Abstracts

Super compact RFIC inductors in 0.18 /spl mu/m CMOS with copper interconnects (2002 [RFIC])

H. Feng, G. Jelodin, K. Gong, R. Zhan, Q. Wu, C. Chen and A. Wang. "Super compact RFIC inductors in 0.18 /spl mu/m CMOS with copper interconnects (2002 [RFIC])." 2002 Radio Frequency Integrated Circuits (RFIC) Symposium 02. (2002 [RFIC]): 443-446.

Design of super compact on-chip inductors with deep-shrunk dimension of 22 /spl mu/m/spl times/23 /spl mu/m, as opposed to several hundreds /spl mu/m by several hundreds gm, is reported. Implemented in a 6-metal all-copper 0.18 /spl mu/m CMOS process, a flat inductor value of 10 nH up to 4 GHz, satisfactory to many typical RFIC applications, is achieved. The aggressive shrinkage reduces parasitic capacitance substantially and makes it realistic and cost-effective to realize single-chip RFICs in very deep sub-micron technologies. A new inductor model is proposed for accuracy. A 2.4 GHz LNA circuit with on-chip matching using the compact inductor is demonstrated.

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