Method of Forming a Semiconductor Device with a Substantially Uniform Density Low-K Dielectric Layer

ABSTRACT

A semiconductor device 100 includes a low-k dielectric insulator 104. In the preferred embodiment, a low-k dielectric material 104 is deposited. This material 104 is then cured using a plasma cure step. The cure process causes the density of the top portion 106 of layer 104 to be increased. The higher density portion 106, however, also has a higher dielectric constant. As a result, the dielectric constant of the layer 104 can be reduced by removing this higher density portion 106. This leads to a lower dielectric constant (e.g., less than about 3) of the bulk film.

FIG. 2