

CHAPTER 1
INTRODUCTION



In general practice, designs of converters are always without a sound criterion. For example, the selection of cores, frequency of operation or feedback voltage, etc., are still based upon trial and error method. As a consequence, at a certain required power output the outcome of conversion of power may yield only 50 % to 60 % efficiency. Furthermore, in many cases the designed converter may not attain the required power output at all. Therefore the main purpose of this study is to obtain workable procedures in designing a converter which possesses a compact size, light weight and at the same time could produce high efficiency in power conversion.

The scope of this research will be limited to the converters of common-emitter, push-pull and single transformer type. The core material used in the experiment is ferrite and the power output is ranging from a few watts upto about 50 watts. Both self-oscillating type and driven type are investigated.

Set forth hereunder are the plans for investigation.

1. The first step is to design converters of various specifications using procedures presently available for the purpose.
2. Analyse efficiency of those converters by finding out the relationship between efficiency and core size, the frequency of operations, the transistor loss, and other parameters. Then develop a method to minimize losses in order to achieve optimum design.

3. The results of investigation are divided into three sections, namely:

- a. Design Criteria : This section will spell out criteria in selecting components as well as parameters.
- b. Design Procedures : In this section the step by step descriptions of optimum design of a converter are given.
- c. Design Samples : Several samples of dc-dc converter calculation with cores of various size and shapes will certify the validity and correctness of the criteria and formulae given in a and b.

CONCLUSION

REFERENCES

The design procedure of a dc-dc converter is described in this paper. The design procedure is described in this paper.

1. Design criteria

2. Design procedure

APPENDIX A

1. Design criteria

2. Design procedure

3. Design samples

4. Design procedure

5. Design procedure