(19) World Intellectual Property Organization

International Bureau



(43) International Publication Date 13 December 2007 (13.12.2007)

(10) International Publication Number WO 2007/141664 A3

(51) International Patent Classification: H05K 5/00 (2006.01) H01L 33/00 (2006.01)

(21) International Application Number:

PCT/IB2007/002432

(22) International Filing Date: 27 March 2007 (27.03.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

11/277,717 28 March 2006 (28.03.2006)

(71) Applicant (for all designated States except US): COTCO LUMINANT DEVICE LTD. [CN/CN]; 6/f Photonics Centre, No.2 Science Park East Avenue Hong Kong, Science Park, Shatin Hong Kong (CN).

(72) Inventors; and

(75) Inventors/Applicants (for US only): XUAN, Wong [CN/CN]; 1309 Room, No. 24, Yanda 1st Rd. Huizhou City, Guangdong (CN). HUI, Xie, Jian [CN/CN]; 201 Room, No. 1 Zixiling 3 Street, Shuimen, Huizhou City, Guangdong (CN). CHEONG, Cheng, Siu [CN/CN]; Flat A, 34f, Block 2 Finery Park, Tseung, Kwan O, N.T. Hong Kong (CN).

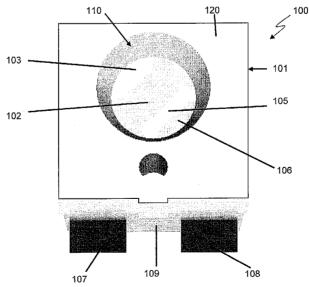
- (74) Agent: CHEN, Bin; Shanghai Patent Trademark Law Office, LLC, 435 Guiping Road, Xuhui, Shanghai 200233 (CN).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, 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, MT, 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).

Declarations under Rule 4.17:

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

[Continued on next page]

(54) Title: APPARATUS, SYSTEM AND METHOD FOR USE IN MOUNTING ELECTRONIC ELEMENTS



(57) Abstract: The present embodiments provide surface mount devices and/or systems. In some embodiments, the surface mount devices comprise a casing with a recess in a second surface; a first lead element partially encased by the casing comprising a coupling portion extending interior to the casing generally in a first direction and a chipset portion extending from the first coupling portion at a first acute angle and through an area exposed by the recess; a second lead element partially encased by the casing comprising a second coupling portion extending interior to the casing in a second direction substantially parallel to the first direction and a head portion extending from the second coupling portion at a second acute angle and partially terminating interior to the area exposed by the recess; and the chipset portion comprises a first indentation and a second indentation both extending into the area exposed through the recess.



WO 2007/141664 A3



- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

Published:

with international search report

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

20 March 2008

INTERNATIONAL SEARCH REPORT

International application No PCT/IB2007/002432

A. CLASSIFICATION OF SUBJECT MATTER INV. H05K5/00 H01L33/00

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 H05K

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, WPI Data, IBM-TDB, COMPENDEX, INSPEC

	Citation of document, with indication, where appropriate, of the relevant passages	
	US 6 376 902 B1 (ARNDT KARLHEINZ [DE]) 23 April 2002 (2002-04-23) column 4, line 44 - column 5, line 45; figure 1a	11-13
	EP 1 005 085 A (MATSUSHITA ELECTRONICS CORP [JP] MATSUSHITA ELECTRIC IND CO LTD [JP]) 31 May 2000 (2000-05-31) paragraph [0043]; figure 1B	11-13
ı	US 2006/049477 A1 (ARNDT KARLHEINZ [DE] ET AL ARNDT KARLHEINZ [DE] ET AL) 9 March 2006 (2006-03-09) paragraph [0062]; figures 1,5	1-20
	_/	

X 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	Date of mailing of the international search report
21 December 2007	11/01/2008
Name and mailing address of the ISA/	Authorized officer
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	Dobbs, Harvey

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2007/002432

C(Continua	tion). DOCUMENTS CONSIDERED TO BE RELEVANT	
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2002/061174 A1 (HURT HANS [DE] ET AL HURT HANS [DE] ET AL) 23 May 2002 (2002-05-23) paragraph [0034] - paragraph [0038]; figures 4,5	1–20

International application No. PCT/IB2007/002432

INTERNATIONAL SEARCH REPORT

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)
This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:
1. Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:
Claims Nos.: because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).
Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)
This International Searching Authority found multiple inventions in this international application, as follows:
see additional sheet
As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. X As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search reportcovers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee. The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation. No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-10,17-20

A surface mount device and a method of manufacturing a surface mount device with a lead element having first and second indentations.

2. claims: 11-16

A surface mount device with lead elements having increased thickness exterior to the casing.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/IB2007/002432

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 6376902	B1	23-04-2002	WO	9907023 A1	11-02-1999
			EP	1004145 A1	31-05-2000
			JP	2001518692 T	16-10-2001
			JP	2007036293 A	08-02-2007
			JP	2007036294 A	08-02-2007
			JP	2007036295 A	08-02-2007
		_	TW	408460 B	11-10-2000
EP 1005085	 А	31-05-2000	CN	1501485 A	02-06-2004
			CN	1254952 A	31-05-2000
			DE	69918038 D1	22-07-2004
			DE	69918038 T2	07-07-2005
			DE	69935016 T2	16-05-2007
			JP	3334864 B2	15-10-2002
			JP	2000156433 A	06-06-2000
			TW	421863 B	11-02-2001
			US	2002130405 A1	19-09-2002
US 2006049477	A1	09-03-2006	CN	1717813 A	04-01-2006
			WO	2004051757 A2	17-06-2004
			DE	10255932 A1	17-06-2004
			EP	1565948 A2	24-08-2005
			JP	2006508537 T	09-03-2006
			TW	244217 B	21-11-2005
US 2002061174	A1	23-05-2002	WO	0154321 A1	26-07-2001
			DE	10002521 A1	09-08-2001
			EP	1249088 A1	16-10-2002
			JP	2003521112 T	08-07-2003