19 APR 2004

162162

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
31 May 2001 (31.05.2001)

PCT

(10) International Publication Number
WO 01/39273 A1

(51) International Patent Classification[7]: H01L 29/10, 21/265

(21) International Application Number: PCT/US00/17271

(22) International Filing Date: 23 June 2000 (23.06.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/168,155 29 November 1999 (29.11.1999) US
09/497,320 3 February 2000 (03.02.2000) US

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(81) Designated States *(national)*: CN, JP, KR, SG.

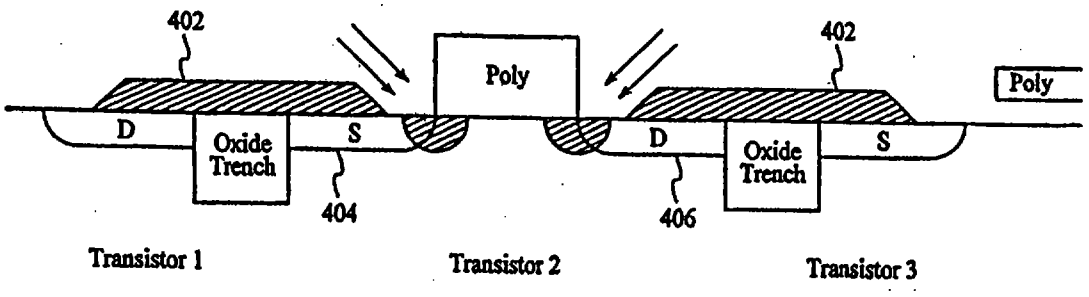
(84) Designated States *(regional)*: European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).

Published:
— *With international search report.*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

G00002

(54) Title: METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE USING A HALO IMPLANTATION



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(57) Abstract: A method and system for providing a halo implant to a semiconductor device is disclosed. The method and system comprises providing a thin photoresist layer to the semiconductor device. The method and system further includes providing the halo implant to the appropriate area of the semiconductor device. Accordingly, in a system and method in accordance with the present invention, a photoresist that is capable of thinner profile, i.e., DUV photoresist is utilized. This will allow one to lower the photoresist thickness to the proposed 1000A (in the field) or lower if the process allows. With this photoresist thickness, taking into account other height variables, the source and drain regions can be opened only as needed. At a 45° angle, the implant can be delivered to all transistors in the circuit in the targeted area as well as getting only a large amount of the dose (up to 3/4 of the dose) to the transistor edge which sits on the trench edge. This will also minimize the counter doping of the source drain with the opposite species as is required by the definition of the halo process. In the smaller geometries of 0.18 um technologies and lower, the gate height will actually work to advantage and help reduce unwanted counter doping of the source/drain area. In this way the counter doping can be maintained to an absolute minimum. The final advantage is that with the thinner photoresist, we will enhance our ability to provide the implant to smaller geometries.

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