Abstracts

A terahertz grid frequency doubler (Nov. 1998, Part II [T-MTT])

A. Moussessian, M.C. Wanke, Yongjun Li, Jung-Chih Chiao, J.S. Allen, T.W. Crowe and D.B. Rutledge. "A terahertz grid frequency doubler (Nov. 1998, Part II [T-MTT])." 1998 Transactions on Microwave Theory and Techniques 46.11 (Nov. 1998, Part II [T-MTT] (Special Issue on Innovative Integration Techniques for Microwave and Millimeter-Wave Circuits)): 1976-1981.

We present a 144-element terahertz quasi-optical grid frequency doubler. The grid is a planar structure with bow-tie antennas as a unit cell, each loaded with a planar Schottky diode. The maximum output power measured for this grid is 24 mW at 1 THz for 3.1-/spl mu/s 500-GHz input pulses with a peak input power of 47 W. An efficiency of 0.17% for an input power of 6.3 W and output power of 10.8 mW is measured. To date, this is the largest recorded output power for a multiplier at terahertz frequencies. Input and output tuning curves are presented and an output pattern is measured and compared to theory.

❑ Return to main document.