# Abstracts

## Si-micromachined coplanar waveguides for use in high-frequency circuits

*K.J. Herrick, T.A. Schwarz and L.P.B. Katehi. "Si-micromachined coplanar waveguides for use in high-frequency circuits." 1998 Transactions on Microwave Theory and Techniques 46.6 (Jun. 1998 [T-MTT]): 762-768.*

This paper describes the development and characterization of a new class of Si-micromachined lines and circuit components for operation between 2-110 GHz. In these lines, which are a finite-ground coplanar-waveguide (FGC) type, Si micromachining is used to remove the dielectric material from the aperture regions in an effort to reduce dispersion and minimize propagation loss. Measured results have shown a considerable loss reduction to levels that compare favorably with those of membrane lines and rectangular waveguides. Micromachined FGC lines have been used to develop V- and W-band bandpass filters. The W-band micromachined FGC filter has shown a 0.8-dB improvement in insertion loss at 94 GHz over a conventional FGC line. This approach offers an excellent alternative to the membrane technology, exhibiting very low loss, no dispersion, and mode-free operation without using membranes to support the interconnect structure.

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