Abstracts

Quasi-Optical Power-Combining Arrays

D.B. Rutledge, Z.B. Popovic, R.M. Weikle, II, M. Kim, K.A. Potter, R.C. Compton and R.A. York. "Quasi-Optical Power-Combining Arrays." 1990 MTT-S International Microwave Symposium Digest 90.3 (1990 Vol. III [MWSYM]): 1201-1204.

Semiconductor devices have limited power handling capabilities at high frequencies, particularly at millimeter-wave frequencies. In this paper, we present a method for overcoming this problem by combining the outputs of several devices quasi-optically in a resonator cavity. This method has been applied to a number of solid-state devices, including Gunn diodes and MESFETs. The devices do not require an external locking signal because they lock to a mode of the resonator cavity. Effective radiated powers of 22 watts for a 4x4 array of Gunn diodes and 25 watts for a 10x10 array of MESFETs have been achieved.

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