Abstracts

Single-chip 20-GHz VCO and frequency divider in SiGe technology

K. Ettinger, A. Stelzer, C.G. Diskus, W. Thomann, J. Fenk and R. Weigel. "Single-chip 20-GHz VCO and frequency divider in SiGe technology." 2002 MTT-S International Microwave Symposium Digest 02.2 (2002 Vol. II [MWSYM]): 835-838 vol.2.

This paper presents the design, implementation and testing of a fully integrated 20 GHz voltage controlled oscillator, a frequency divider with a divide ratio of 16, as well as an output driver. All blocks are integrated on one IC with an area of 890 /spl times/ 890 /spl mu/m/sup 2/ and are fabricated in a production SiGe bipolar technology. The VCO is a varactor-tuned LC-type oscillator with a tuning range of 600 MHz. The differential signal of the output driver is converted to a single-ended signal by an external microstrip balun and delivers a maximum of 2 dBm of output power into a 50 /spl Omega/ load. The chip works with a single supply voltage of 3.6 V, the VCO draws 12 mA of supply current, divider and output driver consume 17 mA and 51 mA, respectively. The measured phase-noise of the VCO is -85 dBc/Hz at 1 MHz offset frequency.

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