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Title:A room temperature bolometer for terahertz coherent and incoherent detection
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Abstract:We present a novel room temperature bolometer with nanosecond response that can be used both for coherent and incoherent detection through the entire terahertz frequency range. A responsivity of up to 15 V/W, and a noise equivalent power (NEP) ~ 450 pW/Hz0.5 were measured at modulation frequencies from 0.5 kHz to 100 kHz. A conversion gain of -28 dB was demonstrated at an intermediate frequency of 20 MHz with a Local Oscillator power of 0.74 mW. Possible improvements of the bolometer characteristics are discussed.
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