Abstracts

Monolithic quantum tunnel diode-based C-band oscillator and LNA

J.I. Bergman, S. Han, J. Laskar, N. El-Zein, S. Ageno, M. Deshpande and V. Nair. "Monolithic quantum tunnel diode-based C-band oscillator and LNA." 2001 MTT-S International Microwave Symposium Digest 01.3 (2001 Vol. III [MWSYM]): 2183-2186 vol.3.

We report on the design and microwave performance of a novel tunnel diode-based oscillator designed for 5 GHz in a monolithic IC technology. The fundamental output power of the oscillator is -18.8 dBm at 4.7 GHz, with second and third harmonic power levels at -43.2 dBm and -40.5 dBm, respectively. Phase noise of -87.0 dBc/Hz at 1 MHz was observed. While output power can be greatly increased by combining the tunnel diode with an integrated transistor, this design offers excellent compactness and low power consumption. In addition, an LNA design for 6 GHz in the same IC technology is presented.

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