Sony releases 400mW-output blue-violet laser diode for blu-ray disc

Medical Design Technology

It features a pulsed output as high as 400mW and supports "BDXL," a new standard for large-capacity Blu-ray discs.

According to Sony, the SLD3237VF is the industry's first blue-violet laser diode that has an output of 400mW or higher. The high output allows to use a wider variety of optical components such as lenses and prisms and, thus, to design hardware more freely.

To realize the high output, innovative technologies are necessary to prevent the end face of a laser resonator from being melted by the heat from laser (a phenomenon called "catastrophic optical damage" (COD)) and to enhance the crystal quality of gallium nitride (GaN) crystal, which is a constituent material for ensuring a high reliability, the company said.

This time, Sony newly developed an end-face coating material and a film forming method and succeeded in heightening the optical output level that causes COD, compared with that of the company's 300mW-class laser diode.

Moreover, to improve the crystal quality, Sony developed new MOCVD (metal organic chemical vapor deposition) crystal growth equipment that is optimized for producing GaN materials. The equipment can grow crystals on multiple substrates at the same time and deal with a future increase in the demand for laser diodes used for Blu-ray discs, the company said.

Furthermore, Sony developed a process and processing equipment that realize a high production efficiency in the process of processing wafers, which follows the crystal growth process.

The SLD3237VF is mounted in a standard package with a diameter of 5.6mm. Its operating temperature range is from 0 to 85°C.

This time, Sony also released the "SLD3237VFR," which has a pulsed output of 350mW and is mounted in a package with a diameter of 3.8mm. Its operating temperature range is from 0 to 90°C.

Both of the laser diodes have a sample price of ¥1,000 (approx US$11.9). And they are manufactured by Sony Shiroishi Semiconductor Inc, Sony Corp's wholly-owned subsidiary.

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