

CLAIMS

1. An optical measurement method for performing optical measurement for a semiconductor device, the method comprising:

reading mask data indicating a mask layout of the semiconductor device;

searching for a position of a transistor in the semiconductor device on the basis of polygon data indicating a pattern and arrangement of a gate layer in the semiconductor device, the polygon data being included in the mask data;

setting the searched position of the transistor searched in the search step as an optical measurement target position; and

performing the optical measurement for the set optical measurement target position to acquire a measurement result.

2. The optical measurement method according to claim 1,

wherein, in the searching, a position of a transistor with a relatively high driving capability in the semiconductor device is searched as the position of the transistor.

3. The optical measurement method according to claim 1,

wherein, in the searching, a position corresponding to a pattern of a gate layer with a relatively small gate length is extracted as a candidate of the position of the transistor from the polygon data.

4. The optical measurement method according to claim 2,

wherein, in the searching, the position of the transistor with the relatively high driving capability is searched from the polygon data on the basis of the number of patterns of gate layers connected to each other.

5. The optical measurement method according to claim 1,
wherein, in the optical measurement, waveform data of light
intensity is acquired as the measurement result.

6. The optical measurement method according to claim 1,
5 wherein, in the optical measurement, light is emitted to the
optical measurement target position in the semiconductor device to
which a test signal has been input and reflected light from the optical
measurement target position in the semiconductor device is measured.

7. The optical measurement method according to claim 1,
10 wherein, in the optical measurement, light emission from the
optical measurement target position in the semiconductor device to
which a test signal has been input is measured.

8. An optical measurement apparatus performing optical
measurement for a semiconductor device, the apparatus comprising:

15 a light detector configured to detect light from the
semiconductor device to which a test signal has been input;

an optical system for guiding light from the semiconductor
device to the light detector; and

a control device being electrically connected to the light
20 detector,

wherein the control device is configured to:

read mask data indicating a mask layout of the semiconductor
device;

search for a position of a transistor in the semiconductor device
25 on the basis of polygon data indicating a pattern and arrangement of a
gate layer in the semiconductor device, the polygon data being included

in the mask data;

set the transistor searched by the search means as an optical measurement target position; and

perform the optical measurement for the set optical measurement target position to acquire a measurement result.

9. The optical measurement apparatus according to claim 8, wherein the control device searches for a position of a transistor with a relatively high driving capability in the semiconductor device as the position of the transistor.

10. The optical measurement apparatus according to claim 8, wherein the control device extracts a position corresponding to a pattern of a gate layer with a relatively small gate length as a candidate of the position of the transistor from the polygon data.

11. The optical measurement apparatus according to claim 9, wherein the control device searches for the position of the transistor with the relatively high driving capability from the polygon data on the basis of the number of patterns of gate layers connected to each other.

12. The optical measurement apparatus according to claim 8, wherein the control device acquires waveform data of light intensity as the measurement result.

13. The optical measurement apparatus according to claim 8, further comprising:

a light source configured to emit light; and

an optical scanning unit configured to scan the semiconductor device with the light emitted from the light source,

wherein the control device controls the optical scanning unit such that light is emitted to the optical measurement target position in the semiconductor device and measures reflected light from the optical measurement target position in the semiconductor device.

5 14. The optical measurement apparatus according to claim 8,
 wherein the control device measures light emission from the optical measurement target position in the semiconductor device.

15. A non-transitory computer-readable medium on which an optical measurement program is stored, the optical measurement program,
10 when executed by a computer, causes the computer to perform steps of:
 reading mask data indicating a mask layout of a semiconductor device;

 searching for a position of a transistor in the semiconductor device on the basis of polygon data indicating a pattern and arrangement
15 of a gate layer in the semiconductor device, the polygon data being included in the mask data;

 setting the position of the transistor searched by the search means as an optical measurement target position; and

 performing optical measurement for the set optical measurement
20 target position to acquire a measurement result.