

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
16 October 2008 (16.10.2008)

PCT

(10) International Publication Number
WO 2008/123766 A3

(51) International Patent Classification:
H05K 1/05 (2006.01)

(21) International Application Number:
PCT/MY2008/000028

(22) International Filing Date: 4 April 2008 (04.04.2008)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
PI 20070532 5 April 2007 (05.04.2007) MY

(71) Applicant and

(72) Inventor: TAN, Kia, Kuang [MY/MY]; Plot 26, MK 12, Hilir SG. Kluang 3, Phase 4, Free Industrial Zone, Bayan Lepas, 11900 Pulau Pinang (MY).

(74) Agent: LOK, Choon, Hong; Suite 6.03, 6th Floor, Wisma Mirama, Jalan Wisma Putra, 50460 Kuala Lumpur (MY).

(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, BR, BW, BY, BZ, CA,

CH, 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, 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, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
18 December 2008

(54) Title: HIGH THERMAL-EFFICIENT METAL CORE PRINTED CIRCUIT BOARD WITH SELECTIVE ELECTRICAL AND THERMAL CIRCUITRY CONNECTIVITY

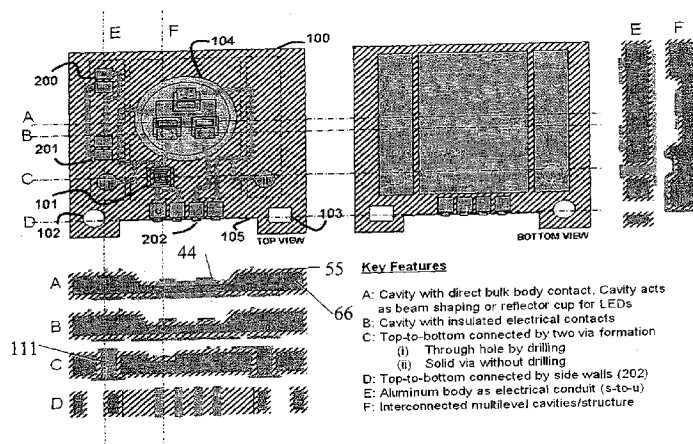


FIG. 2a

(57) Abstract: In accordance with the present invention, a thermally-efficient metal core printed circuit board comprises a metal base (66) including opposing first face and a second face, and the said faces with a plurality of dispersed dielectric (55) or insulating layer selectively fabricated overlying the metal base (66) resulting in a planar surface for the overlying circuitries, a plurality of dispersed thermal metallization layer connected directly to the metal base (66) for optimum thermal performance and a plurality of electrical circuitries connected accordingly to the profile of the metal body for the multi-layer electrical circuit connectivity. The selective dielectric (55) or insulation layer configuration allows direct thermal pad contact to the bulk metal base (66) and insulation for the electrical terminals resulting in high thermal-efficient circuit board for single, matrix, multi-chip device assembly and mother-board applications. The selective dielectric and metallization topology is also applicable to 3D heat sink structure.

WO 2008/123766 A3

INTERNATIONAL SEARCH REPORT

International application No

PCT/MY2008/000028

A. CLASSIFICATION OF SUBJECT MATTER

INV. H05K1/05

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)

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2006/132148 A (FUJIKURA LTD [JP]; SUZUKI RYUJI [JP]; TAKEMOTO KYOSUKE [JP]) 14 December 2006 (2006-12-14) the whole document	1-15
A	KR 100 653 249 B1 (SAMSUNG ELECTRO MECH [KR]) 27 November 2006 (2006-11-27) the whole document	1-15



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

15 October 2008

Date of mailing of the international search report

03/11/2008

Name and mailing address of the ISA/

European Patent Office, P.B. 5618 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040.
Fax: (+31-70) 340-3016

Authorized officer

Debre, Angela

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/MY2008/000028

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2006132148 A	14-12-2006	CN 101176216 A EP 1890341 A1 KR 20080005280 A	07-05-2008 20-02-2008 10-01-2008
KR 100653249 B1	27-11-2006	CN 1980523 A JP 2007158341 A US 2007126112 A1	13-06-2007 21-06-2007 07-06-2007