

Exhibit 7

in support of the Declaration
of Kat Li



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(54) **BIASED PULSE DC REACTIVE SPUTTERING OF OXIDE FILMS**
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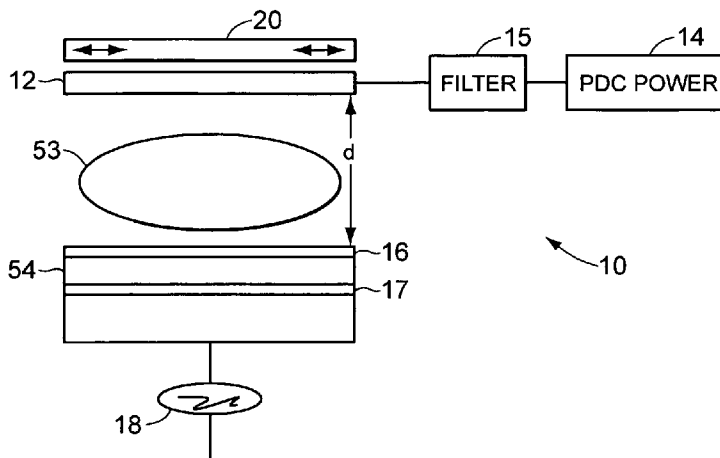
ABSTRACT

(57) A biased pulse DC reactor for sputtering of oxide films is presented. The biased pulse DC reactor couples pulsed DC at a particular frequency to the target through a filter which filters out the effects of a bias power applied to the substrate, protecting the pulsed DC power supply. Films deposited utilizing the reactor have controllable material properties such as the index of refraction. Optical components such as waveguide amplifiers and multiplexers can be fabricated using processes performed on a reactor according to the present invention.

(58) **Field of Classification Search** 438/769, 438/770, 771, 787, 788; 257/E23.132, E21.091, 257/E21.169, E21.2, E21.462
See application file for complete search history.

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21 Claims, 27 Drawing Sheets



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- Office Action dated Oct. 12, 2006, for U.S. Appl. No. 11/228,805.
- Office Action dated Sep. 22, 2006 from Korean Patent Office in Appl. No. 10-2005-7016055.
- Response to Office Action mailed Nov. 8, 2006, to the Korean Patent Office in Appl. No. 10-2005-7016055.
- Response to Office Action from Singapore Patent Office in Appl. No. 200505388-9, dated Aug. 11, 2006.
- Final Office Action dated Oct. 26, 2006, in U.S. Appl. No. 10/851,542.
- Preliminary Amendment filed Jul. 21, 2006, in U.S. Appl. No. 11/297,057.
- Supplemental Preliminary Amendment, Substitute Specification,

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