Abstracts

Mechanical Load Cell Based on Cavity-Controlled Microwave Oscillators

F.J.M. Farley, J.K. Vij, A. Kocot, U.M.S. Murthy and M. Burgess. "Mechanical Load Cell Based on Cavity-Controlled Microwave Oscillators." 1991 Transactions on Microwave Theory and Techniques 39.9 (Sep. 1991 [T-MTT] (Special Issue on Microwave Applications of Superconductivity)): 1611-1616.

A novel device consisting of a rectangular resonator to which two oscillators are coupled at right angles to each other is described. The frequency of each oscillator is controlled by the cavity, and distortions caused by mechanical load change the two frequencies in opposite directions. The detector which is arranged at an angle of 45° to the probes of the two oscillators picks up a beat signal whose frequency in the MHz range is linearly related to the mechanical load applied across the cavity. The oscillators using GaAs MESFET's have been designed to detect small distortions in the cavities caused by a mechanical load.

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