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(71) Applicant: BOARD OF REGENTS, THE UNIVER-SITY OF TEXAS SYSTEM [US/US]; 201 West 7th Street, Austin, TX 78701 (US).

- (72) Inventors: CHOI, Byung, Jin; 1634 Jerusalem Drive, Round Rock, TX 78664 (US). SREENIVASAN, S., V.; 6900 Fireoak Drive, Austin, TX 78759 (US). BAILEY, Todd; 1702 Shelbourne Drive, Austin, TX 78752 (US). COLBURN, Matthew; 4100 Everest Lane, Austin, TX 78727 (US). WILLSON, C., Grant; 4 Downie Place, Austin, TX 78746 (US). EKERDT, John; 6600 Shadow Valley Road, Austin, TX 78731 (US).
- **(74) Agent: MEYERTONS, Eric, B.**; Conley, Rose & Tayon, P.C., P.O. Box 398, Austin, TX 78767-0398 (US).

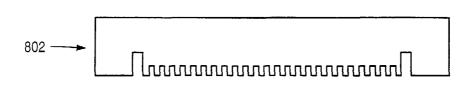
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(54) Title: TEMPLATE FOR ROOM TEMPERATURE, LOW PRESSURE MICRO- AND NANO-IMPRINT LITHOGRAPHY



(57) Abstract: Described are imprint lithography templates, methods of forming and using the templates, and a template holder device. An imprint lithography template may include a body with a plurality of recesses on a surface of the body. The body may be of a material that is substantially transparent to activating light. At least a portion of the plurality of recesses may define features having a feature size less than about 250 nm. A template may be formed by obtaining a material that is substantially transparent to activating light and forming a plurality or recesses on a surface of the template. In some embodiments, a template may further include at least one alignment mark. In some embodiments, a template may further include a gap sensing area. An imprint lithography template may be used to form an imprinted layer in a light curable liquid disposed on a substrate. During use, the template may be disposed within a template holder. The template holder may include a body with an opening configured to receive the template, a support plate, and at least one piezo actuator coupled to the body. The piezo actuator may be configured to alter a physical dimension of the template during use.



#### INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER IPC 7 G03F7/00 G03F G03F9/00 G03F1/00 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) IPC 7 G03F 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, INSPEC C. DOCUMENTS CONSIDERED TO BE RELEVANT Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. P,A WO 01 33300 A (UNIV TEXAS AT AUSTIN) 10 May 2001 (2001-05-10) X WHITE D L ET AL: "Novel alignment system 1-11, for imprint lithography" 15 - 32, JOURNAL OF VACUUM SCIENCE AND TECHNOLOGY: 66-75, PART B, AMERICAN INSTITUTE OF PHYSICS. NEW 95,96, YORK, US, 159-167 vol. 18, no. 6, November 2000 (2000-11), pages 3552-3556, XP002204287 44th Intnl. Conf.. on Electron, Ion and Photon Beam Technology and Nanofabrication, 30-May to 2-June 2000, Rancho Mirage, CA, USA ISSN: 0734-211X the whole document 12-1433-64, 97-158 Further documents are listed in the continuation of box C. Patent family members are listed in annex. ° Special categories of cited documents: "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 "A" document defining the general state of the art which is not considered to be of particular relevance invention "E" earlier document but published on or after the international "X" document of particular relevance; the claimed invention filing date cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "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) "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 docu-"O" document referring to an oral disclosure, use, exhibition or ments, such combination being obvious to a person skilled document published prior to the international filing date but later than the priority date claimed 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 18 July 2002 16/08/2002 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, Haenisch, U Fax: (+31-70) 340-3016

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