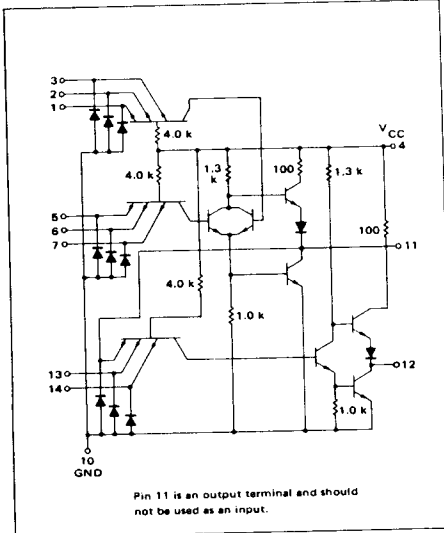


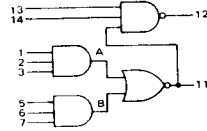
2-WIDE 3-INPUT  
"AND-OR-INVERT" GATE  
WITH GATED COMPLEMENT

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

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

$$12 = \overline{11 \cdot 13 \cdot 14}$$

$$12 = \overline{(1 \cdot 2 \cdot 3)} + (5 \cdot 6 \cdot 7) + \overline{13} + \overline{14}$$

Total Power Dissipation - 35 mW typ/pkq

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

10 ns typ (Pin 11 to Pin 12)

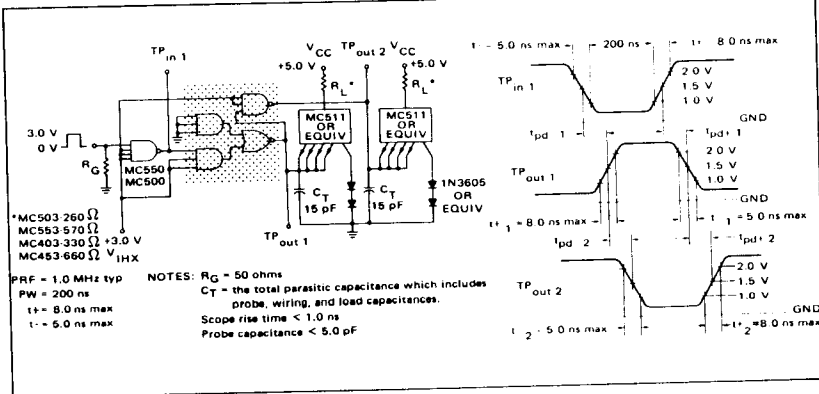
TRUTH TABLE

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 <sub>P</sub> )	OUTPUT DRIVE (I <sub>OL</sub> )	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												V <sub>max</sub>				
				MC503, MC553 Test Limits						MC403, MC453 Test Limits							V <sub>CC</sub>	V <sub>CCH</sub>	V <sub>max</sub>	
				-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	Min	Max	
Power Requirements (Total Device)																				
Maximum Power Supply Current	I <sub>max</sub>	4	34	-	34	-	34	-	24	-	24	-	24	-	24	-	24	-	4	1.2, 5.6, 7.10, 13.14
Power Supply Drain	I <sub>PDH</sub>	4	10	10	10	10	10	10	12	12	12	12	12	12	12	12	12	12	4	10
	I <sub>PDL</sub>	4	10	10	10	10	10	10	12	12	12	12	12	12	12	12	12	12	4	1.2, 3.8, 6.1, 13.14
Switching Parameters																				1.2, 3.8, 6.1, 13.14
Turn-On Delay	t <sub>pd-1</sub>	1, 11	-	-	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.3, 5.6, 7.10, 13.14
	t <sub>pd-2</sub>	11, 12	-	-	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.14, 5.6, 7.10
	t <sub>pd-1</sub>	1, 11	-	-	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.3, 5.6, 7.10, 13.14
	t <sub>pd-2</sub>	11, 12	-	-	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13.14, 5.6, 7.10
Rise Time	t <sub>r-1</sub>	1, 11	-	-	8, 0	-	-	-	8, 0	-	-	-	-	-	-	-	-	-	-	2.3, 5.6, 7.10, 13.14
	t <sub>r-2</sub>	11, 12	-	-	8, 0	-	-	-	8, 0	-	-	-	-	-	-	-	-	-	-	13.14, 5.6, 7.10
Fall Time	t <sub>f-1</sub>	1, 11	-	-	6, 0	-	-	-	6, 0	-	-	-	-	-	-	-	-	-	-	2.3, 5.6, 7.10, 13.14
	t <sub>f-2</sub>	11, 12	-	-	5, 0	-	-	-	5, 0	-	-	-	-	-	-	-	-	-	-	13.14, 5.6, 7.10

\* Prime: Fair-Out

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