Abstracts

Single Transverse Mode Condition of Lens-Like Strip Waveguide GaInAsP/InP Lasers

K. Moriki and K. Iga. "Single Transverse Mode Condition of Lens-Like Strip Waveguide GaInAsP/InP Lasers." 1982 Transactions on Microwave Theory and Techniques 30.10 (Oct. 1982 [T-MTT] (Special Issue on Optical Guided Wave Technology)): 1684-1691.

The theoretical analysis of the single transverse mode condition and lasing properties of a lens-like strip GaInAsP/InP laser is described. First, extended rate equations have been derived which include the carrier diffusion in the active layer and the carrier spread in the cladding layer and the dependency of the carrier lifetime on the current density. Next, it has been shown that the reasonably good assumption that the field of a lasing mode is determined by the built-in index waveguide is effective for simplifying to solve these equations. The result on lasing properties from the theory has been compared with experiments which were made on GaInAsP/InP Lambda = 1.3 μm) lens-like strip and terraced substrate lasers. In addition, the single transverse mode condition is discussed and criteria have been obtained.

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