Abstracts

A 23.8-GHz SOI CMOS tuned amplifier

B.A. Floyd, L. Shi, Yuan Taur, I. Lagnado and K.K. O. "A 23.8-GHz SOI CMOS tuned amplifier." 2002 Transactions on Microwave Theory and Techniques 50.9 (Sep. 2002 [T-MTT]): 2193-2196.

A 23.8-GHz tuned amplifier is demonstrated in a partially scaled 0.1-/spl mu/m silicon-on-insulator CMOS technology. The fully integrated three-stage amplifier employs a common-gate, source-follower, and cascode with on-chip spiral inductors and MOS capacitors. The gain is 7.3 dB, while input and output reflection coefficients are -45 and -9.4 dB, respectively. Positive gain is exhibited beyond 26 GHz. The amplifier draws 53 mA from a 1.5-V supply. The measured on-wafer noise figure is 10 dB, while the input-referred third-order intercept point is -7.8 dBm. The results demonstrate that 0.1-/spl mu/m CMOS technology may be used for 20-GHz RF applications and suggest even higher operating frequencies and better performance for further scaled technologies.

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