

## CLAIMS

What is claimed is:

1. A method for processing substrate, the method comprising:  
performing spacer-on-spacer patterning on a semiconductor substrate using at least  
5 one spacer comprising tin oxide.
2. The method of claim 1, wherein performing spacer-on-spacer patterning comprises:  
depositing a first conformal spacer material over a patterned core material,  
selectively etching the patterned core material to form a first spacer comprising  
10 the first conformal spacer material,  
depositing a second conformal spacer material over the first spacer,  
selectively etching the first spacer to form a second spacer comprising the  
second conformal spacer material, and  
etching a target layer using the second spacer as a mask,  
15 wherein either the first conformal spacer material comprises tin oxide or the  
second conformal spacer material comprises tin oxide.
3. The method of claim 2, wherein the first conformal spacer material comprises tin  
oxide and the first spacer is selectively etched by exhuming using hydrogen gas.  
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4. The method of claim 2, wherein at least one of the first conformal spacer material  
and the second conformal spacer material comprises tin oxide and the other of the  
first conformal spacer material and the second conformal spacer material is selected  
from the group consisting of titanium oxide, silicon oxide, silicon nitride, hafnium  
oxide, and lead oxide.  
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5. A method for processing substrates, the method comprising:  
providing a substrate having a patterned core material;  
depositing a first material conformally over the patterned core material on sidewalls  
30 of the patterned core material, the first material selected from the group  
consisting of silicon oxide, silicon nitride, titanium oxide, and lead oxide;  
selectively removing the patterned core material to form a first spacer;  
depositing spacer material comprising a tin oxide conformally over the first spacer  
on sidewalls of the first spacer; and  
35 selectively removing first spacers to form second spacers comprising the tin oxide.

6. A method for processing substrates, the method comprising:  
providing a substrate having a patterned core material;  
depositing a tin oxide material conformally over the patterned core material on  
sidewalls of core material;  
selectively removing the patterned core material to form tin oxide spacers;  
depositing a second spacer material conformally over the tin oxide spacers on  
sidewalls of the tin oxide spacers; and  
selectively removing the tin oxide spacers to form second spacers.
7. A method for processing substrates, the method comprising:  
depositing an exhumable material conformally over a core material; and  
selectively removing horizontal regions of the exhumable material and removing the  
core material to form spacers comprising the exhumable material; and  
depositing a complementary material over the spacers comprising the exhumable  
material, wherein the exhumable material is capable of being selectively etched  
relative to the complementary material.
8. The method of claim 7, wherein at least one of the exhumable material and the  
complementary material comprises tin oxide and the other of the exhumable material  
and the complementary material is selected from the group consisting of titanium  
oxide, silicon oxide, silicon nitride, hafnium oxide, and lead oxide.
9. The method of claim 7, further comprising removing the spacers comprising the  
exhumable material using hydrogen gas.
10. The method of any of claims 1-9, wherein the tin oxide is deposited using a tin  
halide, organometallic tin-containing compound, chlorinated organometallic tin-  
containing compound, and combinations thereof.