Abstracts

Novel fast multiline analysis of parasitic effects in CPW inductors for MMICs

I. Huynen. "Novel fast multiline analysis of parasitic effects in CPW inductors for MMICs." 1998 Microwave and Guided Wave Letters 8.2 (Feb. 1998 [MGWL]): 72-74.

The author presents a novel multiline modeling of monolithic microwave integrated circuit (MMIC) spiral inductors in coplanar waveguide (CPW) technology. Starting from transmission line parameters calculated for only single lines and pairs of lines, a distributed equivalent circuit is established for each section of multicoupled lines in the structure. It readily yields the S-parameters of the section. An adequate interconnection of sections having different topologies results in the S-matrix of the device. Our technique is wideband, fast, and fully scalable. It predicts on-line the effect of the underpass and of spurious propagation along the coplanar waveguide (CPW) grounding. It is shown that a significant frequency shift is due to the combination of those two effects. Results are validated by measurements on SOI inductors, up to the second self-resonance frequency.

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