OPTICA APPLICATA online
A quarterly of the Institute of Physics, Wroclaw University of Technology
open access
Wroclaw University of Technology
INSTITUTE OF PHYSICS

Optica Applicata 2005(Vol.35), No.3, pp. 399-405

Some problems of molecular beam epitaxy growth of epitaxial structures of semiconductor lasers for a 980 nm band

Michal KOSMALA, Kazimierz REGINSKI, Kamil KOSIEL

Keywords

InGaAs quantum-well lasers, molecular beam epitaxy, optical pyrometry

Abstract

The paper deals with selected problems of molecular beam epitaxy (MBE) technology of fabrication of 980-nm strained InGaAs quantum-well (QW) lasers. Special attention has been paid to the growth of active region of such lasers. Therefore, a certain method of optimisation of the growth process is presented. It consists of two steps. First, the layer temperature is measured during the growth of the active region of the laser in several test processes. From the experimental data the optimum temperature profile of the MBE process is found. Then, a sequence of test structures are grown in different growth conditions in QWs (the temperature and the As_4/InGa flux ratio are changed) and on the basis of photoluminescence measurements the best regulation parameters for the actual MBE processes are selected. The optimisation has been confirmed by fabrication and characterisation of entire semiconductor laser devices.

514.2 kB

Back to list