Abstracts

A Wideband HEMT Cascode Low-Noise Amplifier with HBT Bias Regulation

K.W. Kobayashi, D.K. Umemoto, T.R. Block, A.K. Oki and D.C. Streit. "A Wideband HEMT Cascode Low-Noise Amplifier with HBT Bias Regulation." 1995 Microwave and Guided Wave Letters 5.12 (Dec. 1995 [MGWL]): 457-459.

We have achieved broadband low-noise performance and dc bias regulation in a single compact HEMT-HBT MMIC. The self-biased MMIC achieves greater than 13 dB gain from 1-8 GHz with a noise figure of less than 1.9 dB across the band and a minimum noise figure of 1.6 dB. The MMIC consists of a HEMT cascode first stage and a source-follower output stage, with shunt feedback between the stages to obtain good broadband noise figure and gain performance. Bias regulation is realized by monolithically integrating an HBT current regulator with the HEMT LNA using selective MBE. This is the first microwave demonstration of key monolithic HEMT-HBT circuit functionality combined with state-of-the-art low-noise figure performance, realized in a miniature 0.9 x 1.0 mm² MMIC.

❑ Return to main document.