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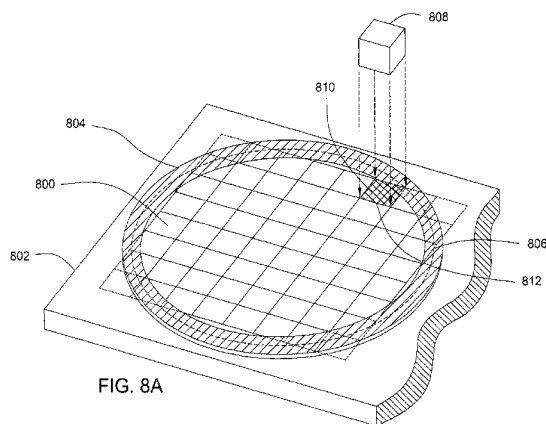
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(54) Title: METHOD AND APPARATUS FOR DETECTING THE SUBSTRATE TEMPERATURE IN A LASER ANNEAL SYSTEM



(57) Abstract: Embodiments of the invention provide a method and an apparatus for detecting the temperature of a substrate surface. In one embodiment, a method for measuring the temperature is provided which includes exposing the surface of the substrate to a laser beam radiating from a laser source, radiating emitted light from a portion of the surface of the substrate, through the shadow ring, and towards a thermal sensor, and determining the temperature of the portion of the surface of the substrate from the emitted light. The substrate may be disposed on a substrate support within a treatment region and a shadow ring may be disposed between the laser source and the surface of the substrate. The shadow ring may be selectively opaque to the laser beam and transparent to the emitted light.

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A. CLASSIFICATION OF SUBJECT MATTER**H01L 21/66(2006.01)i, H01L 21/324(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)

H01L 21/66; B23K 26/00; G05D 23/00; H01L 21/268; H01L 21/477

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 since 1975.

Japanese utility models and applications for utility models since 1975.

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: wafer, block, and temperature

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2005-0272228 A1 (TAKAYUKI ITO et al.) 08 December 2005 See paragraphs [0038]-[0042], figures 1 and 4, and claims 9-20	1-15
A	US 2006-0004493 A1 (HWANG et al.) 05 January 2006 See paragraphs [0026]-[0027] and figure 1	1-15
A	JP 2003-309080 A (SHARP CORP) 31 October 2003 See paragraphs [0051]-[0052] and figures 2-3	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

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"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

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"&" document member of the same patent family

Date of the actual completion of the international search

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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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