Abstracts

Enhanced-Q microstrip bandpass filter with coupled negative resistors

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Microstrip technology offers a very compact realization of a microwave filter. Unfortunately, the losses in normal thin-films are usually so excessive that narrow-band microstrip fillers are impractical. However, high-Q microstrip filters can be realized by augmenting them with active elements. This paper presents a microstrip bandpass filter with negative resistors coupled to each resonator. The negative resistors negate the losses in each resonator and yield an enhanced-Q. A new theoretical framework for this Q-enhancement technique and a design methodology are presented. The simulated and measured performance of the filter are given.

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