Abstracts

Low Noise Device and Amplifier Characterization for Deep Space Communication Applications

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The significant advances in the development of high electron mobility field-effect transistors (HEMTs) has resulted in cryogenic low-noise amplifiers (LNAs) which rival masers at S- and X-band. Further advances in the characterization and device technology at cryogenic temperatures may eventually supplant maser amplifiers at K/sub a/- band. A systematic cryogenic on-wafer study of advanced FET technology is performed and an empirical model for the cryogenic operation of ion-implanted MESFET technology is presented. Multi-stage HEMT based LNAs have been fabricated and characterized for operation at K/sub a/- band.

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