Abstracts

Design and realization of high Q millimeter-wave structures through micromachining techniques

B. Guillon, D. Cros, P. Pons, K. Grenier, T. Parra, J.L. Cazaux, J.C. Lalaurie, J. Graffeuil and R. Plana. "Design and realization of high Q millimeter-wave structures through micromachining techniques." 1999 MTT-S International Microwave Symposium Digest 99.4 (1999 Vol. IV [MWSYM]): 1519-1522 vol.4.

This paper deals with an original design and realization of high performance micromachined millimeter wave passive circuit on silicon. An appropriate coupling between two coplanar micromachined lines and a dielectric resonator acting on its whispering gallery modes have allowed a loaded quality factor ranging from 500 to 2400 at 35 GHz and leading to a Micromachined Dielectric Resonator Oscillator (MDRO) realization. From finite element 2D simulations, we have obtained unloaded quality factor of 2040 at 77 GHz and 95 GHz using an original micromachined silicon dielectric resonator.

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