

CLAIMS

1. A method for inspection of multiple features of patterned objects in the
5 manufacture of electrical circuits, the method comprising:
performing defect detection on said patterned object, employing an
optical defect detection machine (ODDM); and
employing said ODDM to output at least one of spatial coordinates and
physical attributes of at least some of said multiple features.
- 10 2. A method for inspection of multiple features of patterned objects in the
manufacture of electrical circuits according to claim 1 and wherein said ODDM
comprises a PCB inspection machine.
- 15 3. A method for inspection of multiple features of patterned objects in the
manufacture of electrical circuits according to claim 1 and wherein said ODDM
comprises an automated optical inspection machine for electrical circuits.
4. A method for inspection of multiple features of patterned objects
20 according to any of claims 1 - 3 and wherein said employing said ODDM to output
includes employing at least one of a motion sensor, an accelerometer, a distance sensor,
a 3D sensor and a temperature sensor to increase spatial accuracy of measurement of
said physical attributes.
- 25 5. A method for inspection of multiple features of patterned objects
according to any of claims 1 - 4 and wherein said employing said ODDM to output also
comprises employing a calibration target.
6. A method for inspection of multiple features of patterned objects
30 according to any of the preceding claims and wherein said employing said ODDM to
output comprises employing multiple discrete electromagnetic spectral frequency bands.

7. A method for inspection of multiple features of patterned objects according to claim 6 and wherein said employing said ODDM to output comprises employing multiple, mutually spatially offset images at said multiple discrete electromagnetic spectral frequency bands.

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8. A method for inspection of multiple features of patterned objects according to claim 7 and wherein said employing said ODDM to output comprises employing said multiple, mutually spatially offset images at said multiple discrete electromagnetic spectral frequency bands to study the way three-dimensional changes in patterned objects are visible in a two-dimensional image.

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9. A method for inspection of multiple features of patterned objects according to any of the preceding claims and wherein said employing said ODDM to output also comprises employing a high accuracy measurement sensor to detect a bias in measurements by said ODDM and compensating for said bias in run time.

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10. A method for inspection of multiple features of patterned objects according to any of the preceding claims and wherein said employing said ODDM to output also comprises:

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measuring distortion in measurement of said physical attributes of at least some of said multiple features as a function of the location of at least some of said multiple features in a field of view; and

cropping said field of view to a region having acceptably low distortion.

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11. A method for inspection of multiple features of patterned objects according to claim 10 and wherein said measuring distortion takes place during calibration of said ODDM.

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12. A method for inspection of multiple features of patterned objects according to claim 11 and wherein said measuring distortion, which takes place during calibration of said ODDM, includes compensating by employing calibration tables.

13. A method for inspection of multiple features of patterned objects according to claim 10 and wherein said measuring distortion takes place during run time of said ODDM.

5 14. A method for inspection of multiple features of patterned objects according to any of claims 10 – 13 and wherein said ODDM is operated, when inspecting multiple identical patterned objects, so as not necessarily to measure all of said multiple features of all of said patterned objects in each scan but to ensure that each of said multiple features is measured in at least one scan.

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15. A method for inspection of multiple features of patterned objects according to any of the preceding claims and wherein said ODDM is operated to produce multiple scans at at least two different resolutions.

15 16. A method for inspection of multiple features of patterned objects according to claim 15 and wherein at least one lower resolution is employed for ensuring positional accuracy and at least one higher resolution is employed for said measuring said attributes.

20 17. A method for inspection of multiple features of patterned objects according to any of the preceding claims and also comprising evaluating, in run time, correspondence between said measurements of said physical attributes and reference CAM data for at least some of said physical attributes in order to compensate for distortions attributable to operation of said ODDM.

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18. A method for inspection of multiple features of patterned objects according to claim 17 and also comprising compensating in run time for distortions attributable to operation of said ODDM.

30 19. A system for inspection of multiple features of patterned objects in the manufacture of electrical circuits, the system comprising:

an inspection subsystem operative to detect defects in said patterned object; and

a physical attribute measurement subsystem operative to output measurements of at least one of physical attributes and spatial coordinates of at least
5 some of said multiple features.

20. A system according to claim 19 and also comprising at least one of at least one of a motion sensor, an accelerometer, a distance sensor, a 3D sensor and a temperature sensor.

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21. A system according to claim 19 or claim 20 and also comprising a high accuracy sensor.

22. A system according to any of claims 19 - 21 and also comprising at least
15 one high accuracy encoder.