Abstracts

A Compact Full MMIC Module for Ku-Band Phase-Locked Oscillators

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A compact Ku-band phase-locked oscillator module has been developed in a full MMIC configuration. The module includes an MMIC voltage-controlled oscillator, an analog frequency divider, and interstage amplifiers. The constituent monolithic chips are integrated in a very small single-package module and operate at the target frequencies without any external trimming or matching network. The oscillator is tuned more than 1 GHz with a constant output amplitude. The frequency-divided output is also obtained over the whole tuning range. Spurious output is not found at any frequency up to 22 GHz. In spite of the very low Q factor of GaAs monolithic circuitry, the oscillator phase noise exhibited is less than -80 dBc/Hz, due to the high-gain, high-speed phase lock.

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