Abstracts

Pumped Tunnel Diode Frequency Converters with Idlers

P.L. Fleming. "Pumped Tunnel Diode Frequency Converters with Idlers." 1963 PTGMTT National Symposium Program and Digest 63.1 (1963 [MWSYM]): 129-136.

This paper is concerned with analytical and experimental results for pumped tunnel diode frequency converters with idlers. The notation used in analyzing pumped varactors is appropriate for this analysis since idling circuits are utilized in conjunction with a pump or local oscillator. Pumped tunnel diode converters with idlers do not perform circuit functions that could not conceivably be performed by pumped varactor circuits with idlers. Tunnel diode converters with idlers are capable of performing similar circuit functions with simpler circuitry (being a pumped conductance device) and with considerable savings in pump power. An experimental tunnel diode converter with idler has been operated in the 2000 Mc region to obtain total power gains greater than 30 db with a pump power requirement of 100 microwatt. Comparable varactor converters would require at least an order of magnitude more pump power.

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