

DEGASSING CHAMBER AND SEMICONDUCTOR PROCESSING APPARATUS

TECHNICAL FIELD

The present disclosure relates to the field of semiconductor device manufacturing technology, and in particular, relates to a degassing chamber and a semiconductor processing device.

BACKGROUND

Physical Vapor Deposition (PVD) technique is widely applied in the field of semiconductor manufacturing technology. In the PVD process, generally a degassing process step is required to remove impurities such as water vapor absorbed from atmosphere by a substrate, to clean the surface of the substrate, and to provide a substrate as clean as possible for subsequent procedures. For example, a copper interconnection PVD process flow as shown in Fig. 1 includes this degassing process step.

In general, the degassing process step is performed by a degassing heating system. For example, Fig. 2 shows a conventional degassing heating system, generally including a vacuum chamber 4, a substrate cassette 2, a lifting system 5 and a light source 6. The vacuum chamber 4 provides a process environment, and has a substrate transferring opening 11 on its sidewall, for transferring a substrate into or out of the vacuum chamber 4; the substrate cassette 2 is configured to carry multiple substrates; the lifting system 5 is configured to drive the substrate cassette 2 up and down to transfer substrates placed at different levels of height in the substrate cassette 2 to a level of height corresponding to the substrate transferring opening 11, to facilitate picking and placing substrates; the light source 6 is configured to provide heat.

Operation flow of the above degassing heating system is as follows: 1) multiple substrates of one batch are received through the substrate transferring opening 11, and placed at different levels of height in the substrate cassette 2 by lifting of the lifting system 5; 2) the substrate cassette 2, driven by the lifting system 5, moves to a

position for degassing process close to the light source 6; 3) the light source 6 is turned on, to heat the substrates to perform degassing operation; 4) the light source 6 is turned off, the lifting system 5 drives the substrate cassette 2 to move to the level of height corresponding to the substrate transferring opening 11, and a manipulator takes some substrates away; 5) substrates are supplemented into the substrate cassette 2; 6) the steps 1) to 5) are repeated, until degassing process is complete for all substrates to be degassed.

In a practical degassing process, because the substrate transferring opening 11 is at a position below the light source 6, every time picking and placing substrates, it is always necessary to move the substrate cassette 2 from a position corresponding to the light source 6 downwardly to a position corresponding to the substrate transferring opening 11, as such, the substrate cassette 2 may be offset from the position corresponding to the light source 6, resulting in temperature decline of the substrate cassette 2 along with substrates therein, and degree of the temperature decline of substrates is not controllable, and moreover, since substrates in the substrate cassette 2 are not all taken out at once in one descending of the substrate cassette 2, each substrate, when taken out from the substrate cassette 2, has a temperature which is not a controllable ideal temperature having consistency, which will influence consistency and stability of results of subsequent processes.

SUMMARY

With respect to the above technical problem existing in the prior art, the present disclosure provides a degassing chamber and a semiconductor processing device. The degassing chamber can realize that, no matter the substrates in the substrate cassette are in an area above or below the substrate transferring opening, they all can be heated by the light source, thereby ensuring process temperature uniformity of substrates during the degassing process and picking and placing process of substrates.

The present disclosure provides a degassing chamber, including a chamber and a substrate cassette, wherein the chamber has a substrate transferring opening on its sidewall, the substrate transferring opening is configured to allow one or more

substrates to be transferred into or out of the chamber therethrough; the substrate cassette is movable along a vertical direction in the chamber, and the degassing chamber further includes a heating assembly disposed in the chamber, the heating assembly includes a first light source and a second light source, the chamber is divided into a first chamber and a second chamber by the substrate transferring opening as a boundary; the first light source is in the first chamber, the second light source is in the second chamber; and the first light source and the second light source are configured to heat the substrates in the substrate cassette uniformly.

Optionally, the heating assembly further includes a first reflecting cylinder and a second reflecting cylinder, wherein the first reflecting cylinder is between the first chamber and the first light source; and the second reflecting cylinder is between the second chamber and the second light source; and

the first reflecting cylinder and the second reflecting cylinder are configured to reflect light illuminated thereon toward the substrates in the substrate cassette.

Optionally, the first reflecting cylinder and the second reflecting cylinder abut each other to form an integral whole, on which a first opening is provided at a position corresponding to the substrate transferring opening, and the first opening allows the substrates to pass therethrough.

Optionally, the heating assembly further includes a first reflecting plate and a second reflecting plate, the first reflecting plate covers an end of the first reflecting cylinder distal to the substrate transferring opening, and the second reflecting plate covers an end of the second reflecting cylinder distal to the substrate transferring opening; and

the first reflecting plate and the second reflecting plate are configured to reflect light illuminated thereon toward the substrates in the substrate cassette.

Optionally, the first light source includes a plurality of first line light sources, the plurality of first line light sources are parallel to each other and arranged circularly; and a length of each of the first line light sources lies in a direction parallel to a moving direction of the substrate cassette; and

the second light source includes a plurality of second line light sources, the

plurality of second line light sources are parallel to each other and arranged circularly; a length of each of the second line light sources lies in a direction parallel to the moving direction of the substrate cassette; and the substrate cassette is movable in a space surrounded by the plurality of first light sources and the plurality second light sources.

Optionally, inner walls of the first reflecting cylinder and the second reflecting cylinder are capable of reflecting diffusely and/or specularly light illuminated thereon.

Optionally, an inner wall of the first reflecting plate facing inside of the first reflecting cylinder and an inner wall of the second reflecting plate facing inside of the second reflecting cylinder are capable of reflecting diffusely and/or specularly light illuminated thereon.

Optionally, the first reflecting cylinder and the second reflecting cylinder are made of stainless steel.

Optionally, the first reflecting plate and the second reflecting plate are made of stainless steel.

The present disclosure further provides a semiconductor processing device, including the degassing chamber described above.

The present disclosure has the following beneficial effects: the degassing chamber according to the present disclosure, by providing the first light source and the second light source in the first chamber and the second chamber, respectively, which are divided by the substrate transferring opening as a boundary, can realize that, no matter the substrates in the substrate cassette are in an area above or below the substrate transferring opening, they all can be heated by the light source, thereby ensuring process temperature uniformity of substrates during the degassing process and picking and placing process of substrates, which in turn not only increases quality of degassing process of substrates but also provides cleaner substrates for subsequent processes.

The semiconductor processing device according to the present disclosure, by employing the degassing chamber described above, has improved process quality.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a schematic diagram of a copper interconnection PVD process flow in the related art;

Fig. 2 is a cross-sectional view of a structure of a degassing heating system of the related art;

Fig. 3 is a schematic diagram of a structure of a degassing chamber according to a first embodiment of the present disclosure;

Fig. 4 is a schematic diagram of a structure of a first light source of Fig. 3;

Fig. 5 is a schematic exploded view of the structure of the degassing chamber according to the first embodiment of the present disclosure;

Fig. 6 is a schematic exploded view of the structure of a first light source of the first embodiment of the present disclosure;

Fig. 7 is a cross-sectional view of a structure of a second light source of the first embodiment of the present disclosure.

Illustration of reference numbers in the drawings:

1. Chamber; 11. Substrate transferring opening; 12. First chamber; 13. Second chamber; 2. Substrate cassette; 3. Heating assembly; 31. First light source; 311. Upper cover assembly; 32. Second light source; 321. Lower cover assembly; 33. First reflecting cylinder; 34. Second reflecting cylinder; 30. First opening; 35. First reflecting plate; 36. Second reflecting plate; 300. First line light source; 301. Lower ceramic inner ring; 302. Lower ceramic outer ring; 4. Vacuum chamber; 5. Lifting system; 6. Light source; 7. Reflecting cylinder; 81. Upper electric connection short component; 91. Upper electric connection long component; 82. Lower electric connection short component; 92. Lower electric connection long component.

DETAILED DESCRIPTION

In order for one skilled in the art to better understand technical solutions of the present disclosure, a degassing chamber and a semiconductor processing device according to the present disclosure will be described in further detail below in conjunction with the accompanying drawings and specific implementations.

First embodiment

The present embodiment provides a degassing chamber, as shown in Fig. 3, including a chamber 1 and a substrate cassette 2, the chamber 1 has a substrate transferring opening 11 on its sidewall, the substrate transferring opening 11 serves as a path through which one or more substrates are transferred into or out of the chamber 1; the substrate cassette 2 is movable along a vertical direction in the chamber 1. The degassing chamber further includes a heating assembly 3 in the chamber 1, the heating assembly 3 includes a first light source 31 and a second light source 32, the chamber 1 is divided into a first chamber 12 and a second chamber 13 by the substrate transferring opening 11 as a boundary; the first light source 31 is in the first chamber 12, and the second light source 32 is in the second chamber 13. The first light source 31 and the second light source 32 are configured to heat substrates in the substrate cassette 2. As such, no matter the substrates in the substrate cassette 2 are in an area above or below the substrate transferring opening 11, they all can be heated by the light source, thereby ensuring process temperature uniformity of substrates during the degassing process and picking and placing process of substrates, which in turn not only increases quality of degassing process of substrates but also provides cleaner substrates for subsequent processes.

The first light source 31 is disposed at an inner side of a sidewall of the first chamber 12 in such a way that it surrounds the first chamber 12 along a circumferential direction of the first chamber 12; the second light source 32 is disposed at an inner side of a sidewall of the second chamber 13 in such a way that it surrounds the second chamber 13 along a circumferential direction of the second chamber 13; specifically, the first light source 31 and the second light source 32 are provided along a vertical direction in the chamber 1, and are symmetric with respect to the substrate transferring opening 11. The substrate cassette 2 is able to move vertically in the space surrounded by the first light source 31 and the second light source 32, thus, regardless of the position to which the substrate cassette 2 moves within the chamber 1, all substrates in the substrate cassette 2 can be heated uniformly

by the first light source 31 or the second light source 32. As such, when substrates need to be transferred into or out of the chamber 1, even if the substrate cassette 2 changes its position in the first chamber 12 and the second chamber 13, substrates therein can still be heated by the first light source 31 and/or the second light source 32.

Since the first light source 31 or the second light source 32 forms a heating space in a surrounding manner, each of them can uniformly heat substrates inside the substrate cassette 2 around the substrate cassette 2, thereby increasing temperature uniformity of substrates inside the substrate cassette 2. In practical applications, of course, the first or second light source may also have any other structure, as long as it can heat substrates in the substrate cassette.

In the present embodiment, as shown in Fig. 4, the first light source 31 includes a plurality of first line light sources 300, a length of each of the first line light sources 300 lies in a direction parallel to a moving direction of the substrate cassette 2, and the plurality of first line light sources 300 are parallel to each other and arranged circularly along a circumferential direction of the chamber 1. Similarly, the second light source 32 includes a plurality of second line light sources, a length of each of the second line light sources lies in the direction parallel to the moving direction of the substrate cassette 2, and the plurality of second line light sources are parallel to each other and arranged circularly along the circumferential direction of the chamber 1.

Furthermore, as shown in Fig. 4, each of the plurality of first line light sources 300 has an upper end connected to a first conductive ring 331, each of the plurality of first line light sources 300 has a lower end connected to a second conductive ring 332, as such, the plurality of first line light sources 300 are connected in parallel via the first conductive ring 331 and the second conductive ring 332. Similar to the first line light sources 300, each of the plurality of second line light sources has an upper end connected to a third conductive ring and a lower end connected to a fourth conductive ring, as such, the plurality of second line light sources are connected in parallel via the third conductive ring and the fourth conductive ring. The substrate cassette 2 is able to move in a space surrounded by the first line light sources 300 and the second line light

sources.

Optionally, in order to enable each of the first light source 31 and the second light source 32 to radiate heat uniformly in a range of 360 degrees, any two adjacent first line light sources 300 are spaced apart by a same distance, and any two adjacent second line light sources are spaced apart by a same distance. With the first light source 31 and the second light source 32 such designed, heating energy and temperature can be kept uniform within the space surrounded by the first line light sources 300 and the second line light sources, so that substrates in the substrate cassette 2 can be heated uniformly.

In the present embodiment, the heating assembly 3 may also include a first reflecting cylinder 33 and a second reflecting cylinder 34, the first reflecting cylinder 33 is between the first chamber 12 and the first light source 31, and the second reflecting cylinder 34 is between the second chamber 13 and the second light source 32; the first reflecting cylinder 33 and the second reflecting cylinder 34 are configured to reflect light illuminated thereon toward the substrate cassette 2 and substrates in the substrate cassette 2, that is, the first reflecting cylinder 33 and the second reflecting cylinder 34 are configured to reflect heat transferred onto them toward the substrate cassette 2 and substrates in the substrate cassette 2. Specifically, the first reflecting cylinder 33 is a cylinder-shaped structure closed along a circumferential direction, and is disposed between the first light source 31 and the first chamber 12 in such a way that it surrounds the first light source 31 along a circumferential direction of the first light source 31; the second reflecting cylinder 34 is a cylinder-shaped structure closed along a circumferential direction, and is disposed between the second light source 32 and the second chamber 13 in such a way that it surrounds the second light source 32 along a circumferential direction of the second light source 32; such an arrangement can excellently keep heat generated by the first light source 31 and the second light source 32 confined within the cylinders, so as to increase heat utilization ratio of the first light source 31 and the second light source 32, improve heating efficiency, and at the same time ensure that heating temperature is uniform inside the first reflecting cylinder 33 and the second reflecting cylinder 34, causing substrates in the substrate

cassette 2 to be heated uniformly.

Optionally, the first reflecting cylinder 33 and the second reflecting cylinder 34 abut each other to form an integral whole, on which a first opening 30 is provided at a position corresponding to the substrate transferring opening 11, and the first opening 30 allows substrates to pass therethrough. The first reflecting cylinder 33 and the second reflecting cylinder 34 forming an integral whole by abutment can better maintain heating energy in the cylinders, thereby more effectively improving heat utilization ratio of the first light source 31 and the second light source 32, improving heating efficiency, and at the same time ensuring that heating temperature is uniform inside the first reflecting cylinder 33 and the second reflecting cylinder 34 that form an integral whole by abutment. The first opening 30 corresponds to the substrate transferring opening 11, to facilitate substrates' transferring in to and out of the chamber 1.

In the present embodiment, optionally, by performing polishing and/or surface treatment on inner walls of the first reflecting cylinder 33 and the second reflecting cylinder 34, light illuminated on the inner walls of the first reflecting cylinder 33 and the second reflecting cylinder 34 can be reflected diffusely and/or specularly. Diffuse reflection can make light emitted by the first light source 31 and the second light source 32 in the cylinder to be illuminated uniformly and be reflected uniformly, thereby making heating energy in the cylinder more uniform. Specular reflection can reflect the majority of light emitted by the first light source 31 and the second light source 32 back into the cylinder, thereby reducing loss of heating energy, ensuring uniformity of heat inside the cylinder.

In the present embodiment, the heating assembly 3 further includes a first reflecting plate 35 and a second reflecting plate 36, first reflecting plate 35 covers an end of the first reflecting cylinder 33 distal to the substrate transferring opening 11, and the second reflecting plate 36 covers an end of the second reflecting cylinder 34 distal to the substrate transferring opening 11; the first reflecting plate 35 and the second reflecting plate 36 are configured to reflect light illuminated thereon toward the substrate cassette 2 and substrates in the substrate cassette 2. The arrangement of

the first reflecting plate 35 and the second reflecting plate 36 causes the cylinder formed by abutment of the first reflecting cylinder 33 and the second reflecting cylinder 34 to form a closed space, and under the reflection effect of the first reflecting plate 35 and the second reflecting plate 36, heating energy in the closed space inside the cylinder can be better kept therein, thereby increasing heating utilization ratio of the first light source 31 and the second light source 32, improving heating efficiency, at the same time, reducing interference of an external environment of the chamber 1 with the closed environment in the cylinder, ensuring uniform heating environment in the closed space formed in the cylinder, and further ensuring that substrates in the closed space formed in the cylinder can be heated uniformly.

Optionally, by performing polishing and/or surface treatment on wall surfaces of the first reflecting plate 35 and the second reflecting plate 36 facing each other (that is, an inner wall of the first reflecting plate 35 and an inner wall of the second reflecting plate 36), light illuminated thereon can be reflected diffusely and/or specularly. Diffuse reflection can make light emitted by the first light source 31 and the second light source 32 in the cylinder to be illuminated uniformly and be reflected uniformly, thereby making heating energy in the cylinder more uniform. Specular reflection can reflect the majority of light emitted by the first light source 31 and the second light source 32 back into the cylinder, thereby reducing loss of heating energy, ensuring utilization ratio and uniformity of heat inside the cylinder.

In the present embodiment, optionally, the first reflecting cylinder 33, the second reflecting cylinder 34, the first reflecting plate 35, and the second reflecting plate 36 may be made of stainless steel. Stainless steel has a good conductivity of heat, which means more uniform heat inside the cylinder. Undoubtedly, the first reflecting cylinder 33, the second reflecting cylinder 34, the first reflecting plate 35, and the second reflecting plate 36 may be made of other material as well, such as ceramics.

In the present embodiment, as shown in Fig. 4, the first light source 31 includes a plurality of first line light sources 300, a length of each of the first line light sources 300 lies in a direction parallel to a moving direction of the substrate cassette 2, and the plurality of first line light sources 300 are parallel to each other and arranged

circularly along a circumferential direction of the chamber 1. Similarly, the second light source 32 includes a plurality of second line light sources, a length of each of the second line light sources lies in a direction parallel to the moving direction of the substrate cassette 2, and the plurality of second line light sources are parallel to each other and arranged circularly along the circumferential direction of the chamber 1.

In the present embodiment, as shown in Fig. 4, each of the plurality of first line light sources 300 has an upper end connected to a first conductive ring 331, and a lower end connected to a second conductive ring 332, as such, the plurality of first line light sources 300 are connected in parallel via the first conductive ring 331 and the second conductive ring 332, that is, the first conductive ring 331 and the second conductive ring 332 serve as positive and negative common electrodes of each of the first line light sources 300. The second line light sources have electric connection similar to that of the first line light sources 300, each of the plurality of second line light sources has an upper end connected to a third conductive ring, and a lower end connected to a fourth conductive ring, as such, the plurality of second line light sources are connected in parallel via the third conductive ring and the fourth conductive ring, that is, the third conductive ring and the fourth conductive ring serve as positive and negative common electrodes of each of the second line light sources.

The substrate cassette 2 is able to move in a space surrounded by the first line light sources 300 and the second line light sources. Optionally, in order to enable each of the first light source 31 and the second light source 32 to radiate heat uniformly in a range of 360 degrees, any two adjacent first line light sources 300 are spaced apart by a same distance, and any two adjacent second line light sources are spaced apart by a same distance. With the first light source 31 and the second light source 32 such designed, heating energy and temperature can be kept uniform within the space surrounded by the first line light sources 300 and the second line light sources, so that substrates in the substrate cassette 2 can be heated uniformly.

In the present embodiment, as shown in Figs. 5 and 6, the degassing chamber includes the chamber 1, the substrate cassette 2, a lifting system 5, a reflecting cylinder 7, the first light source 31 and the second light source 32, an upper electric

connection short component 81, an upper electric connection long component 91, a lower electric connection short component 82, and a lower electric connection long component 92. The lower electric connection short component 82 and the lower electric connection long component 92 penetrate the chamber 1 to be electrically connected with positive and negative common electrodes (the third conductive ring and the fourth conductive ring) of the second light source 32, respectively, and are configured to transmit electric signals to the second light source 32 to turn on the second light source 32. The upper electric connection short component 81 and the upper electric connection long component 91 penetrate the chamber 1 to be electrically connect with positive and negative common electrodes (the first conductive ring and the second conductive ring) of the first light source 31, respectively, and are configured to transmit electric signals to the first light source 31 to turn on the first light source 31. With such an arrangement, each of the first light source 31 and the second light source 32 needs only one electric connection short component and one electric connection long component to supply power to all of the first line light sources 300 and the second line light sources, which means simple power supply structure and low cost.

In the present embodiment, as shown in Fig. 6, the first light source 31 also includes an upper cover assembly 311 disposed at an end, distal to the second light source 32, of the first line light sources 300 which are arranged in a surrounding manner; the upper cover assembly 311 includes two upper conductive half-rings, an upper ceramic inner ring and an upper ceramic outer ring. The two upper conductive half-rings are electrically connected to the positive or negative common electrodes of the first light source 31 and the second light source 32, respectively, and the two upper conductive half-rings are electrically connected to each other to realize parallel connection between the first light source 31 and the second light source 32, that is, the two upper conductive half-rings serve as one of the common electrodes of the first light source 31 and one of the common electrodes of the second light source 32, respectively. The upper ceramic inner ring and the upper ceramic outer ring are configured to enclose the two upper conductive half-rings, to insulate them from the

external environment. Since the upper ceramic outer ring and the upper conductive half-rings need to be disassembled first when replacing the first line light sources 300 in the first light source 31, separate arrangement of the two upper conductive half-rings is helpful for disassembly and installation of the first line light sources 300. Also, the upper ceramic outer ring is arranged to have separate parts, that is, the upper ceramic outer ring is divided into multiple parts, which not only helps disassembly of itself, but also facilitates assembly and disassembly of the first line light sources 300 and the upper cover assembly 311.

As shown in Fig. 7, the second light source 32 also includes a lower cover assembly 321 disposed at an end, distal to the first light source 31, of the second line light sources which are arranged in a surrounding manner; the lower cover assembly 321 includes two lower conductive half-rings, a lower ceramic inner ring 301 and a lower ceramic outer ring 302. The two lower conductive half-rings are electrically connected to the negative or positive common electrodes of the first light source 31 and the second light source 32, respectively, and the two lower conductive half-rings are electrically connected to each other to realize parallel connection between the first light source 31 and the second light source 32, that is, the two lower conductive half-rings serve as the other of the common electrodes of the first light source 31 and the other of the common electrodes of the second light source 32, respectively. The lower ceramic inner ring 301 and the lower ceramic outer ring 302 are configured to enclose the two lower conductive half-rings, to insulate them from the external environment. Since the lower ceramic inner ring 301 and the lower conductive half-rings need to be disassembled first when replacing the second line light sources in the second light source 32, separate arrangement of the two lower conductive half-rings is helpful for disassembly and installation of the second line light sources. Also, the lower ceramic inner ring 301 is arranged to have separate parts, that is, the lower ceramic inner ring 301 is divided into multiple parts, which not only helps disassembly of itself, but also facilitates assembly and disassembly of the second line light sources and the lower cover assembly 321.

The upper electric connection short component 81 and the upper electric

connection long component 91 are connected to the upper conductive half-ring and the lower conductive half-ring which are connected to the first light source 31, respectively; so that current flowing through the first line light sources forms a circuit, thereby realizing power supply to the first line light sources. The lower electric connection short component 82 and the lower electric connection long component 92 are connected to the lower conductive half-ring and the upper conductive half-ring which are connected to the second light source 32, respectively; so that current flowing through the second line light sources forms a circuit, thereby realizing power supply to the second line light sources.

The first embodiment has the following beneficial effects: the degassing chamber according to the first embodiment, by providing the first light source and the second light source in the first chamber and the second chamber, respectively, which are divided by the substrate transferring opening as a boundary, can realize that, no matter the substrates in the substrate cassette are in an area above or below the substrate transferring opening, they all can be heated by the light source, thereby ensuring process temperature uniformity of substrates during the degassing process and picking and placing process of substrates, which in turn not only increases quality of degassing process of substrates but also provides cleaner substrates for subsequent processes.

Second embodiment

The present embodiment provides a semiconductor processing device, including the degassing chamber of the first embodiment.

By employing the degassing chamber of the first embodiment, process quality of the semiconductor processing device can be improved.

It should be understood that, the above embodiments are only exemplary embodiments for the purpose of explaining the principle of the present disclosure, and the present disclosure is not limited thereto. For one of ordinary skill in the art, various improvements and modifications may be made without departing from the

spirit and essence of the present disclosure. These improvements and modifications also fall within the protection scope of the present disclosure.

What is claimed is:

1. A degassing chamber, comprising a chamber and a substrate cassette, the chamber having a substrate transferring opening on its sidewall, the substrate transferring opening serving as a path through which one or more substrates are transferred into or out of the chamber; and the substrate cassette being movable along a vertical direction in the chamber, wherein the degassing chamber further comprises a heating assembly disposed in the chamber, the heating assembly comprises a first light source and a second light source, the chamber is divided into a first chamber and a second chamber by the substrate transferring opening as a boundary; the first light source is in the first chamber, the second light source is in the second chamber; and the first light source and the second light source are configured to heat the substrates in the substrate cassette.

2. The degassing chamber according to claim 1, wherein the first light source is disposed at an inner side of a sidewall of the first chamber in such a way that it surrounds the first chamber along a circumferential direction of the first chamber; the second light source is disposed at an inner side of a sidewall of the second chamber in such a way that it surrounds the second chamber along a circumferential direction of the second chamber; and

the substrate cassette is movable in a space surrounded by the first light source and the second light source.

3. The degassing chamber according to claim 2, wherein the first light source comprises a plurality of first line light sources, a length of each of the first line light sources lies in a direction parallel to a moving direction of the substrate cassette; and the plurality of first line light sources are parallel to each other and arranged circularly along a circumferential direction of the chamber; and

the second light source comprises a plurality of second line light sources, a length of each of the second line light sources lies in the direction parallel to the

moving direction of the substrate cassette; and the plurality of second line light sources are parallel to each other and arranged circularly along the circumferential direction of the chamber.

4. The degassing chamber according to claim 3, wherein any adjacent two of the plurality of first line light sources are spaced apart by a same distance; any adjacent two of the plurality of second line light sources are spaced apart by a same distance.

5. The degassing chamber according to any one of claims 1 to 4, wherein the heating assembly further comprises a first reflecting cylinder and a second reflecting cylinder, the first reflecting cylinder is between the first chamber and the first light source; the second reflecting cylinder is between the second chamber and the second light source; and

the first reflecting cylinder and the second reflecting cylinder are configured to reflect light illuminated thereon toward the substrates in the substrate cassette.

6. The degassing chamber according to claim 5, wherein the first reflecting cylinder and the second reflecting cylinder abut each other to form an integral whole, on which a first opening is provided at a position corresponding to the substrate transferring opening, and the first opening allows substrates to pass therethrough.

7. The degassing chamber according to claim 6, wherein the heating assembly further comprises a first reflecting plate and a second reflecting plate, the first reflecting plate covers an end of the first reflecting cylinder distal to the substrate transferring opening, and the second reflecting plate covers an end of the second reflecting cylinder distal to the substrate transferring opening; and

the first reflecting plate and the second reflecting plate are configured to reflect light illuminated thereon toward the substrate cassette.

8. The degassing chamber according to claim 6, wherein inner walls of the first

reflecting cylinder and the second reflecting cylinder are capable of reflecting diffusely and/or specularly light illuminated thereon.

9. The degassing chamber according to claim 7, wherein an inner wall of the first reflecting plate facing inside of the first reflecting cylinder and an inner wall of the second reflecting plate facing inside of the second reflecting cylinder are capable of reflecting diffusely and/or specularly light illuminated thereon.

10. The degassing chamber according to claim 5, wherein the first reflecting cylinder and the second reflecting cylinder are made of stainless steel.

11. The degassing chamber according to claim 7, wherein the first reflecting plate and the second reflecting plate are made of stainless steel.

12. A semiconductor processing device, comprising the degassing chamber according to any one of claims 1 to 11.