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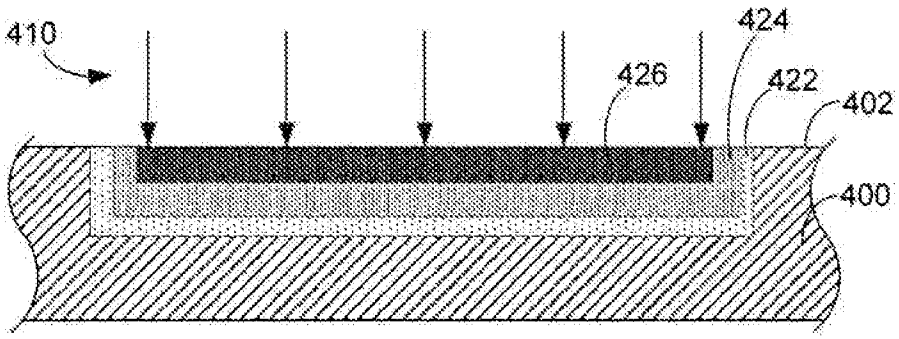


FIGURE 9

(57) Abstract: A first method for producing a doped region in a semiconductor substrate includes performing a first implant step in which a carborane cluster molecule is implanted into a semiconductor substrate to form a doped region. A second method for producing a semiconductor device having a shallow junction region includes providing a first gas and a second gas in a container. The first gas includes a first dopant and the second gas includes a second dopant. The second method also includes implanting the first and second dopants into a semiconductor substrate using an ion. The ion source is not turned off between the steps of implanting the first dopant and implanting the second dopant.

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