



Optica Applicata 2005(Vol.35), No.3, pp. 591-595

Analysis of thermal conditions of pulse operated single quantum well separate confinement heterostructure (SQW SCH) lasers

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Keywords

junction temperature dynamics, laser

Abstract

Junction temperature affects laser diode performance in many ways. Magnitude of the light output power, a center wavelength of the spectrum and diode reliability are all strongly dependent on the junction temperature. A simple electrical method to measure laser diode junction temperature has been developed. It is based on the measurement of the junction voltage change, which is due to the change of its temperature and is induced by supplying the laser with DC current in parallel to the pulsed driving current. Junction temperature dynamics in the pulse operated GaAs based SQW SCH quantum well broad contact lasers designed for emission at 980 nm was studied and results are presented. Additionally, junction cooling in these lasers as a function of time was also assessed.



406.4 kB

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