

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
4 December 2003 (04.12.2003)

PCT

(10) International Publication Number
WO 2003/100876 A3

(51) International Patent Classification⁷: **H01L 41/053**

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(21) International Application Number:
PCT/US2003/016722

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(22) International Filing Date: 28 May 2003 (28.05.2003)

(25) Filing Language: English

(81) Designated States (*national*): AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK (utility model), SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(26) Publication Language: English

(30) Priority Data:
60/383,835 28 May 2002 (28.05.2002) US

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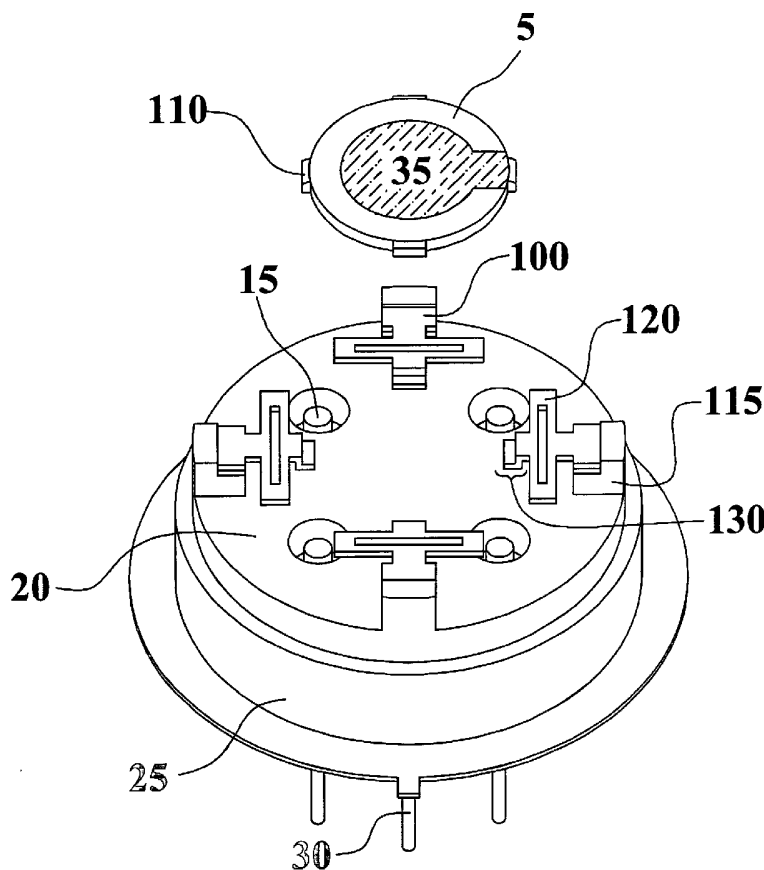
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,

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[Continued on next page]

(54) Title: LOW ACCELERATION SENSITIVITY MOUNTING STRUCTURES FOR CRYSTAL RESONATORS



(57) Abstract: The invention is a method and apparatus for improving the aging, pressure sensitivity, and acceleration sensitivity of crystal resonators (5). In one embodiment the invention includes a coplanar two-dimensional compliant mounting structure (100, 120), wherein the symmetry and compliance of the planar mounting structure (100, 120) reduces the effects of residual static stresses and dynamic vibratory stresses on the vibration sensitivity performance of a crystal resonator (5). The structural elements include compliance loops (120) that provide relief from the effects associated with manufacturing, thermal and vibration stresses.

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ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(88) Date of publication of the international search report:
29 January 2004

Declaration under Rule 4.17:

— *of inventorship (Rule 4.17(iv)) for US only*

Published:

— *with international search report*

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/US03/16722

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H01L 41/053
US CL : 310/348, 353

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)

U.S. : 310/348, 353

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 practicable, search terms used)

JPO, EPO, IBM-TDB, Derwent, USPGPUB

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X -- Y	JP 52056882 A (Hishida et al.) 10 May 1977, figs. 2, 3.	1, 8, 13-15, 18, 35, 41, 44, 45 ----- 2-5, 7, 9, 12-14, 16, 17, 21-24, 26, 27, 30-34, 36-38, 40, 46, 47
Y, P	US 6,550,329 B2 (Watson) 22 April 2003, figs. 12, 13.	2-5, 9, 21-24, 27, 30, 33, 34, 36-38

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

<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"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</p> <p>"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</p> <p>"&" document member of the same patent family</p>
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Date of the actual completion of the international search 26 AUGUST 2003	Date of mailing of the international search report 05 NOV 2003
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US03/16722

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Y	US 3,909,639 A (Kawai et al.) 30 September 1975, fig. 3.	47
A	US 5,572,082 A (Sokol) 05 November 1996, figs. 9, 15, 20, 25.	1, 21, 35
A	EP 0,360,199 A2 (Okumura) 28 March 1990, figs. 11-13, 16.	1, 21, 35
A	US 6,300,707 B1 (Takehana et al.) 09 October 2001, figs. 4, 5.	1, 21, 35
A	US 4,639,632 A (Nataka et al.) 27 January 1987.	