Abstracts

A Monolithic Integrated HEMT Frontend in CPW Technology from 10-50 GHz for Measurement Systems or Broadband Receivers

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In this paper the design, performance and fabrication of a broadband frontend is shown. The frontend consists of a broad-band matrix distributed amplifier with a gain of about 10 dB and a noise figure of 6.5 dB, a four stages distributed amplifier with 5 dB gain and an output power of 12 dBm, and a distributed mixer with a conversion gain of 0 dB with a LO-power of 0 dBm including the LO buffer amplifier. The active devices are 0.2 µm recessed gate AIGaAs-HEMTs and the coplanar waveguide is used as the propagation medium. The devices have been simulated by using own models for the active device and the passive coplanar elements. For the mixer design a nonlinear HEMT model was used. The total size of the frontend is 6 mm x 6 mm including bias networks and block capacitors.

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