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(19) 世界知识产权组织  
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WO 2011/157171 A3

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- (25) 申请语言: 中文
- (26) 公布语言: 中文
- (71) 申请人 (对除美国外的所有指定国): **华为技术有限公司 (HUAWEI TECHNOLOGIES CO., LTD.)** [CN/CN]; 中国广东省深圳市龙岗区坂田华为总部办公楼, Guangdong 518129 (CN)。
- (72) 发明人; 及
- (75) 发明人/申请人 (仅对美国): **蔚翔 (WEI, Xiang)** [CN/CN]; 中国广东省深圳市龙岗区坂田华为总部办公楼, Guangdong 518129 (CN)。**谢伦琛 (XIE, Lunchen)** [CN/CN]; 中国广东省深圳市龙岗区坂田华为总部办公楼, Guangdong 518129 (CN)。
- (74) 代理人: **深圳市深佳知识产权代理事务所 (普通合伙) (SHENPAT INTELLECTUAL PROPERTY AGENCY)**; 中国广东省深圳市国贸大厦 15 楼西座 1521 室, Guangdong 518014 (CN)。

- (81) 指定国 (除另有指明, 要求每一种可提供的国家保护): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW。
- (84) 指定国 (除另有指明, 要求每一种可提供的地区保护): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), 欧亚 (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), 欧洲 (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)。

本国际公布:

- 包括国际检索报告(条约第 21 条(3))。
- 在修改权利要求的期限届满之前进行, 在收到该修改后将重新公布(细则 48.2(h))。

[见续页]

(54) Title: INSULATING RING FOR PACKAGING, INSULATING RING ASSEMBLY, AND PACKAGE

(54) 发明名称: 一种封装用绝缘环、绝缘环组合件和封装体

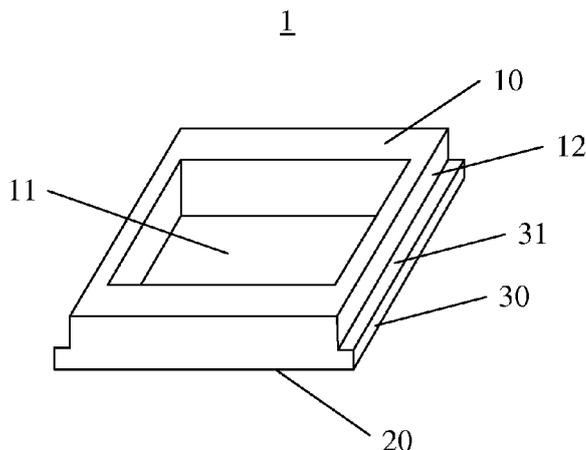


图 1 / FIG. 1

(57) Abstract: An insulating ring for packaging, insulating ring assembly and package are provided in the embodiments of the present invention. The through hole of the insulating ring passes through the top surface and the bottom surface of the insulating ring, wherein the through hole is used for accommodating chips; The outer wall of the insulating ring has an outwardly extending protrusion, and the sidewall of the protrusion which faces to the top surface is lower than the top surface; The lead is disposed on the sidewall, and the adhesive material layer and the surface metallization layer of the lead are lower than the top surface. Therefore, the silver ions of the adhesive material can not pass round the outer wall and the top surface over the sidewall and can not enter into the package, which ensuring the reliability of the power amplifier(PA) device.

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WO 2011/157171 A3



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— 根据申请人的请求，在条约第 21 条(2)(a)所规定 (88) 国际检索报告公布日期: 2012 年 5 月 3 日  
的期限届满之前进行。

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**(57) 摘要:**

本发明实施例公开了一种封装用绝缘环、绝缘环组合件和封装体。所述绝缘环的通孔贯穿所述绝缘环的顶面和底面，用于容纳芯片；所述绝缘环的外侧壁在连接引脚的位置具有向外侧延伸的凸起，朝向所述顶面的所述凸起的侧面低于顶面；所述引脚设置在所述侧面上，且引脚中的粘结材料层和表面金属化层低于所述顶面。因此，粘结材料中的银离子无法绕过侧面上方的外侧壁和顶面进入封装体内部，保证了功率放大器（PA）器件的可靠性。

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2011/075288

## A. CLASSIFICATION OF SUBJECT MATTER

H01L23/04 (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)

IPC: H01L23/-

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

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

CNKI,CNPAT,WPI,EPODOC: package, lead, terminal, insulating ring, via, opening, flange, silver, diffusion, migration

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages                   | Relevant to claim No. |
|-----------|--|-----------------------|
| Y         | US6072238 A (VISWANATHAN, L. et al.) 06 Jun. 2000 (06.06.2000) description columns 1- 4, figures 1-3 | 1-18                  |
| Y         | JP9283651A (KYOCERA CORP.) 31 Oct. 1997 (31.10.1997) description columns 2 lines 47-54, figures 1-2  | 1-18                  |
| A         | JP62204560A (KYOCERA CORP.) 09 Sep. 1987 (09.09.1987) the whole document                             | 1-18                  |
| A         | US5309014A (WILSON, L. G.) 03 May 1994 (03.05.1994) the whole document                               | 1-18                  |
| A         | US6462413B1 (POLESE, F. J. et al.) 08 Oct. 2002 (08.10.2002) the whole document                      | 1-18                  |
| A         | CN1802740A (KYOCERA AMERICA INC.) 12 Jul. 2006 (12.07.2006) the whole document                       | 1-18                  |

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

|  |  |
|--|--|
| * Special categories of cited documents:   | “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  |
| “A” document defining the general state of the art which is not considered to be of particular relevance   | “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   |
| “E” earlier application or patent but published on or after the international filing date  | “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 |
| “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) | “&” document member of the same patent family  |
| “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   |  |

Date of the actual completion of the international search  
20 Feb. 2012 (20.02.2012)Date of mailing of the international search report  
**15 Mar. 2012 (15.03.2012)**Name and mailing address of the ISA/CN  
The State Intellectual Property Office, the P.R.China  
6 Xitucheng Rd., Jimen Bridge, Haidian District, Beijing, China  
100088  
Facsimile No. 86-10-62019451Authorized officer  
**MA,Zhiyong**  
Telephone No. (86-10)62414066

**INTERNATIONAL SEARCH REPORT**  
**Information on patent family members**

International application No.  
PCT/CN2011/075288

| Patent Documents referred in the Report | Publication Date | Patent Family  | Publication Date |
|---|------------------|----------------|------------------|
| US6072238 A                             | 06.06.2000       | None           |                  |
| JP9283651A                              | 31.10.1997       | None           |                  |
| JP62204560A                             | 09.09.1987       | None           |                  |
| US5309014A                              | 03.05.1994       | None           |                  |
| US6462413B1                             | 08.10.2002       | None           |                  |
| CN1802740A                              | 12.07.2006       | EP1625618A1    | 15.02.2006       |
|   |                  | KR20060020634A | 06.03.2006       |
|   |                  | CN1802740B     | 30.03.2011       |
|   |                  | WO2004107436A1 | 09.12.2004       |
|   |                  | JP2007528590A  | 11.10.2007       |
|   |                  | US6900525B2    | 31.05.2005       |
|   |                  | US2004232529A1 | 25.11.2004       |

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|---|--|---|
| <b>A. 主题的分类</b>   |  |   |
| H01L23/04 (2006.01)i  |  |   |
| 按照国际专利分类(IPC)或者同时按照国家分类和 IPC 两种分类   |  |   |
| <b>B. 检索领域</b>  |  |   |
| 检索的最低限度文献(标明分类系统和分类号)   |  |   |
| IPC: H01L23/-   |  |   |
| 包含在检索领域中的除最低限度文献以外的检索文献   |  |   |
| 在国际检索时查阅的电子数据库(数据库的名称, 和使用的检索词(如使用))  |  |   |
| CNKI,CNPAT,WPI,EPODOC:封装,引脚,绝缘环,通孔,法兰,银,迁移; package, lead, terminal, insulating ring, via, opening, flange, silver, diffusion, migration  |  |   |
| <b>C. 相关文件</b>  |  |   |
| 类 型*  | 引用文件, 必要时, 指明相关段落  | 相关的权利要求   |
| Y   | US6072238 A (VISWANATHAN, L. 等) 06.6 月 2000 (06.06.2000) 说明书第 1-4 栏、图 1-3    | 1-18  |
| Y   | JP9283651A (KYOCERA CORP.) 31.10 月 1997 (31.10.1997) 说明书第 2 栏第 47-54 行、图 1-2 | 1-18  |
| A   | JP62204560A (KYOCERA CORP.) 09. 9 月 1987 (09.09.1987) 全文                     | 1-18  |
| A   | US5309014A (WILSON, L. G.) 03. 5 月 1994 (03.05.1994) 全文                      | 1-18  |
| A   | US6462413B1 (POLESE, F. J. et al.) 08. 10 月 2002 (08.10.2002) 全文             | 1-18  |
| A   | CN1802740A (基奥塞拉美国股份有限公司) 12. 7 月 2006 (12.07.2006) 全文                       | 1-18  |
| <input type="checkbox"/> 其余文件在 C 栏的续页中列出。 <input checked="" type="checkbox"/> 见同族专利附件。  |  |   |
| * 引用文件的具体类型:<br>“A” 认为不特别相关的表示了现有技术一般状态的文件<br>“E” 在国际申请日的当天或之后公布的在先申请或专利<br>“L” 可能对优先权要求构成怀疑的文件, 或为确定另一篇引用文件的公布日而引用的或者因其他特殊理由而引用的文件(如具体说明的)<br>“O” 涉及口头公开、使用、展览或其他方式公开的文件<br>“P” 公布日先于国际申请日但迟于所要求的优先权日的文件 |  | “T” 在申请日或优先权日之后公布, 与申请不相抵触, 但为了理解发明之理论或原理的在后文件<br>“X” 特别相关的文件, 单独考虑该文件, 认定要求保护的发明不是新颖的或不具有创造性<br>“Y” 特别相关的文件, 当该文件与另一篇或者多篇该类文件结合并且这种结合对于本领域技术人员为显而易见时, 要求保护的发明不具有创造性<br>“&” 同族专利的文件 |
| 国际检索实际完成的日期<br>20.2 月 2012 (20.02.2012)   |  | 国际检索报告邮寄日期<br><b>15.3 月 2012 (15.03.2012)</b>   |
| ISA/CN 的名称和邮寄地址:<br>中华人民共和国国家知识产权局<br>中国北京市海淀区蓟门桥西土城路 6 号 100088<br>传真号: (86-10)62019451  |  | 授权官员<br><br><b>马志勇</b><br>电话号码: (86-10) <b>62414066</b>   |

国际检索报告  
关于同族专利的信息

国际申请号  
**PCT/CN2011/075288**

| 检索报告中引用的<br>专利文件 | 公布日期       | 同族专利           | 公布日期       |
|------------------|------------|----------------|------------|
| US6072238 A      | 06.06.2000 | 无              |            |
| JP9283651A       | 31.10.1997 | 无              |            |
| JP62204560A      | 09.09.1987 | 无              |            |
| US5309014A       | 03.05.1994 | 无              |            |
| US6462413B1      | 08.10.2002 | 无              |            |
| CN1802740A       | 12.07.2006 | EP1625618A1    | 15.02.2006 |
|                  |            | KR20060020634A | 06.03.2006 |
|                  |            | CN1802740B     | 30.03.2011 |
|                  |            | WO2004107436A1 | 09.12.2004 |
|                  |            | JP2007528590A  | 11.10.2007 |
|                  |            | US6900525B2    | 31.05.2005 |
|                  |            | US2004232529A1 | 25.11.2004 |