Abstracts

Development of Miniature Filters for Wireless Applications (Dec. 1995, Part II [T-MTT])

K.M. Lakin, G.R. Kline and K.T. McCarron. "Development of Miniature Filters for Wireless Applications (Dec. 1995, Part II [T-MTT])." 1995 Transactions on Microwave Theory and Techniques 43.12 (Dec. 1995, Part II [T-MTT] (1995 Symposium Issue)): 2932-2938.

Miniature filters have been under development for wireless applications from 500 MHz to over 6 GHz using thin piezoelectric films on common substrates. This paper discusses recent results in the development of miniature filters using a solidly mounted resonator (SMR) concept wherein the acoustic resonator is isolated from the substrate with a sequence of quarter wavelength thick layers that form a reflector. The SMR concept is discussed in detail and applications to filters is presented. Ladder filters have been demonstrated with insertion losses in the 3 dB range using aluminum nitride films for the piezoelectric and appropriate substrates such as silicon, sapphire, and glass. The ladder filters reported consist of interconnected series and shunt resonators forming a monolithic structure on a single die of comparable size to an integrated circuit.

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