Light Emission Module

Overview

The present disclosure has the effect of making it possible to easily increase the light emission intensity of a light-emitting module. FIG. 2 is a plan view of the light-emitting...

Key Takeaways

A light emission module is an electronic or optical device designed to emit light efficiently, often integrating LEDs, organic EL elements, or laser diodes with control and power circuits.

Overview

A light emission module is a compact assembly that produces light through electroluminescence or optical emission. It typically includes a light-emitting component, such as a light-emitting diode (LED) or an organic EL section, along with supporting electronics like integrated circuits, rectification circuits, and resistive elements to control power and intensity. Some modules also incorporate antenna coils for wireless power reception, enabling operation without direct electrical connections.

Types of Light Emission ModulesLED Modules: These use semiconductor diodes to emit light when current flows through them.

LE

Ds can produce visible, infrared, or ultraviolet light, and are widely used in lighting, displays, automotive headlamps, and communication devices.

LE

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D modules often include multiple LEDs arranged for uniform illumination and may feature optical coatings or phosphor layers to adjust color output.

Organic E

L Modules: These modules use organic electroluminescent materials to emit light. They are often integrated with circuits for wireless power reception and intensity control, making them suitable for compact, flexible, or wearable applications. Optical Emission Modules for Communication: Advanced modules, such as four-channel optical emission modules, integrate directly modulated laser chips, low-noise amplifiers, and control circuits.

These modules provide high-gain signal output, minimize crosstalk, and operate over wide temperature ranges, making them ideal for radio-over-fiber communications and radar systems.

Key Features

High Efficiency: Optimized for maximum light output with minimal energy loss. Integration: Combines light sources with control electronics for compact design. Thermal Management: Ensures stable operation across a wide temperature range, often from −55 °C to 75 °C.

Multi-

Channel Capability: Some modules support multiple wavelengths or channels with precise spacing and low crosstalk. Wireless Power Options: Certain modules can receive power wirelessly via antenna coils.

Applications

General Lighting: Indoor and outdoor LED lighting, decorative lighting, and horticultural grow lights. Displays and Indicators: Digital displays, traffic signals, and signage. Communication Systems: Optical transceivers for high-speed data transmission and radar systems.

Consumer Electronics: Remote controls, IR communication, and wearable devices. In summary, a light emission module is a versatile device that integrates light sources with electronic control, enabling applications ranging from illumination to high-speed optical communication. Its design can vary from simple LED arrays to complex multi-channel optical modules with wireless power and high-gain signal capabilities.

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Article Content

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Compact Four-Channel Optical Emission Module with High Gain

In this paper, a four-channel optical emission module is developed using hybrid integration technology that integrates directly modulated laser (DML) chips, low-noise amplifier (LNA)

Light emission module

BACKGROUND In a high speed optical transmission system, a light emission module in a light transceiver plays an important role, especially a high-speed laser diode module with a speed higher

Light-emitting diode

In a light-emitting diode, the recombination of electrons and electron holes in a semiconductor produces light (infrared, visible or UV), a process called

Lighting modules | Light sources for various applications

We are as familiar with the possibilities and challenges of this form of lighting as we are with the requirements of potential users. Our

A unified model for light emission from solids

The purpose of this Review is to provide a unified framework that combines recent theoretical works that have been developed to quantitatively account for light emission processes in solids.

Arduino IR Transmitter Module KY-005 (HW-489)

The KY-005 is an infrared (IR) transmitter module from the Keyes 37-in-1 Arduino kit (also sold as HW-489). At heart it''s a single 940 nm IR LED

LEP Light Source

LEP flashlights can be used as tactical search lights or to send SOS distress signals. By modifying the LEP modules, a wide range of spectral colors can be

Simulation of the Emission Characteristics of an OLED

The Emission module of Setfos is a powerful tool for simulating the light emission characteristics of OLEDs. It uses the dipole emission model to accurately predict

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Everything You Need To Know About Laser modules

Laser modules are compact, integrated devices that generate coherent, focused light beams through stimulated emission. Widely used across

Laser Modules

FLEXPOINT laser modules are produced in-house. The laser modules can be assembled according to the customer''s specifications. Machine vision lasers are also available.

A unified model for light emission from solids

The emission of electromagnetic waves from solids encompasses a wide range of processes, including incandescence, fluorescence, electroluminescence, scintillation,

Light Emitting Diodes (LEDs) | MEETOPTICS Academy

Light emitting diodes are semiconductor devices that emit light. LED are available in a variety of configurations, power and wavelengths UV-IR, SMD, chip on board (COB), light bars and arrays.

Hybrid Integrated Laser Emission Module With DFB Laser Diode and

In this letter, we packaged a DFB laser diode chip and a thin film LiNbO3 modulator chip in a single shell through hybrid integration, and formed an integrated laser emission module. This

What Is a Laser Module: The Ultimate Guide

What Is a Laser Module: The Ultimate Guide A laser module is a compact, integrated device that generates a coherent, focused beam of light through the process of stimulated emission. These

LED Module – Efficiency, Longevity, and Design Flexibility

Light Emitting Diode (LED) modules have revolutionized the way we think about lighting technology. They offer a range of advantages over traditional

Light Emission

Light emission Light emission detection is one of the earliest technologies used to inspect the quality of laser welds. Photodiode sensors coupling with designated filters allow the researcher to select the

Designing a 1550 nm Pulsed Semiconductor Laser-Emission Module

We developed a design method for 1550 nm pulsed semiconductor laser-emission modules according to the equivalent circuit model of an InGaAlAs laser.

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