Abstracts

High quality factor and high self-resonant frequency monolithic inductor for millimeter-wave Si-based IC's

D. Dubuc, T. Tournier, I. Telliez, T. Parra, C. Boulanger and J. Graffeuil. "High quality factor and high self-resonant frequency monolithic inductor for millimeter-wave Si-based IC's." 2002 MTT-S International Microwave Symposium Digest 02.1 (2002 Vol. I [MWSYM]): 193-196 vol.1.

Substrate losses of inductors realized with a SiGe BICMOS technology (psubstrate=15 /spl Omega/cm) are investigated. The benefit of introducing a thin conductive (p=0.5 /spl Omega/cm) epitaxial layer below the oxide beneath metal strip in order to obtain a high quality factor and a high self-resonant frequency (SRF) is demonstrated. Finally, measurements of the newly developed inductor show a high quality factor of 22 at 30 GHz with the conductive epitaxial layer connected to ground. Moreover, an impressive measured SRF of 64 GHz is achieved for an inductor value of 0.75 nH.

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