Abstracts

V-band monolithic low-noise amplifiers using ion-implanted n/sup +/-self-aligned GaAs MESFETs

K. Onodera, S. Sugitani, K. Nishimura and M. Tokumitsu. "V-band monolithic low-noise amplifiers using ion-implanted n/sup +/-self-aligned GaAs MESFETs." 1999 Microwave and Guided Wave Letters 9.4 (Apr. 1999 [MGWL]): 148-150.

V-band monolithic low-noise amplifiers (LNAs) were successfully fabricated using a manufacturable GaAs MESFET process. Ion-implanted n/sup +/-self-aligned GaAs MESFETs, which are used to make digital ICs, were employed. A fabricated single-stage LNA with a 0.13 /spl mu/m Au/WSiN gate demonstrated a noise figure of 5 dB at 60 GHz with an associated gain of 7 dB. A two-stage LNA achieved a noise figure of 6 dB at 60 GHz with an associated gain of 14 dB. This is the first demonstration of ion-implanted n/sup +/-self-aligned GaAs MESFETs for millimeter-wave monolithic integrated circuits (MIMICs). The results are among the best ever reported for V-band GaAs-MESFET amplifiers.

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