Abstracts

Millimeter-Wave (W-Band) Quartz Image Guide Gunn Oscillator

Y.-W. Chang. "Millimeter-Wave (W-Band) Quartz Image Guide Gunn Oscillator." 1983 Transactions on Microwave Theory and Techniques 31.2 (Feb. 1983 [T-MTT] (Special Issue on Millimeter-Waves)): 194-199.

Dielectric image-guide Gunn oscillator using fused quartz as the guide material has been investigated at frequencies around 94 GHz. Computer-controlled CO/sub 2/ laser cutting of quartz to the designed image-guide patterns has also been achieved. A resonant disk and pin bias circuit was used to tune the oscillator to an output power of 5 mW at the oscillation frequency of 94.2 GHz. An electronic frequency tuning of 350 MHz was measured with the oscillation characteristics similar to waveguide cavity oscillators. By varying the bias circuit disk and pin parameters, the Gunn-oscillator tuning characteristics have also been recorded for the future circuit performance optimization.

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