Abstracts

Novel Micromachined Approaches to MMICs Using Low-Parasitic, High-Performance Transmission Media and Environments

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Micrornachined high-frequency circuits with integrated packaging offer light weight and controllable parasitic, which makes them appropriate for hand-held communication systems and miniature intelligent millimeter-wave sensors where system requirements impose strict limits on electrical performance. Recent advances in semiconductor processing techniques allow for integration in all of the directions of the three-dimensional space. The capability to incorporate one more dimension, and a few more parameters, in the circuit design, leads to revolutionary shapes and integration schemes. These circuit topologies have reduced ohmic loss and are free parasitic radiation or parasitic cavity resonances without loosing their monolithic character. Integration capabilities are thereby extended and performance is optimized. The evolution of micromachincd circuits and antennas for operation in microwave and millimeter-wave frequencies is still in its infancy.

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