Abstracts

One-dimensional photonic bandgap resonators and varactor tuned resonators

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Using photonic bandgap (PBG) structures, we demonstrated new high Q resonators of planar and one-dimensional (1-D) microstrip-line, coplanar waveguide, coplanar strip-line, and slot-line with full-wave simulation and measurement results. These structures for Fabry-Perot resonators consist of a center resonant-line with two sides of PBG reflectors, achieved a loaded Q of 247.3 and unloaded Q of 299.1. Electronically tunable resonators with a flip-chip packaged varactor are implemented with these 1-D PBG resonators, and show a wideband tuning capability of 20% near 10 GHz.

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