

Thermal Effect on Mirror Reflectivity Based on DBR for Optoelectronics Devices

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Abstract

In this work, the thermal effect on the mirror reflectivity based on distributed Bragg reflector (DBR) in terms of the center wavelength shifting and reflectivity ratio is theoretically investigated and experimentally validated. The temperature of the proposed device was varied between the range of 300K to 400K in steps of 20K. According to the results, the achievement shifting in the center wavelength is about 25nm from (1580nm to 1605nm) and 26.9nm from (1580nm to 1606.9nm) for the theoretical and experimental work, respectively. In addition, about 99.99% within the theoretical and for the experimental work is about 97.3% of reflectivity ratio were achieved by the proposed device. Finally, the experimental results show a good agreement with the simulation design