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(54) Title: MULTI-MODE SENSOR BASED ON WAFER-LEVEL PACKAGE, AND MANUFACTURING METHOD THEREFOR

(54) 发明名称: 基于晶圆级封装的多模式传感器及其制造方法

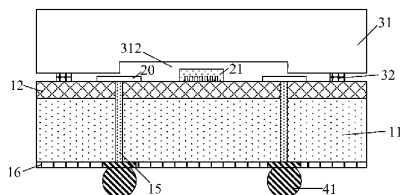


图 1A

(57) Abstract: A multi-mode sensor based on wafer-level package, and a manufacturing method therefor. The multi-mode sensor comprises a base, a multi-mode sensor main body and a cap layer, which are subjected to wafer-level package and are bonded, and a secondary packaged structure and a multi-packaged structure thereof. The base comprises: a first substrate (11), a dielectric layer (12), a first insulating layer (16) and a plurality of silicon through holes (15), wherein the dielectric layer (12) and the first insulating layer (16) respectively cover two faces of the first substrate (11) and are both penetrated by the silicon through hole (15); and electrodes (41) are respectively arranged in through hole regions of the corresponding silicon through holes (15). The multi-mode sensor main body comprises a sensing electrode (20) and a sensing thin-film material layer (21), wherein the sensing electrode (20) is located above the dielectric layer (12), and the sensing thin-film material layer (21) is attached to the sensing electrode (20). The cap layer comprises a second substrate (31) and a bonding ring (32), wherein a first face of the second substrate (31) is provided with an accommodation groove (312), and the bonding ring (32) is arranged on the first face of the second substrate (31). The multi-mode sensor has the advantages of being high in the integration level and performance, being low in costs, being miniaturized, being high in reliability, process feasibility, compatibility and

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— 包括国际检索报告(条约第21条(3))。

wafer-level uniformity, and having a relatively wide application range.

(57) 摘要: 一种基于晶圆级封装的多模式传感器及其制造方法, 该多模式传感器包括晶圆级封装及键合的基体、多模式传感器主体、盖帽层及其二次和多次封装结构。基体包括: 第一衬底(11)、介质层(12)、第一绝缘层(16)和多个硅通孔(15); 介质层(12)和第一绝缘层(16)分别覆盖在第一衬底(11)的两个面, 且都被各硅通孔(15)贯穿; 各电极(41)设置于对应的各硅通孔(15)的通孔区域; 多模式传感器主体包括传感电极(20)和传感薄膜材料层(21), 传感电极(20)位于介质层(12)上方, 传感薄膜材料层(21)与传感电极(20)贴合; 盖帽层包括第二衬底(31)和键合环(32), 第二衬底(31)的第一面设置有容置槽(312), 键合环(32)设置于第二衬底(31)的第一面。该多模式传感器具有高集成度、高性能、低成本、小型化、高可靠性、高工艺可行性与兼容性、高晶圆级均一性, 应用范围更广的优点。