Pulse drive frequency of 1064nm laser diode



Overview

Wavelength Stabilized 1064 nm High Power Mini The Coherent CMDFB10xxA wavelength stabilized high power single mode laser module has been designed as a ligh.

Key Takeaways

1064 nm laser diodes can typically be pulsed at frequencies ranging from 200 kHz up to 60 MHz, depending on the module and driver configuration.

Typical Pulse Repetition Rates

Nanosecond DF

B laser diodes: Standard modules operate with pulse widths as short as 1–3 ns and a typical repetition rate of 200 kHz, with some high-speed drivers supporting up to 500 kHz in pulsed mode. Picosecond diode lasers: Modules with adjustable pulse durations from 30 ps to 100 ns can achieve repetition rates of up to 30 MHz using the on-board pulse generator, and up to 60 MHz when triggered by an external TTL source. Turn-key fiber-coupled modules: These systems often integrate a pulse generator capable of producing nanosecond pulses down to 1 ns, with repetition rates adjustable from single-shot to continuous operation in the hundreds of kHz to MHz range.



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Pulse Width and Driver Considerations

Pulse widths for 1064 nm DFB laser diodes are typically 1–3 ns for nanosecond modules and can be sub-nanosecond in specialized high-speed designs. The driver electronics are critical for achieving clean pulses without overshoot or ringing. Many modules allow internal pulse generation or external TTL triggering for precise control.

Peak output power in pulsed operation can reach 500–2000 mW, depending on the diode and pulse width.

Summary

The pulse drive frequency of a 1064 nm laser diode depends on the specific module and driver: Low-end nanosecond modules: ~200 kHzHigh-speed nanosecond/picosecond modules: 30–60 MHz with external triggeringPulse widths: 1 ns to 100 ns, adjustable in some systemsDriver options: Internal pulse generator or external TTL trigger for precise repetition control These specifications make 1064 nm laser diodes suitable for applications in fiber lasers, sensing, LIDAR, and pulsed frequency conversion, where both high peak power and precise pulse timing are required.

Article Content

Wavelength Stabilized 1064 nm High Power Mini

The Coherent CMDFB10xxA wavelength stabilized high power single mode laser module has been designed as a light source for pulsed narrow bandwidth fiber

1064nm DFB Laser (NANOSECOND PULSES)

They offer nanosecond pulse performance with excellent pulse characteristics. It is offered in an industry-standard 10-pin butterfly laser package with internal TE

PULSED 1064 nm HIGH POWER MINI-BUTTERFLY

Processes and techniques of coupling the fiber to the laser allow high output powers that are very stable with both time and temperature. Devices achieve high kink

IR 1064nm Nanosecond Pulsed Laser Diode Laser

In the femtosecond regime, the laser pulse terminates before any material escapes from the surface. The laser energy is deposited in the sample target without a

1064nm Laser Diodes

1064nm Laser Diodes, List of All Manufacturers and Lasers, Unbiased SELECTION GUIDE, Research All of Your Choices and Select the Best

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1064nm Picosecond Diode Lasers with Driver -LD-PD PTE. LTD.

1. Any wavelength between 1018-1700nm is optional. 2. Minimal peak power guaranteed for reliable and safe diode operation. Higher peak power could be reached at a customer risk 3. Pulse repetition rate

1064 nm laser diode

These fiber coupled 1064 nm laser diode are offered as stock items or associated with a CW or pulsed laser diode driver. It is compatible with low noise CW or high speed nanosecond pulses drivers. Turn

1064 nm Laser Diodes, 1064nm Lasers | Innolume

Pulsed 1064 nm laser diodes models provide a choice of repetition rates starting from picoseconds, allowing you to select the optimal characteristics for nonlinear optics, spectroscopy, and biomedical

1064-nm DFB laser diode modules applicable to seeder for pulse-on ...

A semiconductor DFB laser diode with an operating wavelength of 1064 nm that is suitable for pulse-on-demand fiber lasers is developed. The stable performance in terms of both power and

Shipping class: Aerodiode Small

1064nm DFB Laser Diode Designed for Nanosecond Pulse Width Performance, 200mW / 500mW (CW / Pulsed), Single Mode & Single Frequency Designed and optimized for nanosecond pulse

Semiconductor Laser Fab, Quantum Dot Lasers | Innolume

Innolume is a semiconductor laser fab for GaAs quantum dot and quantum well diode lasers, serving photonics, research and industrial projects.

GoPhotonics Curates Comprehensive Portfolio of Acousto-Optic Mode ...

GoPhotonics features a wide range of Acousto-Optic Mode Lockers designed for stable laser pulse generation and precise intracavity mode control across industrial, scientific, and photonic

Green picosecond narrow-linewidth tapered fiber laser system

The laser architecture is composed of frequency-doubled all-fiber MOPA system operating at 1064 nm. The commercially available gain-switched semiconductor laser diode was used as a seed source

Laser Diode Drivers

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Laser diode drivers supply electronic current to laser diodes, with different requirements based on application and power level.

IB Photonics Firestorm High-Repetition-Rate Solid-State Laser

Overview The IB Photonics Firestorm is a high-repetition-rate, diode-pumped solid-state (DPSS) Q-switched laser engineered for demanding scientific and industrial applications requiring robust pulse

Efficacy of Fractional 2940-nm Erbium: YAG Laser

ABSTRACT: Objective: We sought to compare the safety and efficacy of combining fractional 2940-nm Erbium:YAG (Er:YAG) laser with autologous platelet-rich

High power, single-frequency, long pulse width 1064 nm laser source

High power, single-frequency lasers with high pulse repetition rate (PRR) and high-beam quality can be used for gravitational wave detection , , cold atomic physics , solid state laser

1064nm 220mW DFB Laser Diode Pre-Configured System

These 1064nm laser diode source and control units provide an all-inclusive solution for your pulsed laser diode application. The laser diode ships with a pre

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This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

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