



Quad 2-Input NOR Gate

ELECTRICALLY TESTED PER:
5962-8755701

The 10H502 is a quad 2-input **NOR** gate. The 10H502 provides one gate with **OR/NOR** outputs. This MECL 10H part is a functional/pinout duplication of the standard MECL 10K family part, with 100% improvement in propagation delay and no increases in power-supply current.

- Propagation Delay, 1.0 ns Typical
- 40 mW Max/Gate (No Load)
- Improved Noise Margin 150 mV (Over Operating Voltage and Temperature Range)
- Voltage Compensated
- MECL 10K-Compatible

PIN ASSIGNMENTS

FUNCTION	PIN ASSIGNMENTS			BURN-IN (CONDITION C)
	DIL	FLATS	LCC	
VCC1	1	5	2	GND
AOUT	2	6	3	51 Ω to V _{TT}
BOUT	3	7	4	51 Ω to V _{TT}
A _{IN}	4	8	5	51 Ω to V _{TT}
A _{IN}	5	9	7	OPEN
B _{IN}	6	10	8	51 Ω to V _{TT}
B _{IN}	7	11	9	OPEN
V _{EE}	8	12	10	V _{EE}
D _{OUT}	9	13	12	51 Ω to V _{TT}
C _{IN}	10	14	13	51 Ω to V _{TT}
C _{IN}	11	15	14	OPEN
D _{IN}	12	16	15	51 Ω to V _{TT}
D _{IN}	13	1	17	OPEN
C _{OUT}	14	2	18	51 Ω to V _{TT}
D _{OUT}	15	3	19	51 Ω to V _{TT}
VCC2	16	4	20	GND

BURN - IN CONDITIONS:

V_{TT} = -2.0 V MAX/ -2.2 V MIN

V_{EE} = -5.7 V MAX/ -5.2 V MIN

Military 10H502

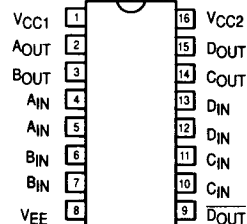


AVAILABLE AS

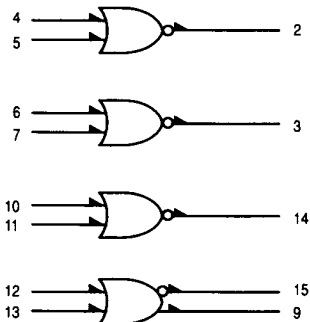
- 1) JAN: N/A
 - 2) SMD: 5962-8755701
 - 3) 883: 10H502/BXAJC
- X = CASE OUTLINE AS FOLLOWS:

PACKAGE: CERDIP: E
CERFLAT: F
LCC: 2

The letter "M" appears before
the slash on LCC.

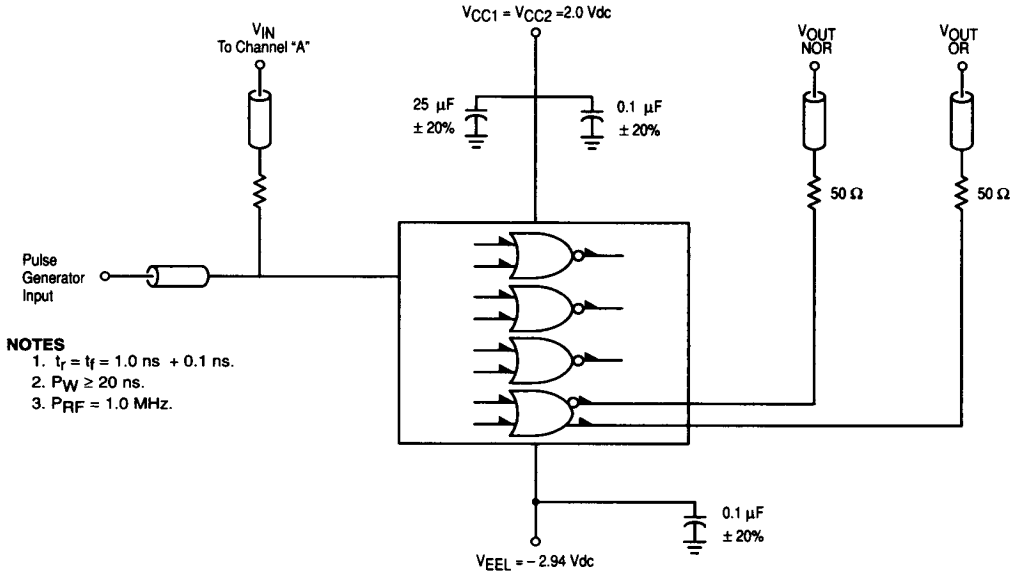


LOGIC DIAGRAM



10H502

2



NOTES

1. All input and output cables to the scope are equal lengths of 50Ω coaxial cable. Wire length should be ≤ 0.250 inches (6.35 mm) from TP_{IN} to input pin and TP_{OUT} to output pin.
2. Outputs not under test should be connected to a 100Ω resistor to ground.

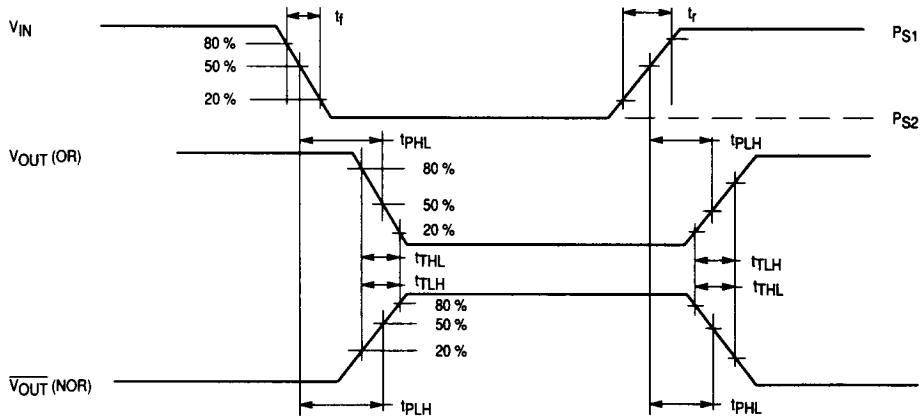


Figure 1. Switching Test Circuit and Waveforms

10H502 QUIESCENT LIMIT TABLE *

* ELECTRICAL CHARACTERISTICS

Each MECL 10H series circuit has been designed to meet the dc specifications shown in the test table, after thermal equilibrium has been established. The circuit is in a test socket or mounted on a printed circuit board and transverse air flow greater than 500 linear fpm is maintained. Outputs are terminated through a 100 Ω resistor to -2.0 volts.

Test Temperature	Test Voltage Values (Volts)									
	V _{IH1}	V _{IL1}	V _{IH2}	V _{IL2}	P _{S1}	P _{S2}	VEE1	VEE2	VEEL	VEEL
T _A = 25 °C	-0.78	-1.95	-1.11	-1.480	+1.11	+0.31	-5.46	-4.94	-2.94	-2.94
T _A = 125 °C	-0.65	-1.95	-0.96	-1.465	+1.24	+0.36	-5.46	-4.94	-2.94	-2.94
T _A = -55 °C	-0.84	-1.95	-1.16	-1.510	+1.01	+0.28	-5.46	-4.94	-2.94	-2.94

Symbol	Parameter	Limits						Units	TEST VOLTAGE APPLIED TO PINS BELOW									
	Functional Parameters:	+ 25 °C		+ 125 °C		- 55 °C			Pinouts referenced are for DIL package, check Pin Assignments VCC = 0 V, Output Load = 100 Ω to - 2.0 V									
		Subgroup 1		Subgroup 2		Subgroup 3												
		Min	Max	Min	Max	Min	Max											
VOH	High Output Voltage	- 1.01	- 0.78	- 0.86	- 0.65	- 1.06	- 0.84	V	12, 13	4-7 12, 13			8		1, 16	2, 3, 9, 14, 15		
VOL	Low Output Voltage	- 1.95	- 1.58	- 1.95	- 1.565	- 1.95	- 1.61	V	5-7 10-13	10-13			8		1, 16	2, 3, 9, 14, 15		
VOH1	High Output Voltage	- 1.01	- 0.78	- 0.86	- 0.65	- 1.06	- 0.84	V			12, 13	4, 6 10-13	8	8	1, 16	2, 9, 15		
VOL1	Low Output Voltage	- 1.95	- 1.58	- 1.95	- 1.565	- 1.95	- 1.61	V			4-7 10-13	12, 13	8	8	1, 16	2, 9, 15		
IEE	Power Supply Current	- 26		- 29		- 29		mA					8		1, 16	8		
IiH1	Input Current High		265		425		425	µA	4, 7 10-13				8		1, 16	4, 7, 10-13		
IiL	Input Current Low	0.5		0.3		0.5		µA		4-5 10-13			8		1, 16	4, 7, 10-13		

10H502 QUIESCENT LIMIT TABLE *

* ELECTRICAL CHARACTERISTICS

Each MECL 10H series circuit has been designed to meet the dc specifications shown in the test table, after thermal equilibrium has been established. The circuit is in a test socket or mounted on a printed circuit board and transverse air flow greater than 500 linear fpm is maintained. Outputs are terminated through a 100 Ω resistor to - 2.0 volts.

Test Temperature	Test Voltage Values (Volts)									
	V _{IH1}	V _{IL1}	V _{IH2}	V _{IL2}	PS1	PS2	VEE1	VEE2	VEEL	
T _A = 25 °C	-0.78	-1.95	-1.11	-1.480	+1.11	+0.31	-5.46	-4.94	-2.94	
T _A = 125 °C	-0.65	-1.95	-0.96	-1.465	+1.24	+0.36	-5.46	-4.94	-2.94	
T _A = - 55 °C	-0.84	-1.95	-1.16	-1.510	+1.01	+0.28	-5.46	-4.94	-2.94	

Symbol	Parameter	Limits						Units	TEST VOLTAGE APPLIED TO PINS BELOW					
	Functional Parameters:	+ 25 °C		+ 125 °C		- 55 °C			Pinouts referenced are for DIL package, check Pin Assignments VCC = 2.0 V, Output Load = 100 Ω to GND					
		Subgroup 9		Subgroup 10		Subgroup 11								
		Min	Max	Min	Max	Min	Max							
tTLH	Rise Time	0.5	1.6	0.55	1.7	0.5	1.5	ns	VIN	VOUT	VCC	VEEL	P.U.T.	
									5, 7, 11, 13	2, 3, 14, 9, 15	1, 16	8	2, 3, 9, 14, 15	
tTHL	Fall time	0.5	1.6	0.55	1.7	0.5	1.5	ns	5, 7, 11, 13	2, 3, 14, 9, 15	1, 16	8	2, 3, 9, 14, 15	
tPLH	Propagation Delay Low to High	0.4	1.25	0.4	1.5	0.4	1.25	ns	5, 7, 11, 13	2, 3, 14, 15	1, 16	8	2, 3, 9, 14, 15	
tPHL	Propagation Delay High to Low	0.4	1.25	0.4	1.5	0.4	1.25	ns	5, 7, 11, 13	2, 3, 14, 15	1, 16	8	2, 3, 9, 14, 15	