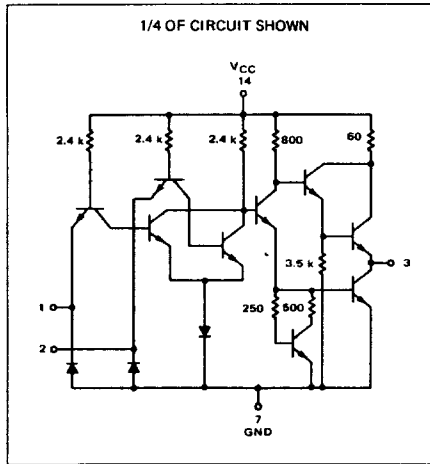


QUAD 2-INPUT "OR" GATE

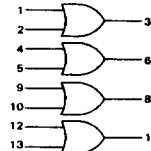
MTTL III MC3100/3000 series

MC3103F • MC3003F  
MC3103L • MC3003L<sub>P</sub>

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.

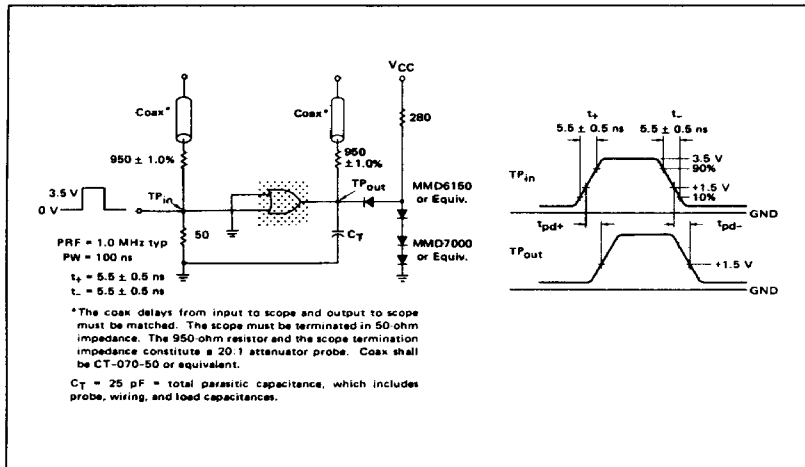


Positive Logic: 3 = 1 + 2  
Negative Logic: 3 = 1 - 2

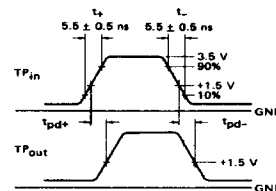
Input Loading Factor = 1  
Output Loading Factor = 10

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

SWITCHING TIME TEST CIRCUIT



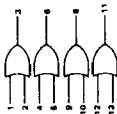
VOLTAGE WAVEFORMS AND DEFINITIONS



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.



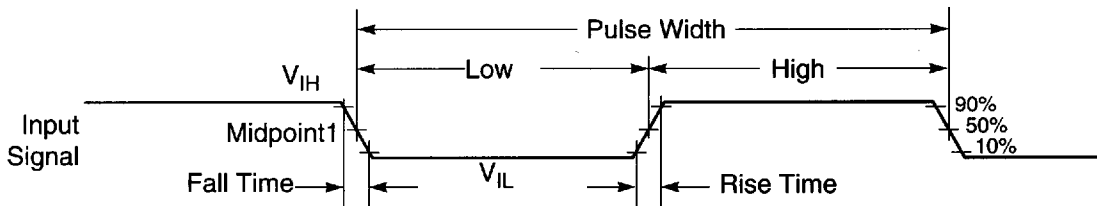
Characteristic	Symbol	Pin Under Test		MC3103 Test Limits			MC3003 Test Limits			TEST CURRENT/VOLTAGE VALUES											Gnd							
		Min	Max	-55°C	+25°C	+125°C	0°C	-25°C	+75°C	Test Temp	Temp	I <sub>OL</sub>	I <sub>OH</sub>	I <sub>L</sub>	I <sub>H</sub>	I <sub>b</sub>	I <sub>b</sub>	V <sub>OL</sub>	V <sub>OH</sub>	V <sub>L</sub>		V <sub>H</sub>	V <sub>L</sub>	V <sub>H</sub>	V <sub>OL</sub>	V <sub>OH</sub>	V <sub>CC</sub>	V <sub>CCN</sub>
Input																												
Forward Current	$I_F$	1	-	-2.0	-	-2.0	-	-2.0	-	-2.0	-	-2.0	-	-2.0	-	-2.0	-	-	-	-	-	-	-	-	-	-	-	-
Leakage Current	$I_L$	1	-	50	-	50	-	50	-	50	-	50	-	50	-	50	-	-	-	-	-	-	-	-	-	-	-	-
Breakdown Voltage	$V_{B1}$	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clamp Voltage	$V_D$	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Output																												
Output Voltage	$V_{OL}$	3	-	0.4	-	0.4	-	0.4	-	0.4	-	0.4	-	0.4	-	0.4	-	-	-	-	-	-	-	-	-	-	-	-
	$V_{OH}$	3	-	2.4	-	2.4	-	2.5	-	2.5	-	2.5	-	2.5	-	2.5	-	-	-	-	-	-	-	-	-	-	-	-
	$V_{OC}$	3	-	-4.0	-	-100	-	-4.0	-	-100	-	-4.0	-	-100	-	-4.0	-	-	-	-	-	-	-	-	-	-	-	-
Short-Circuit Current	$I_{SC}$	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Power Requirements																												
Total Device	$I_{BUS}$	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Max. Supply Current	$I_{DD1}$	14	-	32	-	32	-	32	-	32	-	32	-	32	-	32	-	-	-	-	-	-	-	-	-	-	-	-
Power Supply Drain	$I_{DD2}$	14	-	55	-	55	-	55	-	55	-	55	-	55	-	55	-	-	-	-	-	-	-	-	-	-	-	-
Switching																												
Parameters																												
Turn-ON Delay	$t_{ON}$	1,3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turn-OFF Delay	$t_{OFF}$	1,3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes: 1. In non-driving gate, power drain is minimized by tying the inputs to GND.  
2. Not under load to  $V_{CC}$ .

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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