Abstracts

Circuit Transformations for Realization of a Class of Miniature Printed Circuit Filters

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We describe general methods for realizing ultra small filters suitable for low cost, high volume, applications such as Transmit/Receive modules for avionics phased arrays. The class of filters consisting of alternating pi-of-capacitor sections and interconnecting transmission lines (unit elements) is ideal for this application. Greatly reduced size over conventional parallel coupled line filters is achieved using electrically short circuit elements. We describe realization techniques for these types of filters in both microstrip and suspended substrate form and apply them to conventional filters having single-length, unit elements as well as a new class of filters having double-length unit elements. In addition to improved skirt symmetry, the new class of filters is less prone to degraded rejection due to cross coupling between adjacent pi-of-capacitor sections.

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