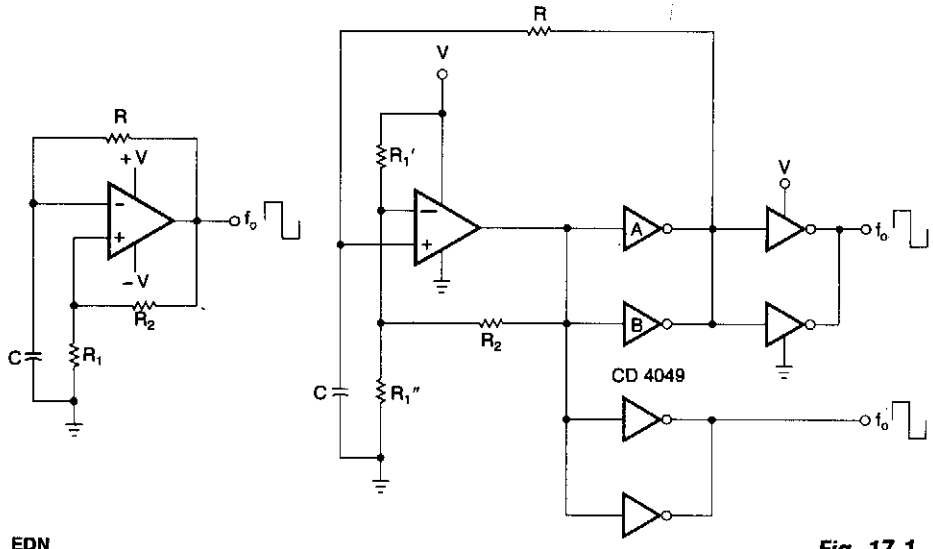
OSCILLATOR BUFFERS

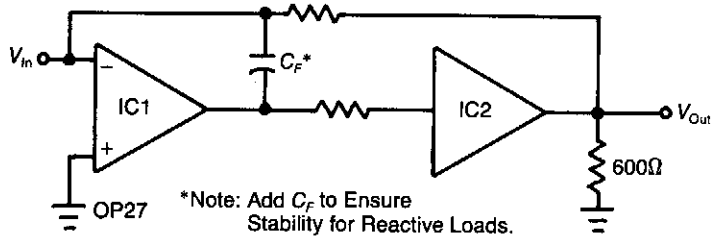


EDN

Fig. 17-1

CMOS buffers added to an op amp oscillator improve performance, largely as a result of nonsymmetry and variability of the op amp's output saturation voltages.

PRECISION-INCREASING BUFFER



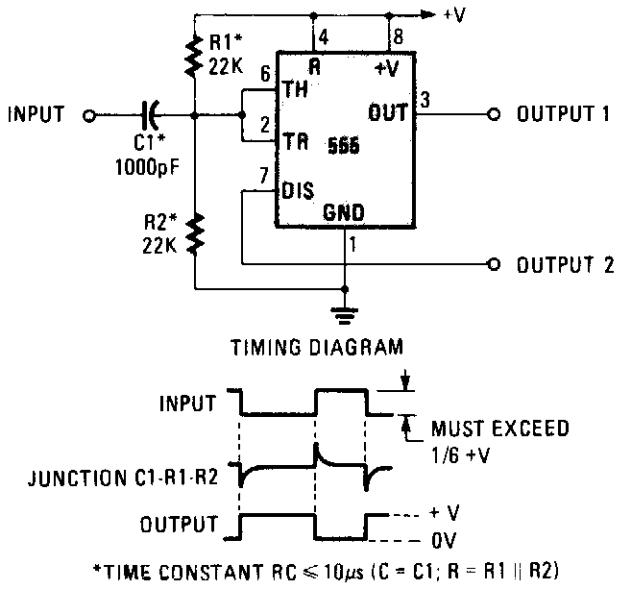
EDN

Fig. 17-2

Adding an unity-gain buffer to your analog circuit can increase its precision. For example, by itself, the op amp IC1 exhibits a maximum dV_{OS}/dT of 1.8 $\mu V/°C$ and can drive a 600-Ω load. Under these conditions, IC1 would dissipate 94 mW incrementally. Thus, the op amp's O_{JA} of 150°C/W would change its V_{OS} by 25 μV.

The buffer, IC2, will isolate IC1 from the load and eliminate the change in power dissipation in IC1, thereby achieving IC1's minimum, rated offset-voltage drive. The loop gain of IC1 essentially eliminates the offset of the buffer. Almost any unity-gain buffer will work, provided that it exhibits a 3-dB bandwidth that is at least 5 times the gain-bandwidth product of the op amp.

INVERTING BISTABLE BUFFER



HANDS-ON ELECTRONICS

Fig. 17-3

This circuit uses a 555 timer as a flip-flop bistable buffer.