Abstracts

Computation of Coplanar-Type Strip-Line Characteristics by Relaxation Method and its Application to Microwave Circuits

T. Hatsuda. "Computation of Coplanar-Type Strip-Line Characteristics by Relaxation Method and its Application to Microwave Circuits." 1975 Transactions on Microwave Theory and Techniques 23.10 (Oct. 1975 [T-MTT]): 795-802.

The characteristics of new strip lines [i.e., a single strip-conductor coplanar-type strip line (S-CPS), a two symmetrical strip-conductor coplanar-type strip line (T-CPS), and a coupled strip-conductor coplanar-type strip line (C-CPS), which consists of single two-center strip conductors or coupled strip conductors and ground plates on a dielectric substrate and outer ground conductor] are calculated by the relaxation method. The effect of the outer ground conductor and side wall on these lines is analyzed and the characteristic impedance and phase-velocity ratio are determined. The characteristic impedance is determined experimentally and the maximum values of the discrepancies compared with the calculated value of each of the lines are 2.0-3.0 percent. Application examples of the coplanar-type strip line to microwave transistor amplifier and parallel-coupled filter are shown. A transistor amplifier of small size, light weight, wide bandwidth, and improved reliability is achieved. A parallel-coupled filter small in size (reduction ratio is more than 50 percent), with good frequency symmetry and featuring easy resonance frequency fine tuning is obtained.

❑ Return to main document.