Design of a wideband low noise amplifier for radio-astronomy applications

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Abstract

In this work, we discuss the design of two low noise amplifiers (LNA) based on 1mm gate-length pHEMT InP transistors using two topologies. Designed for radio-astronomy applica-tions, the first is a cascode circuit with a maximum gain of 15dB and noise figure of 0.6dB, while the second is a 2-stage cascaded amplifier with 27 dB gain and 0.63dB noise figure. The two am-plifiers exhibit an input 1-dB compression point of -22dBm and -26dBm respectively, and a third order input intercept point of -10dBm and -5dBm, respectively.

Keywords HEMT amplifiers; Modeling of microwave systems; Analogue electronic circuits

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