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ABSTRACT

**HDP SRO LINER FOR BEYONE 0.18 um STI Gap-Fill**

A new method of forming shallow trench isolations is described. An isolation trench is etched into a substrate. A silicon-rich oxide liner layer is deposited overlying the substrate and within the isolation trench using a high density plasma chemical vapor deposition process (HDP-CVD). Then, an oxide layer is deposited by HDP-CVD overlying the silicon-rich oxide liner layer and filling the trench to complete fabrication of said shallow trench isolation region in the manufacture of the integrated circuit device. The silicon-rich oxide liner layer is of high quality and has a high wet etch rate thereby minimizing divots formed during cleaning steps.

**FIGURE 5**