Jordan University of Science and Technology

Maskless Lithography Using Negative Photoresist Material: Impact of UV Laser Intensity on the Cured Line Width

Authors: Mohammed, M.Z., Mourad, AH.I. & Khashan, S.A.

Abstract: The application of maskless lithography technique on negative photoresist material is investigated in this study. The equipment used in this work is designed and built especially for maskless lithography applications. The UV laser of 405 nm wavelength with 0.85 Numerical Aperture is selected for direct laser writing. All the samples are prepared on a glass substrate. Samples are tested at different UV laser intensities and different stage velocities in order to study the impact on patterned line width. Three cases of spin coated layers of thickness 90 ?m, 40 ?m, and 28 ?m on the substrate are studied. The experimental results show that line width has a generally increasing trend with intensity. However, a decreasing trend was observed for increasing velocity. The overall performance shows that the mr-DWL material is suitable for direct laser writing systems.