NEUTRAL POINT TYPE (NPT) CONVERTER FOR LED POWER WITHOUT ELECTROLYTIC CAPACITOR

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ABSTRACT

This paper is on improving the design of an electronic driver for high brightness LEDs. This work with neutral point type AC/DC converter to an illumination system that connects an AC source as an electrical energy to the driver and load (Power LED). This topology is only used to eliminate an electrolytic capacitor and make a replacement for the capacitor. The affect, this development will reduce the power losses, power consumption and cost instead of prolonging their life time. This prototype circuit is designed with the requirements for an input of 110-240V ac and an output of 107V-200V dc connected power LEDs. A simulation testing via PSIM will show the functionality of the overall system and prove it to be an effective solution for numerous AC to DC converter application.

TABLE OF CONTENTS

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Nowadays, LED has been look upon as the superlative choice in lighting system and expected to replace incandescent and fluorescent lamps in future. It is based on their performance of luminance, power saving, less loss and the high efficiency of LED's itself [1]. Other than that, LED's lighting also more economical compared to others and have better color's quality and it is an environmental friendly lighting source. Based on the lifetime of the lamps, LED is much better than other lamps where it can light up to 50,000 hours compared to CFL and incandescent lamp that can stand up to 8,000 hours and 1000 hours respectively [2].

Table 1 Lifetime of the Lamps

Types	**Lifetime**
LEDs	50,000 hours
Compact Fluorescent Lamps (CFLs)	8,000 hours
Incandescent Lamp	1,000 hours