Abstracts

Stabilization and Power Combining of Planar Microwave Oscillators with an Open Resonator

S.-L. Young and K.D. Stephan. "Stabilization and Power Combining of Planar Microwave Oscillators with an Open Resonator." 1987 MTT-S International Microwave Symposium Digest 87.1 (1987 Vol. I [MWSYM]): 185-188.

The fabrication advantages of planar microwave circuits over their waveguide counterparts are well known, but efforts to design highly stable oscillators and high-power oscillators in planar form with solid-state devices become increasingly difficult at the shorter microwave and millimeter wavelengths. We report herein experiments in which microstrip circuits are coupled electromagnetically to an open cavity resonator. The energy stored in the cavity leads to improved oscillator stability and lower noise sidebands. Two oscillators can be coupled to the same cavity mode, and power combining to a planar output element has been demonstrated. Although most experiments involved hybrid 10-GHz oscillators, preliminary results with a 31-GHz oscillator using a monolithic circuit indicate that the same techniques will be feasible with MMICs at millimeter wavelengths.

❑ Return to main document.