

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

(19) World Intellectual Property Organization
International Bureau



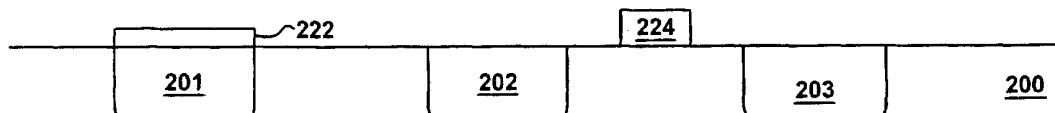
(43) International Publication Date
20 September 2001 (20.09.2001)

PCT

(10) International Publication Number
WO 01/69658 A3

- (51) International Patent Classification⁷: **H01L 27/06**, 27/102, 21/822, 21/8229 (72) Inventor: MITCHELL, Todd; 15918 Alsace, San Antonio, TX 78232 (US).
- (21) International Application Number: PCT/US01/07175 (74) Agents: GALLENSON, Mavis, S. et al.; Ladas & Parry, Suite 2100, 5670 Wilshire Boulevard, Los Angeles, CA 90036-5679 (US).
- (22) International Filing Date: 6 March 2001 (06.03.2001)
- (25) Filing Language: English (81) Designated States (*national*): CN, JP, KR.
- (26) Publication Language: English (84) Designated States (*regional*): European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR).
- (30) Priority Data:
09/524,262 13 March 2000 (13.03.2000) US
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- Published:
— with international search report
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- (88) Date of publication of the international search report:
14 March 2002
- 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.

(54) Title: ONE-TIME PROGRAMMABLE ANTI-FUSE ELEMENT AND METHOD



(57) Abstract: The present invention is drawn to a method and a system for creating a one time programmable anti-fuse element. No amorphous silicon is used as in the prior art approach. Rather, a side wall spacer etch blocking mask (231,232) is used to form a poly diode (222) as the one time programmable anti-fuse element. In particular, in creating the one time programmable anti-fuse element, the present invention uses steps from existing standard process flow typically used for fabricating a standard semiconductor device such as a transistor. As such, these steps can be performed concurrently with the process flow of a standard semiconductor device. Moreover, a forward biased current can be driven through the poly diode to destroy ("blow") it as the one time programmable anti-fuse element. As an added bonus, when compared to the blown prior art anti-fuse element, the blown anti-fuse element is harder to detect. Thus, advantageously, the anti-fuse element of the present invention is well suited for security applications.

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INTERNATIONAL SEARCH REPORT

International Application No

PC1/US 01/07175

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H01L27/06 H01L27/102 H01L21/822 H01L21/8229

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01L G11C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC, IBM-TDB

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PATENT ABSTRACTS OF JAPAN vol. 1997, no. 09, 30 September 1997 (1997-09-30) -& JP 09 116108 A (NISSAN MOTOR CO LTD), 2 May 1997 (1997-05-02) abstract; figures paragraphs '0020!', '0021! ---	14, 17-19
X	US 5 905 670 A (BROUILLETTE ALLEN W ET AL) 18 May 1999 (1999-05-18) abstract; claims; figures column 4, line 5 - line 37 ---	14, 19
Y	---	1-4, 13, 15
Y	EP 0 468 136 A (NAT SEMICONDUCTOR CORP) 29 January 1992 (1992-01-29) abstract; claims; figures ---	1-4, 13, 15
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Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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Date of the actual completion of the international search

29 October 2001

Date of mailing of the international search report

07/11/2001

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/07175

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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A	PATENT ABSTRACTS OF JAPAN vol. 006, no. 062 (P-111), 21 April 1982 (1982-04-21) -& JP 57 003292 A (NEC CORP), 8 January 1982 (1982-01-08) abstract; figures ----	1, 14
A	US 5 976 943 A (PAYNE ROBERT ET AL) 2 November 1999 (1999-11-02) abstract; claims; figures -----	1-5

INTERNATIONAL SEARCH REPORT

Information on patent family members

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