable for Bus Driving

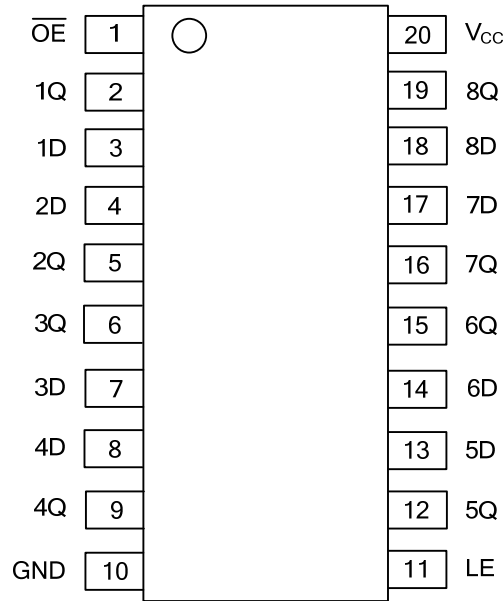
ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74HC373L-S20-R	U74HC373G-S20-R	SOP-20	Tape Reel
U74HC373L-P20-R	U74HC373G-P20-R	TSSOP-20	Tape Reel



<p>U74HC373L-P20-R</p> <p>(1) Packing Type (2) Package Type (3) Lead Plating</p>	<p>(1) R: Tape Reel (2) P20: TSSOP-20, S20: SOP-20 (3) G: Halogen Free, L: Lead Free</p>
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■ PIN CONFIGURATION

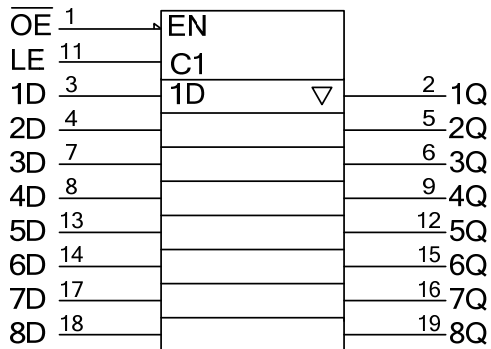


■ FUNCTION TABLE

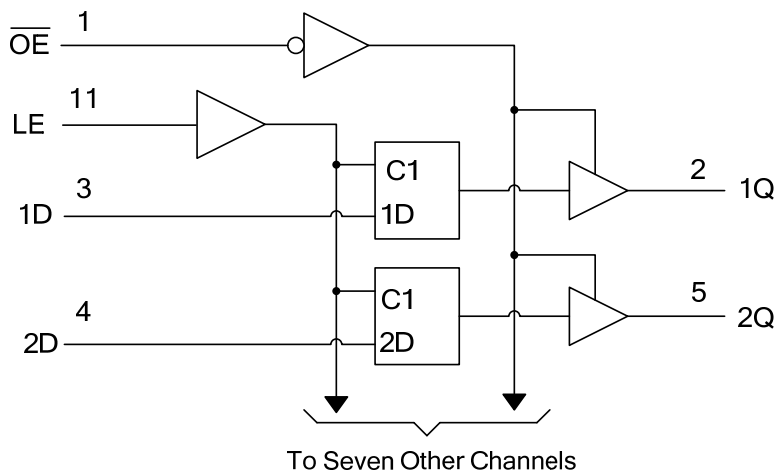
INPUTS(OE)	INPUTS(LE)	INPUTS(D)	OUTPUT(Q)
L	H	H	H
L	H	L	L
L	L	X	Q ₀
H	X	X	Z

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	$^{\circ}C$
Storage Temperature	T_{STG}	-65 ~ + 150	$^{\circ}C$

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	$^{\circ}C/W$
	TSSOP-20	83	

■ 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			
		$V_{CC}=6.0V$	4.2			
Low-level Input Voltage	V_{IL}	$V_{CC}=2.0V$	0		0.5	V
		$V_{CC}=4.5V$	0		1.35	
		$V_{CC}=6.0V$	0		1.8	
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	$V_{CC}=2.0V$			1	μs
		$V_{CC}=4.5V$			0.5	
		$V_{CC}=6.0V$			0.4	

■ ELECTRICAL CHARACTERISTICS ($T_a=25^{\circ}C$)

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

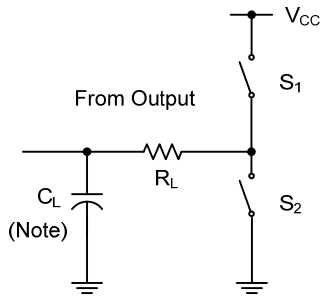
■ SWITCHING CHARACTERISTICS (see test circuit and waveforms)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
From D to Q	t_{PLH}/t_{PHL}	$V_{CC}=2.0V$	$C_L=50pF$		58	150	ns
		$V_{CC}=4.5V$		15	30		
		$V_{CC}=6.0V$		13	26		
		$V_{CC}=2.0V$		$C_L=150pF$	82	200	
		$V_{CC}=4.5V$			22	40	
		$V_{CC}=6.0V$			19	34	
From LE to Q	t_{PLH}/t_{PHL}	$V_{CC}=2.0V$	$C_L=50pF$		73	175	ns
		$V_{CC}=4.5V$		18	35		
		$V_{CC}=6.0V$		15	30		
		$V_{CC}=2.0V$	$C_L=150pF$	100	225		
		$V_{CC}=4.5V$		24	45		
		$V_{CC}=6.0V$		20	38		
From \overline{OE} to Q	t_{PZL}/t_{PZH}	$V_{CC}=2.0V$	$C_L=50pF$		65	150	ns
		$V_{CC}=4.5V$		17	30		
		$V_{CC}=6.0V$		14	26		
		$V_{CC}=2.0V$	$C_L=150pF$	90	200		
		$V_{CC}=4.5V$		23	40		
		$V_{CC}=6.0V$		19	34		
From \overline{OE} to Q	t_{PLZ}/t_{PHZ}	$V_{CC}=2.0V$	$C_L=50pF$		50	150	ns
		$V_{CC}=4.5V$		15	30		
		$V_{CC}=6.0V$		13	26		
to Q	t_r	$V_{CC}=2.0V$	$C_L=150pF$		28	60	ns
		$V_{CC}=4.5V$		8	12		
		$V_{CC}=6.0V$		6	10		
Pulse Width	t_w	$V_{CC}=2.0V$		80		ns	
		$V_{CC}=4.5V$		16			
		$V_{CC}=6.0V$		14			
Setup Time	t_{SU}	$V_{CC}=2.0V$		50		ns	
		$V_{CC}=4.5V$		10			
		$V_{CC}=6.0V$		9			
Hold Time	t_H	$V_{CC}=2.0V$		20		ns	
		$V_{CC}=4.5V$		10			
		$V_{CC}=6.0V$		10			

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

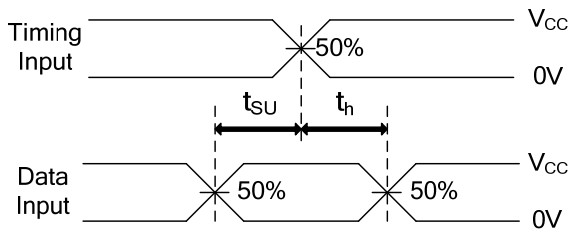
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	C_{PD}	No Load		100		pF

TEST CIRCUIT AND WAVEFORMS

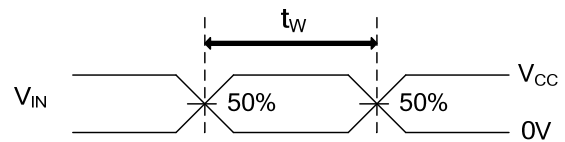


TEST CIRCUIT

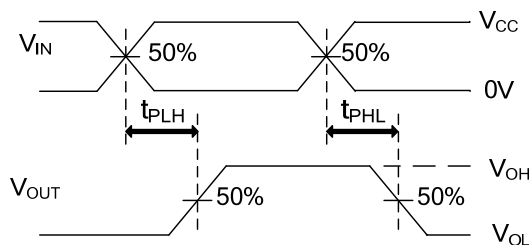
	R_L	C_L	S_1	S_2
t_{PZH}	1k Ω	50pF	Open	Closed
t_{PZL}		150pF	Closed	Open
t_{PHZ}	1k Ω	50pF	Open	Closed
t_{PLZ}			Closed	Open
t_{PHL}	-	50pF, 150pF	Open	Open
t_{PLH}				



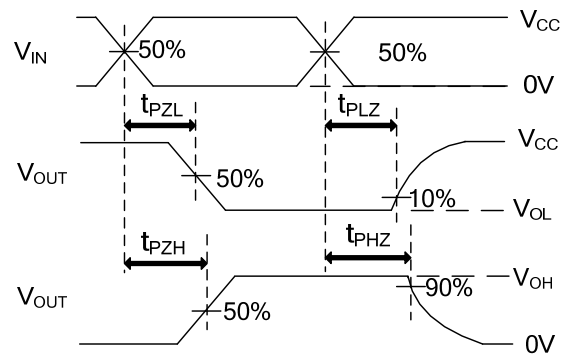
SETUP TIME AND HOLD TIME



PULSE WIDTH



PROPAGATION DELAY TIMES



ENABLE AND DISABLE TIMES

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

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