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**"Integrated piezoelectric LTCC varactor"**, pp.104-108

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**Abstract** – The need for reconfigurable/tunable front-end components is particularly arising due to the increasing number of air interface standards and frequency bands. A modified parallel-plate capacitor with high permittivity dielectric and piezoelectrically movable top electrode is identified as the most promising and versatile tuning element. An integrated loaded piezoelectric varactor bandpass filter has been fabricated. Its equivalent circuit has been used to explore the change of the capacitor parameters across the entire tuning range. The capacitor varied from 7 pF to 1.35 pF with 200 V control voltage. This promises a tuning range from 70 pF to 0.1 pF when the thin-film processability of the LTCC surface is properly controlled. The quality factor is improved by a factor of 7 when the metallization of the piezoelectric actuator, changes from 80 nm to 500 nm. The feasibility of tuning using piezoceramic varactors is explored.