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(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, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW。

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(54) Title: PHOTODETECTOR

(54) 发明名称: 光电探测器

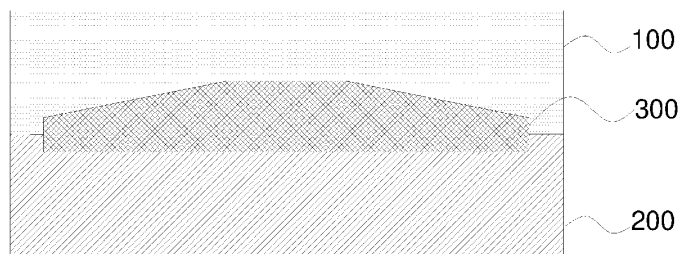


图 5

(57) Abstract: The present application relates to the technical field of integrated circuits, and in particular to a photodetector. The photodetector comprises: a waveguide layer; an absorption layer, the absorption layer being located on the upper surface of the waveguide layer or at least partially embedded in the waveguide layer; and a cladding material, the cladding material covering the tops and sidewalls of the waveguide layer and the absorption layer; wherein at least one end face of the photodetector is a light incident surface, and the thickness of the end face of the absorption layer close to the light incident surface is smaller than the thicknesses of remaining portion. According to the present application, since the thickness of the end face of the absorption layer close to the light incident surface is smaller than the thicknesses of the remaining portion, the light energy absorbed by the portion close to the light incident surface is less than the light energy absorbed by the remaining portion of the absorption layer, thereby reducing the degree of aggregation of photon-generated carriers in an intrinsic region of the photodetector, increasing the electric field intensity of a photon-generated carrier aggregation region, reducing the influence of large-light input on the bandwidth and responsivity performance of the photodetector, and finally improving a large-light input threshold of the photodetector.

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RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG)。

根据细则4.17的声明：

- 关于发明人身份(细则4.17(i))
- 关于申请人有权申请并被授予专利(细则4.17(ii))
- 发明人资格(细则4.17(iv))

本国际公布：

- 包括国际检索报告(条约第21条(3))。

(57) 摘要：本申请涉及集成电路技术领域，特别是涉及一种光电探测器。一种光电探测器包括：波导层；吸收层，所述吸收层位于所述波导层上表面或至少部分嵌入所述波导层内；包层材料，所述包层材料覆盖所述波导层及吸收层的顶部及侧壁；其中，所述光电探测器至少一端面为入光面，所述吸收层在临近所述入光面的端面的厚度小于其他部分的厚度。本申请通过吸收层在临近入光面的端面的厚度小于其他部分的厚度，进而使临近入光面部分的吸收的光能量小于吸收层其他部分吸收的光能量，进而减小光生载流子在光电探测器的本征区域的聚集程度，增加光生载流子聚集区域的电场强度，减小大光输入对光电探测器带宽和响应度性能的影响，最终提升光电探测器的大光输入阈值。