# Abstracts

## A 100 GHz Coplanar Strip Circuit Tuned with a Sliding Planar Backshort

*V.M. Lubecke, W.R. McGrath and D.B. Rutledge. "A 100 GHz Coplanar Strip Circuit Tuned with a Sliding Planar Backshort." 1993 Microwave and Guided Wave Letters 3.12 (Dec. 1993 [MGWL]): 441-443.*

A means of mechanically altering the electrical length of a planar transmission line would greatly enhance the use of integrated circuit technology at millimeter and submillimeter wavelengths. Such a mechanically adjustable planar RF tuning element, successfully demonstrated at 100 GHz, is described here. It consists of a thin metallic sheet, with appropriately sized and spaced holes, which slides along on top of a dielectric-coated coplanar-strip transmission line. Multiple RF reflections caused by this structure add constructively, resulting in a movable RF short circuit, with |S/sub 11/|/spl cong/ -0.3 dB, which can be used to vary the electrical length of a planar tuning stub. The sliding short is used here to produce a 2-dB improvement in the response of a diode detector. This tuning element can be integrated with planar circuits to compensate for the effect of parasitic reactance inherent in various devices including semiconductor diodes and superconductor-insulator-superconductor (SIS) junctions.

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