Abstracts

C-Band High Performance IMFETs™ and SuperIMFETs Using MESFET and PHEMT Technology for SATCOM Applications

J. Shu, J. Wei, R. Basset, Y. Chung, C. Hua, C. Meng, P. Chye, J. Hall and D. Day. "C-Band High Performance IMFETs™ and SuperIMFETs Using MESFET and PHEMT Technology for SATCOM Applications." 1994 MTT-S International Microwave Symposium Digest 94.2 (1994 Vol. II [MWSYM]): 561-564.

Two power component design approaches: IMFET and SuperIMFET for the C-Band commercial SATCOM down link SSPA have been successfully developed. The functions and the performance of these two product types are compared. For the IMFET approach, when PHEMT devices are used instead of MESFETs, higher PAE (Power-Added Efficiency), power density, and gain are obtained which makes PHEMT ideal technology for the SATCOM business. An IMFET delivering 11W output power, 13 dB gain, and 60% PAE across the entire 500 MHz bandwidth of 3.7 to 4.2 GHz is shown. This PAE performance is believed to be the highest for GaAs FETs at this power level and this covered bandwidth.

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