Abstracts

SiGe/Si power HBTs for X- to K-band applications (2002 Vol. I [MWSYM])

S. Mohammadi, Zhenqiang Ma, Jaehoon Park, P. Bhattacharya, L.P.B. Katehi, G.E. Ponchak, S.A. Alterovitz, K.M. Strohm and J.-F. Luy. "SiGe/Si power HBTs for X- to K-band applications (2002 Vol. I [MWSYM])." 2002 MTT-S International Microwave Symposium Digest 02.1 (2002 Vol. I [MWSYM]): 289-292 vol.1.

High performance power SiGe/Si HBTs at X-band (8.4 GHz), Ku-band (12.6 GHz) and K-band (18 GHz) have been demonstrated. Under continuous wave operation, a single 20-finger Si/Si/sub 0.75/Ge/sub 0.25//Si (emitter area of 1200 /spl mu/m/sup 2/) HBT, biased in class AB, delivers 28.5 dBm (700 mW) of RF output power at X-band, 25.5 dBm (350 mW) at Ku-band and 22.5 dBm (180 mW) at K-band. These represent the state-of-the-art power performance of SiGe-based HBTs at frequencies above X-band. An in-depth analysis of the power performance of HBTs with different geometry and configuration is also presented, which will eventually serve as a design guide for SiGe/Si power HBTs at different operating frequencies.

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