Microwave absorption properties of gold nanoparticle doped polymers

This paper presents a method for characterizing microwave absorption properties of gold nanoparticle doped polymers. The method is based on on-wafer measurements at the frequencies from 0.5GHz to 20GHz. The on-wafer measurement method makes it possible to characterize electromagnetic (EM) property of small volume samples. The epoxy based SU8 polymer and SU8 doped with gold nanoparticles are chosen as the samples under test. Two types of microwave test devices are designed for exciting the samples through electrical coupling and magnetic coupling, respectively. Measurement results demonstrate that the nanocomposites absorb a certain amount of microwave energy due to gold nanoparticles. Higher nanoparticle concentration results in more significant absorption effect.

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