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1 INTRODUCTION

The idea of a boost converter design is a Dr. Heinz Schmidt-Walter proposition for this final degree project. The purpose, solve the problem to work with the notebook in the car for charge or just work with it, and at the same time, find an interesting and acceptable project for a final degree.

In this document I give a general point of view about the project, a boost converter 12V DC- 15V DC, to use as a power supply for a notebook.

2 PURPOSE

The purposes that follow this project are two, the first one academic as I said before and the second one but not less important is to obtain a power supply device.

With the converter we could use in the car, with the 12V connector, the notebook, with input characteristics $V_o = 15V$ and $I_o = 5A$, to work without the restrictions of the life battery or simply charge the notebook if it is necessary.

3 DESCRIPTION

A boost converter can have as few as four components: a power semiconductor MOSFET switch (T), a diode (D), an inductor (L) and a storage capacitor, in the output (Cout), but also typically in practice includes an input capacitor (Cin).

The essential control mechanism of the circuit involves turning the power semiconductor switch on and off. When the switch is *on,* the current through the inductor increases and the energy stored in the inductor builds up. When the switch is *off,* current through the inductor continues to flow via the diode; capacitor and load back to the source as the inductor discharges energy. The inductor acts like a pump, receiving energy when the switch is closed and transferring it to the capacitor and the load when the switch is open. Because the time constant is very much larger than the *on* period of the switch, the output voltage remains relatively constant.

The following project develop gives and show the information necessary to design and implement a boost converter DC-DC; in detail, explaining every point like a block of the divided information, and each of these blocks were divided in small chapters too.

4 CONCLUSIONS

The execution of the following project will drive, like one of the main purposes, to obtain a power supply device that will let the user work with the notebook in the car, with an easy, relatively small, simple and mobile device.

The other main purpose was satisfactory obtained, the accomplishment of an interesting project as a final degree project, where extended and complemented the acquired knowledge through the last years in many fields, like in the world job.

5 FINAL MODIFICATIONS

Exist a last and the most important modification that affects the schematic diagram, described in the Appendix C, this changes are to reach finally the goal.