

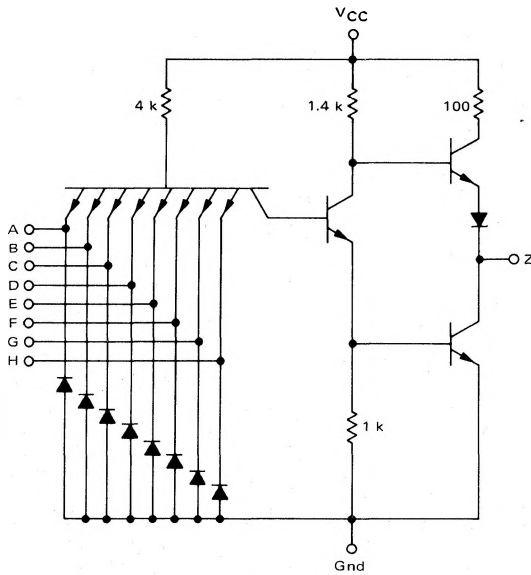
8-INPUT "NAND" GATE

MC5400/7400 series

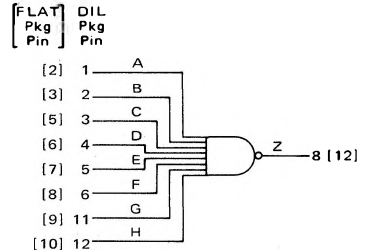
MC5430 • MC7430

Add Suffix F for TO-86 ceramic package (Case 607).
 Suffix L for TO-116 ceramic package (Case 632).
 Suffix P for TO-116 plastic package (Case 605) MC7430 only.

CIRCUIT SCHEMATIC



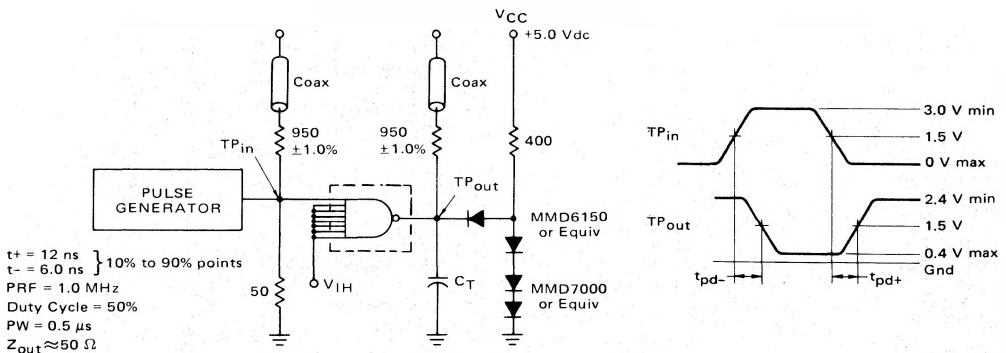
V_{CC} = Pin 14 [4]
 Gnd = Pin 7 [11]



Positive Logic:
 $Z = A \cdot B \cdot C \cdot D \cdot E \cdot F \cdot G \cdot H$
 Negative Logic:
 $Z = A + B + C + D + E + F + G + H$

Input Loading Factor = 1
 Output Loading Factor = 10
 Total Power Dissipation = 10 mW typ/pkg
 Propagation Delay Time = 10 ns typ

SWITCHING TIME TEST CIRCUIT AND WAVEFORMS

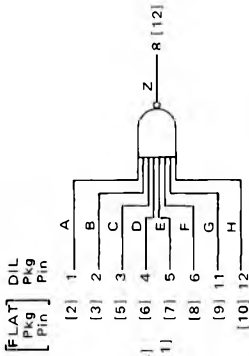


$C_T = 15 \text{ pF}$ = total parasitic capacitance, which includes probe, wiring, and load capacitances.
 The coax delays from input to scope and output to scope must be matched. The scope must be terminated in 50-ohm impedance. The 950-ohm resistor and the scope termination impedance constitute a 20:1 attenuator probe. Coax shall be CT-070-50 or equivalent.

MC5430, MC7430 (continued)

ELECTRICAL CHARACTERISTICS

Test procedures are shown for only one input. To complete testing, sequence through remaining inputs in the same manner.



$$V = V_{CC} = \text{Pin 14 [4]}$$

$$\text{Gnd} = \text{Pin 7 [11]}$$

Characteristic	Symbol	Pin Under Test	MC5430 Test Limits -55 to +125°C		MC7430 Test Limits 0 to +70°C		TEST CURRENT/VOLTAGE VALUES (All Temperatures)																	
			Min	Max	Min	Max	Volts																	
Input Forward Current	I_F	A	mAdc		mAdc		I_{OL}	I_{OH}	V_{IL}	V_{IH}	V_{IH}	V_{IH}	V_{R1}	V_{R2}	$V_{ih,1}$	$V_{ih,1}$	$V_{ih,0}$	V_{CC}	V_{CCL}	V_{CCH}				
			-1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
			40	40	4.5	5.5	4.5	5.0	2.0	2.0	0.8	5.0	4.5	5.0	4.5	5.0	2.0	0.8	5.0	4.5	5.0	4.75	5.25	
Leakage Current	I_{R1}	A	μ Adc		μ Adc		I_{OL}	I_{OH}	V_{IL}	V_{IH}	V_{IH}	V_{R1}	V_{R2}	$V_{ih,1}$	$V_{ih,1}$	$V_{ih,0}$	V_{CC}	V_{CCL}	V_{CCH}					
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
			1.0	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Output Output Voltage	V_{OL}	Z	Vdc		Vdc		I_{OL}	I_{OH}	V_{IL}	V_{IH}	V_{IH}	V_{R1}	V_{R2}	$V_{ih,1}$	$V_{ih,1}$	$V_{ih,0}$	V_{CC}	V_{CCL}	V_{CCH}					
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Short-Circuit Current	I_{SC}^\dagger	Z	mAdc		mAdc		I_{OL}	I_{OH}	V_{IL}	V_{IH}	V_{IH}	V_{R1}	V_{R2}	$V_{ih,1}$	$V_{ih,1}$	$V_{ih,0}$	V_{CC}	V_{CCL}	V_{CCH}					
			-20	-55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Power Requirements																								
Power Supply Drain	I_{PDH}	V	mAdc		mAdc		I_{OL}	I_{OH}	V_{IL}	V_{IH}	V_{IH}	V_{R1}	V_{R2}	$V_{ih,1}$	$V_{ih,1}$	$V_{ih,0}$	V_{CC}	V_{CCL}	V_{CCH}					
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Switching Parameters	t_{pd+}	A,Z	ns		ns		I_{OL}	I_{OH}	V_{IL}	V_{IH}	V_{IH}	V_{R1}	V_{R2}	$V_{ih,1}$	$V_{ih,1}$	$V_{ih,0}$	V_{CC}	V_{CCL}	V_{CCH}					
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turn-On Delay	t_{pd-}	A,Z	ns		ns		I_{OL}	I_{OH}	V_{IL}	V_{IH}	V_{IH}	V_{R1}	V_{R2}	$V_{ih,1}$	$V_{ih,1}$	$V_{ih,0}$	V_{CC}	V_{CCL}	V_{CCH}					
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turn-Off Delay	t_{pd+}	A,Z	ns		ns		I_{OL}	I_{OH}	V_{IL}	V_{IH}	V_{IH}	V_{R1}	V_{R2}	$V_{ih,1}$	$V_{ih,1}$	$V_{ih,0}$	V_{CC}	V_{CCL}	V_{CCH}					
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* Tested only at 25°C.
† Only one output should be shorted at a time.