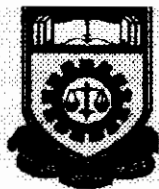


SINGLE PHASE INVERTER FOR COMMERCIAL USE

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ABSTRACT

This report describes the development of a single phase inverter for commercial use. The work investigates how an inverter circuit can be developed in order to produce an ac supply with ratings of 240 Vac, 6 A and 50 Hz from an ordinary existing car battery of 12 Vdc. The proposed system consists of four modular circuits; oscillator which is formed using Wein-Bridge circuit and ac amplifier, pre-amplifier, push-pull power amplifier, and feedback circuit. In this work, Wein-Bridge oscillator is chosen to generate stable periodic signal and it is coupled with an amplifier to boost up the signal. Applications of this work includes portable ac power supply.

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A SINGLE PHASE INVERTER FOR COMMERCIAL USE

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CHAPTER 1

1.0 Introduction

The advancement of semiconductor technology has made the electrical appliances and electronic device become smaller and lighter. The same phenomenon is happening to electrical power field. For example, a step-up dc power supply up to kVolt can be built base on a switch-capacitor circuit ^[1]. Its means devices of medium or higher power can be built by the use of semiconductor switching components with bipolar and MÖSFET transistor.

Many people defined that inverter is same as rectifier and oscillator. In the technical, inverter is a reverse process of rectifier. In other words, inverter is a process of deliver an ac energy from a dc power supply. Actually, the use of terms “inverter” and “oscillator” is somewhat arbitrary. Usually it will find that the inverter, in essence, is a power supply, while oscillator in terms of frequency.

In this project the usage of semiconductor and bipolar transistor is effectively used. From the previous work ^[2], it used semiconductor switching components to increase the efficiency of the inverter even for a frequency up to a several kHz.