Abstracts

Synthetic Transmission-Line Impedance Transformers (Correspondence)

H.F. Mathis. "Synthetic Transmission-Line Impedance Transformers (Correspondence)." 1962 Transactions on Microwave Theory and Techniques 10.4 (Jul. 1962 [T-MTT]): 296-298.

Somlo has presented a convenient procedure for obtaining the characteristic impedance and length of a single section of lossless transmission line to match two impedances. One impedance and the conjugate of the other are plotted on a circular transmission-line chart, i.e., Smith or Carter chart. A circle is drawn through the two points with its center on the X = 0 axis. If the circle does not lie entirely within the R = 0 circle, the two impedances cannot be matched with a single section of lossless transmission line with real characteristic impedance. However, if one does not require that the transmission line have a real characteristic impedance, it can be synthesized by a symmetrical T or pi network consisting of either lossless inductances or capacitances.

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