Abstracts

Ku-Band High Power High Efficiency Pseudomorphic HEMT

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We report on the record power performance of 0.25 µmx8mm double recessed GaAs-based Pseudomorphic High Electron Mobility Transistors (PHEMTs) at 12 GHz. When the drain biased voltage (V/sub DS/) was at 8 V, a 5.4 W continuous wave (C.W.) output power was obtained with 10.3dB power gain, 53% associated power-added efficiency (PAE) and 11.5dB linear gain. When V/sub DS/ was increased to 9 V, the devices delivered 6.0 W C.W. output power, with 10.8dB power gain, 52% PAE and 11.5dB linear gain. To the authors' knowledge, this is the highest PAE and output power achieved by a single solid state transistor at this frequency. Furthermore, the devices operated eifficiently from 3 to 9 V with more than 50% PAE.

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