

PZN-PMN-PZT 세라믹을 이용한 AC-DC 컨버터용 적층 압전변압기의 전기적 특성

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Electrical properties of multi-layer piezoelectric transformer using PZN-PMN-PZT ceramic for AC-DC converter

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Abstract : In this study, multi-layer piezoelectric transformer for AC-DC converters was presented. Piezoelectric transformers have a lot of merits such as, density for step-down voltage application. The piezoelectric transformers used for LCD backlight inverters are mainly the Rosen-type operating in the longitudinal vibration mode. However, conventional Rosen-type piezoelectric transformers could not be successfully used for high power devices, such as AC-DC converters, because of high voltage and low current characteristics of them. Therefore, in this study, in order to develop AC-DC converter for high output power application, multi-layer piezoelectric transformer using PZN-PMN-PZT ceramic which has a high electromechanical coupling factor(k) and mechanical quality factor(Q) was manufactured.

Key Words : Low temperature sintering, Multi-layer piezoelectric transformer, Step-down voltage