

Article Overview

Common hard drive laser diodes include 780 nm for CDs, 650 nm for DVDs, and 405 nm for Blu-ray drives, with specific models from manufacturers like Sony, Sharp, and Hitachi-LG.

Overview of Hard Drive Laser Diodes

Hard drives and optical drives use semiconductor laser diodes to read and write data. The wavelength determines the type of media:

- o CD drives: 780 nm infrared laser diodes
- o DVD drives: 650 nm red laser diodes
- o Blu-ray drives: 405 nm violet/blue laser diodes These diodes are typically packaged in TO-can or SMD modules and are selected for high stability, low divergence, and precise modulation.

Common Laser Diode Models by Media Type

Media Type	Wavelength	Example Models / Manufacturers	Notes
CD	780 nm	Sony SLD1230V, Sharp GH0780A, Mitsubishi ML780G	Standard infrared diodes for CD-ROM and CD-RW drives
DVD	650 nm	Sony SLD1335V, Sharp GH0650A, Hitachi-LG HLD650	Red diodes for DVD-ROM, DVD-RW, and combo drives
Blu-ray	405 nm	Sony SLD3230V, Sharp GH0405A, Nichia NDB4216	Violet diodes for high-density Blu-ray reading/writing

Key Specifications

- o Output power: Typically 5-50 mW for reading, up to 100 mW for writing
- o Package types: TO-18, TO-46, or surface-mount modules
- o Drive current: 30-100 mA for reading, higher for writing
- o Beam divergence: 5-10° typical, often collimated with integrated optics

Additional Resources

For a more extensive search of laser diodes, including datasheets and manufacturer comparisons, you can use:

- o Laser Diode Selection Guide: Offers a database of diodes from multiple manufacturers ()
 - o ProPhotonix Laser Diode Selector: Allows filtering by wavelength, power, and package ()
 - o LASER COMPONENTS Search Engine: Provides instant overviews of compatible laser diodes and custom options ()
- These resources are useful if you need replacement diodes or custom specifications for optical drives. By referencing these models and databases, you can identify the appropriate laser diode for CD, DVD, or Blu-ray drives and obtain datasheets for technical integration or repair purposes.

Hard Drive Laser Diode Model

An interesting aspect about this move to HAMR in hard disk drives is that this could drive

A team of researchers from across Europe and Asia has demonstrated a way of using laser heat to store data rather

ROHM offers laser diodes (LDs) for Light Detection and Ranging (LiDAR). This application note will introduce ROHM's LD line-up

The Driver Kit includes a controller for reading laser module signals and controlling the pilot laser, a laser

Seagate is firing back at WD's MAMR announcement with its laser-infused HAMR (Heat

In tests, researchers at the university were able to transfer data to a magnetic hard drive using laser light at speeds of

Spinning hard drives are being phased out of most consumer-grade computers in favor of faster technology like solid

Seagate is finally offering its largest-ever hard drive - a staggering 32TB in a single drive, made possible by tech

From heat-assisted magnetic recording to magnetic random-access memory, low-power lasers are

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

To analyze and optimize high-power diode lasers, Fraunhofer ILT is developing simulation software (SEMSIS) for the multiphysics

Laser Diode Drive Circuit Design Method and Spice Model ROHM offers laser diodes (LDs) for Light Detection and Ranging (LiDAR).

A disk laser or active mirror (Fig.1) is a type of diode pumped solid-state laser characterized by a heat sink and laser output that are

ATI laser diode drivers are suitable for direct diode laser systems, fiber laser subsystems,

Seagate Hard drive manufacturer Seagate promises that HAMR--Heat Assisted Magnetic Recording--hard

Hard Drive Laser Diode Model

drives in

To write new data, a small laser diode attached to each recording head momentarily heats a tiny spot on the disk,

Web: <https://supremeacademicresearch.co.za>

