Abstracts

A D-LDD (double lightly-doped drain) structure H-MESFET for MMIC applications (1997 Vol. I [MWSYM])

Y. Yamane, K. Onodera, T. Nittono, K. Nishimura, K. Yamasaki and A. Kanda. "A D-LDD (double lightly-doped drain) structure H-MESFET for MMIC applications (1997 Vol. I [MWSYM])." 1997 MTT-S International Microwave Symposium Digest 1. (1997 Vol. I [MWSYM]): 251-254.

This paper proposes a new D-LDD (Double Lightly-Doped Drain) structure for InGaP-InGaAs H-MESFETs (Heterostructure-MESFET). A D-LDD H-MESFET has three kinds of low resistant layers in the drain region, while a conventional H-MESFET has two layers. This structure improves MAG accompanied by Rd reduction with minimized gate-breakdown-voltage degradation and Cgd increase. These trade-offs between Rd and breakdown voltage are discussed in detail. Consequently, a typical MAG at 50 GHz exhibits 8.9 dB S21 in a MESFET and 7.7 dB S21 in a 1-stage amplifier. The high-frequency circuit operation proves that this technology is one of the most promising for MMIC applications.

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