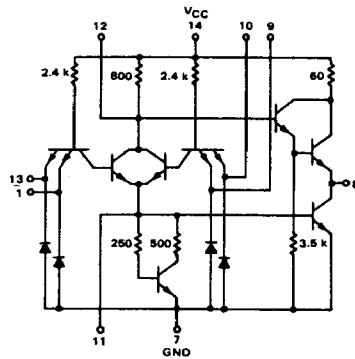


EXPANDABLE DUAL
2-WIDE 2-INPUT
"AND-OR-INVERT" GATE

MTTL III MC3100/3000 series

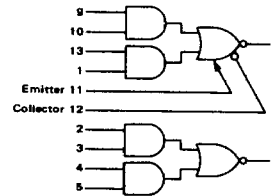
MC3120F • MC3020F
MC3120L • MC3020L,P
(54H50J) (74H50J,N)

1/2 OF CIRCUIT SHOWN †



†Other half of circuit omits expander inputs.

One side of this dual device consists of two 2-input AND gates ORed together and driving an output inverter. The other side consists of two 2-input gates ORed together, driving an output inverter, and the ORING nodes are available for expansion. Up to four AND gates can be ORed together using the MC3030 expander. Care should be taken to minimize the amount of capacitance on the expander terminals in order to maintain switching speeds.



Positive Logic:

$$B = (9 \cdot 10) + (13 \cdot 1) + (\text{Expanders})$$

Negative Logic:

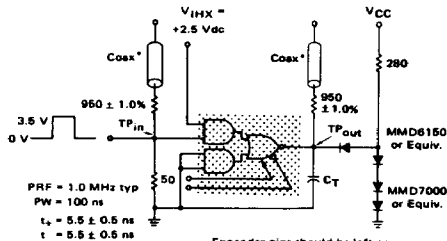
$$B = (9 + 10) \cdot (13 + 1) \cdot (\text{Expanders})$$

Input Loading Factor = 1

Output Loading Factor = 10

Total Power Dissipation = 62.5 mW typ/pkg
Propagation Delay Time = 6.0 ns typ

SWITCHING TIME TEST CIRCUIT

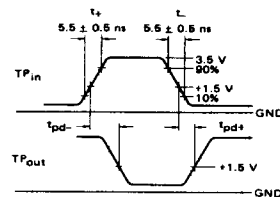


Expander pins should be left open when measuring switching times.

*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.

VOLTAGE WAVEFORMS AND DEFINITIONS

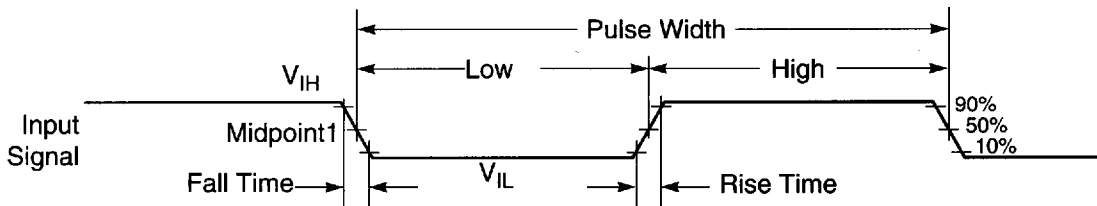


See General Information section for packaging.

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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