Abstracts

A Monolithic Dielectrically Stabilized Voltage Controlled Oscillator for the Millimeter Wave Range

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In this paper the design, fabrication and evaluation of a monolithic 29 GHz dielectrically stabilized voltage controlled oscillator (DVO) applying a MESFET as the active device are described. The novel design yields an oscillator with excellent phase noise behavior and frequency tuning capabilities. A phase noise N/C/sub FM/ of -100 dBc/Hz at 100 kHz off carrier and an output power of +8 dBm without significant deviation over the full tuning range of 45 MHz are obtained. A frequency stability of -6 ppm/°C is measured in the -20°C to +80°C temperature range for a +3 ppm/°C temperature coefficient of the dielectric resonator. The MMIC device is realized using a 0.25µm MESFET technology.

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