

Title (en)

MICRO-ELECTROMECHANICAL SWITCH HAVING A DEFORMABLE ELASTOMERIC CONDUCTIVE ELEMENT

Title (de)

MIKROELEKTROMECHANISCHER SCHALTER MIT EINEM DEFORMIERBAREN ELASTOMERISCHEN LEITFÜHIGEN ELEMENT

Title (fr)

COMMUTATEUR MICROELECTROMECHANIQUE AYANT UN ELEMENT CONDUCTEUR ELASTOMERE DEFORMABLE

Publication

**EP 1535296 A4 20070404 (EN)**

Application

**EP 02746591 A 20020614**

Priority

US 0219449 W 20020614

Abstract (en)

[origin: WO03107372A1] A micro-electromechanical switch (MEMS) having a deformable elastomeric element (1) which exhibits a large change in conductivity with a small amount of displacement. The deformable elastomeric element (1) is displaced by an electrostatic force that is applied laterally resulting in a small transverse displacement. The transversal displacement, in turn, pushes a metallic contact (7) against two conductive paths (5, 6), allowing passage of electrical signals. The elastomer (1) is provided on two opposing sides with embedded metallic elements (9, 10), such as impregnated metallic rods, metallic sheets, metallic particles, or conductive paste. Actuation electrodes (18, 8) are placed parallel to the conductive sides of the elastomer. A voltage applied between the conductive side of the elastomer and the respective actuation electrodes (18, 8) generate the electrostatic attractive force that compresses the elastomer (1), creating the transverse displacement that closes the MEMS. The elastomeric based MEMS extends the lifetime of the switch by extending fatigue life of the deformable switch elements.

IPC 8 full level

**H01H 57/00** (2006.01); **H01H 59/00** (2006.01); **H01L 21/00** (2006.01)

CPC (source: EP)

**H01H 59/0009** (2013.01)

Citation (search report)

- [AD] US 6020564 A 20000201 - WANG JOHNSON J H [US], et al
- [AD] US 5642015 A 19970624 - WHITEHEAD LORNE A [CA], et al
- See references of WO 03107372A1

Cited by

FR3138657A1; WO2024033770A1

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

DOCDB simple family (publication)

**WO 03107372 A1 20031224**; AU 2002316298 A1 20031231; CN 1316531 C 20070516; CN 1650382 A 20050803; EP 1535296 A1 20050601; EP 1535296 A4 20070404

DOCDB simple family (application)

**US 0219449 W 20020614**; AU 2002316298 A 20020614; CN 02829426 A 20020614; EP 02746591 A 20020614