Abstracts

Time-Domain Electromagnetic Analysis of Interconnects in a Computer Chip Package

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The determination of an equivalent circuit to approximate the behavior of an interconnect in a computer package is an important step in the performance evaluation of a computer. Equivalent circuits allow the analysis of a complete interconnect path in a circuit simulator where a full-wave analysis tool would require more memory or computer time than in currently available. Two important components of an interconnect in a computer package are uniform transmission lines, such as a microstrip line or a stripline, and a discontinuity in the interconnect, such as via between two transmission lines, This paper presents a methodology for deriving a frequency-dependent description of coupled transmission lines and equivalent circuit of a via using time-domain full-wave solutions of Maxwell's equations.

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