

# HD74LS373 Octal D-type Transparent Latches (with three-state outputs)

The HD74LS373, 8-bit register features totem-pole three-state outputs designed specifically for driving highly-capacitive or relatively low-impedance loads. The high-impedance third state and increased high-logic-level drive provide this register with the capacity of being connected directly to and driving the bus lines in a bus-organized system without need for interface or pull-up components. They are particularly attractive for implementing buffer registers, I/O ports, bidirectional bus drivers, and working registers.

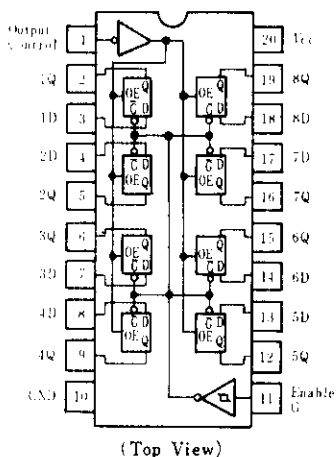
The eight latches are transparent D-type latches meaning that while the enable (G) is high the Q outputs will follow the data (D) inputs. When the enable is taken low the output will be latched at the level of the data that was setup.

## FUNCTION TABLE

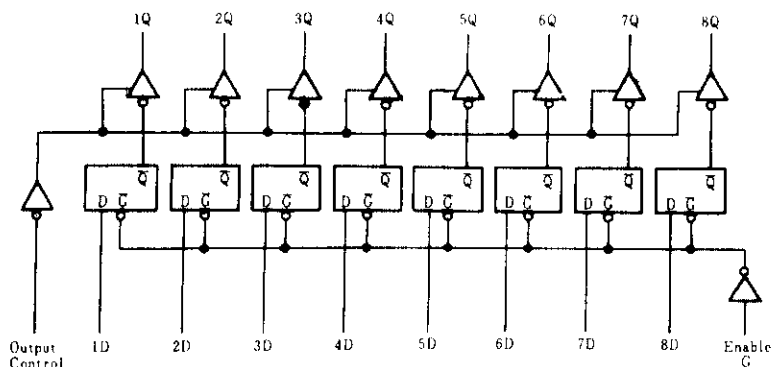
Inputs			Output
Output control	Enable G	D	Q
L	H	H	H
L	H	L	L
L	L	X	Q <sub>0</sub>
H	X	X	Z

Notes: H = high level, L = low level,  
X = irrelevant  
Q<sub>0</sub> = level of Q before the indicated steady-state input conditions were established.  
Z = off (high-impedance) state of a three-state output

## PIN ARRANGEMENT



## BLOCK DIAGRAM



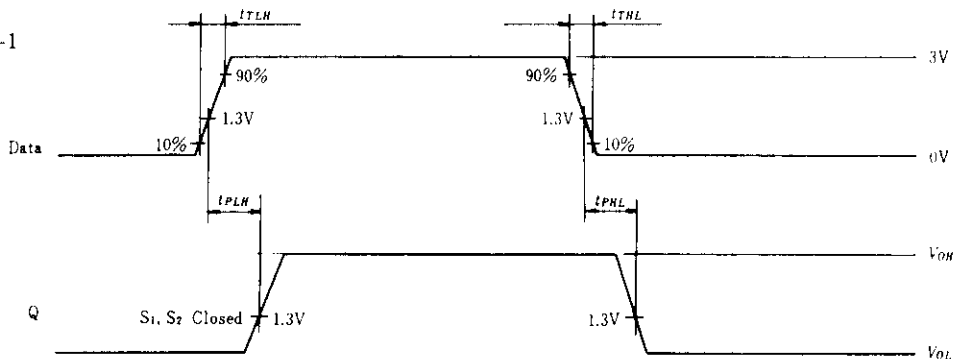
## RECOMMENDED OPERATING CONDITIONS

Item	Symbol	min	typ	max	Unit
Supply voltage	V <sub>CC</sub>	4.75	5.00	5.25	V
Output voltage	V <sub>OH</sub>	—	—	5.5	V
Output current	I <sub>OH</sub>	—	—	—2.6	mA
	I <sub>OL</sub>	—	—	24	mA
Enable pulse width	t <sub>w</sub>	15	—	—	ns
		15	—	—	
Data setup time	t <sub>su</sub>	5 ↓	—	—	ns
Data hold time	t <sub>h</sub>	25 ↓	—	—	ns

Note) ↓ : The arrow indicates the falling edge of clock pulse.

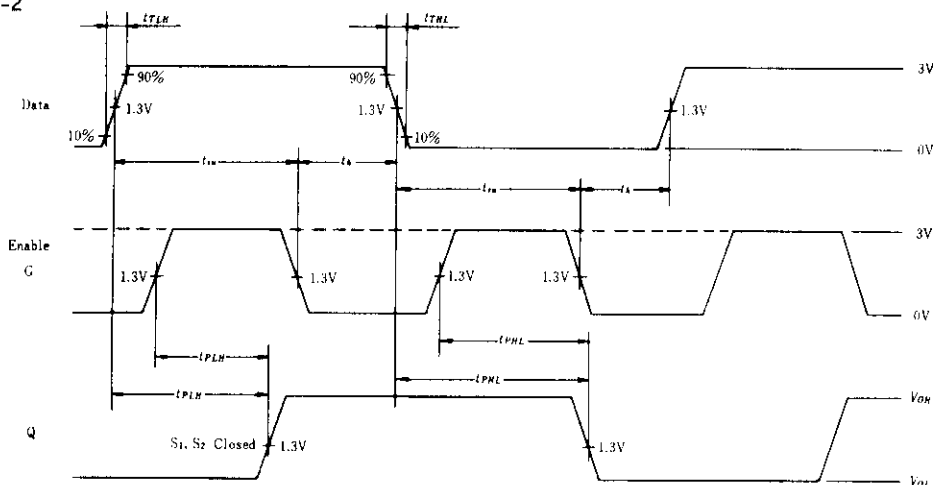


Waveform-1



Notes: Input pulse;  $t_{TLH} \leq 15\text{ns}$ ,  $t_{TNL} \leq 6\text{ns}$ ,  $PRR = 1\text{MHz}$ , duty cycle 50%

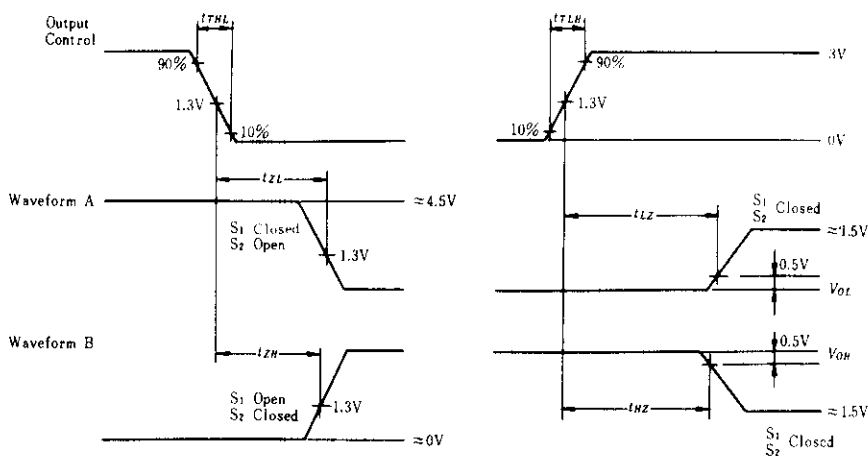
Waveform-2



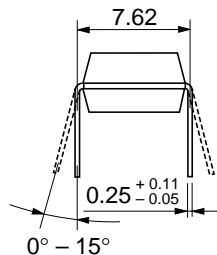
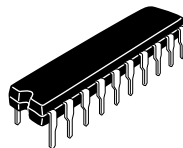
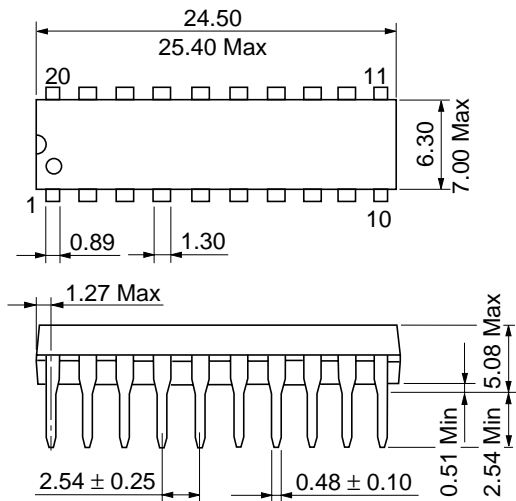
Note: Enable input pulse;  $t_{TLH} \leq 15\text{ns}$ ,  $t_{TNL} \leq 6\text{ns}$ ,  $PRR = 1\text{MHz}$

Data input pulse;  $t_{TLH} \leq 15\text{ns}$ ,  $t_{TNL} \leq 6\text{ns}$ ,  $PRR = 1\text{MHz}$ , G input is high.

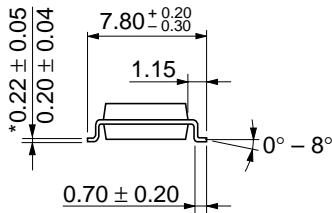
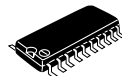
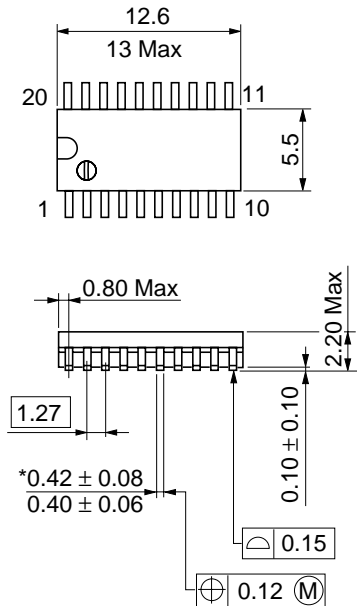
Waveform-3



Notes: 1. Input pulse;  $t_{TLH} \leq 15\text{ns}$ ,  $t_{TNL} \leq 6\text{ns}$ ,  $PRR = 1\text{MHz}$ , duty cycle 50%  
2. Waveform A if for an output with internal conditions such that the output is low except when disabled by the output control. Waveform B is for an output with internal conditions such that the output is high except when disabled by the output control.



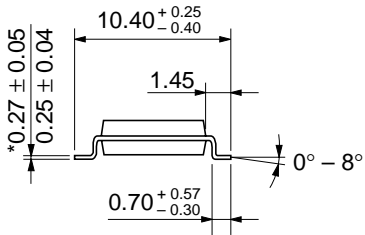
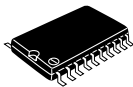
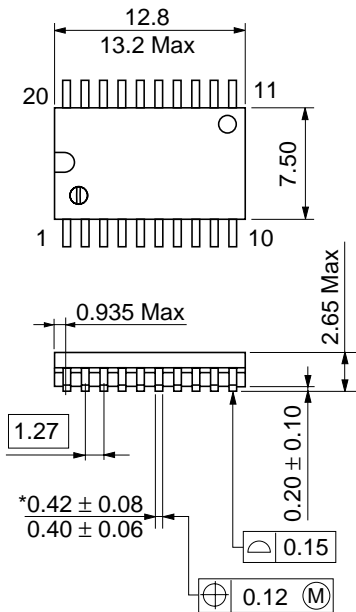
Hitachi Code	DP-20N
JEDEC	—
EIAJ	Conforms
Weight (reference value)	1.26 g



\*Dimension including the plating thickness  
Base material dimension

Hitachi Code	FP-20DA
JEDEC	—
EIAJ	Conforms
Weight (reference value)	0.31 g

Unit: mm



Hitachi Code	FP-20DB
JEDEC	Conforms
EIAJ	—
Weight (reference value)	0.52 g

$$\frac{\text{*Dimension including the plating thickness}}{\text{Base material dimension}}$$

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