Abstracts

Characterization and modeling of on-chip inductor substrate coupling effect (2002 [RFIC])

Chuan-Jane Chao, Shyh-Chyi Wong, Chia-Jen Hsu, Ming-Jer Chen and Len-Yi Leu. "Characterization and modeling of on-chip inductor substrate coupling effect (2002 [RFIC])." 2002 Radio Frequency Integrated Circuits (RFIC) Symposium 02. (2002 [RFIC]): 311-314.

The substrate coupling effects of two adjacent coplanar spiral inductors are characterized and modeled. The noise magnitude between two 45 /spl mu/m-away inductors can be reduced by 6.83 dB by using guard-ring surrounding each inductor, and improved by 10.28 dB further by adding patterned ground polysilicon shield beneath at 3 GHz. The inductor with patterned polysilicon shield beneath shows improved quality factor and noise isolation. Moreover, a macro model is presented for modeling quality factor and inductance of on-chip spiral inductor and associated neighboring inductor's coupling noise effect.

❑ Return to main document.