



US005780105A

# United States Patent [19]

[11] Patent Number: **5,780,105**

Wang

[45] Date of Patent: **Jul. 14, 1998**

[54] **METHOD FOR UNIFORMLY COATING A SEMICONDUCTOR WAFER WITH PHOTORESIST**

*Primary Examiner*—Janyce Bell  
*Attorney, Agent, or Firm*—Christensen, O'Connor Johnson & Kindness PLLC

[75] Inventor: **Li-Ming Wang, Ping Tung, Taiwan**

[57] **ABSTRACT**

[73] Assignee: **Vanguard International Semiconductor Corporation, Hsinchu, Taiwan**

A method for coating a semiconductor wafer with a high-viscosity photoresist that requires a seven-phase coating process which uses a large diameter dispenser nozzle is disclosed. In this first phase, the photoresist is dispensed onto a slow rotating wafer. In the second phase, this slow rotation phase is continued for a short time after the photoresist is dispensed. In the third phase, the wafer rotational speed is increased to a second value for a short duration. In the fourth phase, the rotational speed is again increased to a third high value for a long duration. In the fifth phase, the rotational speed is decreased to a fourth value and the backside of the wafer is rinsed for a short time period to remove any photoresist that may have migrated to the backside. In the sixth phase, the wafer is rotated at the fourth speed value for another short time period. Finally, the rotation of the wafer is stopped for about a second before being removed from the photoresist coating system.

[21] Appl. No.: **904,082**

[22] Filed: **Jul. 31, 1997**

[51] Int. Cl.<sup>6</sup> ..... **B05D 3/12**

[52] U.S. Cl. .... **427/240; 427/336; 427/352; 427/385.5; 437/231**

[58] Field of Search ..... **427/240, 385.5, 427/336, 352; 437/231**

[56] **References Cited**

**U.S. PATENT DOCUMENTS**

- 5,405,813 4/1995 Rodrigues ..... 427/240
- 5,677,001 10/1997 Wang ..... 427/240

**22 Claims, 3 Drawing Sheets**

