Abstracts

An X-band high-power amplifier using SiGe/Si HBT and lumped passive components

Zhenqiang Ma, S. Mohammadi, Liang-Hung Lu, P. Bhattacharya, L.P.B. Katehi, S.A. Alterovitz and G.E. Ponchak. "An X-band high-power amplifier using SiGe/Si HBT and lumped passive components." 2001 Microwave and Wireless Components Letters 11.7 (Jul. 2001 [MWCL]): 287-289.

We report the design and fabrication of a compact microwave monolithic integrated circuit (MMIC) amplifier, which demonstrates high output power at X-Band. A single-stage power amplifier is demonstrated, with a double-mesa type SiGe/Si HBT as the active device and spiral inductors and MIM capacitors as lumped passive components. At 8.4 GHz, a linear gain of 8.7 dB, an output power at peak efficiency of 23 dBm, and a saturated output power P/sub sat/ of 25 dBm, are measured. To our knowledge, this is the first MMIC X-Band power amplifier using SiGe/Si HBTs.

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