Abstracts

A 2.5-Watt High Efficiency X-Band Power MMIC

M. Avasarala, D.S. Day, S. Chan, C. Hua and J.R. Basset. "A 2.5-Watt High Efficiency X-Band Power MMIC." 1989 Microwave and Millimeter-Wave Monolithic Circuits Symposium Digest 89.1 (1989 [MCS]): 25-28.

The design and performance of a 2-stage MBE monolithic power amplifier chip are presented. The MBE monolithic chip contains full interstate matching, partial matching at the input, and no match at the output. When matched to 50 ohms at input and output using off-chip circuitry, the MMIC demonstrated best overall performance of 34dBm (0.436W/mm), 36%, and 14.5dB of power, power-added-efficiency (PAE), and associated gain respectively, across the band of 9.0-10.0 GHz. The PAE was as high as 38% in parts of the band. The average performance considering 26 devices from at least 12 wafers from 5 different runs was 33.6dBm (.4W/mm), 32%, and 14dB, respectively. The chip size was very compact at 0.081"x0. 070"x003.3" (2.06x1.78 mm^2).

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