Abstracts

A 180-GHz monolithic sub-harmonic InP-based HEMT diode mixer

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A 180-GHz monolithic sub-harmonic diode mixer is developed using 0.08-/spl mu/m pseudomorphic InAlAs-InGaAs HEMT MMIC process on a 2-mil-thick InP substrate. This mixer demonstrates a conversion loss of better than 16.5 dB from 175 to 182 GHz with an LO drive of 13 dBm at 96 GHz. This is the first demonstration of a monolithic subharmonic HEMT diode mixer in this frequency range. The design and measurement of this monolithic microwave integrated circuit (MMIC) mixer and the waveguide-to-microstrip line transitions of the test-fixture are presented.

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