Abstract

RF MEMS switches are used in many applications and also can be used to achieve reconfigurability of various RF systems and in particular, that of minute sized antenna structures and systems. In the case of micro machined antennas, which usually have low voltage signals, RF MEMS switches with low actuation voltage are highly required for achieving reconfigurability. The capacitive shunt switch derives its switching property from the significant difference of its capacitance in the up-state and down-state. We have presented a highly reliable RF MEMS switch. We have used various small beams to achieve reliably. Basically the stiction and buckling effect can be reduced by using such a structure. The actuation voltage of RF MEMS switches mainly depends on the spring constant of the switch membrane. A low actuation voltage capacitive shunt switch, is presented. A process flow for the fabrication is designed and simulated using HFSS. The EM analysis results are presented and compared with that of a fixed fixed flexure based switch membrane to establish the low actuation voltage. Reliable can be seen from the vertical structure [22-26].

References
Robust Design of RF MEMS Switch Design with Reduced Buckeling Effect

- Christos G Christodolou, Youssef Tawk, Steven A Lane and Scott R Erwin, "Reconfigurable antennas for wireless and space applications," Proceedings of the IEEE, Vol 100 No. 7, July 2012.


Index Terms
Keywords
RF MEMS  Switch  Low Voltage  Antennas  Electrostatic Actuation