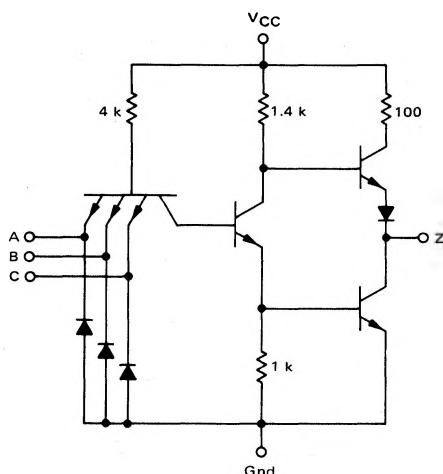


TRIPLE 3-INPUT "NAND" GATE

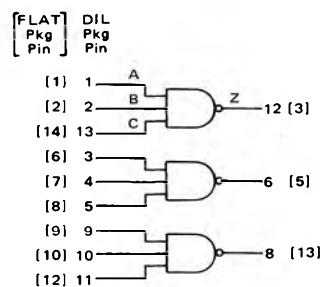
MC5400/7400 series

MC5410 • MC7410

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) MC7410 only.

CIRCUIT SCHEMATIC
1/3 OF CIRCUIT SHOWN

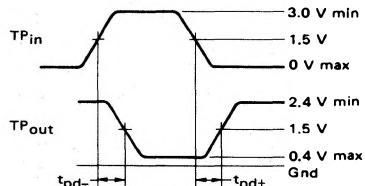
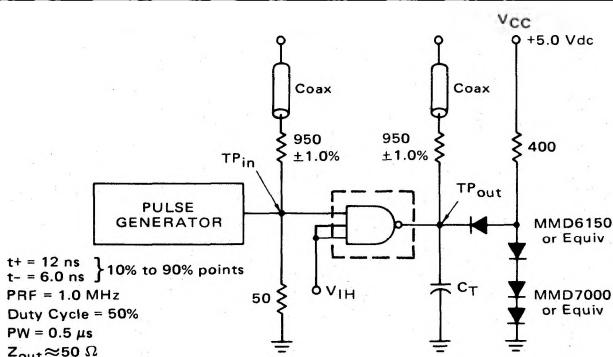
V_{CC} = Pin 14 [4]
 Gnd = Pin 7 [11]



Positive Logic: $Z = \overline{A \cdot B \cdot C}$
 Negative Logic: $Z = A + B + C$

Input Loading Factor = 1
 Output Loading Factor = 10
 Total Power Dissipation = 30 mW typ/pkg
 Propagation Delay Time = 10 ns typ

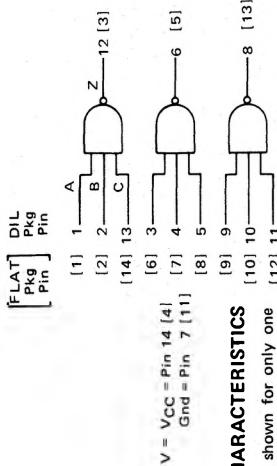
SWITCHING TIME TEST CIRCUIT AND WAVEFORMS



$C_T = 15 \text{ pF}$ = 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.

MC5410, MC7410 (continued)



ELECTRICAL CHARACTERISTICS

Test procedures are shown for only one gate. The other gates are tested in the same manner. Further, test procedures are shown for only one input of the gate under test. To complete testing, sequence through remaining inputs.

TEST CURRENT/VOLTAGE VALUES (All Temperatures)

TEST CURRENT/VOLTAGE VALUES (All Temperatures)												
Volts												
	mA	I _{OL}	I _{OH}	V _{IL}	V _{IH}	V _{IHH}	V _{R1}	V _{R2}	V _{H1}	V _{H0}	V _{CC}	V _{CCH}
MC5410	16	-0.4	0.4	2.4	5.5	4.5	5.0	5.0	2.0	0.8	5.0	4.50
MC7410	16	-0.4	0.4	2.4	5.5	4.5	5.0	5.0	2.0	0.8	5.0	4.75

Pin 7[14] is grounded for all tests in addition to the pins listed below:

TEST CURRENT/VOLTAGE APPLIED TO PINS LISTED BELOW:												
	mA	I _{OL}	I _{OH}	V _{IL}	V _{IH}	V _{IHH}	V _{R1}	V _{R2}	V _{H1}	V _{H0}	V _{CC}	V _{CCH}
MC5410 Test Limits	0 to +70°C											Ground
Under -55 to +125°C	Min	Max	Unit	Min	Max	Unit	Min	Max	Unit	Min	Max	
Input Forward Current	I _F	A	-	-1.6	mAdc	-	-1.6	mAdc	-	A	-	B,C
Leakage Current	I _{H1}	A	-	40	μAdc	-	40	μAdc	-	A	-	-
	I _{H2}	A	-	1.0	mAdc	-	1.0	mAdc	-	-	A	-
Output Output Voltage	V _{OL}	Z	-	0.4	Vdc	-	0.4	Vdc	Z	-	-	A,B,C
	V _{OH}	Z	2.4	-	Vdc	2.4	-	Vdc	Z	-	B,C	-
Short-Circuit Current	I _{SC} †	Z	-20	-55	mAdc	-18	-55	mAdc	-	-	-	A,B,C*
Power Requirements (Total Device)	I _{PDH}	V	-	16.5	mAdc	-	16.5	mAdc	-	-	All Inputs	-
Power Supply Drain	I _{PDL}	V	-	6.0	mAdc	-	6.0	mAdc	-	-	-	V,A,B,C*
Switching Parameters	t _{pd} -	A,Z	-	15**	ns	-	15**	ns	A	Z	-	B,C
Turn-On Delay	t _{pd} -	A,Z	-	22**	ns	-	22**	ns	A	Z	-	-
Turn-Off Delay	t _{pd} +	A,Z	-	22**	ns	-	22**	ns	A	Z	-	-

*Ground inputs to gates not under test.

**Tested only at 25°C.

†Only one output should be shorted at a time.