Abstracts

A 74-GHz bandwidth InAlAs/InGaAs-InP HBT distributed amplifier with 13-dB gain

Y. Baeyens, R. Pullela, J.P. Mattia, H.-S. Tsai and Y.-K. Chen. "A 74-GHz bandwidth InAlAs/InGaAs-InP HBT distributed amplifier with 13-dB gain." 1999 Microwave and Guided Wave Letters 9.11 (Nov. 1999 [MGWL]): 461-463.

To date, distributed amplifiers based on heterojunction bipolar transistors (HBTs) have consistently shown lower gain-bandwidth products than their high electron mobility transistor (HEMT) counterparts. By using improved design techniques, we report a single-stage distributed amplifier with 13-dB gain and 74 GHz 3-dB bandwidth, based on InAlAs/InGaAs-InP HBTs with 160-GHz fT and 140-GHz f/sub max/. The high gain and bandwidth results in a gain-bandwidth product of 330 GHz, which is, to our knowledge, the highest reported for HBT-based amplifiers and rivals that of the best InP HEMT distributed amplifiers with e-beam written gate of 0.1-0.15 /spl mu/m dimension.

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