Abstracts

Rigorous Field Theory Analysis of Flip-Chip Interconnections in MMICs Using the FDTLM Method

H. Jin, R. Vahldieck, H. Minkus and J. Huang. "Rigorous Field Theory Analysis of Flip-Chip Interconnections in MMICs Using the FDTLM Method." 1994 MTT-S International Microwave Symposium Digest 94.3 (1994 Vol. III [MWSYM]): 1711-1714.

This paper presents a rigorous 3-D field theory analysis of the flip-chip assembly by using the frequency-domain TLM method. The scattering parameters of the bump discontinuities are calculated in the cases of CPW and microstrip. Simulation results show that the flip-chip packaging using solder bump connecting the mother board and the chip provides better electrical performance in comparison with the conventional wire bonding approach. With the dimensions used in this paper, the reflections at the bump discontinuities are found to be better than -40 dB and -20 dB, respectively, for CPW and microstrip over the frequency spectrum from 1 GHz to 40 GHz.

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