

Abstracts

A Ka-band MMIC oscillator stabilized with a micromachined cavity

Youngwoo Kwon, Changyul Cheon, Nyuntae Kim, Chungwoo Kim, Insang Song and Cimoo Song. "A Ka-band MMIC oscillator stabilized with a micromachined cavity." 1999 *Microwave and Guided Wave Letters* 9.9 (Sep. 1999 [MGWL]): 360-362.

Low-cost stable oscillators with good phase noise performance are in high demand for emerging millimeter (mm)-wave commercial applications. To overcome the problems of conventional DROs and cavity oscillators at mm-waves, a new type of oscillator based on micromachining techniques is developed at Ka-band. A cavity resonator is fabricated using micromachining techniques and is employed to stabilize a 33-GHz monolithic microwave integrated circuit (MMIC) oscillator. A micromachined cavity oscillator (MCO) showed a phase noise of -113 dBc/Hz at 1 MHz offset, which is an 18-dB improvement over an MMIC free-running oscillator (FRO). This work demonstrates the great potential of MCO for low-cost mm-wave frequency sources.

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