Abstracts

Comparison of Microwave Inductors Fabricated on Silicon-on-Sapphire and Bulk Silicon

R.A. Johnson, C.E. Chang, P.M. Asbeck, M.E. Wood, G.A. Garcia and I. Lagnado. "Comparison of Microwave Inductors Fabricated on Silicon-on-Sapphire and Bulk Silicon." 1996 Microwave and Guided Wave Letters 6.9 (Sep. 1996 [MGWL]): 323-325.

Inductors are important elements of microwave circuits that frequently require high self-resonant frequencies and high quality factors. In this work, circular spiral inductors fabricated on silicon-on-sapphire (SOS) and bulk silicon are compared. Due to the low-loss dielectric substrate, SOS inductors showed both higher self-resonant frequencies and higher quality factors than those fabricated on bulk silicon. Small-signal models extracted for the inductors confirm that the degradation of the inductor characteristics in bulk silicon stems from losses in the substrate.

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