

DC TO DC STEP-UP CONVERTER

CREATED BY

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Project report submitted to

The department of Electrical Engineering of the Higher Technical
Institute Nicosia, Cyprus

In partial satisfaction of the award of diploma of

TECHNICIAN ENGINEER

In

ELECTRICAL ENGINEERING

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JUNE 2002

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| HIGHER TECHNICAL INSTITUTE | PROJECT NO. 3346 |
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Summary

This project deals with one aspect of power conversion, a dc supply deliver at the output a dc voltage of a greater level, thus the dc to dc step-up converter.

The first chapter is an introduction to the world of power electronics. It refers and explains the different types of power converters supported with the appropriate diagrams. At the end of the chapter the basic components of a dc to dc converter are given.

In chapter two there is a briefly explanation of the principle of operation of a dc to dc step up converter. The different modes of operation are discussed and explained with the help of suitable circuits. Also there is a briefly mathematical analysis with the aid of the switching function approach. This way of mathematical analysis has been developed at the HTI by Dr. C.Maroucho and elsewhere.

Moreover, chapter three covers the design and construction of a dc to dc step-up converter. It is explained analytically the design of both the control and the power circuit. Also there are some details about the components used for this project, including their special characteristics. The IGBT as a semiconductor power switch and the ultra-fast diode are two of them.

Further more, in chapter four the experimental and theoretical results are given. Including an appropriated circuit, chapter four refers to the equipment used for the experiment. A comparison of the experimental and theoretical results is shown at the final stage of this chapter.

Finally, chapter five presents the conclusions and recommendations about the final results. Also some problems that have been faced during the experiment are discussed.

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