

SYNTHESIS OF Bi-Zn-Al-B-Si-O NANO-GLASS FOR MULTILAYER CHIP INDUCTORS

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The ferrite added with Bi-Zn-Al-B-Si-O nano-glass was sintered at 840-900°C, 2 h and the initial permeability, quality factor, density and saturation magnetization of the samples were measured. The initial permeability of the nano-glass added sample was about 62.6 at 0.1 wt%, and showed a sharp increase from 0.4 to 0.5 wt%. Then, it reached a maximum value (211.2) at 1.0 wt% addition. Above 1.0 wt% addition, the initial permeability decreased again with a further increase in the nano-glass content. The quality factor and saturation magnetization of 0.5 wt% nano-glass added NiZnCu ferrites sintered at 880 °C was about 143 and 386 emu/cc, respectively. It was shown that the Bi-Zn-Al-B-Si-O nano-glass systems were useful as a sintering aid in the fabrication of MLCIs.

Keywords: Nano-glass; NiZnCu ferrite; multilayer chip inductors; sol-gel method.