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Title:A low VSWR 2SB Schottky receiver
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Abstract:A novel high performance waveguide integrated sideband separating (2SB) Schottky receiver operating in the 320-360 GHz band is presented. The unique receiver design is based on a core of two subharmonic Schottky diode mixers with embedded LNA's with a minimum noise figure of 1.8 dB, fed by LO and RF quadrature hybrids. At room temperature, a typical receiver SSB noise temperature of 3000 K is measured over most of the band reaching a minimum of 2700 K, with only 4 mW of LO power. The sideband ratio (SBR) is typically below 15 dB over the whole band and the measured LO input return loss is typically below 15 dB broadband. High performance sideband separating Schottky receivers can now for the first time be considered for submillimeter wave systems enabling new types of instrument concepts.
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