Abstracts

Microwave transformers, inductors and transmission lines implemented in an Si/SiGe HBT process

D.C. Laney, L.E. Larson, P. Chan, J. Malinowski, D. Harame, S. Subbanna, R. Volant and M. Case. "Microwave transformers, inductors and transmission lines implemented in an Si/SiGe HBT process." 2001 Transactions on Microwave Theory and Techniques 49.8 (Aug. 2001 [T-MTT] (Mini-Special Issue on the 2000 IEEE Radio and Wireless Conference (RAWCON))): 1507-1510.

Experimental results are presented on microwave inductors, transformers, and transmission lines fabricated in an Si/SiGe heterojunction-bipolar-transistor process with standard metallization and a thick polyimide dielectric. Microstrip transmission lines with characteristic impedances from 44 to 73 /spl Omega/, Q's from 10 to 14, and insertion losses from 0.11 to 0.16 dB/mm at 10 GHz are presented. Conventional planar inductors with inductances from 0.5 to 15 nH and with peak Q's up to 22 are presented. Lateral transformers with a maximum available gain of better than -5 dB and a measured coupling coefficient (k) of 0.6 at 5.5 GHz and 0.4 up to 12.5 GHz are also discussed.

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