

SELECTIVE MOVPE OF MICROARRAY WAVEGUIDE FOR DENSELY INTEGRATED PHOTONIC DEVICES

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Abstract

We studied the mask interference effect in selective metal-organic vapor-phase epitaxy (MOVPE) of a microarray optical waveguide. We investigated the characteristics of waveguides having mask interference effects. Based on the experimental results, we developed a method of simulating the characteristics of a microarray waveguide that uses the mask interference constant, which depends on growth pressure. The simulation can account for the experimental results under different growth pressures and it should be very useful for designing the microarray waveguides. In particular, we can use it to control the PL-wavelength profile of the microarray waveguide grown under atmospheric pressure, which is important for fabricating densely integrated photonic devices.