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Zhe Chen, Bo Zhang and Yong Fan, Development of a 105-130 GHz subharmonic mixer utilizing planar schottky diodes. Journal Terahertz & Technology., Vol.5, No.4, December 2012. PP. 163-168

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Source title: Journal Terahertz & Technology

Volume: 5

Publication year: 2012

Pages: 163-168

Document type: Journal Online

Abstract: The paper presents the design, fabrication and measurement of a low-loss fixed tuned 105-130 *GHz* subharmonically pumped mixer, utilizing planar GaAs Schottky barrier diodes flip-chipped onto a suspended microstrip circuit. The substrate material is 0.127-*mm*-thick RT/duriod-5880 instead of expensive quartz. The measurement performance of the mixer exhibits a conversion loss below 10 *dB* over the range of 105-130 *GHz*, with a fixed local oscillator (LO) frequency of 59 *GHz* and its power of 5 *mW*.

Keywords: Terahertz, Schottky diodes, Sub-harmonic mixer