The Fabrication of LED Lighting with Uninterruptible Power Supply Function

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Abstract

High power white light emitting diode (LED) has attracted a lot of attention from both industry and academia for its high efficacy, simple to drive, environmentally friendly, and long lifespan. It becomes possible applications to replace the incandescent bulbs and fluorescent lamps in residential, industry and commercial lighting. As a result of light-emitting diodes with a save electricity, environmental protection, long life, fast response speed, etc., future will replace the traditional light-emitting components into a new light source, so this study will also be LED lighting for the light source for optical analysis.

This paper uses constant-current IC circuits to provide the stable forward current for LED and achieve the brightness consistency. Finally, we employ the experiments to validate the characteristics of the lamp developed in this paper.

Keywords: Illumination energy conservation, light emitting diode, constant current.

1. Introduction

In recent years, the development of LED technology is one of the most important trends in the global market. LED is now widely used in various fields such as lighting, automotive, and communication. LED lighting is a technology that uses light-emitting diodes (LEDs) to produce light. These diodes are made up of semiconductor materials that emit light when an electric current passes through them.

The main advantage of LED lighting is its efficiency and longevity. LED lights use less energy and last longer than traditional incandescent bulbs. They also produce less heat, making them safer to use. Additionally, LED lights are available in a wide range of colors and can be controlled using various technologies, such as wireless control systems.

In this paper, we will explain the fabrication process of LED lighting with an uninterruptible power supply function, which is crucial to ensure continuous power supply in case of power outages.

2. The Fabrication Process

The fabrication process of LED lighting involves several steps. First, the LED chips are selected and mounted on a substrate. Then, the substrate is assembled into a housing, which is usually made of plastic or metal. The housing is then connected to a driver circuit, which regulates the flow of electricity to the LED chips.

3. Uninterruptible Power Supply Function

An uninterruptible power supply (UPS) is a device that provides a continuous power supply to electronic equipment in case of a power outage. It is essential in critical applications such as hospitals, data centers, and communication systems.

In this paper, we will explain the design and implementation of an UPS system for LED lighting. The UPS system consists of a battery, a charger, and a switch. The switch disconnects the battery from the LED lights when the power supply is restored. This ensures that the lights do not come on during a power outage and prevents damage to the LED chips.

4. Conclusion

In conclusion, LED lighting is a promising technology that offers several advantages over traditional lighting solutions. The fabrication process of LED lighting with an uninterruptible power supply function is crucial to ensure continuous power supply in case of power outages. With the increasing demand for energy efficiency and sustainability, LED lighting will continue to play a significant role in the global market.

Keywords: LED, lighting, uninterruptible power supply, fabrication process.