Abstracts

A micromachined 585 GHz Schottky mixer

K. Hui, J.L. Hesler, D.S. Kurtz, W.L. Bishop and T.W. Crowe. "A micromachined 585 GHz Schottky mixer." 2000 Microwave and Guided Wave Letters 10.9 (Sep. 2000 [MGWL]): 374-376.

Standard semiconductor fabrication processes have been used to form waveguide components for the submillimeter wavelength range. A 585 GHz fundamentally pumped Schottky mixer with record performance demonstrates this technology. It consists of an etched silicon horn, a diced waveguide, and a lithographically formed microstrip channel for the diode circuit. The block dimensions are precisely controlled and extremely sharp. The measured mixer noise temperature is 1200 K (DSB), which is equivalent to the best result obtained with standard metal machining.

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