

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 277-S11P1226	FOR FURTHER ACTION		See item 4 below
International application No. PCT/JP2011/065733	International filing date (<i>day/month/year</i>) 08 July 2011 (08.07.2011)	Priority date (<i>day/month/year</i>) 15 July 2010 (15.07.2010)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant SONY CORPORATION			

<p>1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.</p>																								
<p>3. This report contains indications relating to the following items:</p> <table> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table> <p>4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).</p>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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	Date of issuance of this report 12 February 2013 (12.02.2013)
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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)	09.08.2011
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Applicant's or agent's file reference 277-S11P1226
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FOR FURTHER ACTION See paragraph 2 below
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International application No. PCT/JP2011/065733	International filing date (day/month/year) 08.07.2011	Priority date (day/month/year) 15.07.2010
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International Patent Classification (IPC) or both national classification and IPC H01L27/14 (2006.01) i

Applicant SONY CORPORATION

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.

3. For further details, see notes to Form PCT/ISA/220.

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

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2011/065733

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 filed or furnished:
 - a. (means)
 - on paper
 - in electronic form
 - b. (time)
 - in the international application as filed
 - together with the international application in electronic form
 - subsequently to this Authority for the purposes of search
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 in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No. PCT/JP2011/065733
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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
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1. Statement			
Novelty (N)	Claims	1-7	YES
	Claims	_____	NO
Inventive step (IS)	Claims	2, 3	YES
	Claims	1, 4-7	NO
Industrial applicability (IA)	Claims	1-7	YES
	Claims	_____	NO

2. Citations and explanations:	
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Document 1: JP 2006-73885 A (CANON INC.) 16 March 2006, paragraphs [0007], [0016]-[0025], [0053]-[0055], fig. 1, 9 & US 2006/0061674 A1

Document 2: JP 4-226073 A (NEC CORP.) 14 August 1992, paragraph [0015], fig. 1

Document 3: JP 2005-45141 A (MITSUBISHI ELECTRIC CORP.) 17 February 2005, paragraphs [0024]-[0030], [0042]-[0044]

Document 4: JP 2006-120845 A (CANON INC.) 11 May 2006, paragraph [0024]

Claims 1 and 4-7

Document 1 describes an invention of a solid-state imaging device having a semiconductor substrate, an embedded photodiode, an interlayer insulating film (105b), a silicon nitride film (102), and a lens comprising a plasma nitride silicon film. Document 1 indicates that by means of a depressed portion of the silicon nitride film (102), internal stress in the film is relaxed, and therefore the silicon nitride film (102) corresponds to the "stress-relaxing layer"

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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

of the present invention. Comparing the present invention and the invention described in document 1, both differ from each other in that one of layers laminated with the stress-relaxing layer therebetween is an inorganic material layer, and the other is an organic material layer in the present invention, while the feature is not described in document 1.

Document 2 describes an invention of a solid-state imaging device wherein a flattened film is formed from an organic material, and a microlens is formed from an inorganic material. Meanwhile, the flattened film of the invention described in document 2 is formed in a region including a first electrode (71) and a second electrode (72), and therefore can be said to correspond to the interlayer insulating film. Accordingly, a person skilled in the art could easily employ the invention described in document 2 in the invention described in document 1 when determining a specific material of the interlayer insulating film so as to form the interlayer insulating film from an organic material; then, it would be obvious that one of layers laminated with a stress-relaxing layer therebetween is an inorganic material layer and the other is an organic material layer.

Furthermore, document 1 also describes a digital camera having a lens (1002) (corresponding to the "optical system" of the present invention), a solid-state imaging device (1004), and an imaging signal processing circuit (1005).

Accordingly, the invention as in claims 1 and 4-7 of the present application does not involve an inventive step in the light of the inventions described in documents 1 and 2.

Claims 2 and 3

None of documents 1-4 listed in the ISR indicates or

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

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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**

suggests that membrane stress of a stress-relaxing layer is between membrane stress of an organic material layer and membrane stress of an inorganic material layer.