

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2018/022008

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. H01L27/146 (2006.01) i, H04N5/374 (2011.01) i, H01L27/30 (2006.01) n

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int. Cl. H01L27/146, H04N5/374, H01L27/30

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Published examined utility model applications of Japan 1922-1996
 Published unexamined utility model applications of Japan 1971-2018
 Registered utility model specifications of Japan 1996-2018
 Published registered utility model applications of Japan 1994-2018

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2011-138927 A (SONY CORP.) 14 July 2011, paragraphs [0033]-[0050], fig. 1-3 & US 2011/0156104 A1, paragraphs [0074]-[0100], fig. 1-3 & CN 102110702 A & KR 10-2011-0076769 A & TW 201143058 A	1-6
Y	JP 2013-12556 A (SONY CORP.) 17 January 2013, paragraphs [0021]-[0057], fig. 1-3 & US 2013/0001730 A1, paragraphs [0046]-[0082], fig. 1-3 & CN 102856333 A	1-6
Y	JP 2016-201449 A (TOSHIBA CORP.) 01 December 2016, paragraphs [0008]-[0012], fig. 1, 2 & US 2016/0301882 A1, paragraphs [0019]-[0031], fig. 1, 2	1-6

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:
 "A" document defining the general state of the art which is not considered to be of particular relevance
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 "O" document referring to an oral disclosure, use, exhibition or other means
 "P" document published prior to the international filing date but later than the priority date claimed
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 "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
 "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
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Date of the actual completion of the international search 23.08.2018	Date of mailing of the international search report 04.09.2018
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Name and mailing address of the ISA/ Japan Patent Office 3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan	Authorized officer Telephone No.
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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2013/0093932 A1 (CHOO, Kyo Jin) 18 April 2013, paragraphs [0061]-[0075], fig. 1 & KR 10-2013-0040439 A & CN 103050505 A	1-6
Y	US 2016/0037098 A1 (SAMSUNG ELECTRONICS CO., LTD.) 04 February 2016, paragraphs [0073]-[0082], [0103]-[0106], fig. 3, 4, 13, 14 & KR 10-2016-0017168 A	1-6
Y	JP 2015-28960 A (SONY CORP.) 12 February 2015, paragraphs [0037]-[0039], [0045]-[0049], fig. 4, 5 & WO 2013/080872 A1	2
P, A	JP 2018-60910 A (SONY SEMICONDUCTOR SOLUTIONS CORP.) 12 April 2018, entire text, all drawings & WO 2018/066256 A1	1-6
P, A	JP 2017-157816 A (SONY CORP.) 07 September 2017, entire text, all drawings & US 2018/0076252 A1 & WO 2017/150540 A1 & CN 107146850 A & TW 201801297 A	1-6
A	JP 2017-143158 A (CANON INC.) 17 August 2017, entire text, all drawings & WO 2017/138273 A1	1-6
A	WO 2014/112279 A1 (SONY SEMICONDUCTOR SOLUTIONS CORP.) 24 July 2014, entire text, all drawings & US 2015/0349008 A1 & CN 104904013 A & KR 10-2015-0106400 A	1-6
A	JP 2012-238648 A (SONY CORP.) 06 December 2012, entire text, all drawings & US 2012/0286137 A1 & CN 102779824 A & TW 201246523 A & KR 10-2016-0148498 A	1-6
A	JP 2016-127264 A (SONY CORP.) 11 July 2016, entire text, all drawings & WO 2016/104177 A1	1-6
A	WO 2014/027588 A1 (SONY CORP.) 20 February 2014, entire text, all drawings & US 2015/0187843 A1	1-6