What is claimed is:

1. A method of forming a plurality of transistor gates having at least two different work functions, comprising:

forming first and second transistor gates over a substrate, the first gate having a first width and the second gate having a second width, the first width being narrower than the second width;

depositing a material over the substrate including over the first and second gates;

within an etch chamber, etching the material from being over the first gate and to leave the material over the second gate; and

in situ within the etch chamber after the etching, subjecting the substrate to at least one of a gaseous or plasma metal at a substrate temperature of at least 300°C to diffuse said metal into the first gate to modify work function of the first gate as compared to work function of the second gate.

2. The method of claim 1 wherein the material received over the second gate shields any of said metal from diffusing into the second gate during the subjecting.

3. The method of claim 1 wherein the subjecting also diffuses said metal into the material received over the second gate.

4. The method of claim 3 wherein the material received over the second gate shields any of said metal from diffusing into the second gate during the subjecting.

5. The method of claim 3 wherein some of said metal also diffuses into the second gate.

6. The method of claim 1 wherein the metal is derived from an organometallic compound.

7. The method of claim 1 wherein the etching and subjecting occur without any mask being received over any of the material.

8. A method of forming a plurality of transistor gates comprising:

forming a plurality of transistor gates over a substrate, the transistor gates comprising a conductive region;

providing a material over the conductive region of the transistor gates, the material being of different composition from that of an outermost portion of the conductive region of the transistor gates;

after providing the material, forming a mask to cover some of the transistor gates and leave others of the transistor gates not covered by the mask;

within an etch chamber and after forming the mask, etching the material from being received over the transistor gates which are not covered by the mask; and

in situ within the etch chamber after the etching, subjecting the substrate to at least one of a gaseous or plasma metal at a substrate temperature of at least 300°C to diffuse said metal into the conductive region of the transistor gates which are not covered by the mask to modify work function of the transistor gates which are not covered by the mask as compared to work function of the transistor gates which are covered by the mask.

9. The method of claim 8 wherein the material is insulative.

10. The method of claim 8 wherein the material is conductive or semiconductive.

11. The method of claim 8 wherein the mask shields any of said metal from diffusing into the conductive region of the transistor gates which are covered by the mask.

12. The method of claim 8 wherein at least the outermost portion of the conductive region comprises at least one of elemental form metal or an alloy of elemental form metals.

13. The method of claim 12 wherein all of the conductive region consists essentially of one or more elemental form metals or an alloy of elemental form metals.

14. The method of claim 8 wherein at least the outermost portion of the conductive region comprises conductively doped polysilicon, the subjecting forming a conductive metal silicide within the conductive region.

15. The method of claim 8 wherein the metal is derived from an organometallic compound.

16. The method of claim 8 wherein the material is deposited to have a non-planar outermost surface.

17. The method of claim 8 wherein the material is deposited to have a planar outermost surface.

18 The method of claim 1 wherein the metal is derived from a metal halide.

19. The method of claim 1 wherein the first gate is homogenous before and after the subjecting.

20. The method of claim 1 wherein the first gate is not homogenous before the subjecting and is not homogenous after the subjecting.

21. The method of claim 1 wherein the metal does not diffuse to be homogenous within the first gate.

22. The method of claim 1 wherein the metal diffuses to be homogenous within the first gate.

23. The method of claim 1 wherein the metal comprises at least one of platinum, iridium, cobalt, titanium, tungsten, tantalum, aluminum, nickel and iron.

24. The method of claim 5 wherein the metal diffuses deeper into the first gate than into the second gate.

25 The method of claim 1 wherein the metal is derived from a metal halide.

26. The method of claim 1 wherein the respective conductive regions are homogenous before and after the subjecting.

27. The method of claim 1 wherein the respective conductive regions are not homogenous before the subjecting and are not homogenous after the subjecting.

28. The method of claim 1 wherein the metal does not diffuse to be homogenous within the respective conductive regions.

29. The method of claim 1 wherein the metal diffuses to be homogenous within the respective conductive regions.

30. The method of claim 1 wherein the metal comprises at least one of platinum, iridium, cobalt, titanium, tungsten, tantalum, aluminum, nickel and iron.

Claims

1. A method of forming a plurality of transistor gates having at least two different work functions, comprising:

forming first and second transistor gates over a substrate, the first gate having a first width and the second gate having a second width, the first width being narrower than the second width;

depositing a material over the substrate including over the first and second gates;

within an etch chamber, etching the material from being over the first gate and to leave the material over the second gate; and

in situ within the etch chamber after the etching, subjecting the substrate to at least one of a gaseous or plasma metal at a substrate temperature of at least 300°C to diffuse said metal into the first gate to modify work function of the first gate as compared to work function of the second gate.

2. The method of claim 1 wherein the material received over the second gate shields any of said metal from diffusing into the second gate during the subjecting.

3. The method of claim 1 wherein the subjecting also diffuses said metal into the material received over the second gate.

4. The method of claim 3 wherein the material received over the second gate shields any of said metal from diffusing into the second gate during the subjecting.

5. The method of claim 3 wherein some of said metal also diffuses into the second gate.

6. The method of claim 1 wherein the metal is derived from an organometallic compound.

7. The method of claim 1 wherein the etching and subjecting occur without any mask being received over any of the material.

8 The method of claim 1 wherein the metal is derived from a metal halide.

9. The method of claim 1 wherein the first gate is homogenous before and after the subjecting.

10. The method of claim 1 wherein the first gate is not homogenous before the subjecting and is not homogenous after the subjecting.

11. The method of claim 1 wherein the metal does not diffuse to be homogenous within the first gate.

12. The method of claim 1 wherein the metal diffuses to be homogenous within the first gate.

13. The method of claim 1 wherein the metal comprises at least one of platinum, iridium, cobalt, titanium, tungsten, tantalum, aluminum, nickel and iron.

14. The method of claim 5 wherein the metal diffuses deeper into the first gate than into the second gate.

15. The method of claim 1 wherein the transistor gates comprise a conductive region, the respective conductive regions being homogenous before and after the subjecting.

16. The method of claim 1 wherein the transistor gates comprise a conductive region, the respective conductive regions not being homogenous before the subjecting and not being homogenous after the subjecting.

17. The method of claim 1 wherein the transistor gates comprise a conductive region, the metal not diffusing to be homogenous within the respective conductive regions.

18. The method of claim 1 wherein the transistor gates comprise a conductive region, the metal diffusing to be homogenous within the respective conductive regions.