

# **MOSFET VARIABLE BENCH POWER SUPPLY**

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## ACKNOWLEDGEMENT

We would like to thank our supervisor, Puan Siti Noraini Sulaiman for her kindness, support and concern to this project. Also to our friend that give us a support and help.

In this project we have learn more detail about the components like op-amp, transistor, transformer, thyristor and others. Its give us more experience and knowledge about the theory what are lecturer teach between the practical. It was generated more idea and makes us excited to done this project.

In this project, many things we didn't know like circuit maker and component function. So we find to ask Puan Siti Noraini when get a trouble to make the circuit maker and understand the function of the components. We go to the library and cyber café to find more information about the circuit and component in the Internet. We also read the information about the project in the electronic magazine. It also achieved our skill in do the hardware instruction.

## ABSTRACT

MOSFET Variable Bench Power Supply is an unusual and highly efficient design developed from a previous electronic project. It can supply 0 to 25 volts at up to 2.5 amps.

The benefit of this project is it uses a high output voltage of 0 to 25 volts, and a maximum output current capability of 2.5 amps far better than the more usual 12 volts and 1 amp supplies. An output voltage can be reduced right down to zero and a current limit control, which allows the maximum output current to be set anywhere between zero and maximum. Two-panel meters monitor output Voltage and Current to make it easy to see exactly what is happening in a circuit. Ripple and noise in the output are very low, and mains voltage fluctuations are very small.

This circuit can be operated by the first and most important change by added which dramatically reduces the power lost in the MOSFET to the circuit. This is achieved by a low frequency switching pre-regulator, which reduces the voltage across the main smoothing capacitor so that it is never more than 5 volts above the output voltage setting. This type of pre-regulator is called a tracking pre-regulator because it follows the output voltage at a fixed distance.

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# CHAPTER 1

## INTRODUCTION

### 1.1 Background

Most electronic circuits require a source of regulated direct current (dc) to operate properly. A direct current-regulated power supply is a circuit that provides the energy to allow electronic circuits to function. It does this by transforming a source of input electrical power (generally ac) into dc. Most regulated supplies are designed to maintain a fixed voltage that will stay within certain limits of voltage for normal operation. Voltage adjustment and current limits depend on the particular supply. The typical range of output voltage for a laboratory supply is from 0 to 30 volts.

The problem that we face in the most power supply is the usual supplies 12 volts and 1 amps and integrated circuit can function properly only if the voltage is within a very narrow range. The power supply contains only one panel meter for output voltage. Also, the noise in the output is quick high. The output terminal always accidentally shorted together if we make a wrong connection. It will make us a fear to test the circuit.

To overcome this problem, MOSFET Variable Bench Power Supply has been designed from original circuit. It can supply 0 to 25 volts at up to 2.5 amps and it better than more usual 12 volts and 1 amps supply. It uses four op-amps in an LM324 integrated circuit as voltage control. It contains two panel meters that monitor output voltage and current. Ripple and noise in the output dc very low. This project also has a current limit that allows circuits to be tested without fear of damage due to construction errors or accidental short circuits.