CLAIMS

【Claim 1】

A laser reflow apparatus comprising:

a laser pressurization head module configured to bond a plurality of electronic components to a substrate by irradiating a laser beam through a transmissive pressurization member to a bonding object including the plurality of electronic components arranged on the substrate while simultaneously pressing the plurality of electronic components with the transmissive pressurization member; and

a bonding object transfer module configured to transport the bonding object imported from one side of the laser pressurization head module to the other side after a reflow process by the laser pressurization head module,

wherein the laser pressurization head module comprises:

a holder unit for replaceably mounting the transmissive pressurization member; and

a probe unit, provided over the holder unit, for checking the flatness of the transmissive pressurization member mounted on the holder unit.

【Claim 2】

The laser reflow apparatus of claim 1,

wherein the laser beam is a square laser beam homogenized by a beam shaper.

【Claim 3】

The laser reflow apparatus of claim 1,

wherein the laser beams irradiated from two or more laser modules are superposed.

【Claim 4】

The laser reflow apparatus of claim 1,

wherein the holder unit comprises a base plate having a perforation formed in the center so that the transmissive pressurization member can be inserted and settled.

【Claim 5】

The laser reflow apparatus of claim 1,

the transmissive pressurizing member is selected from a group consisting of quartz, sapphire, fused silica glass and diamond.

【Claim 6】

The laser reflow apparatus of claim 4,

wherein the holder unit further comprises a mask plate having a perforation formed in the center so that the laser beam can pass through, the mask plate being coupled to the top of the base plate with the transmissive pressurization member being settled in the base plate.

【Claim 7】

The laser reflow apparatus of claim 6,

wherein the perforation of the mask plate has a rectangular shape having an area greater than or equal to the pressurization area of the transmissive pressurization member.

【Claim 8】

The laser reflow apparatus of claim 4,

wherein the bottom surface of the base plate has a moderately rounded shape on the left and right edges.

【Claim 9】

The laser reflow apparatus of claim 4 further comprises:

a flatness adjustment means for adjusting the flatness of the transmissive pressurization member by finely moving the corner of the base plate in the vertical direction, the flatness adjustment means being located at each corner of the base plate.

【Claim 10】

The laser reflow apparatus of claim 9,

wherein the flatness adjustment means comprises:

a pressing bracket installed at each corner of the holder unit and the transmissive pressurization member; and

a vertical driving unit, installed on one side of the pressing bracket, for transporting the pressing bracket in a vertical direction.

【Claim 11】

The laser reflow apparatus of claim 10,

wherein the vertical driving unit comprises:

a ball screws and a motor for the vertical transport of the pressing bracket; and

a guide member for guiding the linear movement of the pressing bracket.

【Claim 12】

The laser reflow apparatus of claim 1,

wherein the probe unit comprises:

a probe for measuring flatness by stabbing at least one point on the upper surface of the transmissive pressurization member;

a moving means for moving the probe horizontally or vertically; and

a probe bracket for fixing the probe and the moving means.

【Claim 13】

The laser reflow apparatus of claim 12,

wherein the probe is configured to probe four or more positions including each corner point of the rectangular-shaped upper surface of the transmissive pressurization member.

【Claim 14】

The laser reflow apparatus of claim 1 further comprising:

a protective film configured to prevent fumes generated during the laser bonding process from adhering to the bottom surface of the transmissive pressurization member, the protective film being provided in the base part of the transmissive pressurization member.

【Claim 15】

The laser reflow apparatus of claim 14,

wherein the protective film is made from a polytetrafluoroethylene resin (PTFE) or a perfluoroalkoxy resin (PFA).

【Claim 16】

The laser reflow apparatus of claim 14,

wherein the protective film is supplied by a protective film transfer member of a reel-to-reel type for transporting the protective film wound in the form of a roll to one side while releasing it.