

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
11 January 2007 (11.01.2007)

PCT

(10) International Publication Number
WO 2007/004118 A3

- (51) International Patent Classification:
H01L 51/52 (2006.01) *H01L 51/44* (2006.01)
- (21) International Application Number:
PCT/IB2006/052106
- (22) International Filing Date: 27 June 2006 (27.06.2006)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
05105864.2 30 June 2005 (30.06.2005) EP
- (71) Applicant (for all designated States except US): **KONINKLIJKE PHILIPS ELECTRONICS N.V.** [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **BÜCHEL, Michael** [DE/NL]; C/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). **YOUNG, Edward, W., A.** [NL/NL]; C/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). **SEMPEL, Adrianus** [NL/NL]; C/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). **BOEREFIJN, Ivar, J.** [NL/NL]; C/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (74) Agents: **ROLFES, Johannes, G., A.** et al.; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

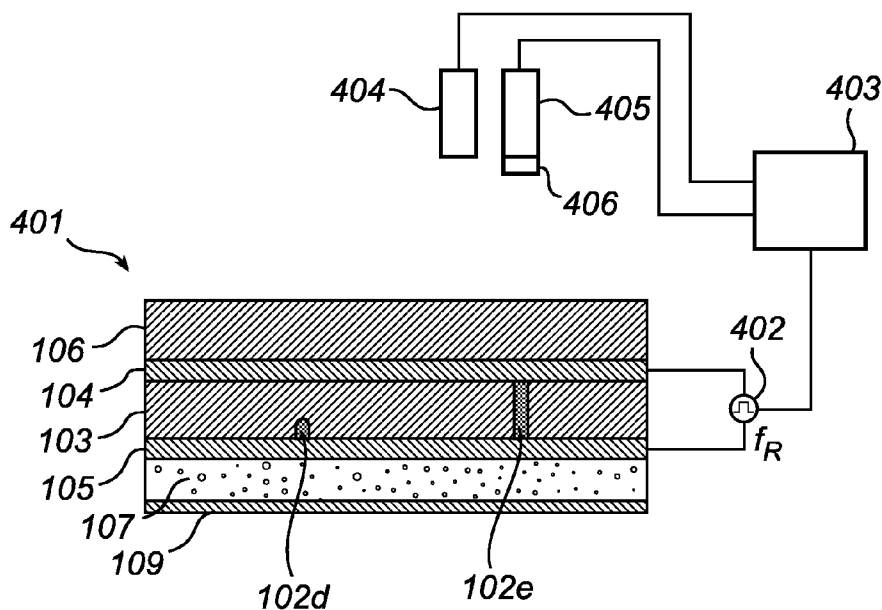
— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

Published:

— with international search report

[Continued on next page]

(54) Title: METHOD FOR REDUCING OCCURRENCE OF SHORT-CIRCUIT FAILURE IN AN ORGANIC FUNCTIONAL DEVICE



(57) Abstract: A method, for reducing occurrence of short-circuit failure in an organic functional device (401) comprising a first transparent electrode layer (104), a second electrode layer (105) and an organic functional layer (103) sandwiched between said first and second electrode layers (104; 105). The method comprises the steps of identifying a portion of said organic functional device (401) / said portion containing a defect (102d-e) leading to an increased risk of short-circuit failure, selecting a segment of said second electrode layer (105), said segment corresponding to said portion, and electrically isolating said segment from a remainder of said second electrode layer (105), thereby eliminating short-circuit failure resulting from said defect (102d-e).

WO 2007/004118 A3



(88) Date of publication of the international search report:

26 July 2007

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.

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2006/052106A. CLASSIFICATION OF SUBJECT MATTER
INV. H01L51/52 H01L51/44

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)
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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 2002 260857 A (SEMICONDUCTOR ENERGY LAB) 13 September 2002 (2002-09-13) paragraphs [0010], [0011], [0033] - [0036], [0041] - [0044], [0154]; figures 2,4,8	1,2,4-9
X	JP 2004 199970 A (SONY CORP) 15 July 2004 (2004-07-15) paragraphs [0004], [0005], [0016], [0027], [0032] - [0034]	1,2,4,6,9
X	US 2004/229387 A1 (JINNO YUSHI [JP]) 18 November 2004 (2004-11-18) paragraphs [0025] - [0027]	1,4-6,9
X	US 2005/023523 A1 (KAWAGUCHI KOJI [JP] ET AL) 3 February 2005 (2005-02-03) paragraphs [0052], [0055], [0092]	1,4-6,9
	----- -/--	

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

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *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)
- *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

- *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
- *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
- *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.
- *&* document member of the same patent family

Date of the actual completion of the international search

13 April 2007

Date of mailing of the international search report

04/05/2007

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Pusch, Catharina

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2006/052106

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 2004/096993 A1 (KUO CHIH-MING [TW]) 20 May 2004 (2004-05-20) paragraphs [0020], [0021], [0029]; figures 2,3a -----	1,2,9

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2006/052106

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 2002260857 A	13-09-2002	NONE	
JP 2004199970 A	15-07-2004	NONE	
US 2004229387 A1	18-11-2004	CN 1551688 A JP 2004342457 A KR 20040098603 A	01-12-2004 02-12-2004 20-11-2004
US 2005023523 A1	03-02-2005	JP 2005032576 A	03-02-2005
US 2004096993 A1	20-05-2004	TW 575967 B	11-02-2004