

QUAD LATCH
(Open Collector)

MC4300/MC4000 series

MC4335F,L*
MC4035F,L,P*

This monolithic device consists of four latch circuits with open collector outputs, common Strobe input, and output enable input. The output of each latch will follow the data input when the Strobe input is in a logical "1" state. When the Strobe is in a logical "0" state, the latch will store the logic state of the data input just prior to the change of the Strobe from a "1" level to a "0" level.

The open collector outputs make this device useful for bussing or wire ORing outputs together. Two 5.0 k ohm resistors are available in the package to provide the passive pullup function in wired-OR or bussed operation. The output enable is useful where it is desirable to gate information out of the latches according to a predetermined timing scheme.

Input Loading Factor (MTTL I Loads):

Data Input (Strobe High) - MC4335 = 4.2

MC4035 = 4.0

Data Input (Strobe Low) - MC4335 = 1.1

MC4035 = 0.9

Output Enable - MC4335 = 4.0

MC4035 = 3.6

Strobe - MC4335 = 5.2

MC4035 = 5.2

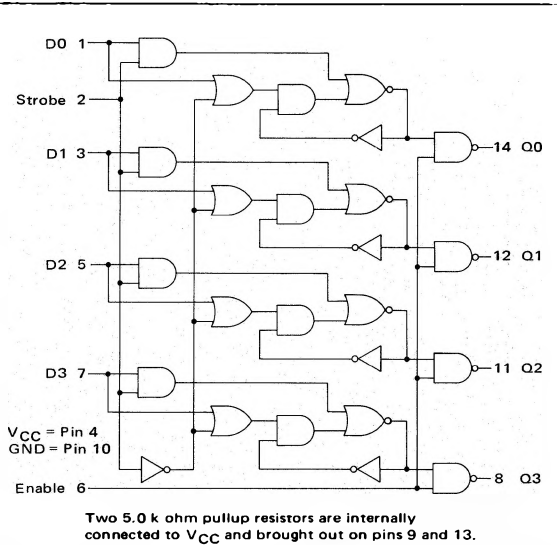
Output Loading Factor (MTTL I Loads):

MC4335 = 7 (I_{OL} = 9.3 mA_{dc})

MC4035 = 7 (I_{OL} = 11.6 mA_{dc})

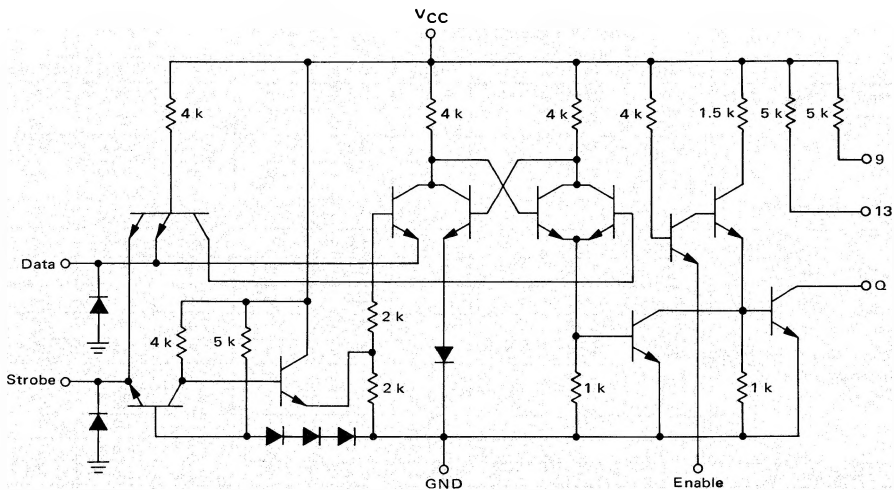
Total Power Dissipation = 140 mW typ/pkg

Propagation Delay Time = 25 ns typ



CIRCUIT SCHEMATIC

1/4 OF DEVICE SHOWN



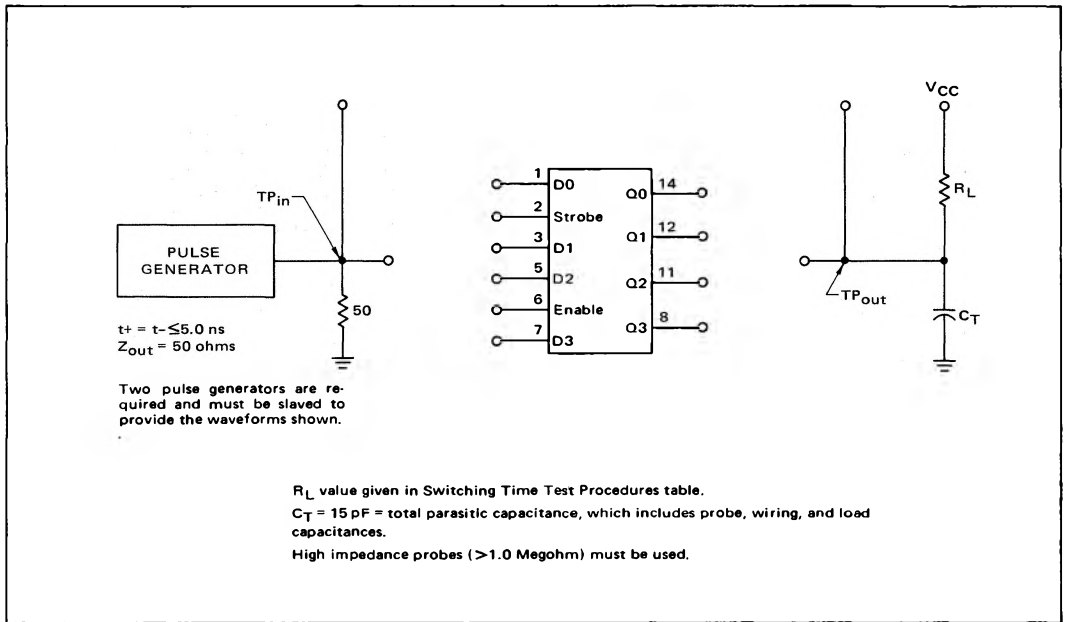
*F suffix = TO-86 ceramic flat package (Case 607).

L suffix = TO-116 ceramic dual in-line package (Case 632).

P suffix = TO-116 plastic dual in-line package (Case 605).

MC4335F,L, MC4035F,L,P (continued)

SWITCHING TIME TEST CIRCUIT



SWITCHING TIME TEST PROCEDURES ($T_A = 25^\circ\text{C}$)

(Letters shown in test columns refer to waveforms.)

TEST	SYMBOL	PIN UNDER TEST (In/Out)	INPUT			OUTPUT Pin 14 D0	R_L Ohms		LIMITS (ns) Max	
			Pin 1 D0	Pin 2 Strobe	Pin 6 Enable		MC4335	MC4035	MC4335	MC4035
Strobe Propagation Delay	t_{pd+1}	2/14	T	S	2.4 V	U	510	390	25	25
	t_{pd-1}	2/14	T	S	2.4 V	U	510	390	40	35
	t_{pd+2}	2/14	T	S	2.4 V	U	5.0 k	5.0 k	50	50
	t_{pd-2}	2/14	T	S	2.4 V	U	5.0 k	5.0 k	34	34
Rise Time	t^+	14	T	S	2.4 V	U	510 or 5.0 k	390 or 5.0 k	0.3 RC	0.3 RC
Fall Time	t^-	14	T	S	2.4 V	U	510	390	9.0	5.0
Data Propagation Delay	t_{pd+3}	1/14	V	2.4 V	2.4 V	W	510	390	20	20
	t_{pd-3}	1/14	V	2.4 V	2.4 V	W	510	390	30	25
	t_{pd+4}	1/14	V	2.4 V	2.4 V	W	5.0 k	5.0 k	50	50
	t_{pd-4}	1/14	V	2.4 V	2.4 V	W	5.0 k	5.0 k	25	25
Enable Propagation Delay	t_{pd+3}	1/14	X	2.4 V	Y	Z	510	390	20	20
	t_{pd-3}	1/14	X	2.4 V	Y	Z	510	390	30	25
	t_{pd+4}	1/14	X	2.4 V	Y	Z	5.0 k	5.0 k	50	50
	t_{pd-4}	1/14	X	2.4 V	Y	Z	5.0 k	5.0 k	25	25
Minimum Strobe Enable	—	1/14	T ①	1.8 V	2.4 V	②	5.0 k	5.0 k	②	②
Maximum Strobe Inhibit	—	1/14	T ①	1.0 V	2.4 V	③	5.0 k	5.0 k	③	③

① Pulse T conditions changed: $V_L = 1.0 \text{ V}$, $V_H = 1.8 \text{ V}$

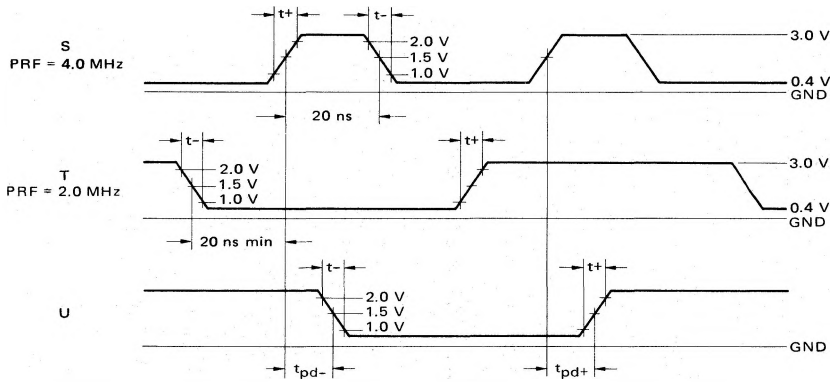
② Output shall follow data input.

③ Output shall not toggle.

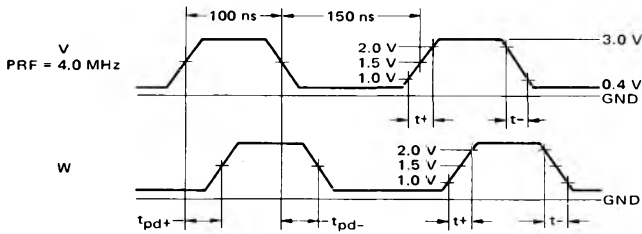
MC4335F,L, MC4035F,L,P (continued)

VOLTAGE WAVEFORMS

STROBE INPUT



DATA INPUTS



ENABLE INPUT

