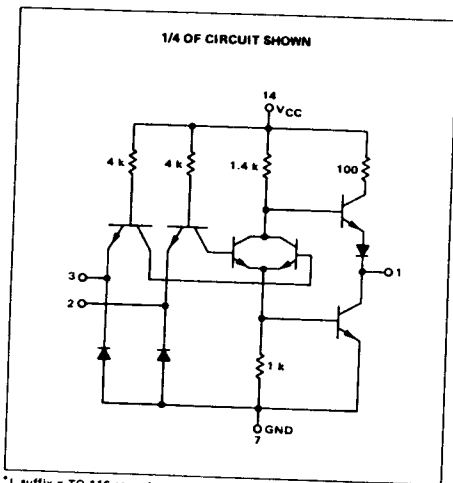


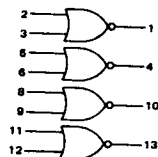
QUAD 2-INPUT "NOR" GATE

MTTL MC7400P series
MTTL MC5400L/7400L series

MC5402L*
MC7402P,L*



This device consists of four 2-input NOR gates. Each gate may be used as an inverter, or two gates may be cross-coupled to form bistable circuits.



Positive Logic: $1 = \overline{2 \cdot 3}$
Negative Logic: $1 = \overline{2 \cdot 3}$

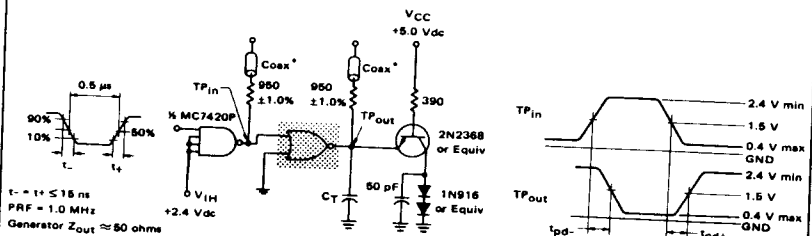
Input Loading Factor = 1
Output Loading Factor = 10

Total Power Dissipation = 48 mW typ/pkg
Propagation Delay Time = 13 ns typ

*L suffix = TO-116 ceramic package (Case 632)
P suffix = TO-116 plastic package (Case 606)
See General Information section for package outline dimensions.

VOLTAGE WAVEFORMS AND DEFINITIONS

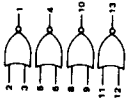
SWITCHING TIME TEST CIRCUIT



1-6

ELECTRICAL CHARACTERISTICS

Test procedures are shown for only one gate. The others are tested in the same manner. Further test are shown for only one input of the gate under test. To complete testing, sequence through remaining inputs.



MC5402
MC7402

Characteristic	Symbol	MC5402 Test Limits -55 to +125°C		MC7402 Test Limits 0 to +70°C		TEST CURRENT/VOLTAGE VALUES (All Temperatures)																				
		Min	Max	Min	Max	Volts																				
		Pin Under Test	Min	Max	Unit	Min	Max	Unit	I _{OL}	I _{OH}	V _L	V _H	V _{INT}	V _{OH}	V _{OL}	V _{IN1}	V _{IN2}	V _{IN1}	V _{IN2}	V _{IN1}	V _{IN2}	V _{IN0}	V _{CC}	V _{CEH}		
Input																										
Forward Current	I _F	2	-1.6	mAdc	-	-1.6	mAdc			2	-	-	-	-	3	-	-	-	-	-	-	-	-	-	14	7*
Leakage Current	I _{L1}	2	40	μAdc	-	40	μAdc			2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	3.7*
	I _{L2}	2	1.0	mAdc	-	1.0	mAdc			-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	14	3.7*
Output	V _{OL}	1	0.4	Vdc	-	0.4	Vdc			-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	14	3.7*
	V _{OH}	1	2.4	-	Vdc	2.4	-	Vdc		1	-	-	-	-	2	-	-	-	-	-	-	-	-	-	14	7*
Short-Circuit Current	I _{SC}	1	-20	-55	mAdc	-18	-55	mAdc		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	1.2,3,7*
Power Requirements (Total Device)	I _{ppDR}	14	27	mAdc	-	27	mAdc			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
	I _{pdL}	14	14.4	mAdc	-	14.4	mAdc			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.3,5,6,8, 9,11,12
	I _{pd}	14	15**	ns	-	15**	ns			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.3,7*
Switching Parameters																										
Turn-On Delay	t _{pd}	2,1	15**	ns	-	15**	ns			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.7*
Turn-Off Delay	t _{pd}	2,1	29**	ns	-	29**	ns			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.7*

*Ground inputs to gate not under test.
**Traced only at 25°C.

364 70