

Direct electroplating of silver film on Pd-Ag activated TiN surface

구효철, 안응진, 김재정*
서울대학교
(jjkimm@snu.ac.kr*)

Silver electroplating without a seed layer on high resistive TiN substrate was investigated. The silver catalytic particles deposited by displacement reaction were used as the nucleation sites in the initial stage of the deposition. The electroplated silver film on Pd-Ag activated TiN surface showed continuous film morphology with good adhesion and also had high conductivity, while on non-activated surface continuous film was not obtained with poor nucleation density. And it also had good adhesion compare to the case of electroplating on only Pd activated TiN surface. High density catalytic particles deposited in activation step were considered as a growing center and an electron transfer path. After annealing in nitrogen ambient, silver film with a thickness of 160 nm had a resistivity of $2.16 \mu\Omega\text{cm}$, comparable with the value of electroplated silver film on sputtered seed layer.