Abstracts

A single-chip 24 GHz receiver front-end using a commercially available SiGe HBT foundry process

E. Sonmez, A. Trasser, K.-B. Schad, R. Abele and H. Schumacher. "A single-chip 24 GHz receiver front-end using a commercially available SiGe HBT foundry process." 2002 Radio Frequency Integrated Circuits (RFIC) Symposium 02. (2002 [RFIC]): 159-162.

The authors have demonstrated a fully integrated receiver frontend addressing the ISM-Band at 24 GHz utilizing a standard SiGe HBT MMIC process with a relaxed emitter scaling of 1.2 /spl mu/m, for the first time. Extremely compact circuit design and layout techniques are applied to a mature Si/SiGe technology, resulting in a low-cost integrated circuit enabling consumer-oriented systems at Ka band. The integrated components are a preamplifier, a mixer with an IF buffer and a local oscillator. The conversion gain is determined to be 16.3 dB for an intermediate frequency of 100 MHz.

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