What is claimed is:

CLAIMS

1. A method of semiconductor fabrication comprising:

providing a substrate having first and second opposing surfaces, wherein the first and second surfaces are segmented into a plurality of first and second zones;

processing the first zones on the first surface individually; and

processing the second zones on the second surface individually,

wherein corresponding first and second zones on the first and second surfaces are synchronously processed.

2. The method of claim 1 wherein processing the zones on the first surface comprises scanning the first surface with an excitation system, wherein scanning processes a row of zones.

3. The method of claim 2 wherein the excitation system comprises a laser excitation source.

4. The method of claim 2 wherein the excitation system comprises a laser excitation source and an optical system for focusing an excitation image from the excitation source onto the first surface of the substrate.

5. The method of claim 4 wherein the excitation system is translated to process the zones on the first surface.

6. The method of claim 1 wherein processing the zones on the first surface comprises repeatedly scanning the first surface with an excitation system to repeatedly process rows of zones until all zones are processed.

7. The method of claim 6 wherein the excitation system comprises a laser excitation source.

8. The method of claim 6 wherein the excitation system comprises a laser excitation source and an optical system for focusing an excitation image from the excitation source onto the first surface of the substrate.

9. The method of claim 8 wherein the excitation system is translated to process the zones on the first surface.

10. The method of claim 1 wherein processing the zones on the first and second surfaces comprises heating the zones on the first and second surfaces.

11. The method of claim 1 wherein processing the zones on the first and second surfaces synchronously reduces within substrate variations in sheet resistance.

12. The method of claim 1 wherein processing the first surface activates dopants of doped regions on the substrate.

13. The method of claim 12 wherein processing the zones on the first and second surfaces synchronously reduces within substrate variations in sheet resistance.

14. The method of claim 1 wherein processing the second surface comprises heating the second surface with a second surface heating source.

15. The method of claim 14 wherein the second surface heating source comprises a lamp array.

16. A method of fabricating an article comprising:

providing an article having first and second surfaces, wherein the first and second surfaces are segmented into a plurality of first and second zones;

processing the first zones on the first surface individually; and

processing the second zones on the second surface individually, wherein corresponding first and second zones are synchronously processed.

17. The method of claim 16 wherein the article comprises a semiconductor wafer.

18. The method of claim 16 wherein processing the zones on the first surface comprises scanning the first surface of the article with an excitation system, wherein scanning processes a row of zones.

19. The method of claim 18 wherein the excitation system comprises a laser excitation source.

20. A semiconductor processing system comprising:

a stage for mounting a substrate to be processed;

an excitation system for processing first zones on a first surface of the substrate; and

a heating source for processing second zones on a second surface of the substrate,

wherein the excitation system and heating source are configured to process corresponding first and second zones on the first and second surfaces synchronously.

What is claimed is:

CLAIMS

1. A method of semiconductor fabrication which reduces large variations of resistance across a semiconductor wafer comprising:

providing the semiconductor wafer having first and second opposing surfaces, the first surface is segmented into a plurality of first zones and the second surface is segmented into a plurality of second zones, wherein the first zones on the first surface have at least substantially corresponding second zones on the second surface;

processing the first zones on the first surface in a first ordered sequence to activate dopants in the semiconductor wafer; and

processing the corresponding second zones on the second surface in a second ordered sequence,

wherein processing the first and corresponding second zones in the first and second ordered sequences simultaneously and synchronously reduces the problem of large variations of resistance across the semiconductor wafer.

2. The method of claim 1 wherein processing the first zones on the first surface comprises scanning the first surface with an excitation system, wherein scanning processes a row of zones.

3. The method of claim 2 wherein the excitation system comprises a laser excitation source.

4. The method of claim 2 wherein the excitation system comprises a laser excitation source and an optical system for focusing an excitation image from the excitation source onto the first surface of the semiconductor wafer.

5. The method of claim 4 wherein the excitation system is translated to process the zones on the first surface.

6. The method of claim 1 wherein processing the zones on the first surface comprises repeatedly scanning the first surface with an excitation system to repeatedly process rows of zones, in the first ordered sequence, until all zones are processed.

7. The method of claim 6 wherein the excitation system comprises a laser excitation source.

8. The method of claim 6 wherein the excitation system comprises a laser excitation source and an optical system for focusing an excitation image from the excitation source onto the first surface of the semiconductor wafer.

9. The method of claim 8 wherein the excitation system is translated to process the zones on the first surface.

10. The method of claim 1 wherein processing the zones on the first and second surfaces comprises heating the zones on the first and second surfaces.

11. The method of claim 1 wherein the first zones on the first surface is processed by a first heating source and the corresponding second zones on the second surface is processed by a second heating source, and wherein the first and second heating sources are different types of heating sources.

12. The method of claim 1 wherein the first zones of the first surface is processed in the first ordered sequence in a first direction and the corresponding second zones of the second surface is processed in the second ordered sequence in the same first direction.

13. The method of claim 12 wherein the first direction is parallel to the first surface of the semiconductor wafer.

14. The method of claim 1 wherein processing the corresponding second zones on the second surface comprises heating the second surface with a second surface heating source.

15. The method of claim 14 wherein the second surface heating source comprises a lamp array.

16. A method of fabricating a semiconductor device comprising:

providing a semiconductor wafer having first and second opposing surfaces, the first surface is segmented into a plurality of first zones and the second surface is segmented into a plurality of second zones, wherein the first zones on the first surface have at least substantially corresponding second zones on the second surface;

processing the first zones on the first surface in a first ordered sequence to activate dopants in the semiconductor wafer; and

processing the corresponding second zones on the second surface in a second ordered sequence,

wherein processing the first and corresponding second zones in the first and second ordered sequences reduce the problem of large variations of resistance across the semiconductor wafer.

17. The method of claim 16 wherein the first zones of the first surface is processed in the first ordered sequence in a first direction which is parallel to the first surface and the corresponding second zones of the second surface is processed in the second ordered sequence in the same first direction.

18. The method of claim 16 wherein processing the zones on the first surface comprises scanning the first surface of the article with an excitation system, wherein scanning processes a row of zones.

19. The method of claim 18 wherein the excitation system comprises a laser excitation source.

20. A method of semiconductor fabrication comprising:

providing a semiconductor wafer having first and second opposing surfaces, the first surface is segmented into a plurality of first zones and the second surface is segmented into a plurality of second zones, wherein the first zones on the first surface have at least substantially corresponding second zones on the second surface

processing the first zones on the first surface in a first ordered sequence in a first direction to activate dopants in the semiconductor wafer;

processing the corresponding second zones on the second surface in a second ordered sequence in the same first direction,

wherein processing the first and corresponding second zones in the first and second ordered sequences simultaneously reduce the problem of large variations of resistance across the semiconductor wafer.

21. The method of claim 20 wherein the first zones on the first surface is processed by a first heating source and the corresponding second zones on the second surface is processed by a second heating source, and wherein the first and second heating sources are different types of heating sources.

22. The method of claim 20 wherein the first direction is parallel to the first surface of the semiconductor wafer.

23. The method of claim 16 wherein:

the first zones on the first surface is processed by a first heating source and the corresponding second zones on the second surface is processed by a second heating source, and wherein the first and second heating sources are different types of heating sources.