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# Die Datasheet, Logic Gate Device

74HC373

## OCTAL D-TYPE TRANSPARENT LATCH, TRI-STATE GATE

### Die Source:



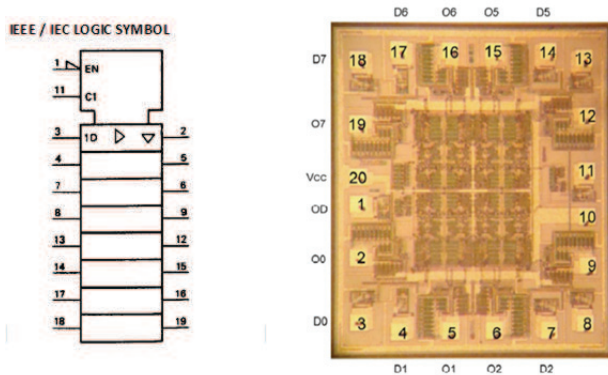
60 mils x 70 mils x 14 mils

Backside : Silicon

Topside Metal: Aluminum

### General Description:

The 74HC373 is a member of the Industries 74xxx series of Logic devices. The 74HC373 is a device description which contains (8) D-Type, Transparent-Tri State Latch Gates.



### ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	CONDITIONS	LIMIT	UNITS
Supply Voltage	V <sub>CC</sub>		-0.5 to +7.0	V
DC Input Diode Current	I <sub>IK</sub>	V <sub>I</sub> = -0.5V	-20.0	mA
		V <sub>I</sub> = V <sub>CC</sub> + 0.5V	20.0	mA
DC Input Voltage	V <sub>I</sub>		-0.5 to V <sub>CC</sub> + 0.5	V
DC Output Diode Current	I <sub>OK</sub>	V <sub>O</sub> = -0.5V	-20.0	mA
		V <sub>O</sub> = V <sub>CC</sub> + 0.5V	20.0	mA
DC Output Voltage	V <sub>O</sub>		-0.5 to V <sub>CC</sub> + 0.5	V
DC Output Source or Sink Current	I <sub>O</sub>		±25.0	mA
DC VCC Current	I <sub>CC</sub>		+50	mA
DC GND Current	I <sub>DD</sub>		-50.0	mA
Storage Temp	T <sub>STG</sub>		-65.0 to +150	°C
Max Junction Temp	T <sub>J</sub>		150.0	°C

### RECOMMENDED OPERATING CONDITIONS

PARAMETER	TECH	SYMBOL	LIMIT	UNITS
Supply Voltage	HC	V <sub>CC</sub>	2.0 to 6.0	V
Input Voltage		V <sub>I</sub>	0 to V <sub>CC</sub>	V
Output Voltage		V <sub>O</sub>	0 to V <sub>CC</sub>	V
Operating Temperature		T <sub>A</sub>	-40 to +85	°C
Minimum Input Rise & Fall times (@5.0V ± 0.5V)	HC	ΔT/ΔV	500	ns/V
				ns/V

### DC ELECTRICAL CHARACTERISTICS

PARAMETER	TECH	SYMBOL	VCC (V)	CONDITIONS	Guaranteed Limits		UNITS	NOTE
					Min@25C	Min@85C		
Minimum HIGH level Input Voltage	HC	V <sub>IH</sub>	2.0		1.50	1.50	V	
			4.5		3.15	3.15		
			6.0		4.20	4.20		
Maximum LOW level Input Voltage	HC	V <sub>IL</sub>	2.0		0.50	0.50	V	
			4.0		1.35	1.35		
			4.5		1.80	1.80		
Minimum HIGH level Output Voltage	HC	V <sub>OH</sub>	2.0	I <sub>OUT</sub> = -20uA	1.90	1.90	V	
			4.5		4.40	4.40		
			6.0		5.90	5.90		
	HC	V <sub>OH</sub>	4.5	V <sub>IN</sub> = V <sub>IL</sub> or V <sub>IH</sub> , I <sub>OL</sub> = -4mA	3.98	3.84	V	
			6.0	V <sub>IN</sub> = V <sub>IL</sub> or V <sub>IH</sub> , I <sub>OL</sub> = -5.2mA	5.48	5.34		



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### DC ELECTRICAL CHARACTERISTICS - CONT'D

PARAMETER	TECH	SYMBOL	VCC (V)	CONDITIONS	Guarenteed Limits		UNITS	NOTE
					Min@25C	Min@85C		
Maximum LOW level Output Voltage	HC	V <sub>OL</sub>	2.0	I <sub>OUT</sub> = 20uA	0.1	0.1	V	
			4.5		0.1	0.1		
			6.0		0.1	0.1		
	HC	V <sub>OL</sub>	4.5	V <sub>IN</sub> = V <sub>IL</sub> or V <sub>IH</sub> , I <sub>O</sub> = 4mA	0.36	0.44	V	
			6.0	V <sub>IN</sub> = V <sub>IL</sub> or V <sub>IH</sub> , I <sub>O</sub> = 5.2mA	0.36	0.44		
	Maximum Input Leakage Current	HC	I <sub>IN</sub>	6.0	V <sub>I</sub> = V <sub>CC</sub> or GND	±0.1	±1.0	uA
3-State Output OFF Current	HC	I <sub>OZ</sub>	6.0	V <sub>I</sub> = V <sub>IH</sub> or V <sub>IL</sub> , V <sub>O</sub> = V <sub>CC</sub> or GND	--	±5.0	uA	
Maximum Quiescent Supply Current	HC	I <sub>CC</sub>	6.0	V <sub>IN</sub> = V <sub>CC</sub> or GND	--	20	uA	

### AC ELECTRICAL CHARACTERISTICS

PARAMETER	TECH	SYMBOL	VCC (V)	CONDITIONS	Guarenteed Limits		Guarenteed Limits		UNITS	NOTE
					Min@25C	Max@25C	Min@85C	Max@85C		
Propagation Delay, Dn to Qn	HC	t <sub>PLH</sub>	2.0	GND = 0V, tr = tf = 6ns, CL = 50pF	--	150.0	--	190.0	ns	
			4.5		--	30.0	--	38.0		
			6.0		--	26.0	--	33.0		
	HC	t <sub>PHL</sub>	2.0	GND = 0V, tr = tf = 6ns, CL = 50pF	--	150.0	--	190.0	ns	
			4.5		--	30.0	--	38.0		
			6.0		--	26.0	--	33.0		
Propagation Delay, LE to Qn	HC	t <sub>PLH</sub>	2.0	GND = 0V, tr = tf = 6ns, CL = 50pF	--	175.0	--	220.0	ns	
			4.5		--	35.0	--	44.0		
			6.0		--	30.0	--	37.0		
	HC	t <sub>PHL</sub>	2.0	GND = 0V, tr = tf = 6ns, CL = 50pF	--	175.0	--	220.0	ns	
			4.5		--	35.0	--	44.0		
			6.0		--	30.0	--	37.0		
3-State Output Enable Time, OE\ to Qn	HC	t <sub>PZH</sub>	2.0	GND = 0V, tr = tf = 6ns, CL = 50pF	--	150.0	--	190.0	ns	
			4.5		--	30.0	--	38.0		
			6.0		--	26.0	--	33.0		
	HC	t <sub>PZL</sub>	2.0	GND = 0V, tr = tf = 6ns, CL = 50pF	--	150.0	--	190.0	ns	
			4.5		--	30.0	--	38.0		
			6.0		--	26.0	--	33.0		



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PARAMETER	TECH	SYMBOL	VCC (V)	CONDITIONS	Guarenteed Limits		Guarenteed Limits		UNITS	NOTE
					Min@25C	Max@25C	Min@85C	Max@85C		
3-State Output Disable Time, OE\ to Qn	HC	tPHZ	2.0	GND = 0V, tr = tf = 6ns, CL = 50pF	--	150.0	--	190.0	ns	
			4.5		--	30.0	--	38.0		
			6.0		--	26.0	--	33.0		
	HC	tPLZ	2.0	GND = 0V, tr = tf = 6ns, CL = 50pF	--	150.0	--	190.0	ns	
			4.5		--	30.0	--	38.0		
			6.0		--	26.0	--	33.0		
Output Transition Time	HC	tTLH	2.0	GND = 0V, tr = tf = 6ns, CL = 50pF	--	60.0	--	75.0	ns	
			4.5		--	12.0	--	15.0		
			6.0		--	10.0	--	13.0		
	HC	tTHL	2.0	GND = 0V, tr = tf = 6ns, CL = 50pF	--	60.0	--	75.0	ns	
			4.5		--	12.0	--	15.0		
			6.0		--	10.0	--	13.0		
LE Pulse Width, HIGH	HC	tW	2.0	GND = 0V, tr = tf = 6ns, CL = 50pF	80.0	--	100.0	--	ns	
			4.5		16.0	--	20.0	--		
			6.0		14.0	--	17.0	--		
Set-Up Time, Dn To LE	HC	tSU	2.0	GND = 0V, tr = tf = 6ns, CL = 50pF	50.0	--	65.0	--	ns	
			4.5		10.0	--	13.0	--		
			6.0		9.0	--	11.0	--		
Hold Time, Dn to LE	HC	th	2.0	GND = 0V, tr = tf = 6ns, CL = 50pF	5.0	--	5.0	--	ns	
			4.5		5.0	--	5.0	--		
			6.0		5.0	--	5.0	--		