~~WHAT IS CLAIMED IS~~CLAIMS:

1. A method of preparing a single crystal silicon ingot by the Continuous Czochralski method, the method comprising:

adding an initial charge of polycrystalline silicon to a crucible, the initial charge further comprising a source of nitrogen;

heating the crucible comprising the initial charge of polycrystalline silicon and the source of nitrogen to cause a silicon melt to form in the crucible, the silicon melt comprising an initial volume of molten silicon and having an initial melt elevation level;

contacting a silicon seed crystal with a silicon melt;

withdrawing the silicon seed crystal to grow a neck portion, wherein the silicon seed crystal is withdrawn at a neck portion pull rate during growth of the neck portion, and further wherein the neck portion has a neck portion nitrogen concentration of at least about $1x10^{13}$ atoms/cm^3, wherein the neck portion nitrogen concentration varies by no more than 20% above and no less than 20% below an average neck portion nitrogen concentration;

withdrawing the silicon seed crystal to grow an outwardly flaring seed-cone adjacent the neck portion, wherein the silicon seed crystal is withdrawn at a seed-cone pull rate during growth of the outwardly flaring seed-cone, and further wherein the outwardly flaring seed-cone has an outwardly flaring seed-cone nitrogen concentration of at least about $1x10^{13}$ atoms/cm^3; and

withdrawing the silicon seed crystal to grow an outwardly flaring seed-cone adjacent the neck portion, wherein the silicon seed crystal is withdrawn at a seed-cone pull rate during growth of the outwardly flaring seed-cone, and further wherein the outwardly flaring seed-cone has an outwardly flaring seed-cone nitrogen concentration of at least about $1x10^{13}$ atoms/cm^3, wherein the outwardly flaring seed-cone nitrogen concentration varies by no more than 20% above and no less than 20% below an average outwardly flaring seed-cone nitrogen concentration; and

withdrawing the silicon seed crystal to grow a main body of the single crystal silicon ingot adjacent the outwardly flaring seed-cone, wherein the silicon melt comprises a volume of molten silicon and a melt elevation level during growth of the

main body of the single crystal silicon ingot, and further wherein the main body of the single crystal silicon has a main body nitrogen concentration of at least about $1x10^{13}$ atoms/cm^3, wherein the main body of the single crystal silicon ingot is at least about 1000 millimeters long, and further wherein the main body nitrogen concentration varies by no more than 20% above and no less than 20% below an average main body nitrogen concentration over at least 40% of axial length of the main body of the single crystal silicon ingot;

wherein the main body of the single crystal silicon ingot is grown at an initial variable main body pull rate and a constant main body pull rate, wherein the main body of the single crystal silicon ingot is grown at the initial variable main body pull rate for less than about 20% of a length of the main body of the single crystal silicon ingot and grown at the constant main body pull rate during growth for at least about 30% of the length of the main body of the single crystal silicon ingot, wherein the constant main body pull rate is between about 0.4 mm/min and about 0.8 mm/min, and further wherein the main body of the single crystal silicon ingot has a diameter of at least about 150 millimeters; and

further wherein polycrystalline is continuously fed or periodically feed to the crucible to thereby replenish a volume of molten silicon and to thereby maintain a melt elevation level in the crucible during growth of the main body of the single crystal silicon ingot and the source of nitrogen is continuously fed or periodically fed to the crucible to thereby replenish an amount of nitrogen.

2. The method of claim 1 wherein the source of nitrogen is a solid source of nitrogen.

3. The method of claim 1 wherein the source of nitrogen is silicon nitride powder.

4. The method of claim 1 wherein the source of nitrogen is a silicon wafer having a silicon nitride film on a surface thereof, wherein the silicon wafer is optionally crushed.

5. The method of claim 1 wherein the source of nitrogen is silicon oxynitride glass.

6. The method of claim 1 wherein the source of nitrogen is nitrogen gas.

7. The method of claim 1 wherein the neck portion nitrogen concentration is between about $1x10^{13}$ atoms/cm^3 and about $1x10^{15}$ atoms/cm^3~~, or between about $1x10^{13}$ atoms/cm^3 and about $1.5x10^{14}$ atoms/cm^3, or between about $5x10^{13}$ atoms/cm^3 and about $1x10^{14}$ atoms/cm^3~~.

8. The method of claim 1 wherein the outwardly flaring seed-cone nitrogen concentration is between about $1x10^{13}$ atoms/cm^3 and about $1x10^{15}$ atoms/cm^3~~, or between about $1x10^{13}$ atoms/cm^3 and about $1.5x10^{14}$ atoms/cm^3, or between about $5x10^{13}$ atoms/cm^3 and about $1x10^{14}$ atoms/cm^3~~.

9. The method of claim 1 wherein the source of nitrogen is continuously fed or periodically fed to the crucible in an amount between about 1 milligram nitrogen and about 100 milligrams nitrogen per 50 mm of axial length of the main body of the single crystal silicon ingot~~, or between about 1 milligram nitrogen and about 25 milligrams nitrogen per 50 mm of axial length of the main body of the single crystal silicon ingot, or between about 2 milligrams nitrogen and about 15 milligrams nitrogen per 50 mm of axial length of the main body of the single crystal silicon ingot~~.

10. The method of claim 1 wherein silicon nitride is continuously fed or periodically fed to the crucible during growth of the main body of the single crystal silicon ingot in an amount between about 2.5 milligrams silicon nitride and 250 milligrams silicon nitride per 50 mm of axial length of the main body of the single crystal silicon ingot~~, or between about 5 milligrams silicon nitride and 100 milligrams silicon nitride per 50 mm of axial length of the main body of the single crystal silicon ingot, or between about 10 milligrams silicon nitride and 50 milligrams silicon nitride per 50 mm of axial length of the main body of the single crystal silicon ingot~~.

11. The method of claim 1 wherein the main body nitrogen concentration is between about $1x10^{13}$ atoms/cm^3 and about $1x10^{15}$ atoms/cm^3~~, or between about $1x10^{13}$ atoms/cm^3 and about $1.5x10^{14}$ atoms/cm^3, or between about $5x10^{13}$ atoms/cm^3 and about $1x10^{14}$ atoms/cm^3~~.

12. The method of claim 1 wherein the main body nitrogen concentration is between about $5x10^{13}$ atoms/cm^3 and about $1x10^{14}$ atoms/cm^3, over at least 40% of axial length of the main body of the single crystal silicon ingot~~, at least 50% of axial length of the main body of the single crystal silicon ingot, at least 60% of axial length of the main body of the single crystal silicon ingot, at least 70% of axial length of the main body of the single crystal silicon ingot, or at least 80% of axial length of the main body of the single crystal silicon ingot~~.

13. The method of claim 1 wherein the main body nitrogen concentration is between about $1x10^{13}$ atoms/cm^3 and about $1.5x10^{14}$ atoms/cm^3, ~~or between about $5x10^{13}$ atoms/cm^3 and about $1x10^{14}$ atoms/cm^3~~ and further wherein the main body nitrogen concentration varies by no more than 20% above and no less than 20% below an average main body nitrogen concentration over at least 40% of axial length of the main body of the single crystal silicon ingot~~, at least 50% of axial length of the main body of the single crystal silicon ingot, at least 60% of axial length of the main body of the single crystal silicon ingot, at least 70% of axial length of the main body of the single crystal silicon ingot, or at least 80% of axial length of the main body of the single crystal silicon ingot~~.

14. The method of claim 1 wherein the main body nitrogen concentration is between about $5x10^{13}$ atoms/cm^3 and about $1x10^{14}$ atoms/cm^3 and further wherein the main body nitrogen concentration varies by no more than 20% above and no less than 20% below an average main body nitrogen concentration over at least 40% of axial length of the main body of the single crystal silicon ingot~~, at least 50% of axial length of the main body of the single crystal silicon ingot, at least 60% of axial length of the main body of the single crystal silicon ingot, at least 70% of axial length of the main body of the single crystal silicon ingot, or at least 80% of axial length of the main body of the single crystal silicon ingot~~.

15. The method of claim 1 wherein a magnetic field is applied to the silicon melt during growth of the main body of the single crystal silicon ingot, and further wherein the main body of the single crystal silicon ingot comprises a main body interstitial oxygen concentration between about 10 PPMA and about 35 PPMA, and further wherein the main body interstitial oxygen concentration varies by no more than 20% above and no less than 20% below an average main body oxygen concentration.

16. The method of claim 15 wherein a horizontal magnetic field is applied to the silicon melt during growth of the main body of the single crystal silicon ingot.

17. The method of claim 15 wherein a cusp magnetic field is applied to the silicon melt during growth of the main body of the single crystal silicon ingot.

18. The method of claim 15 wherein the applied magnetic field maintains a substantially constant melt/solid interface profile during at least about 70% of the growth of the main body of the single crystal silicon ingot.

19. The method of claim 15 wherein the applied magnetic field maintains a substantially constant melt/solid interface profile during between about 70% and about 90% of the growth of the main body of the single crystal silicon ingot.

20. The method of claim 1 wherein the main body of the single crystal silicon ingot is at least about ~~1000 millimeters long, such as at least~~ 1400 millimeters long~~, such as at least 1500 millimeters long, or at least 2000 millimeters long, or at least 2200 millimeters, such as 2200 millimeters, or at least about 3000 millimeters long, or at least about 4000 millimeters long~~.

21. The method of claim 1 wherein the main body of the single crystal silicon ingot has a diameter of at least about ~~150 millimeters, such as at least about~~ 200 millimeters~~, at least about 300 millimeters, or at least about 450 millimeters~~.

22. The method of claim 1 wherein the constant main body pull rate is ~~between about 0.4 mm/min and about 0.8 mm/min,~~ between about 0.4 mm/min and about 0.7 mm/min~~, or between about 0.4 mm/min and about 0.65 mm/min~~.

23. The method of claim 1 wherein the main body of the single crystal silicon ingot is grown at the initial variable main body pull rate for between about 5% and about 20% of the length of the main body of the single crystal silicon ingot.

24. The method of claim 1 wherein the main body of the single crystal silicon ingot is grown at the constant main body pull rate during growth for at least about 50% of the length of the main body of the single crystal silicon ingot.

25. The method of claim 1 wherein the main body of the single crystal silicon ingot is grown at the constant main body pull rate during growth for at least about 70% of the length of the main body of the single crystal silicon ingot.

26. The method of claim 1 wherein the main body of the single crystal silicon ingot is grown at the constant main body pull rate during growth for at least about 80% of the length of the main body of the single crystal silicon ingot.

27. The method of claim 1 wherein the main body of the single crystal silicon ingot is grown at the constant main body pull rate during growth for at least about 90% of the length of the main body of the single crystal silicon ingot.

28. The method of claim 1 wherein the main body pull rate is a constant critical pull rate sufficient to avoid agglomerated point defects over at least 70% of the length of the main body of the single crystal silicon ingot.

29. The method of claim 1 wherein the main body pull rate is a constant critical pull rate sufficient to avoid agglomerated point defects over at least 90% of the length of the main body of the single crystal silicon ingot.

30. The method of claim 1 wherein the volume of molten silicon varies by no more than about 1.0 volume % during growth of at least about 90% the main body of the single crystal silicon ingot.

31. The method of claim 1 wherein the volume of molten silicon varies by no more than about 0.5 volume % during growth of at least about 90% the main body of the single crystal silicon ingot.

32. The method of claim 1 wherein the volume of molten silicon varies by no more than about 0.1 volume % during growth of at least about 90% the main body of the single crystal silicon ingot.

33. The method of claim 1 wherein the melt elevation level varies by less than about +/- 0.5 millimeter during growth of at least about 90% the main body of the single crystal silicon ingot.

34. The method of claim 1 wherein the main body of the single crystal silicon ingot comprises perfect silicon over at least about 70% of the length of the main body of the single crystal silicon ingot.

35. The method of claim 1 wherein the main body of the single crystal silicon ingot comprises perfect silicon over at least about 80% of the length of the main body of the single crystal silicon ingot.

36. The method of claim 1 wherein the main body of the single crystal silicon ingot comprises perfect silicon over at least about 90% of the length of the main body of the single crystal silicon ingot.

~~37. A single crystal silicon ingot having a main body portion, wherein the main body portion has a circumferential edge, a central axis having an axial length that is parallel to the circumferential edge, and a radius that extends from the central axis to the circumferential edge, wherein a wafer sliced from any portion of the main body over at least 60% of axial length of the main body of the single crystal silicon ingot, at least 70% of axial length of the main body of the single crystal silicon ingot, or at least 80% of axial length of the main body of the single crystal silicon ingot is characterized by non-detectable FPDs (Flow Pattern Defect by Secco etching technique) and DSODs (Direct Surface Oxide Defect particle count after electric breakdown) and zero I-defects (A-defect) by Secco-etching technique.~~

~~38. The single crystal silicon ingot of claim 37, wherein a wafer sliced from any portion of the main body over at least 60% of axial length of the main body of the single crystal silicon ingot, at least 70% of axial length of the main body of the single crystal silicon ingot, or at least 80% of axial length of the main body of the single crystal silicon ingot is characterized by less than 20 COPs at no more than 0.026um size.~~

~~39. The single crystal silicon ingot of claim 37, further comprising interstitial oxygen at a main body oxygen concentration that varies by no more than 20% above and no less than 20% below an average main body oxygen concentration over at least 40% of axial length of the main body of the single crystal silicon ingot, at least 50% of axial length of the main body of the single crystal silicon ingot, at least 60% of axial length of the main body of the single crystal silicon ingot, at least 70% of axial length of the main~~

~~body of the single crystal silicon ingot, or at least 80% of axial length of the main body of the single crystal silicon ingot.~~

~~40. The single crystal silicon ingot of claim 37, further comprising nitrogen at a main body nitrogen concentration that varies by no more than 20% above and no less than 20% below an average main body nitrogen concentration over at least 40% of axial length of the main body of the single crystal silicon ingot, at least 50% of axial length of the main body of the single crystal silicon ingot, at least 60% of axial length of the main body of the single crystal silicon ingot, at least 70% of axial length of the main body of the single crystal silicon ingot, or at least 80% of axial length of the main body of the single crystal silicon ingot.~~

~~41. The single crystal silicon ingot of claim 37, further wherein the main body portion has a resistivity that varies by no more than 20% above and no less than 20% below an average main body resistivity over at least 40% of axial length of the main body of the single crystal silicon ingot, at least 50% of axial length of the main body of the single crystal silicon ingot, at least 60% of axial length of the main body of the single crystal silicon ingot, at least 70% of axial length of the main body of the single crystal silicon ingot, or at least 80% of axial length of the main body of the single crystal silicon ingot.~~

~~42. A single crystal silicon ingot having a main body portion, wherein the main body portion has a circumferential edge, a central axis having an axial length that is parallel to the circumferential edge, and a radius that extends from the central axis to the circumferential edge, wherein the main body portion comprises:~~

~~interstitial oxygen at a main body oxygen concentration that varies by no more than 20% above and no less than 20% below an average main body oxygen concentration over at least 40% of axial length of the main body of the single crystal silicon ingot, at least 50% of axial length of the main body of the single crystal silicon ingot, at least 60% of axial length of the main body of the single crystal silicon ingot, at least 70% of axial length of the main body of the single crystal silicon ingot, or at least 80% of axial length of the main body of the single crystal silicon ingot.~~

~~43. The single crystal silicon ingot of claim 42, further comprising nitrogen at a main body nitrogen concentration that varies by no more than 20% above and no less than 20% below an average main body nitrogen concentration over at least 40% of axial length of the main body of the single crystal silicon ingot, at least 50% of axial length of the main body of the single crystal silicon ingot, at least 60% of axial length of the main body of the single crystal silicon ingot, at least 70% of axial length of the main body of the single crystal silicon ingot, or at least 80% of axial length of the main body of the single crystal silicon ingot.~~

~~44. The single crystal silicon ingot of claim 42, further wherein the main body portion has a resistivity that varies by no more than 20% above and no less than 20% below an average main body resistivity over at least 40% of axial length of the main body of the single crystal silicon ingot, at least 50% of axial length of the main body of the single crystal silicon ingot, at least 60% of axial length of the main body of the single crystal silicon ingot, at least 70% of axial length of the main body of the single crystal silicon ingot, or at least 80% of axial length of the main body of the single crystal silicon ingot.~~

~~45. The single crystal silicon ingot of claim 42, wherein a wafer sliced from any portion of the main body over at least 60% of axial length of the main body of the single crystal silicon ingot, at least 70% of axial length of the main body of the single crystal silicon ingot, or at least 80% of axial length of the main body of the single crystal silicon ingot is characterized by non-detectable FPDs (Flow Pattern Defect by Secco etching technique) and DSODs (Direct Surface Oxide Defect particle count after electric breakdown) and zero I-defects (A-defect) by Secco-etching technique.~~

~~46. The single crystal silicon ingot of claim 42, wherein a wafer sliced from any portion of the main body over at least 60% of axial length of the main body of the single crystal silicon ingot, at least 70% of axial length of the main body of the single crystal silicon ingot, or at least 80% of axial length of the main body of the single crystal silicon ingot is characterized by less than 20 COPs at no more than 0.026um size.~~

~~47. A single crystal silicon ingot having a main body portion, wherein the main body portion has a circumferential edge, a central axis having an axial length that is~~

parallel to the circumferential edge, and a radius that extends from the central axis to the circumferential edge, wherein the main body portion comprises:

nitrogen at a main body nitrogen concentration that varies by no more than 20% above and no less than 20% below an average main body nitrogen concentration over at least 40% of axial length of the main body of the single crystal silicon ingot, at least 50% of axial length of the main body of the single crystal silicon ingot, at least 60% of axial length of the main body of the single crystal silicon ingot, at least 70% of axial length of the main body of the single crystal silicon ingot, or at least 80% of axial length of the main body of the single crystal silicon ingot.

48. The single crystal silicon ingot of claim 47, further comprising interstitial oxygen at a main body oxygen concentration that varies by no more than 20% above and no less than 20% below an average main body oxygen concentration over at least 40% of axial length of the main body of the single crystal silicon ingot, at least 50% of axial length of the main body of the single crystal silicon ingot, at least 60% of axial length of the main body of the single crystal silicon ingot, at least 70% of axial length of the main body of the single crystal silicon ingot, or at least 80% of axial length of the main body of the single crystal silicon ingot.

49. The single crystal silicon ingot of claim 47, further wherein the main body portion has a resistivity that varies by no more than 20% above and no less than 20% below an average main body resistivity over at least 40% of axial length of the main body of the single crystal silicon ingot, at least 50% of axial length of the main body of the single crystal silicon ingot, at least 60% of axial length of the main body of the single crystal silicon ingot, at least 70% of axial length of the main body of the single crystal silicon ingot, or at least 80% of axial length of the main body of the single crystal silicon ingot.

50. The single crystal silicon ingot of claim 47, wherein a wafer sliced from any portion of the main body over at least 60% of axial length of the main body of the single crystal silicon ingot, at least 70% of axial length of the main body of the single crystal silicon ingot, or at least 80% of axial length of the main body of the single crystal silicon ingot is characterized by non-detectable FPDs (Flow Pattern Defect by Secco

~~etching technique) and DSODs (Direct Surface Oxide Defect particle count after electric breakdown) and zero I-defects (A-defect) by Secco-etching technique.~~

~~51. The single crystal silicon ingot of claim 47, wherein a wafer sliced from any portion of the main body over at least 60% of axial length of the main body of the single crystal silicon ingot, at least 70% of axial length of the main body of the single crystal silicon ingot, or at least 80% of axial length of the main body of the single crystal silicon ingot is characterized by less than 20 COPs at no more than 0.026um size.~~

~~52. A single crystal silicon ingot having a main body portion, wherein the main body portion has a circumferential edge, a central axis having an axial length that is parallel to the circumferential edge, and a radius that extends from the central axis to the circumferential edge, wherein the main body portion comprises:~~

~~further wherein the main body portion has a resistivity that varies by no more than 20% above and no less than 20% below an average main body resistivity over at least 40% of axial length of the main body of the single crystal silicon ingot, at least 50% of axial length of the main body of the single crystal silicon ingot, at least 60% of axial length of the main body of the single crystal silicon ingot, at least 70% of axial length of the main body of the single crystal silicon ingot, or at least 80% of axial length of the main body of the single crystal silicon ingot.~~

~~53. The single crystal silicon ingot of claim 52, further comprising interstitial oxygen at a main body oxygen concentration that varies by no more than 20% above and no less than 20% below an average main body oxygen concentration over at least 40% of axial length of the main body of the single crystal silicon ingot, at least 50% of axial length of the main body of the single crystal silicon ingot, at least 60% of axial length of the main body of the single crystal silicon ingot, at least 70% of axial length of the main body of the single crystal silicon ingot, or at least 80% of axial length of the main body of the single crystal silicon ingot.~~

~~54. The single crystal silicon ingot of claim 52, further comprising nitrogen at a main body nitrogen concentration that varies by no more than 20% above and no less than 20% below an average main body nitrogen concentration over at least 40% of axial length of the main body of the single crystal silicon ingot, at least 50% of axial length of~~

~~the main body of the single crystal silicon ingot, at least 60% of axial length of the main body of the single crystal silicon ingot, at least 70% of axial length of the main body of the single crystal silicon ingot, or at least 80% of axial length of the main body of the single crystal silicon ingot.~~

~~55. The single crystal silicon ingot of claim 52, wherein a wafer sliced from any portion of the main body over at least 60% of axial length of the main body of the single crystal silicon ingot, at least 70% of axial length of the main body of the single crystal silicon ingot, or at least 80% of axial length of the main body of the single crystal silicon ingot is characterized by non-detectable FPDs (Flow Pattern Defect by Secco etching technique) and DSODs (Direct Surface Oxide Defect particle count after electric breakdown) and zero I-defects (A-defect) by Secco-etching technique.~~

~~56. The single crystal silicon ingot of claim 52, wherein a wafer sliced from any portion of the main body over at least 60% of axial length of the main body of the single crystal silicon ingot, at least 70% of axial length of the main body of the single crystal silicon ingot, or at least 80% of axial length of the main body of the single crystal silicon ingot is characterized by less than 20 COPs at no more than 0.026um size.~~