Abstracts

Determination of InP HEMT Noise Parameters and S-Parameters to 60 GHz

R.T. Webster, A.J. Slobodnik, Jr. and G.A. Roberts. "Determination of InP HEMT Noise Parameters and S-Parameters to 60 GHz." 1995 Transactions on Microwave Theory and Techniques 43.6 (Jun. 1995 [T-MTT]): 1216-1225.

A millimeterwave experimental technique is described for directly determining the noise parameters and scattering parameters of V-band InP HEMT's. The parameters are suitable for the design of monolithic millimeterwave integrated circuits since they represent the InP HEMT as it would appear in the monolithic environment. The method relies on careful characterization of the measurement system and the lnP HEMT packages or test fixtures. Results are provided for an lnP HEMT with 1.37 dB minimum noise figure and a maximum stuble gain of 12.74 dB at 57 GHz. In addition, it is shown that noise parameters measured between 2 GHz and 26 GHz can be extrapolated to 60 GHz, and that consistent S-parameters can be obtained for InP HEMT's in precision packages and test fixtures.

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