Abstracts

Experimental Modeling for Millimeter-Wave Monolithic Integrated Circuit Components

W. Lam, A.K. Sharma, K. Nakano, K. Ip, C. Yang, L. Liu and H.C. Yen. "Experimental Modeling for Millimeter-Wave Monolithic Integrated Circuit Components." 1988 MTT-S International Microwave Symposium Digest 88.1 (1988 Vol. I [MWSYM]): 477-480.

An accurate distributed model of monolithic metal-insulator-metal (MIM) capacitors has been developed for computer-aided design of millimeter-wave monolithic integrated circuits at V-band. It is based on experimental measurements on microstrip ring resonators with and without the air-bridges and capacitors. The model takes into account the effects due to the air-bridge discontinuity, as well as dielectric and ohmic losses. The calculated resonant frequencies are in good agreement with the experiments. This capacitor model reduces discrepancy in the resonant frequency by more than 30% compared with that used in commercially available programs. It provides better correlation with the measured results of a monolithic two-stage low noise HEMT amplifier at V-band.

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