Abstracts

RF MEMS capacitive switches fabricated with HDICP CVD SiN/sub x/

C.H. Chang, J.Y. Qian, B.A. Cetiner, Q. Xu, M. Bachman, H.K. Kim, Y. Ra, F. De Flaviis and G.P. Li. "RF MEMS capacitive switches fabricated with HDICP CVD SiN/sub x/." 2002 MTT-S International Microwave Symposium Digest 02.1 (2002 Vol. I [MWSYM]): 231-234 vol.1.

The role of very low temperature (90-170/spl deg/C) high density inductively coupled plasma chemical vapor deposition (HDICP CVD) process in RF MEMS switch fabrication is addressed. The results on SiN/sub x/ layers produced by both HDICP CVD and plasma enhanced CVD (PECVD) are compared in terms of surface roughness, breakdown voltage and RF MEMS switch performance. It is found that HDICP CVD can provide very thin (250 /spl Aring/) nitride layer having root mean square (rms) roughness value of 1.6 nm at very low temperature (90/spl deg/C). The breakdown strength is measured to be 9MV/cm A SiN/sub x/ layer with these characteristics improves the device reliability and dramatically increases its down position capacitance providing additional degree of freedom in RF MEMS switch design.

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