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**Declaration under Rule 4.17:**

— of inventorship (Rule 4.17(iv)) for US only

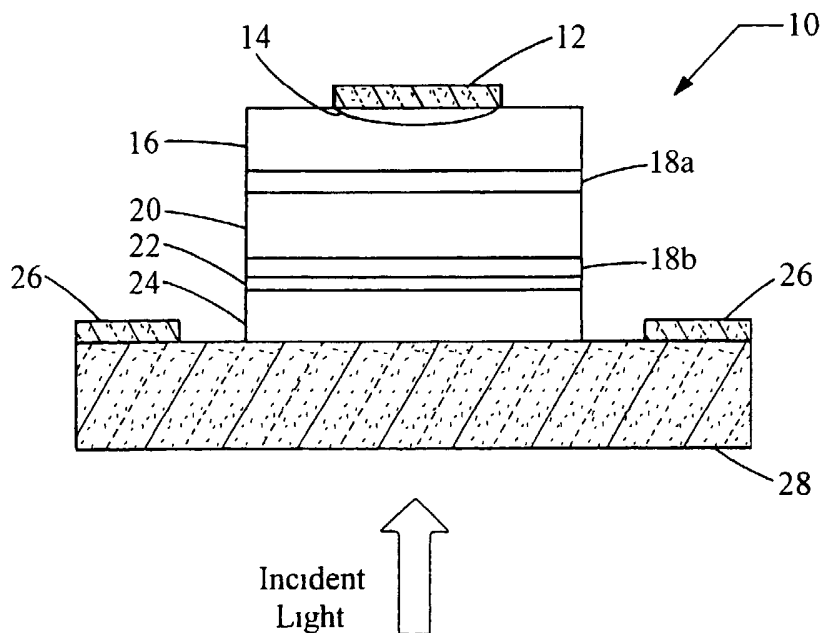
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PLANAR AVALANCHE PHOTODIODE



(57) Abstract: The present invention includes a planar avalanche photodiode (10) having a first n-type semiconductor layer (28) defining a planar contact area, and a second n-type semiconductor layer (16) having a p-type diffusion region (14). Further features of the structure include an n-type semiconductor multiplication layer (20), an n-type semiconductor absorption layer (22), and a p-type contact layer (12). Further embodiments include a planar avalanche photodiode (210) having a first n-type semiconductor layer (28) defining a planar contact area, an n-type semiconductor multiplication layer (24), an n-type semiconductor absorption layer (20) and a p-type semiconductor layer (32) electrically coupled to a p-type contact layer (12).

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**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US03/03323

**A. CLASSIFICATION OF SUBJECT MATTER**  
 IPC(7) : H01L 31/072, 31/109, 31/0328  
 US CL : 257/183, 183, 185, 186, 190, 191  
 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)  
 U.S. : 257/183, 183, 185, 186, 190, 191

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
 None

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

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,552,629 A (WATANABE) 03 September 1996 (03.09.1996), see entire reference.	1-30
Y	US 4,840,916 A (YASUDA et al. ) 20 June 1989 (20.06.1989), see entire reference.	1-30

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

* Special categories of cited documents:	"T"
"A" document defining the general state of the art which is not considered to be of particular relevance	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
"E" earlier application or patent published on or after the international filing date	"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
"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)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

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Name and mailing address of the ISA/US: Mail Stop PCT, Attn: ISA/US, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450, Facsimile No. (703)305-3230  
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**INTERNATIONAL SEARCH REPORT**

PCT/US03/03323

**Continuation of B. FIELDS SEARCHED Item 3:**

East search

avalanche photodiode or avalanche photodetector, multiplication layer, absorption layer