Abstracts

Design and optimization for coaxial-to-microstrip transition on multilayer substrates

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We present the design and optimization of a coaxial-to-microstrip transition on multilayer substrates for 10 GHz microwave applications. A parasitic parallel-plate line mode due to the multiple metal layers in the substrate has been observed from a careful electromagnetic field analysis. The parasitic mode causes serious leakage which can affect the embedded circuitry in the substrate significantly. A parasitic inductance has also been identified and suppressed. We apply an efficient comprehensive design method to develop a low-cost edge launch coaxial-to-microstrip interconnect on a six-metal-layer substrate. The new design shows no parasitic mode and no parasitic inductance. The final design demonstrates a return loss better than 20 dB at 10 GHz.

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