

Boosting With Sepic

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-----ABSTRACT-----

On trying to reach out a simulation model of a particular voltage and current as an output of sepic which uses a current source. This procedure may be checked, modified, and used to charge up a battery of relevant kind from a solar panel.

KEYWORDS: simulation model, sepic, voltage, current, current source, charge up, battery, and solar panel.

Date of Submission: 10 April 2014



Date of Publication: 25 April 2014

I. INTRODUCTION:

This paper explains about an idea of utilization of a non-conventional energy source. From the work tried to be done in this paper may help its reader to try out to charge up a rechargeable battery of a relevant kind after being having a detailed hardware understanding of utilizing solar panels.

Literature Survey: A MATLAB generated waveform, of a particular voltage and current as an output of sepic which used a current source, carried out earlier uses some of its component values beyond its availability, led to try out a work to obtain a similar result with available components as maximum as possible.

Research Elaborations:

The sepic may have a current source. It may be given in figure 1.1.

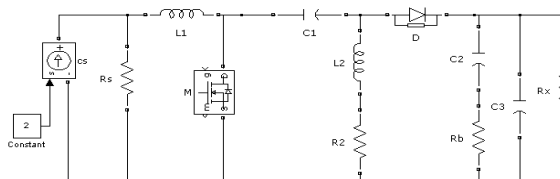


Fig 1.1: Circuit of sepic

$R_s = 70.588 \Omega$
 $R_2 = 23.529 \Omega, 100W$
 $R_b = 3 \Omega, 25W$
 $R_x = 100 \Omega, 1KW$
 $L_1 = 6417.112 \mu H, 5A$
 $L_2 = 6417.112 \mu H, 5A$
 $C_1 = 1000 \mu F, 25V$
 $C_2 = 1000 \mu F, 25V$
 $C_3 = (1000 \mu F, 25V) * 100$
Mosfet – IRF 840
Diode – IN 4007

Output Waveforms:

The output voltage and current wave form generated at Rx may be given in figure 1.2.

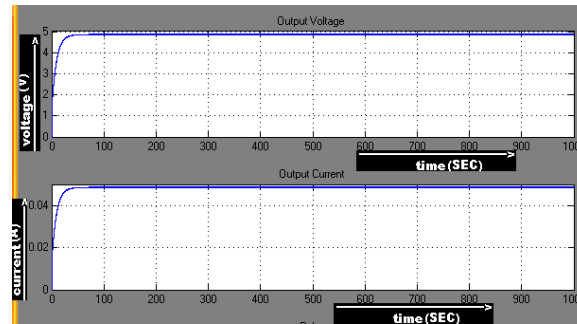


Fig.1.2: Output Voltage and Current Wave forms

The pulse wave form may be given in figure 1.3.

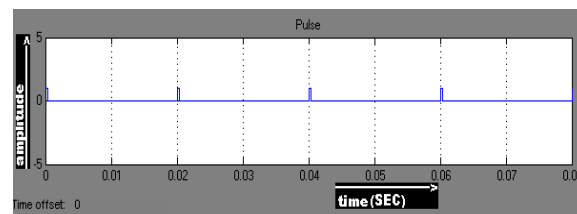


Fig.1.3: Firing pulse given to sepic

Result and Discussion:

A 5V, 5600mAh (Li-ion) rechargeable battery may be tried to be charged (1/100 th of the rated current is output of this sepic), may be understood from the MATLAB generated waveform after being having a detailed hardware understanding of utilizing solar panels. As the circuit uses sepic, it may be replaced by zeta to try out to obtain a similar output.

Conclusion:

This paper opens up a way to obtain a particular result. This paper, only helps its reader for a better understanding, to try out a work of a similar kind.

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