Abstracts

Ultra compact, low loss, varactor tuned phase shifter MMIC at C-band

F. Ellinger, R. Vogt and W. Bachtold. "Ultra compact, low loss, varactor tuned phase shifter MMIC at C-band." 2001 Microwave and Wireless Components Letters 11.3 (Mar. 2001 [MWCL]): 104-105.

This paper presents a high yield, ultra compact, low loss phase shifter MMIC, realized with a commercial 0.6 /spl mu/m GaAs MESFET process. Phase shift is enabled by varying the varactor capacitances of the lumped element equivalent of a transmission line. Continuously adjustable phase control over 90/spl deg/ is achieved from 4 GHz up to 6 GHz, with a loss of less than 2.2 dB. At 5.2 GHz, a loss of 1.2 dB and a loss variation of /spl plusmn/0.5 dB is measured. Phase and loss variations for several circuits from different wafers are within /spl plusmn/1/spl deg/ and /spl plusmn/0.1 dB, respectively, indicating low dependences on process variations. The phase shifter requires a circuit size of only 0.2 mm/sup 2/, which to our knowledge is the smallest size for a continuously adjustable passive phase shifter with comparable performance, reported to date.

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