Abstracts

Tunable Microwave Resonators Using Magnetostatic Wave in YIG Films

W.S. Ishak and K.-W. Chang. "Tunable Microwave Resonators Using Magnetostatic Wave in YIG Films." 1986 Transactions on Microwave Theory and Techniques 34.12 (Dec. 1986 [T-MTT] (1986 Symposium Issue)): 1383-1393.

The purpose of this paper is to review the status of magnetostatic wave (MSW) resonators and to describe, in detail. the theory of operation of the recently developed straight-edge resonators. These resonators are based on magnetostatic waves propagating in high Q cavities fabricated in thin ferrimagnetic films. The resonance frequency of these resonators can be tuned via a bias magnetic field. The theory of propagation of magnetostatic wave devices in periodic arrays will be briefly described followed by a detailed overview of the different configurations for MSW resonators. Three distinct classes of resonators will be discussed 1) resonators based on array reflectors (deposited metals and etched grooves) will be described in detail; 2) guided-wave ring resonators will be discussed; and 3) the theory of operation and design criteria for the straight-edge resonators will be described. Each class will be evaluated, pointing out the advantages and drawbacks, and whenever applicable, the power handling properties and the phase noise performance will be given.

❑ Return to main document.