

Diode Laser Housing Material



Article Overview

Diode laser housings are typically made from metals, ceramics, or 3D-printed polymers, chosen for thermal management, mechanical stability, and optical alignment.

Common Materials for Diode Laser Housings

1. Metals (Aluminum, Copper, Copper-Tungsten, Copper-Diamond)

- Aluminum is widely used for commercial and experimental housings due to its lightweight, machinability, and moderate thermal conductivity. It is often used in extended-cavity diode lasers (ECDLs) to support diffraction gratings and optical components while allowing precise adjustments .
 - Copper and copper composites (Cu/W, Cu/Dia) are used for submounts and housings where high thermal conductivity is critical to dissipate heat from the laser diode and prevent thermal damage .
 - These metals are often chosen to match the thermal expansion coefficient of the laser chip to minimize mechanical stress and maintain alignment .
- #### 2. Ceramics (Aluminum Nitride, Silicon, Diamond)
- Aluminum Nitride (AlN) and silicon are used for submounts and housings requiring low thermal expansion and high thermal conductivity, ensuring stable operation under high power loads .
 - Diamond is occasionally used in high-performance applications due to its exceptional thermal conductivity, which is ideal for high-power diode lasers .

3. Polymers and 3D-Printed Materials

- PLA (Polylactic Acid) and other 3D-printable polymers are increasingly used for ed...

Article Content

Laserland Catalog of Housing for Laser Diodes

Laserland supply laser module, laser diode, green laser, laser pointer, laser safety glasses, laser goggles, laser protection eyewear,

Diode Laser Materials

With excellent thermal management features and highly reliable die-attach performance, they are widely used in applications such as

Laser diodes: stacks, bars & arrays | MEETOPTICS Academy

Laser diode bars, also known as laser diode arrays, comprise multiple single emitters, laid out side-by-side on a single substrate.

Diode Lasers - semiconductor lasers, laser diodes

Diode lasers are semiconductor lasers based on laser diodes. In contrast to some other types of semiconductor lasers, they contain

Laser Diode Tutorial

Laser Diode Tutorial The purpose of this laser diode tutorial is to provide the information necessary to create a long lifetime, stable

US-Lasers

US-Lasers - Laser Diode Module Housing Kit The US-Lasers, Inc. Laser Diode Housing Kit allows the user to develop a complete

3pcs Silver Metal Laser Diode Housing 12x40mm for 5.6mm To-18 Laser ...

About this item Diode housing for TO-18 laser diode! Inner Diameter:10.3 x 40mm, Outside Diameter:12 x 40mm Material: Metal,

Laser diode

Laser diodes form a subset of the larger classification of semiconductor p - n junction diodes. Forward electrical bias across the laser

Diode Laser Materials

Every material in this collection is tested and confirmed compatible with diode laser cutters. Shop pre-tested wood, acrylic, and

Diode Laser Materials | Safe & Tested for Your Laser

Find safe, tested diode laser materials for effective cutting. Prevent burned edges and ensure safe operation for your projects.

Laser Diode Tutorial

The information contained within this tutorial will give all the general information necessary to create an excellent laser diode system.

3D printing an external-cavity diode laser housing

External-cavity diode lasers are ubiquitous in atomic physics and a wide variety of other scientific disciplines, due to

Contact Us

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