

チップ上に実装可能な流体マイクロポンプの性能

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Ability of Fluid Micro Pump Mounted on a Chip

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Abstract

The fluid micro electro mechanical system (fluid MEMS), which is composed of a micro pump, mixer, valve, reactor, sensor, and an electric circulate system on one chip, is proposed for an application of biotechnology or medical analysis. In this paper, the micro fluid pump, which was mounted on a flat chip, was developed and pumping function was evaluated by measurement of flow volume. The strong point of these fluid MEMS has a thin chamber, which possessed polymers as a filling, and a pumping function was given rise to a mechanical vibration by micro vibrator on the outer side of a chamber. A liquid sample, such as an electrolytic solution, blood, and a protein solution, was effectively flown by micro pumping system from entrance to exit of a chamber, of which flow volume was 10~560 μ L/min using a battery at 3V.

Key Words: MEMS, Fluid, MEMS, Device, Micro Pump, Micro Machine