Abstracts

A new high performance phase shifter using Ba/sub x/Sr/sub 1-x/TiO/sub 3/ thin films

B. Acikel, T.R. Taylor, P.J. Hansen, J.S. Speck and R.A. York. "A new high performance phase shifter using Ba/sub x/Sr/sub 1-x/TiO/sub 3/ thin films." 2002 Microwave and Wireless Components Letters 12.7 (Jul. 2002 [MWCL]): 237-239.

In this paper, a new device topology has been proposed to implement parallel plate capacitors using Ba/sub x/Sr/sub 1-x/TiO/sub 3/ (BST) thin films. The device layout utilizes a single parallel capacitor and minimizes conductor losses in the base electrode. The new design simplifies the monolithic process and overcomes the problems associated with electrode patterning. An X-band 180/spl deg/ phase shifter has been implemented using the new device design. The circuit provided 240/spl deg/ phase shift with an insertion loss of only 3 dB at 10 GHz at room temperature. We have shown a figure of merit 93/spl deg//dB at 6.3 GHz and 87/spl deg//dB at 8.5 GHz. To our knowledge, these are the best figure of merit results reported in the literature for distributed phase shifters implemented using BST films at room temperature.

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