

Laser diodes with blue light



Article Overview

Blue laser diodes emit light in the 400–500 nm range, typically using GaN or InGaN semiconductors, and are widely used in data storage, imaging, and industrial applications.

Overview

Blue laser diodes are semiconductor lasers that emit electromagnetic radiation in the blue to violet spectrum (400–500 nm), with shorter wavelengths appearing violet but still classified as blue lasers . They are primarily built using gallium nitride (GaN) or indium gallium nitride (InGaN) as the gain medium, often layered on sapphire or GaN substrates . These materials allow for high efficiency, long lifetimes, and compact diode construction compared to older gas or argon-ion lasers .

Technology and Performance

Modern blue laser diodes can achieve output powers from milliwatts up to tens of watts for broad-area diodes, and even hundreds of watts when multiple diodes are combined in fiber-coupled systems . The short wavelength provides advantages such as:

- Smaller minimum spot size, enabling higher resolution in imaging and lithography .
- Stronger absorption in materials, useful for precise cutting, welding, or surface processing .
- Higher data density in optical storage, such as Blu-ray discs, compared to red lasers .
- Blue laser diodes can be fabricated as direct diodes, VCSELs, or frequency-double...

Article Content

Blue Laser Diodes – Mouser

Blue Laser Diodes are available at Mouser Electronics. Mouser offers inventory, pricing, & datasheets for Blue Laser Diodes.

Blue High-Power Laser Diodes – Beam Sources for Novel Applications

Similarly, the first wide-spread applications for GaN laser diodes was as a light source in blue-ray players at 405 nm thirty years

Blue Laser Diodes

Blue semiconductor laser diodes are suitable for a wide range of industrial and bio/medical applications. They can be either used as

Gallium Nitride (GaN) Laser Diodes | UV/blue/green | Blogs | RPMC

Gallium Nitride (GaN) laser diodes have revolutionized industries by enabling compact, efficient light sources in violet (405 nm), blue

Blue Ultra-Brilliant Diode Laser with High Brightness

The Wavelength Beam Combining (WBC) technology enables high brightness lasers in any available diode wavelengths between

Laser diode

Laser diodes are the most common type of lasers produced, with a wide range of uses that include fiber-optic communications,

Deep-blue light-emitting diodes based on perovskite single ...

Abstract Metal halide perovskite light-emitting diodes (LEDs) are transformative optoelectronic platforms due to their tunable

What is a Blue Laser Diode?

A blue laser diode is a type of semiconductor laser that produces a concentrated beam of photons with wavelengths of about 400 to

Contact Us

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