Abstracts

A three-dimensional quasi-optical self-oscillating mixer

B. Elamaran, K.Y. Sung, D.M.K.A. Yo, K.S. Ching and W.A. Shiroma. "A three-dimensional quasi-optical self-oscillating mixer." 1999 Transactions on Microwave Theory and Techniques 47.11 (Nov. 1999 [T-MTT] (Mini-Special Issue on Electromagnetic Crystal Structures, Design, Synthesis, and Applications)): 2144-2147.

A quasi-optical self-oscillating mixer (SOM) consisting of a pair of transistor-loaded grids mounted on opposite sides of a two-dimensional photonic crystal (PC) is presented. The PC facilitates mutual injection locking between the grids and extends the operating range of the SOM by minimizing injection locking to an external source. By combining this with electronic tuning of the free-running oscillation frequency, total elimination of the injection-locking range can be achieved. Radiation patterns at C-band also indicate the ability to detect RF signals in three dimensions.

❑ Return to main document.