



U74HC373

CMOS IC

OCTAL D-TYPE TRANSPARENT LATCH

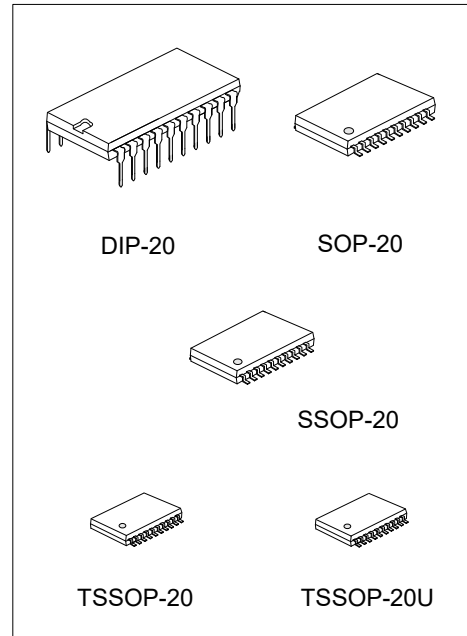
DESCRIPTION

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

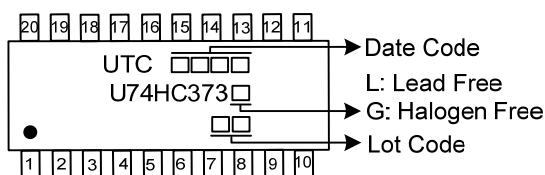


ORDERING INFORMATION

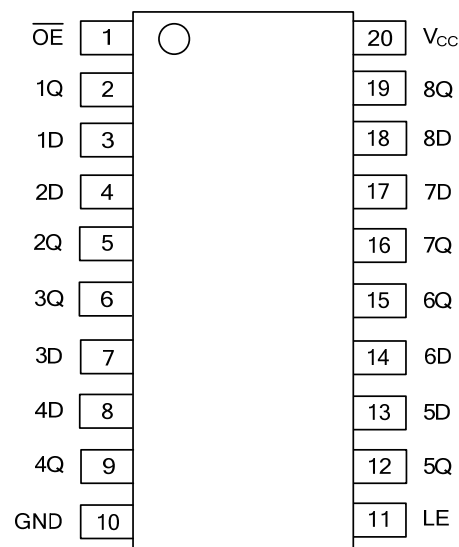
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74HC373L-D20-T	U74HC373G-D20-T	DIP-20	Tube
U74HC373L-S20-R	U74HC373G-S20-R	SOP-20	Tape Reel
U74HC373L-R20-R	U74HC373G-R20-R	SSOP-20	Tape Reel
U74HC373L-P20-R	U74HC373G-P20-R	TSSOP-20	Tape Reel
U74HC373L-ULA-R	U74HC373G-ULA-R	TSSOP-20U	Tape Reel

U74HC373G-D20-T (1) Packing Type (2) Package Type (3) Green Package	(1) T: Tube, R: Tape Reel (2) D20: DIP-20, S20: SOP-20, R20: SSOP-20, P20: TSSOP-20, ULA: TSSOP-20U (3) G: Halogen Free and Lead Free, L: Lead Free
---	--

MARKING



PIN CONFIGURATION

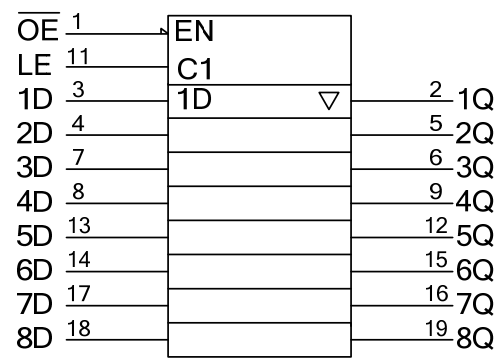


FUNCTION TABLE

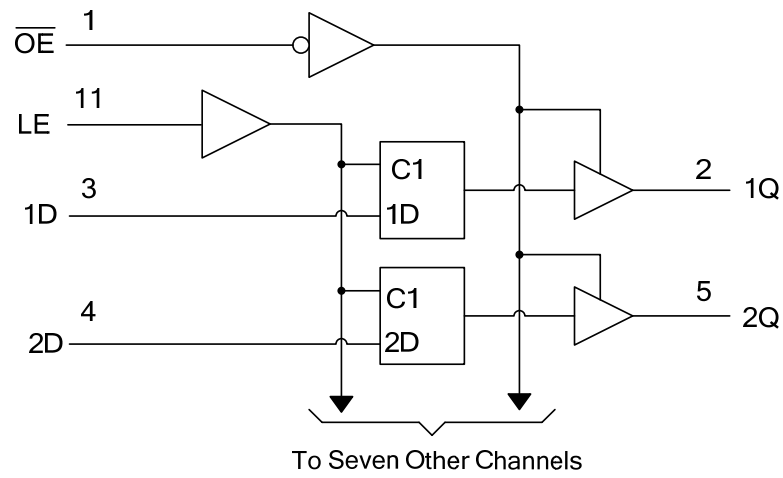
INPUTS(OE)	INPUTS(LE)	INPUTS(D)	OUTPUT(Q)
L	H	H	H
L	H	L	L
L	L	X	Q ₀
H	X	X	Z

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

LOGIC SYMBOL



■ LOGIC DIAGRAM



■ ABSOLUTE MAXIMUM RATING (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
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.

■ RECOMMENDED OPERATING CONDITIONS (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	$V_{CC}=2.0V$			1	μs
		$V_{CC}=4.5V$			0.5	μs
		$V_{CC}=6.0V$			0.4	μs
Operating Temperature	T_A		-40		+125	°C

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	DIP-20	75	°C/W
	SOP-20	100	°C/W
	SSOP-20	115	°C/W
	TSSOP-20	120	°C/W
	TSSOP-20U		

■ ELECTRICAL CHARACTERISTICS (Unless otherwise specified)

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
		$V_{CC}=6.0V$	5.9	5.999		V
		$V_{CC}=4.5V, I_{OH}=-6mA, V_{IN}=V_{IH} \text{ or } V_{IL}$	3.98	4.3		V
		$V_{CC}=6.0V, I_{OH}=-7.8mA, V_{IN}=V_{IH} \text{ or } V_{IL}$	5.48	5.8		V
Output Voltage Low-Level	V_{OL}	$V_{CC}=2.0V$		2	100	mV
		$V_{CC}=4.5V$		1	100	mV
		$V_{CC}=6.0V$		1	100	mV
		$V_{CC}=4.5V, I_{OL}=6mA, V_{IN}=V_{IH} \text{ or } V_{IL}$		170	260	mV
		$V_{CC}=6.0V, I_{OL}=7.8mA, V_{IN}=V_{IH} \text{ or } V_{IL}$		150	260	mV
Input Leakage Current	$I_{I(LEAK)}$	$V_{CC}=6.0V, V_{IN}=V_{CC} \text{ or } 0$		± 0.1	± 100	nA
Disable Output Leakage Current	I_{OZ}	$V_{CC}=6.0V, V_{OUT}=V_{CC} \text{ or } 0$		± 0.01	± 0.5	μA
Quiescent Supply Current	I_Q	$V_{CC}=6.0V, V_{IN}=V_{CC} \text{ or } 0, I_{OUT}=0$			8	μA
Input Capacitance	C_{IN}	$V_{CC}=2.0V \sim 6.0V$		3	10	pF

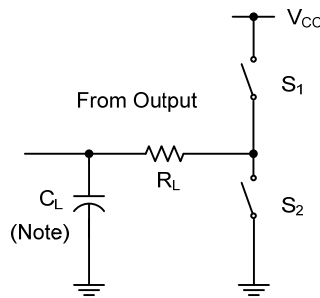
■ SWITCHING CHARACTERISTICS (see test circuit and waveforms)

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Propagation delay from input (D) to output (Q)	t _{PLH} /t _{PHL}	V _{CC} =2.0V	C _L =50pF		58	150	ns
		V _{CC} =4.5V			15	30	ns
		V _{CC} =6.0V			13	26	ns
		V _{CC} =2.0V	C _L =150pF		82	200	ns
		V _{CC} =4.5V			22	40	ns
		V _{CC} =6.0V			19	34	ns
Propagation delay from input (LE) to output (Q)		V _{CC} =2.0V	C _L =50pF		73	175	ns
		V _{CC} =4.5V			18	35	ns
		V _{CC} =6.0V			15	30	ns
		V _{CC} =2.0V	C _L =150pF		100	225	ns
		V _{CC} =4.5V			24	45	ns
		V _{CC} =6.0V			20	38	ns
Output enable time from input ($\overline{OE}$) to output (Q)	t _{PZL} /t _{PZH}	V _{CC} =2.0V	C _L =50pF		65	150	ns
		V _{CC} =4.5V			17	30	ns
		V _{CC} =6.0V			14	26	ns
		V _{CC} =2.0V	C _L =150pF		90	200	ns
		V _{CC} =4.5V			23	40	ns
		V _{CC} =6.0V			19	34	ns
Output disable time from input ($\overline{OE}$) to output (Q)	t _{PLZ} /t _{PHZ}	V _{CC} =2.0V	C _L =50pF		50	150	ns
		V _{CC} =4.5V			15	30	ns
		V _{CC} =6.0V			13	26	ns
to Q	t _T	V _{CC} =2.0V	C _L =150pF		28	60	ns
		V _{CC} =4.5V			8	12	ns
		V _{CC} =6.0V			6	10	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		10		ns	
		V _{CC} =6.0V		10		ns	

■ OPERATING CHARACTERISTICS (Unless otherwise specified)

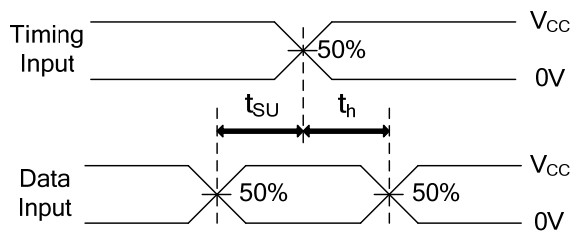
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	C_{PD}	No Load		100		pF

■ TEST CIRCUIT AND WAVEFORMS

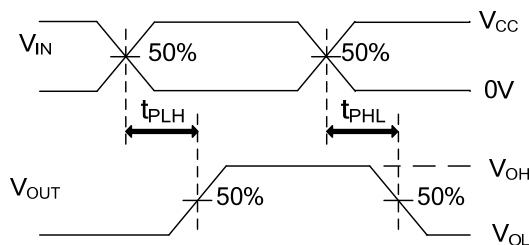


TEST CIRCUIT

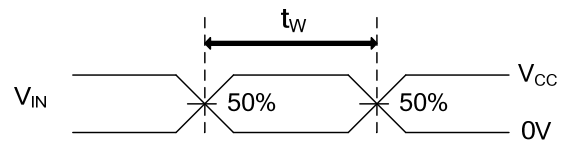
	R_L	C_L	S_1	S_2
t_{PZH}	1k Ω	50pF	Open	Closed
t_{PZL}		150pF	Closed	Open
t_{PHZ}	1k Ω	50pF	Open	Closed
t_{PLZ}		150pF	Closed	Open
t_{PHL}	-	50pF	Open	Open
t_{PLH}		150pF	Open	Open



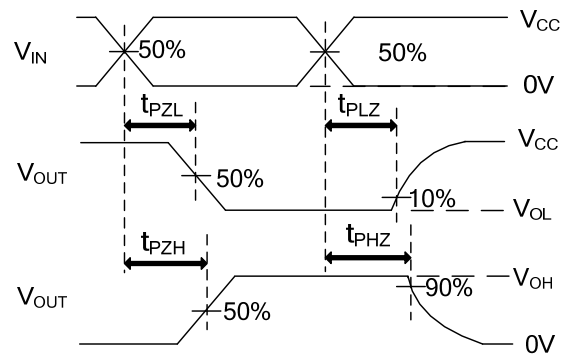
SETUP TIME AND HOLD TIME



PROPAGATION DELAY TIMES



PULSE WIDTH



ENABLE AND DISABLE TIMES

Notes: 1. C_L includes probe and jig capacitance.

2. All input pulses are supplied by generators having the following characteristics: PRR $\leq$ 1MHz, $Z_o = 50\Omega$, $t_r = 6ns$, $t_f = 6ns$.

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.