Abstracts

Theoretical and Experimental Characterization of Nonsymmetrically Shielded Coplanar Waveguides for Millimeter-Wave Circuits (Dec. 1989 [T-MTT])

F. Alessandri, U. Goebel, F. Melai and R. Sorrentino. "Theoretical and Experimental Characterization of Nonsymmetrically Shielded Coplanar Waveguides for Millimeter-Wave Circuits (Dec. 1989 [T-MTT])." 1989 Transactions on Microwave Theory and Techniques 37.12 (Dec. 1989 [T-MTT] (1989 Symposium Issue)): 2020-2027.

A new quasi-planar structure, the nonsymmetrically shielded coplanar waveguide (NSCPW), is proposed as a quasi-TEM transmission line with advantageous characteristics for millimeter-wave circuit applications. Advantages in terms of broad-band behavior and ease of machining, as well as device mounting and substrate mounting, are pointed out. An experimental method has been developed which allows the evaluation of the transmission line spectrum in a very wide frequency band (15:1) with a single transmission measurement. The propagation characteristics of the dominant and higher order modes evaluated experimentally are shown to be in excellent agreement with the theoretical predictions based on the generalized transverse resonance technique. This method has also been used for an extensive characterization of the structure in terms of characteristic impedance and useful frequency band.

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