

**MC1690**  
**OBSOLETE**  
**USE MC12090**

**ELECTRICAL CHARACTERISTICS**

Characteristic	Symbol	-30°C		+25°C		+85°C		Unit
		Min	Max	Min	Max	Min	Max	
Power Supply Drain Current	$I_E$	—	—	—	59	—	—	mAdc
Input Current Pins 7, 9 Pins 11, 12	$I_{inH}$	—	—	—	250	—	—	$\mu$ Adc
		—	—	—	270	—	—	
Switching Times				Min	Typ	Max		ns
Propagation Delay	$t_{pd}$	—	—	—	1.5	—	—	
Rise Time, Fall Time (10% to 90%)	$t^+, t^-$	—	—	—	1.3	—	—	ns
Setup Time	$t_{setup}$	—	—	—	0.3	—	—	ns
Hold Time	$t_{hold}$	—	—	—	0.3	—	—	
Toggle Frequency	$f_{Tog}$	500	—	500	540	—	500	MHz

**UHF PRESCALER  
 TYPE D FLIP-FLOP**



**L SUFFIX  
 CERAMIC PACKAGE  
 CASE 620**

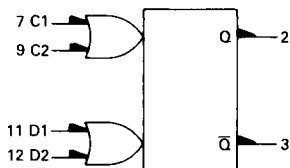
**TRUTH TABLE**

C	D	$Q_{n+1}$
L	$\phi$	$Q_n$
H	$\phi$	$Q_n$
	L	L
	H	H

C = C1 + C2  
 D = D1 + D2

$\phi$  = Don't Care

**LOGIC DIAGRAM**



VCC1 = Pin 1  
 VCC2 = Pin 16  
 VEE = Pin 8

$F_D$  = 200 mW typ/pkg (No Load)  
 $f_{Tog}$  = 500 MHz min

**PIN ASSIGNMENT**

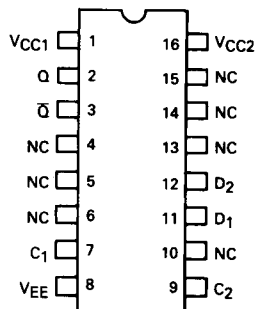


FIGURE 1 — TOGGLE FREQUENCY TEST CIRCUIT

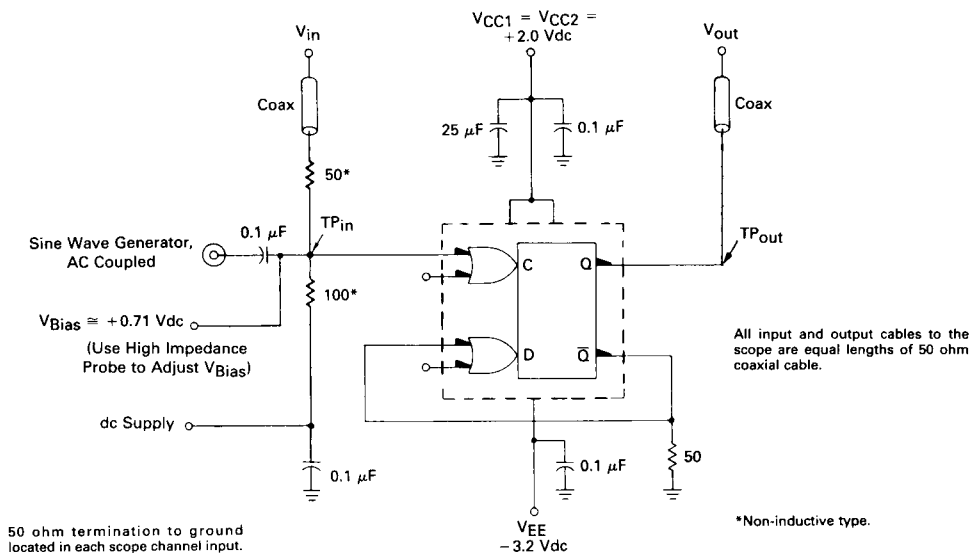
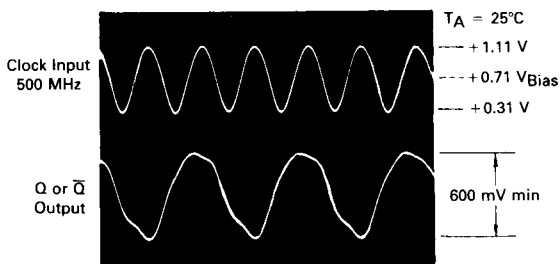


FIGURE 2 — TOGGLE FREQUENCY WAVEFORMS



The maximum toggle frequency of the MC1690 has been exceeded when either:

1. The output peak-to-peak voltage swing falls below 600 millivolts,
- OR
2. The device ceases to toggle (divide-by-two).

Note: All power supply and logic levels are shown shifted 2.0 volts positive.