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EXAMINER

CHU, CHRIS C

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13

Please find below and/or attached an Office communication concerning this application or proceeding.

INTEL 1115



**DETAILED ACTION**

***Response to Amendment***

1. Applicant's amendment filed on May 20, 2002 has been received and entered in this office action.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 25 and 27 ~ 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dennison et al. in view of Figura et al.

Regarding claim 25, Dennison et al. discloses in column 3, line 35 the etch stop material (20) being silicon nitride.

Regarding claim 27, Dennison et al. discloses in Fig. 2 a structure (10), comprising:

- a conductive layer (12 and column 3, lines 29 ~ 33) disposed over a substrate;
- a first insulating layer (18) on the conductive layer;
- a contact region (the area of 34) in the first insulating layer;

- at least one insulating spacer (18) in the contact region adjacent to the first insulating layer (see Fig. 2); and
- an etch stop material (20 and column 3, line 35) over the first insulating layer and adjacent to the insulating spacer (see Fig. 2).

Dennison et al. does not disclose the etch stop material being a different material from the insulating spacer. However, Figura et al. discloses in Fig. 1 an etch stop material (column 4, lines 51 and 52) being a different material from the insulating spacer (column 4, lines 11 and 12). Thus, it would have been obvious to one of ordinary skill in the art at the time when the invention was made to modify Dennison et al. by using different materials for the etch stop material and the insulating spacer as taught by Figura et al. The ordinary artisan would have been motivated to modify Dennison et al. in the manner described above for at least the purpose of minimizing current leakage and short circuits (column 2, lines 36 ~ 38).

Regarding claim 28, Dennison et al. discloses in Fig. 2 the insulating spacer (18) having a substantially rectangular profile in the contact region (see Fig. 2).

Regarding claims 29 and 36, Dennison et al. discloses in Fig. 2 the insulating spacer (18) having a surface portion in the contact region without overlying etch stop material (see Fig. 2).

Regarding claims 30 and 37, Dennison et al. discloses in Fig. 2 the insulating spacer (18) surface portion without overlying etch stop material comprising an insulating spacer surface portion most distant from the substrate (see Fig. 2).

Regarding claim 31, Dennison et al. discloses in Fig. 2 the insulating spacer (18) having a surface portion in the contact region without overlying etch stop material (see Fig. 2).

Regarding claims 32 and 38, Dennison et al. discloses in Fig. 2 a structure (10), further comprising a second insulating layer (28) on the etch stop layer and over the conductive layer (see Fig. 2).

Regarding claims 33 and 39, Dennison et al. discloses in Fig. 2A a structure (10), further comprising a second conductive material (40) in the contact region (see Fig. 2A).

Regarding claim 34, Dennison et al. discloses in Fig. 2 a structure, comprising the step of:

- a first electrically conductive material (24) formed in and/or on a surface of a substrate;
- a contact opening (the area of 34) in a region adjacent to a second electrically conductive material (the area of 40 in Fig. 2A) formed on the substrate;
- an electrically insulative spacer (18) in the contact opening adjacent to the second electrically conductive material (see Fig. 2);
- an etch stop material (20) over the electrically insulative spacer and the first and second electrically conductive materials (see Fig. 2);
- a blanket layer (28) over the etch stop material; and
- an opening through a first part of the etch stop material to the first electrically conductive material (see Fig. 2).

Dennison et al. does not disclose the etch stop material being a different material from the insulating spacer. However, Figura et al. discloses in Fig. 1 an etch stop material (column 4, lines 51 and 52) being a different material from the insulating spacer (column 4, lines 11 and 12).

Thus, it would have been obvious to one of ordinary skill in the art at the time when the

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