

Local electrochemical deposition of Ni into vertical vias in Si/SiO₂ substrate

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Abstract: Ni electrochemical deposition into a matrix of various diameters (500–2000 nm) vertical vias in Si/SiO₂ substrates with a barrier layer at the vias' bottom has been investigated. Morphological study of Ni deposits in the vias showed they are deposited directly on the surface of the barrier layer. Repeatability and stability in combination with a homogeneous structure and 70% filling degree of vias determine the prospects of the Si/SiO₂/Ni system as a basic element for the creation of three-dimensional micro-, nanostructures, and 3D assembly of IC crystals.

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