Iron Boron Nitride ceramic composite for electronic applications

Climate-KIC

Iron boron nitride nanoceramic (FeBN) is a kind of the soft magnetic composite characterized by high saturation of magnetic flux and high electric resistivity. Due to application of high temperature and pressure, iron grains become to be well separated by thin layer of boron nitride, forming the structure similar to that of core shell. Obtained structure allowed significantly increase the electric resistivity with minor influence on the magnetic induction. High resistivity considerably reduces the eddy currents which are critical problem for high frequency applications. The excellent magnetic and electric of FeBN nanoceramic make it very promising for applications especially at high and very high frequencies (up to microwaves).

The main application of FeBN nanoceramic is a power inductors. The power supply of any electronic devices contains them in its scheme. One of the main factors in designing power supplies is the saturation current of the power inductor. Higher current allows to transfer more power.

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Climate-KIC is supported by the EIT, a body of the European Union