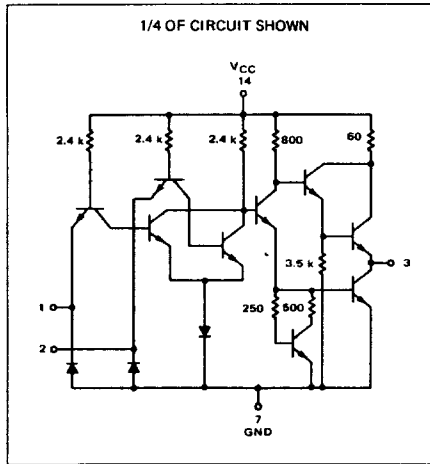


QUAD 2-INPUT "OR" GATE

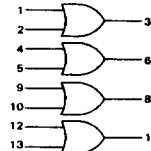
MTTL III MC3100/3000 series

MC3103F • MC3003F
MC3103L • MC3003L_P

1/4 OF CIRCUIT SHOWN



This device consists of four 2-input OR gates. This non-inverting function is useful for optimizing logic design, or for direct implementation of standard logic equations.

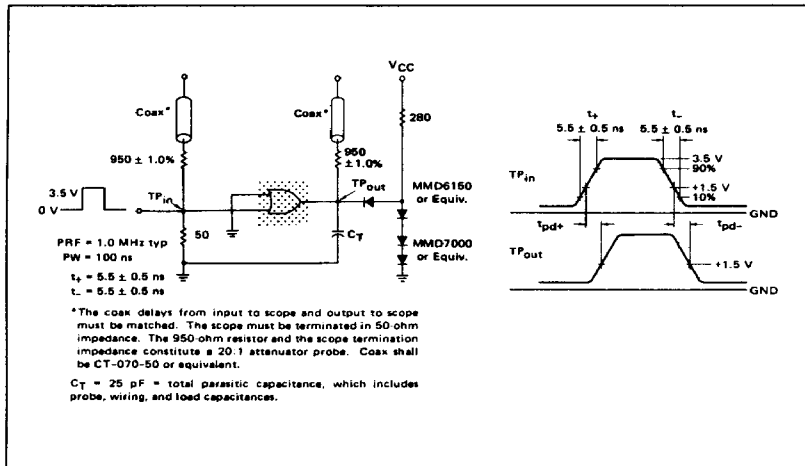


Positive Logic: 3 = 1 + 2
Negative Logic: 3 = 1 - 2

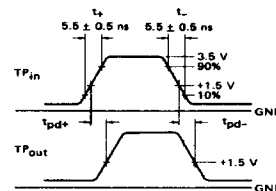
Input Loading Factor = 1
Output Loading Factor = 10

Total Power Dissipation = 150 mW typ/pkg
Propagation Delay Time = 9.0 ns typ

SWITCHING TIME TEST CIRCUIT



VOLTAGE WAVEFORMS AND DEFINITIONS



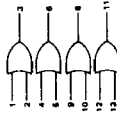
*The coax delays from input to scope and output to scope must be matched. The scope must be terminated in 50 ohm impedance. The 950 ohm resistor and the scope termination impedance constitute a 20:1 attenuator probe. Coax shall be CT-070-50 or equivalent.

$C_T = 25$ pF = total parasitic capacitance, which includes probe, wiring, and load capacitances.

See General Information section for packaging.

ELECTRICAL CHARACTERISTICS

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

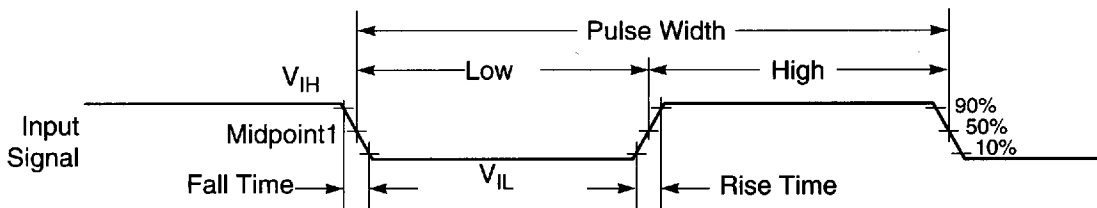


Characteristic	Symbol	Pin Under Test	MC3103 Test Limits			MC3003 Test Limits			Temp. @ Test	TEST CURRENT/VOLTAGE VALUES																
			-55°C		+25°C	+125°C	0°C			+25°C	mA				Volts											
			Min.	Max.	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.					
Input Current	I _{in}	1	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	0°C	I _{oa}	I _{ob}	I _{oc}	I _{oa}	I _{ob}	I _{oc}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{cc}	V _{cc}	V _{cc}	
Forward Current	I _f	1	-	50	50	50	50	50	50	+25°C	I _{oa}	I _{ob}	I _{oc}	I _{oa}	I _{ob}	I _{oc}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{cc}	V _{cc}	V _{cc}	
Leakage Current	I _l	1	-	5.5	5.5	5.5	5.5	5.5	5.5	+125°C	I _{oa}	I _{ob}	I _{oc}	I _{oa}	I _{ob}	I _{oc}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{cc}	V _{cc}	V _{cc}	
Breakdown Voltage	BV _{In}	1	-	-	-	-	-	-	-	0°C	I _{oa}	I _{ob}	I _{oc}	I _{oa}	I _{ob}	I _{oc}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{cc}	V _{cc}	V _{cc}	
Clamp Voltage	V _p	1	-	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	+25°C	I _{oa}	I _{ob}	I _{oc}	I _{oa}	I _{ob}	I _{oc}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{cc}	V _{cc}	V _{cc}	
Output Voltage	V _{OL}	3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	+75°C	I _{oa}	I _{ob}	I _{oc}	I _{oa}	I _{ob}	I _{oc}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{cc}	V _{cc}	V _{cc}	
V _{OH}	V _{OH}	3	2.4	2.4	2.4	2.5	2.5	2.5	2.5		I _{oa}	I _{ob}	I _{oc}	I _{oa}	I _{ob}	I _{oc}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{cc}	V _{cc}	V _{cc}	
I _{CC}	I _{CC}	3	-4.0	-100	-4.0	-100	-4.0	-100	-4.0	-100		I _{oa}	I _{ob}	I _{oc}	I _{oa}	I _{ob}	I _{oc}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{cc}	V _{cc}	V _{cc}
Short-Circuit Current	I _{SC}	3	-4.0	-100	-4.0	-100	-4.0	-100	-4.0	-100		I _{oa}	I _{ob}	I _{oc}	I _{oa}	I _{ob}	I _{oc}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{cc}	V _{cc}	V _{cc}
Power Requirements	I _{bus}	14	-	45	45	45	45	45	45	mA	I _{oa}	I _{ob}	I _{oc}	I _{oa}	I _{ob}	I _{oc}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{cc}	V _{cc}	V _{cc}	
Maximum Supply Current	I _{FDD}	14	-	32	32	32	32	32	32	mA	I _{oa}	I _{ob}	I _{oc}	I _{oa}	I _{ob}	I _{oc}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{cc}	V _{cc}	V _{cc}	
Power Supply Drain	I _{PSL}	14	-	55	55	55	55	55	55	mA	I _{oa}	I _{ob}	I _{oc}	I _{oa}	I _{ob}	I _{oc}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{cc}	V _{cc}	V _{cc}	
Switching Parameters	I _{pd}	1, 3	-	-	15	-	-	15	-	ns	I _{oa}	I _{ob}	I _{oc}	I _{oa}	I _{ob}	I _{oc}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{cc}	V _{cc}	V _{cc}	
Turn-Off Delay	t _{off}	1, 3	-	-	12	-	-	12	-	ns	I _{oa}	I _{ob}	I _{oc}	I _{oa}	I _{ob}	I _{oc}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{oi}	V _{cc}	V _{cc}	V _{cc}	
Notes: 1. t _{off} is measured by tying the output to V _{OH} not under load to V _{OH}																										

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AC ELECTRICAL CHARACTERISTICS

The timing waveforms in the AC Electrical Characteristics are tested with a V_{IL} maximum of 0.5 V and a V_{IH} minimum of 2.4 V for all pins, except EXTAL, RESET, MODA, MODB, and MODC. These pins are tested using the input levels set forth in the DC Electrical Characteristics. AC timing specifications that are referenced to a device input signal are measured in production with respect to the 50% point of the respective input signal's transition. DSP56002 output levels are measured with the production test machine V_{OL} and V_{OH} reference levels set at 0.8 V and 2.0 V, respectively.



Note: The midpoint is $V_{IL} + (V_{IH} - V_{IL})/2$.

AA0179

Figure 2-1 Signal Measurement Reference