INTEGRATED CURRENT-SENSING CIRCUIT WITH OFFSET-CURRENT CANCELLATION FOR DC-DC BOOST CONVERTERS USING 0.13μm CMOS TECHNOLOGY

This thesis is represented in partial fulfillment for the award of the

Bachelor of Engineering (Honours) Electronics Engineering

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JULY 2015

ACKNOWLEDGEMENT

This project consumed amount of work, research and dedication. Still, implementation would not have been possible if I did not have a support of many individuals and organizations. Therefore we would like to extend my sincere gratitude to all of them.

First and foremost I would like to express my gratefulness to the almighty Allah S.W.T. for giving me strength and health during completing this final year project. I would like to acknowledge the most important person for always gives me advice, guidance, constructive criticism and helpful comment. The person that I mention above was my project supervisor, Madam Tuan Norjihan Binti Tuan Yaakub. I am very thankful for her contributions and cooperation towards me throughout completing this project.

I also would like to express my sincere thanks towards members of micro-E lab especially the technician in charge, En. Ahmad and lectures for their time and knowledge in the implementation of this project. I also wish to voice my gratitude to all my friends who always provide their valuable help in every ways. Last but not least, a special appreciation to my families and colleagues for their kind co-operation and encouragement which help a lot give me a support in completion of this project.

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ABSTRACT

The project proposed a configuration of CMOS current sensing circuit with offset-current cancellation for boost converters. This design will contrast the power and operational sensing speed with the traditional proposed current-sensing circuit. By eliminating the offset-current, it will improve the current sensing performance. It can be accomplish by applying current mirror as opposed of utilizing operational amplifier as a voltage follower in conventional design which serves to subside power consumption due to reducing the number of transistor. Moreover, this proposed design also can cancel off the offset-current in the traditional current sensing circuit, thus the improvement of sensing-accuracy will accomplished. The proposed design will be designed using 0.13μm technology and simulation will be carried out in Mentor graphics. The dc-dc boost converter will be set with operating frequency of 500kHz and designed with the supply voltage of 2V.

Keyword--- current-sensing circuit, DC-DC Boost Converters, offset-current, low power consumption, sensing-accuracy

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CHAPTER 1

INTRODUCTION

1.0 INTRODUCTION OF THE PROJECT

This chapter covers brief background of the project, problem statement and significance of work, objectives and scope of work. Also, the thesis organization is included in this chapter.

1.1 BACKGROUND OF PROJECT

These days, electronic gadgets are generally utilized as a part of our day by day life. The manufacturer has given careful consideration on the size, proficiency, low power dissipation and dependability of power converters in the portable electronic gadgets. Subsequently, usage of low power converter turns into the most imperative calculate request to design a superior power management circuit design on a single chip. CMOS transistor execution is the most ideal since it used less power and does not create as much heat as conventional Bipolar Junction Transistor (BJT) which may drive the circuit faster. As respects, current-sensing