MOTOROLA

T-43-22

Quad 2-Input NOR Gate

ELECTRICALLY TESTED PER:
MPG 1662 (– 30°C to + 85°C)

- P_D = 240 mW typ/pkg
- t_{pd} = 0.9 ns typ (510 ohm load)
  = 1.1 ns typ (50 ohm load)
- Full Load Current, I_L = – 25 mAdc max

ABSOLUTE MAXIMUM RATINGS:	Symbol	Min	Max	Unit
Power Supply Voltage (V_{CC} = 0)	V_{CC}	– 8.0	0	Vdc
Base Input Voltage (V_{CC} = 0)	V_{IN}	0	V_{EE}	Vdc
Output Source Current Continuous	I_O		< 40	mAdc
Storage Temperature Range	T_{stg}	– 55	+ 125	°C
Operating Temperature Range	T_A	– 30	+ 85	°C

PIN ASSIGNMENTS

FUNCTION	DIL	FLATS	BURN-IN (CONDITION C)
V_{CC1}	1	5	GND
A_{OUT}	2	6	51 Ω to V_{TT}
B_{OUT}	3	7	51 Ω to V_{TT}
A_{IN1}	4	8	OPEN
A_{IN2}	5	9	OPEN
B_{IN1}	6	10	OPEN
B_{IN2}	7	11	OPEN
V_{EE}	8	12	V_{EE}
N.C.	9	13	OPEN
C_{IN1}	10	14	OPEN
C_{IN2}	11	15	GND
D_{IN1}	12	16	OPEN
D_{IN2}	13	1	GND
C_{OUT}	14	2	51 Ω to V_{TT}
D_{OUT}	15	3	51 Ω to V_{TT}
V_{CC2}	16	4	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 1662

MPO

AVAILABLE AS

1) JAN: N/A
2) SMD: N/A
3) 883: N/A
4) 1662/BXA *
X = CASE OUTLINE AS FOLLOWS:

PACKAGE: CERDIP: E
CERFLAT: F

*** 883 Processing (Non-Compliant)**

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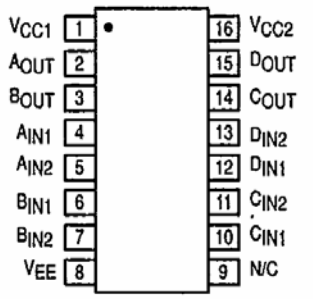
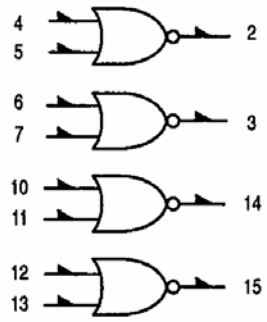


LOGIC DIAGRAM



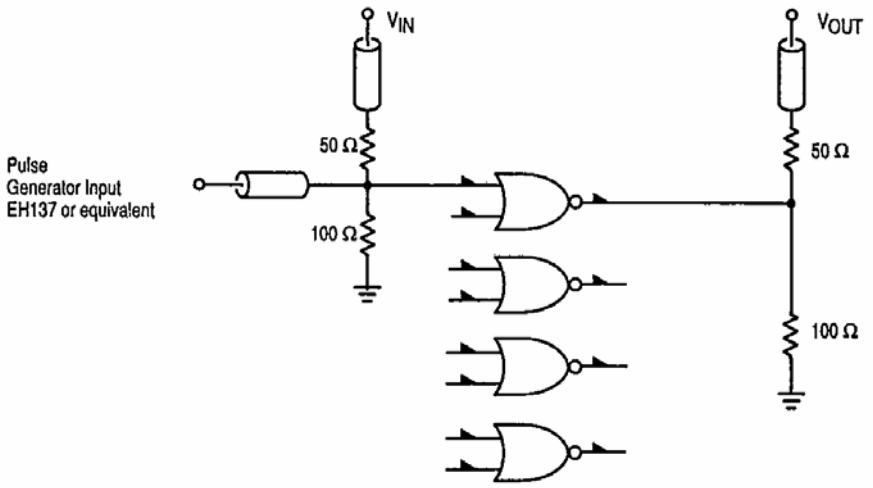


Figure 1. Test Circuit

NOTES

1. Coaxial cables (Equal lengths, typ 2 places) to scope.
2. $t_r = t_f = 1.5$ ns ± 0.2 ns.
3. PRR = 20 MHz, 50% duty cycle.
4. Unused outputs connected to a 50 Ω resistor to ground.

Temp.	25°C	85°C	– 30°C
V_{ILL}	0.31 V	0.34 V	0.28 V
V_{IHH}	1.11 V	1.19 V	1.04 V

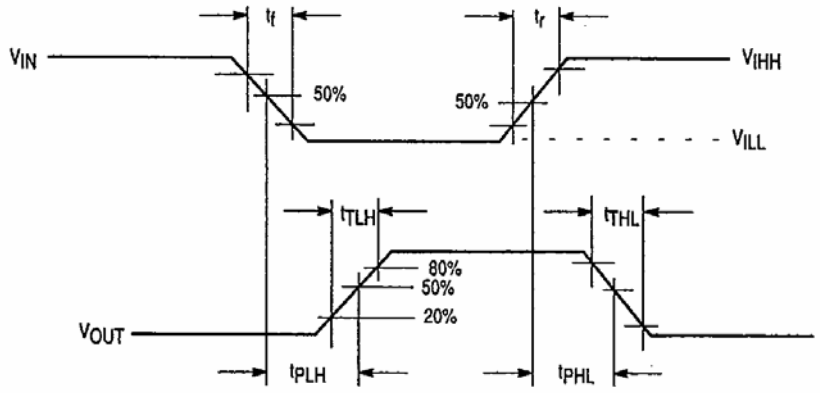


Figure 2. Test Circuit Waveforms

1662
QUIESCENT LIMIT TABLE

Test Temperature	Test Voltage Values (Volts)					
	V_{IH}	V_{IL}	V_{IHA}	V_{ILA}	V_{EE}	V_{EEL}
T_A = 25 °C	-0.81	-1.85	-1.095	-1.485	-5.2	-3.2
T_A = 85 °C	-0.70	-1.83	-1.025	-1.440	-5.2	-3.2
T_A = -30 °C	-0.875	-1.89	-1.180	-1.515	-5.2	-3.2

Symbol	Parameter	Limits						Units	TEST VOLTAGE APPLIED TO PINS BELOW						
	Functional Parameters:	+ 25 °C Subgroup 1		+ 85 °C Subgroup 2		- 30 °C Subgroup 3			Pinouts referenced are for DIL package, check Pin Assignments V_{CC} = 0.0 V, Output Load = 50 Ω to - 2.0 V						
		Min	Max	Min	Max	Min	Max		V_{IH}	V_{IL}	V_{IHA}	V_{ILA}	V_{CC}	V_{EE}	P.U.T.
V_{OH}	High Output Voltage	- 0.96	- 0.81	- 0.89	- 0.7	- 1.045	- 0.875	V		4 - 7, 10 - 13			1, 16	8	2, 3, 14, 15
V_{OL}	Low Output Voltage	- 1.85	- 1.62	- 1.83	- 1.575	- 1.89	- 1.65	V	4 - 7, 10 - 13				1, 16	8	2, 3, 14, 15
V_{OHA}	High Output Voltage	- 0.98	- 0.81	- 0.91	- 0.7	- 1.065	- 0.875	V				4 - 7, 10 - 13	1, 16	8	2, 3, 14, 15
V_{OLA}	Low Output Voltage	- 1.85	- 1.60	- 1.83	- 1.555	- 1.89	- 1.63	V			4 - 7, 10 - 13		1, 16	8	2, 3, 14, 15
I_{EE}	Power Supply Drain Current	-56		-56		-56		mA					1, 16	8	8
I_{INH}	Input Current High		350		350		350	µA	4 - 7, 10 - 13				1, 16	8	4 - 7, 10 - 13
I_{INL}	Input Current Low	0.5		0.3		0.5		µA		4 - 7, 10 - 13			1, 16	8	4 - 7, 10 - 13

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QUIESCENT LIMIT TABLE

Test Temperature	Test Voltage Values (Volts)						
	V_{IH}	V_{IL}	V_{IHA}	V_{ILA}	V_{EE}	V_{EEL}	V_{CC}
T_A = 25 °C	-0.81	-1.85	-1.095	-1.485	-5.2	-3.2	+2.0
T_A = 85 °C	-0.70	-1.83	-1.025	-1.440	-5.2	-3.2	+2.0
T_A = -30 °C	-0.875	-1.89	-1.180	-1.515	-5.2	-3.2	+2.0

Symbol	Parameter	Limits						Units	TEST VOLTAGE APPLIED TO PINS BELOW				
	Functional Parameters:	+ 25 °C		+ 85 °C		- 30 °C			Pinouts referenced are for DIL package, check Pin Assignments Output Load = 50 Ω to GND				
		Subgroup 9		Subgroup 10		Subgroup 11							
		Min	Max	Min	Max	Min	Max		V_{IN}	V_{OUT}	V_{CC}	V_{EEL}	P.U.T.
t_{TLH}	Rise Time		2.1		2.3		2.2	ns	5, 6 11, 12	2, 3, 14, 16	1, 16	8	2, 3, 14, 15
t_{THL}	Fall Time		2.1		2.3		2.2	ns	5, 6 11, 12	2, 3, 14, 16	1, 16	8	2, 3, 14, 15
t_{PHL}	Propagation Delay High to Low A, B and D		1.9		2.1		2.0	ns	5, 6 11, 12	2, 3, 14, 16	1, 16	8	2, 3, 14, 15
t_{PLH}	Propagation Delay Low to High A, B and D		2.1		2.1		2.1	ns	5, 6 11, 12	2, 3, 14, 16	1, 16	8	2, 3, 14, 15
t_{PHL}	Propagation Delay High to Low C		2.0		2.2		2.1	ns	5, 6 11, 12	2, 3, 14, 16	1, 16	8	2, 3, 14, 15
t_{PLH}	Propagation Delay Low to High C		2.1		2.1		2.1	ns	5, 6 11, 12	2, 3, 14, 16	1, 16	8	2, 3, 14, 15