(Research Note)

Evaluation of LSI Inner Structure by Using Quasi-static Electrical Field Sensing Technology

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Abstract: Quasi-static electrical field, being one of electrical fields which does not bring magnetic field, is distributed widely around devises. This electrical field is possible to measure with non-bias state. Additionally this field does not involve reflection and diffraction phenomenon. These features bring accurate evaluation result. By using measurement system combined QEF sensor* unit with Laser microscope built-in OBIC function, an evaluation of LSI inner state was experimented. The evaluation outcomes were discrimination of substrate impurity type and also detection of void portion on metal line. These results indicated that this technology was suitable way to evaluate diffusion layer and substrate it. Concurrently, a couple of problems caused by measurement system were become clearly. The aim of this technology application is to obtain crystal defect distribution and mapping.
*QEF sensor is named as NEPS (Nano Electrostatic field Probe Sensor).