Abstracts

Microwave filters on a low resistivity Si substrate with a polyimide interface layer for wireless circuits

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Novel low-pass and band-pass filter designs on low resistivity silicon substrate (1 /spl Omega/-cm) with a polyimide interface layer are presented for the first time. The filters utilize the finite ground coplanar (FGC) line technology, and operate from 10-30 GHz with very good insertion loss. The latter is possible by using a 20 /spl mu/m thick polyimide on top of the silicon wafer, and a line geometry that minimizes field interaction with the lossy Si substrate. The attenuation of the FGC lines is comparable with that of thin film microstrip lines on similar substrates. Experimental and full-wave analysis results are provided. These filters can be used as part of a wireless microwave interconnect system.

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