

General Purpose Pulse High Beam Module



AI Overview

High beam pulse modules are versatile laser systems capable of delivering precise, high-intensity pulses with customizable beam profiles for industrial, biomedical, and defense applications. Overview General-purpose high beam pulse modules are designed to provide short, high-energy pulses with precise control over pulse width, repetition rate, and beam shape. These modules are widely used in laser micromachining, stroboscopic imaging, LiDAR, spectroscopy, and target designation due to their flexibility and reliability ().

Key Features

- Pulse Control:** Adjustable pulse widths typically ranging from 4 ns to 300 ns, with repetition rates from 0.1 kHz to 100 kHz, allowing precise timing for high-speed applications ().
- Beam Shaping:** Many modules include electronically controllable optical phase modulators or optional collimating optics to generate custom beam profiles, enabling uniform intensity distribution or multi-spot configurations for complex processing tasks ().
- Power and Wavelength:** Peak pulse powers can reach up to 150 W, with wavelengths spanning 465 nm to 1550 nm, supporting diverse material interactions and sensing applications ().
- Compact Design:** Typical modules have a 25.4 mm diameter and 103 mm length, facilitating integration into existing systems or compact setups ().
- Stability:** Tight pulse-to-pulse power consistency ($\pm 0.5\%$ drift per $^{\circ}\text{C}$) ensures reliable operation in demanding environments, including high-temperature conditions up to 80°C ().

Applications

- Industrial Manufacturing:** Laser micromachining, drilling, cutting, and surface treatment with high precision and repeatability ().
- Biomedical Imaging:** Noninvasive diagnostics, stroboscopic imaging, and photoacoustic flow cytometry for detecting and analyzing biological samples ().
- Defense and Aerospace:** Target designation, LiDAR, and high-speed imaging for advanced defense systems ().
- Scientific Research:** Spectroscopy, lithography, and high-speed measurement applications requiring precise pulse timing and beam control ().
- Customization and I...**

Article Content

MSC 192 79

General Requirements for ship borne radio equipment forming part of the global maritime distress and safety system and for electronically navigational aids. Performance Standards for ECDIS.

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

Adaptive Driving Beam and roadprojection headlights

What is Adaptive Driving Beam (ADB) headlights? Premium Adaptive Driving Beam (ADB) technology helps maximizing light in all road conditions for improved comfort and safety, directing the

Towards Ultimate High-Power Scaling: Coherent Beam Combining of

Among various combining techniques, the coherent beam combining of fiber amplification channels is the most promising approach, instrumenting ultra-high-power/energy lasers with near

Intelligent headlight control

Light functions The low beam activation function can automatically activate or deactivate the vehicle's low beam lights in accordance with the current lighting conditions. High beam control improves driver

Electronic control units in contemporary vehicles with LED ...

Structure and function of electronic control units in contemporary vehicles with LED headlamps: Design Audi A6 matrix LED headlamp (1. Power module for daytime running light and direction indicator

AN/PEQ-15

The ATPIAL AN/PEQ-15 is a multifunctional laser aiming module that emits both visible and IR laser light for precise weapon aiming and produces IR light with an

LED high-beam module design for automotive headlight

In this paper, a laser-assisted light-emitting diode (LED) car high-beam headlight for modern cars is proposed. The headlight employs the LED light as the main light source of the car

Electronic control units in LED headlamps | HELLA

Structure and function of electronic control units in contemporary vehicles with LED headlamps: Design Audi A6 matrix LED headlamp (1. Power module for daytime running light and direction indicator

High-Voltage Pulsed Power Generator for Beam

This paper presents a novel high-voltage pulse power generator utilizing a distributed pulser architecture. It combines gallium nitride (GaN)

Adb high beam module and vehicle lamp

An ADB high beam module and a vehicle lamp. The ADB high beam module comprises a light source module (1), a primary optical element (2) and a secondary optical element (3).

Introduction to laser beam modulation

Solid state laser systems utilise intra-cavity acousto-optic Q-switching to generate high-repetition-rate pulse trains, for both industrial lasers and military applications.

Headlight Experts PWM (Pulse Width Modulation) Module for LED

Shop the Headlight Experts PWM (Pulse Width Modulation) Module for LED and HID Applications. Get a premium lighting upgrade for your vehicle with a 100% fitment guarantee and fast free shipping. Buy

Design features and commissioning of pulse arc plasma source and

Compact and cost-effective power supply system utilizing commercial batteries and ultra-capacitors for the high-power and short-pulse arc discharge plasma source of the VEST NBI system

Microsoft Word

The details of the high voltage pulse power system to generate the high voltage and high current pulse & electron beam in conjunction with field emission type electron beam gun for HPM generation using

Fast laser pulses with power VCSEL arrays

Optimizing nanosecond pulses driver module as represented in figure 2. With this light pulses of 2 W and more can be produced from just 5 V driver voltage at switching speeds of less than 100 ps. Here,

Laser Modules with High Power & Efficiency | Ferdinand

We develop and assemble the appropriate light sources for applications that require high output powers with simultaneously high efficiency. For example, for use as

Regulation No 113 of the Economic Commission for Europe of the

Regulation No 113 of the Economic Commission for Europe of the United Nations (UN/ECE) — Uniform provisions concerning the approval of motor vehicle headlamps emitting a symmetrical passing beam

LED Modules for High-resolution Matrix Headlamps

In lighting technology, the trend is toward intelligent headlamps with high flexibility. Osram Continental has developed an energy-efficient Smatrix HD module that enables matrix

Custom optical systems

For this purpose, Pulsar Photonics uses a self-developed modular system with which easily complex optical systems can be put together and set up. Module

High-Performance Pulsed Diode Lasers for Advanced

This method achieved high-sensitivity detection and eradication of metastatic melanoma cells in vivo, demonstrating the laser's exceptional performance in

CAN Bus module for high beam

With modern headlights with LED or xenon technology, it is often difficult or impossible to pick up a control signal for the high beam. In these cases, it is advisable to determine this signal not from the

Introduction to laser beam modulation

All high power/energy applications need to consider carefully laser safety and shutters / beam dumps are widely used. Medical laser and regenerative laser amplifier applications require laser pulse

The Ins and Outs of Working on Automatic High Beams

When the camera detects these lights and the system is operational, the software in the module that manages the automatic high beam operation will then decide what to do. It will either

Hella 90mm LED L4060 High Beam Module w/ Indicator

All modules score with a robust design and can therefore also be used in demanding working environments. The difference between the individual series of the 90mm

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