Abstracts

360° Varactor Linear Phase Modulator

R.V. Garver. "360° Varactor Linear Phase Modulator." 1969 Transactions on Microwave Theory and Techniques 17.3 (Mar. 1969 [T-MTT]): 137-147.

Theory is presented which 1) derives the circuit impedance requirements to match the nonlinearity of the varactor reactance-versus-voltage curve to the tangent /spl theta/ curve to obtain 180° linear phase modulation from one diode; 2) gives the value and position of a resistor to make insertion loss invariant with phase; and 3) derives the circuit requirements for combining two 180° diode phase modulators in an admittance adding network to obtain 360° phase modulation. Experiments are disclosed rising series tuning at 1 GHz providing 360° phase modulation within ± 3.0 percent of linearity, and using shunt tuning at 5 GHz providing 360° phase modulation within ± 3.3 percent of linearity. A discussion is given of the application of the modulators to the serrodyne function.

❑ Return to main document.