# Abstracts

## Exponential Transmission Lines as Resonators and Transformers

*R.N. Ghose. "Exponential Transmission Lines as Resonators and Transformers." 1957 Transactions on Microwave Theory and Techniques 5.3 (Jul. 1957 [T-MTT]): 213-217.*

An attempt has been made to analyze the theory of an exponential transmission line from its complex reflection coefficient's standpoint and to indicate how the characteristics of an exponential line can be completely represented for any frequency with the help of the Smith Chart. It is shown that the optimum design parameters of an exponential transmission line which maybe used as a transformer, with a frequency-sensitive load at one end, can be determined with the help of the Smith Chart and some derived equations. This paper also includes a study of the coaxial type exponential line which can be used as a series or parallel resonator. Theoretical expressions for the attenuation constant, stored energy, and Q for such types of resonator have been derived. Also indicated in this paper is the possibility of replacing the uniform-line coaxial-type resonators in many microwave and uhf wave filters by the exponential-line resonators, particularly when a large power-handling cpacity is warranted.

❑ Return to main document.