

에칭공정에서의 **Panel-Scale Etching Uniformity** 향상을 위한  
에칭노즐 궤적예측에 관한 연구

정기호

삼성전기 중앙연구소 부산연구분소

**The Prediction of Nozzle Trajectory on Substrate for the Improvement  
of Panel-Scale Etching Uniformity**

Giho Jeong

BUSAN R&D Center, SAMSUNG ELECTRO-MECHANICS

**Abstract** : In practical etching process, etchant is sprayed on the metal-deposited panel through nozzles collectively connected to the manifold and that panel is usually composed of many PCB(printed circuit board)'s. The etching uniformity, the difference between individual PCB's on the same panel, has become one of most important features of etching process.

In this paper, the prediction of nozzle trajectory has been performed by the combination of algebraic formula and numerical simulation. With the pre-determined geometrical factors of nozzle distribution, the trajectories of individual nozzles were predicted with the change of process operational factors such as panel speed, nozzle swing frequency and so on.

As results, two dimensional distribution of impulsive force of etchant spray which could be considered as a key factor determining the etching performance have been successfully obtained. Though only qualitative prediction of etching uniformity have been predicted by the process developed in this study, the expansion to the quantitative prediction of etching uniformity is expected to be apparent by this study.

**Key Words** : Spray etching, Uniformity, Nozzle Trajectory