

Title (en)  
Bidirectional micropump

Title (de)  
Bidirektionale dynamische Mikropumpe

Title (fr)  
Micropompe réversible

Publication  
**EP 0844395 B1 20051019 (DE)**

Application  
**EP 97119955 A 19971114**

Priority  
DE 19648694 A 19961125

Abstract (en)  
[origin: EP0844395A2] The channels (7,8) have different cross-sectional shapes or surfaces or different lengths or a combination of these. They have non-linear, undirected flow resistances of varying characteristics and their variable fluid flows are controlled in direction-dependent manner between laminar and turbulent flow with suitable impulses applied to the actuator (3) with unsymmetrical flank steepness. The structure is formed by anisotropic etching in a silicon wafer (1), is closed with a cover and provided with a piezo-actuator (3). The impulse has a flank steepness during at least the lapse of a period, which during this period produces a turbulent flow in one of the channels.

IPC 1-7  
**F04B 43/04**; **F04B 53/10**

IPC 8 full level  
**F04B 43/04** (2006.01); **F04B 53/10** (2006.01)

CPC (source: EP US)  
**F04B 43/043** (2013.01 - EP US); **F04B 53/1077** (2013.01 - EP); **F04B 2203/0409** (2013.01 - EP)

Cited by  
EP1369587A3; DE112011104467B4; DE102013015453A1; US7059836B2; WO2012084707A1; DE102011115622A1

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**EP 97119955 A 19971114**; AT 97119955 T 19971114; DE 19648694 A 19961125; DE 59712449 T 19971114