CLAIMS

[Claim 1]

An ultrasonic inspection device for inspection of a packaged semiconductor device, comprising:

an ultrasonic transducer disposed to face the semiconductor device;

a medium holding unit configured to be provided at an end of the ultrasonic transducer facing the semiconductor device and hold a medium through which ultrasonic waves are propagated;

a stage configured to move a position of the semiconductor device relative to the ultrasonic transducer; and

an analysis unit configured to analyze a reaction of the semiconductor device in accordance with an input of the ultrasonic waves from the ultrasonic transducer,

wherein the medium holding unit is configured to receive a supply of the medium so as to rise above the medium holding unit by surface friction such that a raised portion of the medium is brought into contact with an inspection surface of the semiconductor device.

[Claim 2]

The ultrasonic inspection device according to claim 1, wherein the medium holding unit is configured by a tubular member provided at the end of the ultrasonic transducer.

[Claim 3]

The ultrasonic inspection device according to claim 1 or 2, wherein the medium holding unit is slidably fitted to the end of the ultrasonic transducer.

[Claim 4]

The ultrasonic inspection device according to any one of claims 1 to 3, wherein the medium holding unit has a medium flow port configured to adjust a holding amount of the medium.

[Claim 5]

The ultrasonic inspection device according to any one of claims 1 to 4, wherein the medium holding unit has a holding amount detection unit configured to detect a holding amount of the medium.

[Claim 6]

The ultrasonic inspection device according to any one of claims 1 to 5, further comprising:

a power supply device configured to apply a constant voltage or a constant current to the semiconductor device, and

a reaction detection unit configured to detect a current or a voltage of the semiconductor device in accordance with input of the ultrasonic waves in a state in which the constant voltage or the constant current is applied,

wherein the analysis unit generates an analysis image on the basis of a detection signal from the reaction detection unit.

[Claim 7]

The ultrasonic inspection device according to claim 6, further comprising a signal generation unit configured to input a driving signal to the ultrasonic transducer and output a reference signal corresponding to the driving signal,

wherein the analysis unit generates the analysis image on the basis of the detection signal and the reference signal.

[Claim 8]

The ultrasonic inspection device according to claim 6 or 7, further comprising a reflection detection unit configured to detect reflected waves of the ultrasonic waves reflected by the semiconductor device,

wherein the analysis unit generates a reflection image on the basis of a detection signal from the reflection detection unit.

[Claim 9]

The ultrasonic inspection device according to claim 8, wherein the analysis unit generates a superimposed image in which the analysis image and the reflection image are superimposed.