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(54) Title: AUTOFOCUS CAMERA MODULE PACKAGING WITH CIRCUITRY-INTEGRATED ACTUATOR SYSTEM

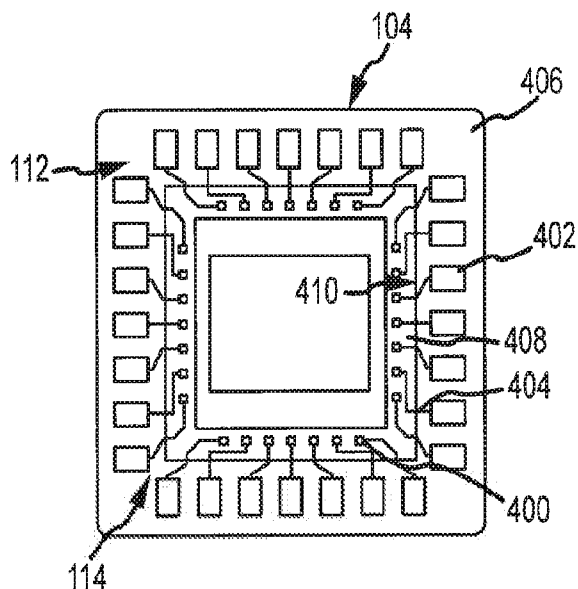


FIG.4

(57) Abstract: A camera module with no PCB that instead has a lens actuator/housing that has circuitry on a bottom surface thereof for direct electrical connection to a mobile electronic device. The housing further has a recess formed in the bottom surface thereof to receive an image sensor. The circuitry is three-dimensional in that it includes a first set of contact pads on one planar surface for connection to the mobile electronic device, a second set of contact pads on a planar surface within the recess for connection to the image sensor, and conductive traces that connect each of the contact pads of the first set with an associated one of the contact pads of the second set by having the trace follow a path from the first planar surface, along a intersecting third planar surface to the second planar surface.



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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/026585**A. CLASSIFICATION OF SUBJECT MATTER****G03B 13/36(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)

G03B 13/36; H04N 5/232; H04N 5/225; G03B 3/10

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:"camera module, mobile electronic device, contact pad, lens, image sensor, multiple different plane, conductive trace"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2006-0257131 A1 (YOUNG-KWON YOON et al.) 16 November 2006 See abstract; claims 1 and 12; figures 4 and 8.	1-22
A	KR 10-2007-0073017 A (LG INNOTEK CO.,LTD.) 10 July 2007 See page 3, lines 17-29; figures 1, 2a and 2b.	1-22
A	US 2004-0189862 A1 (LARS GUSTAVSSON et al.) 30 September 2004 See abstract; claims 1-4; figures 1, 3 and 8.	1-22
A	US 7864245 B2 (YOON DONG-HYEON et al.) 04 January 2011 See abstract; claim 1; figures 3, 6 and 10.	1-22
A	US 2004-0201773 A1 (TONI OSTERGARD) 14 October 2004 See abstract; claims 1-4 and 7-10; figures 2 and 3.	1-22

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

* Special categories of cited documents:

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"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

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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