Abstracts

An all 50 ohm divider/combiner structure

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A novel microwave power divider/combiner structure is presented in this paper. The analysis of the structure is based on the exact matching conditions at input/output ports and a perfect isolation condition between the dividing/combining arms (ports). To analyze the structure, the necessary set of nonlinear equations is derived first, and then solved. For a special case, an all-50 /spl Omega/ structure is obtained (the characteristic impedances of the transmission line sections and the value of the isolation resistance are all 50 /spl Omega/). The presented divider/combiner structure is simulated, and simulation results are seen in perfect agreement with the calculation. As a final step, a planar 3-dB power divider is fabricated on GML 1000 substrate (/spl epsiv//sub r/=3.05, h/spl cong/0.508 mm) and a good agreement between the theoretical and experimental results is obtained.

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