

عنوان مقاله:

Design and Analysis of an Active Dielectric Resonator using Numerical Techniques

محل انتشار:

دومین همایش بین المللی افق های نوین در علوم پایه و فنی و مهندسی (سال: 1398)

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خلاصه مقاله:

In this paper, an efficient numerical analysis was performed to design a dielectric resonator. Using the finite difference technique, the resonance frequency and quality factor of a double coupled microstrip line cylindrical dielectric resonator (DR) were obtained while solving the Helmothz equation. Accurate determination of the cylindrical dielectric resonator design parameters was achieved and a high-Q active dielectric resonator designed. It employs an amplifier in the feedback loop. The DR quality factor was greatly improved by adjusting the phase of the loop. To demonstrate the proposed approach, the proposed active DR was fabricated and successfully measured, leading to a loaded Q factor of 6735, and an unloaded Q factor of 13600.

کلمات کلیدی:

dielectric resonator; numerical method; coupling; active filter

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