second portion **30***b* with a relatively high resistance between the second electrode **34**, and thereby enhancing the current density of the solar cell. In addition, contact resistance with the second electrode **34** can be reduced by forming the first portion **30***a* with a relatively low resistance at a portion being in contact with the second electrode **34**. That is, when the back surface field layer **30** has the selective back surface field structure, the efficiency of the solar cell can be maximized.

For the above, a doping amount of the second dopant **302** at the first portion **30***a* is larger than that at the second portion **30***b*. In order to differentiate the doping amount at the first portion **30***a* and the second portion **30***b*, a comb mask may be used. However, the invention is not limited thereto. Thus, a number of doping processes to the first portion **30***a* may be more than a number of doping processes to the second portion **30***b*. That is, various methods may be used for forming the selective structure.

Here, in the embodiment, the second counter dopant **304** is entirely doped to the semiconductor substrate **10** with a uniform doping amount.

As such, in the embodiment, the emitter layer **20** and the back surface field layer **30** has the selective structure including portions with different resistance, and thus, the efficiency of the solar cell can be enhanced.

In the embodiment, both of the emitter layer **20** and the back surface field layer **30** have selective structures. However, the invention is not limited thereto. Thus, only one of the emitter layer **20** and the back surface field layer **30** may have a selective structure.

For example, the first portions **20***a* and **30***a* of the emitter layer **20** and the back surface field layer **30** may have sheet resistance of about 10~100 ohm/square (for example, about 20~60 ohm/square), and may have a thickness of about 0.5 μm or more (for example, 0.5~1.5 μm). The second portions **20***b* and **30***b* of the emitter layer **20** and the back surface field layer **30** may have sheet resistance of about 40~200 ohm/square (for example, 60~150 ohm/square), and may have a thickness smaller than about 0.5 μm (for example, a thickness of about 0.01 μm or less and smaller than about 0.5 μm). However, the invention is not limited thereto. Thus, the sheet resistance and the thickness of the emitter layer **20** and the back surface field layer **30** may be changed.

FIG. **5** is a cross-sectional view of a solar cell according to yet another embodiment of the present invention, and FIG. **6** is a plan view schematically illustrating a relation of a first electrode and an emitter layer of the solar cell shown in FIG. **5**.

Referring to FIGS. **5** and **6**, in the solar cell according to the embodiment, an emitter layer **20** as a first dopant layer has a selective emitter structure, and a back surface field layer **30** as a second dopant layer has a selective back surface field structure. Because the selective emitter structure and the selective back surface field structure were described in detail, the detailed descriptions will be omitted.

In the embodiment, the first counter dopant **204** is not doped to the entire emitter layer **20** with a uniform doping amount. That is, the first counter dopant **204** is doped to have different doping amount or doping concentration at different portions, or the first counter dopant **204** is partially doped. For example, the first counter dopant **204** is not doped to the first portion **20***a* of the emitter layer **20**, and is doped to the second portion **20***b* of the emitter layer **20**. Then, the surface concentration is reduced at the second portion **20***b* only. In order to form the above-structured emitter layer **20**, a mask (not shown) for covering the first portion **20***a* may be used at the doping of the first counter dopant **204**.

That is, since the first counter dopant **204** is not included at the first portion **20***a*, the surface concentration at the first portion **20***a* is relatively high and the resistance at the first portion **20***a* can be reduced. Thus, the contact resistance with the first electrode **24** can be reduced. Also, since the first counter dopant **204** is included at the second portion **20***b*, the surface concentration at the second portion **20***b* can be reduced and the surface recombination can be effectively prevented. That is, in the embodiment, the concentration of the first counter dopant **204** at the first portion **20***a* and the second portion **20***b* is different, and thus, effects of the selective emitter structure can be maximized.

In the embodiment, the second counter dopant **304** is not doped to the entire back surface field layer **30** with a uniform doping amount. That is, the second counter dopant **304** is doped to have different doping amount or doping concentration at different portions, or the second counter dopant **304** is partially doped. For example, the second counter dopant **304** is not doped to the first portion **30***a* of the back surface field layer **30**, and is doped to the second portion **30***b* of the back surface field layer **30**. Then, the surface concentration is reduced at the second portion **30***b* only. In order to form the above-structured back surface field layer **30**, a mask (not shown) for covering the first portion **30***a* may be used at the doping of the second counter dopant **304**.

That is, since the second counter dopant **304** is not included at the first portion **30***a*, the surface concentration at the first portion **30***a* is relatively high and the resistance at the first portion **30***a* can be reduced. Thus, the contact resistance with the first electrode **24** can be reduced. Also, since the second counter dopant **304** is included at the second portion **30***b*, the surface concentration at the second portion **30***b* can be reduced and the surface recombination can be effectively prevented. That is, in the embodiment, the concentration of the second counter dopant **304** at the first portion **30***a* and the concentration of the second counter dopant **304** at the second portion **30***b* are different, and thus, effects of the selective back surface field structure can be maximized.

In the embodiment, both of the emitter layer **20** and the back surface field layer **30** have selective structures. However, the invention is not limited thereto. Thus, only one of the emitter layer **20** and the back surface field layer **30** may have a selective structure.

Also, in the embodiment, the first portions **20***a* and **30***a* of the emitter layer **20** and the back surface field layer **30** do not include the first and second counter dopant **204** and **304**, respectively. However, the invention is not limited thereto. Thus, only one of the emitter layer **20** and the back surface field layer **30** does not include the first or second counter dopant **204** or **304**. Also, at least one of the first portions **20***a* and **30***a* of the emitter layer **20** and the back surface field layer **30** may include the first or second counter dopant **204** or **304** with a doping concentration or a doping amount less than that at the second portions **20***b* and **30***b*.

For example, the first portions **20***a* and **30***a* of the emitter layer **20** and the back surface field layer **30** may have sheet resistance of about 10~100 ohm/square (for example, about 20~60 ohm/square), and may have a thickness of about 0.5 μm or more (for example, 0.5~1.5 μm). The second portions **20***b* and **30***b* of the emitter layer **20** and the back surface field layer **30** may have sheet resistance of about 40~200 ohm/square (for example, 60~150 ohm/square), and may have a thickness smaller than about 0.5 μm (for example, a thickness of about 0.01 μm or less and smaller than about 0.5 μm). However, the invention is not limited thereto. Thus, the sheet resistance and the thickness of the emitter layer **20** and the back surface field layer **30** may be changed.