Abstracts

GaN microwave electronics

U.K. Mishra, Yi-Feng Wu, B.P. Keller, S. Keller and S.P. Denbaars. "GaN microwave electronics." 1998 Transactions on Microwave Theory and Techniques 46.6 (Jun. 1998 [T-MTT]): 756-761.

In this paper, recent progress of AlGaN/GaN-based power high-electron-mobility transistors (HEMT's) is reviewed. Remarkable improvement in performances was obtained through adoption of high Al contents in the AlGaN layer. The mobility in these modulation-doped structures is about 1200 cm/sup 2/.V/sup -1/.s/sup -1/ at 300 K with sheet densities of over 1/spl times/10/sup 13/ cm/sup -2/. The current density is over 1 A/mm with gate-drain breakdown voltages up to 280 V. F/sub t/ values up to 52 GHz have been demonstrated. Continuous wave (CW) power densities greater than 3 W/mm at 18 GHz have been achieved.

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