Abstracts

Millimeter-Wave Low-Noise HEMT Amplifiers

K.H.G. Duh, P.C. Chao, P.M. Smith, L.F. Lester, B.R. Lee, J.M. Ballingall and M.Y. Kao. "Millimeter-Wave Low-Noise HEMT Amplifiers." 1988 MTT-S International Microwave Symposium Digest 88.2 (1988 Vol. II [MWSYM]): 923-926.

Short-gate-length high electron mobility transistors (HEMTs) developed in our laboratory have exhibited state-of-the-art low noise performance at millimeter-wave frequencies: minimum noise figure of 1.2 dB at 32 GHz and 1.8 dB at 60 GHz from 0.25µm HEMTs. At Ka-band, a two-stage low noise amplifier has demonstrated an average noise figure of 2 dB from 26.5 GHz to 37 GHz with a gain of 17 dB at 32 GHz. At V-band, a two-stage amplifier yielded noise figure of 3.2 dB at 61 GHz with flat gain 12.7 ± 0.5 dB from 59 GHz to 65 GHz. The results clearly show the potential of the short-gate-length HEMTs for high performance millimeter-wave receiver applications.

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