Abstracts

High-Performance InP Gunn Devices for Fundamental-Mode Operation in D-Band (110-170 GHz)

H. Eisele and G.I. Haddad. "High-Performance InP Gunn Devices for Fundamental-Mode Operation in D-Band (110-170 GHz)." 1995 Microwave and Guided Wave Letters 5.11 (Nov. 1995 [MGWL]): 385-387.

InP Gunn devices with an n/sup +/nn/sup +/ structure and a graded doping profile in the active region were designed, fabricated, and tested for fundamental-mode operation at D-band frequencies. Improved heat dissipation significantly increased the available RF output power and power levels of more than 90 mW up to frequencies around 135 GHz, more than 130 mW at 131.7 GHz, and more than 60 mW at 151 GHz in fundamental-mode operation. These are the highest RF power levels reported to date from any Gunn devices. These InP Gunn devices with de-to-RF conversion efficiencies up to 2.5% around 132 GHz also exhibit excellent noise performance and the typical phase noise up to the highest RF power levels is well below -100 dBe/Hz, measured at a frequency off-carrier of 500 kHz.

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