

## **Constrained Sintering of dielectric and ferrite LTCC tape composites**

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### **Abstract**

The miniaturisation potential of LTCC devices would be drastically improved, if inductances could be directly integrated into the multilayer structure. Co-firing of ferrite green tapes in combination with dielectric green tapes, which offers this possibility, is the focus of the paper. Commercial dielectric LTCC tape and a new developed ferrite green tape on the basis of  $\text{BaFe}_{12}\text{O}_{19}$  were characterised. To manufacture composite structures of these two types of green tape via LTCC technology, the ferrite tape must densify at temperatures around 900°C. The characterisation of the tapes included the green tape structure and shrinkage behaviour by means of density measurements, thermogravimetry, thermomechanical analysis, optical dilatometry and microstructure investigations. The shrinkage and warpage behaviour of both single tapes and composites was characterised. By combination of the different tapes a constrained sintering behaviour could be generated. Stress effects during sintering and cooling cycles could be related to occurring defects.