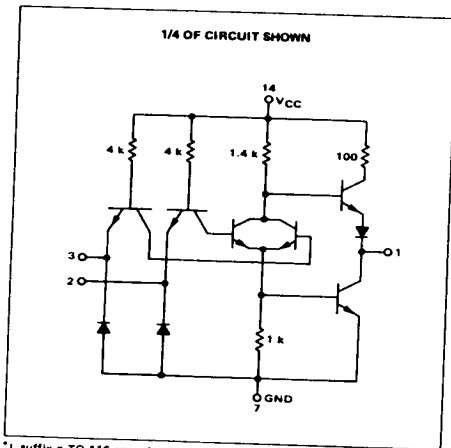


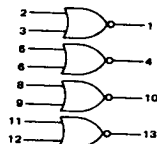
QUAD 2-INPUT "NOR" GATE

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: $1 = \overline{2 \cdot 3}$

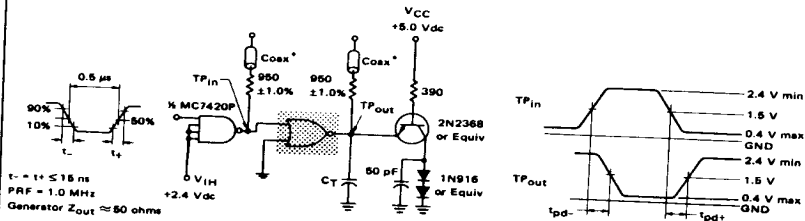
Input Loading Factor = 1
Output Loading Factor = 10

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 805)
See General Information section for package outline dimensions.

VOLTAGE WAVEFORMS AND DEFINITIONS

SWITCHING TIME TEST CIRCUIT



$t_r = t_f \leq 15 \text{ ns}$
PRF = 1.0 MHz
Generator $Z_{out} \approx 50 \text{ ohms}$

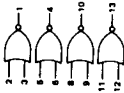
$C_T = 15 \text{ pF}$ = total parasitic capacitance, which includes probe, wiring, and load capacitances.

*The coax delays from input to scope and output to scope must be matched. The scope must be terminated in 50-ohm impedance. The 950-ohm resistor and the scope termination impedance constitute a 20:1 attenuator probe. Coax shall be CT-070-50 or equivalent.

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ELECTRICAL CHARACTERISTICS

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



Characteristic	Symbol	Pin Under Test	TEST CURRENT/VOLTAGE VALUES (All Temperatures)						V _{OH}	V _{OL}	V _{CC}	V _{CEX}	
			Volts										
			V _{IL}	V _{IS}	V _{IH}	V _{OH}	V _{OL}	V _{OS}					
Forward Current	I _F	3	-	-1.6	mAdc	-	-1.6	mAdc	-	-	-	14	7*
Leakage Current	I _{IL1}	3	-	40	μAdc	-	40	μAdc	-	-	-	14	3.7*
	I _{IL2}	2	-	1.0	mAdc	-	1.0	mAdc	-	-	-	14	3.7*
Output Output Voltage	V _{OL}	1	-	0.4	Vdc	-	0.4	Vdc	-	-	-	14	3.7*
	V _{OH}	1	2.4	-	Vdc	2.4	-	Vdc	1	-	-	14	7*
Short-Circuit Current	I _{SC}	1	-20	-55	mAdc	-18	-55	mAdc	-	-	-	14	1.2, 3.1, 7*
Power Requirements (Total Device)	I _{PDH}	14	-	27	mAdc	-	27	mAdc	-	-	-	-	-
Power-Supply Drain	I _{PSD}	14	-	14.4	mAdc	-	14.4	mAdc	-	-	-	-	-
Switching Parameters	t _{pd}	2,1	-	15**	ns	-	15**	ns	-	-	-	-	-
	t _{pd}	2,1	-	29**	ns	-	29**	ns	-	-	-	-	-

*Ground inputs to gates not under test.
**Tested only at 25°C.

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