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Title:340 GHz integrated receiver in 250 nm InP DHBT technology

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Abstract:A 340 GHz integrated receiver based on a 250 nm InP DHBT technology is presented in this paper. It consists of a 2#2times;2 differential patch array antenna, a sub-harmonically pumped Gilbert mixer and an IF buffer amplifier. Performance of the integrated receiver is evaluated by setting up a RF link in the frequency band of 302-338 GHz. At 338 GHz RF and 170 GHz LO, the peak conversion gain of 11.8 and 14.0 dB is achieved with and without antenna, respectively. A double-sideband noise figure of 17 dB at room temperature is obtained from direct noise figure measurement. &copy; 2012 IEEE.

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Main heading:Integration

Controlled terms:Buffer amplifiers - Differential amplifiers - Frequency bands - Heterojunctions - Mixers (machinery) - Monolithic integrated circuits - Noise figure - Receivers (containers)

Uncontrolled terms:340 GHz - Down converters - Gilbert Cell mixers - Heterojunction transistors - Sub-harmonic mixer - Submillimeters - Terahertz

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