



# MC5490 • MC7490 MC9390 • MC8390

Add Suffix F for TO-86 ceramic flat package (Case 607).

Suffix L for TO-116 dual in-line ceramic package (Case 632).

Suffix P for TO-116 dual in-line plastic package (Case 646) MC7490, MC8390

RESET/COUNT TRUTH TABLE

R0		R9		OUTPUT			
Pin 2	Pin 3	Pin 6	Pin 7	Q3	Q2	Q1	Q0
1	1	0	X	0	0	0	0
1	1	X	0	0	0	0	0
X	X	1	1	1	0	0	1
X	0	X	0	COUNT			
0	X	0	X	COUNT			
0	X	X	0	COUNT			
X	0	0	X	COUNT			

X = Don't care.

COUNT SEQUENCE TRUTH TABLE

COUNT	OUTPUT			
	Q3	Q2	Q1	Q0
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1

Q0 connected to  $\overline{C1}$ .

Input Loading Factor:

R0, R9 = 1

$\overline{C0}$  = 2

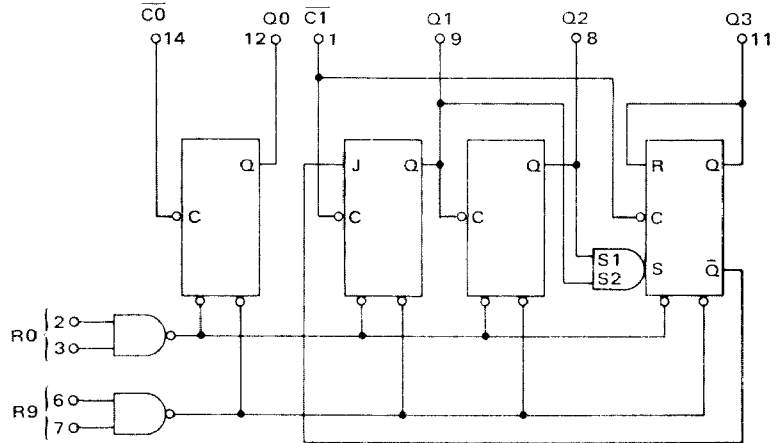
$\overline{C1}$  = 4

Output Loading Factor = 10

Total Power Dissipation = 160 mW typ/pkg

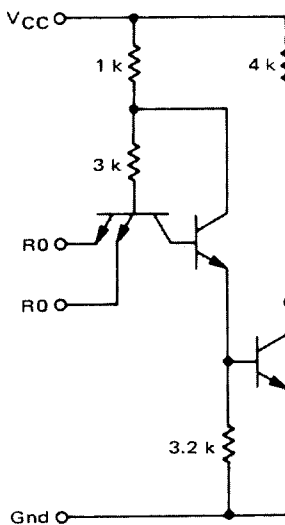
Propagation Delay Time = 20 ns typ/bit

These 4-bit counters are comprised of a divide-by-two section and a divide-by-five section. These sections can be used independently, or can be connected to perform the counting function or the simple divide-by-ten function. Two sets of direct RESET inputs are provided to allow setting all outputs to a logic "0" or to the BCD count of 9.



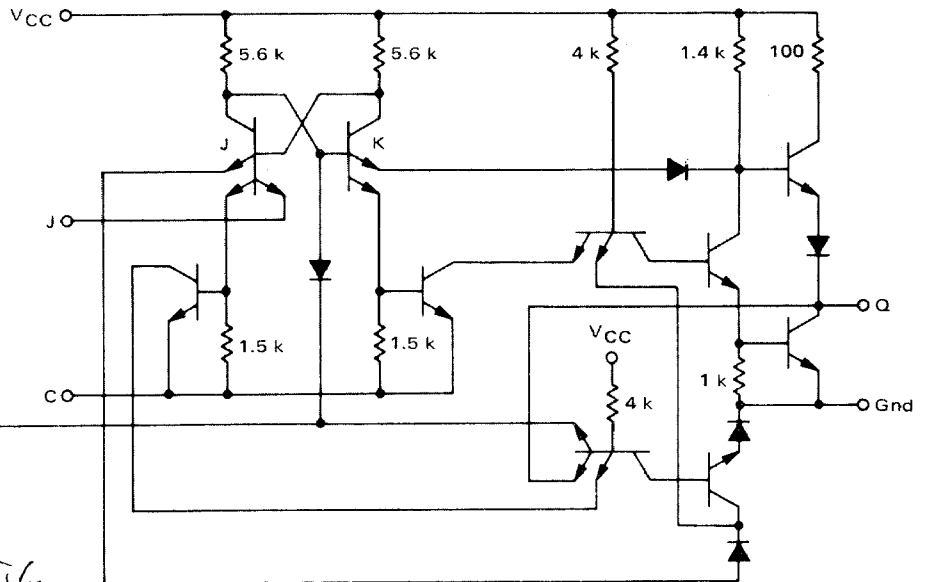
VCC = Pin 5  
Gnd = Pin 10

TYPICAL RESET GATE



2

TYPICAL FLIP-FLOP



oAIG

004478

4478

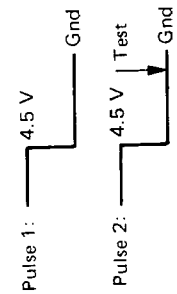
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**ELECTRICAL CHARACTERISTICS**

Test procedures are shown for only one input of each reset gate. The other input of each reset gate is tested in the same manner.

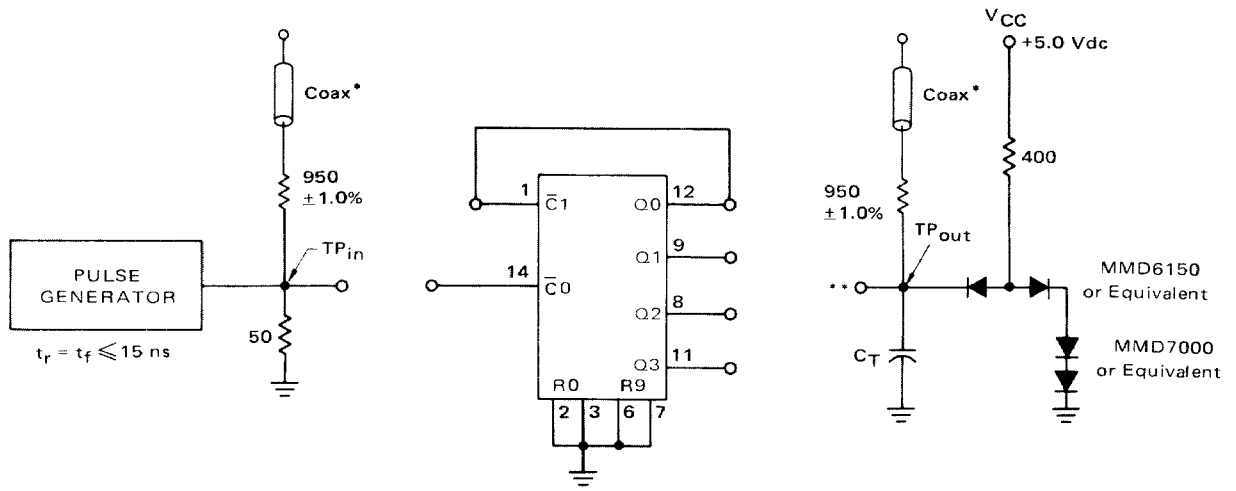
		TEST CURRENT/VOLTAGE VALUES (All Temperatures)																							
		mA						Volts																	
		I <sub>OL</sub>	I <sub>OH</sub>	V <sub>IL</sub>	V <sub>IH</sub>	V <sub>IHH</sub>	V <sub>R</sub>	V <sub>ILT1</sub>	V <sub>IHT1</sub>	V <sub>VILT2</sub>	V <sub>VIHT2</sub>	V <sub>CCCL</sub>	V <sub>CCCH</sub>												
Input	Forward Current	16	-0.4	0.4	2.4	5.5	4.5	0.8	2.0	0.7	2.0	5.0	4.5												
	Leakage Current	16	-0.4	0.4	2.4	5.5	4.5	0.8	2.0	0.8	2.0	5.0	4.75												
TEST CURRENT/VOLTAGE APPLIED TO PINS LISTED BELOW:																									
Characteristic	Symbol	Pin Under Test	MC5490/MC9390 Test Limits -55 to +125°C			MC7490/MC8390 Test Limits 0 to +75°C																			
			Min	Max	Unit	Min	Max	Unit	I <sub>OL</sub>	I <sub>OH</sub>	V <sub>IL</sub>	V <sub>IH</sub>	V <sub>IHH</sub>	V <sub>R</sub>	V <sub>ILT1</sub>	V <sub>IHT1</sub>	V <sub>VILT2</sub>	V <sub>VIHT2</sub>	V <sub>CCCL</sub>	V <sub>CCCH</sub>					
Output*	Output Voltage	O0	-	-	-	-	0.4	Vdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	Short-Circuit Current	Pulse 2	-20	-57	mAdc	-18	-57	mAdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Output Voltage	Pulse 2	2.4	-	Vdc	2.4	-	Vdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Pulse 2	O1	-	0.4	Vdc	-	0.4	Vdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Pulse 2	Pulse 2	-20	-57	mAdc	-18	-57	mAdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Pulse 3	O2	-	0.4	Vdc	-	0.4	Vdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Pulse 3	Pulse 3	-20	-57	mAdc	-18	-57	mAdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Pulse 4	O3	-	0.4	Vdc	-	0.4	Vdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Pulse 4	Pulse 4	-20	-57	mAdc	-18	-57	mAdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Power Requirements (Total Device)	Power Supply Drain	ICC	-	46	mAdc	-	53	mAdc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

\*Pulse 1 applied prior to Pulse 2, 3, and 4.



†Only one output should be shorted at a time.

### SWITCHING TIME TEST CIRCUIT AND WAVEFORMS



$f_{\text{tog}} = 10 \text{ MHz min}$

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

\*\*A load is connected to each output during the test.

