Abstracts

Q-enhancement of spiral inductor with N/sup +/- diffusion patterned ground shields

Y.E. Chen, D. Bien, D. Heo and J. Laskar. "Q-enhancement of spiral inductor with N/sup +/- diffusion patterned ground shields." 2001 MTT-S International Microwave Symposium Digest 01.2 (2001 Vol. II [MWSYM]): 1289-1292 vol.2.

This paper discusses the quality factor enhancement by employing different patterned ground shields underneath the simple spiral inductor in a commercial BiCMOS technology. The effectiveness of the patterned ground shield technique depends heavily on the counter-effects between the reduction of substrate loss and the increase of parasitic capacitance. With proper choice of the shielding layer, the quality factor can achieve 21% enhancement for a 5-nH spiral inductor. The n/sup +/-diffusion layer is found to be the most effective layer for the patterned ground shield technique due to less associated parasitic capacitance.

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