

HD100151

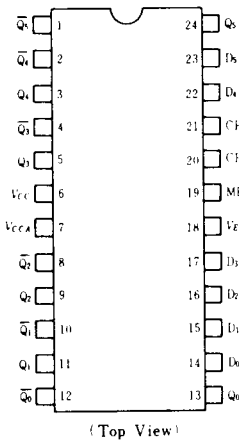
Hex D-type Flip-Flops

HD100151 contains six master/slave flip-flops with True and Complement outputs. A pair of Common Clock inputs (CPa and CPb) and common Master Reset (MR) input. Data enters a master when both

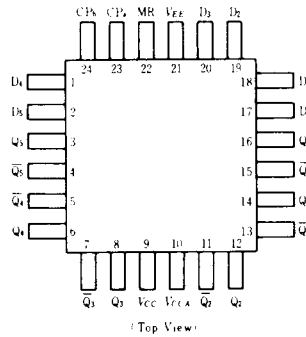
CPa and CPb are low and transfers to the slave when CPa or CPb (or both) go high. The MR input overrides all other inputs and makes the Q outputs low.

PIN ARRANGEMENT

● HD100151



● HD100151F

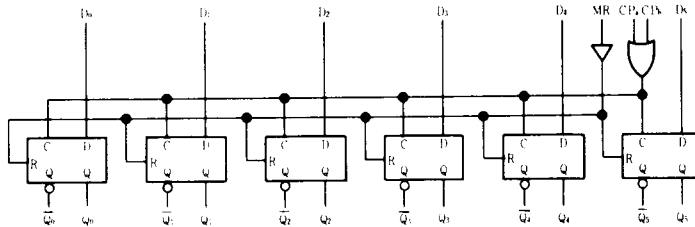


TRUTH TABLE (Each Flip Flop)

D _n	CP _a	CP _b	MR	Q _{n(t+1)}
L		L	L	L
H		L	L	H
L	L		L	L
H	L		L	H
×	H		L	Q _{n(t)}
×		H	L	Q _{n(t)}
×	×	×	H	L

×: Immaterial
t, t + 1: Time before and after CP positive transition

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	98	141	198	mA
Input Current	I_{IH}	$V_{IN} = V_{IN\ max}$	—	—	450	μA
		D ₀ ~ D ₅ input	—	—	225	μA
		CP _a , CP _b input	—	—	520	μA

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

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

● HD100151

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}	CP _a , CP _b input	0.70	1.70	0.80	1.30	1.80	0.90	1.90	ns
		MR input	1.30	2.50	1.30	1.65	2.60	1.30	2.60	
Transition Time	t_{TLH}, t_{THL}		0.35	1.20	0.35	0.65	1.20	0.35	1.20	
Toggle Frequency	f_{osc}	See test circuit and waveform	400	—	400	—	—	400	—	MHz
Setup Time	t_{SV}	D _a input	0.60	—	0.60	—	—	0.60	—	ns
		MR input (Release Time)	2.20	—	2.20	—	—	2.20	—	
Hold Time	t_h	D _b input	0.70	—	0.70	—	—	0.70	—	ns
		\bar{E}_a, \bar{E}_b (L)	1.30	—	1.30	—	—	1.30	—	
Pulse Width	t_w	MR (H)	1.50	—	1.50	—	—	1.50	—	ns

● HD100151F

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}	CP _a , CP _b input	0.80	1.70	0.90	1.20	1.80	0.90	1.80	ns
		MR input	1.30	2.50	1.30	1.60	2.50	1.30	2.60	
Transition Time	t_{TLH}, t_{THL}		0.35	1.20	0.35	0.60	1.20	0.35	1.20	
Toggle Frequency	f_{osc}	See test circuit and waveform	400	—	400	—	—	400	—	MHz
Setup Time	t_{SV}	D _a input	0.60	—	0.60	—	—	0.60	—	ns
		MR input (Release Time)	1.70	—	1.70	—	—	1.70	—	
Hold Time	t_h	D _b input	0.60	—	0.60	—	—	0.60	—	ns
		\bar{E}_a, \bar{E}_b (L)	1.10	—	1.10	—	—	1.10	—	
Pulse Width	t_w	MR (H)	1.30	—	1.30	—	—	1.30	—	ns

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