Abstracts

A 60-GHz IMPATT Oscillator Array with Pulsed Operation

A.C. Davidson, F.W. Wise and R.C. Compton. "A 60-GHz IMPATT Oscillator Array with Pulsed Operation." 1993 Transactions on Microwave Theory and Techniques 41.9 (Oct. 1993 [T-MTT] (Special Issue on Quasi-Optical Techniques)): 1845-1850.

This paper describes the design and operation of a 60-GHz quasi-optical power combining array employing IMPATT diodes in a weakly coupled, hybrid, two by four arrangement. Frequency-locked operation of all eight elements has been achieved for CW operation with a total radiated power in excess of 2 W. Approximately 61 W of DC power was required to drive the array. Pulsed operation was investigated as a means of preventing overheating. In particular, the locking behavior of these pulsed arrays was characterized. The array was pulsed with a 2-µs rise time, low duty cycle, 4-kHz bias. Under these conditions, single frequency operation was observed throughout the duration of the pulse, including the turn-on period.

❑ Return to main document.