Abstracts

Ultra low-power VCO based on InP-HEMT and heterojunction interband tunnel diode for wireless application (2002 [RFIC])

A. Cidronali, G. Collodi, M. Camprini, V. Nair, G. Manes, J. Lewis and H. Goronkin. "Ultra low-power VCO based on InP-HEMT and heterojunction interband tunnel diode for wireless application (2002 [RFIC])." 2002 Radio Frequency Integrated Circuits (RFIC) Symposium 02. (2002 [RFIC]): 297-300.

The monolithic integration of tunneling diodes (TDs) with other semiconductor devices such as HEMTs or HBTs, creates novel quantum functional nonlinear devices and circuits with unique properties: the Negative Differential Resistance (NDR) and the extremely low DC power consumption. In this paper we present an InP-HEMT/spl bsol/TD based voltage controlled oscillator operating in the 6 GHz band suitable for wireless applications. The circuit draws a current of 1.75 mA at 500 mV and generates an output power of -16 dBm The maximum tuning range is 150 MHz and the single sideband-to-carrier ratio (SSCR) is of -105 dBc/Hz at 5 MHz.

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