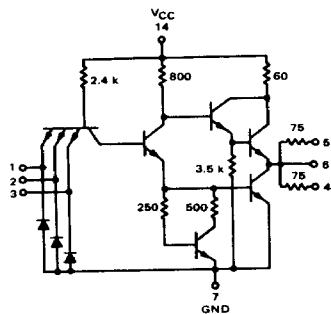


DUAL 3-INPUT 3-OUTPUT  
"NAND" SERIES TERMINATED  
LINE DRIVER

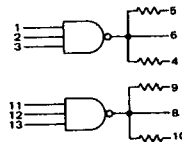
MTTL III MC3100/3000 series

MC3129F • MC3029F  
MC3129L • MC3029L,P

1/2 OF CIRCUIT SHOWN



This device is a dual 3-input/3-output series-terminated NAND line driver that minimizes switching transients on long lines by approximating line impedance. Two outputs are provided through 75-ohm resistors for use when driving 93 to 120-ohm lines. These outputs should be paralleled when driving 50 to 93-ohm lines. In addition, an output is provided directly at the gate output node for driving adjacent gates.



Positive Logic: 4, 5, 6 =  $\overline{1 \cdot 2 \cdot 3}$

Negative Logic: 4, 5, 6 =  $1 \cdot 2 \cdot 3$

Input Loading Factor = 1

Output Loading Factor, Direct Output (Pins 6 and 8) =  
8 Minus The Number of Resistor-Terminated Outputs  
Being Used.

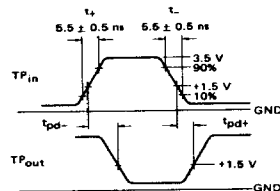
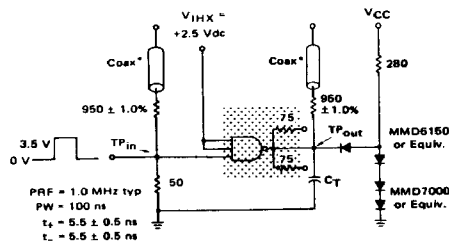
Output Loading Factor, Resistors (Pins 4, 5, 9 and 10) = 1

Total Power Dissipation = 44 mW typ/pkg

Propagation Delay Time = 6.0 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.

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

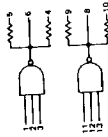
See General Information section for packaging.

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MC3129F, MC3029F/MC3129L, MC3029L,P (continued)

ELECTRICAL CHARACTERISTICS

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



② Test Temperature

+55°C  
+25°C  
+15°C  
+25°C  
+25°C  
+25°C

MC3129F  
MC3029F

TEST CURRENT/VOLTAGE VALUES

mA		mA		mA		mA		mA		mA		mA		mA		mA	
I <sub>QA</sub>	I <sub>QB</sub>	I <sub>QC</sub>	I <sub>QD</sub>	I <sub>QA</sub>	I <sub>QB</sub>	I <sub>QC</sub>	I <sub>QD</sub>	I <sub>QA</sub>	I <sub>QB</sub>	I <sub>QC</sub>	I <sub>QD</sub>	I <sub>QA</sub>	I <sub>QB</sub>	I <sub>QC</sub>	I <sub>QD</sub>	I <sub>QA</sub>	I <sub>QB</sub>
15	2.0	2.5	3.0	2.0	-	-	-	1.1	3.2	0.4	2.4	4.0	-	5.0	4.3	5.1	3.2
15	2.0	2.5	3.0	2.0	-	-	-	1.1	3.2	0.4	2.4	4.0	-	5.0	4.3	5.1	3.2
15	2.0	2.5	3.0	2.0	-	-	-	1.1	3.2	0.4	2.4	4.0	-	5.0	4.3	5.1	3.2
15	2.0	2.5	3.0	2.0	-	-	-	1.1	3.2	0.4	2.4	4.0	-	5.0	4.3	5.1	3.2
15	2.0	2.5	3.0	2.0	-	-	-	1.1	3.2	0.4	2.4	4.0	-	5.0	4.3	5.1	3.2
15	2.0	2.5	3.0	2.0	-	-	-	1.1	3.2	0.4	2.4	4.0	-	5.0	4.3	5.1	3.2
15	2.0	2.5	3.0	2.0	-	-	-	1.1	3.2	0.4	2.4	4.0	-	5.0	4.3	5.1	3.2
15	2.0	2.5	3.0	2.0	-	-	-	1.1	3.2	0.4	2.4	4.0	-	5.0	4.3	5.1	3.2
15	2.0	2.5	3.0	2.0	-	-	-	1.1	3.2	0.4	2.4	4.0	-	5.0	4.3	5.1	3.2
15	2.0	2.5	3.0	2.0	-	-	-	1.1	3.2	0.4	2.4	4.0	-	5.0	4.3	5.1	3.2

TEST CURRENT/VOLTAGE APPLIED TO PIN LISTED BELOW

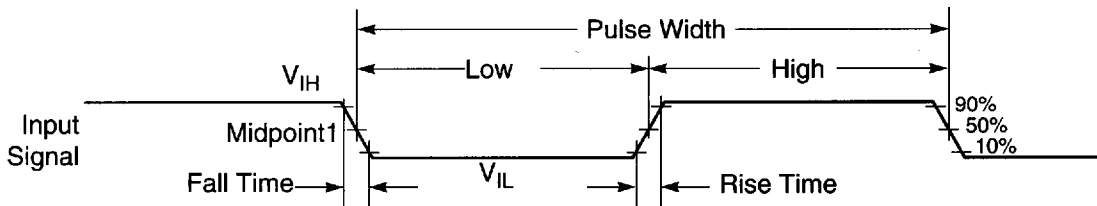
Characteristic	Symbol	Pin Under Test		MC3129 Test Limits						MC3029 Test Limits						Units	Gold
		Min	Max	-55°C	+25°C	+75°C	0°C	+25°C	+75°C	Min	Max	Min	Max	Min	Max		
Input Current	I <sub>IN</sub>	-2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Output Current	I <sub>OUT</sub>	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Propagation Delay	t <sub>pd</sub>	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Settling Time	t <sub>s</sub>	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Power Dissipation	P <sub>tot</sub>	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Thermal Resistance	θ <sub>JA</sub>	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

\* Since this is an inverting driver, power dissipation is calculated as product of the input and output current.

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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