Abstracts

An electronically tunable photonic bandgap resonator controlled by piezoelectric transducer

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This paper presents a new tuning method for one-dimensional (1-D) photonic bandgap (PBG) resonator using a piezoelectric transducer (PET) with calculated and measured results. A metal or dielectric layer controlled by the PET perturbs electromagnetic fields on a resonant line, changes the effective length of the resonant line, and accordingly shifts the resonant frequency. The proposed resonator has a wide band tuning capability over 17% at 10.6 GHz with small increased insertion loss. The new tuning method should have many applications in monolithic and hybrid microwave integrated circuits.

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