

Dielectric Properties of ink-Jet printed Al_2O_3 -resin Hybrid Films

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Abstract : Non-sintered Alumina films were fabricated via inkjet printing processes without a high temperature sintering process. The packing density of these inkjet-printed alumina films measured around 60%. Polymer resin was infiltrated thru these non-sintered films in order to fill out the 40% of voids constituting the rest of the inkjet-printed films. The concept of inkjet-printed Alumina-Resin hybrid materials was designed in order to be applicable to the ceramic package substrates for 3D-system module integration which may possibly substitute LTCC-based 3D module integration. So, the dielectric properties of these inkjet-printed Al_2O_3 hybrid materials are of great interest. We have measured dielectric constant and dissipation factor of the inkjet-printed Al_2O_3 -resin hybrid films by varying the amount of resin infiltrated thru the Al_2O_3 films.

Key Words : Inkjet printing, dielectric thick film, packing density, Alumina.