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(54) Title: DIGITAL MICROFLUIDIC DEVICES

(57) Abstract: The disclosure relates to the routing of droplet control signals in a digital microfluidic device. The digital microfluidic devices can comprise a first substrate having droplet control electrodes in one layer and at least some droplet control signal lines in another layer, and these two layers are separated by a layer of dielectric material patterned with VIAs. At least some of the electrodes and control signal lines are electrically connected through the VIAs. A second dielectric layer is deposited on the first substrate to cover at least some of the droplet control electrodes. Droplets may then be operated using electrowetting, dielectrophoresis, or other electrostatic mechanisms by applying voltages to the desired electrodes.



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INTERNATIONAL SEARCH REPORT

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PCT/US 17/61546

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - B81C 1/00, G01N 27/447 (2018.01)

CPC - G01N 27/44743, B81C 1/00095, B41M 5/007, B41M 5/0064, B41M 5/0058, B41M 5/0047

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

See Search History Document

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

See Search History Document

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

See Search History Document

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2010/0307922 A1 (WU) 09 December 2010 (09.12.2010) Abstract, para[0005], [0016]-[0017], [0024], [0041], [0044], [0046], Figures 1A-1B	1-13
Y	US 2016/0114320 A1 (DUKE UNIVERSITY) 28 April 2016 (28.04.2016) para[0029]-[0030], [0041], [0083], [0090], [0096], [0182]	1-13
A	US 2013/0118901 A1 (POLLACK et al.) 16 May 2013 (16.05.2013) para[0033]	1-13
A	US 2010/0076734 A1 (ZHOU et al.) 31 March 2011 (31.03.2011) para[0016], [0056], [0062], [0066]-[0068], [0083], Figure 11	1-13

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

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