

RF-MEMS Devices

July, 2008

Abstract

MEMS technology based on microprocessing for semiconductor realizes movable mechanical structured high performance 3D device. We are developing RF-MEMS devices such as MEMS vari-cap and MEMS switch for mobile communication device such as mobile-PC, cellular phone.

Technology

- MEMS vari-cap is structured with low dielectric constant glass substrate, 2 movable planer electrodes with thin space between them as an insulator (Figure 1). This original structure realizes high quality factor and wide range of capacitance.
- MEMS switch structured with electroplated electrode and single-crystal silicon cantilever realizes low insertion loss and high isolation (Figure 2).

Application Examples

Tunable RF-frontend of cellular phone for next generation multi band communication system such as variable impedance matching circuit, tunable antenna, tunable VCO.

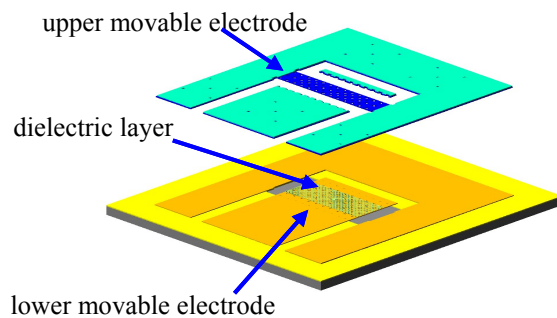
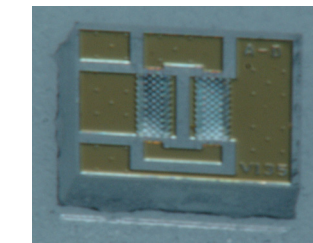


Figure 1. MEMS vari-cap structure



Vari-cap chip 0.85×0.75mm

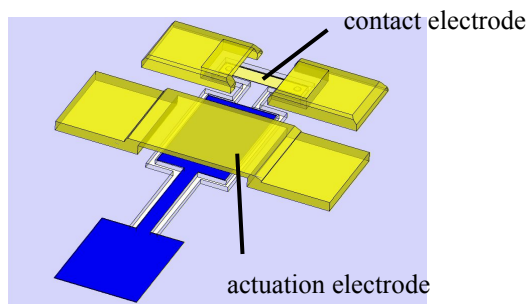
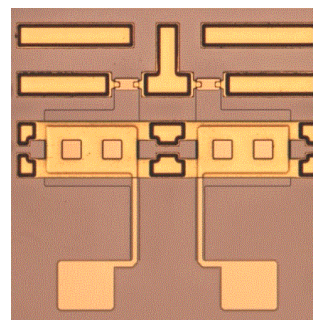


Figure 2. MEMS switch structure



SPDT switch chip 1.5×1.5mm