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**Datasheet for the decision
of 22 October 2024**

Case Number: T 0773/21 - 3.4.03

Application Number: 11177061.6

Publication Number: 2500939

IPC: H01L23/492, H01L23/495,
H01L23/31, H01L23/433

Language of the proceedings: EN

Title of invention:

Power semiconductor module attachment structure

Patent Proprietor:

Mitsubishi Electric Corporation

Opponent:

Valeo Systèmes de Contrôle Moteur

Relevant legal provisions:

EPC Art. 52(1), 54(1), 54(2), 56, 83, 84, 100(b), 123(2)
RPBA 2020 Art. 12(2), 12(3), 12(4), 12(5), 12(6), 13(1), 13(2)

Keyword:

Statement of grounds of appeal - insufficient substantiation of request (main request)

Amendments - allowable (no) (first and third auxiliary request) - allowable (yes) (third auxiliary request - variant A)

Novelty - (no) disclosure in figure (second auxiliary request)

Claims clarity (no) (third auxiliary request - variant A) - clarity after amendment (yes) (third auxiliary request - variant B)

Sufficiency of disclosure - (no) (third auxiliary request - variant B)

Amendment to appeal case - amendment detrimental to procedural economy (yes) (third auxiliary request - variant B') - amendment overcomes issues raised (yes) (third auxiliary request - variant B'')

Inventive step - (yes) - non-obvious combination of features (third auxiliary request - variant B'')

Decisions cited:

T 1227/14, T 0858/17, T 2204/18



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Case Number: T 0773/21 - 3.4.03

D E C I S I O N
of Technical Board of Appeal 3.4.03
of 22 October 2024

Appellant 1:
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Representative:

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Decision under appeal:

**Interlocutory decision of the Opposition
Division of the European Patent Office posted on
19 April 2021 concerning maintenance of the
European Patent No. 2500939 in amended form.**

Composition of the Board:

Chairman T. Häusser
Members: J. Thomas
 G. Decker

Summary of Facts and Submissions

- I. The appeals of the appellant 1 (patent proprietor) and the appellant 2 (opponent) are against the interlocutory decision of the opposition division that patent EP 2 500 939 B1 and the invention to which it relates meet the requirements of the EPC taking into account the amendments according to the third auxiliary request - variant B amended (in the following referred to as third auxiliary request - variant B).
- II. The opposition had been filed against the patent in its entirety based on Article 100(a) and (b) EPC.
- III. At the end of the oral proceedings held before the board, the requests of the appellants were as follows:

The appellant 1 (patent proprietor) requested as a main request that the decision under appeal be set aside and that the patent be maintained as granted, i.e. that the opposition be rejected. Alternatively, it requested that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of the claims according to the following requests:

- first to third auxiliary requests filed on 18 February 2020,
- third auxiliary request - variant A filed on 4 January 2021,
- third auxiliary request - variant B filed during the oral proceedings before the opposition division,
- third auxiliary request - variant B' filed during the oral proceedings before the board on 22 October 2024,

- third auxiliary request - variant B'' filed during the oral proceedings before the board on 22 October 2024,
- third auxiliary request - variant C filed on 20 November 2023 and corrected on 18 October 2024,
- fourth auxiliary request filed on 21 July 2020,
- fourth auxiliary request - variant A filed on 4 January 2021.

Regarding the third auxiliary request - variant B'', the patent proprietor requested that the patent be maintained in the following version:

Claims: 1 to 7 according to the third auxiliary request - variant B'' filed at the oral proceedings before the board on 22 October 2024,

Description: pages 2 to 7 filed at the oral proceedings before the opposition division on 9 March 2021,

Drawings: 1/5 to 5/5 of the patent specification.

The appellant 2 (opponent) requested that the decision under appeal be set aside and that the patent be revoked.

IV. The following documents are referred to in this decision:

D6: US 5 216 283 A

D18: DE 197 00 056 A1

D22: EP 2 674 973 A1

Document D22 is state of the art under Article 54(3) EPC.

V. Claim 1 of the patent as granted has the following wording (feature numbering added by the board):

" (M1.1) An attachment structure of a power semiconductor module, the power semiconductor module comprising:

(M1.2) a first metal substrate (2a) on which a power semiconductor device (1) is mounted;

(M1.3) a second metal substrate (2b) on which a power semiconductor device is not mounted; and

(M1.4) an electrically insulating resin package (3) which seals said first metal substrate (2a) and said second metal substrate (2b),

(M1.5) wherein the back surface of said first metal substrate (2a) on the side opposite to the mounting surface of said power semiconductor device (1) is made to expose outside said resin package (3) to form a heat dissipation surface,

(M1.6) wherein in the attachment structure, the heat dissipation surface of the power semiconductor module (1) is attached to a base surface formed on a heat sink (HS) via an electrically insulating bonding member (9),

(M1.7) wherein the first and second metal substrates (2a, 2b) are horizontally arranged in the same planar state in said resin package (3)

characterized in that

(M1.8) a concave portion is formed in said resin package (3) at a place where said first metal substrate (2a) is embedded,

(M1.9) whereby the back surface on the opposite side of said first metal substrate (2a) is made to expose outside said resin package (3) to form the heat dissipation surface."

VI. Claim 1 of the first auxiliary request is amended compared to claim 1 of the patent as granted by adding the following underlined wording in features (M1.5) and

(M1.9) and by adding the following additional feature (M1.11):

" (M1.5) wherein the back surface of said first metal substrate (2a) on the side opposite to the mounting surface of said power semiconductor device (1) is made to expose outside said resin package (3) to form a heat dissipation surface (6) of said first metal substrate (2a),"

" (M1.9) whereby the back surface on the opposite side of said first metal substrate (2a) is made to expose outside said resin package (3) to form the heat dissipation surface (6) of said first metal substrate (2a),"

" (M1.11) a gap (S) being provided between said heat sink (HS) and a heat dissipation surface (7) of said resin package (3)"

VII. Claim 1 of the second auxiliary request is amended compared to claim 1 of the first auxiliary request by replacing feature (M1.11) with the following feature (M1.10):

" (M1.10) wherein a width D of said heat dissipation surface (6) being set to be larger than a width d of said base (8) of said heat sink (HS) to which said power semiconductor module (100, 200, 300) is assembled"

VIII. Claim 1 of the third auxiliary request is the combination of respective claim 1 of the first and second auxiliary requests, i.e. claim 1 of the first auxiliary request with the additional feature (M1.10).

- IX. Claim 1 of the third auxiliary request - variant A is based on claim 1 of the third auxiliary request with the following wording added in feature M1.11:

"(M1.11) a gap (S) being provided between said heat sink (HS) and a heat dissipation surface (7) of the lower surface of said resin package (3)"

- X. Claim 1 of the third auxiliary request - variant B is based on claim 1 of the third auxiliary request - variant A with the following feature (M1.12) added:

"(M1.12) the lower surface of the resin package (3) being a surface of the resin package opposite to the heat sink (HS)"

Claim 4 of the third auxiliary request - variant B has the following wording:

"The attachment structure of the power semiconductor module according to Claim 1 or 3, wherein the heat dissipation surface of said resin package (3) of said power semiconductor module (1) or the attachment surface of said heat sink (HS) to which said power semiconductor module is mounted is provided with protrusions that control the thickness of said electrically insulating bonding member (9)."

- XI. The third auxiliary request - variant B' is based on the third auxiliary request - variant B wherein the dependent claim 4 is amended as follows (struck-out features are deleted):

"The attachment structure of the power semiconductor module according to Claim 1 or 3,

wherein the heat dissipation surface of said resin package (3) of said power semiconductor module (1) or the attachment surface of said heat sink (HS) to which said power semiconductor module is mounted is provided with protrusions that control the thickness of said electrically insulating bonding member (9)."

- XII. The third auxiliary request - variant B'' is based on the third auxiliary request - variant B with dependent claim 4 deleted and the following claims renumbered accordingly whereby references to previous claims are also adapted accordingly.
- XIII. The patent proprietor's arguments are summarised as follows:
The patent as granted, i.e. the main request, disclosed the invention in a manner sufficiently clear and complete for it to be carried out by the skilled person.
Claim 1 of the first and third auxiliary request did not contain an intermediate generalisation and consequently fulfilled the requirements of Article 123(2) EPC.
Claim 1 of the second auxiliary request was new over document D6, since the relationship between the two lengths D and d could not be deduced from a schematic figure of document D6.
Claim 1 of the third auxiliary request - variant A was clear since the lower surface of the resin package was clearly defined and could not be understood differently in the claim wording.
Claim 1 of the third auxiliary request - variant B should be admitted into the proceedings since it formed part of the impugned decision.
Claim 1 of the third auxiliary request - variant B also fulfilled the requirements of Article 123(2) EPC since

Figure 3 of the patent clearly disclosed the subject-matter of the amended wording of claim 1.

The opponent's objection of lack of novelty in view of document D22 against claim 1 of the third auxiliary request - variant B was raised for the first time in the statement setting out the grounds of appeal. This objection should therefore not be admitted into the proceedings.

The invention according to claim 4 of the third auxiliary request - variant B was sufficiently disclosed in the patent to be carried out by a skilled person.

The third auxiliary request - variant B' should be admitted into the proceedings since the amendment was motivated by a new interpretation of features by the board.

The third auxiliary request - variant B'' should be admitted into the proceedings since the amendment by deletion of the previous claim 4 was still motivated by the board's new interpretation of features and overcame all objections raised against claim 4 of the third auxiliary request - variants B and B'. The deletion of previous claim 4 did also not give rise to new objections.

The subject-matter defined in claim 1 of the third auxiliary request - variant B'' should be considered inventive over the combination of documents D6 and D18.

- XIV. The opponent's arguments are summarised as follows:
The patent proprietor did not sufficiently substantiate its appeal case with regard to the objections against the main request as detailed in the impugned decision. Therefore, its submissions with regard to the main request should be considered unsubstantiated and therefore the main request should not be admitted into the proceedings.

Claim 1 of the first and third auxiliary request contained an intermediate generalisation and did consequently not fulfil the requirements of Article 123(2) EPC.

Claim 1 of the second auxiliary request was not new over document D6, since the relationship between the two lengths D and d was undoubtedly shown in Figures 1-b and 2-b of document D6.

Claim 1 of the third auxiliary request - variant A was unclear since it remained unclear which surface of the resin package should be considered the lower surface. Claim 1 of the third auxiliary request - variant B should not be admitted into the proceedings since the opposition division applied the wrong principles when exercising its discretion in admitting this request into the proceedings.

Moreover, claim 1 of the third auxiliary request - variant B still presented an unallowable intermediate generalisation since features of Figure 3 were singled out from its specific context.

The objection of lack of novelty in view of document D22 was never given up and should therefore be considered in the proceedings.

The invention according to claim 4 of the third auxiliary request - variant B was not sufficiently disclosed in the patent to be carried out by a skilled person.

The third auxiliary request - variant B' should not be admitted into the proceedings since the objection to which the amendment responds had already been raised during the first-instance proceedings so that this request could and should have been filed earlier.

The third auxiliary request - variant B'' should not be admitted into the proceedings for the same reasons as the third auxiliary request - variant B'.

The subject-matter defined in claim 1 of the third auxiliary request - variant B'' did not involve an inventive step since the combination of documents D6 and D18 rendered the subject-matter of claim 1 obvious.

Reasons for the Decision

1. Main request - admission into the proceedings
- 1.1 The dispute concerns the question if the patent proprietor's appeal against the opposition division's decision relating to claim 5 of the patent as granted is sufficiently substantiated in order for the main request to be admitted into the appeal proceedings (Article 12(3) and (5) RPBA).
- 1.2 According to Article 12(3) RPBA the "*statement of grounds of appeal ... shall contain a party's complete appeal case. Accordingly, [the party] shall set out clearly and concisely the reasons why it is requested that the decision under appeal be reversed ... and should specify expressly all the ... facts, ... arguments and evidence relied on*". Article 12(5) RPBA further states that the board has discretion in not admitting "*any part of a submission by a party which does not meet the requirements*" in Article 12(3) RPBA.
- 1.3 The opposition division decided that the subject-matter defined in claim 5 did not fulfil the requirement of sufficiency of disclosure (Article 100(b) EPC). It argued that the hole which had to be formed in the first metal substrate functioning as the heat dissipation surface could not reach the second metal substrate since both substrates were to be horizontally arranged in the same planar state.

- 1.4 In its statement setting out the grounds of appeal the patent proprietor stated that "*the skilled person would be capable, given his or her common general knowledge, of implementing the features of claim 5*". No further explanation was provided as to how the skilled person could implement the hole with regard to the first and second metal substrates as defined in claim 5.
- 1.5 In the board's view, the patent proprietor's general statement as recited under point 1.4 above is not sufficient to explain why the skilled person would be able to provide the hole starting at the surface of the first metal layer representing the heat dissipation surface and reaching the second metal layer. Both layers are explicitly defined as being horizontally arranged, i.e. in the same planar state, and the skilled person unambiguously understands that the horizontal direction must be perpendicular to the principal direction of the hole. In the communication under Article 15(1) RPBA, the board objected to this missing substantiation as regards the objection of insufficient disclosure. In response thereto, no further explanation or reasoning were provided by the patent proprietor. In particular, in the patent proprietor's reply dated 20 November 2023 it only reiterated that it "*rel[ied] on [its] written submissions*" without any further reasoning. Also during the oral proceedings before the board the patent proprietor only relied on its written submissions.
- 1.6 The board concludes that the patent proprietor's statement setting out the grounds of appeal is not sufficiently reasoned with regard to the objection of insufficient disclosure of claim 5 of the patent as

granted contrary to the requirements of Article 12(3) RPBA.

1.7 Due to the lack of substantiation, the main request, i.e. the request to uphold the patent as granted, is not admitted into the proceedings under Article 12(3) and (5) RPBA.

2. First auxiliary request - amendments

2.1 Claim 1 of the first auxiliary request was amended compared to claim 1 of the patent as granted *inter alia* by adding feature (M1.11) (see point VI. above).

The patent proprietor indicated paragraph [0024] of the description as filed in combination with Figure 3 as the basis for feature (M1.11).

2.2 Paragraph [0024] is the only paragraph of the originally filed description which mentions the "gap S". In the drawings as originally filed, the "gap S" is referred to with a reference sign "S" in Figures 3 and 6. Figure 6, however, relates to an example not covered by the wording of claim 1, as it does not comprise feature (M1.7), so Figure 3 represents the only basis for the "gap S" in the drawings.

2.3 According to paragraph [0024] of the description as originally filed, the "gap S is provided between the heat sink HS and the heat dissipation surface 7 of the lower surface of the resin package 3 to prevent interference" (board's emphasis). The original disclosure in paragraph [0024] including "the lower surface" is coherent with the relevant surface shown in Figure 3. In claim 1, however, the heat dissipation

surface which relates to the "gap S" is merely defined as "a heat dissipation surface" (see feature (M1.11), board's emphasis) thereby leaving it open which surface exactly is meant. The omission of the expression "*the lower surface of*" allows to relate the heat dissipation surface to surfaces of the resin package other than "*the lower surface*". Therefore, configurations of the "gap S" with regard to other surfaces than the lower surface are now covered by the wording of claim 1.

- 2.4 Contrary to the patent proprietor's submissions, the omission of "*the lower surface of*" does not concern an intermediate generalisation. An intermediate generalisation concerns a feature which is singled out from a combination of features. In the present situation it is the feature itself which is generalised thereby generalising specific characteristics related to this feature as originally disclosed. The wording "*the lower surface of*" cannot be seen as a feature separate from the feature concerning the "gap S", but as a part of the definition of the "gap S", precisely positioning the "gap S" within the device. The omission of "*the lower surface of*" puts now the "gap S" in relation to an arbitrary heat dissipation surface, i.e. a heat dissipation surface which is not necessarily the lower surface of the resin package. This has not been originally disclosed, and the omission does not concern an intermediate generalisation but relates to an inadmissible generalisation of the feature "gap S".

Therefore, the patent proprietor's line of argument that the feature "gap S" was singled out and had no structural or functional relationship with the omitted feature of the specific combination cannot convince the board. The "gap S" and the "*lower surface of the resin package*" do not represent two separate features in a

feature combination but must be considered parts of a single feature defining the "gap S" by its spatial arrangement in the device.

- 2.5 The opposition division reasoned in a similar manner, in particular its reasoning was not based on an unallowable intermediate generalisation (see Reasons for the decision, point 3.4, first paragraph).
- 2.6 In view of the above considerations the board is of the opinion that claim 1 of the first auxiliary request contains added subject-matter. The opponent's objection of an alleged intermediate generalisation (namely that feature (M1.11) was only disclosed in combination with feature (M1.10) whose omission was not allowable) can therefore be left unanswered.
- 2.7 Hence, the board concludes that claim 1 of the first auxiliary request is not allowable since its subject-matter extends beyond the content of the application as filed (Article 123(2) EPC).
3. Second auxiliary request - novelty in view of document D6
 - 3.1 The opposition division concluded that the subject-matter of claim 1 of the second auxiliary request was not new over the teaching of document D6, in particular when considering the embodiment relating to Figures 1-b and 2-b (point 8. of the Reasons).
 - 3.2 Both parties agree that all features defined in claim 1 apart from feature (M1.10) are disclosed in document D6.

- 3.3 The dispute concerns feature (M1.10) (see point VII. above), and in particular the question whether the indication of the "*width D of said heat dissipation surface (6) being set to be larger than a width d of said base (8) of said heat sink (HS)*" can be derived from document D6, Figure 2-b.
- 3.4 Figure 2-b of document D6 discloses a heat sink (reference signs 14, 16) which is inserted in a concave portion of a resin package (reference sign 12) wherein a back surface of a metal substrate (reference sign 20) is exposed outside the resin package in order to form a heat dissipation surface. The disclosure of this configuration is not disputed.
- 3.5 Figure 2-b in combination with Figure 1-b and the description disclose the heat sink inserted into the concave portion and fixed therein using a boron-nitride filled epoxy layer (D6, reference sign 36; column 5, lines 18 to 24). According to Figure 2-b, the epoxy bonding layer is provided along the surface between the heat sink on the one side and the resin package and the metal substrate constituting the concave portion on the other side with an apparently approximately homogeneous thickness. Although a homogeneous thickness of the epoxy bonding layer is not explicitly mentioned in the description, the skilled person has no reason to suspect that the thickness of the bonding layer would be any different at the bottom of the concave portion from its thickness at the side walls of the concave portion or that the thickness would vary across any of these surfaces. This is corroborated by the schematic indication of the bonding layer in Figure 2-b.

Since the epoxy bonding layer has an approximately homogenous thickness, the width of the exposed metal

substrate must necessarily be larger than the corresponding width of the heat sink, which is fitting in the concave portion. Otherwise the heat sink would not snugly fit into the concave portion.

Although, as brought forward by the patent proprietor, Figure 2-b might not be to scale and is only a schematic figure, the skilled person understands directly and unambiguously that for the realisation of the indicated configuration the width of the exposed metal substrate must be larger than the corresponding width of the heat sink in view of the approximately homogeneous thickness of the bonding layer.

The patent proprietor further argued that it is only permissible to derive a teaching concerning length or thickness relationships from figures if the technical reasons related to these relationships are discussed and detailed in the relevant document.

However, in the present case it is directly and unambiguously disclosed in Figures 1-b and 2-b as well as the description (D6, column 4, lines 12 to 16) that the heat sink should fit snugly into the concave portion where the heat dissipation surface of the metal substrate is exposed. This tight fitting, unambiguously shown in Figure 2-b, implies the width relationship as defined in claim 1 independently of the gradient of the side slopes, the exact thicknesses of the resin package and the heat sink and of the exact thickness of the epoxy bonding layer, as long as this bonding layer has a more or less homogeneous thickness along the entire surface where it is applied. Increasing the thickness of this epoxy bonding layer (of approximately homogeneous thickness) would even imply a more pronounced ratio of the two widths D and d . Therefore,

although Figure 2-b is a schematic representation, it is nevertheless directly and unambiguously derivable for the skilled person that the width of the heat dissipation surface of the metal substrate must be larger than the width of the heat sink.

Furthermore, it is also considered standard practice that a bonding layer as used in the present context is applied as a thin layer of approximately constant thickness. Document D6 is silent on the issue of how the epoxy bonding layer is to be applied. Therefore, the only reasonable understanding that a person skilled in the art can draw from the teaching of document D6 is that the epoxy bonding layer is applied relatively thinly and with approximately constant thickness over the entire surface to be attached.

Only in the patent proprietor's construction of a very artificial situation of an epoxy bonding layer applied with a larger thickness at the horizontal part of the concave portion compared to a much smaller thickness along the side surfaces of the resin package, might the width ratio as defined in claim 1 not be fulfilled. This however appears to be artificially contrived and would not be considered by the skilled person when attempting to understand the teaching of Figures 1-b and 2-b.

In all other situations indicated by the patent proprietor, such as varying slopes of the side walls of the concave portion or a relatively increased thickness of the epoxy bonding layer or of the resin package, the configuration as defined in claim 1 would always be necessarily fulfilled. Therefore, a reasonable understanding of Figures 1-b and 2-b implies that

feature (M1.10) is directly and unambiguously derivable from the disclosure of document D6.

3.6 The board therefore concludes that feature (M1.10) is disclosed in document D6. Therefore, document D6 anticipates the subject-matter of claim 1 (Articles 52(1) and 54(1) and (2) EPC).

4. Third auxiliary request - amendments

4.1 Claim 1 of the third auxiliary request includes feature (M1.11) which in relation to claim 1 of the first auxiliary request was already found unallowable under Article 123(2) EPC (see point 2. with sub-points above).

4.2 Therefore, the same reasoning as for the first auxiliary request also applies to this request.

4.3 Consequently, claim 1 of the third auxiliary request is not allowable since its subject-matter extends beyond the content of the application as filed (Article 123(2) EPC).

5. Third auxiliary request - variant A - clarity

5.1 The dispute concerns the clarity of feature (M1.11).

5.2 According to the impugned decision claim 1 lacked clarity. Claim 1 only referred to "*the lower surface of the resin package*" without precisely defining which surface was meant.

5.3 The patent proprietor argues that claim 1 clearly defines a direction by the attachment direction of the power semiconductor device "*mounted on a first metal*

substrate". Due to this mounting direction the "*lower surface*" is, in its view, well defined and can only be the surface which in Figure 3 is shown as the lower surface of the resin package.

- 5.4 The board is not convinced by the patent proprietor's reasoning because the power semiconductor device can be turned and mounted in different directions, from top to bottom, in the opposite direction, or even sideways. Therefore, the mounting direction can be any direction in space and does not allow a clear conclusion about the spatial orientation of the device as such, including the definition of "*the lower surface of the resin package*". Therefore, claim 1 of the third auxiliary request - variant A lacks clarity as there is doubt as to exactly which surface is meant by "*the lower surface of the resin package*" (Article 84 EPC).
6. Third auxiliary request - variant B - admission of the request
- 6.1 This request was submitted for the first time during the oral proceedings before the opposition division. It was considered late filed, but admitted by the opposition division into the proceedings *inter alia* because it was a "*serious attempt to overcome the objections on Article 84 EPC raised and does not give rise to new objections*" (see Reasons for the decision, point 11.3). Hence, the impugned decision is *inter alia* based on this request.
- 6.2 The opponent requests that the request not be considered in the appeal proceedings since the opposition division did not apply the right principles for deciding upon the admission of this late filed request, thereby exercising its discretion in an

unreasonable way. The conditions set out in the EPC Guidelines, section E-VI, 2.2. and H-II, 2.7.1 (version of March 2021, which were in force at the date of the oral proceedings) were not correctly applied by the opposition division. The amendment of the late filed request did not concern subject-matter which was previously defined in a dependent claim. In addition, the *prima facie* allowability under Articles 84 and 123(2) EPC was not examined when deciding upon its admission into the proceedings. According to the minutes of the oral proceedings before the opposition division, they were interrupted for only four minutes (from 14:48 to 14:52, see point 7) in order to deliberate on the admission of this request into the proceedings. In the opponent's view, four minutes were far too short in order to correctly consider the admittance of this request on the basis of its *prima facie* relevance. The opposition division's decision of admission of this request was consequently not based on the correct principles, but was arbitrary.

6.3 In the patent proprietor's view, four minutes were sufficient for deciding if a request was *prima facie* relevant. The assessment of the *prima facie* relevance of a request did not require a final decision on the merits of this request and the relevant questions in relation to the previously raised clarity objection had already been addressed and discussed for the higher-ranking requests. As a result, the decision on the *prima facie* relevance and the admission of this request could be properly handled in only four minutes.

6.4 The board notes that according to Article 114(2) EPC only late filed facts or evidence may be disregarded. Once a request has been considered in the proceedings due to a discretionary decision of the opposition

division, it is part of the proceedings, and this all the more since the appealed decision is based on it (see e.g. T 2204/18, Reasons for the decision, point 1.1; T 858/17, Reasons for the decision, point 2.2; T 1227/14, Reasons for the decision, point 1.1.3).

6.4.1 According to Article 12(2) RPBA, a party's appeal case should be "*directed to the requests, facts, objections, arguments and evidence on which the decision under appeal was based*". Only parts of the appeal which do not meet these requirements can be admitted on the board's discretion (see Article 12(4) RPBA) if they have not been admitted previously. Therefore, the board cannot see on which legal basis requests which are part of the appealed decision can be retroactively excluded from the proceedings.

6.4.2 In T 1227/14, point 1.1.3 of the Reasons for the decision, the deciding board noted that only the non-admission of facts, evidences or requests which could already have been raised in the first instance proceedings but were not raised or were not admitted is expressly left to the discretion of the board. This decision further notes that the boards of appeal do not have the discretion to disregard a submission in the appeal proceedings which the opposition division admitted into the opposition proceedings within its discretionary power.

In T 858/17, point 2.2 of the Reasons for the decision, the deciding board indicated that "*[i]t is already questionable whether the board has any discretion at all to exclude from the appeal proceedings a claim request that had already been admitted by the*

opposition division and made the subject of the appealed decision".

In T 2204/18, point 1.1 of the Reasons for the Decision, the deciding board noted that *"a request that was admitted in the first instance opposition proceedings is part of the appeal proceedings"*.

The present board notes that according to T 858/17 and T 2204/18, any claim request which was admitted on the basis of a discretionary decision of the opposition division should be unconditionally considered in the appeal proceedings independently of the question if the opposition division exercised its discretion correctly and reasonably.

- 6.4.3 According to the Case Law of the Boards of Appeal of the EPO, 10th Edition, 2022, V.A.3.4.4, *"the EPC does not provide any legal basis for excluding on appeal documents, requests or evidence correctly admitted by the department of first instance, particularly if the contested decision was based on them"* (underlining by the board). Hence, at most a board might have a discretion to review the discretionary decision of the opposition division in cases where the opposition division exercised its discretion beyond the permitted limits.
- 6.4.4 Therefore, either this request is unconditionally part of the appeal proceedings since the impugned decision is based on it (see point 6.4.2 above), or it has to be considered provided that the opposition division did not apply wrong principles or exercised its discretion in an unreasonable manner. The fact that the latter condition is true in the present case will be explained in more detail in the following.

- (a) According to the minutes of the oral proceedings before the opposition division, page 8, last paragraph, to page 9, fourth paragraph, the admission of this request was discussed during the oral proceedings and both parties expressed their opinions on it. According to the Reasons for the decision, points 11.1 and 11.2, both parties provided in the context of the admission of the request also their arguments concerning the allowability under Articles 84 and 123(2) EPC.
- (b) The opposition division took its decision on admission only after having heard both parties on these matters and after a deliberation break (Reasons for the decision, points 11.3 and 11.4; minutes of the oral proceedings, page 9, third and fourth paragraph). The board has no reasons to doubt that all arguments brought forward by the parties, including those for *prima facie* allowability under Articles 84 and 123(2) EPC, were taken into account by the opposition division, even if the deliberation took only four minutes. The issues had been extensively discussed prior to this deliberation break in relation to this request and in the context of the higher-ranking requests. Therefore, each member of the opposition division could already form their preliminary opinion prior to the deliberation break so that the opposition division could quickly deliberate on the *prima facie* relevance with regard to Article 84 and 123(2) EPC during the deliberation break. Therefore, the mere fact that the deliberation break was short cannot be a convincing indicator for an arbitrary and/or incorrect decision. The opposition division did not have to come to a final

decision with regard to Articles 84 and 123(2) EPC but only to a conclusion based on a *prima facie* assessment.

(c) In addition, even if the expression "*prima facie allowability*" does not appear as such either in the minutes or the decision, the board is convinced that the opposition division applied this criterion. In fact, the opposition division indicated that it considered the late filing including the reasons for the belated submission of the request, the relevance of the request and the overall state of the procedure (Reasons for the decision, point 11.3).

(d) Moreover, even though the amendments do not relate to subject-matter previously defined in any of the dependent claims, but have their basis in the drawings, they concern merely a refinement of the subject-matter already defined in the higher-ranking third auxiliary requests. Therefore, also the opponent's reasoning that the amended subject-matter is taken from the description and not taken from a dependent claim cannot convince the board. The amendments do not represent a "*fresh case*" but only concern the refinement of an already defined feature in the claim. In case of late-filed claim requests, the opposition division is not limited to only allow the combination of existing claims. There is no legal basis for this restrictive view as argued by the opponent.

6.5 Hence, this request is part of the appeal proceedings and cannot be "un-admitted" by the board (Article 12(2) RPBA).

7. Third auxiliary request - variant B - amendments
- 7.1 The dispute concerns the amendment of claim 1 which further defines the position of the "lower surface" by features taken from Figure 3. Additionally the dispute concerns the question if features (M1.10) to (M1.12) relate to an (unallowable) intermediate generalisation due to the singling out of features from Figure 3 without the consideration of the "*embedded second metal substrate*".
- 7.2 The board finds that the "*lower surface of the resin package (3) being a surface of the resin package opposite to the heat sink (HS)*" is directly and unambiguously shown in Figure 3. This wording does not need to have a literal basis in the description, since it reflects exactly what is shown in Figure 3.
- 7.3 With regard to the omission of the "*embedded second metal substrate*" as objected to by the opponent, the board concurs with the patent proprietor that the now defined features (M1.10) to (M1.12) of claim 1 are technically unrelated to the "*embedded second metal substrate*". The non-defined "*embedded second metal substrate*" has no technical implication on the features (M1.10) to (M1.12) since the technical effect of features (M1.10) to (M1.12) is an efficient heat dissipation from the first metal substrate towards the heat sink to which the second metal substrate has no relation. The features (M1.10) to (M1.12) remain unchanged independently of the presence or absence of the "*embedded second metal substrate*".

Finally, the allegedly missing feature of an "*embedded second metal substrate*" as objected to by the opponent is in fact implicitly defined in claim 1. From the

definition of features (M1.3) and (M1.4), which define the "*second metal substrate*" being sealed by the resin package, the skilled person would directly and unambiguously understand that the second metal substrate is embedded in the resin package. In addition, the configuration of Figure 3 is correctly reflected in claim 1, since the concave portion is clearly attributed to the location of the first metal substrate and not the second metal substrate (see feature (M1.8)).

7.4 Therefore, the board concludes that the amendment of claim 1 does not constitute an inadmissible intermediate generalisation. Hence, claim 1 of this request fulfils the requirements of Article 123(2) EPC.

8. Third auxiliary request - variant B - admission of the novelty objection in view of document D22

8.1 The present third auxiliary request - variant B was filed for the first time during the oral proceedings before the opposition division. The objection of lack of novelty of the subject-matter of claim 1 in view of document D22 was not raised by the opponent during the oral proceedings before the opposition division. This objection was raised for the first time in the statement setting out the grounds of appeal.

8.2 The opponent argues that the opposition division's decision concerning novelty of the subject-matter of claim 1 of the second auxiliary request over document D22 prevented it from raising and discussing this objection again in relation to the third auxiliary request - variant B in the opposition proceedings. The opponent considered it not expedient to raise this objection again, since the opposition division's

opinion on the matter - which was unfavourable for the opponent - was known.

The opponent further argued that, since this objection was raised not only in relation to the higher ranked requests but also in relation to the lower ranked requests, it always considered this objection maintained and never withdrawn or abandoned. In the opponent's view the waiver of a right must be explicitly expressed, which was never the case for the objection concerning lack of novelty in view of document D22. Hence, this objection was still upheld and applied to the third auxiliary request - variant B.

Furthermore, the opponent was of the opinion that if novelty in relation to document D22 had been discussed in relation to the second auxiliary request, it would have convinced the board of the relevance of document D22, so that this objection would now also have been considered in the appeal proceedings. Thus, the non-consideration of novelty with regard to document D22 in relation with the second auxiliary request placed the opponent at a disadvantage.

8.3 The patent proprietor requested this objection not to be admitted into the proceedings since it had never been raised for this request in the first-instance proceedings and should therefore be regarded as an amendment of the appeal case (Article 12(4) RPBA). Independent of the opposition division's view on the second auxiliary request, this objection could and should have been raised during the first-instance proceedings in relation with the third auxiliary request - variant B, at least formally. It was not the purpose of the appeal proceedings to deal with this matter now for the first time. Also the procedural

economy could not be a reason for not raising this objection in the first-instance proceedings, since the simple mentioning of this objection would have been sufficient to include it into the proceedings.

8.4 It is undisputed that this request was submitted for the first time during the oral proceedings and an objection of lack of novelty of claim 1 in view of document D22 has not been raised *expressis verbis* by the opponent during the oral proceedings before the opposition division.

8.5 The board finds that an objection raised with regard to other requests previously dealt with or still pending cannot be tacitly transferred to a newly submitted request. As long as an objection is not explicitly stated or submitted, it cannot be considered to have been raised or filed.

The opponent could and should have formally raised this objection during the oral proceedings before the opposition division which it did not. In particular, this formal objection would not have compromised the efficiency of the procedure, as it could have been dealt with in a very brief discussion.

Therefore the opponent's argument that this objection was never waived or abandoned in respect of the third auxiliary request - variant B cannot convince the board, since the objection of lack of novelty in respect of document D22 was never raised in respect of this request.

Therefore, the opponent has not been able to convincingly demonstrate that it had admissibly raised the objection of lack of novelty in respect of document

D22 for this request, let alone that it had maintained it until the decision of the opposition division, as indicated in Article 12(4), first sentence, RPBA.

- 8.6 Also from the decision under appeal it is clear that the objection of lack of novelty of claim 1 of the third auxiliary request - variant B was not submitted during the first-instance proceedings by the opponent. The opposition division did not deal with this objection in the impugned decision and none of the parties objected to any missing part of the impugned decision.
- 8.7 This objection is therefore raised for the first time in the statement setting out the grounds of appeal and must be regarded as an amendment to the opponent's appeal case (Article 12(2) and (4) RPBA), the admission of which is at the discretion of the board.
- 8.8 It is not known why the opponent did not raise this objection during the oral proceedings before the opposition division. It might have forgotten to do so or it could have been that at that time, the opponent was convinced that this objection no longer served its purpose.

Since it is precisely to be avoided that a party changes its mind about objections at will in the course of the proceedings, it would have been important to clearly raise the objection of lack of novelty of claim 1 in view of document D22 at the oral proceedings before the opposition division at least formally.

Moreover, not having raised this objection during the oral proceedings before the opposition division leads now to the situation that the opinion of the opposition

division with regard to the subject-matter defined in claim 1 is not known and cannot be reviewed by the board. Even though the opposition division's opinion on the second auxiliary request is known, it cannot be simply transposed to the third auxiliary request - variant B, since the subject-matter of the respective claim 1 is different.

8.9 In substance, the *prima facie* disclosure of the width relation of D and d in combination with a gap S provided between the heat sink and a heat dissipation surface of the lower surface of the resin package as defined in claim 1 is under dispute.

The *prima facie* relevance of document D22 is however a necessary condition for admitting this objection at this advanced stage into the proceedings.

During the first-instance proceedings, the opponent was unable to convince the opposition division that the width relationship between D and d was disclosed in document D22 as defined in claim 1, let alone that this was *prima facie* evident.

The opponent could also not convince the board in the written proceedings that document D22 directly and unambiguously discloses all features defined in claim 1, since according to the board's preliminary opinion stated in its communication under Article 15(1) RPBA, document D22 did not disclose the width relationship of D and d of claim 1 (see point 14.5.3 of the communication).

Therefore, a *prima facie* relevance of document D22 is not given because otherwise it should have been recognised by the opposition division and/or by the

board having reviewed the extensive previous written discussions. Moreover, the discussion on this topic might well turn out to be extensive which would be contrary to procedural economy.

Additionally, it seems far-fetched for the opponent to claim that it would have convinced the board of the lack of novelty in view of document D22 if this had already been discussed in relation to the second auxiliary request. It is pure speculation whether the opponent would, during the oral proceedings before the board, have been convincing on points on which it had not been convincing in the course of the written proceedings.

- 8.10 In conclusion, since this objection of lack of novelty in view of document D22 was not admissibly raised in the first-instance proceedings and would have to be discussed in detail for the first time during the appeal proceedings, the board does not admit it into the proceedings (Article 12(4) and (6) RPBA).
9. Third auxiliary request - variant B - sufficiency of the disclosure of claim 4
- 9.1 The dispute concerns the question if the invention according to claim 4 is sufficiently disclosed in the patent, Article 83 EPC.
- 9.2 According to claim 1, a "gap S" should be provided between the heat dissipation surface and the heat sink. According to claim 4, which depends on claim 1, protrusions should be foreseen on the heat dissipation surface of said resin package which control the thickness of the electrically insulating bonding member.

- 9.3 Contrary to the opposition division's and patent proprietor's opinion that the skilled person would be able to realise the subject-matter defined in claim 4, the board finds that the protrusions are foreseen on the heat dissipation surface in order to control the thickness of the bonding member. According to the claim wording, the heat dissipation surface referred to in claim 4 on which the protrusions are foreseen can be only the "*lower surface of the resin package*". A control of the thickness by the protrusions is however only possible if the protrusion is in contact with the heat sink thereby undoing the defined "*gap S*". So, either a "*gap S*" is foreseen or the protrusions are in direct contact with the heat dissipation surface and the heat sink, thereby undoing the gap. Hence the invention according to claim 4 is not sufficiently disclosed since only either the "*gap S*" or the protrusion can be provided. The combination of both features is contradictory in itself, and one feature excludes the other.
- 9.4 The patent proprietor did not object to this understanding when explained by the board during the oral proceedings.
- 9.5 Therefore, at least the first alternative defined in claim 4 cannot be realised without leading to contradictions. Consequently, the patent does not disclose the invention according to claim 4 in a manner sufficiently clearly and complete for it to be carried out by a person skilled in the art (Article 83 EPC).
10. Third auxiliary request - variant B' - admission of the request

- 10.1 The patent proprietor submitted the third auxiliary request - variant B' during the oral proceedings before the board. It argued that this submission resulted from the new understanding of the board of the combination of claims 1 and 4 as set out under point 9.3 above. In the communication under Article 15(1) RPBA, the board had expressed the preliminary opinion that the requirements of Article 83 EPC were met.
- 10.2 According to Article 13(2) RPBA, requests filed during the oral proceedings before the board "*shall, in principle, not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned*". In addition, according to Article 13(1) RPBA, "*[a]ny amendment to a party's appeal case after it has filed its grounds of appeal or reply is subject to the party's justification for its amendment and may be admitted only at the discretion of the Board*". Under Article 13(1) RPBA the board should exercise its discretion in view, of *inter alia*, whether the amendment is detrimental to procedural economy.
- 10.3 In the opponent's view no exceptional circumstances apply since claim 4 was already objected to during the first instance proceedings and in the statement setting out the grounds of appeal. The newly submitted amendments could and should have been provided earlier since the objection against claim 4 was raised for the first time more than five years ago. In addition, the contradiction arising from the relation between the gap S and the protrusion was discussed in its statement setting out the grounds of appeal.
- 10.4 In the patent proprietor's view, exceptional circumstances applied due to the board's new

interpretation of the subject-matter defined in claim 4. The interplay between the "gap S" and the protrusion had allegedly never been mentioned previously so that this new understanding should be considered exceptional circumstances. In addition, the amendment constituted a *bona fide* attempt to overcome the raised objections and did not complicate any further discussions. Admission of the request would not be detrimental to procedural economy in the patent proprietor's opinion.

- 10.5 It is undisputed that this new request falls under the provisions of Article 13(1) and (2) RPBA.

Independently of the question whether exceptional circumstances apply, the board finds that the deletion of only the first alternative defined in claim 4 so that the second alternative remains in claim 4 (see point XI. above) would at least give rise to new discussions. The second alternative defined in claim 4 was not yet considered in detail, might give rise to new objections and would have to be assessed for the first time at this advanced stage of the proceedings. The new discussions would be detrimental to procedural economy.

Since it is not *prima facie* evident that the remaining alternative fulfils all requirements of the EPC, the board exercises its discretion and does not admit this request into the proceedings under Article 13(1) and (2) RPBA.

11. Third auxiliary request - variant B'' - admission of the request

11.1 This request was filed for the first time during the oral proceedings before the board, so Article 13(1) and (2) RPBA applies for this request.

As indicated under point XII. above, previous claim 4 is deleted in this request.

11.2 The deletion of previous claim 4 now clearly overcomes all objections raised with regard to that claim. The amendment does not give rise to new objections, either. It is consequently not detrimental to procedural economy to consider this request in the proceedings.

While it is true, as argued by the opponent, that the patent proprietor could have submitted this request earlier in the proceedings, it is not detrimental to the procedural economy of the proceedings to file it at this advanced stage of the proceedings. The deletion of the previous claim 4 does not delay the proceedings.

It is also true, as objected by the opponent, that the change of the board's opinion should not amount to exceptional circumstances. However, the board does not find this decisive in the present case. The board rather considers the fact more important that all previously raised objections with regard to previous claim 4 are now overcome by this request and that it does not give rise to new objections. This is in the board's view sufficient to justify exceptional circumstances independently of the question if this request could have been filed earlier or not.

The board consequently exercises its discretion and admits this request into the proceedings (Article 13(1) and (2) RPBA).

12. Third auxiliary request - variant B'' - admission of the novelty objection in view of document D22

12.1 Claim 1 of this request is unamended compared to claim 1 of the third auxiliary request - variant B. Therefore, the situation with regard to the admission of the objection of lack of novelty over document D22 into the proceedings is unchanged compared to the third auxiliary request - variant B (see point 8. above). The same reasoning as under point 8. with sub-points above applies *mutatis mutandis* to this request.

12.2 The objection of lack of novelty of claim 1 over document D22 is consequently not admitted into the proceedings (Article 12(4) and (6) RPBA).

13. Third auxiliary request - variant B'' - amendments

Since claim 1 of the third auxiliary request - variant B and claim 1 of the third auxiliary request - variant B'' are identical, the board's conclusions set out in point 7. above apply.

14. Third auxiliary request - variant B'' - inventive step in view of document D6 in combination with document D18

14.1 Closest prior art

It is undisputed that the embodiment of document D6, Figure 4-a, represents the closest prior art.

14.2 Differentiating features

It is also undisputed that features (M1.6), (M1.11) and (M1.12) are not disclosed in this embodiment of

document D6 thereby representing the following two differentiating features:

- the heat dissipation surface of the power semiconductor module is attached to a base surface formed on a heat sink via an electrically insulating bonding member (feature (M1.6)),
- a gap being provided between said heat sink and a heat dissipation surface of the lower surface of said resin package, the lower surface of the resin package being a surface of the resin package opposite to the heat sink (features (M1.11) and (M1.12)).

14.3 Problems to be solved - technical effects

It is also undisputed that the differentiating features solve the following separate partial problems, as formulated by the opponent:

- improving the electric isolation between the heat sink and the semiconductor module, and
- enabling the mechanical assembly of the semiconductor module with the heat sink without mechanical interferences.

14.4 Obviousness

14.4.1 The solution of the first partial problem is obvious to the skilled person for the following reasons.

Electrically isolating bonding layers are known in the field of semiconductor devices, and a corresponding hint is provided either in the closest prior art, i.e. document D6, or in document D18.

With regard to document D6, the embodiment of Figure 2-b uses a boron-nitride epoxy layer (D6, column 5, lines 18 to 24) in order to bond the heat sink to the first metal substrate. Boron-nitride is a very good electrical insulator, a fact which was already known at the priority date. Therefore, the solution to the first partial problem is already obvious from the combination of different embodiments of the closest prior art document D6.

Moreover, as argued by the opponent, the use of an electrically insulating bonding layer is also hinted at in document D18. Document D18 deals with a semiconductor device which is specially designed for efficient heat dissipation of heat producing electric connections embedded in a resin package. The skilled person would therefore consider document D18 when looking for a solution to the first partial problem. The embodiment of Figure 5 of D18 shows the bonding layer 19 which according to the description, column 6, lines 43 to 45, is an insulating bonding layer. That this insulation can only be meant to be an electrical insulation is evident from the whole document wherein the avoidance of electrical short-circuits is discussed (see D18, column 5, lines 31 to 38). This is not disputed.

- 14.4.2 Therefore, the claimed solution to the first partial problem is obvious to the skilled person either from document D6 or document D18.
- 14.4.3 Concerning the solution to the second partial problem, the opponent argued that the combination of the documents D6 and D18 is already established for the first second problem, so that no particular hint is necessary for the skilled person to combine document D6

with D18 in order to solve the second partial problem. The already established combination of documents D6 and D18 immediately hints to the claimed solution of the second partial problem in Figure 5 of D18. This figure discloses a gap sideways between the heat sink 18 and the resin package 11. The skilled person would immediately realise that this gap would facilitate the assembly of the heat sink on the resin package thereby avoiding mechanical interferences even without any particular hint in document D18 to the problem to be solved by this gap.

14.4.4 The board is not convinced by the opponent's line of arguments for the following reasons.

First of all, taking the solution to the first partial problem from the closest prior art, namely from document D6, it is not obvious to combine document D6 with document D18 in order to solve the second partial problem. Document D18 does not contain any hint as to the solution of the second partial problem, and the opponent was unable to identify any such hint, either. Therefore, the skilled person is not prompted to combine document D6 with document D18 in order to solve the second partial problem independently of the solution to the first partial problem.

14.4.5 But even if the skilled person were to consider document D18, they would not be led to the subject-matter defined in claim 1 in an obvious manner. In the board's view the skilled person would not consider to integrate the sideward open space shown in document D18, Figure 5, between the heat sink 18 and the resin package 6 (where a depression 11 is indicated) in the device known from document D6 in order to solve the posed problem for the following reasons.

In document D18, the heat sink is attached to a metal substrate which does not correspond to the metal substrate on which the power semiconductor is mounted. The metal substrate (D18, reference numeral 10) providing a heat dissipation surface on which the heat sink (D18, reference numeral 18) is attached, is an additional metal substrate which functions purely as a heat dissipation surface, but not as the electrical layer (D18, reference numeral 2) on which the semiconductor module (D18, reference numeral 1) is mounted and connected. This heat dissipating metal plate (D18, reference numeral 10) is not to be mixed up with the first metal substrate of claim 1. In Figure 5 of document D18, the corresponding first metal substrate 2 on which a power semiconductor device is mounted is provided above the heat dissipating metal plate 10. Due to this special construction using two metal plates in document D18, there is no risk of a short circuit even if the heat dissipating metal plate 10 is not completely electrically isolated from its surroundings. However, integrating the sideward opening in the device known from document D6, as proposed by the opponent, a serious risk of a short circuit would result. Therefore, the skilled person would not consider integrating a heat sink with vertical side walls thereby providing a gap as shown in D18, Figure 5, in the device of Figure 4-a of document D6. The structural construction of the device known from D6, Figure 4-a must be considered differently and is not immediately compatible with the device shown in Figure 5 of document D18 due to the exposure to the risk of short-circuits if the first metal substrate were to become exposed to the surroundings.

In addition, and as also argued by the patent proprietor, the snugly fitting heat sink in the concave portion in document D6 is essential for the necessary electrical isolation of the semiconductor device and its connections. Hence, the skilled person would not give up the snugly fitting heat sink in the concave portion and provide an open space representing a "gap S".

Hence, when combining document D6 with document D18, the skilled person would at most provide an additional metal substrate vertically offset compared to the first metal substrate, when integrating the teaching of document D18 into the device known from document D6, Figure 4-a. Thereby they would arrive at a device different from the subject-matter of claim 1.

It is therefore concluded that, even if the skilled person were to consider document D18 in order to solve the second partial problem, they would not arrive at the device as defined in claim 1 in an obvious manner.

Therefore, the subject-matter defined in claim 1 is not obvious in view of the combination of document D6 with document D18.

14.5 In conclusion, the subject-matter defined in claim 1 of the third auxiliary request - variant B'' involves an inventive step (Articles 52(1) and 56 EPC).

15. Conclusion

Since the patent proprietor's main request, first to third auxiliary requests and third auxiliary request - variant A are either not admitted into the proceedings or not found allowable, the patent proprietor's appeal

fails. Since the patent proprietor's third auxiliary requests - variants B and B' are either not admitted into the proceedings or not found allowable, but the application documents according to the patent proprietor's third auxiliary request - variant B' and the invention to which they relate fulfil the requirements of the EPC, the opponent's appeal is only partly successful and the interlocutory decision of the opposition division is to be set aside and the patent is to be maintained on the basis of the application documents of the third auxiliary request - variant B' (Articles 101(3)(a) and 111(1) EPC). The lower-ranking requests do not need to be considered.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the opposition division with the order to maintain the patent as amended in the following version:

Claims: 1 to 7 according to the third auxiliary request - variant B' filed at the oral proceedings before the board on 22 October 2024

Description: pages 2 to 7 filed at the oral proceedings before the opposition division on 9 March 2021

Drawings: 1/5 to 5/5 of the patent specification

The Registrar:

The Chairman:



S. Sánchez Chiquero

T. Häusser

Decision electronically authenticated