

Development and Characterization of Novel Ferrite Materials

Christopher B. DiAntonio, Alex W. Roesler, Tom P. Chavez, and Pin Yang, Sandia National Laboratories, Albuquerque, New Mexico.

New application requirements have led to increased development efforts on base LTCC ferrite materials and compositions to meet the needs. The single greatest technology gap for these materials seems to be the properties of the existing ferrite composition and has led to limiting further reduction in size and cost of monolithic components. This work will present results on efforts to develop new LTCC ferrite material(s) with significantly improved magnetic performance, allowing for a size and cost reduction compared to the existing "state of the art" designs/materials used in these applications. Specifically, the objective is to provide new LTCC ferrite materials with an increased saturation magnetization and magnetic permeability as compared to the existing LTCC ferrite, which directly enables size reduction without sacrificing component performance. By enabling significant size and cost reduction, the newly developed LTCC ferrite material will be able to broadly address overall performance requirements and general needs for technology. Therefore, polycrystalline NiCuZn based ferrites have been prepared under controlled experimental conditions and magnetic and electrical properties have been measured.

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