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;
- 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 = 800Kohms, R_{tc} = 400Kohms, and C_{tc} = 1000 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.

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