Abstracts

Stepped impedance resonator bandpass filters with tunable transmission zeros and its application to wide stopband design

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Bandpass filters with a very wide stopband are designed using parallel coupled stepped impedance resonators (SIR), which have advantageous resonance harmonic characteristics. The singly loaded Q (Q/sub si/) of a tapped SIR is derived, so that the relation between Q/sub si/ and the position of the tap point can be established. It is known that a single resonator with tapped input can create an extra zero. It is found that, with proper tapping at the first and last SIR's of a bandpass filter, two zeros can be created and tuned independently over a wide frequency range. By exploiting both the advantageous resonance characteristics of SIR and tapped-line input, a bandpass filter with high selectivity and/or wide stopband can be realized. The experimental results show good agreement with the simulated prediction.

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