DESIGN AND ANALYSIS OF DC TO DC CONVERTER EMPLOYING BIPOLAR PWM TECHNIQUE FOR PHOTOVOLTAIC SYSTEM

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ABSTRACT

This paper presents a design and simulation of DC to DC converter that is connected from solar electric system. The main focus of this project is to construct a DC to DC converter which is one of the main parts in solar photovoltaic (PV). The input usually is obtained by PV array and therefore the design and simulation in this paper covers the voltage and current that flow through DC to DC converter. This project is to ensure that the output voltage will be step-up from 12 VDC to 24 VDC. The modes of operation for the converter are controlled by corresponding Pulse Width Modulation (PWM) applied to the gate of IGBT. In designing process, the switching frequency, is set at 1 kHz and variable duty cycle, D by employing bipolar PWM technique. The simulations of the converter using PSIM are presented to verify the circuit operation. The laboratory model of the converter are developed and tested. The experimental result is presented.

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