

## CLAIMS

~~What is claimed is:~~

1. An apparatus to couple signals to a process chamber, comprising:  
one or more first switches, positioned, when installed in the process chamber, between at least one energy storage device and at least one active element of the process chamber, and configured to control a first current conducted between the at least one energy storage device and the at least one active element of the process chamber; and  
one or more second switches, positioned, when installed in the process chamber, between the at least one energy storage device and one or more current generators, and configured to control current conduction between the one or more current generators and the at least one energy storage device.
2. The apparatus of claim 1, further comprising one or more radiofrequency (RF) filters, each of the one or more RF filters in a series relationship with a corresponding one of the one or more first switches.
3. The apparatus of claim 2, wherein at least one of the one or more RF filters provides at least about 20 dB of signal attenuation at about 400 kHz or at about 27.12 MHz.
4. The apparatus of claim 1, wherein the at least one energy storage device comprises a capacitor or an inductor.
5. The apparatus of claim 4, wherein the capacitor comprises a capacitance from about 1 mF to about 100 mF or the inductor comprises an inductance from about 1 mH to about 100 mH.
6. The apparatus of claim 1, further comprising a transformer configured to increase a voltage from the at least one energy storage device.
7. The apparatus of claim 1, further comprising a controller coupled to the at least one energy storage device and configured to modify a value of capacitance or inductance of the at least one energy storage device.

8. The apparatus of claim 1, wherein the at least one energy storage device comprises 2 or more energy storage devices arranged in a parallel relationship.

9. The apparatus of claim 1, wherein the at least one active element of the process chamber comprises a resistive heating element, a microwave signal generator, an ultraviolet light source, an infrared light source, or any combination thereof.

10. The apparatus of claim 1, wherein the one or more first switches, a radiofrequency (RF) filter, the energy storage device, and the one or more one or more second switches are arranged in a series relationship with the one or more current generators.

11. The apparatus of claim 10, further comprising a controller configured to prevent closing of the one or more first switches and the one or more second switches at the same time.

12. A controller to control switching of one or more first of switches and one or more second switches, the controller comprising:

a processor, coupled to a memory, to direct opening of the one or more first switches positioned between at least one energy storage device and at least one active element of a process chamber,

the processor additionally to direct closing of the one or more first switches following, or simultaneous with, the opening of the one or more second switches positioned between the at least one energy storage device and one or more current generators.

13. The controller of claim 12, wherein the processor, after a duration, directs opening of the one or more second switches and, following or simultaneously with the opening of the one or more second switches, initiates closing of the one or more first switches.

14. The controller of claim ~~12~~13, wherein the processor additionally operates to modify a value of capacitance or inductance of the at least one energy storage device.

15. The controller of claim 12, wherein the processor additionally directs closing of the

one or more first switches responsive to an indication that the at least one energy storage device has accumulated a predetermined amount of energy.

16. A process chamber, comprising:  
a first input port to receive a radiofrequency (RF) signal;  
a resistive heating element at least partially disposed within the process chamber;  
a current generator coupled to an energy storage device to supply an electric current to the resistive heating element;  
a first switch, between the energy storage device and the resistive heating element, to interrupt a current coupled from the energy storage device to the resistive heating element; and  
a second switch, between the current generator and the energy storage device, to interrupt a current coupled from the current generator and the energy storage device.

17. The process chamber of claim 16, further comprising a controller to: (i) open the first switch and to close the second switch to permit the energy storage device to accumulate charge from the current generator; or (ii) close the first switch and open the second switch responsive to the energy storage device storing a predetermined amount of charge.

18. The process chamber of claim 17, wherein the controller operates to ensure that the first switch and the second switch are not simultaneously closed.

19. The process chamber of claim 16, wherein the RF signal received by the first input port comprises a signal of about 400 kHz and/or a signal of about 27.12 MHz.

20. The process chamber of claim 16, wherein the process chamber comprises 2 or more wafer-processing stations.