package because reflectivity, that is, the most important function of an LED is deteriorated. Accordingly, there is an urgent need for the development of a bonding wire made of a new material having excellent reliability and reflectivity characteristics while having a cost reduction effect.

SUMMARY OF THE INVENTION

The present invention has been made in an effort to provide a bonding wire for semiconductor devices and an LED package using the same, in which silver (Ag) is used as a chief ingredient having an advantage of providing an alloy bonding wire that is reliable and able to replace a conventional gold (Au) alloy bonding wire. Another embodiment of the present invention provides an LED package to which a silver (Ag) alloy bonding wire capable of preventing surface discoloration inherent in a silver (Au) alloy wire and a high short ratio upon fabrication is applied.

An exemplary embodiment of the present invention provides a bonding wire for semiconductor devices including at least one selected from a group consisting of zinc (Zn)~~,~~ at $5x10^{-6}$ wt% to 10 wt% and tin (Sn), and nickel (Ni) at 0.01 wt%~~5 ppm~~ to 0.05~~10~~ wt%, and the remainder including silver (Ag)~~ and other inevitable impurities~~.

The bonding wire may further include at least one selected from a group consisting of copper (Cu), platinum (Pt), rhodium (Rh), osmium (Os), gold (Au), and palladium (Pd) at 0.03 wt% to 10 wt%.

The bonding wire may further include at least one selected from a group consisting of beryllium (Be), calcium (Ca), magnesium (Mg), barium (Ba), lanthanum (La), cerium (Ce), and yttrium (Y) at 3 ppm to 5 wt%.

A light emitting diode (LED) package according to another exemplary embodiment of the present invention includes an LED chip, a lead frame for supplying power to the

LED chip, and a bonding wire for connecting the LED chip and the lead frame, wherein the bonding wire is the bonding wire for semiconductor devices.

A method of manufacturing a bonding wire for semiconductor devices according to another exemplary embodiment of the present invention includes the steps of: pouring a silver (Ag) alloy, including at least one selected from a group consisting of zinc (Zn), and tin (Sn) at $5x10^{-6}$ wt% to 10 wt%, and nickel (Ni) at 0.01 wt%~~5 ppm~~ to 0.05~~10~~ wt% and a remainder including silver (Ag) ~~and other inevitable impurities~~, into a mold and melting the silver (Ag) alloy; continuously casting the melted silver (Ag) alloy; and drawing the continuously casted silver (Ag) alloy.

In the method of manufacturing a bonding wire for semiconductor devices, the silver (Ag) alloy may further include at least one selected from a group consisting of copper (Cu), platinum (Pt), rhodium (Rh), osmium (Os), gold (Au), and palladium (Pd) at 0.03 wt% to 10 wt%.

In the method of manufacturing a bonding wire for semiconductor devices, the silver (Ag) alloy may further include at least one selected from a group consisting of beryllium (Be), calcium (Ca), magnesium (Mg), barium (Ba), lanthanum (La), cerium (Ce), and yttrium (Y) at 3 ppm to 5 wt%.

The method of manufacturing a bonding wire for semiconductor devices may further include the step of performing a softening heat treatment on the drawn silver (Ag) alloy.

According to the bonding wire for semiconductor devices of the present invention as described above, a silver (Au) alloy bonding wire that uses silver (Ag) that is cheaper than gold (Au) as a chief ingredient and can provide high productivity, prevent surface discoloration, and have excellent reliability and mechanical characteristics by adding alloy atoms to silver (Ag), can be provided.