

PHOTORESIST STRIPPING METHOD AND SYSTEM FOR

CHIP-ON-WAFER PROCESS

FIELD OF THE INVENTION

The present application relates to the field of semiconductor manufacturing, and in particular to a photoresist stripping method and system for a Chip-On-Wafer process.

BACKGROUND

With the development of Moore's Law and the rise of 2.5D/3D stereoscopic packaging technology, the new Chip-On-Wafer packaging process technology has become an indispensable part of today's advanced packaging. Photoresist stripping refers to a process of removing photoresist on the wafer surface after the photolithography process of semiconductor manufacturing. The main purpose is to remove the photoresist after the defined pattern is completed and reduce photoresist residues, metals and particles on the wafer surface. It is one of the important links in the advanced packaging process, and the photoresist removal effect has a key impact on the product yield.

In the current advanced packaging process, the common photoresist removal processes mainly include soaking photoresist removal process and single-wafer photoresist removal process. The principle is to use the photoresist stripping liquid to react with the photoresist on the wafer, thereby achieving the purpose of photoresist dissolution and removal. The photoresist removal process generally uses the photoresist stripping liquid to remove photoresist and clean the single-wafer for 10 minutes to 20 minutes, or soak for 20 minutes to 30 minutes and then remove photoresist and rinse the single-wafer for 5 minutes to 10 minutes.

The chip height is uncertain, usually ranging from 50 μ m to 800 μ m (or even higher). During the research process, it is found that in the single-wafer photoresist removal process, too high a height will cause the channel formed between chips, resulting in the edge chip being unable to be fully processed, and it is difficult to fully process the entire wafer. And in order to achieve the photoresist removal effect and the

cleaning effect after photoresist removal, the rotation speed of the wafer is generally controlled above 500RPM. Because the rotation speed of the wafer is too high, it is easy to lead to the liquid splashing, and the centrifugal force of the high-speed rotation of the wafer will cause the edge chip to be displaced or even fly out. As shown in FIG.1, it is an effect picture when the rotation speed of the wafer is 600RPM and the single-wafer photoresist removal time is 150s, 300s and 350s respectively. It can be seen from FIG. 1, approximately in a case that the single-wafer photoresist removal time is 350s and the rotation speed is 600RPM, a good photoresist removal effect can be achieved. However, a long photoresist removal time will lead to the reduction of production volume. And when the rotation speed of the wafer is above 500RPM, liquid splashing is likely to occur. The splashed liquid adheres to the inner wall of a chamber and may drip onto the wafer surface and thereby affecting the next process, ultimately leading to a reduction in production yield.

SUMMARY

The embodiments of the present application provide a photoresist stripping method and system for a Chip-On-Wafer process, so as to at least solve the problem that liquid splashing is generated due to the excessively high rotation speed in the prior art, thereby causing the splashed liquid adheres to the inner wall of the chamber and drips onto the wafer surface, which can affect the next process and ultimately lead to the low production yield.

In a first aspect, an embodiment of the present application provides a photoresist stripping method for a Chip-On-Wafer process, comprising:

wetting a wafer to be subjected to photoresist removal;

controlling the rotation speed of the wafer to be within the range of 30RPM to 200RPM, and applying a first preset time of mega-sonic wave to the wetted wafer to remove photoresist.

In some of the embodiments, after controlling the rotation speed of the wafer to be within the range of 30RPM to 200RPM, and applying a first preset time of mega-sonic wave to the wetted wafer to remove photoresist, the method further comprising:

controlling the rotation speed of the wafer to be within the range of 30RPM to 200RPM, and applying a second preset time of mega-sonic cleaning to the wafer.

In some of the embodiments, before controlling the rotation speed of the wafer to be within the range of 30RPM to 200RPM, and applying a second preset time of mega-sonic cleaning to the wafer, the method further comprising: wetting the wafer.

In some of the embodiments, the mega-sonic frequency is between 15MHz and 40MHz.

In some of the embodiments, before controlling the rotation speed of the wafer to be within the range of 30RPM to 200RPM, and applying a first preset time of mega-sonic wave to the wetted wafer to remove the photoresist, the method further comprising:

detecting the total residual amount of the photoresist on the wafer surface;

determining the preset threshold range where the total residual amount of the photoresist is located;

matching the first preset time corresponding to the preset threshold range from a first preset database based on the preset threshold range.

In some of the embodiments, after detecting the total residual amount of the photoresist on the wafer surface, the method further comprising:

when the total residual amount of the photoresist is larger than the preset total residual amount, the wafer is placed in a soaking tank and soaked for a third preset time.

In some of the embodiments, before placing the wafer into a soaking tank and soaked for a third preset time, the method further comprising:

matching the third preset time corresponding to the preset threshold range from a second preset database based on the preset threshold range.

In a second aspect, an embodiment of the present application provides a photoresist stripping system for a Chip-On-Wafer process, comprising:

a wafer holding device, for holding a wafer to be subjected to photoresist removal;

a nozzle, for spraying photoresist stripping liquid to the wafer;

a mega-sonic device, for performing a mega-sonic photoresist removal to the wafer;

a rotation driving device, for driving the wafer holding device and the wafer to rotate;

a controller, for controlling the nozzle to spray the photoresist stripping liquid to wet the wafer, and controlling the rotation driving device to drive the wafer to rotate at a rotation speed of 30RPM to 200RPM, and controlling the mega-sonic device to apply a first preset time of mega-sonic wave to the wetted wafer to remove photoresist.

In the traditional single-wafer photoresist removal method, the photoresist removal and cleaning process must be matched with the high rotation speed of more than 500RPM to ensure the photoresist removal capacity. If the rotation speed is too low, it is difficult to strip and remove the dissolved photoresist, but the high rotation speed and higher chip thickness will cause the liquid splashing in the chamber. However, the photoresist stripping method for the Chip-On-Wafer process of the present application is used to perform the photoresist removal and cleaning, and the photoresist removal and cleaning are carried out at the low rotation speed of 30RPM to 200RPM without liquid splashing. And the mega-sonic photoresist removal and cleaning are adopted, so as to ensure that all chips on the wafer are fully processed.

In the traditional single-wafer photoresist removal method, because the photoresist removal and cleaning process must be matched with a high speed of more than 500RPM to ensure the photoresist removal capacity, the channel between chips may cause the liquid film height of the photoresist removal liquid and cleaning liquid in the non-Nozzle Scan area (i.e., the area where the photoresist stripping liquid is not sprayed) to be less than 300 μ m. When the chip on the wafer is higher than 300 μ m, the

wafer cannot form a liquid film sufficient to cover the entire edge, resulting in the edge chip cannot be fully processed. However, the photoresist stripping method for the Chip-On-Wafer process of the present application is used to perform the photoresist removal and cleaning, during the photoresist removal and cleaning process at a low rotation speed of 30RPM to 200RPM, the liquid film can cover the chips at the wafer edge. And the mega-sonic photoresist removal and cleaning are adopted to ensure that all the chips on the wafer are fully and effectively processed.

In the traditional single-wafer photoresist removal method, because the photoresist removal and cleaning process must be matched with a high rotation speed of more than 500RPM to ensure the photoresist removal capacity, the high rotation speed of more than 500RPM and a higher chip height will cause the chip to be easily displaced or even flying out of the wafer due to the centrifugal force. However, the photoresist stripping method for the Chip-On-Wafer process of the present application is used to perform the photoresist removal and cleaning, and the photoresist removal and cleaning are completed at a low rotation speed of 30RPM to 200RPM, so that the photoresist removal and cleaning processes can both be completed at a relatively low rotation speed, which greatly reduces the risk of this defect.

Details of one or more embodiments of the present application are set forth in the following drawings and description to make other features, objects and advantages of the present application more concise and easier to understand.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings described herein are intended to provide a further understanding of the present application and constitute a part of the present application, and the schematic embodiments of the present application and the description thereof are intended to explain the present application, and do not constitute an undue limitation of the present application. In the drawings:

FIG. 1 is a schematic view of the effect of a single-wafer photoresist removal in the prior art;

FIG. 2 is a flow chart of a photoresist stripping method for a Chip-On-Wafer

process according to an embodiment of the present application;

FIG. 3 is a first schematic view of the effect of using a mega-sonic photoresist stripping according to an embodiment of the present application;

FIG. 4 is a second schematic view of the effect of using a mega-sonic photoresist stripping according to an embodiment of the present application;

FIG. 5 is a third schematic view of the effect of using a mega-sonic photoresist stripping according to an embodiment of the present application;

FIG. 6 is a fourth schematic view of the effect of using a mega-sonic photoresist stripping according to an embodiment of the present application;

FIG. 7 is a structural block diagram of a photoresist stripping system for a Chip-On-Wafer process according to an embodiment of the present application.

PREFERRED EMBODIMENTS OF THE INVENTION

In order to make the objects, technical solutions and advantages of the present application more clearly understood, the present application will be described and explained below with reference to the accompanying drawings and embodiments. It should be understood that the specific embodiments described herein are merely for illustration of the present application, and are not intended to limit the present application. Based on the embodiments provided in the present application, all other embodiments obtained by those of ordinary skill in the art without making creative efforts fall within the scope of protection of the present application. In addition, it is also understood that although the efforts made in such a development process may be complicated and lengthy, for those of ordinary skill in the art related to the disclosure of the present application, some changes in design, manufacture or production based on the technical contents disclosed in the present application are merely conventional technical means, and should not be understood as insufficient disclosure of the present application.

Reference to an “embodiment” in the present application means that a particular feature, structure or characteristic described in connection with the embodiment may

be included in at least one embodiment of the present application. The appearance of the phrase in various places in the specification does not necessarily refer to the same embodiment, nor is it an independent or alternative embodiment that is mutually exclusive from other embodiments. It is explicitly and implicitly understood by those of ordinary skill in the art that the embodiments described in the present application may be combined with other embodiments without conflict.

Unless otherwise defined, technical terms or scientific terms referred to the present application should have the ordinary meanings as understood by those of ordinary skill in the art to which this application belongs. Similar words such as “a”, “an”, “one” and “this” in the present application do not mean a quantitative limitation, and may mean the singular or plural. The terms “comprising”, “including”, “having” and any variations thereof as used in the present application are intended to cover non-exclusive inclusions. For example, a process, method, system, product or apparatus comprising a series of steps or modules (units) is not limited to the listed steps or units, but may further include steps or units not listed, or may further include other steps or units inherent to the process, method, product or apparatus. The terms “connected”, “communicated”, “coupled” and the like used in the present application are not limited to physical connection or mechanical connection, but may include electrical connection, whether direct or indirect. As referred to in the present application, “a plurality” means more than or equal to two. “And/or” describes the association relationship of the association object, indicating that there may be three kinds of relationships, for example, “A and/or B” may indicate that A alone exists, A and B simultaneously exist, and B alone exists. The terms “first”, “second”, “third” and the like referred to in the present application are merely to distinguish similar objects, and do not represent a specific ordering of objects.

An embodiment of the present application provides a photoresist stripping method for a Chip-On-Wafer process, and FIG. 2 is a flow chart of the photoresist stripping method for the Chip-On-Wafer process according to an embodiment of the present application. As shown in FIG. 2, the method includes the following steps:

Step S201: wet a wafer to be subjected to photoresist removal.

In this step, a nozzle can be controlled to spray photoresist stripping liquid to wet

the wafer to be subjected to photoresist removal, so as to facilitate the subsequent removal of the photoresist on the wafer.

It should be noted that the time for wetting the wafer to be subjected to photoresist removal and the flow rate of the photoresist stripping liquid sprayed by the nozzle can be set according to specific process requirements.

Step S202: control a rotation speed of the wafer to be in a range of 30RPM to 200RPM, and apply a first preset time of mega-sonic wave to the wetted wafer to photoresist removal.

FIGS. 3 to 6 show the effect pictures corresponding to the photoresist removal time. Referring to FIGS. 3 and 6, the rotation speed of the wafer in FIGS. 3 and 6 is 150RPM, the time of the mega-sonic photoresist removal in FIG. 3 is 150s, 300s and 350s respectively, and the time of the mega-sonic photoresist removal in FIG. 6 is 62s, 124s and 186s respectively. As can be seen from FIG. 1 and FIG. 3, under the same time, the embodiment of the present application uses a method of mega-sonic photoresist removal combined with a rotation speed of 150RPM, and the photoresist removal effect in 150s and in 300s are better than the photoresist removal effect in the prior art. Besides, as can be seen from FIGS. 3 and 6, the embodiment of the present application can achieve a good photoresist removal effect when the time is 186s and the rotation speed is 150RPM by adopting the method of mega-sonic photoresist removal combined with a rotation speed of 150 RPM. Therefore, in summary, compared with the single-wafer photoresist removal in the prior art, the present embodiment saves the photoresist removal time, and can achieve a good photoresist removal effect while reducing the rotation speed of the wafer.

With continued reference to FIGS. 3 to 5, it can be seen that the rotation speed of the wafer can achieve the photoresist removal of the wafer at 30 RPM, 150 RPM and 200 RPM, and all the photoresist removal effects are better than the photoresist removal effects in the prior art.

When the rotation speed of the wafer is below 30RPM, there will be a problem that the centrifugal force is insufficient, resulting in the inability to throw away the photoresist washed off the wafer through the centrifugal force. Therefore, in order to

achieve the better photoresist removal effect, in this step, by controlling the rotation speed of the wafer to be in the range of 30RPM to 200RPM, and applying a first preset time of mega-sonic wave to the wetted wafer, the photoresist removal below 200RPM can be realized. The problem in the prior art, for example the liquid splashing is generated due to the excessively high rotation speed, thereby the splashed liquid adheres to the inner wall of the chamber and drips onto the wafer surface to affect the next process, finally leading to the low production yield, can be avoided. At the same time, it can also avoid the problem that the chips at the wafer edge flies out due to the displacement caused by centrifugal force due to the excessively high rotation speed.

It should be noted that the first preset time may be set according to specific process requirements. Step 201 and step S202 may be performed simultaneously in no particular order.

The mega-sonic wave in this embodiment may be a Space Alternative Phase Shift (SAPS) Megasonic technology, or may be another Megasonic technology capable of achieving the purpose of the present application. SAPS Megasonic technology refers to the control of the relative motion between the megasonic generator and the wafer in the half waves length range, so as to achieve the uniform distribution of megasonic-energy on the wafer surface, thereby achieving the optimal cleaning effect. In this embodiment, by adopting the above-mentioned SAPS Megasonic technology and combining the low rotation speed of 30RPM to 200RPM to realize the photoresist removal, the effective removal of the photoresist in the range of 30RPM to 200RPM is realized, which not only ensures the effective removal of the photoresist on the wafer, but also avoids the problem of liquid splashing caused by the excessively high rotation speed of the wafer.

In some embodiments, after step S202, the rotation speed of the wafer may also be controlled to be in the range of 30RPM to 200RPM, and the wafer may be applied a second preset time of mega-sonic cleaning. By controlling the rotation speed of the wafer to be in the range of 30RPM to 200RPM, and applying a second preset time of mega-sonic cleaning to the wafer after executing step S202, the cleaning of the wafer after removing the photoresist at less than 200 RPM is realized, and the problem in the prior art, for example the splashing liquid is generated due to the excessively high rotation speed in the wafer cleaning process, causing the splashed liquid to adhere to

the inner wall of the chamber and then drip onto the wafer surface to affect the next process, and ultimately leading to the low production yield, can be avoided. At the same time, in the case of low rotation speed, it is also possible to avoid the problem that the chips at the wafer edge flies out due to the displacement caused by centrifugal force due to the excessively high rotation speed.

Based on the above-described embodiments, in some other embodiments, while controlling the rotation speed of the wafer is in the range of 30RPM to 200RPM, and before applying a second preset time of mega-sonic cleaning to the wafer, the wafer after executing step S202 may also be wetted. The wafer after executing step S202 can be wetted by controlling the nozzle to spray cleaning liquid.

It should be noted that the cleaning liquid may be, but is not limited to, the deionized water or carbon dioxide dissolved water.

In some embodiments, the mega-sonic frequency is between 15MHz and 40MHz. If the mega-sonic frequency is too large or too small, it may lead to the problem of low production yield. Therefore, in order to avoid the problem that the mega-sonic frequency is too large or too small and causes the low production yield, in this embodiment, by controlling the mega-sonic frequency to be 15MHz to 40MHz, it can avoid the problem that the mega-sonic frequency is too large or too small to affect the production yield.

It should be noted that the mega-sonic frequency in the embodiment of the present application can be used for both the photoresist removal process and the cleaning process, and is not specifically limited here.

In some embodiments, by controlling the rotation speed of the wafer to be in the range of 30RPM to 200RPM, and before applying a first preset time of mega-sonic photoresist removal to the wetted wafer, the total residual amount of photoresist on the wafer surface to be subjected to photoresist removal may be further detected; determining a preset threshold range in which the total residual amount of the photoresist is located; a first preset time corresponding to the preset threshold range is matched from a first preset database based on the preset threshold range.

In the present embodiment, by determining a preset threshold range in which the total residual amount of the photoresist is located; the method of the first preset time corresponding to the preset threshold range is matched from the first preset database based on the preset threshold range, the first preset time of the mega-sonic photoresist removal is accurately determined according to the preset threshold range where the total residual amount of the photoresist is located. The adaptive adjustment of the first preset time is realized, and it avoids the problem of incomplete photoresist removal due to too short photoresist removal time under the condition of too much photoresist. At the same time, it also avoids the problem that the process time is increased due to the photoresist removal time is too long when there is too little photoresist.

It should be noted that the first preset database stores a first preset time corresponding to each preset threshold range, and the first preset time corresponding to each preset threshold range is different.

In the present embodiment, the method of determining the total residual amount of the photoresist may be, but is not limited to, photograph the wafer to be subjected to photoresist removal, then measure the size of each residual area based on the photographed photograph and calculate the area of each residual area and the residual photoresist thickness in the corresponding residual area, and finally calculate the total residual amount of the photoresist based on the residual photoresist thickness. In addition to the above-described method, other methods capable of calculating the total residual amount of the photoresist may also be adopted, and the embodiments of the present application are not limited.

In some of the embodiments, after detecting the total residual amount of the photoresist on the wafer surface to be subjected to photoresist removal, the wafer to be subjected to photoresist removal may be put into a soaking tank and soaked for a third preset time in a case that the total residual amount of the photoresist is larger than the preset total residual amount.

In order to facilitate the subsequent photoresist removal, in the present embodiment, in a case that the total residual amount of the photoresist is larger than the preset total residual amount, a clamping mechanism is firstly controlled to put the wafer into the soaking tank and soaked for the third preset time, so as to realize the

preliminary photoresist removal, which is beneficial to improving the efficiency of adopting the subsequent mega-sonic photoresist removal.

Therefore, in some of the embodiments, before controlling the clamping mechanism to put the wafer into the soaking tank and soaked for the third preset time, the third preset time corresponding to the preset threshold range may also be matched from a second preset database based on the preset threshold range. By the method of matching the third preset time corresponding to the preset threshold range from the second preset database based on the preset threshold range, the third preset time for soaking in the soaking tank is accurately determined according to the preset threshold range where the total residual amount of the photoresist is located, and the adaptive adjustment of the third preset time is further realized, so that the efficiency of the subsequent mega-sonic photoresist removal is higher.

In some embodiments, the photoresist stripping method for the Chip-On-Wafer process in the present application can also be used in combination with the photoresist removal method in the prior art, the method is as follows:

Method 1: It can firstly use the existing method for single-wafer photoresist removal to carry out the preliminary photoresist removal, rinsing and drying process of the wafer. In this process, the wafer does not need to be spin-dried; The wafer is then taken out, and the photoresist stripping method for the Chip-On-Wafer process of the present application is then performed, in this process, the photoresist removal and cleaning process use mega-sonic waves and are carried out at a rotation speed of 30RPM to 200RPM.

Method 2: It can firstly use the existing tank to strip and remove the photoresist by soaking; The wafer is then taken out, and the photoresist stripping method for the Chip-On-Wafer process of the present application is then performed. In this process, the photoresist removal and cleaning process use mega-sonic waves and are carried out at a rotation speed of 30RPM to 200RPM.

Method 3: It can firstly use the existing tank to strip and remove the photoresist by soaking; The existing single-wafer photoresist removal method is then preformed, and the photoresist stripping method for the Chip-On-Wafer process of the present

application is then performed. In this process, the photoresist removal and cleaning process use mega-sonic waves and are carried out at a rotation speed of 30RPM to 200RPM.

Through the above methods, the photoresist stripping method for the Chip-On-Wafer process of the present application is to perform the mega-sonic photoresist removal combining with a low rotation speed of 30RPM to 200RPM, which solves the defect of the existing photoresist removal technology, improves the efficiency of the photoresist stripping and improves the stripping quality. And the Megasonic technology is used to preform the photoresist removal and cleaning of the wafer. While improving the photoresist removal and cleaning capabilities and increasing the production capacity at the same time, the low rotation speed advantage of 30RPM to 200RPM of the present application can effectively prevent the liquid splashing, enable the chips on the wafer edge to be fully processed, and prevent the edge chips from being displaced or even flying out of the wafer.

The embodiment of the present application also provides a photoresist stripping system for a Chip-On-Wafer process, and the system is used to implement the above-described embodiments and the preferred embodiments, and the description thereof will not be repeated. The terms “module”, “unit”, “subunit” and the like, as used below, may be combinations of software and/or hardware that implement a predetermined function. Although the systems described in the following embodiments are preferably implemented by the software, the implementations of hardware, or combinations of software and hardware, are also possible and contemplated.

FIG. 7 is a structural block diagram of a photoresist stripping system for a Chip-On-Wafer process according to an embodiment of the present application. As shown in FIG. 7, the system comprises:

a wafer holding device 76, for holding a wafer 75 to be subjected to photoresist removal;

a nozzle 71, disposed above the wafer holding device 76, for spraying photoresist stripping liquid to the wafer 75;

a mega-sonic device 72, for performing a mega-sonic photoresist removal to the wafer 75;

a rotation driving device 73, connected to the wafer holding device 76, for driving the wafer holding device 76 to rotate, thereby driving the wafer 75 to rotate;

a controller 74, electrically connected to the nozzle 71, the mega-sonic device 72 and the rotation driving device 73, for controlling the nozzle 71 to spray the photoresist stripping liquid to wet the wafer 75, and controlling the rotation driving device 73 to drive the wafer 75 to rotate at a rotation speed of 30RPM to 200RPM, and controlling the mega-sonic device 72 to apply a first preset time of mega-sonic wave to the wetted wafer 75 to remove the photoresist.

In the present embodiment, based on the photoresist stripping system for the Chip-On-Wafer process, the photoresist can be removed at less than 200RPM, thereby avoiding the problem in the prior art that splashing liquid is generated due to the excessively high rotation speed of the wafer, and further causing the splashed liquid to adhere to the inner wall of the chamber and drips on the wafer surface to affect the next process, ultimately leading to the low production yield, and improving the production yield.

In some embodiments, the controller 74 is also used to control the rotation driving device 72 to drive the wafer 75 to rotate at a rotation speed of 30RPM to 200RPM, and control the mega-sonic device 72 to apply a second preset time of mega-sonic cleaning to the wafer 75 after photoresist removal.

In some embodiments, the nozzle 71 is also used to spray cleaning liquid to wet and clean the wafer.

In some embodiments, the mega-sonic frequency is between 15MHz and 40MHz.

In some embodiments, the system further comprises: a detector, for detecting the total residual amount of the photoresist on the surface of the wafer 75 to be subjected to photoresist removal; a calculator, for determining a preset threshold range in which the total residual amount of the photoresist is located; a matcher, for matching a first

preset time corresponding to the preset threshold range from a first preset database based on the preset threshold range.

It should be noted that the detector in the present embodiment may be a camera, or may be another conventional hardware apparatus capable of detecting the total residual amount of the photoresist on the wafer surface to be subjected to photoresist removal. The calculator and the matcher in this embodiment may be implemented by software in the controller 74. In some embodiments, the calculator and the matcher may also be hardware apparatus with corresponding functions.

In some embodiments, the system further comprises a clamping mechanism, wherein, the controller is electrically connected to the clamping mechanism, for controlling the clamping mechanism to put the wafer to be subjected to photoresist removal into a soaking tank for soaking for a third preset time in a case that the total residual amount of the photoresist is larger than the preset total residual amount.

In some embodiments, the matcher is used to match a third preset time corresponding to the preset threshold range from a second preset database based on the preset threshold range.

Those skilled in the art will understand that each technical feature of the above-described embodiments can be combined arbitrarily, and all possible combinations of each technical feature of the above-described embodiments have not been described in order to make the description concise. However, as long as there is no contradiction between the combinations of these technical features, the technical features should be considered to be within the scope of the present specification.

The above-described embodiments only express a few embodiments of the present application, and the description thereof is relatively specific and detailed, but should not be construed as limiting the scope of the invention patent. It should be pointed out that for those of ordinary skill in the art, several modifications and improvements can also be made without departing from the concept of the present application, and these modifications and improvements are all within the scope of protection of the present application. Therefore, the scope of protection of this patent application should be subject to the appended claims.

What is claimed is:

1. A photoresist stripping method for a Chip-On-Wafer process, comprising:

wetting a wafer to be subjected to photoresist removal;

controlling the rotation speed of the wafer to be within the range of 30RPM to 200RPM, and applying a first preset time of mega-sonic wave to the wetted wafer to remove photoresist.

2. The photoresist stripping method for the Chip-On-Wafer process according to claim 1, wherein after controlling the rotation speed of the wafer to be within the range of 30RPM to 200RPM and applying a first preset time of mega-sonic wave to the wetted wafer to remove photoresist, the method further comprising:

controlling the rotation speed of the wafer to be within the range of 30RPM to 200RPM, and applying a second preset time of mega-sonic cleaning to the wafer to photoresist removal.

3. The photoresist stripping method for the Chip-On-Wafer process according to claim 2, wherein before controlling the rotation speed of the wafer to be within the range of 30RPM to 200RPM and applying a second preset time of mega-sonic cleaning to the wafer, the method further comprising:

wetting the wafer.

4. The photoresist stripping method for the Chip-On-Wafer process according to claim 1 or 2, wherein the mega-sonic frequency is 15MHz to 40MHz.

5. The photoresist stripping method for the Chip-On-Wafer process according to claim 1, wherein before controlling the rotation speed of the wafer to be within the range of 30RPM to 200RPM and applying a first preset time of mega-sonic wave to the wetted wafer to remove photoresist, the method further comprising:

detecting the total residual amount of the photoresist on the wafer surface;

determining the preset threshold range where the total residual amount of the photoresist is located;

matching the first preset time corresponding to the preset threshold range from a first preset database based on the preset threshold range.

6. The photoresist stripping method for the Chip-On-Wafer process according to claim 5, wherein after detecting the total residual amount of the photoresist on the wafer surface, the method further comprising:

when the total residual amount of the photoresist is larger than the preset total residual amount, the wafer is placed into a soaking tank and soaked for a third preset time.

7. The photoresist stripping method for the Chip-On-Wafer process according to claim 6, wherein before placing the wafer into a soaking tank and soaked for a third preset time, the method further comprising:

matching the third preset time corresponding to the preset threshold range from a second preset database based on the preset threshold range.

8. A photoresist stripping system for a Chip-On-Wafer process, comprising:

a wafer holding device, for holding a wafer to be subjected to photoresist removal;

a nozzle, for spraying photoresist stripping liquid to the wafer;

a mega-sonic device, for performing a mega-sonic photoresist removal to the wafer;

a rotation driving device, for driving the wafer holding device and the wafer to rotate;

a controller, for controlling the nozzle to spray the photoresist stripping liquid to wet the wafer, and controlling the rotation driving device to drive the wafer to rotate at a rotation speed of 30RPM to 200RPM, and controlling the mega-sonic device to

applying a first preset time of mega-sonic wave to the wetted wafer to remove the photoresist.

9. The photoresist stripping system for the Chip-On-Wafer process according to claim 8, wherein the controller is further used to control the rotation driving device to drive the wafer to rotate at a rotation speed of 30RPM to 200RPM, and control the mega-sonic device to apply a second preset time of mega-sonic cleaning to the wafer after photoresist removal.

10. The photoresist stripping system for the Chip-On-Wafer process according to claim 8, wherein the nozzle is further used to spray cleaning liquid to wet and clean the wafer.