

2-MHz SQUARE-WAVE GENERATOR USING TWO TTL GATES*

A. Barna, D. Horelick, and A. Johnson

Stanford Linear Accelerator Center
Stanford University, Stanford, California

In response to a need for a simple clock source in a digital system using TTL integrated circuits, we have built a 2-MHz square-wave generator with two TTL gates. Inasmuch as we had encountered difficulties in locating such a circuit in the literature, we thought it might be of interest to other readers of Electronic Design.

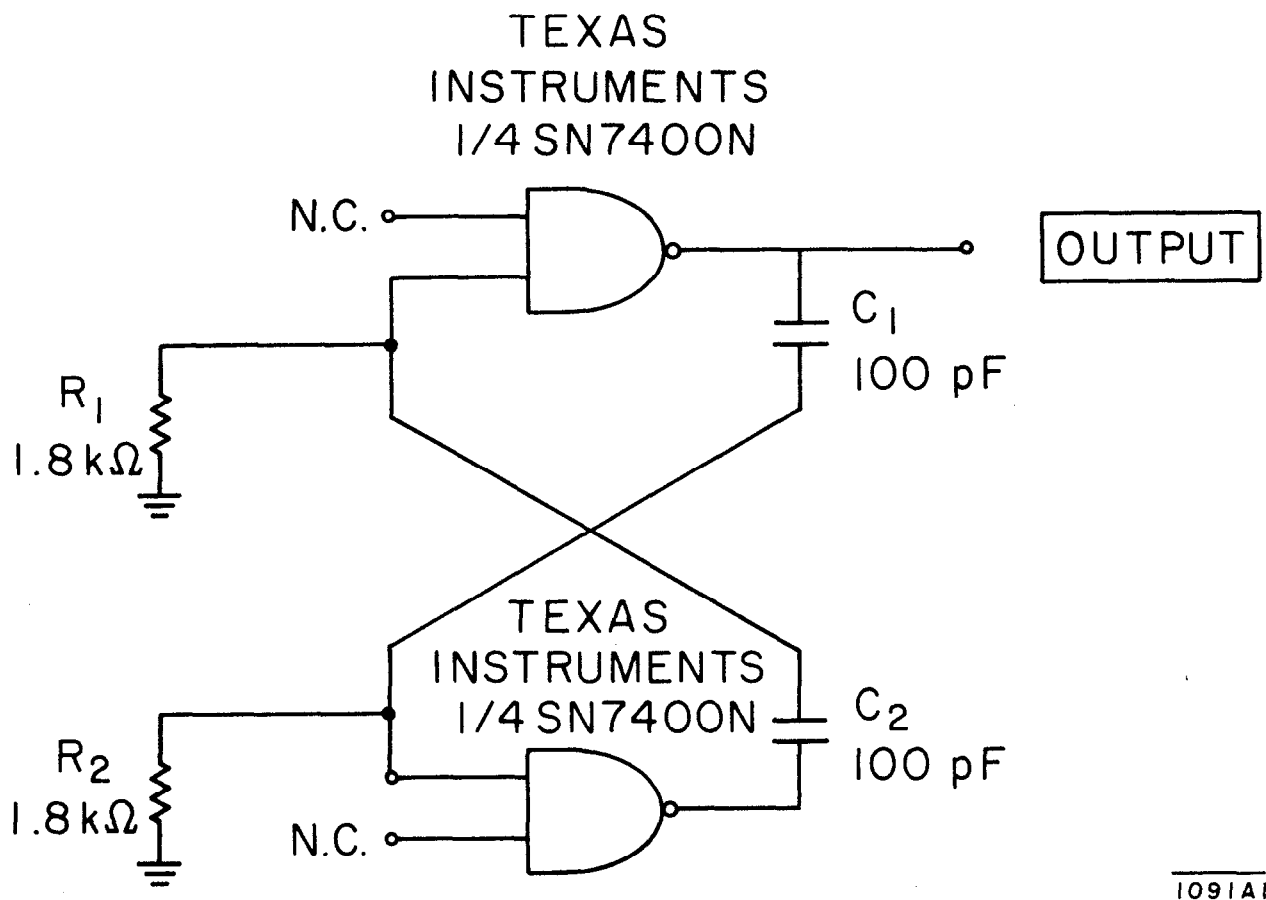
The circuit is shown in Fig. 1. It consists of two TTL NAND-gates, two resistors, and two capacitors. With the values as shown, it generates a 2-MHz symmetrical square-wave (Fig. 2); changing capacitors C_1 and C_2 to $0.01 \mu\text{F}$ results in a frequency of 500 Hz. For the particular integrated circuits and power supply voltage (5.0 volts), the reliable operating range of $R_1 = R_2$ is $1.5 \text{ k}\Omega$ to $2.3 \text{ k}\Omega$.

(Submitted as a letter to Electronic Design)

*Work supported by the U.S. Atomic Energy Commission.

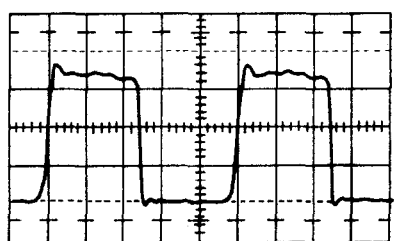
LIST OF FIGURES

1. 2-MHz square-wave generator.
2. Output waveform of the circuit of Fig. 1. Sweep speed: $0.1 \mu\text{sec/div}$;
Sensitivity: 1V/div .



1091A1

Fig. 1



1091A2

Fig. 2