URN etd-0407109-183725-2093
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Statistics This thesis had been viewed 58 times. Download 0 times.
Department
Year 2006
Semester 2
Degree Master
Type of Document Master's Thesis
Language zh-TW.Big5 Chinese
Title Fabrication of Bragg grating waveguide component by different types of polymer material and its characteristic comparison
Date of Defense 0000-00-00
Page Count 53
Keyword Grating
Waveguide
Polymer

Abstract
In this thesis, we created an unique process combining with soft molding, photolithography and holography interference to fabricate an polymer Bragg reflection waveguide component.

First we made a waveguide component through photolithography and then combined with micro-contact printing of non-photolithography, micro-molding in capillaries and replica molding to fabricate the molding of the polymer waveguide component. Afterwards, we utilized formed polymer OG waveguide molding along with different diffraction rates of polymer materials to perform the optical transmission layer Finally, we used the process of thick layer photo-resist of photolithography associated with holography interference to implement a polymer Bragg reflective waveguide component.

The molding of this waveguide component is reproducible and is able used for mass production. It has some advantages including easy production, lowest optical loss and low cost.

The experiment results are measured and observed by AFM and SEM. Whereas the optical transmitting features are measured through the OSA.
Advisory Committee Wen-Chung Chang - advisor

Files No Any Full Text File.
Date of Submission 2007-07-14