Abstracts

Theory and measurements of flip-chip interconnects for frequencies up to 100 GHz

A. Jentzsch and W. Heinrich. "Theory and measurements of flip-chip interconnects for frequencies up to 100 GHz." 2001 Transactions on Microwave Theory and Techniques 49.5 (May 2001 [T-MTT]): 871-878.

A detailed investigation of flip-chip interconnects up to W-band frequencies is presented in this paper. In a coplanar 50-/spl Omega/ environment, different test structures were fabricated and measured to determine the electromagnetic characteristics of flip-chip multichip modules, such as detuning, reflection at the interconnect, and parasitic coupling. Electromagnetic simulation is used to explain the details behind the measured results. Key to high return loss at the interconnect is a small bump-pad area. Applying simple compensation structures, the frequency range of operation can be further extended. It is shown that a return loss beyond 20 dB in the frequency range up to 80 GHz is achievable along with excellent reproducibility. Measurements on detuning and isolation are also presented.

❑ Return to main document.