

ELECTRONICS FOR ME

Laboratory 5

Purpose

At the conclusion of this lab, the student will:

1. Be able to build and test a CMOS astable multivibrator;
2. Calculate the period and frequency of the multivibrator from its component values;
3. Measure the period and frequency of the multivibrator using the oscilloscope.

Procedure

1. Build the circuit shown in figure 1. Select $R_s = 800\text{Kohms}$, $R_{tc} = 400\text{Kohms}$, and $C_{tc} = 1000\text{ pF}$ (0.001uF).
2. Measure and record the output voltage on the oscilloscope. Get a screen shot of the scope or sketch the waveform and include your waveform in your lab report.
3. Measure the period and frequency of the output voltage using those features on the oscilloscope.
4. Change the resistor R_{tc} to 200 Kohms and repeat steps 1 through 3.

Data Analysis

1. Calculate and report the period and frequency of the multivibrator using the formula given at the beginning of the lab for both values of R_{tc} .
2. List the measured value of period and frequency and the calculated values of period and frequency for both values of R_{tc} in a table and comment on the degree of correlation.

