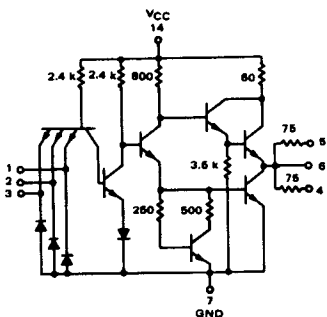


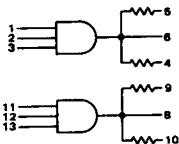
DUAL 3-INPUT 3-OUTPUT
"AND" SERIES TERMINATED
LINE DRIVER

MC3128F • MC3028F
MC3128L • MC3028L,P

1/2 OF CIRCUIT SHOWN



This device is a dual 3-input/3-output series-terminated AND 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, = 1 · 2 · 3
Negative Logic: 4, 5, 6, = 1 + 2 + 3

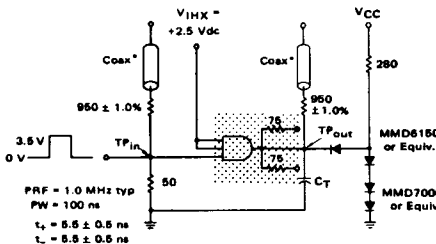
Input Loading Factor = 1

Output Loading Factor, Direct Output (Pins 6 & 8) = 8 minus the number of resistor-terminated outputs being used.

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

Total Power Dissipation = 56 mW typ/pkg
Propagation Delay Time = 9.0 ns typ

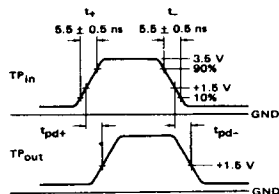
SWITCHING TIME TEST CIRCUIT



*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 constitutes 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.

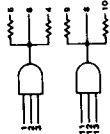
VOLTAGE WAVEFORMS AND DEFINITIONS



MC3128F, MC3028F/MC3128L, MC3028L,P (continued)

ELECTRICAL CHARACTERISTICS

Test procedure are shown for only one line driver. The other line driver test procedure are similar. Further test procedures are shown for only one input of the line driver being tested. To complete testing, sequence through remaining inputs.



④ Test Temperature

Temp	-55°C	+25°C	+75°C	
MC3128	18	2.0	-1.8	-0.1
MC3028	18	2.0	-1.8	-0.1

TEST CURRENT/VOLTAGE VALUES

mA		mA		mA		mA		mA		mA		mA		mA	
I _{CC1}	I _{CC2}	I _{CC3}	I _{CC4}	I _{CC5}	I _{CC6}	I _{CC7}	I _{CC8}	I _{CC9}	I _{CC10}	I _{CC11}	I _{CC12}	I _{CC13}	I _{CC14}	I _{CC15}	I _{CC16}
1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

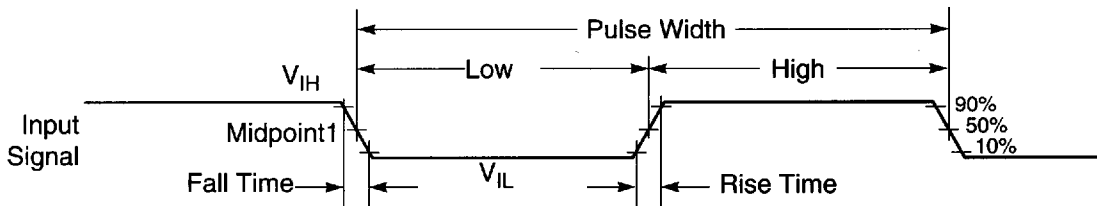
TEST CURRENT/VOLTAGE APPLIED TO PINS LISTED BELOW

Characteristic	Symbol	MC3128 Test Limits						MC3028 Test Limits						Units
		-55°C		+25°C		+75°C		-55°C		+25°C		+75°C		
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	
Input Current	I _{I1}	3	-2.0	-3.0	-2.0	-2.0	-0.9	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	mA
Leakage Current	I _{L1}	1	50	50	50	50	50	50	50	50	50	50	50	μA
Breakdown Voltage	V _{BR1}	1	-	9.3	-	-	-	-	-	-	-	-	-	V
Clamp Voltage	V _{O1}	1	-	-1.3	-	-	-	-	-	-	-	-	-	V
Output Voltage	V _{O11}	6	0.4	0.6	0.4	0.4	0.6	0.4	0.6	0.4	0.6	0.4	0.6	V
Output Current	I _{O11}	5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	mA
Short-Circuit Current	I _{SC}	6	40	100	40	100	40	100	40	100	40	100	40	mA
Power Dissipation (Total Device)	P _{D1}	15	-	18	-	-	-	18	-	18	-	-	18	mW
Power Supply Current	I _{CC1}	14	12	13	12	13	12	13	12	13	12	13	12	mA
Power Supply Drive	I _{CC1D}	14	24	24	24	24	24	24	24	24	24	24	24	mA
Power Supply Drive	I _{CC1D}	14	24	24	24	24	24	24	24	24	24	24	24	mA
Turn-On Delay	t _{ON}	1.6	-	11	-	13	-	13	-	13	-	13	-	ns
Turn-Off Delay	t _{OFF}	1.6	-	12	-	13	-	13	-	13	-	13	-	ns

Notes: 1. All test conditions given; power stress is simulated by using the upper V_{BE} value under test as V_{BE}.

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