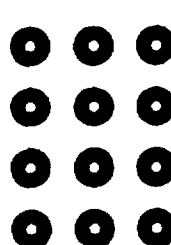
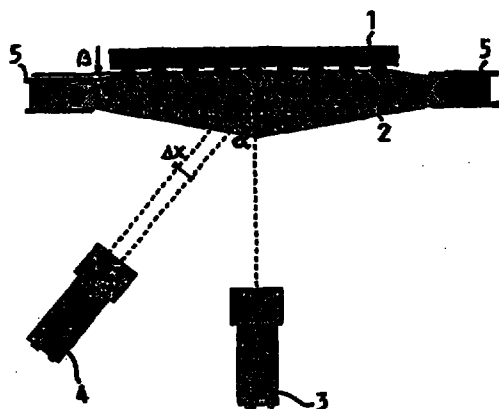




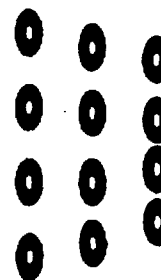
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first image



second image

(57) Abstract

Measuring positions of a set of contact elements of an electronic component. They are illuminated with a light with an incident angle of at the most 20 degrees and first and second images are recorded with first and second cameras which are set up over a triangulation angle with respect to each other. A series of LEDs in rings of 15 cm diameter are used. Coplanarity is verified for a ball grid array (BGA) or with chip scale packaging (CSP) or flip chip devices. Calibration with a glass plate with crosses and subsequent processing of the doughnut shaped images with convolutions.