ULTRALOW DIELECTRIC CONSTANT MATERIAL AS AN INTRALEVEL OR INTERLEVEL DIELECTRIC IN A SEMICONDUCTOR DEVICE AND ELECTRONIC DEVICE CONTAINING THE SAME

A method for fabricating a thermally stable ultralow dielectric constant film comprising Si, C, O and H atoms in a parallel plate chemical vapour deposition process utilizing plasma enhanced chemical vapour deposition ("PECVD") process is disclosed. Electronic devices containing insulating layers of thermally stable ultralow dielectric constant materials that are prepared by the method are further disclosed. To enable the fabrication of thermally stable ultralow dielectric constant film, specific precursor materials are used, such as, cyclic siloxanes and organic molecules containing ring structures, for instance, tetramethylcyclotetrasiloxane and cyclopentene oxide.

Fig. 1.

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