

“Advanced integrated piezoelectric LTCC tuned bandpass filters”, pp. 128-135

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Abstract – Integrated tunable piezoelectric LTCC bandpass filters have been fabricated. The filters incorporate a novel parallelplate capacitor that can be tuned by a piezoelectrically movable electrode. Very broad tuning ranges of 135% in the first-order filter and of 46% in the second-order filter have resulted from the large variations of the gap width and consequently the effective permittivity. The piezoelectric cantilevers replace sections of interior coupled lines of a conventional untuned filter so that the tuning function consumes no extra space. The frequency-tuning and the voltage sensitivity are explored. Dynamical behavior, hysteresis, power consumption as well as tuning speed are currently being addressed.