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Analysis of mounting induced strain in semiconductor structures by means of spatially resolved optical modulation techniques

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Keywords

electroreflectance, mounting induced strain, laser bar

Abstract

A wide range of applications of high-power diode lasers is connected with the tendency towards device miniaturization resulting in increased power densities. To manage the thermal load, the chips or arrays of chips (the so-called laser lines or cm-bars) have to be mounted with low thermal resistance on a heat sink of high thermal conductivity. These measures potentially introduce mechanical strain and defects into the semiconductor chips affecting the parameters of laser emission, *e.g.*, spectral position. The ability of optical modulation techniques to monitor spatial strain distribution along the devices was evaluated.