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Development of few new materials for microminiaturization of electronic circuits used for various applications

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A large demand has been placed on miniaturization of electronic applications, especially in the last two decades. Ferrite materials are recognized as more important and essential for the further development of electronics than before, and it is believed that the production of ferrites will increase year by year as their applications become more diverse. They are used in fabrication of multilayer chip inductors (MLCIs) as surface mounting devices (SMDs) for micro-miniaturization of electronic circuits. The tendency to miniaturize electronic components began in the 1990s. Concurrently, progress also occurred in surface-mounting technology, and attempts have been made to accomplish high density, incorporation of ferrite inductors into a printed circuit board. This has a result, allowed development of various types of multilayer ferrite chip inductors. The present chip inductor features make the miniaturization process very easy chip inductors are one of the passive surface mounting devices (SMD). The flux is entirely free from leakage because the coil is shielded with a ferrite material. Hence it is expected that the demand for the chip inductors will increase more and more in the future. Recently, the surface mounting devices (SMD) have been rapidly developed for micro inductor applications which have great demand in electronic applications. MLCIs as the key component of electronic devices are confronting new challenges. The dominant materials for MLCIs are soft ferrites materials. These studies revealed the development of new materials for the multilayer chip inductors and concluded that these ferrites possess good electromagnetic properties and can be exploited as core material for micro inductor applications.

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