

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 42P110061PCT	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US2016/066717	International filing date (<i>day/month/year</i>) 14 December 2016 (14.12.2016)	(Earliest) Priority Date (<i>day/month/year</i>)
Applicant INTEL CORPORATION		

This International search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out 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))

b. This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

c. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. **Certain claims were found unsearchable** (See Box No. II)

3. **Unity of invention is lacking** (See Box No. III)

4. With regard to the **title**,

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

a. the figure of the **drawings** to be published with the abstract is Figure No. 2

as suggested by the applicant.

as selected by this Authority, because the applicant failed to suggest a figure.

as selected by this Authority, because this figure better characterizes the invention.

b. none of the figures is to be published with the abstract.

A. CLASSIFICATION OF SUBJECT MATTER

H01L 23/66(2006.01)i, H01L 23/522(2006.01)i, H01L 25/04(2006.01)i, H01L 23/538(2006.01)i, H01L 23/00(2006.01)i, H01Q 1/22(2006.01)i, H01Q 9/04(2006.01)i

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)

H01L 23/66; H01L 21/768; G01S 13/42; H01L 25/16; H01L 23/00; H01Q 19/10; H01L 23/28; H01L 23/522; H01L 25/04; H01L 23/538; H01Q 1/22; H01Q 9/04

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

Korean utility models and applications for utility models
Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords: microelectronic device, radio frequency (RF) component, antenna unit, mold material, substrate

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2016-0240495 A1 (INFINEON TECHNOLOGIES AG) 18 August 2016 See paragraphs [0020]-[0044] and figures 1a-1d, 3e-3f.	1,5-7
Y		2-4,8-20
Y	JP 5988004 B1 (TDK CORPORATION) 07 September 2016 See paragraphs [0002], [0027]-[0042], [0059]-[0060] and figures 1, 12.	2-4,8-20
A	US 2016-0240493 A1 (ADVANCED SEMICONDUCTOR ENGINEERING, INC.) 18 August 2016 See paragraphs [0037]-[0042] and figures 2A-2C.	1-20
A	US 2015-0280327 A1 (NXP B.V.) 01 October 2015 See paragraphs [0033]-[0045] and figures 3a-3b.	1-20
A	KR 10-1208241 B1 (SAMSUNG ELECTRO-MECHANICS CO., LTD.) 04 December 2012 See paragraphs [0031]-[0056] and figures 1-3.	1-20

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

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"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

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"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

"&" document member of the same patent family

Date of the actual completion of the international search

29 August 2017 (29.08.2017)

Date of mailing of the international search report

30 August 2017 (30.08.2017)

Name and mailing address of the ISA/KR

International Application Division
Korean Intellectual Property Office
189 Cheongsa-ro, Seo-gu, Daejeon, 35208, Republic of Korea

Facsimile No. +82-42-481-8578

Authorized officer

CHOI, Sang Won

Telephone No. +82-42-481-8291



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2016/066717

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2016-0240495 A1	18/08/2016	DE 102010001407 A1 US 2010-0193935 A1 US 2013-0017653 A1 US 2013-0207262 A1 US 2014-0117515 A1 US 8278749 B2 US 8460967 B2 US 8624381 B2 US 9349696 B2	30/09/2010 05/08/2010 17/01/2013 15/08/2013 01/05/2014 02/10/2012 11/06/2013 07/01/2014 24/05/2016
JP 5988004 B1	07/09/2016	None	
US 2016-0240493 A1	18/08/2016	CN 105895626 A US 9653415 B2	24/08/2016 16/05/2017
US 2015-0280327 A1	01/10/2015	EP 2928013 A1 EP 2928013 B1 US 9608334 B2	07/10/2015 10/05/2017 28/03/2017
KR 10-1208241 B1	04/12/2012	CN 102881986 A CN 102881986 B US 2013-0015563 A1 US 8736031 B2	16/01/2013 29/07/2015 17/01/2013 27/05/2014