Claims

1. A solar cell piece, comprising:

a silicon chip layer;

thin gate lines and at least one front main gate line on a front surface of the silicon chip layer, and

an aluminum back field coating on a back surface of the silicon chip layer,

wherein the front surface is partitioned into at least two independent areas by an isolation zone for electrically separating the at least two independent areas;

the at least one front main gate line is disposed at an edge of the at least two independent area or a position close to the edge, and

the thin gate lines in the one of the two independent area are electrically connected to the at least one front main gate line.

2. The solar cell piece of claim 1, further comprising

at least one back main gate line on the back surface; and

at least one back electrode;

characterized in that

- the back main gate line is disposed at a verge of the aluminum back field coating or a position close to the verge that is opposite to the at least one front main gate line, and
- the back main gate line is electrically connected to the at least one back electrode.

3. The solar cell piece of claim 1 or 2,

characterized in that

at least one wire is provided for electrically connecting the at least one front

main gate line in one of the at least two independent areas to the at least one back electrode.

4. The solar cell piece of any of the preceding claims, wherein

a portion of the back surface on an opposite side to the isolation zone is free from the aluminum back field coating.

5. The solar cell piece of claim 4,

characterized in that

the portion comprises at least one line-shaped or strip-like separating line.

6. The solar cell piece of any of the preceding claims,

characterized in that

the at least one front main gate line of two outermost areas on the front surface is disposed at a border or a position close to the border of the two outermost areas.

7. The solar cell piece of any of the preceding claims,

characterized in that

two ends of the at least one front main gate line are disposed close to the border or a position close to the border.

8. The solar cell piece of any of the preceding claims,

characterized in that

the at least one front main gate line is aligned to a single through-line.

9. The solar cell piece of any of the preceding claims,

characterized in that

the at least one front main gate line comprises two separated soldering portions and a connecting portion for connecting the two soldering portions together.

wherein a width of one of the soldering portions is greater than that the connecting portion.

10. The solar cell piece of any of the preceding claims,

characterized in that

the thin gate lines comprise at least one transverse thin gate line for connecting the thin gate lines;

the at least one transverse thin gate line are substantially perpendicular to one of the thin gate lines and further disposed between the thin gate lines at opposite ends of the at least one transverse thin gate line.

11. A method for preparing electrodes of a solar cell piece, comprising following steps of:

Step 1 of printing front electrodes:

printing a front screen-printed pattern on a front surface of a silicon chip layer,

the front screen-printed pattern separating the front surface into two areas by providing an isolation zone between thereof,

one of the two areas comprising thin gate lines and front main gate lines connected to the thin gate lines,

the front main gate lines of the at least two independent areas being parallel to each other respectively, and

the front main gate lines being disposed at an edge or close to the edge of the at least two independent areas respectively;

Step 2 of printing aluminum back surface field:

printing a back screen-printed pattern on a back surface of the silicon chip

layer,

the back screen-printed pattern comprising the back main gate lines and the aluminum back surface field,

the back main gate lines and the front main gate line being arranged in parallel, and

the back main gate lines being disposed on an verge of the aluminum back field coating or a position close to the verge that is opposite to of the front main gate lines.

12. A solar cell module, comprising:

at least one solar cell piece whose front surface is separated by an isolation zone into at least two independent areas but electrically connected together via an electrically connecting means,

wherein the at least two independent areas comprise a front surface and a back surface of the at least one solar cell piece respectively, and the front surface is provided with a power-generating area and a front main gate line that is disposed at an edge of the power-generating area;

the power-generating area is provided with a plurality of thin gate lines,

the plurality of thin gate lines is connected to the front main gate line,

the back surface is provided with a back main gate line and an aluminum back surface field,

the front main gate line and the back main gate line are disposed on two opposite sides of the two respectively, and

the back main gate line of one of the at least two independent areas is electrically connected to the front main gate line of another of the r .

13. The solar cell module of claim 12,

characterized in that

the front main gate line is connected to at least one end of the thin gate lines.

14. A method for preparing the solar cell piece, comprising the steps of:

(1) Step 1 of printing:

printing a front screen-printed pattern and a back screen-printed pattern on a front surface and a back surface of a silicon chip layer of the solar cell piece, wherein

- the front screen-printed pattern comprises thin gate lines and a front main gate line that is perpendicular to at least one of the thin gate lines,
- an edge of the front screen-printed pattern is provided with a front edge main gate line,
- the back screen-printed pattern comprises a back main gate line and an aluminum back surface field,
- the back main gate line and the front main gate line are disposed in the same direction,
- an verge of the back screen-printed pattern is provided with a back edge main gate line, and
- the front edge main gate line and the back edge main gate line are disposed on two opposite surfaces of the silicon chip layer respectively;

(2) Step 2 of separating:

electrically separating a front surface of the silicon chip layer into at least two independent areas by providing an isolation zone between thereof;

(3) Step 3 of electrically connecting:

providing electrically conducting means to electrically connect the front main gate line in one of the at least two of independent areas to back electrodes.

15. The method for preparing the solar cell piece of claim 14,

characterized in that

the electrically connecting means used in step 3 is an electrically conductive wire.