

Compact and Robust

Pulsed Laser Diodes with a Homogeneous Beam Profile

Pulsed laser diodes are becoming more and more efficient and powerful. Thus, they represent a viable alternative to large and expensive laser systems. One advantage of solid-state lasers is the very good beam profile. Achieving this with semiconductor laser diodes requires the use of external beam-shaping elements or homogenizers. Diffusing lenses, diffractive elements, or long optical fibers may be used; however, in all of these approaches either power is lost or the mechanical effort is very large.

LASER COMPONENTS' developers in Canada were successful in connecting powerful, multi-junction PLDs to a special fiber structure, thus allowing a homogeneous beam profile to be achieved after just a few centimeters. Picture 1 shows the near-field distribution of a pulsed laser diode with three epitaxially-integrated emitters. After just 13 mm, a significantly more homogeneous beam profile is visible. Picture 2 shows the beam profile after 55 cm. The advantage of this assembly is that it is compact and robust and simultaneously exhibits low losses and thus a higher peak power. Prototypes are currently being built. LASER COMPONENTS is still able to include any desired changes.

More Information

<http://www.lasercomponents.com/de-en/news/pulsed-laser-diodes-with-a-homogeneous-beam-profile/>

The Company

LASER COMPONENTS specializes in the development, manufacture, and sale of components and services in the laser and optoelectronics industry. At LASER COMPONENTS, we have been serving customers since 1982 with sales branches in five different countries. We have been producing in house since 1986 with production facilities in Germany, Canada, and the United States. In-house production makes up approximately half of our sales revenue. A family-run business, we have more than 170 employees worldwide.