Decision of Technical Board of Appeal 3.4.1 dated 10 July 1996

T 873/94 - 3.4.1

(Language of the proceedings)

Composition of the board:

Chairman: G. D. Paterson

Members: Y. J. F. van Henden

R. K. Shukla

Applicant/appellant: KABUSHIKI KAISHA TOSHIBA

Headword: Amended divisional application/TOSHIBA

Article: 76(1), 123(2) EPC

Keyword: "Feature added to claim of divisional application" - "Amended claimed combination within protection claimed in parent and divisional application as filed" - "Subject-matter extending beyond the content of the earlier and divisional application as filed (no)"

Headnote

I. A divisional application has to comply with the requirements of both Article 76(1) EPC and Article 123(2) EPC. Article 76(1) EPC governs the filing of a divisional application and therefore whether it is entitled to the filing date of the parent

application and has the same benefit of right to priority as the parent application. Article 123(2) EPC governs amendments to the divisional application subsequent to its filing.

II. Where a proposal for amendment of an application involves the addition of a limiting feature to a claim, application of a "novelty test" is not appropriate to determine whether or not the amendment complies with Article 123(2) EPC, because as explained in Decision G 1/93 (OJ EPO 1994, 541), "Whether or not the adding of an undisclosed feature limiting the scope of protection ... would be contrary to the purpose of Article 123(2) EPC ... depends on the circumstances".

Summary of Facts and Submissions

I. European patent application No. 89 116 770.2 (publication No. 0 349 022) is a divisional application from an earlier application No. 86 101 172.4 (publication No. 0 192 093)("the parent application").

II. The parent application relates to a semiconductor device with an interconnection layer for interconnecting semiconductor regions of different conductivity types. The particular structure in accordance with the invention is described with reference to a number of different semiconductor devices. Thus Examples 1 and 2 describe CMOS static RAM cells with reference to Figures 5 to 12. Example 3 describes a pull-up element with reference to Figures 13 to 15, Example 4 describes a CMOS inverter with reference to Figure 16, and Example 5 describes a bipolar CMOS inverter with reference to Figures 17 and 18.

Example 2 refers to the formation of the p-n junction diode of Example 1, and states that in Example 2, the p- and n-type diffusion regions constituting the p-n junction

diode are set to be higher than 10 $^{19}cm^{-3}$, and that the p-n junction diode serves as an Esaki diode, the forward biasing characteristics of which provide a tunnel effect. The characteristics of the Esaki diode are described with reference to Figure 12, and it is explained that such characteristics result in improved characteristics for the RAM cell.

Between the end of Example 2 and the beginning of Example 3, the parent application contains the following paragraph at page 14, lines 4 to 9:

"The present invention is exemplified by Examples 1 and 2 of CMOS static RAM cells. However, the present invention is not limited to the CMOS static RAM cells, but can be extended to various types of semiconductor devices. Some other examples will be described hereinafter."

The parent application as filed contained 10 claims, claims 1 to 7 defining a semiconductor device, and claims 8 to 10 defining a method of manufacturing such a device. Claim 1 defines a semiconductor device including inter alia an interconnection layer, and first and third semiconductor regions being adapted to form a p-n junction diode. Claim 2 defines a device according to claim 1, characterised in that said p-n junction diode is an Esaki diode. Claims 8 and 10 are method claims corresponding to claims 1 and 2.

The present divisional application as filed contained a description which corresponds to that of the parent application except for some changes which will be referred to later. It contained just one claim, which defined a semiconductor device in the form of a **pull-up element** .

III. The Examining Division issued a communication under Article 96(2) EPC in which objection was raised against the said claim on the ground of lack of inventive step. In response the applicant filed an amended claim reading as follows:

"11. A semiconductor device comprising a first semiconductor region (201) of a first conductivity type, a second semiconductor region (202) of a second conductivity type, and an interconnection layer (203) containing an impurity of a second conductivity type, wherein

- said first semiconductor region (201) forms a part of a p-n junction diode (204);

- said interconnection layer (203) connects said first semiconductor region (201) with said second semiconductor region (202), said first semiconductor region being a drain region (201) of a MOS transistor and said second semiconductor region being a gate electrode (202) of said MOS transistor;

- a third semiconductor region (204) of said second conductivity type is provided which is formed in said first semiconductor region (201) upon diffusion of the impurity from said interconnection layer (203) to said first semiconductor region having the same crystalline semiconductor material as said third semiconductor region (204);

- said third semiconductor region (204) is adapted to form, together with said first semiconductor region (201) said p-n junction diode (204); and

- said p-n junction diode is an Esaki diode (204)."

The amendment to the claim of the divisional application as filed consists in the addition of the feature at the end of the claim, that "said p-n junction diode is an Esaki diode".

IV. Following further written correspondence and oral proceedings, the Examining Division refused the application on the ground that it had been amended in such a way that it contained subject-matter which extended beyond the content of the divisional application as filed, contrary to Article 123(2) EPC. The reason for the refusal was essentially that the amended claim defined **a pull-up element** in which its p-n junction diode is **an Esaki diode**, and such a combination of features was not described in the divisional application as filed (or in the parent application as filed).

Before the Examining Division, the applicant contended that there was a basis for the amended claim in the parent application as filed, in particular in method claims 8 and 10, which were intended to cover all embodiments of the invention. Reliance was also placed upon the passage at page 14, lines 4 to 9, of the parent application as filed (see paragraph II above). This passage had been omitted from the divisional application as filed.

However, the Examining Division held that it was not possible to transfer matter from the parent application to the divisional application after filing, and that method claims 8 and 10 do not disclose the subject-matter of the amended claim because they do not refer to the first region as the drain and to the second region as a gate of an MOS transistor. Furthermore, it was held that Example 2 of the parent application (including an Esaki diode) is an advantageous modification only of the CMOS RAM cell described in Example 1, and that the addition of an Esaki diode could not be regarded as an essential element of the other embodiments of the invention described in Examples 3 to 5. Thus, even if it were possible to base the amendment

upon the content of the parent application as filed, there was no disclosure of the claimed combination in the parent application as filed.

V. The applicant filed an appeal against the decision of the Examining Division. In the statement of grounds of appeal it was contended that there was no basis in the EPC for comparing the present divisional application with the divisional application as originally filed (under Article 123(2) EPC). Article 123(2) EPC is only applicable for comparing the present divisional application with the earlier application (ie the parent application) as originally filed.

In the case of a divisional application, Article 123(2) EPC does not indicate whether the designation "application as filed" relates to said divisional application as filed or to its earlier parent application as filed. Nevertheless, Article 76(1) EPC explicitly states that a divisional application may be filed only in respect of subject-matter which does not extend beyond the content of the earlier application as filed. This special provision according to Article 76(1) EPC overrides the general provision according to Article 123(2) EPC, as far as divisional applications are concerned.

Furthermore, the particular combination of features of the amended claim is disclosed in the parent application as filed - see from page 12, line 34, to the first line of page 13 and Claims 1, 2 and 5. Besides, from the original method Claims 8 and 10, it can unambiguously be inferred that, for all embodiments described, the p-n junction diode may be a usual diode or an Esaki diode. This is also clear from page 13, lines 9 to 19, stating that, as compared to Example 1, the impurity concentrations are set higher in Example 2, providing the effect that the p-n junction diode serves as an Esaki diode. Furthermore, lines 4 to 9 of page 14 clearly state that the present invention can be extended to various types of semiconductor devices, of which some examples are subsequently described.

VI. In a communication which accompanied a summons to oral proceedings, the Board indicated inter alia its preliminary view that the subject-matter of the amended claim did not seem to be disclosed in the parent application as filed. In response, the applicant filed two sets of claims respectively forming a main request and an auxiliary request.

Claim 1 according to the main request reads:

"A semiconductor pull-up element (201, 202, 203, 204) comprising

(a) a first semiconductor region of a first conductivity type (p), which first semiconductor region is the drain (201) of a MOS transistor; and

(b) a second semiconductor region of a second conductivity type (n), which second semiconductor region is the gate (201) of said MOS transistor;

characterized in that

(c) an interconnection layer (203) containing an impurity of said second conductivity type (n) connects said drain (201) and said gate (202);

(d) a third semiconductor region of said second conductivity type (n^+) is provided in said first semiconductor region upon diffusion of said impurity of said second conductivity type (n) from said interconnection layer (203) to said first semiconductor region having the same crystalline material as said third semiconductor region; and

(e) said first and third semiconductor regions are adapted to form a first p-n junction diode (204) between said drain (201) and said gate (202)."

Claim 2 of the main request states that the diode (204) is an Esaki diode.

Claim 1 of the auxiliary request differs from claim 1 of the main request in that after feature (e), it includes an additional feature (f) reading "said diode (204) is an Esaki diode".

VII. During the oral proceedings, the Board indicated its preliminary view that in a case such as the present, an amended divisional application has to comply with the requirements of both Articles 76(1) and 123(2) EPC. Following a suggestion from the Board, the applicant requested that the decision under appeal be set aside and the case be remitted to the first instance on the basis of the main or auxiliary request.

After deliberation by the Board, the decision was announced that the decision of the Examining Division is set aside, that claims 1 to 3 of the main request do not contravene the requirements of Article 76(1) or 123(2) EPC, and that the case is remitted to the first instance for further examination as to whether the application based upon the main request meets the requirements of the EPC.

Reasons for the Decision

1. Applicability of Articles 76(1) and 123(2) EPC

As indicated in paragraph II above, the present (divisional) application as filed contained a description with some changes from that of the parent application as filed, and a claim whose subject-matter differed from that claimed in the claims of the present application as filed. After the present application was filed, amended claims have been filed.

As indicated in paragraph V above, the applicant has contended that the provisions which govern amendments to a divisional application are set out only in Article 76(1) EPC, according to which the subject-matter of a divisional application may not extend beyond the content of the **earlier** (ie parent) application as filed.

In Decision T 441/92 dated 10 March 1995 (not published in the Official Journal), the Board of Appeal considered the legal requirements which are applicable to a divisional application, and stated that "once the conditions of Article 76(1) have been met, the divisional application is to be examined as an application quite separate from the parent application and must itself comply independently with all the various requirements of the EPC. On this point, the Board agrees with the practice, supported by the case law of the Boards of Appeal (see T 1055/92 (OJ EPO 1995, 214), point 7 of the Reasons for the Decision and T 284/85 of 24 November 1989 (unpublished), points 2 and 3 of the Reasons for the Decision), according to which each divisional application must comply not only with the requirements of Article 76(1) EPC but also with those of Article 123(2) EPC".

In the present Board's view also, the provisions of Article 76(1) EPC govern the **filing** of a divisional application, ie whether or not an application filed as a divisional application is entitled to the filing date of the parent application and has the same benefit of right to priority as the parent application. In so far as **amendments** in the divisional application subsequent to its filing are concerned, the amended application has to comply with the requirement of Article 123(2) EPC. In a case such as the present, therefore, a divisional application has to comply with the requirements of both Article 76(1) EPC and Article 123(2) EPC. Consequently, in the following discussion, the requirements of both these Articles are considered.

2. Principles to be applied under Articles 76(1) and 123(2) EPC

2.1 In order to comply with Articles 76(1) and 123(2) EPC, the present divisional application must not contain subject-matter which extends beyond the content of the parent application as filed, or the divisional application as filed, respectively. In each case it is the total information content of the original application as filed that matters (see for example Decision T 514/88 (OJ EPO 1992, 570)). Such total information content must be compared with the content of the divisional application as now proposed to be amended, in order to determine whether the subject-matter of the divisional application has been extended, ie whether the divisional application as amended contains additional subject-matter.

2.2 In the Decision of the Examining Division, when considering whether Articles 76(1) and 123(2) EPC have been complied with, it seems that the content of the parent application as filed, and of the divisional application as filed, had been determined essentially on a literal basis. Although not explicitly stated, it appears that a "novelty test" has been applied when comparing such content with the divisional application as amended. In the Board's view, such a literal comparison of the respective disclosures and such application of a "novelty test" is not appropriate in a case such as the present, for the reasons set out below.

In Decision G 1/93 (OJ EPO 1994, 541), the Enlarged Board of Appeal drew attention to the main purpose of Article 123(2)(and (3))EPC, namely "to create a fair balance between the interests of applicants and the patentees, on the one hand, and competitors and other third parties on the other" ... (Reasons, paragraph 8). Furthermore, the Enlarged Board stated that "With regard to Article 123(2) EPC, the underlying idea is clearly that an applicant shall not be allowed to improve his position by adding subject-matter not disclosed in the application as filed, which would give him an unwarranted advantage and could be damaging to the legal

security of third parties relying on the content of the original application" (Reasons, paragraph 9).

Following further discussion as to the effect of Article 123(2) EPC in relation to a limiting feature which is added to the claims before grant (Reasons, paragraphs 10 to 14), in paragraph 15 the Enlarged Board stated that "It remains, however, to be considered whether a limiting feature necessarily has always to be regarded as such subject-matter" (ie as "subject-matter which extends beyond the content of the application as filed"). Then in paragraph 16 the Enlarged Board stated that "Whether or not the adding of an **undisclosed** feature limiting the scope of protection conferred by the patent as granted would be contrary to the purpose of Article 123(2) EPC to prevent an applicant from getting an unwarranted advantage by obtaining patent protection for something he had not properly discussed and maybe not even invented on the date of filing of the application, depends on the circumstances ..." (emphasis added). In the remainder of paragraph 16, particular circumstances are set out by way of illustration, in which the adding of an undisclosed limiting feature to a claim may or may not constitute "subject-matter which extends beyond the content of the application as filed".

In other words, the Enlarged Board has made it very clear that the addition to a claim before grant of an **undisclosed** limiting feature may or may not violate Article 123(2) EPC, depending upon the circumstances. It follows that the use of a "novelty test" will not always be appropriate in order to determine whether or not an amended application "contains subject-matter which extends beyond the content of the application as filed". In particular, application of a "novelty test" will not be appropriate in cases where a proposal for amendment involves the addition of a limiting feature to a claim of an application (as in the present case).

In this connection, pursuant to Article 15(2) RPBA, the Board draws attention to the fact that it seems doubtful that paragraph C-VI, 5.4 of the Guidelines, which states that "At least where the amendment is by way of addition, the text (under Article 123(2) EPC) corresponds to the test for novelty", is in conformity with what is stated in paragraph 16 of Decision G 1/93.

The principles which are discussed in Decision G 1/93 are clearly applicable not only in the context of Article 123(2) EPC, but also in the context of Article 76(1) EPC.

3. Application of the above principles in the present case

In the present case, the main issue arises in relation to claim 2 of the Main Request (as well as in relation to claim 1 of the Auxiliary Request), as to whether the amended claimed combination of features, in particular the claimed combination of a "semiconductor pull-up element" including "a first p-n junction diode (204) between said drain (201) and said gate (202)" which is "an Esaki diode", is allowable. As indicated in paragraph IV above, the Examining Division in its Decision held that such a combination of features was not described either in the parent application or in the divisional application as filed, so that the amendment violated Articles 76(1) and 123(2) EPC.

The effect of the amendment to the claims of the divisional application which is set out in the main request is to state specifically that the above-identified claimed combination of features is subject-matter for which protection is sought (Article 84 EPC): in other words, that such subject-matter constitutes an embodiment of the invention, and that protection is sought for it. The question to be decided is, therefore, whether this effect of the amendment is such as to "extend beyond the

content of" either the parent application (Article 76(1) EPC) or the divisional application as filed (Article 123(2) EPC).

3.1 The first question to be considered is what is the relevant content of the parent application. This is summarised in paragraph II above. In particular, claim 1 defines "a semiconductor device" which includes "a p-n junction diode", and claim 2 specifies that the p-n junction diode is "an Esaki diode". The term "semiconductor device" includes within its scope a semiconductor pull-up element, so that claim 2 covers, and seeks protection for, a semiconductor pull-up element including the features of claim 1 and in which the p-n junction diode is an Esaki diode. Furthermore, in the Board's view such subject-matter is "supported by the description" within the meaning of Article 84 EPC, even though the use of an Esaki diode is specifically described in the parent application only in Example 2 which relates to a RAM cell, because the text of the description and accompanying drawings would make it plain to a skilled person that an Esaki diode could advantageously be used in a pull-up element. In particular, Figure 12 of the parent application shows the low voltage characteristics of an Esaki diode per se, and a skilled person would know from such characteristics that the use of an Esaki diode in a pull-up element such as described in Example 3 would also produce beneficial low-voltage characteristics. Thus, even though the parent application does not specifically disclose the use of an Esaki diode in a pull-up element, the description of the parent application is sufficient to support claims 1 and 2 of the parent application, whose subject-matter comprises the use of an Esaki diode in a pull-up element.

Amended claim 2 of the divisional application (the main request) specifically defines (and therefore discloses) the use of an Esaki diode in a pull-up element, and therefore seeks protection for such a combination. However, for the reasons set out above, claim 2 of the parent application also seeks protection for such a

combination. Thus in the Board's judgment the applicant would obtain no "unwarranted advantage" which would "damage the legal security of third parties relying on the content of" the parent application (see Decision G 1/93 above) by amending the divisional application in accordance with the main request, and the amendment does not "extend beyond the content of" the parent application (Article 76(1) EPC). A skilled reader would learn nothing more about the invention from the amended divisional application which he would not learn from the parent application.

3.2 Article 123(2) EPC

Here the first question to be considered is what is the relevant content of the divisional application as filed. As indicated in paragraph II above, the text of the divisional application as filed contains some changes compared to the parent application. In particular, the paragraph at page 14, lines 4 to 9, of the parent application (quoted in paragraph II above) was omitted from the divisional application. Furthermore, the single claim of the divisional application as filed defined a semi-conductor device in the form of a pull-up element, but the p-n junction diode of the pull-up element was not defined as an Esaki diode. Nevertheless, according to the language of this claim, it would include within its scope a pull-up element in which the p-n junction diode is an Esaki diode. Provided that such a scope of claim is supported by the description (Article 84 EPC), the claim can fairly be regarded as seeking protection inter alia for a pull-up element including an Esaki diode.

For the reasons set out in paragraph 3.1 above in relation to the parent application, in the Board's view the subject-matter of the claim is properly supported by the description, because the text of the description and accompanying drawings would

make it plain to a skilled person that an Esaki diode could advantageously be used in a pull-up element.

Consequently, for the reasons set out in paragraph 3.1 above mutatis mutandis, the amended claim 2 of the divisional application does not extend beyond the content of the divisional application as filed (Article 123(2) EPC).

4. The Examining Division in its decision did not rely upon any other reasons for refusing the proposed amendments which were before them, under either Article 123(2) EPC or Article 76(1) EPC. The Board has carefully considered the subject-matter of the proposed amended claims 1 and 3 of the divisional application which is the main request, and in its judgment, the amendments proposed in the main request do not violate either Article 76(1) or Article 123(2) EPC, and are accordingly allowable. Hence, the main request is allowable, and there is no need to consider the auxiliary request.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. Claims 1 to 3 which make up the main request do not contravene the requirements of Articles 76(1) and 123(2) EPC.

3. The case is remitted to the first instance for further examination as to whether the application meets the requirements of the EPC.