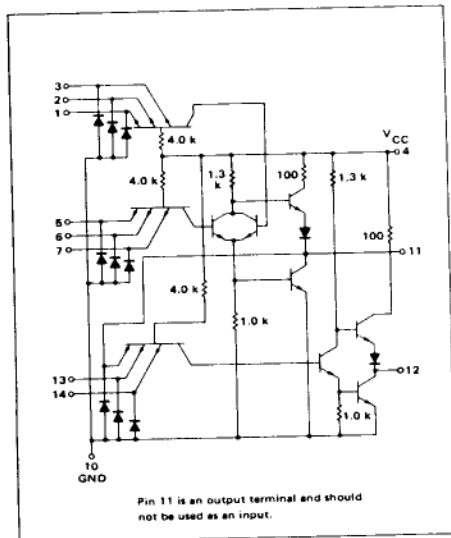


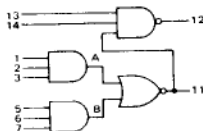
2-WIDE 3-INPUT
"AND-OR-INVERT" GATE
WITH GATED COMPLEMENT

MTTL | MC500/400 series

MC503 · MC553
MC403 · MC453



This device is the only gate of the basic positive AND-OR-INVERT series that includes an additional 3-input AND-INVERT function on the output. This configuration provides the output and a gated complement in a single package. This device is useful in the design of adders, subtractors and one-shot multivibrators.



Positive Logic

$$11 = (1 \cdot 2 \cdot 3) + (5 \cdot 6 \cdot 7)$$

$$12 = \overline{1 \cdot 1 \cdot 3 \cdot 14}$$

$$12 = (1 \cdot 2 \cdot 3) + (5 \cdot 6 \cdot 7) + \overline{1 \cdot 3} + \overline{14}$$

Total Power Dissipation - 35 mW typ/pkg

Propagation Delay Times - 11 ns typ (Pin 1 to Pin 11)
10 ns typ (Pin 11 to Pin 12)

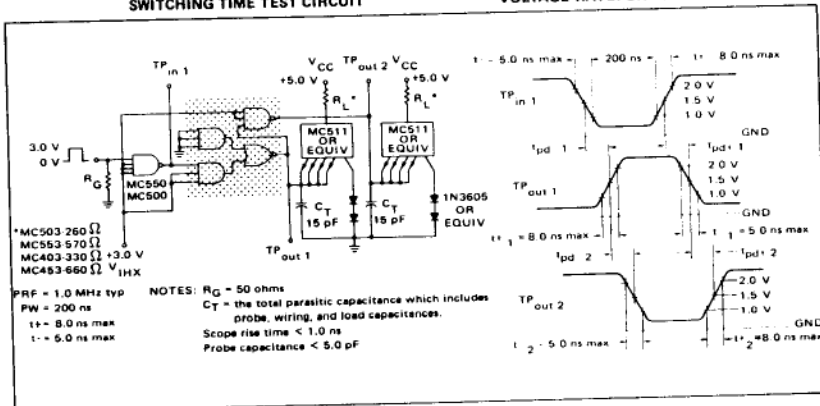
TRUTH TABLE

A	B	OUTPUT PIN # 11	PIN # 13	PIN # 14	OUTPUT PIN # 12
0	1	0	0	0	1
1	0	0	0	1	1
0	1	0	1	0	1
1	0	0	1	1	1
0	0	1	0	0	1
0	0	1	0	1	1
0	0	1	1	0	1
0	0	1	1	1	0

TYPE NO	INPUT LOADING FACTOR (I _p)	OUTPUT DRIVE (I _{OL})	TEMPERATURE RANGE
MC503 MC553	1 (-1.33 mA)	15 7 MC500 Series Gates (20 mA) MC500 Series Gates (10 mA)	-55°C to +125°C
MC403 MC453	1 (-1.66 mA)	12 6 MC400 Series Gates (20 mA) MC400 Series Gates (10 mA)	0°C to +75°C

SWITCHING TIME TEST CIRCUIT

VOLTAGE WAVEFORMS AND DEFINITIONS



ELECTRICAL CHARACTERISTICS (continued)

Characteristic		Pin		TEST CONDITIONS												Unit	
				MC503, MC553 Test Limits				MC403, MC453 Test Limits				TEST CURRENT / VOLTAGE APPLIED TO PINS LISTED BELOW:					
				-55°C		+25°C		+125°C		0°C		+25°C		+75°C			
Symbol	Test	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Power Requirements (Total Device)	I_{max}	4	34	34	34	34	34	24	24	24	24	24	24	24	24	24	24
	I_{PDH}	4	10	10	10	10	10	12	12	12	12	12	12	12	12	12	12
	I_{PDL}	4	10	10	10	10	10	12	12	12	12	12	12	12	12	12	12
Switching Parameters	t_{pd-1}	1, 11	-	22	-	-	-	22	-	-	-	-	-	-	-	-	-
	t_{pd-2}	11, 12	-	20	-	-	-	20	-	-	-	-	-	-	-	-	-
Turn-On Delay	t_{pd-1}	1, 11	-	22	-	-	-	22	-	-	-	-	-	-	-	-	-
	t_{pd-2}	11, 12	-	20	-	-	-	20	-	-	-	-	-	-	-	-	-
Rise Time	t_r-1	1, 11	-	8.0	-	-	-	8.0	-	-	-	-	-	-	-	-	-
	t_r-2	11, 12	-	8.0	-	-	-	8.0	-	-	-	-	-	-	-	-	-
Fall Time	t_f-1	1, 11	-	8.0	-	-	-	8.0	-	-	-	-	-	-	-	-	-
	t_f-2	11, 12	-	8.0	-	-	-	8.0	-	-	-	-	-	-	-	-	-
* Prime Fan-Out	t_{pd-1}	1, 11	-	5.0	-	-	-	5.0	-	-	-	-	-	-	-	-	-
	t_{pd-2}	11, 12	-	5.0	-	-	-	5.0	-	-	-	-	-	-	-	-	-

494

494

* Prime Fan-Out