(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization

International Bureau





(10) International Publication Number WO 2013/032238 A3

(43) International Publication Date 7 March 2013 (07.03.2013)

(51) International Patent Classification:

C08G 59/20 (2006.01) C08K 3/00 (2006.01)

C08L 63/00 (2006.01) H05K 7/20 (2006.01)

(21) International Application Number:

PCT/KR2012/006919

(22) International Filing Date:

30 August 2012 (30.08.2012)

(25) Filing Language:

English

(26) Publication Language:

English

KR

(30) Priority Data:

10-2011-0088199 31 August 2011 (31.08.2011)

- (71) Applicant (for all designated States except US): LG IN-NOTEK CO., LTD. [KR/KR]; Seoul Square, 541, Namdaemunno 5-ga, Jung-gu, Seoul 100-714 (KR).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): KIM, Hae Yeon [KR/KR]; Seoul Square, 541,Namdaemunno 5-ga, Junggu, Seoul 100-714 (KR). MOON, Sung Bae [KR/KR]; Seoul Square, 541,Namdaemunno 5-ga, Jung-gu, Seoul 100-714 (KR). PARK, Jae Man [KR/KR]; Seoul Square, 541,Namdaemunno 5-ga, Jung-gu, Seoul 100-714 (KR). PARK, Jeung Ook [KR/KR]; Seoul Square, 541,Namdaemunno 5-ga, Jung-gu, Seoul 100-714 (KR). YOON, Jong Heum [KR/KR]; Seoul Square, 541,Namdaemunno 5-ga, Jung-gu, Seoul 100-714 (KR). CHO, In Hee [KR/KR]; Seoul Square, 541,Namdaemunno 5-ga, Jung-gu, Seoul 100-714 (KR).

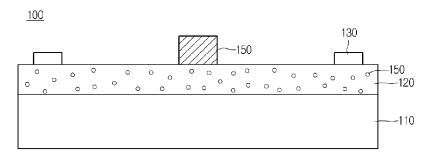
- (74) Agent: SEO, Kyo Jun; 9th Fl. Hyun Juk Bldg., 832-41, Yeoksam-dong, Gangnam-gu, Seoul 135-080 (KR).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, 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, 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, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, 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, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))
- (88) Date of publication of the international search report:

25 April 2013

(54) Title: EPOXY RESIN COMPOUND AND RADIANT HEAT CIRCUIT BOARD USING THE SAME



(57) Abstract: An epoxy resin compound having an epoxy resin, a curing agent, and inorganic filler as main components is provided. The epoxy resin includes an epoxy resin of Chemical Formula. Accordingly, the thermal conductivity of the epoxy resin compound can be increased because the epoxy resin has a mesogen structure that facilitates crystallizability. In addition, a high radiant heat board can be provided by using the above-mentioned epoxy resin as an insulating material for a printed circuit board.



International application No. **PCT/KR2012/006919**

A. CLASSIFICATION OF SUBJECT MATTER

C08G 59/20(2006.01)i, C08L 63/00(2006.01)i, C08K 3/00(2006.01)i, H05K 7/20(2006.01)i

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) C08G 59/20; C08L 63/00; C08G 59/06; C08G 59/62; H01L 23/29; C08G 59/24

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) eKOMPASS(KIPO internal) & Keywords: epoxy, curing, accelerator, bisphenol, filler, circuit board

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 2007-308570 A (NIPPON KAYAKU CO. LTD.) 29 November 2007 See chemical formula 1, column [0008], [0025]-[0030]	1-16
X	JP 2008-156403 A (MATSUSHITA ELECTRIC WORKS LTD.) 10 July 2008 See chemical formula 1, column [0026], [0034], claim 1	1-16
X	KR 10-2007-0009621 A (SUMITOMO BAKELITE CO., LTD.) 18 January 2007 See chemical formula 1, claims 1-4	1-16
А	JP 08-081542 A (TOSHIBA CHEM. CORP.) 26 March 1996 See abstract	1-16

		Further	documents	are	listed	in	the	conti	nuation	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 application or patent 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 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

22 FEBRUARY 2013 (22.02.2013)

Date of mailing of the international search report

25 FEBRUARY 2013 (25.02.2013)

Name and mailing address of the ISA/KR



Korean Intellectual Property Office 189 Cheongsa-ro, Seo-gu, Daejeon Metropolitan City, 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

PARK, Ham Yong

Telephone No. 82-42-481-8409



INTERNATIONAL SEARCH REPORT

International application No.

	L SEARCH REPORT tent family members		International application No. PCT/KR2012/006919		
Patent document cited in search report	Publication date	Patent family member(s)	Publication date		
JP 2007-308570 A	29.11.2007	None			
JP 2008-156403 A	10.07.2008	None			
KR 10-2007-0009621 A	18.01.2007	CN 100575383 C CN 1934157 A CN 1934157 CO JP 05-034500 B2 US 2005-0208307 A1 US 7470754 B2 WO 2005-087833 A1	30.12.2009 21.03.2007 21.03.2007 13.07.2012 22.09.2005 30.12.2008 22.09.2005		
JP 08-081542 A	26.03.1996	None			