On the Design of an Electrohydrodynamic Ion-Drag Micropump

Mohamed Fathy Abdel Rahman Badran, Badran, M; Moussa, M

Assistant Professor

Abstract

In this paper, several designs of an Electrohydrodynamic (EHD) Ion-Drag Micropump will be investigated. The goal is to determine the effect of several design parameters on the pressure-voltage relationship. The overall dimensions of the micropump channel are 500 µm x 480µm x 60µm. Four designs were tested in simulation with different combinations of the gap between the electrodes (S) and the gap between the electrode pairs (D) to examine their impact on the pumping performance. The design with small gap (S) and large gap (D) was found to have the best pumping performance.

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