CLAIMS:

1. A single crystal silicon wafer comprising:

two major, parallel surfaces, one of which is a front surface of the single crystal silicon wafer and the other of which is a back surface of the single crystal silicon wafer, a circumferential edge joining the front and back surfaces of the single crystal silicon wafer, a bulk region between the front and back surfaces, and a central plane of the single crystal silicon wafer between the front and back surfaces of the single crystal silicon wafer, wherein the bulk region comprises an impurity comprising nitrogen at a concentration of at least $5x10^{14}$ atoms/cm^3, germanium at a concentration of at least $5x10^{19}$ atoms/cm^3, or a combination of nitrogen at a concentration of at least $5x10^{14}$ atoms/cm^3 and germanium at a concentration of at least $5x10^{19}$ atoms/cm^3, and interstitial oxygen at a concentration of less than 6 ppma (New ASTM: ASTM F 121, 1980-1983; DIN 50438/1, 1978), and further wherein the bulk region of the single crystal silicon wafer has a resistivity of at least 3000 ohm cm.

2. The single crystal silicon wafer of claim 1 wherein the concentration of interstitial oxygen is less than 5 ppma.

3. The single crystal silicon wafer of claim 1 wherein the concentration of interstitial oxygen is less than 4 ppma.

4. The single crystal silicon wafer of claim 1 wherein the concentration of interstitial oxygen is less than 3 ppma.

5. The single crystal silicon wafer of claim 1 wherein the resistivity is at least 5000 ohm cm.

6. The single crystal silicon wafer of claim 1 wherein the resistivity is at least 10000 ohm cm.

7. The single crystal silicon wafer of claim 1 wherein the resistivity is at least 15000 ohm cm.

8. The single crystal silicon wafer of claim 1 wherein the resistivity is at least 20000 ohm cm.

9. The single crystal silicon wafer of any of claims 1 through 8 wherein the germanium concentration is at least $5x10^{19}$ atoms/cm^3 and less than $1x10^{22}$ atoms/cm^3.

10. The single crystal silicon wafer of any of claims 1 through 8 wherein the germanium concentration is at least $5x10^{19}$ atoms/cm^3.

11. The single crystal silicon wafer of any of claims 1 through 10 comprising nitrogen at a concentration of at least $5x10^{14}$ atoms/cm^3 and less than $1x10^{16}$ atoms/cm^3.

12. The single crystal silicon wafer of any of claims 1 through 10 comprising nitrogen at a concentration of at least $1x10^{15}$ atoms/cm^3 and less than $1x10^{16}$ atoms/cm^3.

13. A single crystal silicon ingot comprising:

a central axis, a crown, an end opposite the crown, and a main body between the crown and the opposite end, the main body having a lateral surface and a radius, R, extending from the central axis to the lateral surface, wherein the main body of the single crystal silicon ingot comprises an impurity comprising nitrogen at a concentration of at least $5x10^{14}$ atoms/cm^3, germanium at a concentration of at least $5x10^{19}$ atoms/cm^3, or a combination of nitrogen at a concentration of at least $5x10^{14}$ atoms/cm^3 and germanium at a concentration of at least $5x10^{19}$ atoms/cm^3, and interstitial oxygen at a concentration of less than 6 ppma (New ASTM: ASTM F 121, 1980-1983; DIN 50438/1, 1978), and further wherein the main body of the single crystal silicon ingot has a resistivity of at least 3000 ohm cm, and further wherein the total ingot length is at least 500 mm.

14. The single crystal silicon ingot of claim 13 wherein the concentration of interstitial oxygen is less than 5 ppma.

15. The single crystal silicon ingot of claim 13 wherein the concentration of interstitial oxygen is less than 4 ppma.

16. The single crystal silicon ingot of claim 13 wherein the concentration of interstitial oxygen is less than 3 ppma.

17. The single crystal silicon ingot of claim 13 wherein the resistivity is at least 5000 ohm cm.

18. The single crystal silicon ingot of claim 13 wherein the resistivity is at least 10000 ohm cm.

19. The single crystal silicon ingot of claim 13 wherein the resistivity is at least 15000 ohm cm.

20. The single crystal silicon ingot of claim 13 wherein the resistivity is at least 20000 ohm cm.

21. The single crystal silicon ingot of any of claims 13 through 20 wherein the germanium concentration is at least $5x10^{19}$ atoms/cm^3 and less than $1x10^{22}$ atoms/cm^3.

22. The single crystal silicon ingot of any of claims 13 through 20 wherein the germanium concentration is at least $5x10^{19}$ atoms/cm^3.

23. The single crystal silicon ingot of any of claims 13 through 22 comprising nitrogen at a concentration of at least $5x10^{14}$ atoms/cm^3 and less than $2x10^{15}$ atoms/cm^3.

24. The single crystal silicon ingot of any of claims 13 through 22 comprising nitrogen at a concentration of at least $1x10^{15}$ atoms/cm^3 and less than $1x10^{16}$ atoms/cm^3.

25. A method of growing a single crystal silicon ingot of claim 13, the method comprising:

preparing a silicon melt, wherein the silicon melt is prepared by melting polycrystalline silicon having a resistivity greater than 1000 ohm cm in a crucible comprising a synthetic quartz lined wall and further adding a source of an impurity to the crucible comprising the quartz lined wall, the crucible held within a growth chamber, and further wherein the impurity comprises a source of germanium, a source of nitrogen, or a combination of a source of germanium and a source of nitrogen, wherein the crucible is rotated at a crucible rotation rate;

dipping a seed crystal into the silicon melt, wherein the seed crystal is rotated at a seed rotation rate; and

withdrawing the seed crystal from the silicon melt to thereby pull the single crystal silicon ingot from the silicon melt under an applied magnetic field, the single crystal silicon ingot comprising a central axis, a crown, an end opposite the crown, and a main body between the crown and the opposite end, the main body having a lateral surface and a radius, R, extending from the central axis to the lateral surface, wherein the main body of the single crystal silicon ingot comprises nitrogen at a concentration of at least $5x10^{14}$ atoms/cm^3, germanium at a concentration of at least $5x10^{19}$ atoms/cm^3, or a combination of nitrogen at a concentration of at least $5x10^{14}$ atoms/cm^3 and germanium at a concentration of at least $5x10^{19}$ atoms/cm^3, further wherein the pulling conditions selected from the group consisting of convection, seed rotation rate, crucible rotation rate, applied magnetic field strength, cusp position of an applied magnetic field, temperature of a wall-melt interface, seed lift rate, inert gas flow, inert gas pressure, and any combination thereof are sufficient to yield a concentration of interstitial oxygen in the main body of the single crystal silicon ingot of less than 6 ppma (New ASTM: ASTM F 121, 1980-1983; DIN 50438/1, 1978), and further wherein the main body of the single crystal silicon ingot has a resistivity of at least 3000 ohm cm, and further wherein the total ingot length is at least 500 mm.