Abstracts

Miniaturized Wilkinson Power Divider Using Three-Dimensional MMIC Technology

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A miniaturized Wilkinson power divider using three-dimensional (3-D) monolithic microwave integrated circuit (MMIC) technology is presented. The new power divider utilizes stacked thin film microstrip (TFMS) lines that sandwich a ground plane with a slit between the TFMS lines. The slit effectively widens the upper and lower TFMS-line widths, which makes it possible to stack high-impedance lines with a reasonable conductor strip width and lower loss. The proposed structure also exhibits a coupling between the quarter-wavelength conductor strips of less than - 15 dB, simplifying the design for each TFMS line. A fabricated 15-25 GHz Wilkinson power divider, the area of which is only 0.31 mm x 0.52 mm, exhibits a coupling of -4.5 ± 0.5 dB, isolation of greater than 15 dB, and a phase deviation of less than 3 degrees.

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