Abstracts

Microtechnology in the development of three-dimensional circuits

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With today's cost-conscience industry, low cost, high-performance, and high-profit microwave-circuit technologies are essential. To increase density and reduce size and cost, the integration of analog and digital circuits on one single chip is considered the most viable solution. In reducing the size of the overall system, high-density integration (HDI) and packaging have become critical components in circuit design. This paper reviews and evaluates state-of-the-art planar transmission lines and vertical interconnects for use in high-density multilayer circuits for silicon- and SiGe-based monolithic high-frequency circuits. Packaging issues associated with parasitics are discussed and examples of multilayer three-dimensional systems utilizing micromachining are presented.

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