

Abstracts

Millimeter-wave GaAs monolithic multipliers

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This paper describes the design, fabrication and experimental results for planar monolithic multipliers with output frequencies in W- and D-band. The multipliers are fabricated using FGC (Finite Ground Coplanar) lines which provide a low loss, low dispersion near-TEM structure. This structure allows circuit fabrication on full thickness wafers with no via holes. A variety of circuits have been designed and fabricated. Different W-band multipliers have an output efficiency of 22.9%, a peak output power of 66 milliwatts and an output bandwidth greater than 8 GHz in W-band. Initial D-band results show an uncalibrated output of approximately 100 μ W at 160 GHz.

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