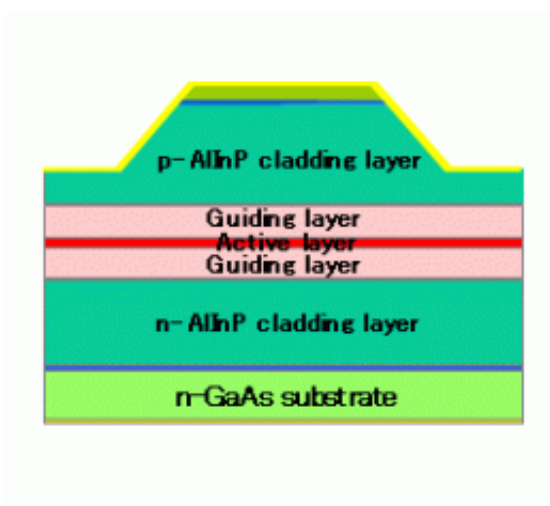


Sony Develops World's Highest Optical Output 7.2W, 635nm Red Semiconductor Laser Array

August 25 2008



Laser Structure

Sony Corporation today announced that it has developed a high-power, short-wavelength red semiconductor laser array diode, ideal for use as a light source in projection devices.

In order for red semiconductor laser array diodes to be used in projection devices, they are required to deliver high brightness, high efficiency and room temperature operation. This newly developed laser array diode achieves wavelength oscillation of 635nm to generate brightness levels 1.6 times conventional red semiconductor lasers.

The laser array is composed of 25 broad stripe lasers, with the length of each laser bar 10mm. The laser bars are mounted on a copper heat sink block. Sony has achieved optimum uniformity within the laser active layer, high crystal purification levels, and high concentration of Magnesium doping within the AlInP cladding layer to realize low threshold currents and improved laser characteristics. By introducing new die bonding technologies for attaching the laser array and heat sink Sony has also enabled high levels of heat dissipation from the laser array.

Furthermore, the accuracy of the laser bar mounting process has been improved to provide advanced coupling efficiency between the laser array and optical devices. As a result of these developments, this new red semiconductor laser array combines 635nm wavelength, 7.2W optical power, 23% energy conversion efficiency and operation within 25°C room temperature conditions. These heat dissipation and optical features enable it to be easily incorporated in the design of projection devices.

Sony will present these results at the 69th Autumn Meeting of the Japan Society of Applied Physics to be held from September 2nd – 5th at Chubu University in Nagoya, Japan.

Provided by Sony

Citation: Sony Develops World's Highest Optical Output 7.2W, 635nm Red Semiconductor Laser Array (2008, August 25) retrieved 23 April 2024 from <https://phys.org/news/2008-08-sony-world-highest-optical-output.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.