Abstracts

A high-performance integrated K-band diplexer (Aug. 1999 [T-MTT])

A.R. Brown and G.M. Rebeiz. "A high-performance integrated K-band diplexer (Aug. 1999 [T-MTT])." 1999 Transactions on Microwave Theory and Techniques 47.8 (Aug. 1999 [T-MTT] (Mini-Special Issue on Low-Power/Low-Noise Technologies for Mobile Wireless Communications)): 1477-1481.

This paper describes the design and measurement of a planar diplexer integrated on a single silicon substrate. The diplexer channels are 5% and 6.5% relative bandwidth at 28 and 31 GHz, respectively. The diplexer is based on a micropackaged membrane supported capacitively coupled microstrip structure and is 1.5 cm/spl times/1.6 cm and only 1.4 mm thick. The measured insertion loss is 1.4 dB (5%) and 0.9 dB (6.5%) for the two channels with better than 35 dB isolation in the 28 GHz band and better than 50 dB isolation in the 31 GHz band. The measured results include all transition and packaging effects. The diplexer has coplanar-waveguide ports and can easily be integrated with other elements such as planar antennas, low-noise amplifier, and power amplifiers.

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