CLAIMS:

1. 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 of the single crystal silicon ingot is at least about 1000 millimeters long and the main body of the single crystal silicon ingot has a diameter of at least about 150 millimeters, and further 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, 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, and

further wherein the 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 is characterized by less than 20 COPs at no more than 0.026 um size.

2. The single crystal silicon ingot of claim 1, wherein a wafer sliced from any portion of the main body over 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 0.026 um size.

3. The single crystal silicon ingot of claim 1, further comprising interstitial oxygen at a main body 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 over at least 60% of axial length of the main body of the single crystal silicon ingot.

4. The single crystal silicon ingot of claim 1, further comprising nitrogen at a main body nitrogen concentration of at least about $1x10^{13}$ 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 60% of axial length of the main body of the single crystal silicon ingot.

5. The single crystal silicon ingot of claim 1, 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 at least 60% of axial length of the main body of the single crystal silicon ingot.

6. 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 of the single crystal silicon ingot is at least about 1000 millimeters long and the main body of the single crystal silicon ingot has a diameter of at least about 150 millimeters, and further wherein the main body portion comprises:

interstitial oxygen at a main body 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 over at least 60% of axial length of the main body of the single crystal silicon ingot, and

further wherein the 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 is characterized by less than 20 COPs at no more than 0.026 um size.

7. The single crystal silicon ingot of claim 6, further comprising nitrogen at a main body nitrogen concentration of at least about $1x10^{13}$ 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 60% of axial length of the main body of the single crystal silicon ingot.

8. The single crystal silicon ingot of claim 6, 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 60% of axial length of the main body of the single crystal silicon ingot.

9. The single crystal silicon ingot of claim 6, wherein a wafer sliced from any portion of the main body over at least 70% 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.

10. The single crystal silicon ingot of claim 6, wherein a wafer sliced from any portion of the main body over at least 70% 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.

11. 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 of the single crystal silicon ingot is at least about 1000 millimeters long and the main body of the single crystal silicon ingot has a diameter of at least about 150 millimeters, and further wherein the main body portion comprises:

nitrogen at a main body nitrogen concentration of at least about $1x10^{13}$ 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 60% of axial length of the main body of the single crystal silicon ingot, and

further wherein the 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 is characterized by less than 20 COPs at no more than 0.026 um size.

12. The single crystal silicon ingot of claim 11, further comprising interstitial oxygen at a main body 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 over at least 70% of axial length of the main body of the single crystal silicon ingot.

13. The single crystal silicon ingot of claim 11, 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 60% of axial length of the main body of the single crystal silicon ingot.

14. The single crystal silicon ingot of claim 11, wherein a wafer sliced from any portion of the main body over at least 70% 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.

15. The single crystal silicon ingot of claim 11, wherein a wafer sliced from any portion of the main body over at least 70% 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.

16. 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 of the single crystal silicon ingot is at least about 1000 millimeters long and the main body of the single crystal silicon ingot has a diameter of at least about 150 millimeters, and further wherein:

the main body portion has a resistivity between about 1000 Ohm-cm and about 100,000 Ohm-cm and further wherein the resistivity varies by no more than 20% above and no less than 20% below an average main body resistivity over at least 60% of axial length of the main body of the single crystal silicon ingot, and

further wherein the 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 is characterized by less than 20 COPs at no more than 0.026 um size.

17. The single crystal silicon ingot of claim 16, further comprising interstitial oxygen at a main body 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 over at least 60% of axial length of the main body of the single crystal silicon ingot.

18. The single crystal silicon ingot of claim 16, further comprising nitrogen at a main body nitrogen concentration of at least about $1x10^{13}$ 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 60% of axial length of the main body of the single crystal silicon ingot.

19. The single crystal silicon ingot of claim 16, 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 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.

20. The single crystal silicon ingot of claim 16, wherein a wafer sliced from any portion of the main body over at least 70% 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.