# Abstracts

## A DC-10 GHz High Gain-Low Noise GaAs HBT Direct-Coupled Amplifier

*K.W. Kobayashi and A.K. Oki. "A DC-10 GHz High Gain-Low Noise GaAs HBT Direct-Coupled Amplifier." 1995 Microwave and Guided Wave Letters 5.9 (Sep. 1995 [MGWL]): 308-310.*

An AIGaAs/GaAs HBT wide-band low noise amplifier has been achieved using a direct-coupled amplifier topology. A nominal gain of 22.5 dB and a noise figure of 3.0-3.65 dB has been achieved over a dc-10 GHz band, while consuming less than 55 mW of dc power through a 5 V supply. This result benchmarks the lowest noise figure so far reported for a direct-coupled HBT amplifier at X-band frequencies. In addition, an approximate expression for the amplifier noise figure is given that predicts the noise figure to within 0.3 dB over bias and frequency. The amplifier can be compacted into a 0.3 x 0.3 $mm^2$ area and can yield as many as 30 000 die per 3-in. GaAs wafer. The broadband gain and noise figure, low dc power, and miniature die size makes this design attractive as a standard off-the-shelf microwave product for high volume commercial applications.

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