

ABSTRACT

DEVELOPMENT OF INTERLEAVED BOOST CONVERTER BASED ON ARDUINO

by

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Until now, the power electronics converter technology has been widely used in daily life. One of them is a DC-DC Converter that use as an important component in the power electronics. It serves to convert DC electrical power from one form into another form of DC electrical power. Examples of its application, DC-DC Converters used in renewable energy sources, such as fuel cell and solar cell. In the application of renewable energy sources, fuel cell and solar cell produce a low output voltage and they require a device to raise the voltage. A common device used today is a DC-DC Boost Converter.

In the DC-DC Boost Converter, the input current and the output voltage still produce large enough ripple. Ripple is a problem that can reduce the reliability of the converter itself. So, we need an improved method for reducing ripple on the boost converter. The method that is offered in this thesis is to use interleaved boost converter technique.

Based on the analysis of simulation and hardware testing interleaved boost converter, using the techniques of the interleaved boost converter is proven can reduce the ripple on the input current and the output voltage significantly. The most significant ripple reduction occurs when granting duty cycle of 50% which is a reduce of 98% for the input current ripple and 86.9% for the output voltage ripple

Keywords: *Interleaved Boost Converter, DC-DC Boost Converter, Ripple.*