Abstracts

Cryogenic Operation of a Monolithic Slow-Wave Variable Phase Shifter (Short Papers)

C.M. Krowne and E.J. Cukauskas. "Cryogenic Operation of a Monolithic Slow-Wave Variable Phase Shifter (Short Papers)." 1987 Transactions on Microwave Theory and Techniques 35.9 (Sep. 1987 [T-MTT]): 868-871.

A GaAs slow-wave variable phase shifter has been investigated at 4.2, 77, and 300 K ambient temperatures over the 2-18-GHz frequency range. Differential phase shift Delta Theta has been measured and presented as a set of curves parameterized in terms of temperature covering the entire frequency range. Analytical explanations are provided for the phase shift Theta and insertion loss L behavior as functions of temperature, frequency, and bias voltage. The Schottky microstrip line resistivity ratio at 77 K is found to vary between 4 and 6 over the frequency range studied, giving about a 5:1 reduction in resistivity (or a 2:1 reduction in L) by going to liquid nitrogen temperature.

❑ Return to main document.