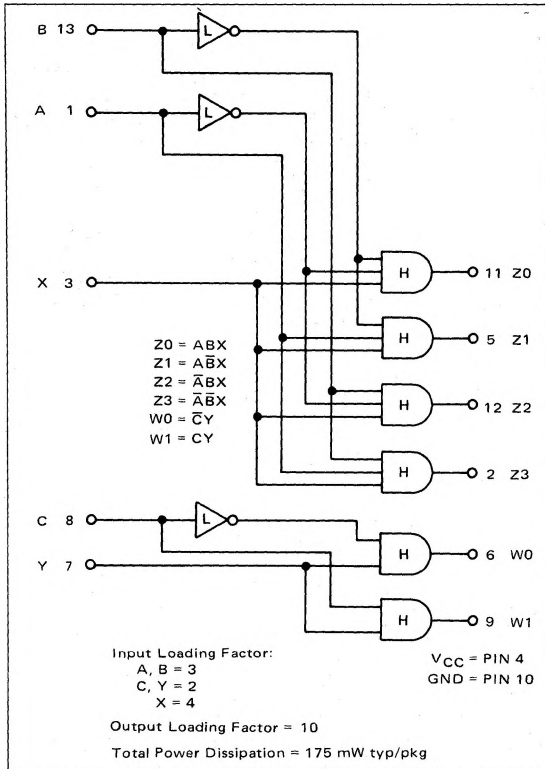


DUAL DATA  
DISTRIBUTOR

MC4300/MC4000 series

MC4002F, L, P\*



ADVANCE INFORMATION/NEW PRODUCT

This device consists of two data distributors constructed from high-level AND gates and low-level inverters. One distributes information present at the input line to one of four output lines; the other distributes information present at the input to one of two output lines. The routing path is selected by the logic signals at the control lines A, B or C.

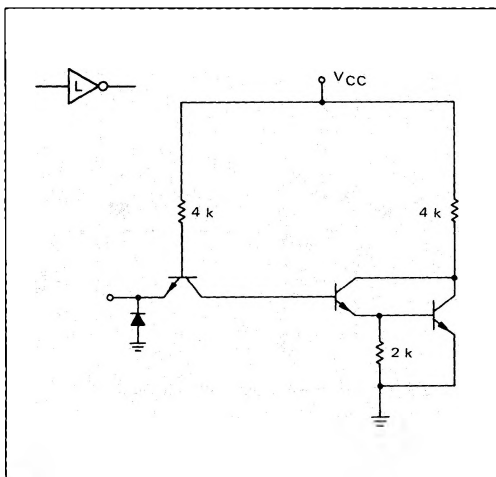
Data distributors are useful in applications where digital data is to be routed from a single register or location to one of several registers or locations for processing.

TYPICAL PROPAGATION DELAY TIMES (ns)  
 $T_A = 25^\circ\text{C}$

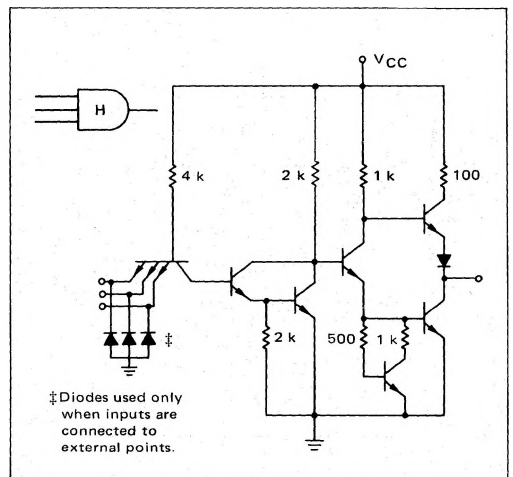
INPUT	Z0	Z1	Z2	Z3
A	14.5	10.5	14.5	10.5
B	14.5	14.5	10.5	10.5
X	10.5	10.5	10.5	10.5

INPUT	W0	W1
C	14.5	10.5
Y	10.5	10.5

LOW-LEVEL INVERTER



HIGH-LEVEL "AND" GATE



\*F suffix = TO-86 ceramic flat package (Case 607).  
 L suffix = TO-116 ceramic dual in-line package (Case 632).  
 P suffix = TO-116 plastic dual in-line package (Case 605).

# MC4002F, L, P (continued)

## INPUT and OUTPUT LOADING FACTORS with respect to M TTL and MD TL families

FAMILY	MC4000 INPUT LOADING FACTOR	MC4000 OUTPUT LOADING FACTOR
MC4000	1.0	10
MC400	1.0	10
MC2000	0.67	6
MC3000	0.7	8
MC7400	1.0	10
MC830	1.15**	12

Note: Differences in MC4000 series loading factors result from differences in specifications for each family.

\*\*Applies only when input is being driven by MD TL gate with 2.0 k ohm pullup resistor. Logic "1" state drive limitations of gates with 6.0 k ohm pullup resistors reduce drive capability to fan-out of 3.

## DC ELECTRICAL CHARACTERISTICS

(T<sub>A</sub> = 0 to 75°C)

Characteristic	Symbol	Value	Conditions
<b>Input</b>			
Forward Current – A, B	I <sub>F1</sub>	-4.8 mA <sub>dc</sub> max	V <sub>in</sub> = 0.4 V <sub>dc</sub> , V <sub>CC</sub> = 5.25 V <sub>dc</sub>
C, Y		-3.2 mA <sub>dc</sub> max	
X		-6.4 mA <sub>dc</sub> max	
A, B	I <sub>F2</sub>	-4.2 mA <sub>dc</sub> max	V <sub>in</sub> = 0.4 V <sub>dc</sub> , V <sub>CC</sub> = 4.75 V <sub>dc</sub>
C, Y		-2.8 mA <sub>dc</sub> max	
X		-5.6 mA <sub>dc</sub> max	
Leakage Current – A, B	I <sub>R</sub>	120 μA <sub>dc</sub> max	V <sub>in</sub> = 2.5 V <sub>dc</sub> , V <sub>CC</sub> = 5.25 V <sub>dc</sub>
C, Y		80 μA <sub>dc</sub> max	
X		160 μA <sub>dc</sub> max	
Breakdown Voltage	BV <sub>in</sub>	5.5 V <sub>dc</sub> max	I <sub>in</sub> = 1.0 mA <sub>dc</sub> , V <sub>CC</sub> = 5.25 V <sub>dc</sub> , T <sub>A</sub> = 25°C
Clamp Voltage	V <sub>D</sub>	-1.5 V <sub>dc</sub> max	I <sub>D</sub> = -10 mA <sub>dc</sub> , V <sub>CC</sub> = 4.75 V <sub>dc</sub> , T <sub>A</sub> = 25°C
Threshold Voltage	V <sub>th</sub> "1"	2.0 V <sub>dc</sub>	T <sub>A</sub> = 0°C
		1.8 V <sub>dc</sub>	T <sub>A</sub> = +25°C, or T <sub>A</sub> = +75°C
	V <sub>th</sub> "0"	1.1 V <sub>dc</sub>	T <sub>A</sub> = 0°C, or T <sub>A</sub> = +25°C
		0.9 V <sub>dc</sub>	T <sub>A</sub> = +75°C
<b>Output</b>			
Output Voltage	V <sub>OL</sub>	0.4 V <sub>dc</sub> max	I <sub>OL</sub> = 16 mA <sub>dc</sub> , V <sub>CC</sub> = 4.75 V <sub>dc</sub> †
		0.4 V <sub>dc</sub> max	I <sub>OL</sub> = 17.6 mA <sub>dc</sub> , V <sub>CC</sub> = 5.25 V <sub>dc</sub> †
	V <sub>OH</sub>	2.5 V <sub>dc</sub> min	I <sub>OH</sub> = -1.6 mA <sub>dc</sub> , V <sub>CC</sub> = 4.75 V <sub>dc</sub> †
Short-Circuit Current	I <sub>SC</sub>	-20 to -65 mA <sub>dc</sub>	V <sub>CC</sub> = 5.0 V <sub>dc</sub> , output grounded †

†These tests are performed according to the logic equations with a true input equal to V<sub>th</sub> "1" and a false input equal to V<sub>th</sub> "0".