

ABSTRACT

The development of renewable energy technology is rapidly advancing, including in the area of energy harvesting using radio frequency (RF) waves. One of the main challenges in utilizing RF energy is ensuring an adequate output voltage for specific applications. This research aims to design and implement a voltage multiplier in RF energy harvesting devices to enhance the output voltage. A voltage multiplier is an effective method for increasing voltage from low-energy sources. The research methodology involves designing and constructing a voltage multiplier circuit that aligns with the expected characteristics of RF energy.

In this study, a voltage multiplier has been designed and tested using components specified as the SR10200 diode and capacitors. The frequency specifications include 25 MHz, 50 MHz, and 80 MHz, with input currents of 100 mV, 500 mV, 1V, and 2V. The implementation was carried out using a function generator, and the test results indicate good quality performance at a frequency of 100 MHz with an input of 100 mV. However, for other input levels, the results did not demonstrate satisfactory quality.

Keywords: Voltage Multiplier, RF Devices, Energy Harvesting, Output Voltage.