

**PATENT COOPERATION TREATY**

**TRANSLATION**

From the  
INTERNATIONAL SEARCHING AUTHORITY

**PCT**

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing (day/month/year)	<b>08.08.2017</b>
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Applicant's or agent's file reference <b>9170186W001</b>
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<b>FOR FURTHER ACTION</b> See paragraph 2 below
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International application No. <b>PCT/JP2017/016919</b>	International filing date (day/month/year) <b>28.04.2017</b>	Priority date (day/month/year) <b>23.08.2016</b>
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International Patent Classification (IPC) or both national classification and IPC <b>H05K3/46 (2006.01) i</b>
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Applicant <b>MURATA MANUFACTURING CO., LTD.</b>
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1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/JP	Date of completion of this opinion	Authorized officer
Facsimile No.		Telephone No.

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Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:
  - the international application in the language in which it was filed
  - a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).
2.  This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))
3.  With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
  - a.  forming part of the international application as filed:
    - in the form of an Annex C/ST.25 text file.
    - on paper or in the form of an image file.
  - b.  furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
  - c.  furnished subsequent to the international filing date for the purposes of international search only:
    - in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).
    - on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).
4.  In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

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<b>Box No. V</b>	<b>Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</b>		
1. Statement			
Novelty (N)	Claims	1-8	YES
	Claims		NO
Inventive step (IS)	Claims	1-8	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-8	YES
	Claims		NO
2. Citations and explanations:			
<p>Document 1: WO 2014/188830 A1 (MURATA MFG. CO., LTD.) 27 November 2014, entire text, all drawings &amp; US 2015/0294754 A1, entire text, all drawings &amp; CN 104822737 A</p> <p>Document 2: WO 2014/109139 A1 (MURATA MFG. CO., LTD.) 17 July 2014, entire text, all drawings &amp; US 2015/0305150 A1, entire text, all drawings &amp; CN 104919909 A</p> <p>Document 3: WO 2014/103530 A1 (MURATA MFG. CO., LTD.) 03 July 2014, entire text, all drawings &amp; US 2014/0264737 A1, entire text, all drawings &amp; CN 104081885 A</p> <p>Document 4: JP 2013-123031 A (DENSO CORP.) 20 June 2013, entire text, all drawings &amp; US 2013/0114212 A1, entire text, all drawings &amp; DE 102012110536 A &amp; CN 103096617 A &amp; TW 201337952 A</p> <p style="margin-top: 20px;">The invention as in claims 1-3 is not disclosed in any of the documents cited in the ISR, and is thus novel and involves an inventive step.</p>			

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**Box No. V** Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

In particular, none of the documents discloses a resin multilayer substrate comprising: a laminate resulting from laying resin layers having a thermoplastic resin as a main material; a component built into the laminate, or a first conductor foil, or a cavity provided so as to delve in the lamination direction of the laminate; and one or more conductor patterns disposed at gaps between resin layers, wherein a resin portion, derived from a resin paste having a thermoplastic resin powder as a main material and at which there remains substantially no liquid component of the resin paste, is disposed along a portion, of a contour line of a first-type conductor pattern (pattern, from among conductor patterns, that is positioned overlapping the component, the first conductor foil or the cavity, when at least part of the contour line is viewed from above in the lamination direction of the laminate), so as to be adjacent to the outer side of the first-type conductor pattern along a portion overlapping the component, the first conductor foil or the cavity, nor would such a feature be obvious to a person skilled in the art.

The invention as in claims 4-6 is not disclosed in any of the documents cited in the ISR, and is thus novel and involves an inventive step.

In particular, none of the documents discloses a resin multilayer substrate comprising: a laminate resulting from laying resin layers having a thermoplastic resin as a main material; one or more conductor patterns disposed at gaps between resin layers, in the interior of the laminate; and one or more conductor via joining portions each having a contour line of a joining surface,

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when viewed from above in the lamination direction of the laminate, and being portions at which conductor vias, disposed so as to run through any one of the plurality of resin layers in the interior of the laminate, are joined to each other contiguously along the lamination direction of the laminate, the resin multilayer substrate further comprising: a component built into the laminate, or a first conductor foil, or a cavity provided so as to delve in the lamination direction of the laminate; wherein a resin portion, derived from a resin paste having a thermoplastic resin powder as a main material and at which there remains substantially no liquid component of the resin paste, is disposed along a portion, of a contour line of a conductor via first-type joining portion (portion, from among joining portions of conductor vias, that is positioned overlapping the component, the first conductor foil or the cavity, when at least part of the contour line is viewed from above in the lamination direction of the laminate) so as to be adjacent to the outer side of the conductor via first-type joining portion, along a portion overlapping the component, the first conductor foil or the cavity, nor would such a feature be obvious to a person skilled in the art.

The invention as in claims 7 and 8 is not disclosed in any of the documents cited in the ISR, and is thus novel and involves an inventive step.