Abstracts

Micromachined filters on synthesized substrates

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Effective frequency spectrum usage requires high performance filters with a sharp cut-off frequency and high stopband attenuation. Stepped impedance lowpass designs achieve this with large ratios of high and low impedance values. In high index materials, however, such as Si (11.7) and GaAs (12.9), these ratios are around 5 which significantly limit filter performance. This paper presents the use of Si micromachining to produce synthesized substrates with stepped-impedance low filter designs. Of the two designs, one offers a reduction of the low impedance value while the other offers an increase of the high impedance value to produce Z/sub H//Z/sub L/ ratios that are 1.5 to 2 times larger than conventional designs.

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