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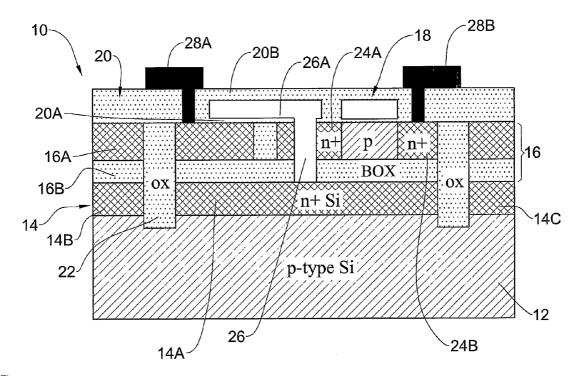
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(54) Title: INTEGRATED ACTIVE PIXEL SENSOR AND METHOD OF ITS FABRICATION



(57) Abstract: An active pixel sensor and a method of its manufacture are provided. The sensor comprises a silicon substrate patterned to form a photodetector arrangement therein, and a silicon-on-insulator (SOI) layer structure on the substrate, the silicon layer of the SOI layer structure carrying an electronics circuit vertically integrated with said photodetector arrangement for processing output thereof.

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 before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols) H01L

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 practical, search terms used)

EPO-Internal

Category*	Citation of document, with indication, where appropriate, of the relevant passages	
		Relevant to claim No.
X	US 5 324 678 A (KUSUNOKI ET AL) 28 June 1994 (1994-06-28)	1-6, 8-15,20, 21
Υ	column 24, line 25 - column 25, line 64 column 17, line 27 - line 38 column 20, line 43 - column 22, line 59 figures 20,21,13-15	7,16-19, 22
X	US 2002/121655 A1 (ZHENG XINYU ET AL) 5 September 2002 (2002-09-05) paragraphs [0014] - [0025], [0033] - [0055]; figures 2,3,5-7	1-3,5,6, 12,13,15
X	US 6 495 814 B1 (SUZUKI YASUTOSHI ET AL) 17 December 2002 (2002-12-17) column 6, line 49 - column 8, line 58 figures 6-16,18,19	1-3,5,6, 12,13,15

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X See patent family annex.
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PCT/IL2005/000779

		PCT/IL2005/000779						
C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT								
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.						
X	US 5 043 582 A (COX ET AL) 27 August 1991 (1991-08-27) column 17, line 45 - column 21, line 37; figures 12,15,16	1,2						
Y	EP 0 825 651 A (YEDA RESEARCH AND DEVELOPMENT CO. LTD) 25 February 1998 (1998-02-25) column 4, line 13 - column 6, line 7; figures 1-3	7						
Y	US 6 258 636 B1 (JOHNSON JEFFREY B ET AL) 10 July 2001 (2001-07-10) column 4, line 9 - column 7, line 67; figures 1-3,6,10,11	4						
Y	US 4 933 731 A (KIMURA ET AL) 12 June 1990 (1990-06-12) abstract column 1, line 5 - column 2, line 54; figures 1,5,6	1-22						
Y	US 5 343 064 A (SPANGLER ET AL) 30 August 1994 (1994-08-30) column 9, line 41 - column 18, line 42; figures 1-12	1-22						

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

In onal application No PCT/IL2005/000779

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 5324678	Α	28-06-1994	US	5324980	Α	28-06-1994
US 2002121655	A1	05-09-2002	US	6380572	B1	30-04-2002
US 6495814	B1	17-12-2002	JP	2001015792	Α	19-01-2001
US 5043582	Α	27-08-1991	NONE			
EP 0825651	Α	25-02-1998	JP	10178197	Α	30-06-1998
US 6258636	B1	10-07-2001	JP JP US	3065597 11251569 5877521	A	17-07-2000 17-09-1999 02-03-1999
US 4933731	Α	12-06-1990	DE JP JP JP	3829003 1055859 1992723 7015979	A C	16-03-1989 02-03-1989 22-11-1995 22-02-1995
US 5343064	Α	30-08-1994	NONE	·		