

ABSTRACT

Converter is a device that can produce a voltage converter system and supply power. The constant output connection is very important to produce the expected power supply. The change in voltage comes from a variety of disturbing factors, one of which is a changing load and large ripples. Therefore, a voltage regulator is needed to keep the output constant and make the ripple close to zero.

In this final project, a prototype of a SEPIC converter and its output voltage control system will be designed. The output voltage of the converter becomes the parameter to be controlled. By using a one-cycle control technique in the circuit so that disturbances in the input voltage will not affect the output voltage every one switching cycle.

From the experiment results, the output is close to the predetermined 15 Volt set point. From the measurement results during the transient, the rise time achieved is 10 ms with a settling time of 72 ms, an overshoot of 16.1 V, and a steady state error of ± 0.3 V or 0.05% of the set point. This shows that the one-cycle control technique can be used as a sepic conversion voltage control.

Keywords: *Sepic Converter, Voltage, One-cycle control*