

Distributed Bragg Reflection Dielectric Waveguide Oscillators

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Dielectric waveguide Gunn oscillators are presented in which the cavity consists of grating structures exhibiting either the surface-wave stopband or the leaky-wave stopband. Oscillation conditions and design criteria of the grating structures are studied. When a grating exhibiting the leaky-wave stopband is used in the oscillator, the extraction of the output power in the direction perpendicular to the dielectric waveguide axis is possible. This is because such a grating becomes a broadside-firing leaky-wave antenna with high input VSWR.

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