Abstracts

Low-temperature cofired ceramic (LTCC) ridge waveguide bandpass chip filters

Yu Rong, K.A. Zaki, M. Hageman, D. Stevens and J. Gipprich. "Low-temperature cofired ceramic (LTCC) ridge waveguide bandpass chip filters." 1999 Transactions on Microwave Theory and Techniques 47.12 (Dec. 1999 [T-MTT] (Special Issue on 1999 International Microwave Symposium)): 2317-2324.

Full-wave mode-matching-based design of generalized ridge waveguide evanescent mode bandpass filters and their transitions for low-temperature cofired ceramic (LTCC) application is described. A modification factor is introduced in the prototype filter design to effectively overcome the filter bandwidth distortion. Design examples are given to demonstrate the validity. An S-band single-ridge waveguide filter and its transitions are simulated and successfully built in LTCC packages. Good agreement between the theory and experiment is obtained, which demonstrates the feasibility of the three-dimensional ridge waveguide filter embedding in LTCC packages. As compared with an LTCC inductive windows waveguide filter realization, the ridge waveguide filter realization shows significant advantages of smaller size and comparable loss. Design consideration and LTCC realization of the low-loss ridge waveguide filter are also provided.

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