

12OC-2001-02

New Cu-diffusion Barrier Materials Based on Ruthenium, Iridium and its Oxides

Advanced IC chips fabricated with more conductive Cu interconnects operate with less power and at significantly higher speed. To prevent catastrophic contamination caused by Cu diffusion, diffusion barriers are used to contain Cu interconnects fabricated by electroplating. However, currently used barrier layers of tantalum and especially tantalum nitride, are too resistive to plate Cu directly. A costly additional Cu-seeding layer is needed to assure good Cu electrofill. Our invention utilizes a new conductive ruthenium/ruthenium oxide and iridium/iridium oxide barrier material to eliminate the costly additional Cu-seeding layer.

For Additional Information, Please Contact:

The University of North Texas
Office of the Vice President for Research
and Economic Development
3940 North Elm, A160
Denton, TX 76207
Fax: 940-565-2944
Email: richard.croley@unt.edu