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United States Patent [19][11] **Patent Number:** **5,405,813****Rodrigues**[45] **Date of Patent:** **Apr. 11, 1995****[54] OPTIMIZED PHOTORESIST DISPENSE METHOD****[75] Inventor:** Michael A. Rodrigues, San Jose, Calif.**[73] Assignee:** VLSI Technology, Inc., San Jose, Calif.**[21] Appl. No.:** 214,484**[22] Filed:** Mar. 17, 1994**[51] Int. Cl.⁶** H01L 21/469**[52] U.S. Cl.** 437/231; 427/126.1; 427/240; 427/384**[58] Field of Search** 427/240, 126.1, 384; 437/231**[56] References Cited****U.S. PATENT DOCUMENTS**

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[57] ABSTRACT

A method and process for reducing the amount of pho-

toresist material required to uniformly coat a semiconductor wafer. A semiconductor wafer, having a top and a bottom surface, is placed onto a vacuum chuck of a photoresist coater system for applying photoresist to semiconductor wafers such that the semiconductor wafer is oriented in horizontal plane with the top surface of the semiconductor facing upwards. The vacuum chuck of the wafer coating system is rotated about a central axis thereof such that the semiconductor wafer achieves a first rotational speed. Next, the semiconductor wafer is decelerated from the first rotational speed to a second rotational speed while a minimal amount of photoresist material is concurrently dispensed onto the top surface of the semiconductor wafer. As the wafer reaches the second rotational speed, the dispensing of the photoresist material onto the top surface of the semiconductor wafer is stopped. The semiconductor wafer is then accelerated from the second rotational speed to a third rotational speed. Upon reaching the third rotational speed, the semiconductor wafer is maintained at the third rotational speed such that the photoresist material is spread in a uniform layer over the top surface of the semiconductor wafer. Next, the semiconductor wafer is accelerated from the third rotational speed to a fourth rotational speed, and is maintained at the fourth rotational speed such that the uniform layer of the photoresist material on the top surface of the semiconductor wafer is dried. In so doing, the present claimed invention forms a layer of photoresist of uniform thickness over the top surface of a semiconductor wafer while simultaneously reducing the amount of photoresist material used in the coating process.

19 Claims, 2 Drawing Sheets