Abstracts

V-band amplifier using InGaP/InGaAs/GaAs heterostructure MESFETs with asymmetric Au gate head

K. Onodera, K. Nishimura, T. Nittono, Y. Yamane and K. Yamasaki. "V-band amplifier using InGaP/InGaAs/GaAs heterostructure MESFETs with asymmetric Au gate head." 1998 Microwave and Guided Wave Letters 8.10 (Oct. 1998 [MGWL]): 351-353.

Self-aligned n/sup +/ i-InGaP/n-InGaAs/i-GaAs heterostructure MESFETs (N-MESFETs) with a gate length of 0.16 /spl mu/m were developed for applications to microwave and millimeter-wave wireless communication systems. A T-shaped Au/WSiN gate was used and the 0.8-/spl mu/m-wide Au gate head was deliberately shifted toward the source in order to reduce the parasitic feedback capacitance. Shifting the Au gate head by 0.2 /spl mu/m, the gate-to-drain capacitance decreased by 43 fF/mm and the maximum stable gain was improved by 1 dB. V-band monolithic microwave integrated circuit (MMIC) amplifiers fabricated with the asymmetric gate head field-effect transistors (FETs) achieved a gain of 9.7 dB at 55 GHz; their chip size is only 0.95/spl times/0.85 mm/sup 2/.

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