Abstracts

Suppression of parasitic substrate modes in flip-chip packaged coplanar W-band amplifier MMICs

A. Tessmann, W.H. Haydl, T.v. Kerssenbrock, P. Heide and S. Kudszus. "Suppression of parasitic substrate modes in flip-chip packaged coplanar W-band amplifier MMICs." 2001 MTT-S International Microwave Symposium Digest 01.1 (2001 Vol. I [MWSYM]): 543-546 vol.1.

In this work, we describe the impact of different mounting configurations for flip-chip assemblies of W-band millimeter-wave integrated circuits. Coplanar 94 GHz amplifiers with high gain have been flip-chip mounted on both, semi-insulating (s.i.) GaAs and n-type doped silicon (n-Si) carriers. The influence of carrier thickness and conductivity on the isolation between the input and output port was investigated to minimize the power leakage into parasitic modes in the flip-chip substrate. The use of lossy n-Si substrates resulted in a significant reduction of feedback and crosstalk effects, and thus an unconditional stable operation of the flip-chip packaged W-band amplifier MMICs was achieved.

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