

# HD100155

## Quad. Multiplexers/Latches

The HD100155 contains four transparent latches, each of which can accept and store data from two sources. When both Enable ( $\overline{E}_n$ ) inputs are low, the data that appears at an outputs is controlled by the Select ( $S_n$ ) inputs, as shown in the operating mode table. In addition to routing data from either  $D_0$  or  $D_1$ , the Select inputs can force the outputs low for the case where the latch is transparent (both Enables are low) and can steer a

high signal from either  $D_0$  or  $D_1$  to an output. The Select inputs can be tied together for applications requiring only that data be steered from either  $D_0$  or  $D_1$ .

A positive-going signal on either Enable input latches the outputs. A high signal on the Master Reset (MS) input overrides all the other inputs and forces the Q outputs low.

### OPERATING MODE TABLE

CONTROLS				OUTPUT
$\overline{E}_1$	$\overline{E}_2$	$\overline{S}_0$	$S_1$	$Q_n$
H	x	x	x	latched*
x	H	x	x	latched*
L	L	L	L	$D_{0n}$
L	L	L	H	$D_{0n} + D_{1n}$
L	L	H	L	L
L	L	H	H	$D_{1n}$

H = High Level  
L = Low Level  
x = Immaterial  
\* = Stores data present before  $E_n$  went high.

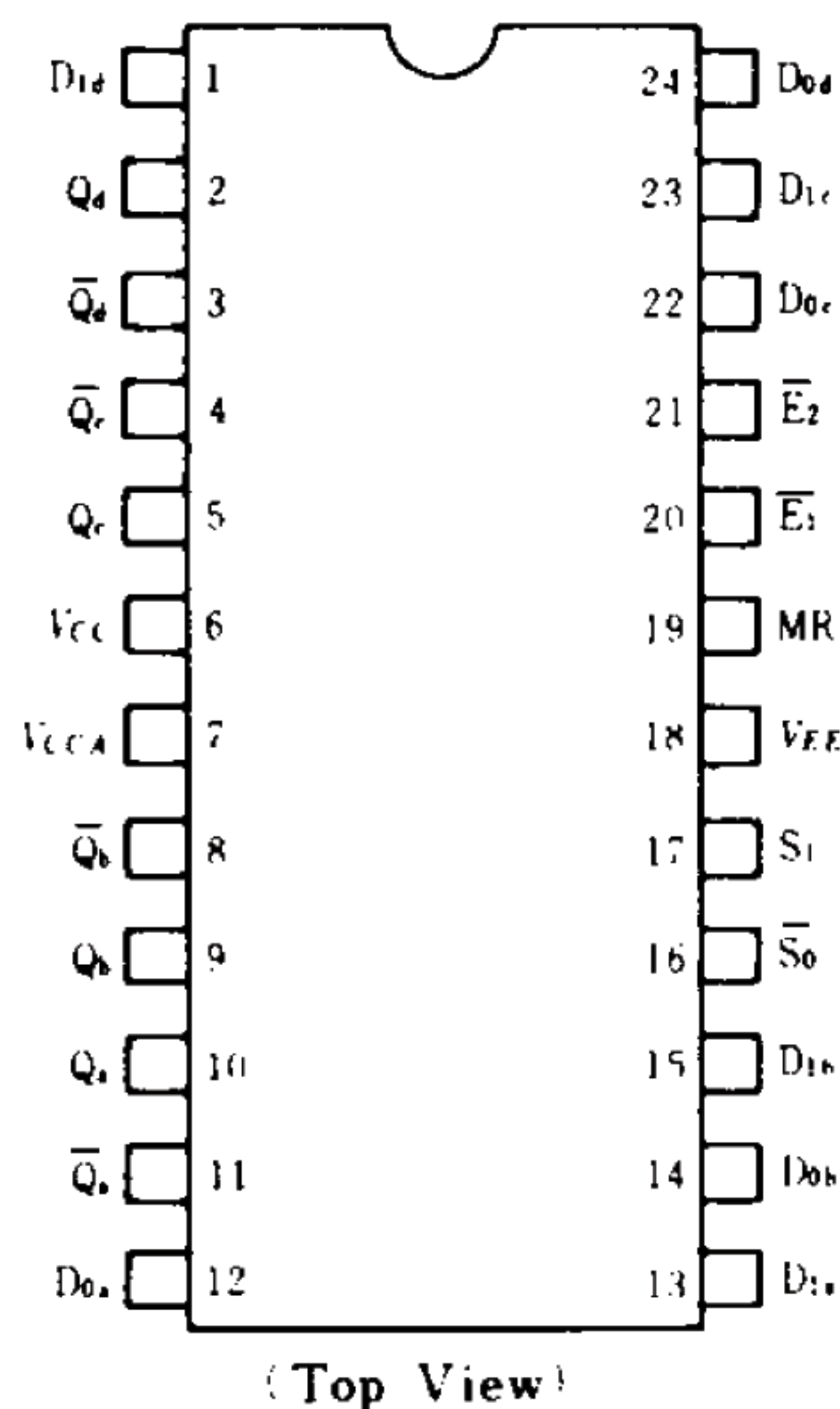
### TRUTH TABLE

MR	Input						Output	
	$\overline{E}_1$	$\overline{E}_2$	$S_1$	$\overline{S}_0$	$D_{1a}$ $D_{1b}$ $D_{1c}$ $D_{1d}$	$D_{0a}$ $D_{0b}$ $D_{0c}$ $D_{0d}$	$Q_a$ $Q_b$ $Q_c$ $Q_d$	$Q_a$ $Q_b$ $Q_c$ $Q_d$
H	x	x	x	x	x	x	H	L
L	L	L	H	H	H	x	L	H
L	L	L	H	H	L	x	H	L
L	L	L	L	L	x	H	L	H
L	L	L	L	L	x	L	H	L
L	L	L	L	H	x	x	H	L
L	L	L	H	L	H	x	L	H
L	L	L	H	L	x	H	L	H
L	L	L	H	L	L	L	H	L
L	H	x	x	x	x	x	No Change	
L	x	H	x	x	x	x	No Change	

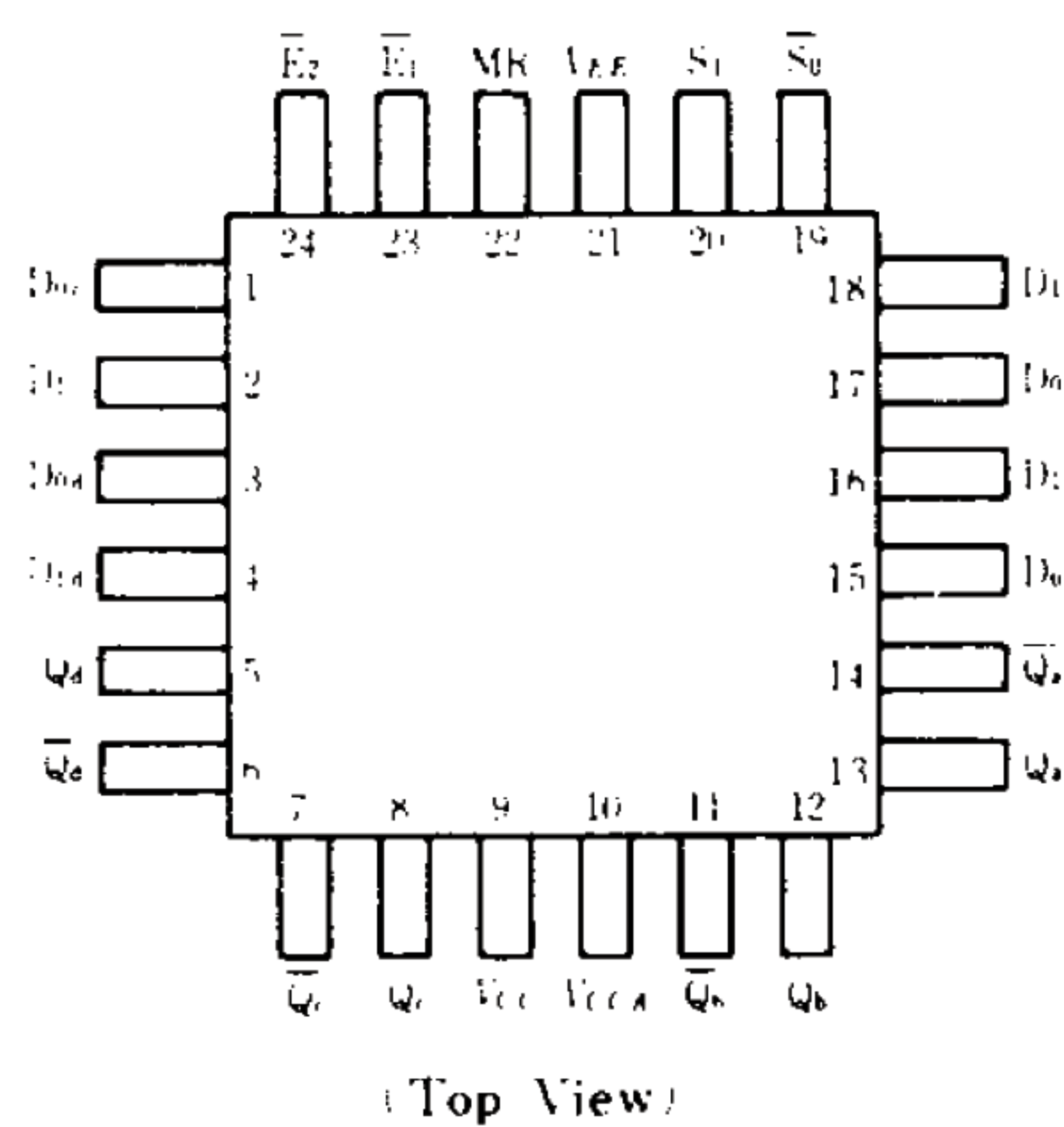
H = High Level  
L = Low Level  
x = Immaterial

### PIN ARRANGEMENT

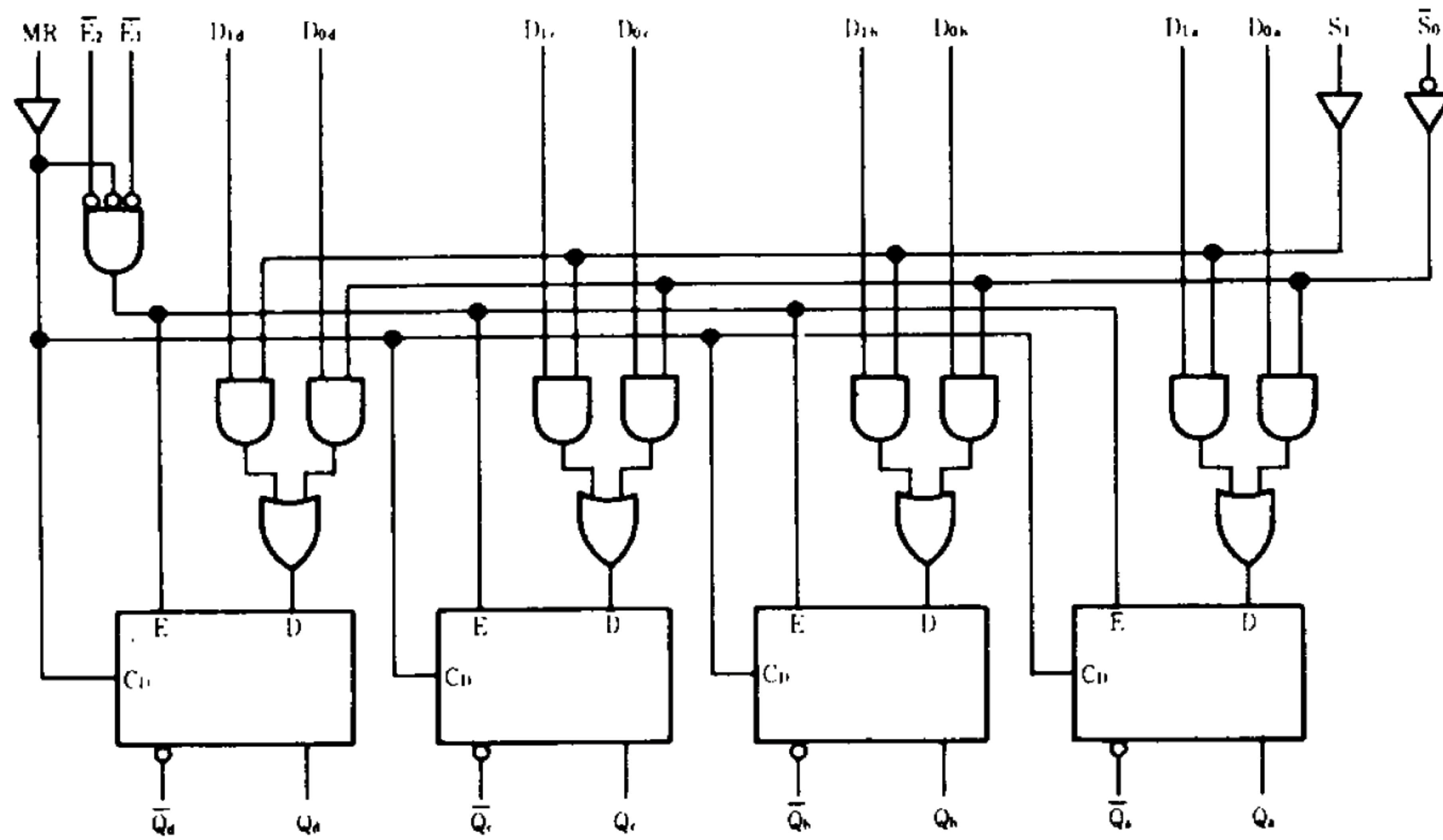
#### HD100155



#### HD100155F



■ LOGIC DIAGRAM



■ DC CHARACTERISTICS ( $V_{EE} = -4.2$  to  $-4.8V$ ,  $V_{CC} = V_{CCA} = GND$ ,  $T_a = 0$  to  $+85^\circ C$ )

Item	Symbol	Test Condition	min	typ	max	Unit	
Supply Current	$I_{EE}$	All input open	60	95	133	mA	
Input Current	$I_{IH}$	$V_{IS} = V_{IH \max}$	$S_n$ input			220	$\mu A$
			$\bar{E}_n$ input			350	
			Data input			340	
			MR input			430	

Note) As for other items, refer to the "Common DC Characteristics".

**■ AC CHARACTERISTICS** ( $V_{EE} = -2.2$  to  $-2.8$  V,  $V_{CC} = V_{CCA} = 2.0$  V)

**● HD100155**

Item	Symbol	Test Condition	0°C		25°C			85°C		Unit	
			min	max	min	typ	max	min	max		
Propagation Delay Time	$t_{PLH}, t_{PHL}$	See test circuit and waveform	Data input	0.55	1.50	0.60	1.00	1.55	0.60	1.55	ns
			S input	1.40	3.00	1.50	1.80	3.10	1.50	3.10	
			$\bar{E}$ input	0.90	1.90	1.00	1.40	2.00	1.00	2.00	
			MR input	0.95	1.65	1.00	1.70	2.50	1.00	2.50	
Transition Time	$t_{TLH}, t_{THL}$		0.55	1.75	0.50	1.10	1.65	0.50	1.65	ns	
Setup Time	$t_{SU}$	See test circuit and waveform	Data input	0.60	—	0.60	—	—	0.60	—	ns
			S input	2.30	—	2.30	—	—	2.30	—	
			MR input (Release Time)	1.30	—	1.50	—	—	1.50	—	
Hold Time	$t_h$	See test circuit and waveform	Data input	0.50	—	0.40	—	—	0.40	—	ns
			S input	-0.45	—	-0.50	—	—	-0.50	—	
Pulse Width	$t_w$	See test circuit and waveform	$\bar{E}_1, \bar{E}_2$ (L)	2.00	—	2.00	—	—	2.00	—	ns
			MR (H)	2.00	—	2.00	—	—	2.00	—	

**● HD100155F**

Item	Symbol	Test Condition	0°C		25°C			85°C		Unit	
			min	max	min	typ	max	min	max		
Propagation Delay Time	$t_{PLH}, t_{PHL}$	See test circuit and waveform	Data input	0.60	1.45	0.70	0.95	1.55	0.70	1.55	ns
			S input	1.50	3.00	1.50	1.80	3.20	1.50	3.20	
			$\bar{E}$ input	0.90	2.10	1.00	1.50	2.20	1.00	2.20	
			MR input	1.00	2.50	1.00	1.60	2.70	1.00	2.70	
Transition Time	$t_{TLH}, t_{THL}$		0.50	1.65	0.50	1.00	1.65	0.50	1.65	ns	
Setup Time	$t_{SU}$	See test circuit and waveform	Data input	0.50	—	0.60	—	—	0.60	—	ns
			S input	2.10	—	2.30	—	—	2.30	—	
			MR input (Release Time)	1.20	—	1.40	—	—	1.40	—	
Hold Time	$t_h$	See test circuit and waveform	Data input	0.30	—	0.30	—	—	0.30	—	ns
			S input	-0.70	—	-0.70	—	—	-0.80	—	
Pulse Width	$t_w$	See test circuit and waveform	$\bar{E}_1, \bar{E}_2$ (L)	2.00	—	2.00	—	—	2.00	—	ns
			MR (H)	2.00	—	2.00	—	—	2.00	—	

Note) The circuits in a test socket or mounted on a printed circuit board and transverse air flow greater than 2.5 m/s (500 linear fpm) is maintained.

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