



**MC5404 • MC7404**

2

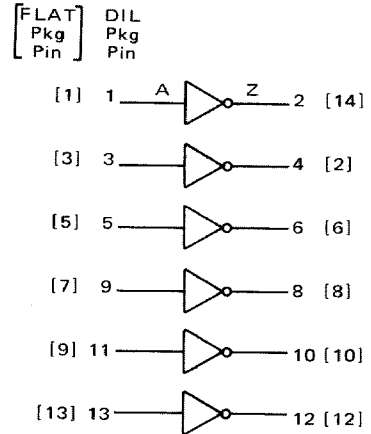
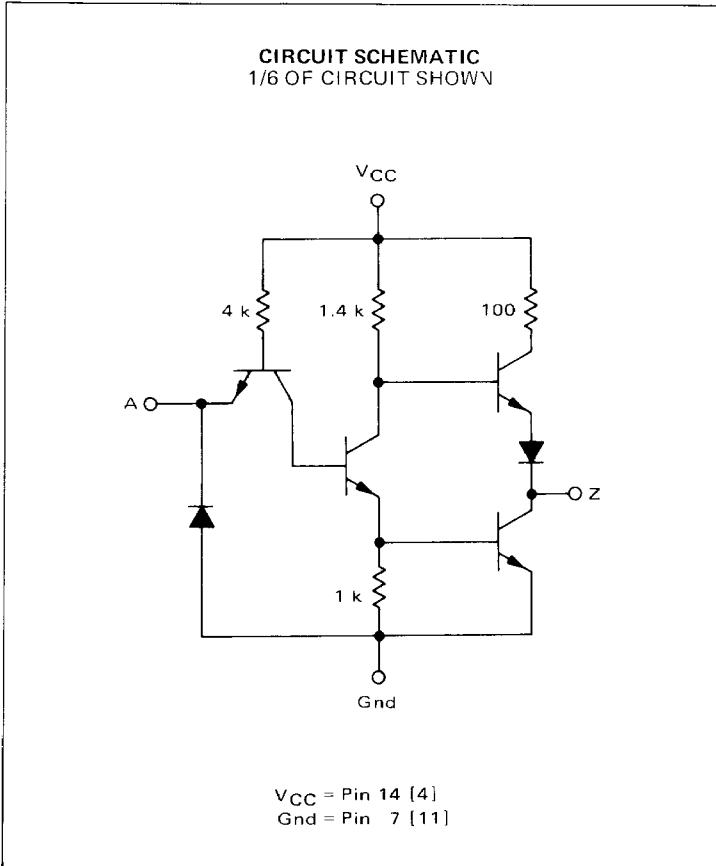
ORIG

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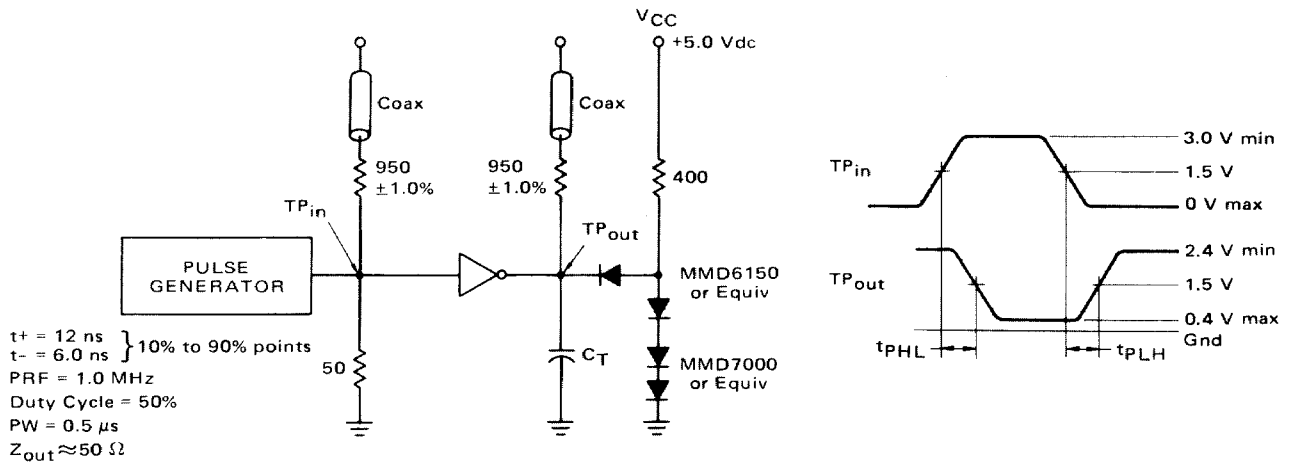
Add Suffix F for TO-86 ceramic package (Case 607).  
 Suffix L for TO-116 ceramic package (Case 632).  
 Suffix P for TO-116 plastic package (Case 646) MC7404 only.



Positive Logic:  $Z = \bar{A}$

Input Loading Factor = 1  
 Output Loading Factor = 10  
 Total Power Dissipation = 60 mW typ/pkg  
 Propagation Delay Time = 13 ns typ

**SWITCHING TIME TEST CIRCUIT AND WAVEFORMS**

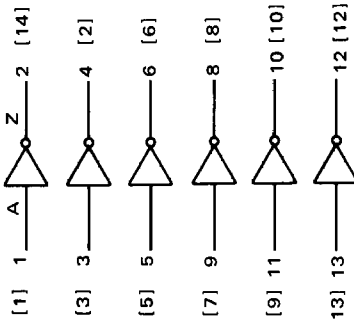
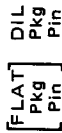


$C_T = 15 \text{ pF}$  = total parasitic capacitance, which includes probe, wiring, and load capacitances.

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.

**ELECTRICAL CHARACTERISTICS**

Test procedures are shown for only one inverter. The other inverters are tested in the same manner.



V = VCC = Pin 14 [4]  
Gnd = Pin 7 [11]

Characteristic		Pin Under Test		TEST CURRENT/VOLTAGE VALUES (All Temperatures)												
				mA					Volts							
				I <sub>OL</sub>	I <sub>OH</sub>	V <sub>IL</sub>	V <sub>IH</sub>	V <sub>IHH</sub>	V <sub>RI</sub>	V <sub>R2</sub>	V <sub>IH1</sub>	V <sub>Ih0</sub>	V <sub>CC</sub>	V <sub>CCL</sub>	V <sub>CCH</sub>	
		16	-0.4	0.4	2.4	5.5	4.5	5.0	2.0	0.8	5.0	4.75	5.25	Pin 7 [11] is grounded for all tests in addition to the pins listed below:		
		16	-0.4	0.4	2.4	5.5	4.5	5.0	2.0	0.8	5.0	4.75	5.25			
		TEST CURRENT/VOLTAGE APPLIED TO PINS LISTED BELOW:														
		I <sub>OL</sub>	I <sub>OH</sub>	V <sub>IL</sub>	V <sub>IH</sub>	V <sub>IHH</sub>	V <sub>RI</sub>	V <sub>R2</sub>	V <sub>IH1</sub>	V <sub>Ih0</sub>	V <sub>CC</sub>	V <sub>CCL</sub>	V <sub>CCH</sub>			
Input Forward Current	I <sub>F</sub>	-	-	A	-	-	-	-	-	-	-	-	-	-	*	
Leakage Current	I <sub>R1</sub>	-	-	-	A	-	-	-	-	-	-	-	-	-	*	
	I <sub>R2</sub>	-	-	-	-	A	-	-	-	-	-	-	-	-	*	
Output Output Voltage	V <sub>OL</sub>	Z	-	-	-	-	-	-	A	-	-	V	-	-	*	
	V <sub>OH</sub>	Z	2.4	-	-	-	-	-	-	A	-	V	-	-	*	
Short-Circuit Current	I <sub>OS</sub> †	Z	-20	-55	mAdc	-18	-	-	-	-	-	-	-	-	A, Z*	
Power Requirements (Total Device)	I <sub>PDH</sub>	V	-	33	mAdc	-	33	mAdc	-	-	-	-	-	-	-	
	I <sub>PDL</sub>	V	-	12	mAdc	-	12	mAdc	-	-	-	-	-	-	-	
Switching Parameters	Turn-On Delay	t <sub>PHL</sub>	A, Z	-	15**	ns	-	-	-	-	-	-	-	-	-	-
Turn-Off Delay	t <sub>PLH</sub>	A, Z	-	-	22**	ns	-	-	-	-	-	-	-	-	-	-

\* Ground inputs to inverters not under test.  
\*\* Tested only at 25°C.  
† Only one output should be shorted at a time.



**MOTOROLA Semiconductor Products Inc.**

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