Abstracts

Distributed analog phase shifters with low insertion loss

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This paper describes the design and fabrication of distributed analog phase-shifter circuits. The phase shifters consist of coplanar-waveguide (CPW) lines that are periodically loaded with varactor diodes. The circuits are fabricated on GaAs using standard monolithic processing techniques. The phase velocity on these varactor diode-loaded CPW lines is a function of applied reverse bias, thus resulting in analog phase-shifting circuits. Optimally designed circuits exhibit 0/spl deg/-360/spl deg/ phase shift at 20 GHz with a maximum insertion loss (IL) of 4.2 dB. To the best of our knowledge, this is the lowest reported IL for a solid-state analog phase shifter operating at 20 GHz.

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